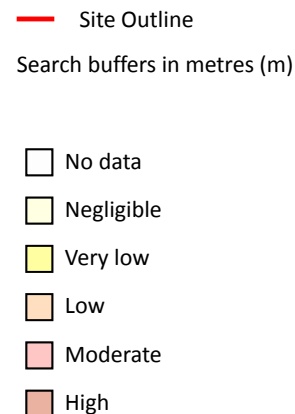
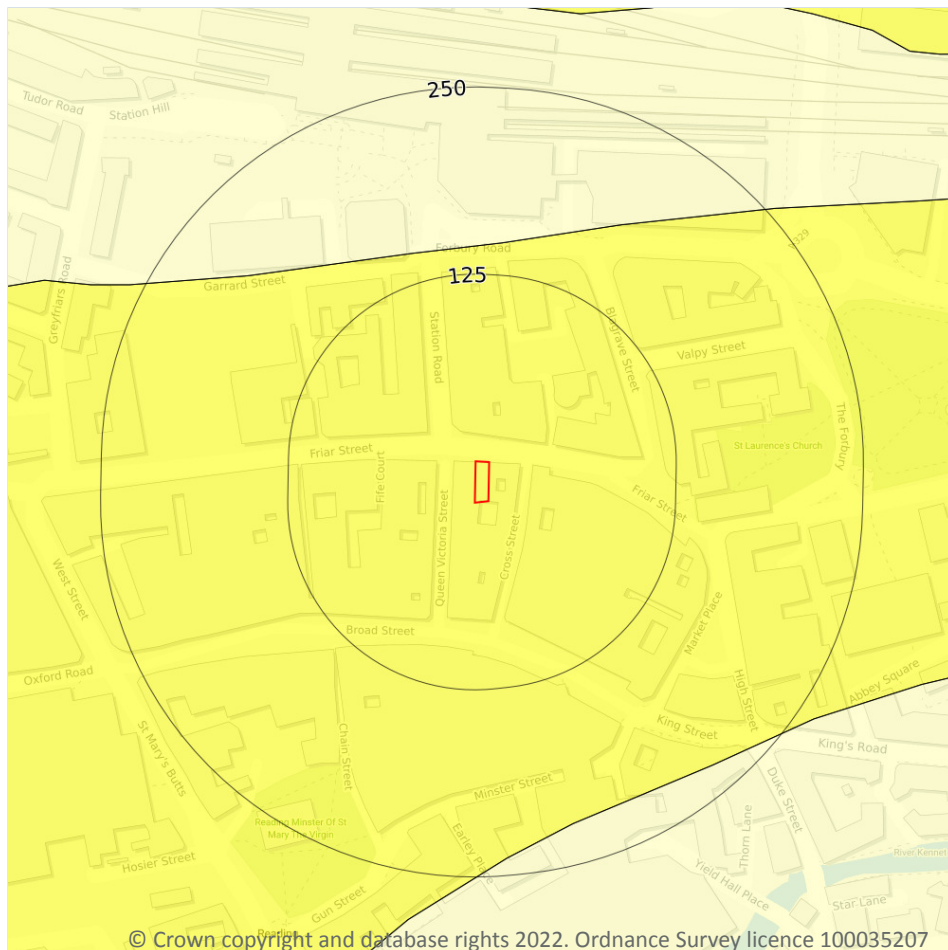


Natural ground subsidence - Collapsible deposits



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.

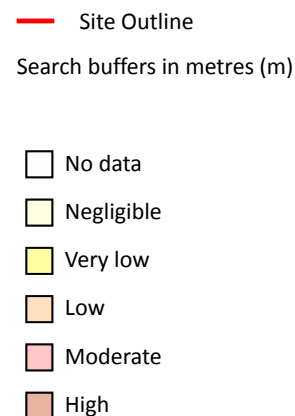
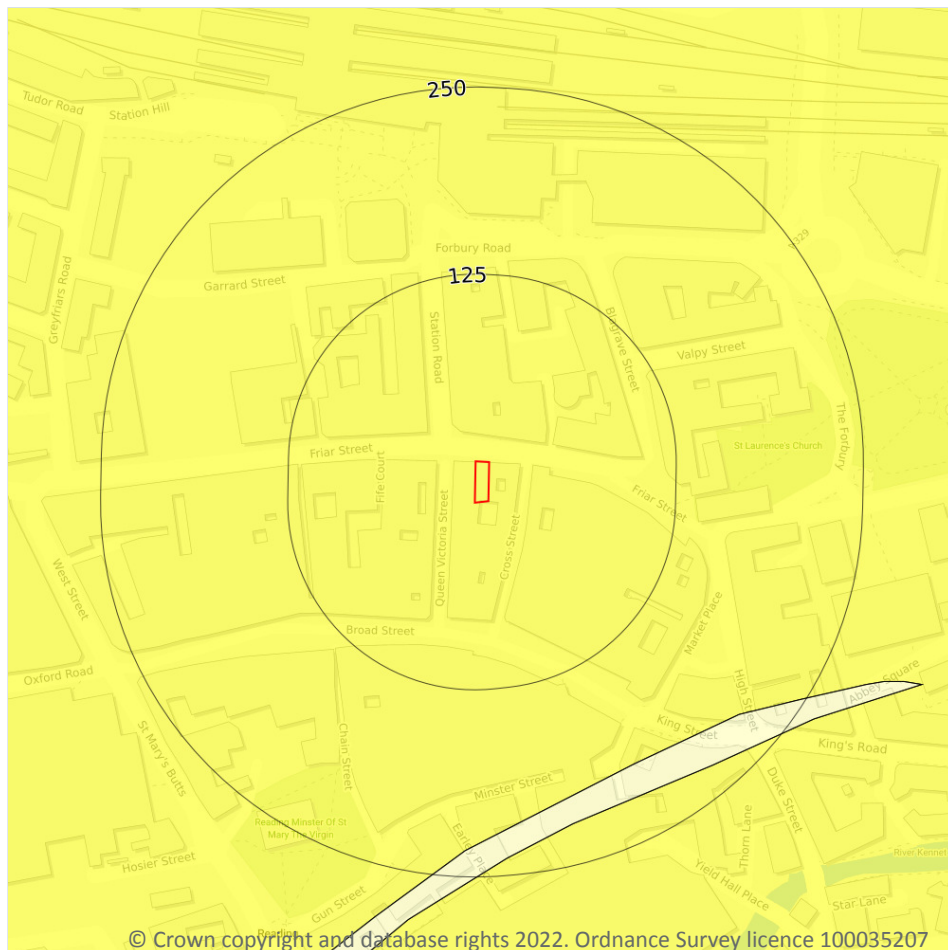
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 116**

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



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.

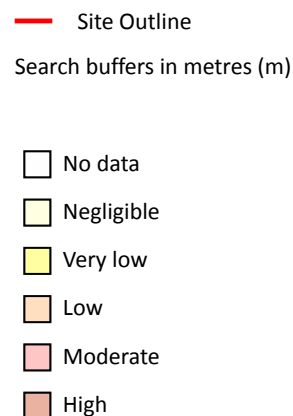
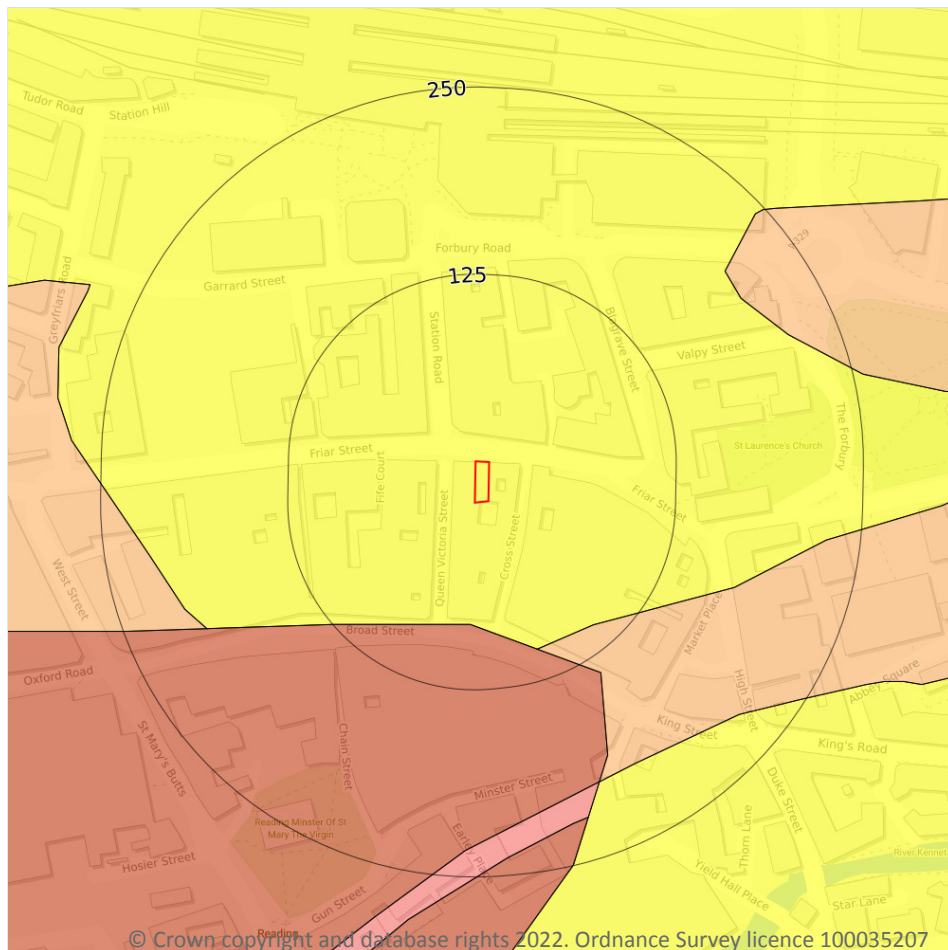
Features are displayed on the Natural ground subsidence - Landslides map on **page 117**

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.

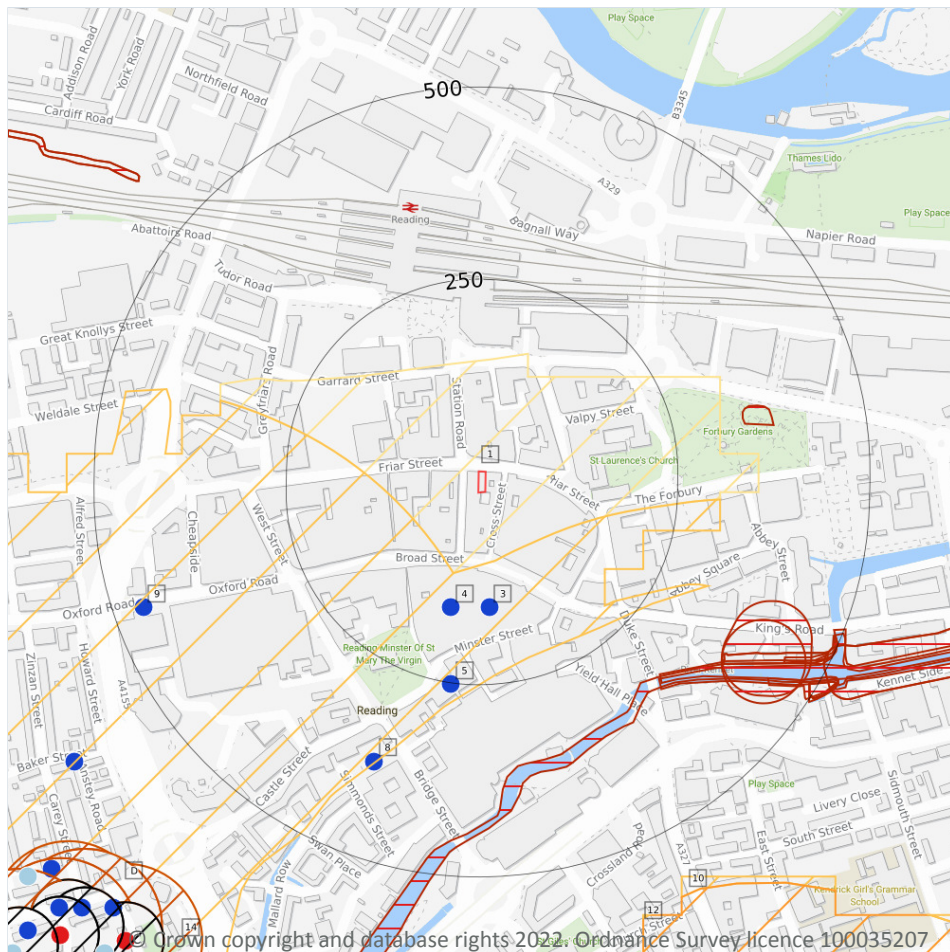
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 118**

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, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- 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 Natural cavities

Records within 500m

5

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 Mining, ground workings and natural cavities map on **page 120**

ID	Location	Details	Source
3	150m S	Type: Solution Pipe x 5 Superficial Geology: Taplow Gravel Bedrock Geology: Chalk Group	Simple Bibliography: Reading Borough Council Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely

ID	Location	Details	Source
4	153m S	Type: Solution Pipe x 3 Superficial Geology: Taplow Gravel Bedrock Geology: Chalk Group	Simple Bibliography: Reading Borough Council Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
5	251m S	Type: Solution Pipe x 1 Superficial Geology: Taplow Gravel Bedrock Geology: Chalk Group	Simple Bibliography: Reading Borough Council Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
8	374m S	Type: Solution Pipe x 2 Superficial Geology: Taplow Gravel Bedrock Geology: Chalk Group	Simple Bibliography: Reading Borough Council Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely
9	460m W	Type: Solution Pipe x 3 Superficial Geology: Taplow Gravel Bedrock Geology: Chalk Group	Simple Bibliography: Reading Borough Council Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely

This data is sourced from Stantec UK Ltd.

18.2 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.

18.3 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.

18.4 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.



18.5 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

46

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, ground workings and natural cavities map on **page 120**

ID	Location	Name	Commodity	Class	Likelihood
1	On site	Not available	Chalk	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
2	86m SE	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
10	562m SE	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
11	586m SE	Not available	Chalk	C	Small scale underground mining may have occurred; mine adits, shafts and tunnels may be present. Potential for localised difficult ground conditions are at a level where they should be considered
12	588m S	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
14	642m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered



ID	Location	Name	Commodity	Class	Likelihood
D	661m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
D	671m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
D	692m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
D	692m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	703m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
D	711m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
D	719m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	735m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
D	742m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
D	742m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered



ID	Location	Name	Commodity	Class	Likelihood
-	776m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	779m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	786m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	788m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
D	789m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	790m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
18	799m SE	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	809m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	818m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	823m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered



ID	Location	Name	Commodity	Class	Likelihood
-	829m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	836m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	847m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	851m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	860m E	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	873m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	896m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	898m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	901m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	908m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered



ID	Location	Name	Commodity	Class	Likelihood
-	921m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	924m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	928m S	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	930m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	935m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	956m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	957m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	996m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	996m SW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	996m SW	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered

This data is sourced from the British Geological Survey.



18.7 Mining cavities

Records within 1000m

24

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 Mining, ground workings and natural cavities map on **page 120**

ID	Location	Mine Address	Mineral	Data source	Publisher
-	669m S	Reading, Berkshire	Chalk	-	-
D	769m SW	Reading (Coley), Berkshire	Chalk	-	-
D	770m SW	Reading (Coley), Berkshire	Chalk	-	-
D	771m SW	Reading (Coley), Berkshire	Chalk	-	-
-	775m SE	Jubilee Square, Reading, Berkshire	Chalk	-	PhD Thesis, University of Reading
D	776m SW	Reading (Coley), Berkshire	Chalk	-	-
D	777m SW	Reading (Coley), Berkshire	Chalk	-	-
-	795m SE	Reading, Berkshire	Chalk	-	PhD Thesis, University of Reading
D	804m SW	Reading (Coley), Berkshire	Chalk	-	-
-	811m SW	Reading (Coley), Berkshire	Chalk	-	-
-	837m S	Reading, Berkshire	Chalk	-	PhD Thesis, University of Reading
-	842m SW	Reading (Coley), Berkshire	Chalk	-	-
D	852m SW	Reading (Coley), Berkshire	Chalk	-	-
-	865m S	Shearmans Brick Kiln, Reading, Berkshire	Chalk	-	PhD Thesis, University of Reading
-	900m S	Katesgrove Kilns (1), Reading, Berkshire	Chalk	-	PhD Thesis, University of Reading



ID	Location	Mine Address	Mineral	Data source	Publisher
-	914m S	Shearmans Brick Kiln, Reading, Berkshire	Chalk	-	PhD Thesis, University of Reading
-	915m SW	Reading (Coley), Berkshire	Chalk	-	-
-	921m SW	Castle Hill Kiln, Reading (Coley), Berkshire	Chalk	-	-
-	922m SE	The Old Orchard Kiln, Reading, Berkshire	Chalk	-	PhD Thesis, University of Reading
-	950m S	Katesgrove Kilns (2), Reading, Berkshire	Chalk	READING CHALK MINES	TRANS.GEO.SOC., 4, 780
-	951m SW	Reading (Coley), Berkshire	Chalk	-	-
-	955m SW	Coley Potteries, Reading (Coley), Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
-	971m SW	Reading (Coley), Berkshire	Chalk	-	-
-	982m SW	Reading (Coley), Berkshire	Chalk	-	-

This data is sourced from Stantec UK Ltd.

18.8 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	Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) may have information such as mining plans and maps held within their archive that have occurred within 1km of this property. 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.



18.9 Coal mining

Records on site	0
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Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 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.

18.11 Gypsum areas

Records on site	0
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Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
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Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

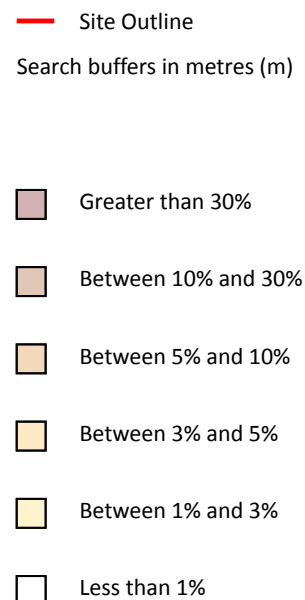
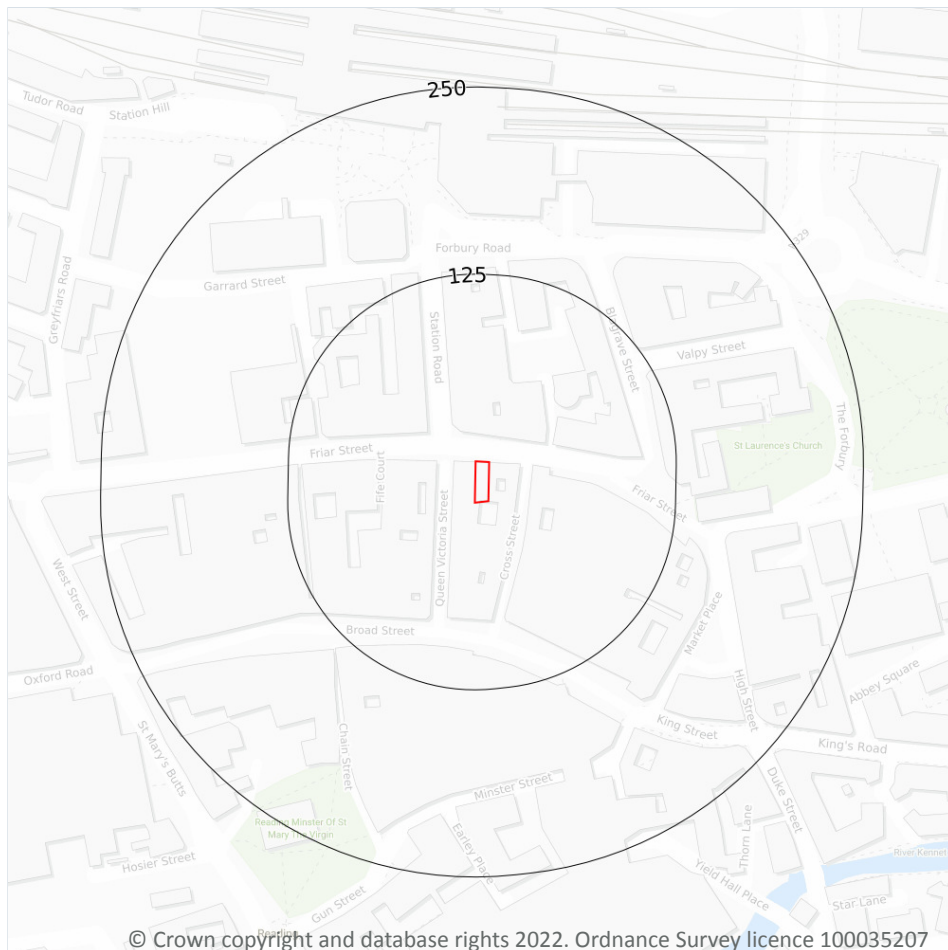
Records on site	0
-----------------	---

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 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 130**

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

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 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 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
35m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
49m SE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 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.

20.3 BGS Measured Urban Soil Chemistry

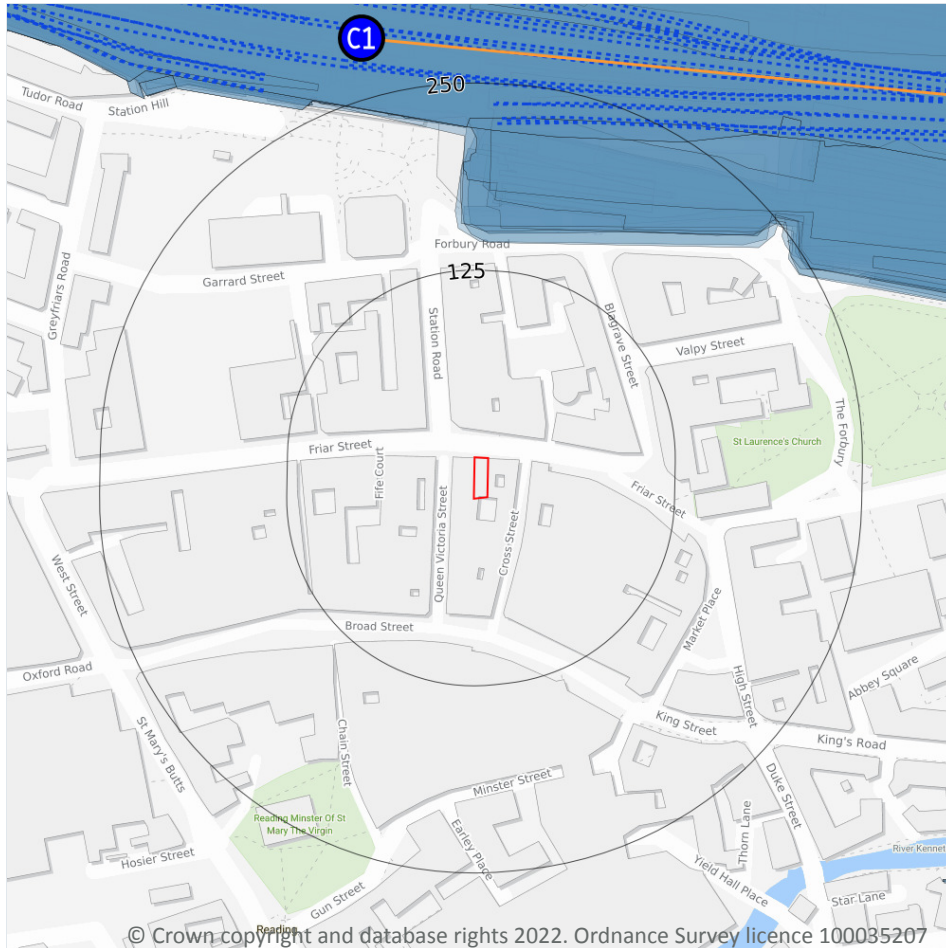
Records within 50m**0**

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.



21 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

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

34

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 132**

Location	Land Use	Year of mapping	Mapping scale
144m N	Railway Sidings	1898	10560
144m N	Railway	1898	-
150m N	Railway	1932	-
150m N	Railway	1910	-
151m N	Railway Sidings	1962	10560
154m N	Railway Sidings	1938	10560
155m N	Railway Sidings	1938	10560
168m N	Railway Sidings	1957	2500
168m N	Railway Sidings	1958	2500
169m N	Railway Sidings	1900	2500
171m N	Railway Sidings	1913	10560
173m N	Railway Sidings	1912	2500
173m N	Railway Sidings	1931	2500
173m N	Railway Sidings	1962	1250
173m N	Railway Sidings	1956	1250
178m N	Railway Sidings	1933	10560
183m N	Railway	1879	-



Location	Land Use	Year of mapping	Mapping scale
186m N	Railway Sidings	1879	2500
189m N	Railway Sidings	1879	500
218m N	Railway Sidings	1994	10000
218m N	Railway Sidings	1989	10000
221m N	Railway Sidings	1977	10000
221m N	Railway Sidings	1971	10000
225m N	Railway Sidings	1986	1250
225m N	Railway Sidings	1979	1250
225m N	Railway Sidings	1988	1250
226m N	Railway Sidings	1993	1250
231m N	Railway Sidings	1957	2500
231m N	Railway Sidings	1958	2500
231m N	Railway Sidings	1962	1250
231m N	Railway Sidings	1956	1250
234m N	Railway Sidings	1879	500
235m N	Railway Sidings	1971	1250
236m N	Railway Sidings	1879	2500

This data is sourced from Ordnance Survey/Groundsure.

21.5 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.



21.6 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.

21.7 Railways

Records within 250m

9

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 132**

Location	Name	Type
223m N		rail
226m N	Not given	Multi Track
227m N		rail
229m N		rail
236m N		rail
237m N	Not given	Single Track
237m N	Not given	Single Track
238m N		rail
250m N	Reading to Plymouth Line	rail

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m

1

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.

Features are displayed on the Railway infrastructure and projects map on **page 132**

Location	Route Type
271m N	Surface Alignment



This data is sourced from publicly available information by Groundsure.

21.9 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.

21.10 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>.

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From: Yacklin Panza <YacklinPanza@hydrock.com>

Sent: 18 August 2022 09:20

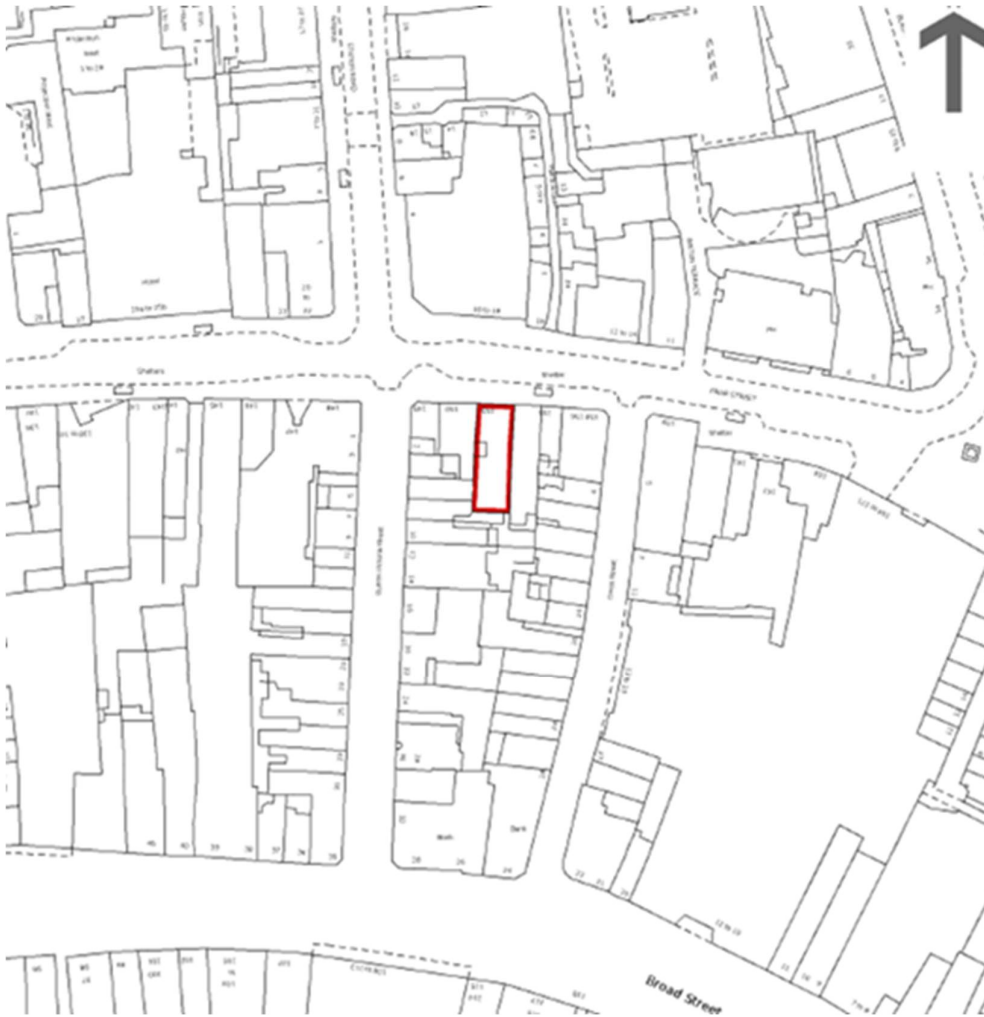
To: Environmental Protection <Environment.ProtectionTeam@reading.gov.uk>

Subject: FW: 153 Friar Street, Reading - Desk Study Contamination enquiry

This is an EXTERNAL EMAIL. STOP THINK before you CLICK links or OPEN attachments.

Good morning,

We are completing an environmental study for the site is located at 153 Friar Street, Reading. The postcode is RG1 1HE. See red line site boundary below:



The objective of the assessment is to review the potential for contamination at the proposed site and inform any potential geotechnical constraints that may be present. As part of our review, could you please provide comments with respect to the questions below:

1. Are you aware of any potential sources of contamination at or within 250m of the subject site (existing and/or historical)?
 2. Does the council hold records of any fuel storage tanks at or within 250m of the subject site (existing and/or historical)?
 3. Are there any known existing or historical landfilling activities associated with or within 250m of the subject site?
 4. Are there any historical planning records associated with the subject site?
 5. Are you aware of any other information that may be relevant to our assessment?
-

We understand that there may be a charge associated with our enquiry, if so please provide the relevant information for us to facilitate payment.

Many thanks,

Yacklin Panza
Geo Environmental Consultant



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Appendix E Preliminary Geotechnical Risk Register

Geotechnical Hazard Identification – Desk Study Stage

Potential geotechnical hazards have been assessed in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents HD 41/15 and CD 622. The following pages set out the identified geotechnical risks and hazards which are associated with the proposed development and establish the approach which is to be taken to manage the risks including the geotechnical input and analysis.

Table J.1 is a preliminary assessment of possible geotechnical hazards at the site at Desk Study stage. This information is used to assist with ground investigation design.

Table J.1: Possible geotechnical hazards

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Uncontrolled Made Ground (variable strength and compressibility).		✓	
Soft / loose compressible ground (low strength and high settlement potential).		✓	
Shrink swell of the clay fraction of soils under the influence of vegetation.		✓	
Variable lateral and vertical changes in ground conditions.		✓	
High sulfates present in the soils.		✓	
Adverse chemical ground conditions, (e.g. expansive slag).			✓
Obstructions.		✓	
Existing below ground structures to remain (on or off-site tunnels, foundations, basements, and adjacent sub-structures).		✓	
Shallow groundwater.		✓	
Changing groundwater conditions.		✓	
Risk from erosion.			✓
Risk from flooding.			✓
Running sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.		✓	
Slope stability issues – general slopes.			✓
Slope stability issues – retaining walls.			✓
Earthworks – settlement (due to placement of fill on soft / loose ground).			✓
Earthworks – poor bearing capacity of new fill.			✓
Earthworks – unsuitability of site won material to be reused as fill.			✓
Solution features in Chalk.		✓	
Cavities in the Superficial Deposits due to solution features.		✓	
Dissolution (associated with “wet rock head”).			✓
Brine extraction.			✓
Mining.		✓	
Cambered ground with gulls possibly present.			✓
Relict Slip Surfaces.			✓

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Solifluction.			✓
Problematic soils (silts and rewetting etc.).		✓	

Appendix F Plausible Source-Pathway-Receptor Contaminant Linkages

Summary of Potential Contaminant Linkages

Table K.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2021) and additional risk assessment is required.

Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland *et al* 2001) but modified to add a ‘no linkage’ category and to remove low/moderate risk (See Table K.1).

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site demolition and redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table K.1: Consequence versus probability assessment.

		Consequence			
Probability		Severe	Medium	Mild	Minor
	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Very low risk
	No Linkage	No risk			

Table K.2: Exposure model – final source-pathway-receptor contaminant linkages

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Made Ground below the site from historical phases of development/ demolition (metals, metalloids, asbestos and PAH) (S01).	Ingestion, inhalation or direct contact.	Site users.	Low likelihood	Medium	Low	There is potentially Made Ground below the entire site.	The proposed development is to comprise the refurbishment of the existing building on site. It is understood the configuration of the existing building will remain the same. Therefore, the presence of the current building will sever the ingestion or inhalation pathways to site users. No ground is expected to be broken as part of the refurbishment.
	Inhalation of fugitive dust.	Neighbours.	Low likelihood	Medium	Low		
	Leaching through unsaturated zone.	Groundwater and possible abstractors.	Low likelihood	Medium	Low	The site is underlain by the Taplow Gravel Member and Seaford Chalk Aquifer. Refurbishment activities are unlikely to expose contaminants to the ground and surface water runoff. Any surface water would be anticipated to be intercepted by the city drainage network. The site is considered unlikely to have a significant impact on groundwater.	
	Surface run-off.	Aquatic ecosystems.	Low likelihood	Medium	Low		
	Base flow from contaminated groundwater.	Surface water and possible abstractors.	Low likelihood	Medium	Low		
Asbestos fibres from insulation or asbestos-containing materials in the buildings (S02).	Fugitive dust.	On Site	Likely	Severe	High	Asbestos may be present in the existing building and in Made Ground. Refurbishment survey to be undertaken of the building. Removal under controlled conditions should limit release of fibres to the air and the ground. Proposed development is refurbishment only therefore no ground will be broken.	
		Neighbours.	Unlikely	Severe	Low		
Ground gases (carbon dioxide and methane) from organic	Migration, build up and	Site users.	Unlikely	Medium to Severe	Low	The proposed development is to comprise the refurbishment of the existing building on site with no breaking of ground expected. Buildings have been present on site since the 1800s and there has been no	
		Neighbours.		Medium	Very Low		

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
materials in the Made Ground below the site (S03).	asphyxiation/explosion.					known report of asphyxiation or explosion due to gas build up. Therefore, the risk posed to the existing structure by ground gas from an on-site source is considered to be low to very low.
Ground gases (carbon dioxide and methane) from Made Ground from historical carriage manufactory located 90m east of site amongst other nearby historical industrial/commercial land uses (S04).	Migration, build up and asphyxiation/explosion.	Site users.	Unlikely	Medium to Severe	Low	The proposed development is to comprise the refurbishment of the existing building on site with no breaking of ground expected. Buildings have been present on site since the 1800s and there has been no known report of asphyxiation or explosion due to gas build up. Therefore, the risk posed to the existing structure by ground gas from an off-site source is considered to be low to very low. No landfill records or other significant potential sources of ground gas were identified within 500m of the site.
Hydrocarbon fuels, lubricants and solvents from general spillage together with uncontrolled disposal and spillage from waste receptacles and historical garage located 80m north of site (S05).	Ingestion, inhalation or direct contact.	Site users.	Low likelihood	Medium	Low	Off site sources of fuels are possibly present in the form of historical garage 80m N of site and historical carriage manufactory 80m E of site. However there are currently no known reports of contamination occurring and it is considered that there is a low likelihood of potential impact.
	Vapours.	Neighbours.		Medium	Low	
	Inhalation of fugitive dust.	Neighbours.	Low likelihood	Medium	Low	
	Leaching through unsaturated zone.	Groundwater and possible abstractors.		Medium	Low	
	Leaching through unsaturated zone.	Groundwater and possible abstractors.		Medium	Low	
	Direct contact	Water supply pipes.		Medium	Low	