

EARTH ENVIRONMENTAL  
& GEOTECHNICAL

## Coal Mining Risk Assessment

31 Ashville Road

Ashton

Bristol

For

Norman Associates Ltd

Earth Environmental & Geotechnical Ltd  
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EARTH ENVIRONMENTAL  
& GEOTECHNICAL

**COAL MINING RISK ASSESSMENT**

**31 ASHVILLE ROAD**

**ASHTON**

**BRISTOL**

**FOR**

**NORMAN ASSOCIATES LTD**

Earth Environmental & Geotechnical (Southern) Ltd  
Kingsbury House, Kingsbury Square  
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**Report No. B1224**

**June 2020**

<b>Report Title:</b>	<b>31 Ashville Road, Ashton, Bristol, BS3 2AP Coal Mining Risk Assessment</b>
<b>Report Reference:</b>	<b>B1224</b>
<b>Client:</b>	<b>Norman Associates Ltd</b>
<b>Issue Date:</b>	<b>15<sup>th</sup> June 2020</b>
<b>Drafted By:</b>	<b>Rachael Lockyer</b>
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## 1.0 INTRODUCTION

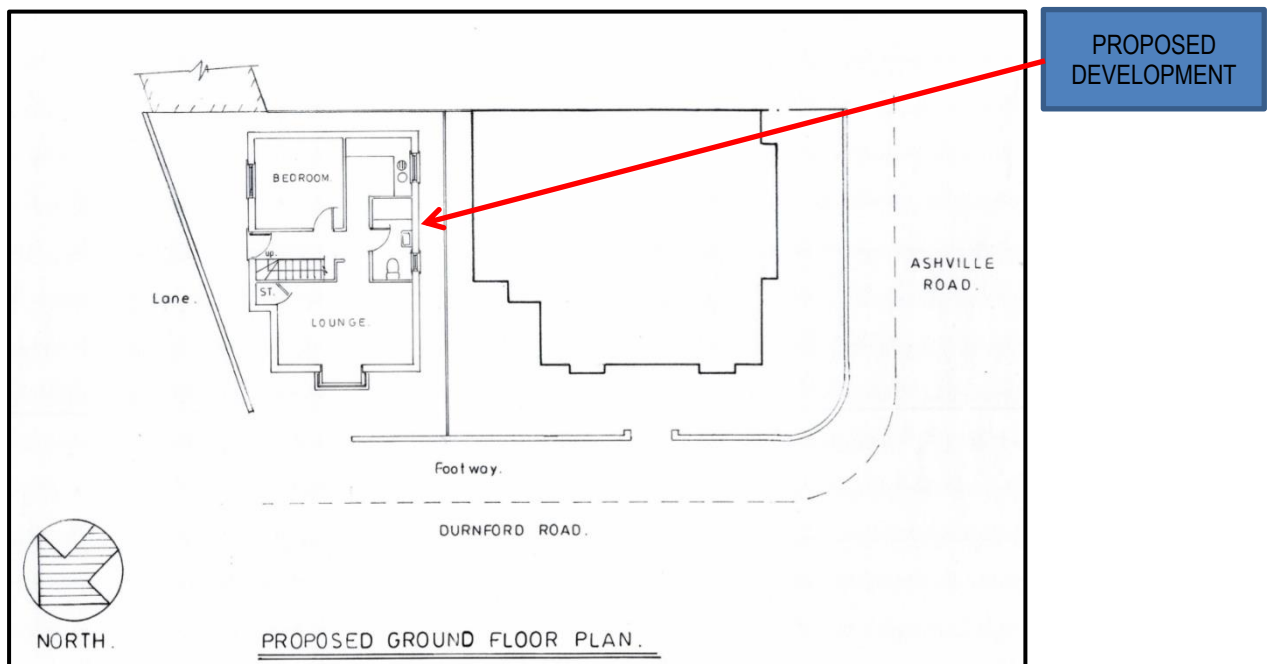
### Appointment

- 1.1 Earth Environmental & Geotechnical (Southern) Ltd (EEGSL) was commissioned by Norman Associates Ltd, to undertake a Coal Mining Risk Assessment for a site off Ashville Road in Ashton, Bristol.
- 1.2 A Coal Mining Risk Assessment is required to assist with the site design process and satisfy planning conditions.

### Proposed Development

- 1.3 It is proposed to construct a new detached bungalow in the courtyard on an existing property. Existing and proposed development layout details are shown in Figure 1 below.

**Figure 1 – Existing & Proposed Development Layout Details**



### Objective

- 1.4 The purpose of the Coal Mining Risk Assessment is to collate available geological, mining, and historical data in order to assess the potential for the site to be affected by underground mining. This report has been drafted in accordance with the Coal Authority Coal Mining Risk Assessment Template, January 2011.

### Sources of Information

- 1.5 The Coal Mining Risk Assessment comprises of a review of the following information sources:
- Online British Geological Survey maps and data.
  - Coal Authority Report reference 51002277529001 dated 9<sup>th</sup> June 2020.
  - Coal Authority Interactive Map Viewer.

- British Geological Survey online borehole records.
- Google Earth imagery.
- Site Investigations in Areas of Mining Subsidence, FG Bell, 1975.
- Environmental Geology Study in the Bristol Area, Howard Humphreys, March 1987.
- The threat of abandoned mines on the stability of urban areas, Barry Clarke, IAEG2006 Paper Number 379, The Geological Society of London, 2006.
- Construction over abandoned mineworkings, CIRIA Special Publication 32, 2002.
- Abandoned Mineworkings, Draft Guidance, CIRIA 758.

## 2.0 SITE LOCATION AND DESCRIPTION

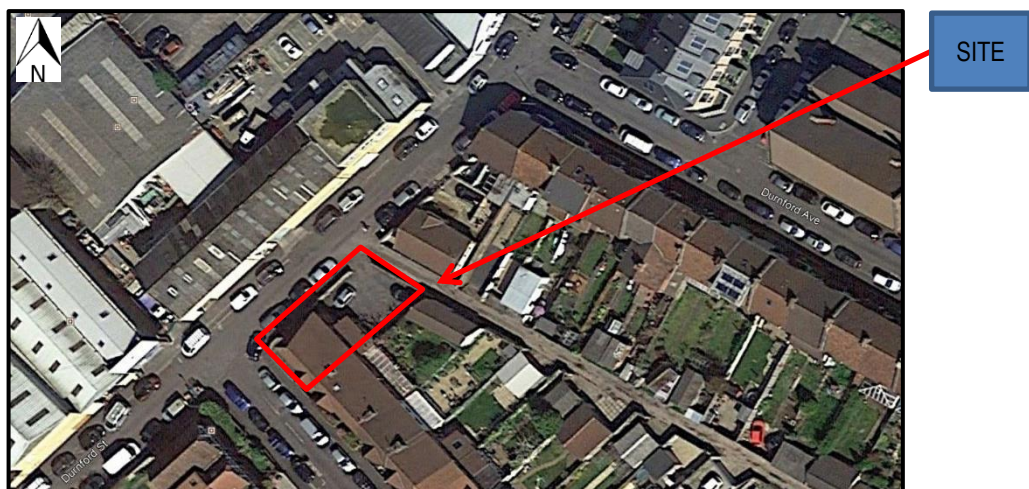
2.1 The site is located to the rear of 31 Ashville Road in Ashton Bristol, immediately south east of Durnford Street at National Grid Reference 357252, 171605 and postcode BS3 2AP. A plan showing the site and surrounding area is shown below as Figure 2.

**Figure 2 - Site Location Plan**



2.2 An aerial photograph of the site and surrounding area is shown in Figure 3, below.

**Figure 3 – Aerial Photograph of Site**



2.3 At the time of writing this report the site was occupied by an existing dwelling and hardstanding area used for car parking. A site photograph is presented in Figure 4, overleaf.



**Figure 4 – General Site Photograph (looking S from Durnford Street)**



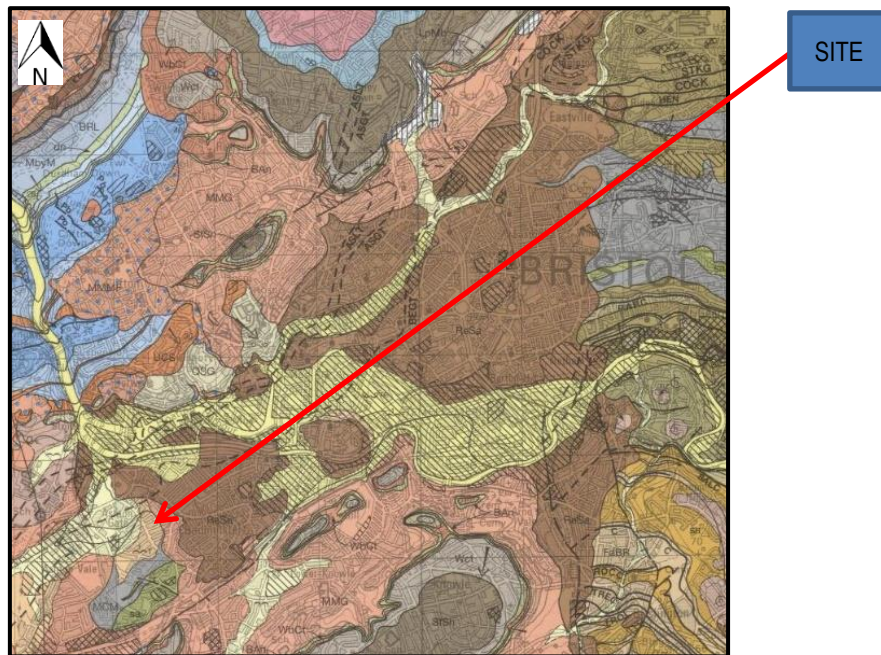


### 3.0 ASSESSMENT OF DATA

#### Geological Information

- 3.1 The geology of the site has been determined from acquisition of geological maps for the area and examination of Coal Authority records.
- 3.2 The British Geological Survey (BGS) indicates the site is underlain by superficial River Terrace Deposits from the quaternary period overlying the Mercia Mudstone Group from the Triassic Period, overlying Cola Measures strata at depth.
- 3.3 The superficial deposits include sand and gravel, locally with lenses of silt, clay or peat.
- 3.4 The Mercia Mudstone is described as dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite widespread; sandstones are also present.
- 3.5 An extract from the BGS map is shown below in Figure 4.

**Figure 4 – Extract From Geological Map**



- 3.6 The closest available BGS historical borehole record with details of stratigraphy is located 180m SW of the site.
- 3.7 The general dip of strata in the area is towards the south.
- 3.8 Details of strata encountered are summarised in Table 1 overleaf.

**Table 1 – Summary of Ground Conditions Encountered in Historical BGS Borehole**

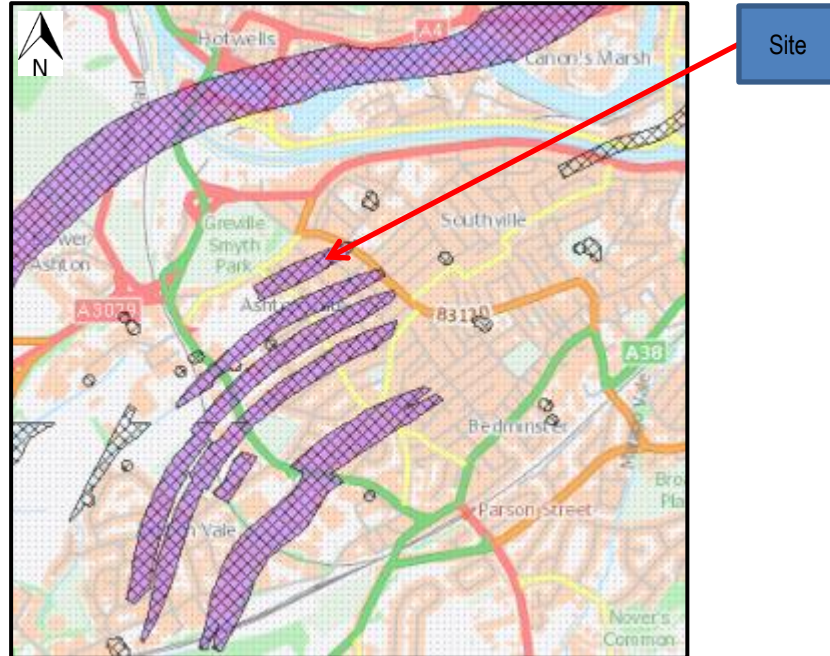
Formation	Depth (m)	Strata
Made Ground	0.00-1.22	Made Ground
Drift Deposits	1.22-10.37	Soft brown CLAY with peat
	10.37-11.90	Soft sandy micaceous MARL
	11.90-14.95	Soft SANDSTONE with pebbles
Mercia Mudstone	14.95-18.00	CONGLOMERATE with sand and pebbles
	18.00-22.88	Red silty MUDSTONE
	22.88-23.49	Micaceous fine grained SANDSTONE
Coal Measures Strata	23.49-24.10	Dark grey shaley MUDSTONE
	24.10-25.62	Complete loss of core – thin COAL and clay
	25.62-28.16	Silty MUDSTONE
	28.16-28.37	COAL with dirt partings
	28.37-28.65	Carbonaceous MUDSTONE
	28.65-29.59	Soft CLAY
	29.59-29.89	Dark grey-black MUDSTONE
	29.89-30.50	COAL with dirt partings
	30.50-32.33	Grey silty MUDSTONE and SILTSTONE
	32.33-33.25	QUARTZITE
	33.25-34.16	Grey silty MUDSTONE
	34.16-34.47	Bituminous MUDSTONE with pyritous coal
	34.47-34.92	FIRECLAY
	34.92-50.63	MUDSTONE interbedded with SANDSTONE, carbonaceous in parts
	50.63-50.94	Bright bituminous COAL
	50.94-53.24	FIRECLAY
	53.24-53.38	SILTSTONE
53.38-53.53	IRONSTONE	
53.53-53.68	FIRECLAY	
53.68-62.98	Interbedded MUDSTONE, SILTSTONE, SANDSTONE	
62.98-64.20	COAL	

### Coal Authority Records

- 3.9 A Coal Authority Mining Report has been acquired for the site and is included in Appendix 1.
- 3.10 The report indicates the site is within a surface area that could be affected by past recorded underground coal mining in 2 seams of coal at 160m to 270m depth and last worked in 1898.
- 3.11 The property is in an area where the coal authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past.
- 3.12 The site is not within an area affected by present or future-planned underground mining.
- 3.13 There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.
- 3.14 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.
- 3.15 The site is not within 200m of present opencast mining or within 800m of any future-planned opencast mining site.
- 3.16 There are no records of subsidence or mine gas emissions on or close to the site.

3.17 Examination of the Coal Authority online interactive map viewer indicates the site is within a Development High Risk Area, associated with probable unrecorded shallow workings. An extract from the interactive map is shown in Figure 5 below.

**Figure 5 – Extract from Coal Authority Interactive Map Showing Site in Development High Risk Area**



## 4.0 COAL MINING RISK ASSESSMENT

### Scope of Coal Mining Risk Assessment

- 4.1 Objectives of the coal mining risk assessment are to provide a desk based assessment of available geological and mining information relating to the site (and wider area) and to use this information so as to identify risks present to the development from the legacy of mining.
- 4.2 As part of the risk assessment potential mitigation measures (if required) should be considered, including any necessary remedial works.
- 4.3 The outcome of the risk assessment should demonstrate to the Local Authority that the proposed development is, or can be made safe (and stable) to meet the requirements of the National Planning Policy Framework (NPPF).

### Data Limitations

- 4.4 It should be appreciated that it did not become a legal requirement to deposit coal mining abandonment plans until the 1870's and that this requirement was not rigorously enforced for some time after. Many shallow coal seams were worked prior to the introduction of first edition Ordnance Survey Maps and information on these workings is often not available. Therefore, if coal seams were accessible then invariably they could have been worked by formal or informal means.
- 4.5 It is also possible that if unrecorded workings are present then unrecorded mine entries may be present.

### Coal Mining Risks

- 4.6 The risks associated with coal mining are as follows:
- Collapse of relict workings beneath buildings causing damage to the building fabric and infrastructure.
  - Migration of mine gases from old mine works and mine entries resulting in build-up of flammable and asphyxiating gases in confined areas.
  - Consolidation of relict workings and overlying strata causing structural defects in building fabric and infrastructure.
  - Failure of mine entries causing loss of ground beneath building and external areas.
  - Spontaneous combustion of old mineworkings

### Summary of Risk

- 4.7 The Coal Authority indicates the site is within a surface area that could be affected by past recorded underground coal mining in 2 coal seams of coal ranging between 160m to 270m depth beneath the property. These workings are considered sufficiently deep enough as to not influence any development at the surface.
- 4.8 The property is in an area where the coal authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings

at or close to the surface should be considered, particularly prior to any site works or future development activity, as ground movement could still be a risk.

- 4.9 According to the Coal Authority's online interactive map, the site is within a Development High Risk Area, associated with probable unrecorded shallow workings.
- 4.10 The table below summarises the potential risks associated with coal mining legacy for the proposed development site, identified from the above sources of information.

**Table 1 - Summary of Potential Risks Associated with Coal Mining Legacy**

Coal Mining Issue	Yes	No	Risk Assessment
Underground coal mining (recorded at shallow depths)		N	Low
Underground coal mining (probable at shallow depths)	Y		Low to Moderate
Mine entries (shafts and adits)		N	Low
Coal mining geology (fissures)		N	Low
Record of past mine gas emissions		N	Low
Recorded coal mining surface hazard		N	Low
Surface mining (opencast workings)		N	Low

### Proposed Mitigation Strategy

- 4.11 The Coal Authority believe there is coal at or close to the surface which might have been worked at some time in the past. The site is also located within a development high risk area, associated with unrecorded shallow depth mineworkings.
- 4.12 As a result, further site investigation work is considered necessary which will require a permit (and fee) from the Coal Authority. The site investigation should allow for a minimum two rotary open holes drilled to a depth of 30m to prove/disprove the presence of shallow depth coal mine workings.
- 4.13 A method statement and risk assessment will need to be supplied to the Coal Authority.

# **APPENDIX 1**

## **COAL AUTHORITY MINING REPORT**





The Coal  
Authority

# CON29M

## coal mining report

31 ASHVILLE ROAD, ASHTON, BRISTOL, BRISTOL CITY, BS3 2AP



### Known or potential coal mining risks

Past underground coal mining	Page 4
Future underground coal mining	Page 4



### 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](http://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. In view of the coal mining circumstances we would recommend that any planned or future development should follow detailed technical advice before beginning work on site. Please see **page 3** for further details on **Future development**.

Your reference: **B1224**  
Our reference: **51002277529001**  
Date: **9 June 2020**

Client name:  
**Simon Leat**

If you require any further assistance please  
contact our experts on:  
**0345 762 6848**  
[groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk)

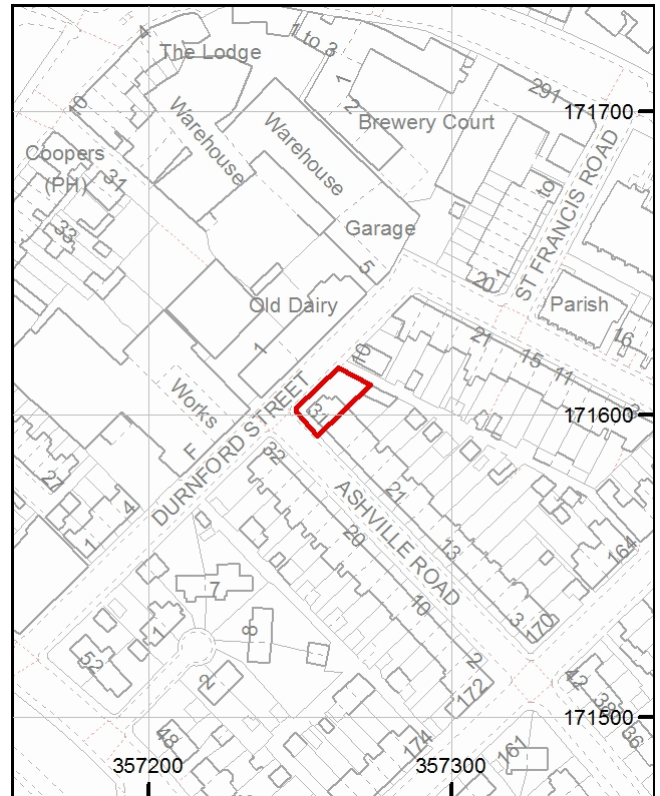


The Law  
Society

# Enquiry boundary

## Key

Approximate position of enquiry boundary shown



We can confirm that the location is  
**on the coalfield**



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Your reference: **B1224**  
Our reference: **51002277529001**  
Date: **9 June 2020**

Client name:  
**Simon Leat**

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

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](mailto: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 in a surface area that could be affected by underground mining in 2 seams of coal at 160m to 270m depth, and last worked in 1898.

Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

In addition the property is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered, particularly prior to any site works or future development activity, as ground movement could still be a risk. Your attention is drawn to the Professional opinion sections of the report.

## 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.



# 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](http://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 **01623 646 333**. Further information can be found on our website: [www.gov.uk/coalauthority](http://www.gov.uk/coalauthority).



On behalf of the insurer

# Coal Mining Report Insurance Policy Schedule

Policy number: 27646249

The insurer: Liberty Legal Indemnities – underwritten by Liberty Mutual Insurance Europe SE

Binding Authority contract number: RNMFP1903841

Property: 31 ASHVILLE ROAD, ASHTON, BRISTOL, BRISTOL CITY, BS3 2AP

Report reference number: 51002277529001

Limit of cover: £50,000.00

Dated: 9 June 2020

This policy and schedule shall be read together and any word or expression to which a specific meaning has been attached in either shall bear such meaning wherever it may appear.

Where a Coal Mining Report has been obtained in connection with a sale of the property, cover is provided for the benefit of a purchaser and their lender; in the case of a re-mortgage or where the existing owner chooses to obtain a Coal Mining Report, cover is provided for the benefit of the owner and their lender.

The policy offers protection against loss sustained by the owner of the property if any new problems or adverse entries are revealed in a subsequent Coal Mining Report which were not revealed by the original report to which the policy was attached.

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# 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

**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

## **APPENDIX 2**

### **REPORT LIMITATIONS**

## **REPORT LIMITATIONS**

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget, and staff resources allocated to the project.

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The report was written in 2020 and should be read in light of any subsequent changes in legislation, statutory requirements, and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.