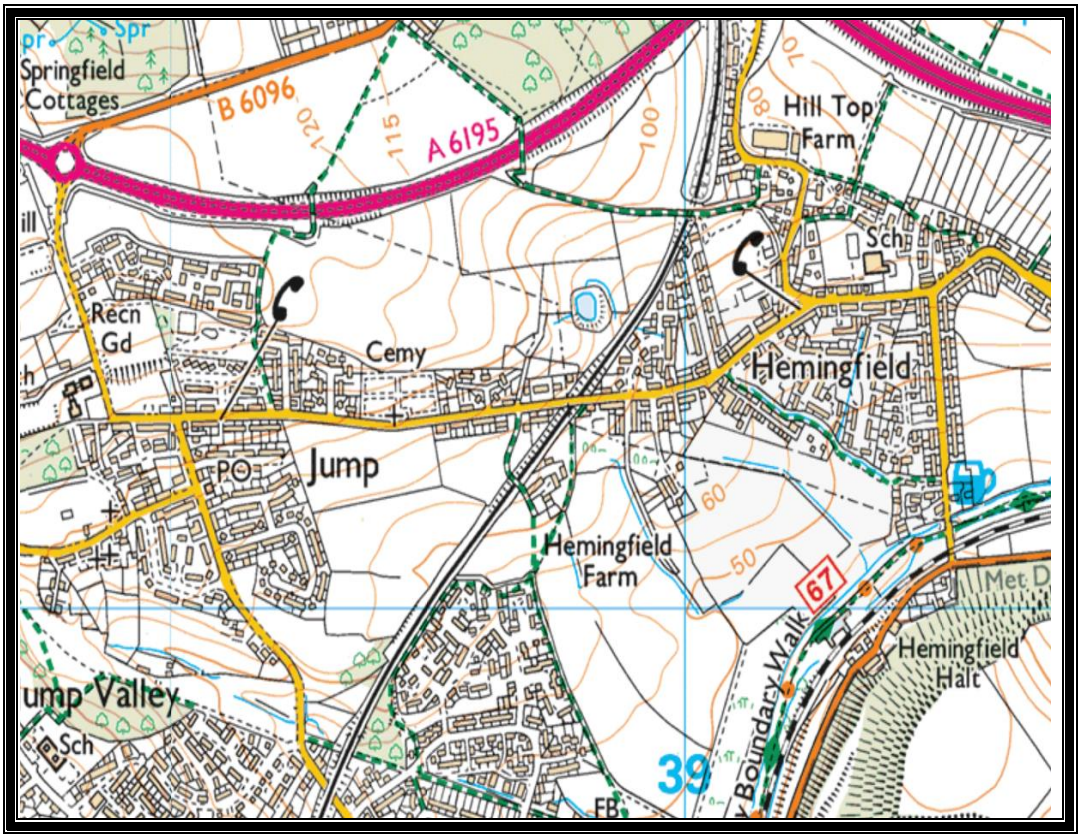
Report No: C706
Date: September 2024

COAL MINING RISK ASSESSMENT
For land at
108 CEMETERY ROAD, HEMINGFIELD, SOUTH YORKSHIRE, BARNSLEY, S73 0QG



Prepared for
Mr David Wroe

Prepared by
G&M Consulting Ltd, The Chestnuts, Brackenhill Road, East Lound, Haxey, Doncaster, DN9 2LR

REPORT NUMBER:	C706	**REPORT STATUS:**	Final
REPORT TYPE:	Coal Mining Risk Assessment		
REPORT DATE:	September 2024		
SITE:	Land at 108 Cemetery Road, Hemingfield, Barnsley, South Yorkshire, S73 0QG		
PREPARED FOR:	Mr David Wroe		
PREPARED BY:	G Swinbourne BSc. (Hons) MSc. DIC, FGS		
REVIEWED BY:	A Swinbourne BSc. (Hons) FGS, MiEnvSc ACIEH		

Introduction

G&M Consulting Ltd (G&M) was instructed by Mr David Wroe to carry out a coal mining risk assessment (CMRA) for land at 108 Cemetery Road, Hemingfield, Barnsley, South Yorkshire

It is understood that a planning application is being prepared for the development of the site for residential purposes.

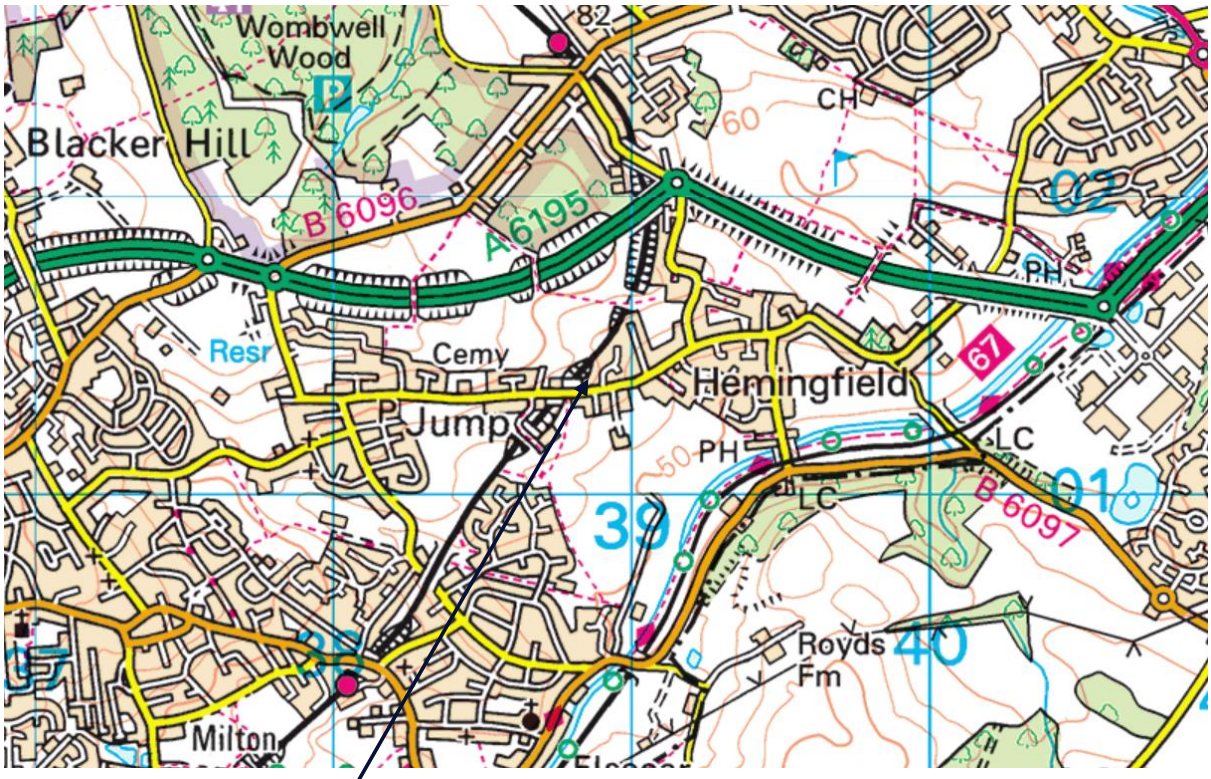
A Coal Mining Risk Assessment is required for the proposals, in order to competently address the mining legacy for the site and determine what impact this may have had upon the land. The assessment is intended to be included as a supporting document to a future planning application to the local authority.

Site Location and Description

The site is on the northern side of Cemetery Road, approximately 7 km south east of Barnsley town centre. The approximate grid reference for the site is SE 388 013

The site is currently the area of garden to the residence at No 108.

The site location is shown below.



The Site **Figure 1**

Scope of the Coal Mining Risk Assessment

This coal mining risk assessment is compiled in accordance with the guidance given in the Coal Authority publication *Risk Based Approach to Development Management Guidance for Developers Version 4 2017 (updated 2021)*.

This publication sets out the scope for a CMRA as follows:

- Present a desk-based review of all available information on coal mining issues which are relevant to the application site;
- Use that information to identify and assess the risks to the proposed development from coal mining legacy, including cumulative impact of issues;
- Set out appropriate mitigation measures to address coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
- Demonstrate to the Local Planning Authority that the application site is, or can be made safe and stable to meet requirements of national planning policy with regard to development on unstable land.

Sources of Information

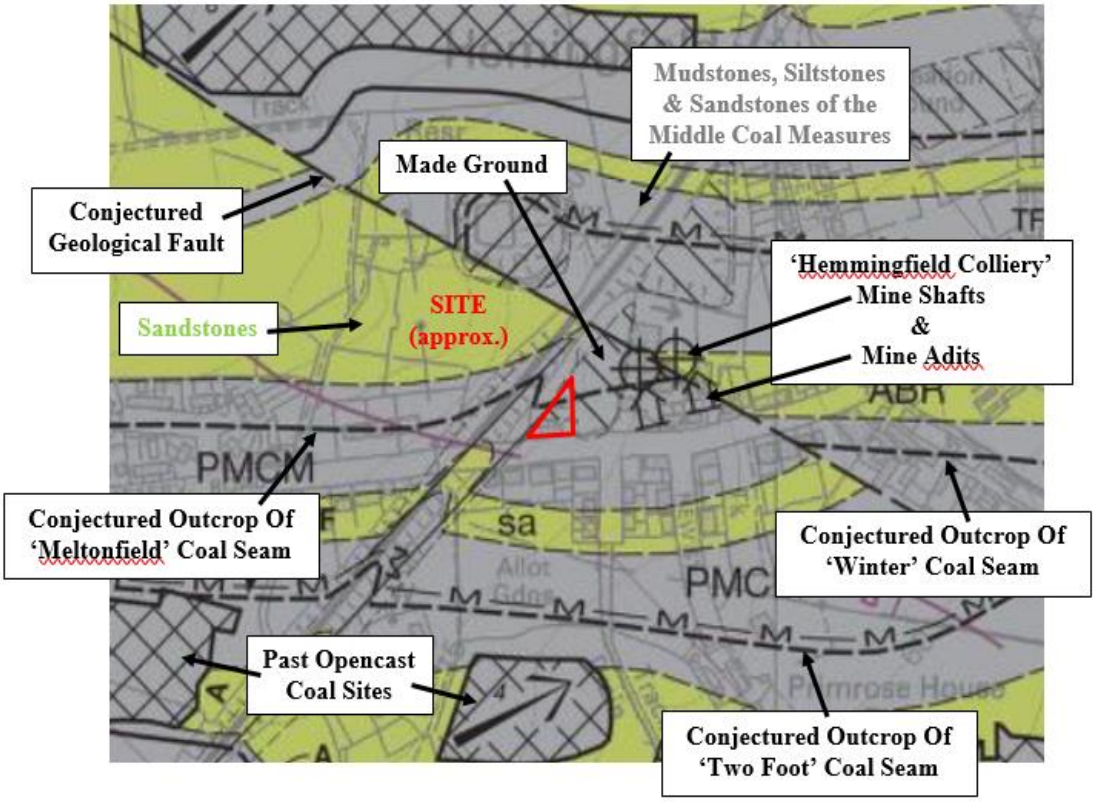
In compiling the CMRA information has been obtain from various sources, including the British Geological Survey (BGS):

- British Geological Survey Map Sheet SE30SE 2005 Edition
- British Geological Survey – Geology Of Britain Viewer
- Coal Authority Interactive Viewer and Mine Abandonment Plans
- Historical Mapping – old-maps.co.uk

Published Geology

Surface Geology (inc. any superficial deposits)

Records indicate the site to be located on mudstones, siltstones and sandstones of the Pennine Middle Coal Measure series from the Carboniferous formation. No superficial deposits are shown in the vicinity of the site, however an area of made ground is shown to be present as detailed below. Strata is shown to dip towards the north-east in this vicinity at around 4° (1 in 14). A summary of the surface geology is illustrated on the image below which is an extract from the BGS SE30SE 2005 Edition:



Fault Planes or Fissures

The 'Barrow' geological fault is conjectured to pass clear of the site some 65m away to the north-east as shown above, which throws the strata down to the south-west. Although no fissuring is known in this vicinity, a slight potential will exist for deep coal mining induced 'opened out' fissures in any sandstone bedrock encountered.

Coal Seam Outcrops

As shown above, the 'Meltonfield' coal seam is conjectured to outcrop through the northern part of the site, with local information indicating a seam thickness in the region of 1.2m. However, it is possible that the operations leading to the made ground, as indicated on the BGS records, may have removed the surface coal. In any case, given the dip of the strata it is unlikely that this coal seam will lie beneath the site at a significant depth.

The 'Two Foot' coal seam is conjectured to outcrop some 130m away to the south as shown, which will dip beneath the site at circa 10m deep. BGS records suggest a seam thickness for this coal as up to 1.45m, however local information suggests that this seam is split into three thin leaves in this vicinity, with two large dirt bands.

The 'Winter' coal seam (also known as the 'Abdy' seam), of around 0.8m thickness, will lie beneath the Two Foot seam by around 15m or more. As such, the Winter seam will therefore be 25m or more beneath the site itself.

Made Ground/Opencast Coal Workings

A small area of made ground is indicated beneath the site as shown on the BGS plan above. The origin of this in unknown, however there may be some potential that the

operations will have removed the surface Meltonfield coal seam at this location. Given the nearby colliery (as detailed below) there will be some potential for colliery spoil being encountered with any such made ground experienced.

No opencast coal operations are known within 50m of the site; the closest are shown on the above BGS plan, over 100m away to the south/south-west which worked the 'Winter' coal seam at the surface in those locations.

Underground Coal Workings - Deep
Deep coal mining (over 30m deep) has taken place beneath the site in various coal seams, all settlement from which will be long complete. As no coalfields now exist, the site should remain stable from the deep coal mining perspective for the foreseeable future.

Underground Coal Workings - Shallow
Given the geological and mining information, it would not be expected that the Meltonfield coal seam will be at a significant enough depth beneath the site to give rise to potential shallow mining issues should there be any unrecorded workings of that coal; if present at all, considering the made ground.

Local information of the Two Foot coal seam suggests little knowledge of any associated underground workings of this coal in the immediate vicinity. This is reflected in the fact that the site is not located in a Coal Authorities area of 'Probable Shallow Coal Workings'.

The Winter coal seam is expected to be at a depth beneath the site which will not pose a stability issue at the surface be it worked or otherwise.

Mine Entries
Two old mine shafts and mine adits are shown over 90m away to the east which were part of the Hemmingfield Colliery of the mid 20th century – as indicated on the BGS plan above. The colliery accessed workings in the Winter coal seam beneath lands on the north-eastern side of the Barrow geological fault. This site should not experience any detrimental effects from those features; however, it should be noted that a slight potential will exist for discovering other mine entries of which there are no records. Grey circular areas of fill material with natural ground would indicate a mine shaft for example.

Fugitive Gases
As far as we are aware, no evidence of coal mining related fugitive gas emissions are known within 250m of the site. However, given the possible shallow coal seam and made ground that could contain colliery spoil, some potential for such ground gases will be present.

Coal Mining Risk Assessment
(based on the above).

Coal Seam / Coal Mining Issue	Risk Assessment (VeryHigh/High/Moderate/Low/VeryLow)
Underground coal mining (at shallow depths)	**Low**
Mine entries (shafts and adits)	**Low**
Geological faulting	**High**
Geological fissures	**Low to Moderate**
Fugitive gas emissions	**Moderate to Low**
Surface mining (opencast workings)	**Low**
Aggressive ground	**Moderate to High**
Coal exposed / near foundation level	**Moderate to High**

Defined Risk Assessment
(Where 'Underground Coal Mining' above = Very High to Moderate)

Extent of known underground mining in this/these shallow coal seam/s in the wider vicinity	(Extensive / Much / Occasional / None Known) **N/A**
Intrusive Site Investigation of Coal Seam / Mines of Coal (given nature of proposals).	(Required / Recommended / Unnecessary)** **N/A**
Advised critical depth beneath foundation/rock-head level to investigate considering geology and nature of the shallow coal/s*	**N/A**

Key:

** The critical depth is calculated according to Ciria C758D guidance which details that for the land to be regarded as stable from any voided mineworkings, then a suitable section of competent rock cover above the workings should be proved that is equal or greater than ten times the 'in-tact' coal seam thickness. The advised critical depth to investigate to in this report takes into account the available geological information, any nearby mining records and may include a contingency for the seam to be of a slightly greater thickness than anticipated. Due care and diligence should be employed on-site to ensure that sound information is gathered of the in-tact seam thickness, particularly if concluding that old workings are outside the critical depth of affecting stability for the proposed development.*

*** Where :*

Required	*Intrusive Site Investigation **required** of the shallow coal/s and/or mine entries to determine any necessary stabilisation works for the given development.*
Recommended	*Intrusive Site investigation **recommended** – given a lower level of risk in relation to the nature of proposed development some proposals may reduce the risk to an acceptable level via suitable design considerations.*
Unnecessary	*Intrusive Site Investigation deemed **unnecessary** – given geological/mining information.*

Coal Authority
Prior written permission from The Coal Authority is required for intrusive activities which will
disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits). Further information on The Coal Authority's permissions process can be found at:
www.coal.gov.uk/services/permissions/index.cfm

CONCLUSIONS

1) The site can be regarded as stable from the **Deep Coal Mining** perspective, and as no coal fields now remain this position should continue for the foreseeable future.
2) Regarding the **Shallow Coal Mining** position, no further works or intrusive investigations would be thought necessary in this instance. A watching brief should be adopted however during future ground/foundation works for any signs of unstable ground/bedrock; the Coal Authority, or suitably qualified geotechnical/mining engineer should be consulted if any such features are encountered. It should be noted that a permit from the Coal Authority would be required to facilitate any investigation of their interests – coal seams and/or mine entries.
3) Subject to a future planning permission the nature of the made ground and/or any shallow coal should be checked and foundations designed accordingly (to the advice of the appointed building control department). Shallow coal should be removed, and foundations sited on firm underlying strata with any exposed coal blinded off to mitigate from spontaneous combustion risks.
4) A watching brief would be prudent during future ground/foundation works for any signs of any opened-out fissures in sandstone bedrock. Foundations may need to be suitably strengthened/redesigned accordingly, and prior ground treatment works may be required in severe instances.

5) Considering the potential shallow coal and/or made ground that may contain colliery spoil material, ground gas mitigation measures (such as a methane membrane for example; which could also address radon issues if required) would be a prudent consideration within any future foundation designs; unless a period of gas monitoring proves that this is not required.
6) Although a low risk, a watching brief should be employed during any future grounds works for any signs of unrecorded mine entries; circular areas of grey fill within natural ground/bedrock would be an indication. If suspected the Coal Authority (as owners) should be notified immediately for appropriate deliberations.

Notes: should there be any uncertainty of actual conditions during future ground works, G&M Consulting or indeed the Coal Authority themselves can be further consulted for on site assessment if necessary. This assessment is base upon the current proposals – further assessments would be required should it change. This assessment does not consider other geo-environmental aspects such as contamination.

A suitably qualified and competent professional should be employed to use this report to determine the conditions on site, and ultimately advise on what action, if any, is necessary to safeguard the development. It should be noted that any future works to investigate any coal seam, mines of coal or associated mine entries will need the prior consent of the Coal Authority via their permitting procedure.