CAPE SITE SERVICES
COAL MINING & GEOTECHNICAL CONSULTANCY
Web: www.cape-site.co.uk
Email: cape-site@btconnect.com
Tel: 01226 725050

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

Date: 7th June 2022
Your ref: (S72 8UN)
My Ref: SI 00251

FOR THE ATTENTION OF ROB AGUS

Dear Sir,

COAL MINING RISK INTERPRETATION REPORT – FOLLOWING THE SITE INVESTIGATION FOR PROPOSED RESIDENTIAL DEVELOPMENT OF FORMER GARAGE SITE, BLOEMFONTEIN STREET, CUDWORTH, BARNSLEY S72 8UN.

I am pleased to supply the following report for the above named project and trust that this satisfies your requirements. Please do not hesitate to contact myself at any time for further clarification or advice.

Yours Sincerely,

M Lyons

M. Lyons
Consultant Mining Engineer
BSci CSci MIMMM

Contents

1. Introduction

Planning permission is being considered for residential development at the above location subject to the mining legacy risks been fully realised and mitigated from on site, if necessary. Cape Site Services has now undertaken this work via an intrusive site investigation on the 24th & 25th May 2022 consisting of 5 boreholes, the location of which is outlined on plan no. 00251/B – as attached and illustrated in appendix 5.2.

2. Scope of the Report

The mining legacy risks to the development are as follows:

- Instability from shallow coal workings in the Sharlston Low coal seam
- Uncharted mine entries
- Fugitive gas emissions

As such, these risks need to be properly determined to ensure sound stability for the development. A borehole investigation consisting of 2 to 6 holes was deemed a reasonable level of investigation in the outset regarding potential void migration given the scale and nature of development combined with the available geological and mining information. A watching brief would also be implemented for any signs of mine entries.

It should be noted that this investigation is focused mainly on determining stability from potential shallow historic coal workings and will only provide limited information regarding the risks of uncharted mine entries. A good level of detail should be obtained to provide a more informed opinion as to fugitive gas risks.

Considering the geological/mining details and CMRA report (ref: CMRA 00251 by myself dated 4th February 2021) boreholes were decided to be taken to either the base of the Sharlston Low coal seam/workings or to 20m if not encountered.

3. Site Investigation

3.1 Methodology

Prior to the intrusive site investigation, a search for utilities was undertaken via RCLP Surveys Ltd – the results from which can be seen in appendix 5.6. Boreholes were marked out with tape measure from boundary lines as illustrated on plan no. 00251/B outlined in appendix 5.2. As part of the mine entry watching brief, a pre survey was undertaken with no visible evidence of any unchartered mine entries. The process for the intrusive coal seam investigation is outlined via the system chart in appendix 5.4.

An investigation utilising a tracked Baretta Rotary Drill Rig equipped with 2m long 100mm diameter drill rods was deemed appropriate in this instance along with water flush technique to analyse returns and minimise any risks associated with mine gas emissions and spontaneous combustion. Gas monitoring equipment would be employed during works for risks associated with Methane, Carbon Monoxide, Oxygen and Carbon Dioxide. Any boreholes emitting a dangerous level of methane would be terminated and sealed immediately. All holes to be filled and sealed as soon as possible with bentonite upon termination. Prior agreement had been secured for these works from the Coal Authority -permit ref: 24961 – as attached for reference in appendix 5.5.

The works were to be supervised by the Drilling Engineers Mr. S. Fish and Mr I. Wiles, and overseen by the Principal Engineer Mr. M. Lyons.

3.2 Interpretation of Findings

All holes proved a similar section of strata, but with holes 4 and 5 (in the east) proving 1.3m of brown clay with sandstone lumps above the weathered sandstone bedrock. Firm brown silty sandstone, with occasional grey silty bands, were then encountered to 20m deep in all holes with borehole no. 3 proving an in-tact coal seam of 0.8m thickness at 18m deep. This is considered to be the Sharlston Low coal seam which, given the geological position, will be at its shallowest at borehole no. 3; thus, why not encountered in the other boreholes as it dips to greater depths in excess of 20m.

Water flush was maintained throughout drilling with no fugitive gases detected.

The logs appear to match well at a similar elevation which would infer no signs of any geological faulting between the borehole locations.

Given the findings of the five boreholes no further holes were deemed necessary.

4. CONCLUSIONS AND RECOMMENDATIONS

1) Given the findings it is considered that the Sharlston Low coal seam will be at a depth that will not give rise to mining instability issues be it worked or otherwise; according to best practice guidance outlined in CIRIA C758D ‘Abandoned Mine Working Manual’. As such no further works or considerations regarding shallow coal and/or coal mining workings will be necessary for the development.

2) Usual foundations designs can be considered with the appointed building control officer/department; taking into account the clay deposits in the eastern part of the site.

3) No signs of any mine entries were observed during the investigation. Watching briefs are always prudent however during future ground works for any associated signs of either an old mine shaft or adit. The Coal Authority should be notified where any such feature is suspected.

This report and future development proposals should be submitted to the regulators for their approval prior to any works taking place.

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.

5 Appendix

5.1 References

5.1.1 CIRIA C758D ‘Abandoned mine workings manual’.

5.1.2 British Standards Institution: BS 5930:2015 ‘Code of practice for ground investigations’ BSI 2015.

5.1.3 British Standards Institution: BS EN ISO 14688-1: 2002 + A1 2013 ‘Geotechnical Investigation and Testing - Identification and Classification of Soil - Part 1 - Identification and Description. BSI 2013.

5.1.4 British Standards Institution: BS EN ISO 14689-1: 2003 ‘Geotechnical Investigation and Testing – Identification and Classification of Rock – Part 1 – Identification and Description. BSI 2003. Incorporating Corrigendum No. 1 February 2007.

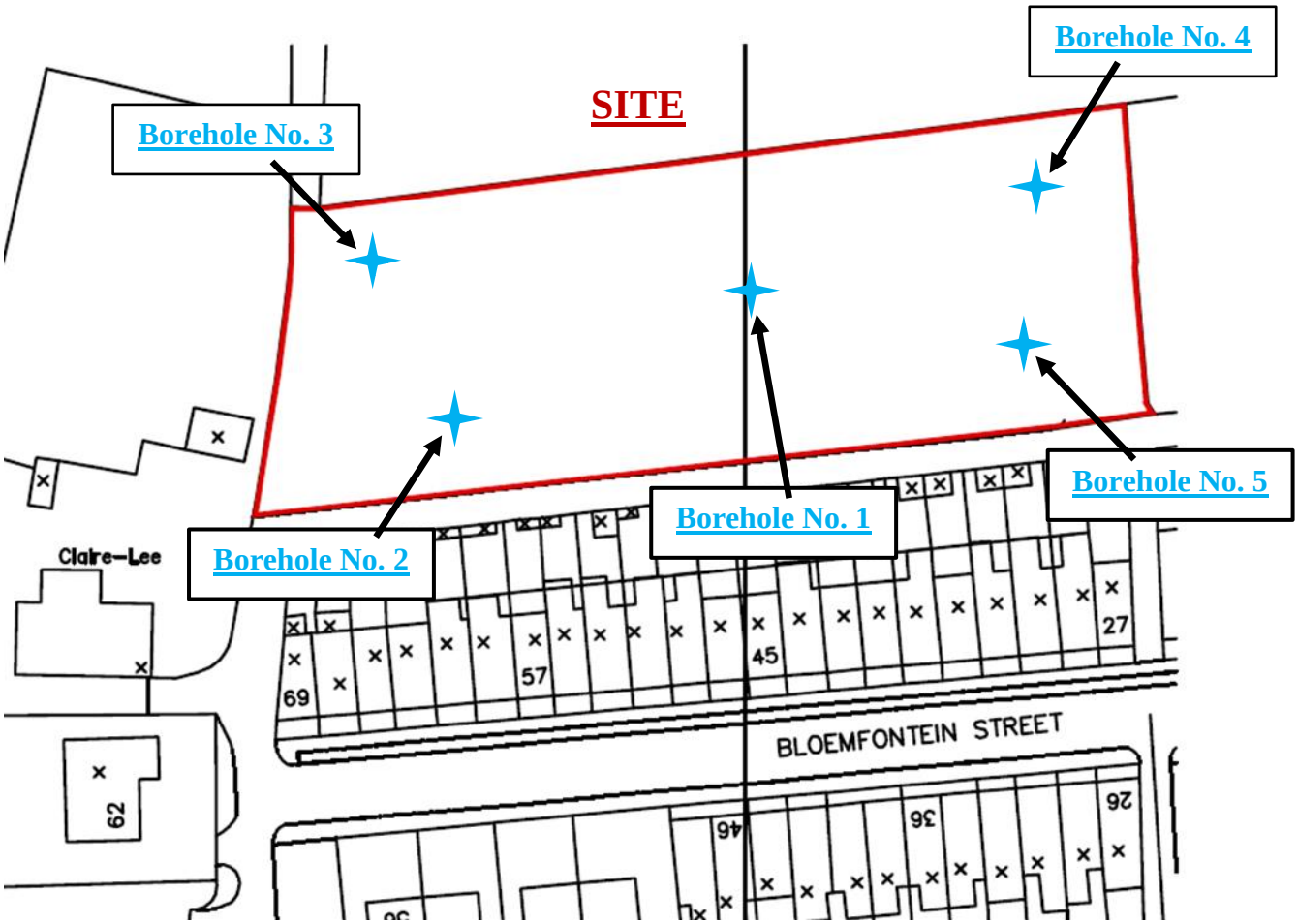
5.1.5 British Standards Institution: BS 10175 ‘The Investigation of Potentially Contaminated Sites. Codes of Practice’. BSI 2011+A1 2013.

5.1.6 British Standards Institution: BS EN ISO 22476-3: 2005 + A1 2011 ‘Geological Investigating and Testing. Field Testing. Standard Penetration Test’.

5.1.7 British Stardard 1377:1990 Parts 1-9 ‘Methods of Test for Soils for Civil Engineering Purposes’.

5.2 Borehole Location Plan No. 00251/B

LAND AT FORMER GARAGE SITE, BLOEMFONTEIN STREET, CUDWORTH, BARNSLEY S72 8UN.



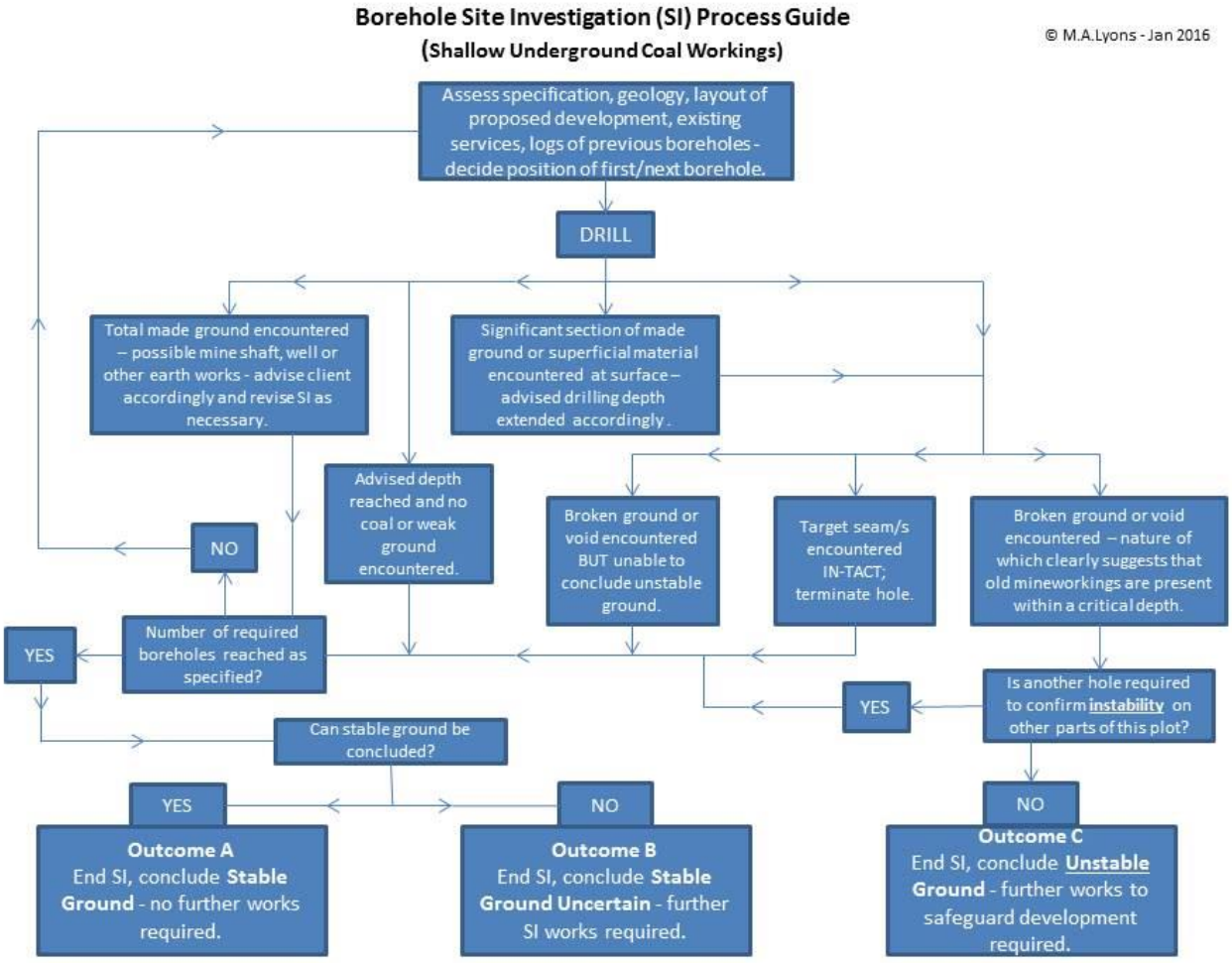
5.3 Drilling log sheets

Client: Lyons CMC	**Site:** Land at Bloemfontein Street, Cudworth, Barnsley		**Cape Site Services unit 2, rear of Castle Buildings Carlton Road, Barnsley, S71 3HX**
Date: 24&25/05/22	**Method:** water flush	**Permit No:** 24961	
Driller: Ian Wiles		**Driller Assistant: richard hawkins, Simon Fish**	
Drillers Signature:		**Page No:**	

Measurements In Meters

BH No:	FROM	TO	THICKNESS	DESCRIPTION
1				
	0	1.3	1.3	Sandstone brown silty broken
	1.3	17	15.7	sandstone brown silty
	17	20	3	Sandstone brown with some grey
2				
	0	1.3	1.3	Sandstone brown silty broken
	1.3	16.8	15.5	sandstone brown silty
	16.8	20	3.2	Sandstone brown with some grey
3				
	0	0.5	0.5	Sandstone brown silty broken
	0.5	12.5	12	sandstone brown silty
	12.5	18	5.5	Sandstone brown / grey silty
	18	18.8	0.8	Coal
	18.8	20	1.2	Sandstone brown with some grey
4				
	0	1.3	1.3	Clay brown sandstone lumps
	1.3	13	11.7	sandstone brown silty
	13	20	7	Sandstone brown with some grey
5				
	0	1.3	1.3	Clay brown sandstone lumps
	1.3	13.3	12	sandstone brown silty
	13.3	20	6.7	Sandstone brown with some grey

5.4 Site Investigation Process



5.5 Coal Authority Permit

The Coal Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 24961

Name and Address of Permit Holder:

Windmill Homes
Unit 5 Construction Way
Carlton
Barnsley
S71 3HU

Site Location:

Land at
Bloemfontein Street
Cudworth
Barnsley

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Ground investigation by six boreholes to 20m to determine presence of shallow coal seams

within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of **12 months** from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- *Manned entry (i.e.) into mine entries/workings) is strictly prohibited.*
- *Water flush*
- *Gas Monitoring CO, CH_4, CO_2, O_2, H_2S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: *Jake Morris* Granted Date: ***16/05/2022***

For and on behalf of The Coal Authority

Nominated Representative: Jake Morris, Permitting Manager;
The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG
Tel: 01623 637450; E-Mail: permissions@coal.gov.uk

5.6 Utility Search

RCLP SURVEYS LTD

UNDERGROUND UTILITY SURVEY AND CLEARANCE

LAND AT BLOEMFONTEIN STREET CUDWORTH BARNSLEY

An underground utility Survey and clearance was undertaken at the land at Bloemfontein Street,Cudworth.

5 positions were cleared with a 2m radius around each location.

Some areas were inaccessible with the Ground Penetrating Radar equipment due to various materials and vegetation (see diagram).

RCLP SURVEYS LTD 07714186732 RCLPSURVEYS@GMAIL.COM

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