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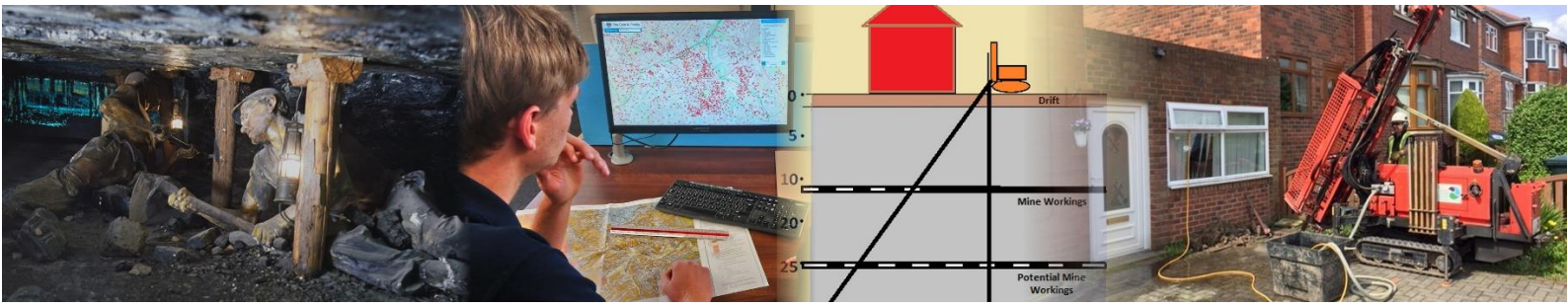

GEOINVESTIGATE LIMITED
Coal Mining Risk Assessment (CMRA)

LOCATION	Thorncliffe Farm Shop, Westfield Lane, Emley Moor, Huddersfield HD8 9SZ
ISSUE DATE	2 July 2024
FOR	Thorncliffe Farm Shop
CLIENT REF.	
OUR REF.	G24170

Prepared by

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Checked by

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Principal Geotechnical Engineer

1. CMRA INTRODUCTION & COAL MINING HAZARDS

1.1 Site Location and Description

The approximate centre of the site lies at E 422894 N 413231 with ground height around 244m aOD at the far west corner of the property next to Jagger Lane falling to 234m at the northeast boundary next to Westfield Lane.

The boundary shown in RED on the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area.

The site is currently occupied by land to the west of Thorncliffe Farm Shop including paddock, field, small timber stables, picnic and horse dressage areas, and visitor carparking. Site images are provided in Appendix B. It is proposed to erect a new building on the west side of the existing small stable shed as per the development plan provided in Appendix C. No details of the new building were available at the time of writing this CMRA.

1.2 Historical Maps

A desk study of limited available historical OS maps shows between 1830s and 1904 the site to be undeveloped farmland on the west side of Westfield farmstead. An old coal pit and Speedwell Colliery are shown nearby to the east and south of the site with sandstone quarries in the surrounding area.

No evidence of surface mining activity, clay, sand or gravel pitting or stone quarrying is recorded on the historical maps within the site itself.

1.3 Anticipated Geology

The location of the property is shown on the extract of British Geological Survey (BGS) 1:50,000 Solid and Drift geology map (Sheet 77 - Huddersfield) presented in Appendix D. This map shows little to no thickness of superficial/soil cover in the vicinity of the site with bedrock lying at or near surface comprising Pennine Lower Coal Measures Formation including mudstone, siltstone, and sandstone with subordinate coal seams.

The BGS map shows outcrop of the Third Brown Metal (3BM) Coal within the site and to the south of it, both outcrops occurring in 'Infilled Ground' described as material from opencast mining. Therefore, an unknown depth of infilled ground/made ground associated with past opencast/surface coal mining activity is expected to underlie the new building.

The tentative elevation of the site relative to the vertical geology column is shown below the map minus the drift/soil and made ground horizons.

A second geological column is provided in Appendix D taken from the following web article by Sian Davies-Vollum et al:

https://www.researchgate.net/figure/Generalized-stratigraphy-of-Caphouse-Colliery-showing-strata-exposed-both-underground_fig2_312231248

This article and other web sourced information suggests that the site is underlain by outcrop of the 2BM Coal rather than the 3BM and that outcrop of the 3BM coal occurs in opencast areas to the west and south of the development area. According to the section the 3BM Coal lies 8.5m below the 2BM with the Green Lane/Middleton Little Coal some 10m beneath the 3BM. The 2BM is also identified as the 'Old Hards' Coal.

Based on BGS and other information, the development is expected to be underlain by infilled former opencast workings bottoming in the 2BM/Old Hards Coal, in turn underlain by the 3BM Coal lying 8.5m beneath the 2BM and the base of the opencast, with the Middleton Little Coal 18.5m beneath the opencast excavation.

1.4 Mine Workings & Mine Shafts

The CA report in Appendix A records three levels of past underground mining beneath the site between depths of 39m and 151m, the shallowest workings occurring in the Middleton Main Coal, with extraction thickness of 58cm dipping 2.6 degrees northeast and last worked in 1885. In Geoinvestigate's opinion all three workings lie too deep to impact surface ground stability in the proposed development area.

The CA report places the site in an area of probable shallow coal mine workings. The CA define Probable Unrecorded Shallow Workings as *"Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface"* (i.e., less than 30m).

The CA identify opencast working within the site and beneath the new building. The opencast abandonment plans purchased from the CA for the site locality are provided in Appendix E. At the position of the new building the plan shows the opencast was excavated to depth of 6.3m between 1952 and 1954 and the Old Hards Coal horizon was removed between 5.7m and 6.3m depth. Subsequently the excavation was infilled and returned to agricultural use.

In this instance, it is expected that the infill would probably comprise crushed rock and soil informally compacted to a degree and therefore perhaps liable to some long-term self-weight settlement, though as this deposit was placed 70 years ago this movement is likely to have largely stopped by now, although the addition of building load could perhaps cause further settlement.

However, favourably, the new building does not straddle the high wall of the opencast - where there is increased risk of differential movement.

Other areas of nearby opencast excavation are shown to the west and south of the site in the 'Stone Coal' horizon. Strike line construction using the bottom coal (BC) levels for this coal seam shown to the south of the site indicate the Stone Coal (3BM Coal) lies 7m below the 2BM also known as the Old Hards Coal within the proposed development area.

In Geoinvestigate's opinion outcrop of the Low Fenton Coal Seam identified in the CA report within the site corresponds with the 2BM and 'Old Hards' Coal seams, while the 3BM and the Stone Coal are the same horizon.

The opencast plan identifies the presence of 'old working voids' in the Stone Coal seam but not the Old Hards seam. However, as these old workings are located on the abandonment plan a considerable distance to the south of the development area in the vicinity of Moor Head farmstead, they may not be present beneath the new building.

In Geoinvestigate's opinion based on the opencast abandonment plans the proposed new building is expected to be underlain by made ground extending to rockhead at 6.3m in turn underlain by possible unrecorded underground mine workings in the Stone Coal at 13.3m BGL with a possible further level of unrecorded working in the Middleton Little Coal at 23.3m BGL.

The Stone Coal seam may rise to a depth of 7.6m to the west of the new building approaching the far corner of the RED search boundary, but workings within it may be absent as the abandonment plan does not identify old workings in the vicinity of the site.

In summary, this CMRA has indicated the new building to be underlain by 5m to 6m of informally compacted made ground perhaps liable to unpredictable settlement under the proposed additional building loads, with possible unrecorded mine workings at depths around 13m and 23m, though based on the mining abandonment plans working at 13m depth in the Stone Coal may be absent.

In Geoinvestigate's opinion owing to the presence of several metres of opencast infill below the new building and two levels of possible unrecorded mineworking below this, both within shallow depth, both shallower and deeper drilling investigations are required to enable further assessment of the stability of the fill material and the mine workings below this deposit.

The CA report identifies five shafts within 100m of the search boundary, however these are considered too distant to impact ground stability in the development area.

1.5 Geological Faults Fissures & Breaklines

The geological mapping identifies a geological fault to the east of the site while the CA report shows a fault within the property towards its west corner boundary. The abandonment plan shows the new building in close proximity to several minor faults but not underlain by a fault.

1.6 Mine Gas

According to the CA report, no mine gas incident or remediation has been recorded within 500m of the enquiry boundary and typically on the UK coalfields mine gas risk to surface development is low. Circumstances where gas risk increases include proximity (typically < 50m) to mine entries (adits and shafts), proximity to recorded mine gas incidents, where development is located above or adjacent to very shallow and shallow (< 30m) unflooded mine workings or roadway tunnels. In addition, increased mine gas risk may be attributable to: coal seams with a history of spontaneous combustion, natural or artificial pathways providing routes for gas migration eg permeable soil cover, pathways created by geological faults, mining induced breaklines/fractures, collapsed mine roof strata, mining subsidence, mining sinkholes/crown holes and unsealed boreholes.

This CMRA has identified increased mine gas risk to the development due to the presence of opencast infill, possible shallow mine workings and geological faulting beneath and within influencing distance of the new building. However, the risk maybe less as typically opencast infill is not a significant source of hazardous ground gas and furthermore there have been no reported gas incidents at this locality and mine workings may be absent within shallow depth.

The CA report identifies two large nearby areas of coal mining subsidence claims to the north of the site. The nature and outcome of these claims and whether they were rejected is unknown. Due to the claims it is Geoinvestigate's opinion that Coal Authority Subsidence Claims Reports should be purchased from the CA which will include more information about the hazard.

1.8 Site Investigation

The CA report identifies a small area of site investigation activity at Crowtree Farm to the east of the development area and the search boundary. From perusal of Kirklees Council's planning files, it is understood that in 2023 two boreholes were sunk to 30m depth for Thorncliffe Farm Shop to the east of the proposed new building encountering intact coal of 0.7m and 0.8m thickness at depths around 7.5m and 16.5m believed to be the 3BM and Middleton Little Coal seams but now considered by Geoinvestigate likely to be the 2BM (Old Hards/Low Fenton) and 3BM/Stone Coal horizons.

A further level of coal or workings predicted in Geoinvestigates CMRA at 23m to 26m depth was not identified in either of the 2023 boreholes.

No opencast mining abandonment plan was obtained for the 2023 investigation.

In Geoinvestigate's opinion the coal depths identified in the 2023 site investigation report are in line with the information provided by the opencast abandonment plan and our prediction of the depth of the 2BM and 3BM coal horizons towards the lower east end of the search boundary of around 7.6m and 14.5m BGL.

However, based on the 2023 borehole investigation, Geoinvestigates prediction that the Middleton Little Coal seam and workings within it may occur around 23m to 26m depth, appears unlikely to be correct nor based on this information is it likely to be found within 30m depth beneath the site.

2. RISK ASSESSMENT OF SITE-SPECIFIC COAL MINING ISSUES

The risk assessment methodology adopted in this section 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 broadly adopted in the table below with amendments made by Geoinvestigate Limited. The factual information it is based on, is derived mostly from the CA Consultants Coal Mining Report and additional desk study information including available historical maps, geological maps & memoirs, BGS boreholes, online articles etc.

It is not an exhaustive desk study review. Therefore, if new information is released or found in the future, this CMRA may require updating.

The table also provides advice on next step mitigation and the likely planning decision.

RISK ASSESSMENT & MITIGATION			
Coal Mining Issues/Hazards	**Risk**		**Next Step Mitigation**
Past underground coal mining	**L**		
Probable unrecorded shallow workings	**L**	**M**	Drilling to enable further assessment
Outcrop	**L**	**M**	Removed under new building by opencast
Spine roadways at shallow depth	**NONE**		
Mine entries	**NONE**		
Geological faults, fissures and breaklines	**YES**		Minor faults under new building
Hazardous gas	**L**	**M**	Drilling & longer gas monitoring in special wells
Opencast mines within 500m	**M**	**H**	Yes. Within site and under proposed new building. Intrusive investigation needed to assess stability of opencast infill deposit.
Coal mining subsidence claims within 50m	**L**	**M**	Yes. Purchase subsidence report from CA
Site investigations within 50m	**YES**		Viewable via Kirklees Councils Planning Portal
Likely Planning Decision	**Yes/No**		**Reason**
Is planning permission likely to be given with respect to coal mining legacy issues **CONDITIONAL** upon carrying out further intrusive investigation leading to possible building design mitigation at a future date but before construction begins?	**Yes**		Yes. Because the site is NOT impacted by known mine entry proximity hazard and the proposed building does not straddle opencast high wall. Consequently the other site-specific ground stability and possible mine gas risks to the proposed development identified in this CMRA **can be mitigated by further intrusive site investigation and if needed by follow-up routine engineering solutions.**

Assessed risk level – **H**igh, **M**edium **L**ow. NONE

3. CMRA OUTCOME & RECOMMENDATIONS

This CMRA has confirmed that there is increased risk to the development from around 6m thickness of partially consolidated made ground/opencast infill beneath the new building perhaps liable to further settlement on application of building load in turn underlain by possible unrecorded mine workings in the 3BM/Stone Coal horizon at 13m to 16m depth though the mining plans and recent nearby borehole investigation indicate this working may be absent at this locality.

Owing to the presence of made ground and possible shallow mine working drilling investigation is required to further assess both ground stability risks. However as both risks can be mitigated by routine engineering solutions **planning permission should not in our opinion be withheld with respect to coal mining legacy issues** providing further intrusive investigation is carried out at a future date and the permission is **CONDITIONED** accordingly.

In Geoinvestigate's opinion a minimum of 3 rotary open boreholes without core sample recovery should be made at the site in the vicinity of the new building to depths up to 30m (but not necessarily reaching 30m) to establish bedrock depth and mine working depth beneath the site.

A Coal Authority Permit needs to be obtained (ahead of) further intrusive exploratory drilling. As per the table below Water Drill Flush to be used when drilling. The permit application must state **WATER ONLY DRILL FLUSH** for the safety of the public and drill crew**. Failure to do so may result in prosecution by the HSE and a hefty fine.**

Risks for Different Drilling Scenarios					
Air flush	Mist flush	Foam flush	Water flush	Mud flush	Additional controls
HIGH	HIGH / MED'M	HIGH / MED'M	LOW	LOW	• Monitoring at rig and other open holes. • Seal boreholes

Boreholes must be sealed on completion.

Gas monitoring MUST be carried out during drilling and may provide further indication of mine gas risk.

However, in this instance, owing to the presence of infilled ground, possible mineworkings within shallow depth below this and nearby geological faults it is Geoinvestigates opinion that further longer term gas monitoring in specially installed gas wells is likely to be required.

However, the duration of gas monitoring may be reduced if no mine workings are encountered beneath the site and the initial results are favourable.

With regard to the made ground, cable percussion boreholes, sample recovery and in-situ testing is required to assess the stability of this deposit for foundation design and a possible piling foundation option.

Alternatively, longer term gas monitoring may be avoidable if the installation of precautionary gas protection measures are included in the design of the new buildings in line with "Characteristic Situation 2" (CS2) based upon the CIRIA 665 (revised) report – "Assessing the risks posed by hazardous ground gases to buildings". However, agreement will be required from the Local Planning Authority for this alternative proposal.

WHAT TO DO NEXT? Obtain quotes for the intrusive site investigation works. The cost of the SI works should be a **"lump sum" fixed price.** Geoinvestigate can provide advice and assistance with helping you find suitable site investigation & drilling contractors. Call us on 01642 713779 or email enquiries@geoinvestigate.co.uk.

Appendices:

A. CA Consultants Coal Mining Report issued 6 June 2024 ref. 51003429371001
B. Site Images
C. Proposed Development
D. Geology Map Extracts
E. Opencast Mining Abandonment Plan

APPENDIX A
COAL MINING REPORT

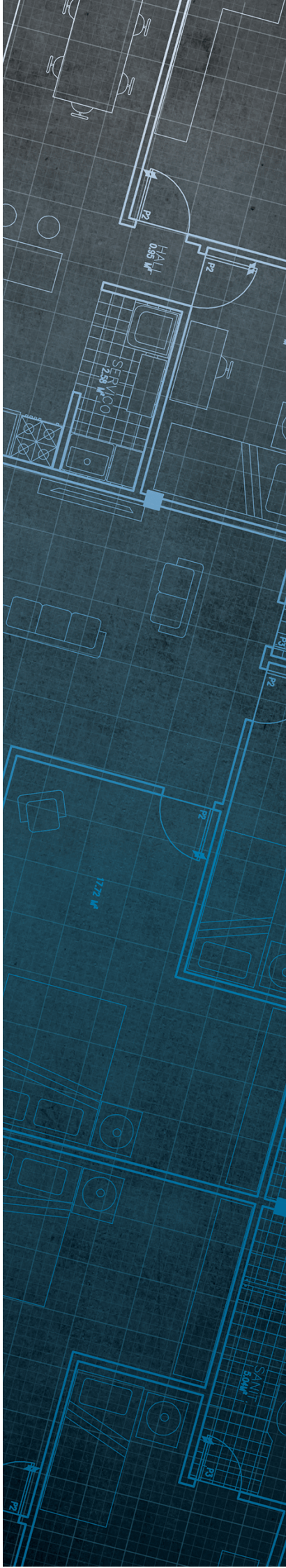
The Coal Authority

Consultants

Coal Mining Report

Thorncliffe Farm Shop
Westfield Lane
Emley Moor
Huddersfield
Kirklees
HD8 9SZ

Date of enquiry:	**6 June 2024**
Date enquiry received:	**6 June 2024**
Issue date:	**6 June 2024**
Our reference:	**51003429371001**
Your reference:	**G24170**



Consultants

Coal Mining Report

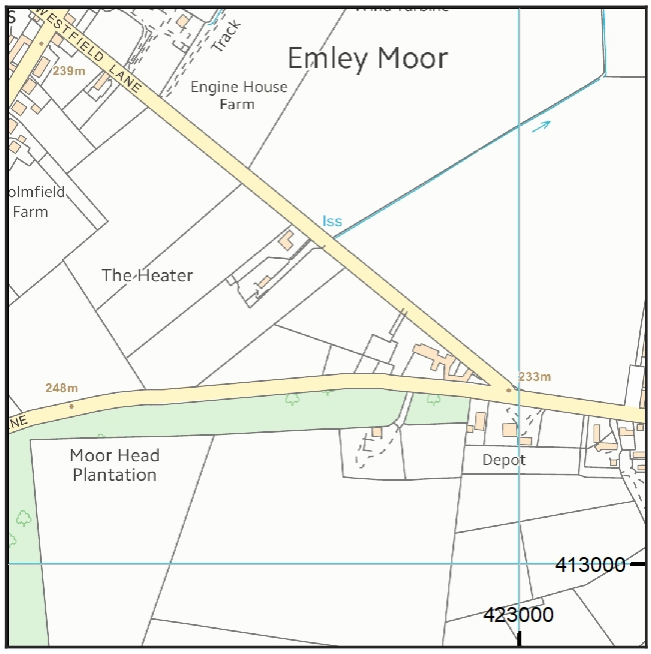
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GEOINVESTIGATE

Enquiry address

Thorncliffe Farm Shop
Westfield Lane
Emley Moor
Huddersfield
Kirklees
HD8 9SZ



Approximate position of property

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

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/thecoalauthority

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
unnamed	MIDDLETON MAIN	Coal	62X6	39	Beneath Property	2.6	North-East	58	1885
UNAMED	WHEATLEY LIME	Coal	62X9	67	Beneath Property	2.8	North-East	82	1903
unnamed	SILKSTONE	Coal	62XA	100	South-West	2.1	North-East	46	1909
unnamed	TOP BEESTON	Coal	62XC	151	Beneath Property	2.4	North-East	56	1942

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	422413-007	422864 413128	was filled in March 1986	Coal	
Shaft	422413-008	422877 413107	was filled in March 1986	Coal	
Shaft	422413-010	422993 413217		Coal	
Shaft	422413-028	422983 413182		Coal	
Shaft	423413-001	423019 413213		Coal	

Abandoned mine plan catalogue numbers

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

NE781	911	BE42
8791	6837	NE897
1286	NE622	NE981

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
LOW FENTON	Coal	Yes	Within	N/A	335

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Fault under or close to the property recorded.

Opencast mines

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas 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
0.4	South-East

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

There are 2 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.

See Section 4 for further information.

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 in an area where a notice to withdraw support was given in 1982.

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.

Future development

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 specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

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.

Coal mining subsidence

The site is within an area of previous interest. It is close to where the Coal Authority or licensed mine operator has investigated and where necessary remediated issues relating to coal mining subsidence.

The site requires further investigation and may influence your risk assessment. We recommend that you order the appropriate **Coal Authority Subsidence Claims Report**, which will include more information about the hazard.

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. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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.

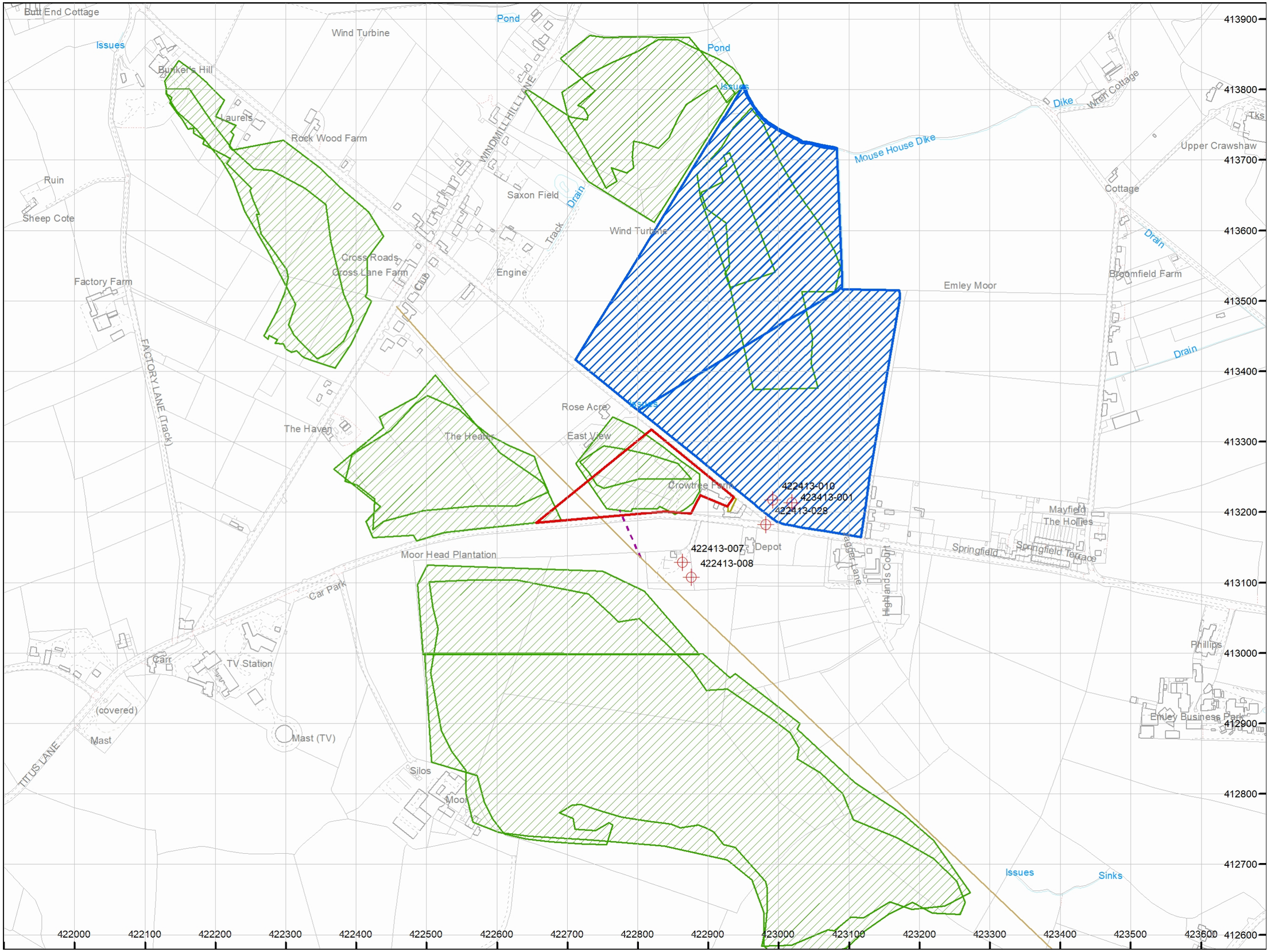
The Coal Authority

Summary of findings

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
- Disused mine shaft
- Outcrop (Conjectured)
- Geological faults
- Unlicensed opencast site
- Site investigations
- Coal claim



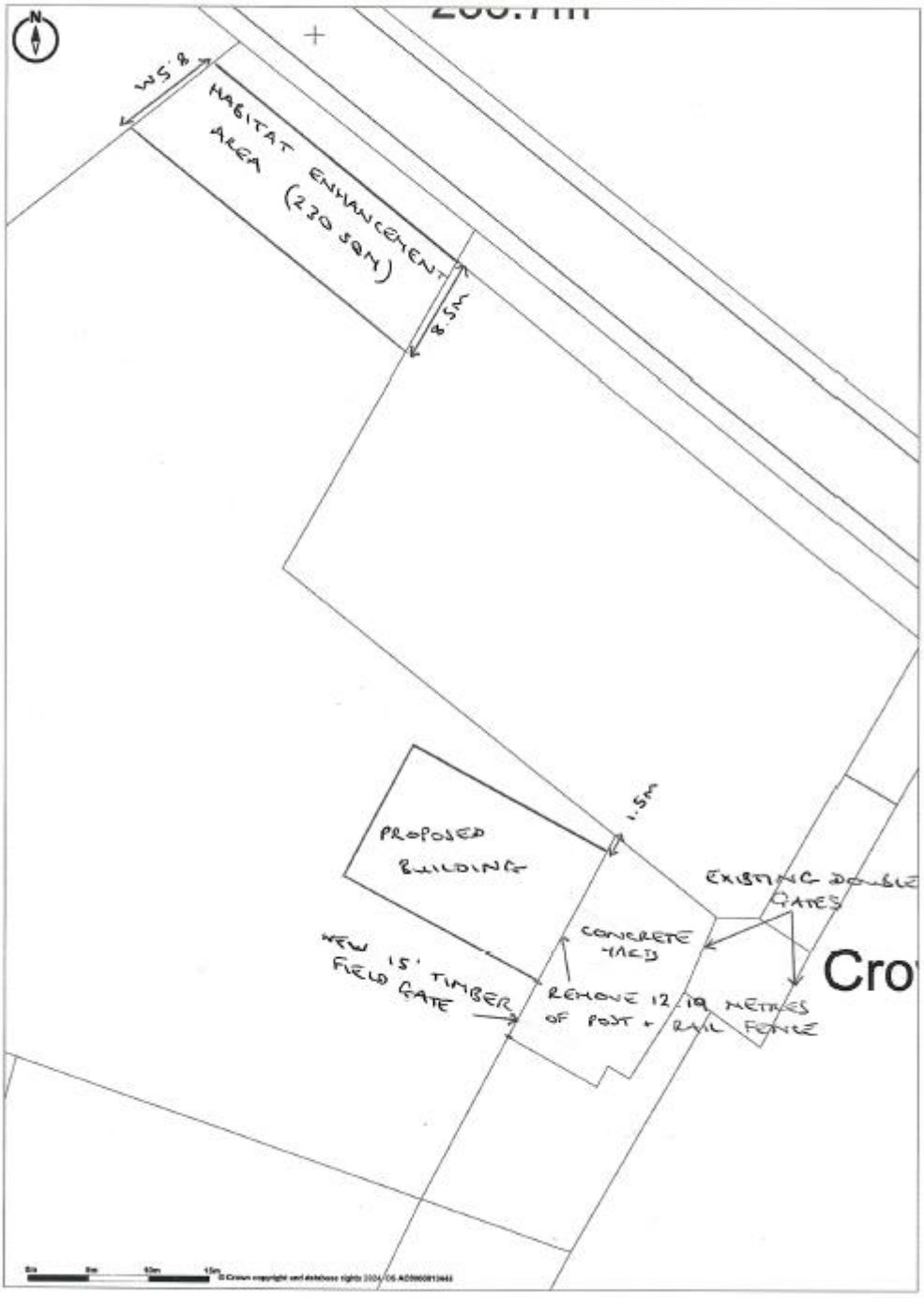
How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

APPENDIX B
SITE IMAGES


NO ENTRY
NO ENTRY

APPENDIX C
PROPOSED DEVELOPMENT

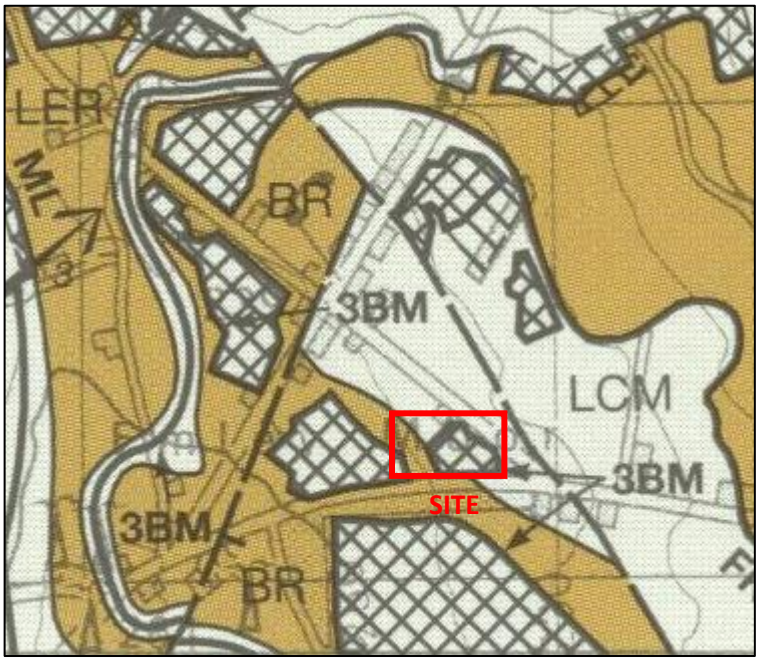
Proposed Agricultural Building at Thorncliffe Farm Shop,
Westfield Lane, Emley, HD8 9SZ
Block Plan 1:500 @ A4 April 2024



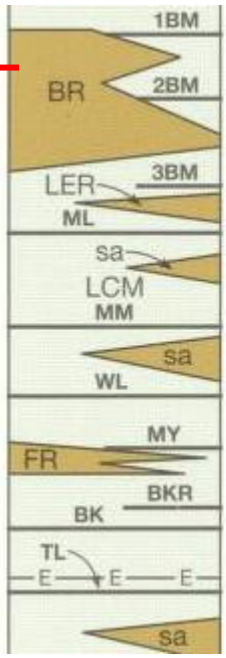
Promap
© LANDMARK INFORMATION

Plotted Scale - 1:500. Paper Size - A4

APPENDIX D
GEOLOGY MAP EXTRACTS



TENTATIVE SITE ELEVATION



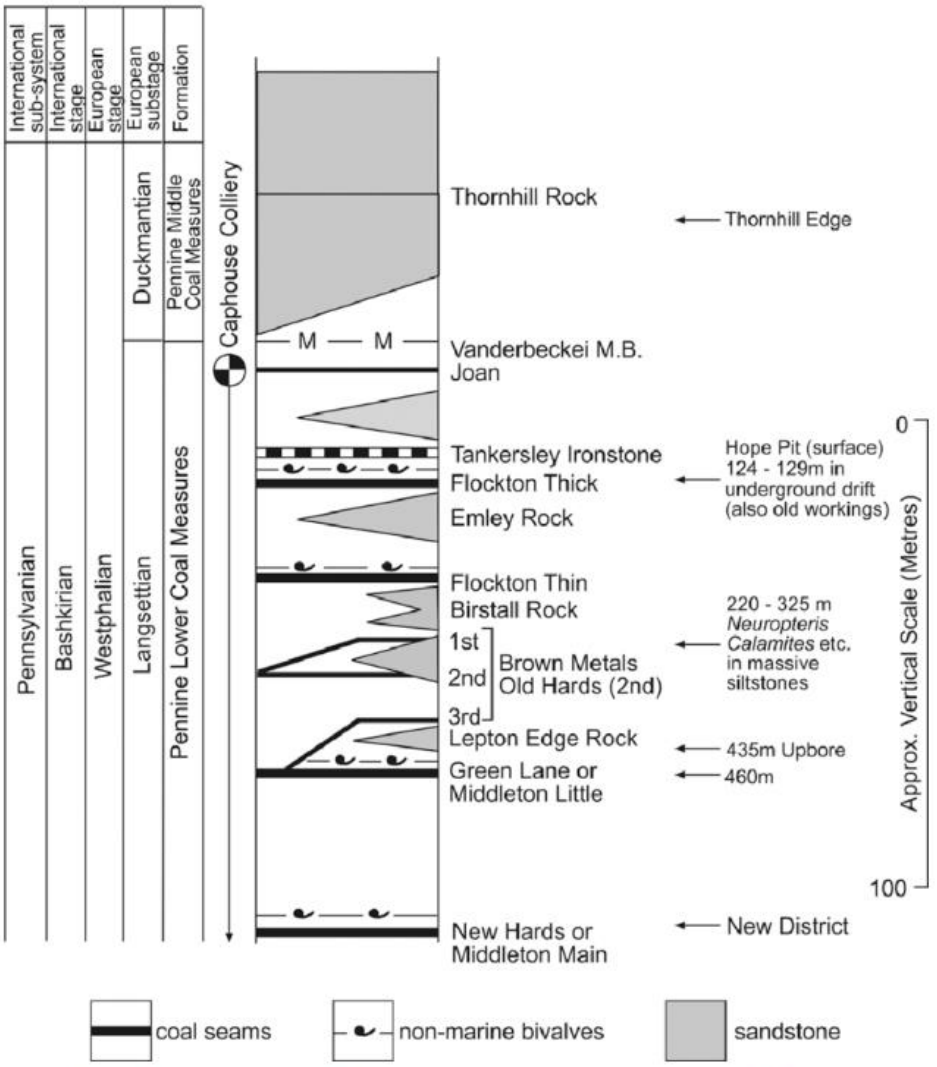
FIRST BROWN METAL COAL (1BM) 0 to 0.8 m
BIRSTALL ROCK (0 to 45 m)
SECOND BROWN METAL COAL (2BM) 0 to 1.0 m

THIRD BROWN METAL COAL (3BM) 0 to 0.8 m
LEPTON EDGE ROCK (0 to 10 m)
MIDDLETON LITTLE COAL (ML) 0.2 to 0.9 m

MIDDLETON MAIN COAL (MM) 0.2 to 1.8 m

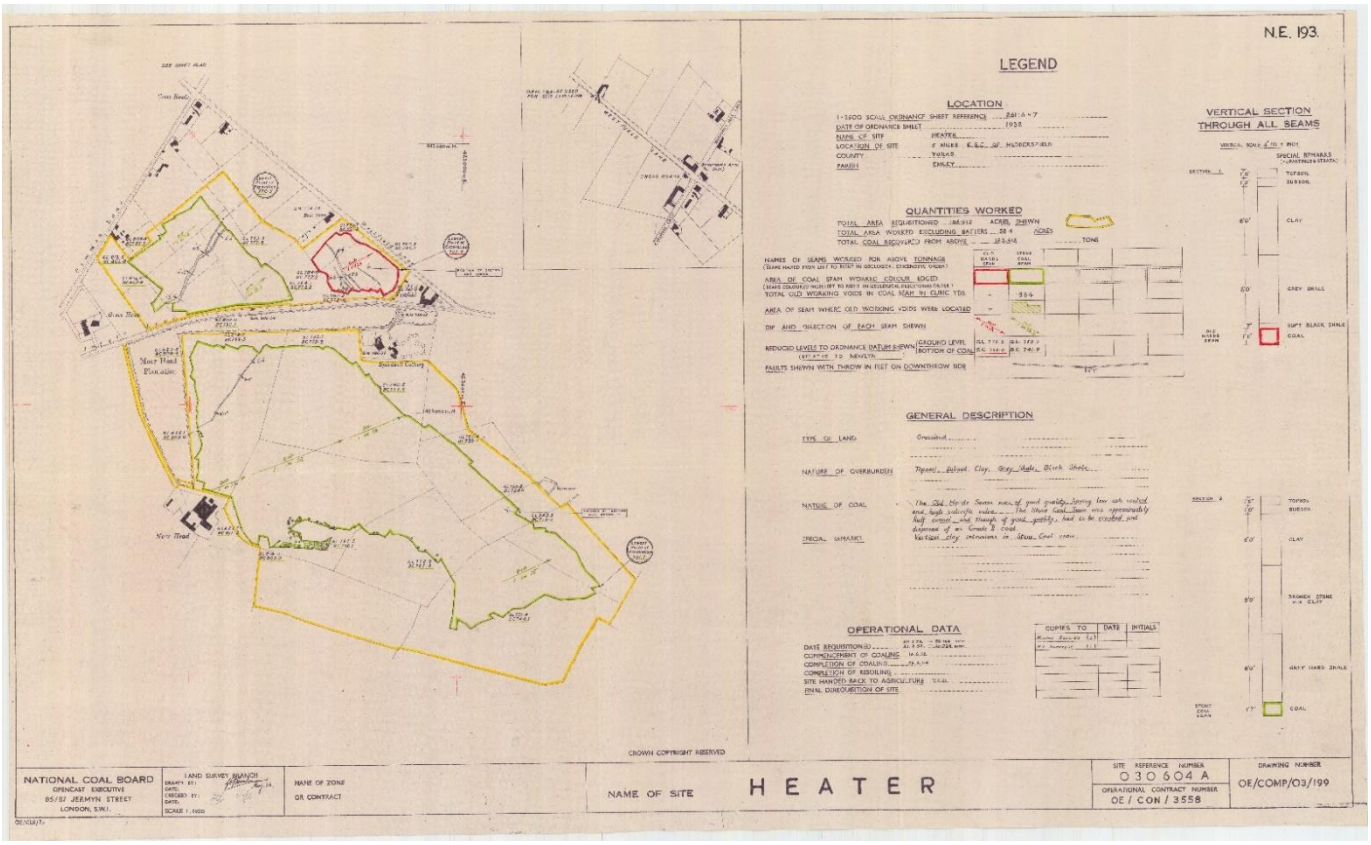
WHEATLEY LIME COAL (WL) 0.4 to 1.2 m

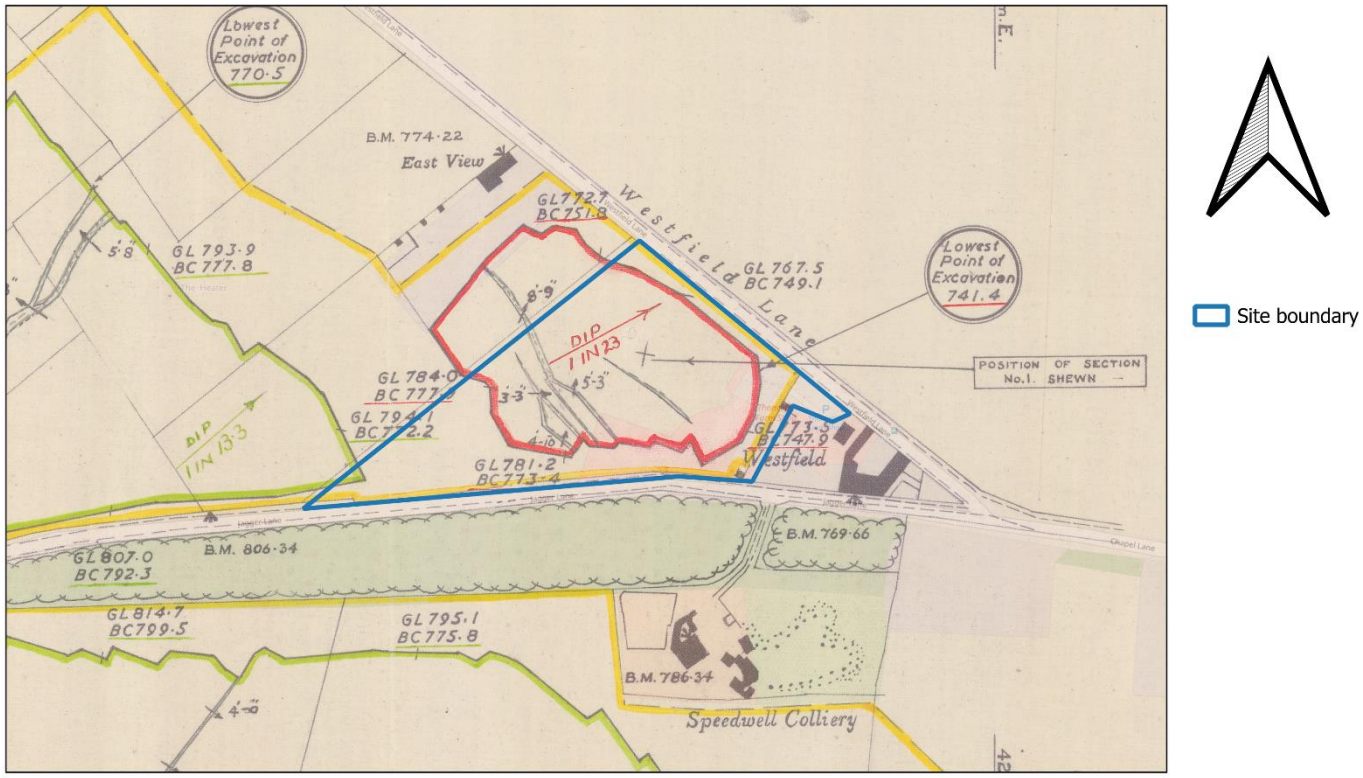
MIDDLETON ELEVEN YARDS COAL (MY) 0 to 1.1 m
FALHOUSE ROCK (0 to 12 m)
BLOCKING RIDER COAL (BKR) 0 to 0.2 m
BLOCKING COAL (BK) 0.2 to 1.7 m
Low 'Estheria' Band
TOP LOUSEY COAL (TL) 0 to 0.8 m

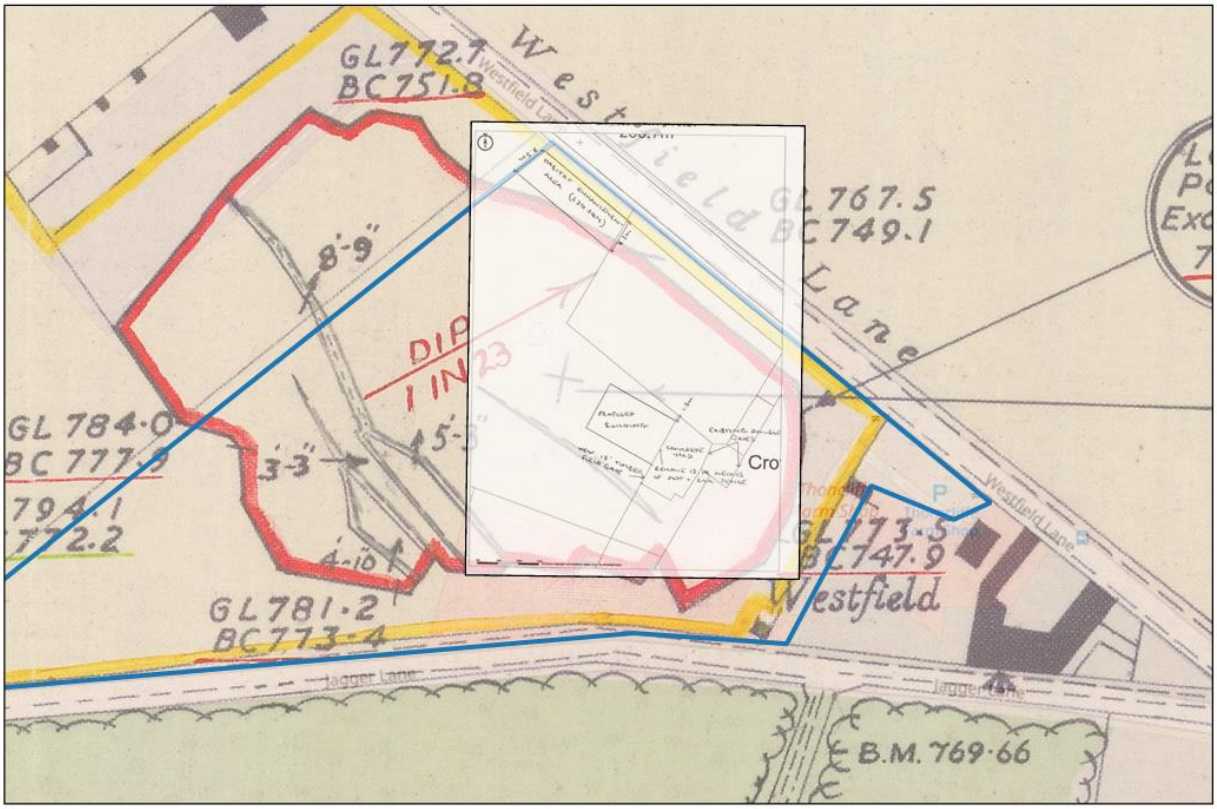


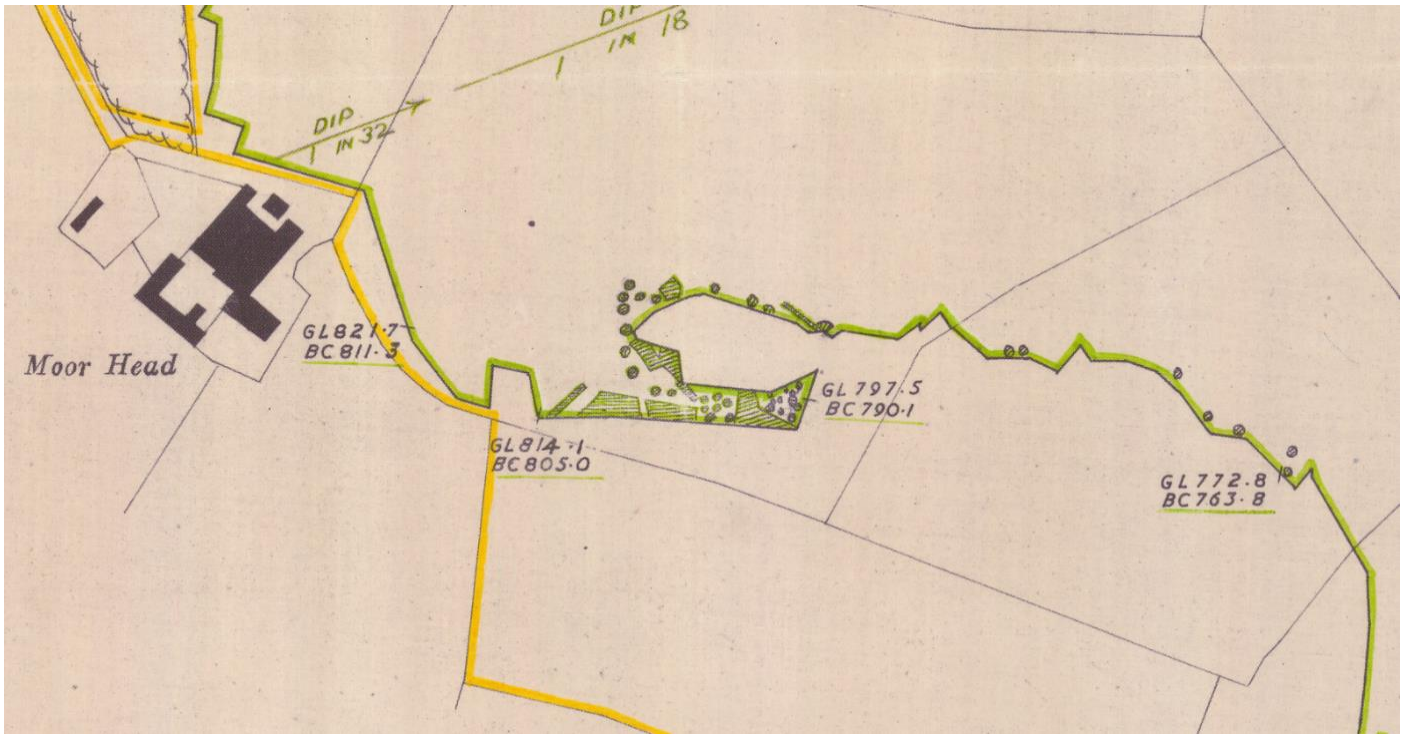
Generalized stratigraphy of Caphouse Colliery, showing strata exposed both underground and at the surface. Note that the Green Lane Coal is the local name for the Parkgate Coal of the wider Yorkshire Coalfield and the New Hards Coal is that for the Thorncliffe Coal.

APPENDIX E
OPENCAST ABANDONMENT PLAN






GL772.7
BC751.8
Westfield Lane
GL767.5
BC749.1
8'-9"
DIP
1 IN 23
GL784·0
BC777·9
3'-3"
4'-10"
GL781·2
BC773·4
Jagger Lane
GL773·5
BC747·9
Westfield
B.M. 769·66
Site boundary
0
50
100
150
200 m


DIP
1 IN 18
DIP
1 IN 32
Moor Head
GL821·7
BC811·3
GL814·1
BC805·0
GL797·5
BC790·1
GL772·8
BC763·8