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REPORT ON A SITE INVESTIGATION
LAND TO REAR OF
LITTLE ARUNDEL AND BRAMBLE BANK
BEDFORD ROAD
HOLWELL
HERTFORDSHIRE

Report Reference 149095

On behalf of:

DBF Construction Limited
Unit 8A, Kingsbourne Farm
Wick End
Stagsden
Bedford MK43 8TS

June 2026

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INTRODUCTION

Lucion Ground Engineering Limited was instructed by the client, DBF Construction Limited, to carry out a Phase 1 desk study combined with an intrusive ground investigation to establish the ground conditions beneath a plot of land to the rear of two dwellings called Little Arundel and Bramble Bank, Bedford Road, Holwell, Hertfordshire. The work is in preparation for proposed residential development of the land, which is to be divided into four plots. The scope of the intrusive investigation comprised four window sample boreholes with chemical testing on recovered samples to determine the nature of the underlying soil.

This report provides the findings of the desk study research, boreholes and the results of laboratory testing and makes recommendations for the design of shallow foundations and provides comment on the risk of soil contamination being present beneath the site.

LOCATION, TOPOGRAPHY AND GEOLOGY OF THE SITE

The site comprises land to the rear of two dwellings, Little Arundel and Bramble Bank, Bedford Road, Holwell in Hertfordshire. The site lies about 5km to the north of Hitchin as shown in Figure 1. The approximate National Grid Reference at the centre of the site is TL 1707 3418.

The site comprises a 50m wide by 90m long plot with access off Bedford Road to the east. The land to the rear of Little Arundel was mainly covered by grass or bare earth with a brick outbuilding located in the south-eastern corner beyond which was a line of mature Yew and Cypress trees. A post and rail fence marked the southern site boundary with a Hawthorn hedgerow and some mature deciduous trees including Poplar, Ash and Maple wrapping around the western boundary and along the divide between Little Arundel and Bramble Bank to the north. The Bramble Bank land contained two outbuildings within the western half of the plot which was otherwise covered by grass or bare earth. Arable fields were located along the southern and western site boundaries with residential properties and a horticultural nursery to the north.

The site was relatively flat and stands at about 50mOD on the south-eastern side of a shallow valley. The land gently falls to the north-west, by about 5m, over a distance of 100m to the bottom of valley, which contains a small north-eastward flowing watercourse.

The geological map at 1:50,000 scale, Sheet 221, and the BGS Geology of Britain viewer indicates the site to be underlain by a deep infilled glacial channel, which cuts through the solid geology of the Cretaceous Grey Chalk Subgroup into the underlying Gault Formation. The glacial deposits beneath the site are indicated to comprise the Lowestoft Formation, which comprises chalky till/boulder clay, together with outwash sands and gravels, silts and clays.

SITE HISTORY

Research into the site history involved reference to historical Ordnance Survey (OS) maps, aerial photographs, and internet research. Selected extracts are presented in Appendix 1 and described below:

<i>OS Map Extract</i>	<i>Description</i>
1882 OS County Series Scale 1:10,560 Figure A	The rural site is shown to be undeveloped and lies within a field. A north-east flowing stream is located about 75m to 100m to the north of the site. A road is located about 30m to the east of the site and this crosses over the stream to the north at Ramerick Bottom. About 100m to the east of the site is the Bedford and Hitchin Branch railway line.
1898 OS County Series Scale 1:2500 Figure B 1899 OS County Series Scale 1:10,560 Figure C 1901 OS County Series Scale 1:2500 Figure D	The site remains as shown in the 1882 map. A gravel pit is shown within the grounds of a country house called Holwellbury, off plan, about 350m to the north-west of the site.
1921-22 OS County Series Scale 1:10,560 Figure E 1922 OS County Series Scale 1:2500 Figure F	The site remains within a field as shown in the previous maps. Orchards have been planted to the north-west of the stream around Holwellbury. The gravel pit is no longer denoted.
1938 OS County Series Scale 1:10,560 Figure G	The site remains within a field as shown in the previous maps. There are three dwellings outlined directly to the east of the site, facing onto the road. There is another dwelling situated to the north by Ramerick Bottom.

<i>OS Map Extract</i>	<i>Description</i>
1948 OS County Series Scale 1:10,560 Figure H	There is a small outbuilding situated midway along the northern side of the site. There is a large agricultural building about 50m to the north of the site accessed by Ramerick Bottom.
1960 OS Sheet TL13SE Scale 1:10,560 Figure I	The site appears as shown in the 1948 map.
1979 OS Sheet TL1633/1733 Scale 1:2500 Figure J 1982 OS Sheet TL13SE Scale 1:10,000 Figure K	The site is shown to comprise land to the south-west of two dwellings called Bramble Bank and Little Arundel. There are two outbuildings within the site to the rear of Bramble Bank. The large agricultural building to the north-west, depicted as a glasshouse, is called Ramerick Nursery.
1993 OS Sheet TL1633/1733 Scale 1:2500 Figure L	The site and immediate surroundings appear as shown in the previous maps.
1999 Aerial Photograph On Page 13, Appendix 2	The site appears primarily grass covered land to the rear of dwellings along Bedford Road. The north-western corner of the plot appears to be occupied by a small yard with outbuildings.
2003 OS Sheet TL1633NE/1733NE Scale 1:1250 Figure M	The site and immediate surroundings appear as shown in the previous map.
2007 Aerial Photograph On Page 12, Appendix 2	The site and immediate surroundings appear as shown in the previous photograph.
2010 OS Sheet TL13SE Scale 1:10,000 Figure N	The site and immediate surroundings appear as shown in the previous map.

<i>OS Map Extract</i>	<i>Description</i>
2015 OS Sheet TL13SE Scale 1:10,000 Figure O	The site and immediate surroundings appear as shown in the previous map.
2015 Aerial Photographs On Page 11 Appendix 2	The site and immediate surroundings appear as shown in the previous photograph.
2020 - 2023 Aerial Photograph On Pages 9 & 10, Appendix 2	The site and immediate surroundings appear as shown in the previous photograph.
2025 OS Sheet TL34SE Scale 1:10,000 Figure P	The site and immediate surroundings appear as shown in the previous map.

Historical Summary

The 1882 first edition of the OS County Series maps shows the rural site to be situated within a field about 30m to the west of a road (Bedford Road). About 100m to the east of the site is the Bedford and Hitchin Branch railway line.

In the 1930s the site appears to have been included within the land/gardens to the west of two dwellings constructed along Bedford Road. Various small outbuildings are shown within the gardens.

The 1979 map identifies the site to lie within the gardens behind two dwellings, Little Arundel and Bramble Bank and appears to have changed very little thought to mid-May 2026 when the outbuildings were demolished and the site stripped.

SUMMARY OF ENVIRONMENTAL DATA

Appendix 2 contains information derived from Environmental Databases for a radius of up to 2000m from the site. The information covers datasets held by the Groundsure with contributors including the local authority, the Environment Agency, British Geological Survey, Ordnance Survey and the Coal Authority and the results, within a radius of 250m, are summarised below:

Historical Industrial Sites	On Site	0-50m	51 - 250m
Historical Industrial Land Uses	0	1	0
Historical Tanks	0	0	0
Historical Energy Features Database	0	0	0
Historical Petrol and Fuel Site Database	0	0	0
Historical Garages	0	0	0
Historical Military Land	0	0	0
Landfill and Other Waste Sites	On Site	0-50m	51 - 250m
Landfill Sites	0	0	0
Waste Sites	0	0	0
Waste Exemptions	0	0	1
Current Industrial Land Uses	On Site	0-50m	51 - 250m
Recent Industrial Land Uses	0	0	1
Current or Recent Petrol Stations	0	0	0
Electricity Cables	0	0	0
Gas Pipelines	0	0	0
Sites Determined as Contaminated Land	0	0	0
Permits/Authorisations	0	0	0
Pollution Discharge	0	0	0
Dangerous Substances	0	0	0
Pollution Incidents	0	0	0
Pollutions Inventories	0	0	0
Hydrogeology	On Site	0-50m	51 - 250m
Superficial Aquifer	Identified (within 500m)		
Bedrock Aquifer	Identified (within 500m)		
Groundwater Vulnerability	Identified (within 50m)		
Groundwater Abstractions	0	0	0
Surface Water Abstractions	0	2	2
Potable Abstractions	0	0	0
Source Protection Zones	0	0	1

Hydrology	On Site	0-50m	51 - 250m
Water Network (OS MasterMap)	0	1	10
Surface Water Features	0	1	5
River and Coastal Flooding	On Site	0-50m	51 - 250m
Risk of Flooding from Rivers and Sea	High (within 50m)		
Historical Flood Events	0	0	0
Flood Defences	0	0	0
Areas Benefiting from Flood Defences	0	0	0
Flood storage areas	0	0	0
Flood Zone 2	Identified (within 50m)		
Flood Zone 3	Identified (within 50m)		
Surface Water Flooding			
Surface Water Flooding	1 in 30 year greater than 1.0m (within 50m)		
Groundwater Flooding			
Groundwater Flooding	High (within 50m)		
Designated Environmentally Sensitive Sites	On Site	0-50m	51 - 250m
Environmentally sensitive sites	3	0	0
Natural Hazards			
Hazard			
Shrinking or Swelling Clay	Low (within 50m)		
Running Sand	Very Low (within 50m)		
Compressible Ground	Negligible (within 50m)		
Collapseable Deposits	Very Low (within 50m)		
Landslides	Very Low (within 50m)		
Ground Dissolution of Soluble Rocks	Negligible (within 50m)		
Mining, Ground Workings & Natural Cavities	On Site	0-50m	51 - 250m
Natural Cavities	0	0	0
Surface Ground Workings	0	0	0
Underground Mining	0	0	0
Radon			
The property is not in a Radon Affected Area, as less than 1% of properties are above the action level. The site lies within an area where no radon protection measures are necessary.			

Database Summary

Whilst there are no current or historical land uses recorded for the site, there is one historical use within 250m radius and this relates to the horticultural nursery directly to the north. There is also one current usage listed 69m to the north relating to Marshals Shop Fitting business.

There are no landfill or waste sites within a 250m radius of the site and there is one waste exemption, within 250m, relating to burning waste in the open some 82m to the north-east.

The site and immediate surroundings are indicated to be directly underlain by glacial deposits comprising the Lowestoft Formation, which are a Secondary Undifferentiated aquifer. The underlying solid geology of the Gault Formation is Unproductive in terms of aquifer classification.

There is a record of a watercourse located 43m to the north-west of the site, the site however does not lie within its flood zone. There is a negligible risk of surface water flooding and there is a moderate risk of groundwater flooding caused by high groundwater levels.

The property is not in a Radon Affected Area, as less than 1% of properties are above the action level. The site lies within an area where no radon protection measures are necessary.

PRELIMINARY RISK ASSESSMENT

Potential sources of contamination present on or beneath the site would relate primarily to; the historical use of the site; possible damaged drainage; the presence of contaminated soil; and the potential presence of soil gas beneath the site.

In order to assess the risks associated with the presence of ground contamination the linkages between the sources and potential receptors to contamination need to be established and evaluated. This is in accordance with the Environmental Protection Act 1990, which provides a statutory definition of Contaminated Land. To fall within this definition it is necessary that, as a result of the condition of the land, substances may be present on or under the land such that

- *Significant harm is being caused or there is a significant possibility of such harm being caused; or*
- *Pollution of controlled waters is being, or is likely to be, caused*

There are three principal factors that are assessed whilst undertaking a qualitative risk assessment for any site. These are the presence of a contamination source, the existence of migration pathways and the presence of a sensitive target(s). It should be noted that it is necessary for each element of source, pathway and target to be present in order for exposure of a human or environmental receptor to occur.

UK Government guidance on the assessment of contaminated land, requires risk to human health and the environment to be reviewed using source – pathway – target relationships. If each of these elements is present, the linkage provides a potential risk to the identified targets.

Contaminants or **potential pollutants** identified as **sources** in relation to the identified previous uses are listed overleaf in Table 1.

Table 1: Identified Potential Contaminant Sources

<i>Contaminant Source</i>	<i>Comments</i>
Soil Beneath Site	Contamination may be present within any made ground materials on the site.
Soil Gas	Potential soil gas generated from made ground.
Ground Contamination Outside Site Boundary	Ground contamination migrating from adjoining sites.

A ***Pathway*** is defined as one or more routes through which a receptor is being, or could be, exposed to, or affected by, a given contaminant.

Potential ***Target or Receptors*** fall within the categories of Human Health, Water Environment, Flora and Fauna, and Building Materials.

There are a number of possible pathways for the contaminants identified on the site to impact human and/or environmental receptors and these are summarised in Tables 2 and 3.

Table 2: Human Receptors and Pathways

<i>Human Receptor-Mechanism</i>	<i>Typical Exposure Pathway</i>
Human Inhalation	Breathing Dust and Fumes Breathing Gas emissions
Human Ingestion	Eating -contaminated soil, for example by small children -produce grown on contaminated soil Ingesting dust or soil on vegetables Drinking contaminated water
Human Contact	Direct skin contact with contamination Direct skin contact with contaminated liquids

Table 3: Water Receptors and Pathways

<i>Receptor-Water Environment</i>	<i>Typical Exposure Pathway</i>
The site and immediate surroundings are indicated to be directly underlain by glacial deposits comprising the Lowestoft Formation, which are a Secondary Undifferentiated aquifer. The underlying solid geology of the Gault Formation is Unproductive in terms of aquifer classification.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and migrate to underlying groundwater. Contamination leads to restriction/prevention of use as a resource, for example, drinking water, and can have secondary impacts on other resources, which depend on it.
A north-eastward flowing watercourse is located about 43m to the north-west and 100m to the north-east of the site.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and laterally migrate. Contamination leads to a restriction/prevention of use: -as drinking water resource -for amenity use Effects on aquatic life

Preliminary Conceptual Model

Assessment of the potential linkage between ground contamination sources, human and environmental receptors have been assessed based on the desk study research documented in the preceding sections of this report.

A generalised preliminary conceptual model is presented below in Table 4.

Table 4: Preliminary Conceptual Model Relative to Proposed Residential Development

Receptors	Pathway	Estimated Potential for Linkage with Contaminant Sources		
		Soil Beneath Site	Soil Gas	Ground Contamination Outside Site Boundary
Human Health – site and ground workers	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Low likelihood	Low likelihood	Low likelihood
Human Health – users of completed development	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Low likelihood	Low likelihood	Low likelihood
Water Environment	Migration through ground into surface water or surrounding groundwater	Low likelihood	Low likelihood	Low likelihood
Flora	Vegetation on site growing on contaminated soil	Low likelihood	Unlikely	Unlikely
Building Materials	Contact with contaminated soil	Low likelihood	Unlikely	Unlikely
Key to Table 4 Estimated Potential for Linkage with Contaminant Source	Definition			
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.			
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.			
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place, and is less likely in the shorter term.			
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.			
NA	Not Applicable			

SITE WORK

The site work was carried out on 11 May 2026 and comprised four window sample boreholes (WS01 to WS04), at locations shown in Figure 2.

The exploratory hole records have been produced in accordance with British Standard BS5930:2015+A1:2020 ‘Code of Practice for Site Investigations’ and are given in Appendix 3. The records provide the descriptions and depths of the various strata encountered, details of standpipe installations, samples taken, and the groundwater conditions observed during excavation, boring and on completion.

Service plans were consulted and a cable avoidance tool (CAT) was used to check for the absence of buried services prior to boring.

Window Sample Boreholes (WS01 to WS04)

The boreholes were started by the excavation, using hand tools, of service inspection pits to a depth of 1.20m in order to ensure the absence of buried services. Representative small disturbed samples of soil were taken from each starter pit.

The window sample boreholes were formed by a small track-mounted window sampling and super heavy dynamic probing rigs and taken to depths of 4.45m. The window sampling equipment consisted of drive-in sample tubes of specially constructed and strengthened steel, lined with a plastic core-liner. The barrels were initially 87mm internal diameter and were reduced in diameter with successive barrels with increasing depth. Upon extraction, a continuous ‘undisturbed’ profile of the soil was obtained within the plastic liners.

The standard penetration test (SPT) was carried out at regular intervals in order allow the assessment of the relative in-situ density or stiffness of the ground. The test was made by driving a split-barrel sampler (SPT(S)) into the soils at the base of the borehole by means of an automatic trip hammer weighing 63.50kg falling freely through 750mm. The penetration

resistance was determined as the number of blows required to drive the tool the final 300mm of a total penetration of 450mm into the soil ahead of the borehole.

On completion a soil gas and groundwater monitoring installation was fitted into boreholes WS02 and WS04 to a depth of 2.00m. The installation comprised a standpipe fitted with a silica gravel surround up to a depth of 1.00m. A bentonite seal was inserted between 0.50m and 1.00m depth, above which the tube was sealed by a gas valve and a surface protective cover was fixed in concrete.

The remaining boreholes were backfilled with silica gravel and the surface reinstated.

Return Visits to Site

An initial visit to site was undertaken on 22 May to monitor the standpipe installations (WS05 and WS04) for depth to groundwater and the concentrations of methane, carbon dioxide and oxygen. Measurement was carried out using a Gasdata GFM430, which also recorded the atmospheric pressure and flow rate. The monitoring results are presented on and following the borehole records in Appendix 3.

A second visit was carried out on 2 June 2026, however no monitoring could be undertaken due to the standpipes having been destroyed by groundworks activities carried out between the first and second visits. Consequently, a third scheduled visit was not carried out.

GEOTECHNICAL LABORATORY TESTING

Samples recovered from the exploratory holes were tested in accordance with the recommendations of British Standard BS1377:1990 & 2016 ‘Methods of Tests for Soils for Civil Engineering Purposes’, BS EN ISO 17892-1:2014+A1:2022, and other industry standards. The results of testing are presented on Laboratory Summary Sheets in Appendix 4.

Soil Moisture Content

The moisture content of selected samples was determined, and the results are reported as the percentage water content with respect to the dry mass of soil.

Atterberg Limit Tests

The liquid and plastic limits, and plasticity index, were determined for selected specimens for the purpose of engineering soil classification. The results are quoted as the percentage water with respect to the dry weight of soil.

Sulphate and pH Testing

Selected soil samples were tested to determine their pH-values and aqueous sulphate contents in order to provide advice on assessing the aggressive chemical environment in relation to buried concrete.

CHEMICAL LABORATORY TESTING

Selected soil samples were submitted to a UKAS Accredited Laboratory who carried out a suite of tests, which encompassed a wide range of potential contaminants outlined by the Environment Agency (EA) and National House Building Council (NHBC) document R&D 66; 2008 'Guidance for the Safe Development of Housing on Land Affected by Contamination'.

Tests were carried out to screen the samples for the following potential contaminants: total arsenic, total cadmium, total chromium, hexavalent chromium, total lead, total mercury, total selenium, water soluble boron, total copper, total nickel, total zinc, total cyanides, free cyanides, soluble sulphate, sulphides and pH-value, phenols and polyaromatic hydrocarbons (PAH), including benzo[a]pyrene, speciated petroleum hydrocarbons (TPH) and asbestos.

The results of chemical testing are presented in Appendix 5.

GROUND CONDITIONS

The strata encountered in the four exploratory holes comprised a 0.40m to 0.60m thick surface layer of made ground over a Glacial Deposit, which was present to at least the base of the boreholes at 4.45m depth.

Made Ground

A 0.40m to 0.60m thick surface layer of made ground comprised soft, brown, slightly gravelly silt where the gravel fraction comprised angular to rounded brick, flint and quartzite. A layer of dark brown, clayey, gravelly sand fill was also encountered between 0.40m and 0.60m depth in WS02.

Glacial Deposit

A Glacial Deposit was present below the surface layer of made ground at depths between 0.40m and 0.60m.

The upper part of the Glacial Deposit, to about 1.20m depth, comprised firm, locally soft (WS03), brown and orange brown, slightly sandy, slightly gravelly, silty clay.

Below 1.20m the Glacial Deposit comprised firm, brown and orange brown, slightly sandy, slightly gravelly, silty clay. At depths between 2.00m and 3.00m the boreholes passed into stiff, brown and brown grey, slightly sandy, slightly gravelly, silty clay, which was present at the base of the boreholes at 4.45m depth.

The gravel fraction within the glacial deposit comprised angular to rounded, flint, chalk and quartzite.

Groundwater

No groundwater was encountered in the exploratory holes, which were completed at a depths of 4.45m.

On 22 May 2026, a standpipe water level was recorded at 1.30m depth in WS02 whilst the 3.00m deep standpipe in WS04 was dry.

Observations

No visual or olfactory evidence of soil contamination was observed in the boreholes. Live rootlets were observed to depths of 0.90m in WS02. Asbestos fibres were identified within the made ground at the position of borehole WS01.

COMMENTS ON THE GROUND CONDITIONS IN RELATION TO FOUNDATION DESIGN AND CONSTRUCTION

The work was carried out in order to establish the ground conditions beneath a plot to the rear of Little Arundel and Bramble Bank, Bedford Road, Holwell, Hertfordshire. The work is in preparation for proposed residential development scheduled to comprise four dwellings.

The strata encountered in the four exploratory holes comprised a 0.40m to 0.60m thick surface layer of made ground over a Glacial Deposit, which was present to at least the base of the boreholes at 4.45m depth. The upper part of the Glacial Deposit, to about 1.20m depth was variably soft and firm and contained sand pockets. Below 1.20m the Glacial Deposit comprised firm becoming stiff, slightly sandy, slightly gravelly, silty clay, which was present at the base of the boreholes at 4.45m depth.

The made ground and soft clay Glacial Deposit are considered unsuitable as a founding stratum.

The firm becoming stiff clay Glacial Deposit, present below 1.20m depth, is considered to provide favourable bearing properties for traditional foundations.

Depth of Traditional Foundation

A mixture of mature deciduous trees including Poplar, Ash, Sycamore and Hawthorn and conifers including Yew and Cypress were observed on and around the site.

The depth of traditional footings would need to be deep enough to protect against the effects of soil desiccation or soil heave within the clay layers within the near surface soil. Laboratory testing of the near surface clay (Glacial Deposit) gave modified plasticity indices typically between 12% and 22%. These results indicate low and medium volume change potential, according to the National House Building Council (NHBC) Standards Chapter 4.2 “Building near Trees” (2026). Guidance on the necessary foundation depths relating to tree species, distance and soil plasticity can be determined from the latter document, which should also be consulted where

new planting is proposed.

In order to address any potential future shrinkage or heave effects, a medium volume change potential has been assumed for the near surface clay beneath the site. At an open position well away from the influence of trees and shrubs a minimum foundation depth of 0.90m below ground level or finished floor level, whichever is deepest, would be required for foundations in order to avoid the zone of seasonal volume change in accordance with the above document.

The following minimum foundation depths, provided in Table 5, would be considered appropriate for footings located at specified distances from Poplar, Hawthorn, Ash and Maple and Cypress trees.

Table 5	NHBC Appendix 4.2					
	Foundation depth at specified distance from tree					
	1m	5m	10m	15m	20m	30m
Minimum foundation depths for high water demand trees such as Poplar	>2.50m	>2.50m	2.30m	1.95m	1.60m	1.10m
Minimum foundation depths for high water demand trees such as Hawthorn	>2.50m	2.20m	1.35m	0.90m	0.90m	0.90m
Minimum foundation depths for high water demand trees such as Leyland Cypress	>2.50m	2.15m	1.25m	0.90m	0.90m	0.90m
Minimum foundation depths for moderate water demand trees such as Ash and Maple	1.95m	1.70m	1.40m	1.10m	0.90m	0.90m

It is recommended that a full survey of tree species is completed prior to final foundation design.

It should be noted that the above cited NHBC document refers to where a single tree is present and does not take into account the cumulative effect of several trees competing for moisture. The depth affected by tree root-induced desiccation might therefore reasonably be expected to extend to greater depths, and require increased minimum foundation depths, where this is the case.

After the felling or removal of trees and hedgerows on shrinkable soils, heave can occur, as moisture in the soil is absorbed causing swelling. Foundations, substructures and services shall be suitably designed and detailed to prevent excessive movement due to heave. Where

foundations and substructure may be subject to heave, they should be protected by voids, void formers or compressible materials as outlined in the referenced NHBC document.

Shallow Foundations

The firm becoming stiff clay Glacial Deposit, present below 1.20m depth, is considered to provide favourable bearing properties for traditional foundations.

The following allowable bearing pressures, presented in Table 6, should be considered for foundations taken through the made ground and soft clay layers and placed below the minimum depth of 0.90m within the firm clay Glacial Deposit.

Settlements would not be expected to exceed 25mm at these pressures.

Table 6: Allowable Bearing Pressures for settlement of less than 25mm			
Stratum	Foundation Depth	Pad Footing	Strip Footing
		1.0m wide	1.0m wide
Firm and stiff clay Glacial Deposit	1.20m-2.50m	100kN/m ²	85kN/m ²

Floor Slab

Non-load bearing ground bearing floor slabs could be used providing that all topsoil is removed and that the underlying ground is proof rolled to identify any soft or loose spots, which should also be removed and replaced with geotechnically suitable granular fill. It is recommended that any filled material beneath the floor slab should be properly engineered to minimise differential settlement.

Foundation Excavations and Groundwater

Following preparation, the base of foundation excavations should be inspected to ensure that the condition of the soil complies with that assumed in design. Should pockets of inferior material be present they should be removed and replaced with well graded hardcore or lean

mix concrete. Water should be excluded from foundation excavations; otherwise, rapid and significant loss of bearing capacity may occur. The excavated surface should be protected from deterioration and a blinding layer of concrete used where foundations are not completed without delay.

Excavations should be expected to be unstable and should not be relied upon to stand unsupported even in the short term. Safety precautions should not be neglected especially where personnel are to enter excavations, when close side support will be required in order to maintain excavation stability.

No groundwater was encountered in the exploratory holes, which were completed at 4.45m depth. On 22 May 2026, a standpipe water level was recorded at 1.30m depth in WS02 whilst the 3.00m deep standpipe in WS04 was dry.

Shallow excavations could encounter water seepages following periods of wet weather due to surface infiltration. It is likely that water ingress within shallow excavations in the short term could be controlled by screened sump pump techniques.

Buried Concrete

Tests on samples taken from the Glacial Deposits to determine the risk of sulphate attack on buried concrete indicate levels that fall into Class DS-1 as defined by Table C1 of BRE Special Digest 1, 2005. The pH results indicate alkaline ground conditions with pH values ranging between 8.0 and 8.3.

For the purposes of design an Aggressive Chemical Environment for Concrete (ACEC) Class of AC-1 should be considered when specifying a Design Chemical Class (DC Class) for concrete used. An extract of Table C1, Aggressive Chemical Environment for Concrete (ACEC) site classification, from BRE Special Digest 1, 2005 is presented in Appendix 6.

Pavement Design

In selecting the design CBR value for the sub-grade, consideration must be given to the likely moisture conditions applying during construction. The following comments are applicable to the ground conditions at the time of the investigation and it should be noted that the CBR values will deteriorate if the sub-grade is allowed to get wet.

The CBR value can be estimated using the laboratory plasticity indices of the Glacial Deposit clay, which were between 11% and 27%.

For pavements to be constructed directly onto the surface of the clay, Table 5.1 of Interim Advice Note (IAN) 73/06, Revision 1 (2009), indicates design CBR values of 3.0% to 4.0% for a thin road construction for clay with a plasticity index of between 20% and 30%.

Soft clays should be expected to have CBR values of less than 2.0%.

Following proof rolling, under dry weather conditions, CBR values of up to 4.0% could be achievable for the firm or stiff clay. However, if the formation is allowed to get wet the clay will soften and give a lower CBR value.

The formation should always be proof rolled and carefully inspected ensuring that any topsoil, root infested clay and soft clay or loose spots are removed and replaced with properly compacted clean granular material if inferior CBR values are to be avoided.

COMMENTS ON SOIL CHEMICAL TESTING

The results of the laboratory chemical testing on near surface soil samples have primarily been compared to soil screening values (SSVs) produced by Land Quality Management Limited (LQM) and the Chartered Institute for Environmental Health (CIEH) presented in their document ‘The LQM/CIEH S4ULs for Human Health Risk Assessment: 2015 (Publication Number S4UL3608)’. The LQM/CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and are transparently-derived and cautious ‘trigger values’ above which further assessment of the risks or remedial action may be needed. The S4ULs (Suitable for Use Levels) have been derived, in accordance with UK legislation and Environment Agency policy, using a modified version of the Environment Agency CLEA 1.06 software.

Reference has also been given to AGAC soil screening values produced by Society of Brownfield Risk Assessment (SoBRA) as documented in their July 2020 publication ‘Development of Acute Generic Assessment Criteria for Assessing Risks to Human Health from Contaminants in Soil’. With the absence of a S4UL for cyanide, the SoBRA AGAC has been used as the soil screening criteria within this report because the acute dose toxicity thresholds for free cyanide are very close to the chronic dose toxicity thresholds.

In 2014 the Department for Environment Food and Rural Affairs (DEFRA) published, in their document SP1010, Category 4 Screening Levels (C4SL) for several contaminants including lead. The C4SL represent screening levels below which the land could be considered suitable for a specified use and definitely not contaminated land in respect of those determinands. With the absence of S4UL for lead the C4SL has been used as the soil screening criteria within this report.

For each contaminant the adopted soil screening criteria have been calculated for the following land uses:

- Residential use with home grown produce
- Residential use without home grown produce
- Public open spaces near residential housing

The intended purpose of the SSVs are as “intervention values” in the regulatory framework for assessment of human health risks in relation to land use. These values are not binding standards but are intended to inform judgements about the need for action to ensure that a new use of land does not pose any unacceptable risks to the health of the intended users.

Tables 7 to 9 compare the test results for the made ground with the SSVs in relation to the specified uses. The number of test results, which exceed these values, are also provided.

Residential soil screening criteria is considered to provide appropriately conservative screening values for proposed residential usage of the site.

Table 7 Comparison of Chemical Test Results for Near Surface Soil with Soil Screening Values (SSV)

Determinand	Number of Samples	Min Value (mg/kg)	Max Value (mg/kg)	Number of Samples Exceeding SSV for:			Measured 95 th Percentile (mg/kg)	Soil Screening Values (SSV) (1% SOM)			
				Residential with home grown produce	Residential without home grown produce	Public Open Space near Residential Housing		Assessment Method	Residential with home grown produce (mg/kg)	Residential without home grown produce (mg/kg)	Public Open Space near Residential Housing (mg/kg)
Organic matter	4	1.3%	1.5%	-	-	-	-	-	-	-	-
Arsenic	4	15	27	0	0	0	-	S4UL	37	40	79
Cadmium	4	0.2	0.3	0	0	0	-	S4UL	11	85	120
Total Chromium	4	18	25	0	0	0	-	S4UL	910	910	1500
Hexavalent Chromium	4	<1.0	<1.0	0	0	0	-	S4UL	6	6	7.7
Lead	4	22	51	0	0	0	-	C4SL	200	310	630
Mercury	4	<0.05	0.08	0	0	0	-	S4UL	11	15	40
Selenium	4	<0.5	<0.5	0	0	0	-	S4UL	250	430	1100
Nickel	4	17	29	0	0	0	-	S4UL	130	180	230
Phenols	4	<0.3	1.5	0	0	0	-	S4UL	120	440	440
Copper	4	16	38	0	0	0	-	S4UL	2400	7100	12,000
Zinc	4	81	190	0	0	0	-	S4UL	3700	40,000	81,000
Free Cyanide	4	<0.10	0.20	0	0	0	-	AGAC	24	24	24
Notes *The concentration of Trivalent Chromium is assumed to be equivalent to the Total Chromium concentration. This is because most naturally occurring chromium is in the trivalent (chromic) state. S4UL and C4SL for metals were derived using 6% SOM. These values are not sensitive to SOM and would also be applicable for 1% SOM and 2.5% SOM LQM/CIEH S4ULs 'Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3608. All rights reserved' AGAC soil screening values produced by Society of Brownfield Risk Assessment (SoBRA) as documented in their July 2020 publication 'Development of Acute Generic Assessment Criteria for Assessing Risks to Human Health from Contaminants in Soil'.											

Table 8: Comparison of PAH Chemical Test Results for Near Surface Soil with Soil Screening Values (SSV)

Determinand	Number of Samples	Min Value (mg/kg)	Max Value (mg/kg)	Number of Samples Exceeding SSV for:			Measured 95 th Percentile (mg/kg)	Soil Screening Values (SSV) (1% SOM)			
				Residential with home grown produce	Residential without home grown produce	Public Open Space near Residential Housing		Assessment Method	Residential with home grown produce (mg/kg)	Residential without home grown produce (mg/kg)	Public Open Space near Residential Housing (mg/kg)
Acenaphthene	4	<0.03	<0.03	0	0	0	-	S4UL	210	3000	15,000
Acenaphthylene	4	<0.03	<0.03	0	0	0	-	S4UL	170	2900	15,000
Anthracene	4	<0.03	<0.03	0	0	0	-	S4UL	2400	3100	74,000
Benzo[a]anthracene	4	<0.03	0.06	0	0	0	-	S4UL	7.2	11	29
Benzo[a]pyrene	4	<0.03	0.06	0	0	0	-	S4UL	2.2	3.2	5.7
Benzo[b]fluoranthene	4	<0.03	0.10	0	0	0	-	S4UL	2.6	3.9	7.1
Benzo[g,h,i]perylene	4	<0.03	0.07	0	0	0	-	S4UL	320	360	640
Benzo[k]fluoranthene	4	<0.03	0.05	0	0	0	-	S4UL	77	110	190
Chrysene	4	<0.03	0.07	0	0	0	-	S4UL	15	30	57
Dibenz[a,h]anthracene	4	<0.03	<0.03	0	0	0	-	S4UL	0.24	0.31	0.57
Fluoranthene	4	<0.03	0.10	0	0	0	-	S4UL	280	1500	3100
Fluorene	4	<0.03	<0.03	0	0	0	-	S4UL	170	2800	9900
Indeno[1,2,3-cd]pyrene	4	<0.03	0.05	0	0	0	-	S4UL	27	45	82
Naphthalene	4	<0.03	<0.03	0	0	0	-	S4UL	2.3	2.3	4900
Phenanthrene	4	<0.03	<0.03	0	0	0	-	S4UL	95	1300	3100
Pyrene	4	<0.03	0.10	0	0	0	-	S4UL	620	3700	7400

Notes

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Table 9: Comparison of TPH Chemical Test Results for Near Surface Soil with Soil Screening Values (SSV)

Determinand	Number of Samples	Min Value (mg/kg)	Max Value (mg/kg)	Number of Samples Exceeding SSV for:			Measured 95 th Percentile (mg/kg)	Soil Screening Values (SSV) (1% SOM)			
				Residential with home grown produce	Residential without home grown produce	Public Open Space near Residential Housing		Assessment Method	Residential with home grown produce (mg/kg)	Residential without home grown produce (mg/kg)	Public Open Space near Residential Housing (mg/kg)
Aliphatic 5-C6	4	<0.01	<0.01	0	0	0	-	S4UL	42	42	570,000
Aliphatic C6-C8	4	<0.01	<0.01	0	0	0	-	S4UL	100	100	600,000
Aliphatic C8-C10	4	<0.01	<0.01	0	0	0	-	S4UL	27	27	13,000
Aliphatic C10-C12	4	<1.50	<1.50	0	0	0	-	S4UL	130	130	13,000
Aliphatic C12-C16	4	<1.20	<1.20	0	0	0	-	S4UL	1,100	1,100	13,000
Aliphatic C16-C35	4	<4.90	<4.90	0	0	0	-	S4UL	65,000	65,000	250,000
Aromatic C5-C7	4	<0.01	<0.01	0	0	0	-	S4UL	70	370	56,000
Aromatic C7-C8	4	<0.01	<0.01	0	0	0	-	S4UL	130	860	56,000
Aromatic C8-C10	4	<0.01	<0.01	0	0	0	-	S4UL	34	47	5,000
Aromatic C10-C12	4	<0.90	<0.90	0	0	0	-	S4UL	74	250	5,000
Aromatic C12-C16	4	<0.50	<0.50	0	0	0	-	S4UL	140	1,800	5,100
Aromatic C16-C21	4	<0.60	<0.60	0	0	0	-	S4UL	260	1,900	3,800
Aromatic C21-C35	4	<1.40	<1.40	0	0	0	-	S4UL	1,100	1,900	3,800
Notes											
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Discussion of Results

Chemical testing was undertaken on four soil samples taken from the made ground surface layer. None of the determinand concentrations exceeded the respective SSV for residential with home grown produce, residential without home grown produce end use, or for public open space near residential housing. No evidence of petroleum pollution was encountered with petroleum hydrocarbon concentrations less than the respective residential soil screening criteria. No asbestos was detected in three of the four samples screened. A bundle of chrysotile, white asbestos, fibres were observed during laboratory microscope screening of made ground sample WS01 D1 0.30m.

SOIL GAS

Return visits to site were undertaken on 22 May 2026 to monitor the standpipe installations (WS02 and WS04) for depth to groundwater and the concentrations of methane, carbon dioxide and oxygen. A second return visit on 2 June 2026 did not obtain any readings because the standpipe installations had been buried or destroyed by earth moving activities carried out by a groundworks contractor.

Concentrations of less than 0.1% by volume methane and carbon dioxide were measured during the first visit. Oxygen levels between 20.3% and 20.4% were also measured.

The results indicate a Gas Screening Value (GSV) of 0.0001l/hr for methane and carbon dioxide.

The results fall into Characteristic Situation 1 as defined by BS8485:2015+A1:2019 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.

UPDATED CONCEPTUAL MODEL

A generalised conceptual model, updated following the intrusive works, monitoring and testing, is presented below in Table 10 and follows the comparison of consequence against probability presented in CIRIA 552.

Table 10: Updated Conceptual Model & Risk Assessment Relative to Construction and Future Development

Source	Pathway	Receptor	Probability of risk being realised	Consequence of risk being realised	Risk Classification
Soil Beneath Site	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Human Health Groundworkers	Low Likelihood	Mild	Low Risk
		Human Health Site Users if exposed at surface	Low Likelihood	Mild	Low Risk
		Human Health Site Users if present beneath permanent hardstanding/roads	Unlikely	Minor	Very Low Risk
	Migration through ground into surface water or groundwater	Water Environment	Unlikely	Minor	Very Low Risk
Soil Gas	Inhalation of Soil Gas	Human Health Groundworkers	Unlikely	Minor	Very Low Risk
		Human Health Site Users	Unlikely	Minor	Very Low Risk
Ground Contamination Outside Site boundary	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Human Health Groundworkers	Unlikely	Minor	Very Low Risk
		Human Health Site Users	Unlikely	Minor	Very Low Risk
	Migration through ground into surface water or groundwater	Water Environment	Unlikely	Minor	Very Low Risk

<u>Key to Table 10</u> Risk	Definition
Very High risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or there is evidence that severe harm to a designated receptor is currently happening. The risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) and remedial works may be necessary in the short term and likely over the long term.
Moderate risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
Low risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

COMMENTS ON GROUND CONTAMINATION IN RELATION TO PROPOSED RESIDENTIAL USAGE

The ground investigation works have been carried out in advance of proposed residential development of the site.

This investigation may not have revealed the full depth or extent of made ground or contamination on the site and appropriate professional advice should be sought if subsequent site works reveal materials that appear to be contaminated.

Anticipated exposure scenarios relating to the site and future use, in the context of the updated conceptual model, are discussed as follows.

Contamination Risk - Near Surface Soil

The strata encountered in the boreholes WS01 to WS04, comprised between about 0.40m to 0.60m thickness made ground over Glacial Till, which was present in the base of the boreholes at 4.45m depth.

Chemical testing undertaken on four samples of the made ground did not identify any potential contaminants in excess of residential soil screening criteria. Microscopic fibres of chrysotile (white) asbestos were however identified during laboratory screening of made ground sample WS01 D1 0.30m. Borehole WS01 was situated within the north-western corner of the plot which had been occupied by a small yard with outbuildings.

Overall, the risk of soil contamination detrimentally affecting the proposed residential development is considered to be low.

Human Health - Construction Workers

No special precautions would be required during the development of the site by workers who may come into contact with the soil during groundworks, providing standard precautions are adopted, which should generally include the procedures given by the Health and Safety Executive (The Blue Book).

For the protection of these workers during groundworks the following is recommended:

a) Limit repeated or prolonged skin contact with soils by wearing gloves with sleeves rolled down.

b) Washing facilities should be made available to groundworkers, so as to minimise the potential for inadvertent ingestion of soil.

c) If any soils are revealed which are different to those encountered by this ground investigation, the advice of a specialist should be sought in view of classifying the material and ascertaining its risk to groundworkers.

d) Suitable precautions should be implemented as asbestos containing materials could be present within the near surface ground.

Human Health – Residential Usage

Due to the presence of asbestos fibres encountered within the made ground, it is recommended that all made ground should be considered to be unsuitable for reuse within garden areas unless further testing is carried out to prove its suitability.

Unsuitable soil at the surface within gardens or landscaped areas should be replaced with a suitably thick, clean capping layer.

- For front garden and communal landscaped areas it would be recommended that the underlying natural ground be exposed, or in deeper areas the made ground should be removed to a minimum depth of 0.60m and replaced with an equivalent thickness of clean inert soil.
- For rear gardens it is recommended that the underlying natural ground should be exposed, or in deeper areas the made ground should be removed to a minimum depth of 1.00m and replaced with an equivalent thickness of clean inert soil.

All garden and landscaped areas should be inspected prior to final capping to ensure that unsuitable materials have not been inadvertently placed in the garden or landscaped areas during the preceding stages of redevelopment works.

All imported soils will be certified 'clean' fill and should be suitable for use in accordance with UK legislation and Environment Agency policy.

Methane and Carbon Dioxide Soil Gas

According to database information, there are no landfills within 250m of the site and the composition of the underlying natural soil would suggest a very low hazard potential. The soil gas monitoring results fall into Characteristic Situation 1 (very low risk) as defined by BS8485:2015+A1:2019 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

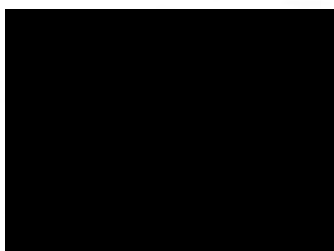
In conclusion, gas protection measures are not considered necessary in relation to methane and carbon dioxide soil gases.

Off-Site Disposal of Soil Arisings

The results of chemical analysis are provided in Appendix 4 and can be used within the suite of information necessary for basic characterisation of the soil destined for landfill. Excavated material and excess spoil should always be classified prior to removal from site as required by 'Duty of Care' (Environmental Protection Act, 1990) legislation. This means that material has to be given a proper description and waste classification prior to removal. Basic characterisation is the responsibility of the waste producer and compliance checking and on-site verification are generally the responsibility of the landfill operator. The landfill operator will need to liaise with the waste producer as the approach relies on the information from basic characterisation.

The clean arisings from the underlying natural soils, excluding peat and topsoil, across this site should fall under the EWC code 17 05 04 inert category.

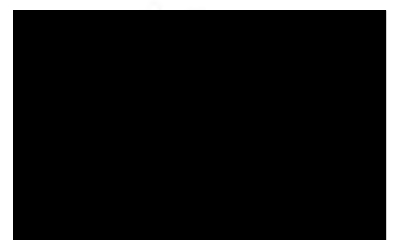
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J. H. GIBB

B.Sc.(Hons.), M.Sc.(Eng.), C.Geol., F.G.S.

Associate



S. J. FLEMING

M.Sc., M.C.S.M., C.Geol., F.G.S.

Ground Engineering Director

Figures

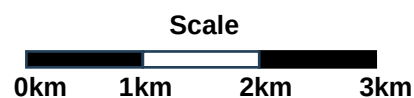
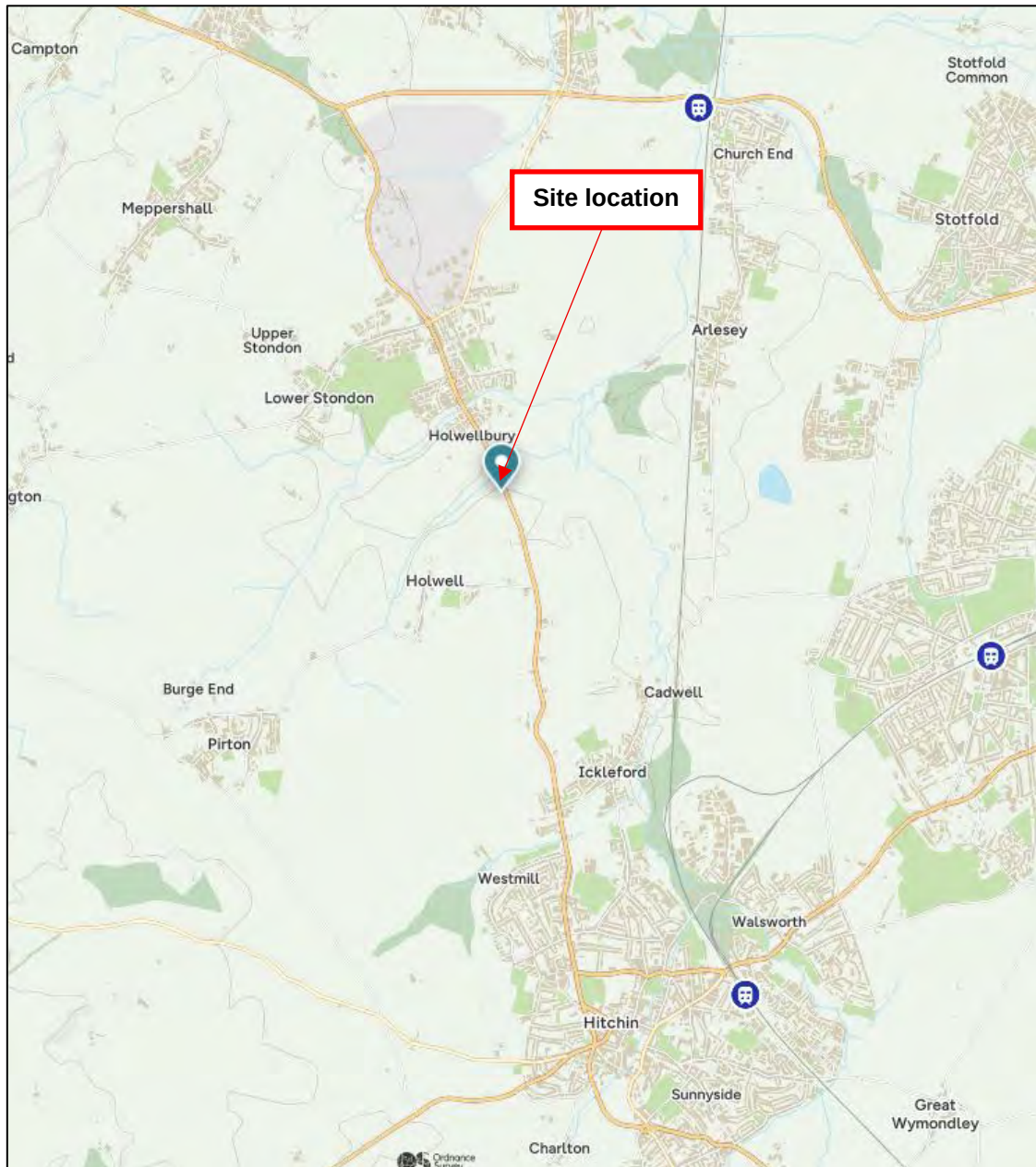
Figure 1: Site Location Plan

Figure 2: Exploratory Hole Location Plan

Site Location Plan

Figure 1

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Client : DBF Construction Limited



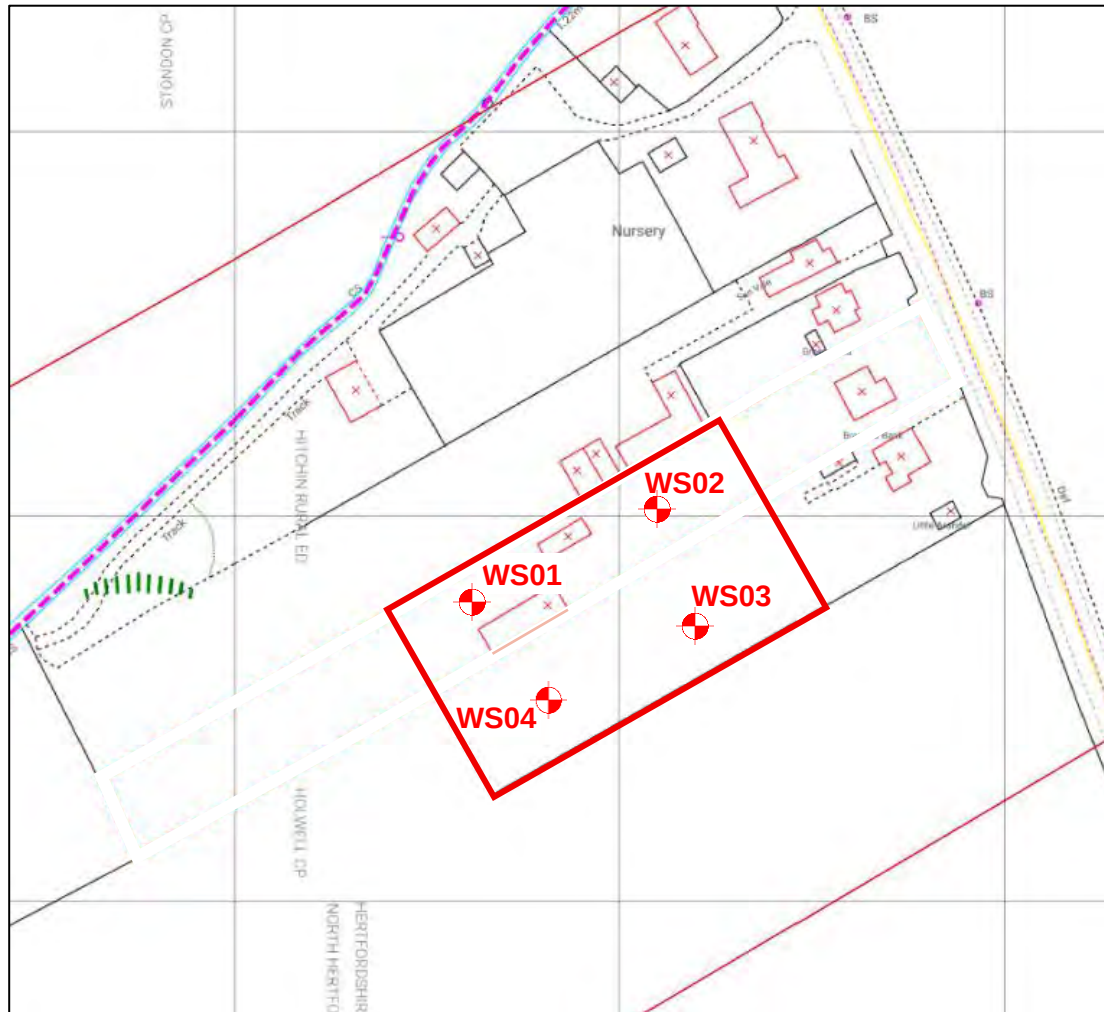
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Borehole Location Plan

Figure 2

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Scale
0m 20m 40m

KEY



Window sample boreholes WS01 to WS04

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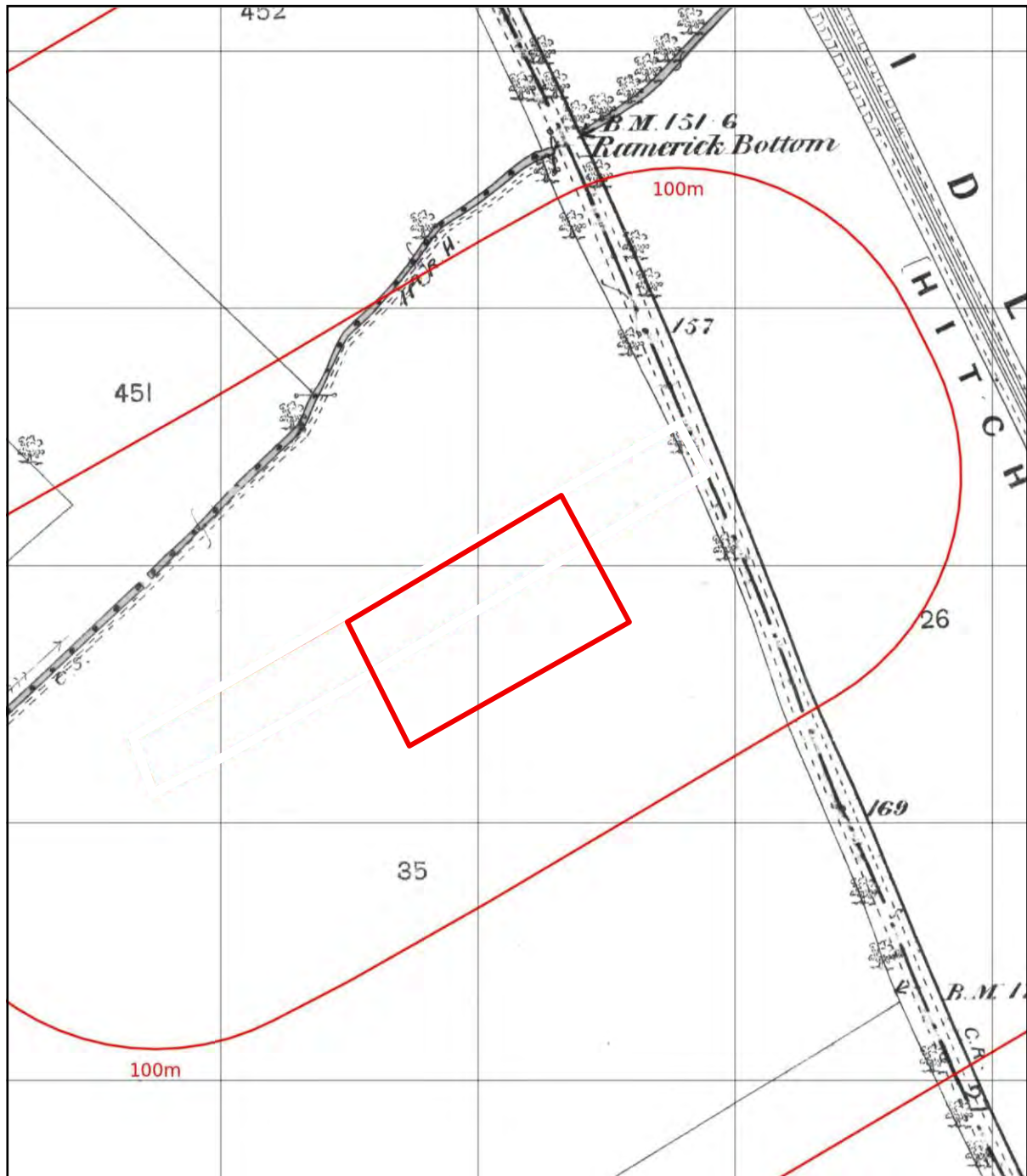
Appendix 1

Historical Maps

Site History

Figure A

Reproduced from the 1882 edition Ordnance Survey sheet County Series at 1:2500 scale



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Client : DBF Construction Limited



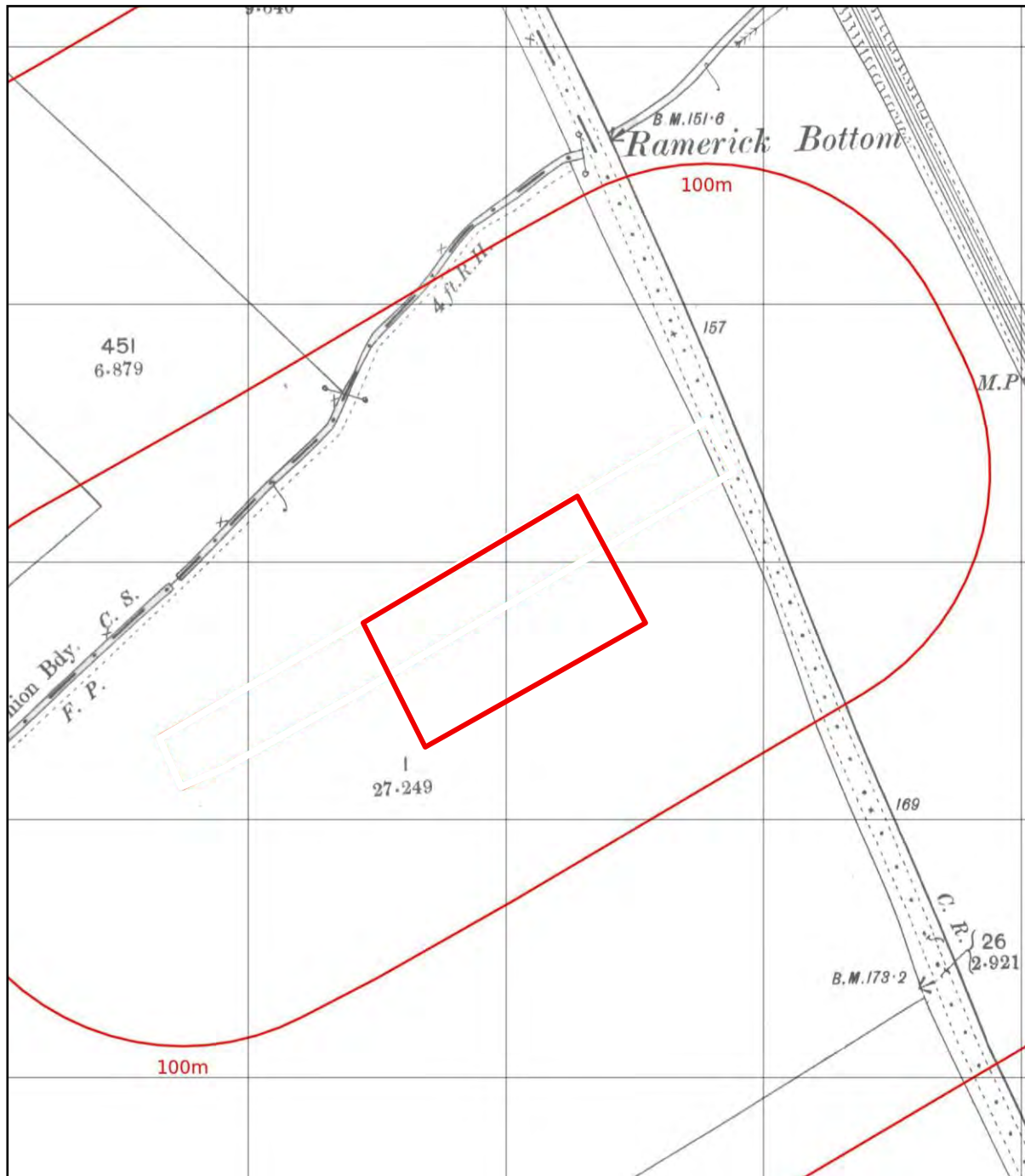
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Site History

Figure B

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Client : DBF Construction Limited



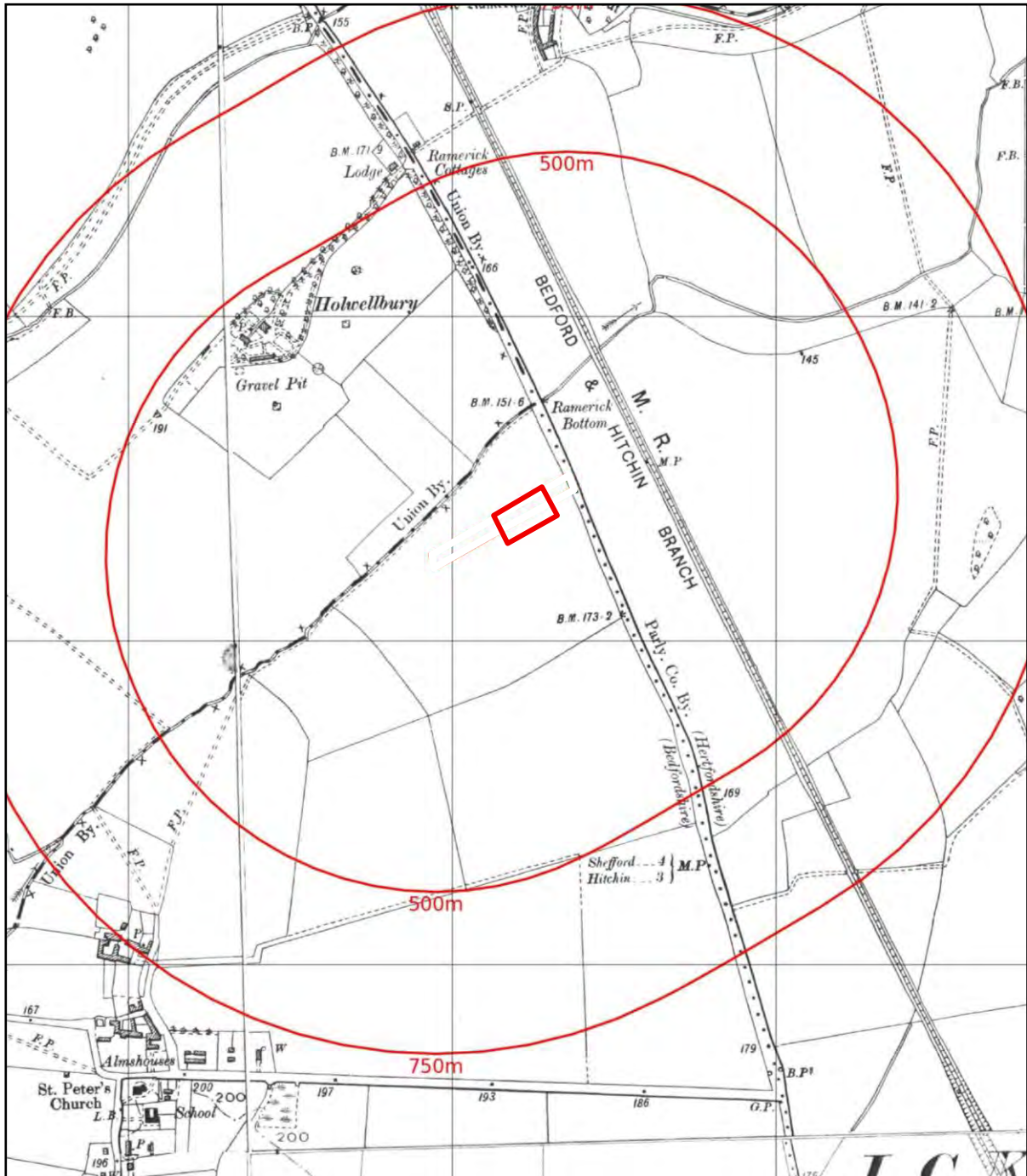
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Site History

Figure C

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Client : DBF Construction Limited



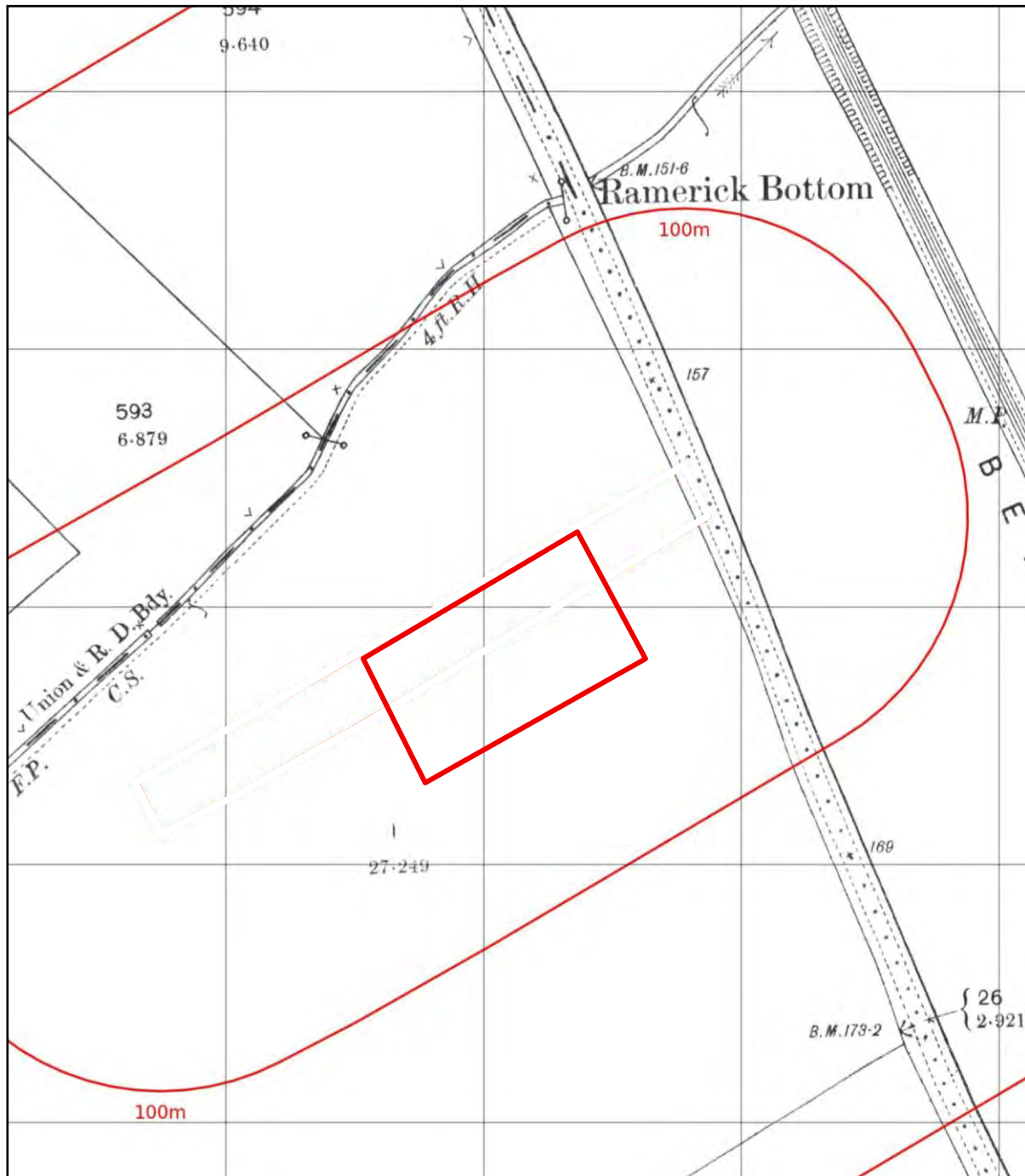
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Site History

Figure D

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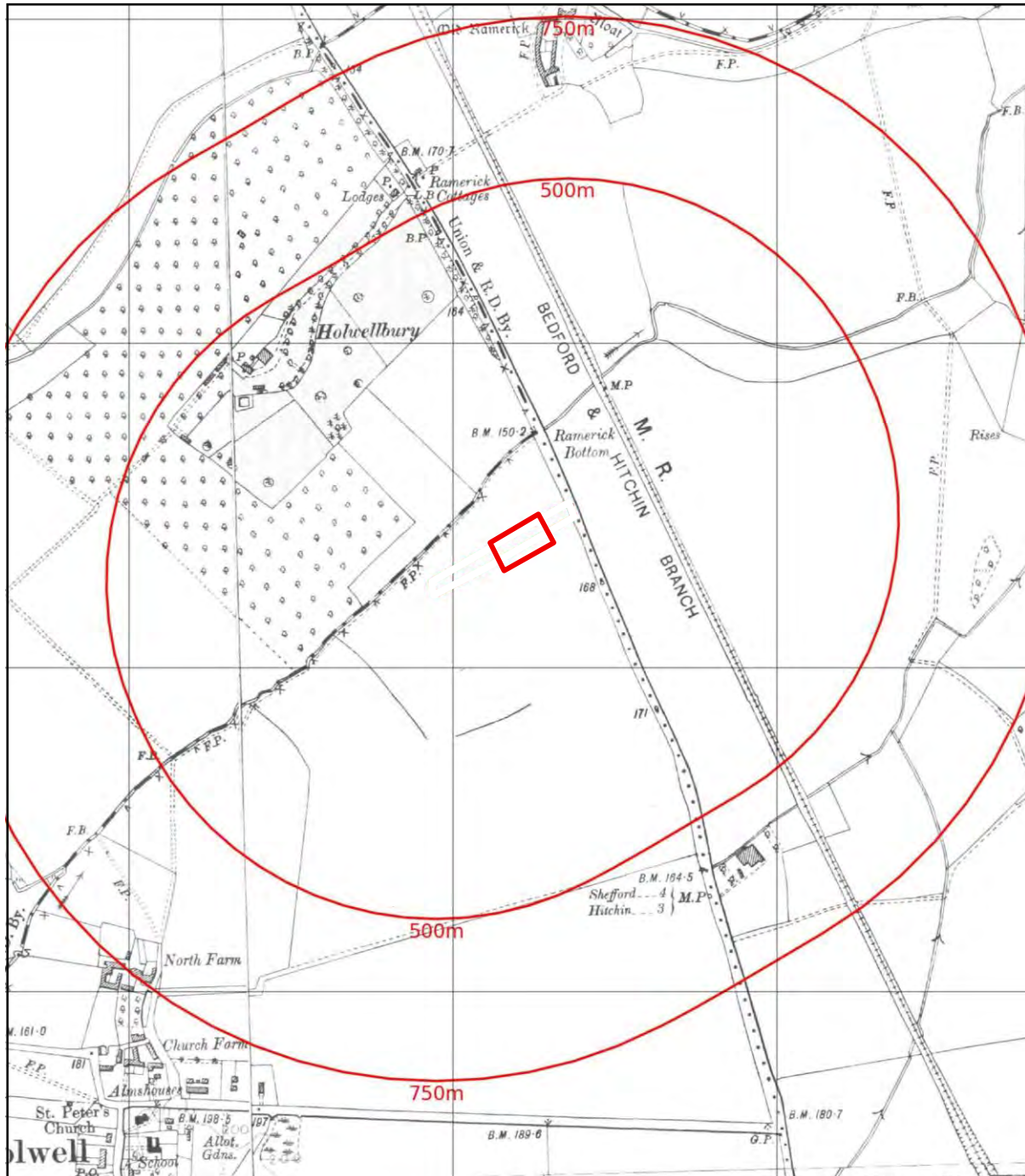
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Site History

Figure E

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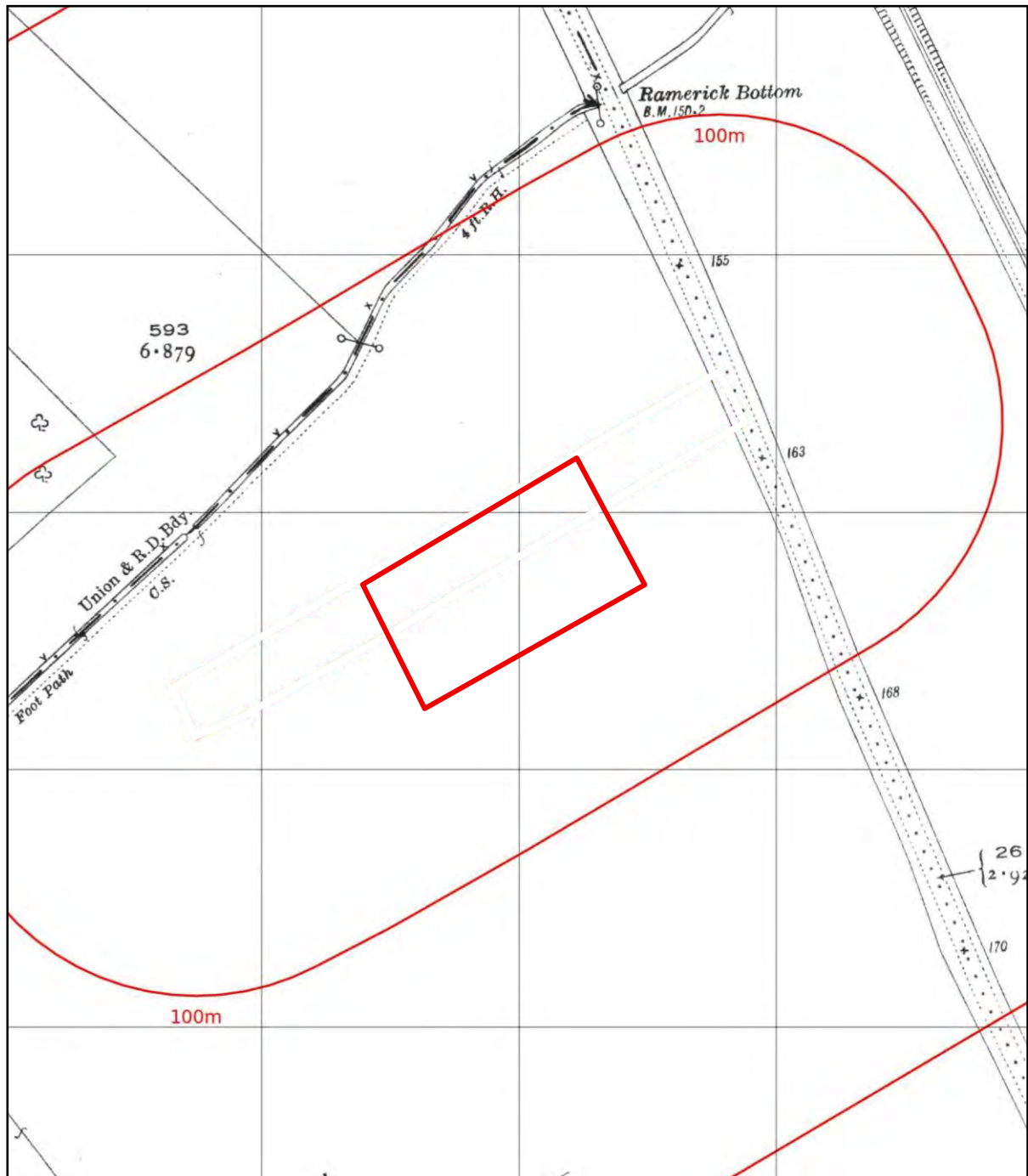
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Site History

Figure F

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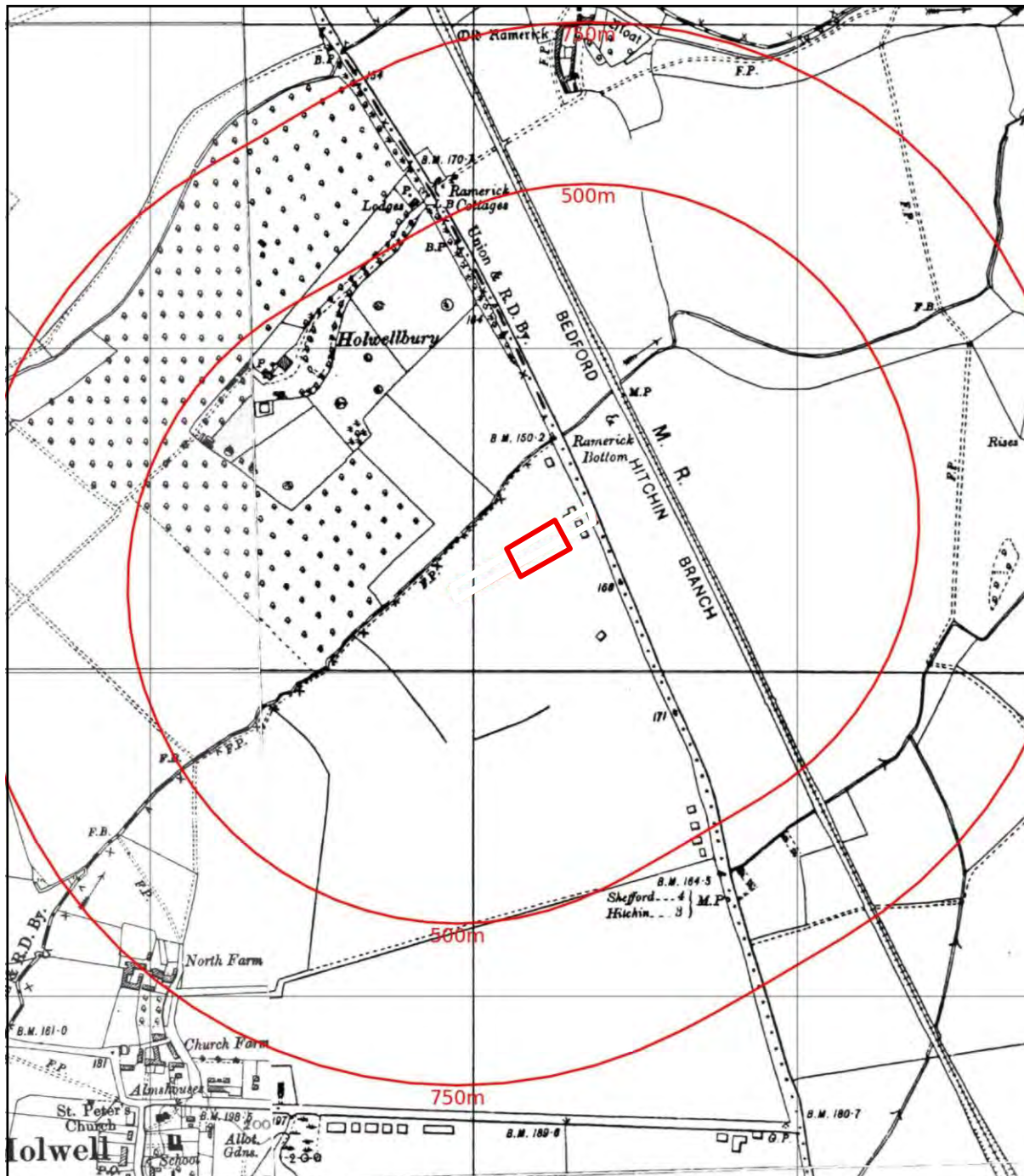
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Figure G

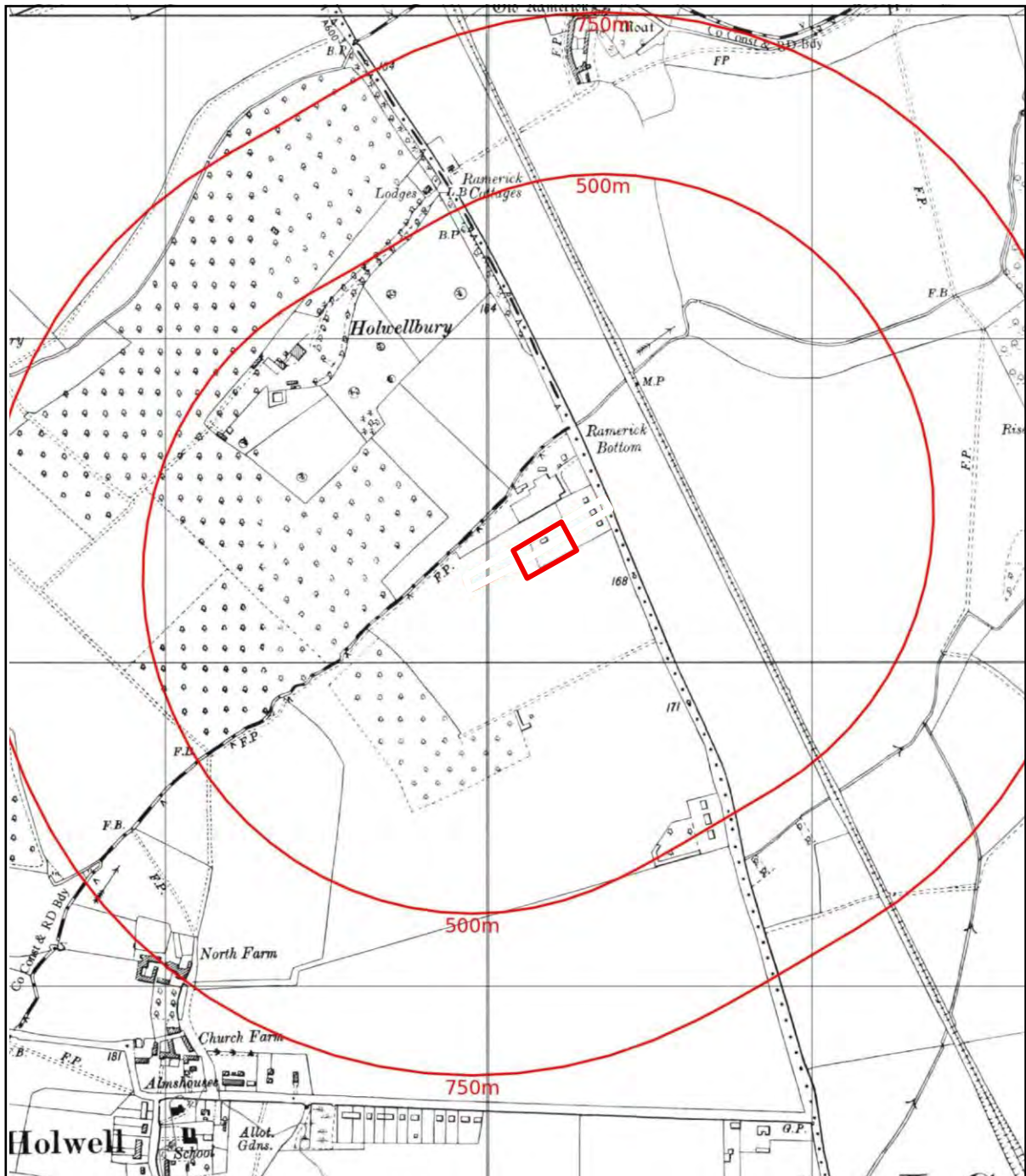


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Site History

Figure I

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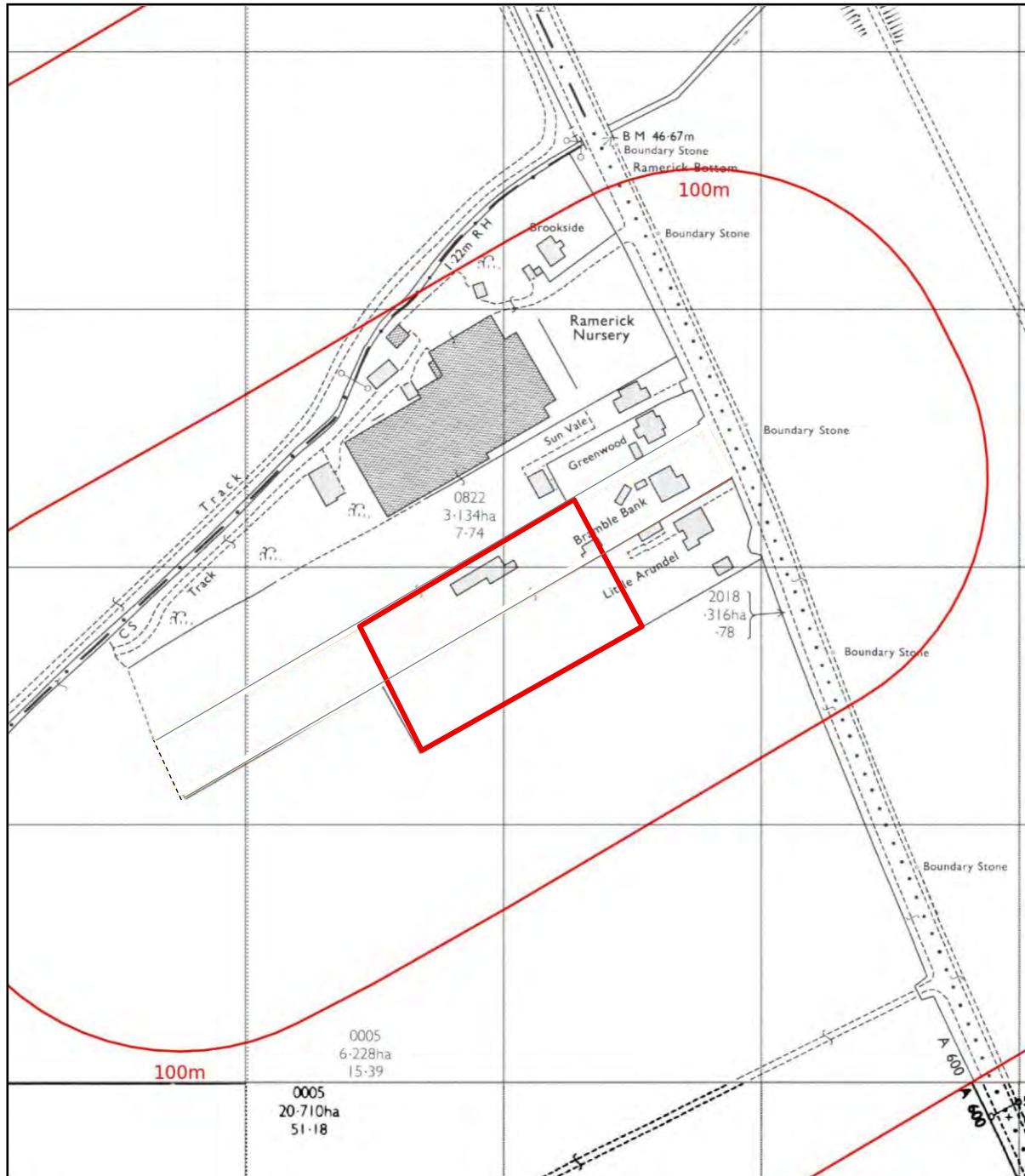
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Site History

Figure J

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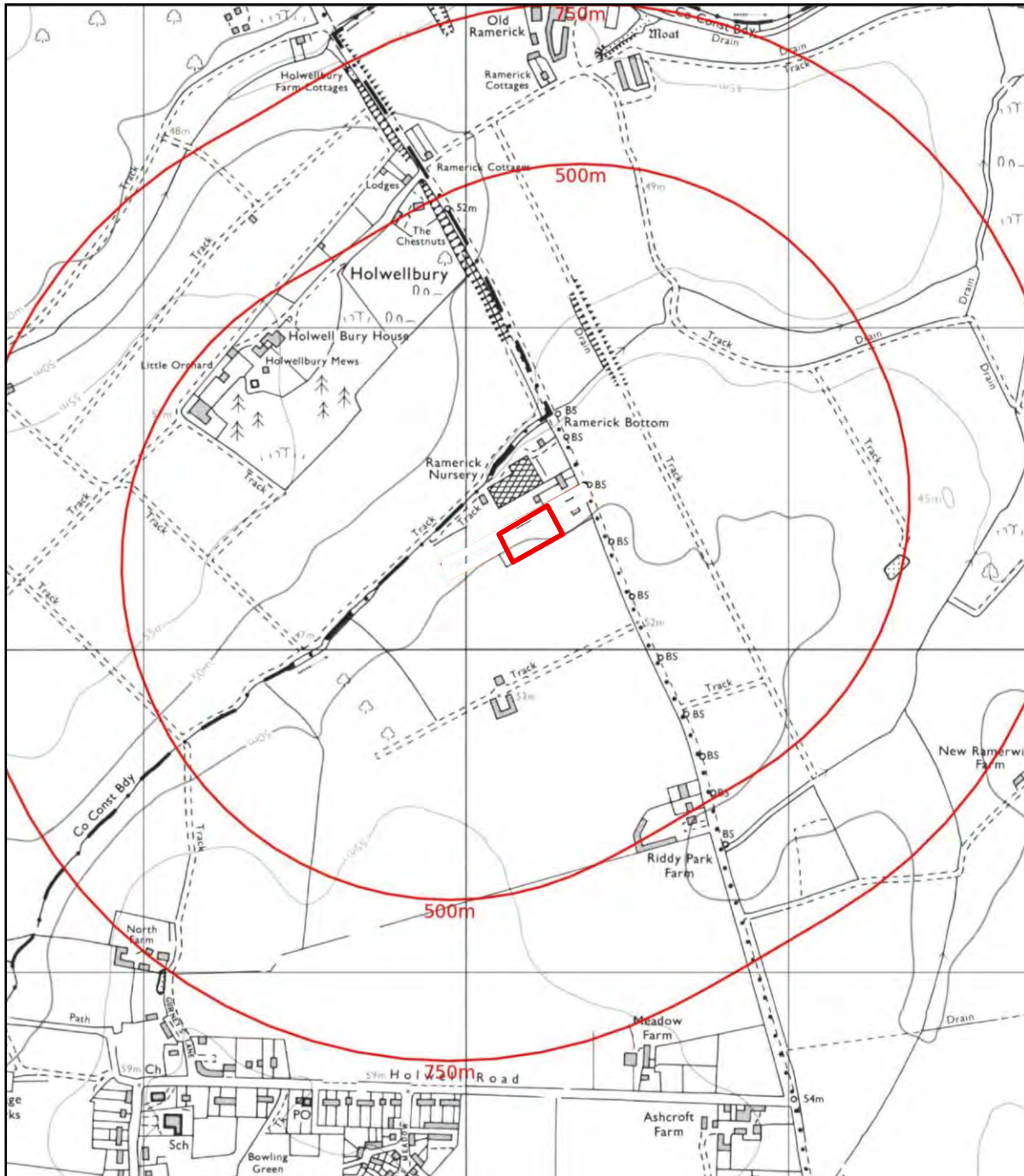
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Figure K



Lucion
Protecting people and planet

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Site History

Figure L

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Site History

Figure M

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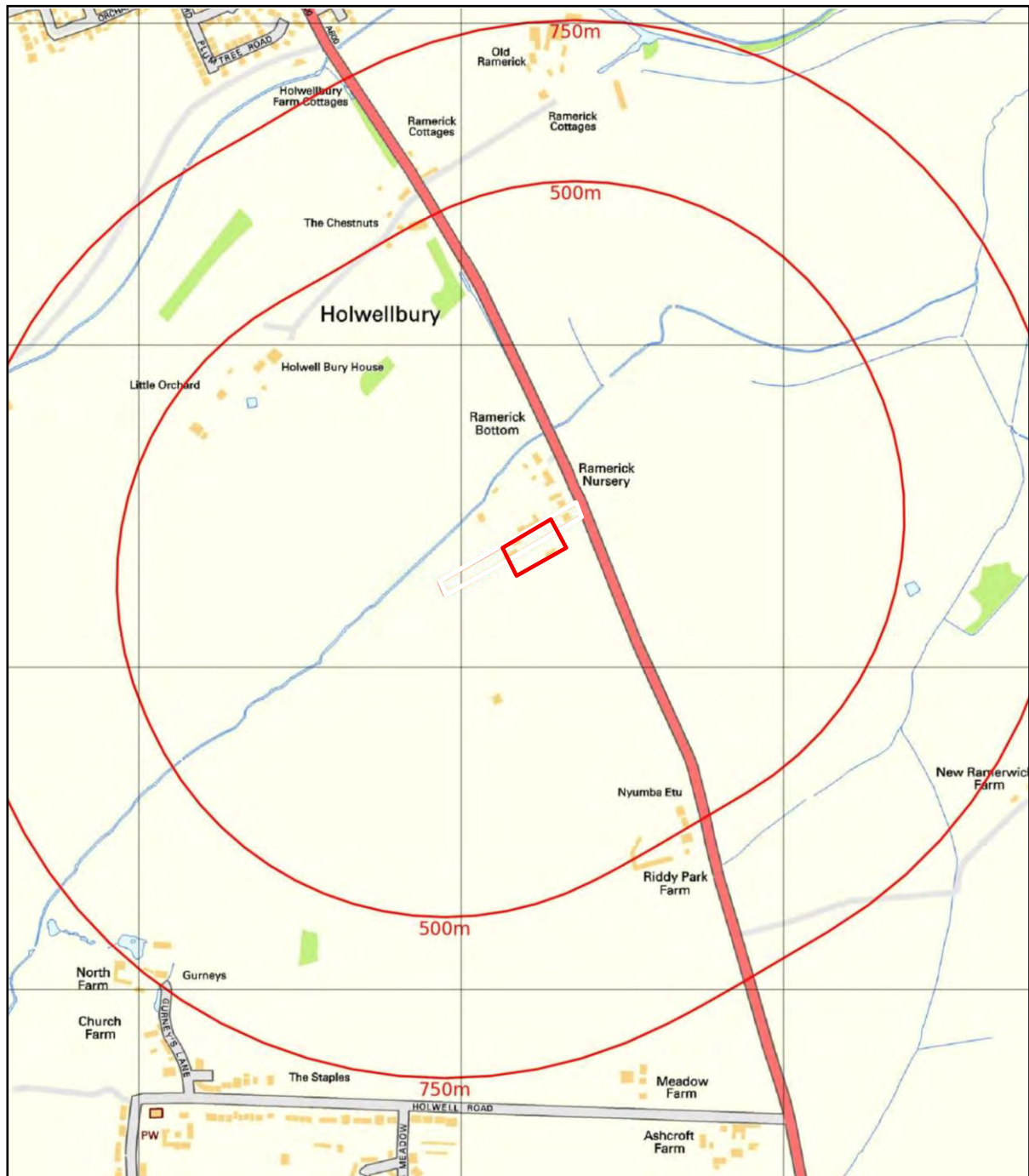
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Site History

Figure N

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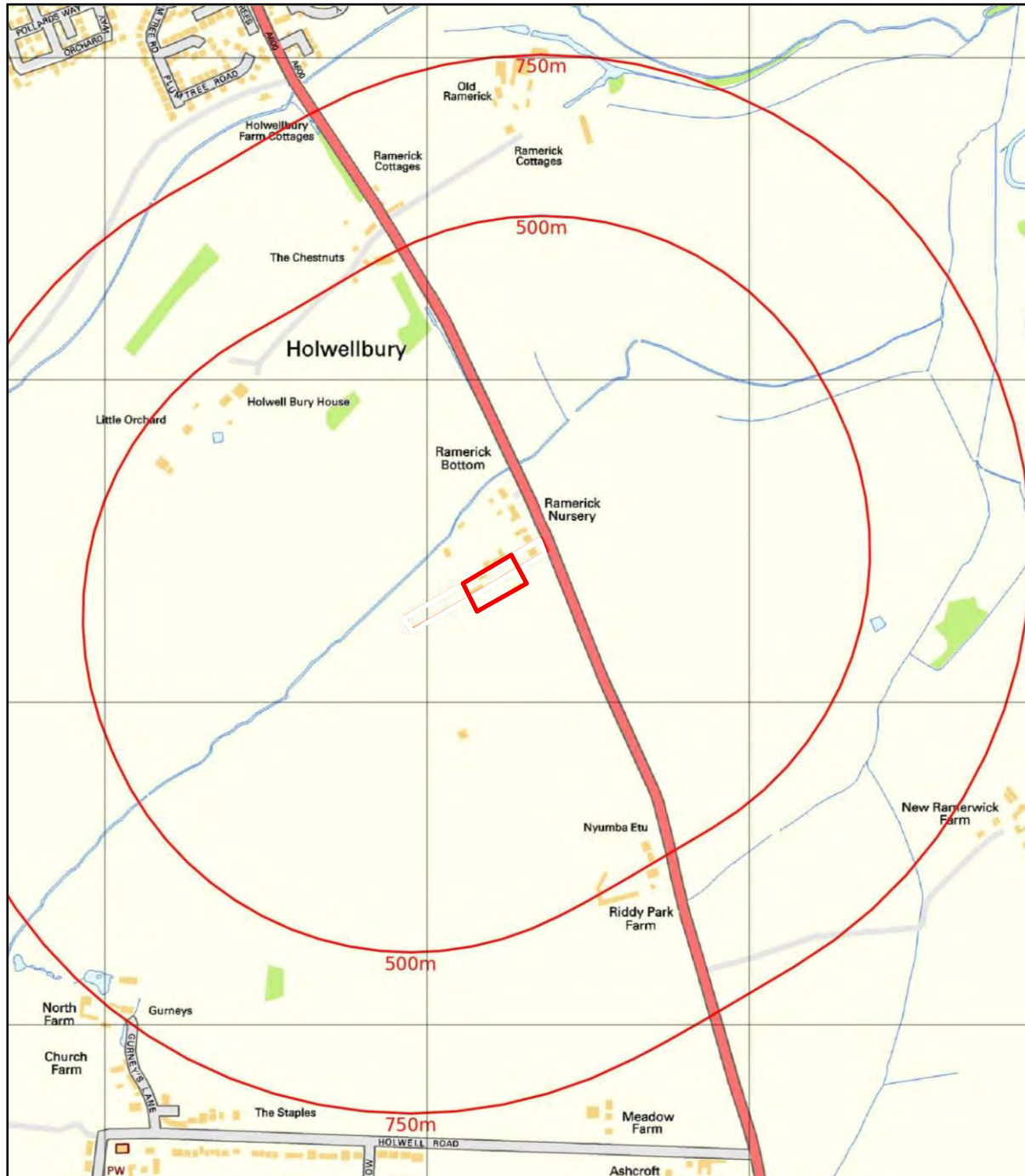
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Site History

Figure O

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Site History

Figure P

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Client : DBF Construction Limited



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Project No.
149095

Appendix 2

Database Information

LAND TO REAR OF BRAMBLE BANK, BEDFORD ROAD, HOLWELL, HERTFORDSHIRE, SG5 3RX

Order Details

Date: 28/04/2026
Your ref: 149095/27300
Our Ref: HMD-UH7-EJI-C72-9PO

Site Details

Location: 517076 234182
Area: 0.57 ha
Authority: [North Hertfordshire District Council](#) ↗

Site plan



Quick Links

[Summary of findings](#) [p. 2](#) >
[OS MasterMap site plan](#) [p.14](#) >
[Aerial image](#) [p. 9](#) >

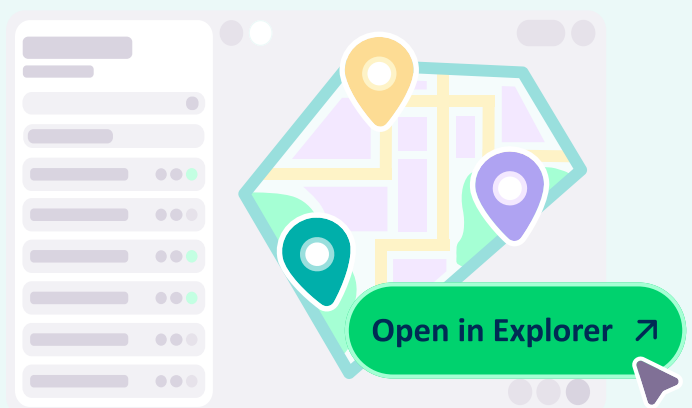
[Insight User Guide](#) ↗

Open this site in Explorer!

Access the data now in our interactive workspace.

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Access to Groundsure Explorer requires an Insights account.
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Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	1	0	3	-
16 >	1.2 >	Historical tanks >	0	0	0	1	-
16	1.3	Historical energy features	0	0	0	0	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
18 >	2.1 >	Historical industrial land uses >	0	1	0	3	-
19 >	2.2 >	Historical tanks >	0	0	0	2	-
19	2.3	Historical energy features	0	0	0	0	-
19	2.4	Historical petrol stations	0	0	0	0	-
20	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
21	3.1	Active or recent landfill	0	0	0	0	-
21	3.2	Historical landfill (BGS records)	0	0	0	0	-
22	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
22	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
22	3.5	Historical waste sites	0	0	0	0	-
22	3.6	Licensed waste sites	0	0	0	0	-
22 >	3.7 >	Waste exemptions >	0	0	1	0	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
24 >	4.1 >	Recent industrial land uses >	0	0	1	-	-
25	4.2	National Geographic Database (NGD) - Current or recent tanks	0	0	0	-	-
25	4.3	Current or recent petrol stations	0	0	0	0	-
25	4.4	Electricity cables	0	0	0	0	-
25	4.5	Gas pipelines	0	0	0	0	-



25	4.6	Sites determined as Contaminated Land	0	0	0	0	-
25	4.7	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
26	4.8	Regulated explosive sites	0	0	0	0	-
26	4.9	Hazardous substance storage/usage	0	0	0	0	-
26	4.10	Historical licensed industrial activities (IPC)	0	0	0	0	-
26	4.11	Licensed industrial activities (Part A(1))	0	0	0	0	-
26	4.12	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
27	4.13	Radioactive Substance Authorisations	0	0	0	0	-
27	4.14	Licensed Discharges to controlled waters	0	0	0	0	-
27	4.15	Pollutant release to surface waters (Red List)	0	0	0	0	-
27	4.16	Pollutant release to public sewer	0	0	0	0	-
27	4.17	List 1 Dangerous Substances	0	0	0	0	-
28	4.18	List 2 Dangerous Substances	0	0	0	0	-
28	4.19	Pollution Incidents (EA/NRW)	0	0	0	0	-
28	4.20	Pollution inventory substances	0	0	0	0	-
28	4.21	Pollution inventory waste transfers	0	0	0	0	-
28	4.22	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
29 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
31 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
32 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
33 >	5.4 >	Groundwater vulnerability- soluble rock risk >	Identified (within 0m)				
33	5.5	Groundwater vulnerability- local information	None (within 0m)				
34 >	5.6 >	Groundwater abstractions >	0	0	0	0	6
36 >	5.7 >	Surface water abstractions >	0	2	2	0	30
43	5.8	Potable abstractions	0	0	0	0	0
44 >	5.9 >	Source Protection Zones >	0	0	1	0	-
44	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m



45 >	6.1 >	Water Network (OS NGD) >	0	1	10	-	-
46 >	6.2 >	Surface water features >	0	1	5	-	-
47 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
47 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
48 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
49 >	7.1 >	Risk of flooding from rivers and the sea >	High (within 50m)				
50	7.2	Historical Flood Events	0	0	0	-	-
50	7.3	Flood Defences	0	0	0	-	-
50	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
50	7.5	Flood Storage Areas	0	0	0	-	-
51 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
52 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
53 >	8.1 >	Surface water flooding >	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
55 >	9.1 >	Groundwater flooding >	High (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
56	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
57	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
57	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
57	10.4	Special Protection Areas (SPA)	0	0	0	0	0
57	10.5	National Nature Reserves (NNR)	0	0	0	0	0
58	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
58	10.7	Designated Ancient Woodland	0	0	0	0	0
58	10.8	Biosphere Reserves	0	0	0	0	0
58	10.9	Forest Parks	0	0	0	0	0
59	10.10	Marine Conservation Zones	0	0	0	0	0
59 >	10.11 >	Green Belt >	0	0	0	0	1

59	10.12	Proposed Ramsar sites	0	0	0	0	0
59	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
60	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
60	10.15	Nitrate Sensitive Areas	0	0	0	0	0
60 >	10.16 >	Nitrate Vulnerable Zones >	2	0	0	0	5
61 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
62	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
63	11.1	World Heritage Sites	0	0	0	-	-
63	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
63	11.3	National Parks	0	0	0	-	-
63	11.4	Listed Buildings	0	0	0	-	-
64	11.5	Conservation Areas	0	0	0	-	-
64	11.6	Scheduled Ancient Monuments	0	0	0	-	-
64	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
65 >	12.1 >	Agricultural Land Classification >	Grade 2 (within 250m)				
66	12.2	Open Access Land	0	0	0	-	-
66	12.3	Tree Felling Licences	0	0	0	-	-
66	12.4	Environmental Stewardship Schemes	0	0	0	-	-
67 >	12.5 >	Countryside Stewardship Schemes >	0	1	1	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
68 >	13.1 >	Priority Habitat Inventory >	3	1	0	-	-
69	13.2	Habitat Networks	0	0	0	-	-
69	13.3	Open Mosaic Habitat	0	0	0	-	-
69	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
70 >	14.1 >	10k Availability >	Identified (within 500m)				
71 >	14.2 >	Artificial and made ground (10k) >	0	0	1	1	-

72 >	14.3 >	Superficial geology (10k) >	1	1	3	2	-
73	14.4	Landslip (10k)	0	0	0	0	-
74 >	14.5 >	Bedrock geology (10k) >	1	0	0	1	-
75	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
76 >	15.1 >	50k Availability >	Identified (within 500m)				
77 >	15.2 >	Artificial and made ground (50k) >	0	0	1	1	-
78	15.3	Artificial ground permeability (50k)	0	0	-	-	-
79 >	15.4 >	Superficial geology (50k) >	1	1	3	2	-
80 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
80	15.6	Landslip (50k)	0	0	0	0	-
80	15.7	Landslip permeability (50k)	None (within 50m)				
81 >	15.8 >	Bedrock geology (50k) >	1	0	0	1	-
82 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
82	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
83 >	16.1 >	BGS Boreholes >	0	0	1	-	-
Page	Section	Natural ground subsidence >					
84 >	17.1 >	Shrink swell clays >	Low (within 50m)				
85 >	17.2 >	Running sands >	Very low (within 50m)				
86 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
87 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
88 >	17.5 >	Landslides >	Very low (within 50m)				
89 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
91 >	18.1 >	BritPits >	0	0	0	1	-
92	18.2	Surface ground workings	0	0	0	-	-
92	18.3	Underground workings	0	0	0	0	0
92	18.4	Underground mining extents	0	0	0	0	-



93	18.5	Historical Mineral Planning Areas	0	0	0	0	-
93 >	18.6 >	Non-coal mining >	0	0	0	0	2
93	18.7	JPB mining areas	None (within 0m)				
94	18.8	The Coal Authority non-coal mining	0	0	0	0	-
94	18.9	Researched mining	0	0	0	0	-
94	18.10	Mining record office plans	0	0	0	0	-
94	18.11	BGS mine plans	0	0	0	0	-
95	18.12	Coal mining	None (within 0m)				
95	18.13	Brine areas	None (within 0m)				
95	18.14	Gypsum areas	None (within 0m)				
95	18.15	Tin mining	None (within 0m)				
95	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
96	19.1	Natural cavities	0	0	0	0	-
96	19.2	Mining cavities	0	0	0	0	0
96	19.3	Reported recent incidents	0	0	0	0	-
96	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
98 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
100 >	21.1 >	BGS Estimated Background Soil Chemistry >	3	1	-	-	-
100	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
101	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
102	22.1	Underground railways (London)	0	0	0	-	-
102	22.2	Underground railways (Non-London)	0	0	0	-	-
103	22.3	Railway tunnels	0	0	0	-	-
103	22.4	Historical railway and tunnel features	0	0	0	-	-
103	22.5	Royal Mail tunnels	0	0	0	-	-



<u>103</u> >	<u>22.6</u> >	<u>Historical railways</u> >	0	0	2	-	-
104	22.7	Railways	0	0	0	-	-
104	22.8	Crossrail 2	0	0	0	0	-
104	22.9	HS2	0	0	0	0	-



Recent aerial photograph



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Capture Date: 27/05/2023

Site Area: 0.57ha



Recent site history - 2020 aerial photograph



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Capture Date: 07/04/2020

Site Area: 0.57ha



Recent site history - 2015 aerial photograph



Capture Date: 03/07/2015

Site Area: 0.57ha



Recent site history - 2007 aerial photograph



Capture Date: 16/11/2007

Site Area: 0.57ha



Recent site history - 1999 aerial photograph



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Capture Date: 27/05/1999

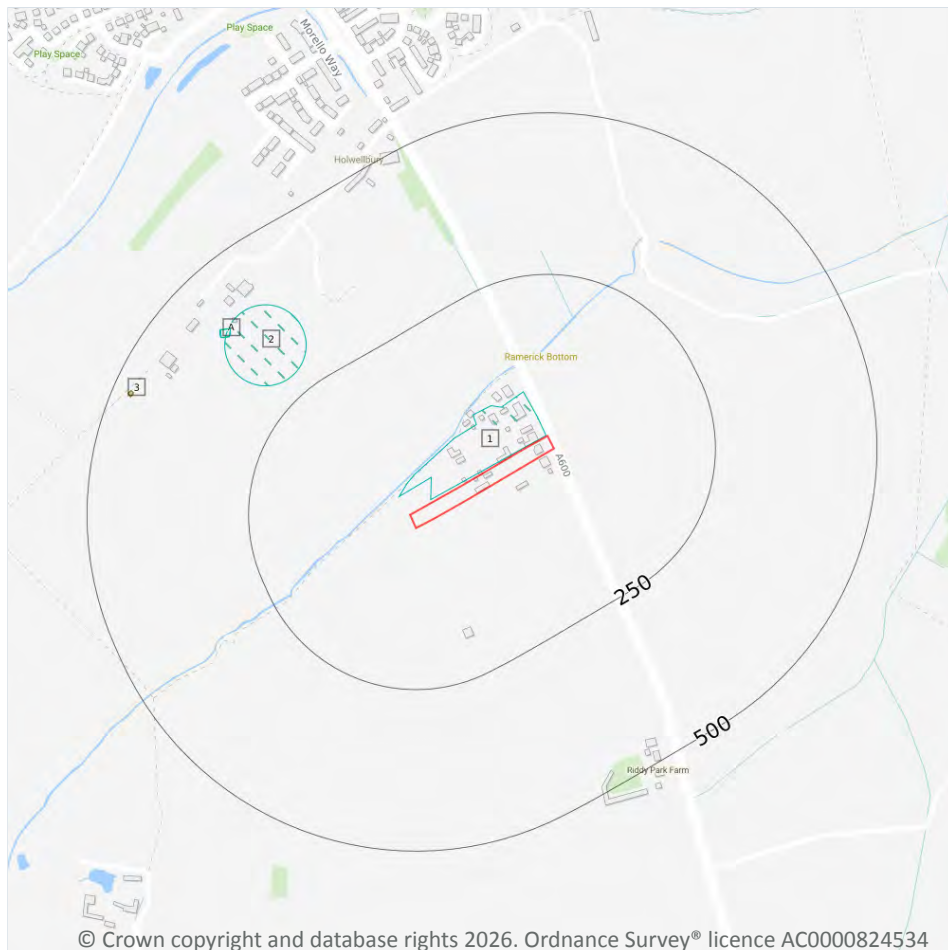
Site Area: 0.57ha



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1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks

1.1 Historical industrial land uses

Records within 500m

4

Potentially contaminative land use features digitised from historical Ordnance Survey® mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
1	2m NW	Nursery	1982	2084924



ID	Location	Land use	Dates present	Group ID
2	282m NW	Gravel Pit	1899	2147546
A	393m NW	Gravel Pit	1881	2096562
A	393m NW	Gravel Pit	1888	2107939

This data is sourced from Ordnance Survey® / Groundsure.

1.2 Historical tanks

Records within 500m

1

Tank features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
3	467m NW	Unspecified Tank	1979 - 1996	368712

This data is sourced from Ordnance Survey® / Groundsure.

1.3 Historical energy features

Records within 500m

0

Energy features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.



grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

1.5 Historical garages

Records within 500m

0

Garages digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

1.6 Historical military land

Records within 500m

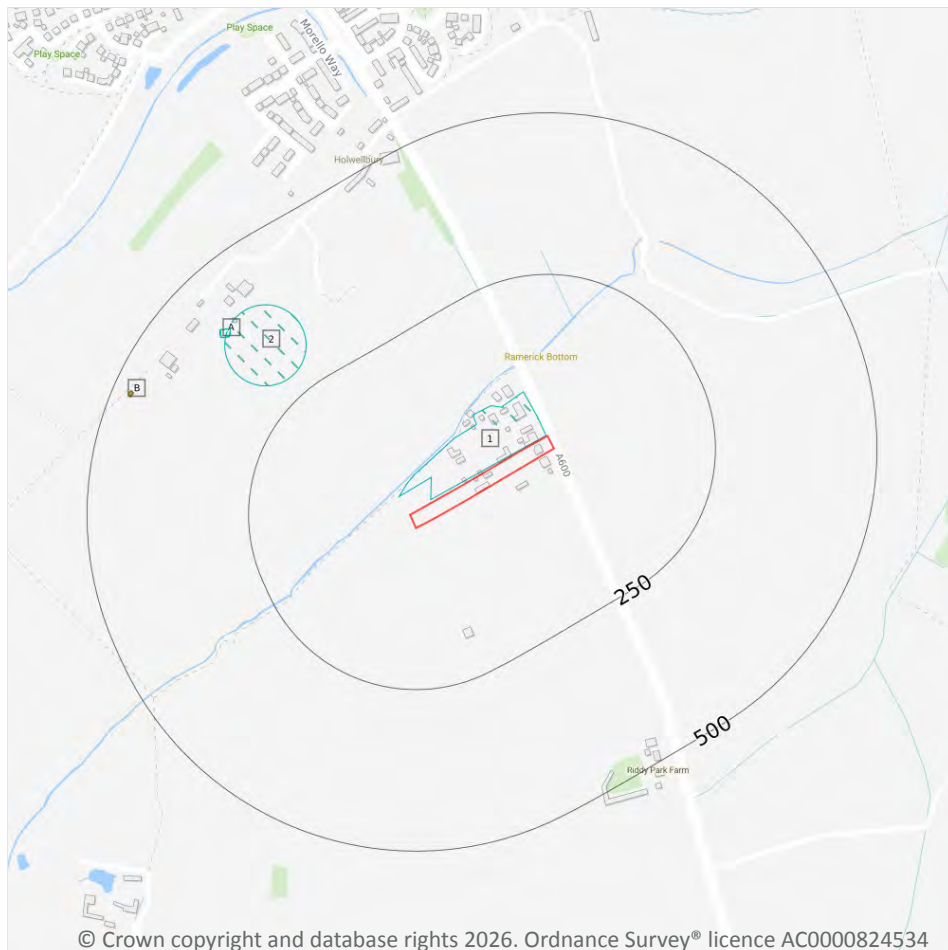
0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey® / Groundsure / other sources.



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks

2.1 Historical industrial land uses

Records within 500m

4

Potentially contaminative land use features digitised from historical Ordnance Survey® mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on [page 18](#) >

ID	Location	Land Use	Date	Group ID
1	2m NW	Nursery	1982	2084924
2	282m NW	Gravel Pit	1899	2147546
A	393m NW	Gravel Pit	1881	2096562



ID	Location	Land Use	Date	Group ID
A	393m NW	Gravel Pit	1888	2107939

This data is sourced from Ordnance Survey® / Groundsure.

2.2 Historical tanks

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

Tank features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on [page 18 >](#)

ID	Location	Land Use	Date	Group ID
B	467m NW	Unspecified Tank	1996	368712
B	468m NW	Unspecified Tank	1979	368712

This data is sourced from Ordnance Survey® / Groundsure.

2.3 Historical energy features

Records within 500m	0
----------------------------	----------

Energy features digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

2.4 Historical petrol stations

Records within 500m	0
----------------------------	----------

Petrol stations digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.

2.5 Historical garages

Records within 500m

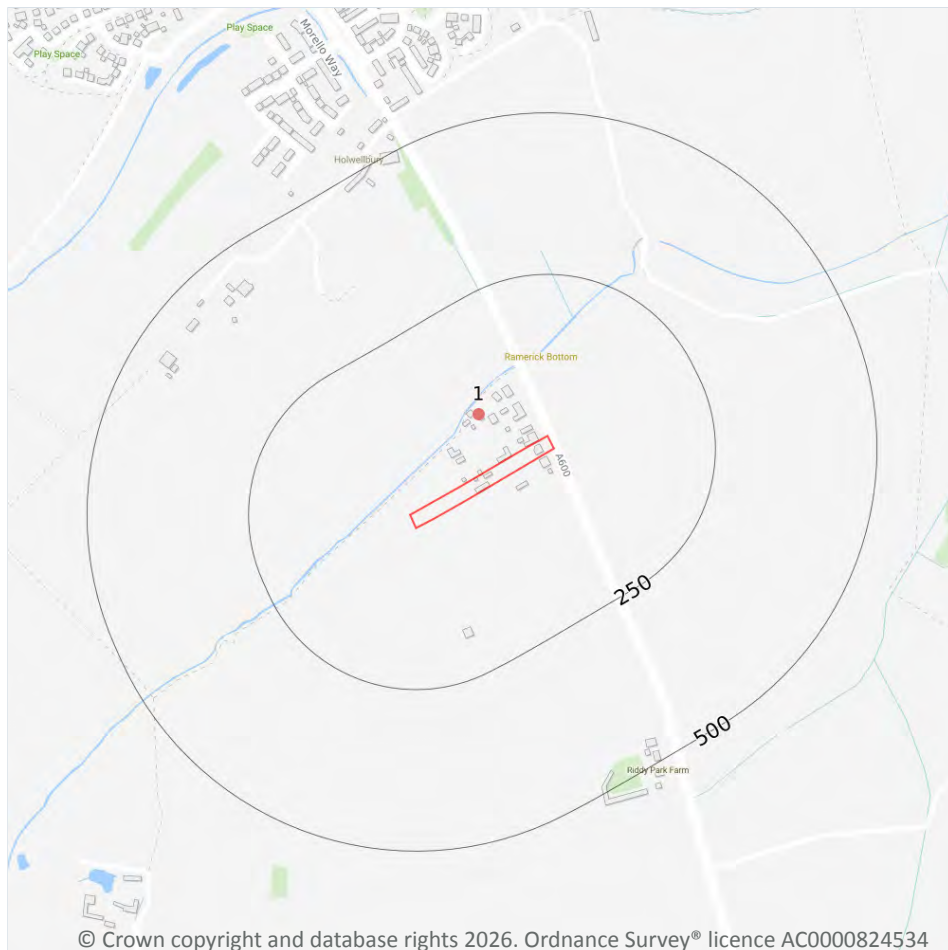
0

Garages digitised from historical Ordnance Survey® mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey® / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m**0**

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey®/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m**0**

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m**0**

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey®/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m**0**

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m**1**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on [page 21 >](#)

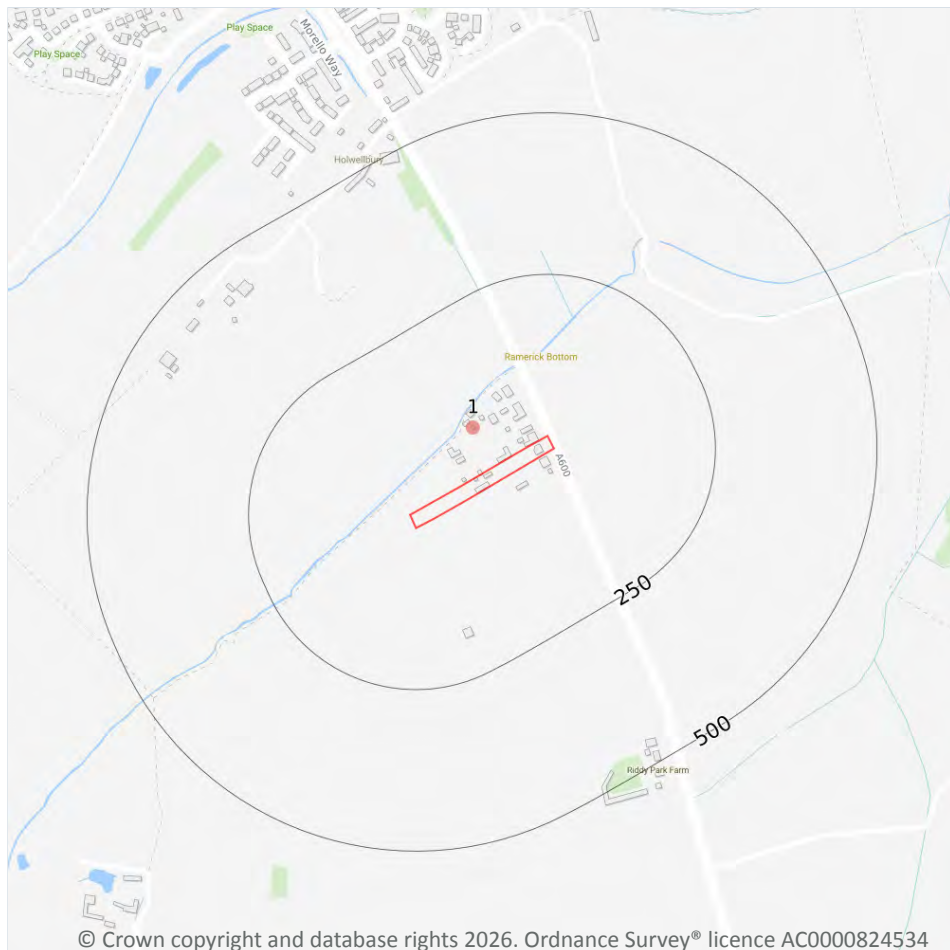
ID	Location	Site	Reference	Category	Sub-Category	Description
1	82m NW	-	WEX431522	Disposing of waste exemption	Not on a farm	Burning waste in the open



This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses

4.1 Recent industrial land uses

Records within 250m

1

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 24](#) >

ID	Location	Company	Address	Activity	Category
1	69m NW	Marshall's Shop Fittings	Bedford Road, Holwell, Hertfordshire, SG5 3RX	Office and Shop Equipment	Industrial Products

This data is sourced from Ordnance Survey®.



4.2 National Geographic Database (NGD) - Current or recent tanks

Records within 250m**0**

Current or recent tanks identified from the Ordnance Survey® NGD.

This data is sourced from Ordnance Survey®.

4.3 Current or recent petrol stations

Records within 500m**0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.4 Electricity cables

Records within 500m**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.5 Gas pipelines

Records within 500m**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.6 Sites determined as Contaminated Land

Records within 500m**0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.7 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.



4.8 Regulated explosive sites

Records within 500m

0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.9 Hazardous substance storage/usage

Records within 500m

0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.10 Historical licensed industrial activities (IPC)

Records within 500m

0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed industrial activities (Part A(1))

Records within 500m

0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.12 Licensed pollutant release (Part A(2)/B)

Records within 500m

0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.13 Radioactive Substance Authorisations

Records within 500m**0**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Licensed Discharges to controlled waters

Records within 500m**0**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to surface waters (Red List)

Records within 500m**0**

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 Pollutant release to public sewer

Records within 500m**0**

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 1 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 List 2 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution Incidents (EA/NRW)

Records within 500m**0**

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.20 Pollution inventory substances

Records within 500m**0**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory waste transfers

Records within 500m**0**

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.22 Pollution inventory radioactive waste

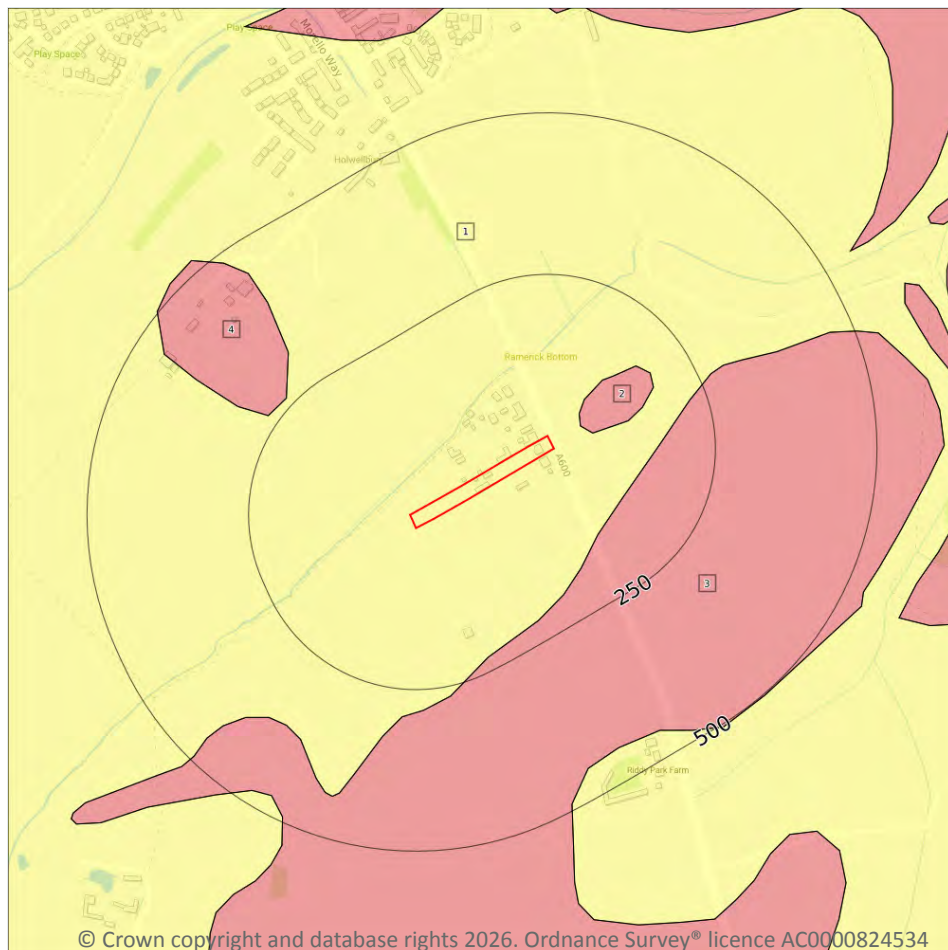
Records within 500m**0**

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



5 Hydrogeology - Superficial aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

4

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on [page 29 >](#)

ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	52m NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

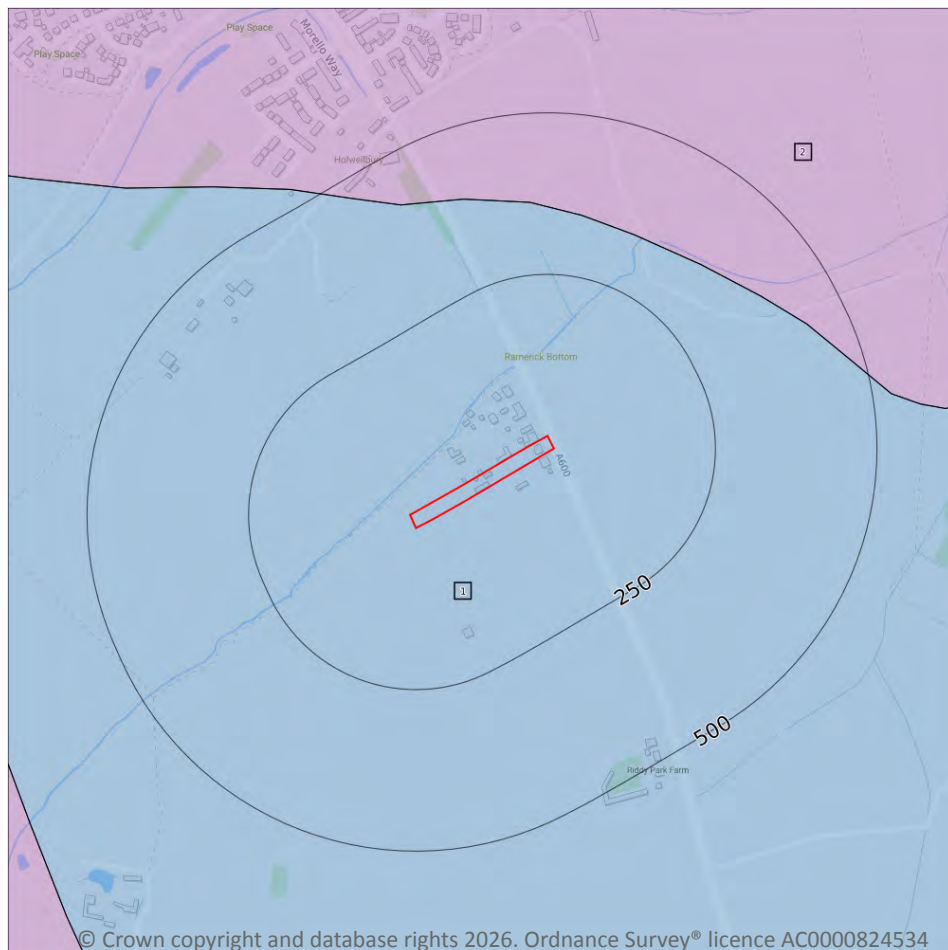


ID	Location	Designation	Description
3	131m SE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	263m NW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

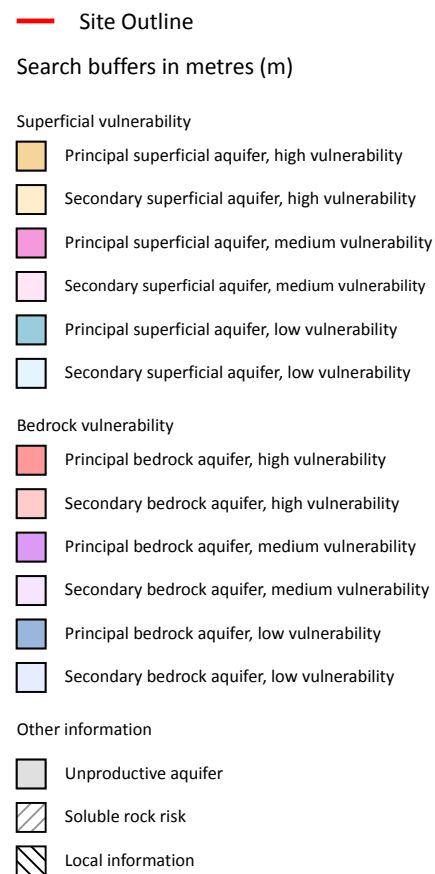
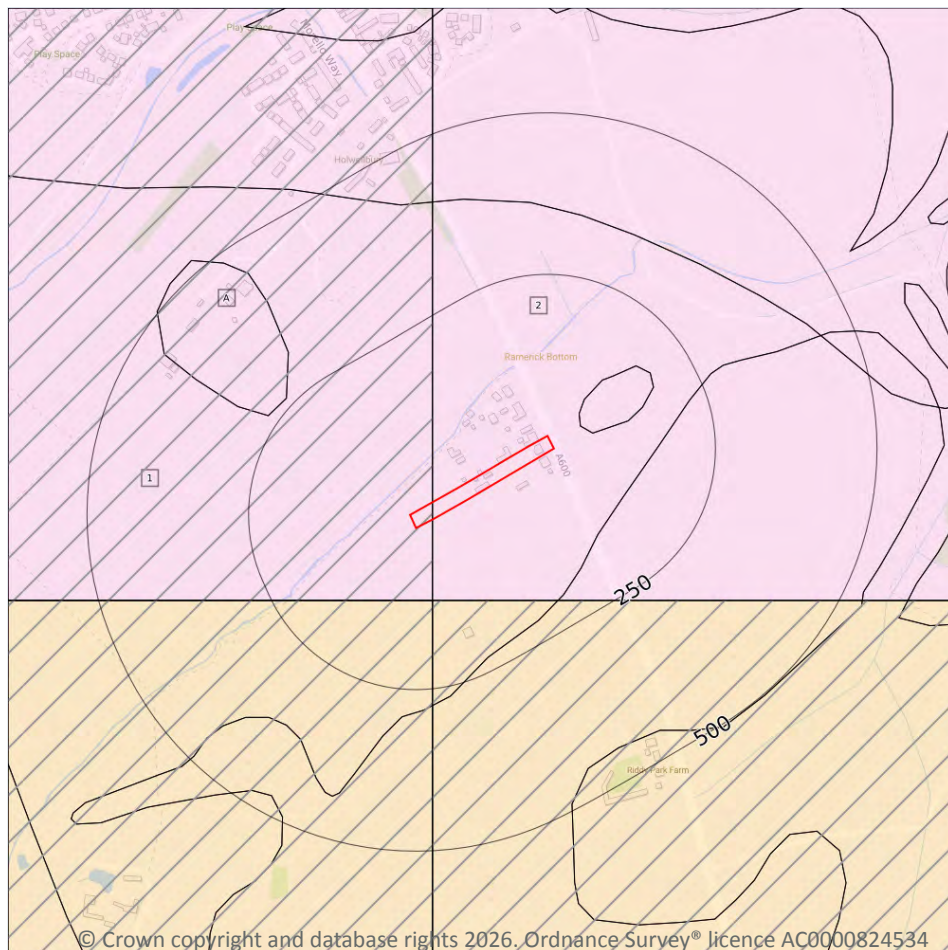
Features are displayed on the Bedrock aquifer map on [page 31](#) >

ID	Location	Designation	Description
1	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	339m N	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

2

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on [page 32](#) >

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Unproductive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: >10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Unproductive Aquifer type: Unproductive Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Unproductive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Unproductive Aquifer type: Unproductive Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	1
------------------------	----------

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
A	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	11.0%

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

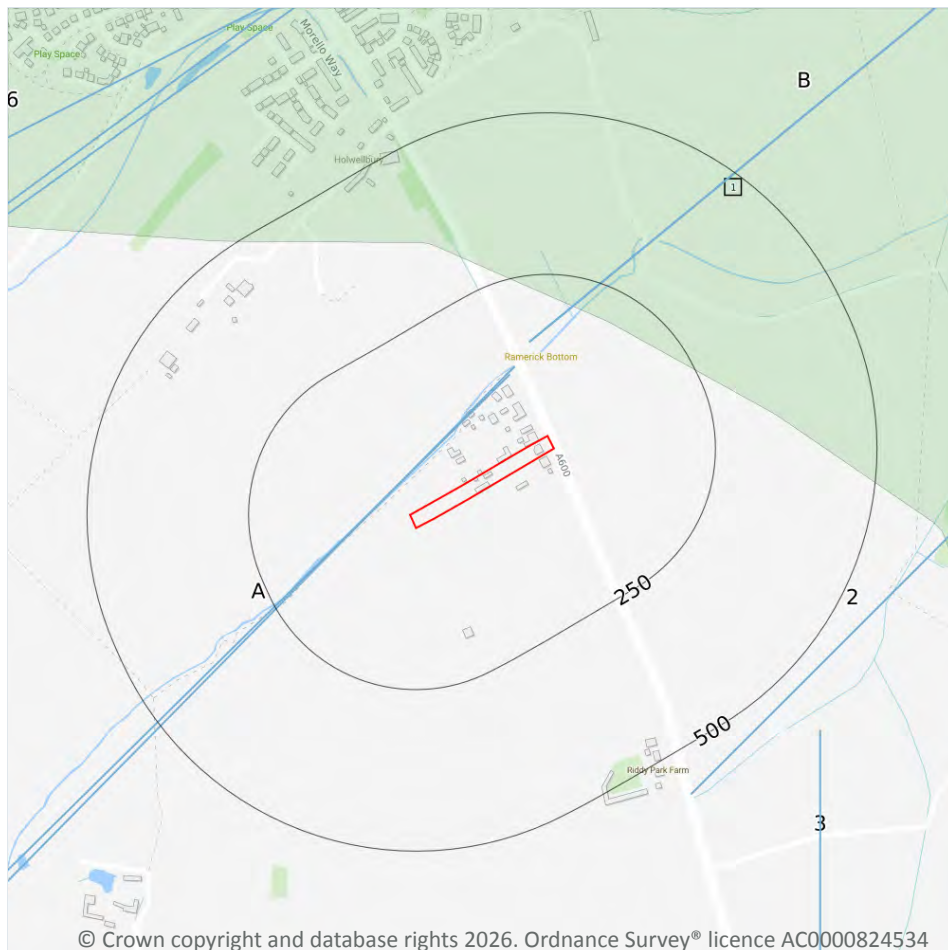
Records on site	0
------------------------	----------

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

6

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on [page 34](#) >



ID	Location	Details	
-	929m W	Status: Historical Licence No: 6/33/13/*G/0106 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT HOLWELLBURY FARM Data Type: Point Name: K Parrish and Son Easting: 516060 Northing: 234338	Annual Volume (m ³): 27300 Max Daily Volume (m ³): 454.5 Original Application No: - Original Start Date: 06/12/2007 Expiry Date: 31/03/2016 Issue No: 2 Version Start Date: 16/11/2009 Version End Date: -
-	929m W	Status: Historical Licence No: 6/33/13/*G/0106/R01 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT HOLWELLBURY FARM Data Type: Point Name: K Parrish and Son Easting: 516060 Northing: 234338	Annual Volume (m ³): 27300 Max Daily Volume (m ³): 454.5 Original Application No: - Original Start Date: 01/04/2016 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 01/04/2016 Version End Date: -
-	941m W	Status: Historical Licence No: 6/33/13/*G/0101 Details: Transfer between Sources (Pre Water Act 2003) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT HOLWELLBURY FARM Data Type: Point Name: HUNTER PARTNERSHIP Easting: 516050 Northing: 234350	Annual Volume (m ³): 27300 Max Daily Volume (m ³): 545.5 Original Application No: - Original Start Date: 01/05/1997 Expiry Date: 30/09/2006 Issue No: 100 Version Start Date: 01/05/1997 Version End Date: -
-	941m W	Status: Historical Licence No: 6/33/13/*G/0106 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT HOLWELLBURY FARM Data Type: Point Name: K Parrish and Son Easting: 516050 Northing: 234350	Annual Volume (m ³): 27300 Max Daily Volume (m ³): 454.5 Original Application No: - Original Start Date: 06/12/2007 Expiry Date: 31/03/2016 Issue No: 2 Version Start Date: 16/11/2009 Version End Date: -

ID	Location	Details	
-	1214m NW	Status: Historical Licence No: 6/33/13/*G/0067 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT LOWER STONDON Data Type: Point Name: C ZWETSLOOT & SONS Easting: 516170 Northing: 235050	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/03/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1967 Version End Date: -
-	1223m NW	Status: Historical Licence No: 6/33/13/*G/0067 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT LOWER STONDON Data Type: Point Name: C ZWETSLOOT & SONS Easting: 516180 Northing: 235070	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/03/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1967 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	34
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Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on [page 34 >](#)

ID	Location	Details	
A	46m NW	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE AT HOLWELLBURY FARM - BETWEEN POINTS C AND D Data Type: Line Name: K Parrish and Son Easting: 516334 Northing: 233557	Annual Volume (m ³): 14547 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2018 Version End Date: -



ID	Location	Details	
A	46m NW	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE AT HOLWELL Data Type: Line Name: K Parrish and Son Easting: 516330 Northing: 233570	Annual Volume (m ³): 41847 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2011 Version End Date: -
B	148m N	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Anti Frost Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE S OF OLD RAMERICK Data Type: Line Name: K Parrish and Son Easting: 517150 Northing: 234400	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -
B	148m N	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE S OF OLD RAMERICK Data Type: Line Name: K Parrish and Son Easting: 517150 Northing: 234400	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -
2	528m SE	Status: Historical Licence No: 6/33/13/*S/0016 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAIN AT ICKLEFORD Data Type: Line Name: GROVEWAY LTD Easting: 517400 Northing: 233700	Annual Volume (m ³): 8410 Max Daily Volume (m ³): 613.7 Original Application No: - Original Start Date: 01/02/1968 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1997 Version End Date: -
3	599m SE	Status: Historical Licence No: 6/33/13/*S/0016 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAIN AT ICKLEFORD Data Type: Line Name: GROVEWAY LTD Easting: 517600 Northing: 233400	Annual Volume (m ³): 8410 Max Daily Volume (m ³): 613.7 Original Application No: - Original Start Date: 01/02/1968 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1997 Version End Date: -



ID	Location	Details	
-	701m E	Status: Active Licence No: 6/33/13/*S/0019 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ SW OF ARLESEY Data Type: Line Name: FG Rook & Son Easting: 517850 Northing: 234000	Annual Volume (m ³): 10397 Max Daily Volume (m ³): 355 Original Application No: NPS/WR/040917 Original Start Date: 01/03/1968 Expiry Date: - Issue No: 102 Version Start Date: 28/03/2024 Version End Date: -
C	742m NW	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAINS, BROOKS & MOAT, HOLWELL Data Type: Line Name: HUNTER PARTNERSHIP Easting: 515790 Northing: 234200	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/10/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1997 Version End Date: -
-	745m N	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE N OLD RAMERICK Data Type: Line Name: K Parrish and Son Easting: 516750 Northing: 234950	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -
-	745m N	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Anti Frost Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE N OLD RAMERICK Data Type: Line Name: K Parrish and Son Easting: 516750 Northing: 234950	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -
C	757m NW	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE AT HOLWELLBURY FARM - BETWEEN POINTS A AND B Data Type: Line Name: K Parrish and Son Easting: 515773 Northing: 234195	Annual Volume (m ³): 14547 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2018 Version End Date: -



ID	Location	Details	
-	770m N	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Anti Frost Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: MOAT AND WATERCOURSE, RAMERICK Data Type: Line Name: K Parrish and Son Easting: 517150 Northing: 235050	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -
-	770m N	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: MOAT AND WATERCOURSE, RAMERICK Data Type: Line Name: K Parrish and Son Easting: 517150 Northing: 235050	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -
-	783m NW	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE AT HOLWELLBURY FARM Data Type: Line Name: HUNTER PARTNERSHIP Easting: 516120 Northing: 234410	Annual Volume (m ³): 41847 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 100 Version Start Date: 13/05/1997 Version End Date: -
6	792m NW	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE AT HOLWELLBURY FARM Data Type: Line Name: K Parrish and Son Easting: 515900 Northing: 234490	Annual Volume (m ³): 41847 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2011 Version End Date: -
-	943m W	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: MOAT AT HOLWELLBURY FARM - POINT E Data Type: Point Name: K Parrish and Son Easting: 516059 Northing: 234392	Annual Volume (m ³): 14547 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2018 Version End Date: -



ID	Location	Details	
-	950m E	Status: Historical Licence No: 6/33/13/*S/0085 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ AT ICKLEFORD Data Type: Line Name: GROVEWAY LTD Easting: 518100 Northing: 234500	Annual Volume (m ³): 2600 Max Daily Volume (m ³): 182 Original Application No: - Original Start Date: 01/06/1983 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1997 Version End Date: -
-	954m W	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: MOAT AT HOLWELLBURY FARM Data Type: Point Name: K Parrish and Son Easting: 516050 Northing: 234400	Annual Volume (m ³): 41847 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2011 Version End Date: -
-	1082m NE	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Anti Frost Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ E OF OLD RAMIERICK Data Type: Line Name: HUNTER PARTNERSHIP Easting: 518500 Northing: 233900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1983 Version End Date: -
-	1082m NE	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ E OF OLD RAMIERICK Data Type: Line Name: HUNTER PARTNERSHIP Easting: 518500 Northing: 233900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1983 Version End Date: -
-	1082m NE	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ E OF OLD RAMIERICK Data Type: Line Name: K Parrish and Son Easting: 518500 Northing: 233900	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -



ID	Location	Details	
-	1082m NE	Status: Historical Licence No: 6/33/13/*S/0058 Details: Spray Irrigation - Anti Frost Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ E OF OLD RAMERICK Data Type: Line Name: K Parrish and Son Easting: 518500 Northing: 233900	Annual Volume (m ³): 15570 Max Daily Volume (m ³): 1464 Original Application No: - Original Start Date: 01/10/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/02/2014 Version End Date: -
-	1124m W	Status: Historical Licence No: 6/33/13/*S/0051 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WATERCOURSE AT HOLWELLBURY FARM Data Type: Line Name: K Parrish and Son Easting: 515790 Northing: 234200	Annual Volume (m ³): 41847 Max Daily Volume (m ³): 1316 Original Application No: - Original Start Date: 16/10/1967 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2011 Version End Date: -
-	1187m W	Status: Historical Licence No: 6/33/13/*S/0100 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAIN NEAR HOLWELL Data Type: Line Name: PARRISH Easting: 515780 Northing: 234200	Annual Volume (m ³): 3637 Max Daily Volume (m ³): 329 Original Application No: - Original Start Date: 01/05/1996 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1996 Version End Date: -
-	1195m W	Status: Active Licence No: 6/33/13/*S/0100 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAIN NEAR HOLWELL Data Type: Line Name: PARRISH Easting: 515772 Northing: 234196	Annual Volume (m ³): 1819 Max Daily Volume (m ³): 165 Original Application No: NPS/WR/027029 Original Start Date: 01/05/1996 Expiry Date: - Issue No: 101 Version Start Date: 21/08/2017 Version End Date: -
-	1382m E	Status: Historical Licence No: 6/33/13/*S/0016 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ AT ICKLEFORD Data Type: Line Name: GROVEWAY LTD Easting: 518500 Northing: 233800	Annual Volume (m ³): 8410 Max Daily Volume (m ³): 613.7 Original Application No: - Original Start Date: 01/02/1968 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1997 Version End Date: -



ID	Location	Details	
-	1386m W	Status: Active Licence No: 6/33/13/*S/0100 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAIN NEAR HOLWELL Data Type: Line Name: PARRISH Easting: 515580 Northing: 233912	Annual Volume (m ³): 1819 Max Daily Volume (m ³): 165 Original Application No: NPS/WR/027029 Original Start Date: 01/05/1996 Expiry Date: - Issue No: 101 Version Start Date: 21/08/2017 Version End Date: -
-	1396m NW	Status: Historical Licence No: 6/33/13/*S/0093 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DITCH TRIBUTARY OF RIVER HIZ Data Type: Point Name: SIMKINS Easting: 515800 Northing: 234900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/09/1993 Expiry Date: 30-Sep-03 Issue No: 100 Version Start Date: 01/09/1993 Version End Date: -
-	1401m W	Status: Historical Licence No: 6/33/13/*S/0100 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAIN NEAR HOLWELL Data Type: Line Name: PARRISH Easting: 515560 Northing: 233910	Annual Volume (m ³): 3637 Max Daily Volume (m ³): 329 Original Application No: - Original Start Date: 01/05/1996 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1996 Version End Date: -
-	1572m SE	Status: Active Licence No: 6/33/13/*S/0059 Details: General Farming & Domestic Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ N OF ICKLEFORD Data Type: Line Name: WALLACE FARMS LTD Easting: 518550 Northing: 231750	Annual Volume (m ³): 10400 Max Daily Volume (m ³): 942.2 Original Application No: NPS/WR/010931 Original Start Date: 22/09/1967 Expiry Date: - Issue No: 101 Version Start Date: 22/06/2012 Version End Date: -
-	1572m SE	Status: Active Licence No: 6/33/13/*S/0059 Details: Dust Suppression Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ N OF ICKLEFORD Data Type: Line Name: WALLACE FARMS LTD Easting: 518550 Northing: 231750	Annual Volume (m ³): 10400 Max Daily Volume (m ³): 942.2 Original Application No: NPS/WR/010931 Original Start Date: 22/09/1967 Expiry Date: - Issue No: 101 Version Start Date: 22/06/2012 Version End Date: -



ID	Location	Details	
-	1572m SE	Status: Historical Licence No: 6/33/13/*S/0059 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ N OF ICKLEFORD Data Type: Line Name: WALLACE FARMS LTD Easting: 518550 Northing: 231750	Annual Volume (m ³): 10400 Max Daily Volume (m ³): 942.2 Original Application No: - Original Start Date: 01/09/1967 Expiry Date: - Issue No: 101 Version Start Date: 22/06/2012 Version End Date: -
-	1605m NE	Status: Active Licence No: 6/33/13/*S/0040 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ AT ARLESEY Data Type: Point Name: ARLESEY DEVELOPMENTS LTD Easting: 518360 Northing: 235340	Annual Volume (m ³): 5682 Max Daily Volume (m ³): 40.91 Original Application No: CS2100 Original Start Date: 01/06/1967 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2008 Version End Date: -
-	1751m SE	Status: Historical Licence No: 6/33/13/*S/0082 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HIZ N OF ICKLEFORD Data Type: Line Name: HUNTER PARTNERSHIP Easting: 518700 Northing: 232800	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/07/1981 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1992 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m

0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.



5.9 Source Protection Zones

Records within 500m

1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on [page 34](#) >

ID	Location	Type	Description
1	200m NE	3	Total catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m

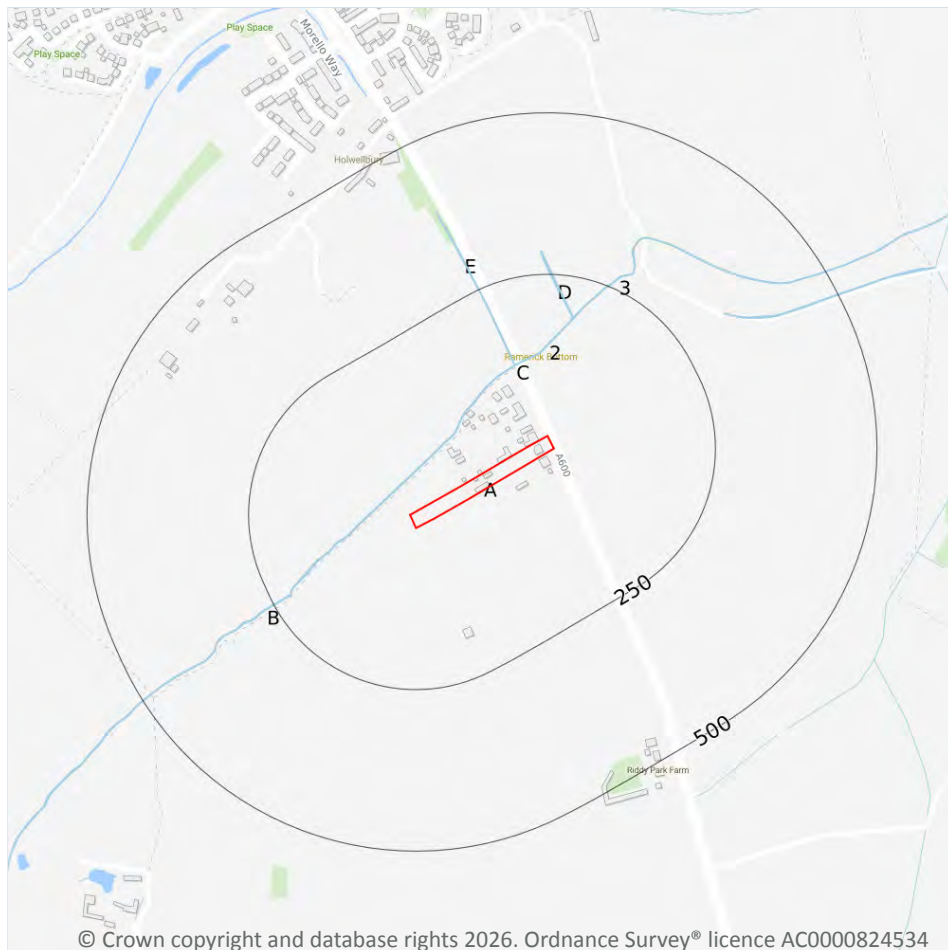
0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.



6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS NGD)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS NGD)

Records within 250m

11

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on [page 45 >](#)

ID	Location	Type of water feature	Ground level	Permanence	Name
B	43m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
2	121m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	121m NW	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	124m NW	Drain. A manmade watercourse for the removal of excess water from an area.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	127m NW	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	187m N	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	188m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	207m NW	Drain. A manmade watercourse for the removal of excess water from an area.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	214m NW	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	237m NW	Drain. A manmade watercourse for the removal of excess water from an area.	Underground	Watercourse contains water year round (in normal circumstances)	-
E	243m NW	Drain. A manmade watercourse for the removal of excess water from an area.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey®.

6.2 Surface water features

Records within 250m

6

Covering rivers, streams and lakes (some overlap with OS NGD Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on [page 45](#) >



This data is sourced from the Ordnance Survey®.

6.3 WFD Surface water body catchments

Records on site	1
------------------------	----------

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on [page 45 >](#)

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River	Stondon Brook	GB105033037710	Ivel	Ouse Upper and Bedford

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	1
---------------------------	----------

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on [page 45 >](#)

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	681m NW	River	Stondon Brook	GB105033037710 ↗	No longer applicable	Does not require assessment	Moderate	2022

This data is sourced from the Environment Agency and Natural Resources Wales.



6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

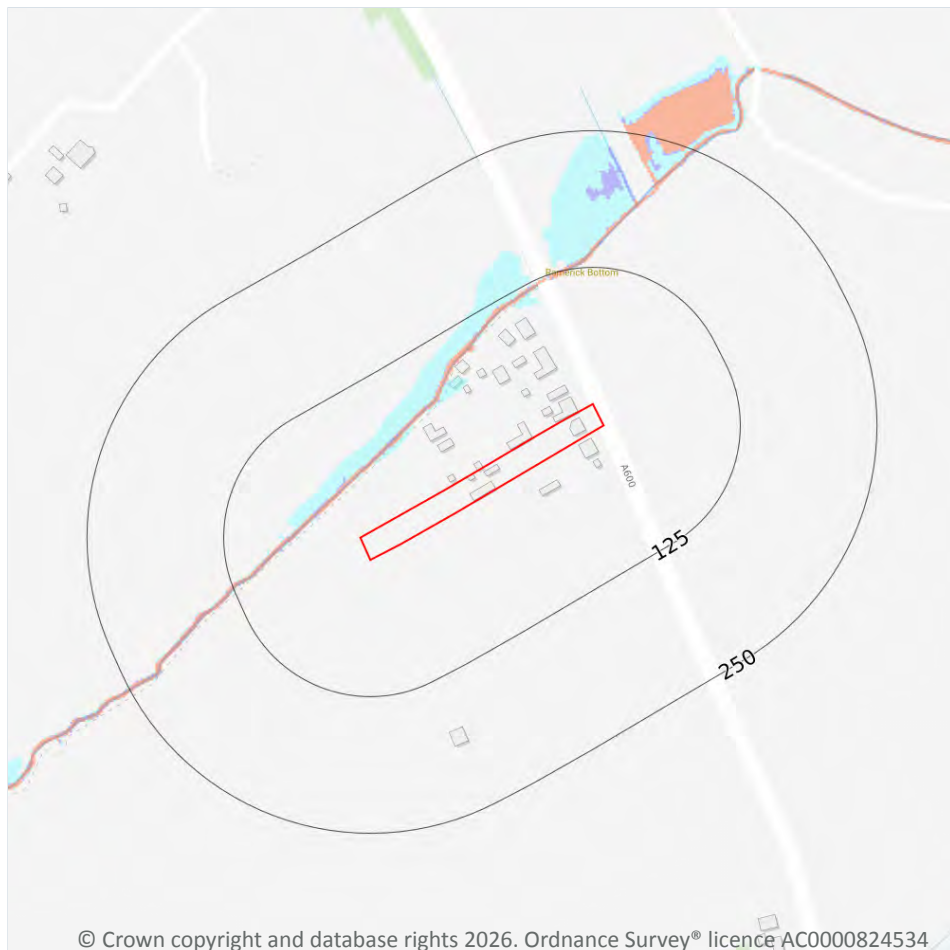
Features are displayed on the Hydrology map on [page 45 >](#)

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Upper Bedford Ouse Chalk	GB40601G603000 ↗	Poor	Poor	Poor	2019

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding



- Site Outline
- Search buffers in metres (m)
- River and coastal flooding:
- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m

3

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on [page 49 >](#)

Distance	Flood risk category
On site	N/A
0 - 50m	High

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0
----------------------------	----------

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0
----------------------------	----------

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0
----------------------------	----------

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0
----------------------------	----------

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones



- Site Outline
- Search buffers in metres (m)
- Flood zone 2
- Flood zone 3

7.6 Flood Zone 2

Records within 50m

1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on [page 49](#) >

Location	Type
44m W	Zone 2 - (Fluvial /Tidal Models)

This data is sourced from the Environment Agency and Natural Resources Wales.



7.7 Flood Zone 3

Records within 50m

1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

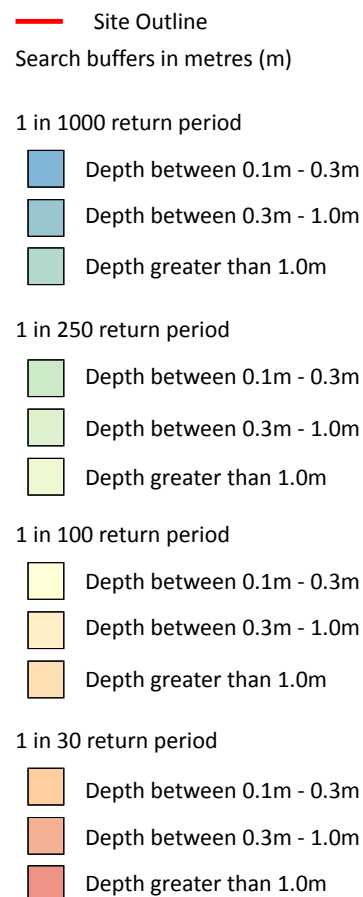
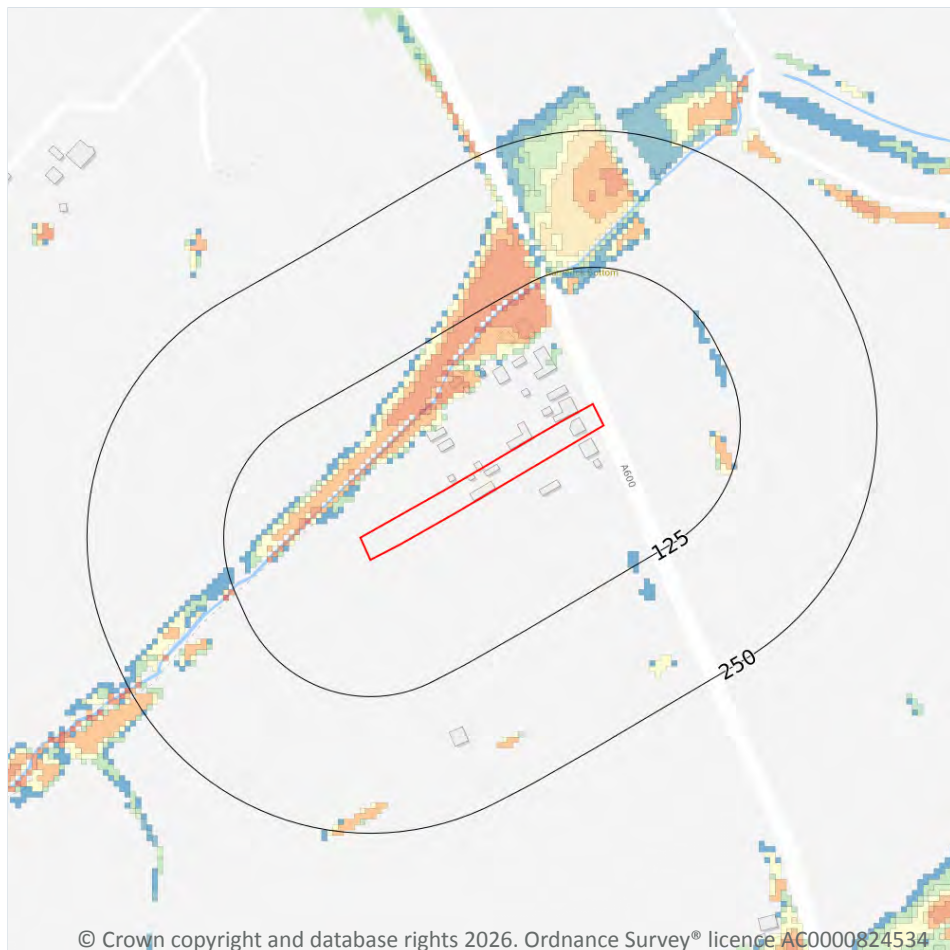
Features are displayed on the River and coastal flooding map on [page 49](#) >

Location	Type
40m NW	Zone 3 - (Fluvial /Tidal Models)

This data is sourced from the Environment Agency and Natural Resources Wales.



8 Surface water flooding



8.1 Surface water flooding

Highest risk on site

Negligible

Highest risk within 50m

1 in 30 year, Greater than 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on [page 53 >](#)

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

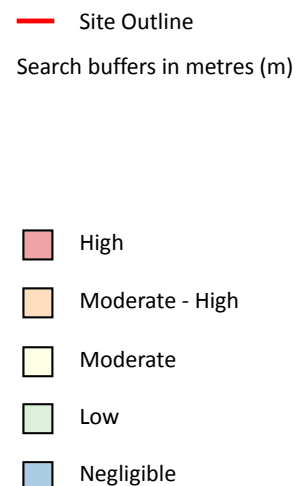
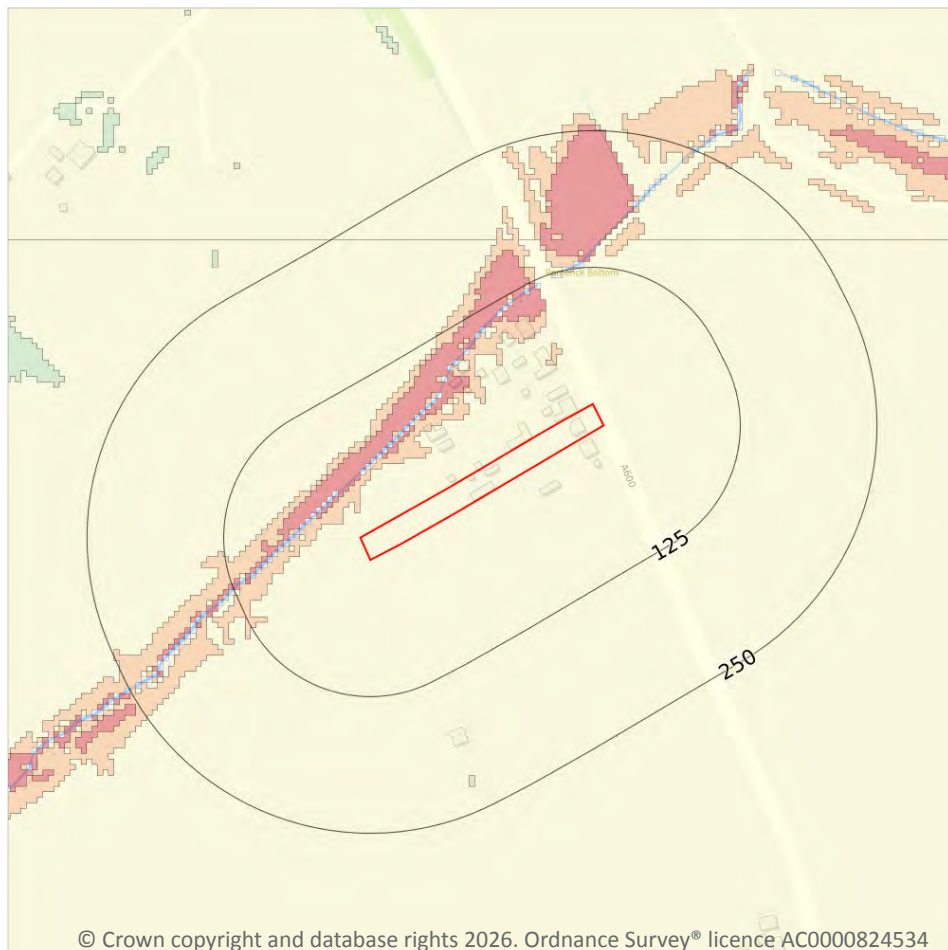
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Moderate

Highest risk within 50m

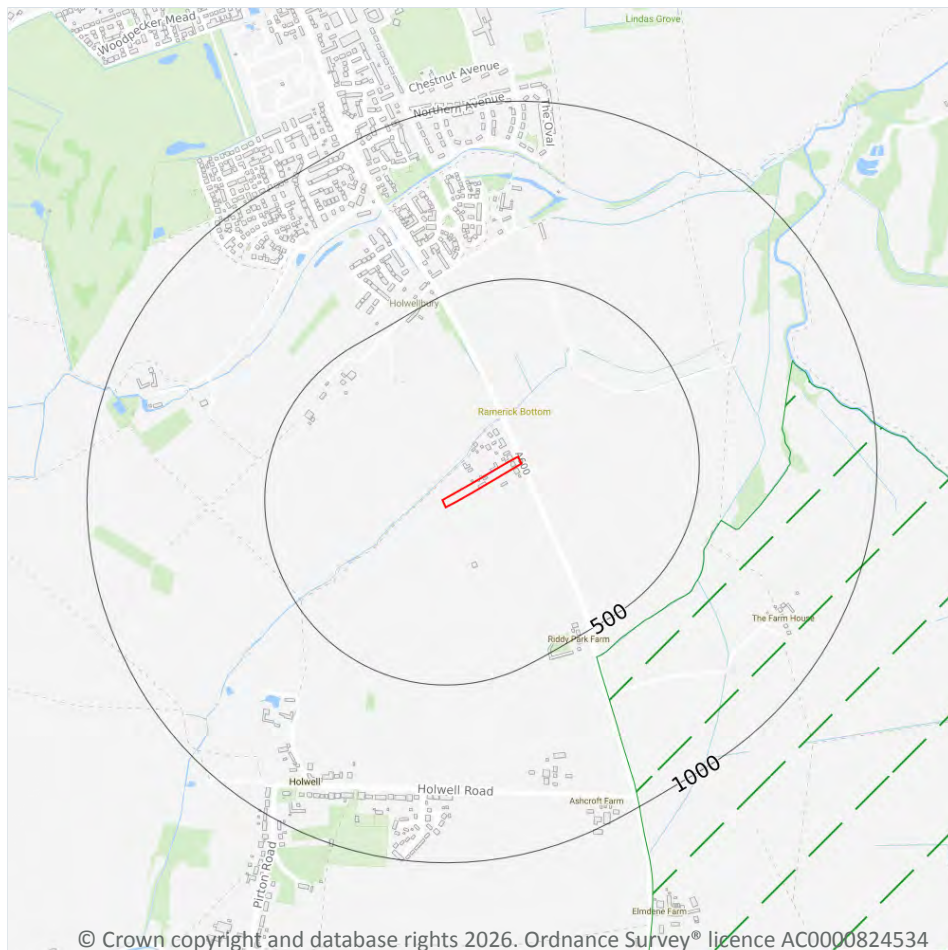
High

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on [page 55 >](#)

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- ▨ Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

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

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

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

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

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

10.6 Local Nature Reserves (LNR)

Records within 2000m**0**

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

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

10.7 Designated Ancient Woodland

Records within 2000m**0**

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

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

10.8 Biosphere Reserves

Records within 2000m**0**

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

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

10.9 Forest Parks

Records within 2000m**0**

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

This data is sourced from the Forestry Commission.



10.10 Marine Conservation Zones

Records within 2000m

0

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

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

10.11 Green Belt

Records within 2000m

1

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

Features are displayed on the Environmental designations map on [page 56](#) >

ID	Location	Name	Local Authority name
1	561m SE	London Green Belt	North Hertfordshire

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

10.12 Proposed Ramsar sites

Records within 2000m

0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

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

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



10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

7

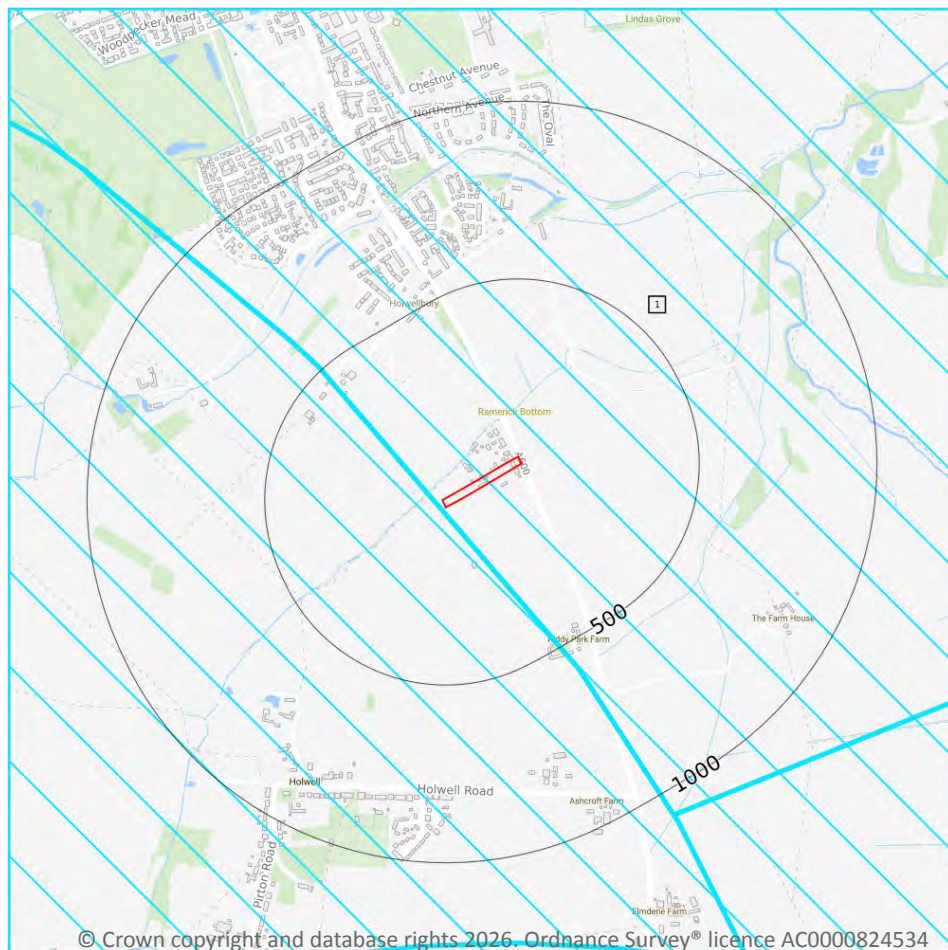
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	Great Ouse NVZ	Surface Water	391	Existing
On site	Anglian Chalk	Groundwater	71	Existing
1349m N	Woburn Sands	Groundwater	76	Existing
1727m N	Anglian Chalk	Groundwater	71	Existing
1727m N	Great Ouse NVZ	Surface Water	391	Existing
1732m N	Woburn Sands	Groundwater	76	Existing
1976m NW	Anglian Chalk	Groundwater	71	Existing

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



SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

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

Features are displayed on the SSSI Impact Zones and Units map on [page 61](#) >

ID	Location	Type of developments requiring consultation
1	On site	https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0300000000000&notes=&location=518695,236740%20(IRZ%20polygon%20centre)

This data is sourced from Natural England.



10.18 SSSI Units

Records within 2000m

0

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

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



11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

11.3 National Parks

Records within 250m

0

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

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

11.4 Listed Buildings

Records within 250m

0

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



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

11.5 Conservation Areas

Records within 250m

0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m

0

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

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

11.7 Registered Parks and Gardens

Records within 250m

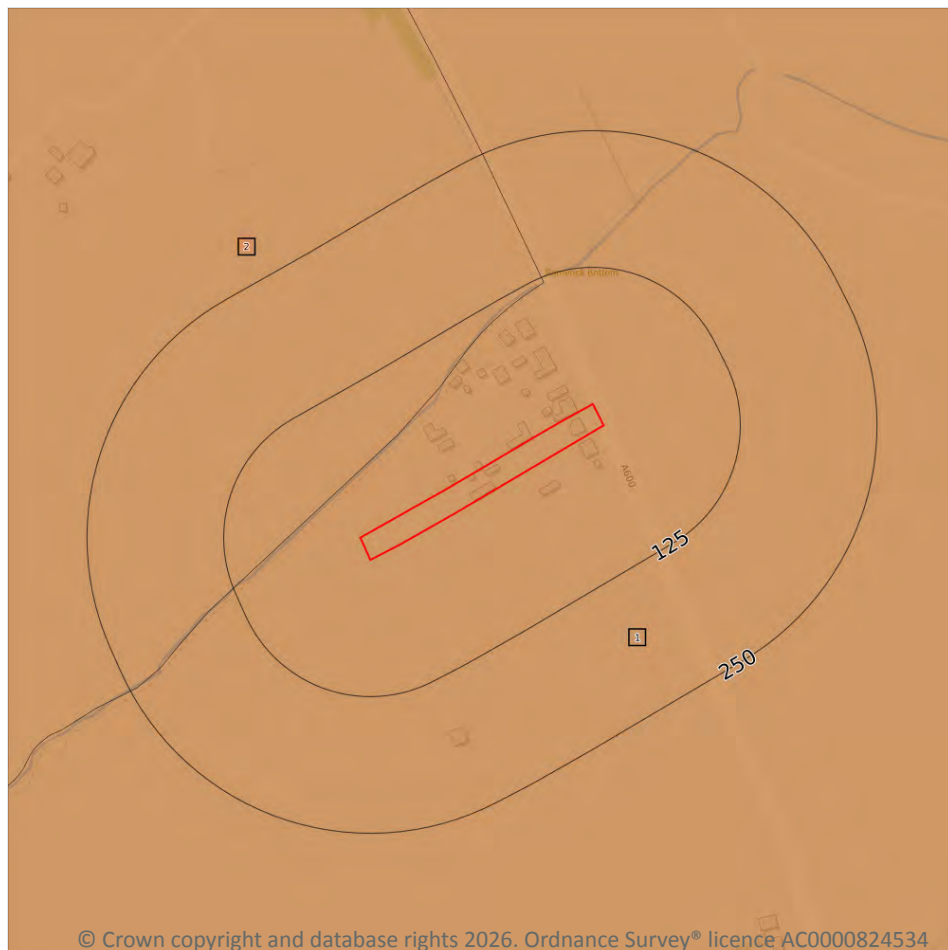
0

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

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



12 Agricultural designations



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

12.1 Agricultural Land Classification

Records within 250m

2

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

Features are displayed on the Agricultural designations map on [page 65](#) >

ID	Location	Classification	Description
1	On site	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
2	45m NW	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m

0

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

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

12.3 Tree Felling Licences

Records within 250m

0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

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

This data is sourced from Natural England.



12.5 Countryside Stewardship Schemes

Records within 250m**2**

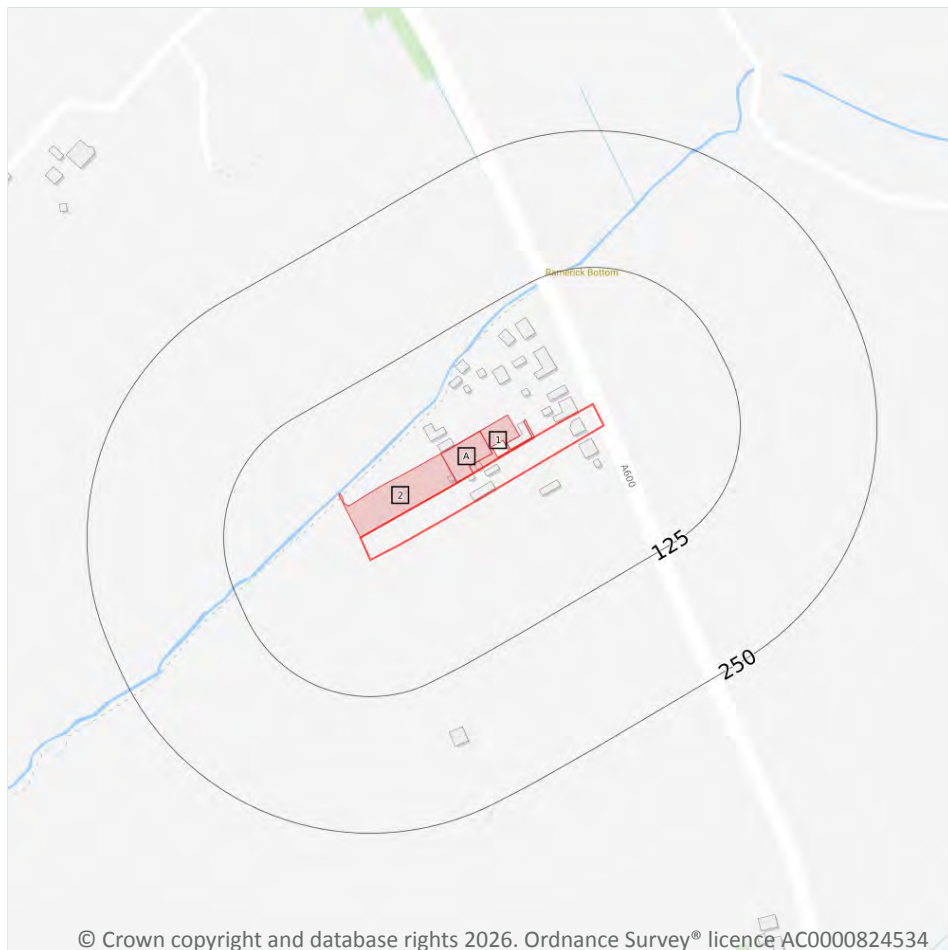
Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

Location	Reference	Scheme	Start Date	End Date
13m E	1029228	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025
198m SE	1065502	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025

This data is sourced from Natural England.



13 Habitat designations



- Site Outline
- Search buffers in metres (m)
- Priority Habitat Inventory
- Open Mosaic Habitat
- Limestone Pavement Orders
- Habitat Networks
- Primary Habitat
- Restorable Habitat
- Associated Habitats
- Habitat Restoration-Creation
- Network Enhancement Zone 1
- Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

4

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

Features are displayed on the Habitat designations map on [page 68](#) >

ID	Location	Main Habitat	Other habitats
1	On site	No main habitat but additional habitats present	Additional: TORCH (INV 50%)
2	On site	No main habitat but additional habitats present	Additional: TORCH (INV 50%)
A	On site	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset
A	30m NW	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset



This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

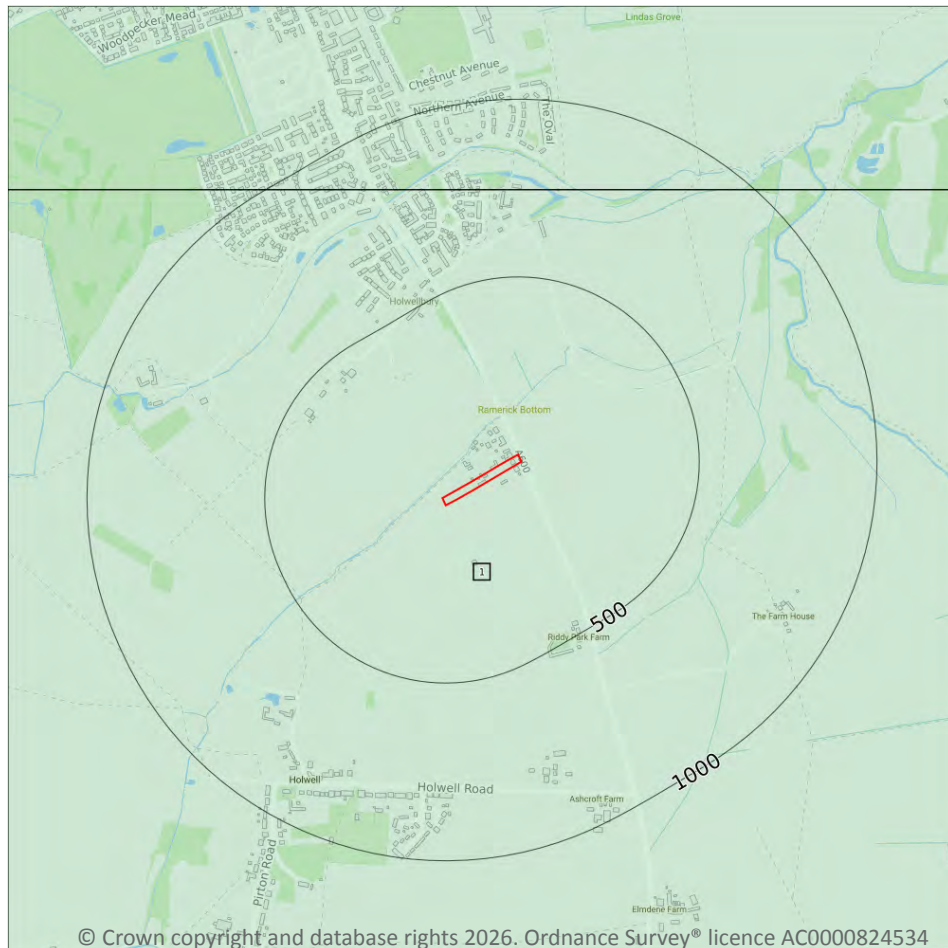
0

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

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- Full coverage
 - Partial coverage
 - No coverage

14.1 10k Availability

Records within 500m

1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on [page 70](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	TL13SE

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground



- Site Outline
- Search buffers in metres (m)
- Reclaimed ground
 - Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

2

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

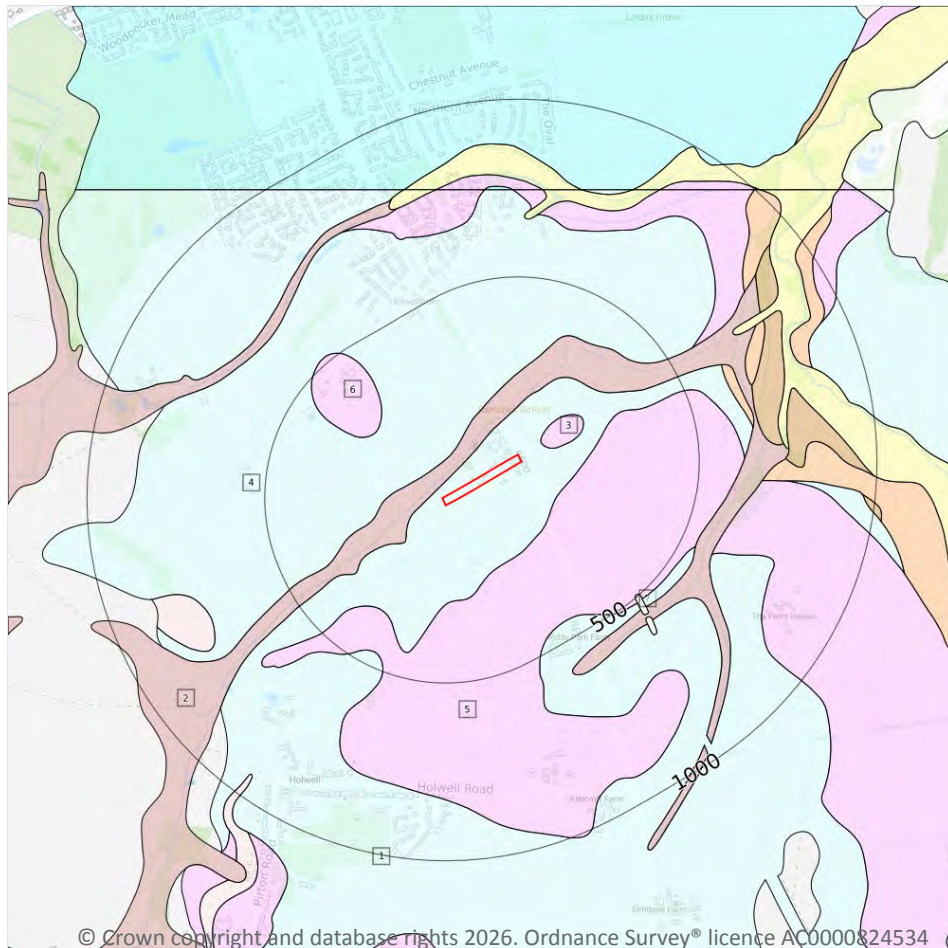
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on [page 71](#) >

ID	Location	LEX Code	Description	Rock description
1	150m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial deposit
A	495m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial deposit

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m

7

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 72 >](#)

ID	Location	LEX Code	Description	Rock description
1	On site	LOFT-DMTN	Lowestoft Formation-Diamicton	Diamicton
2	27m NW	HEAD-XCZSV	Head-Clay, Silt, Sand And Gravel	Clay, silt, sand and gravel
3	73m NE	GFDU-XCZSV	Glaciofluvial Deposits-Clay, Silt, Sand And Gravel	Clay, silt, sand and gravel



ID	Location	LEX Code	Description	Rock description
4	82m NW	LOFT-DMTN	Lowestoft Formation-Diamicton	Diamicton
5	138m SE	GFDU-XCZSV	Glaciofluvial Deposits-Clay, Silt, Sand And Gravel	Clay, silt, sand and gravel
6	263m NW	GFDU-XCZSV	Glaciofluvial Deposits-Clay, Silt, Sand And Gravel	Clay, silt, sand and gravel
7	495m SE	SUPNM-UNKNOWN	Superficial Theme Not Mapped [For Digital Map Use Only]- Unknown/unclassified Entry	Unknown/unclassified entry

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



This map shows the area around Harnock Bottom, a location marked by a red rectangle. The map features contour lines indicating elevations of 500 and 1000 feet. Key place names include Harnock Bottom, Holwell, and The Farm. The map also shows various roads, including Chestnut Avenue and Holwell Road. A scale bar at the bottom indicates a distance of 1000 feet. The map is credited to Ordnance Survey, with a copyright notice at the bottom: "© Crown copyright and database rights 2026. Ordnance Survey® licence AC0000824534".

74

14.6 Bedrock faults and other linear features (10k)

Records within 500m

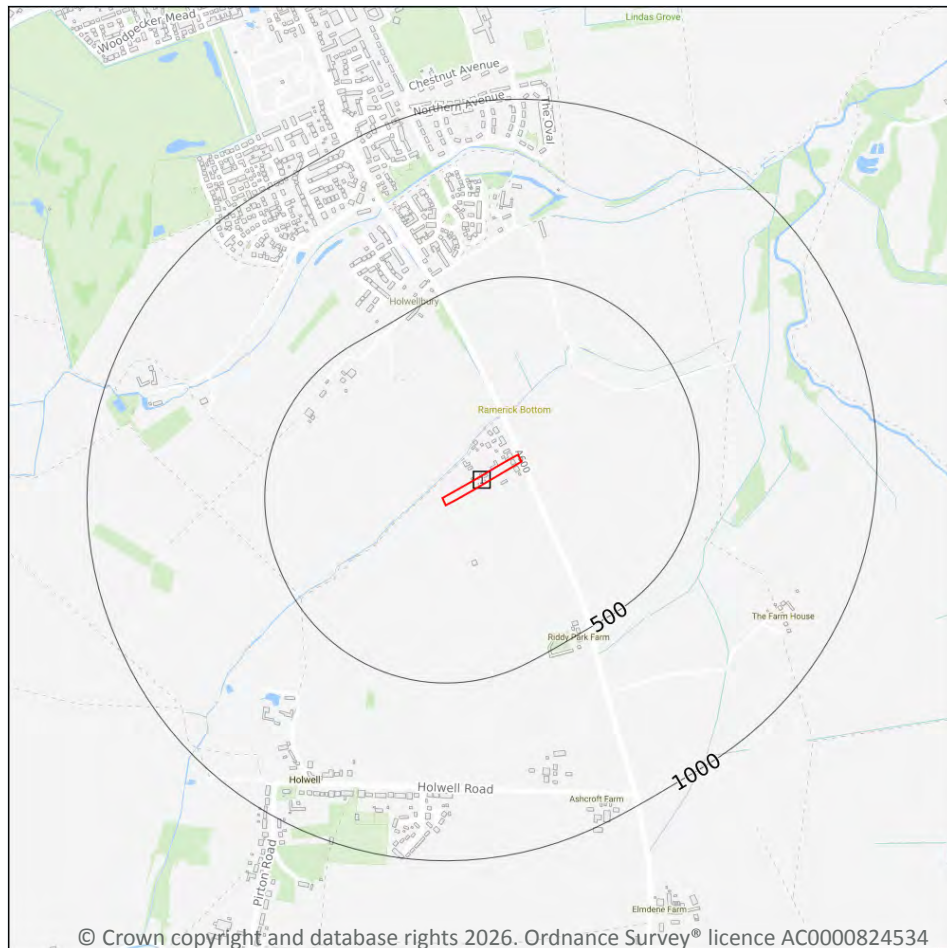
0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

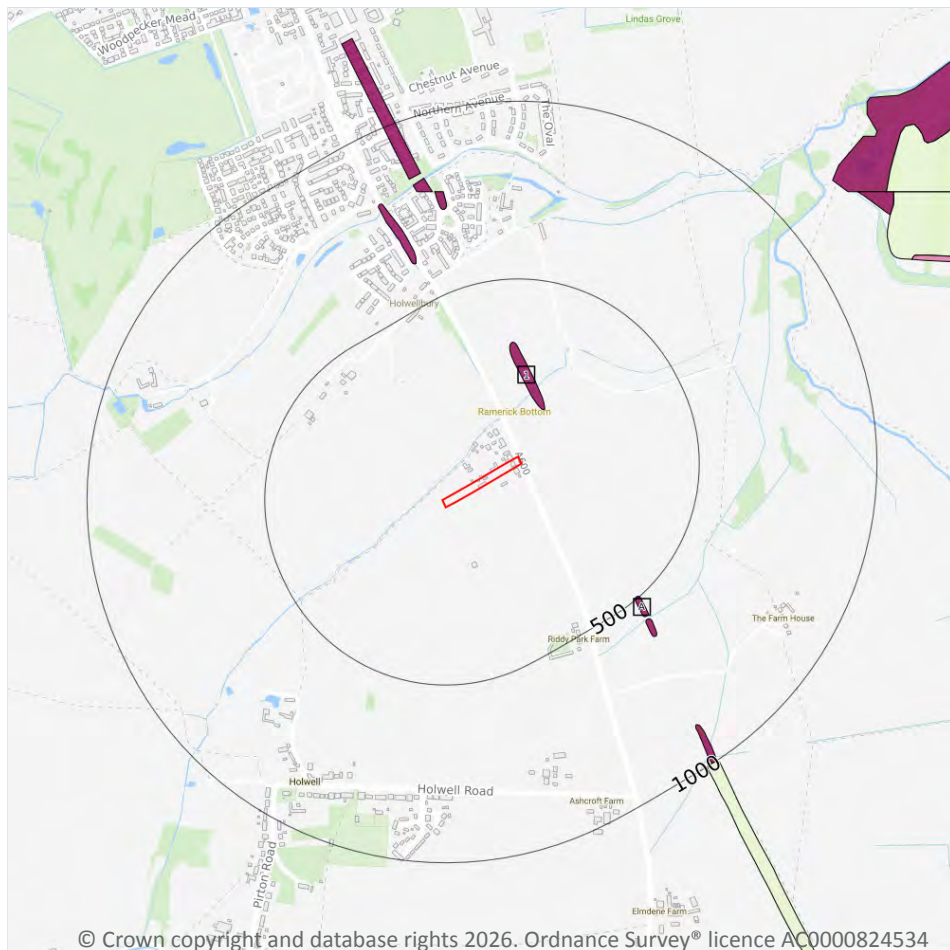
Features are displayed on the Geology 1:50,000 scale - Availability map on [page 76](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW221_hitchin_v4

This data is sourced from the British Geological Survey.



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



- Site Outline
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

2

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.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on [page 77](#) >

ID	Location	LEX Code	Description	Rock description
1	150m NE	MGR-ARTDP	Made Ground	Artificial deposit
A	495m SE	MGR-ARTDP	Made Ground	Artificial deposit

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

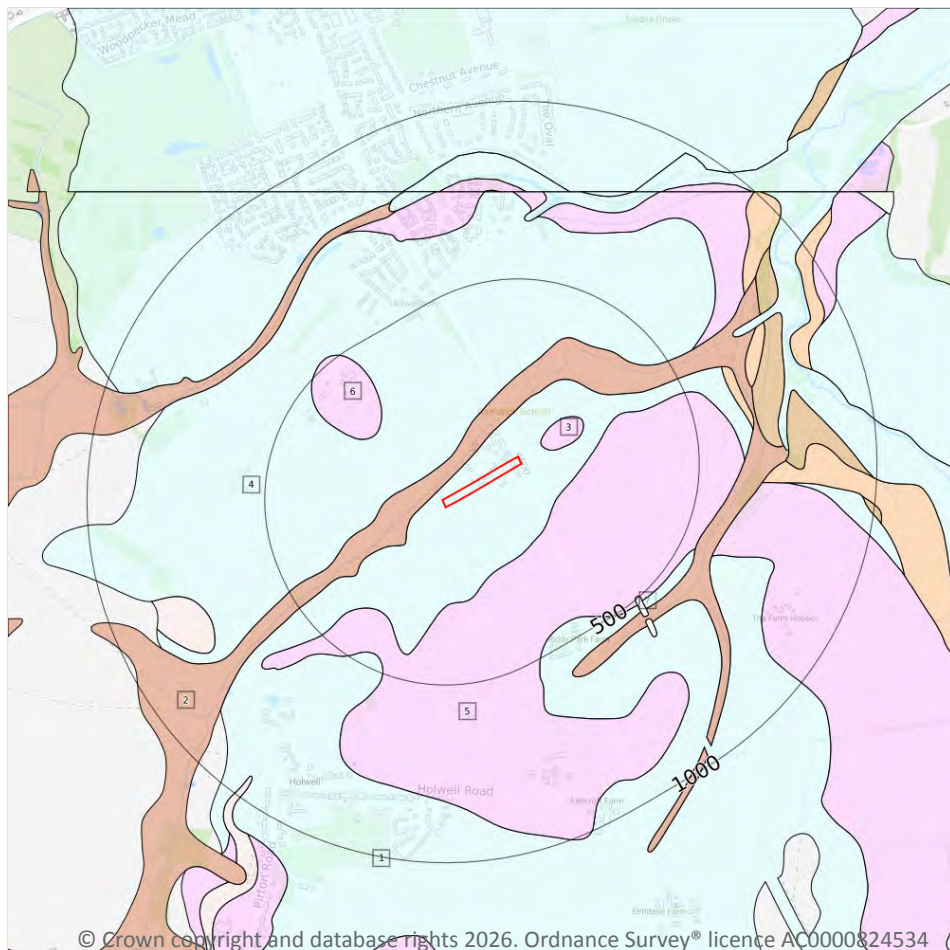
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m

7

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 79 >](#)

ID	Location	LEX Code	Description	Rock description
1	On site	LOFT-DMTN	Lowestoft Formation	Diamicton
2	27m NW	HEAD-XCZSV	Head	Clay, silt, sand and gravel
3	73m NE	GFDU-XCZSV	Glaciofluvial deposits	Clay, silt, sand and gravel



ID	Location	LEX Code	Description	Rock description
4	82m NW	LOFT-DMTN	Lowestoft Formation	Diamicton
5	138m SE	GFDU-XCZSV	Glaciofluvial deposits	Clay, silt, sand and gravel
6	263m NW	GFDU-XCZSV	Glaciofluvial deposits	Clay, silt, sand and gravel
7	495m SE	SUPNM-UNKNOWN	Superficial Theme Not Mapped	Unknown/unclassified entry

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	2
---------------------------	----------

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Moderate	Low
36m NW	Mixed	High	Very Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0
----------------------------	----------

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

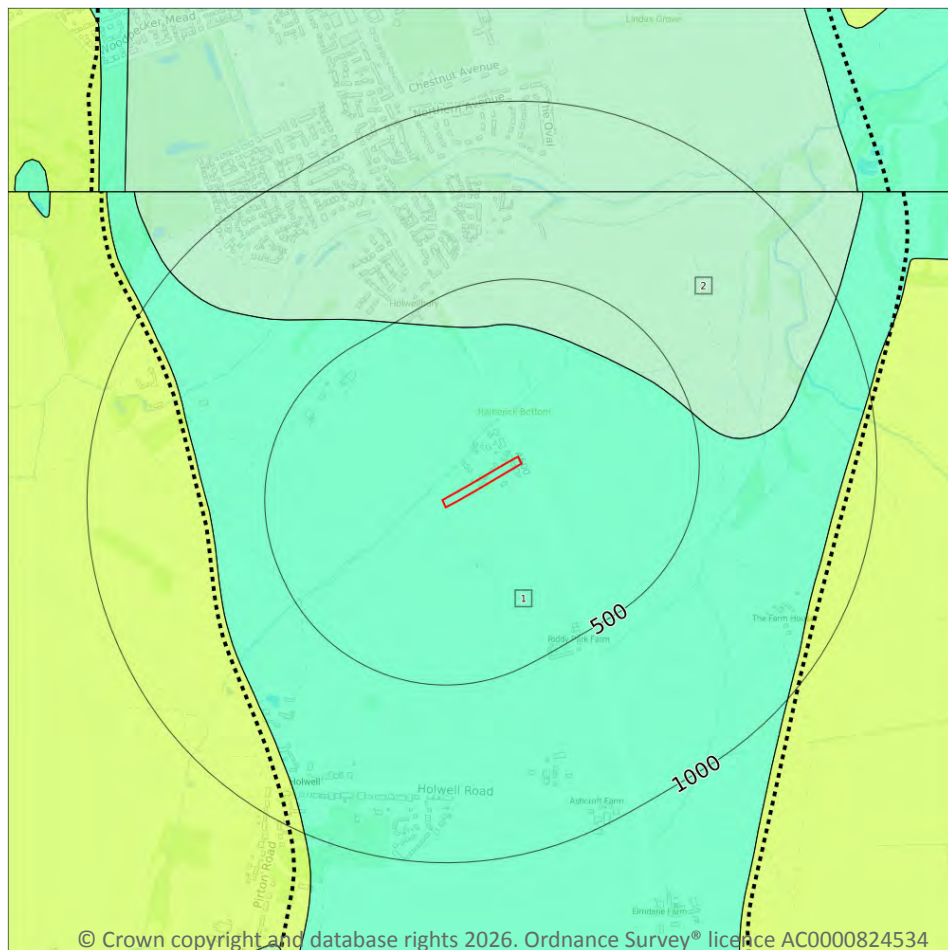
Records within 50m	0
---------------------------	----------

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

..... Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m

2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 81](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	GLT-MDST	Gault Formation-Mudstone	Albian
2	354m N	WBS-SDST	Woburn Sands Formation-Sandstone	Aptian

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m**1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

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

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

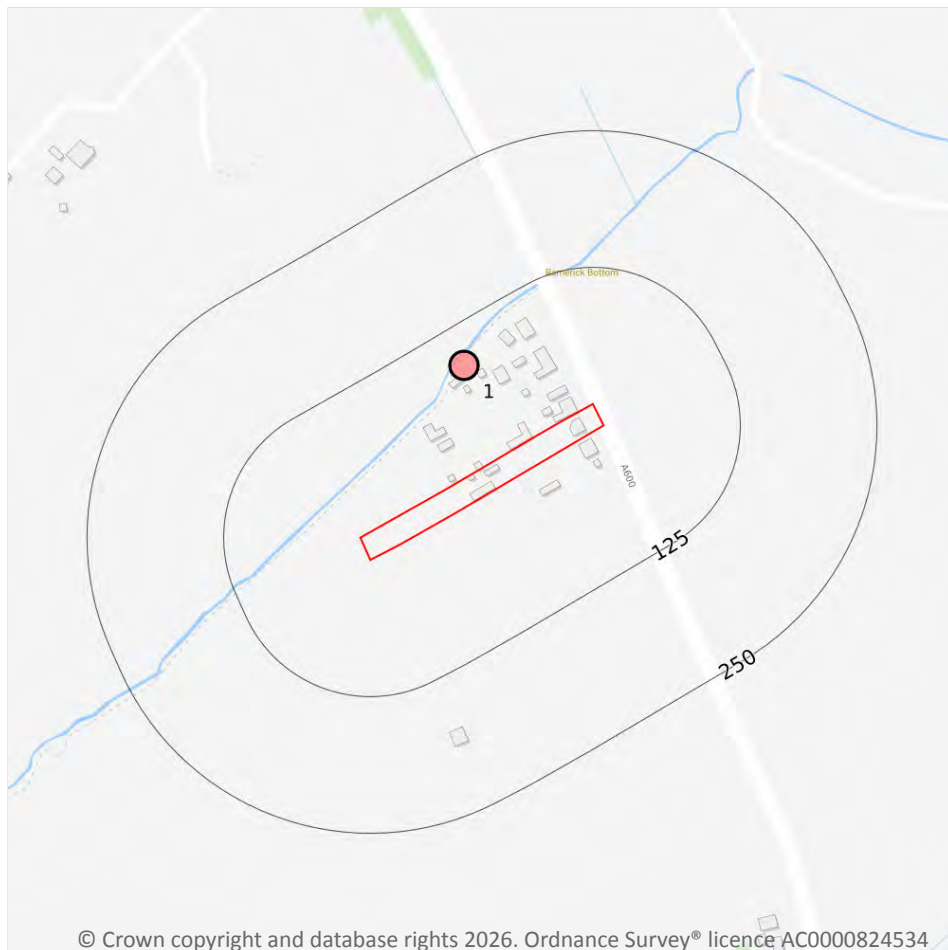
Records within 500m**0**

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

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16.1 BGS Boreholes

Records within 250m

1

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

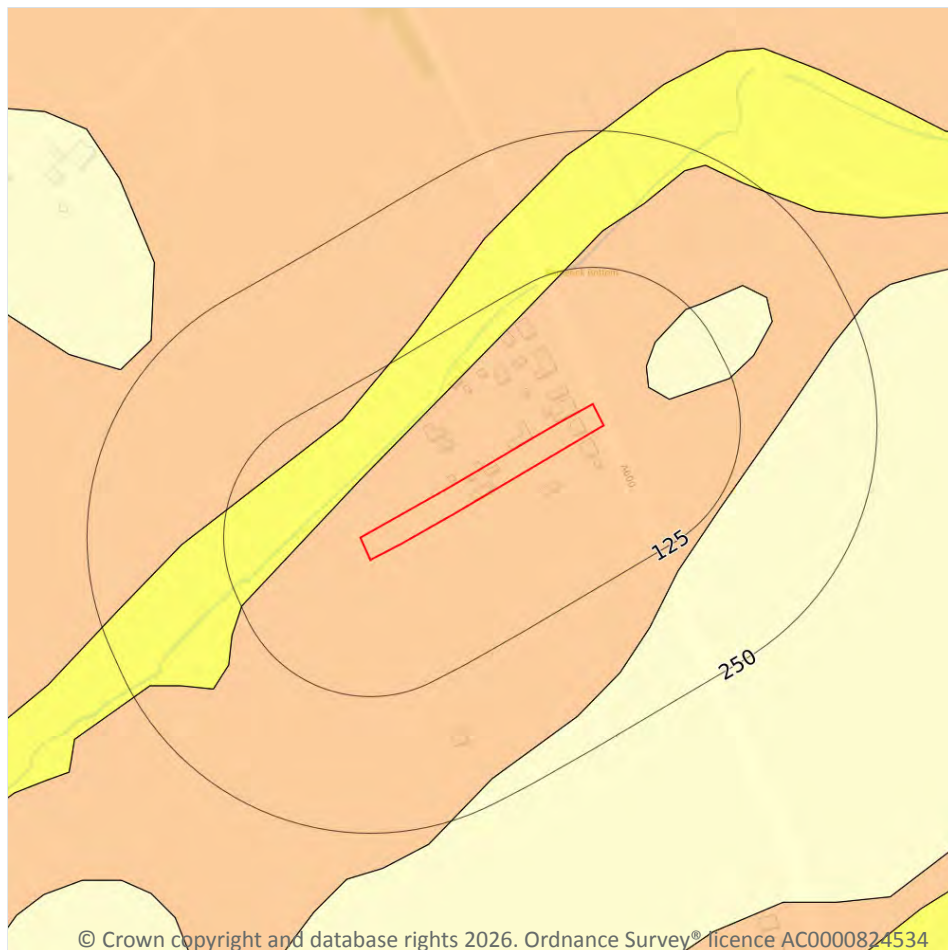
Features are displayed on the Boreholes map on [page 83](#) >

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	89m NW	517060 234290	RAMERICK NURSERIES HOLWELL	123.14	N	528983 ↗

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



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

17.1 Shrink swell clays

Records within 50m

2

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

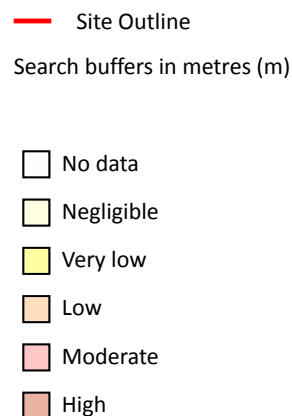
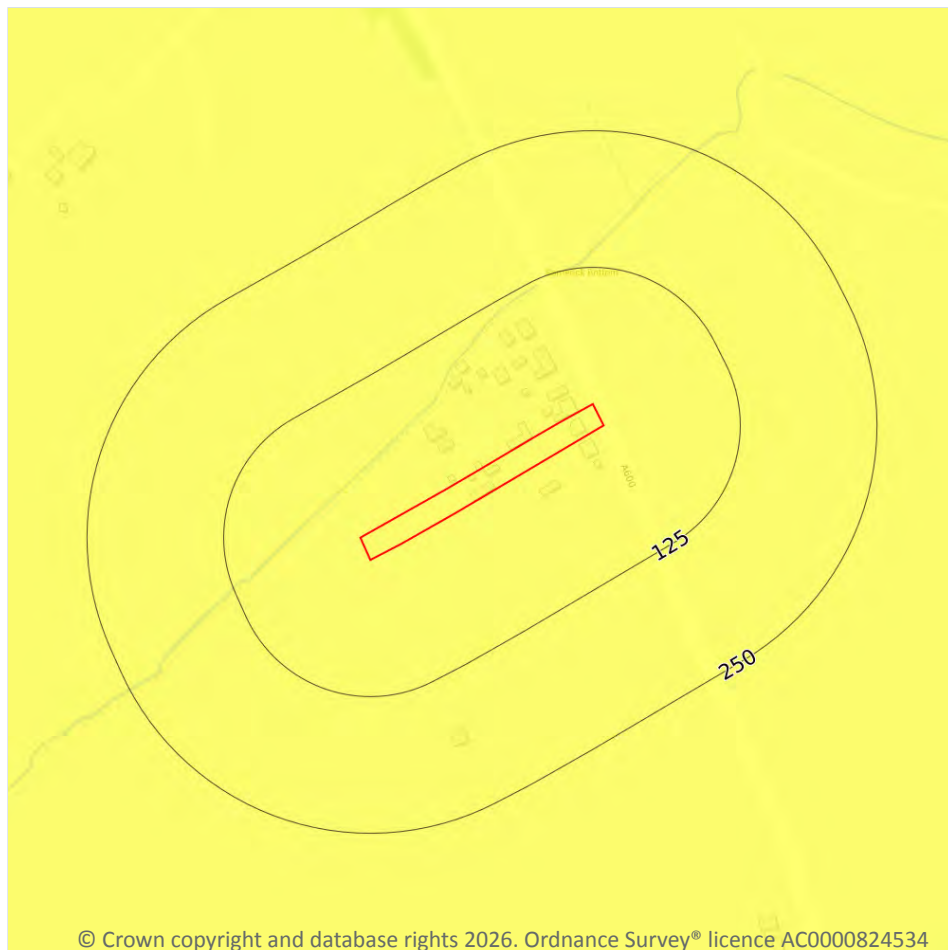
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 84 >](#)

Location	Hazard rating	Details
On site	Low	Ground conditions predominantly medium plasticity.
36m NW	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



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17.2 Running sands

Records within 50m

1

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

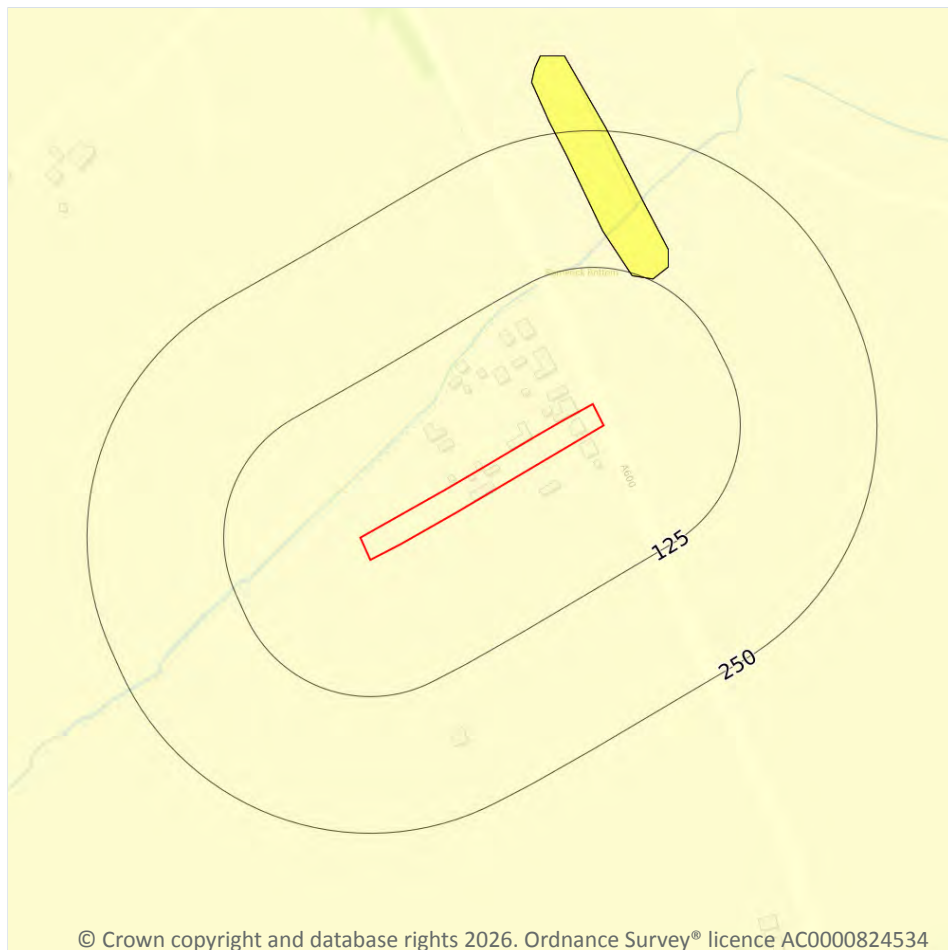
Features are displayed on the Natural ground subsidence - Running sands map on [page 85](#) >

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



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

17.3 Compressible deposits

Records within 50m

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.

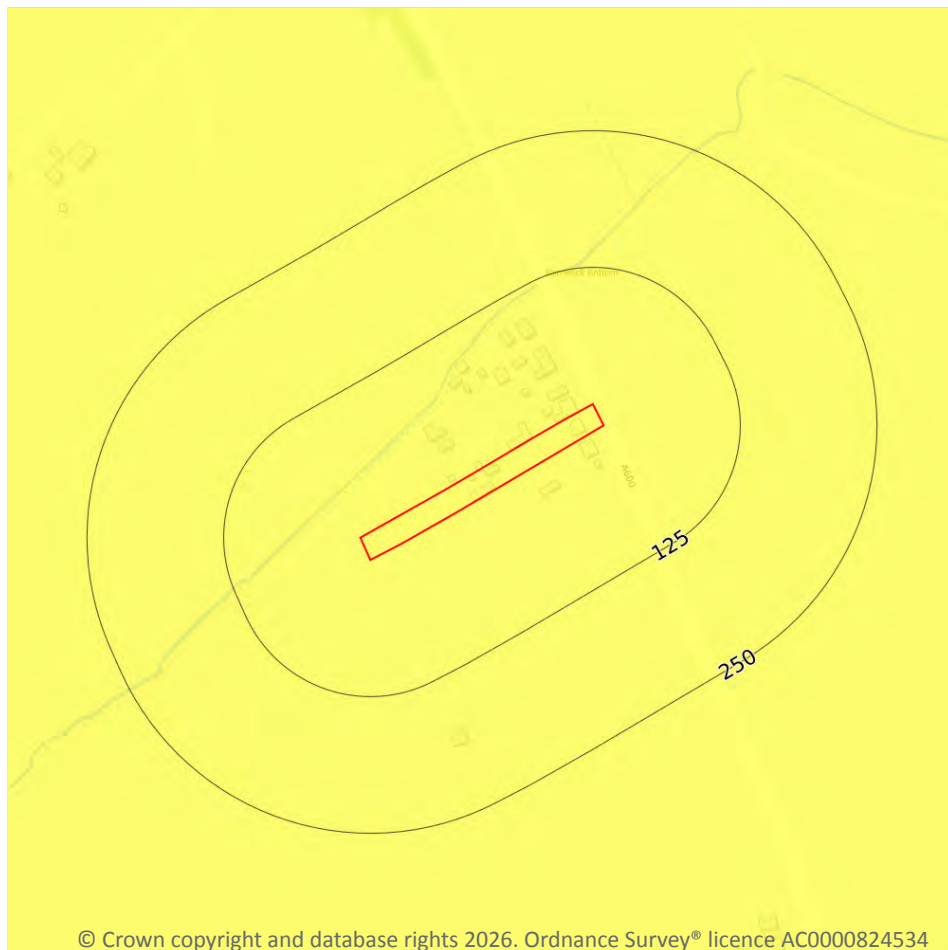
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 86 >](#)

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.

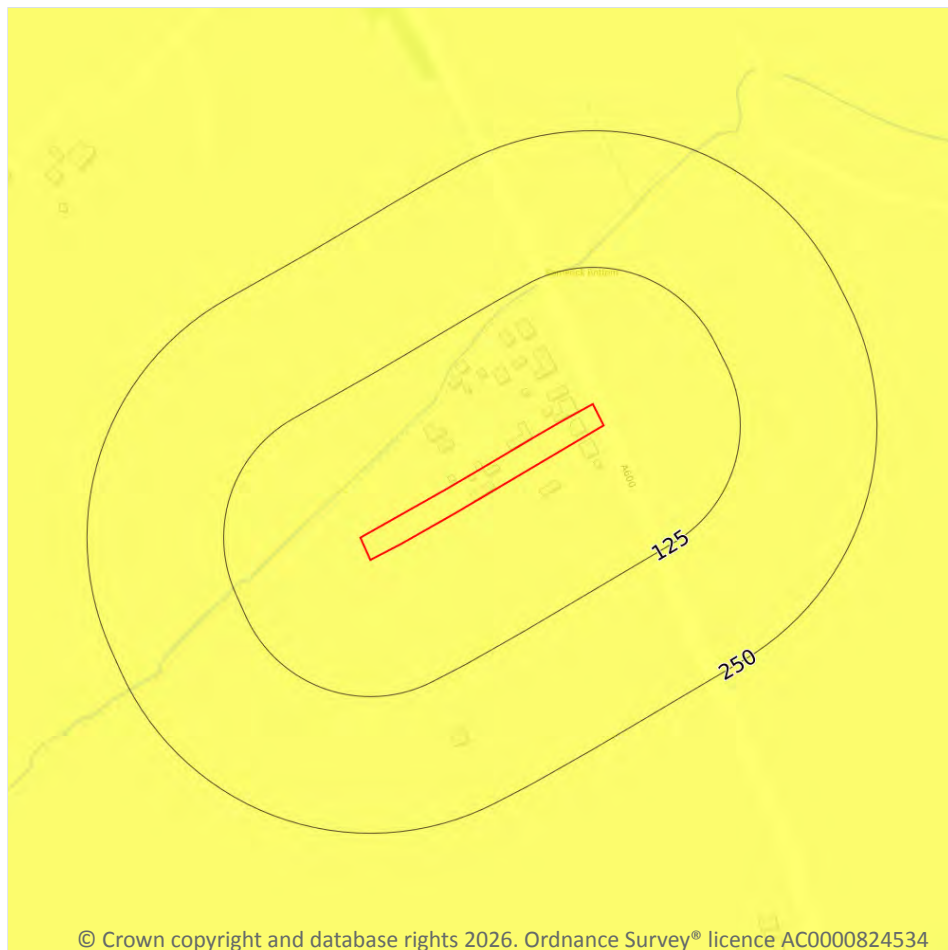
Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 87 >](#)

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.

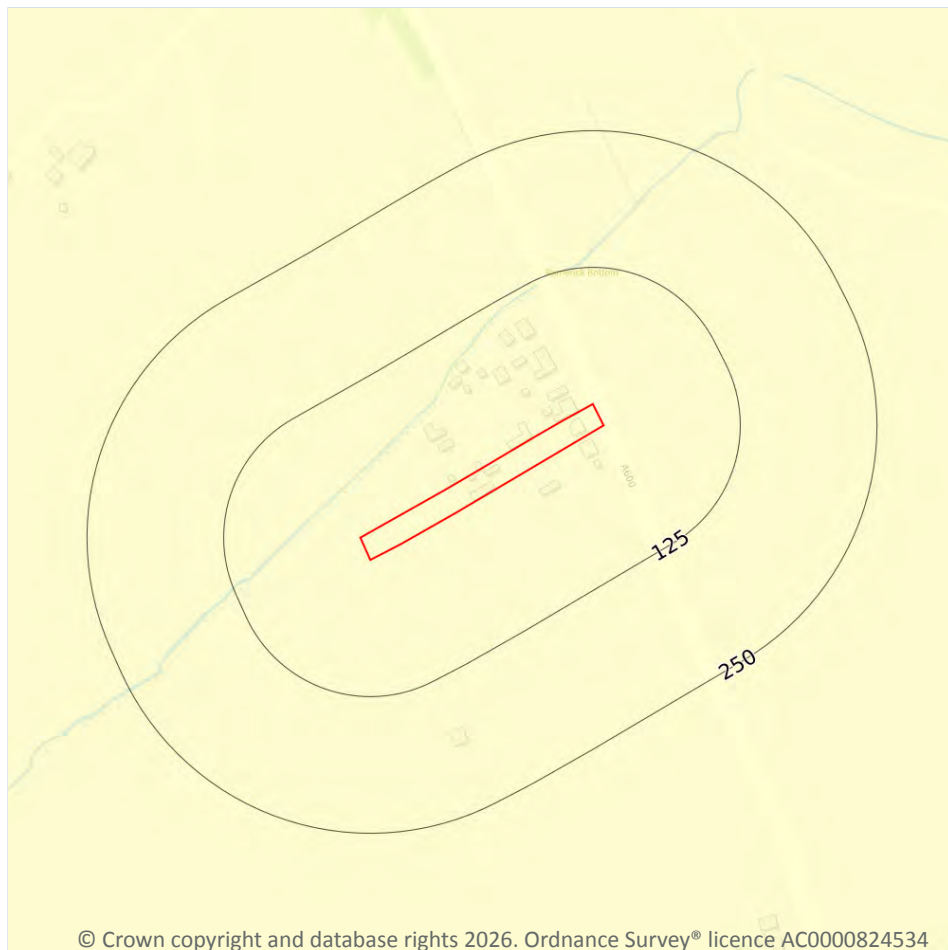
Features are displayed on the Natural ground subsidence - Landslides map on [page 88](#) >

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



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

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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 89](#)

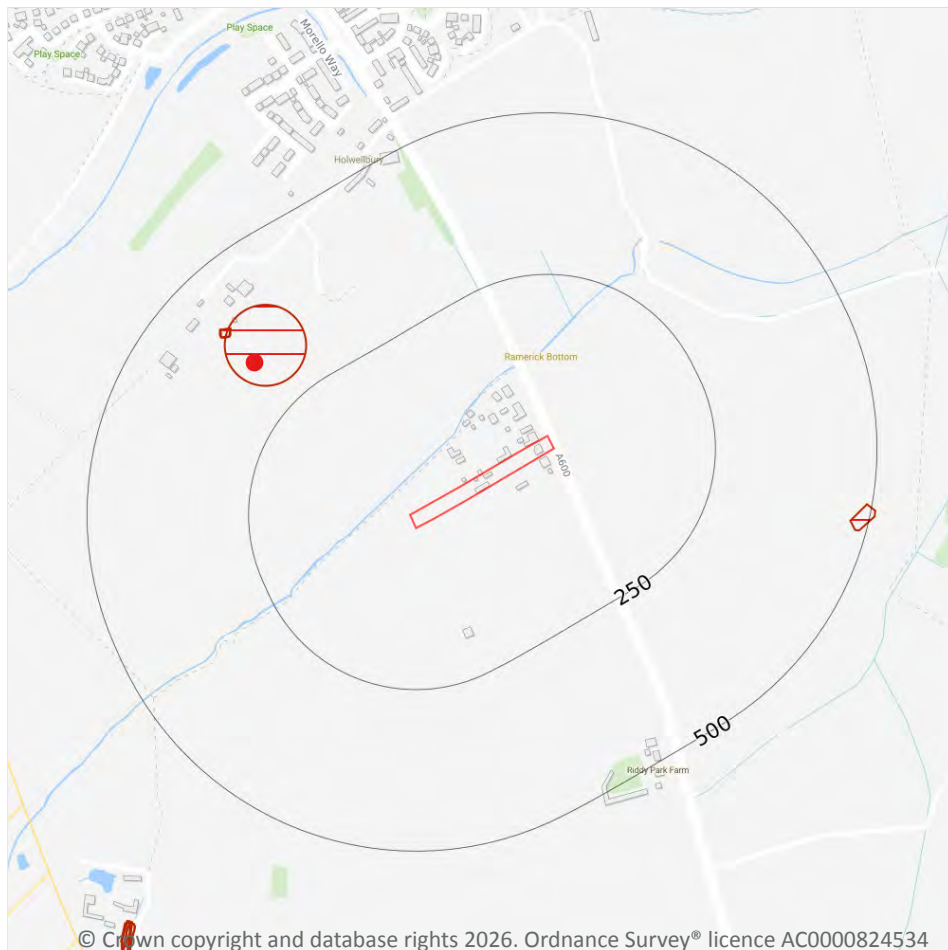
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



This data is sourced from the British Geological Survey.



18 Mining and ground workings



- Site Outline
- Search buffers in metres (m)
- BritPits
- ▤ Surface ground workings
- ▨ Underground workings
- ▤ Underground mining extents
- ▨ Historical mineral planning areas
- ▧ TCA non-coal mining
- Non Coal Mining
- ▤ Sporadic underground mining of restricted extent possible
- ▨ Localised small scale underground mining possible
- ▧ Small scale mining possible
- ▤ Underground mining known or likely within or in close proximity
- ▨ Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m

1

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 91](#) >

ID	Location	Details	Description
A	337m NW	Name: Holwellbury Gravel Pit Address: Lower Stondon, HENLOW, Bedfordshire Commodity: Sand & Gravel Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	0
----------------------------	----------

Historical land uses identified from Ordnance Survey® mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

This 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

2

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 91 >](#)

ID	Location	Name	Commodity	Class	Likelihood
2	680m 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.
-	958m E	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.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site

0

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

This data is sourced from Johnson Poole and Bloomer.



18.8 The Coal Authority non-coal mining

Records within 500m**0**

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m**0**

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m**0**

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m**0**

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.



18.12 Coal mining

Records on site	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

19.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m

0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m

0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey® maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

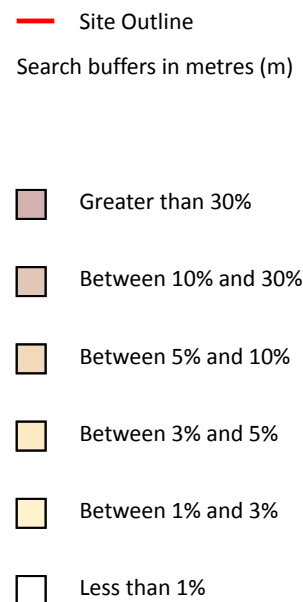
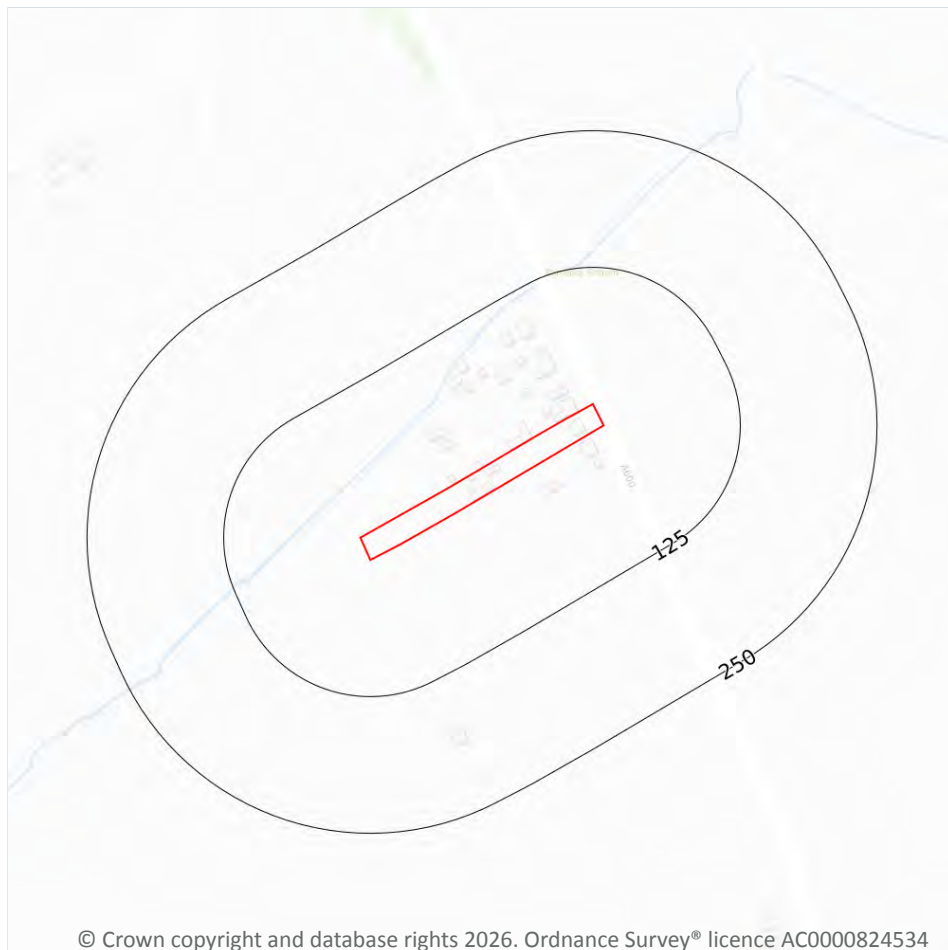
Not all 'holes' noted on Ordnance Survey® mapping will necessarily be present within this dataset.



This data is sourced from Groundsure.



20 Radon



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20.1 Radon

Records on site

1

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

Features are displayed on the Radon map on [page 98](#) >

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



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



21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m

4

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
36m NW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.



21.3 BGS Measured Urban Soil Chemistry

Records within 50m

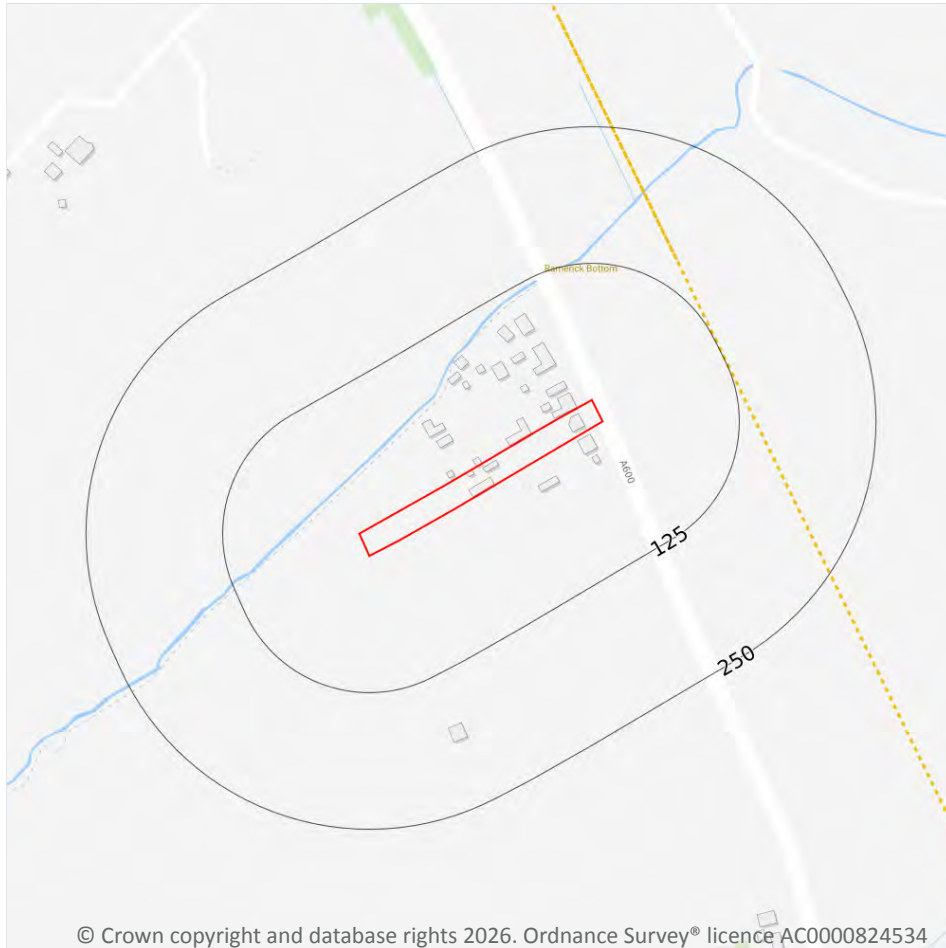
0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



22 Railway infrastructure and projects



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

22.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.



This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey® mapping.

This data is sourced from the Ordnance Survey®.

22.4 Historical railway and tunnel features

Records within 250m

0

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

This data is sourced from Ordnance Survey®/Groundsure.

22.5 Royal Mail tunnels

Records within 250m

0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m

2

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

Features are displayed on the Railway infrastructure and projects map on [page 102 >](#)

Location	Description
126m NE	Historical OSM
150m NE	Abandoned

This data is sourced from OpenStreetMap.



22.7 Railways

Records within 250m**0**

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

This data is sourced from Ordnance Survey® and OpenStreetMap.

22.8 Crossrail 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.

22.9 HS2

Records within 500m**0**

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference> ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-conditions-april-2026/ ↗.

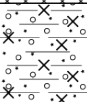
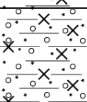
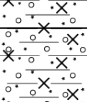


Appendix 3

Records of Boreholes WS01 to WS04 Results of gas/water monitoring

Lucion Investigating people and planet LUCION GROUND ENGINEERING LTD. Peterborough Tel : 01733 566566 <td colspan="4">Site: Land to rear of Little Arundel & Bramble Bank, Bedford Road, Holwell</td> <td colspan="2">WINDOW SAMPLE WS01</td>			Site: Land to rear of Little Arundel & Bramble Bank, Bedford Road, Holwell				WINDOW SAMPLE WS01	
11/05/2026			Final Depth 4.45 m	Equipment Dynamic Sampling Rig				
Samples and In Situ Testing			Water Levels (Casing)	Stratum Description		Legend	Depth (m)	
Depth (m)	Type	Results		MADE GROUND - Soft, brown, slightly gravelly SILT. Gravel of angular brick, concrete and quartzite. Laboratory analysis reported microscopic fibres and chrysotile (white) asbestos.			0.60	
0.30	D1	N14 (3/3,3,4,4)		Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk, flint and quartzite.				
0.60	D2			(GLACIAL DEPOSIT)				
0.90	D3							
1.10	D4							
1.20	D5			N16 (5/4,3,5,4)	Stiff, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk, flint and quartzite.			2.00
1.20-2.00	U1	(GLACIAL DEPOSIT)						
1.35-1.65	SPT							
2.00	D6							
2.00-3.00	U2	N23 (6/6,5,6,6)	(GLACIAL DEPOSIT)			4.45		
2.15-2.45	SPT							
3.00	D7							
3.00-4.00	U3		End of Borehole at 4.45m					
3.15-3.45	SPT							
4.00	D8							
4.15-4.45	SPT	N29 (7/6,6,8,9)						

Lucion Protecting people and planet LUCION GROUND ENGINEERING LTD. Peterborough Tel : 01733 566566				Site: Land to rear of Little Arundel & Bramble Bank, Bedford Road, Holwell				WINDOW SAMPLE WS02	
11/05/2026				Final Depth 4.45 m		Equipment Dynamic Sampling Rig			
Samples and In Situ Testing			Water Levels (Casing)	Well	Stratum Description	Legend	Depth (m)		
Depth (m)	Type	Results							
0.30	D1	N11 (4/1,3,4,3)							

Lucion Investigating people and planet LUCION GROUND ENGINEERING LTD. Peterborough Tel : 01733 566566 <td colspan="4">Site: Land to rear of Little Arundel & Bramble Bank, Bedford Road, Holwell</td> <td colspan="2">WINDOW SAMPLE WS03</td>			Site: Land to rear of Little Arundel & Bramble Bank, Bedford Road, Holwell				WINDOW SAMPLE WS03		
11/05/2026			Final Depth 4.45 m	Equipment Dynamic Sampling Rig					
Samples and In Situ Testing			Water Levels (Casing)	Stratum Description	Legend	Depth (m)			
Depth (m)	Type	Results							
0.30	D1	N9 (2/2,2,2,3)		MADE GROUND - Soft, brown, slightly sandy, slightly gravelly SILT. Gravel of angular brick.		0.50			
0.60	D2			Soft, brown, slightly gravelly, sandy, silty CLAY. Gravel of angular to rounded flint, quartzite and chalk.					
0.90	D3			(GLACIAL DEPOSIT)					
1.10	D4			Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk and flint.		1.20			
1.20	D5								
1.20-2.00	U1								
1.35-1.65	SPT	(GLACIAL DEPOSIT)			2.00				
2.00	D6	Stiff, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk and flint.							
2.00-3.00	U2								
2.15-2.45	SPT	(GLACIAL DEPOSIT)							
3.00	D7	N20 (5/4,5,6,5)		Stiff, grey brown, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk, flint and quartzite with rare ironstone.		2.50			
3.00-4.00	U3								
3.15-3.45	SPT								
4.00	D8								
4.15-4.45	SPT						(GLACIAL DEPOSIT)		
End of Borehole at 4.45m						4.45			

Lucion protecting people and planet LUCION GROUND ENGINEERING LTD. Peterborough Tel : 01733 566566				Site: Land to rear of Little Arundel & Bramble Bank, Bedford Road, Holwell				WINDOW SAMPLE WS04				
11/05/2026				Final Depth 4.45 m		Equipment Dynamic Sampling Rig						
Samples and In Situ Testing			Water Levels (Casing)	Well	Stratum Description	Legend	Depth (m)					
Depth (m)	Type	Results										
0.30	D1	N8 (4/2,2,2,2)			MADE GROUND - Soft, brown, slightly sandy, slightly gravelly SILT. Gravel of angular flint and quartzite.		0.40					
0.60	D2				Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk and flint.							
0.90	D3				(GLACIAL DEPOSIT)							
1.10	D4											
1.20	D5											
1.20-2.00	U1	N16 (5/4,4,4,4)			(GLACIAL DEPOSIT)		2.00					
1.35-1.65	SPT											
2.00	D6							Stiff, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk and flint.				
2.00-3.00	U2							(GLACIAL DEPOSIT)				
2.15-2.45	SPT								Stiff, brown grey, slightly sandy, slightly gravelly, silty CLAY. Gravel of angular to rounded chalk, flint, quartzite and rare black shale.			
3.00	D7	N23 (6/4,5,7,7)			(GLACIAL DEPOSIT)		2.40					
3.00-4.00	U3											
3.15-3.45	SPT											
4.00	D8							N25 (7/5,6,6,8)				
4.15-4.45	SPT											
					End of Borehole at 4.45m		4.45					
Remarks							Hole Diameter by Depth		Project No.			
1. Starter pit excavated to 1.20m depth. 2. Gas monitoring standpipe installed to 3.00m depth.							Depth (m)	Diameter (mm)	149095			
							2.00	87	Scale: 1:50	Page 1/1		
							3.00	77				
							4.45	67				
KEY				Groundwater Strike				Groundwater Observations				
D - Disturbed Sample		MP - Mackintosh Probe		Strike (m)	Rose To (m)	Casing (m)	Sealed	Remarks	Date	Depth (m)	Casing (m)	Water (m)
B - Bulk Sample		V - Vane Shear Test							11/05/2026	4.45		Dry
U - Undisturbed Sample		N/* - SPT Blows							22/05/2026	3.00	1.00	Dry
W - Water Sample		ES - Environmental Sample										
S/C - SPT Spoon/Cone		▽ - Level On Completion										
⚡ - Water Strike		⚡ - Level Casing Withdrawn										
⬆ - Water Rise		⬆ - Standpipe Level										

[illegible]

Appendix 4

Laboratory Geotechnical Test Results

Lucion Ground Engineering Limited

Summary of Test Results

Project No. 149095	Project Name Land to rear of Little Arundel & Bramble Bank, Bedford Road, Holwell
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Sample					Density		Classification											Sulphates (SO4) 2:1				CBR						
Location	Ref	Top	Base	Type	Bulk	Dry	Moisture Content %			Class	LL	PL	PI	Retained on 425µm	Type	Max Deviator Stress	Cell pressure	Shear Strength	Angle of Shear Resistance	Soil	Water	pH	Organic Content	Top	Base	Retained on 20mm	Hand Vane	Remarks
		m	m		Mg/m ³		NMC	TRX	CBR		%	%	%	%		kPa	kPa	kPa	Degrees	mg/l	mg/l		%	%	%	%	kPa	
WS01	D5	1.20		D			15			CI	42	16	26	22						137		8.0						
WS01	D6	2.00		D			8.1			CI	40	16	24	17														
WS02	D4	1.10		D			10			CL	32	12	20	41						49		8.2						
WS02	D6	2.00		D			19			CI	43	17	26	20														
WS03	D4	1.10		D			15			CL	22	11	11	24						41		8.3						
WS03	D6	2.00		D			17			CI	43	17	26	15														
WS04	D5	1.20		D			13			CI	42	15	27	18						74		8.1						
WS04	D6	2.00		D			16			CI	40	16	24	11														

Key

U - Undisturbed
D - Disturbed
B - Bulk
C - Core
W - Water

All tests performed in accordance with BS1377-2:2022 and BS EN ISO 17892 unless specified otherwise.

Sheet Reference: LGE Lab/C/1974 Iss 2 Rev 32

Appendix 5

Laboratory Chemical Test Results

Certificate of Analysis

Certificate Number 26-11736

Issued: 27-May-26

Client Lucion Ground Engineering
Newark Road
Peterborough
PE1 5UA

Our Reference 26-11736

Client Reference ~ 149095

Order No ~ 27572

Contract Title ~ Land to rear of Little Arundel/Bramble Bank, Bedford Road, Holw

Description 4 Soil samples.

Date Received 18-May-26

Date Started 18-May-26

Date Completed 27-May-26

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "R Irfan".

Reyhan Irfan
Operations Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 26-11736

Client Ref ~ 149095

Contract Title ~ Land to rear of Little Arundel/Bramble Bank, Bedford Road, Holwell

Lab No	2687620	2687621	2687622	2687623
Sample ID ~	WS01	WS02	WS03	WS04
Depth ~	0.30	0.30	0.30	0.30
Other ID ~	D1	D1	D1	D1
Sample Type ~	D	D	D	D
Sampling Date ~	11/05/2026	11/05/2026	11/05/2026	11/05/2026
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	15	27	18	21
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.7	0.8	0.7	0.6
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.3	0.2	0.2
Chromium	DETSC 2301#	0.15	mg/kg	18	25	25	24
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	38	22	17	16
Lead	DETSC 2301#	0.3	mg/kg	51	29	23	22
Mercury	DETSC 2325#	0.05	mg/kg	0.08	0.08	< 0.05	0.05
Nickel	DETSC 2301#	1	mg/kg	17	29	24	25
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	190	100	81	86
Inorganics							
pH	DETSC 2008#		pH	9.0	8.5	7.8	7.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	3.0
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.3	2.7	1.2	3.2
Organic matter	DETSC 2002#	0.1	%	1.3	1.4	1.4	1.5
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	83	16	20	13
Sulphide	DETSC 2024*	10	mg/kg	< 10	< 10	< 10	< 10
Sulphate as SO4, Total	DETSC 2321#	100	mg/kg	1290	489	424	431
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	< 1.50	< 1.50
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20	< 1.20	< 1.20	< 1.20
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	< 1.50	< 1.50
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	< 10.00	< 10.00
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	< 0.60	< 0.60	< 0.60	< 0.60
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	< 1.40	< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	< 10.00	< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	< 10.00	< 10.00
PAHs							
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03

Summary of Chemical Analysis

Soil Samples

Our Ref 26-11736

Client Ref ~ 149095

Contract Title ~ Land to rear of Little Arundel/Bramble Bank, Bedford Road, Holwell

Lab No	2687620	2687621	2687622	2687623
Sample ID ~	WS01	WS02	WS03	WS04
Depth ~	0.30	0.30	0.30	0.30
Other ID ~	D1	D1	D1	D1
Sample Type ~	D	D	D	D
Sampling Date ~	11/05/2026	11/05/2026	11/05/2026	11/05/2026
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.10	< 0.03	0.05	0.04
Pyrene	DETSC 3303#	0.03	mg/kg	0.10	< 0.03	0.04	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.06	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.07	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.10	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.05	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.06	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.05	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.69	< 0.10	< 0.10	< 0.10
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	< 0.3	0.3	1.5

Summary of Asbestos Analysis Soil Samples

Our Ref 26-11736

Client Ref ~ 149095

Contract Title ~ Land to rear of Little Arundel/Bramble Bank, Bedford Road, Holwell

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2687620	WS01 D1 0.30	SOIL	Chrysotile	Bundle of Chrysotile fibres	Keith Wilson
2687621	WS02 D1 0.30	SOIL	NAD	none	Keith Wilson
2687622	WS03 D1 0.30	SOIL	NAD	none	Keith Wilson
2687623	WS04 D1 0.30	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 26-11736
 Client Ref ~ 149095
 Contract ~ Land to rear of Little Arundel/Bramble Bank, Bedford Road, Holwell

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date		Containers Received	Holding time exceeded for tests	Incorrect container for tests
		Sampled ~				
2687620	WS01 0.30 SOIL	11/05/26		GJ 250ml, PT 500ml		
2687621	WS02 0.30 SOIL	11/05/26		GJ 250ml, PT 500ml		
2687622	WS03 0.30 SOIL	11/05/26		GJ 250ml, PT 500ml		
2687623	WS04 0.30 SOIL	11/05/26		GJ 250ml, PT 500ml		

Key: G-Glass P-Plastic J-Jar T-Tub

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
 Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
 The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix 6

Concrete Requirements Against Sulphate Attack

TABLE C1 – AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE

(ACEC) CLASSIFICATION FOR NATURAL GROUND LOCATIONS^a

Table C1 Aggressive Chemical Environment for Concrete (ACEC) classification for natural ground locations ^a						
Sulfate				Groundwater		ACEC Class for location
Design Sulfate Class for location	2:1 water/soil extract ^b	Groundwater	Total potential sulfate ^c	Static water	Mobile water	
1	2 (SO ₄ mg/l)	3 (SO ₄ mg/l)	4 (SO ₄ %)	5 (pH)	6 (pH)	7
DS-1	< 500	< 400	< 0.24	≥ 2.5		AC-1s
					> 5.5 ^d	AC-1 ^d
					2.5–5.5	AC-2z
DS-2	500–1500	400–1400	0.24–0.6	> 3.5		AC-1s
					> 5.5	AC-2
				2.5–3.5		AC-2s
					2.5–5.5	AC-3z
DS-3	1600–3000	1500–3000	0.7–1.2	> 3.5		AC-2s
					> 5.5	AC-3
				2.5–3.5		AC-3s
					2.5–5.5	AC-4
DS-4	3100–6000	3100–6000	1.3–2.4	> 3.5		AC-3s
					> 5.5	AC-4
				2.5–3.5		AC-4s
					2.5–5.5	AC-5
DS-5	> 6000	> 6000	> 2.4	> 3.5		AC-4s
				2.5–3.5	≥ 2.5	AC-5

Notes

- a Applies to locations on sites that comprise either undisturbed ground that is in its natural state (ie is not brownfield – Table C2) or clean fill derived from such ground.
- b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered relative to previous Digests (Box C7).
- c Applies only to locations where concrete will be exposed to sulfate ions (SO₄) which may result from the oxidation of sulfides (eg pyrite) following ground disturbance (Appendix A1 and Box C8).
- d For flowing water that is potentially aggressive to concrete owing to high purity or an aggressive carbon dioxide level greater than 15 mg/l (Section C2.2.3), increase the ACEC Class to AC-2z.

Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static.
- Concrete placed in ACEC Classes that include the suffix 'z' primarily have to resist acid conditions and may be made with any of the cements or combinations listed in Table D2 on page 42.

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