

**Gates Homes
196 Sheffield Road
Birdwell
Barnsley
S70 5TD**

**LYONS CMC
COAL MINING & GEOTECHNICAL
CONSULTANCY**

Web: www.lyonscmc.co.uk

Email: mark@lyonscmc.co.uk

Mob: 07887555580

Date: 3rd December 2025

Your ref: (S70 5TU).

My Ref: CMRA 00437

FOR THE ATTENTION OF RYAN GATES

Dear Ryan,

**COAL MINING RISK ASSESSMENT (CMRA) – FOR PROPOSED RESIDENTIAL
DEVELOPMENT AT SHEFFIELD ROAD, BIRDWELL, BARNSELY S70 5TU**

Introduction

Planning permission is being considered for residential development at the above site, the location of which can be seen on the attached plan No. 00437/A in Appendix 1. The site is centred around national grid reference 434685E / 400485N. 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 Barnsley Council.

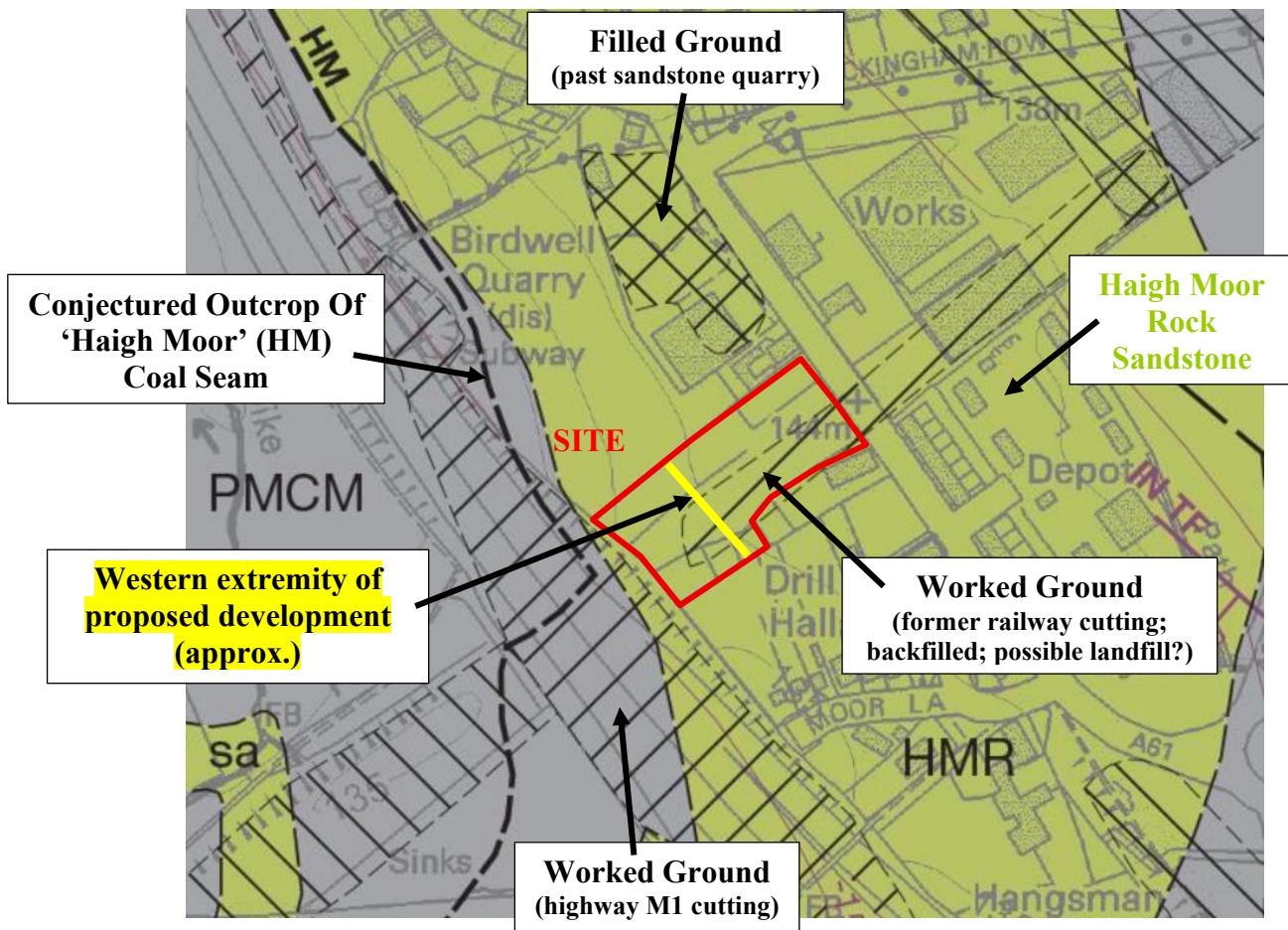
Scope of the Coal Mining Risk Assessment

The purpose of this Coal Mining Risk Assessment Report is to:

- Present a desk-based review of all available information on the 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 the cumulative impact of issues;
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any further works that may be necessary; and
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.
- The report will not consider other geotechnical or geo-environmental issues.

Surface Geology (inc. any superficial deposits)

Records indicate the site to be located on the Haigh Moor Rock Sandstone of the Middle Coal Measure series from the Carboniferous formation. No superficial deposits are known in this vicinity; an area of infilled ground is suspected (possibly classed as a landfill site?), along the line of a former railway cutting which travelled centrally through the site from south-west to north-east. Underlying strata is anticipated to dip gently to the east-north-east 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 Sheet SE30SW 2005 Edition:



Fault Planes or Fissures

No geological faulting is either conjectured or proved to within 200m of the site. No fissuring is known in the vicinity, although a slight potential will exist for such natural features being present within the sandstone bedrock, that could have been 'opened' out by historic deep mining subsidence.

Coal Seam Outcrops

As outlined on the extract image above from the BGS Onshore Interactive Viewer, the 'Haigh Moor' coal seam is conjectured to outcrop just to the west, which would have been encountered within the 'cutting' for the M1 motorway construction, which would have been at the base of the embankment, some 10m lower in elevation than the western proposed development extremity. BGS records show a thickness of the Haigh Moor coal seam as between 1.04m to 2.15m; however, it is likely that the seam is made up of two leaves in relatively close proximity to each other in these parts – the 'Top Haigh Moor' & 'Low Haigh Moor' coal seams. The seam is anticipated to be at its shallowest of around 15m deep at the western extremity of the proposed development, dipping to greater depths further eastwards.

Made Ground

Made ground is shown to be present within the site, associated with a former railway cutting as mentioned above. According to the records this appears to be classified as a landfill operation; the nature and classification of which is uncertain at the current juncture.

Opencast Coal Workings.

No opencast coal operations are known within 100m of the site.

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

There are no known shallow workings associated with the Haigh Moor coal seam in these parts, and given the local mining information it is considered unlikely that any un-recorded historic workings will be present; this specific coal seam appears to have not been exploited in these parts, probably due to poor economic value historically. As such, the shallow mining risks are considered to be low in this instance, which is also reflected in the fact that the site is not shown to be located within a Mining Remediation Authorities area of 'probable shallow coal workings' according to their interactive viewer details.

Mine Entries

There are no mine entries recorded within the site or to within 200m of this site's boundary. As with most sites located in a former coalfield area, some potential is always present for discovering

mine entries of which there are no records, although given the mining and geological information this is considered a low probability in this case. Grey circular areas of fill material within natural ground would be an indication of an old back filled 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. Given the information there will be a slight associated risk given the relatively shallow coal seam along with potentially fissured sandstone bedrock and made ground/landfill that would create a pathway; (it should also be noted that there may be a landfill gas issue to consider). *Note: informative no. 3 in appendix 2.*

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	Low
Geological fissures	Moderate
Fugitive gas emissions	Moderate
Surface mining (opencast workings)	Low
Aggressive ground	High (although not coal related)
Coal exposed / near foundation level	Low

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) None Known
Intrusive Site Investigation of Coal Seam / Mines of Coal (given nature of proposals).	(Required / Recommended / Unnecessary)** Unnecessary
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	<i>Intrusive Site Investigation required of the shallow coal/s and/or mine entries to determine any necessary stabilisation works for the given development.</i>
Recommended	<i>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.</i>
Unnecessary	<i>Intrusive Site Investigation deemed unnecessary – given geological/mining information.</i>

Mining Remediation Authority

Prior written permission from The Mining Remediation (formerly 'Coal') Authority (MRA) 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 MRA's permissions process can be found at: www.coal.gov.uk/services/permissions/index.cfm

Information sources:

- *British Geological Survey Map Sheet SE30SW 2005 Edition*
- *British Geological Survey – Geology Of Britain Viewer*
- *MRA Interactive Viewer and Mine Abandonment Plans*
- *Historical Mapping – old-maps.co.uk*

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) Given the **Shallow Coal Mining** position (low risk), no further associated intrusive investigations of the shallow coal seam/s beneath the site are considered necessary in this instance.
- 3) Although not the scope of this study, it is recommended that checks should be made with the local authorities contaminated land officer as to the nature of the suspected landfill material of the infilled railway cutting within this site. Associated geo-environmental investigations (trial pits and boreholes to natural ground etc) to determine the nature/composition of the material and extent/profile across the development area will most likely be required to fully establish foundation design and surfacing requirements.
- 4) Should future works encounter any opened-out fissures within the sandstone bedrock, the feature/s should be dug out and stabilised via the infill of clean aggregate, and suitably designed/strengthened foundations would be recommended to span the area/s affected.
- 5) Although a low risk, a watching brief should be employed during future grounds works for any signs of unrecorded mine entries. Circular areas of grey fill material within natural ground would be an indication of a mine shaft for example. If suspected the MRA (as owners) should be notified immediately for appropriate deliberations.
- 6) In terms of the fugitive gas risks from either the shallow coal and/or the made ground/landfill, it would seem prudent that a period of gas monitoring is undertaken to fully appreciate the ground gassing regime and determine any required mitigations for safe development. ***Note informative no. 3 in appendix 2.*** All usual safety precautions should be employed regarding possible fugitive gases in any deep excavation work taking place.

Note: should there be any uncertainty of actual conditions during future ground works Lyons CMC or indeed the Mining Remediation Authority themselves can be further consulted for on site assessment if necessary.

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 Mining Remediation Authority via their permitting procedure.

I trust that this satisfies your requirements, however please do not hesitate to contact myself at any time for further clarification or advice.

Yours Sincerely,

M Lyons

M. Lyons
Consultant Mining Engineer
BSc CSci MIMMM

Enc.

THIS COAL MINING RISK ASSESSMENT IS BASED ON AND LIMITED TO THE INFORMATION IN MY RECORD AT THE TIME THE ENQUIRY IS ANSWERED. It is based on my professional opinion in line with the guidelines set out in CIRIA C758D "Abandoned mine workings manual." The opinion may be overruled by Government Authorities decisions based on other information not in my record. If a site investigation is recommended then this risk assessment will be superseded by the factual findings of that investigation. All site investigation work should be carried out by a competent professional from which independent conclusions and recommendations for safe development should be provided. It should be noted that: no operation should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. The investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases; these risks both under and adjacent the site should be fully considered in any proposals both for personnel and public safety. Copyright in this CMRA belongs to M.A.Lyons. All rights are reserved and unauthorised use is prohibited. Copyright is not transferred to external parties by possession of this report, however, those for whom the report is compiled have the right to use it. If any unauthorised third party comes into possession of this report, they rely upon it entirely at their own risk and the author does not owe them any Duty of Care or Skill.

Appendix 1 – Location Plan No. 00437/A

(Not To Scale)

Site centred at NGR:434685E / 400485N



Appendix 2 – Informative(s)

- 1) The relatively recently revised CIRIA C758D document titled ‘Abandoned Mine Workings Manual’, which replaced Special Publication 32 (1984), indicates that the use of empirical or ‘rule of thumb’ guides, as the design basis for treatment depth, has been successfully observed for many years for a wide range of abandoned mine workings and overlying rock/soil strata scenarios. As such, the guidance indicates that further design/ground stabilisation considerations will be required if there is less than 10 times the aggregate measured height of mine workings as competent rock cover above the workings.
- 2) For information, should the grouting of any mine workings be required, a 10:1 PFA/cement mix or similar would need to be injected into the workings and any other disturbed strata above it under pressure on an OS coordinated treatment grid approved by the Coal Authority (and Building Control/third-party Warranty provider as required). Specific proposals to treat any mine workings would need to be submitted in the form of a standalone ‘Specification’, with a separate permit to treat being obtained from the Mining Remediation Authority. The method of consolidation is dependent on the nature of the bedrock strata and the underground mining conditions encountered, although fissile strata, such as shales and mudstone deposits, do permit mining voids to migrate upwards to quite high levels. All grouting works would need to be supervised by a competent engineer, with a final validation report being produced to confirm what works were undertaken and whether they were successful or not.
- 3) Ground gas monitoring can be undertaken to confirm or discount the presence of an elevated gassing regime within the underlying soils. Elevated concentrations of mine gases (e.g. CO₂, CH₄) may be present within the coal seams, mine entries, voids in or above any shallow mine workings, areas of made ground/opencast backfill, and in any permeable bedrock strata (and any organic rich surficial soils). Geological faulting, mine entries and/or fissured bedrock can create pathways for gas migration. The period of monitoring to be undertaken should be broadly completed in accordance with current guidance [BS8485]. Piezometers would need to be installed (during drilling works for example) to facilitate this.