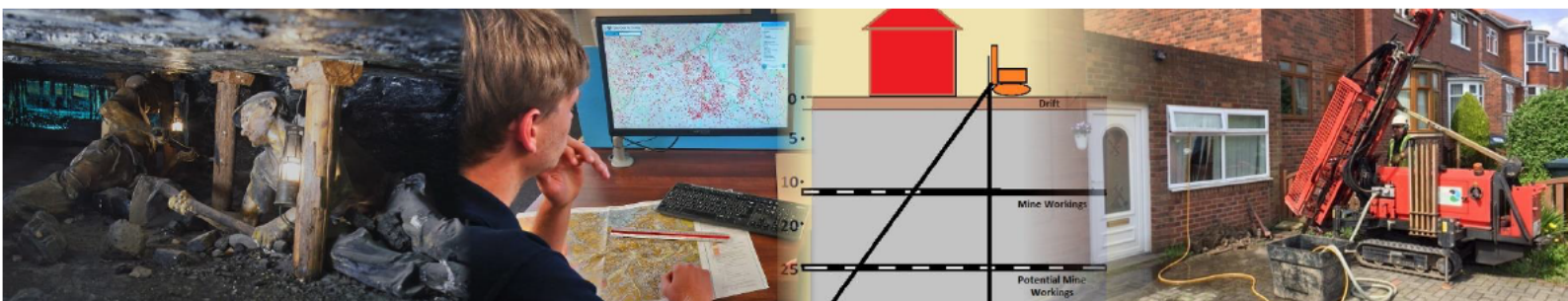




GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
CONSULTANCY
DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED

Coal Mining Risk Assessment (CMRA)

LOCATION	56 Low Road, Dewsbury Moor, Dewsbury, Kirklees WF13 3PR
ISSUE DATE	17 December 2020
FOR	SPH Plant/ SPH Civil Engineering Ltd - Stephen Hosty
CLIENT REF.	
OUR REF.	G20437

Prepared by

redacted

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

Checked by

redacted

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

SUMMARY FINDINGS

OUTCOME (MITIGATION REQUIRED?) YES / NO

***YES.** This CMRA has suggested that unrecorded mine working could possibly occur within very shallow and shallow depth below the proposed development and significantly impact surface ground stability. In our opinion a drilling investigation should be carried to confirm drift/bedrock depth and coal seam and mine working (if any) depth below the site. Gas monitoring should be carried out during drilling.*

Notwithstanding in the interim we see no reason why Planning Permission should not be granted in the interim with respect to coal mining legacy issues and that these works form a condition on the planning approval.

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.*

1. CMRA INTRODUCTION

1.1 SITE LOCATION AND DESCRIPTION

The approximate centre of this site is at National Grid Reference E 422756 N 421558 with an elevation of approximately 66.5m AOD. The boundary shown RED in the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area. It is proposed to erect a new 4 bed detached two storey dwelling at the site. The location and layout of the proposed development are shown in Appendix B. The site is located on hillside falling to the west and rising to the east.

Google Street View & Satellite imagery in Appendix C shows the site currently comprises unoccupied open land with various waste materials (perhaps building or demolition materials) strewn across it. The present condition of the surface is unknown. The site is raised by some 1.5m behind a stone retaining bounding Low Road. The site was previously occupied by Dewsbury Moor Working Men's Club subsequently demolished c. 2009. Originally access to the site may have been from Beckett Crescent.

A desk top study review of Google Street View imagery included in Appendix C, identified possible evidence of cracking and external building damage to the existing adjacent residential properties on Low Road. As this frequently occurs above window lintels it is our opinion that it is likely to be caused by building design defects or window replacement rather than mining subsidence.

The OS map record dating back to 1893 shows the site as farmland with an unknown building/dwelling to the south of it. Conyers Colliery lies some 200m to the north east and quarries in the more distant vicinity. The site is shown to have been developed with a club (Dewsbury Moor WMC) sometime between 1922 and 1933. The surrounding area was developed with housing estate around the same period. The historical Google Street View data indicates that the club was demolished sometime between 2009 and 2011, and the site subsequently left unoccupied/derelict to the present day.

The historical map record provides no evidence that the site itself has been subject to surface mining activity, though there is evidence of surface quarrying and coal mining in the nearby surrounding area.

Description & Layout of Proposed Development: It is proposed to erect a new 4 bed detached 2 storey dwelling at the site. The layout of the scheme is shown in Appendix B.

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

2. ASSESSMENT OF SITE-SPECIFIC COAL MINING ISSUES

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

Coal Mining Issues	Yes	No	Risk Assessment/Remarks
Past underground coal mining	Yes		2.1.1 (refer below)
Probable unrecorded shallow workings	Yes		2.1.2
Spine roadways at shallow depth		No	
Mine entries		No	2.1.3
Outcrop		No	
Geological faults, fissures and breaklines		No	
Opencast Mines		No	
Coal Mining Subsidence		No	
Mine Gas		No	2.1.4
Site investigations		No	

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

2.1 DETAILED DISCUSSION & ASSESSMENT RESPONSE

2.1.1 Past Underground Mining

The CA report in Appendix A identifies past/recorded underground mining beneath the site in three seams of coal, the Middleton Main at 46m depth, last worked in 1870, the Silkstone at 84m depth, last worked in 1881 and the Black Bed at a depth of 211m, last worked in 1902. The extraction thickness of the Middleton Main is 94cm, Silkstone 41cm and Black Bed 76cm. Assuming (as expected) bedrock is encountered at or close to surface at this locality such working would in our opinion normally lie too deep to impact surface ground stability within the proposed development area.

However, this does not mean that shallower unrecorded mine working does not exist beneath the site. Mine maps and other documents can get lost or destroyed over the years and if mining was very old there may be no records about it whatsoever and local memories fade quickly. Furthermore, workable coal outcrop occurs close by to the north of the site and dips beneath it.

Strata, coal seams and workings dip 1.6 to 3.6 degrees to the south east.

2.1.2 Probable unrecorded shallow workings

According to the CA report the site falls within an area of probable unrecorded shallow workings. The CA define Probable Unrecorded Shallow Workings as “Areas where the Coal Authority believes there to be unrecorded coal working that exist at or close to the surface” (i.e. less than 30m).

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

The BGS geology map shows the Second Brown Metal (2BM) Coal, 3BM and the MM Coal seams outcropping on lower ground to the west of the site. Outcrop of the 1BM Coal occurs on higher ground to the east of the site. According to the geology map the site is underlain by Birstall Rock (BR) sandstone.

According to the geology column working in the Middleton Main is at 46m beneath the site, perhaps places the 2BM Coal at or near surface within the site, the 3BM 16m below the 2BM and the Middleton Little (ML) Coal 25m below the 2BM. The latter coal seam may be absent beneath the site.

The drift geology map indicates that the site is not covered by superficial/drift deposits and it is anticipated that rockhead lies at or near surface at this location. In this respect 4 nearby BGS borehole logs record < 1m of drift underlain by sandstone.

The position of nearby BGS borehole log SE22SW/206 (collar height around 59m AOD) is shown on the geology map. Its log is included in Appendix E. This log records intact coal seam or coal mine working pillar between 8.6 - 9.6m or 50.4 – 49.4m AOD at this locality which is downslope of the development area. It is speculated that the log encountered the 3BM coal seam but not the 2BM as it outcrops higher up the slope between this borehole and the site. As the borehole was terminated at 10m depth it did not reach the ML Coal expected at around 18m depth at this locality (if present) or the MM seam expected at 39m depth.

The 2BM is of economic significance in the South Yorkshire Coalfield and the geological memoir for the area states that the Brown Metal coals are “... *important coals which have been largely wrought...*” (page 91, The Geology of the Country around Huddersfield and Halifax Explanation of sheet 77. 1930).

According to the geology map the 2BM can be up to 1.00m thick whereas BGS publication UK Coal Resources for New Exploitation Technologies Report CR/04/015N, page 178 of Stratigraphy of the South Yorkshire Coalfield gives thickness of 0.52m for the 2BM. The report is not included in this CMRA.

It is our opinion that the presence of workable coal beneath the site within very shallow and shallow depth raises concern about the possible presence of unrecorded mine working below the proposed new development. The presence of building damage adjacent to the site (though in our opinion unlikely to be related to mining issues) raises further concern in this regard.

In our opinion the presence of sandstone mine roof rock could provide conditions favouring very shallow, underground mine working. This however is speculation.

Regrettably, there is no available BGS borehole information nearby that might otherwise shed light on the coal mining geology below the site.

Because of these uncertainties it is our opinion that drilling is required to establish drift/bedrock depth, coal seam/mine working (if any) within shallow depth beneath the property.

2.1.3 Mine Entries & ZOIs

No mine entries are identified by the CA within the proposed development area. However, two mine shafts are recorded close to the site, one approximately 17m north (ref: 422421-011), the other approximately 49m south (ref: 422421-012).

A zone of influence (ZOI) of 10 to 11m is estimated for both mine entries, based on a departure/positional uncertainty of 8m, assumed diameter of 2.5m and bedrock depth of say 1.20m at the site. ZOIs are shown on the plan provided in Appendix F. Based on the ZOIs, it is not considered that either mine entry will impact surface ground stability within the development area.

2.1.4 Mine Gas

No mine gas incident or remediation is recorded within 500m of the proposed development and typically, in the UK mine gas is Low risk. Notwithstanding, given the serious nature of mine gas and the possible presence of very shallow coal seam with perhaps mine working beneath the site it is recommended that in this instance the risk is raised to **MODERATE** to perhaps High until proven otherwise by gas testing.

3. SUMMARY AND OUTCOME

This CMRA has indicated that the site is possibly underlain by 2 or 3 levels of very shallow and shallow unrecorded underground mine working below a covering of several metres of sandstone bedrock, the latter perhaps currently maintaining surface ground stability in the development area and in the surrounding locality. This however is speculation.

In our opinion to properly assess the ground stability risk at this site further information is required about drift/bedrock depth and coal seam and mine working (if any) depth and thickness below the property.

In the absence of available nearby borehole information it is our opinion that drilling is required within the site to establish these parameters.

Gas monitoring must be carried out during drilling.

4. MITIGATION STRATEGY PROPOSED AND CONCLUSION

This CMRA has suggested that unrecorded shallow mine working may occur within shallow depth below this site.

In our opinion a drilling investigation should be carried to confirm at what depth shallow coal seam and mine working (if present) lies beneath the proposed building development area.

Therefore, to properly determine the coal mining risk at this site it is proposed to drill 2 or 3 boreholes at the property to target depths up to 30m (but not necessarily reaching 30m) to locate shallow coal seams and mine working (if any) below the new development as well as establishing drift and bedrock depth.

Gas monitoring **MUST** be carried out during drilling.

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

A Coal Authority Permit needs to be obtained (ahead of) further intrusive exploratory drilling. Water Drill Flush to be used when drilling. Permit application must state WATER ONLY DRILL FLUSH for the safety of the public and drill crew.

On the basis of the CMRA work to date, we are of the opinion that the mining stability and mine gas risks posed by the strata beneath this site from coal mining legacy can be mitigated by routinely adopted measures and should not preclude planning permission being registered with regard to coal mining legacy issues.

In conclusion we see no reason why Planning Permission should not be granted in the interim with respect to coal mining legacy issues and that these works form a condition on the planning approval.

Appendices:

- CA Consultants Coal Mining Report issued 4 December 2020 ref 51002333823001
- Site location and development layout
- Site images
- Extracts of BGS Geology Map, Sheet 77 Huddersfield - at 1:50000 scale.
- BGS borehole log
- ZOI of mine entries.

APPENDIX A
COAL AUTHORITY REPORT



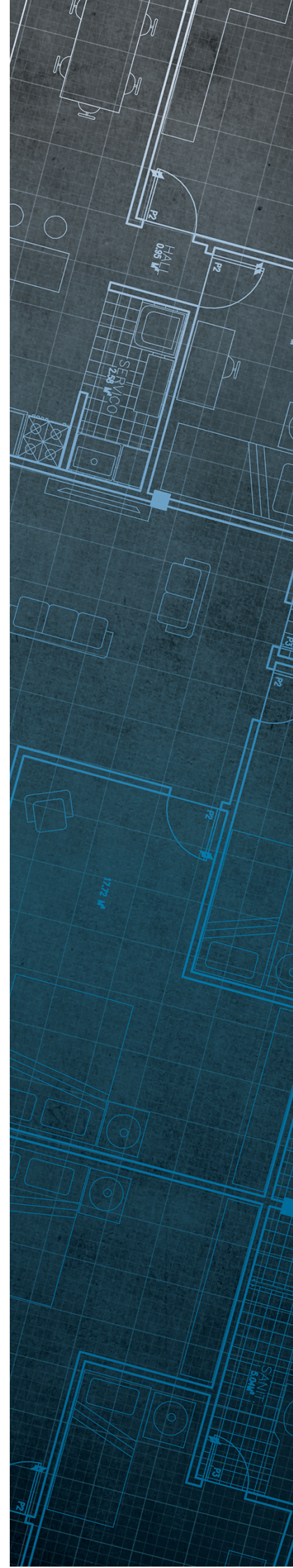
The Coal
Authority

Consultants Coal Mining Report

56 Low Road
Dewsbury Moor
Dewsbury
Kirklees
WF13 3PR

Date of enquiry:	4 December 2020
Date enquiry received:	4 December 2020
Issue date:	4 December 2020

Our reference:	51002333823001
Your reference:	G20437



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

56 Low Road
Dewsbury Moor
Dewsbury
Kirklees
WF13 3PR

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

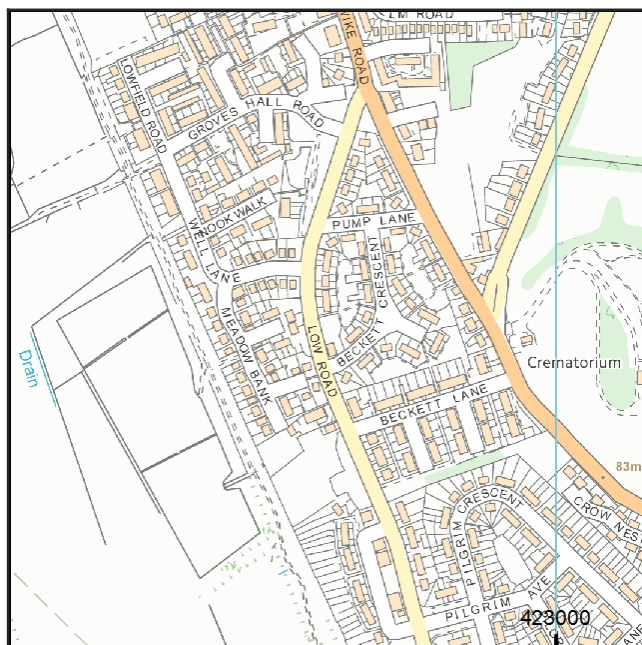
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	MIDDLETON MAIN	Coal	62MR	46	Beneath Property	1.6	South-East	94	1870
unnamed	SILKSTONE	Coal	62MV	65	North-West	3.3	East	61	1878
unnamed	SILKSTONE	Coal	62MU	84	Beneath Property	2.0	South-East	41	1881
unnamed	BLACK BED	Coal	62N8	211	Beneath Property	3.6	South-East	76	1902

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	422421-011	422762 421589		Coal	
Shaft	422421-012	422778 421496		Coal	

Abandoned mine plan catalogue numbers

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

FGB717	FGB738	CT5
4331	GCR127	FGB547
FGB742	FGB709	CT24

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

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

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

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

Development advice

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

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

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

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

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

Withdrawal of support notices

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

Payment to owners of former copyhold land

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

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VAT receipt

Issued by	The Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG
Tax point date	04 December 2020
Issued to	GEOINVESTIGATE TERRY DICKEN INDUSTRIAL ESTATE TERRY DICKEN INDUSTRIAL ESTATE, ELLERBECK WAY STOKESLEY NORTH YORKSHIRE TS9 7AE
Property search for	56 LOW ROAD DEWSBURY MOOR DEWSBURY KIRKLEES WF13 3PR
Reference number	51002333823001
Date of issue	04 December 2020
Cost	<i>redacted</i>
VAT @ 20%	
Total received	
VAT registration	

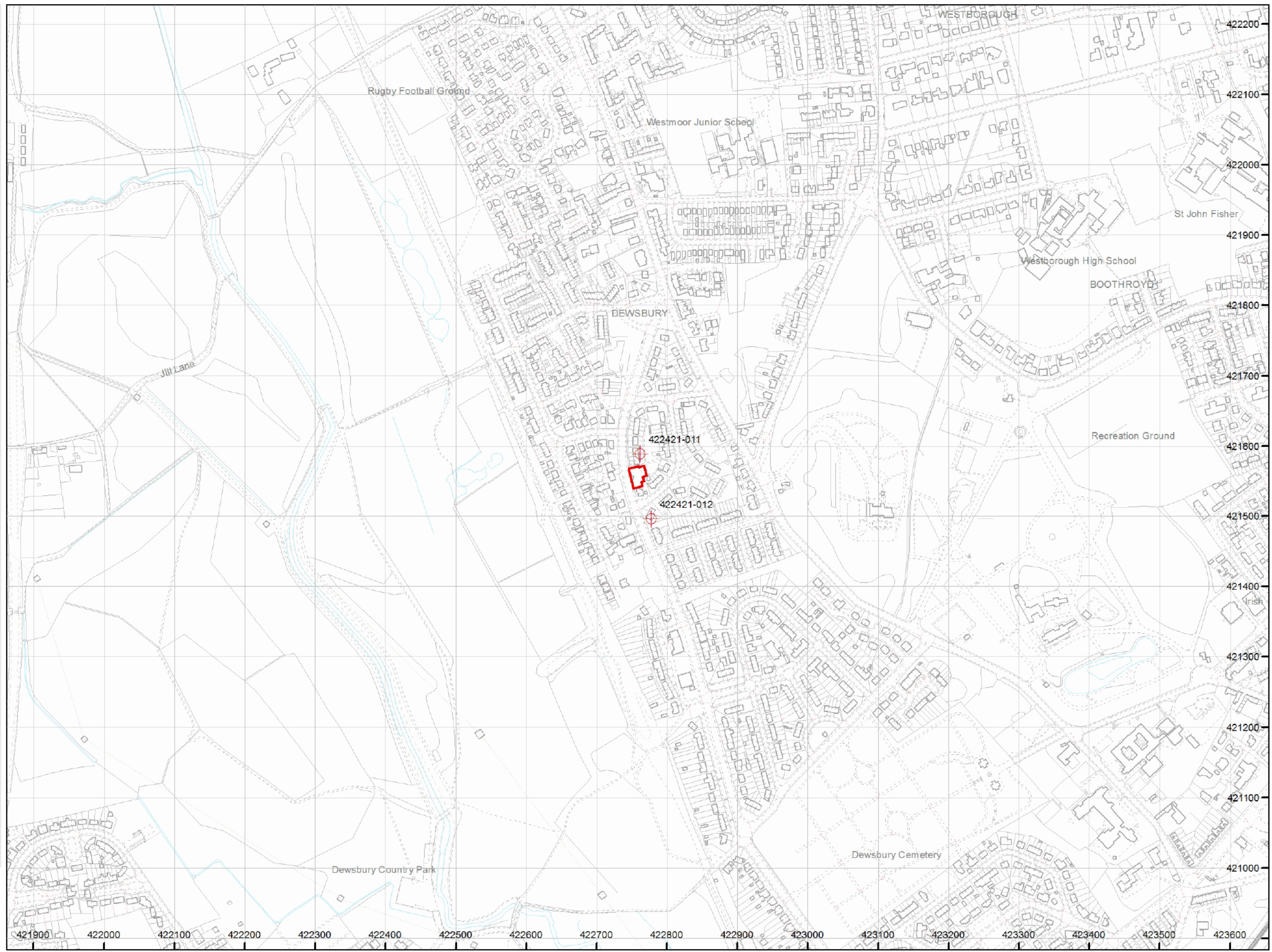
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown 

Disused mine shaft 

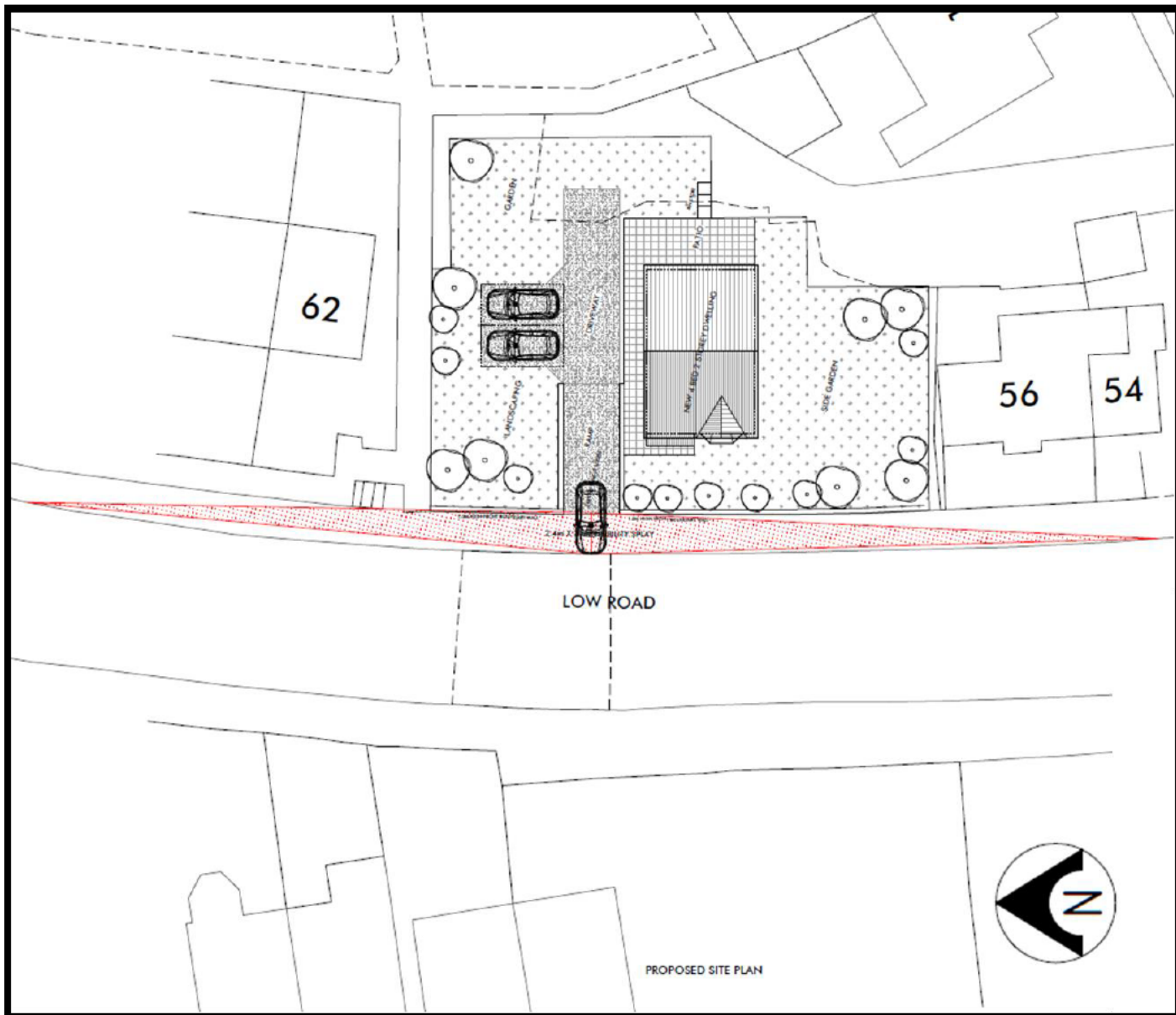
How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com



APPENDIX B

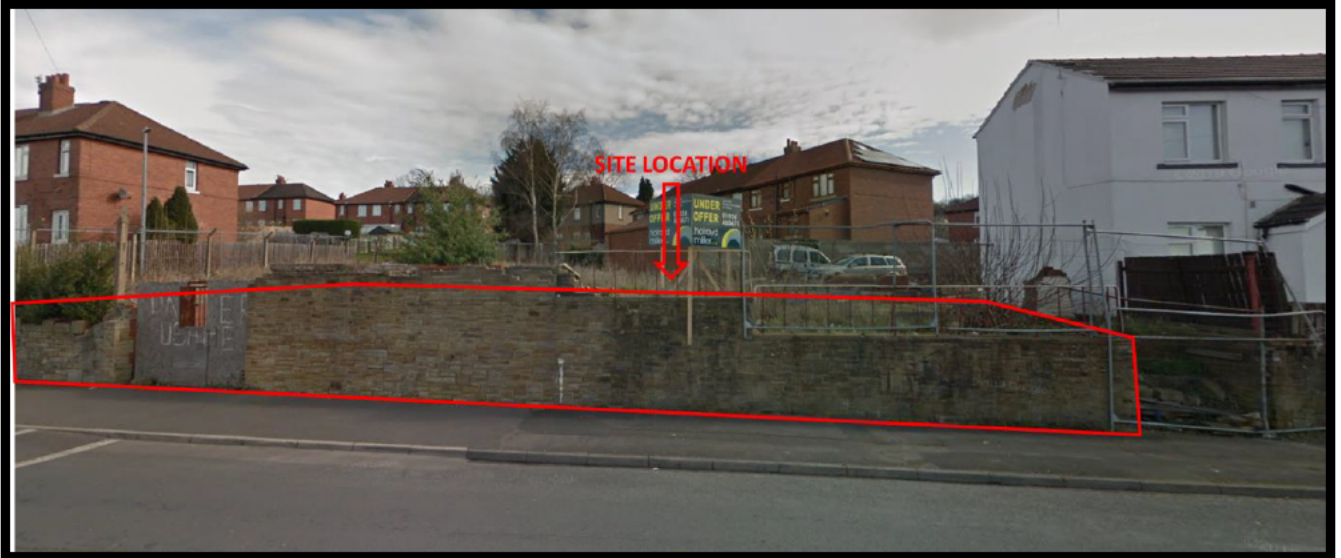
DEVELOPMENT LOCATION & LAYOUT





APPENDIX C

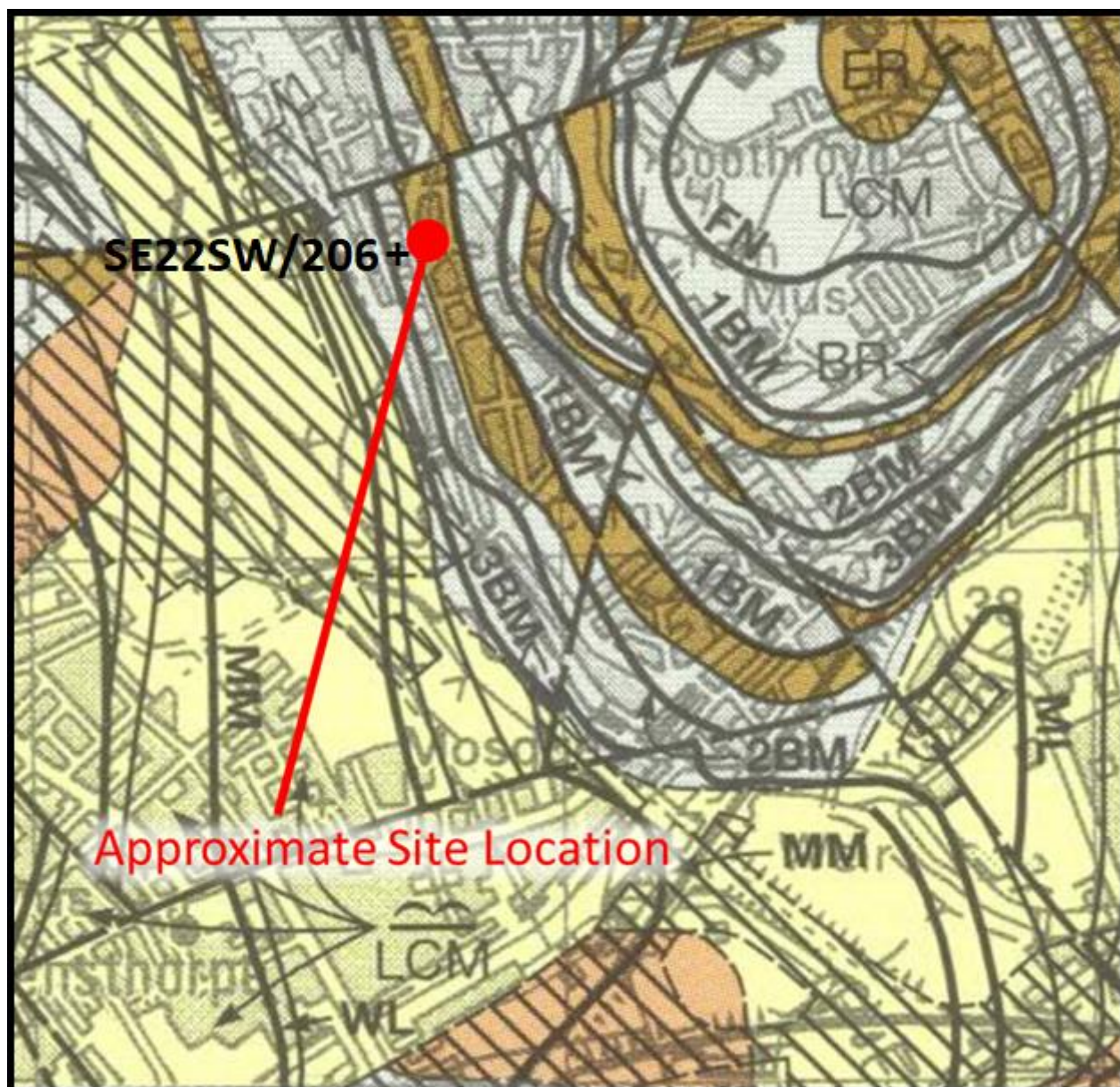
SITE IMAGES



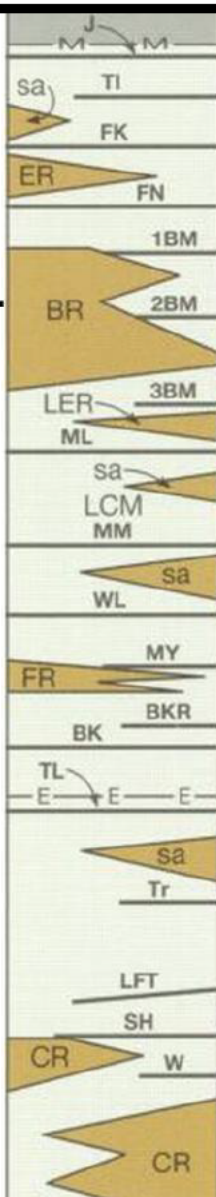


APPENDIX D

EXTRACTS BGS GEOLOGY MAP



Site?



Vanderbecker (Clay Cross) Marine Band

JOAN COAL (J) 0.6 to 1.3 m

TANKERSLEY IRONSTONE (TI)

FLOCKTON THICK COAL (FK) 0.3 to 1.5 m

EMLEY ROCK (0 to 12 m)

FLOCKTON THIN COAL (FN) 0.3 to 1.4 m

FIRST BROWN METAL COAL (1BM) 0 to 0.8 m

BIRSTALL ROCK (0 to 45 m)

SECOND BROWN METAL COAL (2BM) 0 to 1.0 m

THIRD BROWN METAL COAL (3BM) 0 to 0.8 m

LEPTON EDGE ROCK (0 to 10 m)

MIDDLETON LITTLE COAL (ML) 0.2 to 0.9 m

MIDDLETON MAIN COAL (MM) 0.2 to 1.8 m

WHEATLEY LIME COAL (WL) 0.4 to 1.2 m

MIDDLETON ELEVEN YARDS COAL (MY) 0 to 1.1 m

FALHOUSE ROCK (0 to 12 m)

BLOCKING RIDER COAL (BKR) 0 to 0.2 m

BLOCKING COAL (BK) 0.2 to 1.7 m

Low 'Estheria' Band

TOP LOUSEY COAL (TL) 0 to 0.8 m

TRUB COAL (Tr) 0 to 0.5 m

LINFIT LOUSEY COAL (LFT) 0 to 1.3 m

SHERTCLIFFE COAL (SH) 0 to 0.8 m

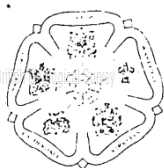
WHINMOOR COAL (W) 0 to 0.9 m

**BEESTON GROUP
OF COALS (BN)**

CLIFTON ROCK (0 to 42 m)

APPENDIX E

BGS BOREHOLE LOG



HETS

WEST YORKSHIRE HIGHWAYS.
ENGINEERING AND TECHNICAL
SERVICES JOINT COMMITTEE

Materials Laboratory,
Horbury Road,
Ossett
Wakefield
WF5 0BZ.

Wakefield (0924) 260621

2270
21SS

RECORD OF DRILLING

SITE LOW PARK MEADOWS, DEWSBURY BOREHOLE NO. 9
TYPE OF DRILL Holman Rotary Percussive O.S. DATUM LEVEL Existing G.L.
SIZE OF DRILL 75mm STANDING WATER LEVEL 7
DATE COMMENCED 12.2.87 DATE COMPLETED 12.2.87

DEPTH M	DESCRIPTION OF STRATA	THICKNESS M	REMARKS
0.0 - 0.6	Tarmac and sub base	0.6	
0.6 - 1.9	Sandstone	1.3	
1.9 - 5.6	Brown sandy mudstone	3.7	
5.6 - 8.6	Grey mudstone	3.0	
8.6 - 9.6	Coal	1.0	
9.6 - 10.1	Shale	0.5	

APPENDIX F

ZOI OF MINE ENTRIES

