

**SIMON ELLIOTT
C/O MR K PORTER
LAND OFF TOWER ST
BARNSELEY
S70 1QS**

**LYONS CMC
COAL MINING & GEOTECHNICAL
CONSULTANCY**

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Date: 14th November 2017
Your ref: (Land Off Tower St.)
My Ref: CMRA 00191

FOR THE ATTENTION OF SIMON ELLIOTT C/O MR K PORTER

Dear Sirs,

**COAL MINING RISK ASSESSMENT (CMRA) - FOR PROPOSED DETACHED DWELLING AT
LAND OFF TOWER STREET, BARNSELEY S70 1QS.**

Introduction

Mr K Porter is aiming to secure planning permission for a detached dwelling at the above named site, the location of which can be seen on the attached plan. 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 Local Authority.

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.

British Geological Survey Information

(Italics – derived from other sources).

Surface Geology (inc. any superficial deposits)

Records indicate the site to be located on shales, mudstones and the Abdy Rock Sandstone of the Middle Coal Measure series from the Carboniferous formation. No superficial deposits are indicated in the vicinity and depth to bedrock is uncertain.

Strata is recorded to dip to the east at rates of around 1in13 (approx. 4°) in these parts – according to abandoned coal mining records as mentioned below.

Coal Seam Outcrops

The Winter (*also known as 'Abdy'*) Coal Seam is conjectured to outcrop some 40m to the west of the site, roughly from north-east to south-west as illustrated on the attached plan. However, as this position is only 'conjecture' the actual outcrop (surface) position may vary. Dipping beneath the land to the east this coal is expected to be at around 5m deep beneath the site itself. The former Mount Osbourne Colliery shaft section details (around 1km away to the north-east) indicates a section of this coal as around 1.8m which includes 2 dirt bands.

The Top Beamshaw Coal Seam is the next coal seam to lie beneath the Winter seam by around 4m or so. In these parts this coal is known to consist of two relatively thin leaves separated by a large dirt band.

Made Ground

No areas of made ground are indicated in the vicinity of the site, however some potential will exist in relation to historic small scale excavations/quarries considering the shallow workable coal in these parts.

Fault Planes or Fissures

A geological fault is conjectured to pass the site just to the south-east, trending in a SW to NE direction. There are no records of any fissuring of the sandstone bedrock in these parts, however such rock may have natural fissures that may have been opened out by the past deep mining as detailed below.

Abandoned Mines Records

(Italics - derived from other sources).

Opencast Coal Workings.

None known within 250m of site.

Underground Coal Workings - Deep

Deep coal mining has taken place in various coal seams beneath this location, the latest being in the Silkstone Seam from Barrow Colliery in 1975 at around 460m deep. All settlement will be long complete and as no coalfields now exist, the site should remain stable from the deep coal mining perspective for the foreseeable future.

Underground Coal Workings - Shallow

Although workings in the Winter coal seam are not known beneath the site itself, Coal Authority records indicate that relatively shallow workings took place in close proximity to the south-east from the former Vernon Colliery in 1923. Some potential will therefore exist for further unrecorded workings of the coal beneath the site now under review.

No underground workings are known in the Top Beamshaw seam in this vicinity and the likelihood of unrecorded workings being present in this coal is considered low.

Mine Entries

No mine entry is known within the site or within 20m of its boundary. However various old shafts are known in wider vicinity and considering the shallow workable coal some potential will exist for unrecorded mine entries being present.

Fugitive Gases

No evidence of coal mining related fugitive gas emissions are known within 250m of the site. However, considering the presence of shallow workable coal along with possibly faulted bedrock the likelihood of such gases being present should not be ruled out.

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)	Moderate to High
Mine entries (shafts and adits)	Moderate
Geological faulting	Moderate
Geological fissures	Low to Moderate
Fugitive gas emissions	Low to Moderate
Surface mining (opencast workings)	Low
Coal exposed / near foundation level	Moderate

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) MUCH
Intrusive Site Investigation of Coal Seam / Mines of Coal (given nature of proposals).	(Required / Recommended / Unnecessary)** REQUIRED
Advised critical depth beneath formation level to investigate considering geology and nature of the shallow coal/s*	20m

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

Key:

** The critical depth is calculated according to Ciria Publication 32 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 :**

<i>Required</i>	<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>
<i>Recommended</i>	<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>
<i>Unnecessary</i>	<i>Intrusive Site Investigation deemed unnecessary – given geological/mining information.</i>

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) Considering the level of risk from the **Shallow Coal Mining** perspective an intrusive site investigation, such as a borehole investigation, would be required to check the nature of the shallow coal, if present, and whether any voided old mine workings require treatment to ensure sound stability for the development. The recommended drilling depths would be to the base of the Winter coal seam, or a maximum of **20m** if not encountered. The number and location of boreholes would need to be assessed on site depending on the location of existing structures, buried structures and utilities.
- 3) Coal may be required to be removed/dug out to found footings beneath should the seam prove at or close to the surface. In such a case any exposed coal would require blinding off using a suitable inert material, such as a lean mix concrete, to help prevent spontaneous combustion from occurring.
- 4) Caution should be given to the possibility of encountering made ground associated with any historic small scale quarrying/opencast operations. Compaction issues and/or contamination considerations may be required.
- 5) A watching brief should be employed for any future ground works for any signs of unrecorded mine entries. A site scrape to natural ground is the most effective procedure to check for such features, the Coal Authority (as owners) should be notified immediately if any are suspected.

- 6) Considering the potential for shallow coal and/or shallow coal workings, all usual safety precautions should be employed regarding possible fugitive gases in any deep excavation work and/or during site investigations. Precautions within foundations, such as a methane membrane, may be required should the coal seam and/or workings be proved at a relatively shallow depth.
- 7) It would be recommended to check the nature of the bedrock during foundations works to ensure any weak ground associated with any possible geological faulting or fissuring is treated/stabilised and/or foundations strengthened accordingly.

It should be noted that a license is required from the Coal Authority prior to any investigations of any coal seams, mine entries and associated workings. 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. A guidance note is attached to provide assistance with a Borehole Site Investigation, and further details regarding construction over abandoned mine workings can be viewed online through CIRIA Special Publication 32.

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
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 Special Publication 32 - "Construction Over Abandoned Mine Workings." 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.