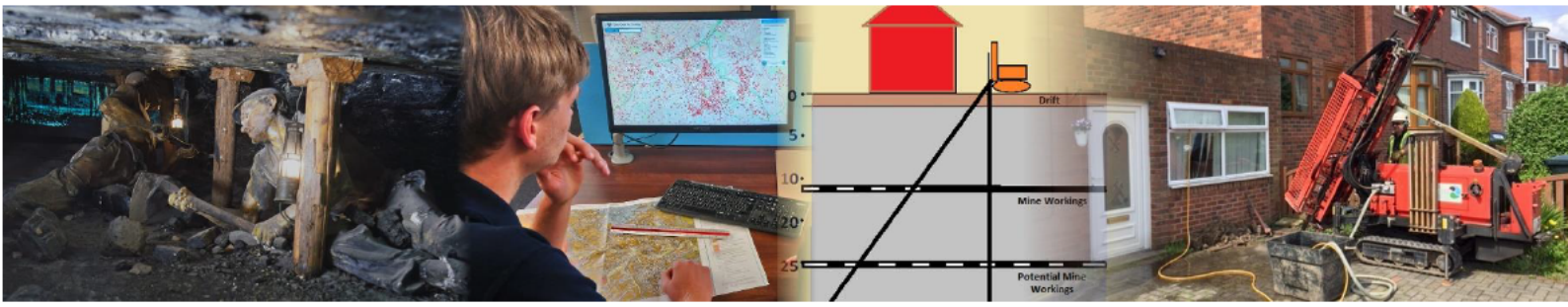
GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
CONSULTANCY
DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED
Coal Mining Risk Assessment (CMRA)

LOCATION	Town Café, 33 Alder Street, Huddersfield HD1 6LD
ISSUE DATE	24 April 2023
FOR	Wake Morley Architects
CLIENT REF.	
OUR REF.	G23162

Prepared by

Jessica Devine BSc (Hons) MSc
Geoenvironmental Engineer

Checked by

Fay Morgan MGeol (Hons) FGS
Senior Geoenvironmental Engineer

1. CMRA INTRODUCTION & COAL MINING HAZARDS

1.1 Site Location and Description

The approximate centre of the site is at National Grid Reference 414709 E, 418118 N. Ground height is around 78m OD. The site lies to the west of Alder Street. The boundary shown in RED on the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area.

The site is currently occupied by Town Café comprising a single storey building and hardstanding surround. Site images are provided in Appendix B. The site is located within an industrial estate.

It is proposed to demolish the existing building and erect a larger 2-storey building with ground floor café on the and 1st floor offices.

1.2 Anticipated Geology

The location of the site is shown on the extract of British Geological Survey (BGS) 1:50,000 solid geology map (Sheet 77 Huddersfield) presented in Appendix D. This map shows no superficial deposits and therefore bedrock comprising Pennine Lower Coal Measures Formation including mudstone, siltstone, sandstone, interbedded with coal seams of varying thickness is expected at or near surface.

Outcrop of the Halifax Hard Bed Coal (HB) occurs nearby to the west of the site dipping eastwards under it. Outcrop of the Middle Band Coal (MB) and the Soft Bed Coal (SB) occur further west. The tentative elevation of the site relative to the vertical geology column is shown below the geology map. Coal seam thicknesses are HB < 0.8m, MB < 0.6m & SB < 0.8m. Coal seam separation between the HB & MB is 9.4m and MB & SB is 13.5m.

According to the geology column The HB coal may occur within very shallow depth below the property and the MB and SB within shallow depth i.e. 12m to 25m.

Nearby BGS borehole log SE71NW/168 records drift/bedrock depth of 3.6m while old mine workings presumably in the HB coal horizon are recorded between depths of 12-12.9m in SE11NW/161 and 14-15m in SE11NW/159 around 100m to 125m to the east of the site. Projecting the workings in log 161 westwards up-dip at 6 degrees places the HB coal at a depth of perhaps 2m below the new building. Log 161 is included in Appendix D. Deeper made ground drift of 5.80m is recorded on log 161.

1.3 Mine Workings & Mine Shafts

The CA report in Appendix A identifies one (1) level of past (coal) mine workings in the Halifax Soft Coal beneath the site at 30m depth with extraction thickness of 100cm and 6 degrees dip to the E. In Geoinvestigates opinion such working lies too deep to impact surface ground stability in the development area.

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

The CA report identifies the Halifax Hard coal seam outcropping 21.2m west of the site. The seam is workable. Based on 6 degrees dip this coal and unrecorded working is expected to lie 2.3m below the new building with possible working in the MB coal at 13.5m and recorded workings in the HS Coal at 30m depth.

The extract of the CA's online interactive mapping information provided in Appendix E shows past shallow mine workings in the Halifax Soft Coal and probable working presumably in the MB and HB beneath and adjacent to the site.

Geoinvestigate concurs with the CA report that in addition to recorded working at 30m depth further 1 or 2 levels of shallower unrecorded working may be expected beneath the developme3nt area.

The CA report identifies one (coal) mine shaft (414418-003) some 75m to the northwest of the site at 414633 E, 418188 N. The report shows no record of any treatment to the shaft. In Geoinvestigate's opinion, this mine entry is too distant to be considered a ground stability risk within the development area, however its presence raises further concern about shallow mine workings at this locality.

1.4 Mine Gas

According to the CA report no mine gas incident or remediation has been recorded within 500m of the enquiry boundary and typically on the UK coalfields mine gas risk to surface development is low. Circumstances where gas risk increases include proximity (typically < 50m) to mine entries (adits and shafts), proximity to recorded mine gas incidents, where development is located above or adjacent to very shallow and shallow (< 30m) unflooded mine workings or roadway tunnels, 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 at this site increasing mine gas risk namely the presence of very shallow and shallow mine workings beneath the site however the risk may be less as there has been no reported mine gas incident at this locality.

2. RISK ASSESSMENT OF SITE-SPECIFIC COAL MINING ISSUES

The risk assessment methodology adopted in this section is based on CA publication RISK BASED APPROACH TO DEVELOPMENT MANAGEMENT - GUIDANCE FOR DEVELOPERS Version 3, 2014 and Version 4 - 2017. The template contained therein is broadly adopted in the table below with amendments made by Geoinvestigate Limited. The factual information it is based on, is derived mostly from the CA Consultants Coal Mining Report and additional desk study information including available historical maps, geological maps & memoirs, BGS boreholes, online articles etc. It is not an exhaustive desk study review. Therefore, if new information is released or found in the future, this CMRA may require updating.

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

RISK ASSESSMENT & MITIGATION		
Coal Mining Issues/Hazards	**Risk**	**Next Step Mitigation**
Past underground coal mining	**L**	
Probable unrecorded shallow workings	**M**	Drilling to enable further assessment
Outcrop	**L**	Drilling to enable further assessment
Spine roadways at shallow depth	**NONE**	
Mine entries	**NONE**	
Geological faults, fissures and breaklines	**NONE**	
Mine gas	**M**	Drilling to enable further assessment
Opencast mines within 500m	**NONE**	
Coal mining subsidence claims within 50m	**NONE**	
Site investigations within 50m	**NONE**	
Likely Planning Decision	**Yes/No**	**Reason**
Is planning permission likely to be given with respect to coal mining legacy issues **CONDITIONAL** upon carrying out further intrusive investigation leading to possible building design mitigation at a future date but before construction begins?	**Yes**	Yes. Because the site is NOT impacted by known mine entry proximity hazard and the site-specific ground stability and mine gas risks to the proposed development identified in this CMRA arising from possible shallow mine working and perhaps mine gas require further assessment but **can be mitigated by routine engineering solutions.**

Assessed risk level – High, Medium Low. NONE

MGRA – specialist mine gas risk assessment.

3. CMRA OUTCOME & RECOMMENDATIONS

This CMRA has identified increased risk to the proposed development from shallow mine workings and perhaps mine gas. Therefore, given the outcome it is our opinion that drilling is required to reliably establish drift/bedrock depth and the presence, depth and nature of mine workings (if any) beneath this site. However as both risks can be mitigated by routine engineering solutions **planning permission should not in our opinion be withheld with respect to coal mining legacy issues** providing further intrusive investigation is carried out at a future date and the permission is **CONDITIONED** accordingly.

In Geoinvestigate's opinion 1 or 2 rotary open boreholes without core sample recovery should be made at the site to depths up to 30m (but not necessarily reaching 30m) to establish bedrock depth and mine workings depth (if any) beneath the site. One hole may be extended to 35m to check for working in the Halifax Soft Coal expected at 30m. This however is optional.

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

Risks for Different Drilling Scenarios

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

Boreholes must be sealed on completion.

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

Depending on the outcome of the drilling investigation longer term gas monitoring in specially installed gas wells may be required to further assess mine gas risk.

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

Shallower geotechnical and geo-environmental site investigation is also likely to be required to enable foundation design and to check for ground contamination.

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

Appendices:

A. CA Consultants Coal Mining Report issued 20 April 2023 ref. 51003350826001
B. Site Images.
C. Geology Map Extracts
D. BGS Log
E. CA Online Interactive Map Information

APPENDIX A

COAL AUTHORITY REPORT

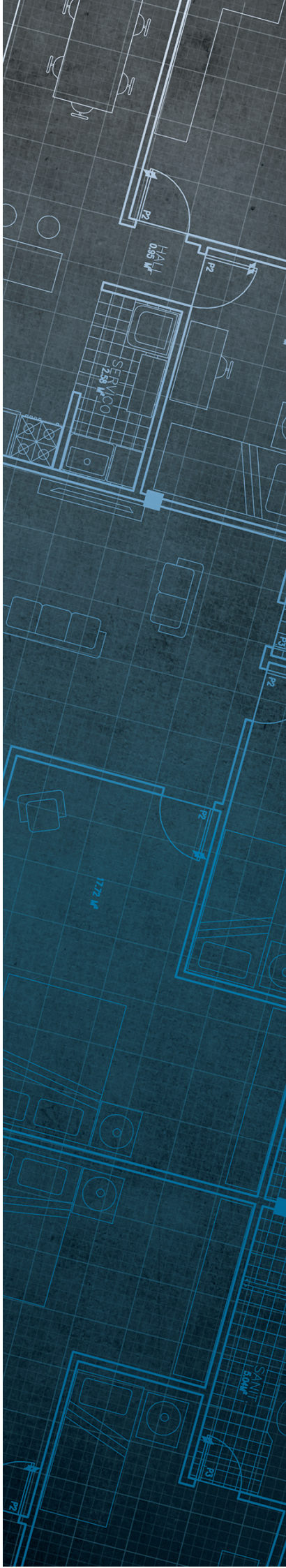
The Coal Authority

Consultants

Coal Mining Report

Town Cafe
33 Alder Street
Fartown
Huddersfield
Kirklees
HD1 6LD

Date of enquiry:	**20 April 2023**
Date enquiry received:	**20 April 2023**
Issue date:	**20 April 2023**
Our reference:	**51003350826001**
Your reference:	**G23162**



Consultants

Coal Mining Report

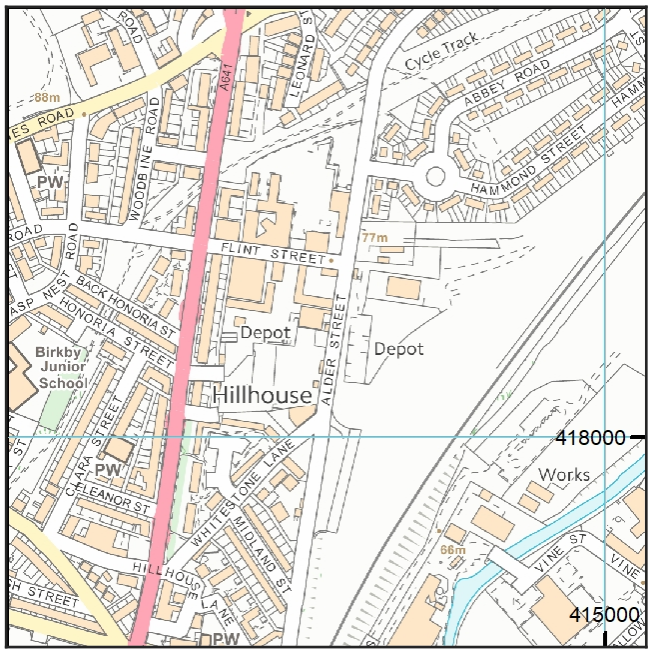
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GEOINVESTIGATE

Enquiry address

Town Cafe
33 Alder Street
Fartown
Huddersfield
Kirklees
HD1 6LD



Approximate position of property

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Mansfield
Nottinghamshire
NG18 4RG

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/company/the-coal-authority
/thecoalauthority
/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	HALIFAX SOFT	Coal	6HCQ	30	Beneath Property	6.0	East	100	1855

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	414418-003	414633 418188		Coal	

Abandoned mine plan catalogue numbers

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

7800	18393 (NR 400045471)	PO0

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
HALIFAX HARD	Coal	Yes	21.2	West	168

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

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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.

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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.

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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.

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.

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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.

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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.

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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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The Coal Authority

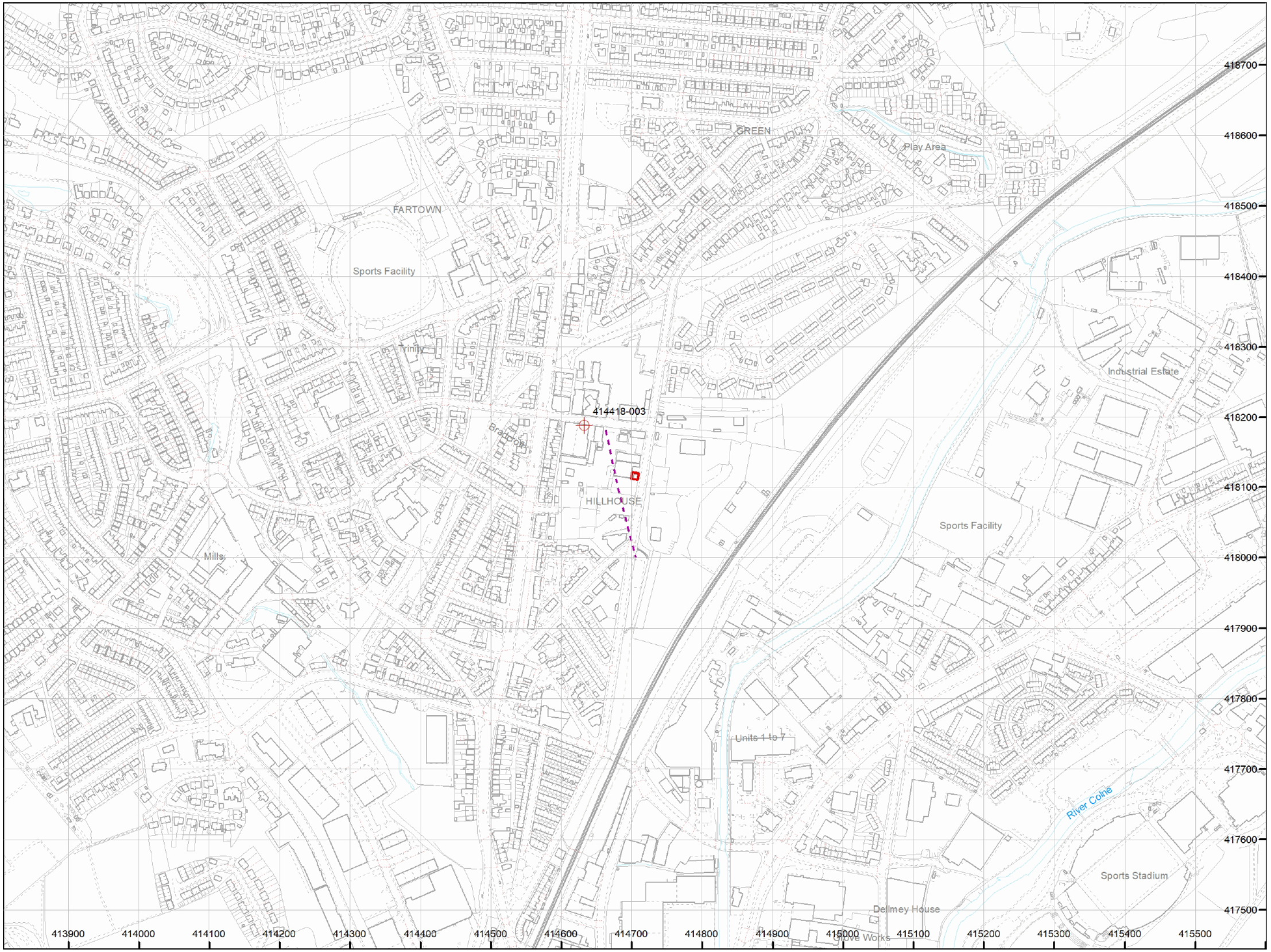
Summary of findings

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

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Outcrop (Conjectured)



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www.groundstability.com

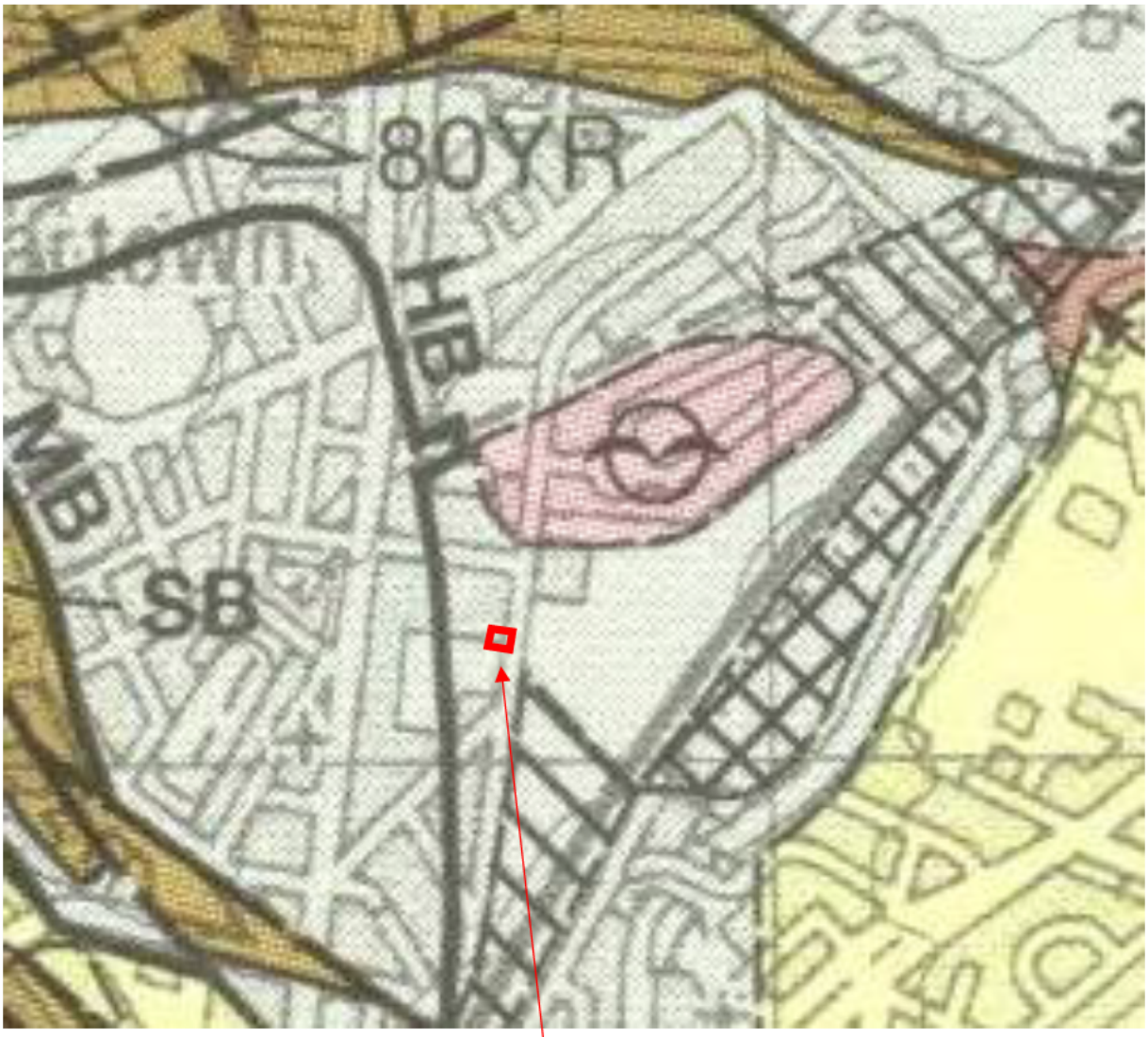
APPENDIX B
SITE IMAGES



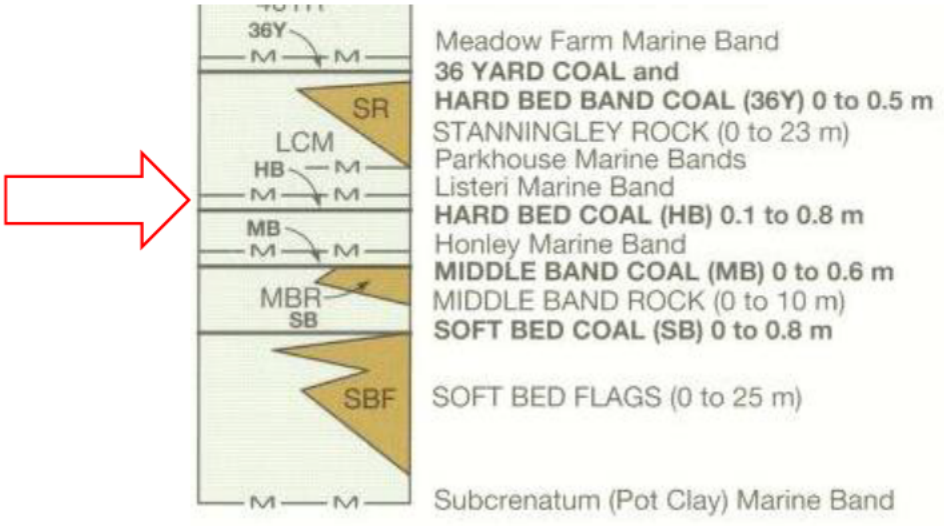


TOWN CAFE
KEEP CLEAR
Alder St
STOP

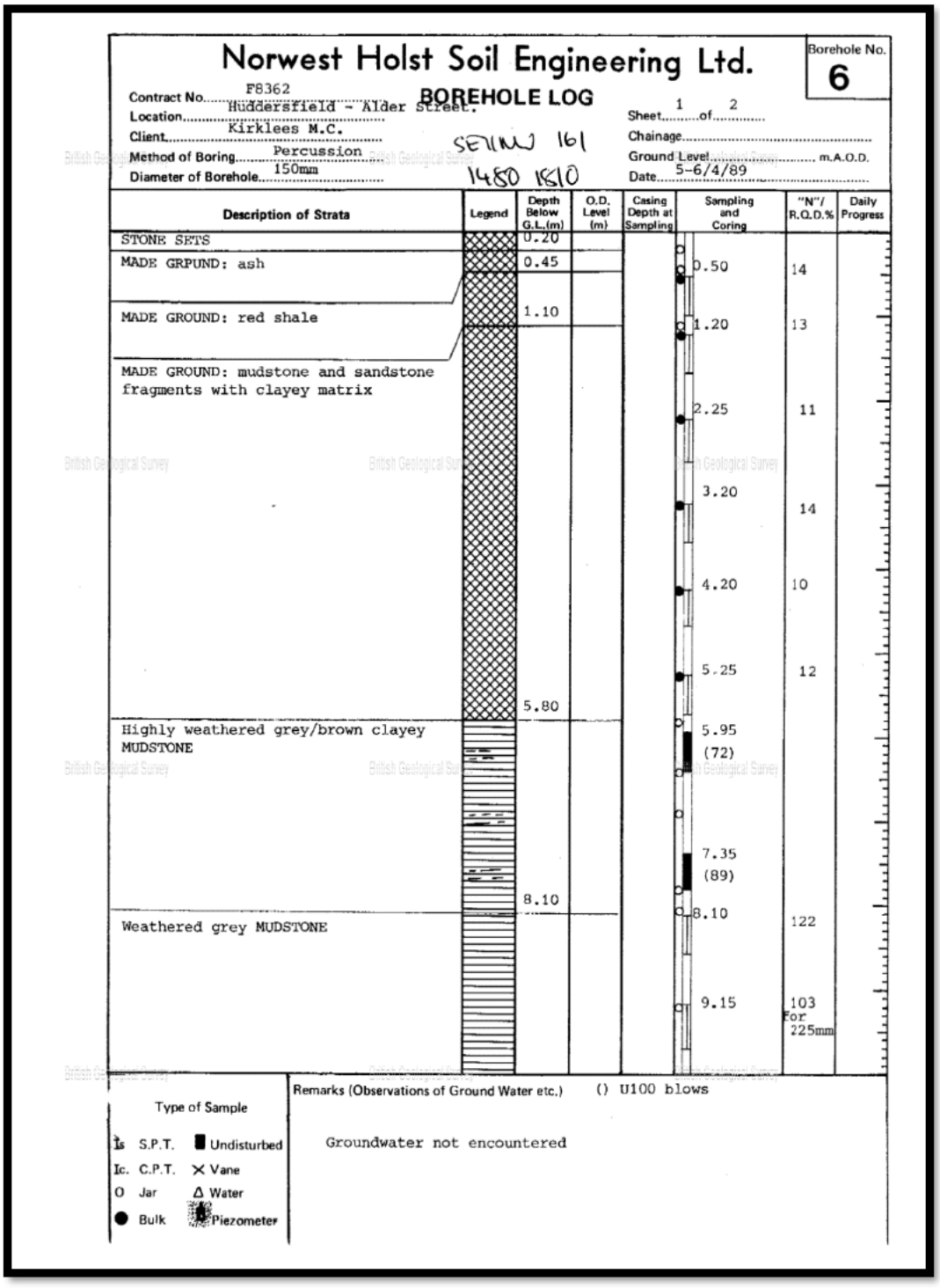
APPENDIX C
GEOLOGY MAP EXTRACTS



Approximate
site location



APPENDIX D
BGS LOG



Norwest Holst Soil Engineering Ltd.

Borehole No. 6

BOREHOLE LOG

Contract No. F8362
Location. Huddersfield - Alder Street.
Client. Kirklees M.C.
Method of Boring. Percussion
Diameter of Borehole. 150mm

SE1NW 161
1480 1810

Sheet 1 of 2
Chainage
Ground Level m.A.O.D.
Date 5-6/4/89

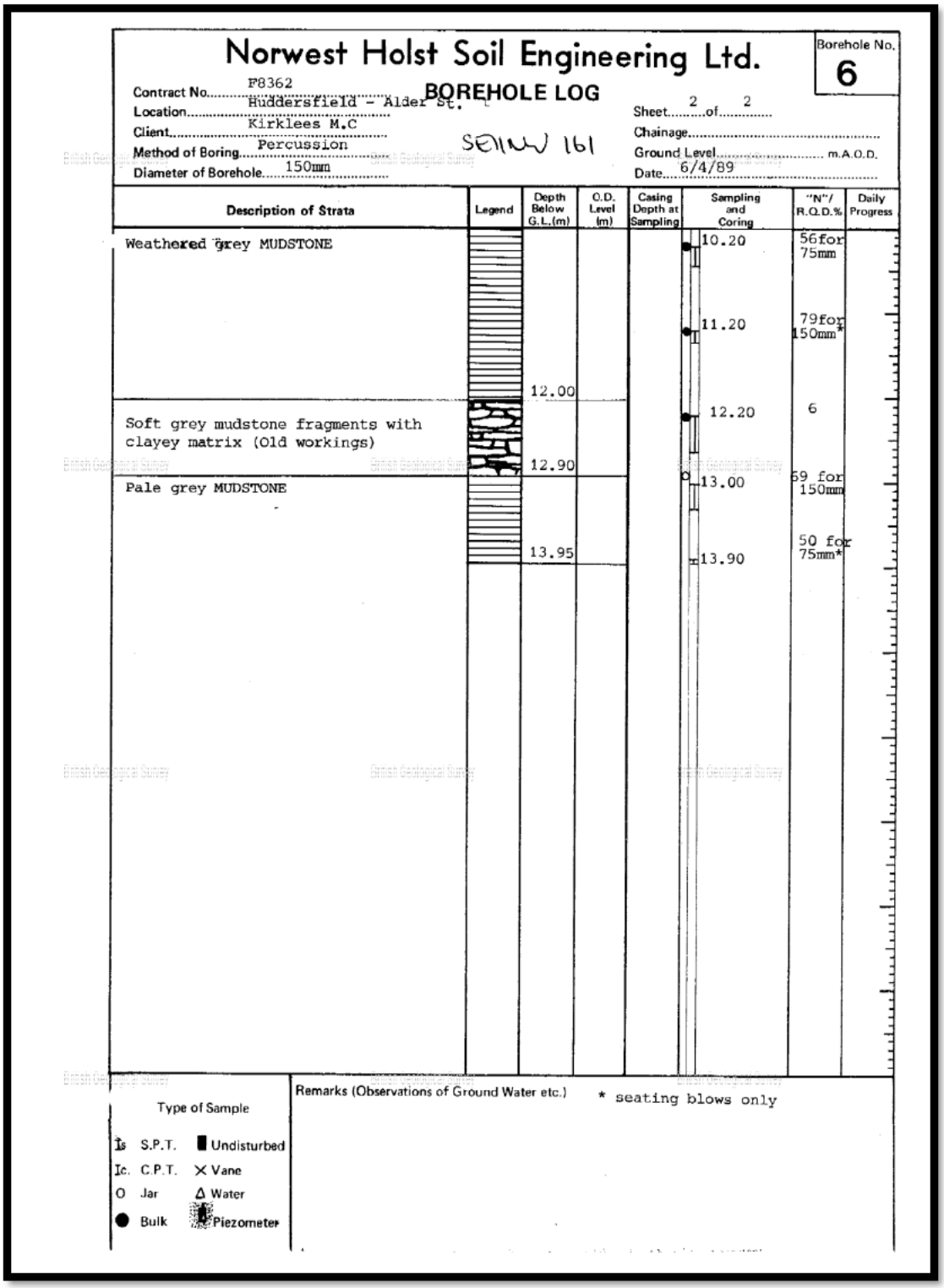
Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
STONE SETS		0.20					
MADE GRPUND: ash		0.45			0.50	14	
MADE GROUND: red shale		1.10			1.20	13	
MADE GROUND: mudstone and sandstone fragments with clayey matrix					2.25	11	
					3.20	14	
					4.20	10	
					5.25	12	
		5.80			5.95 (72)		
Highly weathered grey/brown clayey MUDSTONE					7.35 (89)		
		8.10			8.10	122	
Weathered grey MUDSTONE					9.15	103 for 225mm	

Type of Sample

Is S.P.T. ■ Undisturbed
Ic. C.P.T. × Vane
O Jar Δ Water
● Bulk Piezometer

Remarks (Observations of Ground Water etc.) () U100 blows

Groundwater not encountered



Norwest Holst Soil Engineering Ltd.

Borehole No. 6

Contract No. F8362
Location Huddersfield - Alder St.
Client Kirklees M.C
Method of Boring Percussion
Diameter of Borehole 150mm

BOREHOLE LOG

SE1NW 161

Sheet 2 of 2
Chainage
Ground Level m.A.O.D.
Date 6/4/89

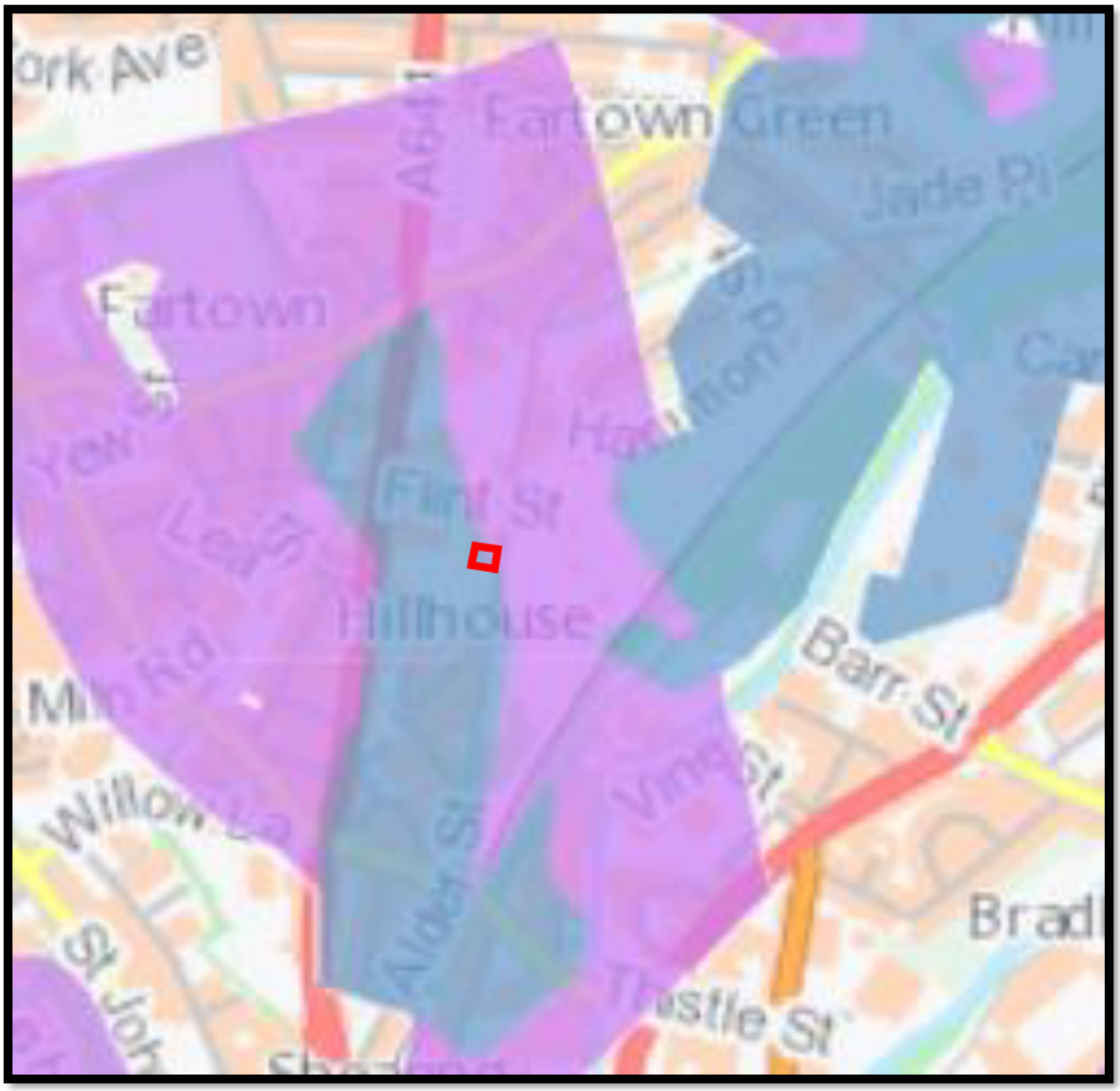
Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Weathered grey MUDSTONE					10.20	56for 75mm	
					11.20	79for 150mm*	
		12.00					
Soft grey mudstone fragments with clayey matrix (Old workings)					12.20	6	
		12.90					
Pale grey MUDSTONE					13.00	59 for 150mm	
		13.95			13.90	50 for 75mm*	

Type of Sample

Is	S.P.T.	▮	Undisturbed
Ic.	C.P.T.	×	Vane
O	Jar	Δ	Water
●	Bulk		Piezometer

Remarks (Observations of Ground Water etc.) * seating blows only

APPENDIX E
CA ONLINE INTERACTIVE MAPPING



GREEN = Recorded past workings
PURPLE = Probable shallow workings