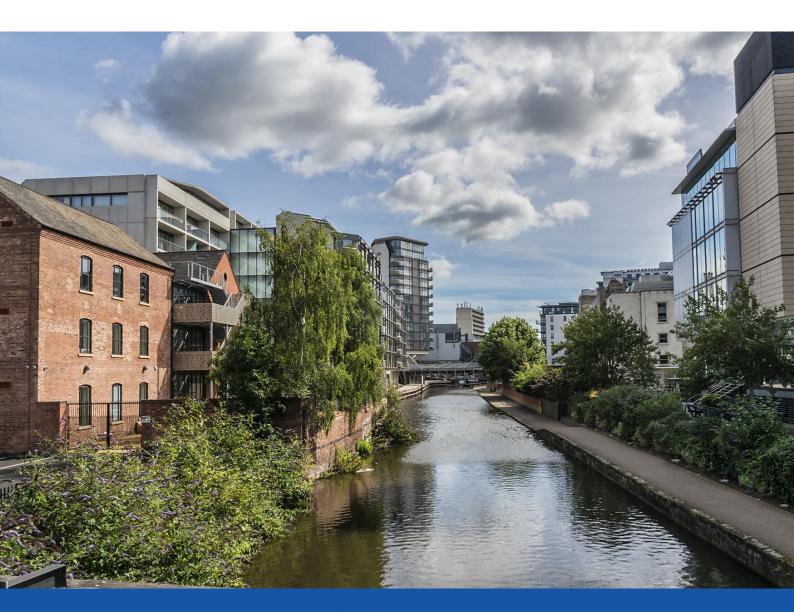
COAL MINING RISK ASSESSMENT

Knowl Park House, Mirfield

March 2021

REV A





CIVIL | STRUCTURAL | GEOTECHNICAL & ENVIRONMENTAL | TRAFFIC AND TRANSPORT

h s p

COAL MINING RISK ASSESSMENT

Knowl Park House, Crowlees Road, Mirfield, WF14 9PP October 2020 – (C3257) – March 2021 – REV A

1. INTRODUCTION

HSP Consulting Engineers Ltd were commissioned by Frank Shaw Associates to prepare a Coal Mining Risk Assessment for the construction of a new dementia care home on the site. The assessment is to provide the Local Planning Authority with information on coal mining and an assessment of its impact on land stability.

Site Location and Description

The site is located off Crowlees Road, approximately 0.5km north of Mirfield town centre. The approximate National Grid Reference for the centre of the site is (NGR) 420370, 420244. The site currently supports an existing dementia day care centre with associated car parking and areas of soft landscaping.

Description and Layout of Proposed Development

The development proposals show the demolition of the existing care home building and the construction of a single storey dementia care home with associated car parking and areas of soft landscaping.

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 necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; 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.

Geology

The bedrock geology of the site is indicated to comprise the Pennine Lower Coal Measures Formation consisting of Sandstone, Mudstone and Siltstone. Described as 'Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.' No superficial deposits are expected on the site. An outcrop of coal, the Silkstone seam, is recording on site trending southeast to northwest, on the mapping accompanying ref 2. Published BGS information indicates the seam is between 0.2 and 10.7m in thickness. Limited Made Ground deposits are expected to be encountered across the site.

2. SOURCES OF INFORMATION USED TO INFORM THIS REPORT

The sources of information obtained upon which the risk assessment of coal mining issues have been based are listed below; (The reports / extracts are appended as applicable).

Ref 1. British Geological Survey (BGS) Geology of Britain Viewer.

- Ref 2. Coal Authority Consultants Coal Mining Report, date 11th September 2020, Ref: 51002299601001.
- Ref 3. BGS 1:50,000 Series Geological Mapping, Sheet 77 Huddersfield, Solid and Drift Edition.
- Ref 4. BGS Borehole Record Viewer.
- Ref 5. Coal Authority Interactive Map Viewer.

3. IDENTIFICATION AND ASSESSMENT OF SITE-SPECIFIC COAL MINING RISKS

The table below summarises the potential risks associated with coal mining legacy for the proposed development site, identified from *list sources of information*.

Coal Mining Issue	Yes	No	Risk Assessment
Underground coal mining (recorded at shallow depths)	Υ		The property is in a surface area that could be affected by underground mining in 1 seam of coal at 114m depth, that was last worked in 1906. Any movement in the ground due to coal mining activity should have stopped. An outcrop of Silkstone is recorded on site trending southeast to northwest. This was identified within a single window sample borehole advanced at the site during a separate ground investigation under coal
Probable unrecorded shallow workings	Υ		permit license 20763 at a depth of 2.20m begl. Probable unrecorded shallow workings may be present beneath the site (Ref 2).
Mine entries (shafts and adits)		N	No mine entries are recorded within a 100m radius of the site boundary.
Coal mining geology (fissures)		N	The CA is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.
Recorded coal mining surface hazard		N	The CA has not received a damage notice or claim for the subject property or any property within 50 metres of the enquiry boundary since 31st October 1994.
Surface mining (opencast workings)		N	The site is not within the boundary of an opencast site from which coal has been removed by opencast methods. The site is also not within 200m of the boundary of an opencast site within which coal is being extracted by opencast methods.

For those coal mining issues identified as "yes" a discussion and assessment of the risks, both individually and cumulatively, to the application site and the proposed development are given in the next section.

4. MITIGATION STRATEGY PROPOSED

The Coal Authority Mining Report indicates that the site is in a surface area that could be affected by underground mining in 1 seam of coal at 114m depth, that was last worked in 1906. Any movement in the ground due to coal mining activity should have stopped.

The Coal Authority indicate it is probable that unrecorded shallow workings may also be present beneath the site.

The Coal Authority Mining Report indicates a conjectured outcrop of coal (Silkstone Seam) on site. The mapping indicates the outcrop trends from the southeast to the northwest, dip diction and amount are not given but assume to be to the (north east based on direction of younging). Coal was identified within a single window sample borehole advanced at the site during a separate ground investigation, under coal permit license 20763, at a depth of 2.20m begl. The thickness of the coal is unknown at this stage as it was not fully penetrated, within the windowless sampler borehole, due to SPT refusal.

An application was made to the Coal Authority in September 2020 for any applicable Mining Abandonment Plans that may be available that intersect with the site. The Coal Authority confirmed that they had no abandonment plans shallower that 50m available for the site. Due to the nature of the proposed development (single storey care home) it was not deemed necessary to view any plans for workings deeper than 50m begl (as all movement should have stopped).

Following The Coal Authority granting a permit to investigate (Permit No. 21346), rotary probing was undertaken on the 10th and 11th February 2021. Four exploratory hole locations were advanced to 30m with water flush using rotary drilling techniques. The drilling recorded intact seams of coal within all of the exploratory locations. Shallow coal in the range of 0.70m to 1.00m in thickness was encountered in three of the four exploratory holes at depths of between 3.00m and 4.70m begl. No voids or worked seams were recorded within any of the exploratory locations, therefore HSP consider that ground stabilisation works should not be required prior to the re-development of the site based on the investigation to date.

However, due to the presence of the existing care home building it was not possible to access all the planned exploratory locations within the proposed building footprint. HSP recommend the final rotary borehole is advanced following demolition and site clearance to confirm the recommendations above.

HSP recommend that guidance laid out within 'Coal Seam Outcrop Precautions – HSP Memo' (Appendix II) be followed to ensure that the development is protected should any seams be exposed during groundworks on the site. The risk of exposure and subsequent combustion of a shallow coal seam is considered to be very low based on the likely depth of made ground and overburden.

5. CONCLUSION

An outcrop of Silkstone Coal is recorded on site and The Coal Authority indicate unrecorded shallow workings are probable. Following The Coal Authority granting a permit to investigate (Permit No. 21346), rotary probing was undertaken on the 10th and 11th February 2021. Four exploratory hole locations were advanced to 30m using rotary drilling techniques with water flush. The drilling recorded intact seams of coal within all of the exploratory locations. Shallow coal in the range of 0.70m to 1.00m in thickness was encountered in three of the four exploratory holes at depths of between 3.00m and 4.70m begl. No voids or worked seams were recorded within any of the exploratory locations, therefore HSP consider that ground stabilisation works should not be required prior to the re-development of the site based on the investigation to date.

However, due to the presence of the existing care home building it was not possible to access all the planned exploratory locations within the proposed building footprint. HSP recommend the final rotary borehole is advanced following demolition and site clearance to confirm the recommendations above.

HSP recommend that guidance laid out within 'Coal Seam Outcrop Precautions – HSP Memo' (Appendix II) be followed to ensure that the development is protected should any seams be exposed during earthworks on the site. The risk of exposure and subsequent combustion of a shallow coal seam is considered to be very low.

RELEVANT APPENDICES

Appendix I Coal Authority Consultants Coal Mining Report, date 11th September 2020,

Ref: 51002299601001.

Appendix II Coal Seam Outcrop Precautions – HSP Memo.

Appendix III Window Sample Borehole Logs from October 2020 Ground Investigation.

Appendix IV Rotary Open Hole Borehole Logs from February 2021



Appendix I



Consultants Coal Mining Report

Staff House Knowl Park House Crowlees Road Mirfield Kirklees WF14 9PP

Date of enquiry:

Date enquiry received:

Issue date:

11 September 2020

11 September 2020

11 September 2020

Our reference: Your reference:

51002299601001

C3257



Consultants Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

HSP CONSULTING

Enquiry address

Staff House Knowl Park House Crowlees Road Mirfield Kirklees WF14 9PP

How to contact us

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

200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG

www.groundstability.com





Approximate position of property



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2018. All rights reserved.

Ordnance Survey Licence number: 100020315

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working		Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	BLACK BED	Coal	6HBN	114	Beneath Property	2.7	East	76	1906

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

10527	GCR57	GCR54
-------	-------	-------

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
SILKSTONE	Coal	Yes	Within	N/A	96

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 - Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

Distance to site investigation (m)	Direction
0.9	North-East

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

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.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 - Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

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.

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.

Section 4 - Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 - Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

This page left intentionally blank

VAT receipt

Issued by The Coal Authority

200 Lichfield Lane

Mansfield

Nottinghamshire

NG18 4RG

Tax point date 11 September 2020

Issued to HSP CONSULTING

BYRON HOUSE

4 MEADOWBANK WAY

EASTWOOD

NOTTINGHAMSHIRE

NG16 3SB

Property search for STAFF HOUSE

KNOWL PARK HOUSE CROWLEES ROAD

MIRFIELD KIRKLEES WF14 9PP

Reference number 51002299601001

Date of issue 11 September 2020

Cost £112.13

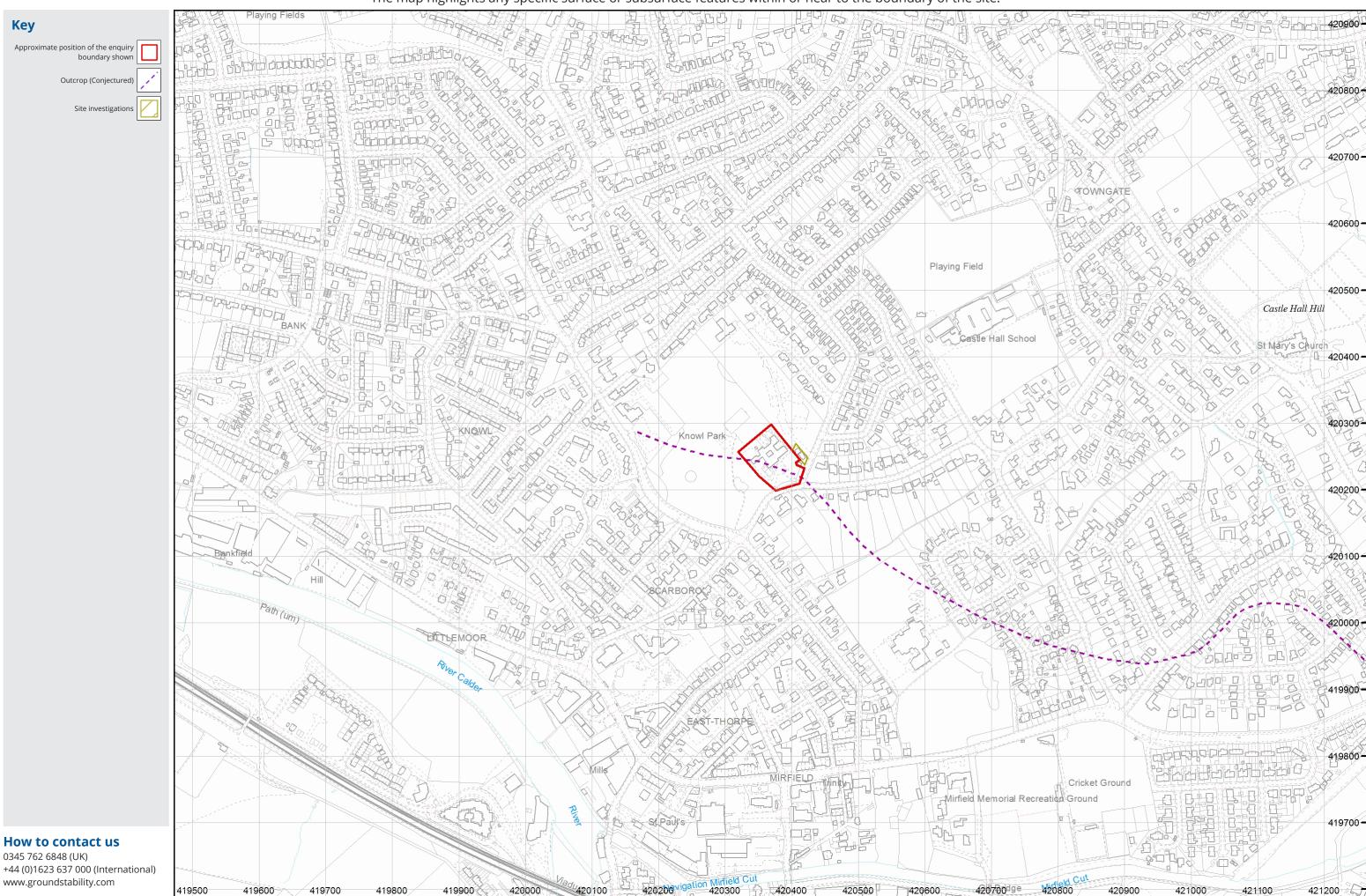
VAT @ 20% £22.43

Total received £134.56

VAT registration 598 5850 68

Summary of findings

The map highlights any specific surface or subsurface features within or near to the boundary of the site.





Appendix II



COAL SEAM OUTCROP PRECAUTIONS – GUIDANCE NOTE 1

There are four potential problems at a coal seam outcrop:

- Shallow opencast workings (day-eyes)
- Combustion (spontaneous or otherwise)
- Sulphates
- 'Hard spot' (differential settlement)

This guidance note addresses the risk of combustion, sulphates and hard-spots.

In general the risk of igniting an unworked seam encountered at outcrop or at shallow depth in footings or drainage excavations is low. The risk is increased where aeration occurs (especially where the seam has been worked).

Dependent upon the calorific value of the seam, where it is less than 450mm thick, the coal is unlikely to be able to sustain prolonged combustion and generate sufficient heat to cause a problem.

Where it is thicker than 450mm the following general guidance applies:-

Where coal is exposed in footing excavations (over 450mm thick) it should be sealed from the air using compacted clay (or concrete used in footing).

Where coal is exposed in services trenches (over 450mm thick), the trench should be back filled above the pipe bedding surrounding the pipe or service with reasonably compacted clayey soil or sub-base. Sealing around manhole chambers should be carried out (as above) where the seam is over 900mm thick.

(*care required in carrying out compaction – no plant used where cover to pipe is less than 450mm).



Where seam is exposed across plot

Table 1

Seam thickness (mm)	Cover/seal thickness outside house footprint (incombustible material)	Cover/seal thickness beneath house (mm) (only applies where there is oversite beneath timber floor or where there is a beam and block floor)	Notes/comments
450-900	500mm for 5m	None	(unless open fire is to be used – 300mm)
900-2000	750mm for 7.5m	300	(if open fire to be used – remove coal for radius of 2m beneath centre of grate)
1000-3000	1000mm for 10m	500	(if open fire to be used – remove coal for radius of 3m beneath centre of grate)
>3000			Removal of coal

Notes for Table 1

1.If there is a layer of natural strata above the seam the thickness of the seal may be reduced accordingly.

Sulphates

Unless testing shows otherwise, sulphate precautions should be taken where foundations are in contact with a coal seam. Minimum class 2 conditions to BRE Digest 363 should be taken.

Geotechnical considerations where coal encountered in footings

Coal usually has a bearing capacity greater than that of natural clay soils surrounding it. The coal is very unlikely to cause a hard-spot problem any more onerous than a sandstone. Where sharp boundaries are encountered in footings between coal and clay, additional thickening and strengthening of the strip footing may be necessary.





Appendix III

h	n							Borehole N	lo.
11 3				Borehole Log				WS01	
consu	ulting							Sheet 1 of	
Project Na	ame: Knowl Pa	ark Hou	se	Project No. C3257a		Co-ords:	-	Hole Type WS	9
_ocation:	Crowlees	Road,	Mirfield			Level:		Scale 1:50	
Client:	Franksha	w Asso	ciates			Dates:	01/10/2020 -	Logged B	
144	Sampl	as and	In Situ Testing	Donth Lovel				L.Jones	
	ater Sampi ikes Depth (m)		1	Depth (m)	Level (m)	Legend	Stratum Description		
	0.30 0.60 0.80 1.00	ES D ES	N=50 (6,7/50 for 275mm)	0.20 0.25 0.50 0.80			Grass over brown slightly sandy clay TOPSOIL with many rootlets. MADE GROUND comprising yellow Sandstone cobble. Stiff yellow orange slightly sandy CL gravels of sandstone and mudstone fine to coarse angular to subrounder. Stiff yellow grey mottled slightly sandy CLAY with inter- bedded Mudstoner and occasional Coal lithorelicts. Very weak grey weathered laminate MUDSTONE. End of borehole at 1.00 m	weathered .AY with . Gravels are d. dy laminated fragments	1 2 3 4 5 6 7 8 8
									9 —
Remarks					l			AGS	

h c	n							Borehole N	lo.
11 2	P				Boi	eho	ole Log	WS02	•
consul	ting						.	Sheet 1 of	
Project Name	e: Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Type WS	÷
Location:	Crowlees	Road,	Mirfield	1		Level:		Scale 1:50	
Client:	Frankshav	v Asso	riates			Dates:	01/10/2020 -	Logged B	
	0					Dates. 01/10/2020 -		L.Jones	
Well Water		Type	In Situ Testing Results	Depth (m)	Level (m)	Legend	Stratum Description		
	0.40 0.70 0.80 1.00	ES ES D	50 (3,4/50 for 240mm)	0.20 0.45 0.60 0.80 1.00			Grass over brown slightly sandy TC many rootlets. MADE GROUND comprising rework slightly sandy clay with occasional be Gravels are fine to coarse angular to subrounded. Stiff grey brown orange mottled slight CLAY. Stiff grey brown mottled CLAY with of Mudstone. Gravels are fine to coars subrounded. Very weak grey weathered MUDSTC Recovered as fragments of MUDST Clay matrix. End of borehole at 1.00 m	need brown rick gravels.	3 3 4 5 6
Remarks									7 - 8
								AGS	3

	n							Borehole N	lo.		
11 2	P				Boi	reho	ole Log	WS03	3		
consult	ing							Sheet 1 of			
Project Name	: Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Type WS	Э		
Location:	Crowlees	Road,	Mirfield			Level:		Scale 1:50			
Client:	Frankshav	v Asso	ciates			Dates:	01/10/2020 -	Logged B L.Jones			
Water	Samples	ples and In Situ Testing		Samples and In Situ Testing		Depth	Level				
Well Strikes	_	Туре	Results	(m)	(m)	Legend	Stratum Description				
Strikes	0.40 0.80 0.90 1.00	ES ES D	Results 50 (4,10/50 for 265mm)	0.20 0.30 0.45 0.80	(m)		Grass over brown slightly sandy TO occasional sandstone gravel and ma Gravels are fine to coarse angular to subrounded. MADE GROUND comprising Sands fragments in a sandy matrix. MADE GROUND comprising rework sandy laminated Clay with many roof MADE GROUND comprising grey at gravelly fill. Gravels are fine to coarse subrounded concrete and brick. Stiff grey brown mottled CLAY. End of borehole at 1.00 m	PSOIL with any rootlets. tone ded slightly bitlets. shy sandy	1 2 3 4 5 6 7 8 9		
									10 —		
Remarks	1	I	I		I			AGS			

h	C	n							Borehole N	lo.
Ш	5	$oldsymbol{arphi}$				Boı	eho	ole Log	WS04	
cons	SUIT	ing							Sheet 1 of	
Project I	Name:	Knowl Par	k Hous		Project No. C3257a		Co-ords:	-	Hole Type WS	Э
ocation	ո:	Crowlees I	Road,		1		Level:		Scale 1:50	
DI:4-		Faradakan		-:-4			D-4	04/40/0000	Logged B	у
Client:		Frankshaw	/ ASSO	ciates 			Dates: 01/10/2020 -		L.Jones	
	Water Strikes	Samples Depth (m)	Type	In Situ Testing Results	Depth (m)	Level (m)	Legend	Stratum Description		
Remark	s	0.30 0.80 1.00 1.20 1.40 2.00	ES ES ES	N=39 (2,2/3,4,10,2 50 (7,9/50 for 230mm)	0.40 0.45 0.60 0.70 1.20 1.50 1.70 2.00			Grass over brown slightly sandy clay TOPSOIL with occasional rootlets at brick and sandstone. Gravels are fin angular to subrounded. MADE GROUND comprising crushe MADE GROUND comprising sandy with cobbles of concrete and sandst are fine to coarse angular to subrou Medium dense to dense yellow fine slightly gravelly SAND with occasior Sandstone. Gravels are fine to coarsubrounded sandstone. Stiff grey orange mottled CLAY. Stiff to very stiff grey brown orange is slightly sandy CLAY with interbedde and Coal lithorelicts. Very stiff grey brown mottled weather MUDSTONE. Recovered as friable IClay with interbedded Mudstone. End of borehole at 2.00 m	and gravels of the to coarse and red brick, gravelly fill one. Gravels and cobbles of the angular to another to coarse and cobbles of the angular to another to coarse and the coarse	1 3 3 4 5 6 7 8 9 10
									AGS	

h	C	n				_	_	_	Borehole N	No.
11	3	Ρ				Bo	reho	ole Log	WS05	5
con	sult	ing					1		Sheet 1 of	
Projec	t Name:	Knowl Par	k Hous	20	Project No. C3257a		Co-ords:	-	Hole Typ WS	е
Location	on:	Crowlees I	Road,		<u> </u>		Level:		Scale 1:50	
Client:		Frankshaw	/ Asso	ciates			Dates:	01/10/2020 -	Logged B L.Jones	-
Well	Water Strikes	Samples Depth (m)	Type	n Situ Testing Results	Depth (m)	Level (m)	Legend	Stratum Description		
Remai		0.45 0.90 1.00 1.50 1.80 2.00 2.60	ES ES D ES	N=28 (3,5/5,7,7,9 N=25 (6,6/5,6,6,8 N=50 (25 for 135mm/50 for 245mm)	0.30 0.45 0.55 0.70 0.90) 1.30 1.50			Grass over brown slightly sandy clar TOPSOIL with many rootlets and oc sandstone and brock gravels. Grave coarse angular to subrounded. MADE GROUND comprising rework gravelly clay fill. Gravels are fine to angular to subrounded sandstone, but pottery. MADE GROUND comprising rework clay fill with rootlets and gravels of but and sandstone. Gravels are fine to cangular to subrounded. Firm to stiff grey black mottled CLAY occasional coal lithrolects. Firm to stiff orange grey mottled CLAY with Mudstone lithrorelicts, Stiff orange grey mottled CLAY. Very weak weathered MUDSTONE grey friable Clay with volumes of in Mudstone. Very weak grey brown weathered IF Very weak grey HUDSTONE. Stiff black grey laminated CLAY with fragments and lithorelicts. Very weak black weathered COAL fragments. End of borehole at 2.60 m	casional els are fine to ked sandy coarse orick and ked black orick, coal coarse / with AY with ravels are d. occasional recovered as terbedded RONSTONE.	1 2 3 4 5 6 7 8 9 10
									AGS	3

	n							Borehole N	lo.
11 2	P			Borehole Log			ole Log	WS06	;
consult	ing						.	Sheet 1 of	
Project Name	: Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	- Hole		e
Location:	Crowlees	Road,	Mirfield			Level:		Scale 1:50	
Client:	Frankshav	v Asso	ciates			Dates:	01/10/2020 -	Logged B L.Jones	
Water	Samples	s and	In Situ Testing	Denth	Depth Level				
Well Strikes	_	Туре		(m)	(m)	Legend	Stratum Description		
Remarks	0.30 0.80 0.90 1.00	ES D ES D	50 (25 for 125mm/ for 230mm)	0.25 0.60 0.80 1.00			Grass over brown slightly sandy clar TOPSOIL with many rootlets and or gravels of brick and sandstone. Grat to coarse angular to subrounded. MADE GROUND comprising rework sandy gravelly Clay fill. Gravels are coarse angular to subrounded brick sandstone. Stiff brown grey orange mottled slig CLAY. Stiff to very stiff brown orange mottle with inter bedded Mudstone fragment End of borehole at 1.00 m	casional vels are fine led brown fine to and lehtly sandy led CLAY hts.	1 2 3 4 5 6 7 8 9 10
								AGS	3

h C	n						_	Borehole N	lo.
11 2	Р				Boi	reho	ole Log	WS07	,
consul	ing						<u> </u>	Sheet 1 of 1	
Project Name	e: Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Type WS	е
Location:	Crowlees	Road,	Mirfield			Level:		Scale 1:50	
Client:	Frankshav	v Asso	ciates			Dates:	01/10/2020 -	Logged B L.Jones	
Water	Sample	s and	In Situ Testing	Depth	Level			2.001100	
Well Strikes		Туре	Results	(m)	(m)	Legend	Stratum Description		
Remarks	0.30 0.70 0.70 1.00	ES D ES	N=50 (4,5/50 for 295mm)	0.20 0.30 0.50 0.70 1.00			Grass over brown slightly sandy clay TOPSOIL with many rootlets. MADE GROUND comprising rework orange grey mottled Clay with grave concrete and sandstone. Gravels are coarse angular to subrounded. Stiff grey brown orange mottled slight CLAY with occasional coal lithrorelic Stiff grey brown orange mottled slight friable CLAY with interbedded coal a sandstone fragments. Very stiff grey orange mottled slightly laminated CLAY with interbedded saftragments. End of borehole at 1.00 m	ed brown Is of brick, e fine to ntly sandy ts. tly sandy ind	1 2 3 4 5 6 7 8 9 10
								AGS	3



DO NOT SCALE NOTES:





- Site Boundary



- Borehole Location Plan



- Borehole + Standpipe



Lawrence House, Meadowbank Way, Eastwood, Nottingham, NG16 3SB Tel: 01773 535 555 Fax: 0870 600 6091

CLIENT:

Frankshaw Associates

PROJECT:

Knowl Park House

TITLE:

Site Location Plan

SCALE@SIZE: NTS FINAL DESIGN/DRAWN: LEJ PROJECT No: C3257 DRAWING No: C3257		
DESIGN/DRAWN: LEJ DATE: Sept 2020 PROJECT No: DRAWING No:	SCALE@SIZE:	ISSUE:
LEJ Sept 2020 PROJECT No: DRAWING No:	NTS	FINAL
	·	
C3257 001	PROJECT No:	DRAWING No:
	C3257	001

© HSP Consulting Engineer Ltd © Crown Copyright.



Appendix IV

	n							_	_	Borehole No	0.
1130						R	ota	Core Log	BH01		
consulti	ing							<i>y</i>	J	Sheet 1 of	3
Project Name:	Knowl Park	(Hous	se			Project No. C3257a		Co-ords:	-	Hole Type RO	Э
_ocation:	Crowlees F	Road, I	Mirfield	l	,			Level:		Scale 1:50	
Client:	Frankshaw	Assoc	ciates					Dates:	10/02/2021 -	Logged B	
Water Water	Depth	Туре		Coring		Depth	Level			DIVILLE	
Well Strikes	(m)	/FI	TCR	SCR		(m)	(m)	Legend	Stratum Description		
						2.00 4.00 6.00 6.40			Yellow and brown MUDSTONE. Light grey MUDSTONE. Light grey MUDSTONE.		1 2 3 4 5 6 7 8 9
											9 -
											_
											-
7/23//2									Continued on next sheet		10 —
Remarks										AGS	

h s	0		R	ota	rv (Core Log	Borehole No.	-
consulti	ng				,	3 - 3 - 3	Sheet 2 of 3	
Project Name:	Knowl Park Hou	ise	oject No. 3257a		Co-ords:	-	Hole Type RO	
_ocation:	Crowlees Road,	Mirfield			Level:		Scale 1:50	
Client:	Frankshaw Asso	ociates			Dates:	10/02/2021 -	Logged By DRILLER	
Well Water Strikes	Depth Type (m) / FI	TCR SCR	Depth (m)	Level (m)	Legend	Stratum Description		
Remarks			15.00 15.50			COAL. Light grey MUDSTONE.		111 112 113 114 115 115 116 117 117 117 117 117 117 117 118 119 1
≺emarks							AGS	

h s	<u> </u>					_	4			Borehole N	0.
11 2						R	otaı	ry (Core Log	BH01	
consulti	ng									Sheet 3 of	
Project Name:	Knowl Park	(Hous	e			oject No. 3257a		Co-ords:	-	Hole Type RO	е
_ocation:	Crowlees F	Road, I	Mirfield	l				Level:		Scale 1:50	
Client:	Frankshaw	Assoc	ciates					Dates:	10/02/2021 -	Logged B DRILLER	
Well Water Strikes	Depth (m)	Type / FI	TCR	Coring SCR		Depth (m)	Level (m)	Legend	Stratum Description		
			1011	0011	1100						-
											-
											21 —
											-
											-
											22 —
											-
											23 —
											-
											-
											24 -
						24.60			COAL.		-
											25 —
						25.60					-
						25.00			Light grey MUDSTONE.		26 —
											-
											27 -
											-
											28 —
											-
											-
											29 -
											-
						30.00			End of borehole at 30.00 m		30 —
Remarks							ı			AGS	

	n							Borehole N	lo.
11 5	P				BH01				
consult	ing						ole Log	Sheet 1 of	
Project Name:	Knowl Park	(Hous		Project No. C3257a		Co-ords:	-	Hole Type RO	Ф
Location:	Crowlees F	Road, I	Mirfield			Level:		Scale 1:50	
Client: Frankshaw Associates						Dates:	10/02/2021 -	Logged B DRILLER	
Well Water	1		n Situ Testing	Depth	Level	Legend	Stratum Description		
Strikes	Depth (m)	Туре	Results	(m)	(m)	g	Fill and Clay.		
				2.00			Yellow and brown MUDSTONE.		3
							Light grey MUDSTONE.		5 -
				6.00			Black MUDSTONE.		6 -
Remarks				6.40			Light grey MUDSTONE. Continued on next sheet		7 - 8 - 9 - 10 - 10 - 10 - 10 - 10 - 10 - 10
nemarks								AGS	

Cooling	h S consult			Project No.	Boı	1	ole Log	BH01 Sheet 2 of	f 3
Cocation: Crowlees Corporation Crowlees Cocation: Co	Project Name:	Knowl Park House	e			Co-ords:	-	RO	
Well Water Samples and In Situ Testing Strikes Depth (m) Type Results 11. — Results 12. — Results 13. — Results 15.00 15.50 COAL Light grey MUDSTONE. 16. — Results Coatinued on neal states 20. — Results 19. — Results 11. — Results Depth (m) Type Results Depth (m) Level (m) Results Legend Stratum Description 11. — Results COAL 15. — Results Depth (m) Type Results Depth (m) Results Depth (ocation:	Crowlees Road, N	Mirfield			Level:			
Water Water Surface Depth (m) Type Results Depth (m) Results Legend Stratum Description	Client:	Frankshaw Assoc	iates			Dates:	10/02/2021 -		
15.00 15.50 COAL. 15.50 Light grey MUDSTONE. 16.— 17.— 17.— 18.— 19.— Continued on next steest. 20.— Continued on next steest.	Well Water Strikes					Legend	Stratum Description		
Remarks AGS	Remarks						Light grey MUDSTONE.		12 —

6	C	<u> </u>							Borehole N	Ю.
Ш	5	P				Boı	eho	ole Log	BH01	
con	sult	ing						•	Sheet 3 of	3
Project	t Name:	Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Type RO	е
_ocatio	on:	Crowlees I	Road,	Mirfield			Level:		Scale 1:50	
Client:		Frankshaw	/ Asso	ciates			Dates:	10/02/2021 -	Logged B	
	Water			n Situ Testing	Depth	Level			DRILLER	₹
Well	Strikes	Depth (m)	Туре	Results	(m)	(m)	Legend	Stratum Description		
					24.60			COAL. Light grey MUDSTONE.		21 - 22 - 23 - 24 - 25 - 26 - 27 - 27 - 27 - 27 - 27 - 27 - 27
										28 -
										29 -
					30.00			End of borehole at 30.00 m		30 —
Remar	ks								AGS	

	n								_	Borehole No	0.
11 5	P					R	ota	ry (Core Log	BH02	
consulti	ing							<i>y</i>	9	Sheet 1 of	3
Project Name:	Knowl Par	k Hous	se			oject No. 3257a		Co-ords:	-	Hole Type RO	9
_ocation:	Crowlees I	Road,	Mirfield	d	l .			Level:		Scale 1:50	
Client:	Frankshaw	/ Asso	ciates					Dates:	10/02/2021 -	Logged B	
Water Water	Depth	Туре		Coring		Depth	Level			DIVILLEIV	
Well Strikes	(m)	/FI	TCR	SCR		(m)	(m)	Legend	Stratum Description		
									Fill and Clay.		_
											=
											_
											1 —
											_
											_
						1.80			Yellow and brown MUDSTONE.		-
									Tollow and Brown Mobo Forte.		2 —
											_
											_
						3.00					3 —
						3.00			COAL.		-
											-
											=
						4.00			Yellow and brown MUDSTONE.		4 =
											-
											_
											-
						5.00			Light grey MUDSTONE.		5 —
											-
											6 -
											_
											-
											-
											7 —
											-
											-
											8 —
											-
											_
											9 —
											-
											10 —
Remarks									Continued on next sheet		
										AGS	

h s i	O				R	ota	rv (Core Log	Borehole N	
consulti	n q				1 /	Ota	ı y \	Joie Log	Sheet 2 of	
		Llavaa		Pro	oject No.		Ca anda.		Hole Typ	
Project Name:	Knowl Park I	nouse		C3	3257a		Co-ords:	-	RO	
_ocation:	Crowlees Ro	oad, Mirfiel	d				Level:		Scale 1:50	
Client:	Frankshaw A	Associates					Dates:	10/02/2021 -	Logged E	
Well Water Strikes	Depth T	уре	Coring		Depth	Level	Legend	Stratum Description		
	(m)	/FI TCR	SCR	RQD	12.40 13.50 14.20 14.40	(m)		COAL. Light grey MUDSTONE. COAL. Light grey MUDSTONE.		11 — 12 — 13 — 14 — 15 — 16 — 17 — 18 — 19 — 19 — 19 — 19 — 19 — 19 — 19
Remarks									AGS	S

2	n						_		_	Borehole N	0.
113	P					R	ota	ry (Core Log	BH02	2
consulti	ıng							<u> </u>		Sheet 3 of	
Project Name:	Knowl Parl	k Hous	e			oject No. 3257a		Co-ords:	-	Hole Type RO	е
_ocation:	Crowlees F	Road, I	Mirfield	I				Level:		Scale 1:50	
Client:	Frankshaw	/ Assoc	ciates					Dates:	10/02/2021 -	Logged B DRILLEF	
Well Water Strikes	Depth (m)	Type / FI		Coring		Depth (m)	Level (m)	Legend	Stratum Description		
Otrikes	(111)	/ 1 1	TCR	SCR	RQD	(111)	(111)				_
											-
											-
											21 -
											-
						22.00			COAL.		22 –
											-
											-
						23.00			Light grey MUDSTONE.		23 -
											-
											-
											24 -
											-
											25 -
											_
											-
											26 —
											-
											27 —
											-
						28.00			COAL.		28 —
						28.40			Light grey MUDSTONE.		=
											29 —
											-
Remarks						30.00			End of borehole at 30.00 m	·	30 —
veillai <i>ks</i>										AGS	

h [c	n							Borehole N	lo.
11 2	P				Boı	reho	ole Log	BH02	
consult	ing							Sheet 1 of	
Project Name	e: Knowl Par	k Hous		Project No. C3257a		Co-ords:	-	Hole Type RO	Э
Location:	Crowlees	Road, I	Mirfield			Level:		Scale 1:50	
Client:	Frankshav	v Assoc	ciates			Dates:	10/02/2021 -	Logged B DRILLER	
Well Water		s and I	n Situ Testing	Depth	Level	Legend	Stratum Description		
Strikes	Depth (m)	Туре	Results	(m)	(m)	Logona	Fill and Clay.		
							i ili alia Olay.		=
									_
									1 -
									-
									-
				1.80		**********	Yellow and brown MUDSTONE.		2 -
									_
									_
				3.00			COAL.		3 –
									-
									_
									_
				4.00			Yellow and brown MUDSTONE.		4 -
									_
									-
				5.00					5 —
				0.50			Light grey MUDSTONE.		
									_
									6 =
									-
									-
									7 —
									=
									8 —
									-
									9 _
									-
									=
Domestic							Continued on next sheet		10 —
Remarks								AGS	

	C	<u> </u>							Borehole N	No.
11	5	P				Boı	reho	ole Log	BH02	2
con	sult	ing						O	Sheet 2 of	f 3
Projec	t Name:	Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Typ RO	е
Locatio	on:	Crowlees I	Road,	Mirfield			Level:		Scale 1:50	
Client:		Frankshaw	v Asso	ciates			Dates:	10/02/2021 -	Logged B	
Well	Water	Samples	s and I	n Situ Testing	Depth	Level	Legend	Stratum Description		
vveii	Strikes	Depth (m)	Туре	Results	(m)	(m)	Legend	Stratum Description		
										-
										-
										11 -
										_
										-
										12 —
					12.40			COAL.		_ =
								OOAL.		_
										13 —
					13.50			Light grey MUDSTONE.]]
								Light grey MODSTONE.		
										14 -
					14.20			COAL.		
					14.40			Light grey MUDSTONE.] =
										15 —
										-
										16 —
										-
										-
										17 —
										_
										-
										18 —
										_
										10
										19 —
										=
										-
								Continued on next sheet		20 —
Remar	ks					1	1	Sommed on next affect		
									AGS	3

h S	p				Bo	reho	ole Log	Borehole I BH02 Sheet 3 o	2
Project Name:		k Hous	e	Project No. C3257a		Co-ords:	-	Hole Typ RO	
_ocation:	Crowlees	Road, I	Mirfield	C3237 a		Level:		Scale	
Client:	Frankshav					Dates:	10/02/2021 -	1:50 Logged E	
						Dates.	10/02/2021 -	DRILLEI	R T
Well Water Strikes	Depth (m)	Туре	n Situ Testing Results	Depth (m)	Level (m)	Legend	Stratum Description		
	,	7.							-
									-
									-
									21 -
									-
									-
				22.00			COAL.		22 -
									-
									-
				23.00			Light grey MUDSTONE.		23
									24
									-
									-
									25
									-
									-
									26 -
									-
									27 -
									-
									-
				28.00					28 -
							COAL.		-
				28.40			Light grey MUDSTONE.		-
									20 -
									29 -
									-
				00.00					
Remarks				30.00			End of borehole at 30.00 m		30 —
								AG	S

Client: Frankshaw Associates Dates: 10/02/2021 - Logged By DRILLER Well Water Strikes (m) Type / FI TCR SCR RQD (m) Level (m) Fill and Clay.		n								_	Borehole N	0.
And the state of t	11 5	P					R	ota	ry (Core Log	BH03	3
Cocation: Crowlees Road, Mirfield Crow	consult	ing								0	Sheet 1 of	3
Contact Crowlees Road, Mirrield Crowlees Road, Mirrield Level: Scale 1.50	Project Name:	Knowl Parl	k Hous	se					Co-ords:	-		е
Clent	_ocation:	Crowlees F	Road,	Mirfield	d	I			Level:		Scale	
Water Depth Type TCR SCR ROD ROD TCR SCR ROD	Client:	Frankshaw	/ Asso	ciates					Dates:	10/02/2021 -	Logged B	
Strikes	Motor	Donth	Tuna		Coring		Donth	Lovel				Ì
1.70 Veilow and brown MUDSTONE. 2 - 3.00 Light grey MUDSTONE. 5 - 5.50 Light grey MUDSTONE. 6 - 7 - 8 - 8 - Continued on next sheet	Well Strikes	(m)	/FI					(m)	Legend	Stratum Description		
1.70 Yellow and brown MUDSTONE. 2										Fill and Clay.		-
1.70 Yellow and brown MUDSTONE. 2												-
1.70 Yellow and brown MUDSTONE. 2												-
3.00 Light grey MUDSTONE. 4 COAL. 5 Light grey MUDSTONE. 6 7 Continued on next sheet Continued on next sheet 10 —												1 -
3.00 Light grey MUDSTONE. 4 COAL. 5 Light grey MUDSTONE. 6 7 Continued on next sheet Continued on next sheet 10 —												
3.00 Light grey MUDSTONE. 4 COAL. 5 Light grey MUDSTONE. 6 7 Continued on next sheet Continued on next sheet 10 —												-
3.00 Light grey MUDSTONE. 4.50 COAL. 5.50 Light grey MUDSTONE. 6- 7- 8- Continued on next sheet 10- Remarks							1.70			Yellow and brown MUDSTONE.		
4.50 COAL. 5.50 Light grey MUDSTONE. 6 - 7 - 8 - 9 -												2 -
4.50 COAL. 5.50 Light grey MUDSTONE. 6 - 7 - 8 - 9 -												-
4.50 COAL. 5.50 Light grey MUDSTONE. 6 - 7 - 8 - 9 -												-
4.50 COAL. 5.50 Light grey MUDSTONE. 6 - 7 - 8 - 9 -							2.00					:
4.50 COAL. 5 - Light grey MUDSTONE. 6 - 7 - 8 - Continued on next sheet Continued on next sheet							3.00			Light grey MUDSTONE.		3 -
4.50 COAL. 5 - Light grey MUDSTONE. 6 - 7 - 8 - Continued on next sheet Continued on next sheet												-
4.50 COAL. 5 - Light grey MUDSTONE. 6 - 7 - 8 - Continued on next sheet Continued on next sheet												
5.50 Light grey MUDSTONE. 6												4 -
5.50 Light grey MUDSTONE. 6												-
5.50 Light grey MUDSTONE. 7							4.50			COAL.		-
Semarks Light grey MUDSTONE. 6												-
Tugin gey MODSTONE. 6 - 7 - 8 - 9 - Continued on next sheet 10 -												5 -
Tugin gey MODSTONE. 6 - 7 - 8 - 9 - Continued on next sheet 10 -							5.50					-
Remarks 7							5.50			Light grey MUDSTONE.] =
Remarks 7												6 -
8 - 9 - Continued on next sheet												
8 - 9 - Continued on next sheet												-
8 - 9 - Continued on next sheet												
Quantity of the second of the												7 -
Quantity of the second of the												-
Quantity of the second of the												-
Quantity of the second of the												
Continued on next sheet 10 — Remarks												8 -
Continued on next sheet 10 — Remarks												
Continued on next sheet 10 — Remarks												
Remarks												9 -
Remarks												
Remarks												-
Remarks												:
Remarks AGS										Continued on next sheet		10 -
AGS	Remarks											ì
											AGS	3

	<u> </u>					_			_	Borehole N	lo.
11 2	J					R	otaı	ry (Core Log	BH03	3
consulti	ng							<i>y</i>	0	Sheet 2 of	3
Project Name:	Knowl Parl	k Hous	se			oject No. 3257a		Co-ords:	-	Hole Type RO	е
_ocation:	Crowlees F	Road,	Mirfield	i				Level:		Scale 1:50	
Client:	Frankshaw	/ Asso	ciates					Dates:	10/02/2021 -	Logged B DRILLEF	
Well Water	Depth	Туре		Coring		Depth	Level	Legend	Stratum Description		
Strikes	(m)	/FI	TCR	SCR	RQD	(m)	(m)		·		_
											=
											=
											11 -
											-
											12 _
											=
											13 —
											-
						13.50			COAL.] =
											14 -
											-
						14.50			Light grey MUDSTONE.		-
											15 —
											-
											16
											-
											17 —
											-
											-
											18
											-
											-
											-
											19 —
] =
											=
Remarks									Continued on next sheet		20 —
										AGS	3

h S	p					R	ota	ry (Core Log	BH03 Sheet 3 of	3
Project Name	: Knowl Pa	ark Hous	se			oject No. 257a		Co-ords:	-	Hole Typ RO	е
_ocation:	Crowlees	s Road,	Mirfield	d	100	2014		Level:		Scale 1:50	
Client:	Franksha	aw Asso	ciates					Dates:	10/02/2021 -	Logged B	
Mater	Depth	Туре		Coring	3	Depth	Level			DRILLEF	1
Well Strikes	(m)	/ FI	TCR		RQD	(m)	(m)	Legend	Stratum Description		
											21 -
						21.40					-
						21.40			COAL.] =
											22 -
						22.40					
						22.40			Light grey MUDSTONE.		-
											23 -
											-
											-
											24 -
											-
											-
											25 —
											-
											-
											26 -
											-
						20.00					-
						26.80			Coal.		27 -
						07.50					-
						27.50			Light grey MUDSTONE.		
											28 -
											-
											29 -
											-
											-
						30.00			End of borehole at 30.00 m		30 -
Remarks			1	1	1		1	1		AGS	3

6	C	<u> </u>							Borehole N	Ю.
Ш	2	P				Boi	reho	ole Log	BH03	;
con	sult	ing						O	Sheet 1 of	3
Project	Name:	Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Type RO	æ
Locatio	n:	Crowlees I	Road,	Mirfield			Level:		Scale 1:50	
Client:		Frankshaw	v Asso	ciates			Dates:	10/02/2021 -	Logged B	
	\\/ata=			n Situ Testing	Danth	Laval		13/32/2021	DRILLER	₹
Well	Water Strikes	Depth (m)	Туре	Results	Depth (m)	Level (m)	Legend	Stratum Description		
					1.70 3.00 4.50			Yellow and brown MUDSTONE. Light grey MUDSTONE. COAL.		1 2 3 4 1 5 6 7 8 8 1 8 1 1 1 1 1 1
										9
Remar	ks							Continued on next sheet	AGS	

		n							Borehole N	Ю.
Ш	5	P				Boi	reho	ole Log	BH03	3
con	sult	ing						O	Sheet 2 of	3
Projec	t Name:	Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Type RO	Ф
_ocatio	on:	Crowlees I	Road,	Mirfield			Level:		Scale 1:50	
Client:		Frankshav	v Asso	ciates			Dates:	10/02/2021 -	Logged B DRILLEF	
Well	Water	Samples	s and l	n Situ Testing	Depth	Level	Legend	Stratum Description		
Well	Strikes	Depth (m)	Туре	Results	(m)	(m)	Legend	Stratum Description		
										-
										_
										_
										11 _
										_
										12 -
										_
										_
										13 —
					13.50			COAL.		
								OOAL.		_
										14 _
										-
					14.50			Light grey MUDSTONE.		
										=
										15 _
										=
										_
										16 —
										-
										=
										_
										17 —
										18 _
										-
										=
										46
										19 —
										-
								2		20 —
Remar	·ks							Continued on next sheet		
									AGS	3

h s	р				Bo	reho	ole Log	Borehole I	
consult	ing					. 0110	310 2 09	Sheet 3 o	
Project Name:	Knowl Par	k Hous	е	Project No. C3257a		Co-ords:	-	Hole Typ RO	е
_ocation:	Crowlees	Road, I	Mirfield	-		Level:		Scale 1:50	
Client:	Frankshav	v Assoc	ciates			Dates:	10/02/2021 -	Logged E DRILLEI	
Well Water	Sample	s and I	n Situ Testing	Depth	Level	Legend	Stratum Description		
Strikes	Depth (m)	Туре	Results	(m)	(m)	Logona	Chatam Bosonphon		
									-
									-
									21 -
				21.40			COAL.		1 =
									-
									22 -
				22.40			Light grey MUDSTONE.		
									23 -
									-
									-
									24
									-
									-
									25 -
									-
									26 -
									-
				26.80] -
				20.00			Coal.		27 -
				27.50			Light grow MUDCTONE		_
							Light grey MUDSTONE.		-
									28 -
									-
									29 -
									-
									-
				30.00			End of borehole at 30.00 m		30 -
Remarks								AG	S

	2								_	Borehole N	lo.
20 no ulting						R	ota	ry (Core Log	BH04	ļ
consulting								<u> </u>		Sheet 1 of	
Project Name:	Knowl Par	k Hous	se			Project No. C3257a		Co-ords: -		Hole Type RO	е
_ocation:	Crowlees Road, Mirfield					00207.5		Level:	Level:		
Client: Frankshaw Associates								Dates:	11/02/2021 -	1:50 Logged B	
Water	Depth	Туре		Coring		Depth	Level			DRILLEF	\
Well Strikes	(m)	/ FI				(m)	(m)	Legend	Stratum Description		
									Fill and Clay.		-
											-
											1 -
											-
						1.80			Yellow and brown MUDSTONE.		-
									Tellow and blown Wobo Fore.		2 -
											-
											-
											-
											3 -
]
											-
						4.00			LI LI MUROTONE		4 -
									Light grey MUDSTONE.		-
											-
						4.70			COAL.		
											5 -
						5.40					
						3.40			Light grey MUDSTONE.		-
											-
											6 -
											-
											-
											7 -
											-
											8 -
											-
											-
											9 -
											=
											10 -
Remarks									Continued on next sheet		10 —
										AGS	3

n s i	O		D	oto	rv (Poro Log	Borehole No.
consulti	na			Ola	ly c	Core Log	BH04 Sheet 2 of 3
Project Name:		100	Project No.		Co-ords:		Hole Type
Project Name.	Kilowi Park Hou		C3257a		Co-ords.	-	RO Scale
Location: Crowlees Road, Mirfield					Level:		1:50
Client:	Frankshaw Asso			Dates:	11/02/2021 -	Logged By DRILLER	
Well Water	Depth Type		Depth	Level	Legend	Stratum Description	
Remarks	(m) /FI	TCR SCR I		(m)	Legend	COAL. Light grey MUDSTONE. COAL. Light grey MUDSTONE.	11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 20 - 17 - 18 - 19 - 19 - 19 - 19 - 19 - 19 - 19
veniaiks							AGS

	<u> </u>								_	Borehole N	lo.
11 2	<u> </u>					R	ota	ry (Core Log	BH04	ŀ
consulting										Sheet 3 of	
Project Name:						Project No. C3257a		Co-ords: -		Hole Type RO	
Location:	Crowlees Road, Mirfield					Level:		Scale 1:50			
Client:	Frankshaw	Assoc	ciates					Dates:	11/02/2021 -	Logged B DRILLEF	
Well Water Strikes	Depth (m)	Type / FI	TCR	Coring SCR		Depth (m)	Level (m)	Legend	Stratum Description		
	. ,		TOIX	JOIN	NQD						-
											-
											21 —
											-
											22 —
											-
											-
											23 _
											-
											-
											24 _
						24.50			COAL.		-
											25 —
						25.30			Light grey MUDSTONE.		
											-
											26 _
											27 —
											28 —
											20 -
											-
											29 —
						30.00			End of borehole at 30.00 m		30 -
Remarks										AGS	3

	C	<u> </u>							Borehole N	lo.
Ш	5	P				BH04				
con	sult	ing						ole Log	Sheet 1 of 3	
Project	Name:	Knowl Par	k Hous	se	Project No. C3257a		Co-ords:	-	Hole Type RO	0
Locatio	n:	Crowlees I	Road,	Mirfield			Level:		Scale 1:50	
Client:		Frankshaw	/ Asso	ciates			Dates:	11/02/2021 -	Logged B DRILLER	
Well	Water	Samples	s and I	n Situ Testing	Depth	Level	Legend	Stratum Description		
(//\\\/	Strikes	Depth (m)	Туре	Results	(m)	(m)	Logona	Fill and Clay.		
					4.00 4.70 5.40			Yellow and brown MUDSTONE. Light grey MUDSTONE. COAL. Light grey MUDSTONE.		1 2 3 3 4 5 6 7 8 8 1 8 1 1 1 1 1 1
										9 —
										-
								Continued on next sheet		10 —
Remarl	ks				,	•			AGS	

	C	<u> </u>							Borehole N	Ю.
Ш	5	Р				BH04				
con	sult	ing						ole Log	Sheet 2 of	3
Projec	t Name:	Knowl Par	k Hous		Project No. C3257a		Co-ords:	-	Hole Type RO	е
Locatio	on:	Crowlees I	Road,				Level:		Scale 1:50	
Client:		Frankshaw	/ Asso	ciates			Dates:	11/02/2021 -	Logged B DRILLER	
\\/_II	Water	Samples	s and I	n Situ Testing	Depth	Level	1	Stuatura Dagarintian		
Well	Strikes	Depth (m)	Туре	Results	(m)	(m)	Legend	Stratum Description		
										_
										_
										-
										11 -
										_
										-
										_
										12 —
										-
										_
										13 —
										-
										_
										14 -
										-
										_
					14.70			COAL.		-
					45.00					15 _
					15.20			Light grey MUDSTONE.]]
										_
					16.00					16 —
					16.30			COAL.		-
					10.30			Light grey MUDSTONE.]]
										17 _
										18 _
										_
										_
										10
										19 —
										=
										-
								Continued on next sheet		20 —
Remar	·ks		ı			1		Communed on next sheet	AGS	
									ALGE	2

	n							Borehole N	lo.
11 2	P			Borehole Log				BH04	
consult	ing						0	Sheet 3 of	3
Project Name	me: Knowl Park House			Project No. C3257a		Co-ords:	-	Hole Type RO	0
Location:	Crowlees I	Road,	Mirfield			Level:		Scale 1:50	
Client:	Frankshav	v Asso	ciates			Dates:	11/02/2021 -	Logged B	
Water	1		n Situ Testing	Depth	Level			DRILLER	₹
Well Strikes		Туре	Results	(m)	(m)	Legend	Stratum Description		
				24.50			COAL. Light grey MUDSTONE.		21 —
				30.00			End of borehole at 30.00 m		28 —
Remarks								AGS	3



DO NOT SCALE NOTES:



- Site Boundary



- Borehole



Lawrence House, Meadowbank Way, Eastwood, Nottingham, NG16 3SB Tel: 01773 535 555 Fax: 0870 600 6091

CLIENT:

Frankshaw Associates

PROJECT:

Knowl Park House

TITLE:

Coal Investigation Site Location Plan

Location	JII FIAII
SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
LEJ	Jan 2021
PROJECT No:	DRAWING No:
C3257	001

© HSP Consulting Engineer Ltd
© Crown Copyright.

