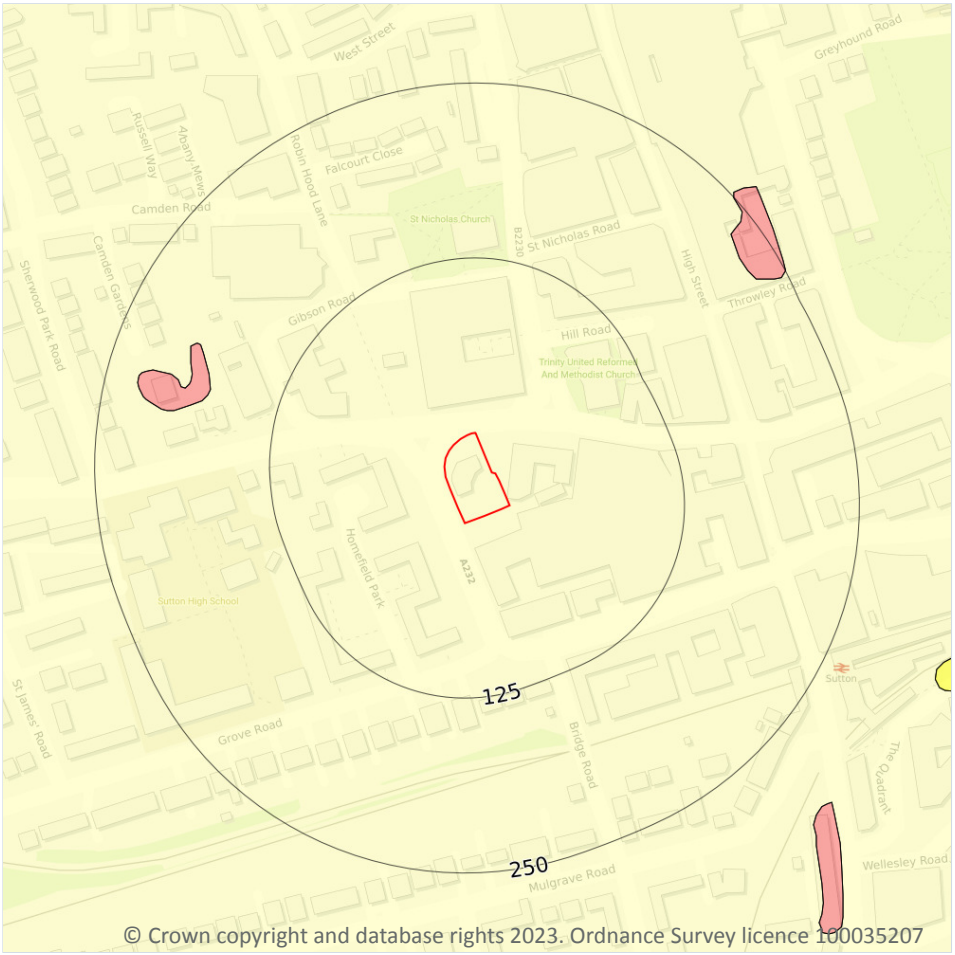
Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

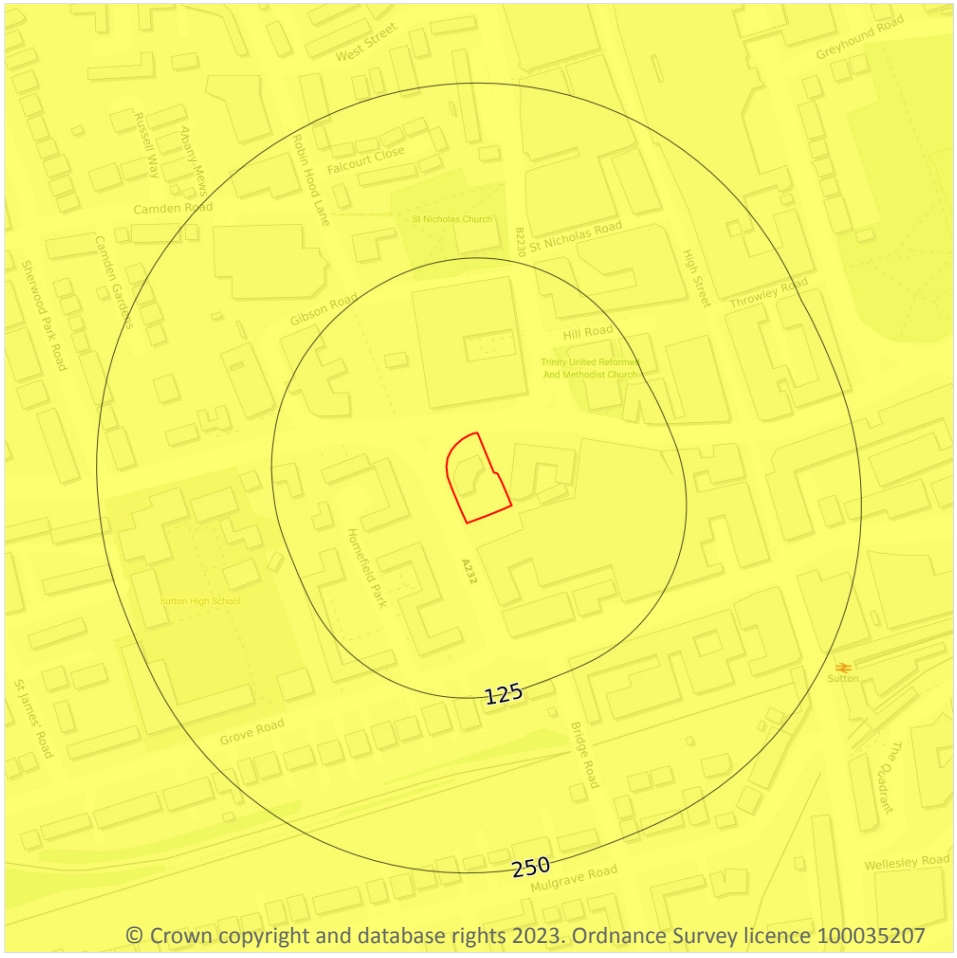
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 112 >**

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

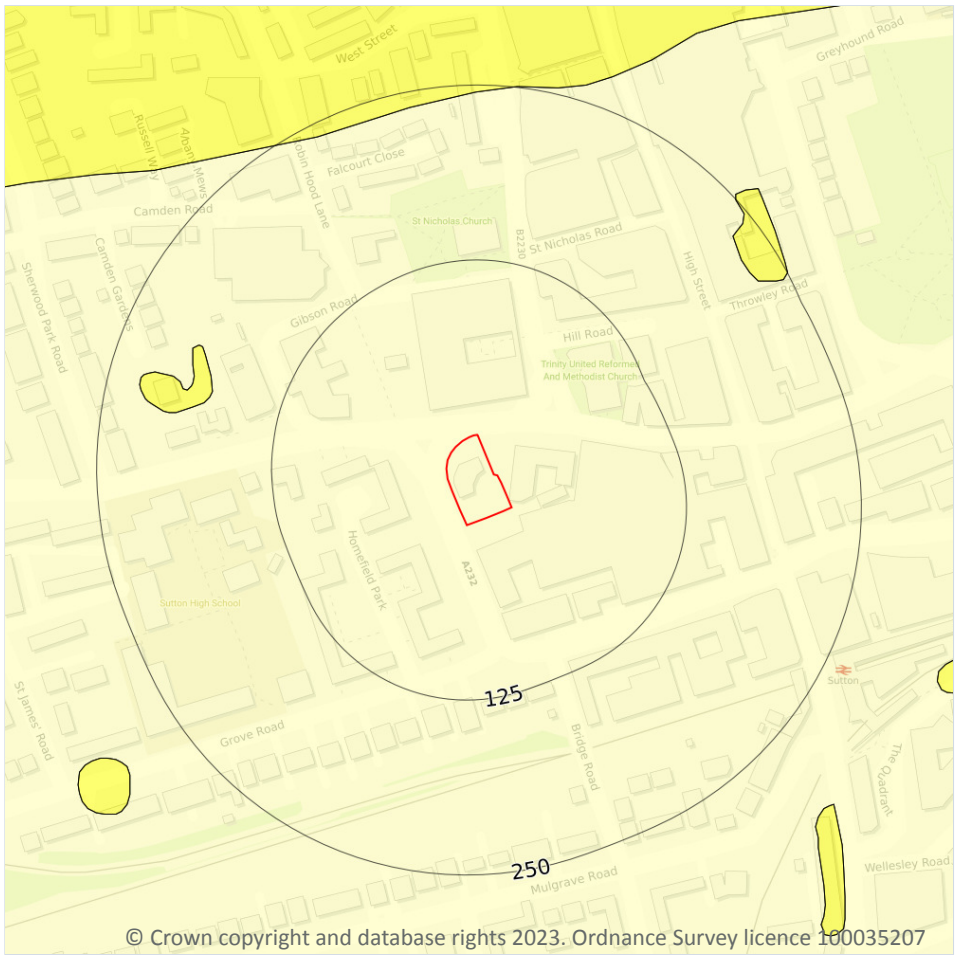
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 113 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

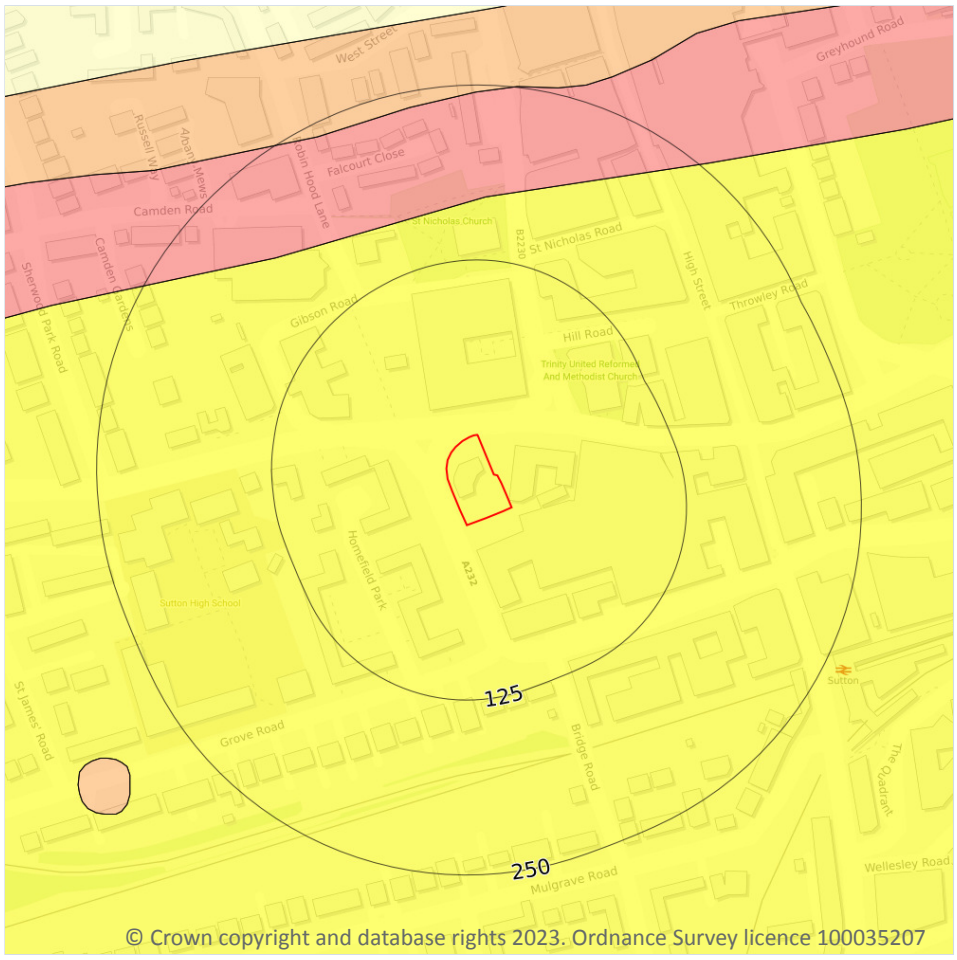
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 114 >**

Location	Hazard rating	Details
On site	**Negligible**	**Slope instability problems are not thought to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

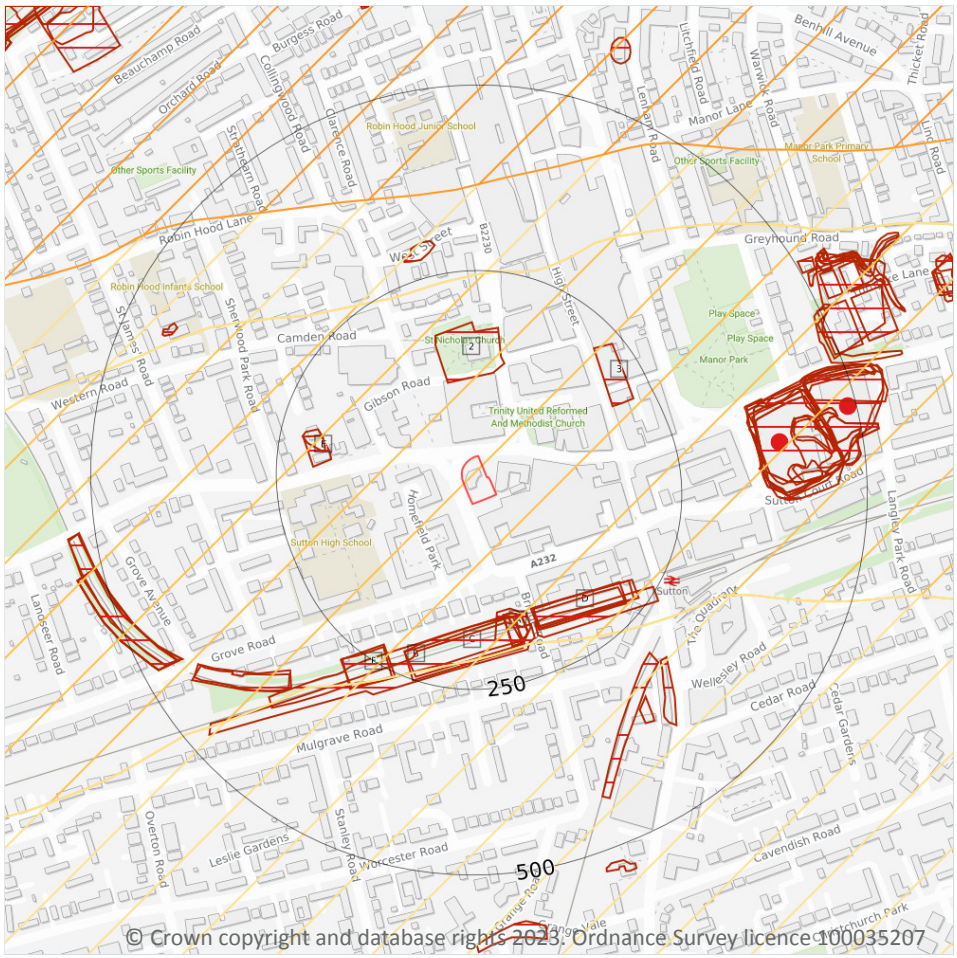
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 115 >**

Location	Hazard rating	Details
On site	**Very low**	**Soluble rocks are present within the ground. Few dissolution features are likely to be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered.**

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	2

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 117 >**

ID	Location	Details	Description
I	387m E	Name: Newtown Chalk Pit Address: CARSHALTON, Surrey Commodity: Chalk 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
J	488m E	Name: Newtown Chalk Pit Address: CARSHALTON, Surrey Commodity: Chalk 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	**20**

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 117 >**

ID	Location	Land Use	Year of mapping	Mapping scale
2	105m N	Grave Yard	1867	1:10560
A	150m S	Cuttings	1934	1:10560
A	156m S	Cuttings	1967	1:10560
A	156m S	Cuttings	1961	1:10560
A	156m S	Cuttings	1982	1:10000
A	156m S	Cuttings	1973	1:10000
B	158m S	Cuttings	1910	1:10560
C	159m S	Cuttings	1895	1:10560
D	160m SE	Cuttings	1934	1:10560
D	160m SE	Cuttings	1938	1:10560
C	161m S	Cuttings	1898	1:10560
D	162m SE	Cuttings	1934	1:10560
B	166m S	Cuttings	1867	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
D	166m SE	Cuttings	1910	1:10560
E	177m W	Unspecified Pit	1867	1:10560
D	179m SE	Cuttings	1867	1:10560
E	187m W	Unspecified Pit	1895	1:10560
3	193m NE	Unspecified Pit	1867	1:10560
F	224m SW	Cuttings	1938	1:10560
F	227m SW	Cuttings	1934	1:10560

This is 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 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	9

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).

Features are displayed on the Mining and ground workings map on **page 117 >**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Chalk**	**B**	**Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.**
4	203m S	Not available	Chalk	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
5	237m N	Not available	Chalk	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
7	360m N	Not available	Chalk	C	Underground mine workings may have occurred in the past, or current mines may be operating to modern engineering standards. Potential for difficult ground conditions should be considered.
-	751m W	Not available	Chalk	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
-	752m W	Not available	Chalk	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
-	786m W	Not available	Chalk	C	Underground mine workings may have occurred in the past, or current mines may be operating to modern engineering standards. Potential for difficult ground conditions should be considered.
-	911m SW	Not available	Chalk	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.

ID	Location	Name	Commodity	Class	Likelihood
-	983m N	Not available	Chalk	C	Underground mine workings may have occurred in the past, or current mines may be operating to modern engineering standards. Potential for difficult ground conditions should be considered.

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	4

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.

Location	Mineral type
On site	**Stone**
352m E	Stone
436m NW	Stone
461m NE	Stone

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	0

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

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.

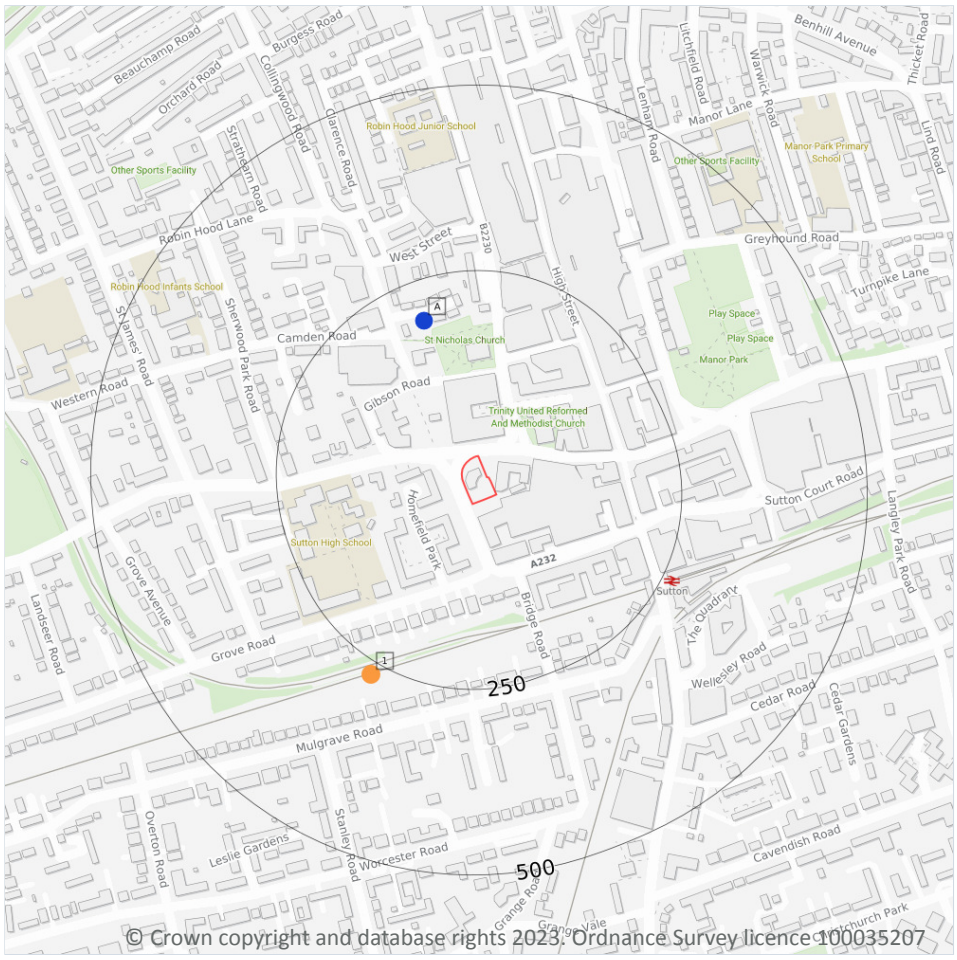
18.16 Clay mining

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



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	1

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.

Features are displayed on the Ground cavities and sinkholes map on **page 124 >**

ID	Location	Details	Source
A	196m N	Type: Solution Pipe x 3 Superficial Geology: - Bedrock Geology: Chalk Group, Thanet Sand Formation	Simple Bibliography: - Full Bibliography: DEWEY, H. AND BROMHEAD, C.E.N., The geology of South London., HMSO, London., 1921; British Geological Survey Memoir (Sheet 270) Confidentiality: Data source can be revealed, data can be used freely

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	2

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.

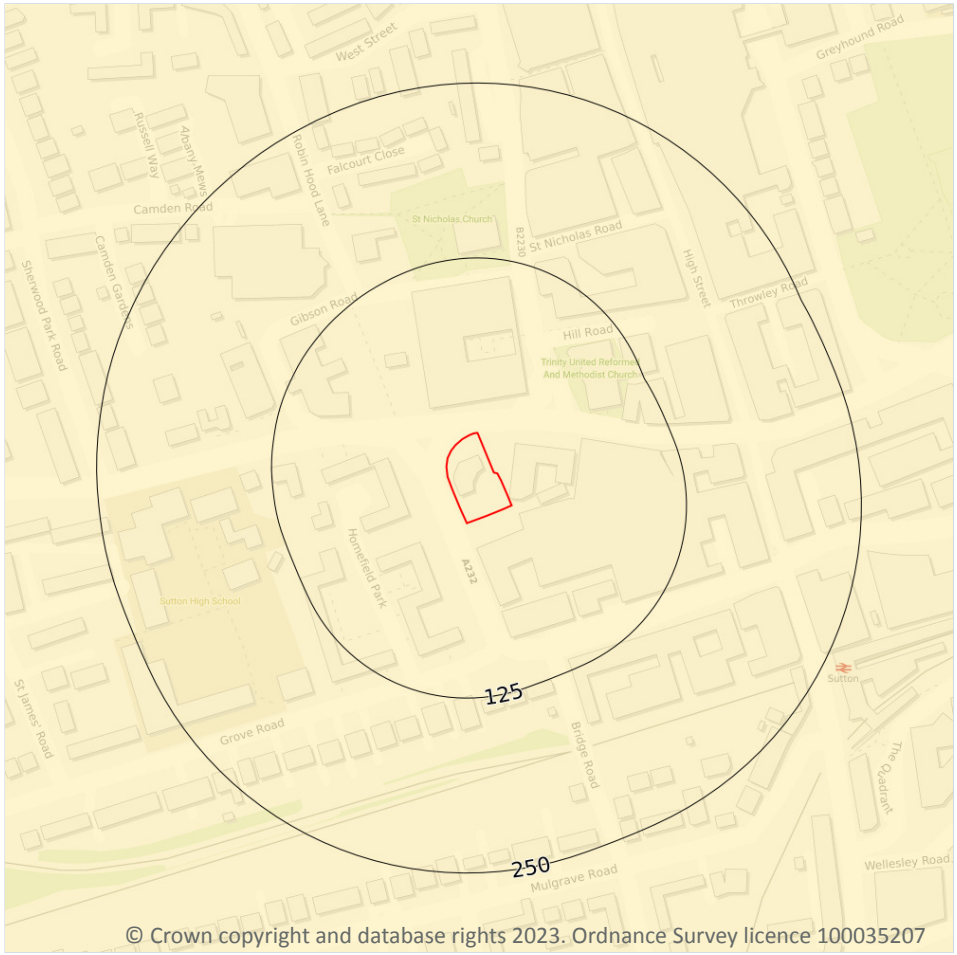
The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

Features are displayed on the Ground cavities and sinkholes map on **page 124 >**

ID	Location	Name	Reliability
A	196m N	-	Probable
1	267m SW	-	Good

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	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 127 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 1% and 3%**	**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 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m **4**

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

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	**10**	**1.8**	**152**	**104**	**0.8**	**46**	**27**	**18**	**13**
On site	**11**	**1.9**	**147**	**101**	**0.7**	**49**	**28**	**19**	**11**
2m SE	12	2.1	134	92	0.7	49	25	19	10
17m NE	10	1.8	145	100	0.7	47	26	18	12

This data is sourced from the British Geological Survey.

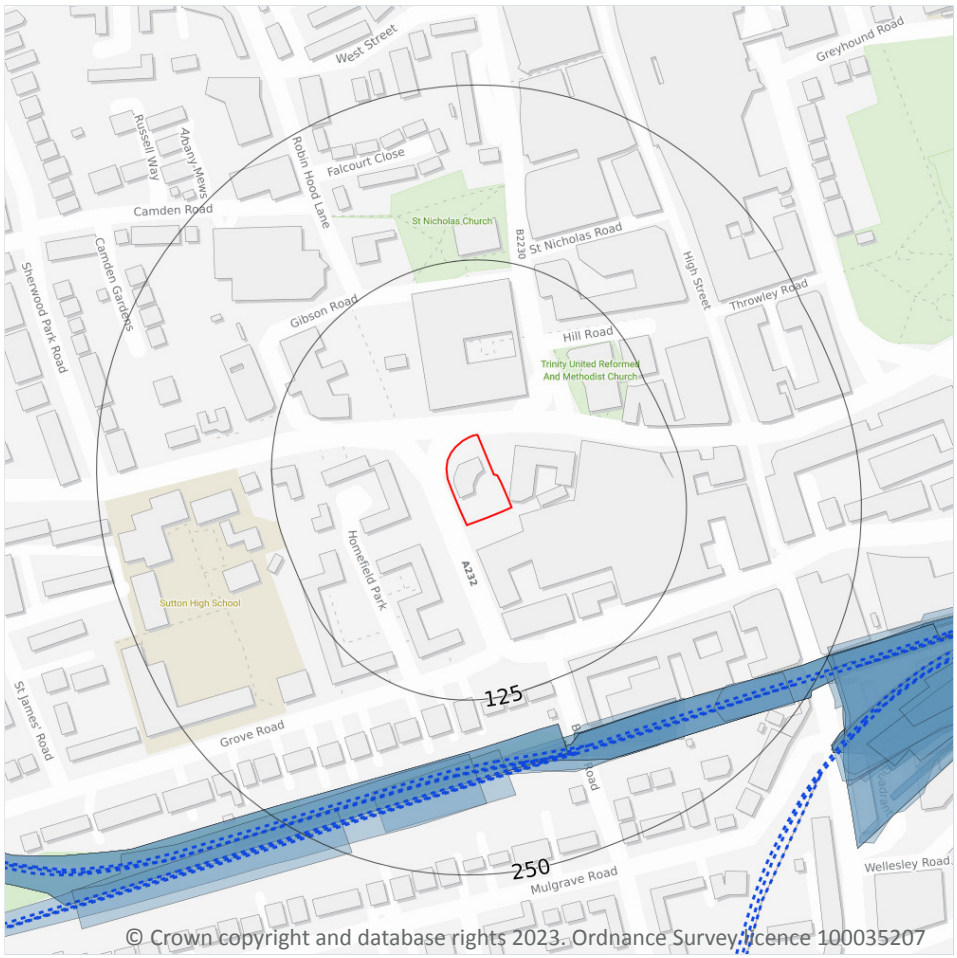
21.3 BGS Measured Urban Soil Chemistry

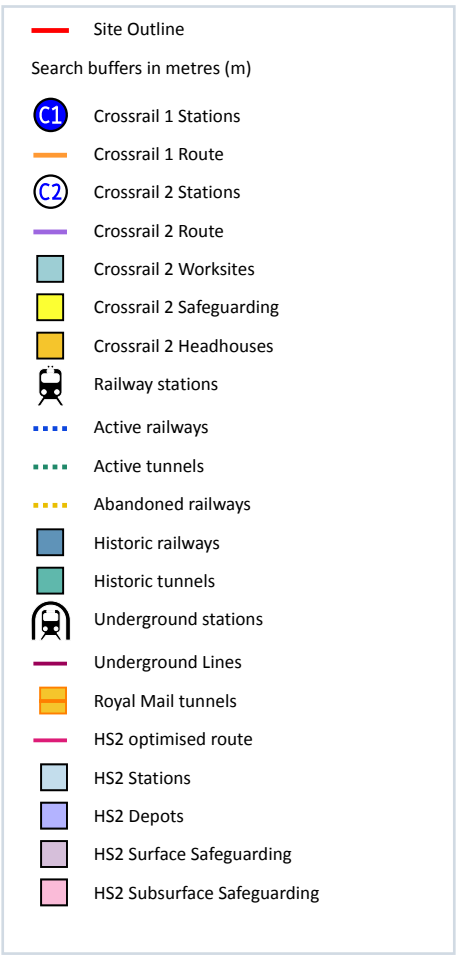
Records within 50m	0

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 km^2.

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	19

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 131 >**

Location	Land Use	Year of mapping	Mapping scale
155m S	Railway Sidings	1973	10000
155m S	Railway Sidings	1967	10560
155m S	Railway Sidings	1961	10560
162m S	Railway Sidings	1938	10560
163m SE	Railway	1866	-
164m S	Railway Sidings	1934	10560
165m S	Railway	1913	-
166m S	Railway	1932	-
166m S	Railway	1894	-
168m S	Railway	1913	-
168m S	Railway	1932	-
168m S	Railway	1894	-
168m S	Railway	1866	-
168m S	Railway Sidings	1913	2500
200m SE	Railway Sidings	1982	10000
223m SW	Railway Sidings	1938	10560
247m SE	Railway Sidings	1938	10560

Location	Land Use	Year of mapping	Mapping scale
249m SE	Railway Sidings	1967	10560
249m SE	Railway Sidings	1961	10560

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	14

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

Features are displayed on the Railway infrastructure and projects map on **page 131 >**

Location	Name	Type
170m S	Sutton Loop Line	rail
170m S	Sutton Loop Line	rail
174m S	Sutton Loop Line	rail
174m S	Sutton Loop Line	rail
175m S	Not given	Multi Track
176m S	Sutton and Mole Valley Line	rail
178m S	Not given	Multi Track

Location	Name	Type
178m S	Not given	Multi Track
178m SE	Sutton and Mole Valley Line	rail
179m S	Sutton and Mole Valley Line	rail
179m S	Not given	Multi Track
180m S	Sutton and Mole Valley Line	rail
181m SE	Not given	Multi Track
189m S	Not given	Multi Track

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/ ↗.

APPENDIX C

- Kingston and Sutton Shared Environmental Service, Regulatory Services - Council Contaminated Land Enquiry Report (Ref 23/11301/MISC, dated 7th December 2023)
- Zetica UXO – Unexploded Bomb Risk Map (Ref: SM1 2AE, Map Centre: 525764, 163989)
- BRIMSTONE UXO – Stage 1 Preliminary UXO Risk assessment (Ref: PRA-23-2319 Rev0, dated 28th November 2023)

Kingston and Sutton Shared Environment Service
Regulatory Services
Sarah Ireland - Chief Executive

Your Ref:
My Ref : 23/11301/MISC
e-mail: john.sibson@sutton.gov.uk

Direct Line: 020 8770 4449
Date: 07.12.2023

Please reply to:

Regulatory Services
Kingston and Sutton Shared Environment Services
Civic Offices
St Nicholas Way
Sutton
Surrey SM1 1EA

www.sutton.gov.uk

Soil Consultants Ltd

Email -

ENVIRONMENTAL PROTECTION ACT 1990
ENVIRONMENTAL INFORMATION REGULATIONS 2004

Address: City House, Sutton Park Road, SM1 2AE

Thank you for your recent enquiry. My response is given as follows:

The council has a duty under the above mentioned legalisation to investigate all areas within its borough to potentially investigate the site further for identifying them as contaminated land. The Local Authority has published its contaminated land strategy as required by Part 2A of the Environmental Protection Act 1990 and is currently considering sites that may potentially present a high risk. This list continues to be reviewed and prioritised for further investigation (if required) as new information becomes available through the planning process and as further risk assessments are undertaken.

From these, we are able to determine whether the site should be given a high or low priority risk for further intrusive investigation under the Part 2A contaminated land regime. If a high risk and a pollutant linkage have been proved, a site could then be determined as contaminated land and included on our list of statutorily determined Contaminated Land sites.

Information includes:

• Details of land having any potentially contaminating historical land use.

None

• Site's risk rating score.

Low

• Planning polygons/previous planning applications.

S1994/39173
S1995/39822

• Details of known historical landfill sites.

None

• Industry history maps, dating back to 1869.

sutton_historic_1867_1884 – Farm Land
sutton_historic_1895_1897 – 2 x Residential properties
sutton_historic_1913 - 2 x Residential properties
sutton_historic_1949_1962 - 2 x Residential properties
sutton_historic_1957_1967 - 2 x Residential properties
sutton_historic_1974_1976 – Car Park
sutton_historic_1976_1993 – Car Park
1995 – City House Development

• List of sites within 250m that have active permits issued by the local authority under the Pollution Prevention and Control Act 1999 (PPC) and the Environmental Permitting (England & Wales) Regulations 2016.

ECO Dry Cleaners. 64 Grove Rd, Sutton SM1 1BT

• Part 2A site investigation reports held by the council

None

May I stress that the above information is provided and based upon information currently and readily available to Pollution Control Team. Definitive information regarding ground contamination can only be obtained by on-site investigations including soil analysis and gas monitoring. Any assessment previously carried out take into account previous and proposed land use changes, development and redevelopment or modification to land, and may not be applicable in these circumstances.

I trust that the above information is satisfactory for your purposes, however please do not hesitate to contact me if I can be of further assistance.

Yours sincerely,

Mr John Sibson
Lead Officer – Pollution Control

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Location: SM1 2AE,
Map Centre: 525764,163989

LEGEND

London Bomb Risk

- **miltary**
- **industry**
- **UXO find**
- **Other**
- **transport**
- **dock**
- **Luftwaffe targets**
- **utilities**
- **abandoned bombs**
- **Bombing decoy**

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.

Relative UXB risk across London

The relative risk for the London area is established by plotting the recorded bombing densities.

These are represented as counts of high explosive bombs in km2 area. The areas coloured green represent a record of less than 10 bombs per km2.

Compared to other areas of the UK, this still represents a significant density. However, this is much lower than parts of Central London, where the red colouration indicates in excess of 150 bombs falling per km2, representing a very significant bombing density.

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

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites with a moderate or high bombing density.

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/)**

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'.

STAGE 1 PRELIMINARY UXO RISK ASSESSMENT

REPORT REF: PRA-23-2319 | Revision: 0

Client: Soil Consultants Ltd
Project: City House, London
Date: 28/11/2023
Author: MR

BRIMSTONE

Innovation Centre Medway, Maidstone Road,
Chatham, ME5 9FD
0207 117 2492
www.brimstoneuxo.com

INTRODUCTION

The Stage 1 Preliminary Risk Assessment is an initial screening assessment designed to highlight any sources of unexploded ordnance (UXO) with the potential to contaminate a given site.

The aim of the Stage 1 assessment is to identify or discount the need for further detailed research - a Stage 2 Detailed UXO Risk Assessment.

This desktop assessment has been researched and written by a dedicated Researcher / Risk Assessor and produced in accordance with the CIRIA C681 Guidelines: 'Unexploded Ordnance, a Guide for the Construction Industry' (published in 2009).

In preparation for this assessment, original wartime records, historic OS mapping and the *Brimstone UXO Sources Database* have been reviewed. The latter incorporates multiple datasets plotting the positions of a variety of domestic military sites and confirmed historic German bombing targets.

The Stage 1 Preliminary Risk Assessment considers the following:

1. The Proposed Works
2. Enemy Action During WWI and WWII
3. British / Allied Military Activity
4. Historic Site Occupancy
5. Risk Mitigating Factors

THE SITE

The Site (approximately centred on the National Grid Ref: TQ 25760 63990) is located in the London Borough of Sutton, approximately 270m north-west of Sutton railway station.
The Site comprises one three-storey structure in the north-western extent, and hardstanding carparking and roadways in the remainder of the Site in the south. Mature vegetation is also located along the northern, eastern and western Site boundaries.
It is bound to the north and west by the A232, to the east by Sutton Baptist Church and to the south by a large, multi-storey residential structure on the A232.

THE PROPOSED WORKS

Brimstone was not made aware of any SI works due to take place on Site in the future.
Development works will consist of the construction of a large, 71-unit residential structure up to a maximum of 13 storeys.

ENEMY ACTION DURING WWI AND WWII

Potential Source of UXO	Significant?	Details	
WWI German Bombing	✗	Sutton was not subject to any air raids during WWI.	
WWII German Bombing	✓	British District Bombing Density Statistics	The Site is located within the border of the WWII-era Municipal Borough of Sutton and Cheam, which sustained 68 bombs / 1,000 acres, a moderate bombing density.

		Evidence of Bomb Strikes / Damage	London Bomb Census Mapping records two HE bomb strikes within an approximate 250m radius of the Site; the closest recorded strike was an HE bomb approximately 170m east of the Site, on Sutton High Street. The Sutton and Cheam online bomb map records two bomb strikes within an approximate 250m radius of the Site, both of which are likely to be the same as the two recorded on London Bomb Census Mapping. The closest of these was a UXB recorded on Sutton High Street, approximately 170m east the Site. The UXB exploded on the same day it was dropped. A comparison of pre- and post-WWII OS mapping and aerial photography registers no immediately obvious evidence of bomb-related damage to the structures within or adjacent to the Site boundary.
		Local Bombing Decoy Sites	None within a significant distance of the Site. The closest was recorded approximately 10.2km north-west of the Site.
		Local German Bombing targets	No confirmed primary or secondary Luftwaffe bombing targets in the vicinity. Railway infrastructure, located approximately 160m south of the Site, may have been identified as a target of opportunity.
WWII German Cross Channel Artillery Shelling	×	n/a	

BRITISH / ALLIED MILITARY ACTIVITY

Potential Source of UXO	Significant?	Details
WWII Home Guard (HG) Activity	×	Soldiers of the 55th Surrey (Sutton and Cheam) HG Battalion will have been active locally during WWII. However, armed HG troops are highly unlikely to have accessed/utilised the Site due to its developed nature.
Site Requisitioned for Wartime Military Use	×	n/a
Existing or Historic Army or RAF Training Area / Weapons Range	×	n/a
Existing or Historic Military Bases and Other Installations	×	n/a
Existing or Historic Munitions or Explosives Factories	×	n/a
Existing or Historic Military Defensive Fortifications	×	n/a
WWII Light and / or Heavy Anti-Aircraft (LAA and HAA) Fire	×/✓	18 permanent HAA batteries were active within range of the Site during WWII. LAA guns may have defended vulnerable points within the wider area too. Luftwaffe activity in the region was frequent for periods during the war. It is possible that an unexploded AA shell struck the Site.
Pipe-Mined Locations and Beach Minefields	×	n/a

UXO Finds	×	n/a
SITE HISTORY		
What was the Site occupancy historically, especially during WWI and WWII?	During WWII, the Site was occupied by two, two-storey structures, assumed to be residential in nature. Both of these were located in the northern extent of the Site on Cheam Road. The two structures were bound to the south by undeveloped ground likely comprising residential gardens. Vegetation is visible around the perimeter of the Site.	
RISK MITIGATING FACTORS		
Post-Conflict Ground Works	Post-WWII, the Site has experienced fairly significant development, including the demolition of both residential structures present on Site during WWII, and the construction of the three-storey structure and hardstanding roadways and carparking presently on Site. The demolition of the two residential structures is thought to have partially mitigated the risk of UXO remaining at shallow depths (1-2m bgl). The subsequent construction of the three-storey structure presently on Site is anticipated to have disturbed deep (>2m bgl) WWII-era soil. The construction of hardstanding roadways and carparking is thought to have partially mitigated the risk of UXO buried at very shallow (<1m bgl) depths.	
Likelihood of UXO Remaining	The risk associated with (any) very shallow, shallow and deep buried UXO will have been partially mitigated across the Site.	

CONCLUSIONS

German UXO:

- The Municipal Borough of Sutton and Cheam was subjected to a moderate bombing density, as indicated by official records. Sutton's close proximity to central London meant it was vulnerable to overspill bombing and attacks on targets of opportunity.
- Despite this, there are no confirmed primary or secondary Luftwaffe bombing targets in the vicinity. The railway infrastructure located approximately 160m south of the Site may have been identified as a target of opportunity.
- Two available bomb maps only record two bombing incidents within an approximate 250m radius, with the closest bombing incident to the Site as being a UXB located approximately 170m east of the Site, on Sutton High Street. The UXB also exploded on the same day it landed.
- Furthermore, a comparison of historical OS mapping indicates that the Site was occupied by two, two-storey residential structures both of which appear to have sustained no bomb-related damage throughout WWII, retaining their pre-war structural composition in post-WWII OS mapping.
- Aerial photography of the Site pre- and post-WWII also indicates that the structures present on Site during WWII did not sustain any bomb-related damage, and no cratering or ground disturbance is visible in the open ground present on Site. These residential gardens appear to be well maintained.
- As a result of the structure's residential nature, they are likely to have been accessed frequently, increasing the likelihood of visible detection of bomb-related damage. Note, the bomb strike approximately 170m east may have enforced a temporary evacuation of the area, during which time a UXB could have struck the Site going unnoticed, although upon returning to the structures it is likely that this damage would have been observed and reported by residents. As the structures survived the war externally intact. Any evidence of a UXB strike to these structures will likely have been observed and reported at the time by residents.
- The southern section of the Site comprised open ground; any UXB within the residential gardens could have occurred unobserved and remained undetected although this is not though to be a likely scenario due to the fact that, as aforementioned, they appear well maintained, increasing the likelihood that evidence of a UXB strike here would have been observed.
- The Site has been subject to fairly significant post-WWII development, with the demolition of the residential structures present on Site during WWII and the construction of the three-storey structure, and hardstanding presently on Site. This is thought to have partially mitigated the risk of UXO remaining at very shallow, shallow, and deep depths.
- In summary, the two available bomb maps corroborate each other in the fact that no bombing incidents occurred on Site, and OS mapping and aerial photography indicating that the Site sustained no bomb related damage. These factors, combined with WWII-era conditions largely conducive to the detection of UXB strikes and fairly significant post-WWII ground works, means that the risk of encountering UXO on Site is not considered to be elevated above the 'background level' for the region.

British / Allied UXO:

- No evidence of significant military activity specifically on Site has been found and none is likely to have occurred.
- It is possible that an unexploded British AA shell struck the Site during WWII. However, any such UXO incident would likelyj have been observed and reported at the time.

RECOMMENDATIONS	
SI Works	Brimstone was not made aware of any future SI works occurring on Site at the time of writing.
Development Works	A Stage 2 Detailed Risk Assessment is not considered necessary. However, the possibility of UXO remaining on Site cannot be completely ruled out at desktop stage. Therefore, a **UXO Safety Awareness Briefing** to all personnel conducting future ground works would be considered prudent.