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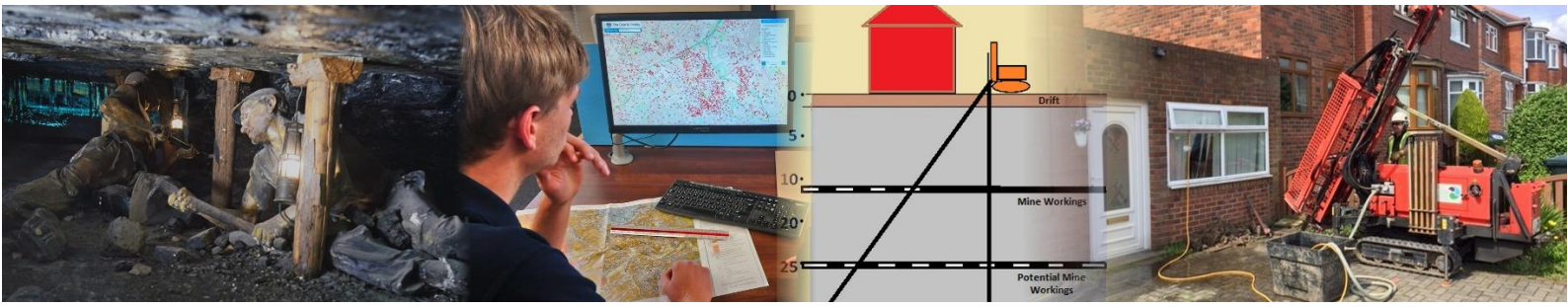

GEOINVESTIGATE LIMITED
Coal Mining Risk Assessment (CMRA)

LOCATION	Kibblesworth Solar, Kibblesworth, Birtley, Gateshead NE11 0JB
ISSUE DATE	11th October 2024
FOR	RES
CLIENT REF.	
OUR REF.	G24261

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1. CMRA INTRODUCTION & COAL MINING HAZARDS

1.1 Site Location and Description

The approximate centre of the site is at E423859 N556648. The boundary shown in RED on the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area. Ground height falls eastward across the property from 160m aOD in the west to 40m to 20m aOD approaching Birtley and Team Valley, Gateshead to the east and northeast respectively

The site area is approximately 2.30km^2 or 230ha currently occupied by gradually undulating farmland with multiple fields. Site images are provided in Appendix B.

It is proposed establish a large 49.90MW solar farm on the land. At the time of issuing this CMRA the layout of the development is unknown but will include multiple inverter stations (inverter building and ancillary equipment) spread out across the site, a substation compound (substation buildings and electrical equipment), crane hardstands to allow lifting of substation / inverter equipment into place, access tracks off existing road infrastructure connecting inverter locations and substations and solar panels with foundations preferably piled to a depth of typically 1.5 – 2.5m although other foundation types possibly concrete ballast may be used.

1.2 Historical Maps

A brief desk study of limited available historical OS maps dating from 1857 shows the site has remained largely undeveloped farmland to the present day with Kibblesworth Colliery and its associated mine shafts and mine drifts/adits located to the south of Kibblesworth Village with several old coal pits and air shafts to the north and northeast of the village and Bewicke Main Colliery to the southeast.

1.3 Anticipated Geology

The location of the development is shown on the extract of British Geological Survey (BGS) 1:50,000 Bedrock and Superficial geology map (Sheet 20 Newcastle upon Tyne) and 1:10,000 Sheet NZ25NW Solid & Drift Geology map both presented in Appendix C. The geology maps in combination with the BGS's online Geoindex mapping service show the site mostly covered by Glacial Till - Diamicton (aka Boulder Clay) with deposits of Glaciofluvial sand and gravel in the west and southeast.

BGS borehole information indicates drift/bedrock depth is variable across the site reaching 3 or 4 m in the west, 10 to 15m in the north, 3 to 11m to the south of Kibblesworth Village increasing to 15 to 19m in the northeast and 4 to 21m in the southeast. Further east approaching Team Valley and Birtley drift depth increases to rapidly to 40 to 50m associated with the presence of a buried deep glacial valley.

BGS borehole locations within and adjacent to the site are shown in Appendix D.

Bedrock beneath site comprises Pennine Middle Coal Measures Formation (PUCM) including Mudstone, Siltstone and Sandstone with several named workable coal seams - High Main, Five Quarters, Main/Yard and Maudlin outcropping within the development area beneath the drift/soil cover. The tentative elevation of the site is shown relative to the vertical geology column below both geology maps. Historically the High Main, Main/Yard and Maudlin seams have been worked underground within very shallow (i.e. < 10m) and shallow depth (< 30m) under large parts of the site.

Small areas of infilled former coal opencast pit/surface excavations are identified on the geology maps in the far northern and western ends of the site while a larger area of infilled ground associated with the former Kibblesworth Colliery is shown to the south of Kibblesworth Village.

While the CA report identifies a large area of opencast site to the south of the village the 1:10,000 BGS geology map published in 1982 does not show this nor could a web sourced record of this opencast activity be found both suggesting that contrary to the CA report there has been no large scale opencast activity in this area. A further clue indicating the

absence of this large opencast is provided by the plan in Appendix E showing the proposed layout of site investigation subsequently carried out circa 1984 for the then proposed Kibblesworth OCCS – Opencast Coal Site. Many of the BGS borehole logs located to the south of the village and referenced CP1 to CP27 were sunk for this project though the opencast was subsequently shelved.

The only reference to actual historical opencast activity to the south of the village is made on the 1:10,000 geology map which states *"small areas of High Main opencasted near outcrop".*

Bedrock strata dip is generally eastward at a low angle. Two major geological faults trend NNW – SSE through the site in the vicinity of Kibblesworth Village and to the west of it disturbing the coal outcrop pattern and causing vertical displacement of coal seams and underground mine working.

1.4 Coal Mining Legacy Hazards

Geoinvestigate's appraisal of the CA Consultants Coal Mining Report and the CAs online interactive mapping information for the locality identifies the following coal mining legacy hazards within the site and close to its boundary.

a. 33 mine entries (21 mine shafts + 12 adits/tunnels)
b. Coal outcrops of the High Main, Five-Quarter, Main/aka Yard and Maudlin Coal seams in descending geology column order.
c. Probable/unrecorded shallow underground mine working
d. Opencast activity and deep infilled ground.
e. Past shallow underground mining between 0m and 30m depth primarily in the High Main, and Main/Yard seams and to a much lesser extent below these seems in the Low Main/Brass Thill and Hutton Coals.

Mine entries are by far the most serious hazard to ground stability and obstacle to obtaining planning permission for this development while shallow underground working is by the far the most extensive hazard and obstacle to the full economically viable development of the site for solar farm use.

The mining hazards impacting the development are summarised on the plan provided in Appendix F.

The '**GREY STIPPLED'** area within the site boundary is where excluding mine entry zones of influence (ZOIs) there is currently NO identified coal legacy hazards, and which therefore is potentially developable without mine working stabilisation subject to the findings of limited further intrusive site investigation in this area. This area is approximately 1.42km^2 or 142ha and 61.7% of the available land within the site boundary. Excluding mine entry ZOI it is 1.39km^2 or 139ha and 60% of the site.

1.5 Mine Entries – RED SHAFT X & LIGHTER RED ADIT X

Mine entry data is summarised in the table in Appendix G. The zones of influence of the mine entries are calculated both as a radius from the approximate/best grid coordinates of the respective entry listed in the CA report. Drift/bedrock depth is conservatively estimated based on nearby BGS borehole records and would require probe drilling at each shaft location if a more accurate estimate of ZOI size/area is needed.

The CA strongly advise against ALL development over mine entries and within their ZOIs. Consequently, it is Geoinvestigate's opinion that the solar farm development must where possible avoid ALL mine entry ZOIs. This accounts to a total area of land of some 0.030 km^2 or 3ha. If this pre-emptive action is not taken problems will arise should a planning application be submitted including these areas in the development layout.

Owing to uncertainty about the positional accuracy of the mine entries indicated by their mostly 8m departure (in a range of 0m for a found/treated shaft to 10m where there is greater uncertainty) 2m high fenced ZOI exclusion areas with warning signage should be established around each mine entry centred on the CAs coordinates.

If development is extended into mine entry ZOI intrusive investigation would be required to locate each mine entry and treat it by expensive drilling, grouting and capping works. It is Geoinvestigate's experience that if development is extended into ZOI without further mitigation the CA are likely to object to this planning application as a whole placing it on hold.

1.6 Coal Outcrop – BLACK DASHED LINES

Several major coal seam outcrops are shown crossing the site in a NW - SE direction their outcrop pattern disturbed in places by geological faulting. While the CA typically tentatively identify coal outcrop as development high risk areas (DHRA) posing similar risk to probable shallow mine working it is Geoinvestigate's experience that not all coal outcrop is worked by surface pitting or very shallow underground mining. This is the case at Kibblesworth where save for small areas of localised recorded opencast working at the peripheries of the site and the reference by the BGS to small areas of opencast of the High Main outcrop to the south of the village surface and underground working of coal outcrop is generally expected to be absent.

On the other hand, the identification in the CA report of underground workings in the High Main at 0m depth (presumably daylighting at surface) and the High Main and Main/Yard at 3m to 9m depth (approaching ground surface) together with the plan in Appendix E showing 'BLUE' areas of shallow working approaching coal outcrop both indicate that in places across the site underground working rises close to coal outcrop and ground surface hidden below varying thickness of soil and rock cover. The exact location of the very shallow mine working within the site is yet to be established.

In Geoinvestigate's opinion coal outcrop poses considerably less hazard than the large areas of past/recorded very shallow and shallow underground mining areas highlighted in BLUE across the site in Appendix E.

However, no surface or shallow underground mining is identified within the site associated with the Maudlin Coal outcrop in the northeast of the property while the very small area of shallow working in the far northeast corner may associated with the nearby outcrop of the Durham Low Main/Top Brass Thill coal.

1.7 Probable Unrecorded Shallow Working - PURPLE AREAS

The CA report also identifies probable (though as yet unproven) shallow coal working within the site. However, the summary plan in Appendix E indicates these **PURPLE** highlighted areas are absent within the site boundary perhaps reflecting the CAs confidence that the mining records they hold are reliable in their demarcation of areas of recorded working and other than this there is no unrecorded working elsewhere.

However, a very small area of probable shallow working is shown in the far north of the site between Coltpool Burn and Old Ravensworth subject to opencast working may be present. Elsewhere throughout the **GREY STIPPLED** area (where no coal mining hazard is identified in the CA report) unrecorded shallow working is expected to be absent though some limited drilling investigation in this area is required to confirm this.

1.8 Opencast Activity & Deep Infilled Ground – ORANGE HATCHED AREAS

The CA report identifies small areas of recorded opencast activity shown **ORANGE HATCH** in the far north and east of the site between Coltpool Burn and Old Ravensworth and at Whinnel Hill respectively verified by BGS mapping. These opencasts were probably restored over 40 years ago.

Opencast is advantageous with respect to removing shallow underground mining hazard replacing it with deep infilled ground subject to probable informal compaction and with negligible risk of significant future settlement.

Consequently, in Geoinvestigate's opinion restored opencast areas are suitable for solar farm development though in this instance they account for only a very small percentage of the land.

In Geoinvestigate's opinion the large ORANGE HATCHED area to the south of Kibblesworth Village identified in the CA report as Opencast Mine though demarcated for excavation circa 1984 was never subsequently worked as an opencast because the project was shelved. This is confirmed by BGS mapping and multiple 1984 site investigation boreholes in this area showing generally undisturbed ground conditions with natural clay drift at or near surface and coal seam at various depths below 5m to 10m thickness of drift cover. Consequently, there remains an extensive past shallow mine working hazard in this area as well as multiple mine entry hazards the latter clustered in 4 small groups to the south and west of the village and the old railway line now a cycleway and footpath.

A note on the 1:10,000 BGS geology map identifies "small areas of High Main opencasted near outcrop" to the southwest of the village. The location and extent of this working could not be established for this CMRA.

1.9 Past Shallow Coal Mine Working – BLUE AREAS

A large area of roughly 0.88km^2/88ha or 38% of the site is underlain by past/recorded shallow mine workings highlighted BLUE in Appendix F posing potentially the most extensive and most expensive ground stability hazard to surface development though less critical to ground stability than the impact of mine entries and to gaining planning permission.

Presumably historical mining abandonment plans are held by the CA documenting this working and are the source of the seam depths provided in the CA report. Shallow working < 30m depth is recorded mostly in the High Main, and Main/Yard Coal seams but not in the Five-Quarter seam. These plans have not been purchased from the CA in the preparation of this CMRA.

The BLUE area comprises very shallow (< 10m depth) and shallow underground working (10m to 30m depth) the highest risk to surface ground stability arising from very shallow working with perhaps working between 30m to 40m depth (shallow to moderate depth) also posing problems depending on drift/bedrock depth and the ratio of rock cover to coal seam thickness/extraction thickness which varies across the site.

In Geoinvestigates opinion extensive intrusive ground investigation is required in the BLUE areas to further enable the ground stability risk to be assessed and to determine the extent of mine working stabilisation required in this area.

Whether parts of the BLUE shallow worked areas pose lesser surface ground stability hazard requiring no stabilisation depends on several factors – drift depth, rock cover to extraction thickness ratio, mining method with closure of the opening following soon after total extraction/longwall mining being preferable to room and pillar the latter leaving mine voids increasing the risk of delayed roof collapse, upward void migration and crown hole subsidence and collapse reaching surface. In general surface ground stability risk reduces the deeper the workings lie, the thicker the rock cover above them and/or where total extraction mining has occurred causing the workings to totally close on the completion of mining.

In general, as coal seam dip at Kibblesworth is low (1-2 degrees) and ground height rises westwards with increasing mine working depth and rock cover in this direction the western margins of the BLUE areas may perhaps pose less risk to the surface perhaps requiring no mine stabilisation. This however is speculation.

In Geoinvestigate's opinion the quantification of the areas at lesser risk within past shallow mining areas requires further complex analysis of existing BGS borehole information, mining abandonment plans, CA online interactive mining information all in relation to topographic variation across the site as well as the results of further extensive drilling investigation particularly to the north of Kibblesworth Village where there is little existing borehole information

1.10 Geological Faults, Fissures & Breaklines

The CA report identifies 3 geological faults passing beneath the site in a NNW - SSE direction causing vertical displacement of coal outcrop, underground coal seam and mine workings across the site. Other than this these features do not impact surface ground stability within the development area.

1. 11 Mine Gas

According to the CA report no mine gas incident or remediation has been recorded within or 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 ground 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 indicated that conditions may exist locally at this site increasing mine gas risk namely the presence of shallow underground mine working, localised small opencast pit working, geological faults and mine entries the latter providing possible mine gas seepage pathways to the surface. However, the risk may be less as there has been no reported mine gas incidents at this locality.

By its nature solar farm development provides few enclosed space opportunities for mine gas hazard to accumulate and to target human safety the risk being restricted to substation buildings or larger inspection cabinets where the entry of personnel is intended.

As an alternative to providing buildings within the site with precautionary ground gas protection it is recommended that limited gas monitoring is carried out in specially installed gas wells at selected higher risk locations such as restored opencast, in the proximity of mine entries or where geological faults occur to establish whether ground gas mitigation is required to be incorporated in building design at in the proximity of these locations and elsewhere.

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	**M**	**H**	Extensive drilling to enable further assessment
Probable unrecorded shallow workings	**L**	**M**	Limited drilling to enable further assessment.
Outcrop	**L**	**M**	Limited drilling to enable further assessment.
Spine roadways at shallow depth	**NONE**		
Mine entries	**YES**		Development excluded from mine entry ZOIs
Geological faults, fissures and breaklines			
Mine gas	**L**	**M**	Limited longer term gas monitoring
Opencast mines within 500m	**L**		Limited intrusive site investigation
Coal mining subsidence claims within 50m	**NONE**		
Site investigations within 50m	**YES**		Data unavailable and outcome unknown
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 special building design and/or ground stabilisation mitigation at a future date but before construction begins?	**Yes**		Yes. Because **ALL development is excluded from the mine entry ZOIs** identified in this CMRA. Therefore, the development is NOT impacted by known mine entry proximity hazard and the site-specific ground stability and possible mine gas risks to the proposed development from shallow underground mining identified in this CMRA **can be mitigated by further intrusive site investigation and routine engineering solutions if required.**

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

3. CMRA OUTCOME & RECOMMENDATIONS

This CMRA has identified 33 mine entries (21 shafts and 12 adits) within and close to the site boundary posing major localised ground stability concerns. In order to avoid planning problems arising from mine entries it is recommended that ALL development is excluded from the ZOIs of these entries, and they are ALL individually fenced and provided with warning signage prohibiting public entry.

Mine entry ZOI development exclusion zones total around 3ha. or 0.03 sq km.

Mine entry ZOIs have been calculated using drift/bedrock depth obtained from BGS borehole information. Drilling will be required across the property adjacent to individual ZOIs if more accurate development exclusion zone identification is required.

This CMRA has further identified 5 large areas totalling approximately 0.88km^2/88ha or 38% of the property underlain by recorded very shallow and shallow mine working potentially posing significant and extensive ground stability hazard to surface development potentially requiring extensive ground treatment by drilling and grouting to stabilise it. How much of this area poses less risk and does not need stabilisation cannot be quantified unless further assessment is carried out requiring further detailed desk study, the purchase and review of mining abandonment plans and extensive drilling investigation. Encouragingly however the absence of coal mining subsidence claims suggests that ground stability is more favourable in areas of shallow mine working than perhaps indicated by the outcome of this CMRA.

This CMRA has shown that significant coal legacy ground stability hazard may be largely absent beneath approximately 1.39km^2 /139ha or 60% of the land within the site boundary requiring only further limited intrusive investigation to confirm this. Currently the expectation from this CMRA is that no mine working stabilisation is required in this area though this may change depending on the outcome of intrusive site investigation.

Limited gas monitoring at selected locations within the site is recommended to assess the mine gas potential both within opencast site, above shallow mineworking and above geological fault lines and adjacent to mine entries though mine gas is not expected to pose significant problem to solar farm development.

Because mine entry hazard has been mitigated by the creation of exclusion zones the remaining risks identified in this CMRA report primarily from very shallow and shallow mine working can be mitigated by further desk study, intrusive site investigation and routine engineering solutions then **planning permission should not in our opinion be withheld with respect to coal mining legacy issues** providing additional investigative work is carried out at a future date.

A Coal Authority Permit needs to be obtained (ahead of) further intrusive exploratory drilling or excavation. 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.

WHAT TO DO NEXT? Obtain quotes for the intrusive site investigation works. 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 15th August 2024 ref. 51003443043001
B. Site Images
C. Geology Map Extracts
D. BGS Borehole Locations
E. Proposed c1984 Kibblesworth OCCS
F. Summary Coal Mining Hazard Map
G. Mine Entry Data & ZOIs

APPENDIX A
COAL MINING REPORT

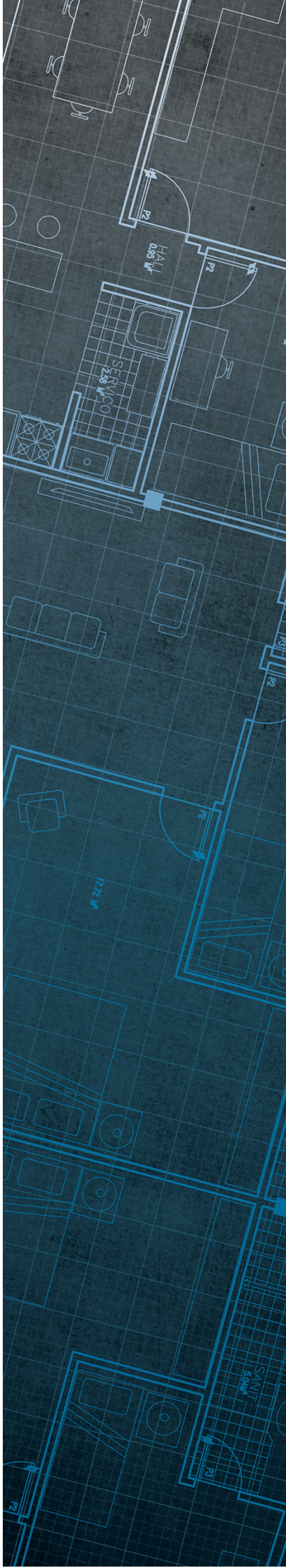
The Coal Authority

Consultants

Coal Mining Report

LAND AT Kibblesworth
Kibblesworth
Birtley
Gateshead
NE11 0JB

Date of enquiry:	**9 August 2024**
Date enquiry received:	**9 August 2024**
Issue date:	**15 August 2024**
Our reference:	**51003443043001**
Your reference:	**Kibblesworth**



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

LAND AT Kibblesworth
Kibblesworth
Birtley
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Approximate position of property

Map data

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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
KIBBLESWORTH	HIGH MAIN	Coal	3EKT	0	Beneath Property	2.2	South-East	130	1955
unnamed	HIGH MAIN	Coal	3ELI	3	Beneath Property	1.9	North	100	1955
unnamed	HIGH MAIN	Coal	3ELF	4	Beneath Property	1.9	South	100	1955
unnamed	HIGH MAIN	Coal	3ELT	7	Beneath Property	2.8	East	100	1955
KIBBLESWORTH / RIDING DRI	YARD	Coal	3MNV	7	Beneath Property	1.2	North-East	137	1929
KIBBLESWORTH	MAIN	Coal	3MFS	7	Beneath Property	0.2	West	90	1915
KIBBLESWORTH	HIGH MAIN	Coal	3MFL	9	Beneath Property	1.2	North-West	120	1955
KIBBLESWORTH	MAIN	Coal	3EPI	12	Beneath Property	0.9	South-East	80	1950
unnamed	MAIN	Coal	3EQF	12	Beneath Property	1.6	South-East	100	1923
KIBBLESWORTH	MAIN	Coal	3EPF	12	Beneath Property	0.9	South-East	100	1921
KIBBLESWORTH	LOW MAIN BRASS THILL	Coal	3ELS	14	Beneath Property	13.7	West	90	1962
KIBBLESWORTH	MAIN	Coal	3EPT	14	Beneath Property	1.6	South-East	80	1921
KIBBLESWORTH	HIGH MAIN	Coal	3EKF	15	Beneath Property	2.0	North-East	120	1955
unnamed	HIGH MAIN	Coal	3EJT	16	South-West	2.3	North-East	100	1955
KIBBLESWORTH	HUTTON	Coal	3EEI	18	Beneath Property	2.4	South-East	150	1953
KIBBLESWORTH	YARD	Coal	3EH2	20	Beneath Property	1.7	South	140	1954
KIBBLESWORTH	YARD	Coal	3PXT	20	Beneath Property	0.0	East	130	1947
KIBBLESWORTH	MAIN	Coal	3EOF	21	Beneath Property	4.4	South-West	80	1938
KIBBLESWORTH	MAIN	Coal	3PXC	23	Beneath Property	0.7	North-East	90	1914
KIBBLESWORTH	YARD	Coal	3EDG	26	Beneath Property	1.9	East	160	1954
KIBBLESWORTH	YARD	Coal	3PXP	26	Beneath Property	2.2	East	130	1947
KIBBLESWORTH	MAIN	Coal	3PXB	26	Beneath Property	0.7	North-East	90	1914

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
KIBBLESWORTH	YARD	Coal	3PXO	29	Beneath Property	2.1	East	130	1947
unnamed	YARD	Coal	3EG2	30	Beneath Property	4.8	South-East	140	1972
KIBBLESWORTH	YARD	Coal	3EIG	34	Beneath Property	7.3	South-East	140	1954
unnamed	YARD	Coal	3EJU	34	Beneath Property	3.3	South-East	140	1954
RAVENSWORTH	LOW MAIN	Coal	3LY3	34	Beneath Property	1.3	South	110	1947
RAVENSWORTH	LOW MAIN	Coal	3LY5	35	Beneath Property	2.5	South-West	110	1947
KIBBLESWORTH	BRASS THILL	Coal	3LZ2	35	Beneath Property	2.0	East	180	1888
unnamed	YARD	Coal	3EIU	40	Beneath Property	1.6	South-West	140	1954
RAVENSWORTH	LOW MAIN	Coal	3LY2	40	North	1.3	South	110	1947
unnamed	YARD	Coal	3EE2	41	Beneath Property	2.7	South-East	100	1954
RAVENSWORTH	LOW MAIN	Coal	3LY6	41	Beneath Property	2.6	South-West	110	1947
RAVENSWORTH	LOW MAIN	Coal	3LY1	42	Beneath Property	0.3	South-East	130	1972
unnamed	YARD	Coal	3EHU	42	Beneath Property	13.3	North-East	140	1954
KIBBLESWORTH	YARD	Coal	3PXR	42	Beneath Property	0.4	West	130	1947
KIBBLESWORTH	YARD	Coal	3PXO	43	Beneath Property	0.6	North	130	1947
RAVENSWORTH	LOW MAIN	Coal	3LY4	44	Beneath Property	1.5	South	110	1947
KIBBLESWORTH	YARD	Coal	3SKB	44	Beneath Property	1.2	North-East	130	1900
KIBBLESWORTH	BRASS THILL	Coal	3LZ6	44	Beneath Property	1.2	North-East	180	1888
KIBBLESWORTH	BRASS THILL	Coal	3LZ1	44	South-East	2.0	East	180	1888
KIBBLESWORTH	YARD	Coal	3EHG	45	Beneath Property	1.7	South-East	140	1954
KIBBLESWORTH	LOW MAIN	Coal	3LXZ	46	Beneath Property	0.9	North-East	130	1973
KIBBLESWORTH	BRASS THILL	Coal	3ELV	47	Beneath Property	2.2	West	180	1955
KIBBLESWORTH	MAIN	Coal	3ERI	47	Beneath Property	1.2	South	90	1918
KIBBLESWORTH	LOW MAIN	Coal	3LXK	49	Beneath Property	0.7	South-East	80	1973
KIBBLESWORTH	YARD	Coal	3PXS	49	Beneath Property	0.9	North-East	130	1947

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	LOW MAIN BRASS THILL	Coal	3ELE	50	Beneath Property	1.4	West	100	1958
KIBBLESWORTH	BRASS THILL	Coal	3LZ5	51	Beneath Property	0.5	South-East	180	1888
unnamed	HUTTON	Coal	3M0T	52	Beneath Property	0.6	South-East	130	1921
KIBBLESWORTH	LOW MAIN	Coal	3LXQ	53	Beneath Property	1.9	East	80	1973
KIBBLESWORTH	LOW MAIN	Coal	3LXS	53	Beneath Property	1.9	East	80	1973
KIBBLESWORTH	LOW MAIN	Coal	3LXR	53	Beneath Property	1.9	East	80	1971
KIBBLESWORTH / RIDING DRI	YARD	Coal	3MNW	53	Beneath Property	1.0	North	137	1929
RAVENSWORTH	HUTTON	Coal	3M0U	53	Beneath Property	1.3	East	130	1921
KIBBLESWORTH	BRASS THILL	Coal	3LYS	54	Beneath Property	1.1	North-West	200	1937
KIBBLESWORTH	LOW MAIN	Coal	3LY0	55	Beneath Property	1.2	East	130	1969
unnamed	BRASS THILL	Coal	3LYL	55	Beneath Property	1.1	North-East	200	1931
unnamed	BRASS THILL	Coal	3LYV	55	Beneath Property	2.6	East	200	1931
unnamed	HUTTON	Coal	3ECI	56	Beneath Property	1.7	North-East	150	1947
KIBBLESWORTH	HUTTON	Coal	3M0R	56	Beneath Property	0.9	South-East	100	1947
KIBBLESWORTH	BRASS THILL	Coal	3MIK	56	East	0.8	South-East	190	1931
unnamed	BRASS THILL	Coal	3MIF	57	Beneath Property	0.8	North	190	1968
KIBBLESWORTH	LOW MAIN	Coal	3LXP	57	Beneath Property	0.7	South-East	90	1967
KIBBLESWORTH	BRASS THILL	Coal	3LYT	57	Beneath Property	1.5	North-West	200	1937
unnamed	YARD	Coal	3EJG	58	Beneath Property	2.4	South-East	140	1954
KIBBLESWORTH	HUTTON	Coal	3M0S	58	Beneath Property	0.8	South-East	100	1947
unnamed	YARD	Coal	3E12	59	Beneath Property	1.6	South-West	140	1954
KIBBLESWORTH	LOW MAIN BRASS THILL	Coal	3SSA	61	Beneath Property	3.6	South-West	90	1970
KIBBLESWORTH	MAIN	Coal	3EOT	61	Beneath Property	3.9	East	100	1938
KIBBLESWORTH	LOW MAIN	Coal	3MN5	62	Beneath Property	1.3	North-East	120	1967
KIBBLESWORTH	HUTTON	Coal	3M0K	62	Beneath Property	1.0	North-East	130	1947

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
KIBBLESWORTH	BRASS THILL	Coal	3MIJ	62	Beneath Property	0.8	South-East	190	1931
KIBBLESWORTH	LOW MAIN	Coal	3MMT	63	Beneath Property	1.2	North-East	120	1967
unnamed	HUTTON	Coal	3ED4	63	Beneath Property	1.8	North-East	150	1947
KIBBLESWORTH	LOW MAIN BRASS THILL	Coal	3SRO	64	Beneath Property	1.4	North-West	90	1970
unnamed	LOW MAIN BRASS THILL	Coal	3ELO	65	Beneath Property	13.8	West	100	1955
KIBBLESWORTH	LOW MAIN	Coal	3MMU	66	Beneath Property	1.2	North-East	120	1966
unnamed	HUTTON	Coal	3M0L	66	Beneath Property	3.2	North-East	130	1947
unnamed	HUTTON	Coal	3EOI	68	Beneath Property	1.8	North-East	150	1947
KIBBLESWORTH	HUTTON	Coal	3M0Q	70	Beneath Property	0.9	South-East	130	1947
KIBBLESWORTH	YARD	Coal	3EJ2	71	Beneath Property	40.9	South-West	140	1954
unnamed	HUTTON	Coal	3MHZ	72	Beneath Property	1.0	North-West	130	1909
KIBBLESWORTH	HUTTON	Coal	3M0P	72	East	2.7	North-East	130	1947
KIBBLESWORTH	LOW MAIN BRASS THILL	Coal	3SRA	73	Beneath Property	3.1	East	90	1962
KIBBLESWORTH	LOW MAIN	Coal	3MMX	75	Beneath Property	1.5	North	90	1961
KIBBLESWORTH	LOW MAIN	Coal	3LXM	77	Beneath Property	1.2	East	80	1958
KIBBLESWORTH	LOW MAIN	Coal	3LXN	77	South-East	1.2	East	80	1958
unnamed	LOW MAIN BRASS THILL	Coal	3EKS	79	Beneath Property	3.0	East	100	1951
KIBBLESWORTH	LOW MAIN	Coal	3MMW	80	Beneath Property	2.2	North	90	1962
KIBBLESWORTH	HUTTON	Coal	3MHY	80	Beneath Property	0.8	South-East	130	1909
KIBBLESWORTH	LOW MAIN	Coal	3LXL	81	Beneath Property	5.4	South-East	80	1957
unnamed	HUTTON	Coal	3SLN	82	Beneath Property	2.5	East	150	1947
URPETH	BRASS THILL	Coal	3EIH	82	Beneath Property	1.5	South-East	150	1880
KIBBLESWORTH	BRASS THILL	Coal	3LYU	83	Beneath Property	0.6	South	200	1931
unnamed	LOW MAIN BRASS THILL	Coal	3EKE	84	Beneath Property	2.8	East	100	1974

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
KIBBLESWORTH	TOP BUSTY	Coal	3M3R	85	Beneath Property	40.1	North	58	1940
unnamed	HUTTON	Coal	3SKN	86	Beneath Property	3.3	South	150	1900
unnamed	HUTTON	Coal	3M0M	87	Beneath Property	0.5	South-East	130	1947
unnamed	HUTTON	Coal	3SL9	88	Beneath Property	3.1	South	150	1947
unnamed	BRASS THILL	Coal	3EKV	89	Beneath Property	3.9	North-West	180	1947
KIBBLESWORTH	HUTTON	Coal	3MHX	89	Beneath Property	0.8	East	130	1909
KIBBLESWORTH	BRASS THILL	Coal	3EI3	89	South-West	0.5	North	120	1934
KIBBLESWORTH	HUTTON	Coal	3ERH	90	Beneath Property	1.1	North-East	150	1947
unnamed	BRASS THILL	Coal	3EJH	90	Beneath Property	0.7	North-East	100	1880
unnamed	HUTTON	Coal	3EE4	91	Beneath Property	1.8	North-East	150	1947
KIBBLESWORTH	BRASS THILL	Coal	3EK3	91	Beneath Property	1.7	South-East	180	1928
KIBBLESWORTH	BRASS THILL	Coal	3SWP	91	Beneath Property	1.5	North-East	180	1900
KIBBLESWORTH	LOW MAIN	Coal	3LXO	92	Beneath Property	0.5	East	80	1958
KIBBLESWORTH	LOW MAIN	Coal	3MMY	93	Beneath Property	2.4	North	90	1963
unnamed	BRASS THILL	Coal	3ELH	94	Beneath Property	0.9	South-West	180	1950
unnamed	BRASS THILL	Coal	3EMY	94	Beneath Property	2.4	East	180	1937
KIBBLESWORTH	BRASS THILL	Coal	3EKH	94	Beneath Property	3.9	South-East	180	1925
unnamed	BRASS THILL	Coal	3EM3	95	Beneath Property	0.9	South-West	180	1955
KIBBLESWORTH	HUTTON	Coal	3EDW	95	Beneath Property	1.8	North-East	150	1947
unnamed	BRASS THILL	Coal	3EJ3	95	Beneath Property	0.7	North-East	150	1880
KIBBLESWORTH	BRASS THILL	Coal	3MIG	97	Beneath Property	2.6	North	190	1932
KIBBLESWORTH	HUTTON	Coal	3M0O	99	Beneath Property	0.2	South-West	130	1947
ANDREWS HOUSE	HUTTON	Coal	3EI4	99	Beneath Property	5.1	South-East	130	1906
KIBBLESWORTH	BRASS THILL	Coal	3SWB	103	Beneath Property	1.7	East	180	1926
unnamed	LOW MAIN	Coal	3EP2	104	Beneath Property	3.2	South-East	100	1954
KIBBLESWORTH	HUTTON	Coal	3MHV	104	Beneath Property	0.8	East	130	1909

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
KIBBLESWORTH	LOW MAIN	Coal	3E0G	105	South	2.2	South	100	1966
KIBBLESWORTH	HUTTON	Coal	3MHU	106	Beneath Property	0.8	East	130	1909
unnamed	HUTTON	Coal	3ECW	107	Beneath Property	1.8	North-East	150	1947
KIBBLESWORTH	LOW MAIN	Coal	3EDU	108	Beneath Property	2.2	North-West	100	1966
KIBBLESWORTH	HUTTON	Coal	3M0N	109	Beneath Property	0.2	South-West	130	1947
KIBBLESWORTH	TILLEY	Coal	3M31	110	Beneath Property	2.0	North-East	74	1961
KIBBLESWORTH	LOW MAIN	Coal	3MN1	112	Beneath Property	2.0	West	90	1961
KIBBLESWORTH	LOW MAIN	Coal	3MN2	112	Beneath Property	2.0	West	90	1961
KIBBLESWORTH	LOW MAIN	Coal	3EPG	113	Beneath Property	3.3	South-East	100	1954
KIBBLESWORTH	HUTTON	Coal	3MHW	114	Beneath Property	0.8	East	130	1909
KIBBLESWORTH	BRASS THILL	Coal	3SXP	116	South-West	2.6	North-West	180	1900
KIBBLESWORTH	TILLEY	Coal	3M30	119	Beneath Property	1.2	East	74	1964
unnamed	HUTTON	Coal	3EA4	122	Beneath Property	1.4	East	150	1947
RAVENSWORTH ANN	TILLEY	Coal	3M32	122	East	3.5	East	71	1961
RAVENSWORTH	TILLEY	Coal	3M2T	124	Beneath Property	1.0	East	74	1962
KIBBLESWORTH	HUTTON	Coal	3E9W	124	Beneath Property	0.5	North-East	100	1947
KIBBLESWORTH	TOP BUSTY	Coal	3M3Q	124	Beneath Property	39.5	North	58	1940
KIBBLESWORTH	HUTTON	Coal	3EAI	125	Beneath Property	0.5	North-East	100	1947
KIBBLESWORTH	HUTTON	Coal	3EEW	125	North	1.8	North-East	150	1902
unnamed	HARVEY	Coal	3M2B	125	North-East	7.4	North-West	60	1967
KIBBLESWORTH	TOP BUSTY	Coal	3M3Z	126	Beneath Property	1.3	East	63	1947
unnamed	HUTTON	Coal	3EF4	128	North	1.8	North-East	130	1902
unnamed	TOP BUSTY	Coal	3EEI	130	Beneath Property	2.2	South-East	80	1953
KIBBLESWORTH	HUTTON	Coal	3EC4	130	Beneath Property	0.5	North-East	100	1947
KIBBLESWORTH	TOP BUSTY	Coal	3M3S	131	Beneath Property	6.3	West	58	1940
unnamed	TILLEY	Coal	3LPU	131	South-West	6.2	North-West	80	1972

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
RAVENSWORTH ANN	TILLEY	Coal	3M2U	132	Beneath Property	4.3	East	74	1963
KIBBLESWORTH	TOP BUSTY	Coal	3M40	132	North-West	3.6	East	66	1947
KIBBLESWORTH	TILLEY	Coal	3MT7	133	Beneath Property	1.2	North	91	1962
URPETH	TILLEY	Coal	3MT6	133	Beneath Property	2.0	North	91	1932
RAVENSWORTH ANN	TILLEY	Coal	3M2V	133	East	3.8	North-East	69	1961
RAVENSWORTH	TOP BUSTY	Coal	3M41	134	Beneath Property	0.9	South	61	1939
KIBBLESWORTH	TILLEY	Coal	3LQ1	135	Beneath Property	3.6	East	80	1965
KIBBLESWORTH	BTM. BUSTY	Coal	3M54	135	Beneath Property	1.8	North-East	74	1951
KIBBLESWORTH	TILLEY	Coal	3SYZ	135	North-West	3.4	East	80	1967
unnamed	TILLEY	Coal	3SYL	138	Beneath Property	3.5	East	80	1964
unnamed	BTM. BUSTY	Coal	3LOY	138	Beneath Property	2.2	East	60	1961
KIBBLESWORTH	TILLEY	Coal	3M2R	138	Beneath Property	0.9	North-East	89	1960
KIBBLESWORTH	BTM. BUSTY	Coal	3M4T	138	Beneath Property	3.0	North-East	69	1954
KIBBLESWORTH	BTM. BUSTY	Coal	3M55	139	Beneath Property	1.8	East	66	1958
OUSTON	BUSTY	Coal	3MUU	142	East	1.5	North	216	1929
OUSTON	TILLEY	Coal	3M2P	143	Beneath Property	1.5	North	102	1939
unnamed	TILLEY	Coal	3LQ5	144	Beneath Property	2.8	East	80	1965
KIBBLESWORTH	TILLEY	Coal	3SZ7	144	Beneath Property	4.2	South-East	80	1900
KIBBLESWORTH	BUSTY	Coal	3MUH	145	Beneath Property	1.4	East	69	1940
KIBBLESWORTH	TILLEY	Coal	3SZL	146	Beneath Property	4.0	East	80	1966
OUSTON	TOP BUSTY	Coal	3M3T	150	East	1.0	South	74	1929
unnamed	TILLEY	Coal	3LQ2	151	Beneath Property	3.6	East	80	1963
KIBBLESWORTH	BTM. BUSTY	Coal	3LOR	152	Beneath Property	2.6	North-East	160	1943
KIBBLESWORTH	BUSTY	Coal	3MUJ	156	Beneath Property	2.2	East	107	1940
unnamed	TILLEY	Coal	3LQ3	158	South-East	2.7	East	80	1965
OUSTON	BTM. BUSTY	Coal	3M53	159	East	1.1	West	76	1927

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	TILLEY	Coal	3LQ0	162	Beneath Property	1.2	South-East	60	1972
unnamed	BTM. BUSTY	Coal	3M4S	162	Beneath Property	2.5	East	66	1961
KIBBLESWORTH	TILLEY	Coal	3LPX	163	Beneath Property	1.7	East	60	1973
unnamed	TOP BUSTY	Coal	3SOL	164	Beneath Property	3.4	South-East	80	1953
KIBBLESWORTH	TILLEY	Coal	3LPY	165	South-East	1.6	South-East	60	1973
unnamed	TILLEY	Coal	3LPZ	166	South	1.5	South-East	60	1972
KIBBLESWORTH	BUSTY	Coal	3MUI	169	Beneath Property	1.6	North-East	69	1940
KIBBLESWORTH	BROCKWELL	Coal	3SO6	170	West	2.7	South-East	80	1900
unnamed	TILLEY	Coal	3LQ4	171	Beneath Property	2.7	East	80	1965
unnamed	BTM. BUSTY	Coal	3SSK	171	Beneath Property	3.3	East	70	1960
KIBBLESWORTH	BTM. BUSTY	Coal	3M4X	171	Beneath Property	0.4	South	60	1947
KIBBLESWORTH	BTM. BUSTY	Coal	3LP1	172	Beneath Property	5.7	South-East	220	1961
KIBBLESWORTH	TOP BUSTY	Coal	3EDI	173	South-West	1.9	South-East	70	1955
unnamed	BTM. BUSTY	Coal	3LOV	175	Beneath Property	1.8	North-East	160	1943
unnamed	TOP BUSTY	Coal	3ECF	175	Beneath Property	4.5	South-East	60	1941
unnamed	BTM. BUSTY	Coal	3LP0	176	Beneath Property	3.1	East	220	1961
unnamed	TOP BUSTY	Coal	3EDF	178	Beneath Property	2.7	South-East	80	1962
unnamed	BTM. BUSTY	Coal	3LOT	178	South-West	1.9	East	170	1963
unnamed	BTM. BUSTY	Coal	3LOZ	179	Beneath Property	5.5	South-East	220	1961
unnamed	TILLEY	Coal	3M2S	179	Beneath Property	2.6	South-West	89	1960
KIBBLESWORTH	BTM. BUSTY	Coal	3M4W	180	Beneath Property	1.0	North-East	60	1947
KIBBLESWORTH	BTM. BUSTY	Coal	3LP2	181	South-West	1.2	South	70	1963
KIBBLESWORTH	BTM. BUSTY	Coal	3M4U	182	Beneath Property	0.8	East	60	1947
KIBBLESWORTH	BTM. BUSTY	Coal	3M4V	182	Beneath Property	0.9	North-East	60	1947
unnamed	TILLEY	Coal	3LPW	183	Beneath Property	2.1	North-West	80	1959
KIBBLESWORTH	BROCKWELL	Coal	3EL5	184	Beneath Property	1.5	East	80	1967

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	BTM. BUSTY	Coal	3LOU	186	Beneath Property	1.8	East	160	1957
unnamed	TOP BUSTY	Coal	3EDT	188	Beneath Property	5.0	South-East	70	1961
MARLEY HILL	BROCKWELL	Coal	3EK5	191	West	5.3	South-East	140	1966
unnamed	TOP BUSTY	Coal	3ECT	192	Beneath Property	0.3	North-East	60	1940
KIBBLESWORTH	BROCKWELL	Coal	3EIS	199	Beneath Property	2.4	East	80	1970
unnamed	BROCKWELL	Coal	3ELX	202	Beneath Property	3.6	East	80	1968
unnamed	BROCKWELL	Coal	3EHX	202	South-West	1.7	East	80	1966
unnamed	BROCKWELL	Coal	3EJJ	202	West	8.1	South-East	140	1961
MARLEY HILL	BROCKWELL	Coal	3EIX	202	South-West	4.1	South-East	140	1961
KIBBLESWORTH	BROCKWELL	Coal	3EH5	203	Beneath Property	3.4	East	80	1966
KIBBLESWORTH	BROCKWELL	Coal	3EFX	205	South-West	3.0	North	80	1961
KIBBLESWORTH	BROCKWELL	Coal	3ELJ	206	South-West	1.9	East	80	1967
unnamed	BROCKWELL	Coal	3EMX	210	Beneath Property	1.5	East	80	1973
unnamed	BROCKWELL	Coal	3EMJ	210	Beneath Property	1.9	South-East	80	1972
KIBBLESWORTH	BROCKWELL	Coal	3EM5	212	Beneath Property	3.4	East	80	1968
unnamed	BROCKWELL	Coal	3EHJ	214	Beneath Property	2.9	North-East	80	1970
unnamed	BROCKWELL	Coal	3EG5	219	Beneath Property	3.3	North	80	1961
KIBBLESWORTH	BROCKWELL	Coal	3EGX	220	South-West	3.0	East	80	1964
KIBBLESWORTH	TOP BUSTY	Coal	3M3P	222	Beneath Property	39.6	North	58	1940
KIBBLESWORTH	TOP BUSTY	Coal	3M3O	238	Beneath Property	20.2	South-West	58	1940

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

Distance to spine roadway (m)	Direction to spine roadway
Within	N/A
Within	N/A
Within	N/A
Within	N/A
Within	N/A

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	422556-011	422452 556544		Coal	
Shaft	422556-012	422556 556561		Coal	
Shaft	422556-013	422532 556371		Coal	
Shaft	422556-014	422831 556687		Coal	
Shaft	423556-002	423218 556872	Our records indicate that the shaft was filled although we have no record of the specification used or date.	Coal	
Shaft	423556-003	423431 556968		Coal	
Shaft	423556-004	423444 556806		Coal	
Shaft	423556-005	423463 556692		Coal	
Shaft	423556-006	423525 556525		Coal	
Shaft	423556-007	423611 556959		Coal	
Shaft	423556-008	423639 556401		Coal	
Shaft	423556-009	423628 556370		Coal	
Adit	423556-010	423973 556179	The drift was opened up by the Contractor to dispose of slurry from coal extraction works on George Tip Spoil Heap. The drift was found to be collapsed only a few metres inbye and only a small amount of slurry was discharged underground. The drift was filled in with sub soil..	Coal	
Shaft	423556-011	423937 556144		Coal	
Shaft	423557-004	423297 557102		Coal	
Shaft	423557-012	423766 557402	Our records show that this shaft is located in an area that has been worked through by opencast mining operations. There are no details of treatment but it is likely that the shaft has been partially or totally removed some time between 1975 and 1977.	Coal	
Shaft	423557-013	423834 557319		Coal	
Shaft	423557-014	423572 557252	Our records show that this shaft is located in an area that has been worked through by opencast mining operations. There are no details of treatment but it is likely that the shaft has been partially or totally removed some time between 1975 and 1977.	Coal	
Shaft	423557-015	423714 557194		Coal	

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	423557-016	423561 557127		Coal	
Shaft	423557-017	423626 557021		Coal	
Adit	424556-001	424017 556182	This drift is believed to be unfilled. Since 1969 the drift entrance has been covered with clay. During 1971 the spoil heap washing contractor attempted to discharge slurry into the drift behind the stopping but failed due to a collapse of the drift roof. The hole behind the stopping was filled with clay and subsoil.	Coal	
Adit	424556-002	424035 556142		Coal	
Adit	424556-003	424021 556110		Coal	
Shaft	424556-004	424103 556292	This entry was filled with colliery waste and building rubble in 1976. It was capped to former N.C.B. specification in 1978. This shaft was encountered during Opencast operations and removed down to a depth of 24m. The shaft was open for 61.0m and was backfilled with 300 cubic metres of material during 1986.	Coal	
Shaft	424556-005	424090 556293	This entry was filled with colliery waste and building rubble in 1976. It was capped to former N.C.B. specification at a depth of 7.9m in 1977.	Coal	
Shaft	424556-006	424104 556287	This entry was filled with colliery waste and building rubble in 1976. It was capped to former N.C.B. specification in 1978.	Coal	
Shaft	424556-007	424143 556314		Coal	
Shaft	424556-008	424216 556346	This entry was originally filled up to a depth of 13m. In 1976 it was filled up to the surface and capped at ground level to former N.C.B. specification.	Coal	
Shaft	424556-010	424319 556381	This entry has been plugged at a depth of 3.66m and filled above to the surface. The specifications of these treatments are not known.	Coal	Gateshead Borough Council 21/10/1980
Adit	424556-011	424351 556398	This entry is believed to have been filled	Coal	Gateshead Borough Council 21/10/1980
Adit	424556-012	424435 556348	This entry has been filled and then stopped off at 7m from its entrance. The specifications of these treatments are unknown.	Coal	
Adit	424556-013	424383 556294		Coal	
Adit	424556-014	424415 556342	This entry has been stopped off at 27.4m down the drift and filled from there to the surface. The specifications of these treatment are unknown	Coal	
Adit	424556-015	424439 556340	This entry has been stopped off at 18.3m down the drift and filled from there to the surface. The specifications of these treatment are unknown	Coal	

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	424556-016	424359 556234	This shaft is open and used for pumping mine water It is monitored on a monthly basis for gas and water levels by The Coal Authority or a representative thereof	Coal	
Adit	424556-017	424551 556379	This entry has been stopped off at 13.7m down the drift and filled from there to the surface. The specifications of these treatment are unknown	Coal	
Adit	424556-018	424552 556351		Coal	
Adit	424556-019	424609 556149		Coal	

Abandoned mine plan catalogue numbers

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

D1323	D1477	D1321
D1577	14139	D1232
D540	D555	17891

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
BTM. MAIN	Coal	Yes	Within	N/A	347
HIGH MAIN	Coal	Yes	Within	N/A	21
HIGH MAIN	Coal	Yes	Within	N/A	107
HIGH MAIN	Coal	Yes	Within	N/A	139
HIGH MAIN	Coal	Yes	Within	N/A	143
MAIN	Coal	Yes	Within	N/A	0
MAIN	Coal	Yes	Within	N/A	79
MAIN	Coal	Yes	Within	N/A	265
MAIN	Coal	Yes	Within	N/A	299
MAIN	Coal	Yes	Within	N/A	302
MAUDLIN	Coal	Yes	Within	N/A	119
MAUDLIN	Coal	Yes	Within	N/A	140
UNNAMED25	Coal	Yes	Within	N/A	145
YARD	Coal	Yes	Within	N/A	17
YARD	Coal	Yes	Within	N/A	124
YARD	Coal	Yes	Within	N/A	325

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.

Faults 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
41.7	North
Within	N/A

See Section 4 for further information.

Remediated sites

Distance to site remediation (m)	Direction
Within	N/A

See Section 4 for further information.

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 in an area where notices to withdraw support were given in 1953 and 1966.

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.

Remediated sites

The site is within an area of previous interest. It is close to where the Coal Authority has investigated and where necessary remediated mine entries and/or shallow coal mine workings following specific reported hazards.

The site requires further investigation and may influence your risk assessment. We recommend that you order the Coal Authority **Surface Hazards Incident 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.

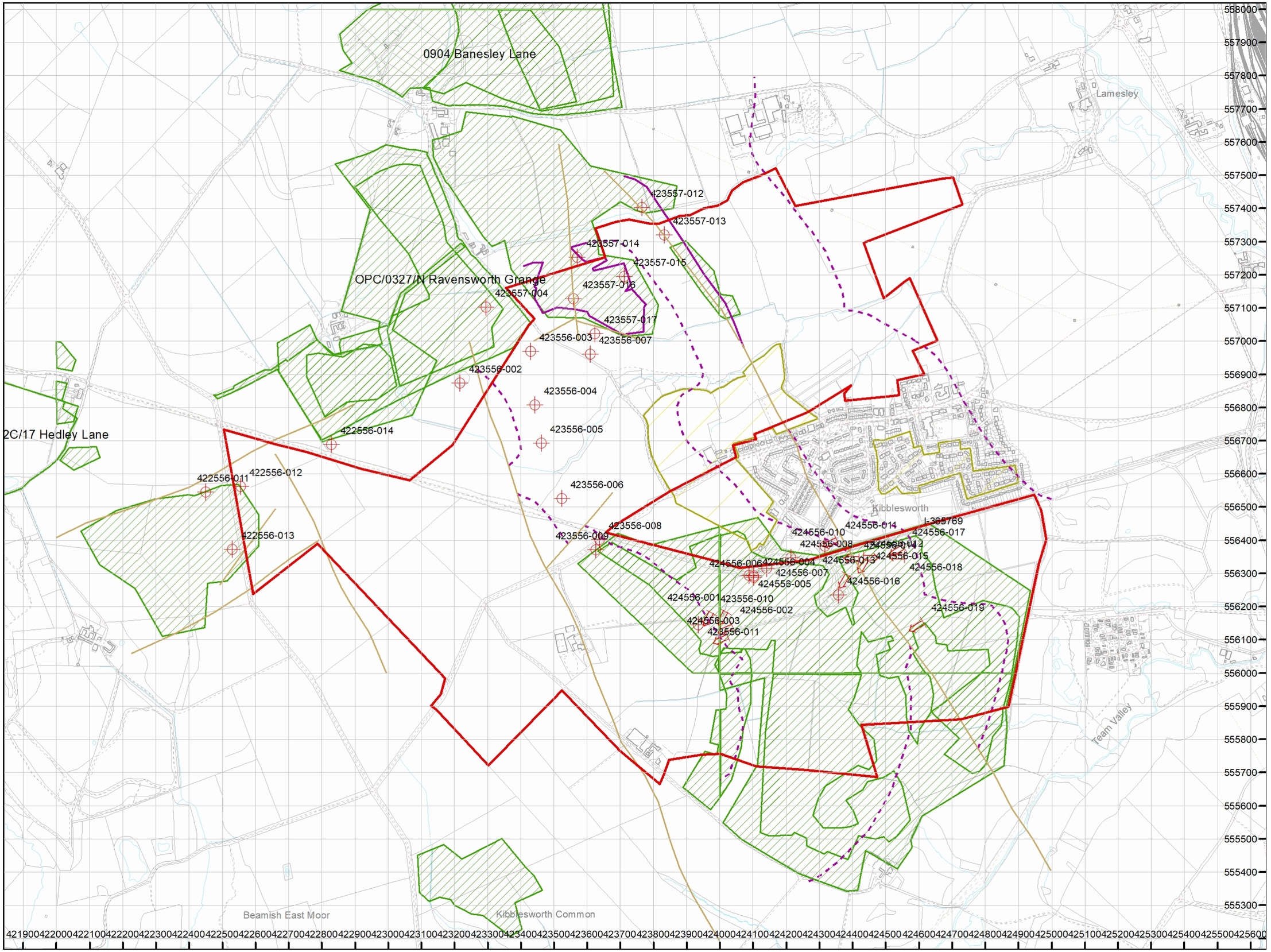
The Coal Authority

Summary of findings

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

Key

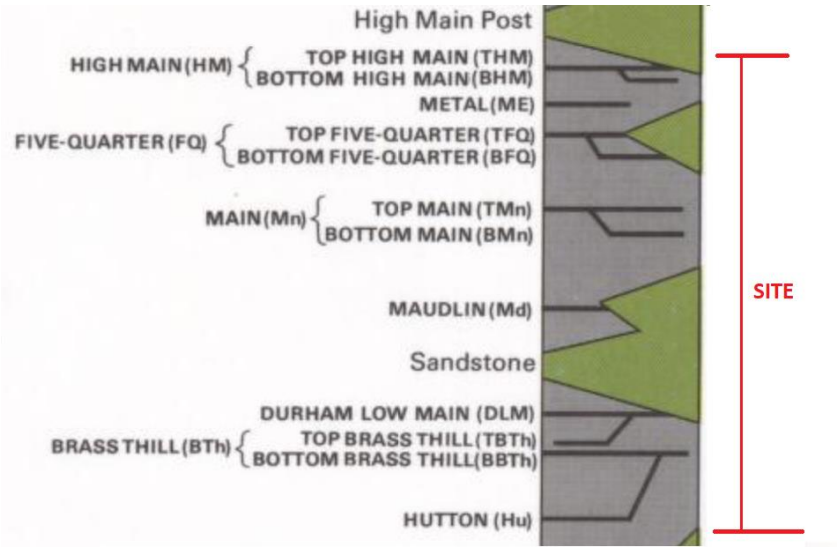
- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Disused adit
- Outcrop (Proven)
- Outcrop (Conjectured)
- Geological faults
- Opencast mine licence area
- Unlicensed opencast site
- Site investigations
- Remediated sites



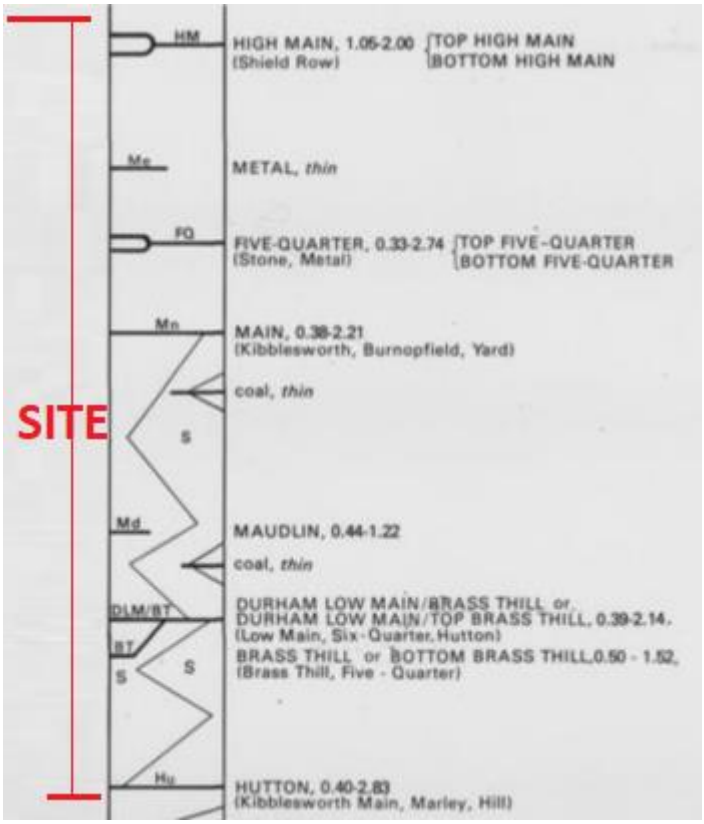
How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

APPENDIX B
SITE IMAGES

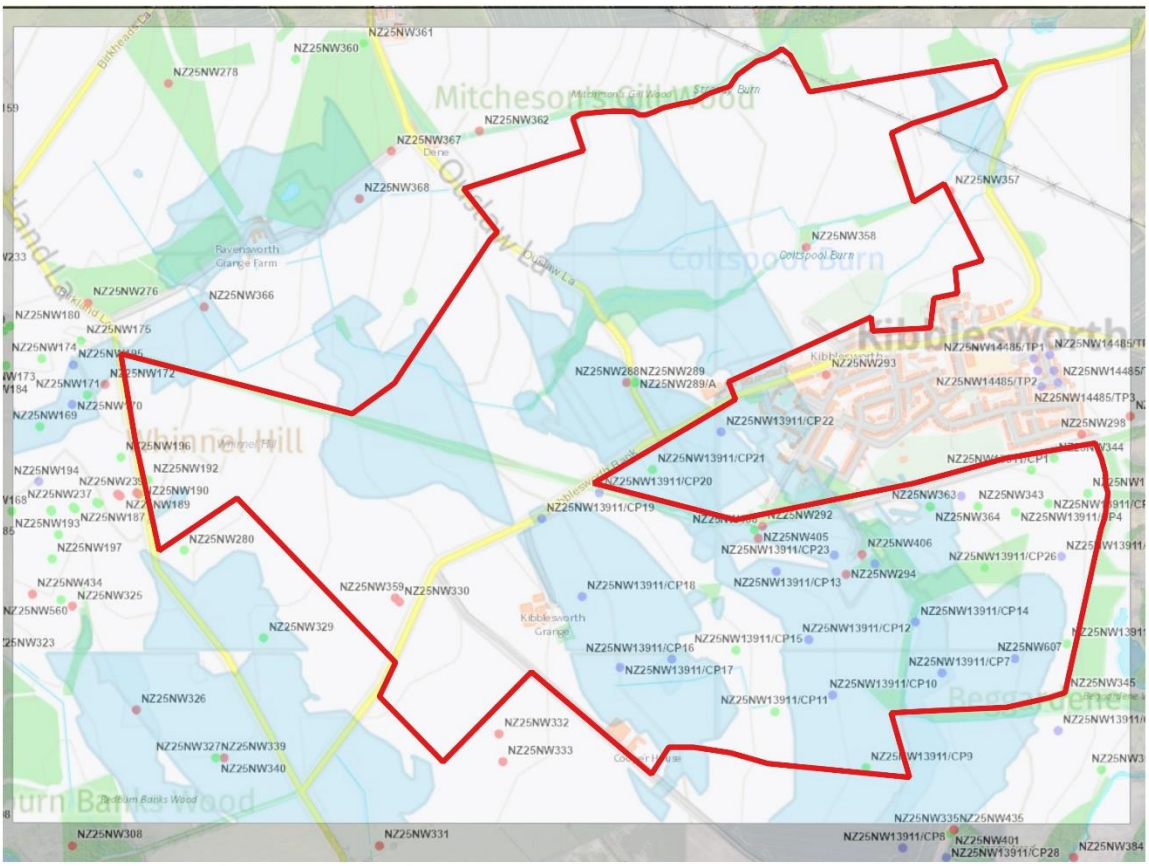
APPENDIX C
1:50,000 & 1: 10,000 BGS GEOLOGY MAP EXTRACTS




LAMESLEY
Kibblesworth
British Geolo
0
250
500
750
1,000 m
Site Boundary


SITE
HM
HIGH MAIN, 1.05-2.00
(Shield Row)
TOP HIGH MAIN
BOTTOM HIGH MAIN
Mc
METAL, thin
FQ
FIVE-QUARTER, 0.33-2.74
(Stone, Metal)
TOP FIVE-QUARTER
BOTTOM FIVE-QUARTER
Mn
MAIN, 0.38-2.21
(Kibblesworth, Burnopfield, Yard)
coal, thin
S
Md
MAUDLIN, 0.44-1.22
coal, thin
DLM/BT
DURHAM LOW MAIN/BRASS THILL or
DURHAM LOW MAIN/TOP BRASS THILL, 0.39-2.14.
(Low Main, Six-Quarter, Hutton)
BT
BRASS THILL or BOTTOM BRASS THILL 0.50 - 1.52.
(Brass Thill, Five - Quarter)
S
S
Hu
HUTTON, 0.40-2.83
(Kibblesworth Main, Marley, Hill)

APPENDIX D
BGS BOREHOLE LOCATIONS


NZ25NW361
NZ25NW360
NZ25NW278
NZ25NW362
NZ25NW367
NZ25NW368
NZ25NW357
NZ25NW358
NZ25NW276
NZ25NW366
NZ25NW180
NZ25NW175
NZ25NW174
NZ25NW172
NZ25NW171
NZ25NW170
NZ25NW169
NZ25NW196
NZ25NW192
NZ25NW194
NZ25NW190
NZ25NW189
NZ25NW187
NZ25NW193
NZ25NW197
NZ25NW280
NZ25NW434
NZ25NW325
NZ25NW560
NZ25NW323
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NZ25NW359
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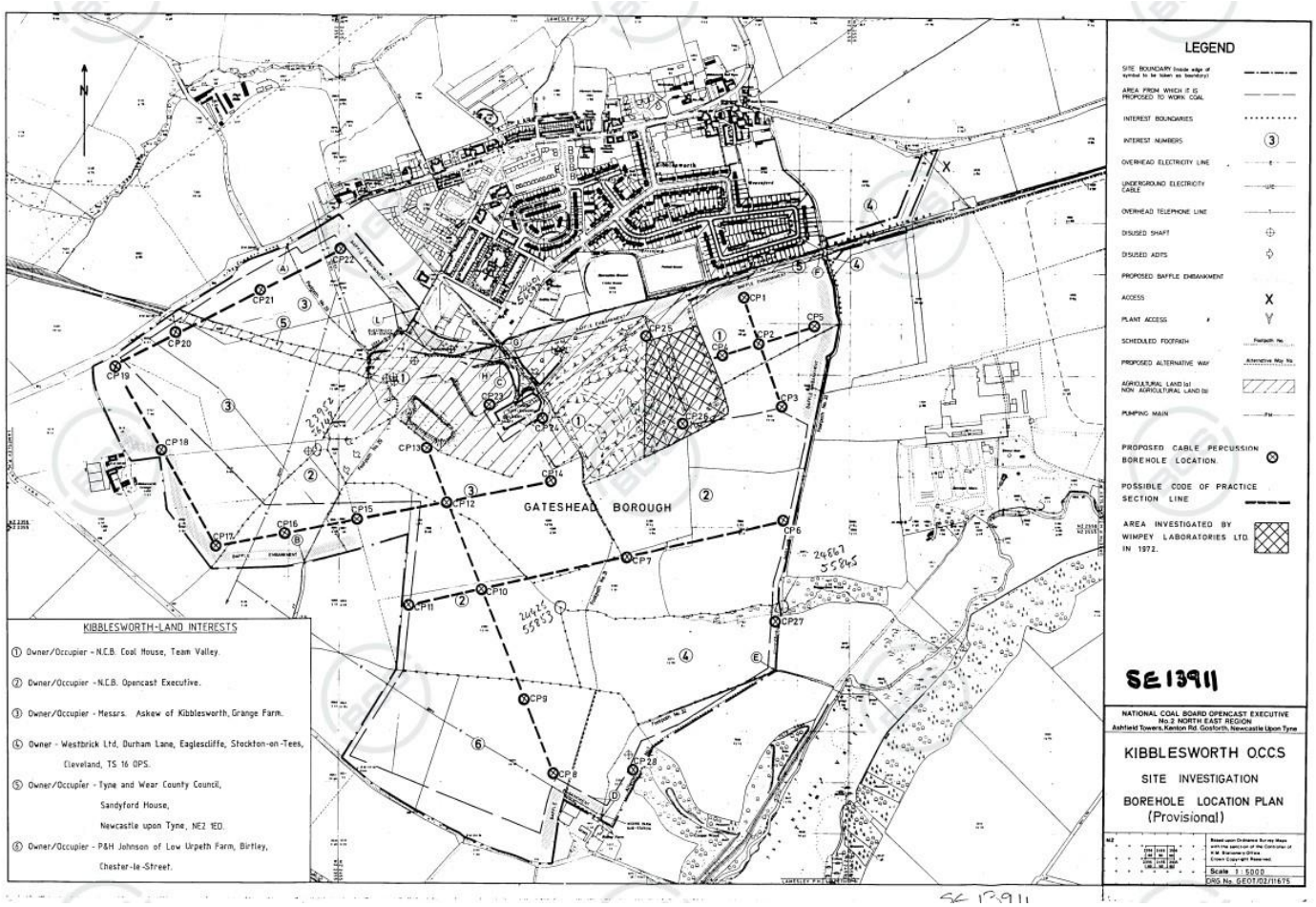
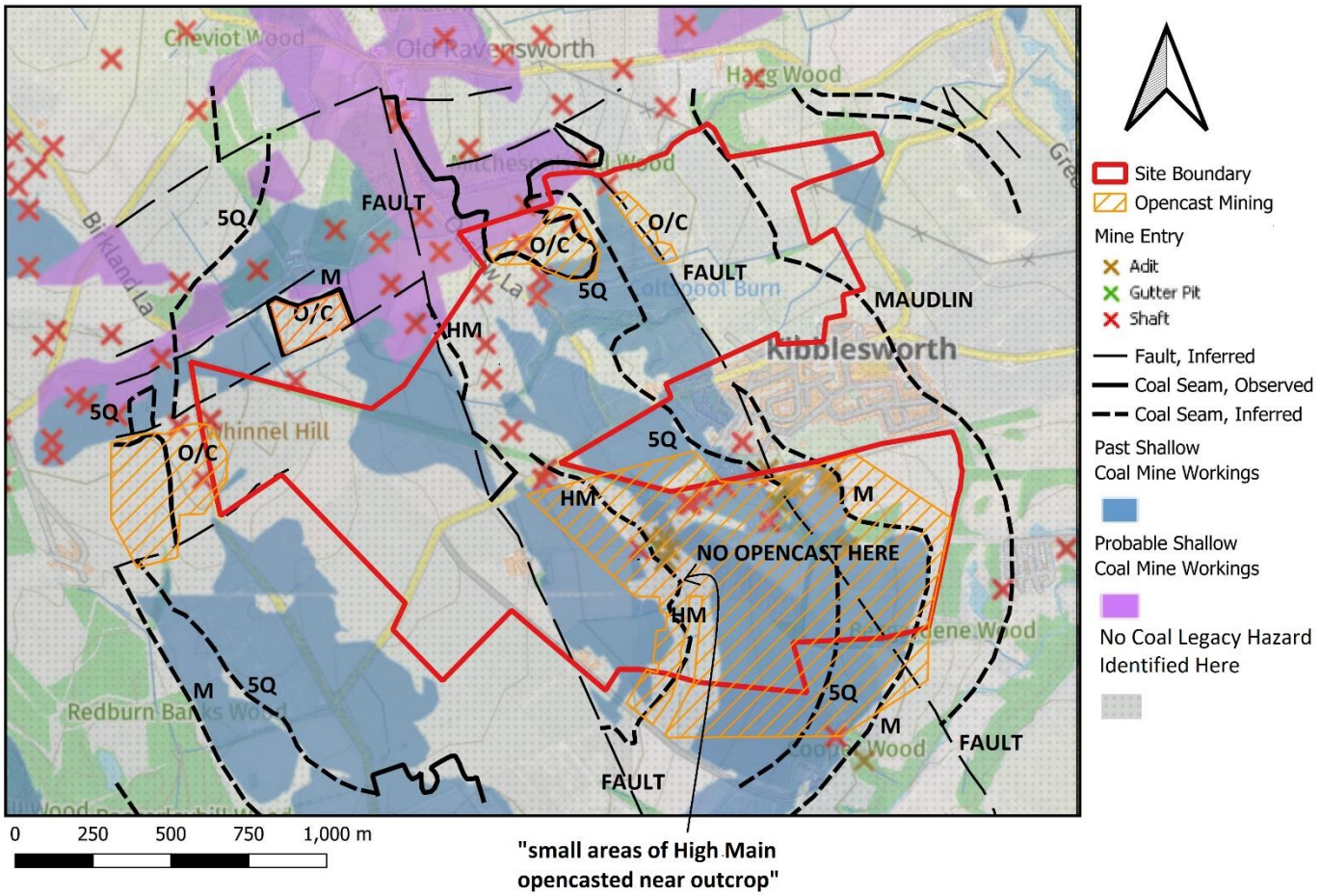
NZ25NW326
NZ25NW327
NZ25NW339
NZ25NW340
NZ25NW332
NZ25NW333
NZ25NW308
NZ25NW331
NZ25NW288
NZ25NW289
NZ25NW289/A
NZ25NW293
NZ25NW14485/TP1
NZ25NW14485/TP2
NZ25NW14485/TP3
NZ25NW298
NZ25NW344
NZ25NW13911/CP22
NZ25NW13911/CP21
NZ25NW13911/CP20
NZ25NW13911/CP19
NZ25NW292
NZ25NW405
NZ25NW13911/CP23
NZ25NW406
NZ25NW294
NZ25NW13911/CP13
NZ25NW13911/CP18
NZ25NW363
NZ25NW343
NZ25NW364
NZ25NW13911/CP4
NZ25NW13911/CP26
NZ25NW13911/CP14
NZ25NW13911/CP12
NZ25NW13911/CP15
NZ25NW13911/CP16
NZ25NW13911/CP17
NZ25NW607
NZ25NW13911/CP7
NZ25NW13911/CP10
NZ25NW13911/CP11
NZ25NW345
NZ25NW13911/CP9
NZ25NW335
NZ25NW435
NZ25NW13911/CP8
NZ25NW401
NZ25NW13911/CP28
NZ25NW384
Mitcheson's Gill Wood
Coltspool Burn
Kibblesworth
Ravensworth Grange Farm
Kibblesworth Grange
Beggarsdene
Site Boundary
Past Shallow Coal Mine Workings
0
250
500
750
1,000 m

APPENDIX E
SITE INVESTIGATION c1984
FOR PROPOSED KIBBLESWORTH OCCS



APPENDIX F
SUMMARY COAL MINING HAZARD MAP



APPENDIX G
MINE ENTRY DATA & ZOI's CALCULATION

Entry type	Reference	Easting	Northing	Treated?	Mineral	Departure (m)	Drift (m)	Diameter (m)	ZOI (m2)	Area (m2)	Adit Angle	Inside Boudary?
Shaft	422556-012	422556	556561	No	Coal	8	5	2.5	14.25	638.0		Yes
Shaft	422556-013	422532	556371	No	Coal	8	5	2.5	14.25	638.0		JUST OUTSIDE BOUNDARY
Shaft	423556-003	423431	556968	No	Coal	8	11	2.5	20.25	1288.4		Yes
Shaft	423556-004	423444	556806	No	Coal	8	11	2.5	20.25	1288.4		Yes
Shaft	423556-005	423463	556692	No	Coal	8	10	2.5	19.25	1164.3		Yes
Shaft	423556-006	423525	556525	No	Coal	8	10	2.5	19.25	1164.3		Yes
Shaft	423556-007	423611	556959	No	Coal	8	12	2.5	21.25	1418.8		Yes
Shaft	423556-008	423639	556401	No	Coal	10	10	1.8	20.90	1372.5		Yes
Shaft	423556-009	423628	556370	No	Coal	10	10	2.5	21.25	1418.8		Yes
Adit	423556-010	423973	556179	Yes	Coal	8	9	2.5	18.25	1046.5	208	Yes
Shaft	423556-011	423937	556144	No	Coal	10	9	2.5	20.25	1288.4		Yes
Shaft	423557-013	423834	557319	No	Coal	8	13	2.5	22.25	1555.5		Yes
Shaft	423557-015	423714	557194	No	Coal	8	12	2	21.00	1385.6		Yes
Shaft	423557-016	423561	557127	No	Coal	8	12	2	21.00	1385.6		Yes
Shaft	423557-017	423626	557021	No	Coal	8	12	2	21.00	1385.6		Yes
Adit	424556-001	424017	556182	Yes	Coal	0	9	3	10.50	346.4	208	Yes
Adit	424556-002	424035	556142	No	Coal	8	9	3	18.50	1075.3	246	Yes
Adit	424556-003	424021	556110	No	Coal	8	9	3	18.50	1075.3	246	Yes
Shaft	424556-004	424103	556292	Yes	Coal	0	4	3.81	5.91	109.6		Yes
Shaft	424556-005	424090	556293	Yes	Coal	0	4	2.44	5.22	85.6		Yes
Shaft	424556-006	424104	556287	Yes	Coal	0	4	2.29	5.15	83.2		Yes
Shaft	424556-007	424143	556314	No	Coal	10	4	2.5	15.25	730.7		Yes
Shaft	424556-008	424216	556346	Yes	Coal	0	8	1.8	8.90	248.9		JUST OUTSIDE BOUNDARY
Shaft	424556-010	424319	556381	Yes	Coal	8	8	2	17.00	908.0		JUST OUTSIDE BOUNDARY
Adit	424556-011	424351	556398	Yes	Coal	8	9	2.5	18.25	1046.5	245	JUST OUTSIDE BOUNDARY
Adit	424556-013	424383	556294	No	Coal	8	10	3	19.50	1194.7	210	Yes
Shaft	424556-016	424359	556234	Yes	Coal	0	10	5.49	12.75	510.4		Yes
Adit	424556-012	424435	556348	Yes	Coal	0	11	3	12.50	490.9	91	Yes
Adit	424556-014	424415	556342	Yes	Coal	0	11	2.54	12.27	473.0	274	Yes
Adit	424556-015	424439	556340	Yes	Coal	0	11	2.23	12.12	461.2	210	Yes
Adit	424556-017	424551	556379	Yes	Coal	0	12	2.74	13.37	561.7	239	Yes
Adit	424556-018	424552	556351	No	Coal	8	12	2.5	21.25	1418.8	271	Yes
Adit	424556-019	424609	556149	No	Coal	8	5	2.5	14.25	638.0	240	Yes
										29897.1		