GROUNDSMITHS
GEOTECHNICAL ENGINEERS

Groundsmiths (UK) Ltd
12 Spruce Close
Brampton
Chesterfield
Derbyshire
S40 3FG

26th August 2025

Ref: GUK-0825-03

By Email only

Mr J. Shaw
Whitshaw Developments Limited
Unit 4, Wordsworth Business Park
Whaley Road
Barugh Green
Barnsley
S75 1FJ

James,

LAND ADJACENT 8 CLAREL STREET, PENISTONE, S36 6AU

As you are aware, Demolition & Geotechnical Limited ('D&G') have consulted with us ('Groundsmiths') regarding the above property (the 'Site') and their recent phase of intrusive ground investigation works carried out to quantify the presence of any shallow mining legacy.

We note that it is your intention to purchase the Site for the purpose of building a detached dwellinghouse of typical construction, and that you required a mining legacy investigation to address planning condition No. 6 of the Decision Notice (dated 14th September 2023 as granted under application 2023/0498) as the findings of a Coal Mining Risk Assessment completed by The Coal Authority (Ref. 71009410851001) on the 20th April 2023 identified potential risk from potential shallow coal working beneath the Site.

On the basis of the ground data that has been provided, we herein seek to report the findings of the investigation and identify where, or if, any further mining-related works are required. Furthermore, and in support of the information provided, we also include for a general assessment of the Site's geological conditions and indicate where any other development constraints have been identified.

Groundsmiths have prepared this report (the 'Report') for the sole use of the Client ('Whitshaw Developments Limited') in accordance with the agreement under which our services are performed. No other warranty, expressed or implied, is made as to the professional advice included. Any unauthorised third parties using the information presented in this Report do so entirely at their own risk and are duly excluded from any warranty, duty of care, or skill. No part of this Report shall be reproduced or redistributed without the prior written consent of Groundsmiths. However, the Report may be issued by the Client or their Agent to the Local Planning Authority (the 'LPA') to support the discharge of the aforementioned planning condition as imposed in relation to the Site's redevelopment under the Town and Country Planning Act 1990.

DEVELOPMENT RISK ZONE

The Coal Authority (now referred to as the Mining Remediation Authority; the 'MRA') is a statutory consultee on planning applications for development within defined coal mining areas in England, Scotland, and Wales. They have specific statutory responsibilities associated with, for example, the licensing of coal mining operations, the handling of subsidence claims, providing information on coal mining legacy where they have it, and in managing the environmental legacy of coal mining activities.

The risk based approach to development management adopted by the MRA[1], with respect to planning applications, is centred around two spatial areas. These are referred to as 'Development High Risk' and 'Development Low Risk' and are defined in the following way:

- **Development High Risk (DHR)** areas cover approximately 15% of the coalfield and refer to those areas where specific recorded coal mining legacy is present or suspected which poses a risk to public safety and/or ground stability (e.g. mine entries, shallow recorded or probable workings, coal opencast sites etc), and

- **Development Low Risk (DLR)** areas cover approximately 85% of the coalfield and refer to those areas where historic coal mining activity has taken place at sufficient depth that it poses only a low risk to new development.

Based upon available information obtained from the MRA[2], Groundsmiths indicate that the Site appears to lie partly within a defined area of DHR.

GEOLOGY

A summary of the salient published geological and mining-related data for the Site is given in Table 1, below and overleaf. Reference should be made to the GroundSure report in Appendix A for a full account.

Table 1 – Geological & Mining-related Conditions

Superficial Geology	There are no records relating to superficial deposits on Site or within at least 500m.
Bedrock Geology[3]	The solid geology underlying the Site is indicated to comprise strata of the Pennine Lower Coal Measures ('PLCM'). These comprise a cyclic sequence of deposition consisting of interbedded horizons of mudstone, siltstone, and sandstone with numerous coal seams, their associated seatearths, and subordinate ironstones. Specifically, the underlying solid strata is reported to comprise undifferentiated mudstone and siltstone deposits, with these potentially being underlain by sandstone of the Penistone Flags. The general dip of the bedrock is broadly towards the north-east at a rate of between ~4.0 and 5.0°.
Bedrock Faults	The nearest recorded geological fault line is inferred to lie ~102m to the south-east.
Nearby BGS Boreholes	There are no nearby BGS borehole records that may be accurately referred to.
Artificial Deposits	GroundSure data indicates that the nearest area of made ground lies from 443m to the north-west.
Coal	BGS geological data suggests that the nearest coal crop position is located from 112m to the south. Although the local area is quite heavily faulted, this it is assumed, is related to the Lower Penistone Coal ('LPC'). Records suggest this seam has a thickness of up to 0.3m. It's position appears to be conjectured, but would be the shallowest coal to underlie the Site if present.

Table Contd./

[1] Mining Remediation Authority (2025). https://www.gov.uk/guidance/planning-applications-coal-mining-risk-assessments;
[2] Mining Remediation Authority (2025). https://www.datamine-cauk.hub.arcgis.com.
[3] British Geological Survey (2012). Glossop, England and Wales, Sheet 86. Bedrock & Superficial. 1:50,000 (Keyworth, Nottingham: British Geological Survey).

Natural Cavities	There are no records of any natural cavities within at least 500m.
Mining Cavities	There are no records of any mining cavities (e.g. crown holes) within at least 1km.
Reported Incidents (Sinkholes)	There are no reported incidents of sinkholes dating back to 2014 within at least 500m.
Historical Incidents (Sinkholes)	There are no reported incidents of sinkholes dating back to the 1840s within at least 500m.
Quarrying	The nearest recorded former quarry is indicated to be located 456m to the south.
Surface Ground Workings	An unspecified pit is recorded 199m to the east (details unknown).
Underground Workings	There are no records of underground workings within at least 1km.
Non-coal Mining	There are no records of any non-coal mining within at least 1km.
Historical Mineral Planning Areas	There are no recorded historical mineral planning areas within at least 500m.
Natural Ground Subsidence Hazards (within 50m)	There is a 'Negligible' risk rating for running sands, compressible deposits, and the ground dissolution of soluble rocks hazards. A 'Very Low' risk rating for collapsible deposits and shrink swell clay soils hazards.
Bedrock Permeability	Bedrock permeability is indicated to be low to moderate. Any groundwater movement would be via secondary porosity through fissures and other defined fractures.
Landslip	In providing a preliminary assessment of risk associated with potential landslip, consultation was made with the data presented by GroundSure at the 1:10,000 and 1:50,000 scales. Information presented in the report indicates that there are no records of mass movement deposits within 500m, whilst the hazard rating for slope instability (landslide potential) on-Site is low and within 50m, very low. The GroundSure data also indicates that there are no records of landslip permeability (i.e. the estimated rate of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposit) within 50m. However, due consideration should always be given to how adjacent land could potentially affect the development.
Brine	The Site does not lie within a brine pumping area.
Radon	Less than 1% of properties are estimated to exceed the Radon Action Level. No radon protective measures are indicated as being required in construction. This should be confirmed with Building Control, however, as they may have different requirements.

INTRUSIVE GROUND INVESTIGATION

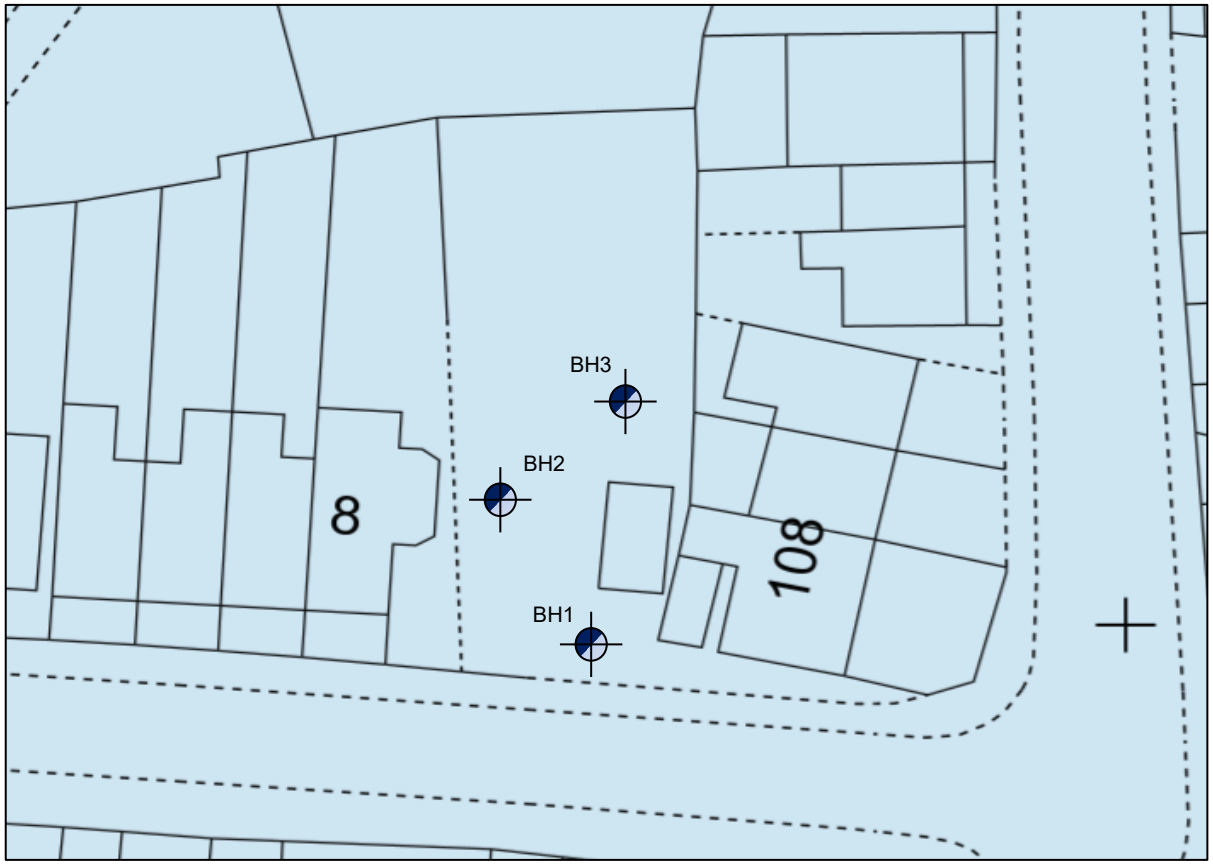
Appointment and Fieldwork

Intrusive ground investigation works were completed by D&G on the 11th August 2025 at the request of the Client. Groundsmiths were not involved with the contractual arrangements of the commission or the undertaking of the works. As with any mining-related investigation, the overall objective of the study was to

investigate the extent to which the Site may be affected by any shallow coal mining legacy, in addition to providing information about the general character of the bedrock soils and any groundwater as encountered.

Site works completed by D&G comprised 3 No. rotary openhole boreholes at the positions shown below, with these being completed to investigate the depth to, condition, and thickness of any shallow underground coal within and around the position of the proposed dwelling; the remaining area is garden curtilage.

Figure 1 – Investigation Positions



A copy of the investigation records as recorded by D&G are presented in Appendix B. The individual strata depths recorded on the logs are those from existing ground level (although no topographical data has been supplied by the Client at this time). A summary of the fieldwork completed is given in Table 2, below.

Table 2 - Ground Investigation Programme

Element of Work	Date Completed	Investigation Position	No. of Positions	Terminal Depth (m bgl)
Rotary Openhole Boring	11th August 2025	BH1 – BH3	3	30.0

Proven Ground Conditions

On the basis of information provided by D&G it may be reported that the ground conditions recorded in each of the three boreholes were consistent in all instances, notably because the footprint to the Site area is very small and the spatial distance between positions was therefore constrained.

Two separate seams of coal were recorded in each borehole, with these being at 5.5m bgl (0.3m thickness) and at 17.5m bgl (0.5m). The coals were in bedrock soils consistent with the BGS mapping, with this being mudstone with interbedded horizons of sandstone. There was no indication of working or other such mining-induced

weakness or disturbance in any of the boreholes, and no loss of flush was recorded to either of the terminal depths.

MITIGATION & DECLARATION

The objective of the recent investigation was to confirm the status of the mining legacy conditions underlying the Site located adjacent to 8 Clarel Street, Penistone.

Research into the general geological setting and mining history of the Site's environs, coupled with the review of site-specific drilling data, has allowed for a fair assessment of the risks posed to the development to be made. Although it is not possible to investigate a development site in its entirety, the results presented herein are based on those works that could be reasonably achieved with the resources devoted to it by the Client.

In light of the results of the investigation, which recorded only intact coal, it is considered that no further works, assessment, or mitigation (remediation) is required. Furthermore, it is apparent, on the basis of the GroundSure data, that there are no other external factors that could affect the Site's redevelopment. It should be noted, however, that the investigation data provided herein does not relate to that required to facilitate construction (i.e. to assist with specific foundation design work, concrete selection for substructure etc), so such works should be completed as required. That said, the completion of general ground investigation works to assist with the construction of the proposed dwelling would not influence the mining legacy investigation or its outcome in any way, so it is considered on this basis that the Site may be determined as being safe and stable from mining legacy in accordance with the National Planning Policy Framework[4], namely paragraphs 196(a), 196(c), and 197 (*Ground Conditions and Pollution*) which state (in relation to mining legacy, anyway) that planning policies and decisions should ensure that:

> **Para.196 (a)** a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);
>
> **Para.196 (c)** adequate site investigation, prepared by a competent person, is available to inform these assessments, and
>
> **Para.197:** Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

We trust that the above is acceptable at this time. If you require any further assistance, however, please do not hesitate to contact us.

Kindest regards,

Andrew Spooner BSc (Hons) MPhil MIEnvSc FGS
Director

For and on behalf of Groundsmiths (UK) Ltd

[4] Ministry of Housing, Communities & Local Government (2024; amended 7th February 2025). National Planning Policy Framework. https://www.gov.uk/government/publications/national-planning-policy-framework--2, 12th December.

APPENDIX A

GROUNDSURE GEOINSIGHT REPORT

Groundsure LOCATION INTELLIGENCE

Geo Insight

Land adjacent 8 Clarel Street, Penistone

Order Details

Date: 26/08/2025

Your ref: EMS_1045716_1307898

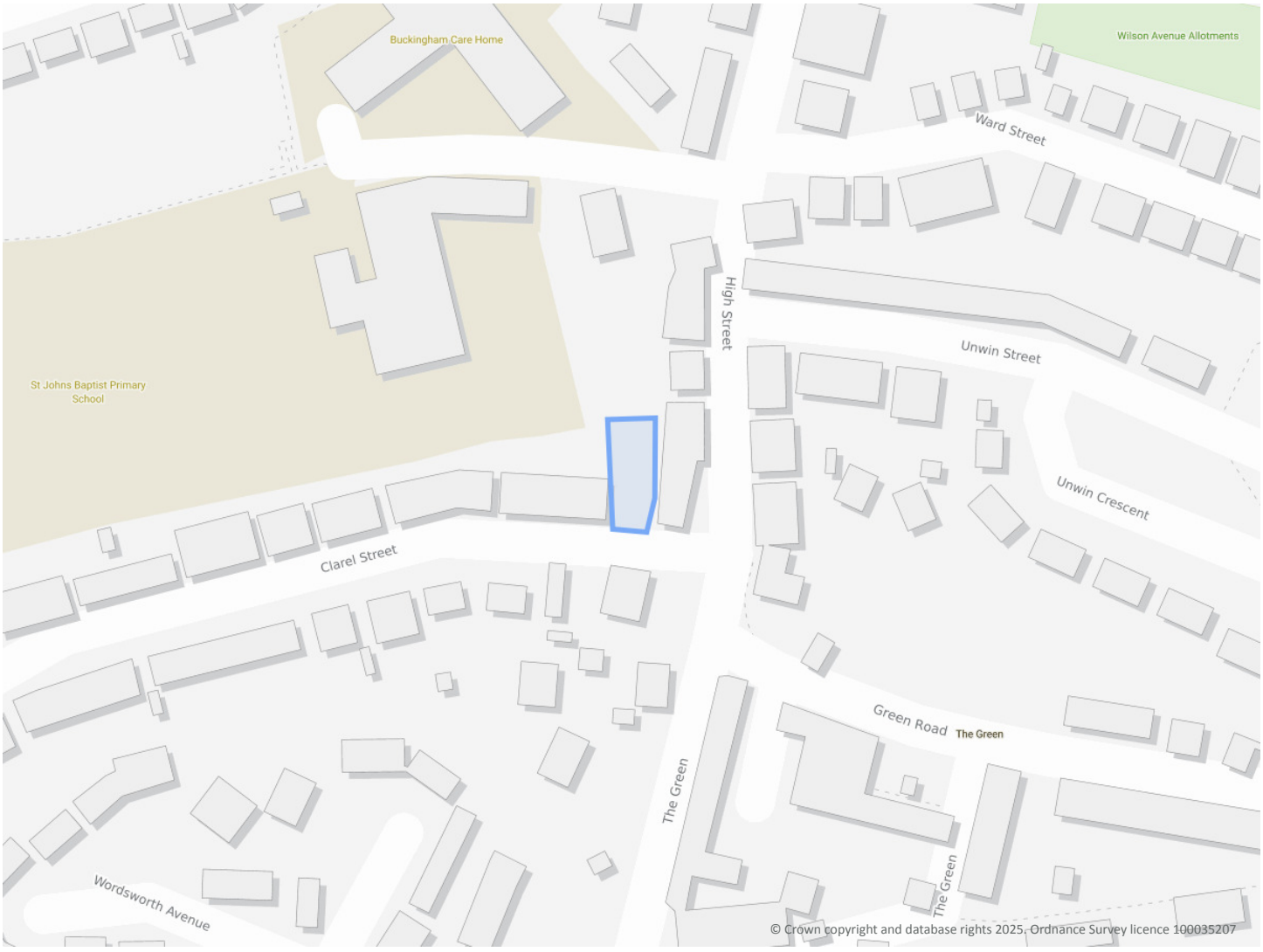
Our Ref: EMS-1045716_1318937

Site Details

Location: 424514 402882

Area: 0.05 ha

Authority: Barnsley Metropolitan Borough Council ↗



Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
11 >	1.1 >	10k Availability >	Identified (within 500m)				
12 >	1.2 >	Artificial and made ground (10k) >	0	0	0	1	-
13	1.3	Superficial geology (10k)	0	0	0	0	-
13	1.4	Landslip (10k)	0	0	0	0	-
14 >	1.5 >	Bedrock geology (10k) >	1	2	8	17	-
16 >	1.6 >	Bedrock faults and other linear features (10k) >	0	0	4	6	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
17 >	2.1 >	50k Availability >	Identified (within 500m)				
18	2.2	Artificial and made ground (50k)	0	0	0	0	-
18	2.3	Artificial ground permeability (50k)	0	0	-	-	-
19	2.4	Superficial geology (50k)	0	0	0	0	-
19	2.5	Superficial permeability (50k)	None (within 50m)				
19	2.6	Landslip (50k)	0	0	0	0	-
19	2.7	Landslip permeability (50k)	None (within 50m)				
20 >	2.8 >	Bedrock geology (50k) >	1	2	8	12	-
22 >	2.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
22 >	2.10 >	Bedrock faults and other linear features (50k) >	0	0	4	6	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
23 >	3.1 >	BGS Boreholes >	0	0	4	-	-
Page	Section	Natural ground subsidence >					
25 >	4.1 >	Shrink swell clays >	Very low (within 50m)				
26 >	4.2 >	Running sands >	Negligible (within 50m)				
27 >	4.3 >	Compressible deposits >	Negligible (within 50m)				
28 >	4.4 >	Collapsible deposits >	Very low (within 50m)				
29 >	4.5 >	Landslides >	Low (within 50m)				
31 >	4.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				

Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
33 >	5.1 >	BritPits >	0	0	0	1	-
34 >	5.2 >	Surface ground workings >	0	0	1	-	-
34	5.3	Underground workings	0	0	0	0	0
34	5.4	Underground mining extents	0	0	0	0	-
35	5.5	Historical Mineral Planning Areas	0	0	0	0	-
35	5.6	Non-coal mining	0	0	0	0	0
35	5.7	JPB mining areas	None (within 0m)				
35	5.8	The Coal Authority non-coal mining	0	0	0	0	-
36	5.9	Researched mining	0	0	0	0	-
36	5.10	Mining record office plans	0	0	0	0	-
36	5.11	BGS mine plans	0	0	0	0	-
36 >	5.12 >	Coal mining >	Identified (within 0m)				
37	5.13	Brine areas	None (within 0m)				
37	5.14	Gypsum areas	None (within 0m)				
37	5.15	Tin mining	None (within 0m)				
37	5.16	Clay mining	None (within 0m)				

Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
38	6.1	Natural cavities	0	0	0	0	-
38	6.2	Mining cavities	0	0	0	0	0
38	6.3	Reported recent incidents	0	0	0	0	-
38	6.4	Historical incidents	0	0	0	0	-

Page	Section	Radon >	
40 >	7.1 >	Radon >	Less than 1% (within 0m)

Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
42 >	8.1 >	BGS Estimated Background Soil Chemistry >	2	2	-	-	-
42	8.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
43	8.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m

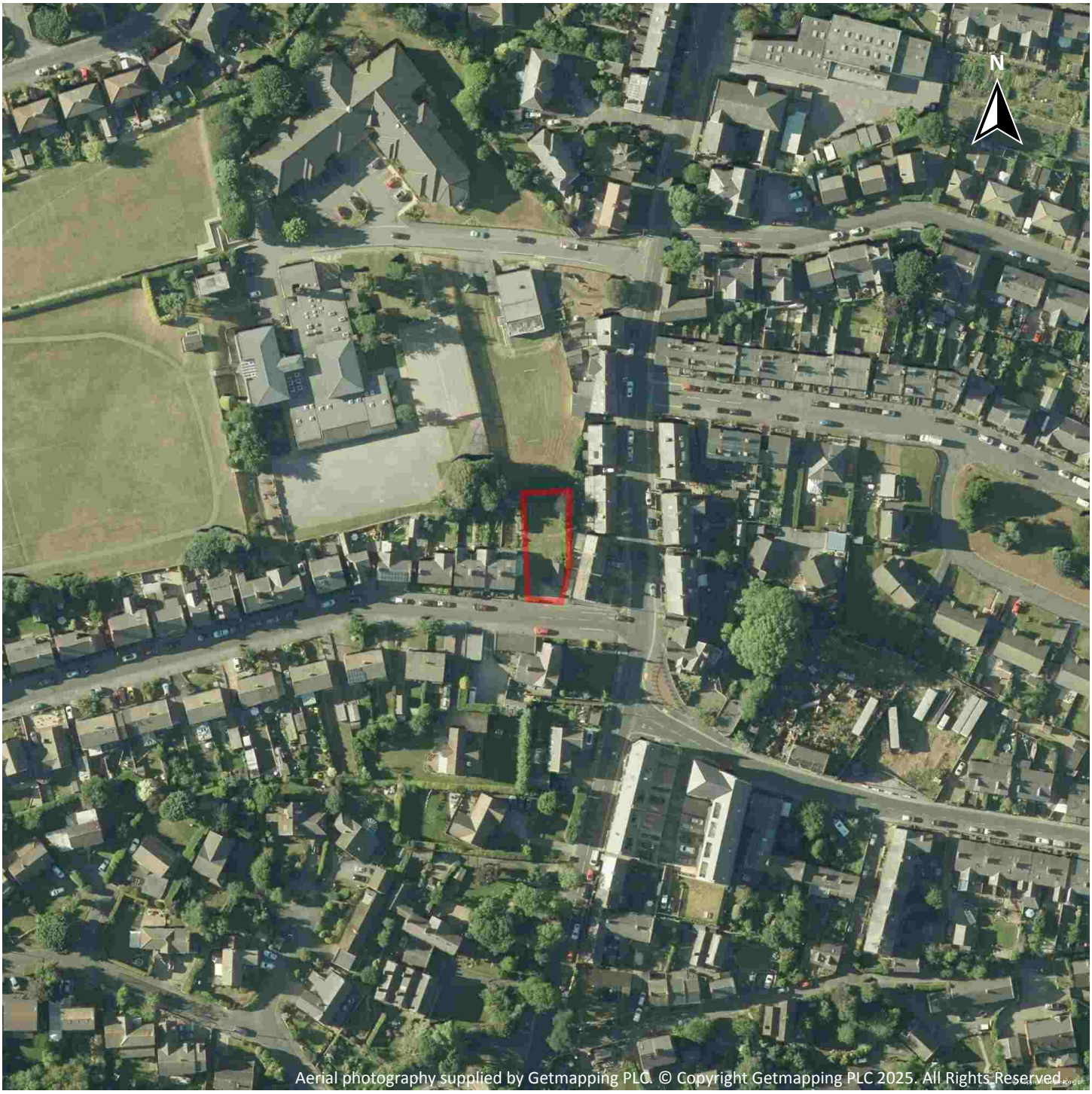
44	9.1	Underground railways (London)	0	0	0	-	-
44	9.2	Underground railways (Non-London)	0	0	0	-	-
44	9.3	Railway tunnels	0	0	0	-	-
44	9.4	Historical railway and tunnel features	0	0	0	-	-
44	9.5	Royal Mail tunnels	0	0	0	-	-
45	9.6	Historical railways	0	0	0	-	-
45	9.7	Railways	0	0	0	-	-
45	9.8	Crossrail 2	0	0	0	0	-
45	9.9	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 30/05/2021

Site Area: 0.05ha

Recent site history - 2018 aerial photograph



Capture Date: 27/06/2018

Site Area: 0.05ha

Recent site history - 2012 aerial photograph

Capture Date: 28/05/2012

Site Area: 0.05ha

Recent site history - 2009 aerial photograph

Capture Date: 11/09/2009

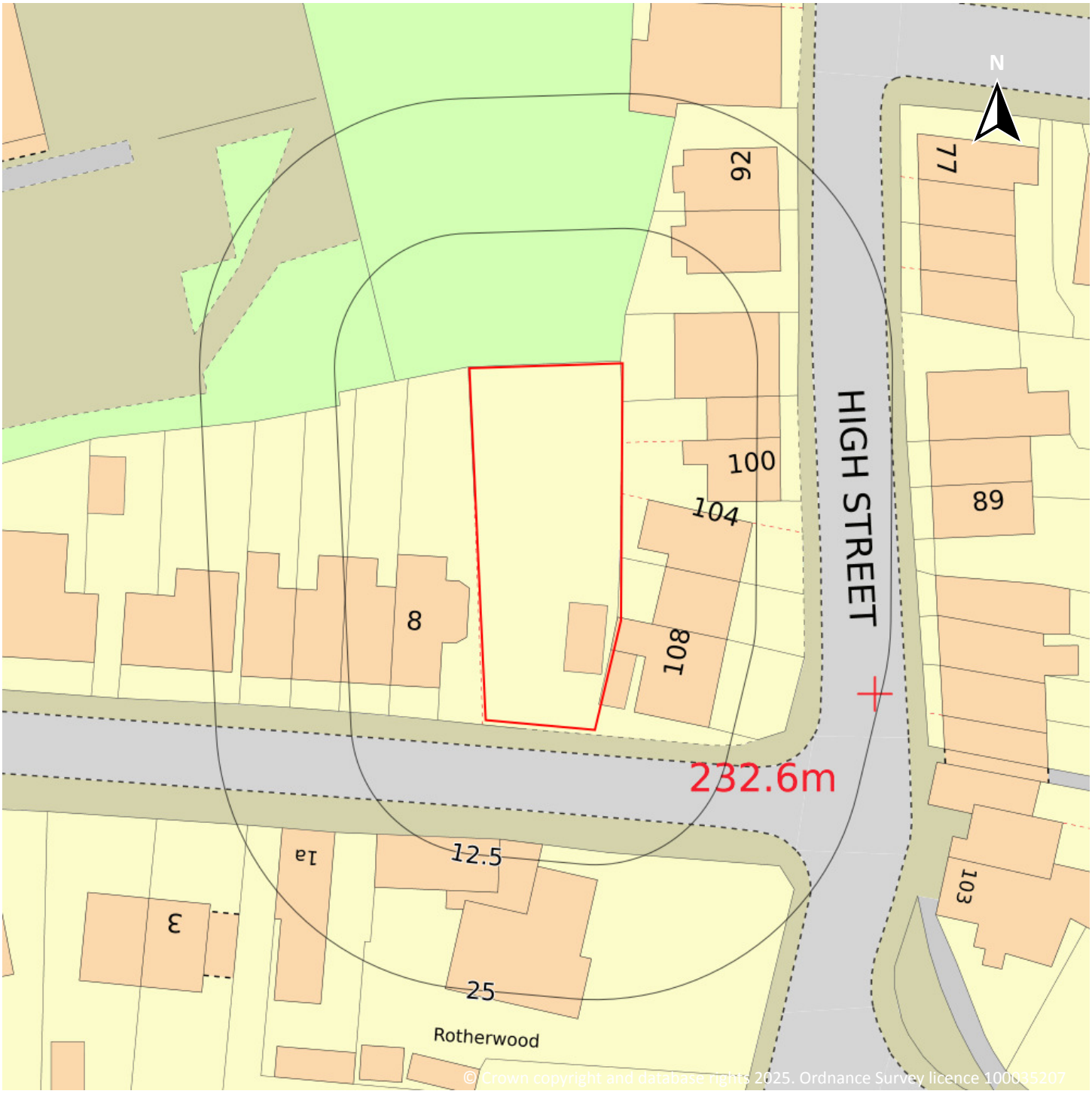
Site Area: 0.05ha

Recent site history - 1999 aerial photograph

Capture Date: 10/07/1999

Site Area: 0.05ha

OS MasterMap site plan



Site Area: 0.05ha

1 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

1.1 10k Availability

Records within 500m	2

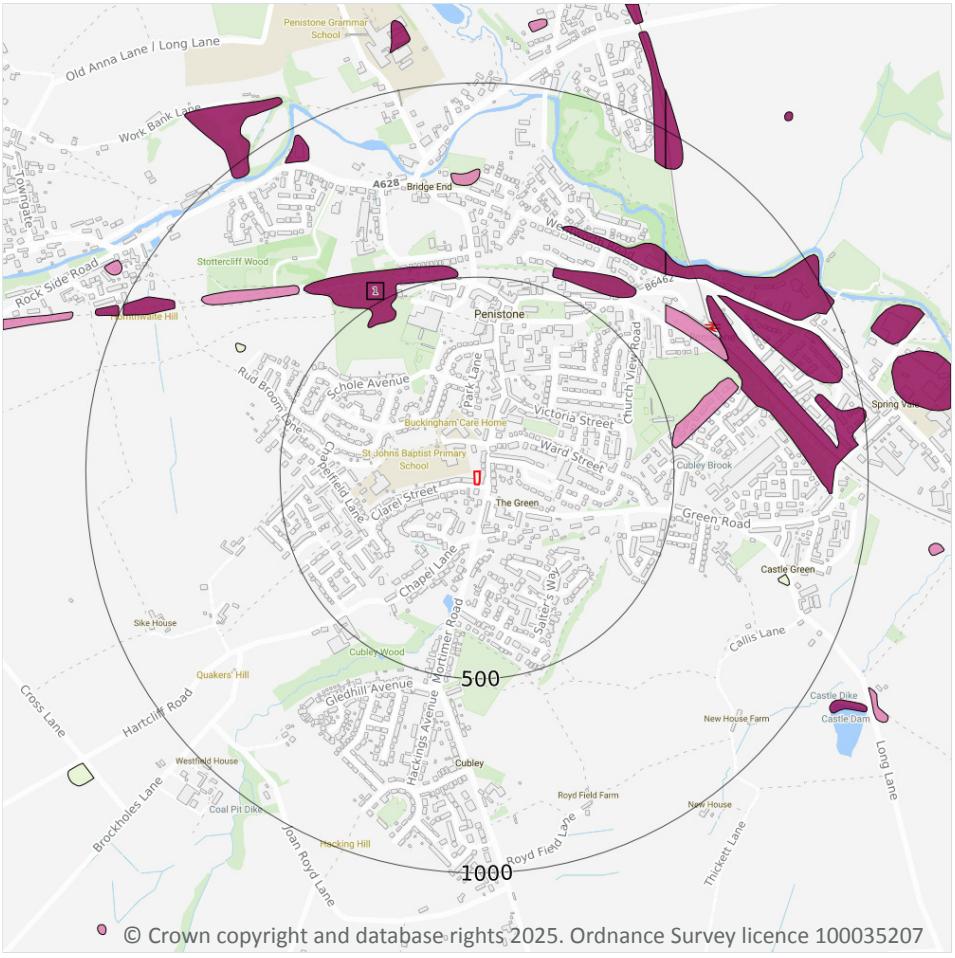
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 11 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SE20SW**
2	479m E	Full	Full	Full	Full	SE20SE

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

1.2 Artificial and made ground (10k)

Records within 500m	1

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 12 >**

ID	Location	LEX Code	Description	Rock description
1	443m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

1.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

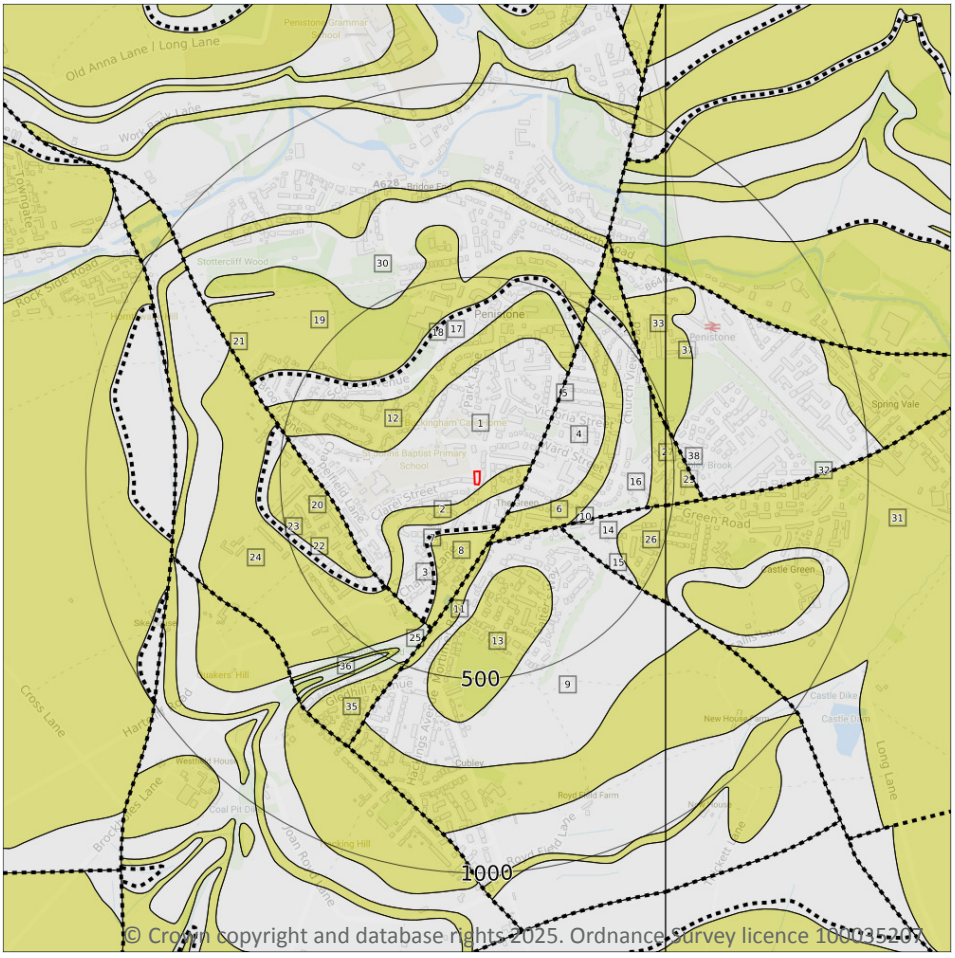
1.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

1.5 Bedrock geology (10k)

Records within 500m **28**

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 14 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLCM-MDSI**	**Pennine Lower Coal Measures Formation - Mudstone And Siltstone**	**Langsettian Sub-age**
2	9m SE	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
3	44m SE	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
4	102m SE	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
6	105m SE	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
8	122m S	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
9	154m S	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
11	154m S	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
12	193m NW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
13	229m S	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
14	234m SE	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
16	251m SE	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
17	264m NW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
19	330m NW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
20	343m SW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
22	347m SW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
24	349m SW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
25	380m S	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
26	381m E	GR-SDST	Grenoside Sandstone - Sandstone	Langsettian Sub-age
27	433m E	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
28	466m SW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
29	479m E	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
30	482m NW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
31	483m E	GR-SDST	Grenoside Sandstone - Sandstone	Langsettian Sub-age
33	485m E	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
35	488m S	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
36	488m SW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
37	493m E	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

1.6 Bedrock faults and other linear features (10k)

Records within 500m	**10**

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 14 >**

ID	Location	Category	Description
5	102m SE	FAULT	Normal fault, inferred; crossmarks on downthrow side
7	112m S	ROCK	Coal seam, inferred ()
10	154m S	FAULT	Normal fault, inferred; crossmarks on downthrow side
15	234m SE	FAULT	Normal fault, inferred; crossmarks on downthrow side
18	321m NW	ROCK	Coal seam, inferred ()
21	343m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
23	348m SW	ROCK	Coal seam, inferred ()
32	483m E	FAULT	Normal fault, inferred
34	485m E	FAULT	Normal fault, inferred; crossmarks on downthrow side
38	493m E	FAULT	Normal fault, inferred

This data is sourced from the British Geological Survey.

2 Geology 1:50,000 scale - Availability

Site Outline

Search buffers in metres (m)

Geological map tile

2.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 17 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW086_glossop_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

2.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

2.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

2.4 Superficial geology (50k)

Records within 500m	0

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

2.5 Superficial permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

2.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

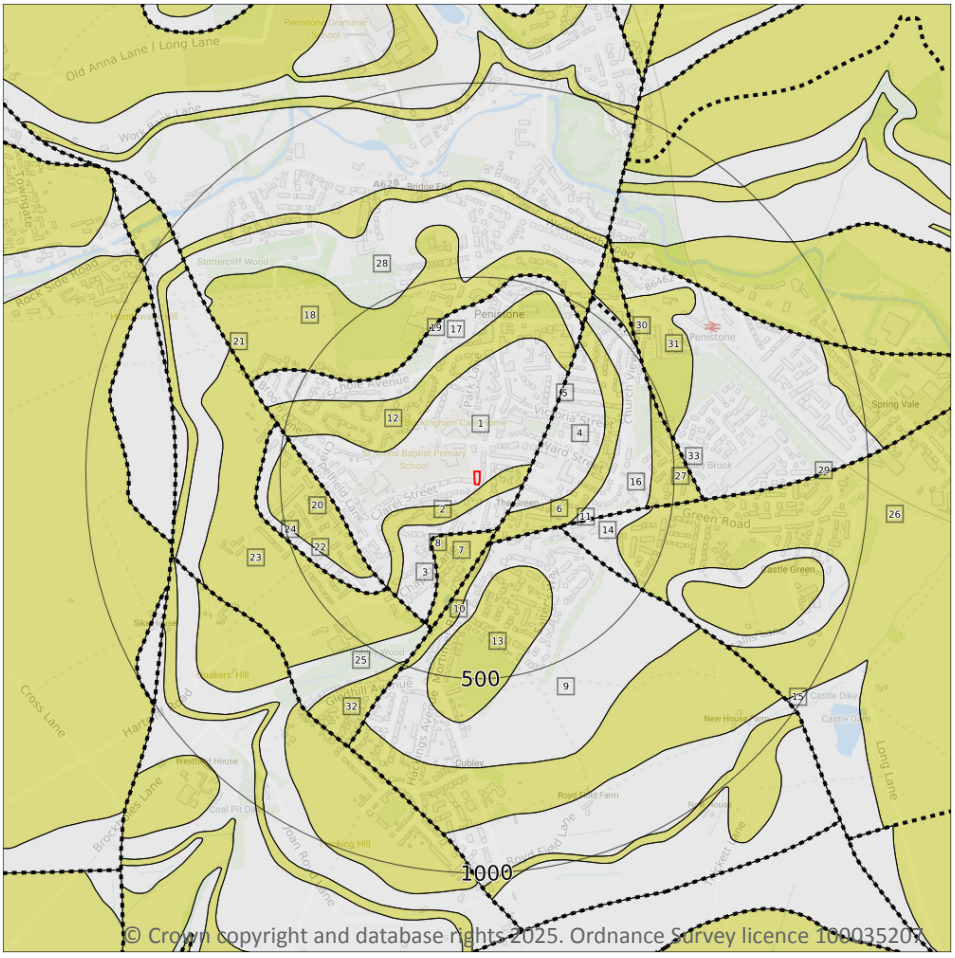
2.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

2.8 Bedrock geology (50k)

Records within 500m **23**

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 20 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLCM-MDSI**	**PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE**	**WESTPHALIAN**
2	9m SE	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
3	44m SE	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
4	102m SE	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
6	105m SE	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
7	121m S	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
9	154m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10	154m S	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
12	193m NW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
13	229m S	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
14	234m SE	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
16	250m SE	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
17	264m NW	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
18	330m NW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
20	343m SW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
22	346m SW	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
23	348m SW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
25	379m S	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
26	381m E	GR-SDST	GRENOSIDE SANDSTONE - SANDSTONE	WESTPHALIAN
27	433m E	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
28	481m NW	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
31	485m E	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
32	487m S	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

2.9 Bedrock permeability (50k)

Records within 50m	2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**
8m SE	Fracture	High	Moderate

This data is sourced from the British Geological Survey.

2.10 Bedrock faults and other linear features (50k)

Records within 500m	10

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 20 >**

ID	Location	Category	Description
5	102m SE	FAULT	Fault, inferred
8	121m S	ROCK	Coal seam, inferred
11	154m S	FAULT	Fault, inferred
15	234m SE	FAULT	Fault, inferred
19	330m NW	ROCK	Coal seam, inferred
21	343m SW	FAULT	Fault, inferred
24	348m SW	ROCK	Coal seam, inferred
29	483m E	FAULT	Fault, inferred
30	485m E	FAULT	Fault, inferred
33	493m E	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

3 Boreholes

Site Outline

Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

3.1 BGS Boreholes

Records within 250m	4

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

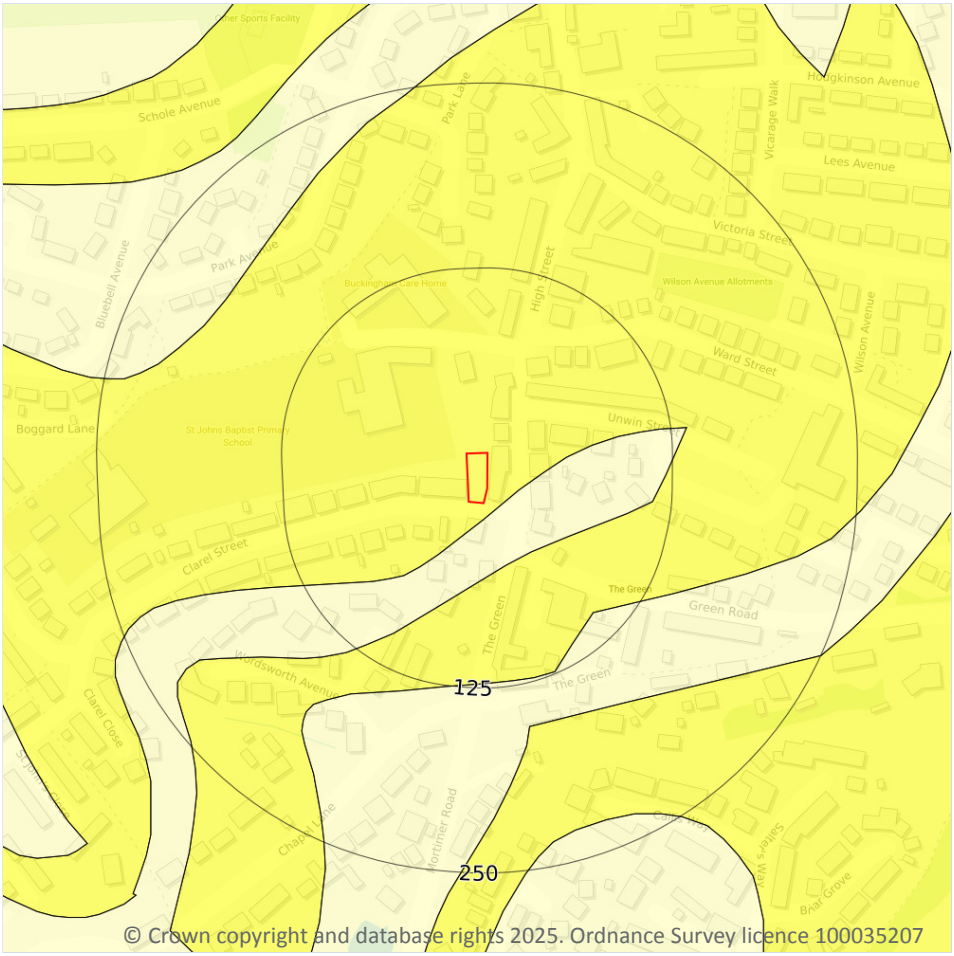
Features are displayed on the Boreholes map on **page 23 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	208m W	424300 402890	PENISTONE ST JOHNS SCH 6	2.74	N	56411 ↗
2	219m W	424290 402860	PENISTONE ST JOHNS SCH 5	2.74	N	56410 ↗
3	248m W	424260 402890	PENISTONE ST JOHNS SCH 2	3.05	N	56407 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	249m W	424260 402860	PENISTONE ST JOHNS SCH 3	2.74	N	56408 ↗

This data is sourced from the British Geological Survey.

4 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.1 Shrink swell clays

Records within 50m	2

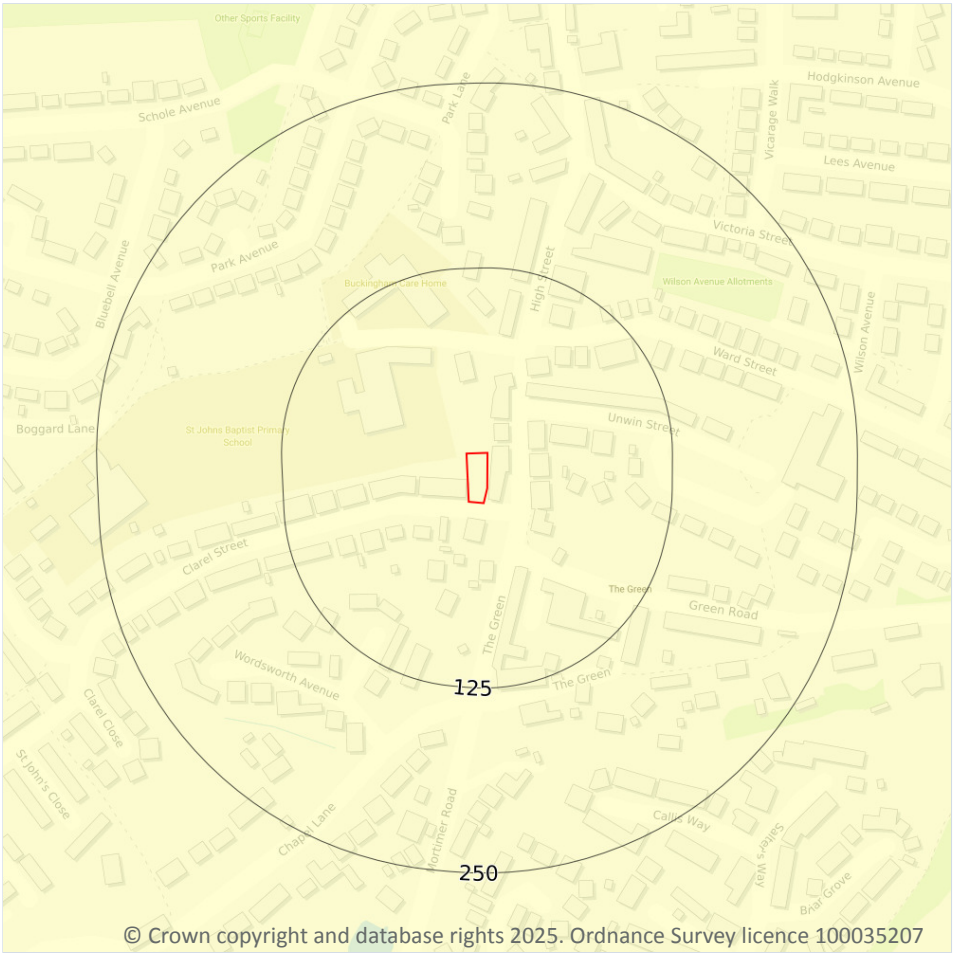
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 25 >**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**
9m SE	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.2 Running sands

Records within 50m	1

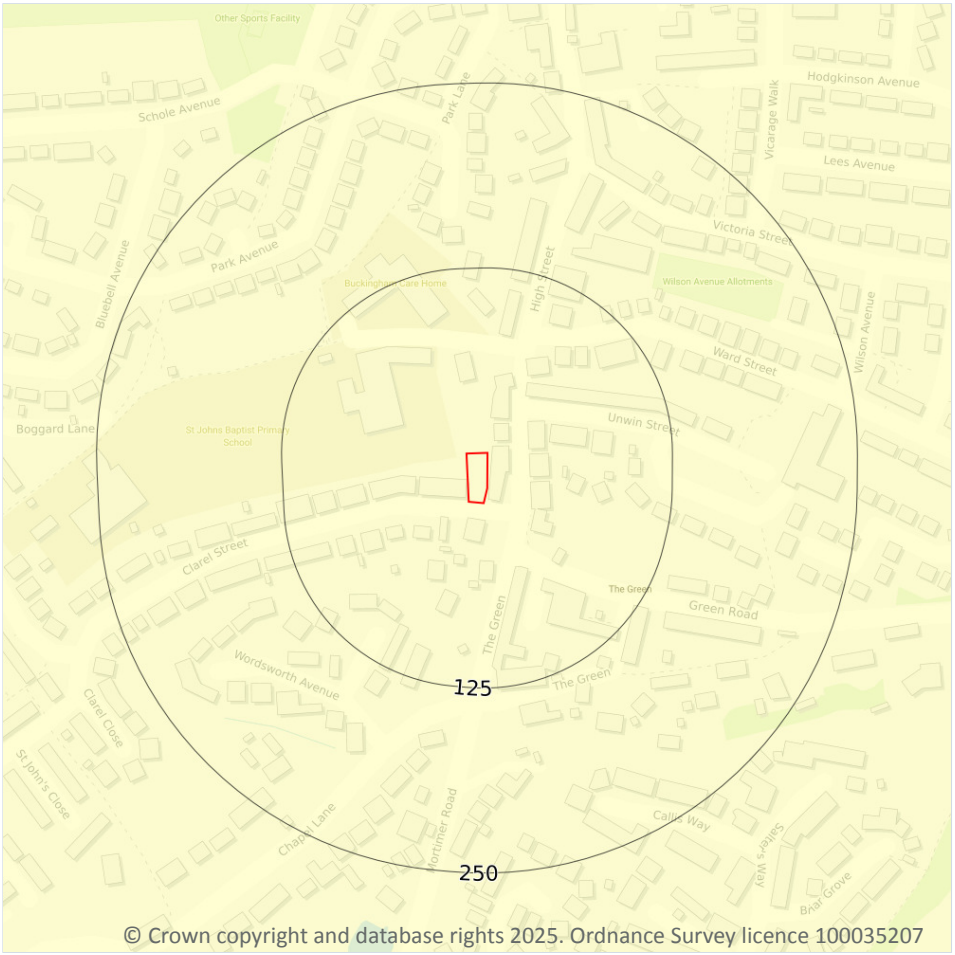
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 26 >**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.3 Compressible deposits

Records within 50m	1

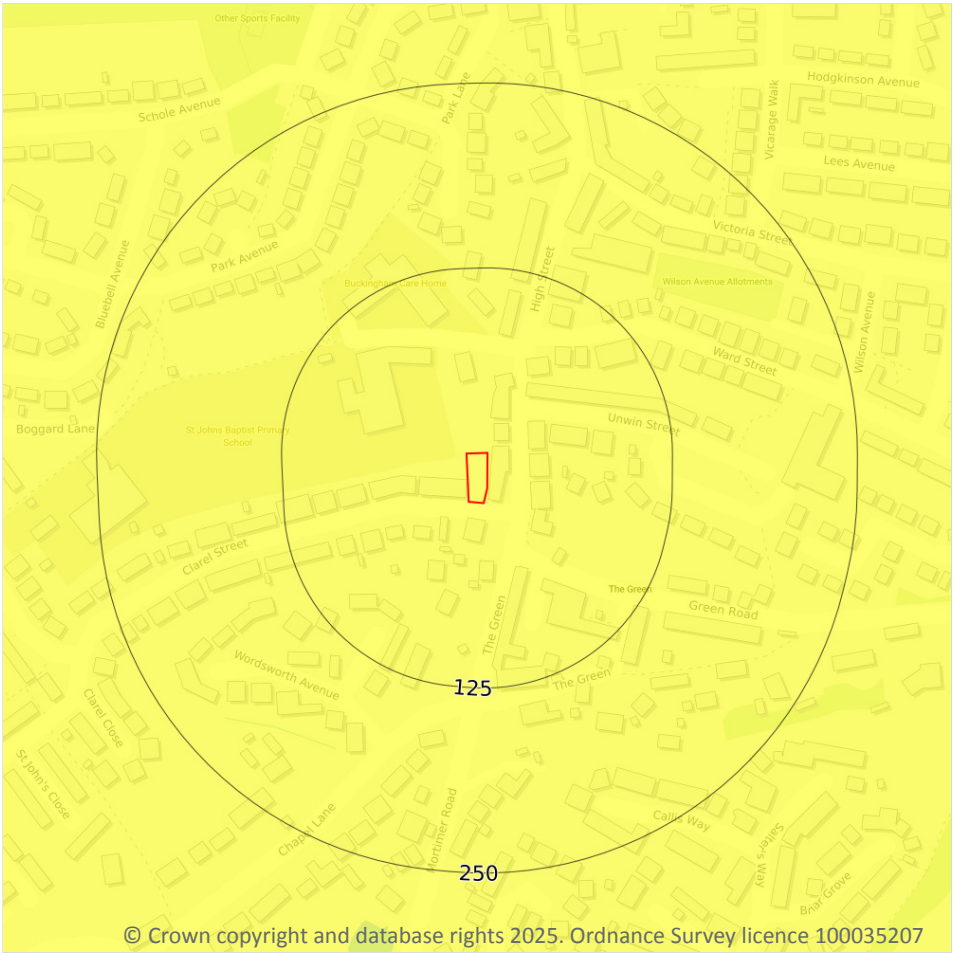
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 27 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



4.4 Collapsible deposits

Records within 50m	1

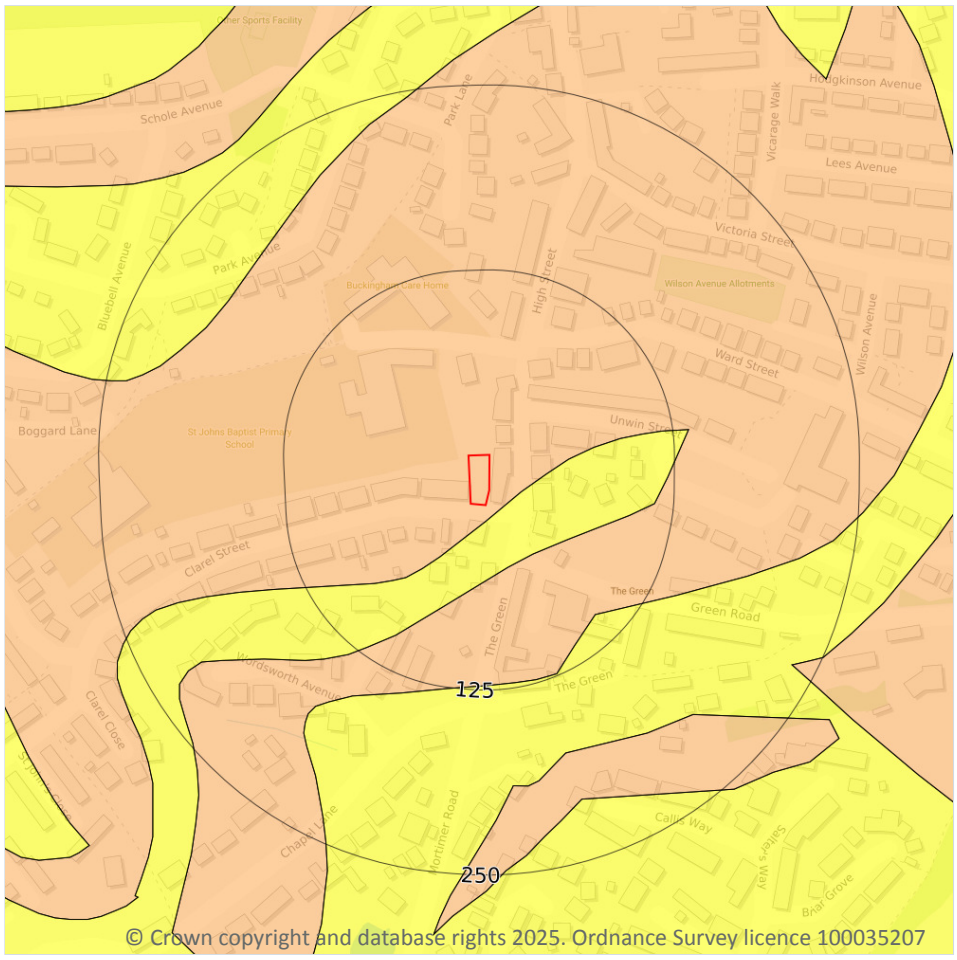
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 28 >**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.5 Landslides

Records within 50m	2

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

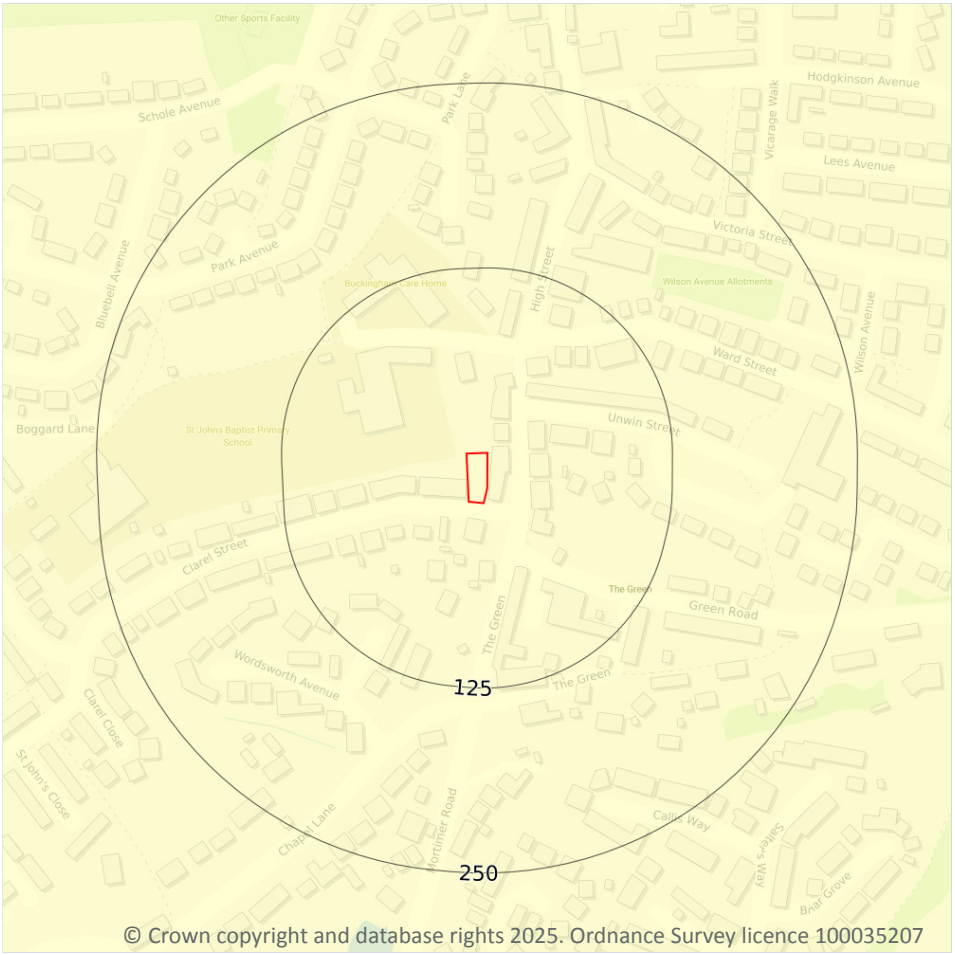
Features are displayed on the Natural ground subsidence - Landslides map on **page 29 >**

Location	Hazard rating	Details
On site	**Low**	**Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.**

Location	Hazard rating	Details
9m SE	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.6 Ground dissolution of soluble rocks

Records within 50m	1

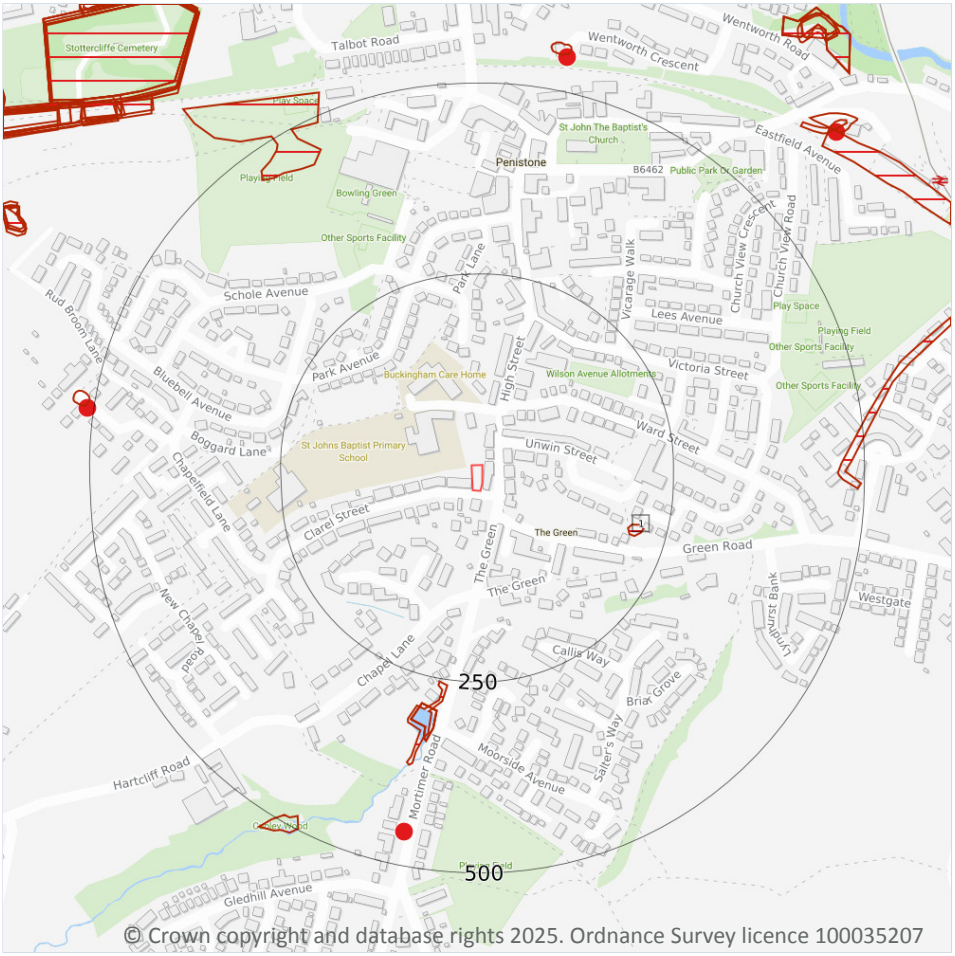
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 31 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

5 Mining and ground workings



Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

5.1 BritPits

Records within 500m	1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on **page 33 >**

ID	Location	Details	Description
3	456m S	Name: Cubley Address: Cubley, PENISTONE, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

This data is sourced from the British Geological Survey.

5.2 Surface ground workings

Records within 250m	**1**

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 33 >**

ID	Location	Land Use	Year of mapping	Mapping scale
1	199m E	Unspecified Pit	1891	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

5.3 Underground workings

Records within 1000m	**0**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

5.4 Underground mining extents

Records within 500m	**0**

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

5.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

5.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

5.7 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

5.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

5.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

5.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

5.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

5.12 Coal mining

Records on site	1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

5.13 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

5.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

5.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

5.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

6 Ground cavities and sinkholes

6.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

6.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

6.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

6.4 Historical incidents

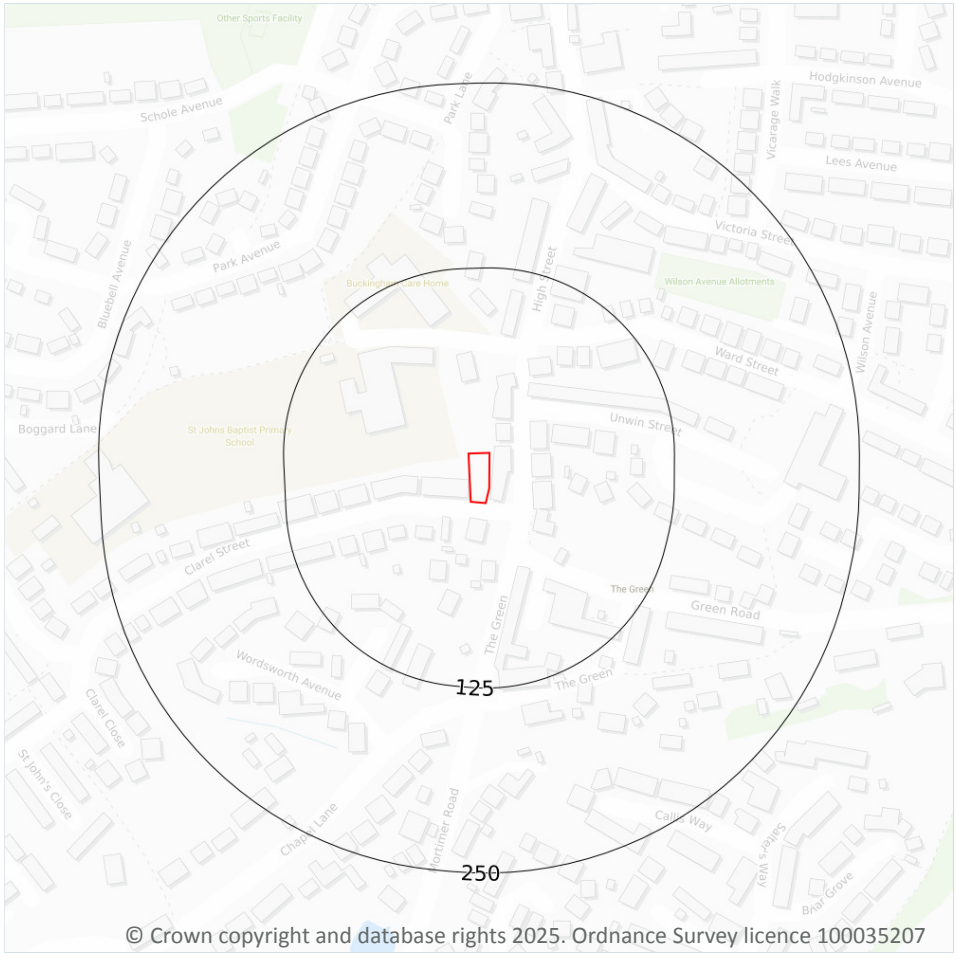
Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

7 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

7.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 40 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

8 Soil chemistry

8.1 BGS Estimated Background Soil Chemistry

Records within 50m	4

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
7m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
11m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

8.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

8.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

9 Railway infrastructure and projects

9.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

9.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

9.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

9.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

9.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

9.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

9.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

9.8 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

9.9 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.

APPENDIX B

GROUND INVESTIGATION RECORDS

GROUNDSMITHS
GEOTECHNICAL ENGINEERS

ROTARY OPENHOLE BOREHOLE RECORD

BH1

Sheet 1 of 1

Project: Residential Development	**Project No:** GUK-0825-03	**Approx. Coordinates:** -	
Location: Land adjacent 8 Clarel Street, Penistone		**Approx. Level:** - mAOD	**Plant** SM15
Client: Whitshaw Developments Limited		**Date:** 11/08/2025	**Logged By** D&G

Well	Water (m bgl)		Samples & Field Testing: Depth (m)	Type	SPT (N)	Thickness (m)	Depth (m bgl)	Level (mAOD)	Stratum Description
							0.0-2.0		Clay / Fill.
							2.0-5.5		MUDSTONE / SANDSTONE (COAL MEASURES).
		5					5.5-5.8		COAL (COAL MEASURES)
							5.8-17.5		MUDSTONE / SANDSTONE (COAL MEASURES).
		10							
		15							
							17.5-18.0		COAL (COAL MEASURES)
							18.0-30.0		MUDSTONE / SANDSTONE (COAL MEASURES).
		20							
		25							
		30							Borehole complete at 30.0m bgl

Boring Progress and Water Observations

Date	Water Depth	Casing Depth	Casing Dia. mm		Chiselling From	Chiselling To	Chiselling Hours
11/08/2025	none	-	-				

General Remarks

Driller's descriptions only
Two coal seams encountered
No workings encountered
100% water flush returns

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ROTARY OPENHOLE BOREHOLE RECORD

BH2

Sheet 1 of 1

Project: Residential Development	**Project No:** GUK-0825-03	**Approx. Coordinates:** -	
Location: Land adjacent 8 Clarel Street, Penistone		**Approx. Level:** - mAOD	**Plant** SM15
Client: Whitshaw Developments Limited		**Date:** 11/08/2025	**Logged By** D&G

Well	Water (m bgl)		Samples & Field Testing: Depth (m)	Type	SPT (N)	Thickness (m)	Depth (m bgl)	Level (mAOD)	Stratum Description
							0.0-2.0		Clay / Fill.
							2.0-5.5		MUDSTONE / SANDSTONE (COAL MEASURES).
		5					5.5-5.8		COAL (COAL MEASURES)
							5.8-17.5		MUDSTONE / SANDSTONE (COAL MEASURES).
		10							
		15							
							17.5-18.0		COAL (COAL MEASURES)
							18.0-21.0		MUDSTONE / SANDSTONE (COAL MEASURES).
		20							
									Borehole complete at 21.0m bgl
		25							
		30							

Boring Progress and Water Observations

Date	Water Depth	Casing Depth	Casing Dia. mm		Chiselling From	Chiselling To	Chiselling Hours
11/08/2025	none	-	-				

General Remarks

Driller's descriptions only
Two coal seams encountered
No workings encountered
100% water flush returns

GROUNDSMITHS
GEOTECHNICAL ENGINEERS

ROTARY OPENHOLE BOREHOLE RECORD

BH3

Sheet 1 of 1

Project: Residential Development	**Project No:** GUK-0825-03	**Approx. Coordinates:** -	
Location: Land adjacent 8 Clarel Street, Penistone		**Approx. Level:** - mAOD	**Plant** SM15
Client: Whitshaw Developments Limited		**Date:** 11/08/2025	**Logged By** D&G

Well	Water (m bgl)		Samples & Field Testing: Depth (m)	Type	SPT (N)	Thickness (m)	Depth (m bgl)	Level (mAOD)	Stratum Description
							0.0-2.0		Clay / Fill.
							2.0-5.5		MUDSTONE / SANDSTONE (COAL MEASURES).
		5					5.5-5.8		COAL (COAL MEASURES)
							5.8-17.5		MUDSTONE / SANDSTONE (COAL MEASURES).
		10							
		15							
							17.5-18.0		COAL (COAL MEASURES)
							18.0-21.0		MUDSTONE / SANDSTONE (COAL MEASURES).
		20							
									Borehole complete at 21.0m bgl
		25							
		30							

Boring Progress and Water Observations

Date	Water Depth	Casing Depth	Casing Dia. mm		Chiselling From	Chiselling To	Chiselling Hours
11/08/2025	none	-	-				

General Remarks

Driller's descriptions only
Two coal seams encountered
No workings encountered
100% water flush returns

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GEOTECHNICAL ENGINEERS