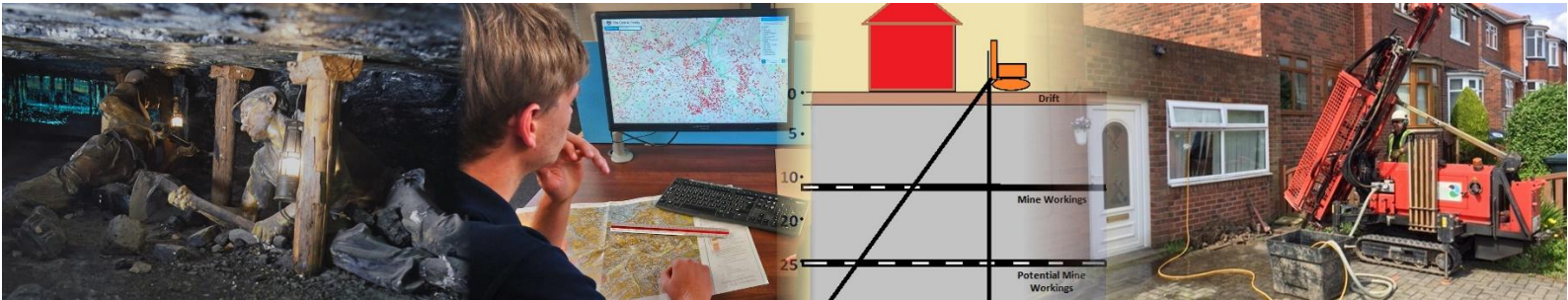




GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
CONSULTANCY
DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED

Coal Mining Risk Assessment (CMRA)

| | |
|--------------------|--|
| LOCATION | 28 Tivy Dale Drive, Cawthorne, Barnsley, S75 4EH |
| ISSUE DATE | 28 th April 2026 |
| FOR | J & G Ixer |
| CLIENT REF. | |
| OUR REF. | G26147 |

Prepared by

A handwritten signature in black ink, appearing to read "Jonathan Jones".

Jonathan Jones BSc (Hons),
Assistant Geotechnical Engineer

Checked by

A handwritten signature in black ink, appearing to read "Ross Nicolson".

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

1. CMRA INTRODUCTION & COAL MINING HAZARDS

1.1 Site Location and Description

The approximate centre of the site lies at E427978, N407635 with surface ground height around 95m AOD.

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 an existing detached dormer bungalow with side garage and garden as shown in Appendix B. It is proposed to demolish the existing building replacing it with a single larger bespoke two-storey dwelling as per the development plan in Appendix C.

1.2 Historical Maps

A desk-based review of limited available historical Ordnance Survey mapping suggests the existing dwelling was established sometime after 1975. Earlier mapping from the mid-1800s records Stains Quarry to the east of the site and Kirkfield Quarry to the distant northeast, both identified as sandstone quarries. Later maps show several mining air shafts located to the east and southeast and a level/mine adit to the south, but not within the site or immediately adjacent to it.

No evidence of surface mining activity, clay, sand or gravel pitting or stone quarrying is recorded on the historical OS maps within or adjacent to the property.

1.3 Anticipated Geology

The location of the property is shown on the extract of British Geological Survey (BGS) 1:10,000 Solid and Drift geology map (Sheet SE20NE) presented in Appendix D. This map together with the BGS's online GeoIndex platform shows the northern half of the development area underlain by infilled ground (backfilled quarry or opencast) and the southern half underlain by little or no thickness of superficial cover in turn underlain by sandstone bedrock lying at or near surface belonging to the Pennine Lower Coal Measures Formation, comprising mudstones, siltstones, and sandstones with subordinate coal horizons. The southern end of the site is underlain by Silkstone (sandstone) Rock.

The site is underlain within very shallow (< 10m) and shallow depth (< 30m) by the Blocking (Silkstone) and Top Lousey (Low Silkstone) Coal seams which outcrop within the site and a little to the north of it. Both coal horizons were excavated by opencast coal mining and the existing house and proposed new building are both underlain by shallow undisturbed bedrock and potentially deep opencast infill.

The tentative elevation of the site relative to the vertical geology column is shown below the map.

BGS Borehole Log SE20NE/20 in Appendix E located some 120m east records the presence of the Blocking (Silkstone) Coal between depths of 9.50m to 10.70m described as a good quality coal. The borehole indicates the strata dip to the east at a low angle.

1.4 Mine Workings & Mine Shafts

The CA report in Appendix A does not identify any levels of past recorded underground mining beneath the site.

However, the CA report places the site within 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 report identifies outcrop of the Silkstone Coal 30m to 34m to the south and southeast of the development area though BGS mapping shows this coal outcropping within the site. According to the Coal Authority this coal is 'workable'.

The CAs summary findings map, together with the BGS map both indicate the northern half of the site to be underlain by restored/infilled deep opencast, with the existing and proposed new houses crossing a buried opencast highwall and opencast fill increasing in depth towards the northwest.

In Geoinvestigate's opinion mine adit (428407-009) located some 90m to the east of the site is too distant to impact ground stability within the development area though its presence raises further concern about possible shallow unrecorded underground mining at this locality.

It is Geoinvestigate's opinion that, owing to the possible presence of unrecorded mine workings below the development area, intrusive investigation is required to enable further assessment of this potential ground instability hazard to the new building. However, underground workings may be absent as none are recorded on the opencast mining plan adjacent to the site.

1.5 Mining Abandonment Plans

Extracts of the mining abandonment plan for the Cascade Coal Opencast operational during the 1950s is provided in Appendix F together with site overlay in Appendix G.

The mining plan measurements suggest No 28 Tivy Dale's plot is underlain by opencast infill extending between depths of 2m to 8.5m, including buried opencast highwall which underlies the middle of the both the existing and new houses and may be near vertical cliff or a slope. While the opencast fill is unlikely to be a thoroughly compacted engineered deposit, it has perhaps been subjected to a degree of informal compaction by the movement of muck shifting plant over it during opencast infilling and restoration. This however is speculation.

Then separation between the Silkstone Top and Bottom Coals ranges from 4m to 7m though the column on the mining plan incorrectly shows it to be much less. The seams are 55cm and 25cm thick respectively dipping up to 3° to 5° northeast.

The overlays in Appendix G show House Numbers 28, 26, 24 Tivy Dale, ALL underlain by the opencast high wall and opencast fill, the latter of similar or greater depth to No 28.

Between 2014 and 2016 Nos 26 and 24 were granted planning permission by Barnsley Council for new housing development conditional upon investigation of the coal mining hazards at each and the adoption of appropriate foundation design and ground gas measures, to mitigate against these hazards. The Coal Authority was not involved as consultee on either decision with SYMAS advising the council on No 26 in 2016.

While it is Geoinvestigate's experience that the Coal Authority normally object to development over buried opencast highwall this was not the case for Nos 26 and 24 which were granted permission for building over highwall and without the requirement for pre-planning site investigation in 2014 and 2016. Consequently No 28 expects similar favourable planning consideration regarding its coal mining legacy hazards.

In Geoinvestigate's opinion because the proposed new building at No 28 straddles opencast infill and buried opencast highwall thorough intrusive investigation is required to establish the ground conditions across the footprint area of the new building thereby enabling safe foundation design.

1.6 Geological Faults Fissures & Breaklines

The geological mapping and the CA report do not identify any faults, fissures, or breaklines within the site or within influencing distance of it.

1.7 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 e.g. 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.

Owing to the presence of opencast and possible shallow mine working within the property this CMRA has identified that conditions may which could increase the potential for hazardous mine gas and or filled ground-gas emissions.

However, the risk may be less there are no reported mine gas incidents at this locality and typically opencasts are restored with inert soil and rock materials unlikely to give rise to significant hazardous gas content. In addition, surface mine gas from underground mining is rarely a problem on the UKs coalfields. However, considering in this instance the presence of coal opencast beneath the development area it is suggested that longer term gas monitoring in specially installed gas wells may be required.

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/Remarks |
| Past underground coal mining | NONE | |
| Probable unrecorded shallow workings | L M | Drilling to enable further assessment |
| Outcrop | L M | Drilling to enable further assessment |
| Spine roadways at shallow depth | NONE | |
| Mine entries | YES (1) | Too distant to impact site stability |
| Geological faults, fissures and breaklines | NONE | |
| Mine gas | M | Drilling to enable further assessment |
| Opencast mines within 500m | M | Further intrusive investigation required. |
| Coal mining subsidence claims within 50m | NONE | |
| Site investigations within 50m | NONE | |
| 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 | <p>Yes. Because Nos 26 and 24 Tivy Dale adjacent to the site and both underlain by similar opencast ground conditions to No 28 were granted planning permission in 2014 and 2016 without the pre-planning requirement to relocate the building away from opencast highwall, or to carry out intrusive investigation to establish the highwalls position and condition beneath the new building and the foundation design required to mitigate this ground stability hazard.</p> <p>However once planning is granted it is the developers intention to carry out further intrusive site investigation to enable safe foundation design and to mitigate ground gas hazard.</p> |

Assessed risk level – High, Medium Low, NONE

3. CMRA OUTCOME & RECOMMENDATIONS

This CMRA has identified possible significant ground stability hazard to the proposed new building from the presence within the development area of deep opencast fill and its buried highwall. In addition, there may be shallow underground mining as well as possible ground gas hazards to the development. Therefore, to enable safe foundation design it is recommended that intrusive investigation is carried out to establish the depth and condition of the opencast infill and the position of its highwall. In addition, longer term gas monitoring in specially installed gas wells may be required.

However, the requirement for further investigation should not prevent the granting of planning permission with conditions on further investigation at No 28. Essentially No 28 expects similar favourable planning consideration in respect of its similar coal mining legacy hazards.

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 16 April 2026 ref. 51003565164001
- B. Site Images
- C. Proposed Development
- D. Geology Map Extracts
- E. BGS Borehole Record
- F. Mining Abandonment Plan
- G. Site Overlays

APPENDIX A
COAL MINING REPORT



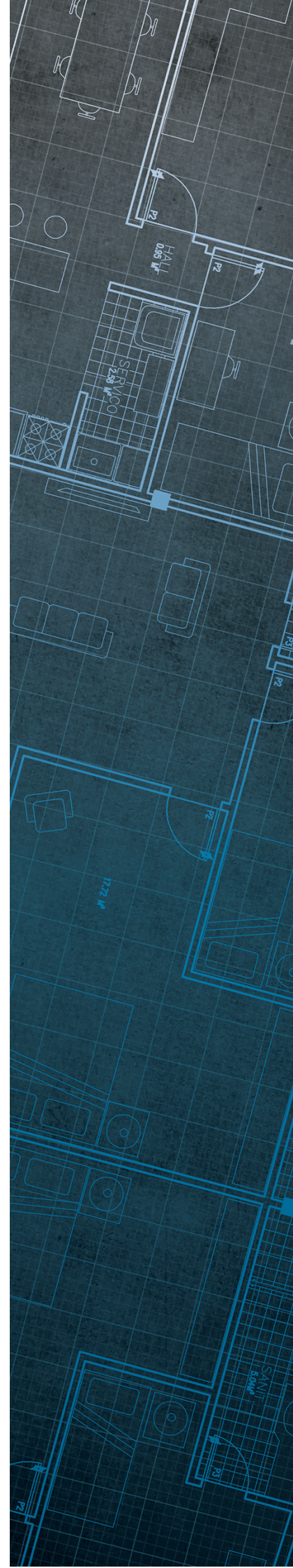
The Coal
Authority

Consultants Coal Mining Report

28 Tivy Dale
Cawthorne
Barnsley
Barnsley
S75 4EH

Date of enquiry: 16 April 2026
Date enquiry received: 16 April 2026
Issue date: 16 April 2026

Our reference: 51003565164001
Your reference: G26147



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

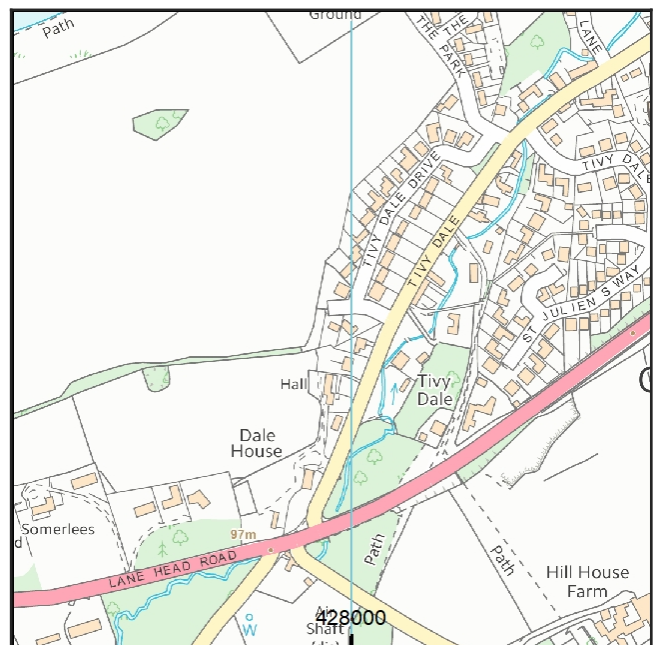
28 Tivy Dale
Cawthorne
Barnsley
Barnsley
S75 4EH

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

reports@miningremediation.gov.uk



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

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 |
|------------|------------|----------------|-----------------------------|---------|----------------------|
| Adit | 428407-009 | 428078 407602 | Treatment details unknown.* | Coal | |

*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entry was left untreated when abandoned.

Abandoned mine plan catalogue numbers

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

| | | |
|-------|-------|-------|
| 11469 | 10322 | NE123 |
|-------|-------|-------|

For assistance in identifying the specific abandoned mine plans relevant to your requirements, **please contact us at InformationManagers@MiningRemediation.gov.uk**.

Outcrops

| Seam name | Mineral | Seam workable | Distance to outcrop (m) | Direction to outcrop | Bearing of outcrop |
|-----------|---------|---------------|-------------------------|----------------------|--------------------|
| SILKSTONE | Coal | Yes | 34.3 | South-East | 50 |
| SILKSTONE | Coal | Yes | 30.6 | South | 98 |

Geological faults, fissures and breaklines

No faults, fissures or breaklines 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

None recorded within 50 metres of the enquiry boundary.

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

Based on the responses in this report, no further information has been highlighted.

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.

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 **email us at reports@miningremediation.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.

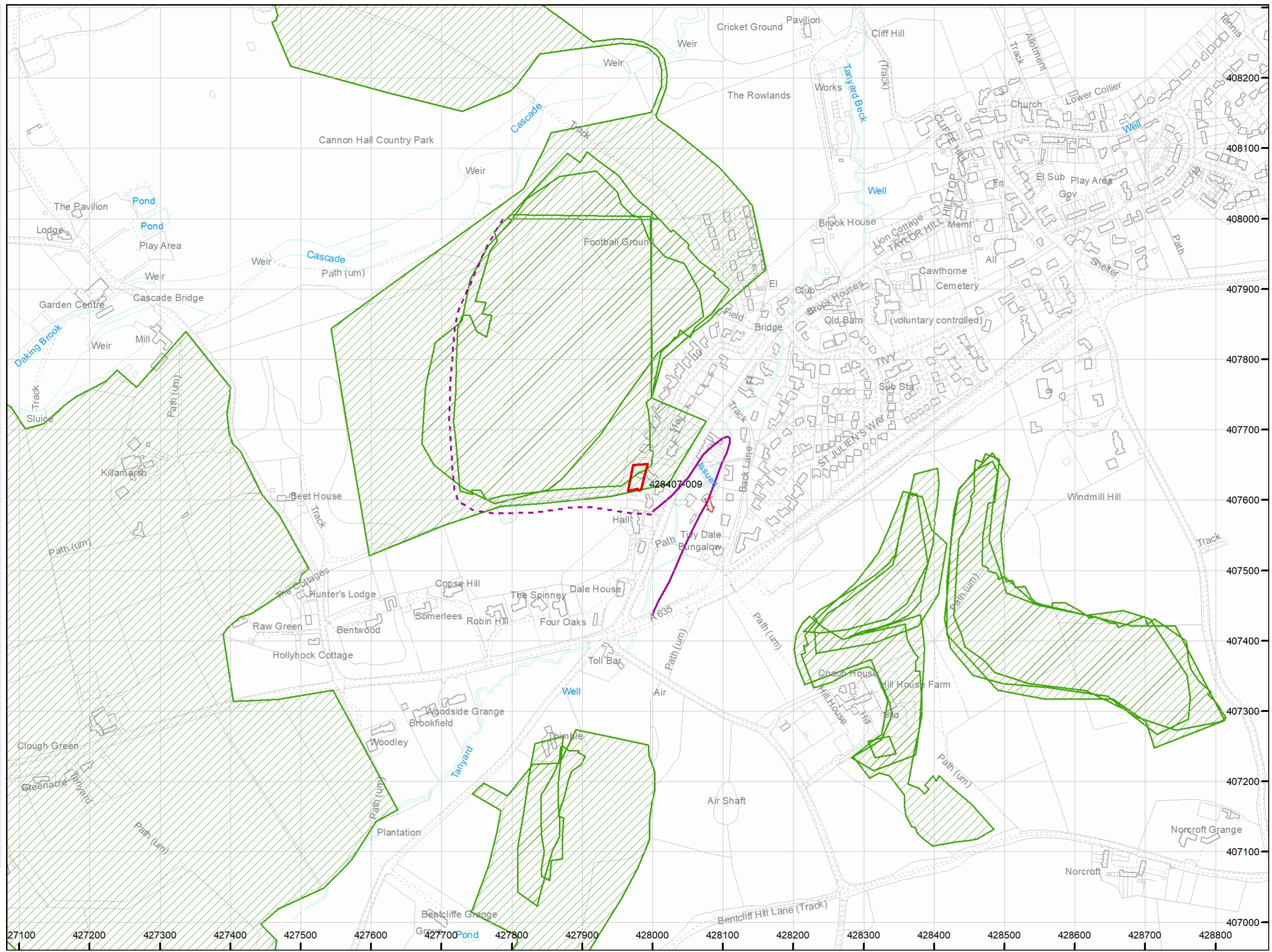
Payment to owners of former copyhold land

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 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 adit 
- Outcrop (Proven) 
- Outcrop (Conjectured) 
- Unlicensed opencast site 

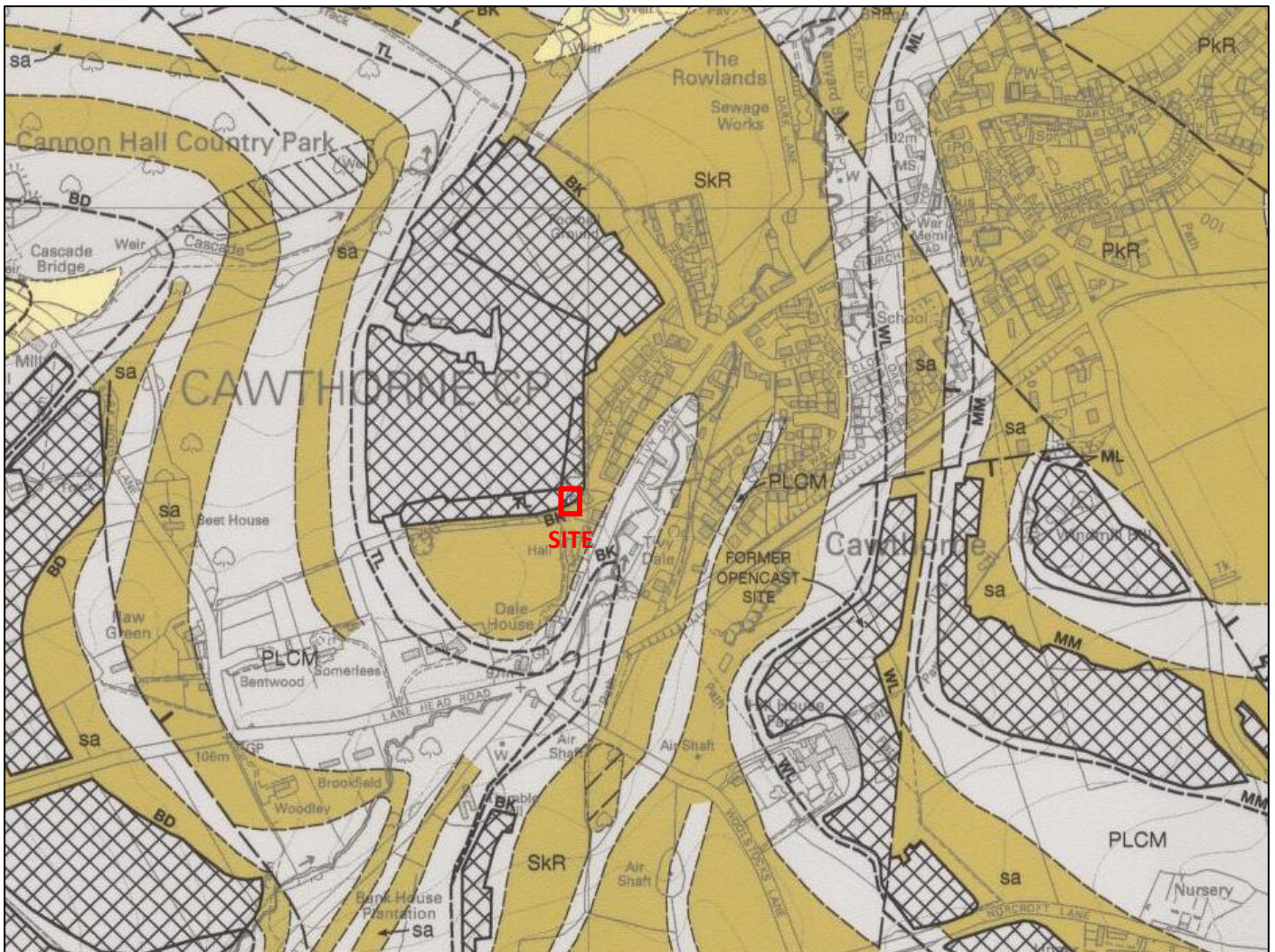


How to contact us
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 reports@miningremediation.gov.uk

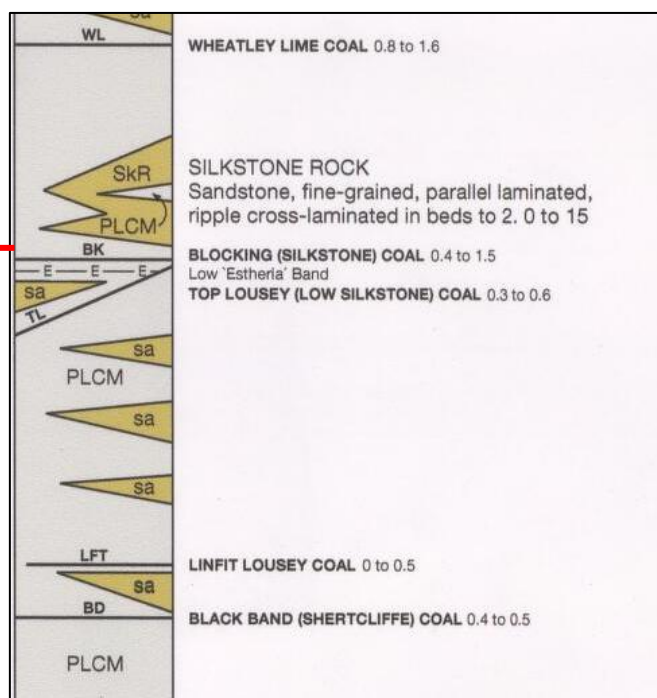
APPENDIX B
SITE IMAGES



APPENDIX D GEOLOGY MAP EXTRACTS

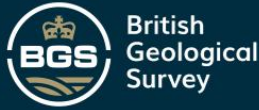


**TENTATIVE SITE
ELEVATION** ———→



APPENDIX E

BGS BOREHOLE RECORD

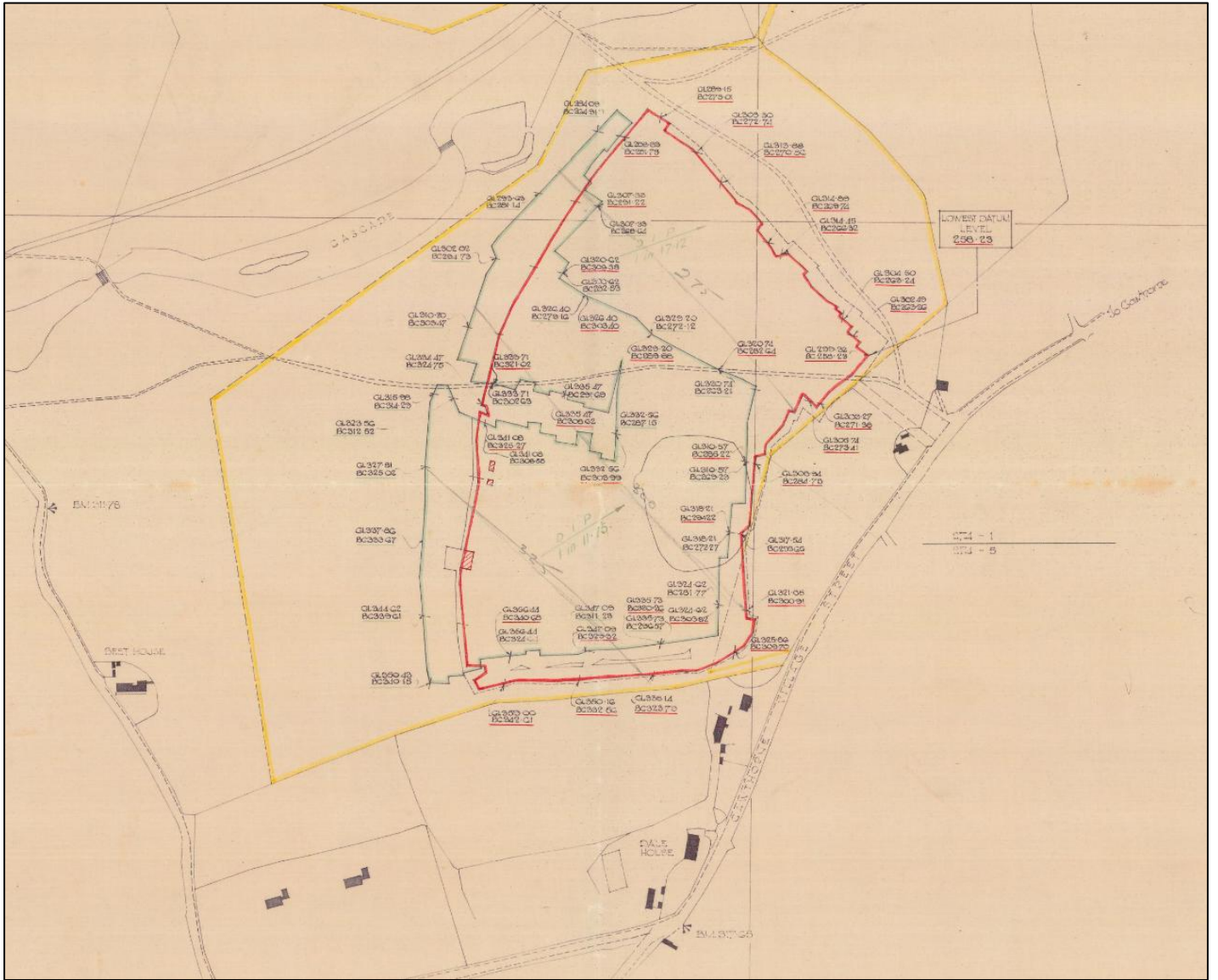


BGS ID: 56112 : BGS Reference: SE20NE20
British National Grid (27700) : 428100,407600

SE20NE 20 281-076

| Michael D. Joyce Associates <small>Consulting Geotechnical Engineers</small> | | | | BOREHOLE RECORD | | | BOREHOLE NUMBER 1 |
|---|------------|-------|---|------------------------|-----------------------|--|--|
| Site Tivy Dale Road | | | Location Cawthorne | | | | |
| Client Classic Construction | | | Method/Size Rotary Openhole/75mm | | | | |
| BORING | | | STRATA RECORD | | | | SHEET 1 of 1 |
| DATE | CASING (m) | WATER | DEPTH (m) | LEVEL (m) | KEY | DESCRIPTION | |
| 10/2/89 | | | G.L. | | [Cross-hatch pattern] | MADE GROUND Firm to stiff grey-brown silty clay with mudstone and shale fragments. | |
| | | | 2.00 | | [Horizontal lines] | Medium grey-brown ironstained, silty, shaly weathered MUDSTONE, with interbedded black shale bands. | |
| | | | 3.50 | | [Horizontal lines] | Medium grey-brown ironstained silty shaly MUDSTONE. | |
| | | | 5.00 | | [Horizontal lines] | Medium grey ironstained silty shaly MUDSTONE. Occasional thin black shale bands. Occasional thin grey-brown siltstone bands. | |
| | | | 9.50 | | [Horizontal lines] | | |
| | | | 10.00 | | [Solid black] | Good quality COAL (Silkstone Coal Seam). | |
| | | | 10.20 | | [Horizontal lines] | Medium grey-brown MUDSTONE. | |
| | | | 10.70 | | [Solid black] | Good quality COAL (Silkstone Coal seam). | |
| | | | 11.50 | | [Horizontal lines] | Light grey silty shaly MUDSTONE (Seatearth) | |
| | 10/2/89 | | | 12.00 | | [Horizontal lines] | Medium grey ironstained, silty shaly MUDSTONE. |
| | | | | | | End of Borehole. | |
| Remarks and Water Observations Borehole dry on completion of drilling Groundwater seeped into open borehole after removal of drill rods. Poor air returns G.L. - 3.5m. Good air returns 3.5 - 12.0m. | | | | | | | |

APPENDIX F OPENCAST ABANDONMENT PLAN



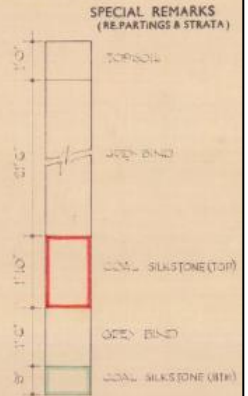
LEGEND

LOCATION


1:2500 SCALE ORDNANCE SHEET REFERENCE OS 163 579 460
 DATE OF ORDNANCE SHEET 1931
 NAME OF SITE CASCADE
 LOCATION OF SITE 3/4 MI. N. OF CANTHRONE
 COUNTY WYO
 PARISH CANTHRONE

AVERAGE VERTICAL SECTION THROUGH ALL SEAMS

VERTICAL SCALE 2" TO 1 INCH



QUANTITIES WORKED

TOTAL AREA REQUISITIONED 29.044 ACRES, SHEWN 
 TOTAL AREA WORKED EXCLUDING BATTERS 20.428 ACRES
 TOTAL COAL RECOVERED FROM ABOVE 12,170 TONS

NAMES OF SEAMS WORKED FOR ABOVE TONNAGE
 (SEAMS NAMED FROM LEFT TO RIGHT IN GEOLOGICAL DESCENDING ORDER)


AREA OF COAL SEAM WORKED COLOUR EDGED
 (SEAMS COLOURED FROM LEFT TO RIGHT IN GEOLOGICAL DESCENDING ORDER)
 TOTAL OLD WORKING VOIDS IN COAL SEAM IN CUBIC YDS.

AREA OF SEAM WHERE OLD WORKING VOIDS WERE LOCATED

DIP AND DIRECTION OF EACH SEAM SHEWN

REDUCED LEVELS TO ORDNANCE DATUM SHEWN

FAULTS SHEWN WITH THROW IN FEET ON DOWNTHROW SIDE

| | BILKSTONE TOP | BILKSTONE BOTTOM | | | | |
|---|---------------|------------------|--|--|--|--|
| RED | GREEN | | | | | |
| 81.0 | NIL | | | | | |
|  1/4 P 1/8 S | | | | | | |
| GROUND LEVEL | 286.80 | 281.00 | | | | |
| BOTTOM OF COAL | 281.73 | 264.81 | | | | |
| | NIL | | | | | |

GENERAL DESCRIPTION

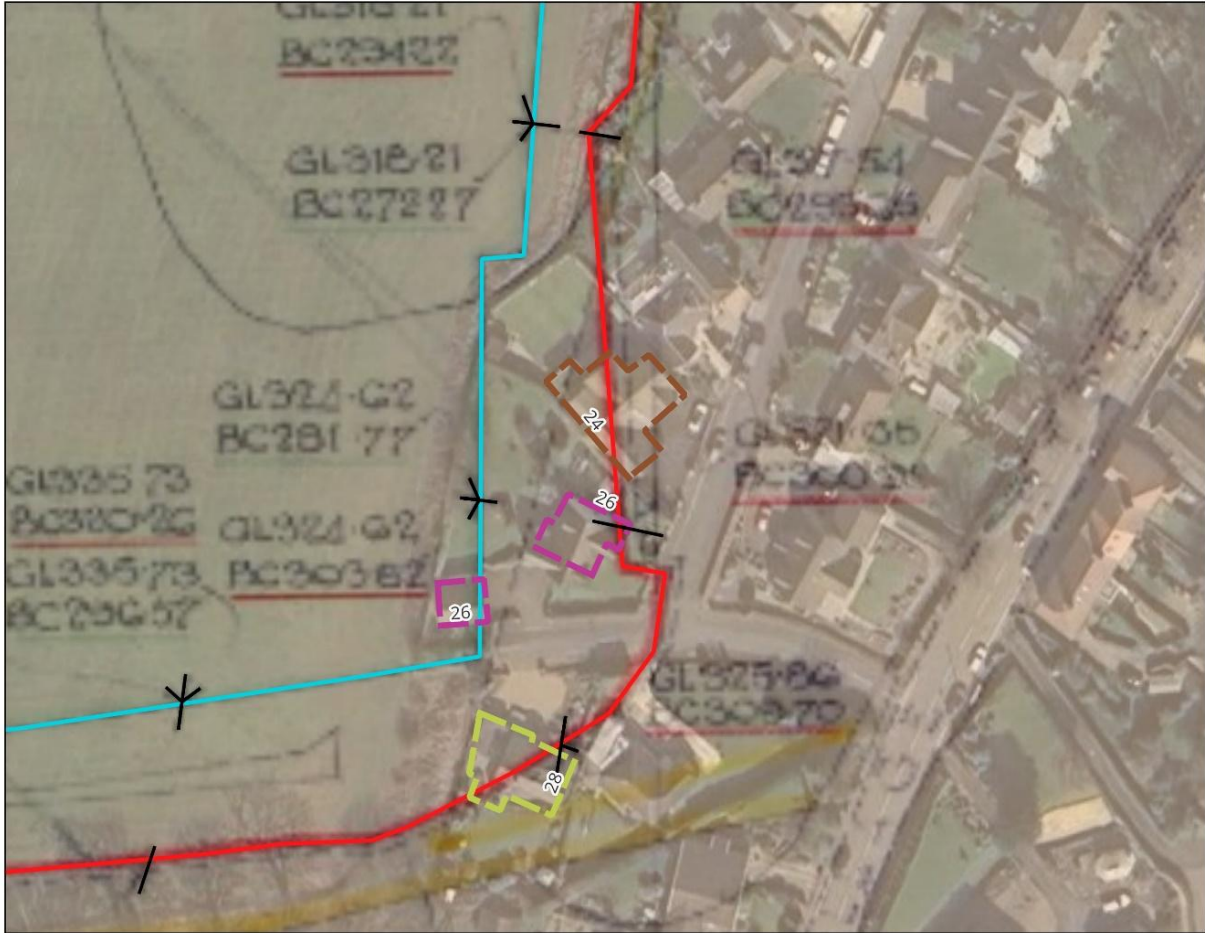
TYPE OF LAND WOODED PASTURE & RANGERS

NATURE OF OVERBURDEN TOPSOIL, OPEN END

NATURE OF COAL THIN BITUMINOUS COALS, WITH ASH CONTENT

SPECIAL REMARKS

APPENDIX G SITE OVERLAYS



- Key:
- Property No. 24
 - Property No. 26
 - Property No. 28
 - Silkstone Top
 - Silkstone Bottom



