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Date: 28th October 2026
Your ref: (S75 4RZ).
My Ref: CMRA 00489

FOR THE ATTENTION OF SIMON ELLIOTT

Dear Simon,

COAL MINING RISK ASSESSMENT (CMRA)- FOR PROPOSED DEVELOPMENT AT: LAND OFF PINFOLD LANE, SILKSTONE COMMON, BARNSLEY S75 4RZ

Introduction

Planning permission is being considered for the development of a new animal welfare building at the above site, the location and details of which can be seen on the attached plan No. 00489/A in Appendix 1. The site is centred around national grid reference 429243E / 403442N. 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.

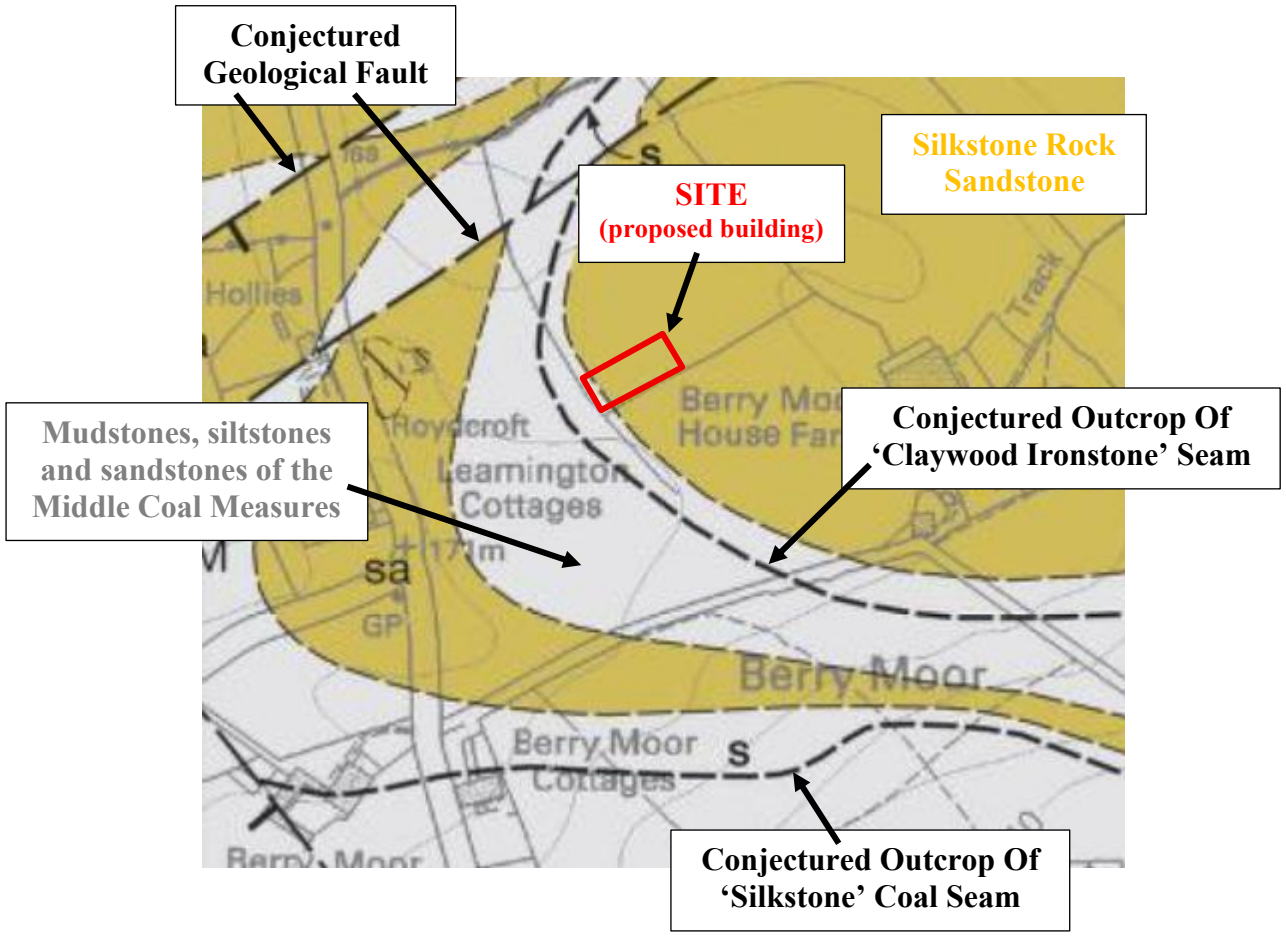
Scope of the Coal Mining Risk Assessment

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 or geo-environmental issues.

Surface Geology (inc. any superficial deposits)

Records indicate the site to be located predominantly on the Silkstone Rock Sandstone of the Middle Coal Measure series from the Carboniferous formation; with mudstones and siltstones possibly beneath the western extremity of the proposed building plot. No superficial deposits are indicated in the vicinity of the site. The strata is shown to dip to the north-east at a rate of around 1 in 14 (4°) in this vicinity. A summary of the surface geology is illustrated on the image below which is an extract from the BGS Sheet SE20SE 2005 Edition:



Fault Planes or Fissures

Geological faulting is conjectured to pass clear of the site by some 90m away to the north-west as indicated above. Although no fissuring of sandstone bedrock is known in this vicinity, there will be some potential for such natural features of which there are no records that may have been 'opened out' to some degree by the past shallow and deep coal mining in the area.

Coal Seam Outcrops

As outlined on the extract image above, the 'Silkstone' coal seam is conjectured to outcrop some 200m away to the south, which will dip beneath the site. This coal seam is locally known to be up to 1.5m thickness and given the details is expected to lie beneath the proposed building footprint at circa 15m at the south-western edge to circa 18m at the north-eastern edge. It should be noted that as this is based on a degree of conjecture the actual position may differ somewhat.

Ironstone Seam Outcrops

As can also be seen on the above image, the 'Claywood Ironstone' seam is conjectured to outcrop some 20m away to the west, which will dip at a shallow depth beneath the site. Little information is available as to the likely thicknesses or nature of this deposit.

Made Ground

BGS records show no made ground beneath the site.

Opencast Coal Workings.

No past opencast coal operations are known within 100m of the site. The closest known site is the 'Silkstone Common Opencast' which was completed in 1991 some 200m away to the north of the site.

Underground Coal Workings - Deep

Deep coal mining (over 30m deep) has taken place in one coal seam (the 'Whinmoor' seam) beneath this site, 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

A review of the Mining Remediation Authorities (MRA) interactive viewer information, reveals that the former 'Berry Moor Colliery' of the early 1900's, worked the Silkstone seam beneath this land (and the site of the proposed building) from the adjacent mine entries (as outlined below under the 'Mine Entries' section). The abandonment plan details a thickness of the Silkstone coal seam as 4ft 10 inches (1.5m); and indicates that historic underground workings of the coal were encountered at that time.

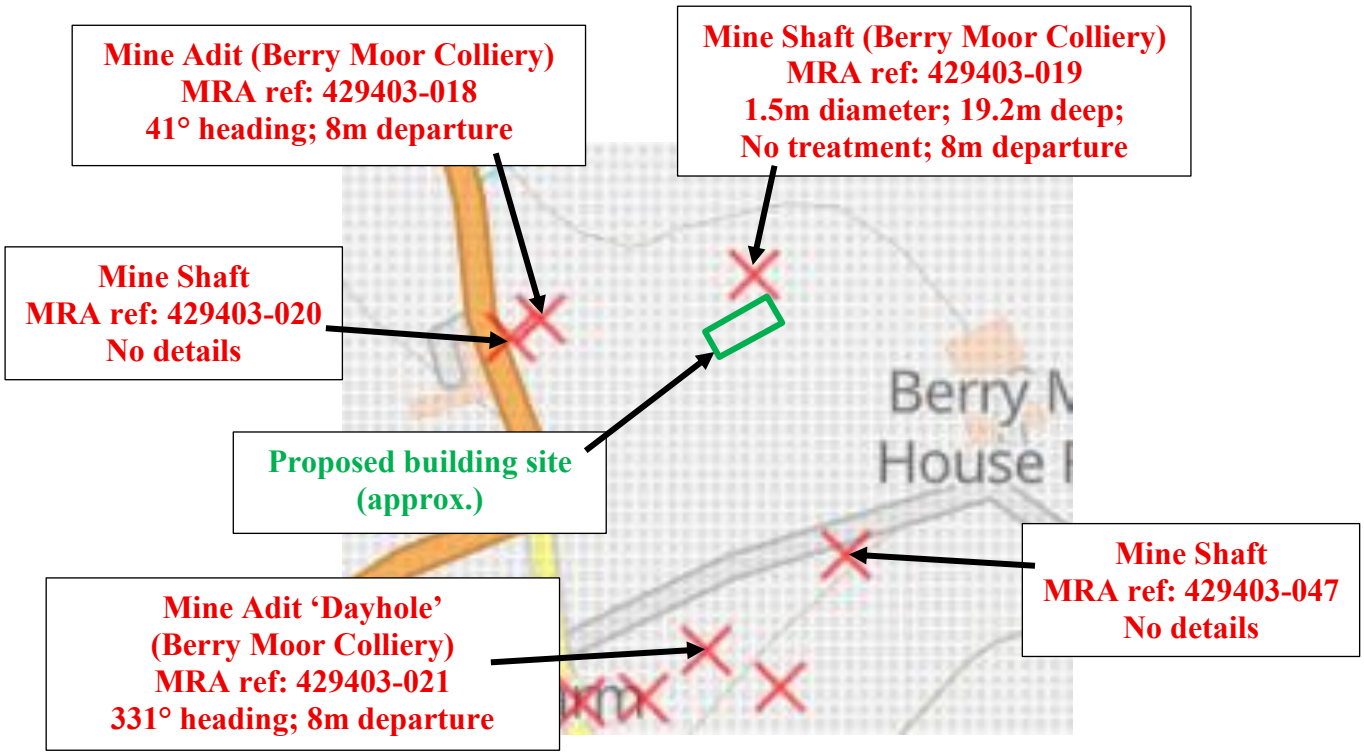
Best practice from CIRIA C758D 'Abandoned mine working manual' ***(note: informative(s) nos. 1 & 2 in appendix 2)*** suggests that there should be 10 times competent rock cover above any

shallow workings for a site to be considered stable from shallow mining void migration aspects. In this instance this would equate to 15m of such strata above the Silkstone coal seam.

No other coal seam will lie beneath the Silkstone seam at a shallow enough depth to cause further stability concerns from a void migration aspect.

Mine Entries

The nearby mine entries (associated with the former 'Berry Moor Colliery' of the early 1900's) are indicated in the image below, which forms an extract from the MRA's interactive viewer information:



As can be seen, the closest to the site of the proposed building is mine shaft ref: 429403-019 which plots to some 13m away from the site to the north. No known treatment is recorded for this shaft, however it is recorded as being 1.5m diameter and 19.2m deep. The MRA detail it as '8m departure' which is the contingency factor for the actual location being out of position by (given it has been extrapolated from old maps/plans). As the proposed building lies outside of this figure, it should be clear from a stability aspect (provided depths to bedrock are not in excess of 3m); but mine gas migration issues may still be of affect.

It should also be noted that some potential will exist for other mine entries being encountered which there are no records; grey circular areas of fill material within natural ground would be an indication of a mine shaft for example.

Fugitive Gases

As far as we are aware, no evidence of shallow coal/mining related fugitive gas emissions are known within 250m of the site. However, given the presence of shallow coal workings (in a coal seam that is known to be of a gaseous nature), sandstone bedrock that may contain fissures and nearby mine entires there will be some associated risks of such. ***Note: informative no. 3 in appendix 2.***

Coal Mining Risk Assessment
(based on the above).

The risk to the proposed development has been evaluated from the data obtained and with reference to the following ratings and definitions:

Low - The possibility of instability/associated risks are unlikely therefore no further action is necessary.

Moderate - The possibility of instability/associated risks are likely and further investigation or remedial action may be required.

High - The possibility of instability/associated risks are highly likely and further investigation or remedial action will be necessary.

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

Defined Risk Assessment

(Where 'Underground Coal Mining' above = High to Moderate)

Extent of known underground mining in this/these shallow coal seam/s in the wider vicinity	(Extensive / Much / Occasional / None Known) **Much to Extensive**
Intrusive Site Investigation of Coal Seam / Mines of Coal (given nature of proposals).	(Required / Recommended / Unnecessary)** **Required**
Advised critical depth beneath foundation/rock-head level to investigate considering geology and nature of the shallow coal/s*	**20m**

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 mine-workings, 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.*

Mining Remediation Authority

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

Information sources:

- *British Geological Survey Map Sheet SE20SE 2005 Edition*
- *British Geological Survey – Geology Of Britain Viewer*
- *Coal Authority 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 Mining** position, it would be recommended to undertake a borehole site investigation to check the depth and nature of the Silkstone coal seam in order to determine whether any potential old mining voids require further considerations for safe development. ***Note – informative(s) nos. 1 & 2 in appendix 3.*** Given the nature of the proposals three water-flush boreholes to the base of the Silkstone seam/workings or to maximum depths of 20m below rockhead (i.e beneath any fill/made ground) should suffice in the outset. Holes should be triangulated around the extent of the proposed development as best as possible. Further holes may be required to fully conclude the position from, depending on the findings at the time. Holes can be terminated at the base of Silkstone seam as no deeper coal seams are anticipated to be of effect from a void migration aspect. If any voids are encountered/anticipated that may compromise stability, then further ground treatment works may be required, along with a structurally engineered foundation solution. A prior permit from the Mining Remediation Authority would be required to facilitate such an investigation.

   Should the investigation determine competent rock cover of 15m or more above the Silkstone seam/workings then it would be reasonable to assume the site is stable from the aspect of void migration and no further treatment/stabilisation works would be required of the mining voids themselves. It should be noted however, that residual settlement or 'subsidence' can occur where historic shallow coal workings are present at a relatively shallow depth as remaining coal pillars erode and crush over time. A strengthened foundation solution designed by a structural engineer to span a 3m soft spot and cantilever 1.5m would be a prudent consideration.

3) A watching brief should be employed during future ground/foundation works for any signs of unrecorded mine entries (either coal or ironstone related). A site scrape to natural ground is the most effective procedure to check for such features, circular areas of grey fill within

bedrock would be an indication of a mine shaft for example. If suspected the Mining Remediation Authority (as likely owners) should be notified immediately for appropriate deliberations.

4) A watching brief should be employed during future ground/foundation works for any signs of any opened-out fissures within sandstone bedrock. If encountered then foundations may need to be strengthened/redesigned as necessary and prior ground remediation/treatment may be required in sever instances.

5) Given the relatively shallow coal workings, nearby mine entries and sandstone bedrock, ground mine gas mitigation measures (such as a methane membrane for example; which could also address radon issues if required) would be recommended within future foundation designs - unless a period of gas monitoring proves that this is not required ***(note: informative no. 3 in appendix 3).***

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

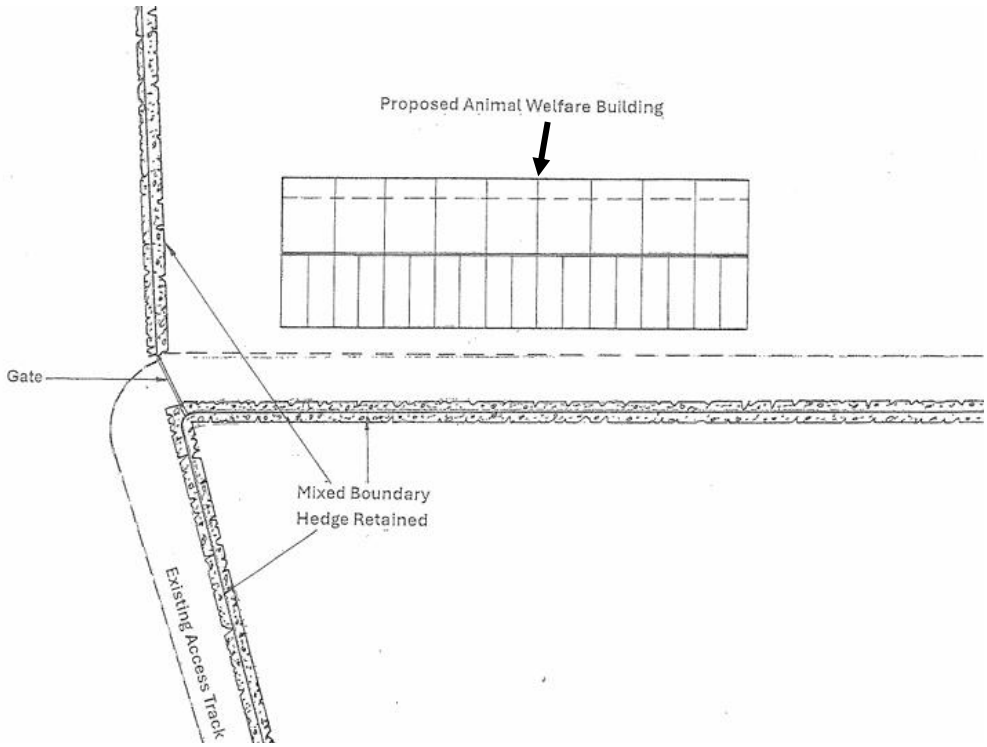
M. Lyons
Consultant Mining Engineer
BSc CSci MIMMM

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. 00489/A
(Not To Scale)
Site centred at NGR: 429243E / 403442N





Appendix 2 – Informative(s)

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. It should be noted that properties can be unknowlingley built over such hazards for many years without any settlement/damage having occurred, BUT with the potential that such could occur at some point in the future (as voids migrate upwards over time).

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/opencast backfill, and in any permeable bedrock strata (and any organic rich surficial soils). Mine entries and/or and geological fault lines/fissured bedrock will also provide pathways for gas to migrate. 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.