

COAL MINING RISK ASSESSMENT

[1726] 423 Whitehall Road, Bristol Matthew Halstead





Cert No. 10312

Document History and Status

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Limitations

This report was produced by Soilutions Ltd for Matthew Halstead as the Coal Mining Risk Assessment for the site at 423 Whitehall Road, Bristol to provide a preliminary assessment of potential coal mining related development constraints and to support a planning application.

This report may not be used by any person other than Matthew Halstead and must not be relied upon by any other party without the explicit written permission of Soilutions Ltd. In any event, Soilutions Ltd accepts no liability for any costs, liabilities or losses arising as a result of the use or reliance upon the contents of this report by any person other than Matthew Halstead, or the client if payment in full has not been received.

All parties to this report do not intend any of the terms of the Contracts (Rights of Third Party Act 1999) to apply to this report. Please note that this report does not purport to provide definitive legal advice.

The findings of the risk assessment are based on the Coal Authority report provided in Appendix II and the available published information at the time of the production of the report.







INTRODUCTION



1. INTRODUCTION

1.1 Background

Soilutions were commissioned by Matthew Halstead (the Client) to conduct a Coal Mining Risk Assessment for their site at 423 Whitehall Road, Bristol (the site). The risk assessment is required as the site lies in a Coal Authority Development High Risk Area.

1.2 Objectives and Scope of Work

The objectives of this report are to:

- Carry out a desk-based review of available information on coal mining issues at the site;
- Identify and evaluate the risks posed by coal mining legacy to the proposed development;
- Detail mitigation measures to address the risks posed by coal mining at the site;
- Detail remediation works where necessary;
- Demonstrate to the Local Authority that the site is, or can be made, safe and stable in accordance with the requirements of national planning policy with regard to development on unstable land.

1.3 Proposed Development

It is proposed to redevelop the site into a large house with multiple occupations in 20 bedrooms. A proposed development plan is included in **APPENDIX I.** It is understood that the redevelopment will include the refurbishment of the property and some upward building – no new foundations are proposed.

1.4 Site Description

The site is currently a shop. Historic maps suggest the building was constructed in the 1920s or 1930s. The building is partly two storeys high, with a single storey extension on the eastern side. A further single storey extension is present on the eastern side with a small yard in the north east of the site. Planning records suggest the extension to the east was built in the late 1990s. There is a small paved area at the front of the shop which provides a parking space.

The site is bound by 421 Whitehall Road, a house, to the west, Whitehall Road to the south, Embassy Road to the east and an alleyway to the north.

Vegetation at the site comprises a single young tree on the western boundary.

The topography of the site is generally level. Levels on the Ordnance Survey maps are around 60 m above Ordnance Datum (AOD).

Vehicle access at the site is limited to the parking space at the front and through an opening in the wall along the alleyway to the north.

Numerous telecommunications cables run overhead across the yard in the north east which may restrict access for machinery.

Historically, the surrounding area was occupied by a mix of agricultural fields, houses, quarries and mines. Three brickworks with associated clay pits were present to the north east of the site. Deep Pit coal mine was present 450m to the north east. Whitehall Colliery was present 400m to the south west.



1.5 Geology

1.5.1 Strata

The BGS mapping for the site (Ref 1) indicates that the geology at the site comprises:

Table 1: Table summarising geology on-site.

	Unit Name	BGS Description			
Anthropogenic	N/A	Not shown			
Superficial	N/A	Not shown			
Bedrock	South Wales Middle Coal Measures Formation	Grey, (productive) coal-bearing mudstones/siltstones, with seatearths and minor sandstones.			

The BGS 1:10,000 map for the area shows the Kingswood coal seam at around 480m depth to the east of the site, dipping to the south. A fault, oriented north-south is present between the seam and the site which appears to mean the Kingswood seam is not present beneath the site.





COAL MINING RISKS



2. SITE SPECIFIC COAL MINING RISKS

2.1 Risks

Table 2 summarises the potential risks associated with coal mining for the proposed development. The risks have been identified from the Consultants Coal Mining Report included in Appendix II.

Table 2: Table summarising coal mining risks

Coal Mining Issue	Yes	No	Risk Assessment
Underground coal mining	Х		The Coal Authority Consultants Mining Report for the site indicates that the site is within the zone of influence of two coal seams (Garden Course and Bute Top Leaf) beneath the site at 33 and 561 m depth, last worked in 1900 and 1875. Unrecorded shallow workings are likely at the site.
Mine Entries (Shafts and Adits)		Х	There are no known mine entries within, or within 100m of the site boundary.
Coal mining geology (fissures)		Х	The Coal Authority is not aware of any geological faults or other lines of weakness at the surface as having affected the stability of the site.
Recorded coal mining surface hazard		Х	There are no records of damage notices or claims for the site.
Surface mining (opencast workings)		Х	The site does not lie within the boundary of an opencast site from which coal has been removed by opencast methods.

Where a coal mining risk has been identified in Table 2 it is discussed, both individually and in the context of other issues, in section 3.







MITIGATION STRATEGY



3. Mitigation Strategy

3.1 Issues

3.1.1 Underground Workings

The consultants coal mining report indicates that the following seams have been worked in the vicinity of the site-

Seam Name	Depth	Direction	Dip Angle (°)	Seam	Year Last
	(m)	to Seam	and Direction	Thickness (m)	Worked
Garden Course	33	On Site	12, N	1.20	1900
Five Coal	205	SW	0, E	0.60	1875
Strap Little	371	W	29.3, S	0.76	1875
Graigog	450	W	12.7, SE	0.43	1899
	473	SW	16, S	0.69	1899
Red	482	Ν	21.9, S	0.60	1913
	528	W	28, E	0.60	1881
	529	NE	35.3, SW	0.60	1882
	588	E	20.6, S	0.60	1900
	633	SE	20.9, S	0.60	1923
	639	S	23.2, SW	1.22	1928
Bute Top Leaf	493	Ν	18.8, SE	0.50	1875
	528	W	18.6, SE	0.50	1870
	551	W	18.5, SE	0.60	1870
	561	On Site	18.8, S	0.50	1875
	583	SW	15.2, SE	0.60	1870
Four Feet	497	W	10.2, SE	1.52	1891
	505	W	14.4, SE	1.52	1891
	565	E	23.5, S	1.22	1880
	617	SE	16.4, SW	1.22	1881
	716	S	23.3, SW	1.22	1928

Table 3: Table summarising seams beneath or near site.

The seams below 200m are unlikely to pose a risk to the surface. Borehole records held by the BGS indicate that weathered bedrock deposits are around 2.50m thick 70m south of the site. Intact bedrock deposits were encountered from 2.50m depth. If the Garden Course seam is present at 33.00m depth, a total of 31.50m of intact bedrock overlays it. The seam would have to be 3.15m thick to pose a geotechnical risk to the surface. As records suggest the seam is 1.20m thick there is unlikely to be a risk of subsidence.

The coal mining report indicates that unrecorded shallow workings are likely to be present beneath the site. No outcrops are shown in the immediate vicinity of the site. The Parrot Coal outcrops 490m to the south, however the surrounding geology dips to the south and so the seam is unlikely to be present beneath the site. BGS borehole record ST67SW/111 recorded a 1.40m thick coal seam at 11.0m depth 130m south of the site. The driller's notes state that water entered the hole at 12.30m and states this is due to "possibly old workings". The notes also state easy drilling between 9.60 and 13.50m.

An additional coal seam was identified in borehole ST67SW/111 between 18.00 and 19.30m depth. The logs record a dip of between 30 and 55°, meaning both seams would outcrop between the site and the borehole. The depths of the Hole Coal seam recorded on the BGS maps indicate an 18° dip, which would also result in the seams outcropping between the site and the borehole. These seams are therefore unlikely to pose a risk to the development.

The Consultant's Mining Report identifies a site investigation 33.6m north west of the site. The report was produced by Geoinvestigate for 10 Embassy Road in 2018¹. This has been

¹ Geoinvestigate; Rotary Borehole and UKWIR Site Investigation Report; Proposed Development, 10 Embassy Road, Bristol, BS5 7EB; September 2018



downloaded from the Bristol City Council planning portal along with a Coal Mining Risk Assessment for the same site produced by Hydro Geo in 2018².

The Hydro Geo report identifies a seam beneath the site from the Coal Authority Interactive Viewer. The report states that the seam is at 24.00m depth 30m south of 10 Embassy Road, which would place the recorded depth beneath 423 Whitehall Road. The Geoinvestigate report identifies this seam as the Holmes Vein and that it is 0.90m thick.

No evidence of this seam has been observed on the Coal Authority viewer in the production of this report, so it is not clear where Hydro Geo obtained this information. The Geoinvestigate ground investigation did not record any coal at depths of up to 30.00m.

Geology can change significantly over short distances. The record of a seam directly beneath the site indicates that, while no seam was encountered at 10 Embassy Road, workings may be present beneath the site. If the seam has been worked and a mine working of 2.15m thickness or greater is present, there is a risk of subsidence at the surface posed by the Holmes Vein.

3.2 Mitigation

3.2.1 Underground Workings

Whilst records suggest that the Holmes Vein lies at 24.00m depth beneath the site, the project does not meet the Coal Authority's requirements for an investigation as new foundations are not being laid as part of the redevelopment.

² Hydro Geo, Coal Mining Risk Assessment for a residential development at 10 Embassy Rd, Bristol, January 2018





CONCLUSIONS



4. CONCLUSIONS

4.1 Conclusions

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The coal mining report authored for a site 33m northwest of the Whitehall Road site identified the possibility of a coal seam, the Holmes Vein, at 24.00m depth beneath the site. The seam is around 0.90m thick and may have been worked. The redevelopment does not include the laying of any new foundations and as such does not meet the Coal Authority requirements for a site investigation.







Figures Site Location Plan Site Boundary Plan Proposed Development Plan











APPENDIX II Coal Authority Report





Consultants Coal Mining Report

423, Whitehall Road, Redfield Bristol BS5 7BP

Date of enquiry: Date enquiry received: Issue date: 14 November 2023 14 November 2023 14 November 2023

Our reference: Your reference:

51003389018001 GS-YIS-HKX-TP5-8C6



Consultants Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	GARDEN COURSE	Coal	38P6	33	Beneath Property	12.0	North	120	1900
unnamed	FIVE COAL	Coal	ЗВАК	305	South-West	0.0	East	60	1875
unnamed	STRAP LITTLE	Coal	3BU1	371	West	29.3	South	76	1875
unnamed	GRAIGOG	Coal	3BTF	450	West	12.7	South-East	43	1899
unnamed	GRAIGOG	Coal	3BTG	473	South-West	16.0	South	69	1899
unnamed	RED	Coal	3B9M	482	North	21.9	South	60	1913
unnamed	BUTE TOP LEAF	Coal	3B7X	493	North	18.8	South-East	50	1875
unnamed	FOUR FEET	Coal	3VDB	497	West	10.2	South-East	152	1891
unnamed	FOUR FEET	Coal	3VDE	505	West	14.4	South-East	152	1891
unnamed	RED	Coal	3B9E	528	West	28.0	East	60	1881
unnamed	BUTE TOP LEAF	Coal	3B7W	528	West	18.6	South-East	50	1870
unnamed	RED	Coal	3B9J	529	North-East	35.3	South-West	60	1882
unnamed	BUTE TOP LEAF	Coal	3B75	551	West	18.5	South-East	60	1870
unnamed	BUTE TOP LEAF	Coal	3B82	561	Beneath Property	18.8	South	50	1875
unnamed	FOUR FEET	Coal	3VDF	565	East	23.5	South	122	1880
unnamed	BUTE TOP LEAF	Coal	387Q	583	South-West	15.2	South-East	60	1870
unnamed	RED	Coal	3B9L	588	East	20.6	South	60	1900
unnamed	FOUR FEET	Coal	3VDP	617	South-East	16.4	South-West	122	1881
unnamed	RED	Coal	389K	633	South-East	20.9	South	60	1923
unnamed	RED	Coal	3B9F	639	South-West	0.0	East	60	1873
unnamed	FOUR FEET	Coal	3VDO	716	South	23.3	South-West	122	1928

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

SWR3415	17639	R11831

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

Distance to site investigation (m)	Direction
33.6	North-West

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

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.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

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.

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.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

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 500m of 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.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of 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.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.



Summary of findings

The map highlights any specific surface or subsurface features within or near to the boundary of the site.







Report Limitations

The comments given in the report and the opinion expressed herein are based on the information sourced by the Consultants Coal Mining Report and other published information. Third party information was therefore used in the preparation of this report and Soilutions Limited cannot guarantee the accuracy or completeness of this information.

There may be other sources of information not included in those listed that hold data relevant to this report undertaken at the site that could materially affect the conclusions made. The interpretation of the maps and/or other data commented on in this report is subjective.

The conclusions in this report represent our professional opinion, these conclusions have been drawn up with the greatest care to ensure that all apparent issues were addressed properly in accordance with applicable UK guidance and accepted practice.



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