

ID	Location	Name	Woodland Type
53	1323m NW	Unknown	Restored Ancient Woodland Site
L	1326m NW	Unknown	Plantation on Ancient Woodland Site
K	1344m W	Unknown	Restored Ancient Woodland Site
54	1353m W	Unknown	Plantation on Ancient Woodland Site
55	1353m NE	Unknown	Ancient Semi Natural Woodland
M	1385m N	Unknown	Restored Ancient Woodland Site
M	1387m N	Unknown	Restored Ancient Woodland Site
56	1388m NW	Unknown	Ancient Semi Natural Woodland
-	1397m W	Unknown	Plantation on Ancient Woodland Site
57	1404m N	Unknown	Ancient Semi Natural Woodland
58	1417m W	Unknown	Ancient Semi Natural Woodland
N	1422m SW	Unknown	Ancient Semi Natural Woodland
59	1432m N	Unknown	Ancient Semi Natural Woodland
-	1450m W	Unknown	Ancient Woodland Site of Unknown Category
-	1453m W	Unknown	Restored Ancient Woodland Site
O	1455m S	Unknown	Plantation on Ancient Woodland Site
O	1481m SW	Unknown	Plantation on Ancient Woodland Site
L	1482m NW	Unknown	Ancient Semi Natural Woodland
60	1497m SW	Unknown	Plantation on Ancient Woodland Site
O	1497m SW	Unknown	Plantation on Ancient Woodland Site
P	1501m N	Unknown	Ancient Semi Natural Woodland
-	1518m W	Unknown	Restored Ancient Woodland Site
61	1529m W	Unknown	Plantation on Ancient Woodland Site
62	1545m NW	Unknown	Plantation on Ancient Woodland Site
-	1549m W	Unknown	Restored Ancient Woodland Site
-	1565m S	Unknown	Plantation on Ancient Woodland Site
N	1566m SW	Unknown	Restored Ancient Woodland Site
-	1568m W	Unknown	Ancient Semi Natural Woodland



ID	Location	Name	Woodland Type
-	1577m N	Unknown	Plantation on Ancient Woodland Site
-	1585m W	Unknown	Restored Ancient Woodland Site
-	1590m W	Unknown	Ancient Semi Natural Woodland
-	1590m W	Unknown	Restored Ancient Woodland Site
-	1610m SW	Unknown	Plantation on Ancient Woodland Site
-	1612m W	Unknown	Plantation on Ancient Woodland Site
-	1624m NE	Unknown	Ancient Semi Natural Woodland
T	1634m NW	Unknown	Restored Ancient Woodland Site
-	1664m N	Unknown	Ancient Semi Natural Woodland
-	1666m N	Unknown	Ancient Semi Natural Woodland
-	1670m S	Unknown	Plantation on Ancient Woodland Site
-	1672m W	Unknown	Restored Ancient Woodland Site
70	1683m NW	Unknown	Ancient Semi Natural Woodland
-	1687m NW	Unknown	Ancient Semi Natural Woodland
-	1692m W	Unknown	Ancient Semi Natural Woodland
-	1705m W	Unknown	Restored Ancient Woodland Site
-	1726m SW	Unknown	Restored Ancient Woodland Site
T	1727m NW	Unknown	Restored Ancient Woodland Site
-	1735m W	Unknown	Restored Ancient Woodland Site
-	1742m W	Unknown	Restored Ancient Woodland Site
-	1752m N	Unknown	Plantation on Ancient Woodland Site
-	1761m W	Unknown	Plantation on Ancient Woodland Site
-	1768m W	Unknown	Ancient Semi Natural Woodland
T	1781m NW	Unknown	Ancient Semi Natural Woodland
-	1787m W	Unknown	Restored Ancient Woodland Site
-	1790m S	Unknown	Plantation on Ancient Woodland Site
-	1798m N	Unknown	Plantation on Ancient Woodland Site
-	1800m NW	Unknown	Ancient Semi Natural Woodland

ID	Location	Name	Woodland Type
78	1834m NW	Unknown	Restored Ancient Woodland Site
-	1843m W	Unknown	Plantation on Ancient Woodland Site
-	1872m W	Unknown	Restored Ancient Woodland Site
-	1876m W	Unknown	Plantation on Ancient Woodland Site
-	1876m NW	Unknown	Plantation on Ancient Woodland Site
-	1893m N	Unknown	Plantation on Ancient Woodland Site
-	1935m S	Unknown	Plantation on Ancient Woodland Site
-	1963m NW	Unknown	Ancient Semi Natural Woodland
W	1991m NW	Unknown	Restored Ancient Woodland Site
W	1993m NW	Unknown	Restored Ancient Woodland Site

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m

0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m

0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.



10.10 Marine Conservation Zones

Records within 2000m**0**

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m**0**

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m**0**

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m**0**

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m**0**

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.



10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.



SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0
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Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

This data is sourced from Natural England.

10.18 SSSI Units

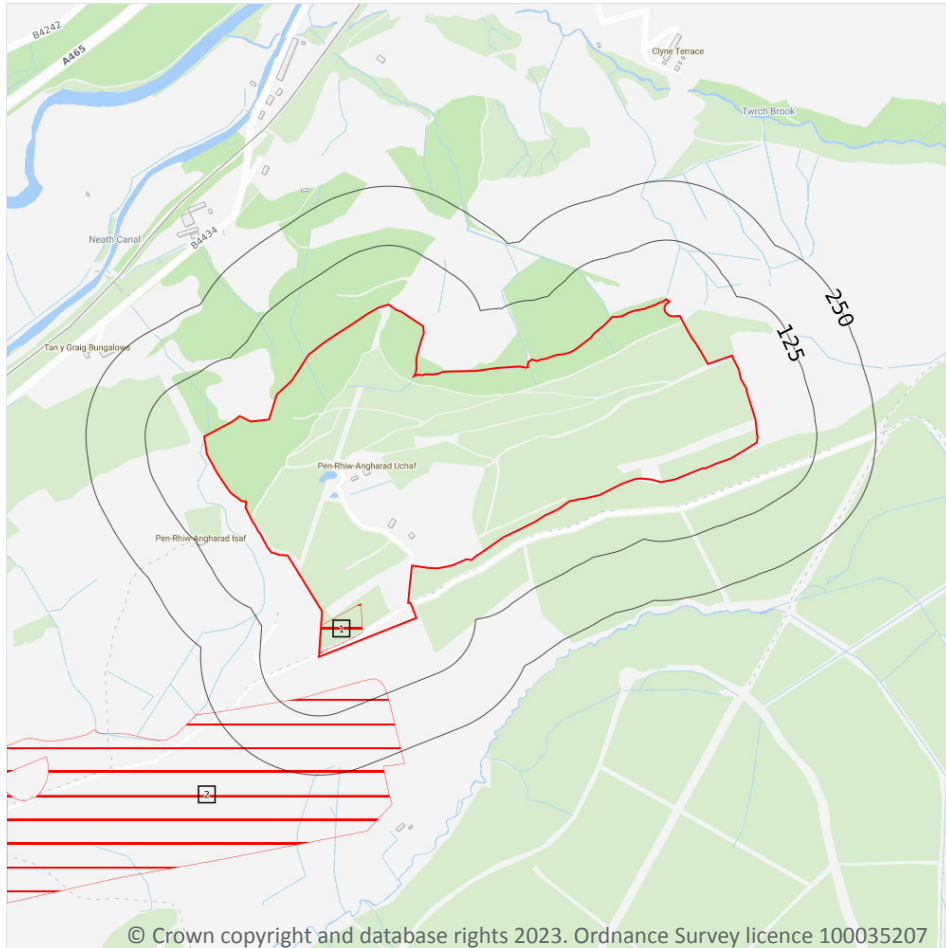
Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.



11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m**0**

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m**0**

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m**0**

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m**0**

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.



This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

2

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

Features are displayed on the Visual and cultural designations map on [page 73 >](#)

ID	Location	Ancient monument name	Reference number
1	On site	Pen-Rhiw-Angharad Round Cairns	2265
2	74m SW	Blaen-Cwmbach Camp	2886

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

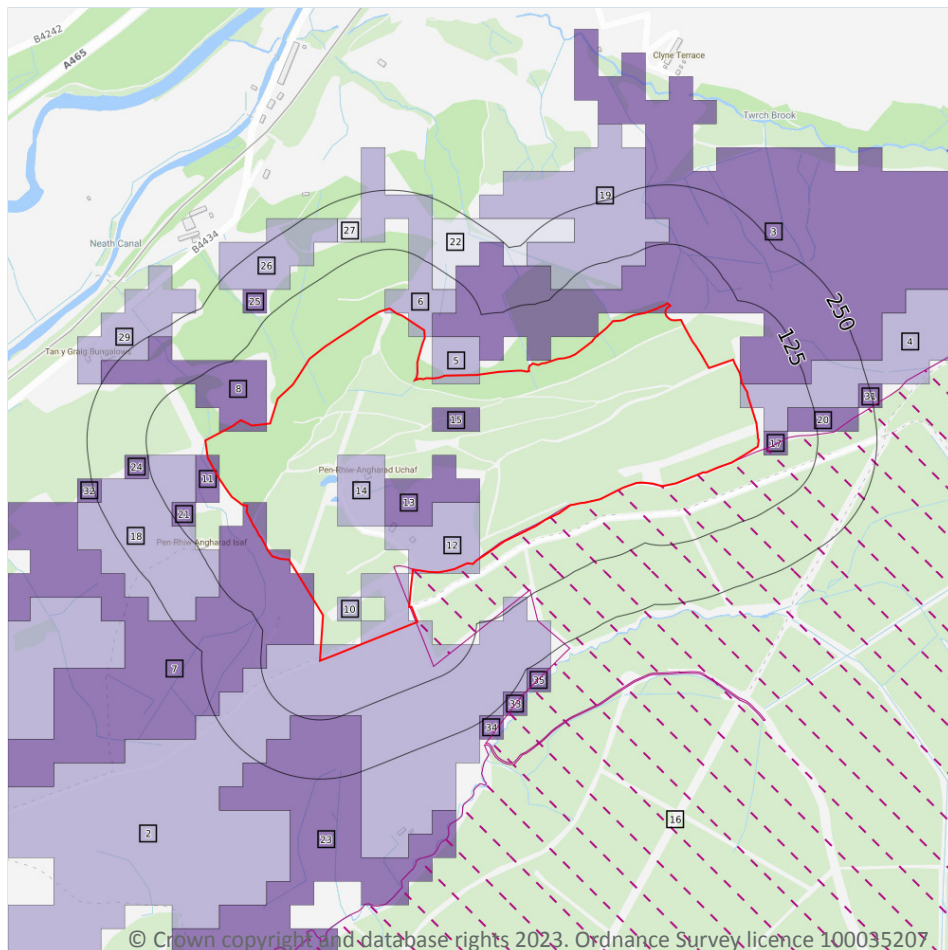
0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

30

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on [page 76](#) >

ID	Location	Classification	Description
2	On site	Grade 4	Poor quality agricultural land
3	On site	Grade 5	Very poor quality agricultural land
4	On site	Grade 4	Poor quality agricultural land



ID	Location	Classification	Description
5	On site	Grade 4	Poor quality agricultural land
6	On site	Grade 4	Poor quality agricultural land
7	On site	Grade 5	Very poor quality agricultural land
8	On site	Grade 5	Very poor quality agricultural land
10	On site	Grade 4	Poor quality agricultural land
11	On site	Grade 5	Very poor quality agricultural land
12	On site	Grade 4	Poor quality agricultural land
13	On site	Grade 5	Very poor quality agricultural land
14	On site	Grade 4	Poor quality agricultural land
15	On site	Grade 5	Very poor quality agricultural land
17	11m E	Grade 5	Very poor quality agricultural land
18	25m W	Grade 4	Poor quality agricultural land
19	60m NE	Grade 4	Poor quality agricultural land
20	63m E	Grade 5	Very poor quality agricultural land
21	69m W	Grade 5	Very poor quality agricultural land
22	81m N	Grade 3b	Moderate quality agricultural land
23	116m SW	Grade 5	Very poor quality agricultural land
24	124m W	Grade 5	Very poor quality agricultural land
25	132m NW	Grade 5	Very poor quality agricultural land
26	141m NW	Grade 4	Poor quality agricultural land
27	152m NW	Grade 3b	Moderate quality agricultural land
29	208m W	Grade 4	Poor quality agricultural land
31	218m E	Grade 5	Very poor quality agricultural land
32	230m W	Grade 5	Very poor quality agricultural land
33	234m S	Grade 5	Very poor quality agricultural land
34	238m S	Grade 5	Very poor quality agricultural land
35	248m S	Grade 5	Very poor quality agricultural land

This data is sourced from Natural Resources Wales.



12.2 Open Access Land

Records within 250m

1

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

Features are displayed on the Agricultural designations map on [page 76](#) >

ID	Location	Name	Classification	Other relevant legislation
16	On site	-	NRW Public Forest 2014	-

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m

0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.



13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m

0

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

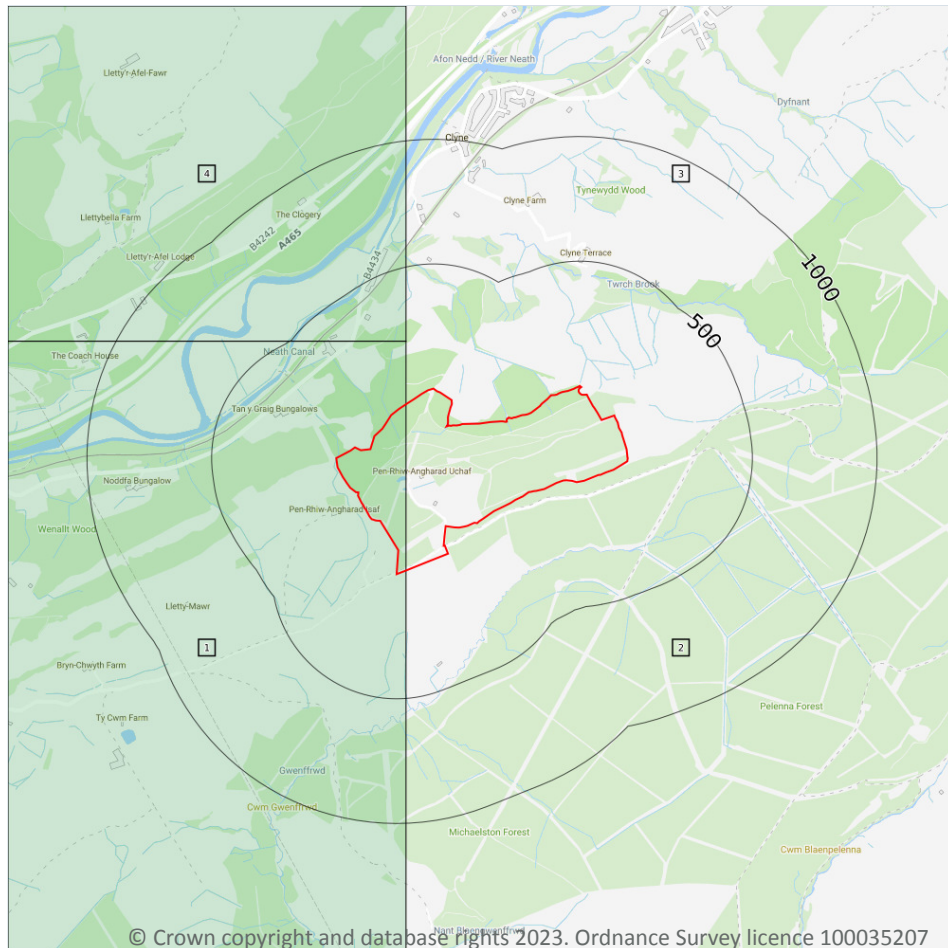
0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

4

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 80](#) >

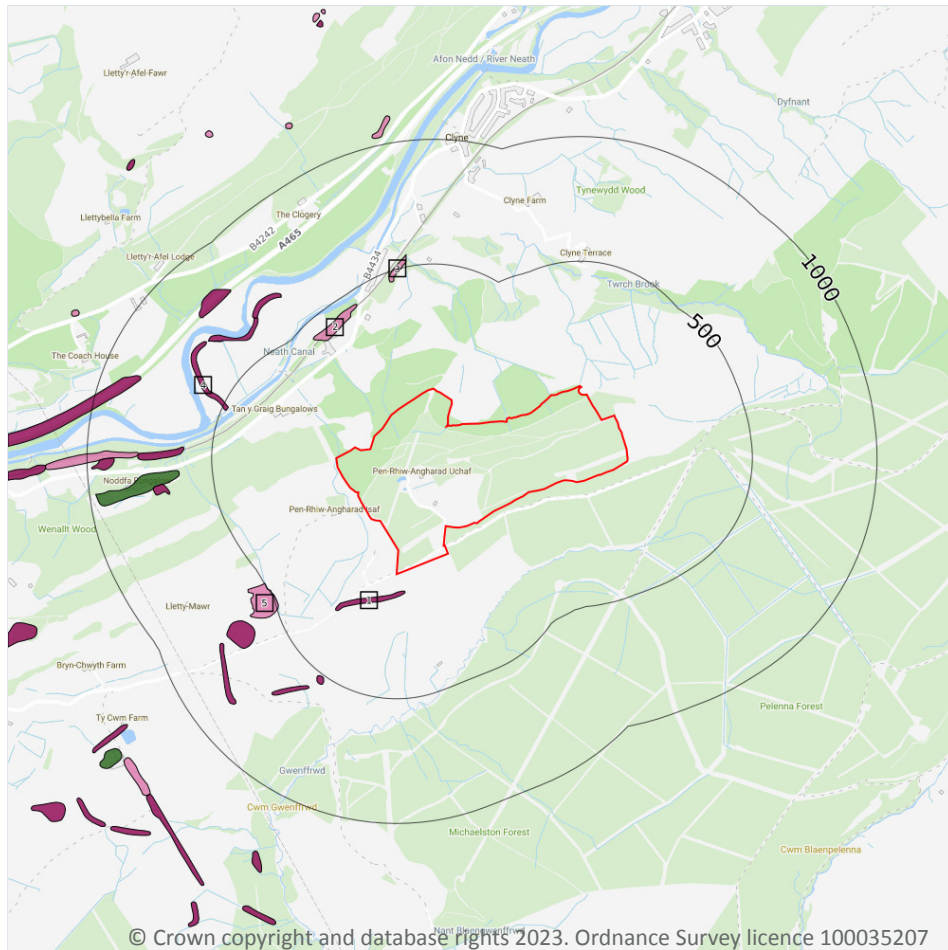
ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SS79NE
2	On site	No coverage	No coverage	No coverage	No coverage	NoCov
3	179m NE	No coverage	No coverage	No coverage	No coverage	NoCov
4	216m NW	Full	Full	Full	Full	SN70SE



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

14.2 Artificial and made ground (10k)

Records within 500m

5

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 82](#) >

ID	Location	LEX Code	Description	Rock description
1	71m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	393m NW	WGR-VOID	Worked Ground (Undivided)	Void
3	458m NW	WGR-VOID	Worked Ground (Undivided)	Void
4	479m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

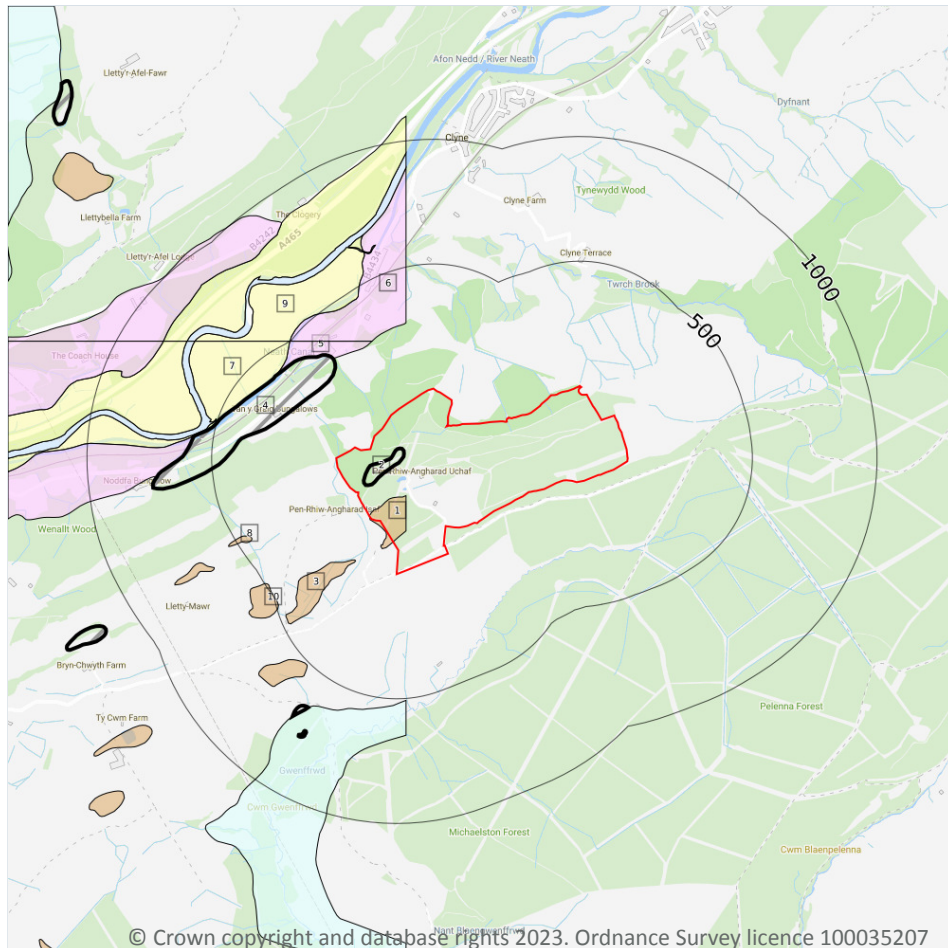


ID	Location	LEX Code	Description	Rock description
5	490m SW	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline
Search buffers in metres (m)

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

14.3 Superficial geology (10k)

Records within 500m

8

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.

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 84](#) >

ID	Location	LEX Code	Description	Rock description
1	On site	PEAT-P	Peat - Peat	Peat
3	168m SW	PEAT-P	Peat - Peat	Peat
5	282m NW	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
6	282m NW	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel



ID	Location	LEX Code	Description	Rock description
7	406m NW	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
8	440m W	PEAT-P	Peat - Peat	Peat
9	462m NW	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
10	489m SW	PEAT-P	Peat - Peat	Peat

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

2

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.

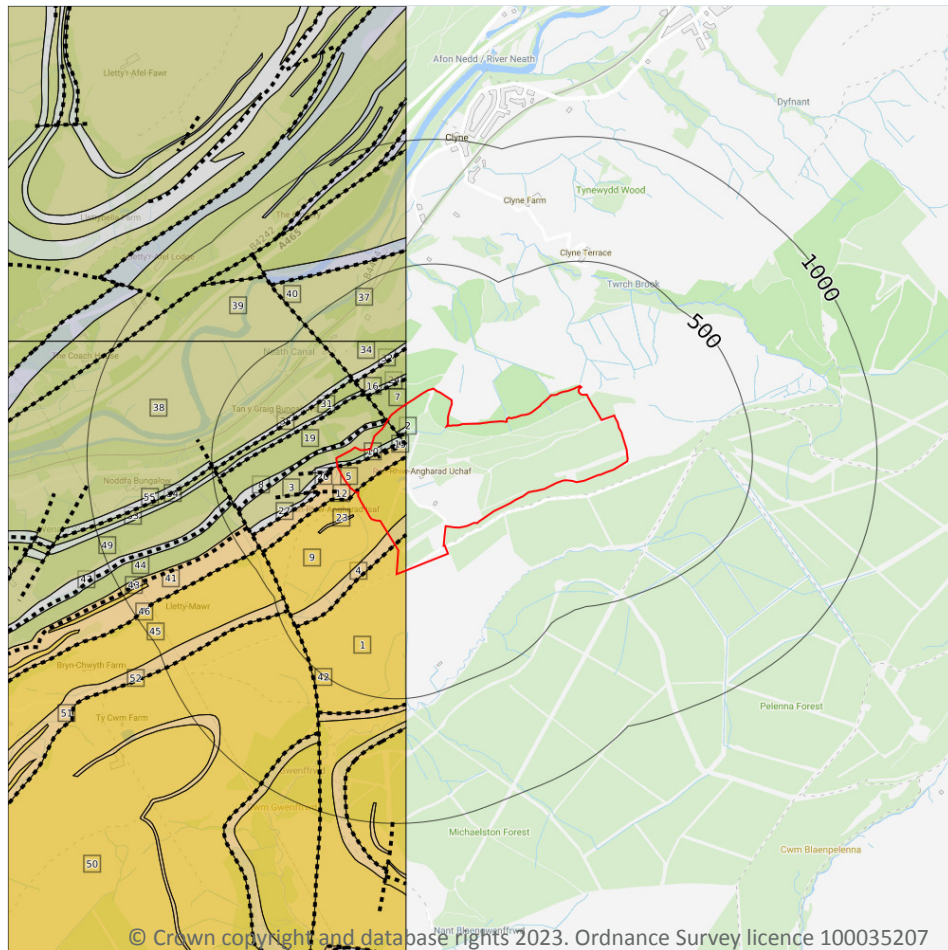
Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 84 >](#)

ID	Location	LEX Code	Description	Rock description
2	On site	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
4	261m W	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



14.5 Bedrock geology (10k)

Records within 500m

34

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 86 >](#)

ID	Location	LEX Code	Description	Rock age
1	On site	H-SDST	Hughes Member - Sandstone	Westphalian D Sub-age
2	On site	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
3	On site	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
4	On site	H-MDSS	Hughes Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age



ID	Location	LEX Code	Description	Rock age
5	On site	H-MDSS	Hughes Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
6	On site	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
7	On site	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
8	On site	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
9	On site	H-SDST	Hughes Member - Sandstone	Westphalian D Sub-age
10	On site	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
19	16m NW	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
20	39m W	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
23	53m W	H-MDSS	Hughes Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
24	85m NW	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
26	102m NW	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
27	112m W	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
29	134m NW	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
31	154m NW	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
32	185m NW	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
34	206m NW	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
35	211m NW	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
37	216m NW	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
38	233m NW	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
39	412m NW	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
41	432m W	H-MDSS	Hughes Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
44	433m W	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
45	435m W	H-SDST	Hughes Member - Sandstone	Westphalian D Sub-age
47	443m W	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
49	451m W	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
50	457m SW	H-SDST	Hughes Member - Sandstone	Westphalian D Sub-age
51	458m SW	H-MDSS	Hughes Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
53	482m W	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age



ID	Location	LEX Code	Description	Rock age
54	489m W	BD-SDST	Brithdir Member - Sandstone	Westphalian D Sub-age
55	498m W	BD-MDSS	Brithdir Member - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

22

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 86 >](#)

ID	Location	Category	Description
11	On site	ROCK	Coal seam, inferred ()
12	On site	ROCK	Coal seam, inferred (THICK DOWNWASH GARLANT)
13	On site	ROCK	Coal seam, inferred (WENALLT)
14	On site	ROCK	Coal seam, inferred ()
15	On site	ROCK	Coal seam, inferred (WtR)
16	On site	FAULT	Normal fault, inferred
17	6m NW	ROCK	Coal seam, inferred ()
18	14m W	FAULT	Normal fault, inferred
21	39m W	ROCK	Coal seam, inferred (WENALLT)
22	48m W	FAULT	Normal fault, inferred
25	85m NW	ROCK	Coal seam, inferred (THIN COAL (BELIEVED))
28	112m W	ROCK	Coal seam, inferred (WENALLT)
30	134m NW	ROCK	Coal seam, inferred (THIN COAL (PRESUMED BdR))
33	185m NW	ROCK	Coal seam, inferred (GRAIG)
36	211m NW	ROCK	Coal seam, inferred (GRAIG)
40	412m NW	FAULT	Normal fault, inferred
42	432m W	FAULT	Normal fault, inferred
43	433m W	ROCK	Coal seam, inferred (WENALLT)

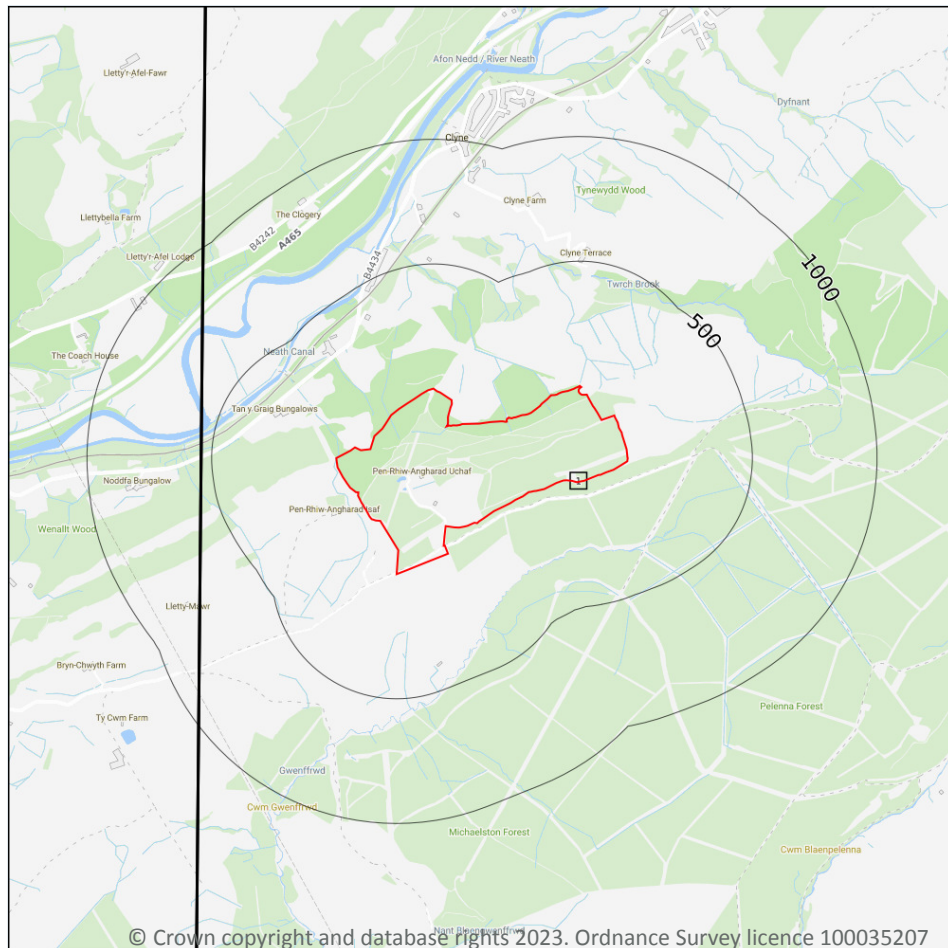


ID	Location	Category	Description
46	435m W	ROCK	Coal seam, inferred (GARLANT FEATURE MASKED BY HILLWASH)
48	445m W	ROCK	Coal seam, inferred (GLYNGWILYM)
52	458m SW	ROCK	Coal seam, inferred (MOUNTAIN WET SHELF)
56	498m W	ROCK	Coal seam, inferred (THIN COAL)

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline
Search buffers in metres (m)

☐ Geological map tile

15.1 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. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on [page 90](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	Full	EW248_pontypridd_v4

This data is sourced from the British Geological Survey.



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

15.2 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.

15.3 Artificial ground permeability (50k)

Records within 50m

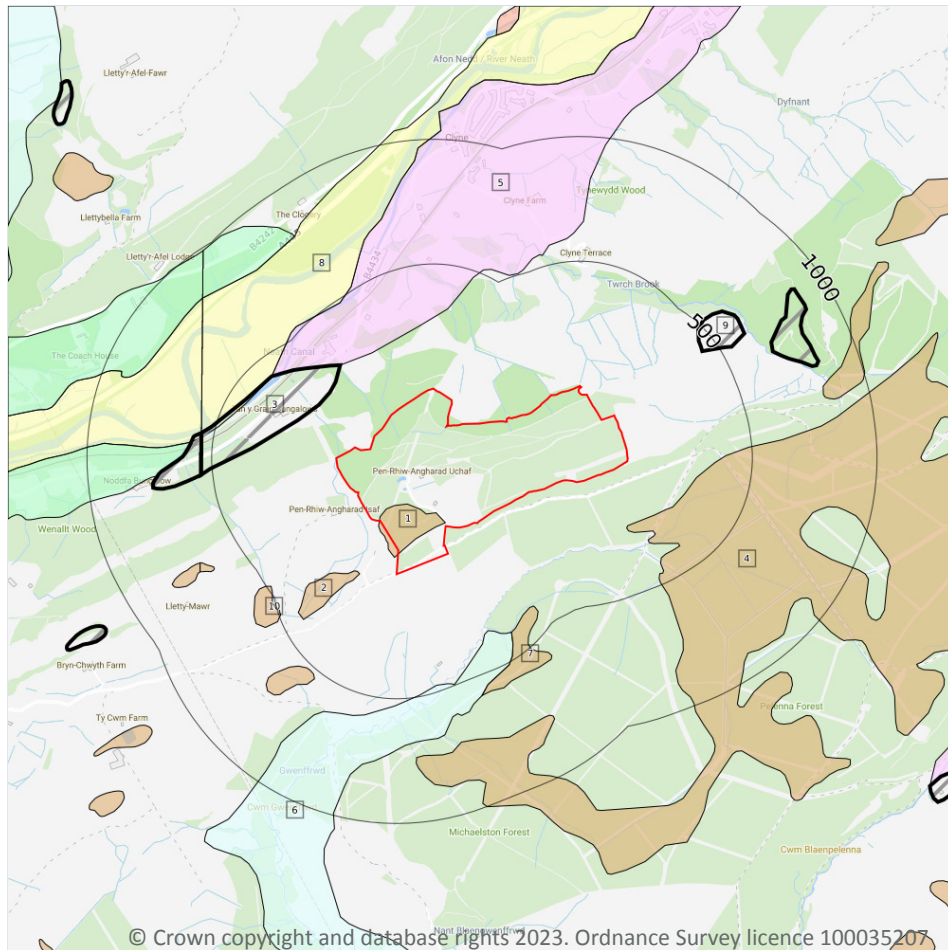
0

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



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m

8

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.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 92](#) >

ID	Location	LEX Code	Description	Rock description
1	On site	PEAT-P	PEAT	PEAT
2	149m SW	PEAT-P	PEAT	PEAT
4	229m E	PEAT-P	PEAT	PEAT
5	241m NW	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL



ID	Location	LEX Code	Description	Rock description
6	348m S	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
7	388m S	PEAT-P	PEAT	PEAT
8	414m W	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
10	484m SW	PEAT-P	PEAT	PEAT

This data is sourced from the British Geological Survey.

15.5 Superficial 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 any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	2
----------------------------	----------

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.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 92](#) >

ID	Location	LEX Code	Description	Rock description
3	214m W	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY
9	437m NE	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY

This data is sourced from the British Geological Survey.



15.7 Landslip permeability (50k)

Records within 50m

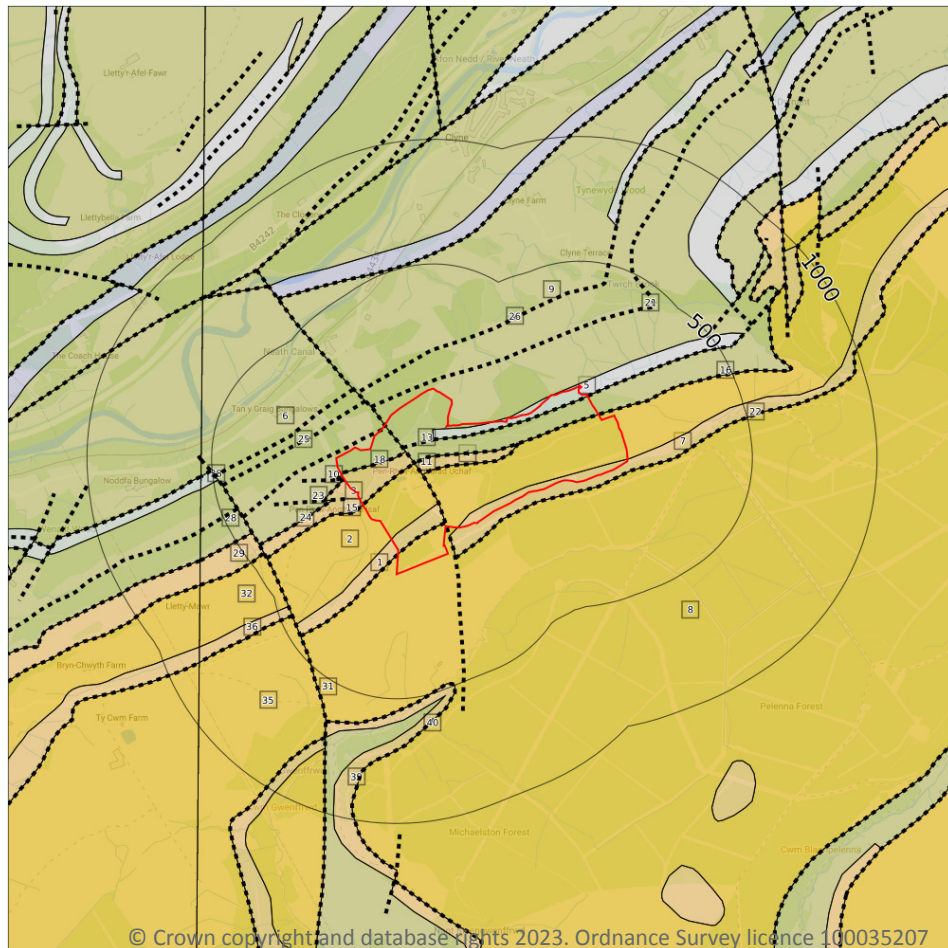
0

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.

15.8 Bedrock geology (50k)

Records within 500m

16

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 95 >](#)

ID	Location	LEX Code	Description	Rock age
1	On site	H-MDSS	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	On site	H-SDST	HUGHES MEMBER - SANDSTONE	WESTPHALIAN
3	On site	H-MDSS	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN



ID	Location	LEX Code	Description	Rock age
4	On site	H-MDSS	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
5	On site	BD-MDSS	BRITHDIR MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	On site	BD-SDST	BRITHDIR MEMBER - SANDSTONE	WESTPHALIAN
7	On site	H-MDSS	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8	On site	H-SDST	HUGHES MEMBER - SANDSTONE	WESTPHALIAN
9	On site	BD-SDST	BRITHDIR MEMBER - SANDSTONE	WESTPHALIAN
28	427m W	BD-SDST	BRITHDIR MEMBER - SANDSTONE	WESTPHALIAN
29	427m W	H-MDSS	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
32	434m SW	H-SDST	HUGHES MEMBER - SANDSTONE	WESTPHALIAN
35	451m SW	H-SDST	HUGHES MEMBER - SANDSTONE	WESTPHALIAN
36	451m SW	H-MDSS	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
38	482m W	BD-MDSS	BRITHDIR MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
39	483m S	H-MDSS	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

11

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	High	Moderate
On site	Fracture	High	Moderate
On site	Fracture	High	Moderate
On site	Fracture	High	Moderate



Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low
On site	Fracture	Moderate	Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

24

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 95 >](#)

ID	Location	Category	Description
10	On site	FAULT	Fault, observed, displacement unknown
11	On site	FAULT	Fault, inferred, displacement unknown
12	On site	ROCK	Coal seam, inferred
13	On site	ROCK	Coal seam, inferred
14	On site	ROCK	Coal seam, inferred
15	On site	ROCK	Coal seam, inferred
16	On site	ROCK	Coal seam, inferred
17	On site	ROCK	Coal seam, inferred
18	On site	ROCK	Coal seam, inferred
19	On site	ROCK	Coal seam, inferred
20	5m W	ROCK	Coal seam, inferred
21	28m NW	ROCK	Coal seam, inferred
22	34m E	ROCK	Coal seam, inferred



ID	Location	Category	Description
23	49m W	FAULT	Fault, observed, displacement unknown
24	85m W	ROCK	Coal seam, inferred
25	118m NW	ROCK	Coal seam, inferred
26	133m NW	ROCK	Coal seam, inferred
27	184m NW	ROCK	Coal seam, inferred
30	427m W	ROCK	Coal seam, inferred
31	427m W	FAULT	Fault, inferred, displacement unknown
33	434m SW	ROCK	Coal seam, inferred
34	435m W	ROCK	Coal seam, inferred
37	451m SW	ROCK	Coal seam, inferred
40	483m S	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



16 Boreholes

16.1 BGS Boreholes

Records within 250m

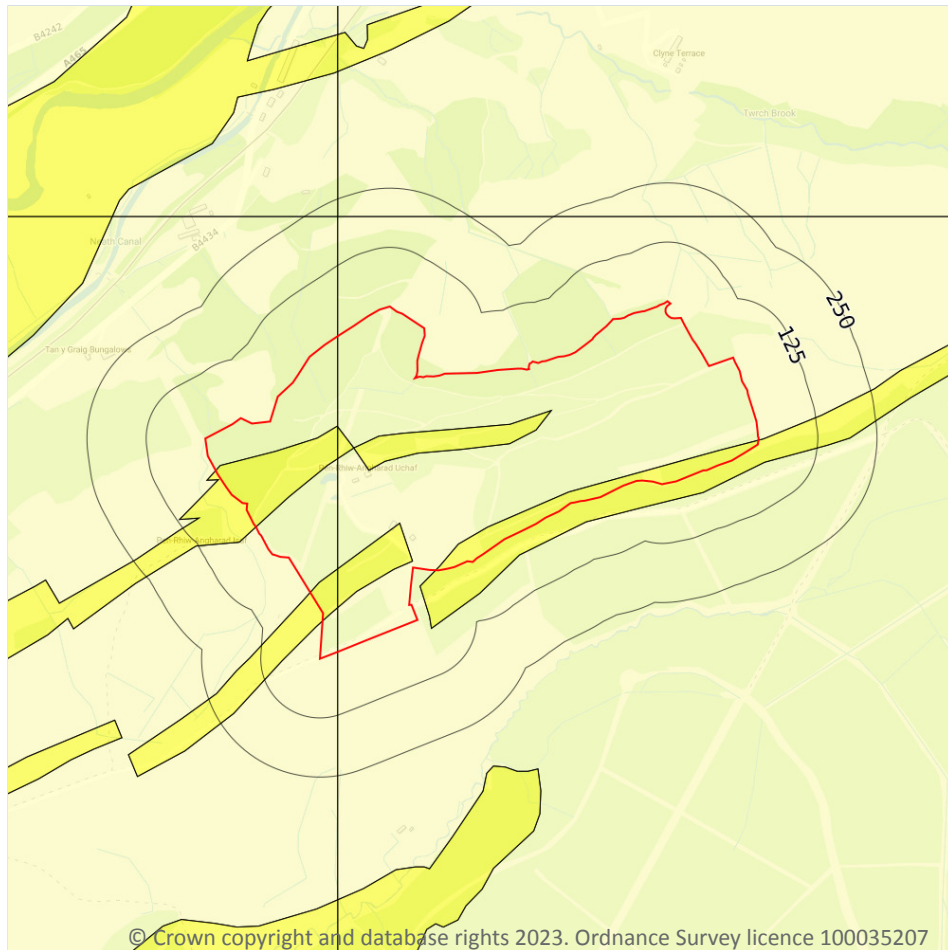
0

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.

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline**
- Search buffers in metres (m)**
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 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).

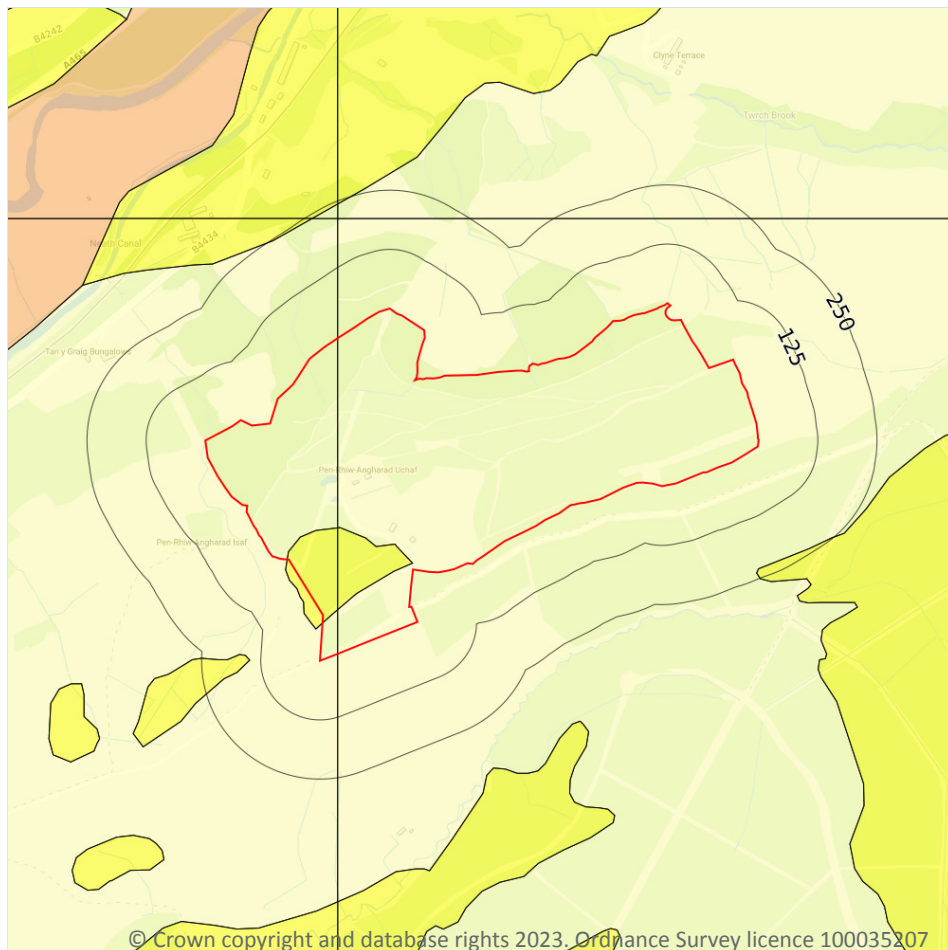
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 100 >](#)

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

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

17.2 Running sands

Records within 50m

2

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 101](#) >

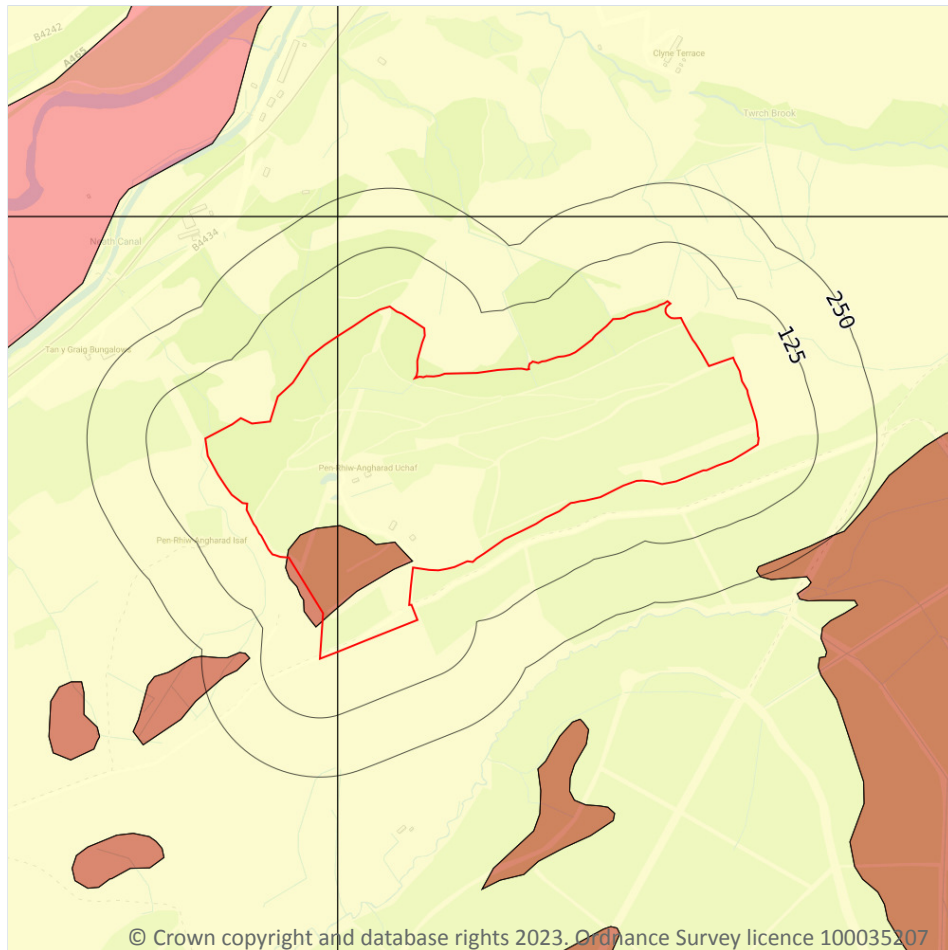
Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

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

17.3 Compressible deposits

Records within 50m

2

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.

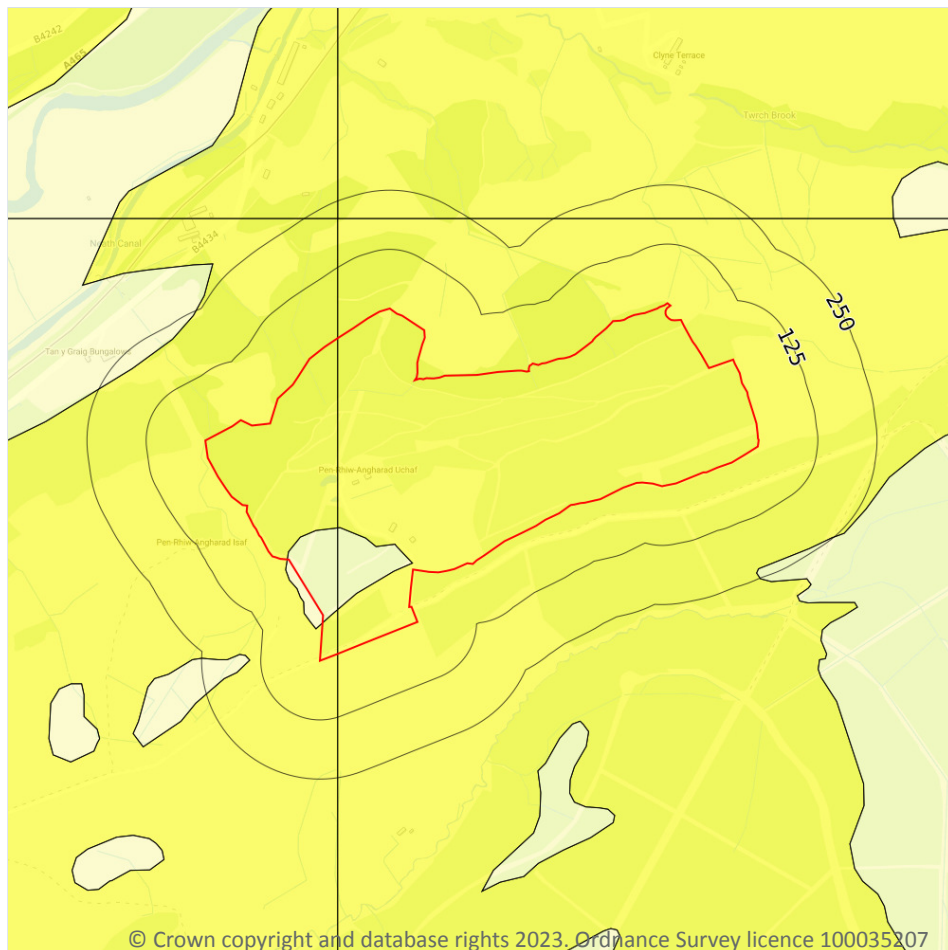
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 103 >](#)

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
On site	High	Highly compressible strata present. Significant constraint on land use depending on thickness.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

2

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.

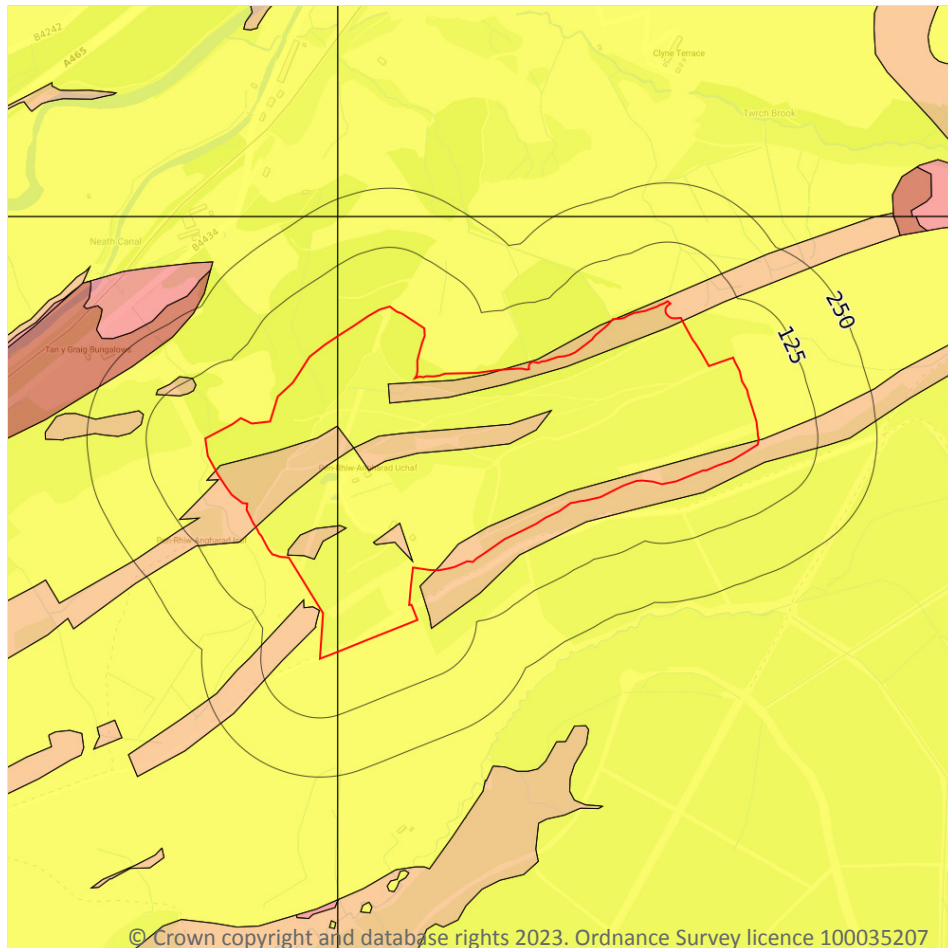
Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 104 >](#)

Location	Hazard rating	Details
On site	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.
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

17.5 Landslides

Records within 50m

3

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 105 >](#)

Location	Hazard rating	Details
On site	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.

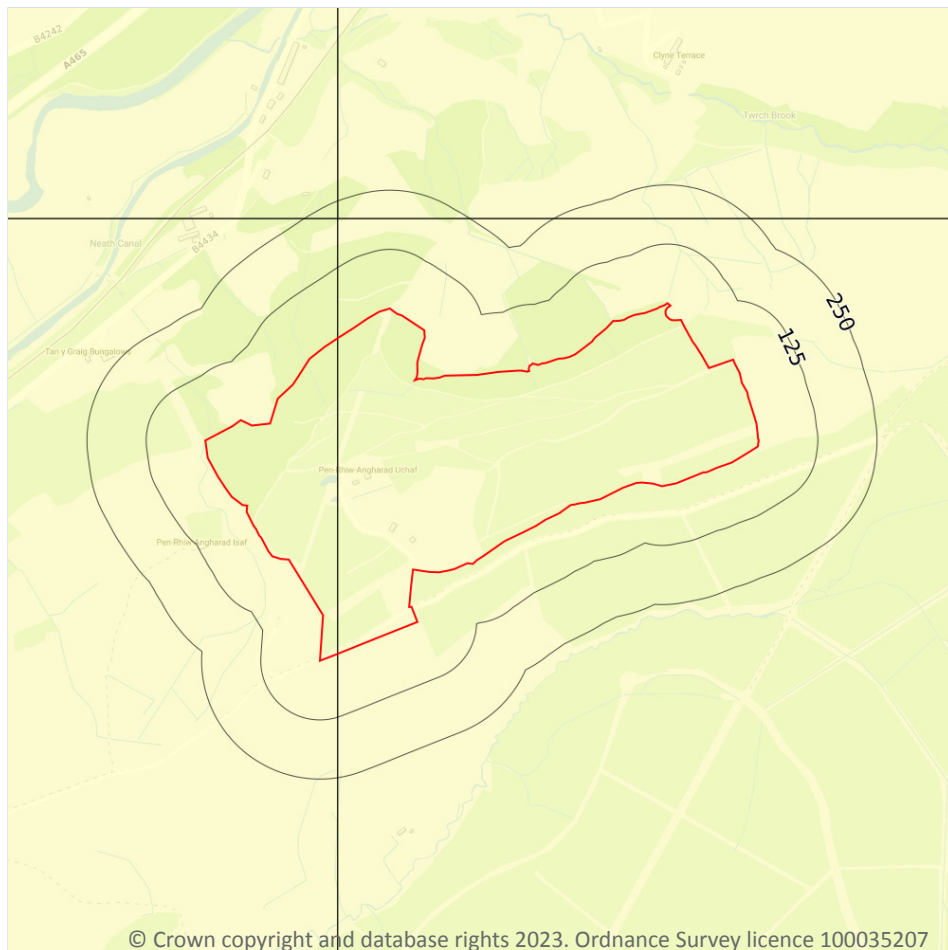


Location	Hazard rating	Details
On site	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.
4m SW	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

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

17.6 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 107](#) >

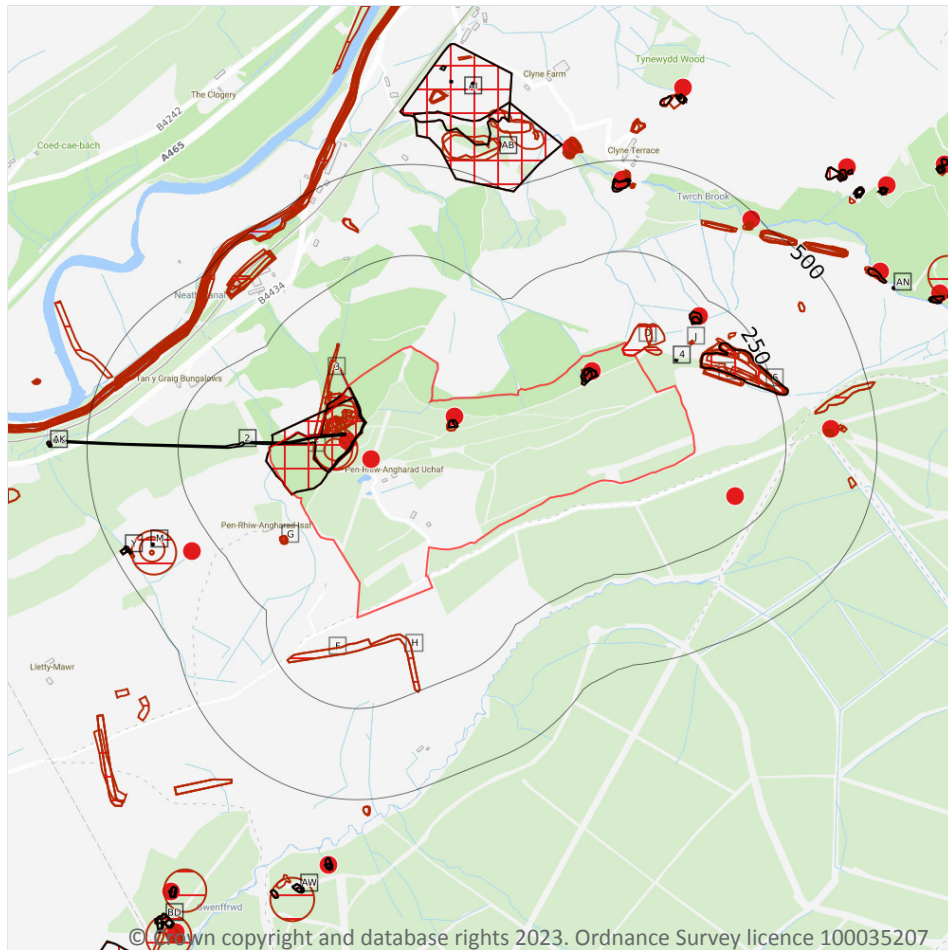
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



This data is sourced from the British Geological Survey.



18 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

18.1 BritPits

Records within 500m

10

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 109](#) >

ID	Location	Details	Description
1	On site	Name: Angharad Uchaf Address: NEATH, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
A	On site	Name: Cefn Mawr Colliery Address: Clyne, NEATH, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
B	On site	Name: Cefn-mawr Colliery Address: Resolven, NEATH, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
C	On site	Name: Cefn-mawr Colliery Address: Resolven, NEATH, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
5	163m E	Name: Pen Rhiw Angharad Uchaf Address: Tonna, NEATH, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority



ID	Location	Details	Description
K	203m NE	Name: Troed-y-rhiw Address: Resolven, NEATH, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
7	313m W	Name: Pen-rhiw-Angharad Isaf Address: Resolven, NEATH, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
O	376m E	Name: Troed-y-rhiw Address: Resolven, NEATH, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
V	448m NE	Name: Clyne Cottages Address: Resolven, NEATH, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
X	484m NE	Name: Ystrad-Owen Address: Resolven, NEATH, West Glamorgan Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.



18.2 Surface ground workings

Records within 250m

78

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 109](#) >

ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Gravel Pit	1962	1:10560
A	On site	Gravel Pit	1962	1:10560
A	On site	Unspecified Heaps	1970	1:10000
A	On site	Colliery	1948	1:10560
A	On site	Refuse Heap	1948	1:10560
A	On site	Refuse Heap	1948	1:10560
A	On site	Unspecified Heap	1897	1:10560
A	On site	Unspecified Level	1921	1:10560
A	On site	Colliery	1921	1:10560
A	On site	Unspecified Level	1921	1:10560
A	On site	Colliery	1921	1:10560
A	On site	Refuse Heap	1921	1:10560
A	On site	Unspecified Heap	1877	1:10560
A	On site	Unspecified Pit	1877	1:10560
A	On site	Unspecified Level	1948	1:10560
A	On site	Unspecified Level	1921	1:10560
A	On site	Unspecified Level	1962	1:10560
A	On site	Unspecified Disused Tip	1991	1:10000
A	On site	Unspecified Disused Tip	1982	1:10000
B	On site	Old Coal Level	1948	1:10560
B	On site	Unspecified Heap	1988	1:10000
B	On site	Unspecified Heap	1964	1:10560
B	On site	Old Coal Level	1921	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
B	On site	Old Coal Level	1921	1:10560
B	On site	Old Coal Level	1921	1:10560
C	On site	Old Coal Level	1948	1:10560
C	On site	Unspecified Disused Level	1988	1:10000
C	On site	Unspecified Disused Level	1964	1:10560
C	On site	Unspecified Heap	1897	1:10560
C	On site	Old Coal Level	1921	1:10560
C	On site	Old Coal Level	1921	1:10560
C	On site	Old Coal Level	1921	1:10560
C	On site	Unspecified Heaps	1877	1:10560
D	On site	Unspecified Heap	1988	1:10000
D	On site	Unspecified Heap	1964	1:10560
E	On site	Colliery	1921	1:10560
A	2m NW	Unspecified Pit	1970	1:10000
A	2m NW	Unspecified Pit	1991	1:10000
A	2m NW	Unspecified Pit	1982	1:10000
3	13m W	Unspecified Ground Workings	1948	1:10560
D	31m NE	Unspecified Pit	1877	1:10560
D	49m NE	Refuse Heap	1948	1:10560
F	66m SW	Unspecified Heaps	1970	1:10000
F	66m SW	Unspecified Heaps	1982	1:10000
G	79m SW	Unspecified Heap	1921	1:10560
G	79m SW	Unspecified Heap	1921	1:10560
G	79m SW	Unspecified Heap	1948	1:10560
G	80m SW	Unspecified Pit	1877	1:10560
H	80m SW	Unspecified Heaps	1988	1:10000
H	80m SW	Unspecified Heaps	1964	1:10560
G	81m SW	Unspecified Heap	1962	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
G	84m SW	Unspecified Heap	1921	1:10560
I	84m E	Cuttings	1921	1:10560
I	86m E	Unspecified Ground Workings	1964	1:10560
I	87m E	Unspecified Ground Workings	1988	1:10000
I	89m E	Unspecified Ground Workings	1921	1:10560
I	89m E	Unspecified Ground Workings	1921	1:10560
I	89m E	Old Coal Level	1948	1:10560
I	90m E	Cuttings	1948	1:10560
I	90m E	Cuttings	1921	1:10560
I	94m E	Unspecified Ground Workings	1897	1:10560
I	111m NE	Unspecified Ground Workings	1921	1:10560
J	121m NE	Old Coal Level	1921	1:10560
J	121m NE	Old Coal Level	1921	1:10560
I	156m NE	Unspecified Heap	1921	1:10560
I	163m NE	Old Coal Level	1921	1:10560
I	163m NE	Old Coal Level	1921	1:10560
K	176m NE	Old Coal Level	1921	1:10560
K	177m NE	Unspecified Heap	1988	1:10000
K	177m NE	Unspecified Heap	1964	1:10560
K	178m NE	Unspecified Heap	1948	1:10560
K	181m NE	Unspecified Heap	1921	1:10560
K	181m NE	Unspecified Heap	1921	1:10560
K	181m NE	Old Coal Level	1897	1:10560
K	185m NE	Unspecified Heap	1877	1:10560
I	189m E	Unspecified Heap	1921	1:10560
I	197m NE	Unspecified Ground Workings	1877	1:10560
6	212m E	Unspecified Ground Workings	1921	1:10560

This is data is sourced from Ordnance Survey/Groundsure.



18.3 Underground workings

Records within 1000m

78

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

Features are displayed on the Mining and ground workings map on [page 109 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
2	On site	Tunnel	1877	1:10560
A	On site	Colliery	1948	1:10560
B	On site	Old Coal Level	1948	1:10560
B	On site	Old Coal Level	1921	1:10560
C	On site	Old Coal Level	1948	1:10560
C	On site	Old Coal Level	1921	1:10560
C	On site	Unspecified Disused Level	1988	1:10000
C	On site	Unspecified Disused Level	1964	1:10560
E	On site	Colliery	1921	1:10560
4	68m NE	Air Shaft	1877	1:10560
I	89m E	Old Coal Level	1948	1:10560
K	176m NE	Old Coal Level	1921	1:10560
K	181m NE	Old Coal Level	1897	1:10560
M	391m W	Old Coal Level	1921	1:10560
V	415m NE	Old Coal Pit	1921	1:10560
V	422m NE	Old Coal Pit	1948	1:10560
V	422m NE	Old Coal Pit	1897	1:10560
Y	456m W	Old Coal Level	1897	1:10560
Y	464m W	Unspecified Disused Level	1991	1:10000
Y	464m W	Unspecified Disused Level	1982	1:10000
AB	477m N	Old Colliery	1948	1:10560
AI	582m N	Colliery	1877	1:10560
AK	598m W	Unspecified Disused Shaft	1991	1:10000



ID	Location	Land Use	Year of mapping	Mapping scale
AK	598m W	Unspecified Disused Shaft	1982	1:10000
AK	598m W	Unspecified Old Shaft	1962	1:10560
AK	599m W	Unspecified Old Shaft	1935	1:10560
AK	599m W	Unspecified Old Shaft	1948	1:10560
AK	600m W	Unspecified Disused Shaft	1970	1:10000
AM	615m NE	Old Coal Level	1948	1:10560
AN	653m E	Old Coal Level	1921	1:10560
AP	659m NE	Old Coal Level	1948	1:10560
AQ	665m S	Unspecified Old Levels	1948	1:10560
AQ	665m S	Unspecified Old Levels	1962	1:10560
AP	675m NE	Unspecified Disused Level	1965	1:10560
AP	675m NE	Unspecified Disused Level	1988	1:10000
AQ	679m S	Unspecified Disused Level	1991	1:10000
AQ	679m S	Unspecified Disused Level	1982	1:10000
AP	680m NE	Coal Level	1877	1:10560
AP	685m NE	Old Coal Level	1921	1:10560
AU	705m NE	Unspecified Disused Levels	1965	1:10560
AU	705m NE	Unspecified Disused Levels	1988	1:10000
AS	717m NE	Old Coal Levels	1948	1:10560
AS	721m NE	Old Coal Levels	1921	1:10560
AS	721m NE	Unspecified Disused Levels	1965	1:10560
AS	721m NE	Unspecified Disused Levels	1988	1:10000
AU	729m NE	Coal Level	1948	1:10560
AV	732m E	Unspecified Old Level	1921	1:10560
AI	733m N	Unspecified Shaft	1877	1:10560
AV	738m E	Unspecified Old Level	1948	1:10560
AI	739m N	Air Shaft	1877	1:10560
AW	750m S	Unspecified Old Levels	1948	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
AU	751m NE	Coal Level	1921	1:10560
AW	751m S	Unspecified Old Levels	1962	1:10560
AW	758m S	Unspecified Disused Levels	1982	1:10000
AI	764m N	Unspecified Shaft	1877	1:10560
AY	772m NE	Old Coal Levels	1921	1:10560
AY	774m NE	Unspecified Disused Level	1965	1:10560
AY	774m NE	Unspecified Disused Level	1988	1:10000
AY	778m NE	Old Coal Levels	1948	1:10560
AW	783m SW	Unspecified Old Levels	1948	1:10560
AV	784m E	Old Coal Pit	1948	1:10560
-	841m E	Unspecified Disused Shaft	1988	1:10000
-	841m E	Unspecified Disused Shaft	1964	1:10560
-	844m E	Old Coal Pit	1897	1:10560
AZ	893m SW	Unspecified Old Level	1948	1:10560
AZ	895m SW	Unspecified Old Level	1962	1:10560
AZ	907m SW	Unspecified Disused Level	1982	1:10000
BC	931m NE	Old Coal Level	1921	1:10560
BC	934m NE	Old Coal Level	1948	1:10560
BC	951m NE	Unspecified Disused Level	1965	1:10560
BC	951m NE	Unspecified Disused Level	1988	1:10000
BD	970m SW	Unspecified Old Levels	1948	1:10560
BD	970m SW	Unspecified Old Levels	1962	1:10560
BD	972m SW	Unspecified Disused Levels	1982	1:10000
-	979m W	Unspecified Old Level	1962	1:10560
-	981m W	Unspecified Old Level	1935	1:10560
-	981m W	Coal Level	1914	1:10560
-	985m W	Coal Level	1921	1:10560

This is data is sourced from Ordnance Survey/Groundsure.



18.4 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.

18.5 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.

18.6 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.

18.7 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.

18.8 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.

18.9 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.

18.10 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.

18.11 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.

18.12 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.



18.13 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.

18.14 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 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).

19 Ground cavities and sinkholes

19.1 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.

19.2 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.

19.3 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.

19.4 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.

19.5 National karst database

Records within 500m

0

This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

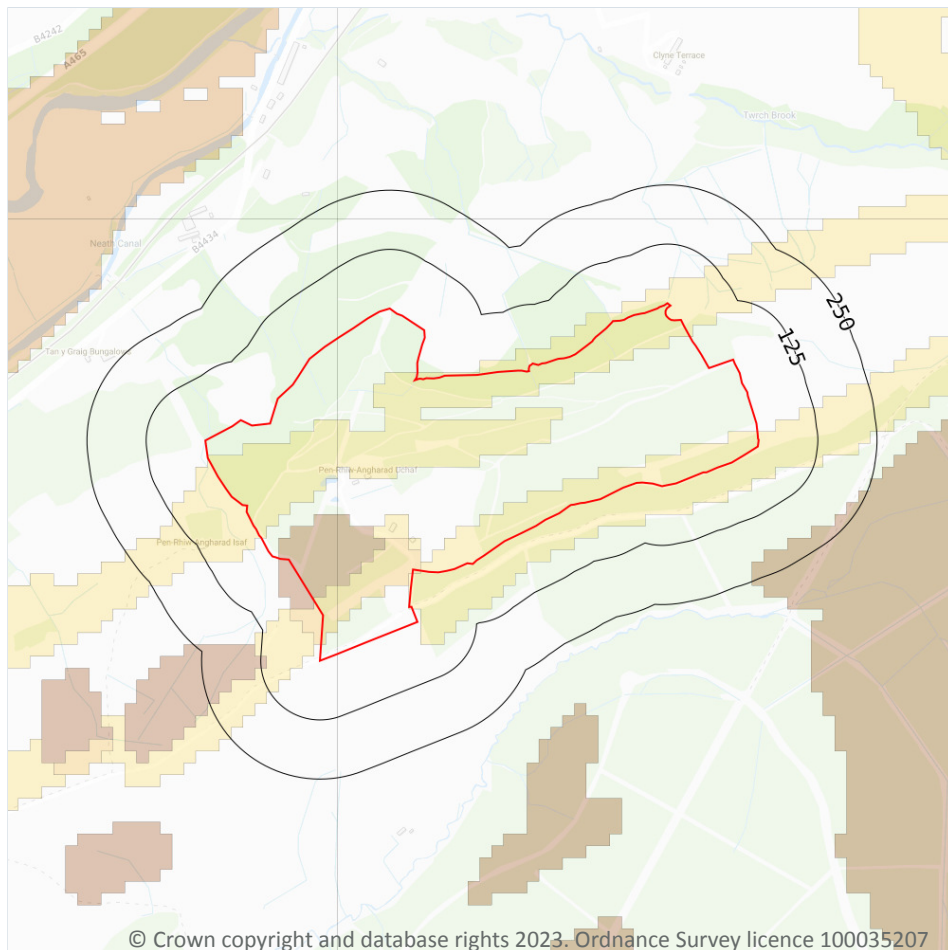
Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.



20 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%

20.1 Radon

Records on site

4

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 123 >](#)

Location	Estimated properties affected	Radon Protection Measures required
On site	Between 1% and 3%	None



Location	Estimated properties affected	Radon Protection Measures required
On site	Between 10% and 30%	Full
On site	Between 3% and 5%	Basic
On site	Less than 1%	None

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



21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m

39

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 km². 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 km²; 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	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg



Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	35 - 45 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	35 - 45 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	35 - 45 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	45 - 60 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg



Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	60 - 120 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	60 - 120 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
13m SW	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
34m E	60 - 120 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.

21.2 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 km²).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m

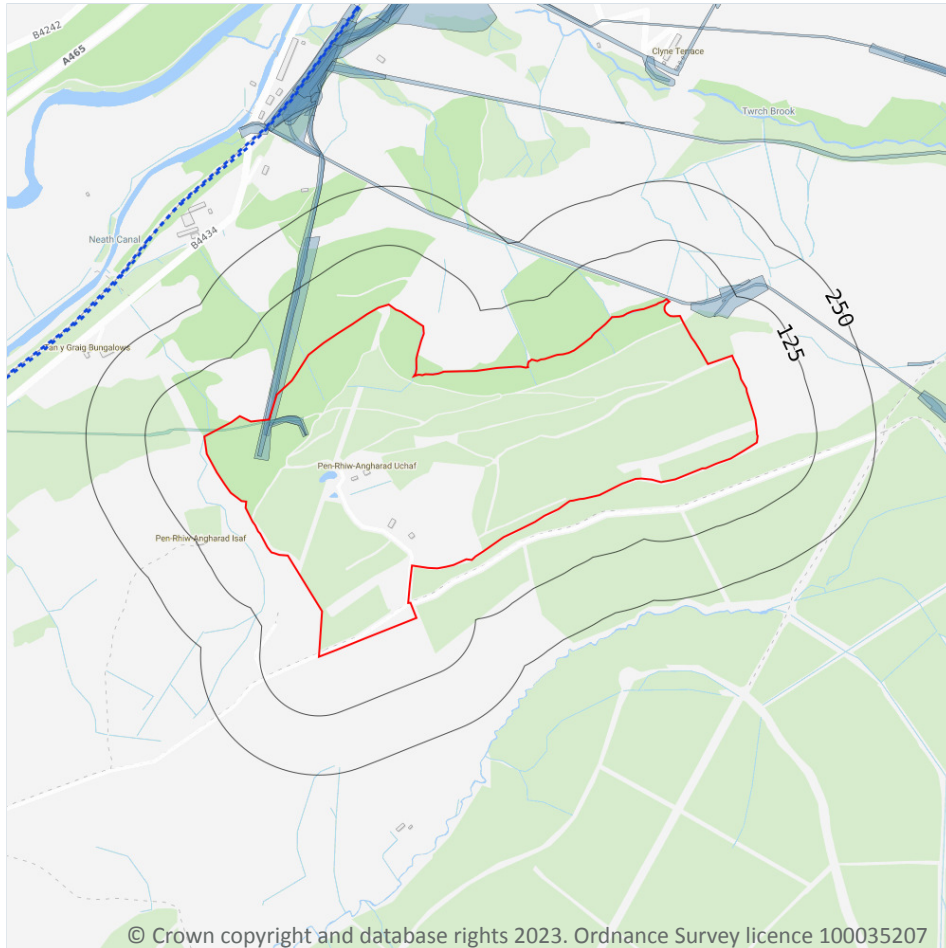
0

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 km².

This data is sourced from the British Geological Survey.



22 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

22.1 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.

22.2 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.

22.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m

8

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.

Features are displayed on the Railway infrastructure and projects map on [page 128 >](#)

Location	Land Use	Year of mapping	Mapping scale
On site	Tunnel	1877	10560
On site	Tramway Sidings	1919	2500
On site	Railway Sidings	1921	10560
On site	Tram Sidings	1921	10560
On site	Tramway Sidings	1921	10560
2m NE	Tramway Sidings	1877	2500
26m NE	Tramway Sidings	1877	10560
64m NE	Railway Sidings	1877	2500

This data is sourced from Ordnance Survey/Groundsure.

22.5 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.



22.6 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.

22.7 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.

22.8 Crossrail 1

Records within 500m

0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

22.9 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.

22.10 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: <https://www.groundsure.com/terms-and-conditions-april-2023/> ↗.



BGS archive records



Name and Number of Shaft or Borehole:

CLYNE PIT

6-in Map

Registration No. SN80SW 2

Page

National Grid

Reference 8072.0025

GEOLOGICAL CLASSIFICATION	DESCRIPTION OF STRATA		THICKNESS		DEPTH	
			FT	IN	FT	IN
	Brought Forward					
	3rd Ed. Memoir (248) (Woodland & Evans) p. 311					
	(91.44m) Clyne Pit Ht. above O.D. c. 300 ft. 6-in SN 80 S.W.; Glam. 16 N.E. Site 820 yd E. 43° S. of Hermon Chapel, Clyne. National Grid Ref. 80720025.					
	Walling	Thick- ness ft in	Depth ft in	Clift	Thick- ness ft in	Depth ft in
		15 0	15 0 (4.57m)	Coal	2 1	177 1 (53.97m)
				Clift and fireclay	9 in	9 177 10 (54.20m)
	COAL MEASURES			Coal	6 1	183 11 (56.06m)
	Rock with thin beds of clift	113 9	128 9 (39.24m)	Shale, fireclay and clift mixed with rock	9 in	184 8 (56.29m)
	?BRITHDIR			Rock, with thin beds of clift and discontinuous streaks of coal	22 1	206 9 (62.82m)
	Coal	10 in	10		418 5	625 2 (190.55m)
	Fireclay, rock and clift	9 11	138 6 (42.24m)	1 RHONDDA		
	Coal	1 in	1	Coal	18 in	
	Fireclay, clift and rock	12 0	150 7 (45.70m)	Clod	15 in	
	White rock	24 5	175 0 (53.34m)	Coal	9 in	3 6 628 8 (191.62m)



1063 Wt. 22338/0384 10m 7/45 (51) F.&S.

RECORD OF SHAFT OR BORE FOR MINERALS

Name and Number of Shaft or Bore

Clyne Colliery

For Messrs.

Town or Village

County

Six-inch quarter sheet

Exact site *Trial shaft near Clyne Colliery*

N.G.R. 8072.0025

Purpose for which made

Level at which shaft
bore commenced relative to O.D.

State if shaft
bore is up, down

inclined; in latter cases give angle of inclination and direction

Made by

Information from

Date of Sinking *about 1875*

Specimens

Additional Notes in Space Overleaf

For Survey use only)

(GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

THICKNESS

METRES.

<i>Walling</i>	15	(4.57m)	15
<i>Hard rock</i>	45	(18.29m)	60
<i>Sandstone rock</i>	4	(14.71m)	?
<i>Rock and clift</i>	3	(20.62m)	
<i>Strong rock</i>	7	(22.86m)	
<i>Sandstone rock</i>	4	(24.08m)	9
<i>Serpy rock</i>	14	(28.35m)	93
<i>Fireclay</i>	2	(29.11m)	95
<i>Rock</i>	1	(29.41m)	96
<i>Clift</i>	5	(30.94m)	101
<i>Hard rock</i>	2	(31.55m)	103
<i>Clift</i>	1	(32.00m)	105
<i>Hard rock</i>	5	(33.53m)	110
<i>Clift</i>	1	(33.99m)	111
<i>Hard rock</i>	5	(34.90m)	114
<i>Clift</i>	3	(34.98m)	114
<i>Sandstone rock</i>	11	(38.48m)	116
<i>Hard rock</i>	2	(39.24m)	12
<i>COAL RIDGE</i>	10	(39.50m)	121
<i>Strong fireclay</i>	2	(40.11m)	121
<i>White rock</i>	4	(41.33m)	135
<i>Clift</i>	2	(42.04m)	11
<i>Soft clift</i>	7	(42.21m)	38
<i>COAL RIDGE</i>	1	(42.24m)	38
<i>Fireclay</i>	2	(42.85m)	140
<i>Clift mixed with rock</i>	12	(45.90m)	150
<i>White rock</i>	5	(47.42m)	15
<i>Clift</i>	4	(47.52m)	15

Continued Overleaf

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

Date
received

Correspond-
ence File No.

1" N.S. Map
No.

1" O.S. Map
No.

Site marked (use as above)
on 1" Map on 6" Map



WL30370/0370 10,000 9/39 A & E.W.Ltd. Gp.685

and Number of Shaft or Bore given by Geological Survey:

Clayton Colliery: Trial Shaft (2).

248 SN 80SW/2
6" Quarter Sheet

LITHOLOGICAL LOCATION	DESCRIPTION	THICKNESS		METRE DEPTH	
	White rock	4		(47.52m)	155
	Hard rock	1	6	(48.74m)	151
	White rock	10	6	(49.20m)	161
	Cliff		1	(52.40m)	171
	White rock	3		(52.43m)	171
	Cliff	2	1	(53.84m)	175
	COAL RIDER		9	(52.97m)	177
	Cliff	6		(54.20m)	177
	Fireclay		1	(54.03m)	183
	COAL RIDER		9	(56.06m)	183
	Black shale		4	(56.29m)	184
	Fireclay	1		(56.39m)	185
	Rock		9	(56.69m)	186
	Cliff mixed with rock	20		(56.92m)	186
	Strong rock	4	9	(63.02m)	202
	Rock	9		(64.92m)	211
	Rock with mine	3		(67.21m)	220
	Rock with black beds	9	4	(68.12m)	223
	Rock with white spar	3	1	(70.97m)	232
	Rock with black beds	2	1	(71.91m)	237
	Cliff	3		(72.54m)	238
	Strong rock with white spar	45		(78.46m)	241
	Strong conglomerate rock	6		(87.17m)	286
	Strong rock with black beds	42		(89.00m)	292
	Hard conglomerate rock	6		(101.50m)	331
	Rock mixed with cliff	43		(103.63m)	340
	Hard conglomerate rock	5		(116.74m)	383
	Hard blue rock without joints	13		(118.26m)	390
	Black rock with thin beds	17		(122.27m)	401
	Very hard blue rock	2		(127.41m)	415
	COAL RIDER (on one side of pit)		4	(128.02m)	416
	Strong rock with white spar	60		(128.12m)	416
	Thin beds of rock with RASHES	6		(146.46m)	460
	Hard rock with thin beds	16		(148.20m)	468
	COAL RIDER (on one side of pit)		6	(153.11m)	502
	Hard conglomerate rock	2	6	(153.26m)	502
	Hard conglomerate with white spar	12		(157.03m)	505
	Black rock with strong beds	12		(157.68m)	517
	Hard blue rock with small partings	30		(161.34m)	520
	Rock with white spar	18		(170.46m)	551
	Conglomerate rock	4	6	(175.92m)	577
	Black rock with thin beds	4	6	(177.34m)	581
	Hard light coloured rock	7	6	(178.71m)	586
	Mixed rock, limestone fossils & COAL partings	4	6	(181.00m)	590
	COAL RIDER		1	(182.37m)	593
	Rock mixed with limestone	21		(182.40m)	593
	Rock with COAL	5	9	(187.40m)	598
	COAL		1	(188.80m)	611
	Cliff		1	(190.55m)	622
	BRIM COAL		1	(191.01m)	626
			3	(191.39m)	627
			7	(191.62m)	628

Probably No 2
not No 2
Probably
mean depth

PEN Y GRAIG

Treat Humphreys Colliery SN80SW2 *206/80*
SECTION OF *Claype Colliery* at *Vale of Neath* 8072 0025 1"248
COUNTY *Glamorgan*
Communicated by *Em Thomas Lloyd* Date of sinking *about 1875*
One-inch Map (N.S.) *248* Six-inch Map *Glam 16*
HEIGHT ABOVE O.D. _____ DIP OF STRATA *small* SN 80 SW

*Inserted in
Abstract in
Memorandum 248*

	Thickness.			Depth from Surface.		
	Yards.	feet.	ins.	Yards.	feet.	ins.
<i>Walking</i>	5	0	0		15	
<i>Hard rock</i>	15	0	0		60	
<i>Sandstone rock</i>	1	1	8		64	8
<i>Rock and chert</i>	1	0	0		67	8
<i>Strong rock</i>	2	1	4		75	
<i>Sandstone rock</i>	1	1	0		79	
<i>Strong rock</i>	4	2	0		93	
<i>Fireclay</i>		2	6		95	6
<i>Rock</i>		1	0		96	6
<i>Clift</i>	1	2	0		101	6
<i>Hard rock</i>		2	0		103	6
<i>Clift</i>		1	6		105	
<i>Hard rock</i>	1	2	0		110	
<i>Clift</i>		1	6		111	6
<i>Hard rock</i>	1	0	0		114	6
<i>Clift</i>			3		114	9
<i>Sandstone rock</i>	3	2	6		126	3
<i>Hard rock</i>		2	6		128	9
<i>Bed of coal</i>			10	43	0	7
<i>Strong fireclay</i>		2	0		131	7
<i>White rock</i>	1	1	0		135	7
<i>Clift</i>		2	4		137	11
<i>Soft clift</i>			7		138	6
<i>Bed of coal</i>			1	46	0	7
<i>Good fireclay</i>		2	0		140	7
<i>Clift mixed with rock</i>	3	1	0		150	7
<i>White rock</i>	1	2	0		155	7
<i>Clift</i>			4		155	11
<i>White rock</i>	1	1	0		160	11
<i>Hard rock</i>		1	6	53	2	5

SECTION OF Clype Colliery at SN80SW/2 2
COUNTY _____
Communicated by _____ Date of sinking _____
One-inch Map (N.S.) _____ Six-inch Map _____
HEIGHT ABOVE O.D. _____ DIP OF STRATA _____

	Thickness.			Depth from Surface.		
	Yards.	feet.	ins.	Yards.	feet.	ins.
Brought forward				53	2	5
White rock	3	1	6	171	11	
Clift			1	172		
White rock	1	0	0	175		
Clift		2	1	177	1	
Side of coal			9	177	10	
Clift	2	0	0	183	10	
Fireclay			1	183	11	
Side of coal			9	184	8	
Black shale			4	185		
Fireclay		1	0	186		
Rock			9	186	9	
Clift mixed with rock	6	2	0	206	9	
Strong rock	1	1	9	211	6	
Rock	3	0	0	220	6	
Rock with mine	1	0	0	222	6	
Rock with black bds	3	0	4	232	10	
Rock with white spar	1	0	1	235	11	
Rock with black bds		2	1	238	1	0
Clift	1	0	0	241		
Strong rock with white spar	15	0	0	286		
Strong conglomerate rock	2	0	0	292		
Strong rock with black bds	14	0	0	334		
Hard conglomerate rock	2	0	0	360		
Rock mixed with clift	14	1	0	383		
Hard conglomerate rock	1	2	0	388		
Hard blue rock without joints	4	1	0	401		
Black rock with thin bds	5	2	0	418		
Very hard blue rock		2	0	420		
Side of coal one side of pit			4	420	4	4
				140	0	

SECTION OF Clay Colliery at SN80SW/2 3
COUNTY _____
Communicated by _____ Date of sinking _____
One-inch Map (N.S.) _____ Six-inch Map _____
HEIGHT ABOVE O.D. _____ DIP OF STRATA _____

	Thickness.			Depth from Surface.		
	Yards.	feet.	ins.	Yards.	feet.	ins.
Brought forward					620	4
Strong rock with white spar	20	0	0	140	0	4
Thin beds of rock with ^{coal nodules} conglomerate	2	0	0	480	4	
Hard rock with thin beds	5	1	0	486	4	
Rider of coal one side of pit			6	502	4	
Hard conglomerate rock		2	6	502	10	
do with white spar	4	0	0	505	4	
Black rock with strong beds	4	0	0	517	4	
Hard blue rock with small partings	10	0	0	529	4	
Rock with white spar	6	0	0	559	4	
Conglomerate rock	1	1	6	577	4	
Black rock with thin beds	1	1	6	581	10	
Hard light-coloured rock	2	1	6	586	4	
Mixed rock ironstone fossils and coal-partings	1	1	6	593	10	
Small rider of coal			1	598	4	
Rock mixed with ironstone	7	0	0	598	5	
Rock with coal	1	2	9	619	5	
Coal		1	6	625	2	
Clod		1	3	626	8	
Bottom Coal			9	627	11	
				628	8	
				209	1	8

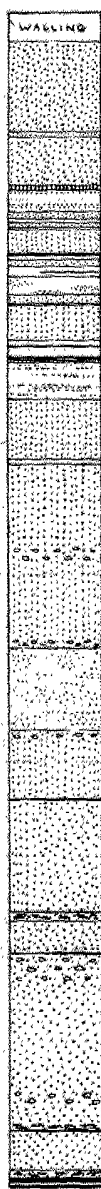
Remarks by Mr Lloyd.

This is probably Shandale No 1 or No 2. Pennant rock predominates. Measurements originally taken roughly. 36 of thickness given only in yards and feet without inches, some giving only feet. A fault being seen it is natural that small riders should show one side of pit. White spar often mentioned generally indicates a fault. Black beds must mean rock is sandstone interspersed thickly with coal plants.

4860

Trial Shaft near Clyne Cottage.

SN 805W/2



628-8

11-6 Clod 1-3

PENYGRAIG

Zetica UXO risk map

UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 280084,199469



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (<https://zeticauxo.com/downloads-and-resources/risk-maps/>)

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It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

BGS Radon report

DANIEL KAYE
HYDROCK
WHARTON PLACE
13 WHARTON STREET
CARDIFF
CF10 1GS

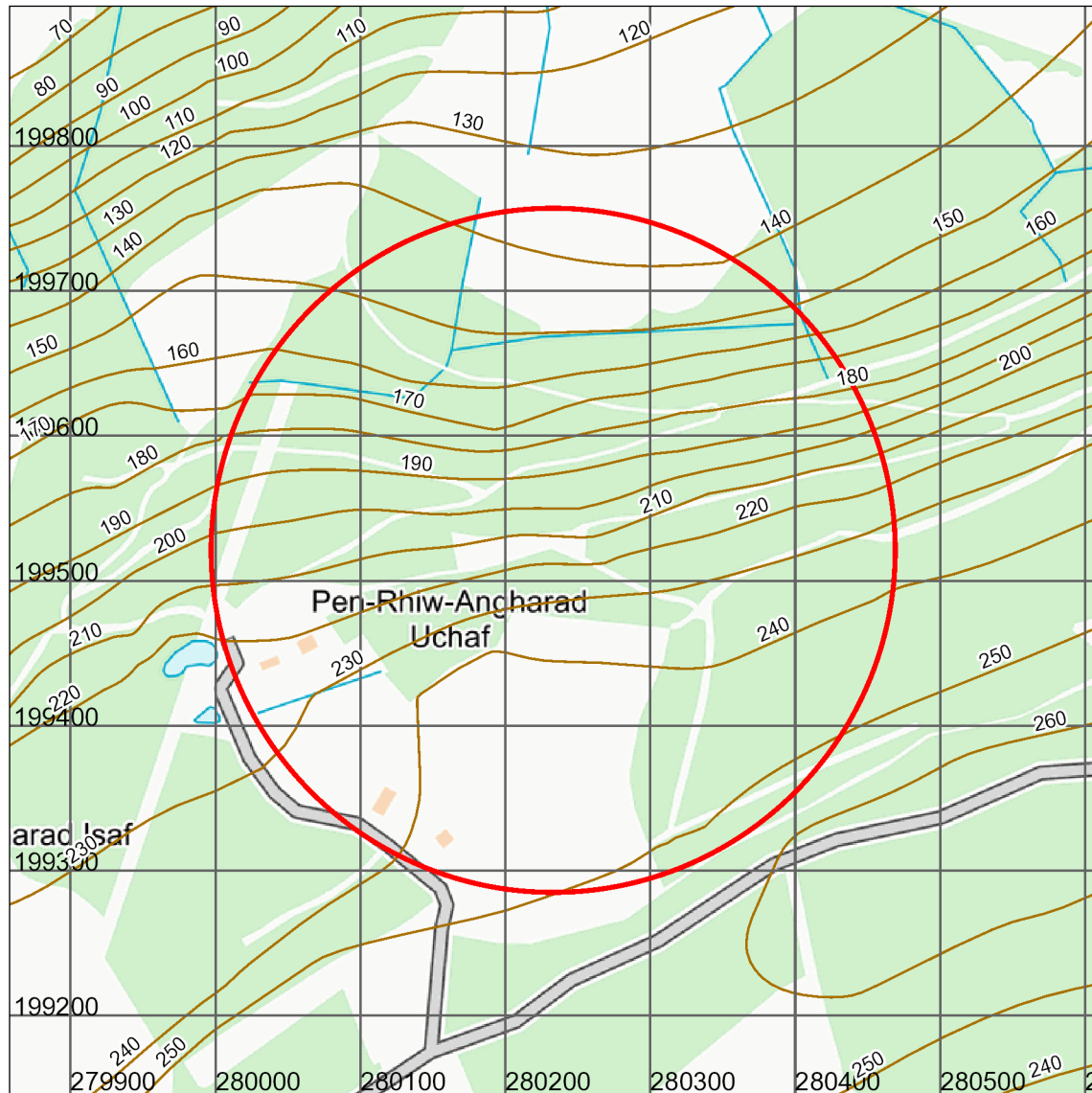
Radon Report

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: *BGS_335835/50064*

Client reference: 16044

Search location



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Search location indicated in red

Area centred at: 280233,199521

Radius of site area: 236 metres

Radon Report: UK

When extensions are made to existing buildings in high radon areas, or new buildings are constructed in these areas, the Building Regulations for England, Wales, Scotland and Northern Ireland require that protective measures are taken against radon entering the building.

This report provides information on whether radon protective measures are required. Depending on the probability of buildings having high radon levels, the Regulations may require either:

1. No protective measures
2. Basic protective measures
3. Full protective measures

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2023 edition)*, which also provides guidance on what to do if the result indicates that protective measures are required.

Is the property in an area where radon protective measures are required for new buildings or extensions to existing ones as described in publication BR211 (2023 edition) Radon: Guidance on protective measures for new buildings?

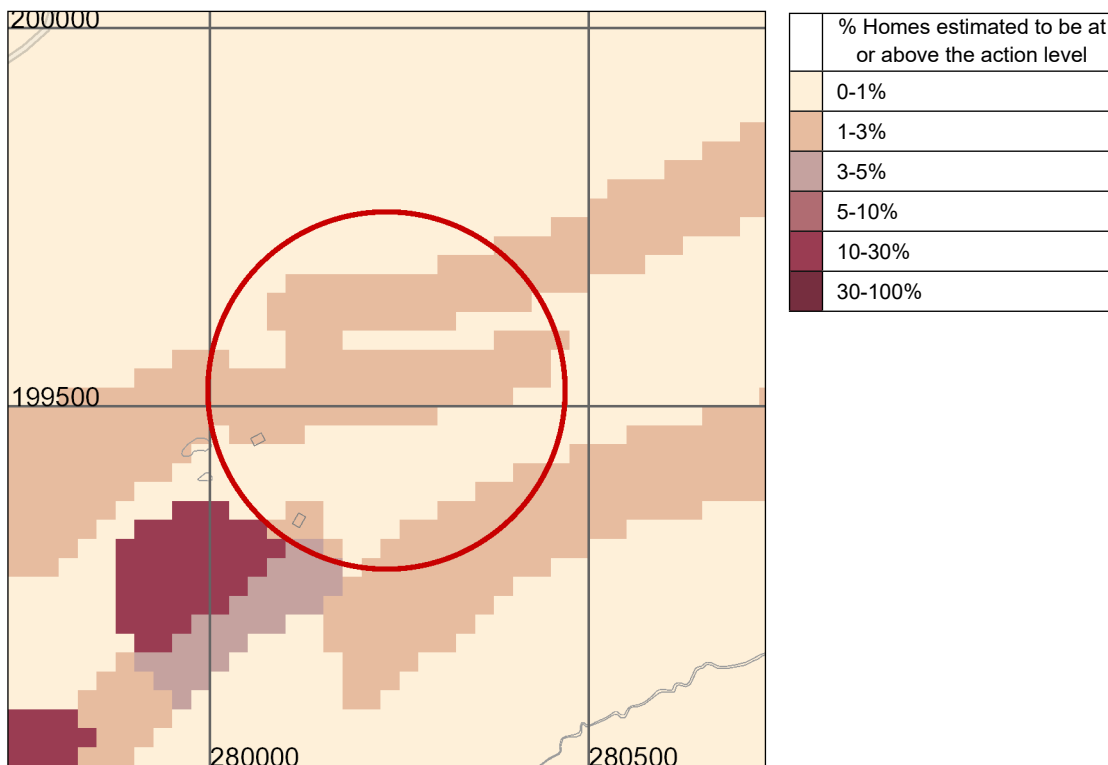
FULL RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.

More details of the protective measures required are available in *BR211 Radon: Guidance on protective measures for new buildings (2023 Edition)*.

Whether or not the radon level in a building is above or below the radon Action Level can only be established by having the building tested. The UKHSA provides a radon testing service which can be accessed at www.ukradon.org or by telephone (01235 822622).

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.

Radon Affected Area



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Scale: 1:10 000 (1cm = 100 m)

Search area indicated in red

Is the property in a radon Affected Area as defined by the UK Health Security Agency (UKHSA) and if so what percentage of homes are estimated to be at or above the Action Level? YES

Additional Information

THE PROPERTY IS IN A RADON AFFECTED AREA WHERE 10 TO 30% OF HOMES ARE ESTIMATED TO BE AT OR ABOVE THE ACTION LEVEL.

The UKHSA recommends a radon 'Action Level' of 200 Becquerels per cubic metre of air (Bq m^{-3}) for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to be at or above the Action Level the area should be regarded as a radon Affected Area.

This report informs you whether the property is in a radon Affected Area and the percentage of homes that are estimated to be at or above the radon Action Level at this location. Being in an Affected Area does not necessarily mean there is a high radon level within the property; the only way to determine the radon level is to carry out a radon measurement.

The UKHSA advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels at or above the Action Level (200 Bq m⁻³) should be remediated. Householders with levels between the Target Level (100 Bq m⁻³) and Action Level should seriously consider reducing their radon level, especially if they are at greater risk, such as if they are current or ex smokers. Whether or not a home is in fact above or below the Action Level or Target Level can only be established by having the building tested. The UKHSA provides a validated radon testing service which can be accessed at www.ukradon.org.

The information in this report provides an answer to one of the standard legal enquiries on house purchase in England and Wales, known as Law Society CON29 Enquiries of the Local Authority (2016); 3.14 Radon Gas: Do records indicate that the property is in a “Radon Affected Area” as identified by the UKHSA. The data can also be used to advise house buyers and sellers in Scotland and Northern Ireland.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were at or above the radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and if the results of re-testing confirmed the effectiveness of the measures.

Further information on radon is available from the UKHSA at www.ukradon.org.

What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.

Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level is at or above the Action Level, measures should be taken to reduce the concentration.

Radon in workplaces

The Ionising Radiation Regulations 2017 require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293): **Radon in the workplace**. BRE publications may be obtained from the BRE Bookshop, Tel: 01923 664262, email: bookshop@bre.co.uk website: www.brebookshop.com

Contact Details

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General Terms & Conditions

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- Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
- The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.
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- Note that for some sites, the latest available records may be historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

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**Report issued by
BGS Enquiry Service**

BGS SuDS report

DANIEL KAYE
HYDROCK
WHARTON PLACE
13 WHARTON STREET
CARDIFF
CF10 1GS

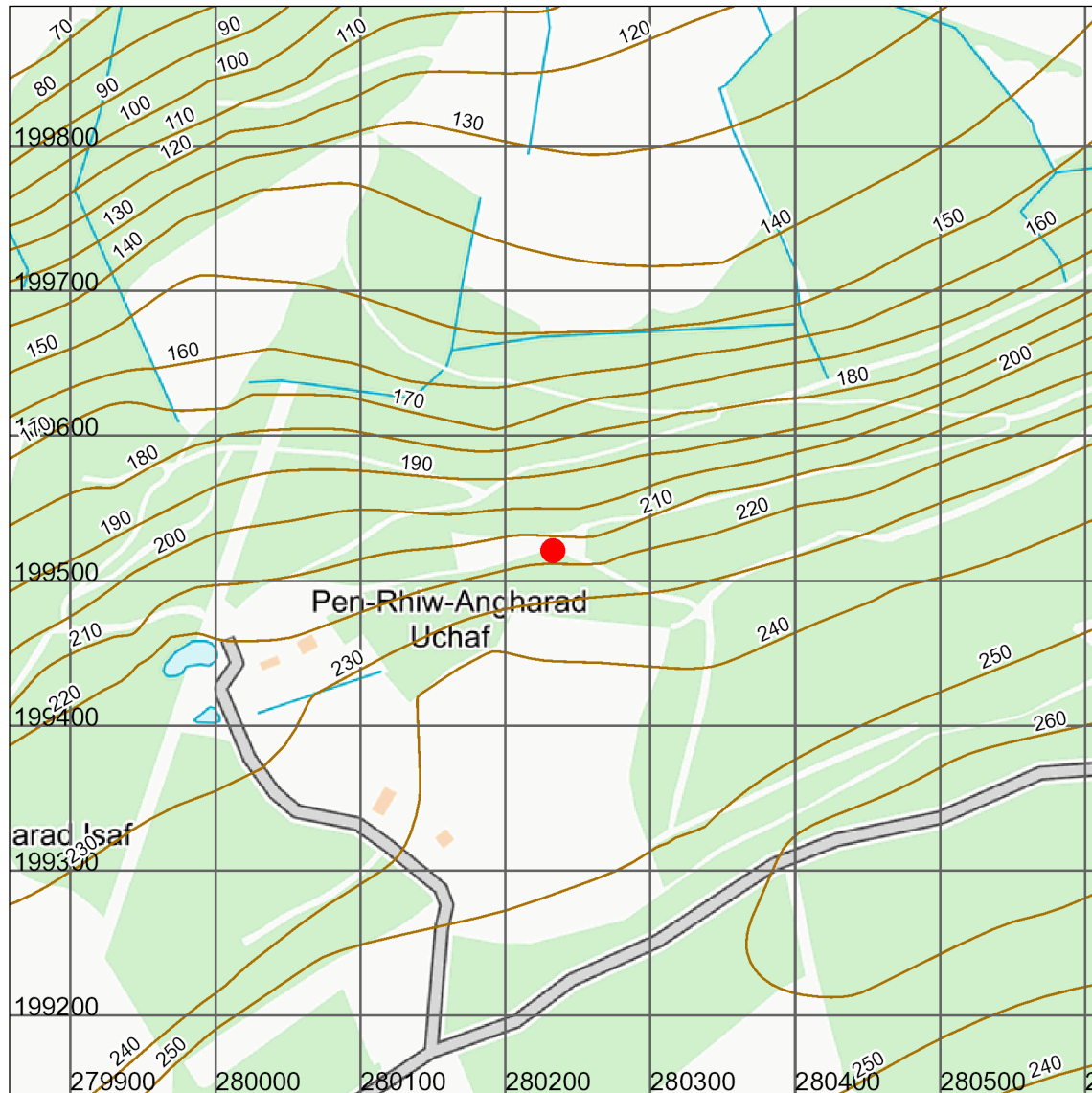
Infiltration SuDS GeoReport:

This report provides information on the suitability of the subsurface for the installation of infiltration sustainable drainage systems (SuDS). It provides information on the properties of the subsurface with respect to significant constraints, drainage, ground stability and groundwater quality protection.

Report Id: *BGS_335835/50063*

Client reference: 16044

Search location



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Search location indicated in red

Point centred at: 280233,199521

Assessment for an infiltration sustainable drainage system

Introduction

Sustainable drainage systems (SuDS) are drainage solutions that manage the volume and quality of surface water close to where it falls as rain. They aim to reduce flow rates to rivers, increase local water storage capacity and reduce the transport of pollutants to the water environment. There are four main types of SuDS, which are often designed to be used in sequence. They comprise:

- **source control:** systems that control the rate of runoff
- **pre-treatment:** systems that remove sediments and pollutants
- **retention:** systems that delay the discharge of water by providing surface storage
- **infiltration:** systems that mimic natural recharge to the ground.

This report focuses on infiltration SuDS. It provides subsurface information on the properties of the ground with respect to drainage, ground stability and groundwater quality protection. It is intended principally for those involved in the preliminary assessment of the suitability of the ground for infiltration SuDS, and those involved in assessing proposals from others for sustainable drainage, but it may also be useful to help house-holders judge whether or not further professional advice should be sought. If in doubt, users should consult a suitably-qualified professional about the results in this report before making any decisions based upon it.

This GeoReport is structured in two parts:

- **Part 1. Summary data.**

Comprises three maps that summarise the data contained within Part 2.

- **Part 2. Detailed data.**

Comprises a further 24 maps in four thematic sections:

- **Very significant constraints.** Maps highlight areas where infiltration may result in adverse impacts due to factors including: ground instability (soluble rocks, non-coal shallow mining and landslide hazards); persistent shallow groundwater, or the presence of made ground, which may represent a ground stability or contamination hazard.
- **Drainage potential.** Maps indicate the drainage potential of the ground, by considering subsurface permeability, depth to groundwater and the presence of floodplain deposits.
- **Ground stability.** Maps indicate the presence of hazards that have the potential to cause ground instability resulting in damage to some buildings and structures, if water is infiltrated to the ground.
- **Groundwater protection.** Maps provide key indicators to help determine whether the groundwater may be susceptible to deterioration in quality as a result of infiltration.

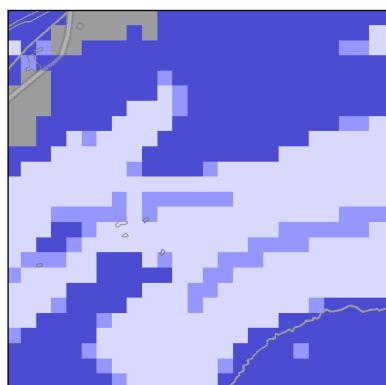
This report considers the suitability of the subsurface for the installation of infiltration SuDS, such as soakaways, infiltration basins or permeable pavements. It provides subsurface data to indicate whether, and which type of infiltration system may be appropriate. It does not state that infiltration SuDS are, or are not, appropriate as this is highly dependent on the design of the individual system. This report therefore describes the subsurface conditions at the site, allowing the reader to determine the suitability of the site for infiltration SuDS.

The map and text data in this report is similar to that provided in the '*Infiltration SuDS Map: Detailed*' national map product. For further information about the data, consult the '*User Guide for the Infiltration SuDS Map: Detailed*', available from <http://nora.nerc.ac.uk/16618/>.

PART 1: SUMMARY DATA

This section provides a summary of the data.

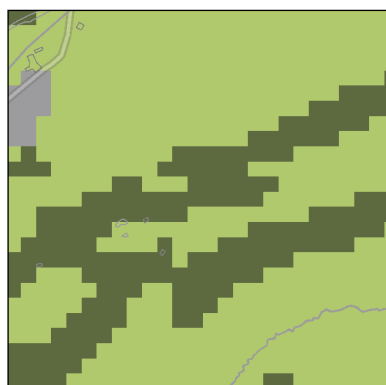
In terms of the drainage potential, is the ground suitable for infiltration SuDS?



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-  Highly compatible for infiltration SuDS. The subsurface is likely to be suitable for free-draining infiltration SuDS.
-  Probably compatible for infiltration SuDS. The subsurface is probably suitable although the design may be influenced by the ground conditions.
-  Opportunities for bespoke infiltration SuDS. The subsurface is potentially suitable although the design will be influenced by the ground conditions.
-  Very significant constraints are indicated. There is a very significant potential for one or more hazards associated with infiltration.

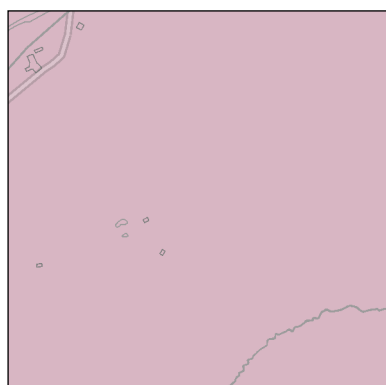
Is ground instability likely to be a problem?



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-  Increased infiltration is very unlikely to result in ground instability.
-  Ground instability problems may be present or anticipated, but increased infiltration is unlikely to result in ground instability.
-  Ground instability problems are probably present. Increased infiltration may result in ground instability.
-  There is a very significant potential for one or more geohazards associated with infiltration.

Is the groundwater susceptible to deterioration in quality?



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-  The groundwater is not expected to be especially vulnerable to contamination.
-  The groundwater may be vulnerable to contamination.
-  The groundwater is likely to be vulnerable to contaminants.
-  Made ground is present at the surface. Infiltration may increase the possibility of remobilising pollutants.

PART 2: DETAILED DATA

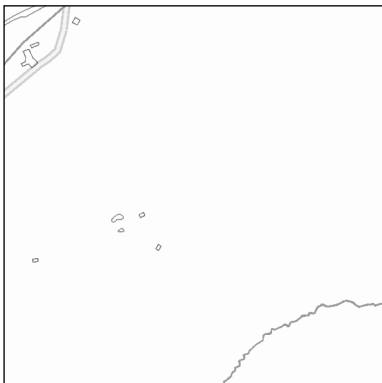
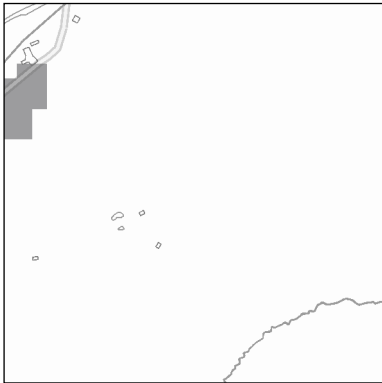
This section provides further information about the properties of the ground and will help assess the suitability of the ground for infiltration SuDS.

Section 1. Very significant constraints

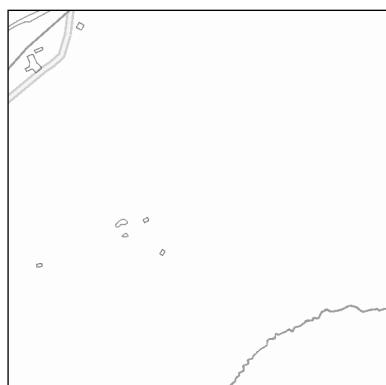
Where maps are overlain by grey polygons, geological or hydrogeological hazards may exist that could be made worse by infiltration. The following hazards are considered:

- soluble rocks
- landslides
- shallow mining (not including coal)
- shallow groundwater
- made ground

For more information read 'Explanation of terms' at the end of this report.

Soluble rock hazard	
 Contains OS data © Crown Copyright and database right 2023	☒ Very significant soluble rock hazard. Soluble rocks are present with a very significant possibility of localised subsidence that could be initiated or made worse by infiltration. The site investigation should consider whether the potential for or the consequences of subsidence as a result of infiltration are significant.
	☐ Very significant soluble rock hazards are not present; however this hazard may still need to be considered. See Part 3.
Landslide hazard	
 Contains OS data © Crown Copyright and database right 2023	☒ Very significant landslide hazard. Slope instability problems are almost certainly present and may be active. An increase in moisture content as a result of infiltration may cause the slope to fail. The site investigation should consider whether the potential for or the consequences of landslide as a result of infiltration are significant.
	☐ Very significant landslide hazards are not present; however this hazard may still need to be considered. See Part 3.

Shallow mining hazard (not including coal)



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Very significant mining hazard.

Shallow mining is likely to be present with a very significant possibility of localised subsidence that could be initiated or made worse by increased infiltration. Also, infiltration may increase the possibility of remobilising pollutants. The site investigation should consider whether the potential for or consequences of subsidence and/or remobilisation of pollutants as a result of infiltration are significant.



Very significant mining hazards are not present; however this hazard may still need to be considered. See Part 3.

Persistent shallow groundwater



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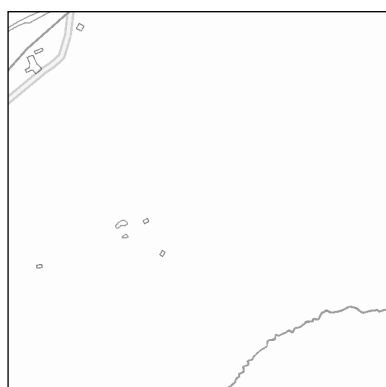
Very high likelihood of persistent or seasonally shallow groundwater.

Persistent or seasonally shallow groundwater is likely to be present. Infiltration may increase the likelihood of soakaway inundation, or groundwater emergence at the surface. The site investigation should consider whether the potential for or the consequences of groundwater level rise as a result of infiltration are significant.



See Part 2 for the likely depth to water table.

Made ground



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Made ground present.

Made ground is present at the surface. Infiltration may affect ground stability or increase the possibility of remobilising pollutants. The site investigation should consider whether the potential for or consequences of ground instability and/or pollutant leaching as a result of infiltration are significant.



None recorded

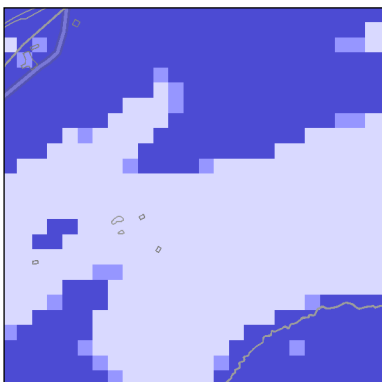
Section 2. Drainage potential

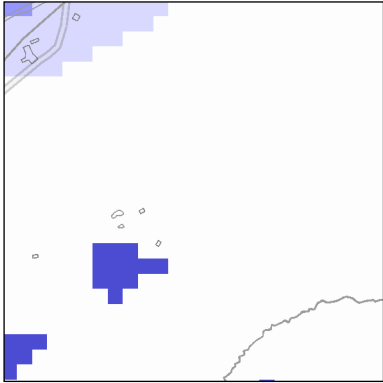
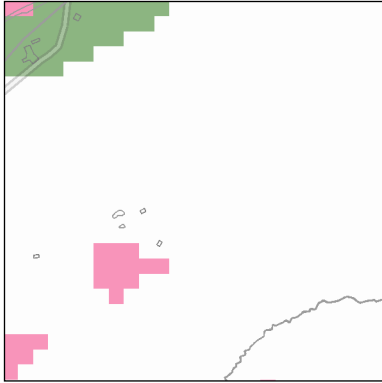
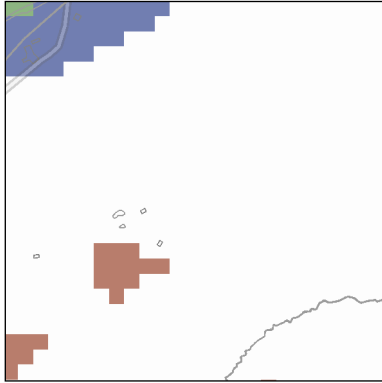
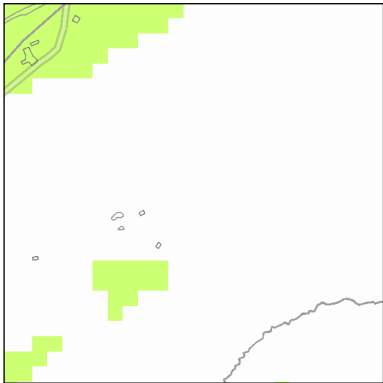
The following pages contain maps that will help you assess the drainage potential of the ground by considering the:

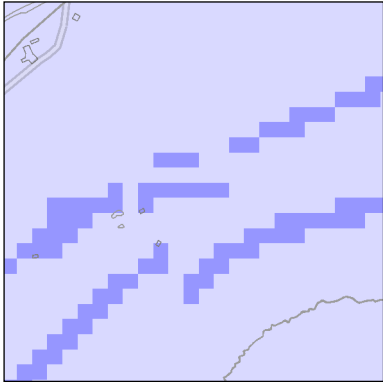
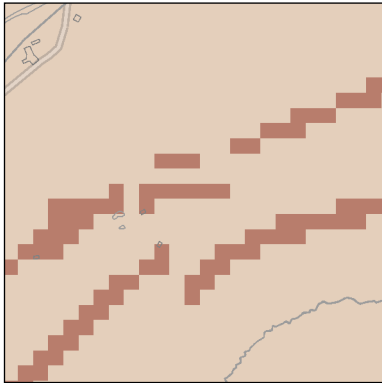
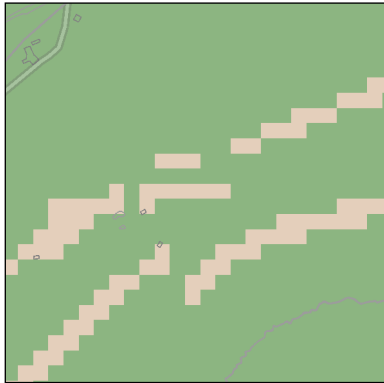
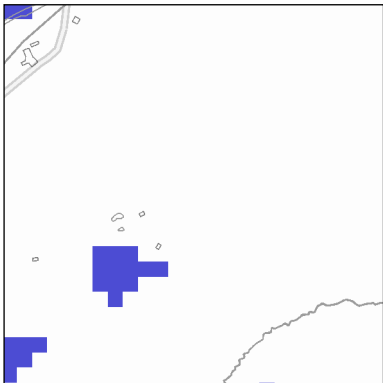
- depth to water table
- permeability of the superficial deposits
- thickness of the superficial deposits
- permeability of the bedrock
- presence of floodplains

Superficial deposits are not present everywhere and therefore some areas of the *superficial deposit permeability* map may not be coloured. Where this is the case, the *bedrock permeability* map shows the likely permeability of the ground. Superficial deposits in some places are very thin and hence in these places you may wish to consider both the permeability of the superficial deposits and the permeability of the bedrock. The *superficial thickness* map will tell you whether the superficial deposits are thin (< 3 m thick) or thick (>3 m). Where they are over 3 m thick, the permeability of the bedrock may not be relevant.

For more information read 'Explanation of terms' at the end of this report.

Depth to groundwater table	
 Contains OS data © Crown Copyright and database right 2023	 Groundwater is likely to be more than 5 m below the ground surface throughout the year.
	 Groundwater is likely to be between 3 and 5 m below the ground surface for at least part of the year.
	 Groundwater is likely to be less than 3 m below the ground surface for at least part of the year.

Superficial deposit permeability		
 Contains OS data © Crown Copyright and database right 2023	 Superficial deposits are likely to be free-draining .	
	 The superficial deposit permeability is spatially variable , but likely to permit moderate infiltration.	
	 Superficial deposits are likely to be poorly draining .	
These maps show the permeability range that is summarised above.  Very Low  Low  Moderate  High  Very High	Minimum  Contains OS data © Crown Copyright and database right 2023	Maximum  Contains OS data © Crown Copyright and database right 2023
Superficial deposit thickness		
 Contains OS data © Crown Copyright and database right 2023	 The thickness of superficial deposits is < 3 m and hence the permeability of the ground may be dependent on both the superficial deposits (where present) and underlying bedrock (see below).	
	 The thickness of superficial deposits is > 3 m and hence the permeability of the superficial deposits is likely to determine the permeability of the ground.	

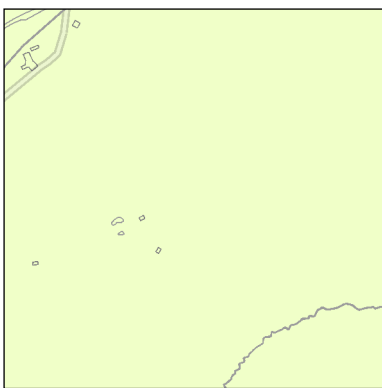
Bedrock permeability		
 Contains OS data © Crown Copyright and database right 2023	Bedrock deposits are likely to be free-draining.	
	The bedrock permeability is spatially variable, but likely to permit moderate infiltration.	
	Bedrock deposits are likely to be poorly draining.	
These maps show the permeability range that is summarised above. Key Very Low Low Moderate High Very High	Minimum	Maximum
	 Contains OS data © Crown Copyright and database right 2023	 Contains OS data © Crown Copyright and database right 2023
	Geological indicators of flooding	
 Contains OS data © Crown Copyright and database right 2023	Superficial floodplain deposits or low-lying coastal areas have been identified. Groundwater levels may rise in response to high river or tide levels, potentially causing inundation of subsurface infiltration SuDS.	

Section 3. Ground stability

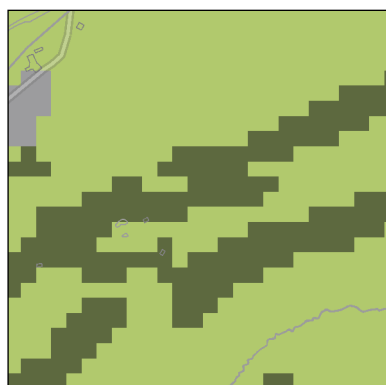
The following pages contain maps that will help you assess whether infiltration may impact the stability of the ground. They consider hazards associated with:

- soluble rocks
- landslides
- shallow mining
- running sands
- swelling clays
- compressible ground, and
- collapsible ground

In the following maps, geohazards that are identified in green are unlikely to prevent infiltration SuDS from being installed, but they should be considered during design. For more information read 'Explanation of terms' at the end of this report.

Soluble rocks	
 Contains OS data © Crown Copyright and database right 2023	 Increased infiltration is unlikely to result in subsidence.
	 Increased infiltration is unlikely to cause localised subsidence, but potential impacts should be considered.
	 Increased infiltration may result in localised subsidence. The potential for or the consequences of subsidence associated with soluble rocks should be considered.
	 Very significant possibility of localised subsidence that could be initiated or made worse by infiltration.

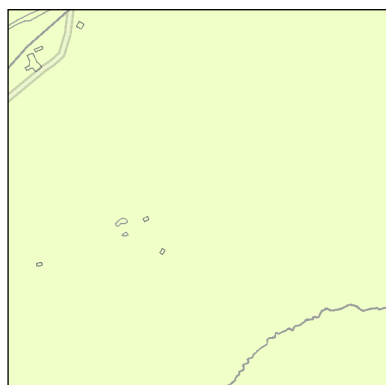
Landslides



Contains OS data © Crown Copyright and database right 2023

-  Increased infiltration is unlikely to lead to slope instability.
-  Slope instability problems may be present or anticipated, but increased infiltration is unlikely to cause instability
-  Slope instability problems are probably present or have occurred in the past, and increased infiltration may result in slope instability.
-  Slope instability problems are almost certainly present and may be active. An increase in moisture content as a result of infiltration may cause the slope to fail.

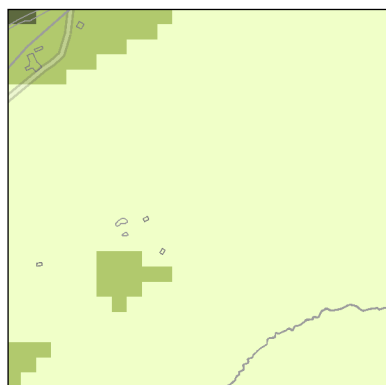
Shallow mining



Contains OS data © Crown Copyright and database right 2023

-  Increased infiltration is unlikely to lead to subsidence.
-  Shallow mining is possibly present. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Shallow mining could be present with a significant possibility that localised subsidence could be initiated or made worse by increased infiltration.
-  Shallow mining is likely to be present, with a very significant possibility that localised subsidence may be initiated or made worse by increased infiltration.

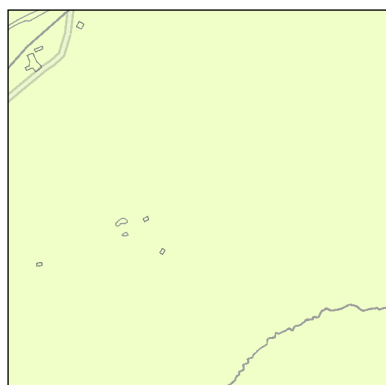
Running sand



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-  Increased infiltration is unlikely to cause ground collapse associated with running sands.
-  Running sand is possibly present. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Significant possibility for running sand problems. Increased infiltration may result in a geohazard.

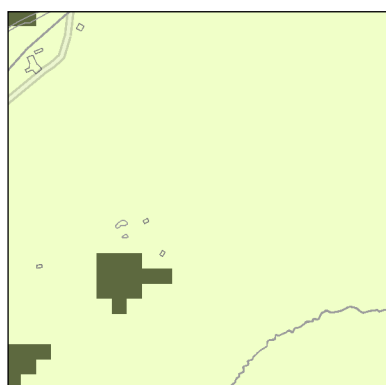
Swelling clays



Contains OS data © Crown Copyright and database right 2023

-  Increased infiltration is unlikely to cause shrink-swell ground movement.
-  Ground is susceptible to shrink-swell ground movement. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Ground is susceptible to shrink-swell ground movement. Increased infiltration may result in a geohazard.

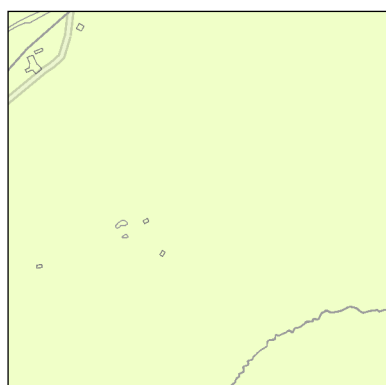
Compressible ground



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-  Increased infiltration is unlikely to lead to ground compression.
-  Compressibility and uneven settlement hazards are probably present. Increased infiltration may result in a geohazard.

Collapsible ground



Contains OS data © Crown Copyright and database right 2023

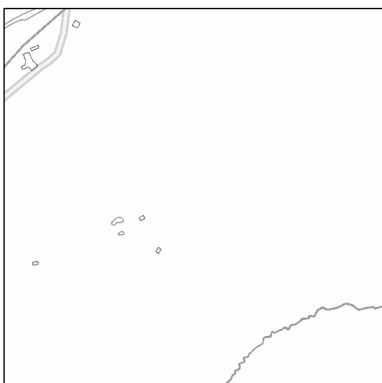
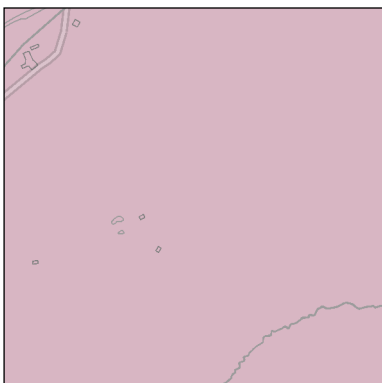
-  Increased infiltration is unlikely to result in subsidence.
-  Deposits with potential to collapse when loaded and saturated are possibly present in places. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Deposits with potential to collapse when loaded and saturated are probably present in places. Increased infiltration may result in a geohazard.

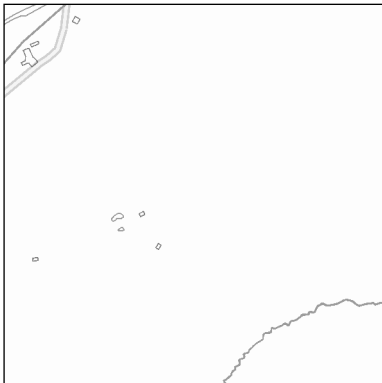
Section 4. Groundwater quality protection

The following pages contain maps showing some of the information required to ensure the protection of groundwater quality. Data presented includes:

- groundwater source protection zones (Environment Agency data)
- predominant flow mechanism
- made ground

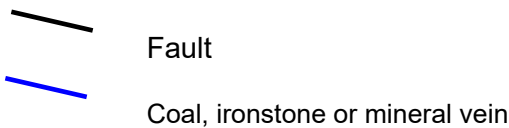
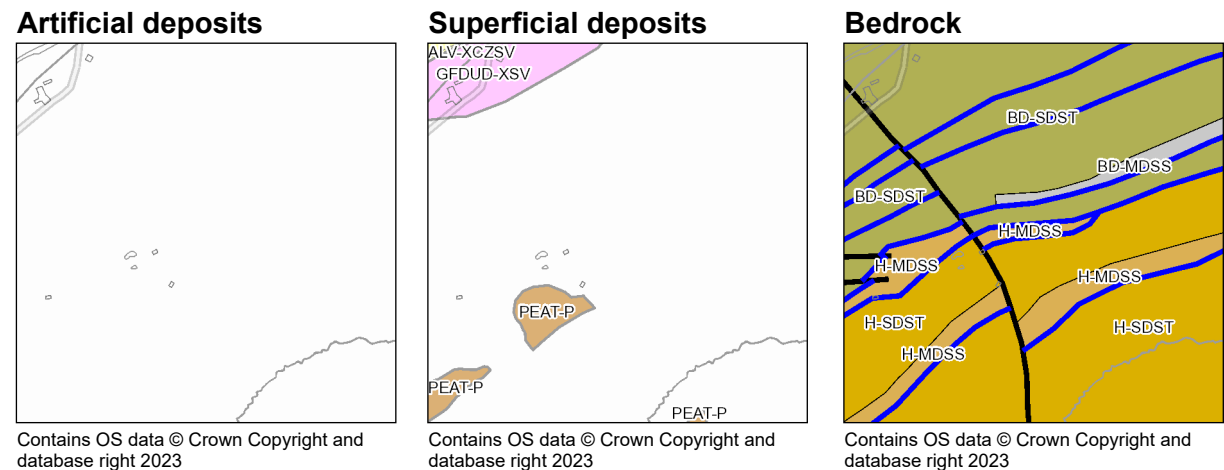
For more information read 'Explanation of terms' at the end of this report.

Groundwater source protection zones	
 Contains OS data © Crown Copyright and database right 2023 Derived in part from Source Protection Zone data provided under licence from the Environment Agency © Environment Agency 2023.	Groundwater is not within a source protection zone.
	Source protection zone IV
	Source protection zone III
	Source protection zone II
	Source protection zone I
Predominant flow mechanism	
 Contains OS data © Crown Copyright and database right 2023	Water is likely to percolate through the unsaturated zone to the groundwater through either the pore space in granular media or through porespace and fractures; these processes have some potential for contaminant removal and breakdown.
	Water is likely to percolate through the unsaturated zone to the groundwater through fractures, a process which has little potential for contaminant removal and breakdown.

Made ground	
 Contains OS data © Crown Copyright and database right 2023	 Made ground is present at the surface. Infiltration may increase the possibility of remobilising pollutants.

Section 5. Geological Maps

The following maps show the artificial, superficial and bedrock geology within the area of interest.



Note: Faults and Coals, ironstone & mineral veins are shown for illustration and to aid interpretation of the map. Not all such features are shown and their absence on the map face does not necessarily mean that none are present

Key to Artificial deposits:
No deposits recorded by BGS in the search area

Key to Superficial deposits:

Map colour	Computer Code	Rock name	Rock type
	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
	PEAT-P	PEAT	PEAT

Key to Bedrock geology:

Map colour	Computer Code	Rock name	Rock type
	BD-MDSS	BRITHDIR MEMBER	MUDSTONE, SILTSTONE AND SANDSTONE
	BD-SDST	BRITHDIR MEMBER	SANDSTONE
	H-MDSS	HUGHES MEMBER	MUDSTONE, SILTSTONE AND SANDSTONE
	H-SDST	HUGHES MEMBER	SANDSTONE

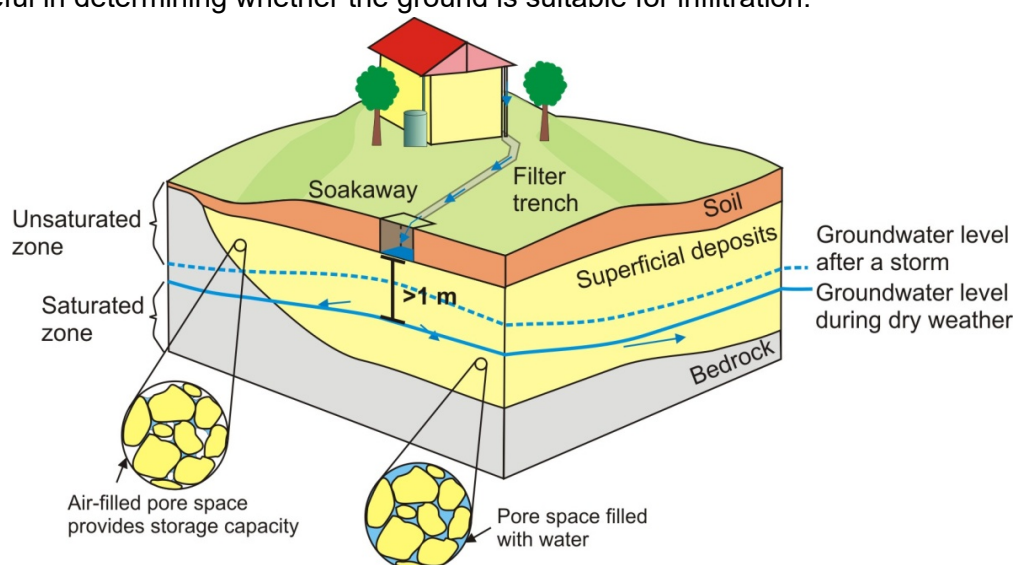
Limitations of this report:

- This report is concerned with the potential for infiltration-to-the-ground to be used as a SuDS technique at the site described. It only considers the subsurface beneath the search area and does NOT consider potential surface or subsurface impacts outside of that area.
- This report is NOT an alternative for an on-site investigation or soakaway test, which might reach a different conclusion.
- This report must NOT be used to justify disposal of foul waste or grey water.
- This report is based on and limited to an interpretation of the records held by the British Geological Survey (BGS) at the time the search is performed. The datasets used (with the exception of that showing depth to water table) are based on 1:50 000 digital geological maps and not site-specific data.
- Other more specific and detailed ground instability information for the site may be held by BGS, and an assessment of this could result in a modified assessment.
- To interpret the maps correctly, the report must be viewed and printed in colour.
- The search does NOT consider the suitability of sites with regard to:
 - previous land use,
 - potential for, or presence of contaminated land
 - presence of perched water tables
 - shallow mining hazards relating to coal mining. Searches of coal mining should be carried out via The Coal Authority Mine Reports Service: www.coalminingreports.co.uk.
 - made ground, where not recorded
 - proximity to landfill sites (searches for landfill sites or contaminated land should be carried out through consultation with local authorities/Environment Agency)
 - zones around private water supply boreholes that are susceptible to groundwater contamination.
- This report is supplied in accordance with the GeoReports Terms & Conditions available separately, and the copyright restrictions described at the end of this report

Explanation of terms

Depth to groundwater

In the shallow subsurface, the ground is commonly unsaturated with respect to water. Air fills the spaces within the soil and the underlying superficial deposits and bedrock. At some depth below the ground surface, there is a level below which these spaces are full of water. This level is known as the groundwater level, and the water below it is termed the groundwater. When water is infiltrated, the groundwater level may rise temporarily. To ensure that there is space in the unsaturated zone to accommodate this, there should be a minimum thickness of 1 m between the base of the infiltration system and the water table. An estimate of the *depth to groundwater* is therefore useful in determining whether the ground is suitable for infiltration.



Groundwater flooding

Groundwater flooding occurs when a rise in groundwater level results in very shallow groundwater or the emergence of groundwater at the surface. If infiltration systems are installed in areas that are susceptible to groundwater flooding, it is possible that the system could become inundated. The susceptibility map seeks to identify areas where the geological conditions and water tables indicate that groundwater level rise could occur under certain circumstances. A high susceptibility to groundwater flooding classification does not mean that groundwater flooding has ever occurred in the past, or will do so in the future as the susceptibility maps do not contain information on how often flooding may occur. The susceptibility maps are designed for planning; identifying areas where groundwater flooding might be an issue that needs to be taken into account.

Geological indicators of flooding

In floodplain deposits, groundwater level can be influenced by the water level in the adjacent river. Groundwater level may increase during periods of fluvial flood and therefore this should be taken into account when designing infiltration systems on such deposits. The *geological indicators of flooding* dataset shows where there is geological evidence (floodplain deposits) that flooding has occurred in the past.

For further information on flood-risk, the likely frequency of its recurrence in relation to any proposed development of the site, and the status of any flood prevention measures in place, you are advised to contact the local office of the Environment Agency (England and Wales) at www.environment-agency.gov.uk/ or the Scottish Environment Protection Agency (Scotland) at www.sepa.org.uk.

Artificial ground

Artificial ground comprises deposits and excavations that have been created or modified by human activity. It includes ground that is worked (quarries and road cuttings), infilled (back-filled quarries), landscaped (surface re-shaping), disturbed (near surface mineral workings) or classified as made ground (embankments and spoil heaps). The composition and properties of artificial ground are often unknown. In particular, the permeability and chemical composition of the artificial ground should be determined to ensure that the ground will drain and that any contaminants present will not be remobilised.

Superficial permeability

Superficial deposits are those geological deposits that were formed during the most recent period of geological time (as old as 2.6 million years before present). They generally comprise relatively thin deposits of gravel, sand, silt and clay and are present beneath the pedological soil in patches or larger spreads over much of Britain. The ease with which water can percolate through these deposits is controlled by their permeability and varies widely depending on their composition. Those deposits comprising clays and silts are less permeable and thus infiltration is likely to be slow, such that water may pool on the surface. In comparison, deposits comprising sands and gravels are more permeable allowing water to percolate freely.

Bedrock permeability

Bedrock forms the main mass of rock forming the Earth. It is present everywhere, commonly beneath superficial deposits. Where the superficial deposits are thin or absent, the ease with which water will percolate into the ground depends on the permeability of the bedrock.

Natural ground instability

Natural ground instability refers to the propensity for upward, lateral or downward movement of the ground that can be caused by a number of natural geological hazards (e.g. ground dissolution/compressible ground). Some movements associated with particular hazards may be gradual and of millimetre or centimetre scale, whilst others may be sudden and of metre or tens of metres scale. Significant natural ground instability has the potential to cause damage to buildings and structures, especially when the drainage characteristics of a site are altered. It should be noted, however, that many buildings, particularly more modern ones, are built to such a standard that they can remain unaffected in areas of significant ground movement.

Shrink-swell

A shrinking and swelling clay changes volume significantly according to how much water it contains. All clay deposits change volume as their water content varies, typically swelling in winter and shrinking in summer, but some do so to a greater extent than others. Contributory circumstances could include drought, leaking service pipes, tree roots drying-out the ground or changes to local drainage patterns, such as the creation of soakaways. Shrinkage may remove support from the foundations of buildings and structures, whereas clay expansion may lead to uplift (heave) or lateral stress on part or all of a structure; any such movements may cause cracking and distortion.

Landslides (slope stability)

A landslide is a relatively rapid outward and downward movement of a mass of ground on a slope, due to the force of gravity. A slope is under stress from gravity but will not move if its strength is greater than this stress. If the balance is altered so that the stress exceeds the strength, then movement will occur. The stability of a slope can be reduced by removing ground at the base of the slope, by placing material on the slope, especially at the top, or by increasing the water content of the materials forming the slope. Increase in subsurface water content beneath a soakaway could increase susceptibility to landslide hazards. The assessment of landslide hazard refers to the stability of the present land surface. It does not encompass a consideration of the stability of excavations.

Soluble rocks (dissolution)

Some rocks are soluble in water and can be progressively removed by the flow of water through the ground. This process tends to create cavities, potentially leading to the collapse of overlying materials and possibly subsidence at the surface. The release of water into the subsurface from infiltration systems may increase the dissolution of rock or destabilise material above or within a cavity. Dissolution cavities may create a pathway for rapid transport of contaminated water to an aquifer or water course.

Compressible ground

Many ground materials contain water-filled pores (the spaces between solid particles). Ground is compressible if a building (or other load) can cause the water in the pore space to be squeezed out, causing the ground to decrease in thickness. If ground is extremely compressible the building may sink. If the ground is not uniformly compressible, different parts of the building may sink by different amounts, possibly causing tilting, cracking or distortion. The compressibility of the ground may alter as a result of changes in subsurface water content caused by the release of water from soakaways.

Collapsible deposits

Collapsible ground comprises certain fine-grained materials with large pore spaces (the spaces between solid particles). It can collapse when it becomes saturated by water and/or a building (or other structure) places too great a load on it. If the material below a building collapses it may cause the building to sink. If the collapsible ground is variable in thickness or distribution, different parts of the building may sink by different amounts, possibly causing tilting, cracking or distortion. The subsurface underlying a soakaway will experience an increase in water content that may affect the stability of the ground. This hazard is most likely to be encountered only in parts of southern England.

Running sand

Running sand conditions occur when loosely-packed sand, saturated with water, flows into an excavation, borehole or other type of void. The pressure of the water filling the spaces between the sand grains reduces the contact between the grains and they are carried along by the flow. This can lead to subsidence of the surrounding ground. Running sand is potentially hazardous during the drainage system installation. During installation, excavation of the ground may create a space into which sand can flow, potentially causing subsidence of surrounding ground.

Shallow mining hazards (non coal)

Current or past underground mining for coal or for other commodities can give rise to cavities at shallow or intermediate depths, which may cause fracturing, general settlement, or the formation of crown-holes in the ground above. Spoil from mineral workings may also present a pollution hazard. The release of water into the subsurface from soakaways may destabilise material above or within a cavity. Cavities arising as a consequence of mining may also create a pathway for rapid transport of contaminated water to an aquifer or watercourse. The mining hazards map is derived from the geological map and considers the potential for subsidence associated with mining on the basis of geology type. Therefore if mining is known to occur within a certain rock, the map will highlight the potential for a hazard within the area covered by that geology.

For more information regarding underground and opencast **coal mining**, the location of mine entries (shafts and adits) and matters relating to subsidence or other ground movement induced by **coal mining** please contact the Coal Authority, Mining Reports, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG; telephone 0845 762 6848 or at www.coal.gov.uk. For more information regarding other types of mining (i.e. non-coal), please contact the British Geological Survey.

Groundwater source protection zones

In England and Wales, the Environment Agency has defined areas around wells, boreholes and springs that are used for the abstraction of public drinking water as source protection zones. In conjunction with Groundwater Protection Policy the zones are used to restrict activities that may impact groundwater quality, thereby preventing pollution of underlying aquifers, such that drinking water quality is upheld. The Environment Agency can provide advice on the location and implications of source protection zones in your area (www.environment-agency.gov.uk/)

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