Arc Environmental Ltd
Solum House
Unit 1 Elliott Court
St John's Road
Meadowfield
Durham
DH7 8PN

By Email

Our ref: 25-075.01L

17th February 2025

Dear Ben,

Re: Proposed Extension, The Newsome Centre, Jackroyd Lane, Newsome, Huddersfield HD4 6QU

1.0 Introduction

Arc Environmental Limited (ARC) were commissioned by ONE17 Design, to undertake a Coal Mining Risk Assessment (CMRA), to facilitate a proposed extension at The Newsome Centre, Jackroyd Lane, Newsome, Huddersfield HD4 6QU. The National Grid Reference for the site is 415375, 414024.

The geological and coal mining assessments for this site have been based on records produced by the British Geological Survey (BGS) and the Coal Authority. The following documents have been reviewed as part of this CMRA:

- BGS Sheet 77, Huddersfield, Solid & Drift Edition, 1:50,000 Series, dated 2003.
- BGS Sheet SE11SW, Huddersfield, Solid & Drift. 1:10,000 Series, dated 1999.
- Coal Authority Consultants Coal Mining Report, Reference: 51003479984001 – copy attached.
- Coal Authority interactive map viewer.

2.0 Geological Setting

Based on published geological plans produced by the BGS the site is shown to be in an area of solid outcrop, i.e., 'drift free'. The solid geology is shown to comprise the Carboniferous Lower Coal Measures (LCM) which comprise interbedded mudstone, siltstone and sandstone with coal seams, seatearths and marine (fossil-bearing) bands.

2.0 Geological Setting (Cont'd)

According to the BGS the shallowest coal seam below this site is the Hard Bed Band (36Y) Coal, which outcrops to the immediate north west, dipping south east below the site and recorded up to c.0.50m thick. It is anticipated that this seam lies at a depth of c.5 – c.10m below the site. The second shallowest coal seam according to the geological sequence is the of the Hard Bed (HB) Coal which has a recorded extraction thickness of between c.0.10m up to c.0.80m. Based on the generalised vertical section, it is anticipated that this seam lies at a depth of c.30m below the site

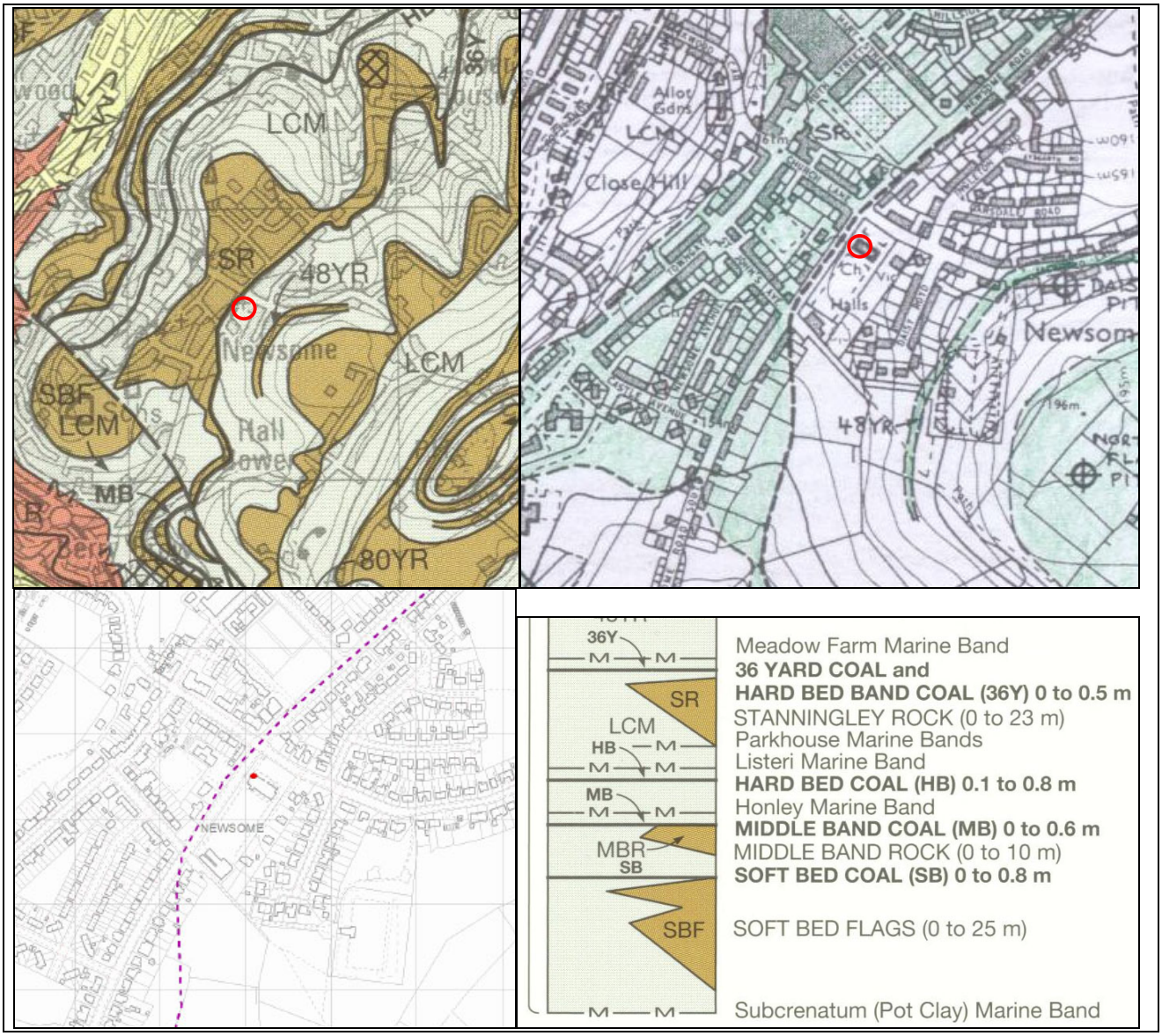

Figure 1 – Map Extracts from BGS Sheet 77 (1:50,000), SE11SW (1:10,000) & The Coal Authority Consultants Coal Mining Report

3.0 Site-Specific Coal Mining Information

In accordance with available online Coal Authority data, the site is shown to lie within a 'Coal Mining Reporting Area' and within an area which has been designated as a defined 'Development High Risk Area' and an Area of 'Probable Shallow Coal Mine Workings' by the Coal Authority.

For completeness, a Coal Authority Consultants Mining Report was procured to further assess the risks posed to the site with respect to possible instability issues arising in the future as a direct result of past shallow coal mining activities.

The report recorded past recorded underground workings in one named coal seam at c.64m depth in the Halifax Soft (Soft Bed) coal seam with an extraction thickness of c.0.51m recorded. The report also notes 'Probable Unrecorded Shallow Workings'.

There are no mine entries (shafts) recorded on or within 100m of the site, no opencast mines recorded on or within 500m of the site. There are no faults, fissures or breaklines recorded on site and there are no recorded mine gassing issues within 500m of the site.

4.0 Assessment of Potential Risk to Proposed Development

Based on the BGS and Coal Authority information reviewed for the site, the SB coal seam has been worked below the site. Assuming full extraction has taken place (c.0.51m), then the overlying competent rock cover ratio to extraction thickness would fall above the conventionally accepted minimum rock cover ratio of 10:1, which is commonly taken as "safe" conditions in accordance with CIRIA Special Publication 32 – Construction over abandoned mine workings.

However, it is considered likely that the 36Y coal seam may also have been worked beneath the site area prior to the Mines (Coal) Regulations Act of 1872, before which there was no statutory requirement to maintain and preserve plans of abandoned mines. Of those plans which were made it is likely that not all will have survived with time and hence shallow mine workings may be present below the site area for which there is no record. Consequently, at this stage, shallow unrecorded workings present below the site within the 36Y coal seam cannot be dismissed.

If workings have gone unrecorded within this seam, which is anticipated at a depth of between 5m and 10m, and assuming full extraction has taken place, then the overlying competent rock cover ratio to extraction thickness is likely to fall below the minimum rock cover ratio of 10:1.

One of the main causes of instability arising from shallow coal workings is void migration which is normally caused by the collapse of shallow abandoned pillar and stall mine workings. For void migration to occur, the roof of the workings must fail. If the load on the roof of the working exceeds the strength of the roof it will fail, the material will collapse into the void formed by mining and the void will migrate towards the surface.

4.0 Assessment of Potential Risk to Proposed Development (Cont'd)

Once void migration has started it will continue until arrested by more massive roof strata, by natural arching, or by the void becoming choked due to bulked roof material filling the void and supporting the roof.

If the void reaches the surface, a crown hole will develop. Subsidence prediction methods require reliable data regarding the mine layout, method of mining and the extraction ratios.

This information is very rarely available, and in this instance, it is felt that the risk to the site from this activity can only be definitively assessed by undertaking a programme of site-specific intrusive investigation works.

5.0 Conclusions & Recommendations

The information reviewed indicates the potential risk to surface stability from historic coal workings beneath the site is high and based on the evidence available further investigation of risks associated with instability from historic shallow coal workings is considered essential prior to commencing with the proposed development works.

At this time, as we are unable to dismiss the risks posed to the site from potential shallow coal mining activities, we would recommend undertaking the intrusive investigation works outlined in Table 1 below to definitively assess the risks and confirm the ground profile below the site. The proposed investigation works will confirm the underlying ground conditions to a depth of c.10m-15m.

Table 1

Purpose of investigation works	Investigation method
Determine the risks posed to the site from possible unrecorded coal workings situated below the site within the **36Y** coal seam.	Undertake a series of rotary open hole boreholes using water flush. The boreholes should be sunk to depths of 10m-15m below rock head (surface). Prior to commencing with the boreholes, permission in the form of a permit must be obtained from the Coal Authority to enter or disturb their mining interests.

Please note that open hole rotary / probing is a crude method of drilling and the primary purpose of using this technique is to determine the presence or evidence of coal workings by 'feeling' the ground. During drilling operations cuttings are brought to the surface for identification purposes and drilling rates are observed to determine changes in the strength of the ground.

A Coal Authority licence or permit will be required prior to attending site. A full water flush drilling medium will need to be strictly used to avoid the risk of spontaneous combustion and the movement of mine gases to adjacent structures / dwellings which can occur when using a compressed air / air mist drilling medium.

Re: Proposed Extension, The Newsome Centre, Jackroyd Lane, Newsome, Huddersfield HD4 6QU (Cont'd)

We trust the information contained within this coal mining risk assessment report are satisfactory and if you need any further information or clarification, please do not hesitate to contact us.

Yours sincerely,

For and on behalf of Arc Environmental Limited
Matt Bradford BSc (Hons) FGS MIEnvSc
Operations Director

Coal Authority Consultants Coal Mining Report, Reference: 51003479984001

The Coal Authority

Consultants

Coal Mining Report

The Newsome Centre
Jackroyd Lane
Newsome
Huddersfield
Kirklees
HD4 6QU

Date of enquiry:	**17 February 2025**
Date enquiry received:	**17 February 2025**
Issue date:	**17 February 2025**
Our reference:	**51003479984001**
Your reference:	**25-075**

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

ARC ENVIRONMENTAL LTD

Enquiry address

The Newsome Centre
Jackroyd Lane
Newsome
Huddersfield
Kirklees
HD4 6QU

Approximate position of property

How to contact us

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

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Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

Map data

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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	HALIFAX SOFT	Coal	606S	64	Beneath Property	2.0	East	51	1911
unnamed	HALIFAX SOFT	Coal	606T	64	South-West	2.0	East	51	1911
unnamed	HALIFAX SOFT	Coal	606U	65	North-East	2.0	East	51	1911

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

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

5598	5599	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
HARD BED BAND	Coal	Yes	19.5	North-West	43

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.

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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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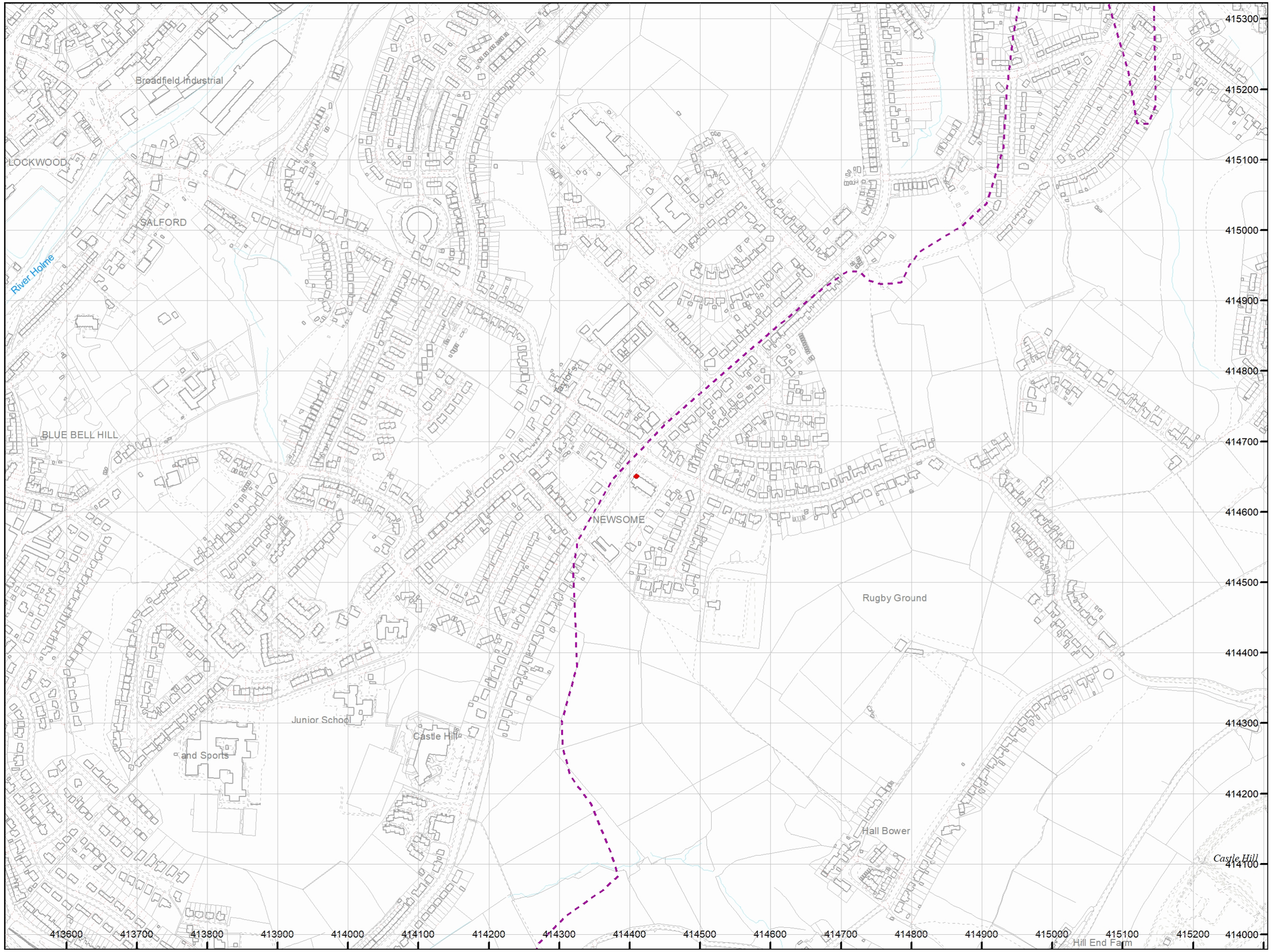
Map data

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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