

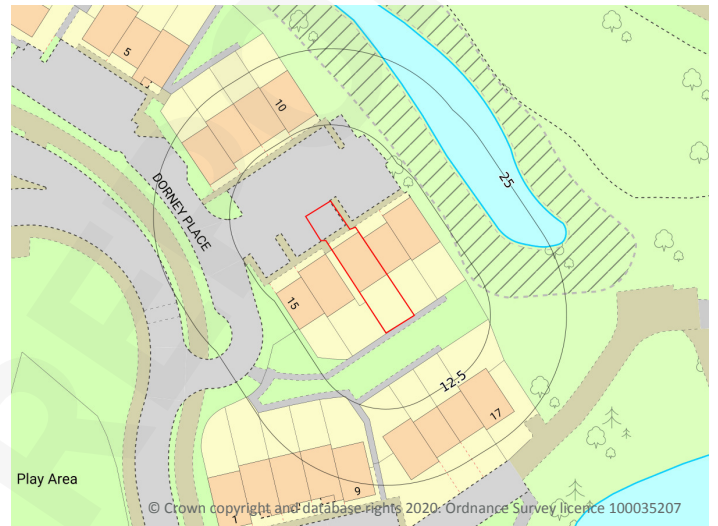
Specimen Address, Specimen Town

## Professional opinion





## Site plan



# PASS



## Search results

- |  |  |
|--|--|
|  <b>Non-coal mining</b><br><b>Pass</b> <span style="float: right;">page 3</span>           |  <b>Natural instability</b><br><b>Not identified</b>                                  |
|  <b>Historical features</b><br><b>Identified</b> <span style="float: right;">page 3</span> |  <b>Infilled land</b><br><b>Information</b> <span style="float: right;">page 4</span> |
|  <b>Geological features</b><br><b>Identified</b> <span style="float: right;">page 3</span> |  <b>Sinkholes</b><br><b>Not identified</b>  |
|  <b>Oil and gas extraction</b><br><b>Not identified</b>                                    |  <b>Coal mining alert</b><br><b>Not identified</b>                                    |
|  <b>Satellite monitoring</b><br><b>Not identified</b>                                      |  <b>Cheshire brine alert</b><br><b>Not identified</b>                                 |

## Overview of findings and recommendations

This product is intended for use by professional advisers who are experienced and skilled in the use and interpretation of environmental data and/or risk assessment opinions.

To save you time when assessing the report, we only provide maps and data tables of features we have identified to be of note. These relate to mining and ground risks that may have liability implications, affect insurance premiums, property values and/or a lender's willingness to lend.

You can view a full list of the information we have searched on **page 17**.

## Non-coal mining assessment



We consider the property to be acceptably free from non-coal mining related settlement or subsidence risk. Please refer to the assessment of mining experts Mining Searches UK below for further details.



### Non-coal mining

Mining types: Metals, Stone, Unspecified

#### Past mining activity

An area of worked ground is recorded to lie approximately 5 metres to the south of the property. There is a possibility that this worked ground is related to stone extraction but the feature is sufficiently removed from the property.

#### Current and future mining

According to our archive the property does not presently lie within an area with planning permission for non-coal mineral development. We are not aware of any planned future mining activity.

#### Key recommended next steps:

- No further action is recommended

## Other considerations

Other ground subsidence hazards have been identified at the site. Please refer to the findings and recommendations below for further details.



## Ground stability

Infilled land has been found in proximity to the property which has the potential to cause ground instability. However, we have determined that these features should not cause any significant issues. A prudent purchaser may wish to conduct a visual inspection of the property, looking for any evidence of cracks and other signs of subsidence if a full structural survey is not conducted.

SAMPLE REPORT



## Non-coal mining summary



### Mining records

Records relating to recorded mining areas or activity have been identified in the vicinity of the site.

See **page 6** for details. The Non-coal mining assessment on **page 2** will cover any next steps relating to these features.

Mining features	Identified
Mine plans	Not identified
Researched mining	Not identified
BritPits	Identified
Mineral Planning Areas	Identified
Non-coal mining areas	Not identified
Mining cavities	Not identified
Coal mining areas	Not identified
Brine areas	Not identified
Gypsum areas	Not identified
Tin mining areas	Not identified



### Historical features

Historical mapping has identified mining features in the vicinity of the site.

See **page 9** for details. The Non-coal mining assessment on **page 2** will cover any next steps relating to these features.

Non-coal mining	Identified
Coal and associated mining	Not identified
Industry associated with mining	Not identified



### Geological features

There are geological features that could indicate the presence of mining operations in the area or other sources of ground instability.

See **page 10** for details. The Non-coal mining assessment on **page 2** will cover any next steps relating to these features.

Artificial and made ground	Identified
Mineral veins	Not identified



### Oil and gas extraction

No historical, active or planned wells or extraction areas have been identified near the property.

Oil and gas areas	Not identified
Oil and gas wells	Not identified



## Subsidence summary



### Satellite monitoring

Satellite radar measurements have not detected any notable ground movement in the vicinity of the property.

Property	Green
Surrounds	Green
Local area	Green
Gradient	Green
Acceleration	Not assessed
Range	Not assessed

### SatSense Rating

Green

Ratings provided by SatSense Ltd, experts in analysis of InSAR ground movement data from satellite radar.



### Natural instability

Searches of natural ground stability data have not identified any potential ground stability risks.

Shrink-swell hazard	Non-Plastic
Natural ground subsidence	Not identified
Landslides	Not identified
Natural cavities	Not identified
Coastal erosion	Not identified



### Infilled land

Areas of infilled land or landfill have been identified in the vicinity of the site.

See **page 16** for details and **page 3** for recommended next steps.

Infilled land	Information
Historical landfill sites	Not identified



### Sinkholes

No records of sinkholes have been identified in the vicinity of the property.

Reported recent incidents	Not identified
Recorded incidents (BGS)	Not identified
Recorded incidents (PBA)	Not identified
Historical incidents	Not identified



## Mining features



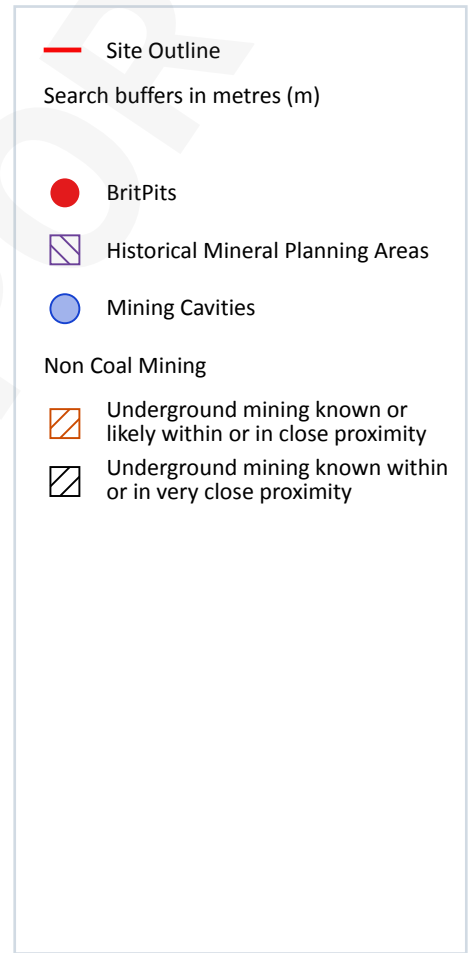
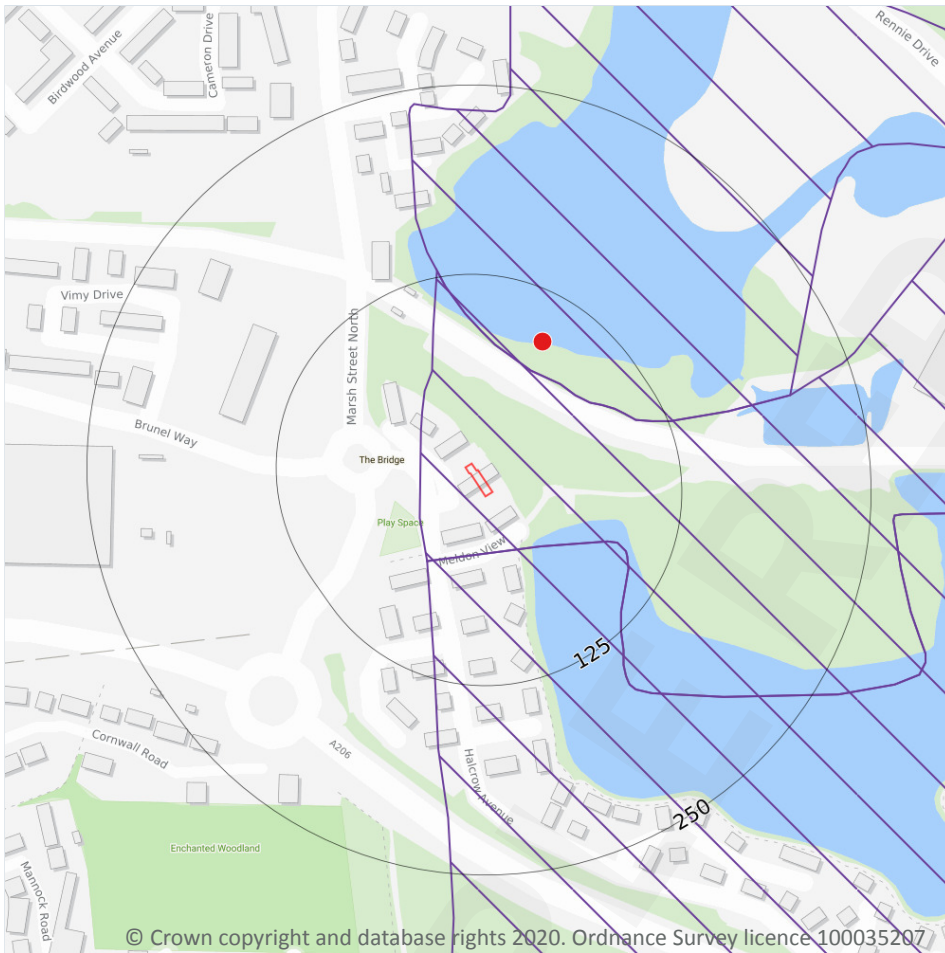
### Surface workings

Surface workings identified from OS, BGS Geological mapping, Lidar data, and mine plans sourced from the BGS and various collections and sources.

Location	Feature	Mineral	Mining type
4m E	Quarry	Igneous & Metamorphic	Stone

This data is sourced from Mining Searches UK

## Mining records



### BritPits

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.

Location	Details	Description
93m NE	<p>Name: Littlebrook Gravel Pit</p> <p>Address: Temple Hill, DARTFORD, Kent</p> <p>Commodity: Sand &amp; Gravel</p> <p>Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site</p>	<p>Type: Ceased</p> <p>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</p>

This data is sourced from the British Geological Survey.

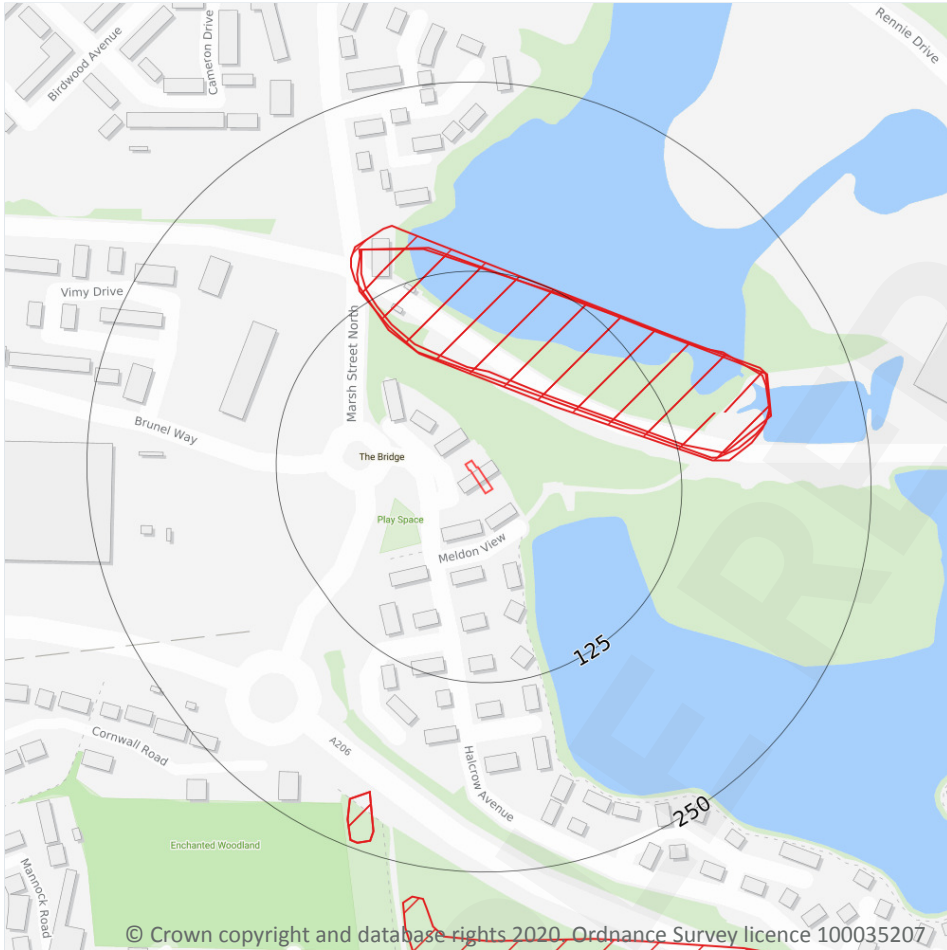
## Mineral Planning Areas

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.

Location	Site Name	Mineral	Type	Planning Status	Planning Status Date	Additional information
On site	Castlebrook Farm	Sand and gravel	Surface mineral working	Valid	1957	No further details available
37m S	Littlebrook Farm	Sand and gravel	Surface mineral working	Valid	1957	No further details available




This data is sourced from the British Geological Survey.

## Historical features



**Site Outline**

Search buffers in metres (m)

-  Non-coal mining
-  Coal and associated mining
-  Industry associated with mining

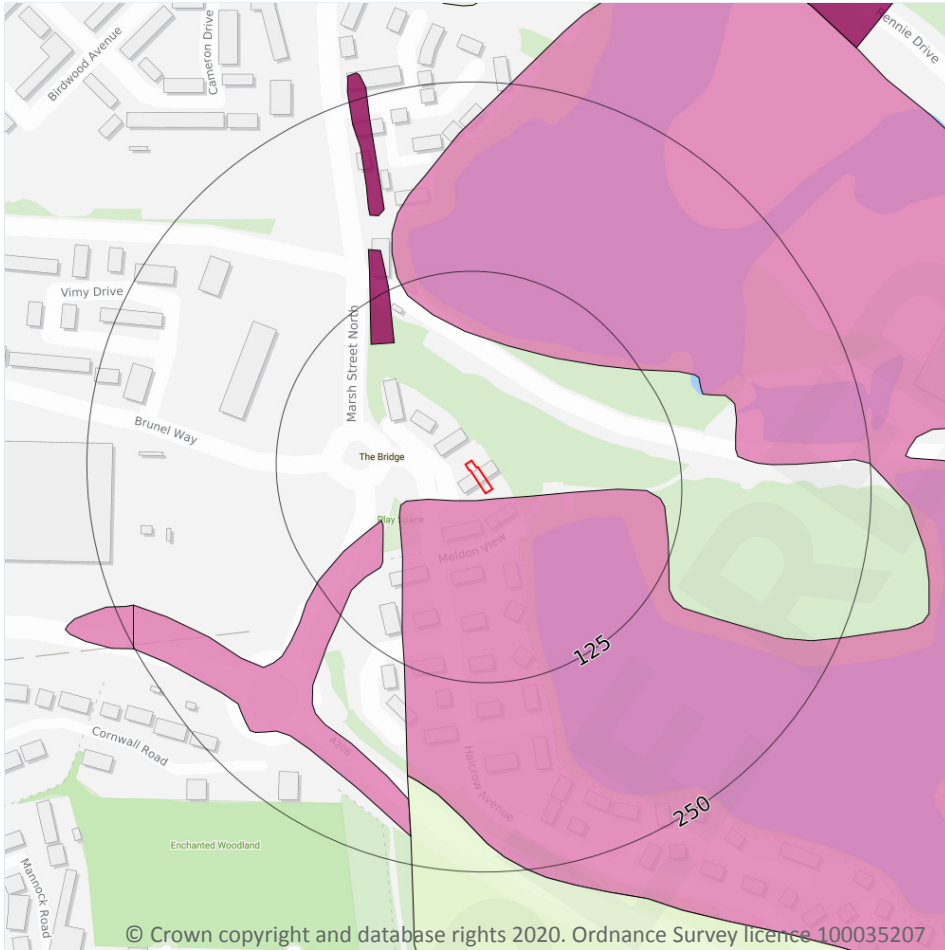
### Non-coal mining

Historical land uses identified from Ordnance Survey mapping that involved mining for substances other than coal.

Location	Land use	Date
53m N	Gravel Pit	1955
55m N	Gravel Pit	1948
59m N	Gravel Pit	1938
211m S	Unspecified Pit	1933
211m S	Unspecified Pit	1938

This data is sourced from Groundsure.

## Geological features 10k



**Site Outline**

Search buffers in metres (m)

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

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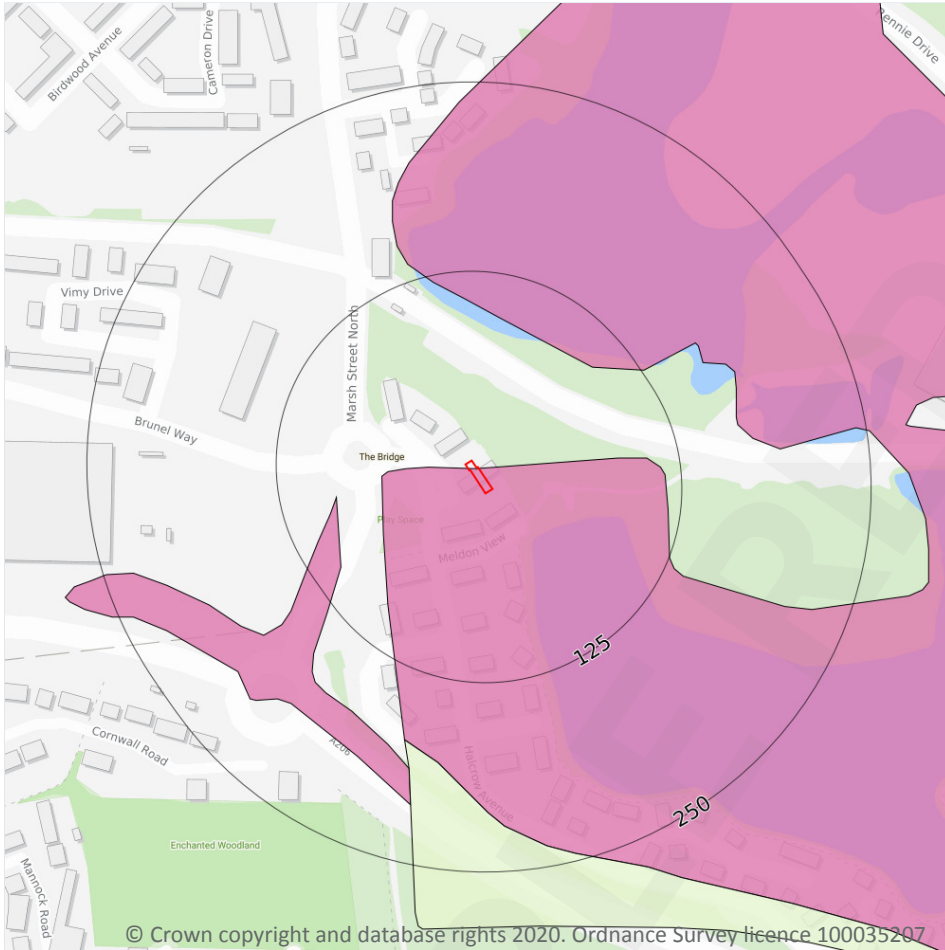
### Artificial and made ground (10k)

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

Location	LEX Code	Description	Rock description
4m S	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.

## Geological features 50k



— Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground
- Mineral veins

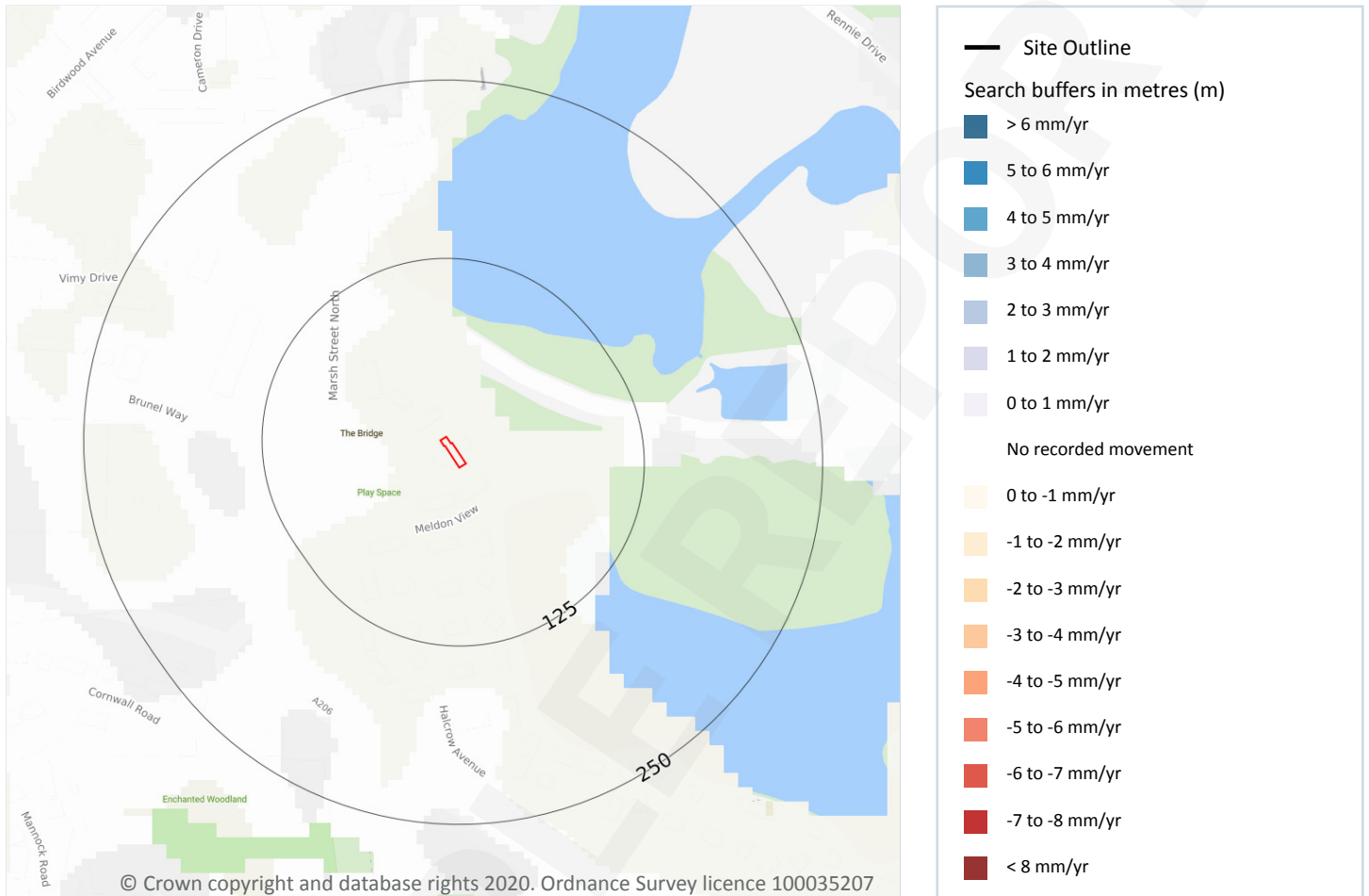
### Artificial and made ground (50k)

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

Location	LEX Code	Description	Rock description
On site	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

This data is sourced from the British Geological Survey.

## Satellite monitoring



### Satellite monitoring

Satellite radar data captured and analysed to measure real-world ground movement, accurate to the millimetre.

The map above shows the general rate of movement in the area since 2015 indicating broad ground movement trends. However, an identified risk will not always be visible on the map.

Potential risk to property is summarised with a simple traffic light system in the table below across six assessments relating to different types and scales of ground movement.

Further information on this assessment can be found in the Notes and guidance section within this report.

- **Property** looks at the relative movement of ground within the property boundary when compared to movement of the immediate surroundings (100m around the property)
- **Surrounds** looks at the relative movement of the immediate surroundings (100m) when compared to movement of the local area (1km around the property)

- **Local Area** looks at the absolute recorded movement in the local area (1km)
- **Gradient** looks at differences in movement over medium spatial scales (surrounds) and identifies risk due to active bending or warping
- **Acceleration** looks at the recent changes in movements, providing information about whether ground movements are stabilising or accelerating
- **Range** looks at a moving window over the time series to identify the maximum range of non-linear displacement seen.

**Green** rating - the property is stable and unlikely to be at risk.

**Amber** the property may be at risk of damage, either now or in the future.

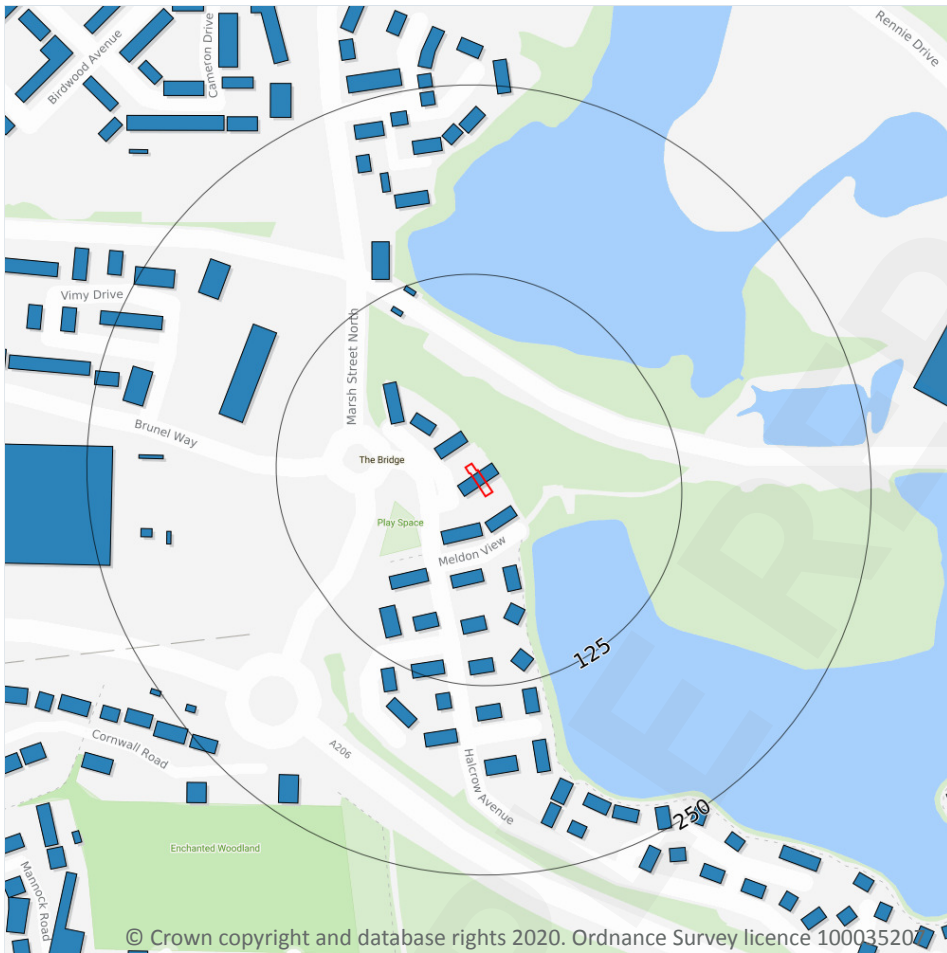
**Red** the property is likely to be at significant risk of damage, either now or in the future.

**Not Assessed** - measurements available are insufficient for a viable assessment.

Scale	Rating	Value	Units	Assessment
Property	<b>Green</b>	1.43	mm/yr	Measurements suggest that the site itself is stable with respect to its immediate surroundings.
Surrounds	<b>Green</b>	0.36	mm/yr	The immediate vicinity of the site is reasonably stable.
Local area	<b>Green</b>	0.11	mm/yr	No significant regional movements have been detected in the area around the site.
Gradient	<b>Green</b>	0.0068	mm/yr	The site does not seem to be at risk of damage from the bending of the ground associated with ground movement in the vicinity of the site.
Acceleration	<b>Not assessed</b>	-	mm/yr	Unfortunately, there are insufficient data in this area to determine whether movements have sped up or slowed down over the past year.
Range	<b>Not assessed</b>	-	mm	Unfortunately, there are insufficient data in this area to determine whether there has been any seasonal or one-off movement over the course of a year.

This data is sourced from SatSense Ltd.

## Property shrink-swell assessment



### Property shrink-swell assessment

This dataset provides information on the susceptibility to shrink-swell subsidence given underlying geological properties, proximity of trees (using Bluesky National Tree Map), and the characteristics of local buildings (type, age, height, and drainage). These multiple inputs contribute to an overall hazard score for shrink-swell subsidence susceptibility; either 'Low', 'Medium', 'High' or 'Very high' ('Non-Plastic' for areas with this kind of underlying geology). The score for each input is also presented (on a scale 1-10, where 10 is a high susceptibility factor) to provide context of the contributing factors. Please note that building characteristics are taken from Office for National Statistics Lower Super Output Area data, and as such are generalised to give the most likely characteristics for the property. Any assigned rating should not be relied upon if the property is a new build.

Location	Susceptibility	Input factors
on site	<p>Hazard score: Non-Plastic Description: The underlying geology is non-plastic, therefore cannot undergo any change in volume and subsequently cannot have shrink–swell related subsidence</p>	<p>Tree proximity: 0 Underlying geology: 1 Local building age: 7 Local drainage: 10 Local building height: 10 Local building type: 6</p>

This data is sourced from the British Geological Survey.

SAMPLE REPORT

## Infilled land



**Site Outline**

Search buffers in metres (m)

- EA Landfill
- GS landfill
- Infilled Land
- Historic landfill sites

### Infilling from historical mapping

These are records of areas of land that have been potentially infilled with unknown materials. Groundsure have identified these areas from our comprehensive collection of historical maps. Depending on the nature of the materials that have been used for infilling there is the potential for these areas to settle over time. As such, any buildings situated on these areas could be at risk from ground instability or subsidence.

Location	Year of mapping	Land Use	Mapping scale
13m S	1974	Water Body	10000
33m S	1993	Water Body	10000
33m S	1986	Water Body	10000

This data is sourced from Groundsure.

## Datasets searched

This is a full list of the data searched in this report. If we have found results of note we will state "Identified". If no results of note are found, we will state "Not identified". Our intelligent filtering will hide "Not identified" sections to speed up your workflow. Please note: if a GeoRisk + report, the CON29M and Cheshire Salt Search content is not covered in the below.

<b>Mining Features</b>		<b>Historical Features</b>	
Mine entries	Not identified	<b>Non-coal mining</b>	<b>Identified</b>
Mineralised veins	Not identified	Coal and associated mining	Not identified
<b>Surface workings</b>	<b>Identified</b>	Industry associated with mining	Not identified
Surface features	Not identified	<b>Geological Features</b>	
Underground mine workings	Not identified	<b>Artificial and made ground (10k)</b>	<b>Identified</b>
Reported subsidence	Not identified	Linear features - mineral veins (10k)	Not identified
Mine waste tips	Not identified	<b>Artificial and made ground (50k)</b>	<b>Identified</b>
Secured features	Not identified	Linear features - mineral veins (50k)	Not identified
Licence boundaries	Not identified	<b>Oil and gas extraction</b>	
Researched mining	Not identified	Oil or gas drilling well	Not identified
Mining Record Office plans	Not identified	Proposed oil or gas drilling well	Not identified
BGS mine plans	Not identified	Licensed blocks	Not identified
<b>Mining Records</b>		Potential future exploration areas	Not identified
<b>BritPits</b>	<b>Identified</b>	<b>Satellite monitoring</b>	
<b>Mineral Planning Areas</b>	<b>Identified</b>	<b>Satellite monitoring</b>	<b>Identified</b>
Non-coal mining areas	Not identified	<b>Natural instability</b>	
Mining cavities	Not identified	<b>Property shrink-swell assessment</b>	<b>Identified</b>
Coal mining areas	Not identified	Shrink-swell clays	Not identified
Brine areas	Not identified	Landslides	Not identified
Gypsum areas	Not identified	National landslide database	Not identified
Tin mining areas	Not identified	Running sands	Not identified

## Natural instability

Compressible deposits	Not identified
Collapsible deposits	Not identified
Dissolution of soluble rocks	Not identified
Natural cavities	Not identified

## Coastal Erosion

Projections with intervention measures in place	Not identified
Projections with no active intervention	Not identified

## Infilled land

### Infilling from historical mapping **Identified**

Active landfill sites	Not identified
Historical landfill (from Environment Agency records)	Not identified
Historical landfill (from Local Authority and historical mapping records)	Not identified

## Sinkholes

Reported recent incidents	Not identified
Recorded incidents (BGS)	Not identified
Recorded incidents (PBA)	Not identified
Historical incidents	Not identified

## Notes and guidance

### Non-coal mining assessment

This mining search has been compiled from the archive information held by Groundsure and Mining Searches UK. As with all historic mining records, there is no guarantee or assurance of reliability or accuracy of these records. Not all mining activities were recorded or are publically available. Neither Groundsure nor Mining Searches UK can be held responsible for any omissions or errors in the information upon which our interpretation has been based.

Historical mining records vary in document age, reliability, reproduction, quality of the original record, the reason to produce the original document, the skill of the original surveyor and the accuracy of the available surveying equipment at the time of production. It must be accepted that the information is subject to interpretation. Alternative interpretations may be possible.

In any area, sporadic, un-surveyed and ancient mine workings can exist, and unrecorded mine workings or mineralised veins can never be ruled out. Groundsure or Mining Searches UK cannot be held responsible for any settlement or subsidence associated with unrecorded mining features, or from mining plans that are not publically available.

If the property or site is subject to future development we recommend that the ownership of the minerals below the site's surface is established. This detail may be sought from a legal adviser or via the Land Registry. You can then assess whether there is a possibility of any proposed development disturbing or trespassing upon any minerals in third party ownership at the site.

In addition, a mining site investigation may be required to satisfy planning or building regulation conditions. Contact Groundsure for further advice.

### Coal Authority data

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### Satellite monitoring

SatSense produces countrywide ground movement products based on satellite radar data. For property movement products in the UK we use data from the ESA Sentinel-1 satellite constellation, which has a resolution of 4 by 14 metres. This means that the smallest objects we can detect are the size of a large shed, and we often get multiple measurement points over individual houses. We receive a new radar image every six days, and data collection started in 2015 (although initially, acquisition frequency was lower). This means we have 250+ measurements in time everywhere in the UK. By analysing this long time history using a technique known as InSAR, we can detect long-term movements as low as 1 mm/yr, which is far below movement levels expected to cause property damage.

What is InSAR?

Interferometric Synthetic Aperture Radar (InSAR) is a processing technique that uses the difference between radar images to detect ground movements with high precision. Two (or more) radar images are overlaid such that they match exactly, and the radar measurements for every matching pixel in the images are differenced.

The phase information from this difference is then used to extract ground movement for every pixel. SatSense processes all available data over the United Kingdom.

Why can't we measure everywhere?

A limitation of InSAR is that it relies on consistent radar returns from the reflecting surface (buildings, fields, woodland). While some types of surfaces, like buildings, bridges and bare ground are naturally very consistent, ground cover like dense vegetation and fast-growing crops inherently can vary rapidly over time and therefore interfere with the radar measurement. During our processing, we detect which points provide usable measurements, and which points have had too much interference. This means coverage is variable; dense in urban areas, but much more sparse in rural areas.

Why do we need risk indices?

The SatSense ground movement product measures a wide range of ground movements, from long-term, large regional signals to event level movement of individual points. Not all movements have the same damage potential for buildings. Compare an entire town that is subsiding due to groundwater variations to a single building subsiding due to local instability. Buildings in the subsiding town are all moving at very similar rates, meaning there is little to no relative movement between them. This makes the potential for damage much lower than the individual building moving with respect to its neighbours.

To differentiate between different types of movements, we've developed a way to extract different types of movements that are potentially damaging to property. This information is captured by the SatSense risk indices. These risk indices are described below:

- **Property** - This shows any long-term differential movement of the property with respect to its immediate surroundings, in other words, very localised movements. Examples of processes that could flag up this risk index would be trees affecting the nearby water table, local ground instability and small scale nearby building work.
- **Surrounds** – Focuses on slightly larger scale movements, how is the street or estate moving with respect to the wider area. Examples of processes that could flag up this risk index are tunnelling, large scale nearby building work and groundwater extraction.
- **Local Area** - Our widest scale index, showing how a town/neighbourhood as a whole is moving. This index is normally flagged up due to the presence of large scale historic mining or large scale groundwater extraction. Due to the wide area and the limited potential for damage likely to be associated with this type of movement, this index will only indicate amber or green, never red.
- **Gradient** – Looks for bending over medium spatial scales. This index will flag up properties that might not be moving much themselves but are being affected by movements in the vicinity.
- **Acceleration** - Looks at the recent changes in movements, flagging up properties that might not have historically been moving, but have recently seen an increase. It also provides information on whether properties that have moved historically continue to move, or whether the movement is decreasing.
- **Range** – Looks at the amplitude of movement over time. This will highlight periodic (seasonal) movements, and event style movements like sinkholes.

## National Coastal Erosion Risk Mapping (NCERM)

The National Coastal Erosion Risk Mapping (2018-2021) shows the coastal baseline. This baseline is split to 'frontages'. These are defined as lengths of the coast with consistent characteristics based on the cliff behaviour characteristics and the defence characteristics. It is intended as an up-to-date and reliable benchmark dataset showing erosion extents and rates for three periods:

- Short Term (0 – 20yr);
- Medium Term (20 – 50yr); and
- Long Term (50 – 100yr).

For the 5th, 50th and 95th percentile confidence levels (degrees of certainty, where 95th percentile equates to 95% certainty) for:

- No Active Intervention Policy Scenario; and
- With the implementation of Shoreline Management Plan (SMP) 2 Policies.

Defence type and SMP policies for each of the three periods described above are included.

The data and associated information is intended for guidance - it cannot provide details for individual properties. The NCERM information considers the predominant risk at the coast, although flooding and erosion processes are often linked, and data on the erosion of foreshore features are, in general, not included.

The data describes the upper and lower estimates of erosion risk at a particular location, within which the actual location of the coastline is expected to lie. The data does not estimate the absolute location of the future coastline. Details of geologically complex areas, known as "complex cliffs" are, in general, not included within the dataset due to the inherent uncertainties associated with predicting the timing and extent of erosion at these locations.

This dataset succeeds National Coastal Erosion Risk Mapping (NCERM) - National (2012 - 2017) Attribution statement: © Environment Agency copyright and/or database right

## BGS Property Shrink Swell Assessment

This dataset uses OS Open Maps building polygons to derive its assessment. These are often representative of more than one building and so the score assigned is representative of the highest risk found within the connected building units e.g. a pair of semi-detached properties or a terraced row. The baseline mapping used to derive the assessment will be updated at least annually.

The assessment does not cover any man-made hazards and is based on, and limited to the input datasets including OS Open Buildings, Office for National Statistics data, Bluesky Tree Map and BGS GeoSure shrink-swell. An indication of natural ground instability related to shrink-swell does not necessarily mean that a location will definitely be affected by ground movement or subsidence. Such an assessment can only be made by inspection of the area by a qualified professional.

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- Compliance with the Conveyancing Information Executive Standards will be a condition within the Conveyancing Information Executive Member's Terms and Conditions.
- Conveyancing Information Executive Members will promote the benefits of and deliver the Search to the agreed standards and in the best interests of the customer and associated parties.

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Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs.

#### COMPLAINTS PROCEDURE: If you want to make a complaint, we will:

- acknowledge it within 5 working days of receipt
- normally deal with it fully and provide a final response, in writing, within 20 working days of receipt
- liaise, at your request, with anyone acting formally on your behalf

Complaints should be sent to:

Operations Director, Groundsure Ltd, Sovereign House, Church Street, Brighton, BN1 1UJ. Tel: 08444 159 000. Email: [info@groundsure.com](mailto:info@groundsure.com) If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: [admin@tpos.co.uk](mailto:admin@tpos.co.uk) We will co-operate fully with the Ombudsman during an investigation and comply with their final decision.

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