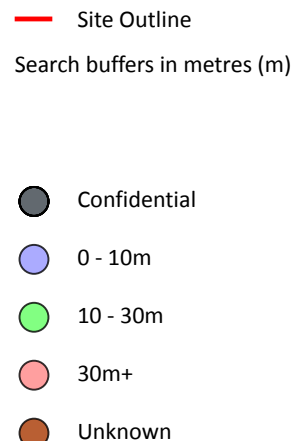
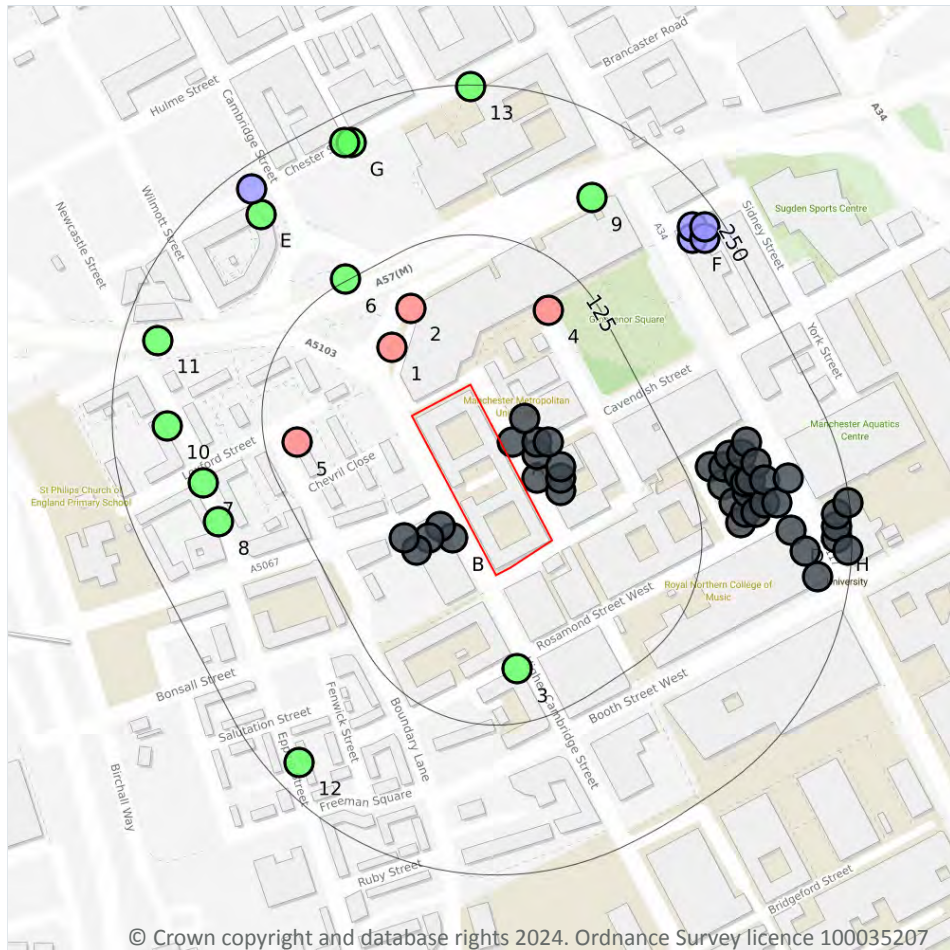


16 Boreholes



16.1 BGS Boreholes

Records within 250m

62

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

Features are displayed on the Boreholes map on [page 119 >](#)

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	9m NE	384180 397000	MANCHESTER METRO' UNIVERS' TP 9	-	Y	N/A
A	13m E	384200 396970	MANCHESTER METRO' UNIVERS' TP 2	-	Y	N/A
B	18m SW	384130 396920	HIGHER CAMBRIDGE ST MANCHESTER TP 4	-	Y	N/A



ID	Location	Grid reference	Name	Length	Confidential	Web link
B	22m SW	384120 396930	HIGHER CAMBRIDGE ST MANCHESTER TP 1	-	Y	N/A
A	22m NE	384200 396990	MANCHESTER METRO' UNIVERS' TP 6	-	Y	N/A
A	26m E	384220 396960	MANCHESTER METRO' UNIVERS' TP 1	-	Y	N/A
A	27m NE	384200 397000	MANCHESTER METRO' UNIVERS' TP 7	-	Y	N/A
A	27m NE	384190 397020	MANCHESTER METRO' UNIVERS' TP 8	-	Y	N/A
A	30m E	384220 396970	MANCHESTER METRO' UNIVERS' TP 4	-	Y	N/A
A	35m E	384220 396980	MANCHESTER METRO' UNIVERS' TP 3	-	Y	N/A
B	35m SW	384110 396920	HIGHER CAMBRIDGE ST MANCHESTER TP 5	-	Y	N/A
A	35m NE	384210 397000	MANCHESTER METRO' UNIVERS' TP 5	-	Y	N/A
B	49m SW	384100 396910	HIGHER CAMBRIDGE ST MANCHESTER TP 3	-	Y	N/A
B	53m SW	384090 396920	HIGHER CAMBRIDGE ST MANCHESTER TP 2	-	Y	N/A
1	58m NW	384079 397079	MANCHESTER METROPOLITAN UNIVERSITY BH 2	100.0	N	18662695 ↗
2	80m NW	384095 397112	MANCHESTER METROPOLITAN UNIVERSITY BH 3	107.0	N	18662697 ↗
3	80m S	384184 396811	MANCHESTER CORP. SEWER WORKS NO.4, HULME	14.17	N	1042161 ↗
4	90m N	384210 397110	MANCHESTER METROPOLITAN UNIVERSITY	92.0	N	18293103 ↗
5	99m W	384000 397000	DYE WORKS OLD GARRATT MANCHESTER	98.76	N	1045463 ↗
6	126m NW	384041 397136	MANCUNIAN WAY 8	16.15	N	1042495 ↗
C	146m E	384345 396980	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY 1	-	Y	N/A
C	150m E	384355 396965	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY TP 13	-	Y	N/A
C	155m E	384365 396950	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY TP 6	-	Y	N/A
C	156m E	384356 396980	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY TP 10	-	Y	N/A
C	158m E	384370 396933	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY 4	-	Y	N/A



ID	Location	Grid reference	Name	Length	Confidential	Web link
C	163m E	384374 396942	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 3	-	Y	N/A
C	164m E	384361 396989	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 9	-	Y	N/A
C	165m E	384369 396973	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 12	-	Y	N/A
C	168m E	384376 396958	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 5	-	Y	N/A
C	168m E	384374 396967	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - 3	-	Y	N/A
C	172m E	384383 396942	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 2	-	Y	N/A
C	173m E	384378 396969	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 7	-	Y	N/A
C	174m E	384371 396990	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 8	-	Y	N/A
C	180m E	384390 396950	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 1	-	Y	N/A
C	182m E	384375 397000	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - 2	-	Y	N/A
C	182m E	384383 396983	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 11	-	Y	N/A
7	183m W	383922 396966	MANCHESTER CORP. HULME	10.97	N	1042240 ↗
8	184m W	383935 396934	MANCHESTER CORP. K.SEWER	10.97	N	1042241 ↗
C	184m E	384390 396969	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 4	-	Y	N/A
9	186m N	384246 397204	MANCUNIAN WAY 9	11.58	N	1042496 ↗
C	190m E	384400 396950	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - 5	-	Y	N/A
D	199m E	384412 396927	ROYAL NORTHERN COLLEGE OF MUSIC MANCHESTER 1	-	Y	N/A
C	204m E	384410 396970	OXFORD ROAD MANCHESTER TP1	-	Y	N/A
10	204m W	383892 397014	MANCHESTER CORP. K.SEWER	10.67	N	1042242 ↗

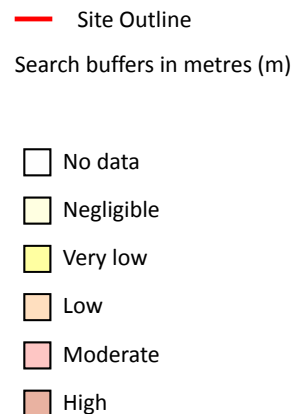
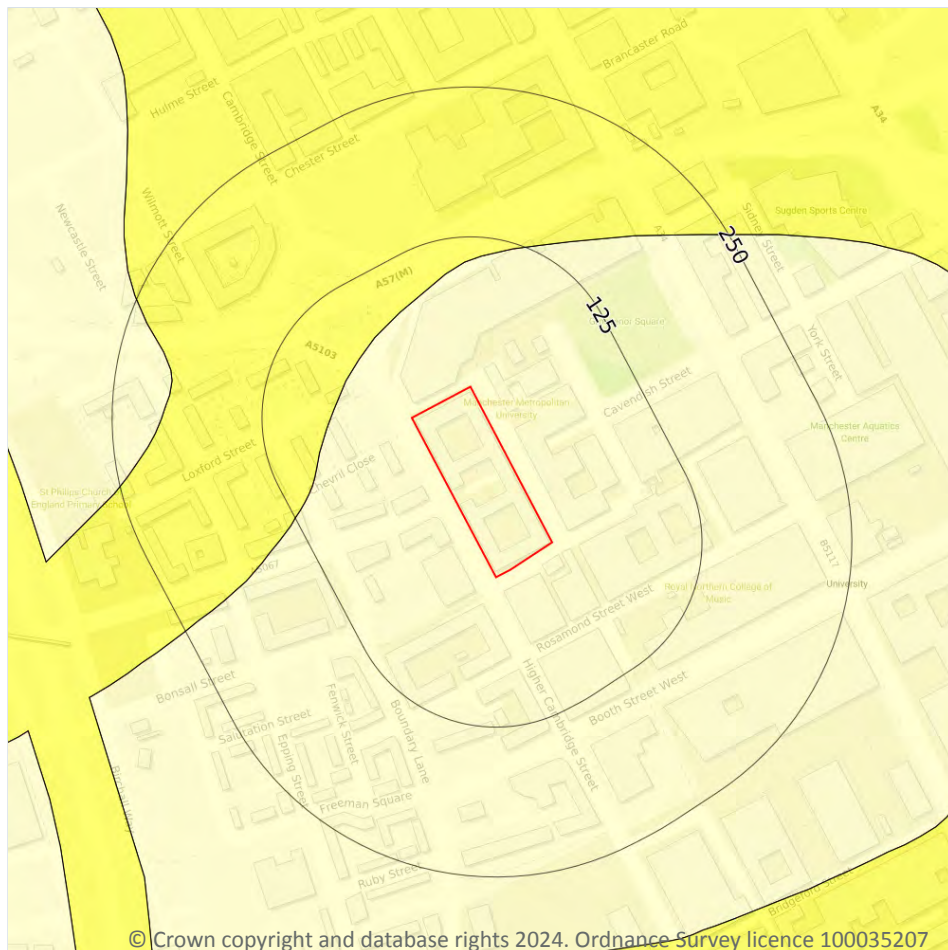


ID	Location	Grid reference	Name	Length	Confidential	Web link
E	210m NW	383970 397190	LOWER MEDLOCK UCISO'S CONTRACT 1 MAN 0285 504	15.0	N	1043424 ↗
D	211m E	384424 396909	ROYAL NORTHERN COLLEGE OF MUSIC MANCHESTER 2	-	Y	N/A
11	221m NW	383884 397085	MANCUNIAN WAY 7	15.24	N	1042494 ↗
F	222m NE	384330 397170	SIDNEY STREET, TRIAL PIT SURVEY TP 4	4.0	N	15018267 ↗
D	223m E	384434 396888	ROYAL NORTHERN COLLEGE OF MUSIC MANCHESTER 3	-	Y	N/A
G	225m N	384045 397250	MANCHESTER CORP. K.SEWER	10.06	N	1042246 ↗
12	227m SW	384002 396733	MANCHESTER CORP. SEWER WORKS NO.4, HULME	14.02	N	1042162 ↗
F	227m NE	384330 397180	SIDNEY STREET, TRIAL PIT SURVEY TP 3	4.0	N	15018265 ↗
G	228m N	384040 397250	HULME STREET MANCHESTER 4	13.2	N	1043318 ↗
F	230m NE	384340 397170	SIDNEY STREET, TRIAL PIT SURVEY TP 2	3.8	N	15018261 ↗
E	232m NW	383962 397211	MANCHESTER CORP. K.SEWER	9.75	N	1042245 ↗
F	236m NE	384340 397180	SIDNEY STREET, TRIAL PIT SURVEY TP 1	4.0	N	15018254 ↗
H	237m E	384450 396920	MANCHESTER SCHOOL OF MANAGEMENT TP3	-	Y	N/A
H	237m E	384450 396930	MANCHESTER SCHOOL OF MANAGEMENT A2	-	Y	N/A
H	238m E	384450 396940	MANCHESTER SCHOOL OF MANAGEMENT TP2	-	Y	N/A
H	247m E	384460 396910	MANCHESTER SCHOOL OF MANAGEMENT TP1	-	Y	N/A
13	249m N	384145 397297	MANCHESTER CORP. K.SEWER	10.06	N	1042247 ↗
H	249m E	384460 396950	MANCHESTER SCHOOL OF MANAGEMENT A3	-	Y	N/A

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m

1

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).

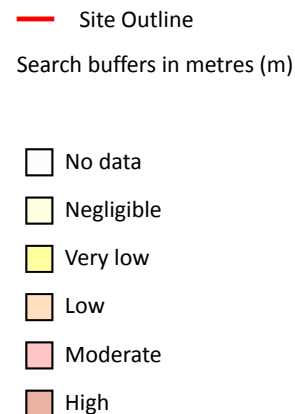
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 123 >](#)

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



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17.2 Running sands

Records within 50m

1

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

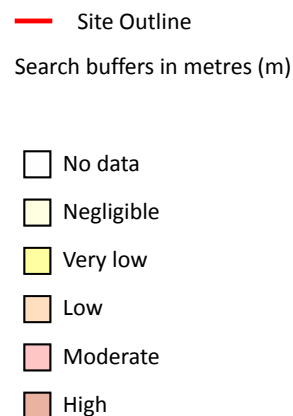
Features are displayed on the Natural ground subsidence - Running sands map on [page 124 >](#)

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



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17.3 Compressible deposits

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 125 >](#)

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



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

17.4 Collapsible deposits

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 126 >](#)

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



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

17.5 Landslides

Records within 50m

1

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.

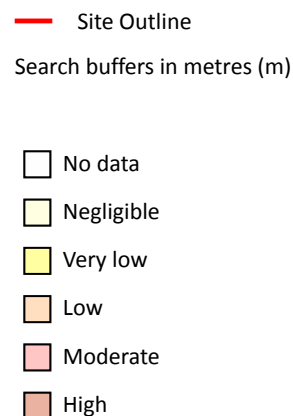
Features are displayed on the Natural ground subsidence - Landslides map on [page 127](#) >

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.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



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 128 >](#)

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

18.1 BritPits

Records within 500m

0

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.

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m

0

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.

This data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m

0

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

This 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

1

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

Location	Details
On site	In addition to being located inside an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property which may supplement this information. Please note, the plans held by JPB may also relate to non-mining records. Further details and a quote for services (if appropriate) can be obtained by emailing this report to enquiries.gs@jpb.co.uk ↗.

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
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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



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- Mining cavities
- Reported recent incidents
- Historical incidents
- BGS karst database (Point)
- BGS karst database (Line)
- BGS karst database (Area)

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

1

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.

Features are displayed on the Ground cavities and sinkholes map on [page 134 >](#)

ID	Location	Mine Address	Mineral	Data source	Publisher
-	711m E	Manchester, Greater Manchester	Firestone, Freestone, Hearthstone , Honestone, Ragstone, Sandstone, Scythestone , Silver Sand, Whetstone	'Underground Manchester - Secrets of the city revealed'	Willow Publishing

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.

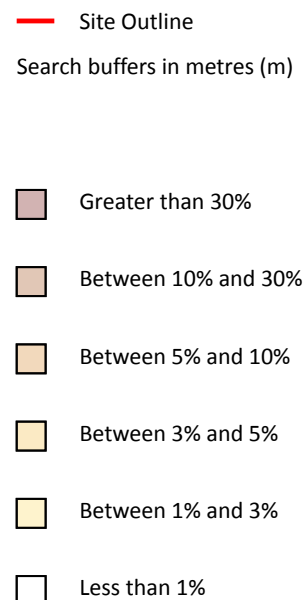
Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over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



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20.1 Radon

Records on site

1

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

Features are displayed on the Radon map on [page 137](#) >

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



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



21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m

3

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	15 - 25 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	15 - 25 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	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m

8

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).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	19	3.3	98	67	0.5	68	38	22	9
On site	20	3.5	71	49	0.4	71	25	22	7
On site	21	3.7	105	72	0.5	64	40	22	10
On site	21	3.7	286	196	0.8	64	72	22	19



Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	23	4	81	56	0.5	62	38	23	10
7m NW	20	3.5	71	49	0.4	65	25	21	7
8m SE	30	5.3	323	222	0.9	73	76	28	21
27m NE	18	3.2	202	139	0.7	72	62	23	16

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

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

0

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

This data is sourced from Ordnance Survey/Groundsure.

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: www.groundsure.com/terms-and-conditions-april-2023/ ↗.



Appendix B

Preliminary UXO Risk Assessment Report



Contact Us

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Preliminary UXO Risk Assessment

Client Groundsure Ltd
Report Ref. No. GSIP-2024-16216 PRA
Date 17/07/2024

Project Name CAMBRIDGE NORTH HALL, CAVENDISH STREET



Site Address Manchester Metropolitan University – All Saints Campus, Boundary Lane, First Street, Hulme, Manchester, Greater Manchester, M15 6JD
Centre Point NGR SJ 84156 96974

Introduction

The purpose of the *Stage 1 Preliminary Risk Assessment* is a qualitative screening exercise to assess the potential of finding unexploded ordnance (UXO) at a site. The process requires the consideration of the basic factors that affect the potential for UXO to be present at a site and the likelihood for any hazard to occur.

The aim of the preliminary assessment is to identify or discount the need for further detailed research (in the form of a *Stage 2 Detailed Risk Assessment*) to be conducted, to further clarify the risk from UXO.

The Preliminary Risk Assessment uses the sources of information available to Igne in-house, to place a development in context with domestic military and conflict history.

This assessment has been produced in accordance with the CIRIA C681 Guidelines: *Unexploded Ordnance, a Guide for the Construction Industry, 2009*.

The report will assess the following:

- o Extent of Proposed Intrusive Works
- o Conflict History / Enemy Actions
- o Domestic Aerial, Naval and Land-Based Military Activity
- o Consideration of any Risk Mitigating Factors

The assessment is intended as a common sense 'first step' in the UXO risk management process.

Site Information	
Site Description	The site encompasses a large building associated with Manchester Metropolitan University. The footprint is as such that 3no. quads comprising paving and garden areas are located throughout the centre.
Scope of Proposed Works	No details provided.

Historical site conditions	
Ground conditions during WWII	The site was developed, comprising a large building in the southern extent, and multiple terraces of houses and their associated gardens in the northern section. Multiple roadways intersected the site.
Degree of access during WWII	Being well developed, the site is likely to have remained occupied and been accessed frequently throughout WWII.

Aerial bombing & air delivered UXO	
Enemy action during WWII	- Moderate regional bombing density, with a higher localised bombing density. - 2no. bomb strikes recorded on site causing serious damage to the large building in the southern section. - At least 10no. bomb strikes recorded within 300m of the site. - Rubble from bomb strikes on site may have presented ground conditions in which a bomb strike could have landed with no discernable entry hole and remained unnoticed.

Military activity & Allied UXO	
Historic military installations (distances approximate)	- 2no. military explosives works factories were located within 5km of the site (nearest 1.5km north-west). - At least 10no. heavy anti-aircraft batteries were located within effective firing range of the site and additional unrecorded anti-aircraft guns are likely to have been located throughout the area during WWII.

Post-WWII local UXO encounters	
Items found nearby	- 03/04/2007 – Unexploded mortar shell discovered on Cambridge Street approximately 200m north of the site. - 01/10/2007 – Suspected unexploded bomb discovered on Middlewood Street 2km north-west of the site. - 24/06/2024 – A WWII-era shell was discovered on Hadfield Street, Stretford approximately 1.8km west.

Post-WWII risk mitigating factors	
Post-WWII redevelopment and clearance works	The site has been redeveloped into a large building associated with Manchester Metropolitan University. Quad areas comprising pavement and gardens are located throughout the centre of the site. Intrusive works will have been necessary for this development although not across the entirety of the site. Within any areas of the site that have not been subject to deep intrusive works to maximum bomb penetration depth, the risk from UXO is not considered to have been fully mitigated.

Conclusions	
The site was located within Manchester which was subject to a moderate bombing density. However, multiple bomb strikes were recorded on site and within the vicinity, indicating a higher localised density of bombing. Further research is required to determine the possibility of present-day German air-dropped UXO contamination. The site was not located in close proximity to any recorded Allied military installations. However, examples of Allied UXO have been found near the site, which indicates the possibility of military activity nearby which could have led to contamination on site. In addition, numerous anti-aircraft batteries were located within effective firing range of the site likely supported by additional temporary guns. These are likely to have been fired fairly frequently throughout WWII. Unexploded shells fired by these guns could conceivably have come to land in any open ground or rubble on site unnoticed and unrecorded.	

Preliminary Risk Level**HIGH****Recommendation**

Igne recommends that a Stage 2 Detailed UXO Risk Assessment of the site is undertaken to clarify the UXO risk to the proposed works.

