

Ms. E. Thompson
Empire Property Concepts
Empire House,
92 – 98 Cleveland Street,
Doncaster,
DN1 3DP

PR/AJK/41899-001

BY EMAIL ONLY

28 September 2017

Dear Ms. Thompson,

Heelis Street, Barnsley
Coal Mining Risk Assessment

Further to your instruction via Ms. Emma Raine at DLP (Planning) Ltd, we write to provide a risk assessment against the possibility of shallow coal mining affecting the above site. The risk assessment is based on a review and our interpretation of geological maps, memoirs and Ordnance Survey maps, as well as a Coal Authority mining report specific to this site. We have not visited the site and we are not aware of any previous site investigations having been undertaken on the site in the past.

The Site

The site is located to the east of Heelis Street in Barnsley, South Yorkshire and has an area of around 0.26 hectares. The site is centred around grid reference SE 346 059 (434674, 405932), which is on the southern edge of the town centre. The site is currently occupied by an open-air car park. The site lies at an elevation of around 120 m AOD. Topographically, the site appears to slope gently down from the south towards the north west.

Historical maps show the site to have been developed since prior to 1852. Housing was shown at this time along the western edge for the site fronting Heelis Street. The remainder of the site was labelled as being an old sandstone quarry. The quarry is no longer shown by 1889, and appears to have been backfilled, although no development is shown over its footprint.

The houses in the west were removed by 1931. By the 1960s the site is labelled as a playground. However, after this time the site use was not labelled and the site appears to be open land. No other development is shown at any time.

Also at:- Centaur House, Ancells Business Park, Ancells Road, Fleet, Hampshire, GU51 3PD Tel: 01252 360580 Fax: 01252 360581

Directors: P Richardson BSc, CEng, MICE, MStructE S D Preston BEng, CEng, FICE, FStructE N J Baines BSc, CEng, MICE, MCIWEM
S R Ellis BEng, CEng, MStructE, MICE K R Pursall BEng, CEng, MStructE
C A Topliss BSc, CEng, CSci, CGeol, SiLC, MICE, FGS S J English BEng, CEng, MStructE A R Priest BEng
Senior Associates: K Newsome BSc, CEng, MICE, MStructE S J Mitchell BSc, MSc, CEng, MEI, MCIBSE, MASHRAE A Allison BEng
M Young MA, CEng, MICE, MStructE C A Wood BSc, CEng, MStructE, MICE
Associates: K Edwards MSc, FGS A J Kerslake BEng A G Marshall BEng, CEng, MStructE C Hodge EngTech, TMICE
P A Harrison BEng, CEng, MStructE M P Chappell BEng, IEng, AMStructE M Dyson BSc, CEng, MStructE
Consultant: J M Wood BSc, CEng, MICE, FStructE

The surrounding area has been a combination of residential, commercial and industrial land. A number of collieries and brickworks were noted in the late 1800s and early 1900s in the area to the south of the site, but no mining related features are noted in the immediate vicinity of the site by the historical maps.

It is proposed to construct develop the site with multi-storey residential apartments.

Geological Review

The geological map for the area, Sheet SE30NW (1:10,000 scale), and the British Geological Survey on-line interactive map viewer indicate the site to overlie strata of the Middle Coal Measures of the Carboniferous period. The Wooley Edge Rock is indicated directly beneath the site. This is described as a coarse grained sandstone.

No alluvial deposits are indicated to be present and no faults or other lines of weakness are shown to cross the site or the immediate surrounding area. A fault is located around 250 m to the south west of the site, trending north west to south east. The strata are shown to generally dip towards the south east with a gradient of around 5°.

The geological map conjectures the outcrop of the Meltonfield coal seam around 60 m to the north east of the site. The seam is occasionally worked, with adits being indicated along the seam outcrop in the area to the north of the site. The coal is typically between 700 mm and 900 mm in this area of Barnsley, according to the geological map, sometimes with a dirt parting.

Using the general dip of the strata, the seam may be expected at a depth of around 10 m below the site. A borehole shown on the geological maps around 25 m north west of the site indicates the seam at a depth of 12 m below ground level (bgl). Several other boreholes to the north and west of the site, which are shown on the BGS website, recorded a 1.1 to 1.2 m thick seam of coal at between 7 and 11 m bgl.

One of the boreholes to the west of the site also recorded 'loose coal and mudstone', which may be indicative of backfilled workings. However, this was at a depth of 20 m bgl, and therefore this may be the next seam down, which is expected to be the Two Foot Coal. This seam is conjectured to outcrop around 140 west of the site, and according to the stratigraphical sequence for the area, is expected to lie 10 to 12 m below the Meltonfield Coal. This seam would therefore be expected at a depth of between about 20 and 22 m bgl beneath the site. According to the geological memoir, the seam is around 0.6 m in thickness.

Coal Authority Mining Report

A Coal Authority mining report has been obtained for the site and a copy is appended to this letter. The Coal Authority state that according to their records, the property is within the zone of likely physical influence on the surface from past underground workings in one seam of coal, at 150 to 160 m depth and last worked in 1853. Any ground movement within these coal workings should have stopped by now. These workings are expected to be within the Barnsley Coal.

The report also states that the property is in an area where the Coal Authority believes there is coal at or close to the surface, which may have been worked sometime in the past. We believe this refers to the Meltonfield seam, as well as the Two Foot coal.

According to the report, there are no mine entries within 20 m of the site. However, there is always the risk that unrecorded shafts, bell pits or adits exist of which the Coal Authority has no knowledge.

The Coal Authority report states that the property is not within the boundary of an opencast site from which coal has been removed by opencast methods in the past. The site is not within an area where underground mining is currently being undertaken and it is not within an area where it is currently proposed to begin underground extraction.

The Coal Authority has received one claim related for alleged coal mining subsidence within 50 m of the site. No details as to whether this claim was upheld or rejected are provided. There is no record of mine gas emission requiring action from the Coal Authority.

Risk Assessment

For there to be no significant risk to development from voids caused by old mine workings migrating to the surface, it is generally accepted that there should be ten times the worked seam thickness of competent ground above the workings and below the proposed foundation level.

The Meltonfield Coal is expected to be present at around 10 m below ground level. The seam appears to have been worked locally and is expected to be around 1.2 m in thickness, based on the findings of previous boreholes by others. Therefore, there may not be a sufficient thickness of competent ground above any potential workings, particularly in the area where quarry workings were previously noted. It is therefore recommended that an intrusive investigation is undertaken to determine the depth to the Meltonfield Coal and to determine whether the seam has been extracted below the site. If workings are identified, these would likely need to be drilled and grouted to stabilise the ground.

The Two Foot Coal is also expected to be present below the site at around 20 m bgl. Whilst this 1.2 m thick seam is expected to have sufficient rock cover, it would be prudent to extend the investigation noted above to also determine the depth, thickness and condition of this seam. At this stage, however, it is considered unlikely that remedial works would be required, although this depends to some extent on the proposed foundation solution for the development, as piled foundations may encroach on the level of acceptable cover.

The recorded workings at 150-160 m depth are likely to be in the Barnsley Coal seam. At this depth, it is unlikely that any ground movement would migrate to foundation level and therefore no remedial works should be required in this respect.

Conclusion

The conclusion of our assessment is that the Meltonfield Coal is likely to be present at shallow depth below the site at around 10 m bgl, and that the seam may have been worked in the past. It is therefore recommended that intrusive investigations are undertaken to confirm the depth, thickness and condition of this coal seam. This would be via rotary boreholes drilled around the site to intersect the coal. Any workings that are present would likely need to be drilled and grouted

It is also considered prudent to undertake investigations to confirm the depth to the Two Foot Coal, expected at around 20 m bgl. However, remedial works to this seam, if worked, are not expected to be necessary at this stage. The investigation can be carried out in the same boreholes as for the Meltonfield seam.

Before any intrusive site investigation works are undertaken, a suitable permit will need to be obtained from the Coal Authority.

We trust that this meets with your approval, however if you have any comments or queries please do not hesitate to contact us. This assessment will need to be submitted to the regulators for review and comment.

Yours faithfully



Andrew Kerslake
Associate

Enc. Coal Authority mining report
Copy: Ms. E Raine – DLP (Planning) Ltd – via e-mail



The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

1, DUKE CRESCENT
BARNSELY
SOUTH YORKSHIRE

Date of enquiry: 21 September 2017
Date enquiry received: 21 September 2017
Issue date: 21 September 2017

Our reference: 51001628151001
Your reference: 140130654_2|



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

LANDMARK INFORMATION GROUP LIMITED

Enquiry address

1, DUKE CRESCENT, BARNSELY, SOUTH YORKSHIRE

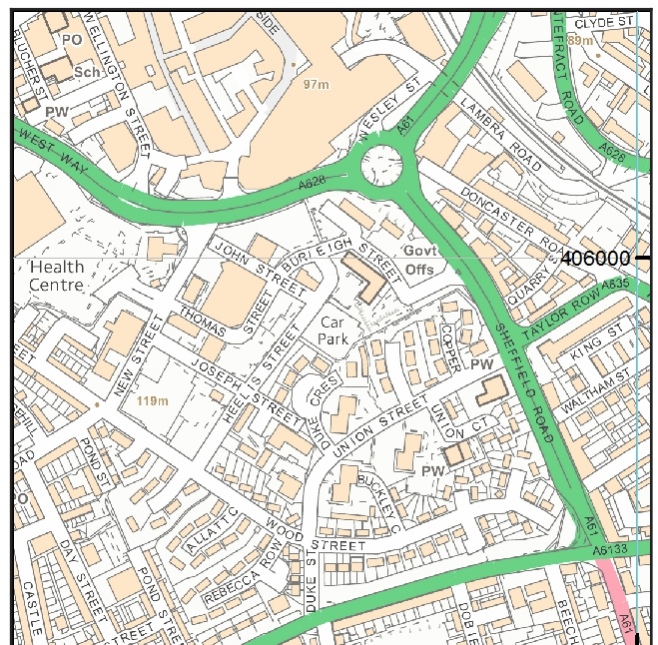
How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority
 /thecoalauthority
 /coalauthority



Approximate position of property



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2017. All rights reserved.

Ordnance Survey Licence number: 100020315

Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	Yes
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

Further recommended reports
Coal mining subsidence claims 50m buffer report
Coal mining subsidence claims history

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 1 seam of coal at 150m to 160m depth, and last worked in 1853.

Any movement in the ground due to coal mining activity should have stopped.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on the Coal Authority information section of the report.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. Coal mining subsidence

There are 1 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required, please visit www.groundstability.com.

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

The Coal Authority own the copyright in this report and the information used is protected by our database right.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

Disclaimer

The Coal Authority owns the copyright in this report and the information used to produce this report is protected by our database rights. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

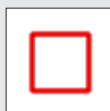
Alternative formats

If you would like this report in an alternative format, please contact our communications team.

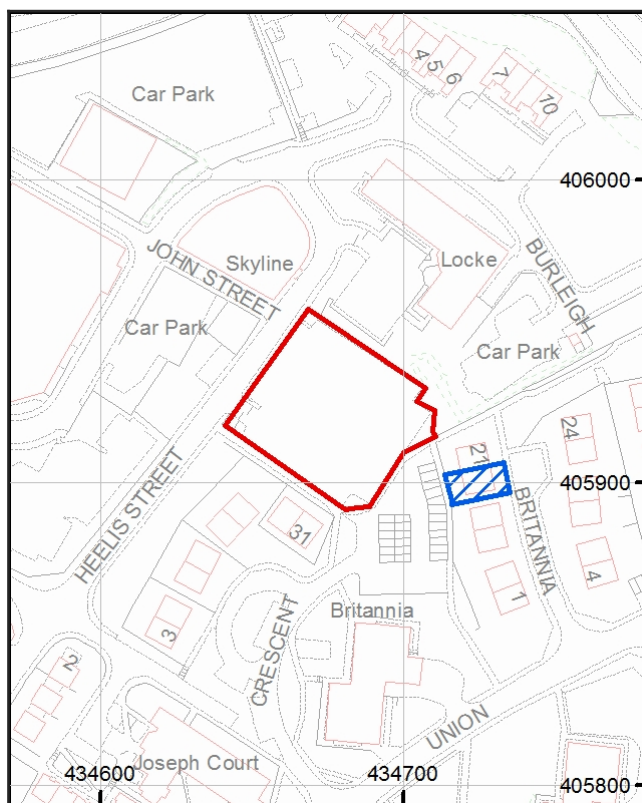
Enquiry boundary

Key

Approximate position of enquiry boundary shown



Coal claims



How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2017. All rights reserved.

Ordnance Survey Licence number: 100020315