



Rotary Borehole Site Investigation Report

LOCATION	Proposed Development – Land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF
ISSUE DATE	December 2020
FOR	Mr Y Salim
CLIENT REF.	
OUR REF.	G20366

Prepared by

Checked by

Redacted

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1. Introduction

In accordance with your instruction, Geoinvestigate Ltd carried out an intrusive rotary borehole site investigation at land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF.

It is proposed to construct a small retail development on the site comprising five 2- 3 storey units with associated parking. The approximate centre of the site is at National Grid Reference E 414505, N 417880. The position of the building is shown on the attached plan in Appendix 1.

The purpose of this investigation was to investigate the site for the possible presence of shallow abandoned underground coal mine workings beneath the site. Therefore, this investigation is limited to this aspect only.

A possible shallow or near surface mining risk at the site had been identified in a mining report provided by the Coal Authority and subsequent Coal Mining Risk Assessment carried out by Geoinvestigate report ref G19425 in November 2019.

2. Coal Authority Mining Report

The Geoinvestigate Coal Mine Risk Assessment (Ref G19425 Dated 26th November 2019) and excerpts of the included Coal Authority Report ref 51002190352001 dated 20th November 2019 are provided in Appendix 2.

The Coal Authority report identifies 1 level of past underground mining in the Halifax Soft Coal at a depth of 13m east of the development area. The seam has a thickness of 1.00m and dips 5.2° east. This recorded working may coincide with the area of 'Past Shallow Coal Mine Workings' recorded adjacent to the eastern boundary of the site area. This recorded shallow mining may extend under the site rising to <13m depth.

In addition, the Coal Authority indicates that they believe there is coal at or close to the surface, which may have been worked at some time in the past, for which they have no record.

The geology map indicates the site to be underlain by the Pennine Lower Coal Measures comprising mudstone, siltstone, sandstone and coal seams including the Hard Bed Coal (HB), Middle Band Coal (MB) and the Soft Bed Coal (SB). According to the Coal Authority report the Middle Band Coal outcrops 7.50m west of the site. This coal seam is workable and could underlie the site at very shallow depth. Alternatively, it could be absent beneath the site if the outcrop lays further to the east.

There are **no known mine entries** within or within 100metres of the boundary of the property. However, the Coal Authority records may be incomplete, and mine entries may be present for which the Coal Authority has no knowledge.

The report therefore concluded that *'In our opinion, the site could be underlain by workings within the Middle Band Coal (MB) and the Soft Bed Coal (Halifax Soft Coal) (SB) seams at very shallow and shallow depth respectively. If very shallow and shallow mine working is present it could pose a significant risk to surface ground stability within the development area. It is our opinion therefore that further intrusive investigation is required in order to establish the depth and nature of very shallow and shallow mine workings (if any) beneath the proposed new development'*.

In light of the possible presence of shallow coal workings below the site, the Client commissioned Geoinvestigate to carry out a borehole investigation to evaluate this possible hazard to the development.

3. Scope of Intrusive Investigation

3.1 Scope of Works

In line with the following borehole drilling investigation was carried out at the site to establish if abandoned coal mine-workings were present in the underlying strata;

- The sinking of three (3) boreholes (RH1, RH2 and RH3) to a depth of 30m with supervision of the drilling works by a qualified geotechnical engineer. The boreholes were rapidly driven to depth using Geoinvestigate's proprietary new high-speed Microdrilling system.
- Provision of an interpretative report including site plan and borehole logs.

Microdrill's small volume water injection system offers a safer method of investigating coal mine workings minimising the risk of combustion or explosion of coal and mine gases and the migration of hazardous gases into nearby buildings.

Gas monitoring was carried out during drilling to measure concentrations of Oxygen O₂ and potentially toxic and explosive levels of Carbon dioxide CO₂, Methane CH₄ & Carbon Monoxide CO in the ground.

The ground conditions encountered in the boreholes (as described by the driller) are shown on the borehole log provided in Appendix 1.

The current report focuses only on the mining situation beneath the site. It does not deal with the condition of the surface drift horizon (made ground and natural soils) which cover the site.

3.2 Drilling Technique

The condition of the ground with regard to strength and rock type was assessed by the drillers using the variations in drilling progress, drilling flush pressure, "feel", and the nature of the arisings (drill debris) returned to surface in the water flush and whether the flush itself was returned. No rock cores were recovered from the boreholes.

The primary purpose of the boreholes in this investigation was to identify variations in rock strength and rock type and to highlight possible geotechnical hazards such as voids or broken / weak strata which might indicate abandoned mine workings or upward void migration.

4. Encountered Ground Conditions

4.1 RH1, RH2 & RH3

The boreholes encountered turf underlain by overburden to depths of between 2.90m and 3.40m followed by siltstone then shale with sandstone inclusions with sandstone noted below this. Below this a 0.50m to 0.60m thick coal seam as noted below the depths of 27.20m in RH1, 27.40m in RH2 and 27.80m in RH3. Siltstone was then noted to the base of the boreholes at 30.00m.

An intact 0.50m to 0.60m thick coal seam was noted in all of the boreholes at similar depths of 27.20m in RH1, 27.40m in RH2 and 27.80m in RH3.

No broken ground or voids were encountered in the boreholes drilled.

No hazardous gas concentrations were noted from readings taken from the boreholes during drilling.

Water flush was recorded to the full depth of the boreholes.

5 Review of Ground Conditions.

The boreholes suggest that the drift deposits extend to a depth of between 2.90m and 3.40m underlain by siltstone, shale with sandstone, sandstone a thin coal seam then siltstone to the base of the boreholes at 30.00m.

Although a coal seam of circa 500mm in thickness was noted at a similar depth in each borehole no broken ground or voids, possibly indicative of past ground workings, were noted. In addition, full water flush was noted over the entire depth of each borehole.

6 Conclusions

At the positions drilled, drift deposits extend to circa 3.20m underlain by rock initially of siltstone, then shale with sandstone inclusions, sandstone followed by a 0.50m to 0.60m thick coal seam underlain by siltstone to the base of the boreholes at 30.00m.

It is surmised that the coal seam found in the boreholes is the Soft Bed Coal (SB) though it is around 15m deeper than recorded to the east of the site. Given the general rule of thumb of > 10 times the seam thickness, even at its maximum recorded thickness of 1.00m there is considered to be sufficient competent rock cover present at the site that any workings within this seam would not constitute a hazard to the development at surface. In addition, although recorded shallow mining is noted within the Soft Bed coal seam at 13m deep to the east of the site, the absence of any shallow coal or mining beneath the site, may be attributable to the faulting noted on the BGS map record (within the CMRA) very close to the site.

With regard to the inferred outcrop of the Middle Band Coal (MB) to the west of the site, dipping beneath the site, (as shown on the CA report within the CMRA report) given the absence of the seam at shallow depth in the boreholes, it is surmised that the coal outcrop has been eroded out and replaced by drift deposits, or that the actual position of the seam may lie to the west of the site, therefore not present beneath the site.

In conclusion, the drilling has confirmed that no special foundations or ground treatments would be required to mitigate the risk to the site from damage such as subsidence, or collapse, due to the sites past coal mining legacy from potential shallow coal mine-workings.

END OF REPORT



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APPENDIX 1

Site Plan & Borehole Logs

SITE PLAN



GEOINVESTIGATE Ltd.

Your Ref.

Our Ref.

G20366

RH No.1 Sheet No. 1 of 2

Location: Land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF

DATE: 20/11/20

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
3.30	TURF / brown DRIFT. Becoming orange from 1.40m.	3300							2.50
7.10	Light grey SILSTONE.	3800							5.00
19.2	Grey SHALE with SANDSTONE inclusions.	12100							7.50
									10.00
									12.50
									15.00
									17.50
									20.00
	Light grey SANDSTONE.	8000							22.50
	Rotary hole continued on page 2								25.00

Remarks: Casing to 2.00m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Full flush returned. No voids encountered.

Key:

Slotted Pipe

Plain Pipe

Bentonite

Gravel Filter

Disturbed sample

Shear vane

Water sample

Standard Penetration Test

Cone Penetration Test

RH1

GEOINVESTIGATE Ltd.

Your Ref.

Our Ref.

G20366

RH No.1 Sheet No. 2 of 2

Location: Land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF

DATE: 20/11/20

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
27.2	Light grey SANDSTONE.	8000							
27.7	Black COAL. Intact.	500							27.50
30.0	Grey SILTSTONE.	2300					Full Flush		30.00
	Rotary hole terminated at 30.00m								

Remarks: Casing to 2.00m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Full flush returned. No voids encountered.

Key:

 Slotted Pipe Plain Pipe Bentonite Gravel Filter Disturbed sample Shear vane Water sample Standard Penetration Test Cone Penetration Test**RH1**

GEOINVESTIGATE Ltd.

Your Ref.

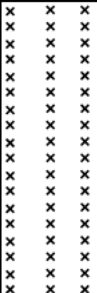
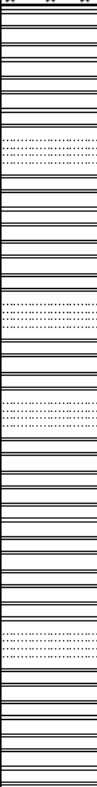
Our Ref.

G20366

RH No.2 Sheet No. 1 of 2

Location: Land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF

DATE: 20/11/20

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
2.90	TURF / brown DRIFT. Becoming orange from 1.10m.	2900							2.50
7.40	Light grey SILTSTONE.	4500							5.00
19.7	Grey SHALE with SANDSTONE inclusions.	12300							7.50
									10.00
									12.50
									15.00
									17.50
									20.00
	Light grey SANDSTONE.	7700							22.50
									25.00
	Rotary hole continued on page 2								

Remarks: Casing to 2.00m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Full flush returned. No voids encountered.

Key:

 Slotted Pipe Plain Pipe Bentonite Gravel Filter Disturbed sample Shear vane Water sample Standard Penetration Test Cone Penetration Test**RH2**

GEOINVESTIGATE Ltd.

Your Ref.

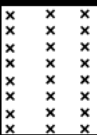
Our Ref.

G20366

RH No.2 Sheet No. 2 of 2

Location: Land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF

DATE: 20/11/20

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
27.4	Light grey SANDSTONE.	7700							27.50
27.9	Black COAL. Intact.	500							
30.0	Grey SILTSTONE.	2100					Full Flush		30.00
	Rotary hole terminated at 30.00m								

Remarks: Casing to 2.00m

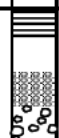
Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Full flush returned. No voids encountered.

Key:



Slotted Pipe

Plain Pipe

Bentonite

Gravel Filter

O Disturbed sample

Cv Shear vane

W Water sample

S Standard Penetration Test

C Cone Penetration Test

RH2

GEOINVESTIGATE Ltd.

Your Ref.

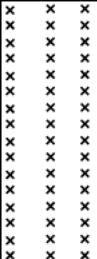
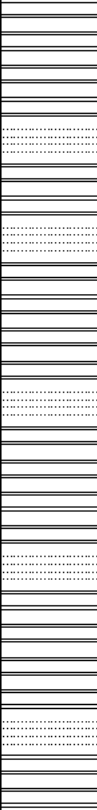
Our Ref.

G20366

RH No.3 Sheet No. 1 of 2

Location: Land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF

DATE: 20/11/20

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
3.40	TURF / brown DRIFT. Becoming orange from 2.30m.	3400							2.50
7.40	Light grey SILTSTONE.	4000							5.00 7.50
19.9	Grey SHALE with SANDSTONE inclusions.	12200							10.00 12.50 15.00 17.50 20.00
	Light grey SANDSTONE.	7900							22.50
	Rotary hole continued on page 2								25.00

Remarks: Casing to 2.00m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Full flush returned. No voids encountered.

Key:

 Slotted Pipe Plain Pipe Bentonite Gravel Filter Disturbed sample Shear vane Water sample Standard Penetration Test Cone Penetration Test**RH3**

GEOINVESTIGATE Ltd.

Your Ref.

Our Ref.

G20366

RH No.3 Sheet No. 2 of 2

Location: Land off Hillhouse Lane, Fartown, Huddersfield HD1 6EF

DATE: 20/11/20

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
27.8	Light grey SANDSTONE.	7900							27.50
28.4	Black COAL. Intact.	600							
30.0	Grey SILTSTONE.	1600	x x x x x x x x x x x x x x x				Full Flush		30.00
	Rotary hole terminated at 30.00m								

Remarks: Casing to 2.00m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Full flush returned. No voids encountered.

Key:

 Slotted Pipe

 Plain Pipe

 Bentonite

 Gravel Filter

O Disturbed sample

Cv Shear vane

W Water sample

S Standard Penetration Test

C Cone Penetration Test

RH3



The Coal
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 20953

Name and Address of Permit Holder:

Mr Y Salim
2 Somerset Avenue
Brighouse
HD6 3TR

Site Location:

Land off
Hillhouse Lane
Fartown
Kirklees
HD1 6EF

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Ground investigation by three rotary boreholes to a target depth of 30m or as required to determine the presence or otherwise of shallow mine workings and the risk posed to development at the surface all within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of 12 months from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- *Water flush drilling only*
- *Gas Monitoring for CO, CH₄, CO₂, O₂, H₂S at the borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: Leigh Sharpe Granted Date: 03/11/2020

For and on behalf of The Coal Authority

Nominated Representative: Leigh Sharpe, Permitting Manager;

The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637450; E-Mail: permissions@coal.gov.uk

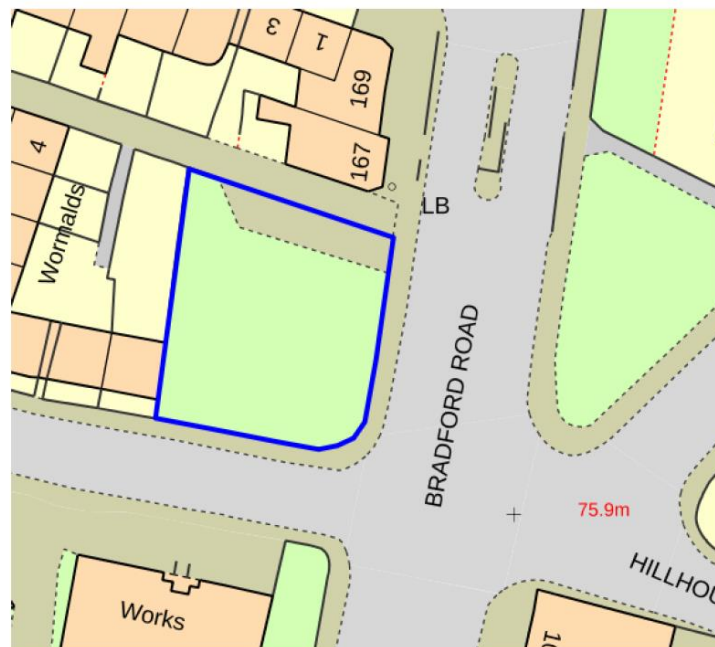


The Coal
Authority

Granted Permit Boundary

Permit Ref: 20953

Permit Boundary:



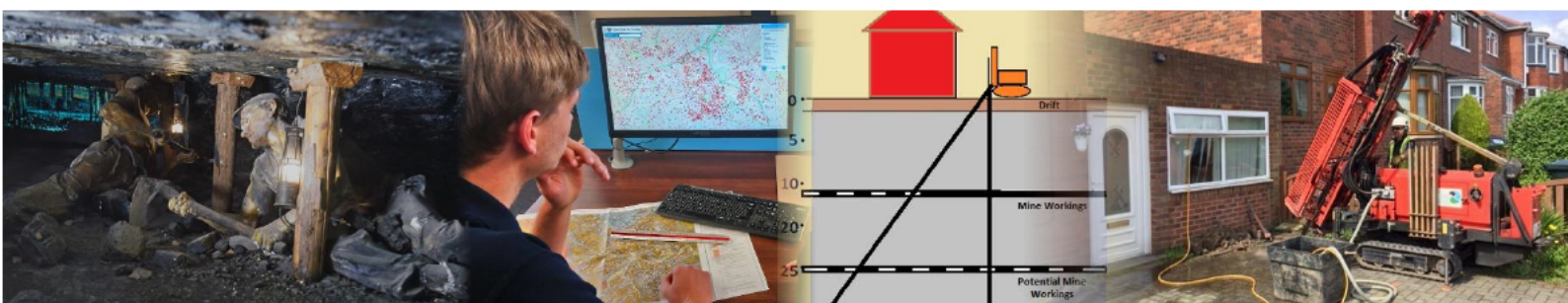
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APPENDIX 2

Geoinvestigate CMRA ref G19425 & Coal Mining Report



GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
CONSULTANCY
DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED

Coal Mining Risk Assessment (CMRA)

LOCATION	Land off Hillhouse Lane, Fartown, Huddersfield, Kirklees HD1 6EF
ISSUE DATE	26th November 2019
FOR	Mr N Akhtar
CLIENT REF.	
OUR REF.	G19425

Prepared by

Checked by

Redacted

Matthew Walker BSc(Hons)
Asst. Geo-environmental Engineer

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

SUMMARY FINDINGS

OUTCOME (MITIGATION REQUIRED)

Exploratory drilling is required to investigate possible underground coal mine workings within very shallow or shallow depth beneath this site.
In addition, a shallow geotechnical investigation may be required to establish the possible presence of infilled cellars beneath this site.

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 414505, N 417880 with an elevation of about 76.5m AOD. The boundary shown RED on the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area. Google Satellite and Street View imagery shows the site located in a residential/commercial area of Huddersfield comprising terrace housing and retail outlets to the west of a railway line. The development is currently a gap site at the corner of Victorian terrace housing and shops. The ground surface gently falls to the east and rises to the west. The site is reasonably level comprising grass and some gravel hardstanding used for vehicle parking. The site is bordered by a public footway with several electrical junction boxes. Site images are presented in Appendix B.

Google Street View shows some buildings in the surrounding area have basement cellars while other don't.

The OS map record dating back to 1851 shows the site as undeveloped/farmland land north of 'Shearing Cross'. 'Land Colliery' comprising works structures and several 'Coal Shafts' is recorded some 250m southeast of the site at this early date. Several mine shafts and shafts are shown to the east, northeast and south east of the site. By 1890 terrace houses Nos. 157 to 165 were built on the site with 'Wormalds Yard' to the west. The OS map of 1918 records a 'Brick Works' to the east of the site and a 'Coal Shaft' further northeast. The terrace houses on the site were demolished by 1987. It is possible that these buildings may have had basement cellars which were subsequently infilled.

The historical OS map record provides no evidence that the site itself has been subject to sand, clay or gravel pitting, stone quarrying or surface mining activity though many historical coal shafts, collieries, brickworks and surface workings are recorded and in the surrounding area.

Description & Layout of Proposed Development: It is proposed to erect a small retail development on the site comprising five 2-3 storey units with parking. The proposed development plan is included in Appendix C.

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 overleaf 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	
Outcrop	Yes		2.1.3
Geological faults, fissures and breaklines		No	
Opencast Mines		No	
Site Investigation		No	
Coal Mining Subsidence		No	
Mine Gas		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 Coal Authority report in Appendix A identifies 1 level of past underground mining in the Halifax Soft Coal at a depth of 13m east of the development area. The seam has a thickness of 1.0m and dips 5.2° east. This recorded working may coincide with the area of ‘Past Shallow Coal Mine Workings’ recorded adjacent to the eastern boundary of the site area shown online on the CA’s interactive map information.

In our opinion recorded shallow working is present below the sites eastern limit and may even extend under the site rising to < 13m depth. This shallow working could significantly affect surface ground stability within the proposed development area.

2.1.2 Probable unrecorded shallow workings

According to the CA the site falls within an area of probable 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).

It is our opinion that the probable presence of unrecorded shallow mine workings beneath the site could pose significant surface ground stability risk to the proposed development and therefore requires further investigation.

2.1.3 Coal Outcrop

The location of the site is shown on the extract of BGS geology map included in Appendix D. The tentative elevation of the site relative to the vertical geology column is shown below the map. The geology map indicates the site to be underlain by the Pennine Lower Coal Measures Formation comprising mudstone, siltstone, sandstone and commonly coal seams including the Hard Bed Coal (HB), Middle Band Coal (MB) and the Soft Bed Coal (SB).

According to the CA’s ‘Consultants Coal Mining report’ the Middle Band Coal seam (MB) outcrops 7.5m west of the site area. This coal seam is workable and could underlie the site at perhaps very shallow depth. Alternatively, it could be absent beneath the site if the MB coal outcrop lays further east than shown on the plan. This however is speculation.

The vertical geology column records the Soft Bed Coal (SB) some 13.5m beneath the MB Coal seam. Therefore, it could also underlie the site at shallow depth. It is perhaps likely that the Soft Bed Coal seam (SB) is the Halifax Soft Coal recorded by the CA to the east of the site with recorded working at 13m depth.

In our opinion, the site could be underlain by working within the Middle Band Coal (MB) and the Soft Bed Coal (Halifax Soft Coal) (SB) seams at very shallow and shallow depth respectively. If very shallow and shallow mine working is present it could pose a significant risk to surface ground stability within the development area. It is our opinion therefore that further intrusive investigation is required in order to establish the depth and nature of very shallow and shallow mine workings (if any) beneath the new development.

2.1.4 Expected Drift/Bedrock Depth

According to the BGS drift geology map the site is not underlain by a significant thickness of drift deposits. Based on BGS borehole log SE11NW/386 & /387 both some 120m south of the site, drift/bedrock depth of 2.80m or 4.40m may be expected at the site followed by sandstone or mudstone bedrock. Log /387 records 2.50m of weak made ground/fill and therefore made ground of variable thickness may be anticipated at this site. BGS borehole log SE11NW/386 & /387 are not included in this report.

Infilled former basement cellars similar to those which can still be seen on Hillhouse Lane at the Wormald Buildings nearby may occur within the site which was previously occupied by terrace housing.

In our opinion because drift/bedrock depth has a significant bearing on mining related ground stability this important variable needs further investigation to establish its nature and thickness within the development area.

3. SUMMARY AND OUTCOME

This CMRA has indicated the development may be underlain by 2 levels of very shallow and shallow mine working in the Middle Band Coal (MB) and the Soft Bed Coal (SB) seams. In our opinion the possible occurrence of shallow mine workings beneath the site could pose a significant risk to surface ground stability within the development area.

Therefore, given the forgoing 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.

While the mine gas risk is expected to be LOW given the presence of possible shallow mine workings beneath the site, and the very serious nature of mine gas hazard it is our opinion that this risk is raised to MODERATE to perhaps HIGH until proven otherwise by drilling and gas monitoring.

4. MITIGATION STRATEGY PROPOSED AND CONCLUSION

To properly determine the coal mining risk at this site it is proposed to drill 2 or 3 boreholes to target depths up to 30m (but not necessarily reaching 30m) to locate possible coal seams below the new development as well as drift and bedrock depth.

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 the planning permission being registered.

In conclusion we see no reason why Planning Permission should not be granted in the interim and that these works form a condition on the planning approval.

Though strictly speaking outside the brief of this CMRA the client may also wish to give consideration to carrying out a shallow geotechnical/geo-environmental investigation of this site which may be impacted by infilled basement cellars and an increased thickness of made ground.

Appendices:

- Coal Authority 'Consultants Coal Mining Report' dated 20 November 2019 ref 51002190352001
- Site images
- Proposed development plan
- Extracts of BGS Geology Map, Sheet 77 – Huddersfield at 1:50000 scale

APPENDIX A
COAL AUTHORITY REPORT



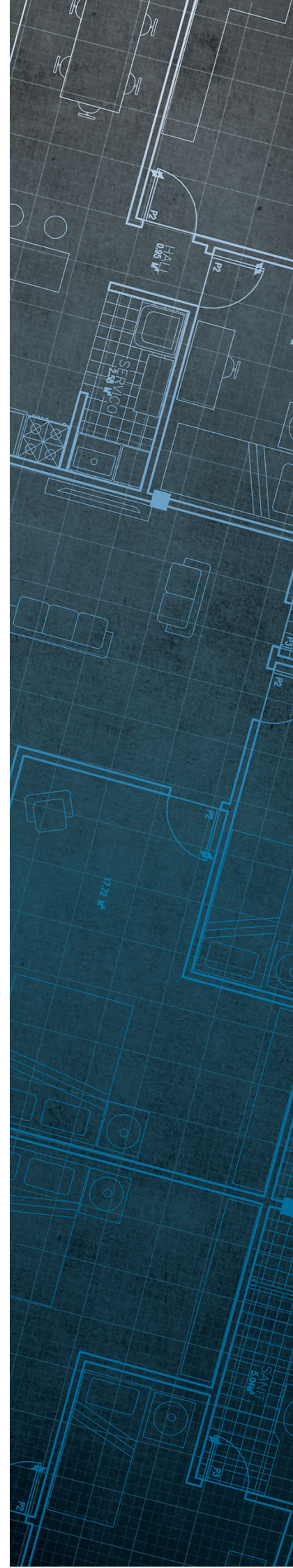
The Coal
Authority

Consultants Coal Mining Report

Land Off
Hillhouse Lane
Fartown
Huddersfield
Kirklees
HD1 6EF

Date of enquiry:	20 November 2019
Date enquiry received:	20 November 2019
Issue date:	20 November 2019

Our reference:	51002190352001
Your reference:	G19425



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 Off
Hillhouse Lane
Fartown
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HD1 6EF

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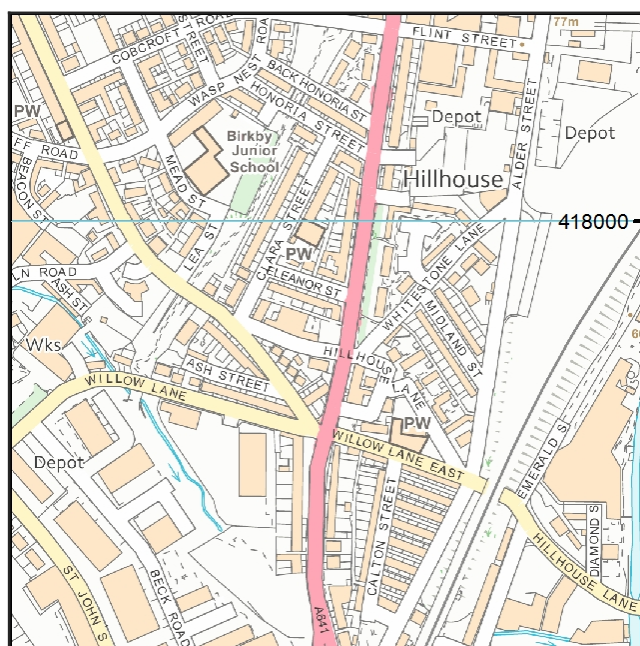
www.groundstability.com

 @coalauthority

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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	HALIFAX SOFT	Coal	62KB	13	East	5.2	East	100	1848

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

None available.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
MIDDLE BAND	Coal	Yes	7.5	West	161

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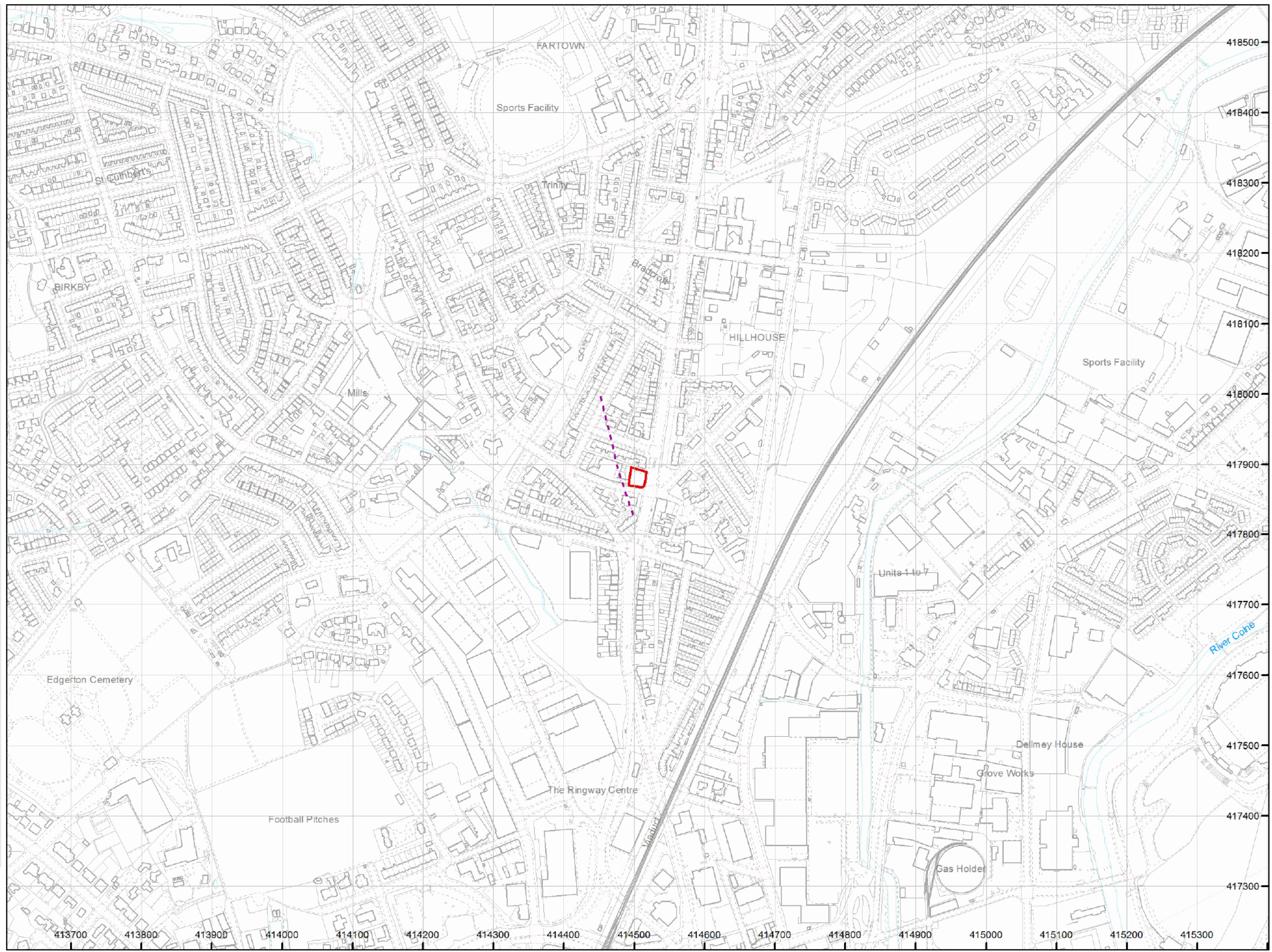
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown 

Outcrop (Conjectured) 

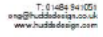
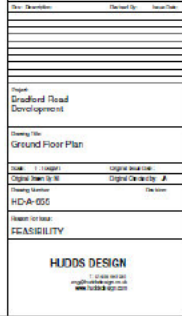
How to contact us
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www.groundstability.com



APPENDIX B SITE IMAGES



PROPOSED DEVELOPMENT PLAN



APPENDIX D

EXTRACTS OF BGS GEOLOGY MAP

