LYONS CMC
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Mr R. Agus
Office One
34 Victoria Road
Barnsley
S70 2BU

Date: 24th September 2024
Your ref: (S71 5PF).
My Ref: CMRA 00374

FOR THE ATTENTION OF MR ROB AGUS & DAVID LUMB

Dear Sir,

COAL MINING RISK ASSESSMENT (CMRA) - FOR PROPOSED RESIDENTIAL DEVELOPMENT AT LAND AT LUND CLOSE, LUNDWOOD, BARNSLEY S71 5PF

Introduction

Planning permission is being sought for residential development at the above named site, the location of which can be seen outlined in red on the attached plan No. 00374/A in Appendix 1. The site is centred around national grid reference 437830E / 407350N. 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 MBC.

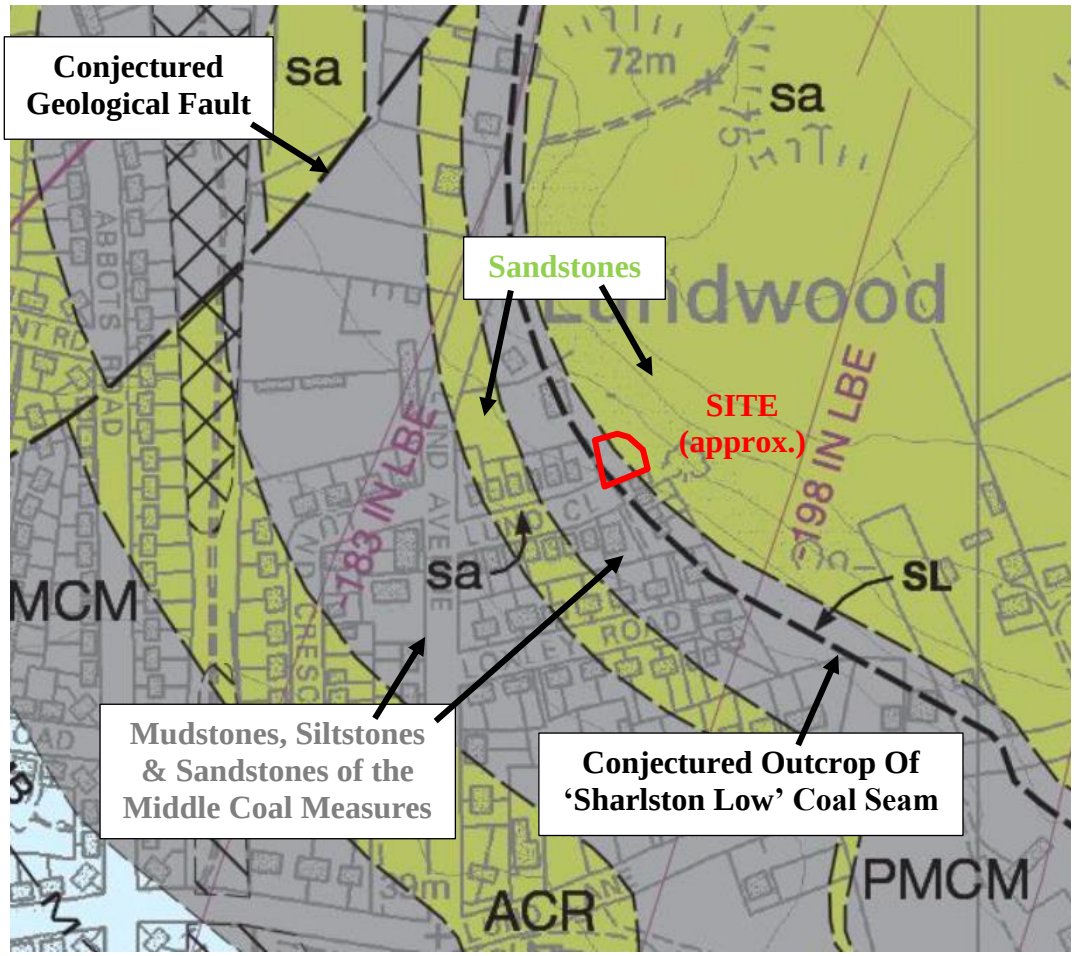
Scope of the Coal Mining Risk Assessment

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 and/or geo-environmental issues.

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. Strata is shown to dip towards the east-south-east in this vicinity at around 6° (1 in 10). 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

A geological fault is conjectured to pass clear of the site some 175m away to the north-west as shown above, which throws the strata down to the north-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 'Sharlston Low' coal seam is conjectured to outcrop along the western boundary of the site, and therefore may be experienced beneath surface soils beneath the site, unless it has been historically removed. BGS records suggest a seam thickness for this coal as between 0.3m to 0.48m. It is unlikely that this coal seam will lie beneath the site at a significant depth.

No other coal seam of a notable thickness is expected at a shallow depth (within 30m) below the Sharlston Low coal seam.

Made Ground / Opencast Coal Workings

No areas of made ground or former opencast coal operations are known in the vicinity of the site. A slight potential will exist for discovering infilled ground associated with small scale historic 'digging out' of the surface coal in this vicinity.

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

Local information of the Sharlston Low coal seam suggests little knowledge of any associated underground workings in the immediate vicinity and given that it is unlikely to be at a significant depth beneath the site, the likelihood of unrecorded mining voids causing a stability issue to the proposals are considered remote.

Mine Entries

No mine entries are known within 250m of the site and given the geological details the likelihood of discovering any such features of which there are no records is considered low.

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, should the coal seam be very close to the surface then some potential for such ground gases will be present. ***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	**Low to Moderate**
Fugitive gas emissions	**Low to Moderate**
Surface mining (opencast workings)	**Low**
Aggressive ground	**Moderate to High**
Coal exposed / near foundation level	**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 rock-head /foundation 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

Information sources:

- *British Geological Survey Map Sheet BGS SE30SE 2005 Edition*
- *British Geological Survey – Geology Of Britain Viewer*
- *Coal Authority Interactive Viewer and Mine Abandonment Plans*
- *Historical Mapping*

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 that the **Shallow Coal Mining** risks are considered low, 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. ***Note: informatives nos. 1 & 2 in appendix 2***. 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 a watching brief should be employed for any shallow coal during future excavations with foundations designed accordingly - to the advice of the appointed building control department. In essence, any 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) In the case of shallow coal being encountered, 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. ***Note: informative no. 3 in appendix 2.***

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.

Note: should there be any uncertainty of actual conditions during future ground works Lyons CMC or indeed the Coal 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 Coal 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. 00374A
(Not To Scale)
Site centred at NGR: 437830E / 407350N

Appendix 2 – Informatives

1) The relatively recently revised CIRIA 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 consideretions 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 Coal 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, voids in or above any shallow mine workings, areas of made ground, and in any permeable bedrock strata (and any organic rich surficial soils). 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.