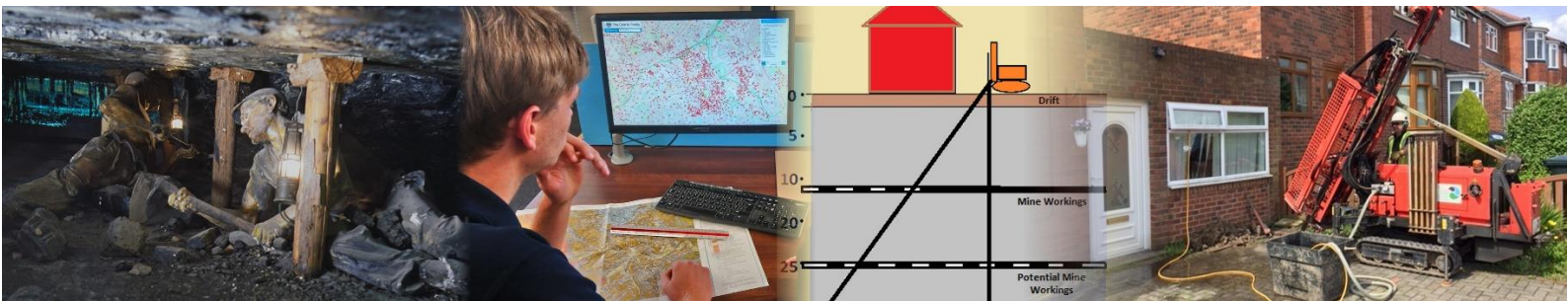




GEOLOGICAL
 GEOTECHNICAL
 GEOENVIRONMENTAL
 CONSULTANCY
 DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED

Coal Mining Risk Assessment (CMRA)

LOCATION	28 South View Road, Hoyland, Barnsley, S74 9EB
ISSUE DATE	14 September 2020
FOR	Andy Brown
CLIENT REF.	
OUR REF.	G20308

Prepared by

Charlotte Campion MGeoSci (Hons) FGS
 Senior Geo-environmental Engineer

Checked by

Ross Nicolson BSc(Hons) MSc(Eng) CEng MIM³
 Principal Geotechnical Engineer

SUMMARY FINDINGS

OUTCOME (MITIGATION REQUIRED?) (YES or NO)	<u>NO</u> . This CMRA has shown that the proposed development is safe with respect to coal mining legacy issues and no further mitigation is required neither further drilling investigation, special foundation design, mine working treatment or mine gas protection.
WHAT TO DO NEXT	Nothing – No further mitigation is required with respect to coal mining legacy issues.

1. CMRA INTRODUCTION

1.1 SITE LOCATION AND DESCRIPTION

The approximate centre of this site is at National Grid Reference E 436643 N 400321 with a ground height of about 151m AOD. The boundary shown RED in the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area. It is proposed to demolish the existing residential property and erect five new dwellings on the site. The location and layout of the proposed development is shown in Appendix B.

Historical Ordnance Survey (OS) mapping of 1855 shows the site to be agricultural land, recorded as an orchard by 1956 and developed with a residential property by between 1969 and 1979. The area surrounding the site is recorded as agricultural land until between 1931 and 1938 sometime after which it is indicated to have been developed with residential properties.

The historical map record provides no evidence that the site itself, or area surrounding, has been subject to surface mining activity.

Description & Layout of Proposed Development: It is proposed to demolish the existing residential property and erect 5 new detached dwellings on the site. The layout of the development is shown in Appendix B.

Risk Methodology Applied: This document and the risk assessment methodology adopted herein is based on CA publication RISK BASED APPROACH TO DEVELOPMENT MANAGEMENT - GUIDANCE FOR DEVELOPERS Version 3, 2014 and Version 4 - 2017. The template contained therein is adopted with amendments made by Geoinvestigate Limited.

2. ASSESSMENT OF SITE-SPECIFIC COAL MINING ISSUES

The table below summarises the potential risks associated with coal mining legacy for the proposed development site identified from the CA report in Appendix A:

Coal Mining Issues	Yes	No	Risk Assessment/Remarks
Past underground coal mining	Yes		2.1.1 (refer below)
Probable unrecorded shallow workings		No	2.1.2
Spine roadways at shallow depth		No	
Mine entries		No	2.1.3
Outcrop	Yes		2.1.2
Geological faults, fissures and breaklines		No	
Opencast Mines		No	
Coal Mining Subsidence		No	
Mine Gas		No	
Site investigations	Yes		2.1.2

Note: For those coal mining issues above identified as "Yes" or highlighted "YELLOW" a more detailed discussion and assessment are made of the risks to the application site and the proposed development.

2.1 DETAILED DISCUSSION & ASSESSMENT RESPONSE

2.1.1 Past Underground Mining

The Coal Authority report in Appendix A identifies past/recorded underground mining beneath the site in 8 seams of coal at depths between 82m and 407m, last worked in 1960. In our opinion such working lies too deep to impact surface ground stability within the proposed development area.

This does not mean that shallower unrecorded mine working does not exist beneath the site though the Coal Authority do not believe this to be so in this instance. Mine maps and other documents can get lost or destroyed over the years and if mining was very old there may be no records about it whatsoever and local memories fade quickly.

The strata and coal seams dip at 2.6 - 2.9 deg. NE.

2.1.2 Probable Unrecorded Shallow Workings

According to the CA report the site does not fall within an area of Probable Unrecorded Shallow Workings. The CA define Probable Unrecorded Shallow Workings as "Areas where the Coal Authority believes there to be unrecorded coal working that exist at or close to the surface" (i.e. less than 30m).

The location of the site is shown on the extract of BGS solid geology map presented in Appendix C. The tentative elevation of the site relative to the vertical geology column is shown below the map.

A previous site investigation is recorded by the CA only 1.4m east of the site. Online borehole information available through Barnsley Metropolitan Borough Council's planning portal includes three boreholes, located in what appears to be the rear garden of a property on neighbouring Clough Road. These holes record intact coal seam at 10.2m to 10.5m depth, with thickness of between 0.2m and 0.3m. In our opinion this coal seam likely corresponds to the Kents Thin coal seam recorded to outcrop within the proposed development site. These borehole records also indicate that rockhead is present at depths between 0.8m and 1.5m.

The 10T rule of thumb is used to assess whether upward void migration from shallow mine working will result in surface crown hole subsidence or collapse. If the thickness of rock cover above mine working exceeds 10T this type of instability is unlikely. Assuming an extraction thickness of 0.6m then the thickness of rock cover needed is 6m in which case this condition is met and exceeded. Therefore, in our opinion the stability of the site is safe in this regard.

Perhaps in making their assessment of no probable working beneath the site in their report the Coal Authority were aware of the narrowness of the Kents Thin seam at this locality and the favourable outcome of this previous nearby site investigation.

2.1.3 Mine Entries

According to the CA report no recorded mine entries are present within, or within 100m, of the site.

3. SUMMARY AND OUTCOME

This CMRA has shown that coal mine working is not expected beneath the site within shallow depth and there is not considered to be a surface ground stability risk because the shallow coal is thin and there is adequate thickness of rock cover above the seam even if it has been worked. Therefore, in our opinion the site is stable, and no further mitigation is required with respect to coal mining legacy.

4. MITIGATION STRATEGY PROPOSED AND CONCLUSION

NONE REQUIRED – as this CMRA has shown that the proposed development is not at risk from the possible presence of shallow mine working beneath it.

On the basis of the CMRA work to date, we are of the opinion that the mining stability and mine gas risks posed by the strata beneath this site from coal mining legacy do not pose ground stability or mine gas risk to the proposed development.

In conclusion we see no reason why Planning Permission should not be granted with respect to coal mining legacy issues.

Appendices:

- A. CA Consultants Coal Mining Report issued 8 September 2020 ref 51002298871001
- B. Site Location Development Layout & Site Images
- C. Extracts of BGS Geology Map, Sheet 87 Barnsley- at 1:50000 scale

APPENDIX A
COAL AUTHORITY REPORT

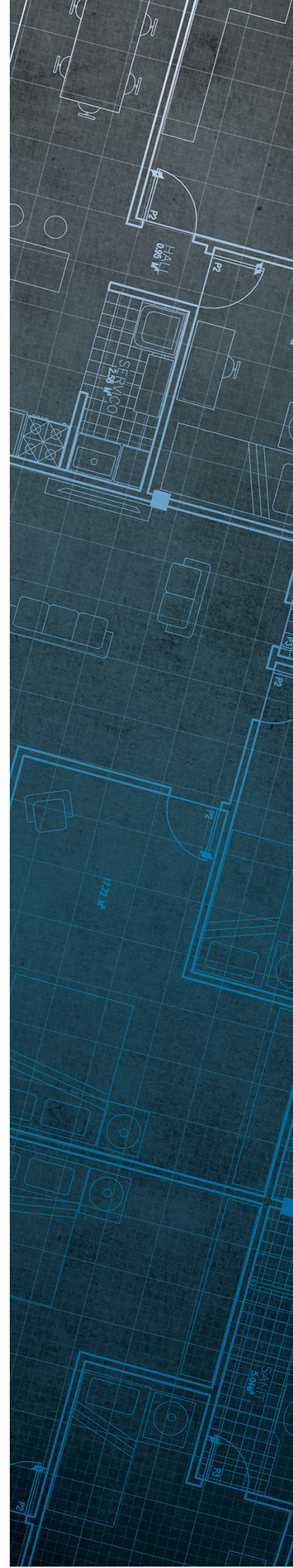


The Coal
Authority

Consultants Coal Mining Report

28 South View Road
Hoyland
Barnsley
S74 9EB

Date of enquiry:	8 September 2020
Date enquiry received:	8 September 2020
Issue date:	8 September 2020
Our reference:	51002298871001
Your reference:	G20308



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

GEOINVESTIGATE

Enquiry address

28 South View Road
Hoyland
Barnsley
S74 9EB

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

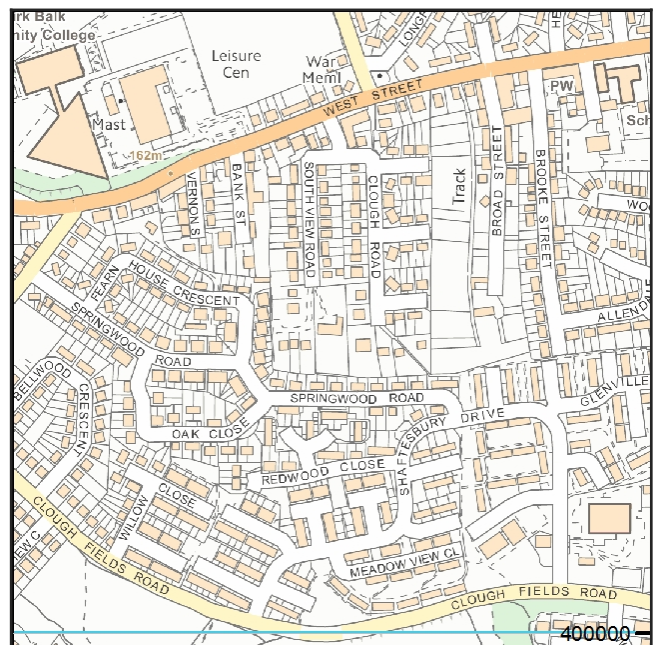
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
PARKGATE	TOP HARD BARNSELEY	Coal	5OTZ	82	Beneath Property	2.6	North-East	239	1873
ROCKINGHAM	SWALLOW WOOD	Coal	5OU4	122	South-West	2.9	North-East	122	1960
ROCKINGHAM	SWALLOW WOOD	Coal	5OU5	129	Beneath Property	2.9	North-East	122	1960
ROCKINGHAM	SWALLOW WOOD	Coal	5OU3	137	North	2.9	North-East	122	1947
unnamed	LIDGETT	Coal	5NM9	205	Beneath Property	2.3	North	120	1903
unnamed	TOP FENTON	Coal	5OUD	246	South-West	3.2	North-East	104	1925
ROCKINGHAM / HARLEY	PARKGATE	Coal	4OWH	264	South-West	3.0	North-East	168	1898
ROCKINGHAM	THORNCLIFFE	Coal	5OUK	294	South-West	2.8	North-East	64	1908
unnamed	LOW FENTON	Coal	5NMD	309	Beneath Property	1.7	North-East	107	1951
unnamed	TOP FENTON	Coal	5OUE	309	Beneath Property	2.2	North-East	104	1912
HOYLAND SILKSTONE	PARKGATE	Coal	4OWI	319	Beneath Property	3.7	North-East	168	1926
ROCKINGHAM	THORNCLIFFE	Coal	5OUL	335	Beneath Property	4.1	North-East	86	1941
ROCKINGHAM	SILKSTONE	Coal	4OWA	362	South-West	2.7	East	86	1894
HOYLAND SILKSTONE	SILKSTONE	Coal	4OWB	407	Beneath Property	2.8	North-East	86	1913

Probable unrecorded shallow workings

None.

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:

14371	M432	NE855
9039	NE853	2250
12953	SY165	NE820

Our records show we have more plans than those shown above which could affect the enquiry boundary.

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
KENTS THIN	Coal	Yes	Within	N/A	103

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
1.4	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.




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VAT receipt

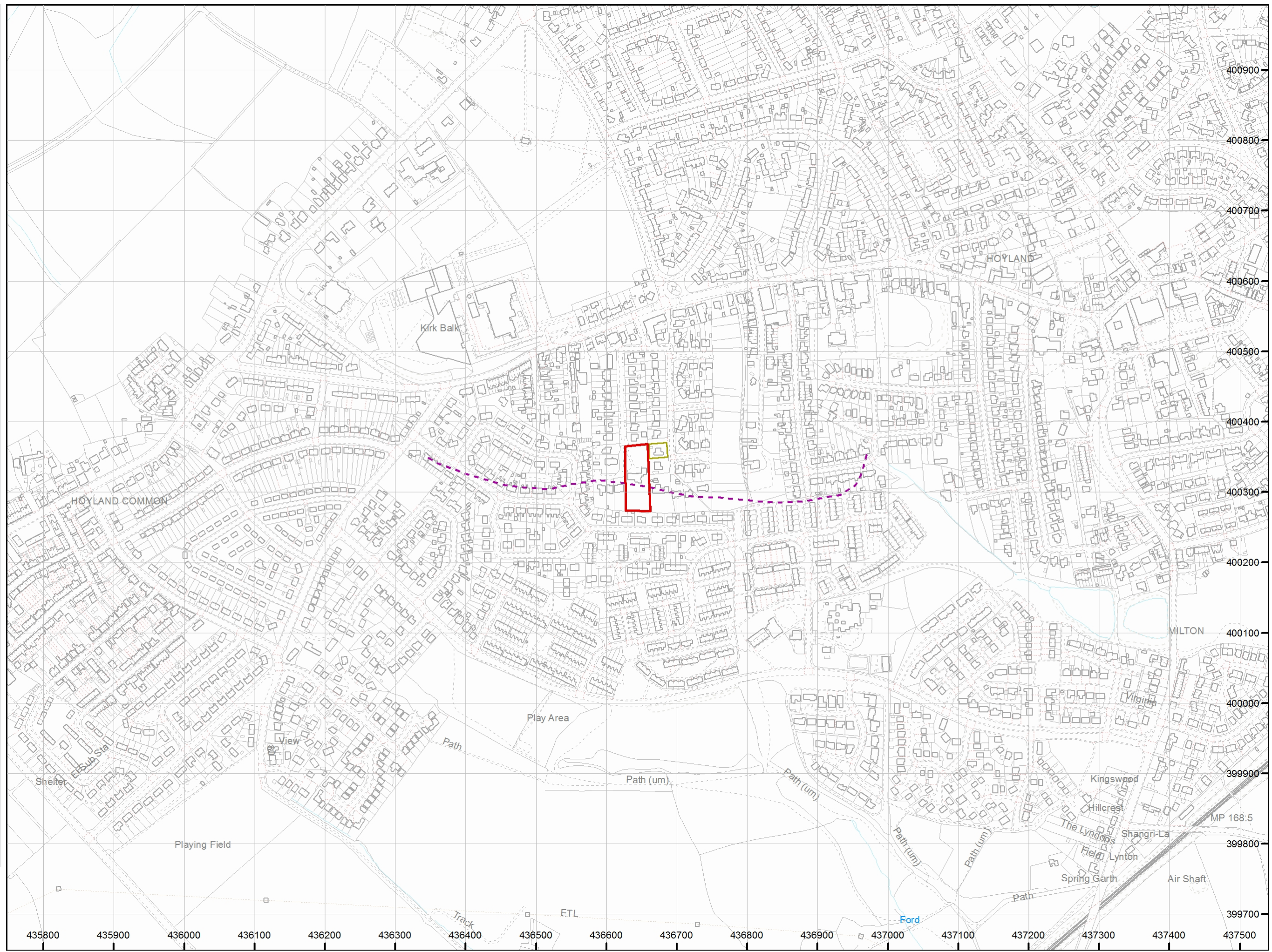
Issued by	The Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG
Tax point date	08 September 2020
Issued to	GEOINVESTIGATE TERRY DICKEN INDUSTRIAL ESTATE TERRY DICKEN INDUSTRIAL ESTATE, ELLERBECK WAY STOKESLEY NORTH YORKSHIRE TS9 7AE
Property search for	28 SOUTH VIEW ROAD HOYLAND BARNESLEY S74 9EB
Reference number	51002298871001
Date of issue	08 September 2020
Cost	£112.13
VAT @ 20%	£22.43
Total received	£134.56
VAT registration	598 5850 68

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

Key

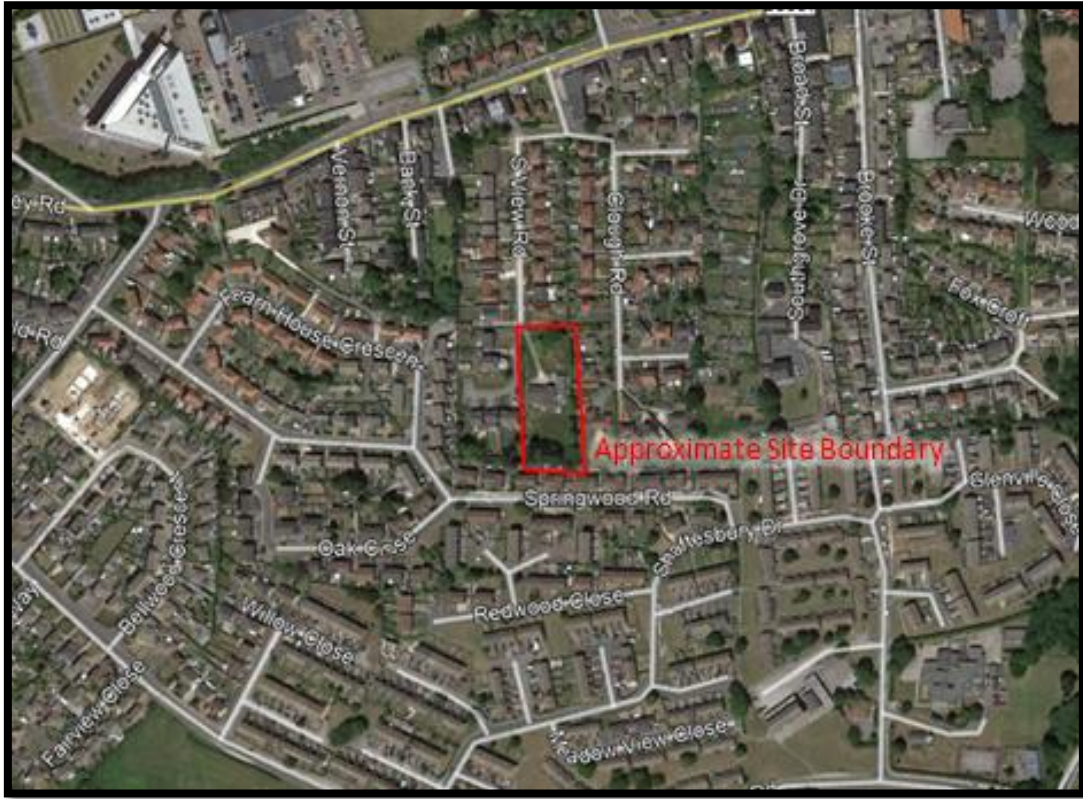
- Approximate position of the enquiry boundary shown 
- Outcrop (Conjectured) 
- Site investigations 

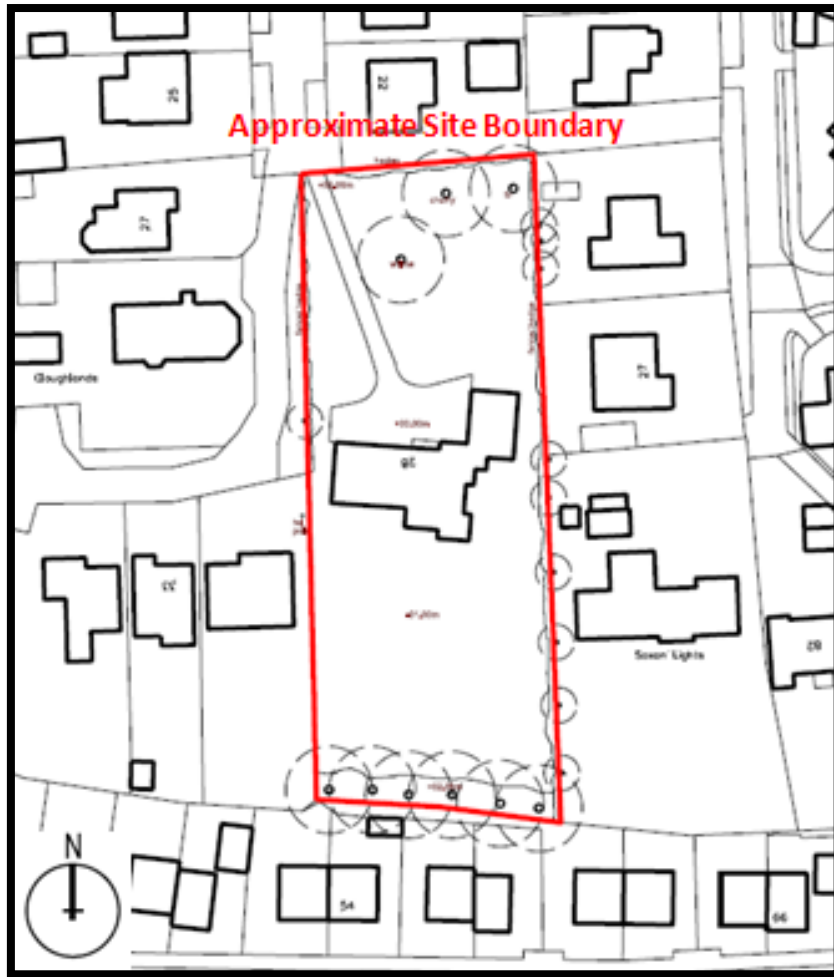
How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

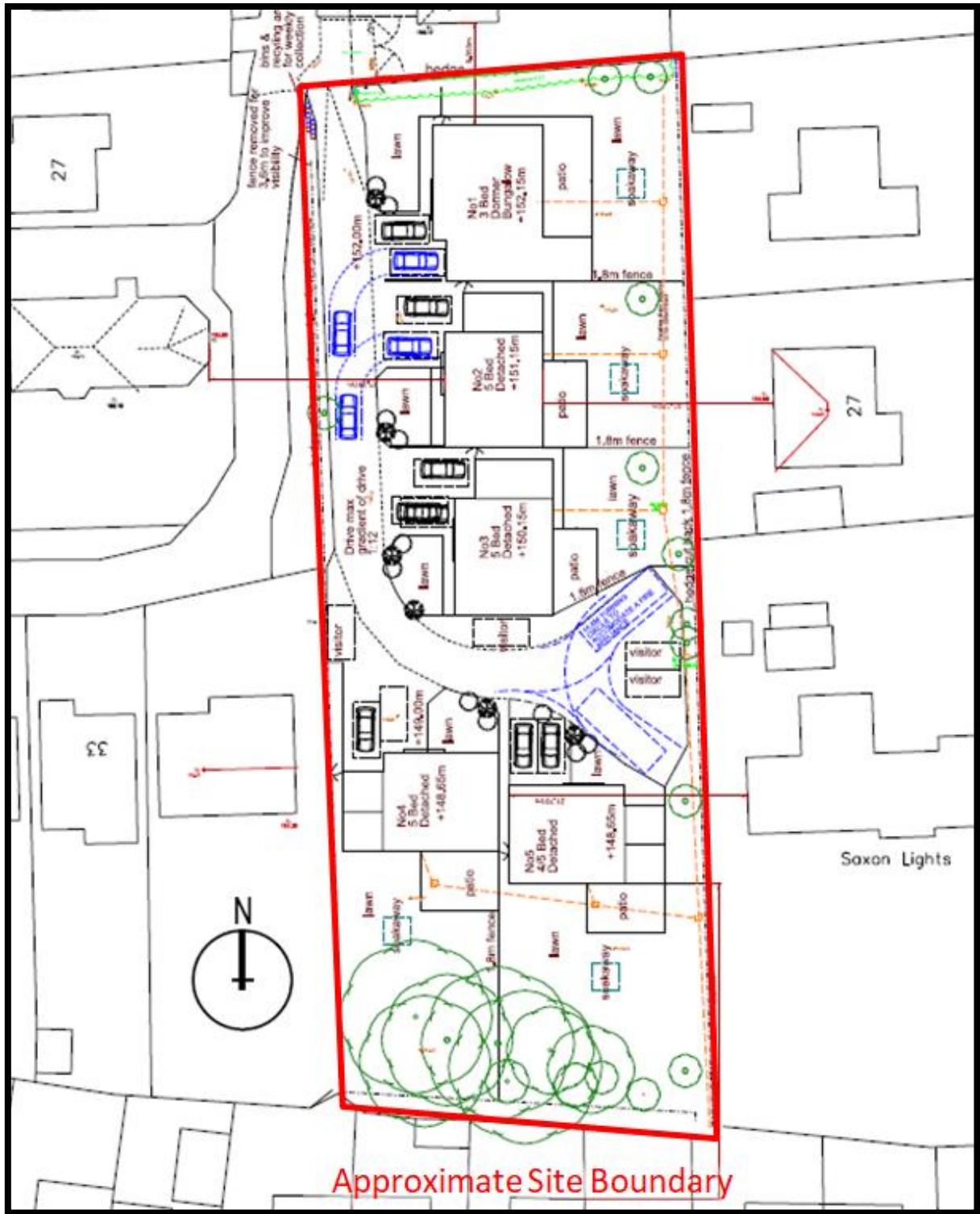


APPENDIX B

DEVELOPMENT LOCATION, LAYOUT & SITE IMAGES







Approximate Site Boundary

APPENDIX C

EXTRACTS BGS GEOLOGY MAP

