

## **ENVIRONMENT**

Richborough Estates

Heyford Park

Oxfordshire

Phase 1 Geo-Environmental Assessment

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Heyford Park  
Oxfordshire  
Phase 1 Geo-Environmental Assessment

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## EXECUTIVE SUMMARY

Executive Summary	
Site Address	Land to the north of Camp Road and west of Chilgrove Drive, Upper Heyford, Oxfordshire.
Proposed Development	The development plan consists of 210 new residential units with areas of recreational space.
Current Site Use	The site is open ground that can be divided in two areas which are separated by a north to south oriented hedgerow and wire fence. The western area has a track that runs through the site to the north parallel to a minor watercourse, leading to a recently landscaped area with ponds, various trees, vegetation, recreational facilities, and an open field to the north with livestock. The eastern parcel of land consists of a grassland.
Site History	<p>The site is shown to be divided in two parcels of land since the end of the nineteenth century, appearing to be used as a farmland related to the adjacent North Leys Farm. Landscaping took place before 2009 within the western parcel with the appearance of a farm track, the division of the north field with a diagonal hedgerow and the creation of four small ponds.</p> <p>The ground to the north of the site has been used as an airfield by the RAF since 1916. At the start of the 1950's buildings associated to the airbase appeared to the west of the site which are now part of the Upper Heyford Park redevelopment. The airfield was abandoned by 1992 and it is now part of a conservation area undergoing redevelopment.</p>
Ground Conditions	<p>Information published by the British Geological Survey (BGS) indicates that the site is directly underlain by bedrock of the White Limestone Formation which is a Principal Aquifer.</p> <p>BGS borehole records relating to boreholes drilled at the airbase to the north show the bedrock to be encountered 1.5m bgl while topsoil and a weathered section of the limestone is shown to be thickening towards the southeast beyond the site up to an extent of 3.0m bgl. Groundwater strikes have been recorded at 21.3m depth bgl near to the site.</p> <p>A watercourse is present onsite known as Leys Farm Ditch, running from north to south in the west area of the site. In the north-western area of the site there are a series of small ponds artificially created at the beginning of this century.</p> <p>A 1-in-30 year, maximum risk, area of flooding is mapped in close proximity to Gallos Brook, and is limited to the western area of the site.</p> <p>Groundwater flooding risk is indicated to be negligible.</p>
Geotechnical Review	<p>As bedrock it is expected to be encountered at shallow depths, shallow strip foundations bearing onto the bedrock are likely to be suitable at the site.</p> <p>Made Ground is likely to be limited to the landscaped areas but cannot be ruled out on the northern boundary of the site in vicinity of the former airbase.</p>
Environmental Review	Limited potential sources of contamination have been identified on site. The potential for Made Ground giving rise to hazardous ground gases may be present within the landscaped area or by the northern boundary.
Recommendations	<p>A ground investigation should be undertaken at the site to confirm the ground conditions, assess the ground gas regime and allow for in situ and laboratory testing to inform foundation and pavement design.</p> <p>A detailed UXO risk assessment report needs to be procured for the Site. For that purpose, UXO Risk Mitigation Measures are to be provided for intrusive works proposed.</p>

This summary should be read in conjunction with BWB's full report (ref. HPO-BWB-ZZ-XX-RP-YE-0001\_Ph1) and reflects an assessment of the site based on information received by BWB at the time of production.

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## 1. INTRODUCTION

### Instruction

- 1.1 BWB Consulting (BWB) was instructed by Richborough Estates (the Client) to carry out a Phase 1 Geo-Environmental Assessment for the site at Heyford Park, Oxfordshire. Details of the project brief are included in BWB proposal reference 210709/REV 1/BMW3171/SN/CG, dated 09/07/2021.
- 1.2 The proposed development is anticipated to comprise 210 residential units with recreational spaces. A recreational `wet corridor` with vegetational enhancement area is also included with the western area. A development masterplan has not been provided at this stage.

### Objectives

- 1.3 This report has been completed to present pertinent information into the environmental risks and liabilities associated with the site. It has been completed to fulfil the requirements of a preliminary risk assessment in accordance with BS 10175:2011+A2:2017 'Investigation of potentially contaminated sites, code of practice' and EA Guidance on Risk Management of Land Contamination <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>.
- 1.4 The report has also been prepared with reference to land contamination technical guidance available through <https://www.gov.uk/government/collections/land-contamination-technical-guidance>.
- 1.5 The objectives of this report are to:
- Assess historical activities at the site with respect to their potential impact on the site environment.
  - Characterise the environmental setting of the site, identify migration pathways and vulnerable receptors for contamination originating at the site, focusing on potential soil and groundwater liabilities.
  - Assess historical and current surrounding land use in relation to known or potential off-site contamination issues that may impact the site.
  - Review existing site investigation and remediation information for the site, where available.
  - Develop a preliminary Conceptual Site Model (CSM).
  - Assess potential environmental liabilities associated with the site.

### Scope of Work

- 1.6 The scope of work included:
- A site visit to inspect the current site and immediate surroundings, identify potential hazards associated with ground conditions or contamination and to determine



potential constraints with regards to ground investigation (photographs presented as **Appendix 1**);

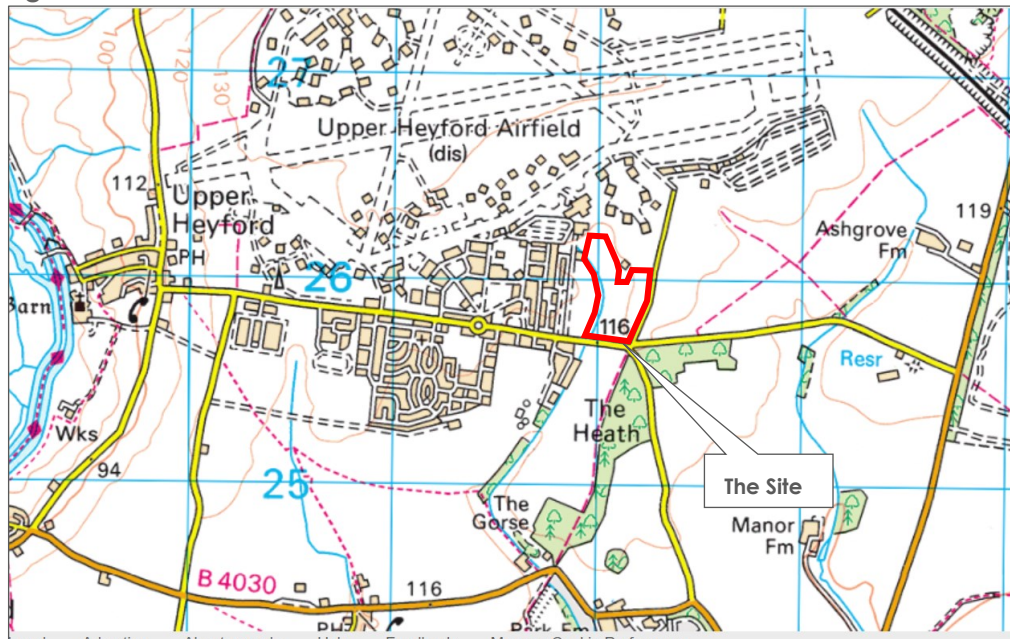
- A review of the following information:
  - Groundsure report, reference HMD-214-8053162 (**Appendix 2**).
  - Historical Ordnance Survey Mapping (**Appendix 3**).
  - Historical aerial photographs (Google Earth) and other imagery (Groundsure and Other Source).
  - British Geological Survey (BGS) 1:10 000 Scale, Sheet SP52NW (2000).
  - British Geological Survey (BGS) 1:50 000 Scale, 'Chipping Norton', Sheet 218, Solid and Drift, (1968).
  - BGS online geological maps and exploratory hole records ([www.bgs.ac.uk](http://www.bgs.ac.uk)).
  - MAGIC website ([www.natureonthemap.naturalengland.org.uk/magicmap](http://www.natureonthemap.naturalengland.org.uk/magicmap)).
  - Coal Authority Interactive Map Viewer (<http://mapapps2.bgs.ac.uk/coalauthority/home.html>).
  - Regional unexploded bomb risk maps.
  - Preliminary Unexploded Ordnance Risk Assessment, 1st Line Defence Limited, reference OPN13887 (**Appendix 4**).
- A summary of the key hazards or uncertainties that require additional investigation in order to further characterise the associated risks; and
- Production of a Geo-Environmental Assessment (this report), concluding in a qualitative assessment of the risks from contamination and ground-related constraints which may impact on the site.

## 2. THE SITE

### Site Location

- 2.1 The site is located to the east of Heyford Park, in Oxfordshire, centred at National Grid reference 452077, 225994. The approximate location of the site is shown below in **Figure 2:1**.

**Figure 2:1: Site Location Plan**



### Site Description

- 2.2 The proposed site is located on the eastern edge of Upper Heyford. The site covers an irregular shaped plot of land measuring 11.69ha. It is bound by a grass field to the west, and former officer's houses within a disused airfield set behind vegetation to the north. Letchmere Farm (shown as North Leys Farm in historical maps) lies to the north-west, and the former RAF airfield to the north. Chilgrove Drive forms the eastern boundary of the site.

### Site Walkover

- 2.3 A site walkover was completed on 23th July 2021 by a representative of BWB. Photographs from the walkover are presented in **Appendix 1**.
- 2.4 At the time of the walkover, the site comprised two separate fields divided by a hedgerow combined with a metal wire and post fence.

### Western Area

- 2.5 The western part of the site was accessed from the road leading to Letchmere (North Leys) Farm and then to a track leading east parallel to Camp Road. A wooden gate

with a chain and padlock was present at the entrance of the site. The track ran from south to north with a tall hedgerow boundary to the west of it located alongside Gallos Brook. A ditch ran parallel to the east of the track.

- 2.6 In the centre of the western area the site widens, and trees were present across the area. One pond was located to the east of the track and two connected ponds to the west with surface landscaping. An overhead cable ran from west to east. Localised soft ground was noted around the ponds. To the north there was playground equipment belonging to the farm which was located to the northwest of site. Two portable storage units were located in the northwest corner of the site, while a narrow path was present within the northern border of the airfield, with high hedgerow to the north and wooden fences to the south.
- 2.7 The northern field was triangular in shape and separated from the other areas by overgrown hedgerows and accessed through a wooden gate east of the watercourse. It was mostly occupied by a grassland with taller vegetation by the northern border corridor. A paddock area was present in the southern edge of this field, separated by and metal wire fence and another gate. Livestock (alpacas) were present at the time of the walkover along with a caravan and a large wooden shed.

### Eastern Area

- 2.8 The largest eastern field was almost rectangular in shape and could not be accessed at the time of the visit due to overgrown vegetation on the possible access point west of the parking bay at Chilgrove Drive. Tall hedgerows with occasional trees were present around all field boundaries.
- 2.9 No hardstanding material was present across the site. Landscaped areas were present by the ponds and to the north of the site by the airfield boundary. The farm track running from north to south had gravel cover.
- 2.10 The site was generally flat with a slight gradient from the east to west, decreasing towards the watercourse. By the northern border with the airfield the ground slopes gently from northeast to southwest.

### **Potential Constraints to Ground Investigation**

- 2.11 A small area with livestock is present on site. Vegetation clearance is needed to provide access to the eastern field from Chilgrove Drive.

### **Site Surroundings**

- 2.12 The surrounding land uses at the time of the walkover survey are summarised in **Table 2:1**.

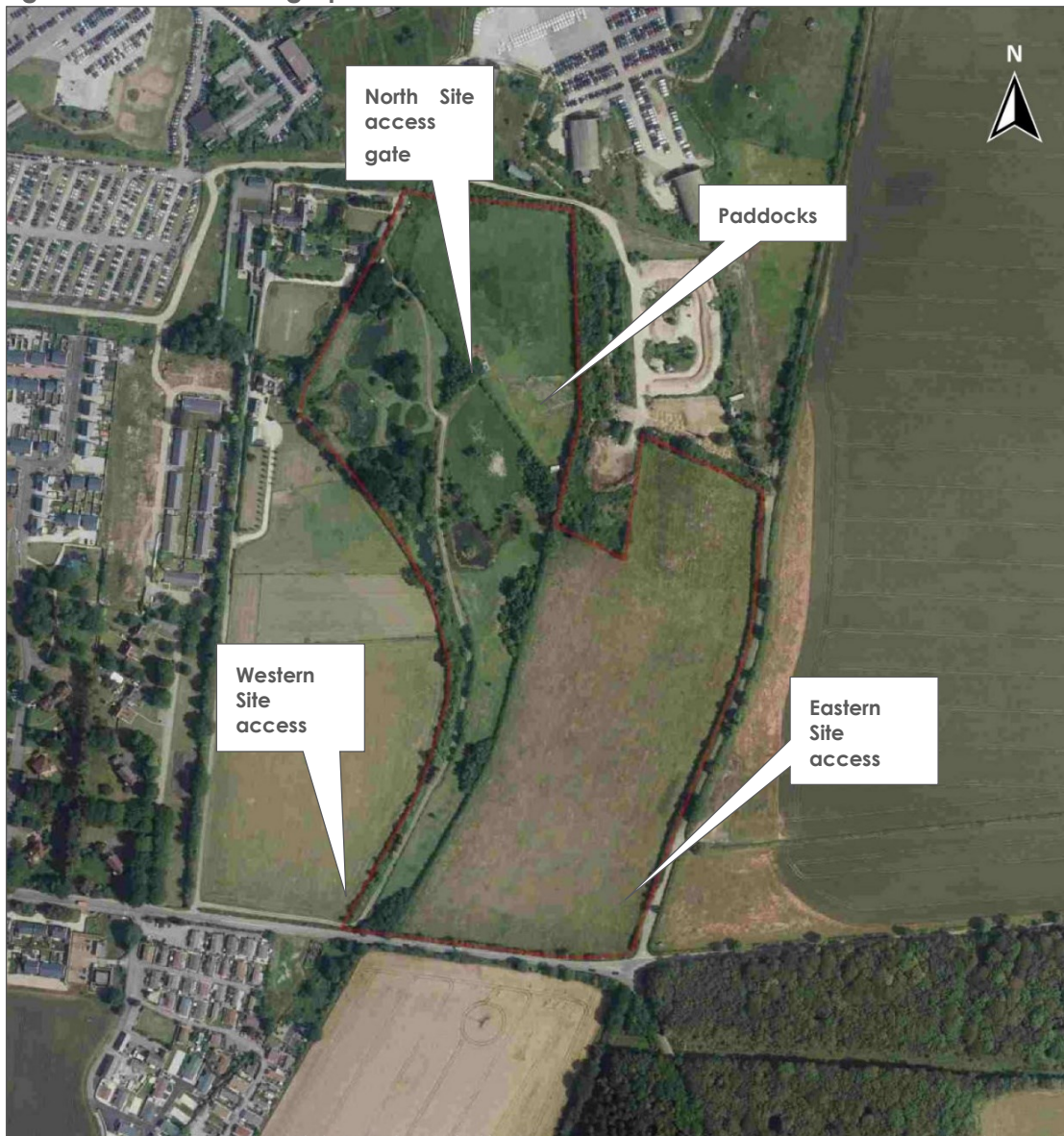
**Table 2:1: Surrounding Land Use**

Surrounding Land Use	
North	Former RAF Airfield with storage units.
East	A grassland farm field beyond Chilgrove Road.

Surrounding Land Use	
South	A grassland farm field beyond Camp Road, a wooden area to the southwestern corner.
West	A field (which has planning consent for 79 dwellings) and horse paddocks, with former Officers Houses, and Letchmere Farm to the north.

2.13 An aerial photograph representative of the site and surroundings, dated 05<sup>th</sup> July 2019, is presented as **Figure 2:2**.

**Figure 2:2: Aerial Photograph**



### 3. ANTICIPATED GROUND CONDITIONS

3.1 The anticipated ground conditions for the site and controlled waters vulnerability is discussed within **Table 3:1**.

**Table 3:1: Summary of Anticipated Ground Conditions**

Anticipated Ground Conditions	
Geology	<p>Information published by the BGS indicates that the site is directly underlain by White Limestone Formation - Limestone bedrock of Bathonian (Jurassic) age.</p> <p>The BGS Lexicon database describes the bedrock as pale grey to off-white or yellowish limestone, peloidal wackestone and packstone with subordinate ooidal and shell fragmental grainstone; with recrystallised limestone and/or hardgrounds at some levels with rare sandy limestone, muddy limestone, calcareous mudstone and silicate mudstone/clay. Coralliferous units (including Fairford Coral Bed) occur at or close to the top.</p> <p>No historic BGS borehole logs are located within the site boundary, but several are noted adjacent to the southwestern corner of the site and one adjacent to the northeastern corner.</p> <p>BGS records shows a borehole referenced SP52NW208, with an uncertain location due to a general set of coordinates in proximity of the site. It records topsoil up to 0.6m depth, underlain by 'sandy clay with stones' until 2.9m, followed by a 0.45m thick blue clay. The bedrock was then encountered at a 3.3m depth, consisting in interbedded limestone with blue and grey clay until 7.2m depth (clay layers with a 1.2m maximum thickness). It was underlain by alternating soft and hard limestone up 19.8m final depth, with beds of water bearing clay recorded between 16.6-18.6m. It is likely that this borehole actually relates to the former airfield to the northwest of the site.</p> <p>SP52NW18 located 33m southwest of the site recorded 1.6m thick 'grey stony soil' over 0.6m of 'stony sandy soil'. 'Rocky sandy clay' and 'soft rocky clay' are described to a depth of 3.0m when rock was encountered, consisting of the interbedded limestone and clay to a 9.5m depth. Layers of sandstone and shelly rock were also recorded on this interval. From 18.3m the oolite limestone was underlain by the old Lower Estuarine/ Northampton Sand followed by Upper Lias from 26.3m until the final borehole depth of 26.82m. Groundwater was encountered at 21.4m depth.</p> <p>SP52NW273 BH37 located 40m northeast records 0.5m thick Made Ground composed of firm brown sandy clay which included fragments of brick and concrete, underlain by dark brown sandy clayey silt with fragments of limestone. The borehole terminated at 1.51m upon encountering moderately strong yellow limestone.</p> <p>No records of previous ground investigation have been made available for the site. However, from the site walkover, it can be inferred that some reworked ground may be present near the northern site boundary and on the recently landscaped area of the ponds.</p>
Hydrogeology	<p>The Environment Agency (EA) includes the White Limestone Formation within the Tackley Jurassic groundwater body, classified as a Principal Aquifer with high vulnerability and with very high permeability.</p> <p>Groundwater strikes have been noted during the review of historical BGS records only on SP52NW18 33m southwest of the site, at 21.3m depth bgl.</p> <p>There is only one active groundwater abstraction within 1km of the site, being used for domestic and farming use 700m southeast of the site. One potable historical licensed groundwater abstraction is located 1.6km north of the site for drinking and household usage.</p> <p>There are no groundwater discharge consents near to the site.</p>

Anticipated Ground Conditions	
	<p>There are no pollution incidents indicated to impact upon groundwater near to the site.</p> <p>The site is not indicated to be within a Source Protection Zone. The overall quality of the waterbody is considered to be good. Groundwater flooding risk is found to be negligible.</p>
Surface Waters	<p>A superficial watercourse is present onsite, Leys Farm Ditch tributary of Gallos Brook, which contains water all year round and flows from north to south in the western area of the site. It is classified as within the Oxon Ray operational catchment and Cherwell and Ray management catchment. A small tributary watercourse was historically present flowing from west to east towards Gallos Brook before the ponds were installed in the north west field at the beginning of the twentieth century.</p> <p>A discharge consent is present onsite with trade discharges/site drainage to the Leys Farm ditch effective from 1997. Three further discharge consents issue to the same watercourse between 26m and 261m south from site relating to trade or sewage discharges.</p> <p>A Category 2 (Significant) pollution incident occurred on 22<sup>nd</sup> May 2007 for sewage material discharge 464m south of the site impacting on surface waters.</p> <p>A 1-in-30 year maximum risk area of superficial flooding is present in proximity of the watercourse, limited to the west parcel of the site. Surfaces with higher return period are also present on site in proximity of the ponds.</p>
Ground Gas & Radon	<p>The site is located in an area where between &gt;1% and 3% of properties exceed the Radon Action Level. Radon protection measures are not required as part of the proposed development.</p> <p>Made Ground or reworked ground deposits are likely to be present around the landscaped land to the west of the site. These deposits could represent a potential source of hazardous ground gases on site, however, they are not expected to have a considerable thickness at the site.</p>
Mining and Mineral Extraction	<p>A historic sandpit is mapped to the south of the site boundary opposite to Camp Road.</p>
Environmental Sensitivity	<p>The Site is bordered to the north and west by the conservation area of RAF Upper Heyford instituted in 2006. An Open Mosaic Habitat lies to the north of the northwest corner of the site, and it has been mistakenly recorded as onsite by the Groundsure report.</p>

## 4. SITE HISTORY

- 4.1 Historical Ordnance Survey (OS) mapping for the site area has been reviewed. These maps and plans date from 1880 to 2021. The historical plans reviewed are provided in **Appendix 3**. The key points of the historical development of the site and surrounding area are summarised in **Table 4:1**. All distances quoted are approximate.

**Table 4:1: Key Points of Development History**

Dates	On Site	Off-Site
1880-1953	The area is shown as an open grassland already divided in two parcels. A track is present in the north of the site and woodland is present in the west of the site. A small watercourse ( <b>Leys Farm Ditch</b> ) is mapped within the west of the site and a small <b>pond</b> in the north west corner from the earliest plans. From 1922, the woodland is partially cleared.	North Leys <b>FARM</b> is shown within 50m to the northwest corner, Leys Farm within 50m to the south. A quarry is present just south of Camp Road.
1954-1965	No significant change	In the 1954 map the <b>AIRFIELD</b> is shown to the north and northwest of the site with auxiliary tracks shown beyond the northern boundary of the site. Urban development 200m west of the site.
1966-2010	A small area in the southeast corner of the site appears to be fenced off between 1975 and 1981 plans.	The 1974-75 maps shows two <b>CARAVAN PARKS</b> , one located beyond Chilgrove Ride to the east and the second south of Camp Road, where a depot and two associated <b>TANKS</b> are also shown 20m south west. In the same period structures are present just north of the north east corner of the site. The 1965 map shows a <b>SEWAGE WORKS</b> 450m southwest of the site which has expanded by the 1980s mapping. One substation is located 125m east of the site, recorded since 1998.
2010-2021	Ponds are shown on the western section of the site.	No significant change

### Historical Aerial Photography and Imagery

- 4.2 Aerial photographs/imagery available through Google Earth and included within the Groundsure report are summarised in **Table 4:2**.

**Table 4:2: Summary of Aerial Photography**

Date (Source)	Description
1999 (Groundsure)	The west parcel of the site appears to have no boundaries within it. The Leys Farm Ditch is shown to flow from north to south.

Date (Source)	Description
2009 (Groundsure)	A track appears to the west of the site running from south to north back to North Leys Farm, the photo also shows the ponds in the west of the site.
2019 (Groundsure)	No significant changes, a car park appears to the west of North Leys Farm.

### Operational / Company Records

4.3 No operational records have been made available for review as part of this assessment.

### Planning History

4.4 The Cherwell Council Planning Portal was accessed on 28/07/2021. A planning application for a warehouse in 2017 included a desk study for the eastern field. The desk study covered largely the same information as within this report which is not repeated here. The report states that the site use proposed was to house an RAF gymnasium, but it provides no supporting information relation to this and does not state the location of it.

### Internet Search / Anecdotal Information

4.5 An online search for background/historical information relating to the current / historical site use was undertaken, with pertinent information detailed in **Table 4:3**.

**Table 4:3: Summary of Online Information**

Source	Description
<a href="http://www.raf-upper-heyford.org/History.html">http://www.raf-upper-heyford.org/History.html</a> (last accessed 22/07/2021)	As far as records show, the Royal Air Force was present in Upper Heyford since 1916, consisting of a grass landing field. The modern runways were only constructed after 1951 when a US battalion joined the base. By 1953, 170 buildings were added to the area. Refuelling was made from tanks by hand. A munition storage area and fuel storage area were also added to the site but no location was provided. Explosive Ordnance Disposal was also present onsite.
<a href="https://planningregister.cherwell.gov.uk/Document/Download?module=PLA&amp;recordNumber=61179&amp;planId=779303&amp;imageId=30&amp;isPlan=False&amp;fileName=9119996.pdf">https://planningregister.cherwell.gov.uk/Document/Download?module=PLA&amp;recordNumber=61179&amp;planId=779303&amp;imageId=30&amp;isPlan=False&amp;fileName=9119996.pdf</a> (last accessed 22/07/2021)	Construction of the airbase began in 1916.



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## Summary of Site History

- 4.6 The site is shown to be divided in two parcels of land since the end of the nineteenth century, appearing to be used as farm fields. The site has remained undeveloped until 2009 plans when a series of ponds have been created along the small watercourse in the west of the site.
- 4.7 In the surrounding area, North Leys Farm is always shown to the northwest of the site, which is surrounded by farm fields in all directions excluding a wooded area beyond the south-eastern corner. A small quarry was operational until 1965 mapping to the south of Camp Road. RAF Upper Heyford airbase was established to the north of the site since 1916. The base ceased to be operational in 1992, leading to a major urban and commercial development to the west and north of the site.

## **5. REGULATORY SETTING**

### **Permits Consents and Authorisations**

- 5.1 A full listing of permits, consents and authorisations including discharge consents, pollution incidences and other environmental information, is included in the Groundsure report, presented in **Appendix 2**.
- 5.2 The following pertinent features have been identified which have the potential to have a detrimental impact on site:
- One current COMAH is recorded 195m west of the site, the Heyford Park Management Company Southern Bomb Store.
  - One radioactive substance authorization for keeping radioactive material was present 429m southwest of the site from 2006 to 2015.

### **Landfilling and Waste Management**

- 5.3 A full listing of EA, BGS and Local Authority recorded landfills are provided in the Groundsure report presented in.
- 5.4 No historical landfill sites were identified within 500m of the site. No significant facilities have been identified which are considered likely to have had a detrimental impact on the site. Two waste exemption were present withing 500m from the site, treating waste wood and storing waste in secured containers.

## 6. GEOTECHNICAL APPRAISAL

- 6.1 The Groundsure report, site history, current site setting and geology setting have all been considered in order to provide an indication of the potential ground related constraints and opportunities in the context of the proposed development as set out in **Table 6:1**.

**Table 6:1: Ground Related Constraints & Opportunities**

Potential Constraint / Opportunity	Explanation	Potential Mitigation Options
Topsoil / Made Ground	Topsoil is expected to be present across the majority of the site. Limited Made Ground is expected to be present along roads and paths.	Topsoil and Made Ground may be suitable for reuse on site, subject to confirmation of chemical status and engineering properties via ground investigation, and confirmation of potential restrictions on reuse associated with waste management licencing.
Preliminary Foundation Solution	Based on the proposed low-density housing at the site, shallow strip foundations bearing onto the bedrock are likely to be suitable at the site.	Ground investigation should be undertaken to confirm ground conditions at the site and allow for in-situ and laboratory testing to inform foundation design.
Buried Obstructions	Given the historical uses of the site there is very limited potential for buried obstructions such as services and former foundations.	Buried obstructions may require removal from site within areas of proposed development.
Trees	Mature trees were noted on the western part of the site on the landscaped area, along the site boundaries hedgerow trees are present especially on the southern boundary between the east and west field.	Foundations in close proximity to new or existing trees may need to be locally deepened beyond the zone of influence of tree roots and/or heave precautions adopted.
Pyritic Geology	Ground conditions are not expected to be pyritic based on the geology.	As part of ground investigation works, appropriate testing should be undertaken in relation to aggressive ground conditions.
Earthworks	The proposed development is not expected to include any significant changes to site levels.	No further assessment is required.
Drainage and Soakaways	Soakaways may be a viable option at the site, depending on the extent of the weathering of the underlying limestone bedrock.	Should soakaways be considered as part of the drainage strategy, it is recommended that infiltration testing in accordance with current guidance is undertaken.
Roads and Pavements	California Bearing Ratio (CBR) values should be sought for	In-situ testing should be undertaken to infer CBR values. Furthermore, geotechnical

Potential Constraint / Opportunity	Explanation	Potential Mitigation Options
	road, car park and pavement design.	testing should be undertaken to provide consistency of results.
Ground Subsidence Risk	The Groundsure report indicates a negligible risk for ground dissolution, shrinking and swell clay and slope stability based on the site location.	Soluble rocks are indicated to potentially be present but are unlikely to cause problems except under exceptional conditions. No further action is required.
UXO	<p>Review of the unexploded ordnance risk report included in <b>Appendix 4</b> indicates the record of an unexploded bomb encountered at a building site at RAF Upper Heyford in April of 2019-which resulted in the closure of Camp Road, the possibility of encounter of similar ordnance on site cannot be discounted at this preliminary stage.</p> <p>Based on these conditions the site is considered to be at a significant risk of encounter of items of unexploded wartime ordnance.</p>	It is recommended that a detailed UXO risk assessment report be procured. In lieu of this, appropriate UXO Risk Mitigation Measures are to be provided for intrusive works proposed.

## 7. PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

### Introduction

- 7.1 The risk posed by any contaminants in soil or groundwater will depend on the nature of the hazard, the probability of exposure, the pathway by which exposure occurs, and the likely effects on the receptors. A contaminant is defined as a substance that has the potential to cause harm, while a risk is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.
- 7.2 Three impact potentials exist for any given site, all of which need to be considered in a risk assessment, which are:
- The site impacting upon itself.
  - The site impacting on its surroundings.
  - The surroundings impacting on the site.
- 7.3 The following sections discuss all the identified potential on and off-site sources, pathways and receptors in the context of the proposed development and plausible pollutant linkages which may represent a risk to identified receptors such as human health and/or controlled waters from the data gained from the desk study.
- 7.4 The assessment is qualitative and aimed to determine all likely pollutant linkages, with consideration of significance and allowing for uncertainties.
- 7.5 **Sources (S):** These are potential or known sources of contamination that may relate to a former land use or present site feature or process (e.g. fuel storage tanks).
- 7.6 **Pathways (P):** A pathway is defined as a mechanism or route by which a contaminant comes into contact with, or otherwise affects a receptor. Pathways by which the identified receptors may be impacted upon in the context of the proposed development.
- 7.7 **Receptors (R):** Receptors are defined as people, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by contaminant(s).

### Conceptual Site Model

- 7.8 Consideration has been given to the likely sources, pathways and receptors which may be present, based on the information in the previous sections. These are presented in **Table 7:1** and **Table 7:2** and further information about the risk classification scheme is included within **Appendix 5** Appendix 5, with reference to CIRIA C552 '*Contaminated land risk assessment - a guide to good practice*'.
- 7.9 A tabulated version of the Preliminary CSM based on the desk study and site observations is presented in **Table 7:3**.

**Table 7:1: Potential Sources of Contamination**

Location	Potential Source	Contaminants of Potential Concern (CoPC)
On-site	Possible localised <b>MADE GROUND</b> associated with the development of the ponds in the west of the site.	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• PAHs</li> <li>• Asbestos Containing Materials (ACMs)</li> <li>• Pesticides/herbicides</li> <li>• Petroleum hydrocarbons</li> <li>• Methane, carbon dioxide</li> </ul>
Off-site	Potential contamination associated with neighbouring farming, commercial and former airfield activity.	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• PAHs</li> <li>• Petroleum hydrocarbons</li> <li>• Methane, carbon dioxide</li> </ul>

**Table 7:2: Relevant Potential Pathways and Receptors**

Receptors	Pathways
<b>Human Health:</b> <ul style="list-style-type: none"> <li>• Future site users (residential/recreational)</li> <li>• Intrusive maintenance workers</li> </ul>	<ul style="list-style-type: none"> <li>• Dermal contact with soil or dust</li> <li>• Incidental ingestion of soil and/or dust</li> <li>• Inhalation of dust and/or fibres</li> <li>• Ingestion of contaminated vegetables and/or soil attached to vegetables</li> <li>• Migration and accumulation of ground gas in enclosed spaces leading to inhalation or explosion</li> </ul>
<b>Controlled Waters:</b> <ul style="list-style-type: none"> <li>• Groundwater (Principal aquifer)</li> <li>• Surface water (Gallos Brook and associated ponds)</li> </ul>	<ul style="list-style-type: none"> <li>• Leaching of soil contaminants</li> <li>• Vertical and lateral migration</li> <li>• Surface run-off</li> </ul>
<b>Property:</b> <ul style="list-style-type: none"> <li>• Underground utilities</li> <li>• Building structures</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Contact</li> </ul>

7.10 A f potential source of contamination, identified during the review, has not considered likely to impact on the site. These are detailed below, along with the appropriate justification for not being included within the preliminary CSM:

- The sewage discharge on Gallos Brook with final/treated effluent present 261m southwest of the site is downstream of the site.

**Table 7:3: Preliminary Conceptual Site Model**

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
On-site sources as detailed in <b>Table 7:1</b> .	Dermal contact with soil or dust, and incidental ingestion of soil and/or dust. Inhalation of dust and/or fibres.	Future site users (residential/commercial/recreational/allotments)	Md	UI	L	As part of the proposed development, it is anticipated that hardstanding will be present across large parts of the site. This will limit the potential for direct contact with, and minimise dust generation from potentially contaminated soils at the site post construction. In public open space/landscaped areas/garden areas the provision of a clean capping layer would restrict direct access to potentially contaminated soils. It is recommended that an intrusive ground investigation be completed in order to assess the extent of any potential contamination at the site.
	Ingestion of contaminated vegetables and/or soil attached to vegetables.	Future site users (residential/allotments)	Md	UI	L	In landscaped areas/garden areas where there is the potential for allotments, the provision of a clean capping layer would with appropriate demarcation at depth would limit the potential for vegetables to be grown in potentially contaminated soils.
	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (residential/recreational)	Md	UI	L	Limited Made Ground is expected across the site, but it may be present in the vicinity of the north boundary with the former airbase. Reworked natural soils may be present along in proximity with the landscaped area to the west and in vicinity of North Leys Farm The presence of the above indicates a potential risk from ground gases. Ground investigation should include the installation of ground gas monitoring wells in order to determine the risk posed from ground gases.
	Leaching and permeation through soil profile.	Groundwater: Underlying Principal aquifer	Md	UI	L	A significant source of contamination has not been identified at the site which would represent a risk to controlled waters. Intrusive ground investigation works should be undertaken to quantify the risk.
	Vertical and lateral migration of contaminants.		Md	UI	L	
	Surface run-off.	Gallos Brook	Mi	UI	VL	

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
	Direct contact.	Water utility pipes	Mi	Lw	L	Organic compounds in the shallow soils could taint the water supply. A ground investigation and subsequent laboratory analysis should be undertaken to inform the design of new services.
		Buried structures/foundations.	Md	Ui	L	Sulphates and low pH in the ground could accelerate the degradation of buried concrete structures (e.g. foundations). Ground investigation should include an assessment of the concrete design class.
	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (residential/recreational)	Md	Ui	L	Ground gas monitoring should be completed as part of an intrusive ground investigation in order to characterise the ground gas regime at the site. Where possible, monitoring wells should be located along the site boundaries in order to delineate any potential contamination.
	Lateral migration of contaminated groundwater.	Takley Jurassic Principal aquifer	Md	Ui	L	Where possible, and if ground contamination is identified, groundwater monitoring wells should be located along the site boundaries in order to delineate any potential contamination.

VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low

KEY: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor, Hi = High, Li = Likely, = Low Likelihood, UI = Unlikely

### Pollutant Linkage Assessment Summary

When considered in the context of the conceptual site model and the historical activities that have taken place (agricultural land, former airbase to the north), the proposed development is considered to pose a LOW risk to human health. It is considered that the main driver for the risk rating for human health is the potential for elevated ground gases at the site.

The risk posed to controlled waters is predominantly considered to be LOW due to the lack of identified contamination sources at the site.

It is recommended that a ground investigation be undertaken to quantify the identified pollutant linkages and assess likely mitigation measures.



## **8. ENVIRONMENTAL LIABILITY ASSESSMENT AND DEVELOPMENT IMPLICATIONS**

### **Statutory Liability**

8.1 The contaminated land regime has implications for those who cause or knowingly permit land to be contaminated, or who own or occupy land that is contaminated. Contaminated land is defined in Section 78A(2) of Part IIA of the Environmental Protection Act 1990 as:

*“Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:*

- i. Significant harm is being caused or there is a significant possibility of such harm being caused; or*
- ii. Significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused.”*

8.2 Harm is defined in Section 78(4) of the Environmental Protection Act 1990 as:

*“Harm to the health of living organisms or other interference with ecological systems of which they form part and, in the case of man, includes harm to his property.”*

8.3 Once an area of land has been identified as contaminated land, appropriate persons will be identified as being responsible for the cost of cleaning up the land by the enforcing authority. The appropriate person will be liable for all or part of the remediation of the land. Two classes of appropriate person have been identified:

- Class A appropriate persons are those who cause or knowingly permit the pollutants to be in, on or under the land.
- Class B appropriate persons are the owners(s) or occupier(s) of the land.

8.4 Where no Class A appropriate persons can be identified, then Class B appropriate persons may become liable.

8.5 Based on the information available regarding the site, the potential for Statutory Authority action based on “pollution of controlled water” or “significant harm” as defined by Part IIA of the Environmental Protection Act 1990 is considered to be low.

### **Third Party Liability**

8.6 Based on the information contained in this report, it is the opinion of BWB that the potential for legal action by surrounding landowners, based on the potential for contamination to migrate off-site, is considered to be LOW when considering the agricultural land use of the site and the presence of an airbase to the north.

## **Public Relations**

- 8.7 The likelihood of public relations being tarnished due to contamination issues at the site are considered to be low.

## **Development Implications**

- 8.8 The major implication for the development on site is considered to be the likelihood of an unexploded ordnance to be potentially present onsite.

## **9. CONCLUSION AND RECOMMENDATIONS**

### **Conclusions**

- 9.1 The site is located to the east of Upper Heyford, in Oxfordshire north of Camp Road and west of Chilgrove Drive. The site is open ground comprising agricultural fields with a series of ponds present in the northwest of the site along a drain flowing within the western boundary. The development plan consists of 210 new residential units with areas of recreational spaces.
- 9.2 The site is shown to be divided in two parcels of land since the end of the nineteenth century, appearing to be used as farm fields. The site has remained undeveloped until 2009 plans when a series of ponds have been created along the small watercourse in the west of the site.
- 9.3 North Leys Farm is always shown on historic maps to the northwest of the site, which is surrounded by farm fields in all directions excluding a wooden area beyond the south-eastern corner. A small quarry was operational until 1965 to the south of Camp Road. RAF Upper Heyford airbase was established to the north of the site since 1916. The base ceased to be operational in 1992, leading to a major urban and commercial development to the west and north of the site.
- 9.4 The White Limestone Formation (Principal Aquifer) is indicated by BGS records to underlain the entire site surface with superficial deposits indicated to be absent. Topsoil and shallow weathered bedrock is indicated by BGS historic borehole records. Groundwater strikes have been recorded at 21.3m depth bgl near to the site. A watercourse is present onsite known as Leys Farm ditch, running from north to south in the west area of the site. To the northwest area of the site there is the presence of small ponds artificially created at the beginning of this century.
- 9.5 Based on the proposed low-density housing at the site, and the presence of limestone at shallow depth strip foundations bearing onto the bedrock are likely to be suitable at the site.
- 9.6 When considered the historical activities that have taken place on site (agricultural land use, former airbase to the north), the proposed development is considered to pose a LOW risk to human health for the potential presence of made ground to the west and to the north of the site.
- 9.7 The risk posed to controlled waters is predominantly considered to be LOW due to the presence onsite of a watercourse with a discharge permit, underlain by a principal aquifer. It has to be considered that the area of the watercourse would be preserved from the development plan with construction activities would take place in the vicinity of it only in the north field.

### **Recommendations**

- 9.8 A ground investigation should be undertaken at the site to:

- Confirm ground conditions at the site.
- Assess the ground gas regime.
  - Allow for in-situ and laboratory testing to inform foundation design.

It is recommended that a detailed UXO risk assessment report be procured. In lieu of this, appropriate UXO Risk Mitigation Measures are to be provided for intrusive works proposed.

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## 10. REFERENCES

1. BS 10175:2011+A2:2017 *Investigation of potentially contaminated sites. Code of practice*. British Standards Institute, 2017.
2. CIRIA C552 *Contaminated land risk assessment. A guide to good practice*. Rudland, D J, Lancefield, R M, Mayell, P N, 2001.
3. Environmental Protection Act 1990: Part 2A, Contaminated Land Statutory Guidance. Department for Environment Food and Rural Affairs (DEFRA), 2012.
4. Land Contamination Risk Management. Environment Agency, 2020.
5. <https://www.gov.uk/government/collections/land-contamination-technical-guidance>.
6. The Control of Asbestos Regulations. Health and Safety Executive, 2012.

## **APPENDICES**

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**Appendix 1: Site Photographs**

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Photo 1—Western section of the site track leading north, ditch to the east.



Photo 2—Looking northeast in the central area of western sector.



Photo 3—View looking west from the centre of the site



Photo 4—Storage containers in the north-west corner of the site.



Photo 5—Access gate to the central north field.



Photo 6—Fenced area in southeast of the north western field with livestock.





Photo 7—View from the central north field towards Gallos Brook.



Photo 8—View north of the central north field, airfield units to the horizon.



Photo 9—Looking south towards the southeastern corner of the site from Chilgrove Drive.



Photo 10—View to the south of the eastern field from Chilgrove Drive.



Photo 11—View to the north of the eastern field from Chilgrove Drive.



Photo 12—Possible access to the eastern field from the verge off Chilgrove Drive

**Appendix 2: Groundsure Report**

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452105 , 226022

## Order Details

**Date:** 19/07/2021  
**Your ref:** BMW3171-POR035092  
**Our Ref:** HMD-214-8053162  
**Client:** BWB Consulting Limited

## Site Details

**Location:** 452077 225994  
**Area:** 11.66 ha  
**Authority:** [Cherwell District Council](#)



**Summary of findings**

p. 2

**Aerial image**

p. 8

**OS MasterMap site plan**

N/A: >10ha

[groundsure.com/insightuserguide](https://groundsure.com/insightuserguide)

Contact us with any questions at:

[info@groundsure.com](mailto:info@groundsure.com)

08444 159 000

## Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
<b>13</b>	<b>1.1</b>	<b><u>Historical industrial land uses</u></b>	2	4	0	12	-
<b>14</b>	<b>1.2</b>	<b><u>Historical tanks</u></b>	0	2	1	5	-
<b>15</b>	<b>1.3</b>	<b><u>Historical energy features</u></b>	0	0	5	8	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
16	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
<b>17</b>	<b>2.1</b>	<b><u>Historical industrial land uses</u></b>	3	5	0	19	-
<b>19</b>	<b>2.2</b>	<b><u>Historical tanks</u></b>	0	2	1	8	-
<b>19</b>	<b>2.3</b>	<b><u>Historical energy features</u></b>	0	0	7	13	-
20	2.4	Historical petrol stations	0	0	0	0	-
21	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
23	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
23	3.5	Historical waste sites	0	0	0	0	-
23	3.6	Licensed waste sites	0	0	0	0	-
<b>23</b>	<b>3.7</b>	<b><u>Waste exemptions</u></b>	0	0	0	19	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<b>26</b>	<b>4.1</b>	<b><u>Recent industrial land uses</u></b>	0	0	7	-	-
27	4.2	Current or recent petrol stations	0	0	0	0	-
27	4.3	Electricity cables	0	0	0	0	-
27	4.4	Gas pipelines	0	0	0	0	-
27	4.5	Sites determined as Contaminated Land	0	0	0	0	-



<b>28</b>	<b>4.6</b>	<b><u>Control of Major Accident Hazards (COMAH)</u></b>	0	0	1	0	-
<b>28</b>	<b>4.7</b>	<b><u>Regulated explosive sites</u></b>	1	0	0	0	-
28	4.8	Hazardous substance storage/usage	0	0	0	0	-
29	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
29	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
29	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
<b>29</b>	<b>4.12</b>	<b><u>Radioactive Substance Authorisations</u></b>	0	0	0	2	-
<b>30</b>	<b>4.13</b>	<b><u>Licensed Discharges to controlled waters</u></b>	1	1	1	2	-
31	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
31	4.15	Pollutant release to public sewer	0	0	0	0	-
31	4.16	List 1 Dangerous Substances	0	0	0	0	-
31	4.17	List 2 Dangerous Substances	0	0	0	0	-
<b>31</b>	<b>4.18</b>	<b><u>Pollution Incidents (EA/NRW)</u></b>	0	0	0	1	-
32	4.19	Pollution inventory substances	0	0	0	0	-
32	4.20	Pollution inventory waste transfers	0	0	0	0	-
32	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
<b>33</b>	<b>5.1</b>	<b><u>Superficial aquifer</u></b>	Identified (within 500m)				
<b>34</b>	<b>5.2</b>	<b><u>Bedrock aquifer</u></b>	Identified (within 500m)				
<b>35</b>	<b>5.3</b>	<b><u>Groundwater vulnerability</u></b>	Identified (within 50m)				
<b>36</b>	<b>5.4</b>	<b><u>Groundwater vulnerability- soluble rock risk</u></b>	Identified (within 0m)				
37	5.5	Groundwater vulnerability- local information	None (within 0m)				
<b>38</b>	<b>5.6</b>	<b><u>Groundwater abstractions</u></b>	0	0	0	0	5
40	5.7	Surface water abstractions	0	0	0	0	0
<b>40</b>	<b>5.8</b>	<b><u>Potable abstractions</u></b>	0	0	0	0	1
40	5.9	Source Protection Zones	0	0	0	0	-
41	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
<b>42</b>	<b>6.1</b>	<b><u>Water Network (OS MasterMap)</u></b>	14	3	9	-	-



<b>45</b>	<b>6.2</b>	<b><u>Surface water features</u></b>	1	1	7	-	-
<b>45</b>	<b>6.3</b>	<b><u>WFD Surface water body catchments</u></b>	1	-	-	-	-
<b>45</b>	<b>6.4</b>	<b><u>WFD Surface water bodies</u></b>	1	0	0	-	-
<b>46</b>	<b>6.5</b>	<b><u>WFD Groundwater bodies</u></b>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
47	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
47	7.2	Historical Flood Events	0	0	0	-	-
47	7.3	Flood Defences	0	0	0	-	-
47	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
48	7.5	Flood Storage Areas	0	0	0	-	-
49	7.6	Flood Zone 2	None (within 50m)				
49	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
<b>50</b>	<b>8.1</b>	<b><u>Surface water flooding</u></b>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
<b>52</b>	<b>9.1</b>	<b><u>Groundwater flooding</u></b>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
<b>53</b>	<b>10.1</b>	<b><u>Sites of Special Scientific Interest (SSSI)</u></b>	0	0	0	0	2
54	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
54	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
54	10.4	Special Protection Areas (SPA)	0	0	0	0	0
54	10.5	National Nature Reserves (NNR)	0	0	0	0	0
55	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
<b>55</b>	<b>10.7</b>	<b><u>Designated Ancient Woodland</u></b>	0	0	0	0	3
55	10.8	Biosphere Reserves	0	0	0	0	0
56	10.9	Forest Parks	0	0	0	0	0
56	10.10	Marine Conservation Zones	0	0	0	0	0
56	10.11	Green Belt	0	0	0	0	0
56	10.12	Proposed Ramsar sites	0	0	0	0	0



56	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
57	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
57	10.15	Nitrate Sensitive Areas	0	0	0	0	0
<b>57</b>	<b>10.16</b>	<b><u>Nitrate Vulnerable Zones</u></b>	2	0	0	0	5
<b>58</b>	<b>10.17</b>	<b><u>SSSI Impact Risk Zones</u></b>	2	-	-	-	-
<b>59</b>	<b>10.18</b>	<b><u>SSSI Units</u></b>	0	0	0	0	4
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
62	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	-	-
<b>63</b>	<b>11.5</b>	<b><u>Conservation Areas</u></b>	1	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
<b>65</b>	<b>12.1</b>	<b><u>Agricultural Land Classification</u></b>	Grade 2 (within 250m)				
66	12.2	Open Access Land	0	0	0	-	-
66	12.3	Tree Felling Licences	0	0	0	-	-
<b>66</b>	<b>12.4</b>	<b><u>Environmental Stewardship Schemes</u></b>	0	1	1	-	-
67	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
<b>68</b>	<b>13.1</b>	<b><u>Priority Habitat Inventory</u></b>	0	1	0	-	-
<b>69</b>	<b>13.2</b>	<b><u>Habitat Networks</u></b>	0	0	1	-	-
<b>69</b>	<b>13.3</b>	<b><u>Open Mosaic Habitat</u></b>	1	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
<b>71</b>	<b>14.1</b>	<b><u>10k Availability</u></b>	Identified (within 500m)				
<b>72</b>	<b>14.2</b>	<b><u>Artificial and made ground (10k)</u></b>	1	0	0	0	-
<b>73</b>	<b>14.3</b>	<b><u>Superficial geology (10k)</u></b>	0	0	0	2	-



74	14.4	Landslip (10k)	0	0	0	0	-
<b>75</b>	<b>14.5</b>	<b><u>Bedrock geology (10k)</u></b>	1	0	0	0	-
76	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
<b>77</b>	<b>15.1</b>	<b><u>50k Availability</u></b>	Identified (within 500m)				
78	15.2	Artificial and made ground (50k)	0	0	0	0	-
78	15.3	Artificial ground permeability (50k)	0	0	-	-	-
<b>79</b>	<b>15.4</b>	<b><u>Superficial geology (50k)</u></b>	0	0	0	1	-
80	15.5	Superficial permeability (50k)	None (within 50m)				
80	15.6	Landslip (50k)	0	0	0	0	-
80	15.7	Landslip permeability (50k)	None (within 50m)				
<b>81</b>	<b>15.8</b>	<b><u>Bedrock geology (50k)</u></b>	1	0	0	0	-
<b>82</b>	<b>15.9</b>	<b><u>Bedrock permeability (50k)</u></b>	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
<b>83</b>	<b>16.1</b>	<b><u>BGS Boreholes</u></b>	0	6	1	-	-
Page	Section	Natural ground subsidence					
<b>85</b>	<b>17.1</b>	<b><u>Shrink swell clays</u></b>	Negligible (within 50m)				
<b>86</b>	<b>17.2</b>	<b><u>Running sands</u></b>	Negligible (within 50m)				
<b>87</b>	<b>17.3</b>	<b><u>Compressible deposits</u></b>	Negligible (within 50m)				
<b>88</b>	<b>17.4</b>	<b><u>Collapsible deposits</u></b>	Very low (within 50m)				
<b>89</b>	<b>17.5</b>	<b><u>Landslides</u></b>	Very low (within 50m)				
<b>90</b>	<b>17.6</b>	<b><u>Ground dissolution of soluble rocks</u></b>	Very low (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
92	18.1	Natural cavities	0	0	0	0	-
<b>93</b>	<b>18.2</b>	<b><u>BritPits</u></b>	0	1	0	2	-
<b>93</b>	<b>18.3</b>	<b><u>Surface ground workings</u></b>	0	5	0	-	-
94	18.4	Underground workings	0	0	0	0	0
94	18.5	Historical Mineral Planning Areas	0	0	0	0	-





94	18.6	Non-coal mining	0	0	0	0	0
94	18.7	Mining cavities	0	0	0	0	0
95	18.8	JPB mining areas	None (within 0m)				
95	18.9	Coal mining	None (within 0m)				
95	18.10	Brine areas	None (within 0m)				
95	18.11	Gypsum areas	None (within 0m)				
95	18.12	Tin mining	None (within 0m)				
96	18.13	Clay mining	None (within 0m)				

Page	Section	Radon					
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**97**    **19.1**    **Radon**    Between 1% and 3% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
<b>99</b>	<b>20.1</b>	<b>BGS Estimated Background Soil Chemistry</b>	6	0	-	-	-
99	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
100	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
101	21.1	Underground railways (London)	0	0	0	-	-
101	21.2	Underground railways (Non-London)	0	0	0	-	-
101	21.3	Railway tunnels	0	0	0	-	-
101	21.4	Historical railway and tunnel features	0	0	0	-	-
101	21.5	Royal Mail tunnels	0	0	0	-	-
102	21.6	Historical railways	0	0	0	-	-
102	21.7	Railways	0	0	0	-	-
102	21.8	Crossrail 1	0	0	0	0	-
102	21.9	Crossrail 2	0	0	0	0	-
102	21.10	HS2	0	0	0	0	-



## Recent aerial photograph

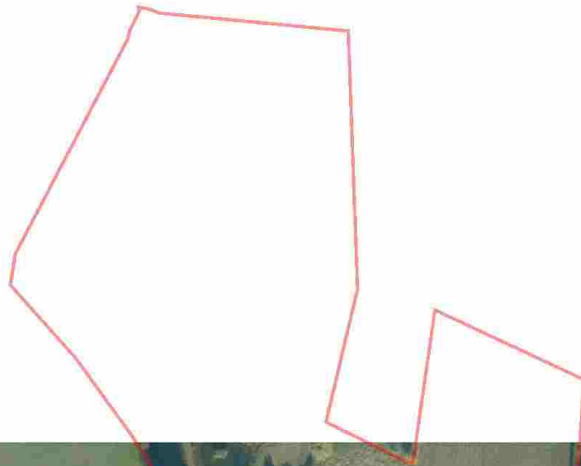


Capture Date: 05/07/2019

Site Area: 11.66ha



## Recent site history - 2018 aerial photograph



Capture Date: 29/10/2018

Site Area: 11.66ha



## Recent site history - 2015 aerial photograph



Capture Date: 28/08/2015

Site Area: 11.66ha



## Recent site history - 2009 aerial photograph



Capture Date: 19/08/2009

Site Area: 11.66ha



## Recent site history - 1999 aerial photograph

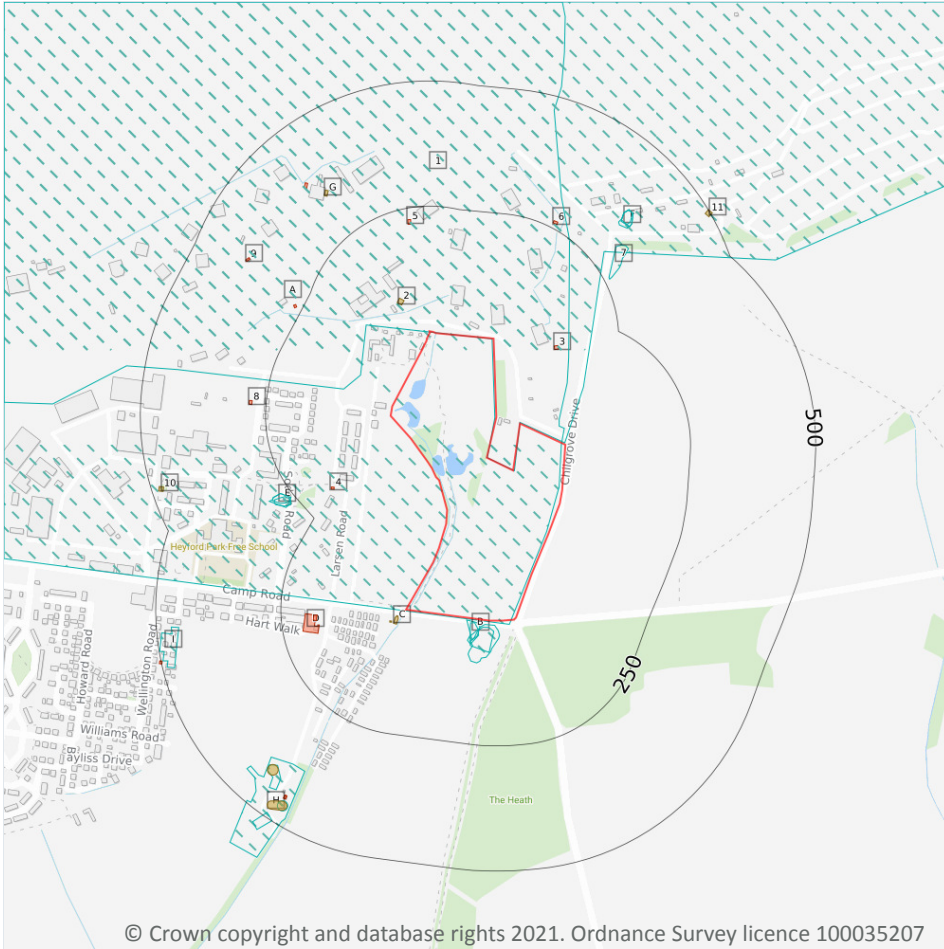


Capture Date: 05/10/1999

Site Area: 11.66ha



# 1 Past land use



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

## 1.1 Historical industrial land uses

**Records within 500m** **18**

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 13**

ID	Location	Land use	Dates present	Group ID
1	On site	Airfield	1980 - 1992	1823975



ID	Location	Land use	Dates present	Group ID
<b>A</b>	<b>On site</b>	<b>Airfield</b>	<b>1954</b>	<b>1823429</b>
B	5m S	Unspecified Quarry	1898	1831868
B	8m S	Sand Pit	1880	1753281
B	9m S	Unspecified Quarry	1954	1838046
B	14m S	Unspecified Quarry	1923	1826192
E	257m SW	Unspecified Quarry	1898	1762585
E	257m SW	Unspecified Pit	1923	1816463
7	260m NE	Unspecified Pit	1880	1778130
E	261m SW	Unspecified Pit	1880	1825470
F	339m NE	Unspecified Pit	1923	1804859
F	346m NE	Unspecified Pit	1954	1829845
F	348m NE	Unspecified Quarry	1898	1762583
H	381m SW	Sewage Works	1980 - 1992	1797143
H	403m SW	Unspecified Tanks	1980 - 1992	1831663
H	453m SW	Unspecified Tank	1980 - 1992	1786762
I	455m W	Hospital	1980 - 1992	1831302
H	491m SW	Unspecified Tanks	1980 - 1992	1802499

This data is sourced from Ordnance Survey / Groundsure.

## 1.2 Historical tanks

**Records within 500m**

**8**

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 13**

ID	Location	Land use	Dates present	Group ID
C	20m SW	Tanks	1975	287615





ID	Location	Land use	Dates present	Group ID
C	37m SW	Unspecified Tank	1975	284892
2	77m NW	Unspecified Tank	1998	284704
G	339m NW	Unspecified Tank	1998	284700
H	405m SW	Unspecified Tank	1994 - 1995	300763
H	454m SW	Tanks	1995	296509
10	475m W	Unspecified Tank	1975	284894
11	491m NE	Unspecified Tank	1998	284703

*This data is sourced from Ordnance Survey / Groundsure.*

### 1.3 Historical energy features

#### Records within 500m

**13**

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'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
3	121m E	Electricity Substation	1998	170606
D	176m W	Electricity Substation	1994 - 1995	179756
D	178m W	Electricity Substation	1975	177871
4	179m SW	Electricity Substation	1975	170603
5	217m N	Electricity Substation	1998	170604
6	260m NE	Electricity Substation	1998	170608
A	261m NW	Electricity Substation	1998	170611
8	278m W	Electricity Substation	1998	170613
G	377m NW	Electricity Substation	1998	170612
9	387m W	Electricity Substation	1998	170614
H	441m SW	Electricity Substation	1975	177579



ID	Location	Land use	Dates present	Group ID
H	442m SW	Electricity Substation	1994 - 1995	176356
I	498m W	Electricity Substation	1975 - 1995	177985

*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'.

*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.*

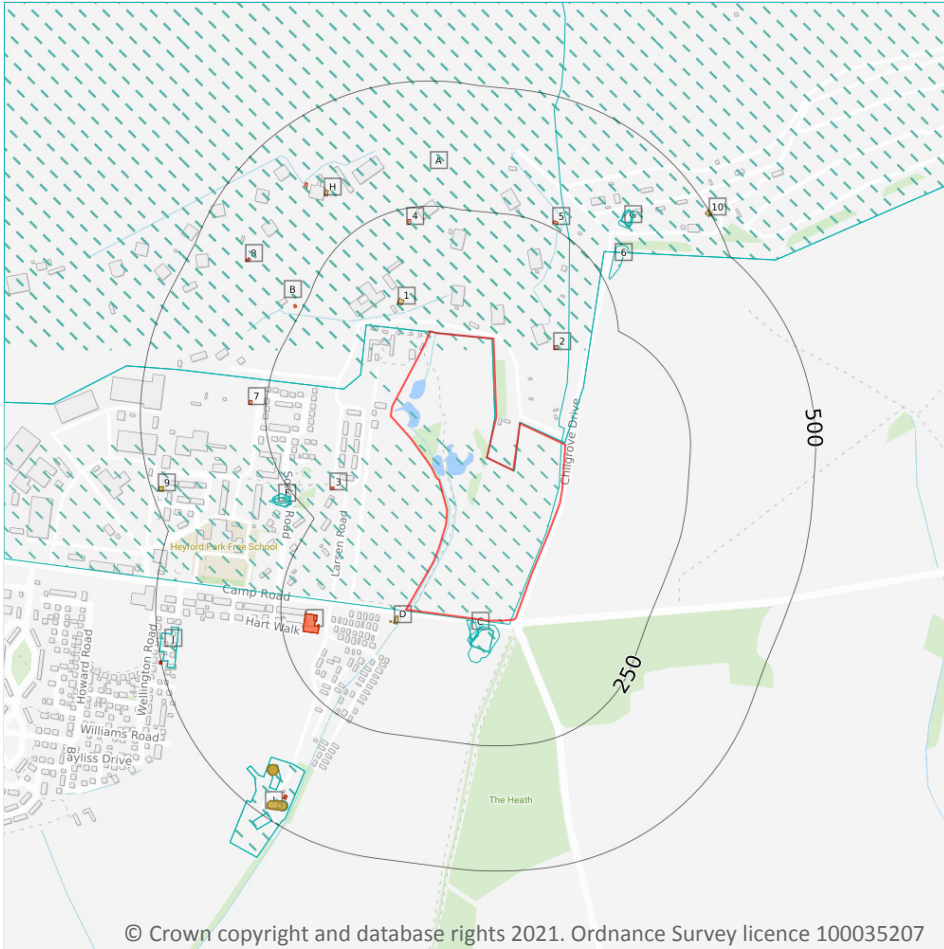
## 1.6 Historical military land

**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
- Historical energy features

### 2.1 Historical industrial land uses

Records within 500m

27

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 17**

ID	Location	Land Use	Date	Group ID
A	On site	Airfield	1980	1823975
A	On site	Airfield	1992	1823975
B	On site	Airfield	1954	1823429

ID	Location	Land Use	Date	Group ID
C	5m S	Unspecified Quarry	1898	1831868
C	8m S	Sand Pit	1880	1753281
C	9m S	Unspecified Quarry	1954	1838046
C	14m S	Unspecified Quarry	1923	1826192
C	17m S	Unspecified Quarry	1923	1826192
F	257m SW	Unspecified Quarry	1898	1762585
F	257m SW	Unspecified Pit	1923	1816463
6	260m NE	Unspecified Pit	1880	1778130
F	261m SW	Unspecified Pit	1880	1825470
F	265m SW	Unspecified Pit	1923	1816463
G	339m NE	Unspecified Pit	1923	1804859
G	346m NE	Unspecified Pit	1954	1829845
G	348m NE	Unspecified Quarry	1898	1762583
G	348m NE	Unspecified Pit	1923	1804859
I	381m SW	Sewage Works	1980	1797143
I	381m SW	Sewage Works	1992	1797143
I	403m SW	Unspecified Tanks	1980	1831663
I	403m SW	Unspecified Tanks	1992	1831663
I	453m SW	Unspecified Tank	1980	1786762
I	453m SW	Unspecified Tank	1992	1786762
J	455m W	Hospital	1980	1831302
J	455m W	Hospital	1992	1831302
I	491m SW	Unspecified Tanks	1980	1802499
I	491m SW	Unspecified Tanks	1992	1802499

*This data is sourced from Ordnance Survey / Groundsure.*



## 2.2 Historical tanks

Records within 500m

11

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 17**

ID	Location	Land Use	Date	Group ID
D	20m SW	Tanks	1975	287615
D	37m SW	Unspecified Tank	1975	284892
1	77m NW	Unspecified Tank	1998	284704
H	339m NW	Unspecified Tank	1998	284700
I	405m SW	Unspecified Tank	1995	300763
I	405m SW	Unspecified Tank	1994	300763
I	405m SW	Unspecified Tank	1995	300763
I	454m SW	Tanks	1995	296509
I	454m SW	Tanks	1995	296509
9	475m W	Unspecified Tank	1975	284894
10	491m NE	Unspecified Tank	1998	284703

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.3 Historical energy features

Records within 500m

20

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'.

Features are displayed on the Past land use - un-grouped map on **page 17**

ID	Location	Land Use	Date	Group ID
2	121m E	Electricity Substation	1998	170606
E	176m W	Electricity Substation	1995	179756
E	176m W	Electricity Substation	1994	179756



ID	Location	Land Use	Date	Group ID
E	176m W	Electricity Substation	1995	179756
E	178m W	Electricity Substation	1975	177871
3	179m SW	Electricity Substation	1975	170603
4	217m N	Electricity Substation	1998	170604
5	260m NE	Electricity Substation	1998	170608
B	261m NW	Electricity Substation	1998	170611
7	278m W	Electricity Substation	1998	170613
H	377m NW	Electricity Substation	1998	170612
8	387m W	Electricity Substation	1998	170614
I	441m SW	Electricity Substation	1975	177579
I	442m SW	Electricity Substation	1995	176356
I	442m SW	Electricity Substation	1994	176356
I	442m SW	Electricity Substation	1995	176356
J	498m W	Electricity Substation	1975	177985
J	499m W	Electricity Substation	1995	177985
J	499m W	Electricity Substation	1994	177985
J	499m W	Electricity Substation	1995	177985

*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

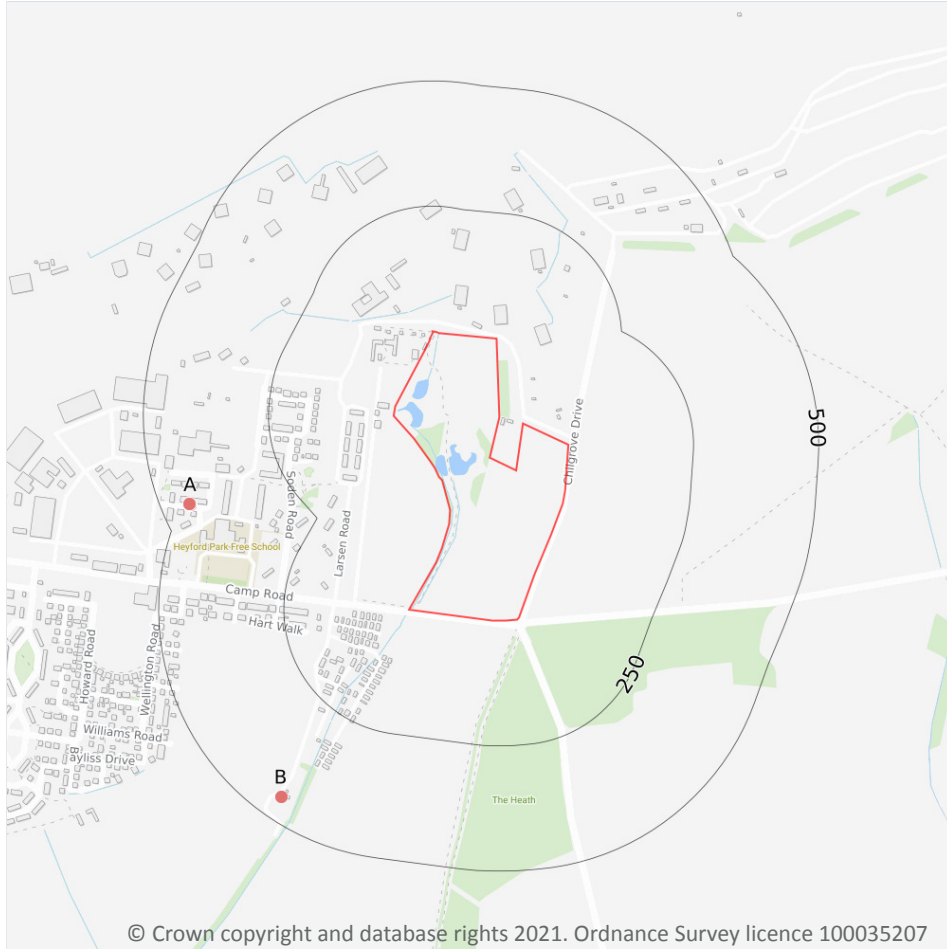
0

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

19

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 22**



ID	Location	Site	Reference	Category	Sub-Category	Description
A	444m SW	1044 and 1045 Gate 7, Heyford Park Camp Road, Upper Heyford, BICESTER, OX25 5HD	WEX157172	Treating waste exemption	Not on a Farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	444m SW	1044 and 1045 Gate 7, Heyford Park Camp Road, Upper Heyford, BICESTER, OX25 5HD	WEX157172	Using waste exemption	Not on a Farm	Spreading waste on non-agricultural land to confer benefit
A	444m SW	1044 and 1045 Gate 7, Heyford Park Camp Road, Upper Heyford, BICESTER, OX25 5HD	WEX157172	Using waste exemption	Not on a Farm	Use of mulch
A	444m SW	1044 and 1045 Gate 7, Heyford Park Camp Road, Upper Heyford, BICESTER, OX25 5HD	WEX157172	Treating waste exemption	Not on a Farm	Aerobic composting and associated prior treatment
A	444m SW	1044 and 1045 Gate 7, Heyford Park Camp Road, Upper Heyford, BICESTER, OX25 5HD	WEX157172	Storing waste exemption	Not on a Farm	Storage of waste in a secure place
A	444m SW	1044 and 1045 Gate 7, Heyford Park Camp Road, Upper Heyford, BICESTER, OX25 5HD	WEX157172	Using waste exemption	Not on a Farm	Spreading of plant matter to confer benefit
A	444m SW	LORIEN, WATERPERRY, OXFORD, OX33 1LD	WEX094202	Treating waste exemption	Not on a farm	Screening and blending of waste
A	445m SW	Heyford Park 32 Camp Road BICESTER Oxfordshire OX25 5HD	EPR/YF0004TT /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Screening and blending of waste
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Treating waste exemption	Non-Agricultural Waste Only	Aerobic composting and associated prior treatment
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Treating waste exemption	Non-Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising

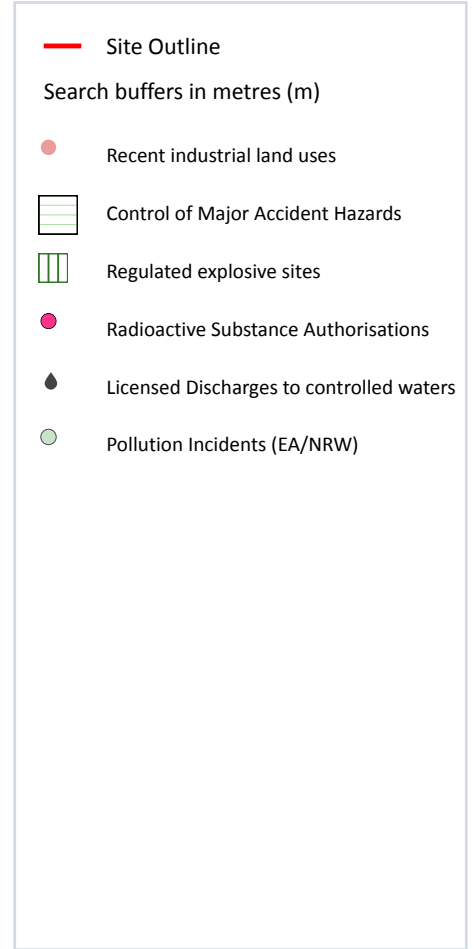
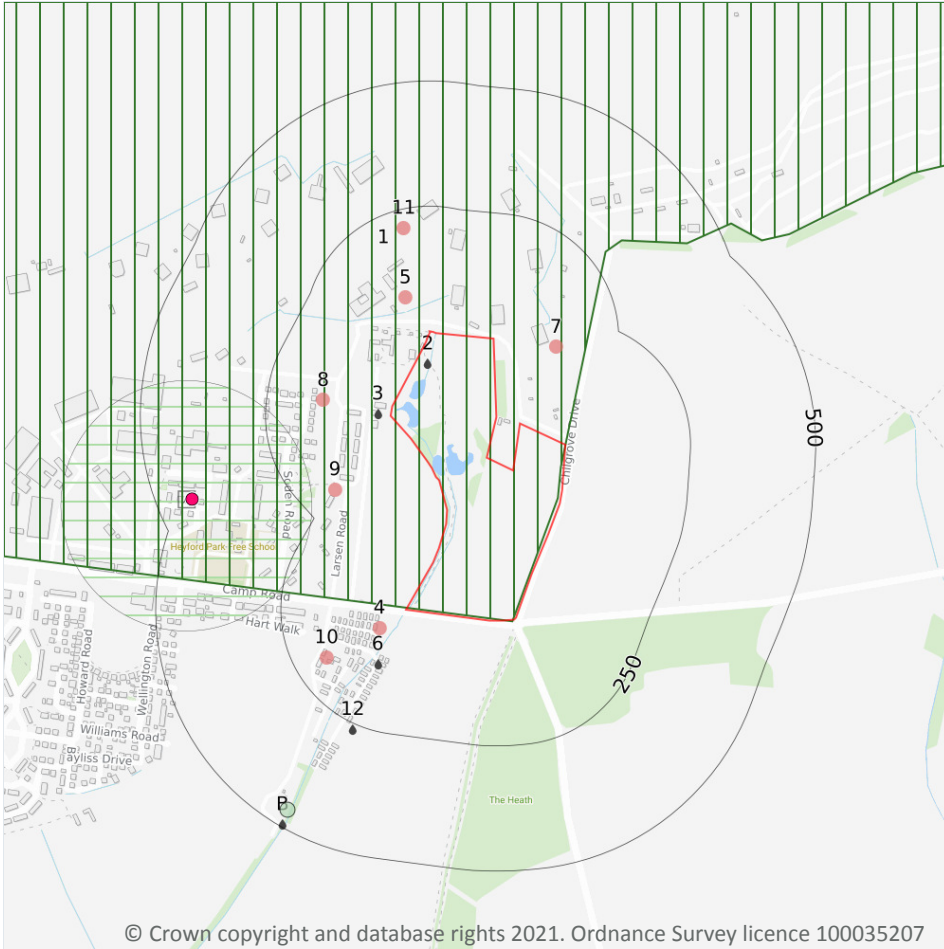


ID	Location	Site	Reference	Category	Sub-Category	Description
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Using waste exemption	Non-Agricultural Waste Only	Spreading waste on non-agricultural land to confer benefit
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Using waste exemption	Non-Agricultural Waste Only	Use of mulch
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Using waste exemption	Non-Agricultural Waste Only	Spreading of plant matter to confer benefit
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Using waste exemption	Non-Agricultural Waste Only	Incorporation of ash into soil
A	445m SW	Land @ SP5151825918	EPR/HE5052N N/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste for a specified purpose
A	445m SW	Heyford Park 32 Camp Road BICESTER Oxfordshire OX25 5HD	EPR/VF0335Q N/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
B	455m SW	Sewage Treatment Works Camp Road Bicester OX25 5LU	EPR/KF0904W V/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
B	455m SW	Sewage Treatment Works Camp Road Bicester OX25 5LU	EPR/KF0904W V/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place

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



## 4 Current industrial land use



### 4.1 Recent industrial land uses

Records within 250m

7

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Address	Activity	Category
4	64m SW	Sewage Works	Oxfordshire, OX25	Waste Storage, Processing and Disposal	Infrastructure and Facilities
5	83m NW	Tank	Oxfordshire, OX25	Tanks (Generic)	Industrial Features
7	124m E	Electricity Sub Station	Oxfordshire, OX25	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
8	138m W	Pumping Station	Oxfordshire, OX25	Water Pumping Stations	Industrial Features
9	181m SW	Electricity Sub Station	Oxfordshire, OX25	Electrical Features	Infrastructure and Facilities
10	185m SW	Electricity Sub Station	Oxfordshire, OX25	Electrical Features	Infrastructure and Facilities
11	213m N	Electricity Sub Station	Oxfordshire, OX25	Electrical Features	Infrastructure and Facilities

*This data is sourced from Ordnance Survey.*

## 4.2 Current or recent petrol stations

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

Open, closed, under development and obsolete petrol stations.

*This data is sourced from Experian.*

## 4.3 Electricity cables

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

High voltage underground electricity transmission cables.

*This data is sourced from National Grid.*

## 4.4 Gas pipelines

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

High pressure underground gas transmission pipelines.

*This data is sourced from National Grid.*

## 4.5 Sites determined as Contaminated Land

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

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

*This data is sourced from Local Authority records.*



## 4.6 Control of Major Accident Hazards (COMAH)

**Records within 500m**
**1**

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.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Address	Operational status	Tier
A	195m SW	Heyford Park Management Company Limited	Heyford Park Management Company Limited, Southern Bomb Store/Site, Heyford Park, Camp Road, Upper Heyford, Oxfordshire, OX25 5HD	Current COMAH Site	COMAH Upper Tier Operator

*This data is sourced from the Health and Safety Executive.*

## 4.7 Regulated explosive sites

**Records within 500m**
**1**

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.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Operational Address
1	On site	Cosmic Fireworks Ltd	RAF Upper Heyford, Camp Road, Oxon, OX25 5HE

*This data is sourced from the Health and Safety Executive.*

## 4.8 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.*



## 4.9 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.*

## 4.10 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.*

## 4.11 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.*

## 4.12 Radioactive Substance Authorisations

Records within 500m

2

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

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Address	Details	
A	429m SW	Oxford Bio-innovation Ltd, 77 Heyford Park, upper Heyford, Bicester, Oxfordshire, OX25 5HD	Operator: Oxford Bio-innovation Ltd Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: CA4765 Date of approval: 01/11/2006	Effective from: 01/11/2006 Last date of update: 01/01/2015 Status: Revoked/cancelled
A	429m SW	Oxford Bio-innovation Ltd, 77 Heyford Park, Upper Heyford, Bicester, Oxfordshire, OX25 5HD	Operator: Oxford Bio-innovation Ltd Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: CA4773 Date of approval: 01/11/2006	Effective from: 01/11/2006 Last date of update: 01/01/2015 Status: Revoked/cancelled

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

## 4.13 Licensed Discharges to controlled waters

Records within 500m

5

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

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Address	Details	
2	On site	HEYFORD PARK, UPPER HEYFORD, NEAR B, HEYFORD PARK UPPER HEYFORD NEA, R BICESTER OXFORDSHIRE	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CATM.2848 Permit Version: 1 Receiving Water: LEYS FARM DITCH	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 27/03/1997 Effective Date: 27/03/1997 Revocation Date: -
3	26m W	HEYFORD PARK, UPPER HEYFORD, NEAR B, HEYFORD PARK UPPER HEYFORD NEA, R BICESTER OXFORDSHIRE	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CATM.2849 Permit Version: 1 Receiving Water: LEYS FARM DITCH	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 27/03/1997 Effective Date: 27/03/1997 Revocation Date: -
6	122m SW	HEYFORD PARK, UPPER HEYFORD, NEAR B, HEYFORD PARK UPPER HEYFORD NEA, R BICESTER OXFORDSHIRE	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CATM.2850 Permit Version: 1 Receiving Water: LEYS FARM DITCH	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 27/03/1997 Effective Date: 27/03/1997 Revocation Date: -
12	261m SW	HEYFORD LEYS MOBILE HOME PARK, UPPER HEYFORD	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: CNTM.1883 Permit Version: 1 Receiving Water: LEYS FARM DITCH	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 30/06/1995 Effective Date: 30/06/1995 Revocation Date: -
B	494m SW	HEYFORD PARK, UPPER HEYFORD, NEAR B, HEYFORD PARK UPPER HEYFORD NEA, R BICESTER OXFORDSHIRE	Effluent Type: SEWAGE & TRADE COMBINED - UNSPECIFIED Permit Number: CATM.2805 Permit Version: 1 Receiving Water: GALLOWS BROOK	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 27/03/1997 Effective Date: 27/03/1997 Revocation Date: -

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





#### 4.14 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.*

#### 4.15 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.*

#### 4.16 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.*

#### 4.17 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.*

#### 4.18 Pollution Incidents (EA/NRW)

Records within 500m	1
---------------------	---

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

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Details	
B	464m SW	Incident Date: 22/05/2007 Incident Identification: 496617 Pollutant: Sewage Materials Pollutant Description: Final Effluent	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

#### 4.19 Pollution inventory substances

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

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.*

#### 4.20 Pollution inventory waste transfers

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

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.*

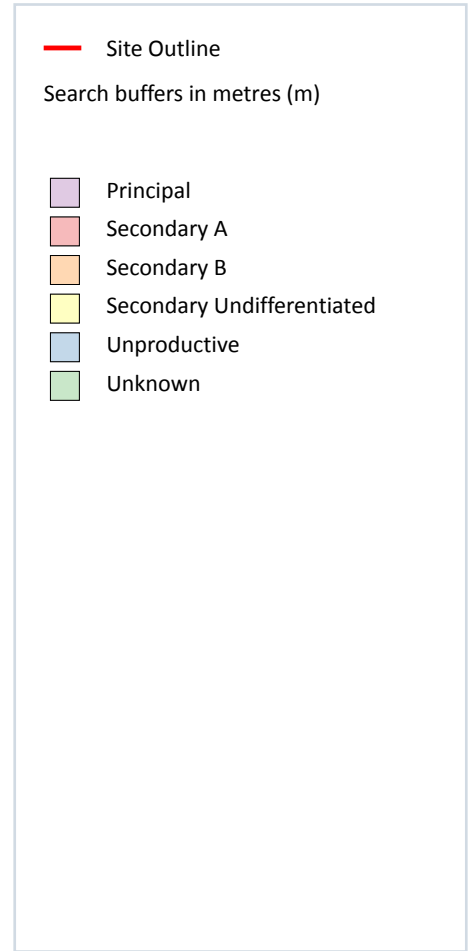
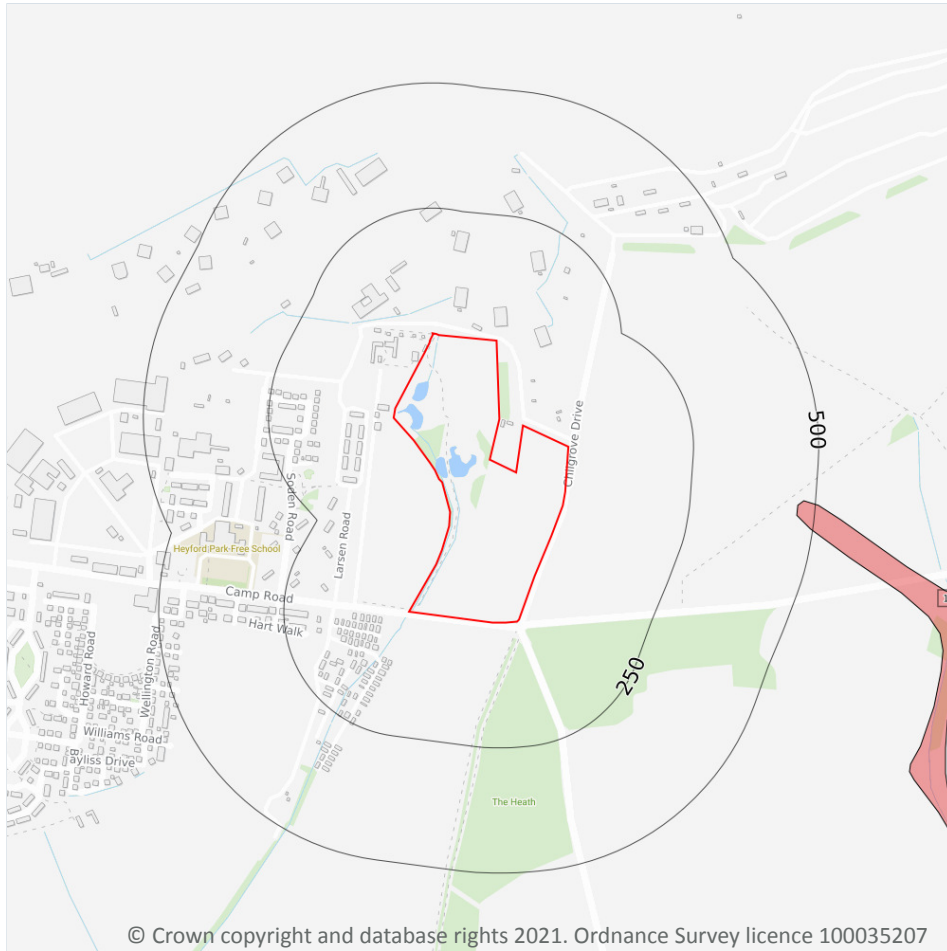
#### 4.21 Pollution inventory radioactive waste

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

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



### 5.1 Superficial aquifer

Records within 500m

1

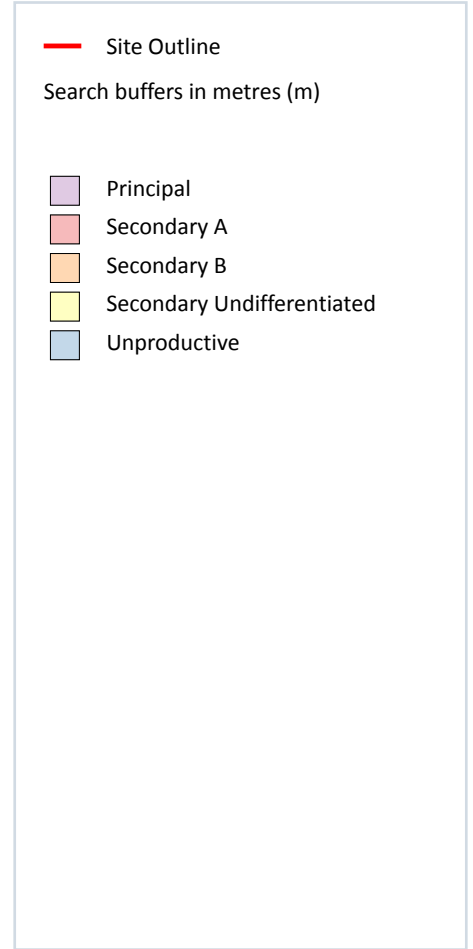
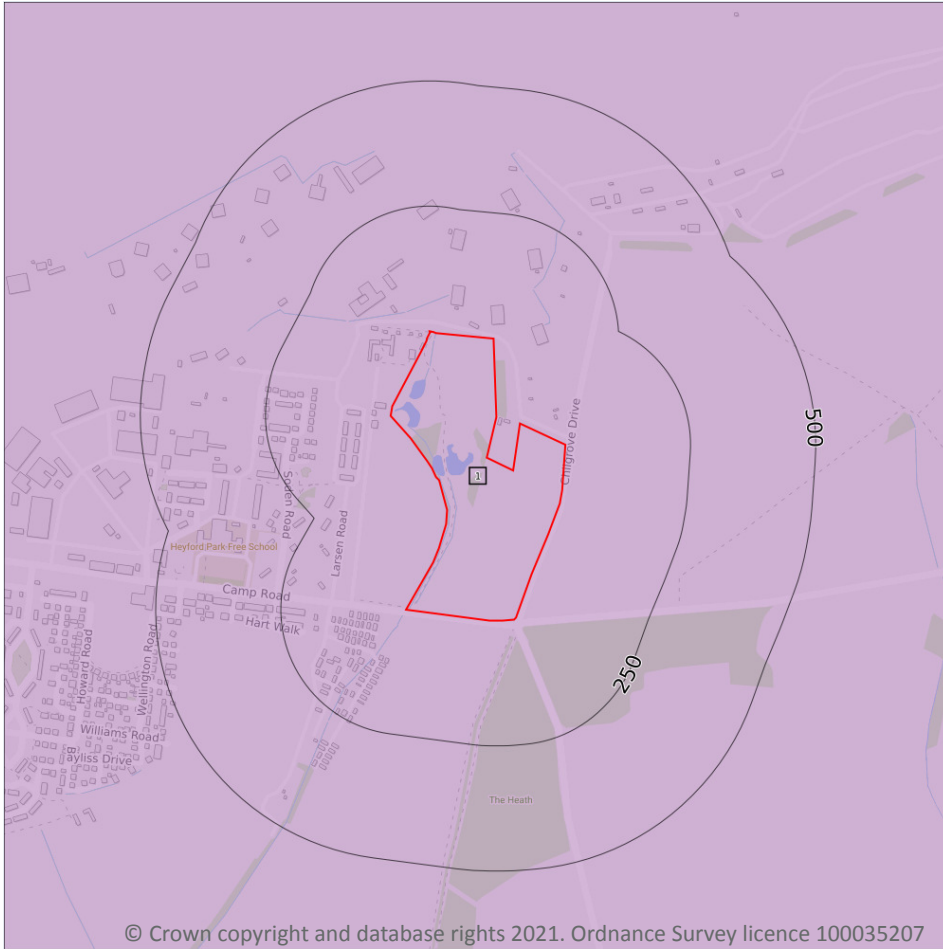
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 33**

ID	Location	Designation	Description
1	465m E	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



### 5.2 Bedrock aquifer

Records within 500m

1

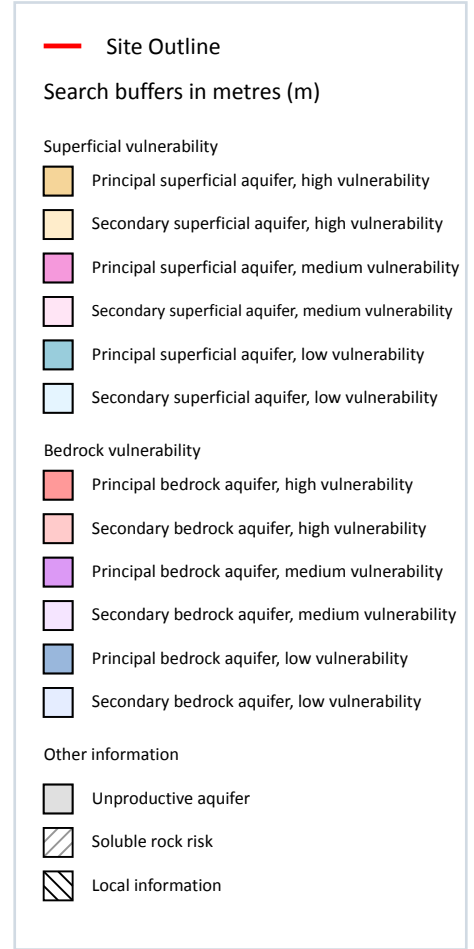
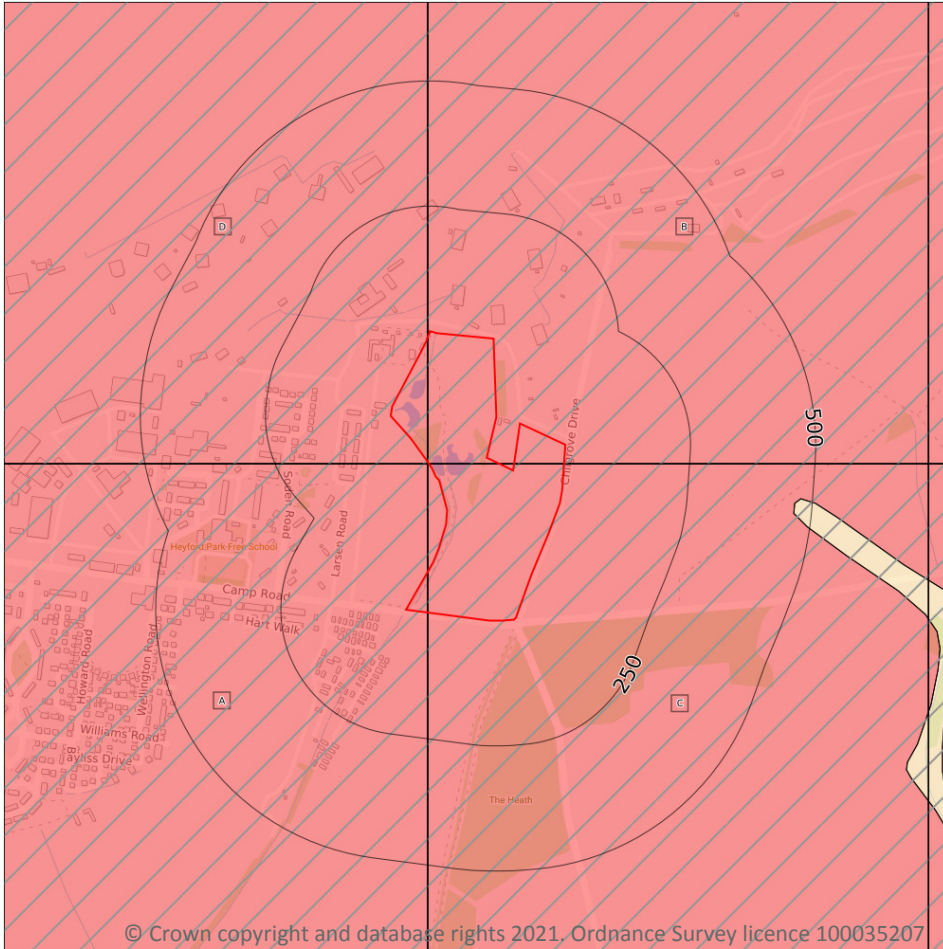
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 34**

ID	Location	Designation	Description
1	On site	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

4

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 35**



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
A	On site	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures
B	On site	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures
C	On site	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures
D	On site	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300- 550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal 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

4

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.	100.0%
B	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	100.0%
C	Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.	2.0%



ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
D	<b>Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.</b>	<b>100.0%</b>

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

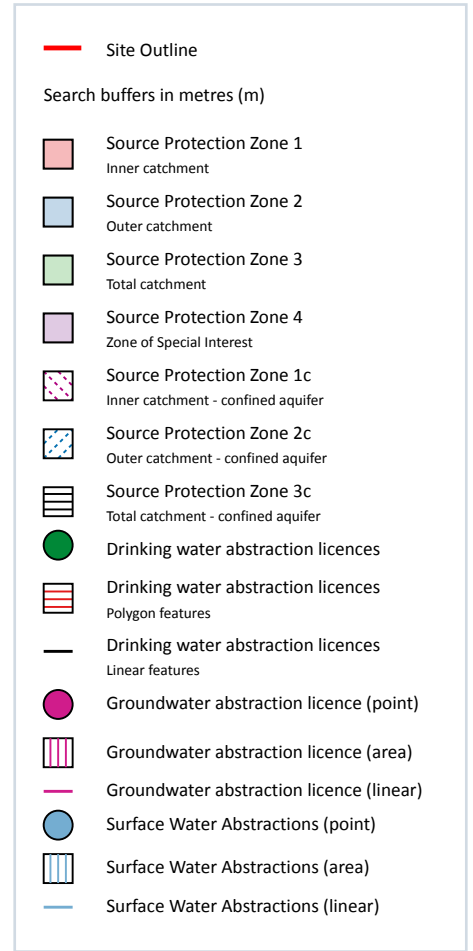
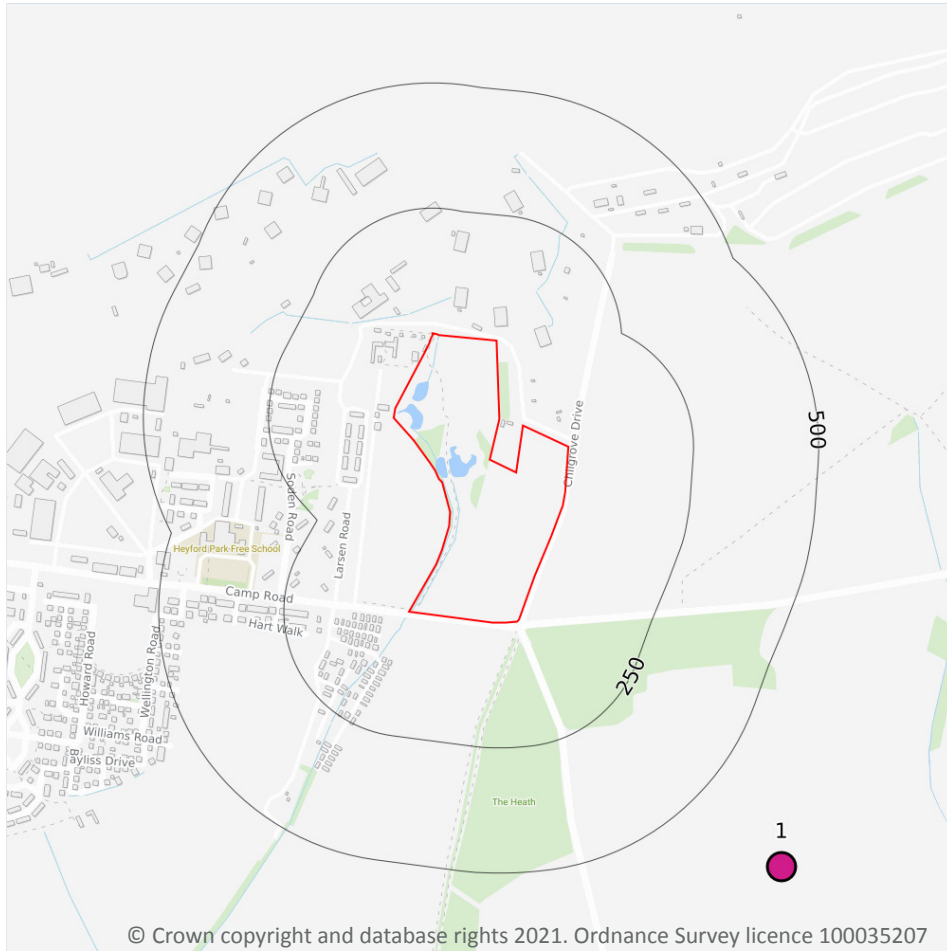
## 5.5 Groundwater vulnerability- local information

<b>Records on site</b>	<b>0</b>
------------------------	----------

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](mailto:enquiries@environment-agency.gov.uk).

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

## Abstractions and Source Protection Zones



### 5.6 Groundwater abstractions

Records within 2000m

5

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 38**



ID	Location	Details	
1	719m SE	Status: Active Licence No: 28/39/14/0102 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: MANOR FARM, MIDDLETON STONEY (A) Data Type: Point Name: HILSDON Easting: 452700 Northing: 225200	Annual Volume (m <sup>3</sup> ): 7,319 Max Daily Volume (m <sup>3</sup> ): 20.23 Original Application No: - Original Start Date: 12/12/1996 Expiry Date: - Issue No: 100 Version Start Date: 01/09/1998 Version End Date: -
-	1287m S	Status: Historical Licence No: 28/39/14/0304 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: PARK FARM, MIDDLETON STONEY (A) Data Type: Point Name: J H NORMAN & SONS Easting: 452200 Northing: 224400	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 09/11/1989 Expiry Date: - Issue No: 100 Version Start Date: 09/11/1989 Version End Date: -
-	1636m N	Status: Historical Licence No: 6/33/02/*G/0128 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT SOMERTON Data Type: Point Name: POWER Easting: 451940 Northing: 227900	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 01/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1994 Version End Date: -
-	1636m N	Status: Historical Licence No: 6/33/02/*G/0128 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT SOMERTON Data Type: Point Name: POWER Easting: 451940 Northing: 227900	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 01/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1994 Version End Date: -
-	1651m N	Status: Historical Licence No: 6/33/02/*G/0092 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT ARDLEY Data Type: Point Name: PARKER Easting: 452700 Northing: 227800	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 01/11/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1977 Version End Date: -

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



## 5.7 Surface water abstractions

Records within 2000m

0

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.

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

## 5.8 Potable abstractions

Records within 2000m

1

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 38**

ID	Location	Details	
-	1636m N	Status: Historical Licence No: 6/33/02/*G/0128 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT SOMERTON Data Type: Point Name: POWER Easting: 451940 Northing: 227900	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 01/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1994 Version End Date: -

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

## 5.9 Source Protection Zones

Records within 500m

0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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

## 5.10 Source Protection Zones (confined aquifer)

Records within 500m

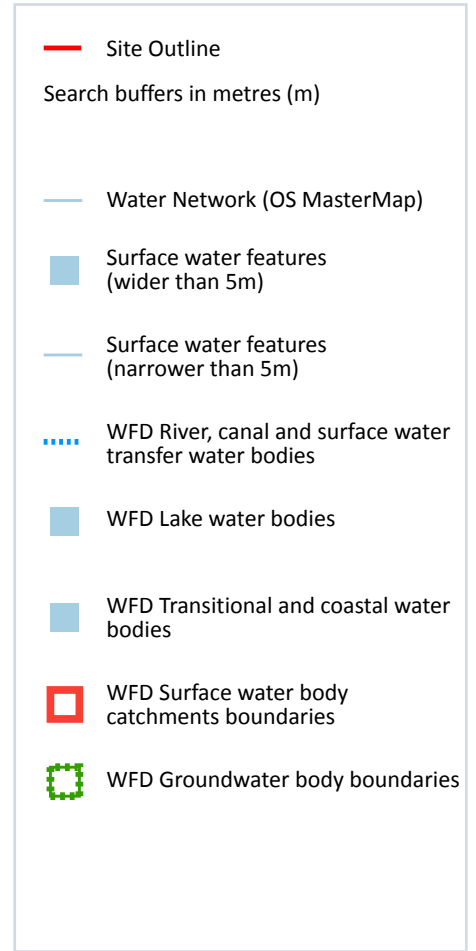
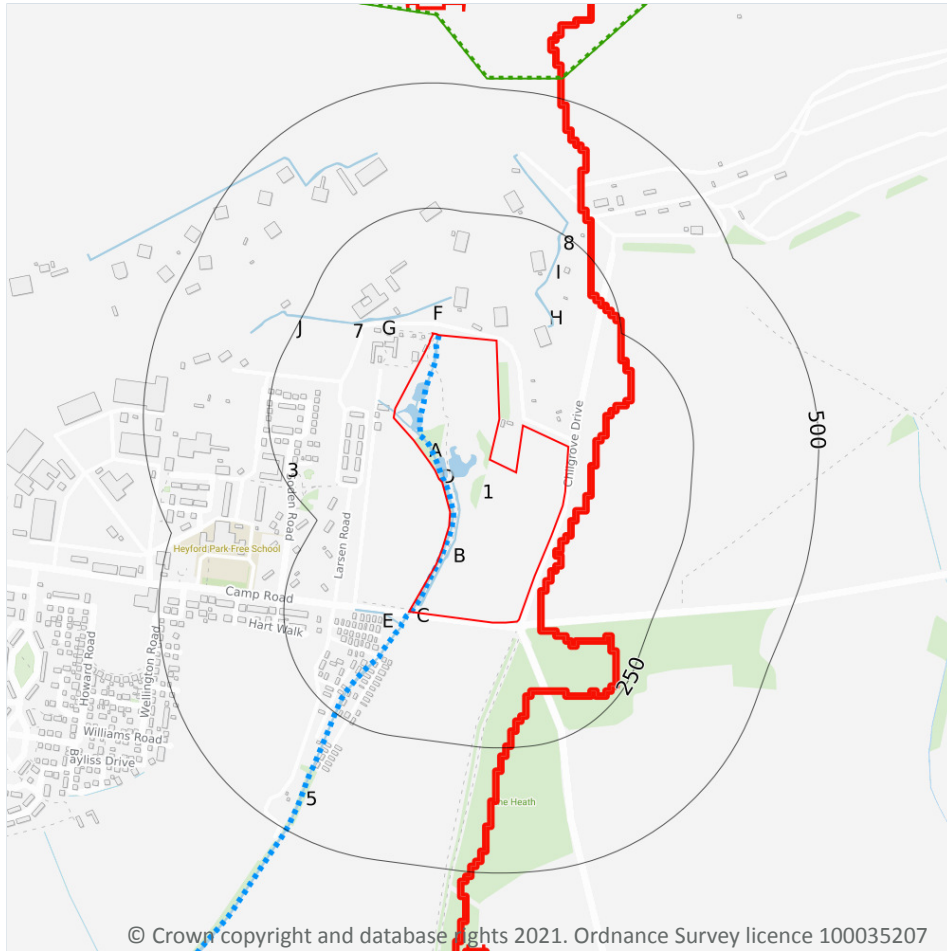
0

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



### 6.1 Water Network (OS MasterMap)

Records within 250m

26

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 42**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	On site	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
A	On site	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
A	On site	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	On site	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
C	10m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	30m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	30m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	53m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	59m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
G	62m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	106m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	125m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
I	130m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	155m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
J	161m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	246m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

*This data is sourced from the Ordnance Survey.*



## 6.2 Surface water features

Records within 250m

9

Covering rivers, streams and lakes (some overlap with OS MasterMap 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 42**

*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 42**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
3	On site	River WB catchment	Gallos Brook	GB106039030130	Oxon Ray	Cherwell and Ray

*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 42**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
2	On site	River	Gallos Brook	<u><a href="#">GB106039030130</a></u>	Moderate	Good	Moderate	2016



*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 42**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	On site	Tackley Jurassic	<a href="#"><u>GB40601G603100</u></a>	Good	Good	Good	2015

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





## 7 River and coastal flooding

### 7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m

0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; 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).

*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

### 7.6 Flood Zone 2

Records within 50m

0

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.

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

### 7.7 Flood Zone 3

Records within 50m

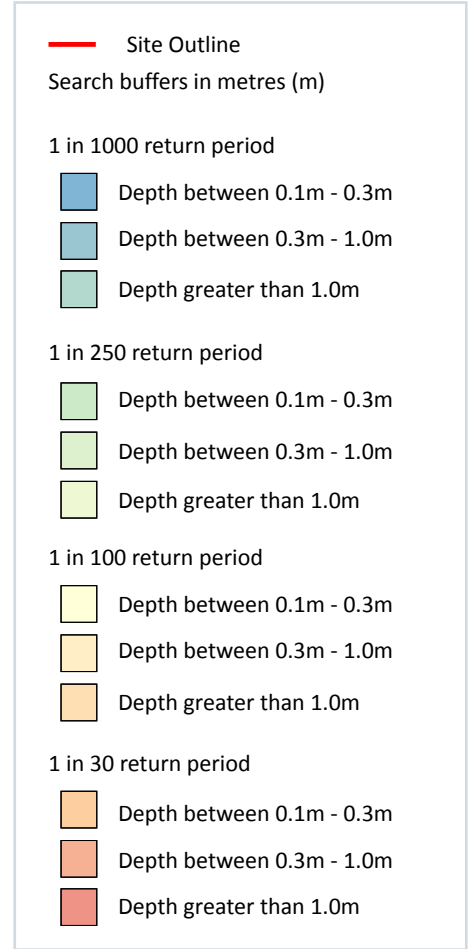
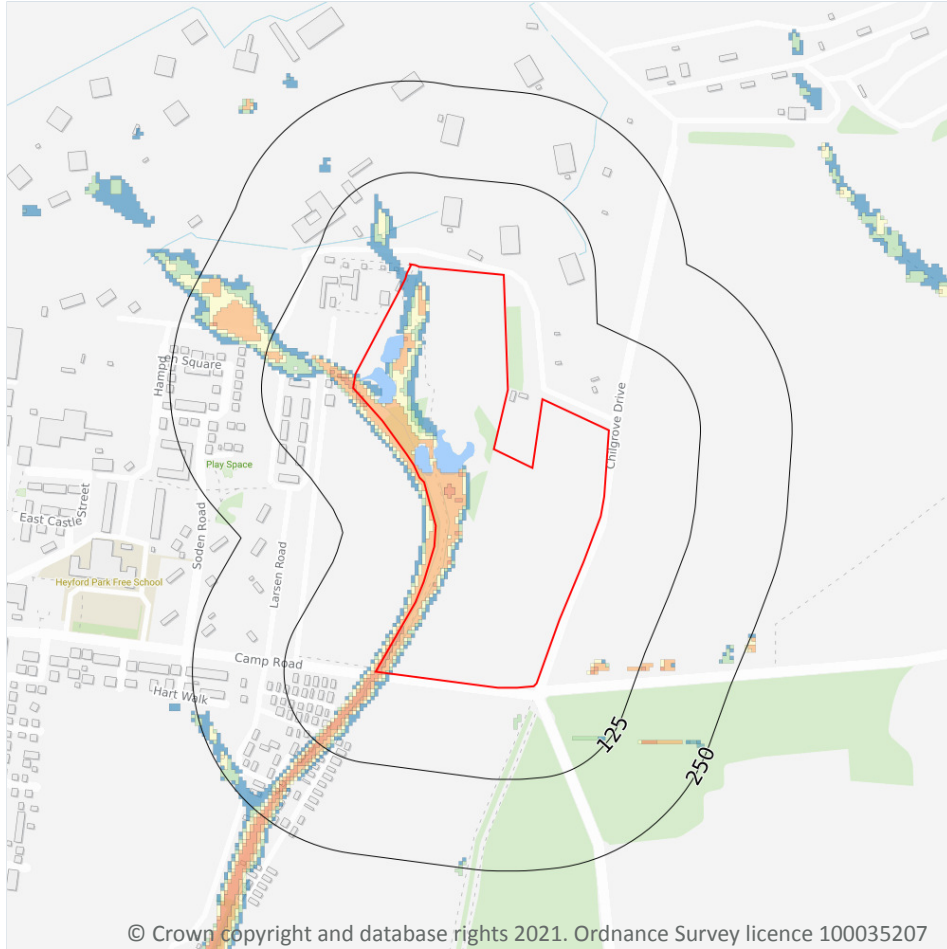
0

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.

*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

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 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 50**

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.

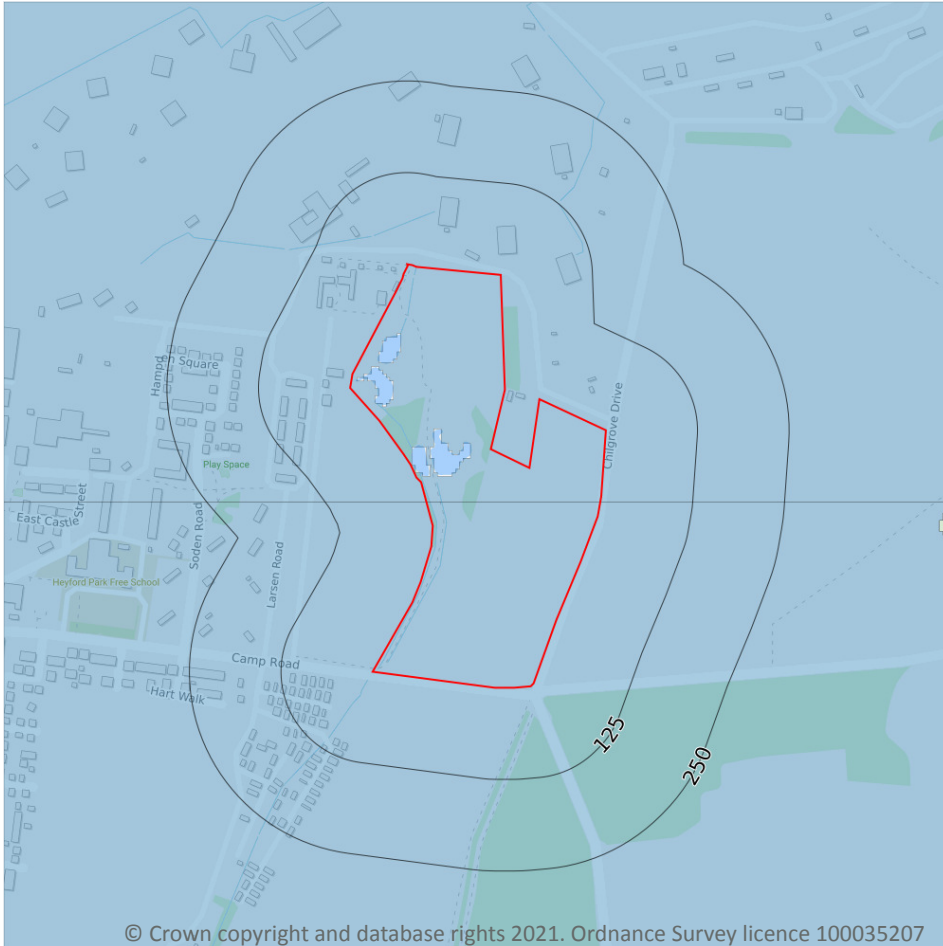
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

*This data is sourced from Ambiental Risk Analytics.*



## 9 Groundwater flooding



### 9.1 Groundwater flooding

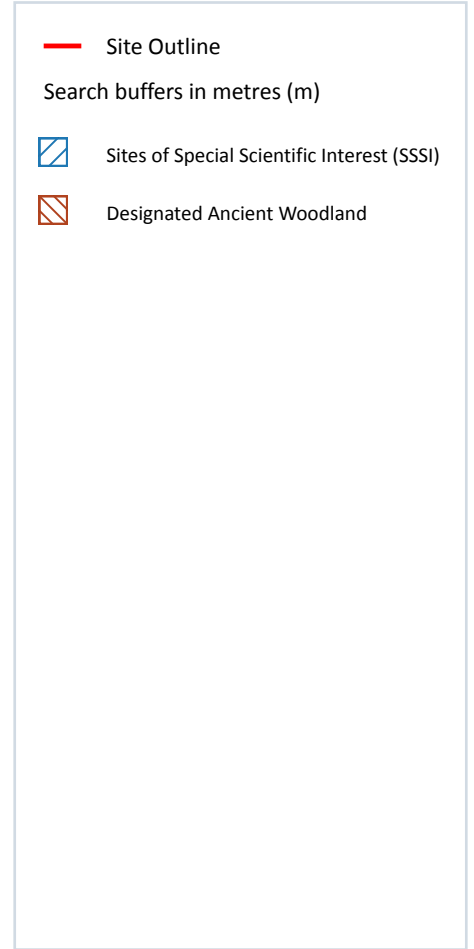
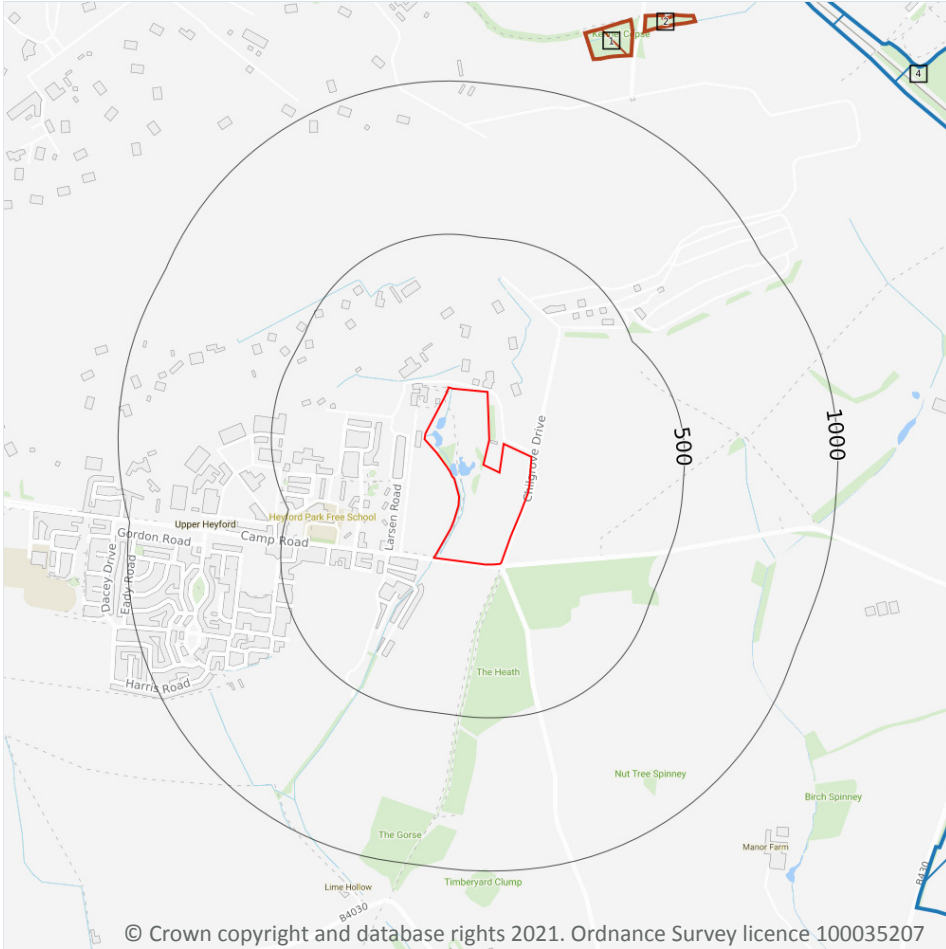
Highest risk on site	Negligible
Highest risk within 50m	Negligible

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 52**

*This data is sourced from Ambiental Risk Analytics.*

## 10 Environmental designations



### 10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

2

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.

Features are displayed on the Environmental designations map on **page 53**

ID	Location	Name	Data source
3	1608m SE	Ardley Trackways	Natural England

ID	Location	Name	Data source
4	1642m NE	Ardley Cutting and Quarry	Natural England

*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

3

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.

Features are displayed on the Environmental designations map on **page 53**

ID	Location	Name	Woodland Type
1	1139m N	Kennel Copse	Ancient & Semi-Natural Woodland
2	1282m NE	Unknown	Ancient & Semi-Natural Woodland
-	1985m NE	Ardley Wood	Ancient & Semi-Natural Woodland

*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

0

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

*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**

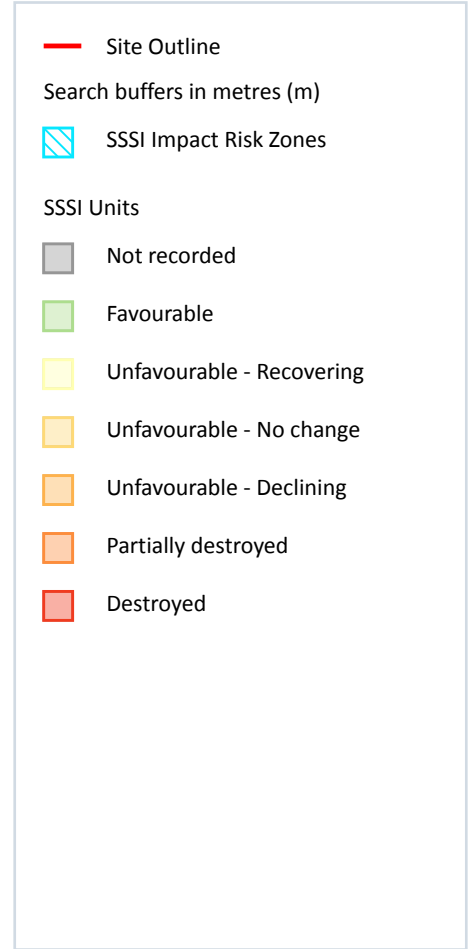
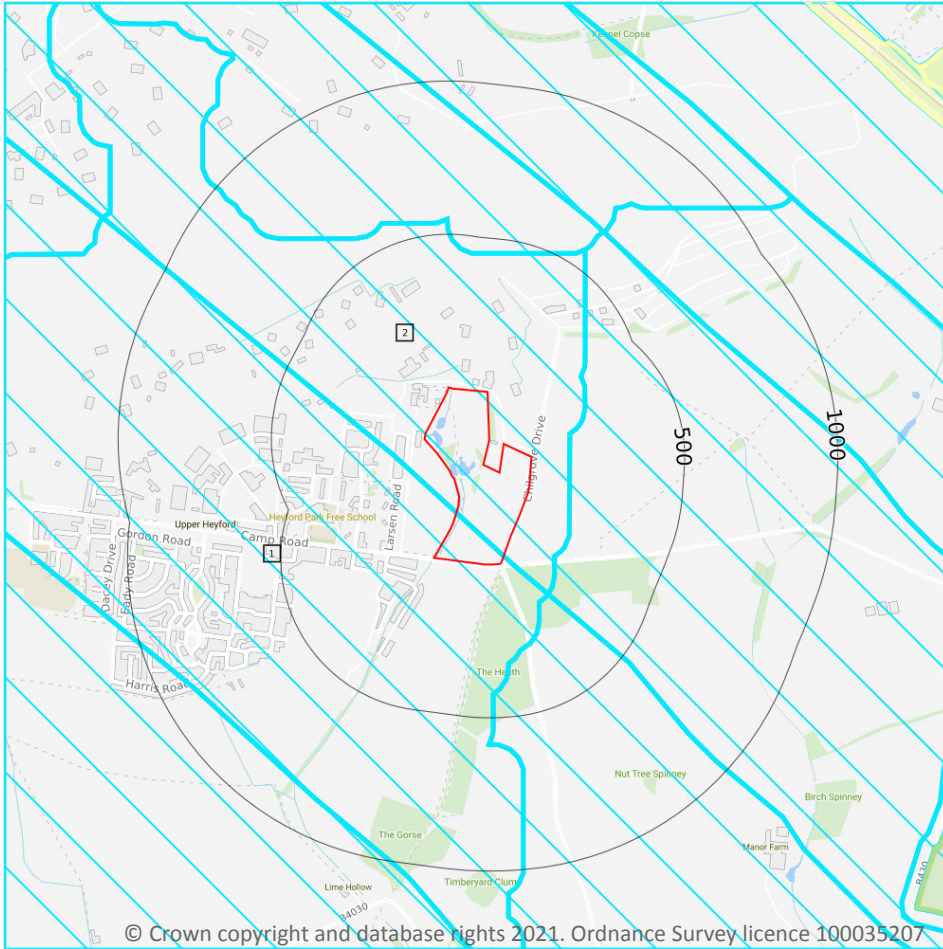
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	<b>Cherwell (Ray to Thames) and Woodeaton Brook NVZ</b>	<b>Surface Water</b>	<b>S472</b>	<b>Existing</b>
On site	<b>Cherwell (Ray to Thames) and Woodeaton Brook NVZ</b>	<b>Surface Water</b>	<b>S472</b>	<b>Existing</b>
631m N	Great Ouse NVZ	Surface Water	S391	Existing
631m N	Anglian Great Oolite	Groundwater	G73	Existing
1817m NE	Cherwell (Ray to Thames) and Woodeaton Brook NVZ	Surface Water	S472	Existing
1818m SE	Cherwell (Ray to Thames) and Woodeaton Brook NVZ	Surface Water	S472	Existing
1997m NE	Anglian Great Oolite	Groundwater	G73	Existing

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



## SSSI Impact Zones and Units



### 10.17 SSSI Impact Risk Zones

Records on site

2

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 58**

ID	Location	Type of developments requiring consultation
1	On site	<p>Infrastructure - Airports, helipads and other aviation proposals.</p> <p>Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil &amp; gas exploration/extraction.</p> <p>Air pollution - Livestock &amp; poultry units with floorspace &gt; 500m<sup>2</sup>, slurry lagoons &gt; 750m<sup>2</sup> &amp; manure stores &gt; 3500t.</p> <p>Discharges - Any discharge of water or liquid waste of more than 20m<sup>3</sup>/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location)</p>
2	On site	<p>Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals</p> <p>Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil &amp; gas exploration/extraction.</p> <p>Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock &amp; poultry units with floorspace &gt; 500m<sup>2</sup>, slurry lagoons &gt; 200m<sup>2</sup> &amp; manure stores &gt; 250t).</p> <p>Combustion - General combustion processes &gt;20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion</p> <p>Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.</p> <p>Composting - Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management</p> <p>Discharges - Any discharge of water or liquid waste of more than 20m<sup>3</sup>/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location)</p> <p>Water supply - Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m<sup>2</sup> or more.</p>

*This data is sourced from Natural England.*

## 10.18 SSSI Units

Records within 2000m

4

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.

Features are displayed on the SSSI Impact Zones and Units map on **page 58**

ID: 12  
 Location: 1608m SE  
 SSSI name: Ardley Trackways  
 Unit name: Dewars Farm  
 Broad habitat: Inland Rock  
 Condition: Favourable  
 Reportable features:



Feature name	Feature condition	Date of assessment
EA - Jurassic - Cretaceous Reptilia	Favourable	15/10/2009

ID: B  
 Location: 1642m NE  
 SSSI name: Ardley Cutting and Quarry  
 Unit name: Cutting  
 Broad habitat: Calcareous Grassland - Lowland  
 Condition: Unfavourable - Recovering  
 Reportable features:

Feature name	Feature condition	Date of assessment
ER - Bathonian	Favourable	22/08/2012
Invert. assemblage F112 open short sward	-	-
Lowland calcareous grassland (CG3-5)	Unfavourable - Recovering	22/08/2012
Populations of nationally scarce butterfly species - <i>Hamearis lucina</i> , Duke of Burgundy	-	-

ID: 13  
 Location: 1756m NE  
 SSSI name: Ardley Cutting and Quarry  
 Unit name: Ardley Wood  
 Broad habitat: Calcareous Grassland - Lowland  
 Condition: Unfavourable - Recovering  
 Reportable features:

Feature name	Feature condition	Date of assessment
ED - Bathonian	Unfavourable - Recovering	27/09/2012
Invert. assemblage F112 open short sward	-	-
Lowland calcareous grassland (CG3-5)	Unfavourable - Recovering	27/09/2012
Populations of nationally scarce butterfly species - <i>Hamearis lucina</i> , Duke of Burgundy	-	-

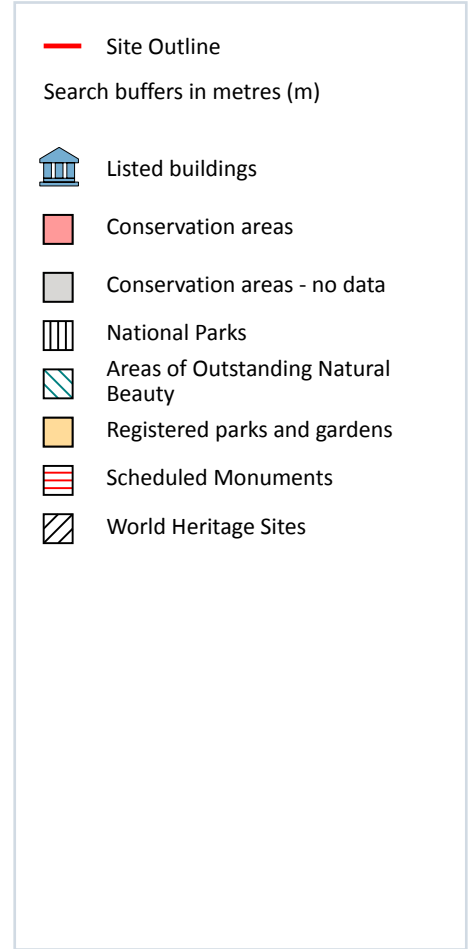
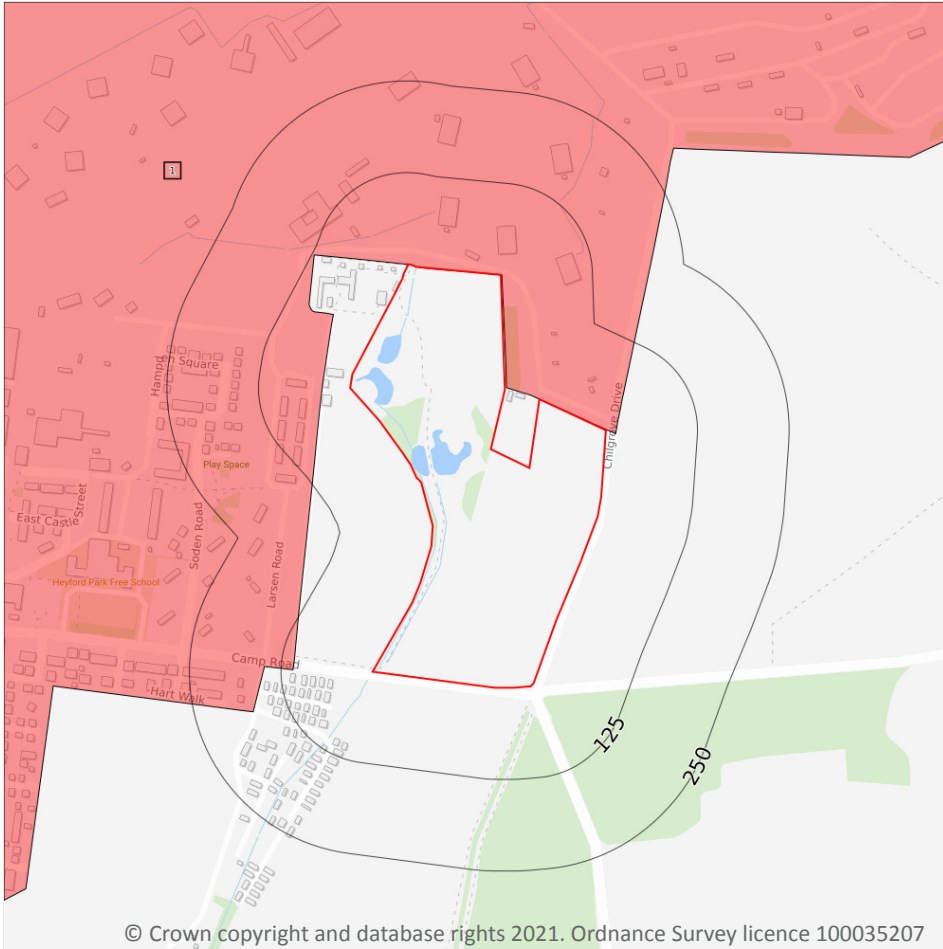
ID: -  
Location: 1995m E  
SSSI name: Ardley Cutting and Quarry  
Unit name: South East  
Broad habitat: Earth Heritage  
Condition: Unfavourable - Recovering  
Reportable features:

Feature name	Feature condition	Date of assessment
ED - Bathonian	Unfavourable - Recovering	01/10/2009

*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

1

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.



Features are displayed on the Visual and cultural designations map on **page 62**

ID	Location	Name	District	Date of designation
1	On site	RAF Upper Heyford	Cherwell	04/2006

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

## 11.6 Scheduled Ancient Monuments

<b>Records within 250m</b>	<b>0</b>
----------------------------	----------

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.*

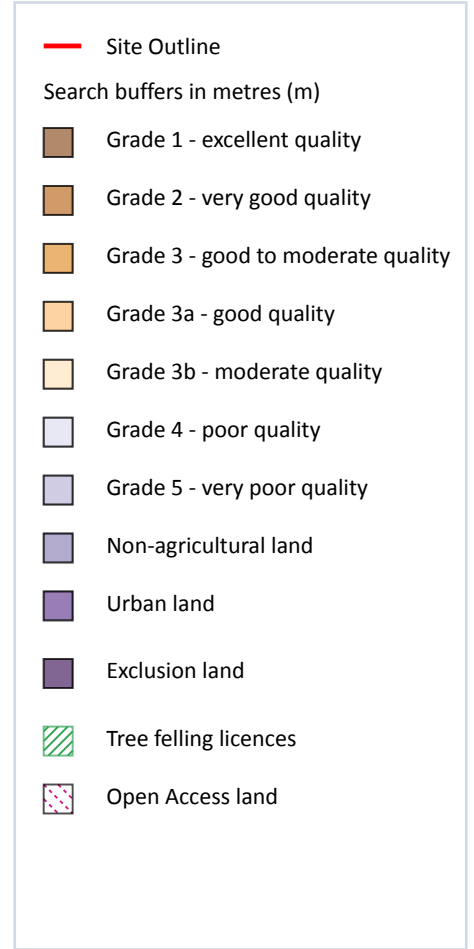
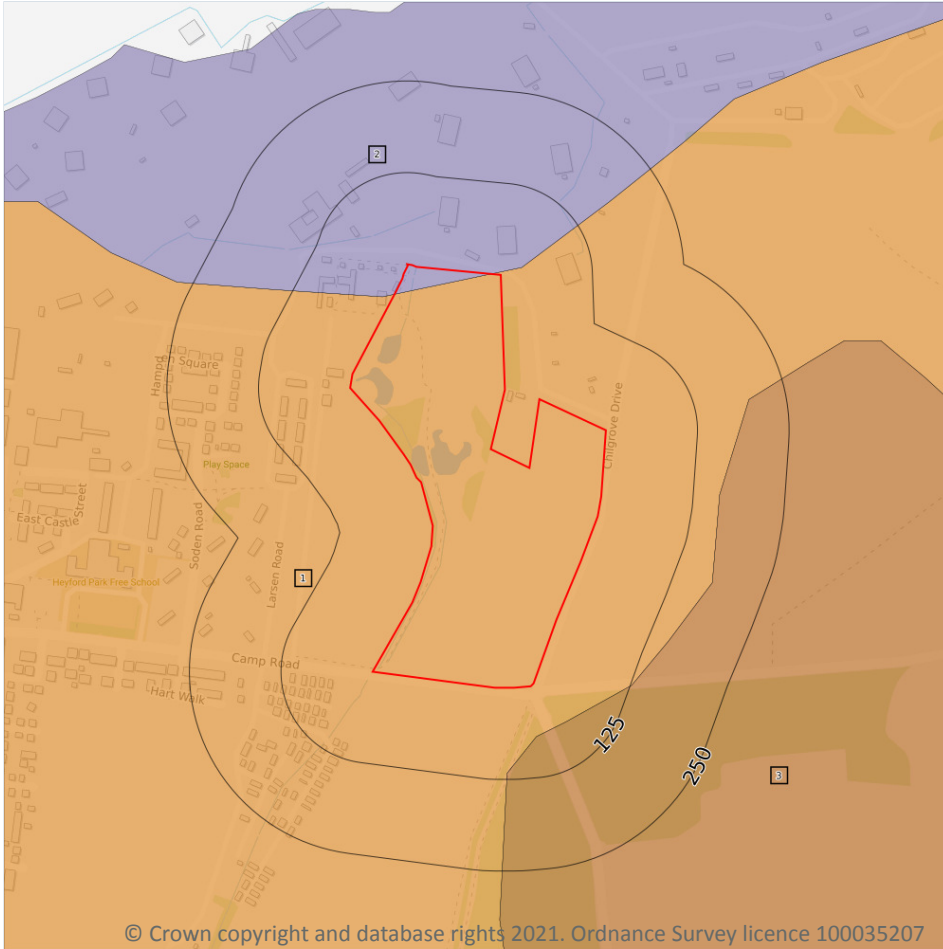
## 11.7 Registered Parks and Gardens

<b>Records within 250m</b>	<b>0</b>
----------------------------	----------

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



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### 12.1 Agricultural Land Classification

Records within 250m

3

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 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

ID	Location	Classification	Description
2	On site	Non Agricultural	-
3	65m SE	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

<b>Records within 250m</b>	<b>0</b>
----------------------------	----------

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

<b>Records within 250m</b>	<b>0</b>
----------------------------	----------

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

<b>Records within 250m</b>	<b>2</b>
----------------------------	----------

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.

Location	Reference	Scheme	Start Date	End date
24m SE	AG00456291	Entry Level Stewardship	01/10/2013	30/09/2018
172m SW	AG00583371	Entry Level plus Higher Level Stewardship	01/10/2014	30/09/2024

*This data is sourced from Natural England.*

## 12.5 Countryside Stewardship Schemes

**Records within 250m**

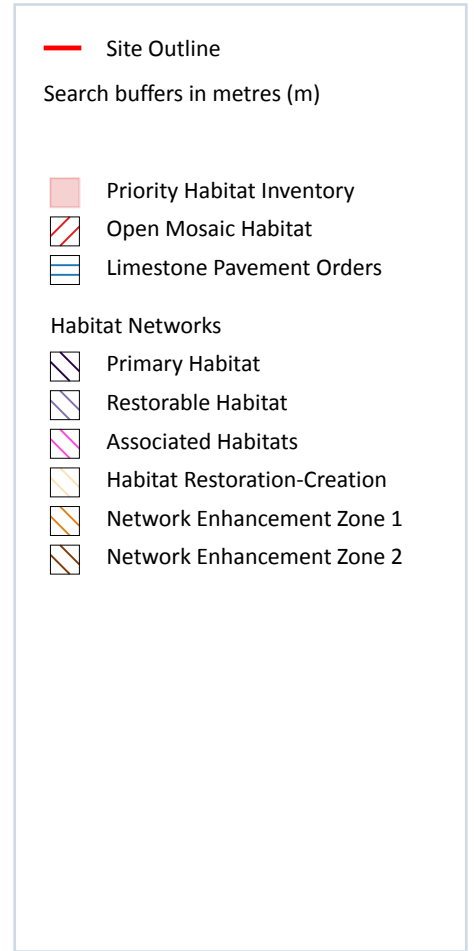
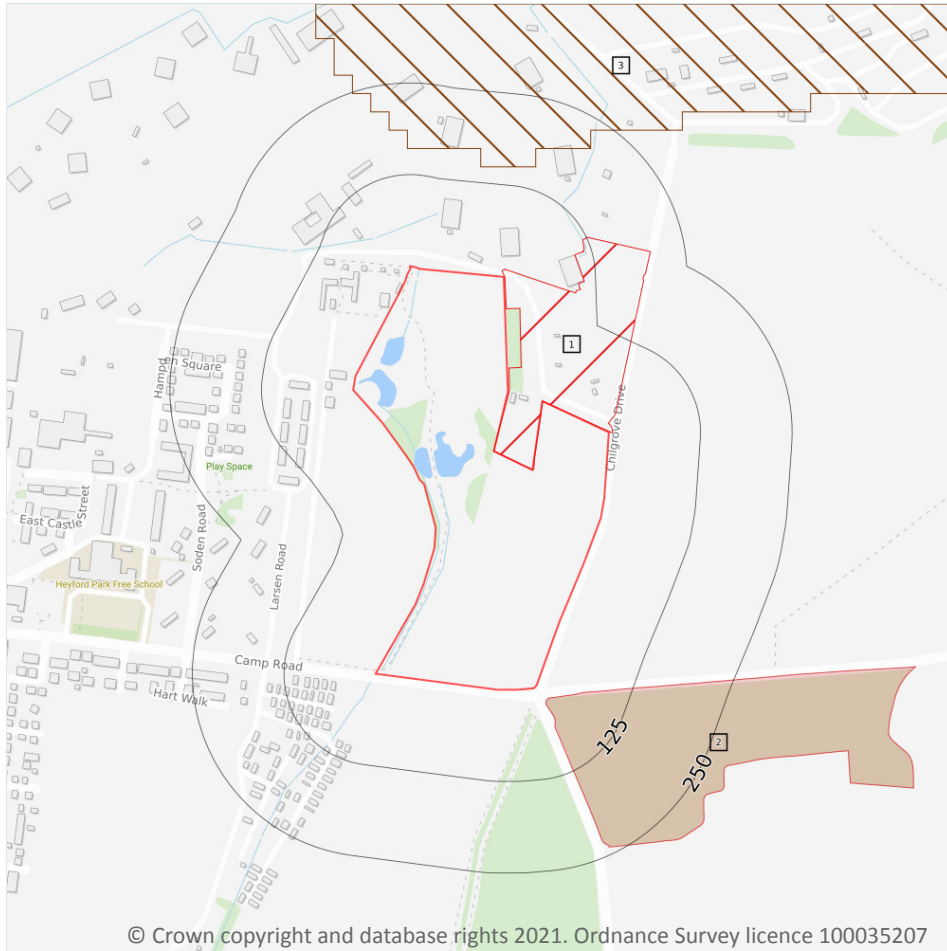
**0**

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.

*This data is sourced from Natural England.*



## 13 Habitat designations



### 13.1 Priority Habitat Inventory

Records within 250m

1

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
2	24m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

*This data is sourced from Natural England.*

## 13.2 Habitat Networks

Records within 250m

1

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.

Features are displayed on the Habitat designations map on **page 68**

ID	Location	Type	Habitat
3	146m N	Network Enhancement Zone 2	Not specified

*This data is sourced from Natural England.*

## 13.3 Open Mosaic Habitat

Records within 250m

1

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.

Features are displayed on the Habitat designations map on **page 68**

ID	Location	Site reference	Identification confidence	Primary source	Secondary source	Tertiary source
1	On site	NLUD Ref: 310500241; BRITPITS ref: 57206	Low	National Land Use Database - Previously Developed Land	British Geological Survey BRITPITS database	UK Perspectives Aerial Photography

*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.

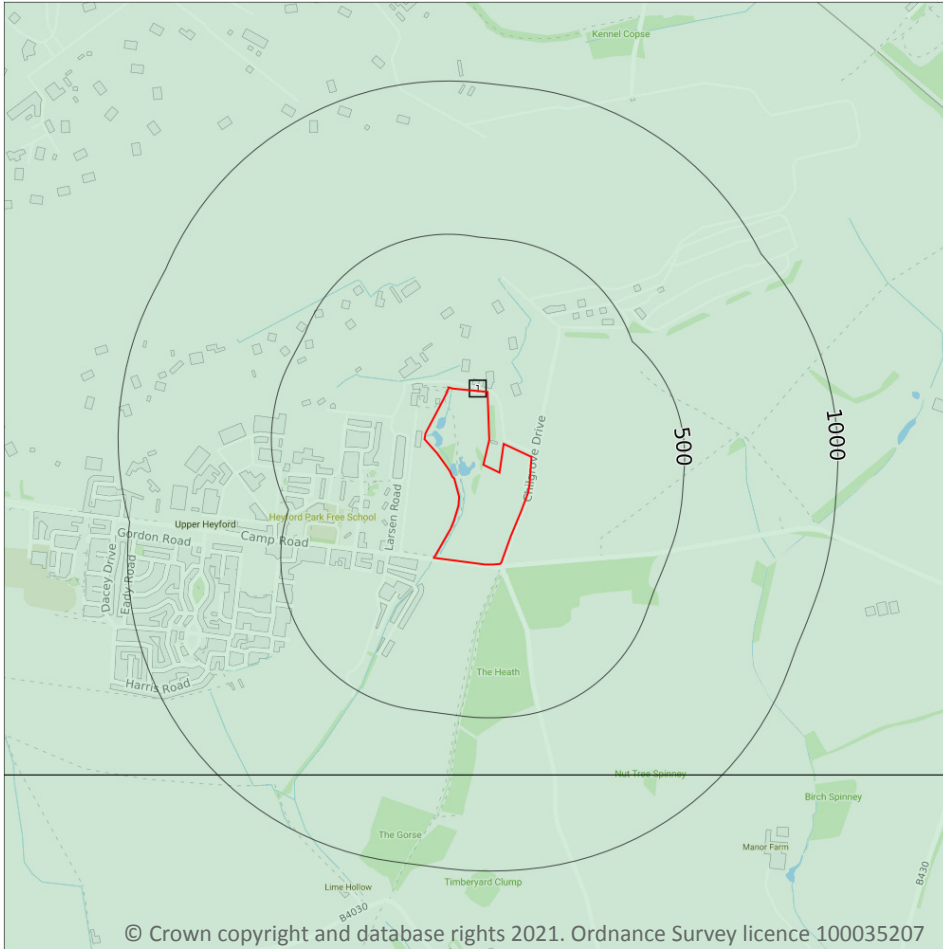


*This data is sourced from Natural England.*





## 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

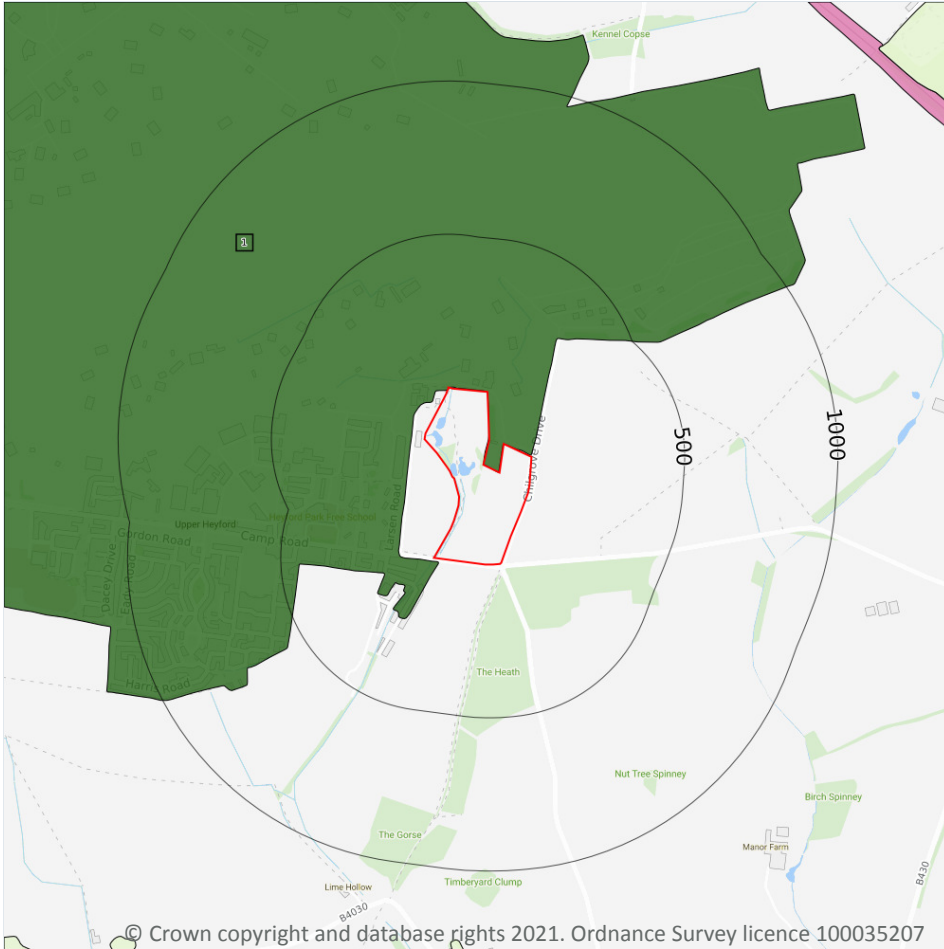
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 71**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SP52NW

*This data is sourced from the British Geological Survey.*

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



### 14.2 Artificial and made ground (10k)

Records within 500m

1

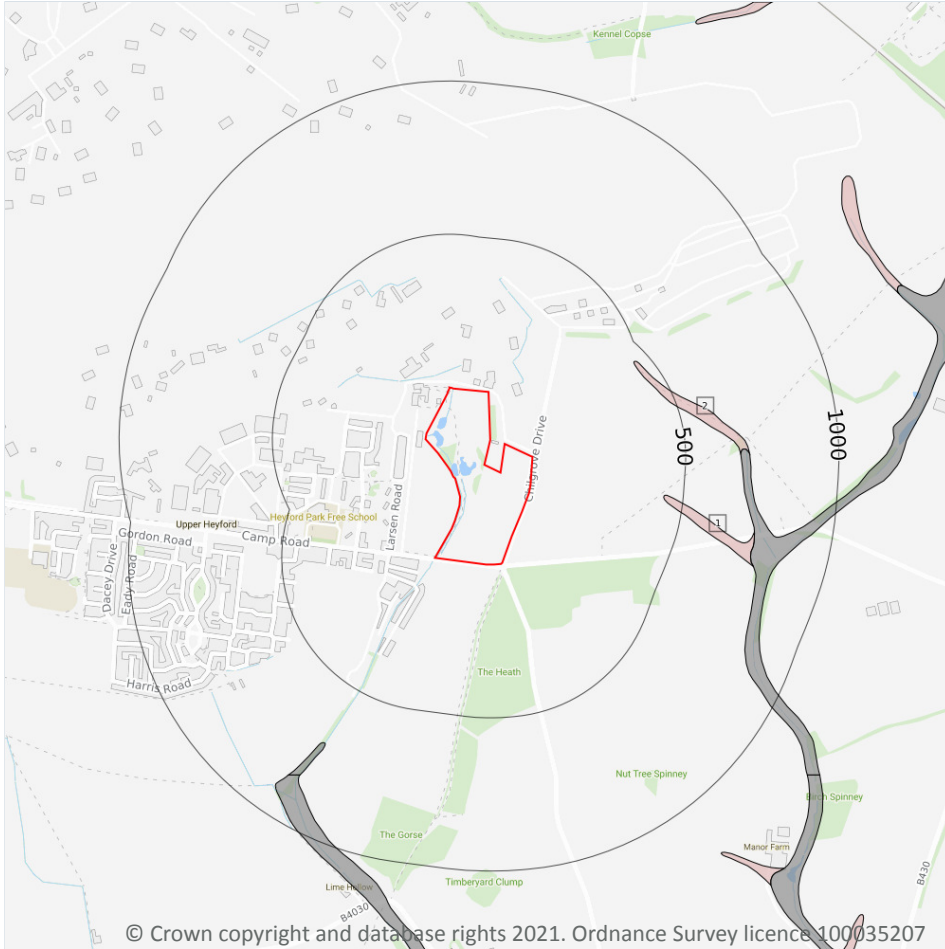
Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 72**

ID	Location	LEX Code	Description	Rock description
1	On site	LSGR-UKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry

*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

2

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 73**

ID	Location	LEX Code	Description	Rock description
1	437m E	HEAD-XCZ	Head - Clay And Silt	Clay And Silt
2	447m NE	HEAD-XCZ	Head - Clay And Silt	Clay And Silt

*This data is sourced from the British Geological Survey.*

## 14.4 Landslip (10k)

Records within 500m

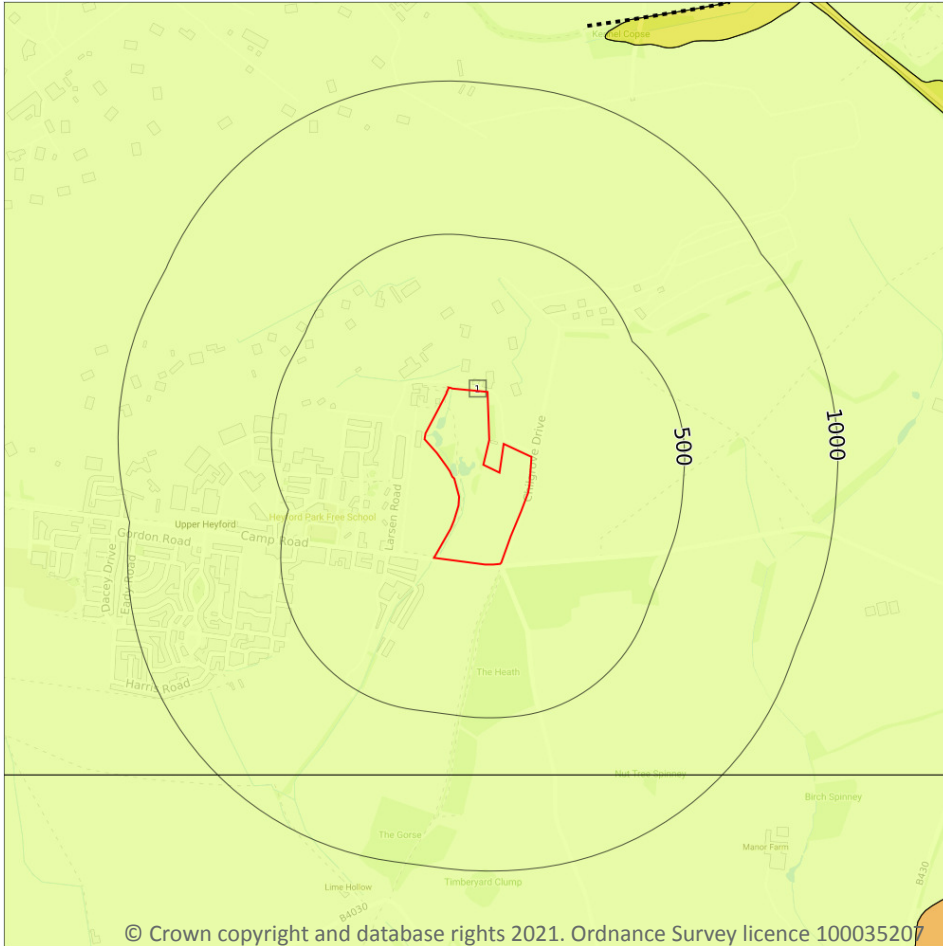
0

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.*



## Geology 1:10,000 scale - Bedrock



- Site Outline
- Search buffers in metres (m)
- ..... Bedrock faults and other linear features (10k)
- Bedrock geology (10k)  
Please see table for more details.

### 14.5 Bedrock geology (10k)

Records within 500m

1

Bedrock geology at 1:10,000 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 1:10,000 scale - Bedrock map on **page 75**

ID	Location	LEX Code	Description	Rock age
1	On site	WHL-LMST	White Limestone Formation - Limestone	Bathonian Age

*This data is sourced from the British Geological Survey.*

## 14.6 Bedrock faults and other linear features (10k)

Records within 500m

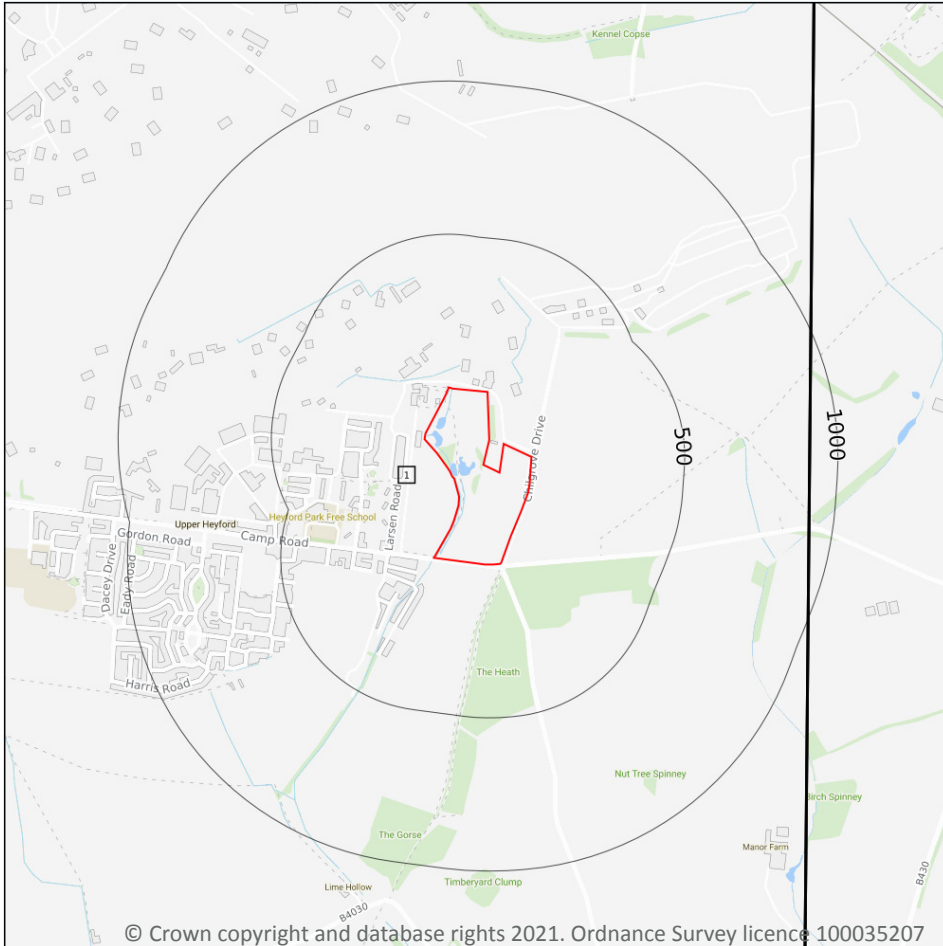
0

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 77**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW218_chipping_norton_v4

*This data is sourced from the British Geological Survey.*

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

### 15.2 Artificial and made ground (50k)

Records within 500m

0

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.

*This data is sourced from the British Geological Survey.*

### 15.3 Artificial ground permeability (50k)

Records within 50m

0

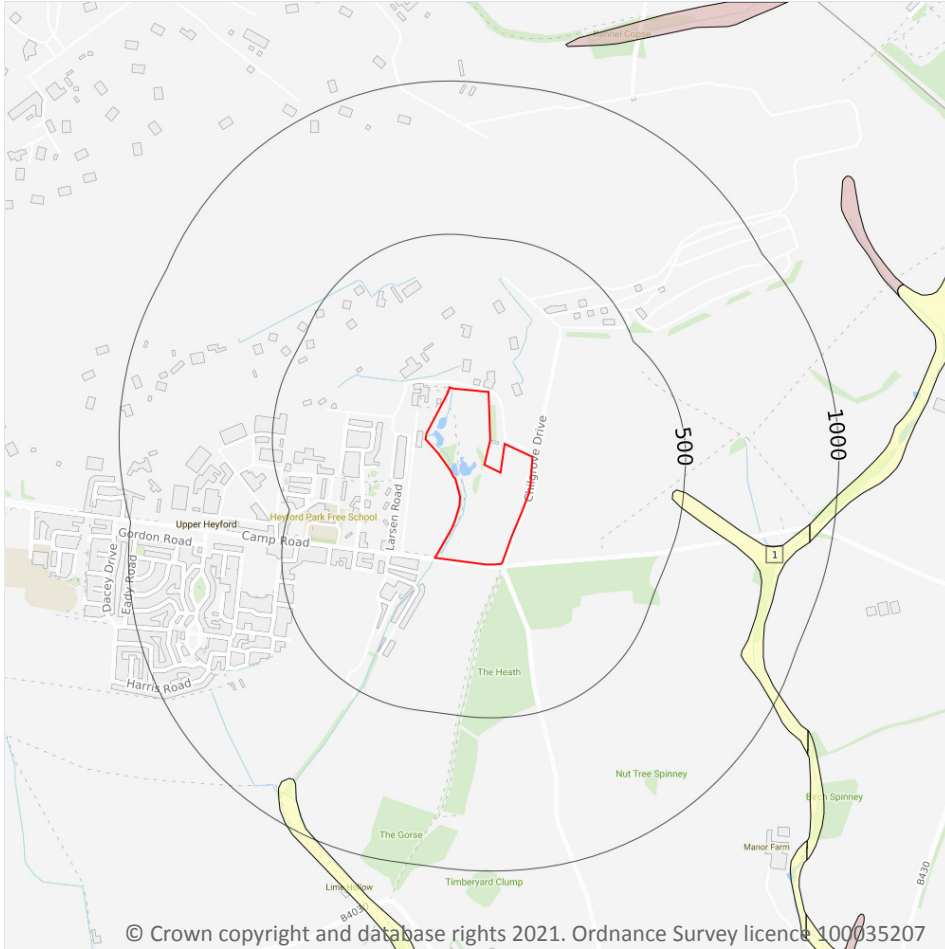
A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

*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

1

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	465m E	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

*This data is sourced from the British Geological Survey.*

## 15.5 Superficial 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 superficial deposits (the zone between the land surface and the water table).

*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

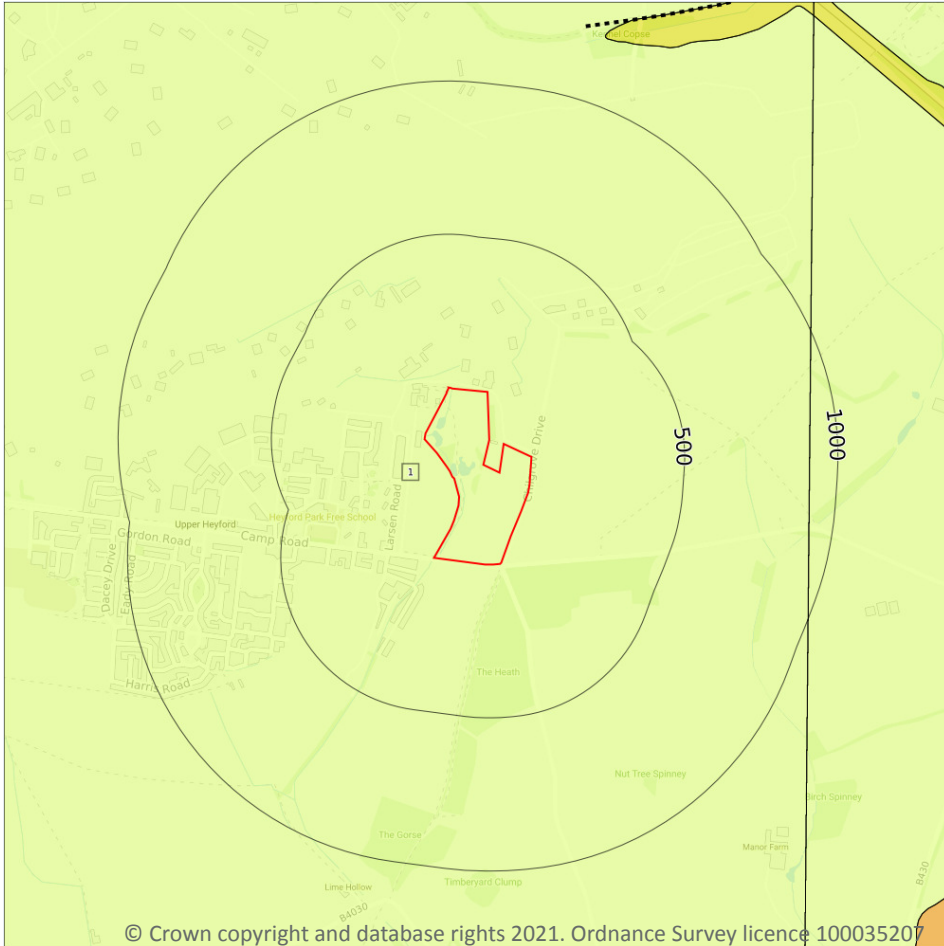
0

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

1

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	WHL-LMST	WHITE LIMESTONE FORMATION - LIMESTONE	BATHONIAN

*This data is sourced from the British Geological Survey.*

## 15.9 Bedrock permeability (50k)

<b>Records within 50m</b>	<b>1</b>
---------------------------	----------

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	Very High	Low

*This data is sourced from the British Geological Survey.*

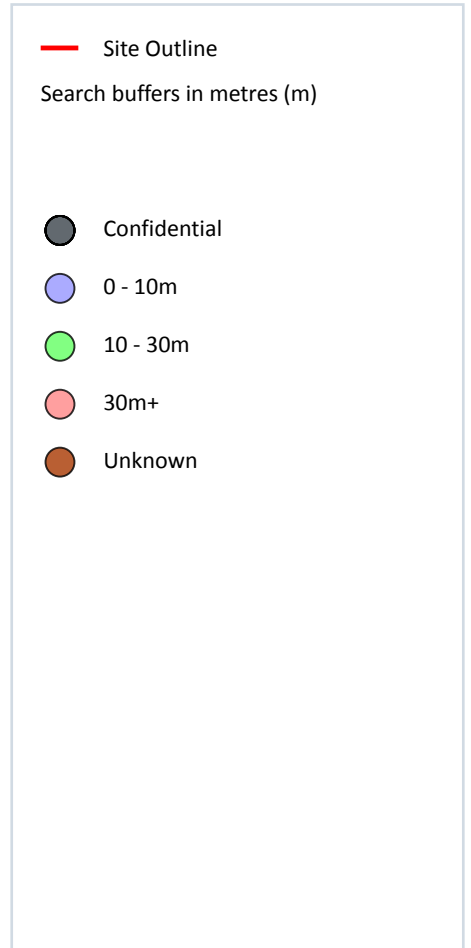
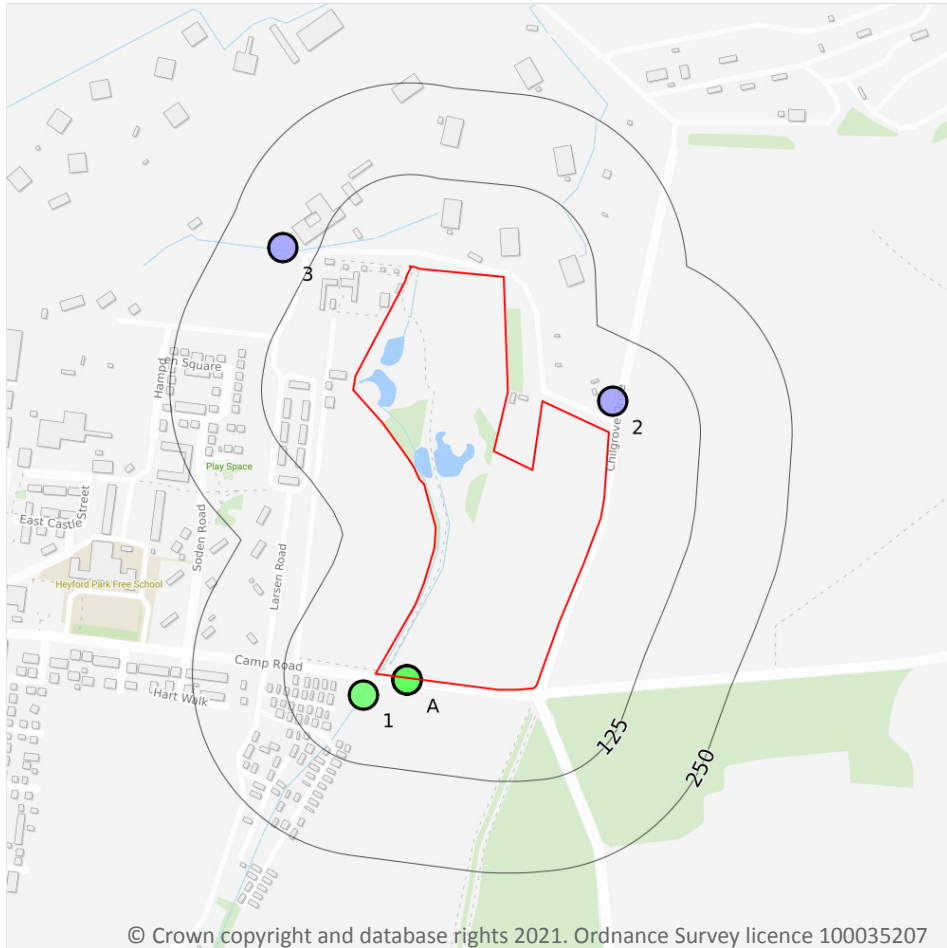
## 15.10 Bedrock faults and other linear features (50k)

<b>Records within 500m</b>	<b>0</b>
----------------------------	----------

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



### 16.1 BGS Boreholes

Records within 250m

7

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**

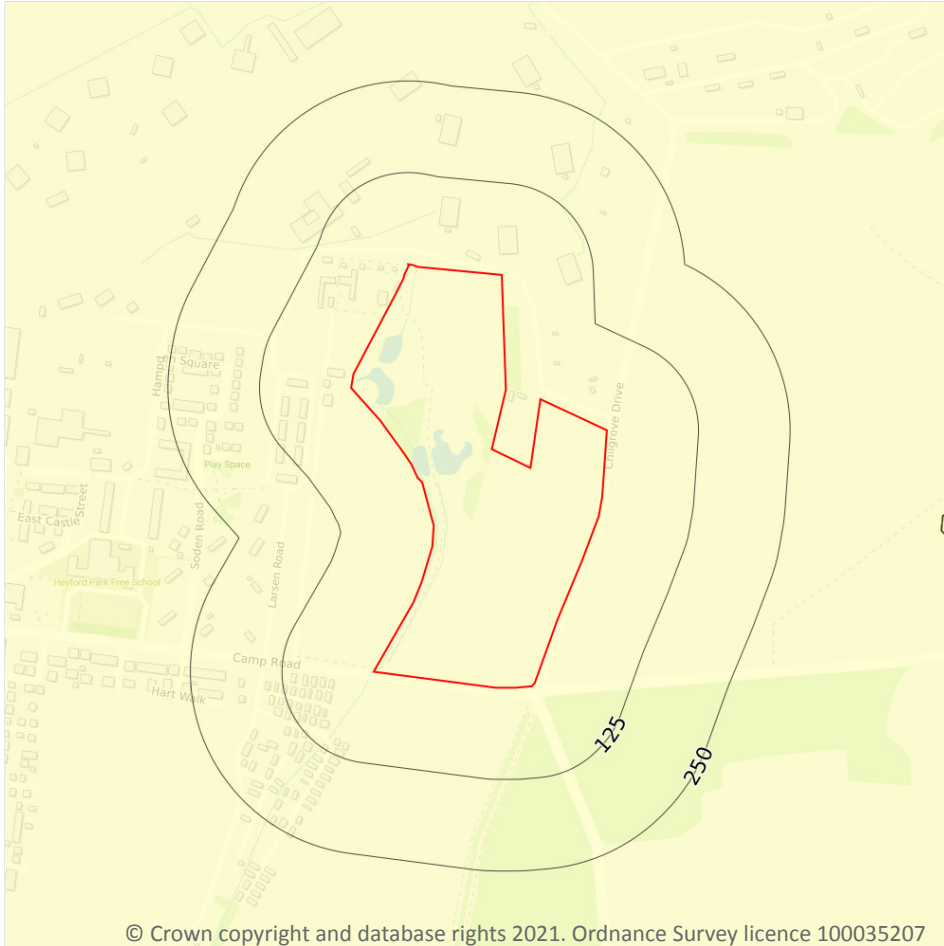
ID	Location	Grid reference	Name	Length	Confidential	Web link
A	3m S	452000 225700	UPPER HEYFORD AERODROME	19.81	N	<a href="#">336692</a>
A	3m S	452000 225700	RAF UPPER HEYFORD OXON 218/33C	18.29	N	<a href="#">336641</a>
A	3m S	452000 225700	RAF UPPER HEYFORD OXON 218/33D	19.81	N	<a href="#">336642</a>

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	3m S	452000 225700	UPPER HEYFORD AERODROME	18.29	N	<a href="#">336691</a>
1	33m SW	451940 225680	UPPER HEYFORD AERODROME	26.82	N	<a href="#">336450</a>
2	40m NE	452280 226080	RAF UPPER HEYFORD OXFORDSHIRE 37	1.51	N	<a href="#">15951662</a>
3	169m NW	451830 226290	RAF UPPER HEYFORD OXFORDSHIRE 42	1.47	N	<a href="#">15951663</a>

*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

1

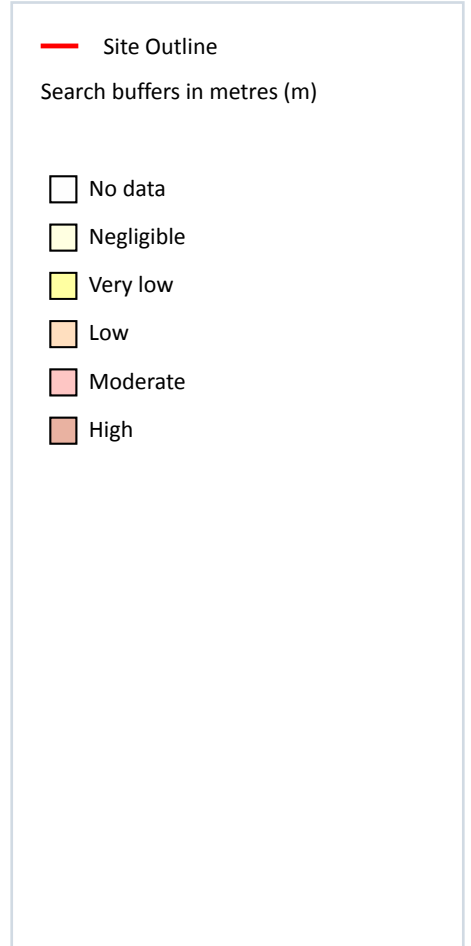
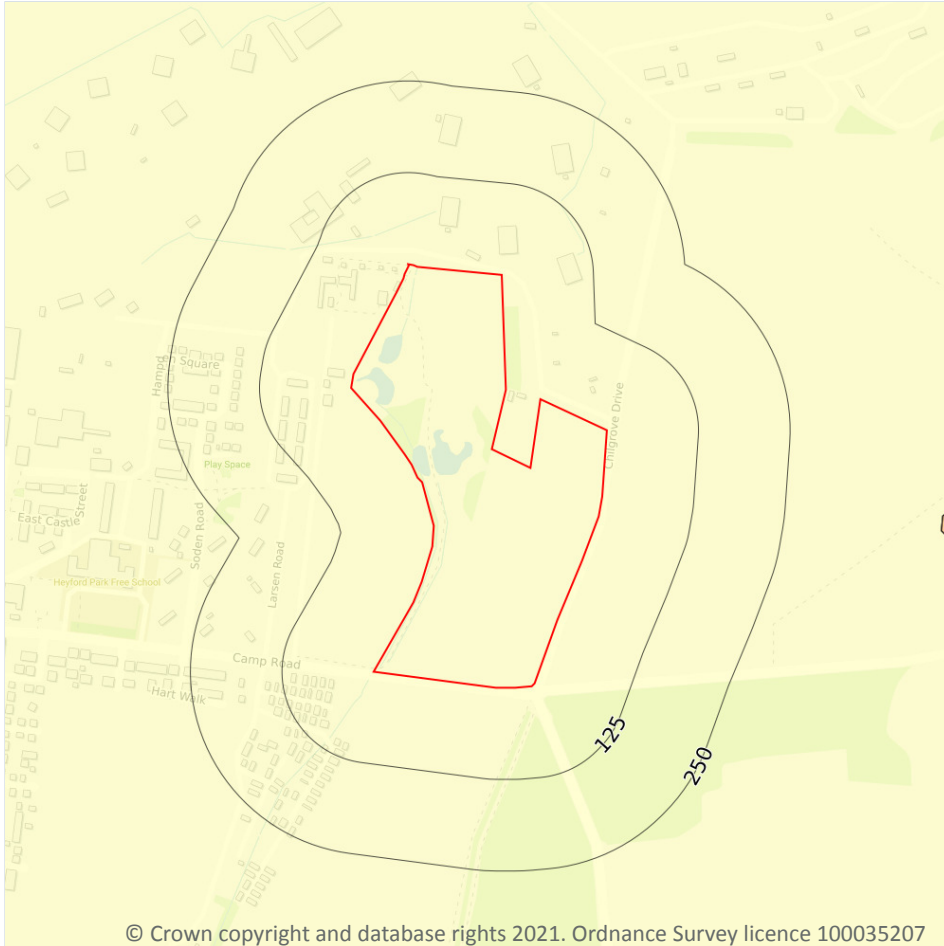
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 85**

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

*This data is sourced from the British Geological Survey.*

## Natural ground subsidence - Running sands



### 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.

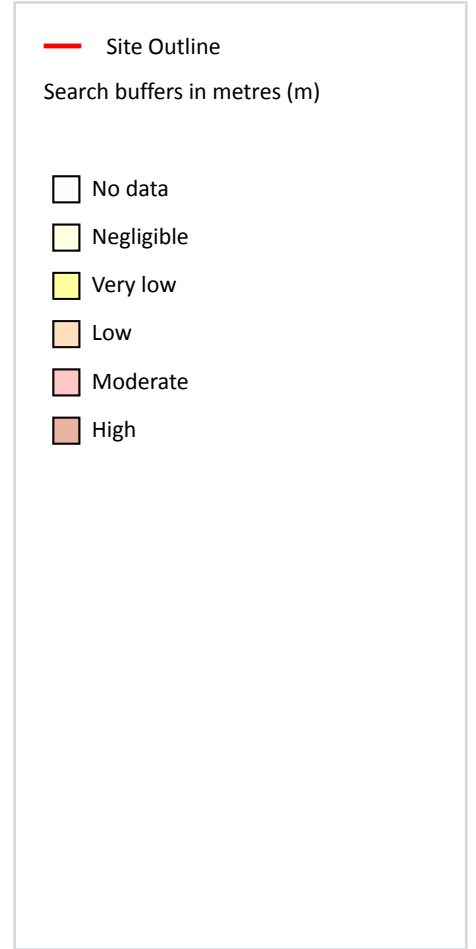
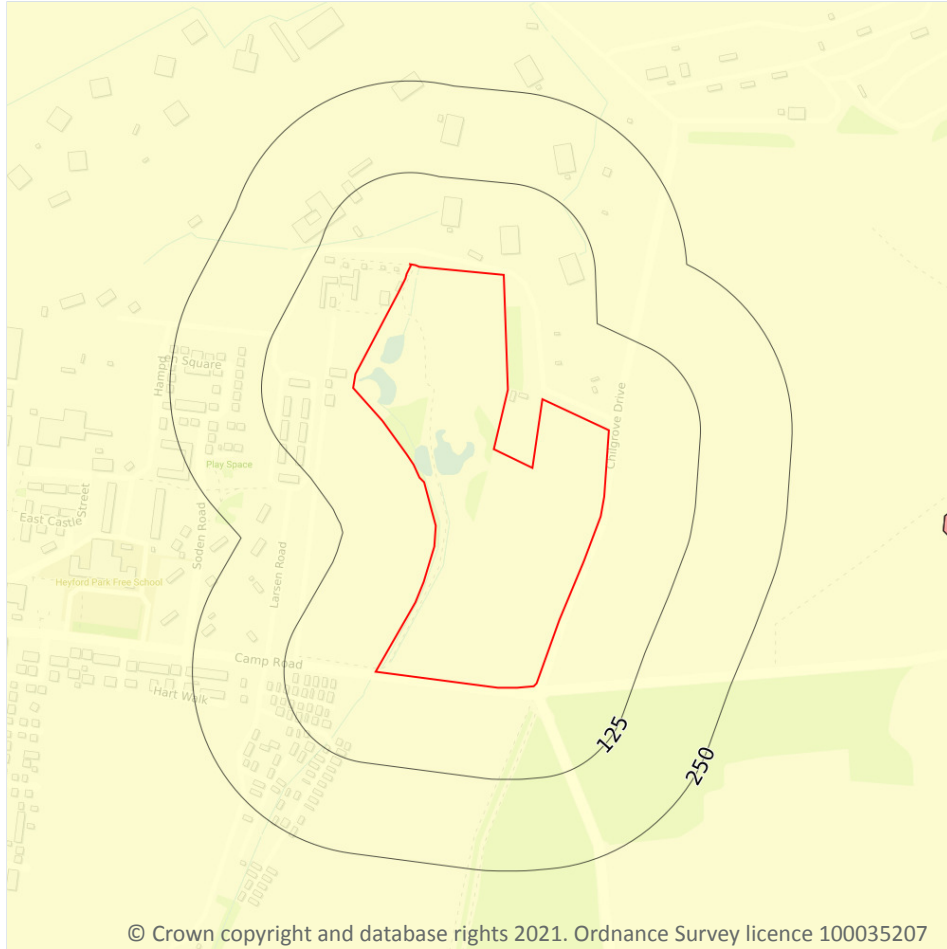
Features are displayed on the Natural ground subsidence - Running sands map on **page 86**

Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

*This data is sourced from the British Geological Survey.*



## Natural ground subsidence - Compressible deposits



### 17.3 Compressible deposits

Records within 50m

1

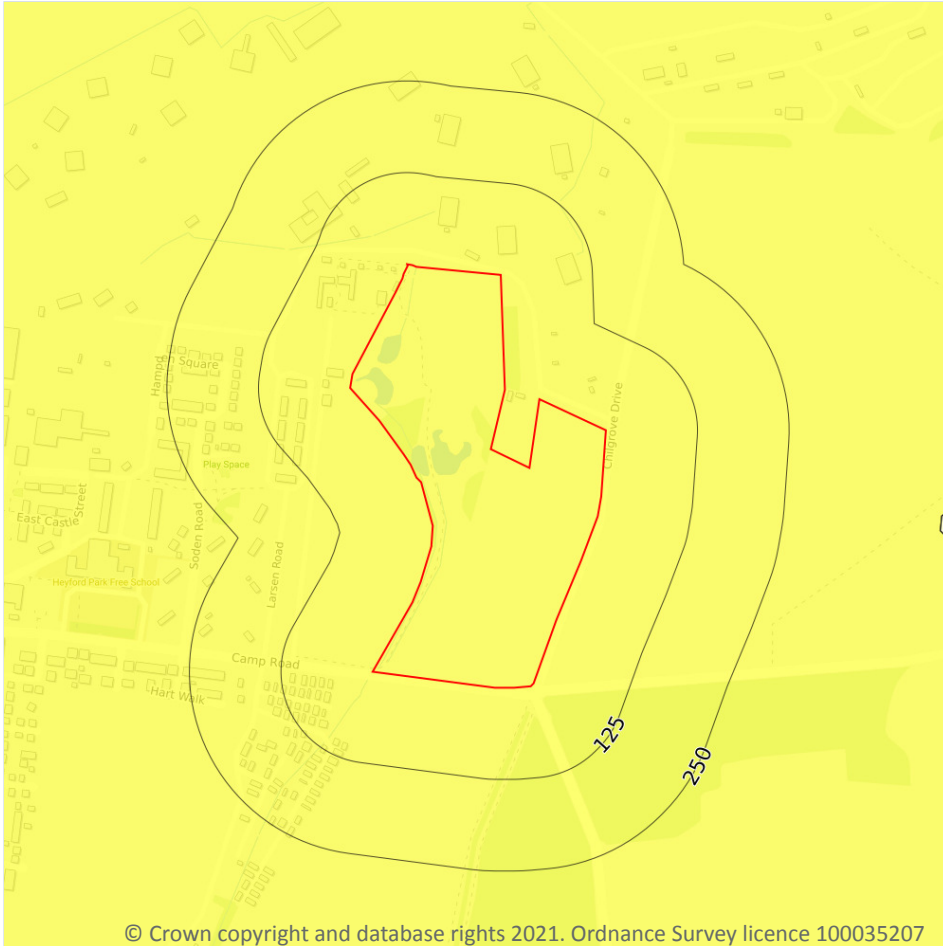
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 87**

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



### 17.4 Collapsible deposits

Records within 50m

1

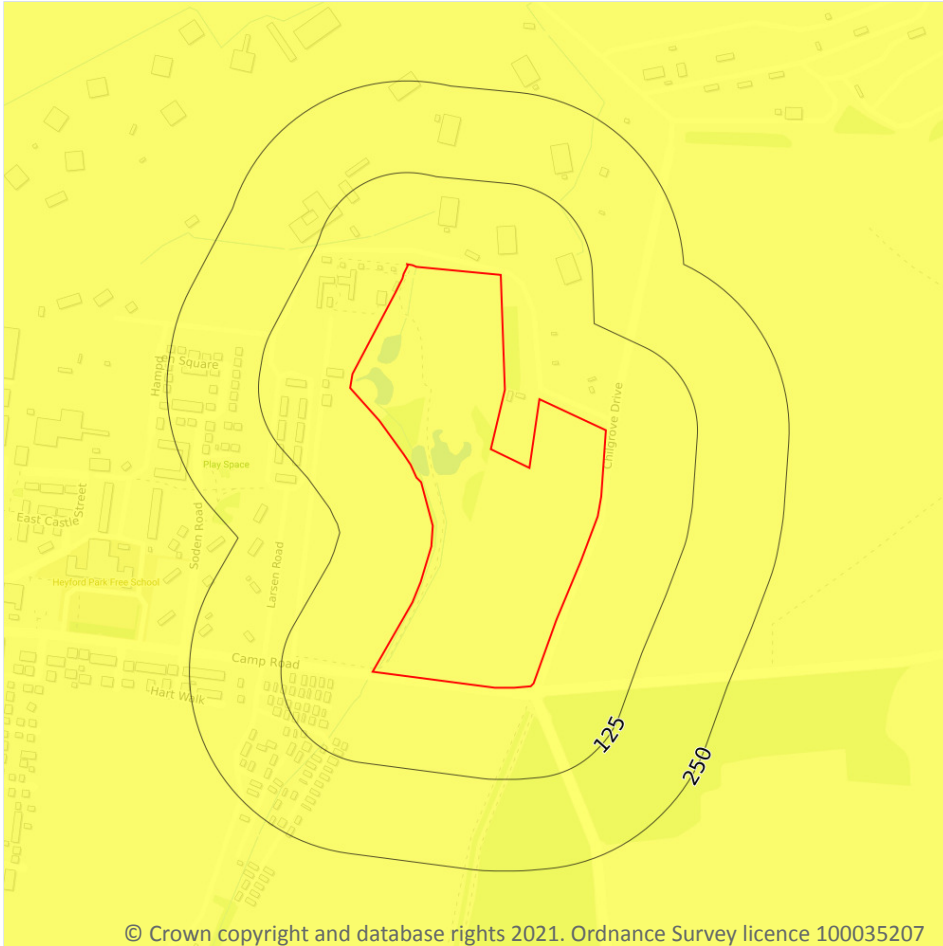
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 88**

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

*This data is sourced from the British Geological Survey.*

## Natural ground subsidence - Landslides



### 17.5 Landslides

Records within 50m

1

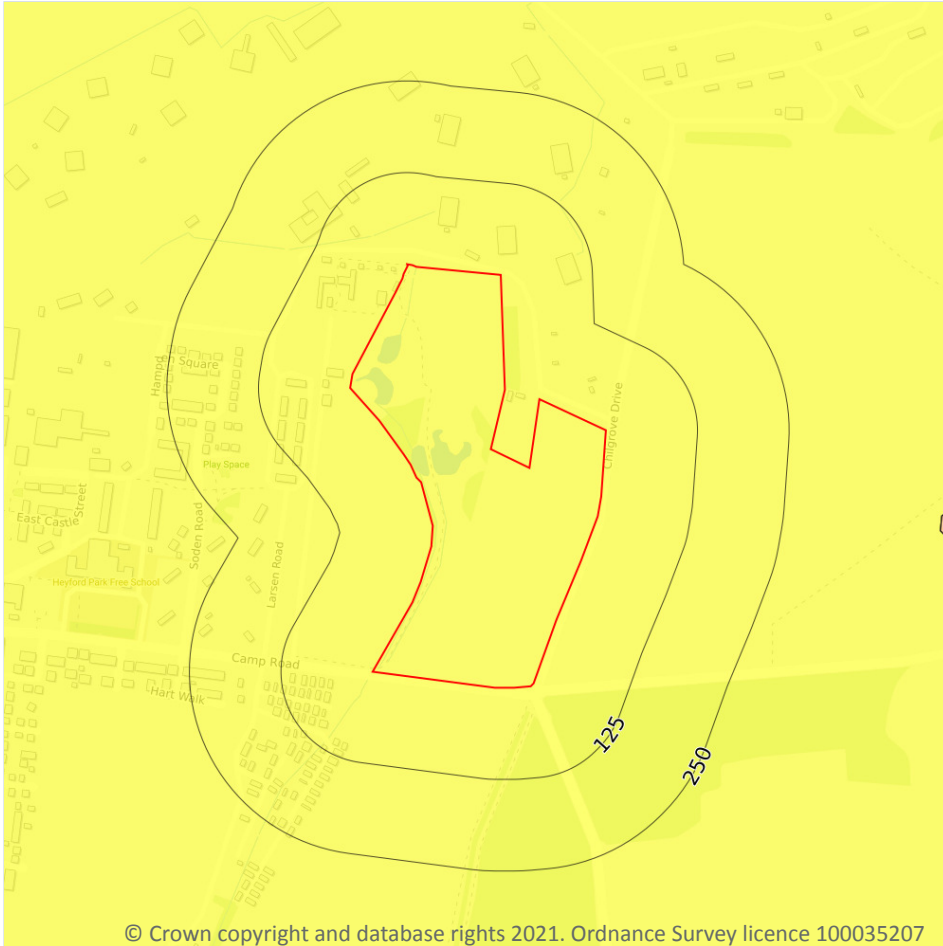
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 89**

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



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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.

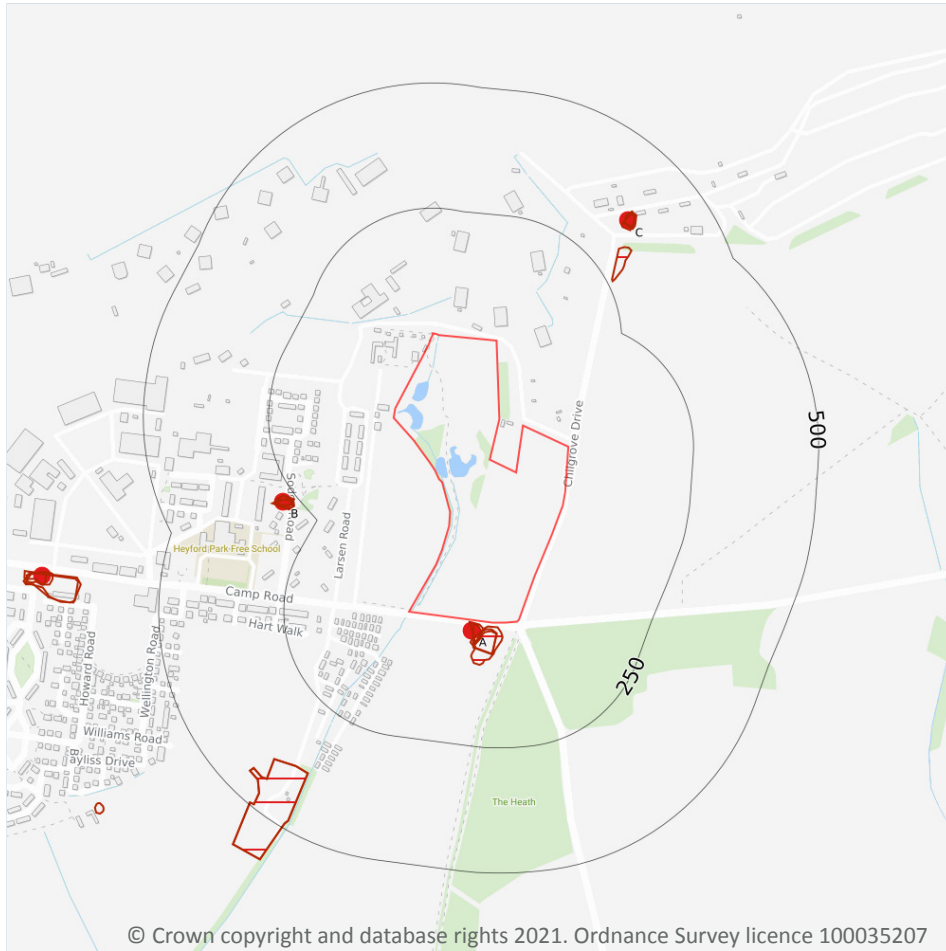
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 90**

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

*This data is sourced from the British Geological Survey.*



## 18 Mining, ground workings and natural cavities



### 18.1 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.*

## 18.2 BritPits

**Records within 500m**
**3**

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, ground workings and natural cavities map on **page 92**

ID	Location	Details	Description
A	21m S	Name: Leys Farm Address: Upper Heyford, OXFORD, Oxfordshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
B	277m SW	Name: Gorse Covert Address: Upper Heyford, OXFORD, Oxfordshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
C	355m NE	Name: North Leys Farm Address: Upper Heyford, OXFORD, Oxfordshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

*This data is sourced from the British Geological Survey.*

## 18.3 Surface ground workings

**Records within 250m**
**5**

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 92**

ID	Location	Land Use	Year of mapping	Mapping scale
A	5m S	Unspecified Quarry	1898	1:10560
A	8m S	Sand Pit	1880	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
A	9m S	Unspecified Quarry	1954	1:10560
A	14m S	Unspecified Quarry	1923	1:10560
A	17m S	Unspecified Quarry	1923	1:10560

*This is data is sourced from Ordnance Survey/Groundsure.*

## 18.4 Underground workings

**Records within 1000m**

**0**

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

*This is data is sourced from Ordnance Survey/Groundsure.*

## 18.5 Historical Mineral Planning Areas

**Records within 500m**

**0**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

*This data is sourced from the British Geological Survey.*

## 18.6 Non-coal mining

**Records within 1000m**

**0**

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

*This data is sourced from the British Geological Survey.*

## 18.7 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.*





## 18.8 JPB mining areas

<b>Records on site</b>	<b>0</b>
------------------------	----------

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.*

## 18.9 Coal mining

<b>Records on site</b>	<b>0</b>
------------------------	----------

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

*This data is sourced from the Coal Authority.*

## 18.10 Brine areas

<b>Records on site</b>	<b>0</b>
------------------------	----------

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

*This data is sourced from the Cheshire Brine Subsidence Compensation Board.*

## 18.11 Gypsum areas

<b>Records on site</b>	<b>0</b>
------------------------	----------

Generalised areas that may be affected by gypsum extraction.

*This data is sourced from British Gypsum.*

## 18.12 Tin mining

<b>Records on site</b>	<b>0</b>
------------------------	----------

Generalised areas that may be affected by historical tin mining.

*This data is sourced from Mining Searches UK.*

## 18.13 Clay mining

Records on site

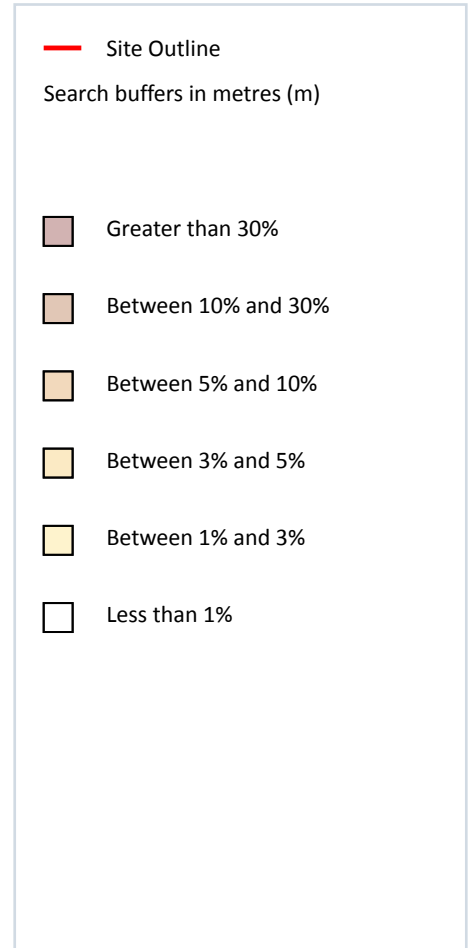
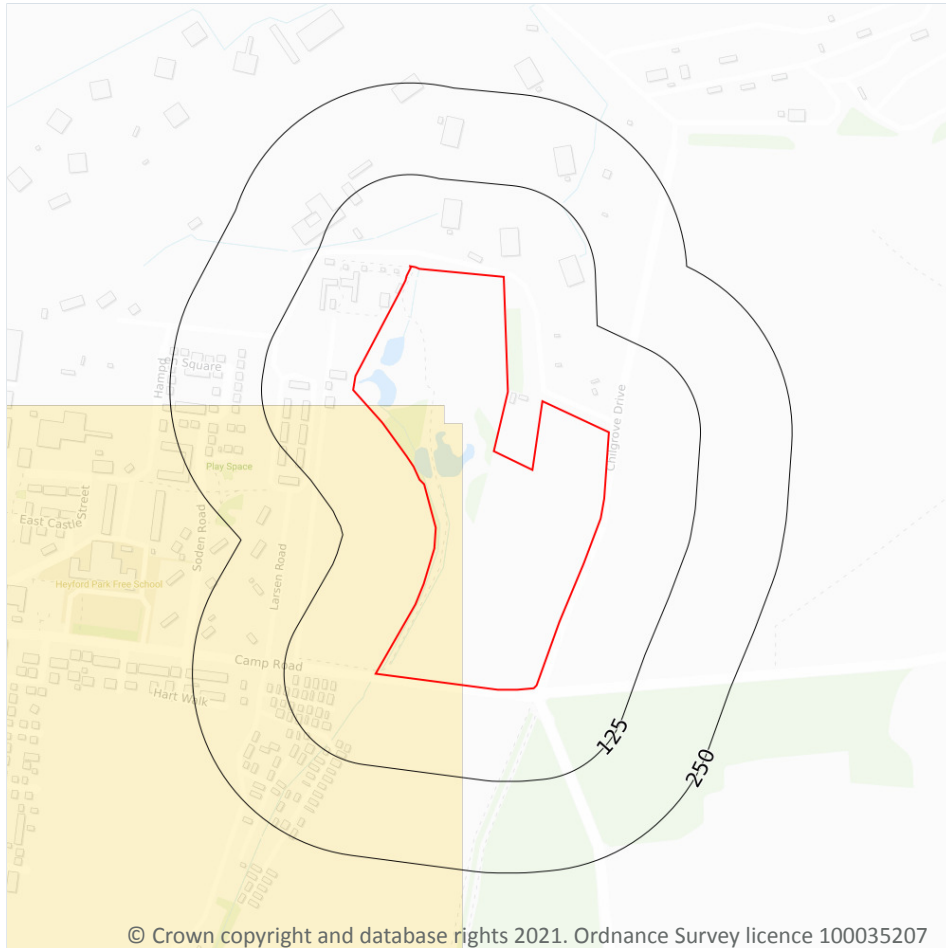
0

Generalised areas that may be affected by kaolin and ball clay extraction.

*This data is sourced from the Kaolin and Ball Clay Association (UK).*



## 19 Radon



### 19.1 Radon

#### Records on site

2

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

Features are displayed on the Radon map on [page 97](#)

Location	Estimated properties affected	Radon Protection Measures required
On site	Between 1% and 3%	None
On site	Less than 1%	None**

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



## 20 Soil chemistry

### 20.1 BGS Estimated Background Soil Chemistry

Records within 50m

6

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km<sup>2</sup>. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km<sup>2</sup>; 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	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

*This data is sourced from the British Geological Survey.*

### 20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

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

*This data is sourced from the British Geological Survey.*



## 20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km<sup>2</sup>.

*This data is sourced from the British Geological Survey.*



## 21 Railway infrastructure and projects

### 21.1 Underground railways (London)

Records within 250m 0

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

*This data is sourced from publicly available information by Groundsure.*

### 21.2 Underground railways (Non-London)

Records within 250m 0

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

*This data is sourced from publicly available information by Groundsure.*

### 21.3 Railway tunnels

Records within 250m 0

Railway tunnels taken from contemporary Ordnance Survey mapping.

*This data is sourced from the Ordnance Survey.*

### 21.4 Historical railway and tunnel features

Records within 250m 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.*

### 21.5 Royal Mail tunnels

Records within 250m 0

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



*This data is sourced from Groundsure/the Postal Museum.*

## 21.6 Historical railways

**Records within 250m**

**0**

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

*This data is sourced from OpenStreetMap.*

## 21.7 Railways

**Records within 250m**

**0**

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

*This data is sourced from Ordnance Survey and OpenStreetMap.*

## 21.8 Crossrail 1

**Records within 500m**

**0**

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

*This data is sourced from publicly available information by Groundsure.*

## 21.9 Crossrail 2

**Records within 500m**

**0**

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

*This data is sourced from publicly available information by Groundsure.*

## 21.10 HS2

**Records within 500m**

**0**

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

*This data is sourced from HS2 Ltd.*





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## Data providers

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

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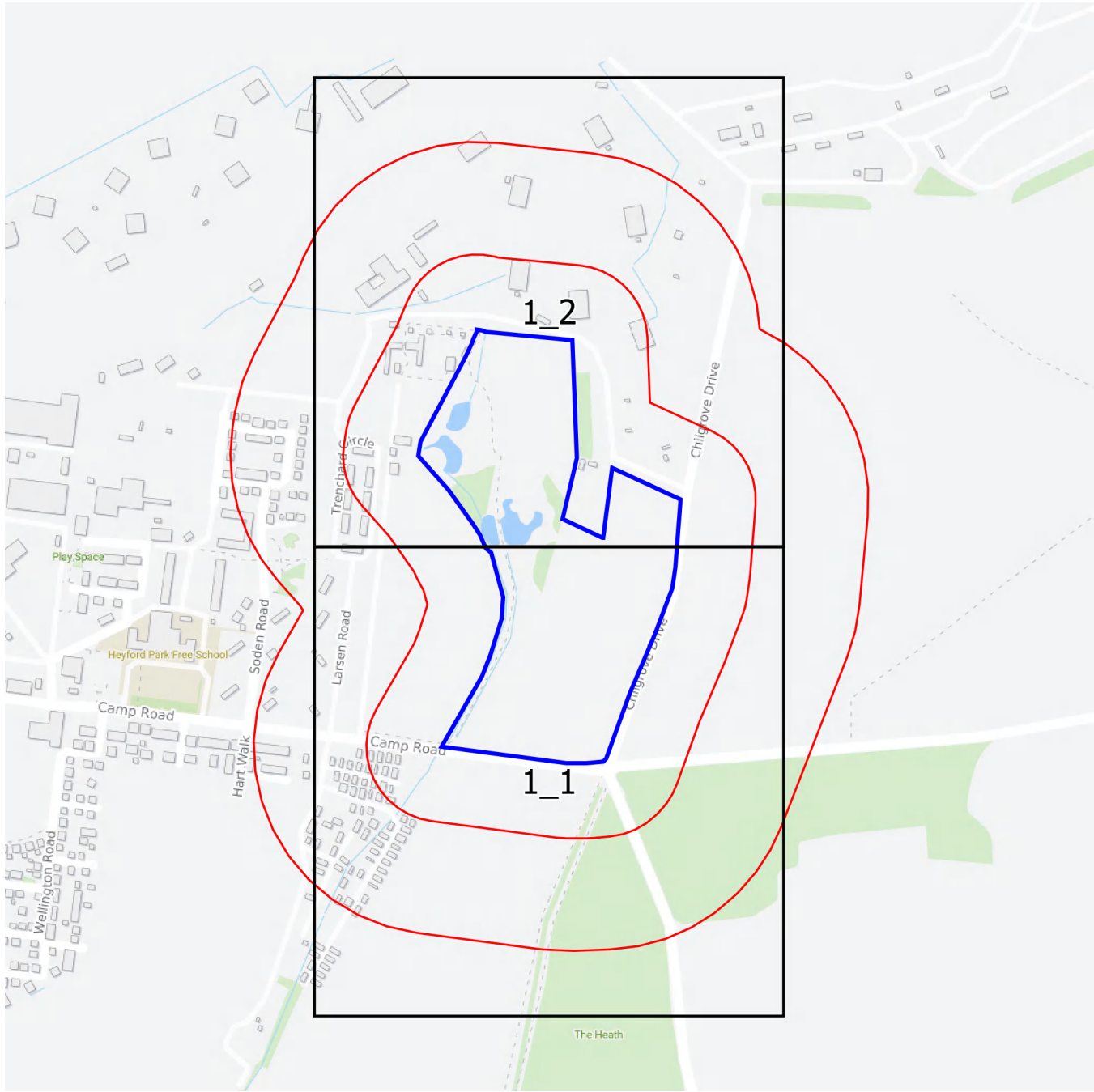
## Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <https://www.groundsure.com/terms-and-conditions-jan-2020/>.



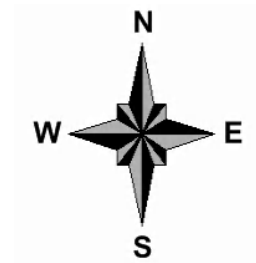
**Appendix 3: Historical Mapping**

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**Groundsure**  
INSIGHTS

1:2,500 Scale Grid Index



**Site Details:**

452105 , 226022

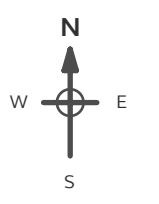
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**Report Ref:** HMD-214-8053161\_LS\_1\_1  
**Grid Ref:** 452100, 225662

**Map Name:** County Series

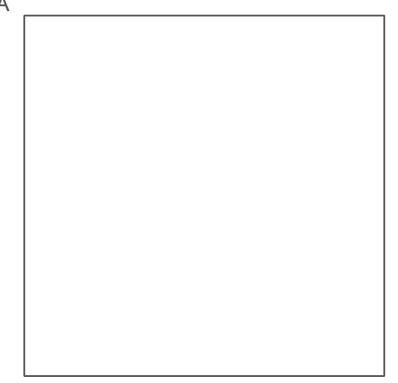
**Map date:** 1881

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1881  
 Revised 1881  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

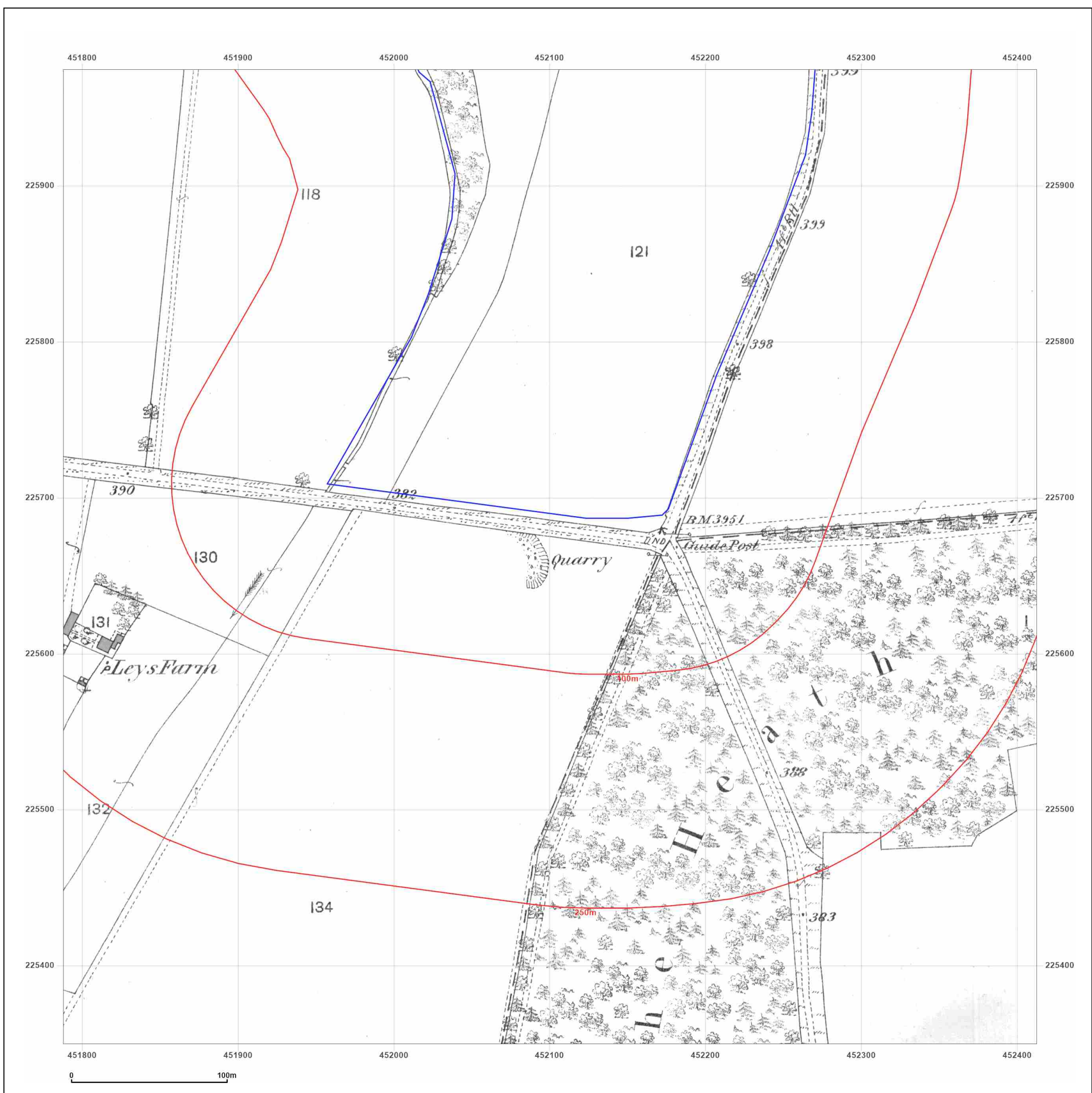


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**Map Name:** County Series

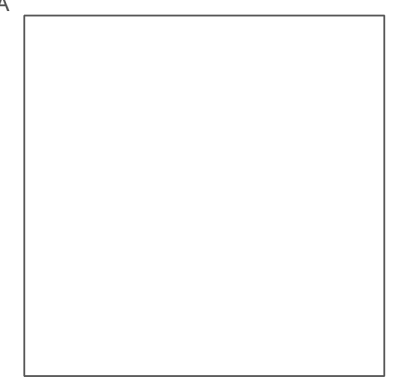
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Surveyed 1900  
 Revised 1900  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

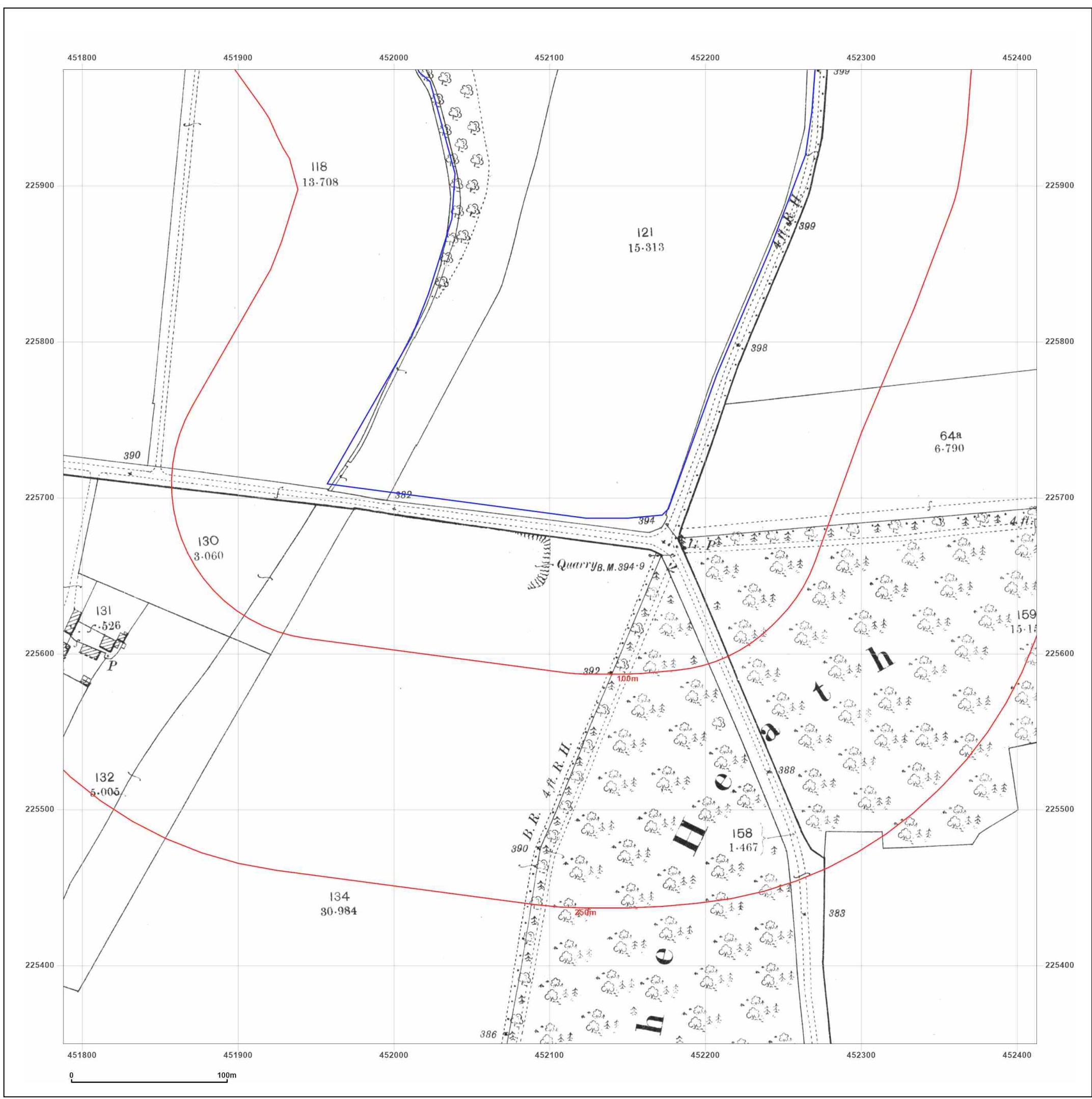


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**Site Details:**

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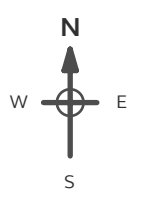
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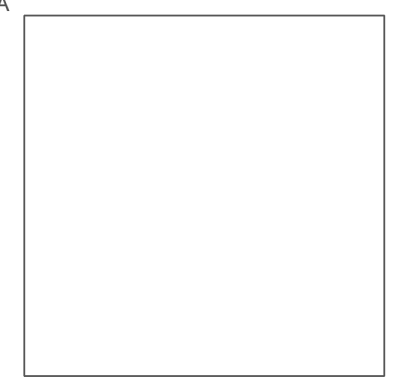
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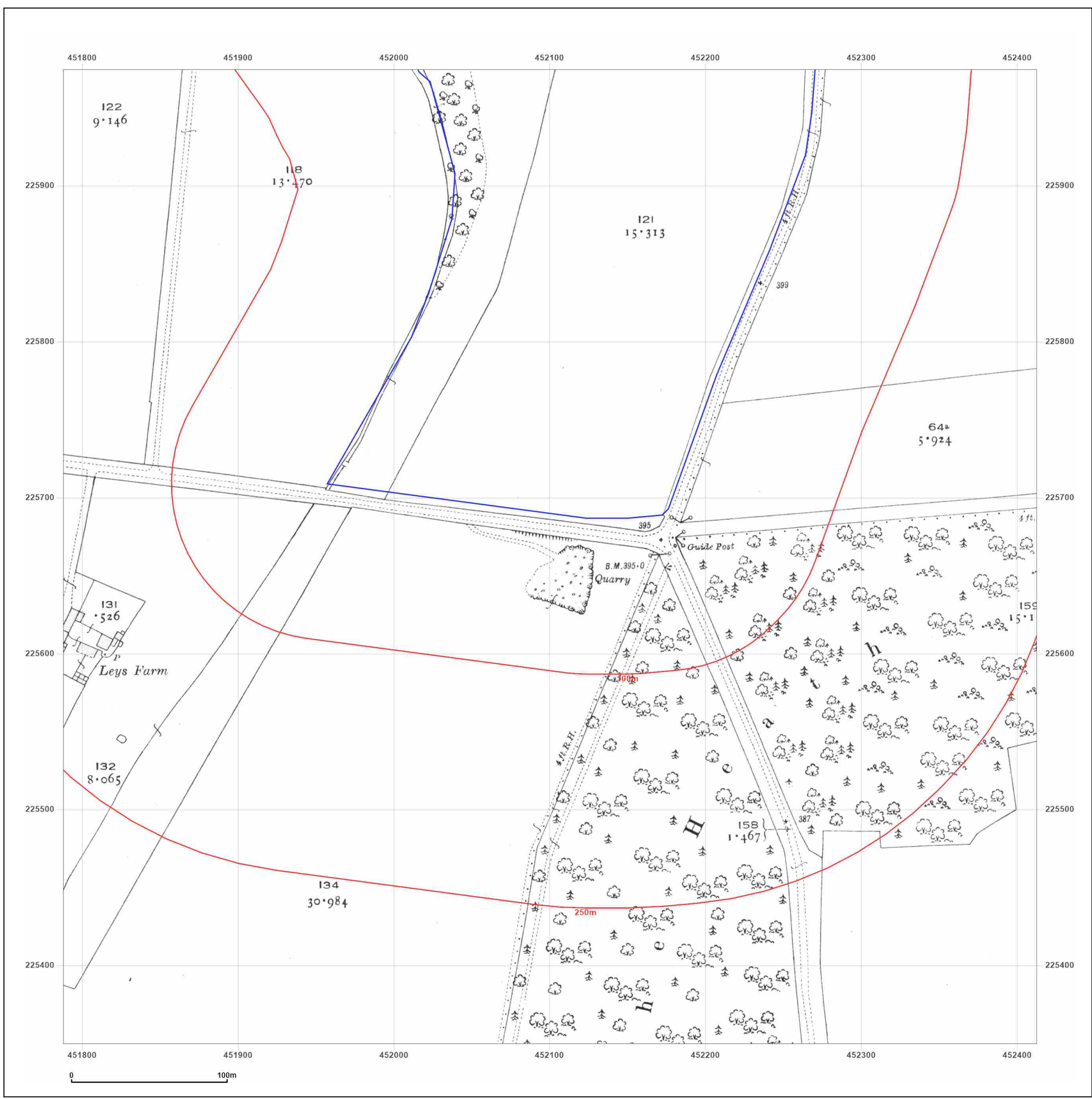


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**Grid Ref:** 452100, 225662

**Map Name:** National Grid

**Map date:** 1974-1975

**Scale:** 1:2,500

**Printed at:** 1:2,500



<p>Surveyed N/A          Revised N/A          Edition N/A          Copyright 1975          Levelled N/A</p>	<p>Surveyed 1974          Revised 1974          Edition N/A          Copyright 1976          Levelled 1971</p>
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**Report Ref:** HMD-214-8053161\_LS\_1\_1  
**Grid Ref:** 452100, 225662

**Map Name:** National Grid

**Map date:** 1975

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1975  
 Revised 1975  
 Edition N/A  
 Copyright 1975  
 Levelled 1971

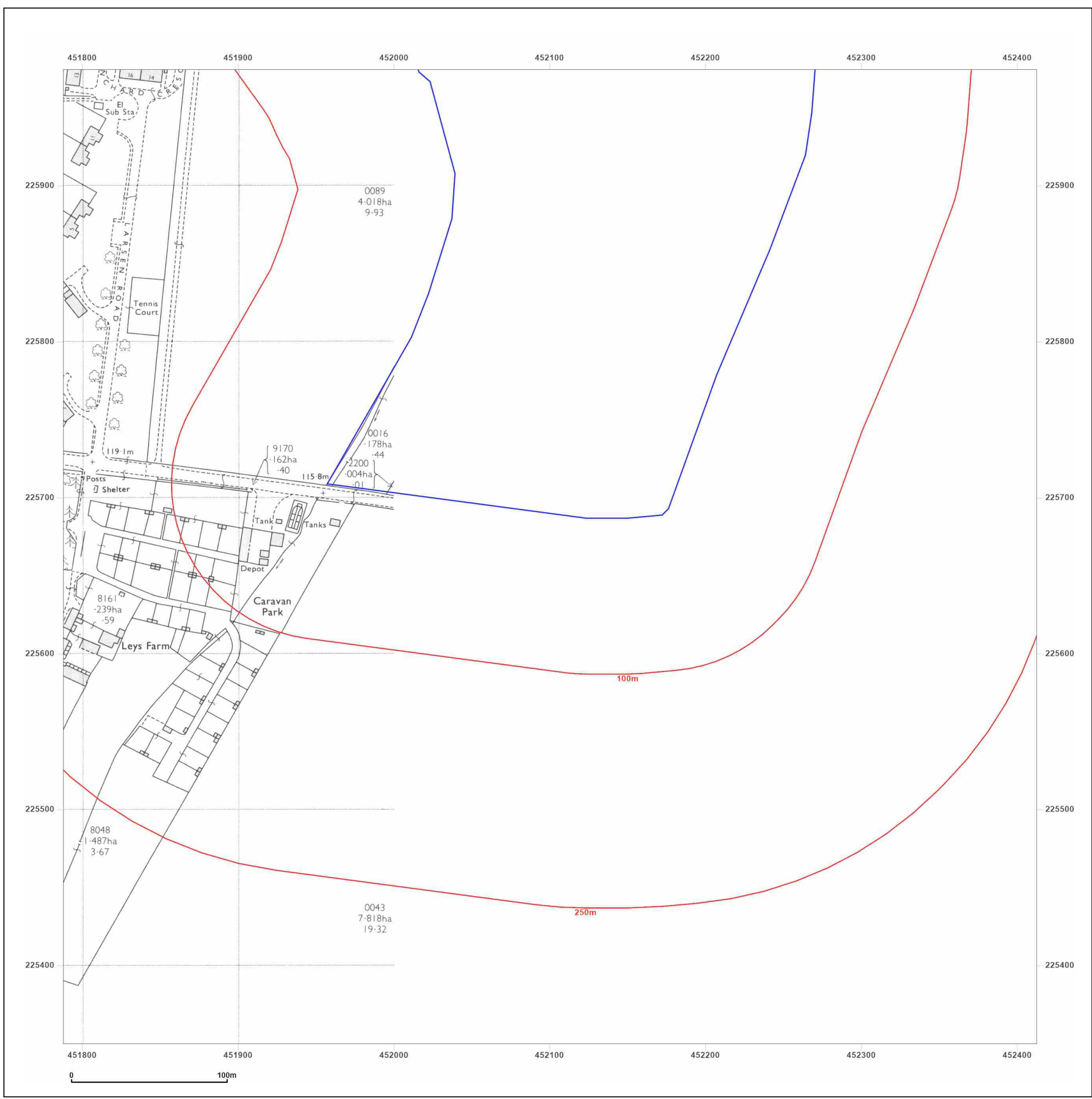


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**Grid Ref:** 452100, 225662

**Map Name:** National Grid

**Map date:** 1975-1976

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright 1975  
 Levelled N/A

Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

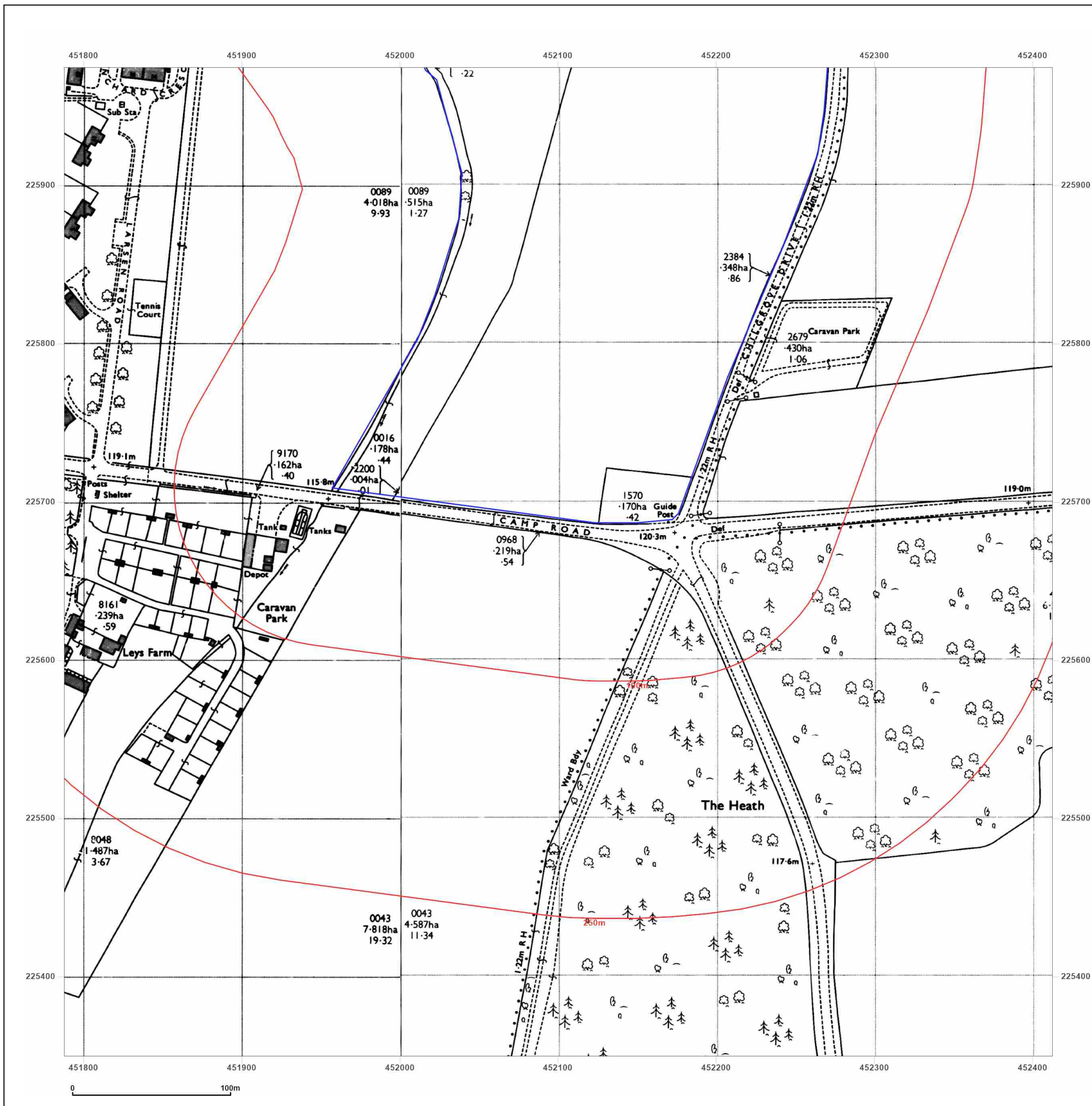


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**Map Name:** National Grid

**Map date:** 1994

**Scale:** 1:2,500

**Printed at:** 1:2,500



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 Revised 1994  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

Surveyed 1994  
 Revised 1994  
 Edition N/A  
 Copyright N/A  
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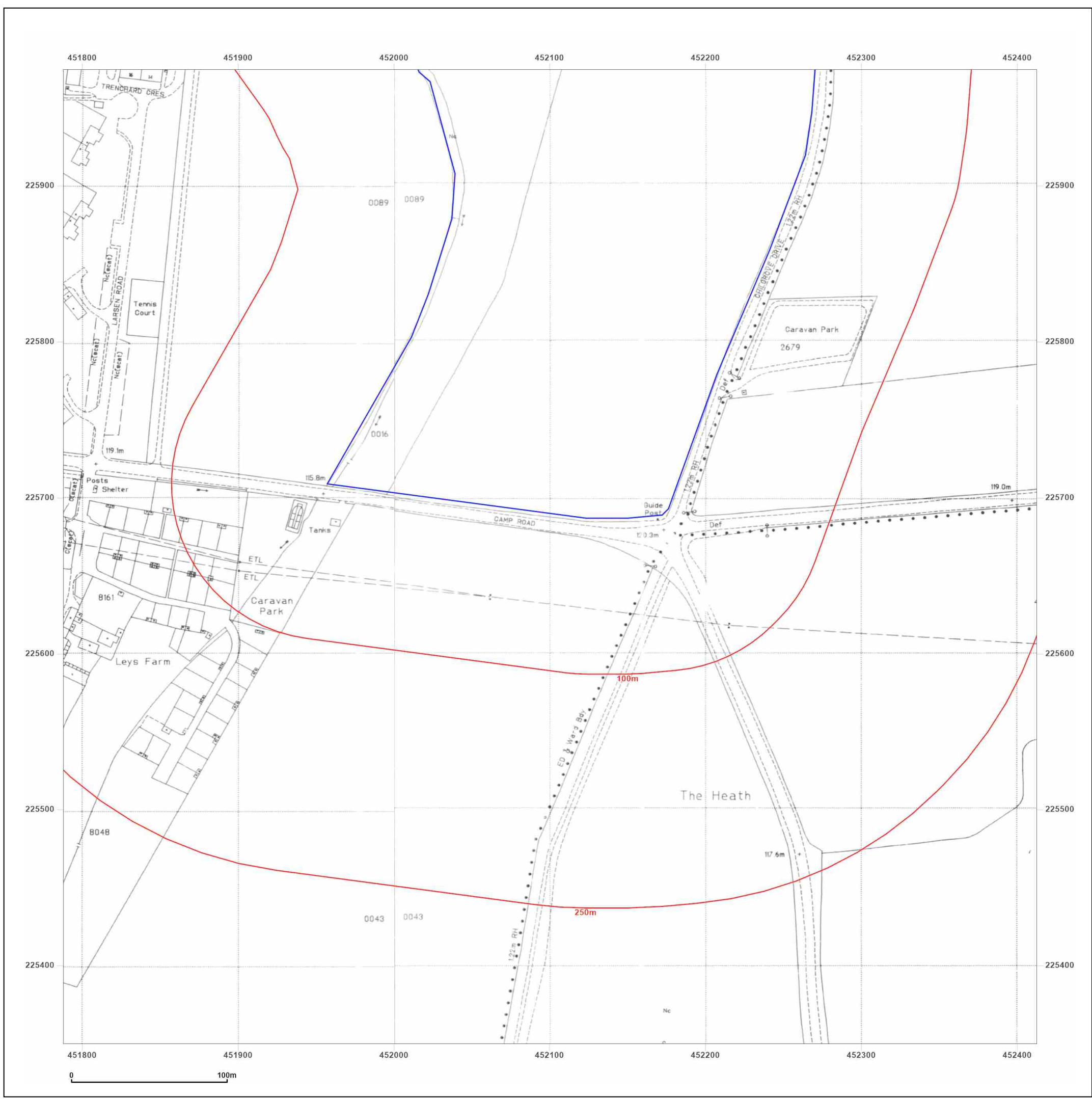


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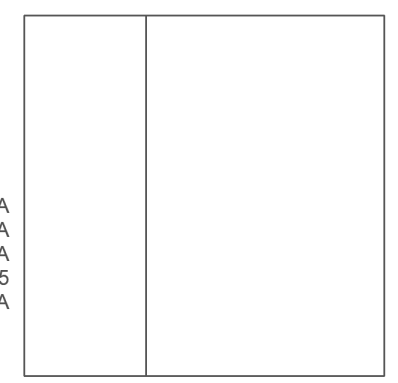
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**Printed at:** 1:2,500



Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright 1995  
 Levelled N/A

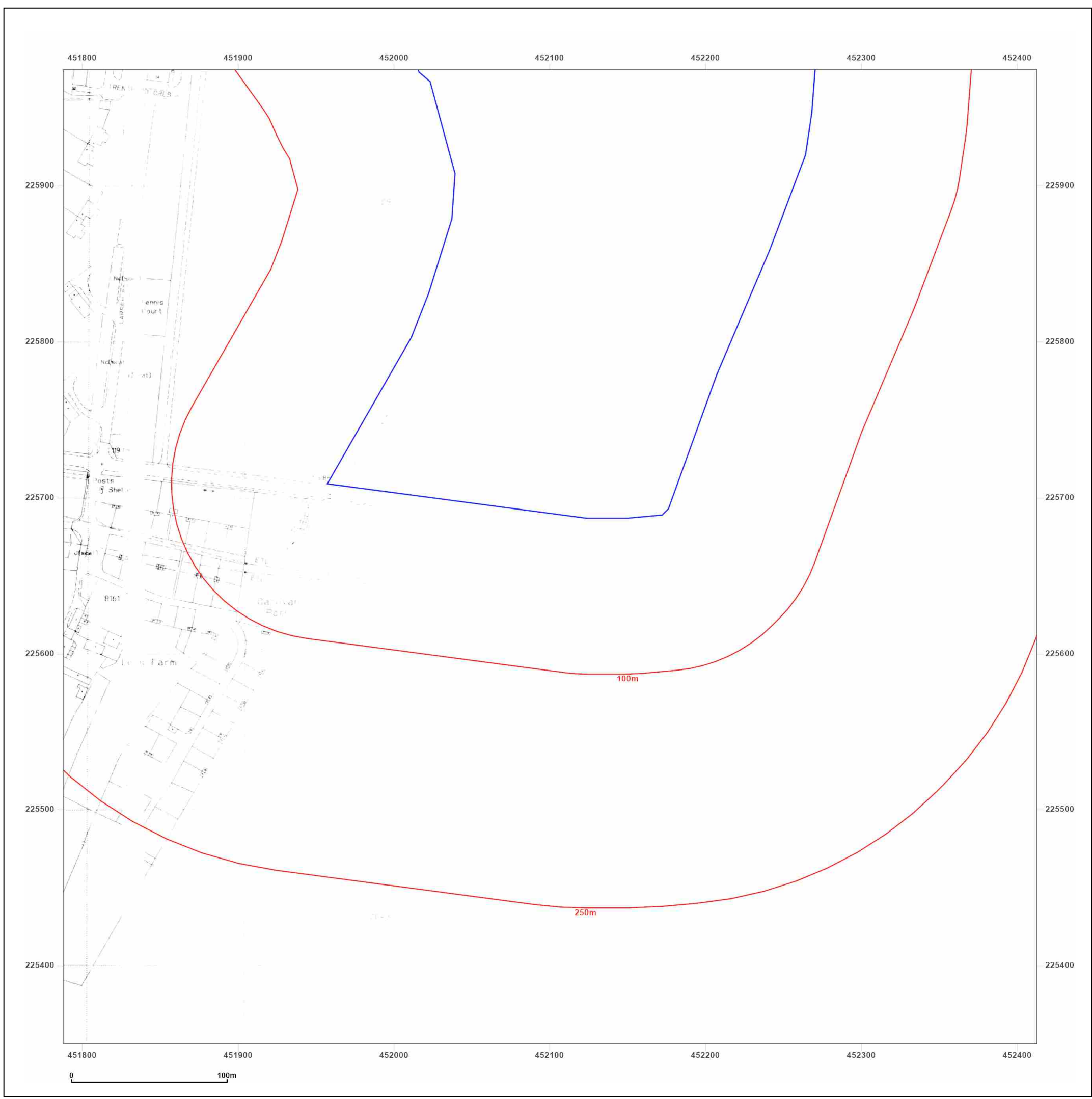


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**Map Name:** National Grid

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 Revised 1995  
 Edition N/A  
 Copyright 1995  
 Levelled N/A

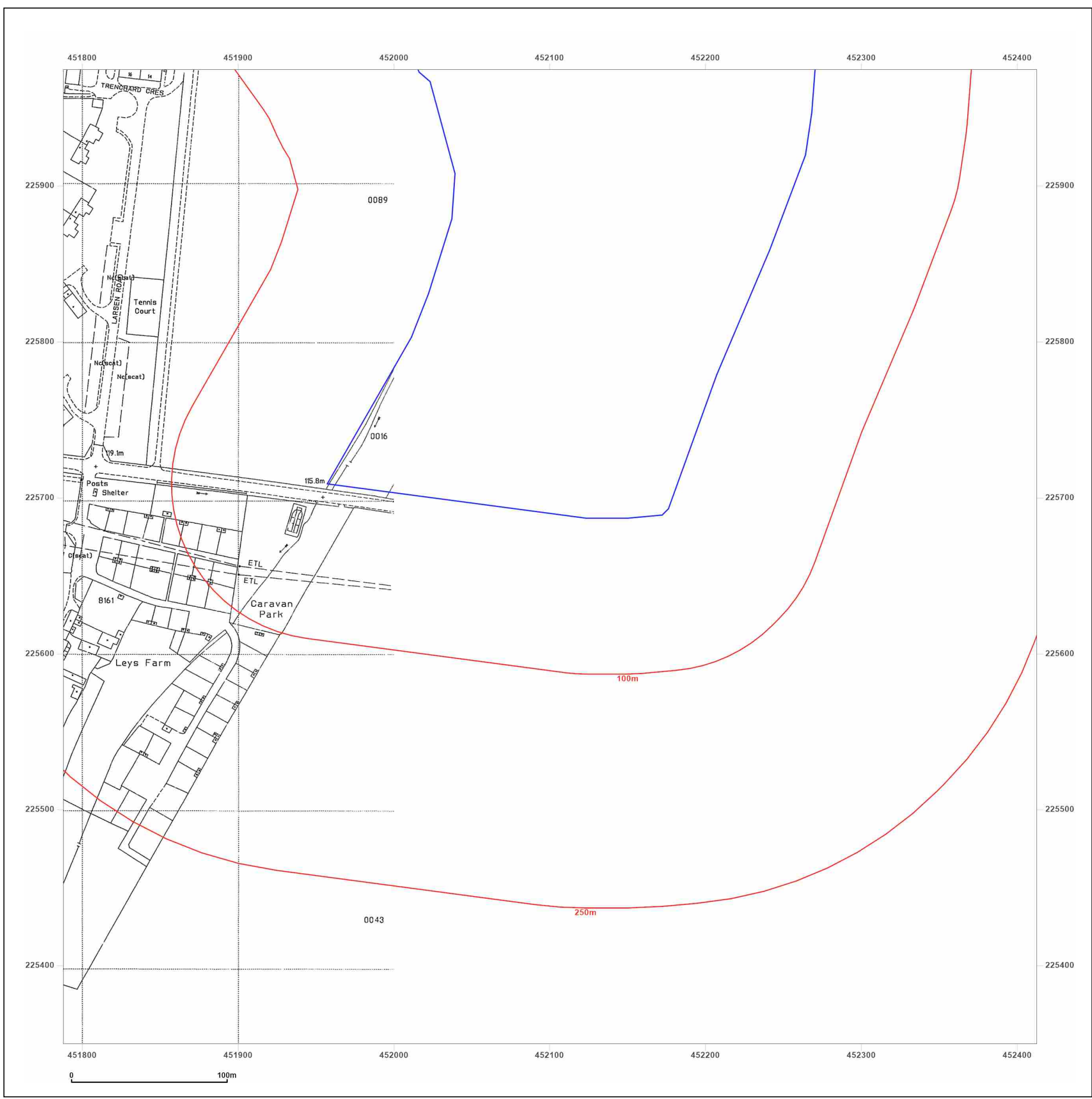


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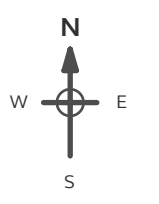
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**Grid Ref:** 452100, 226287

**Map Name:** County Series

**Map date:** 1881

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1881  
 Revised 1881  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

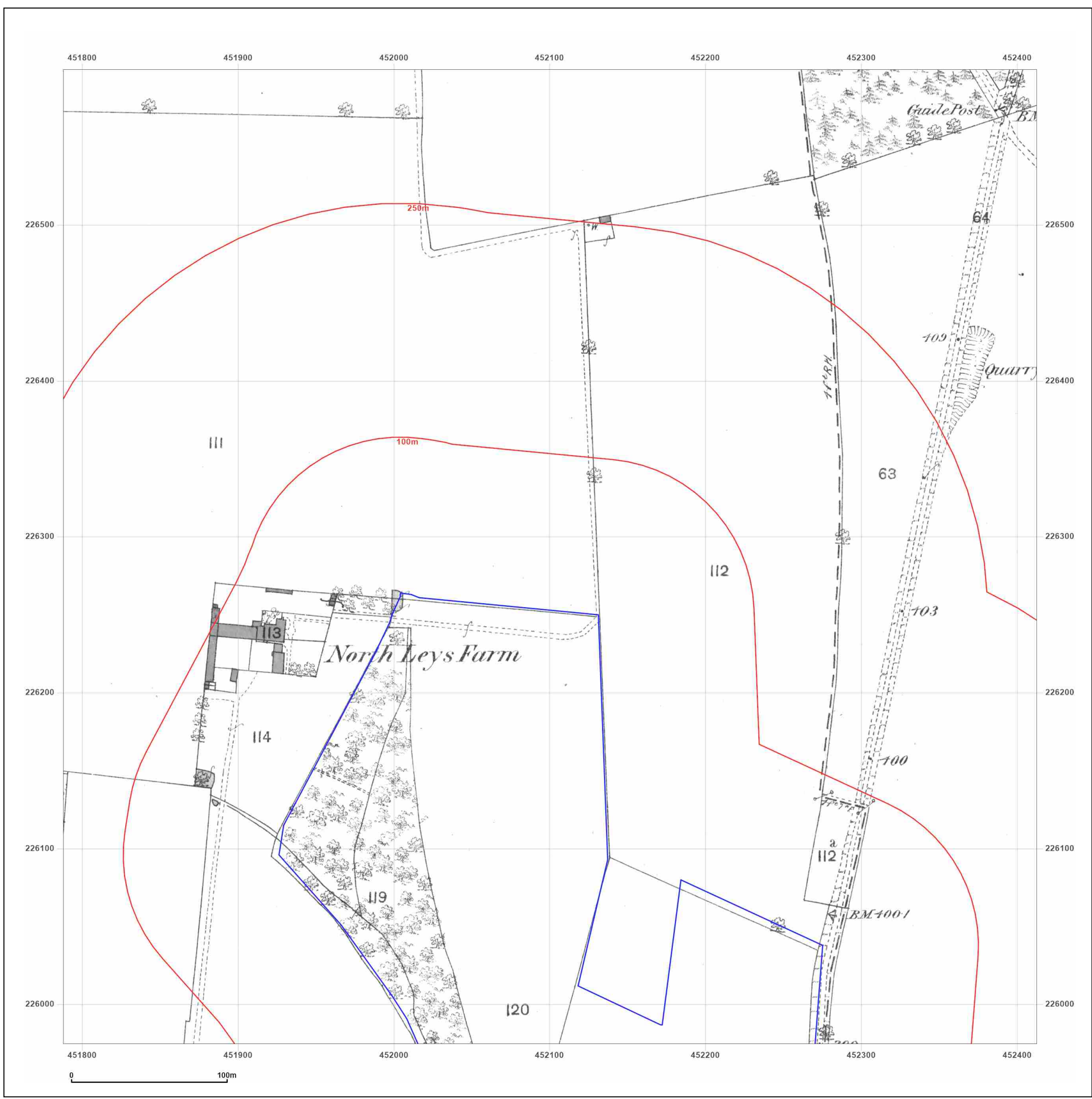


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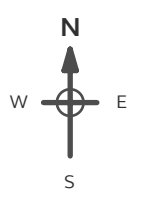
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Surveyed 1900  
 Revised 1900  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

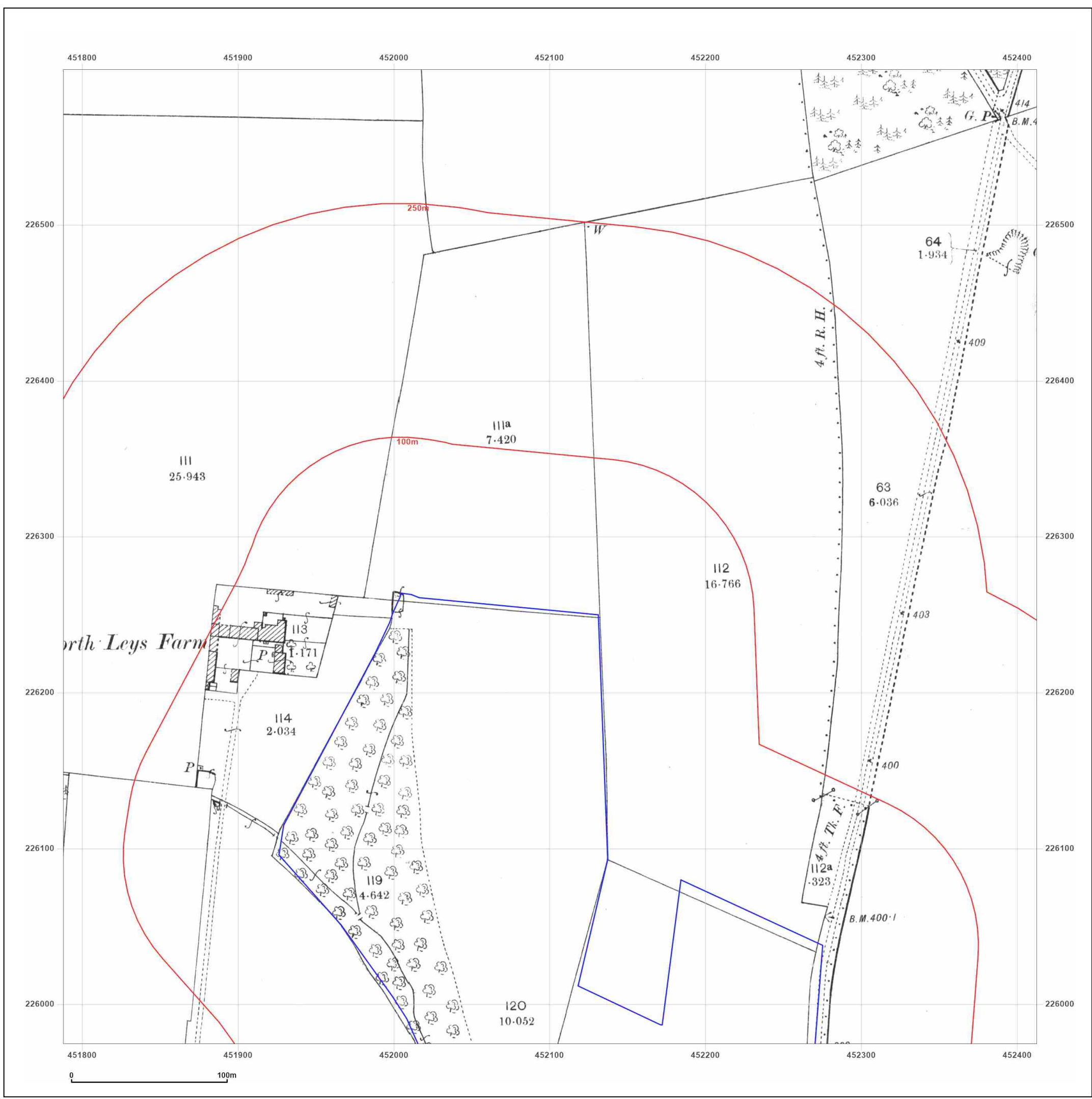


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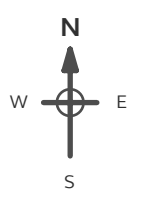
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**Map Name:** County Series

**Map date:** 1922

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1922  
 Revised 1922  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

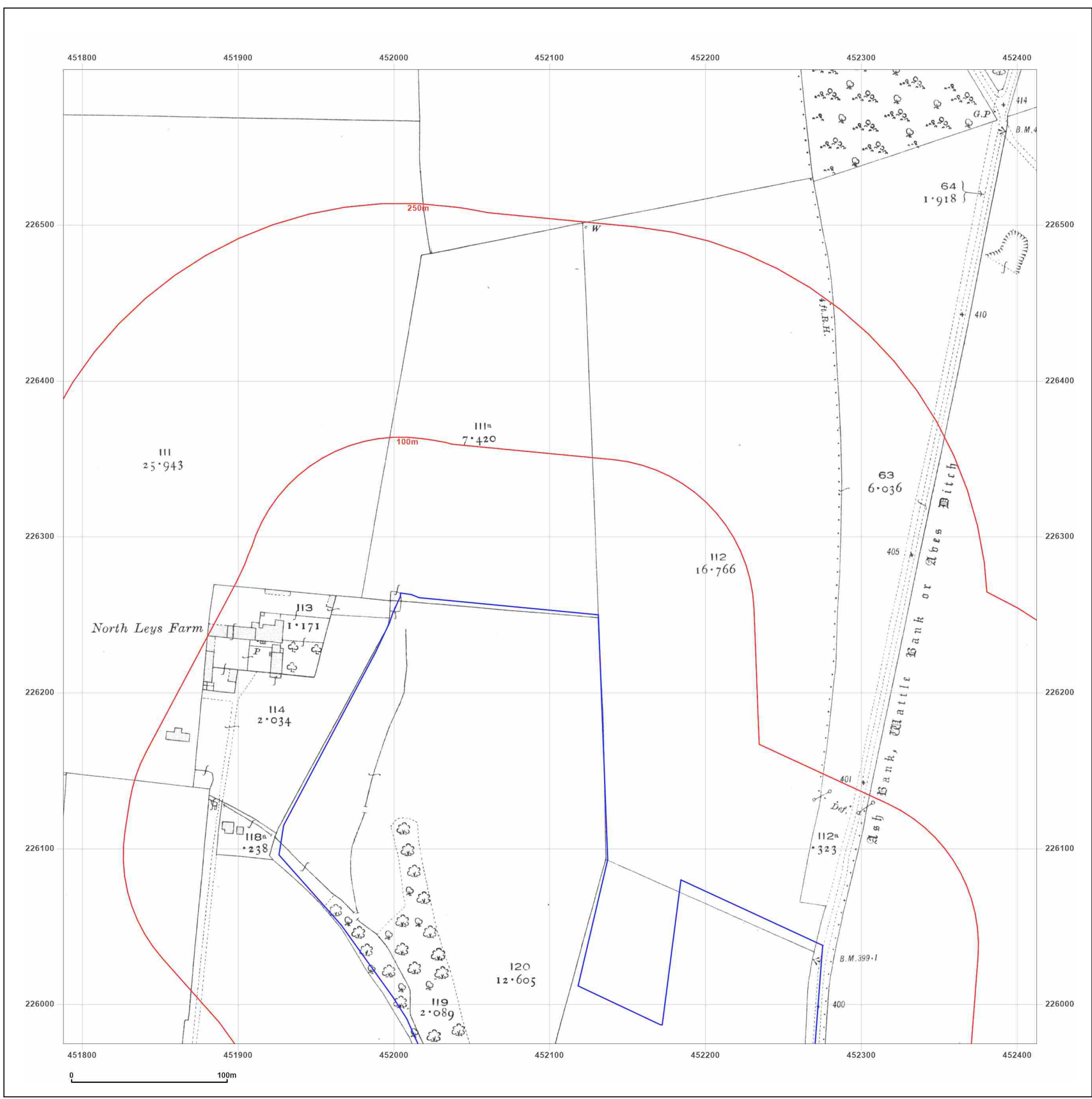


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**Map Name:** National Grid

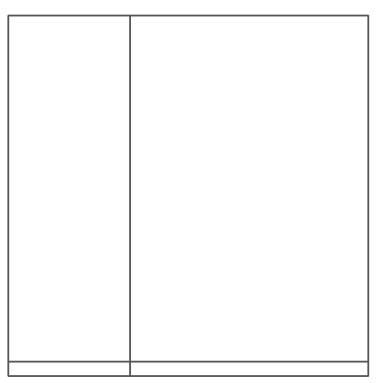
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**Scale:** 1:2,500

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Surveyed 1974  
 Revised 1974  
 Edition N/A  
 Copyright 1976  
 Levelled 1971



Surveyed 1974  
 Revised 1974  
 Edition N/A  
 Copyright 1975  
 Levelled 1970

Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright 1975  
 Levelled N/A

Surveyed 1974  
 Revised 1974  
 Edition N/A  
 Copyright 1976  
 Levelled 1971

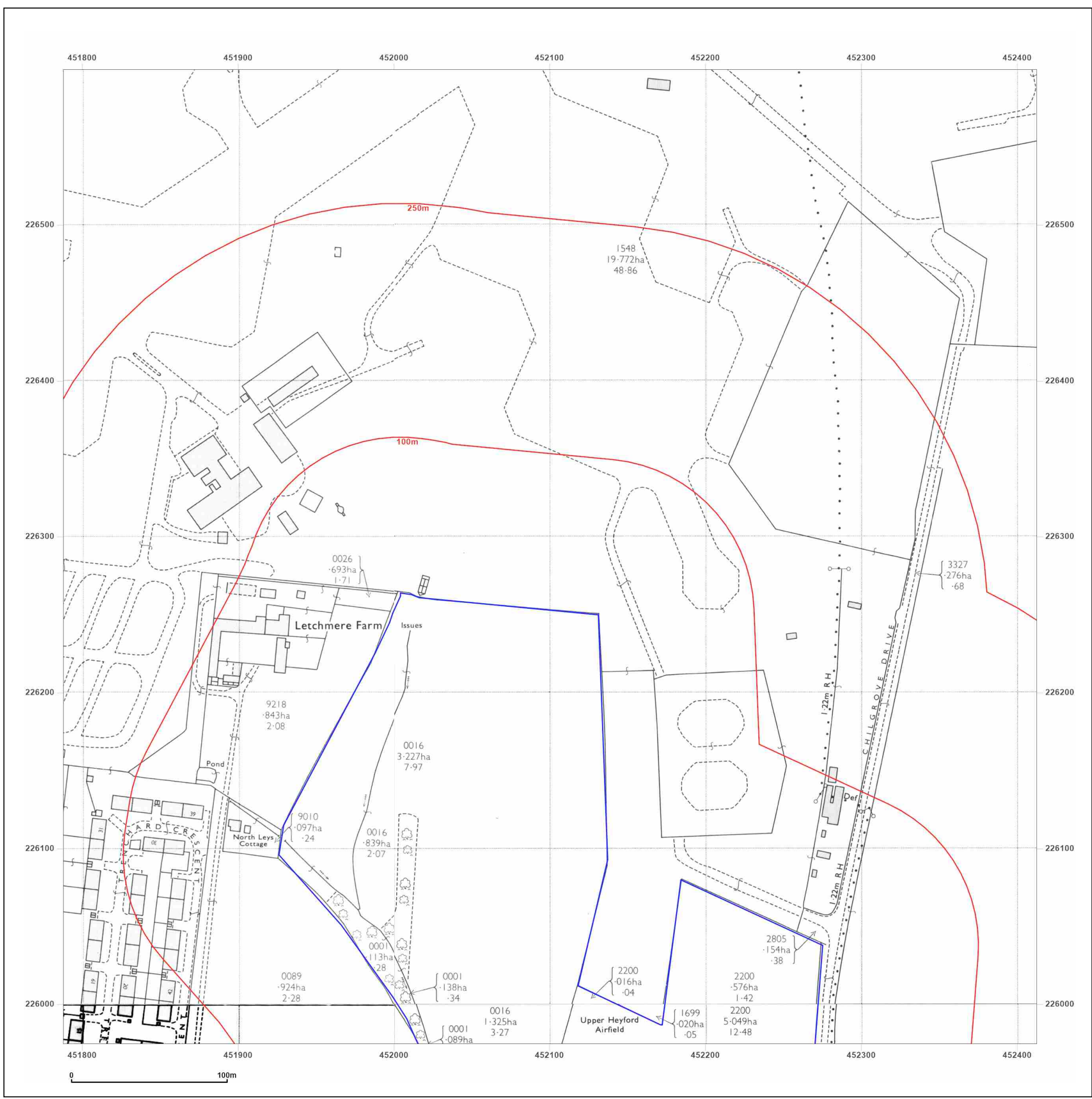


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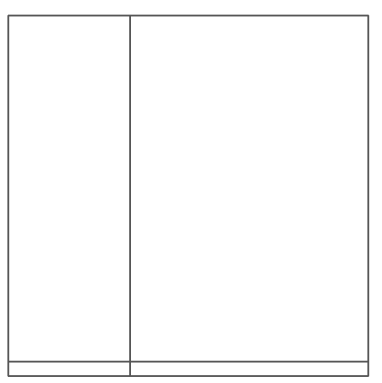
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**Printed at:** 1:2,500



Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright N/A  
 Levelled N/A



Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright 1975  
 Levelled N/A

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 Revised N/A  
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**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

Surveyed 1975  
 Revised 1975  
 Edition N/A  
 Copyright 1975  
 Levelled 1971



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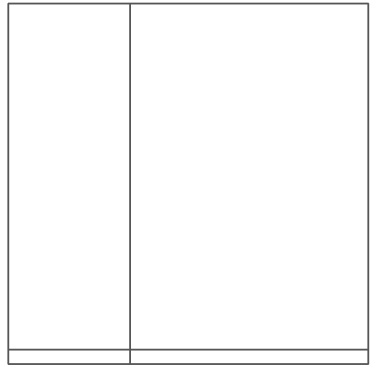
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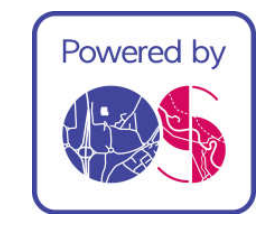
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 Edition N/A  
 Copyright 1994  
 Levelled N/A



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 Revised N/A  
 Edition N/A  
 Copyright 1994  
 Levelled N/A

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 Revised 1994  
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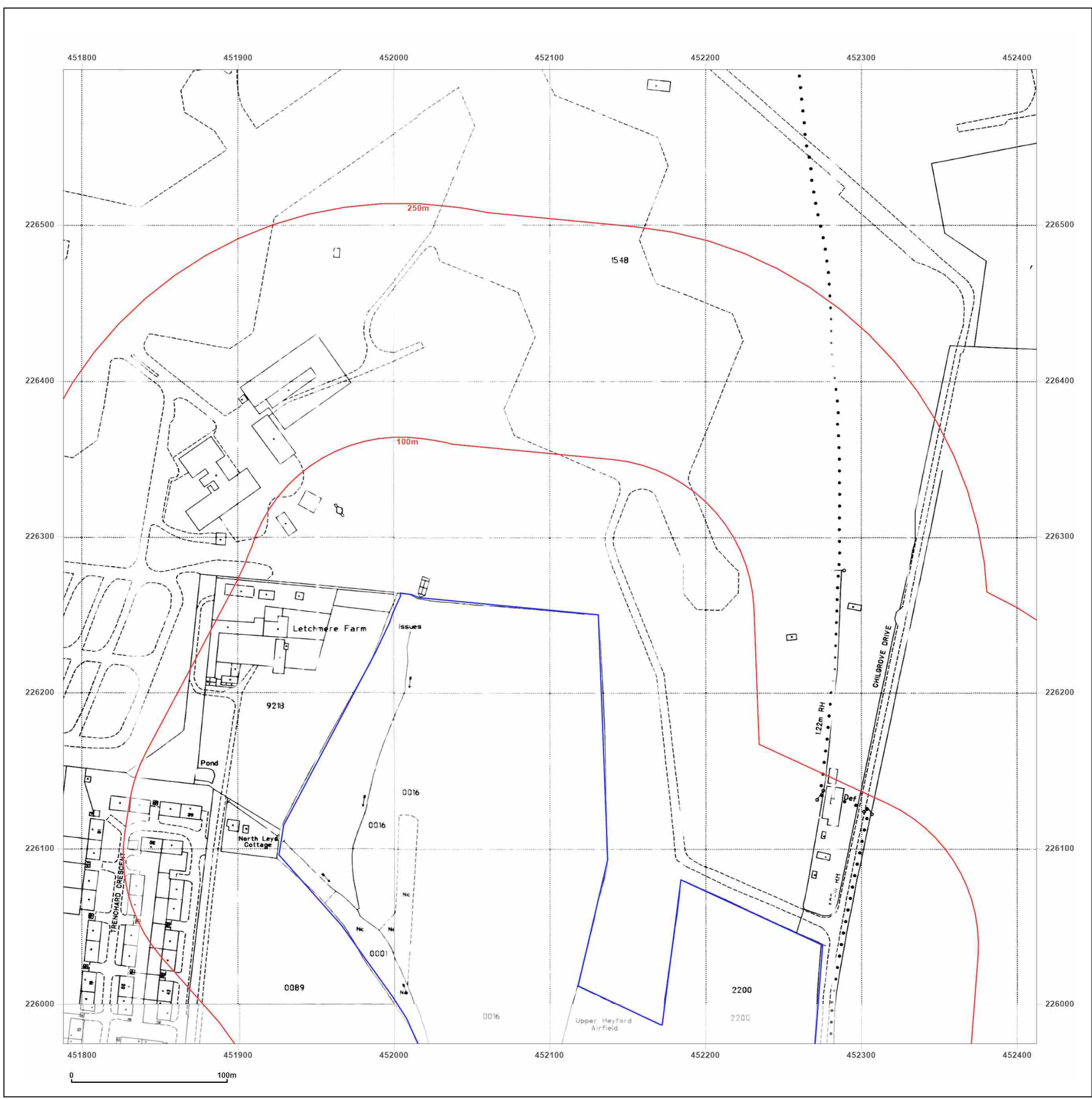


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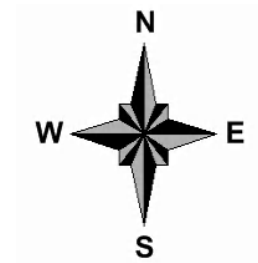
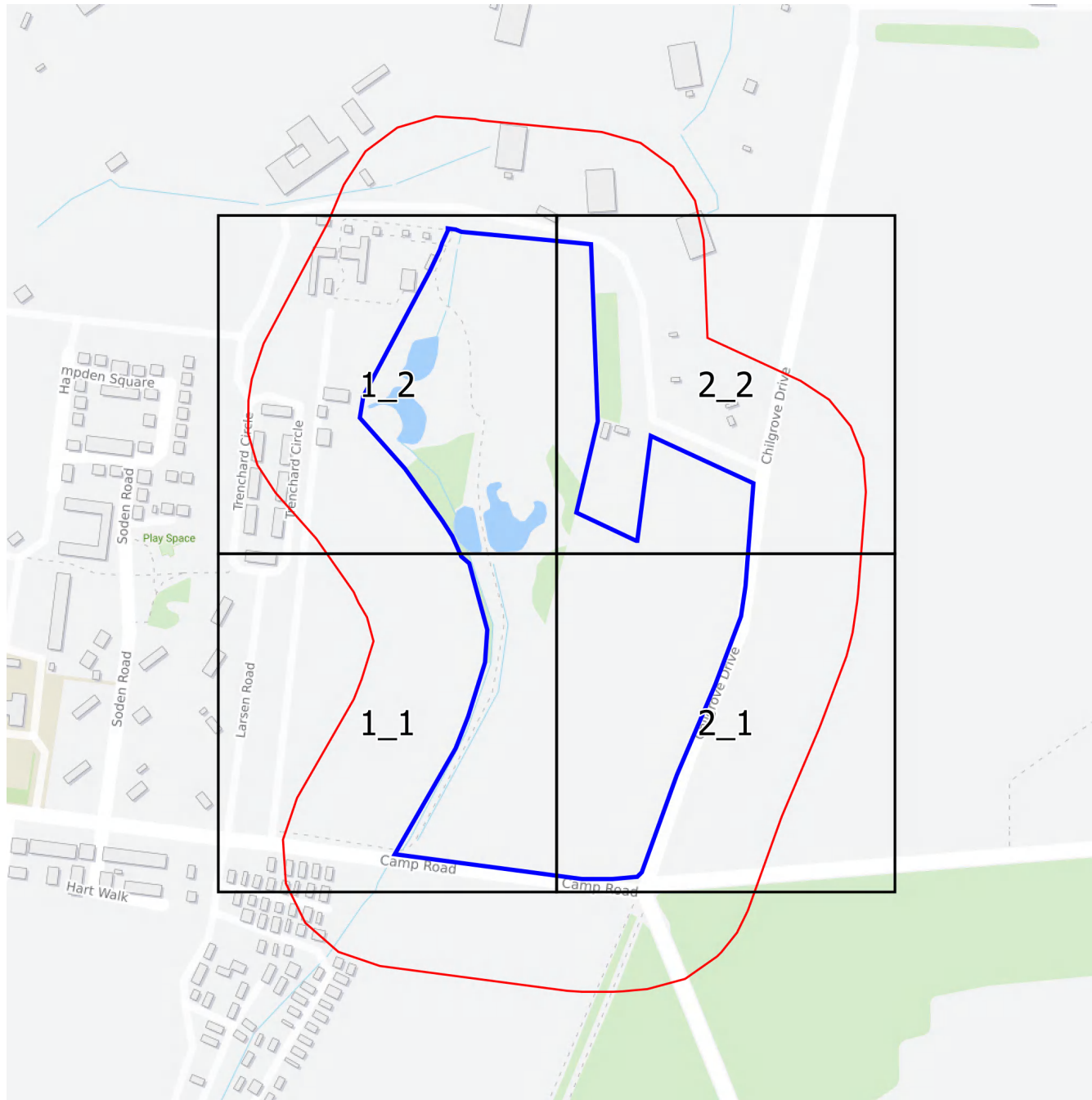
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## Landline Scale Grid Index



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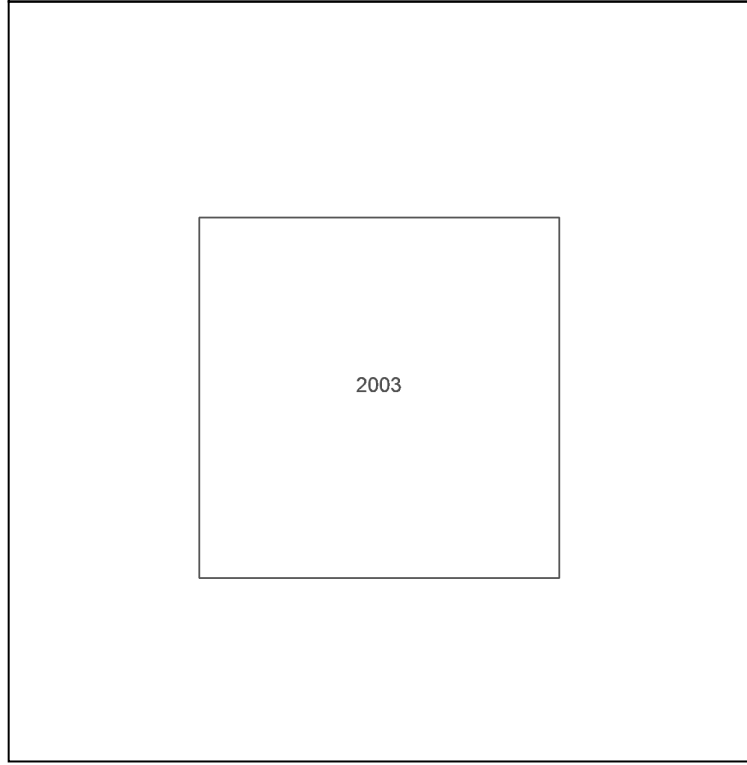
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**Map date:** 2003

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**Printed at:** 1:1,250

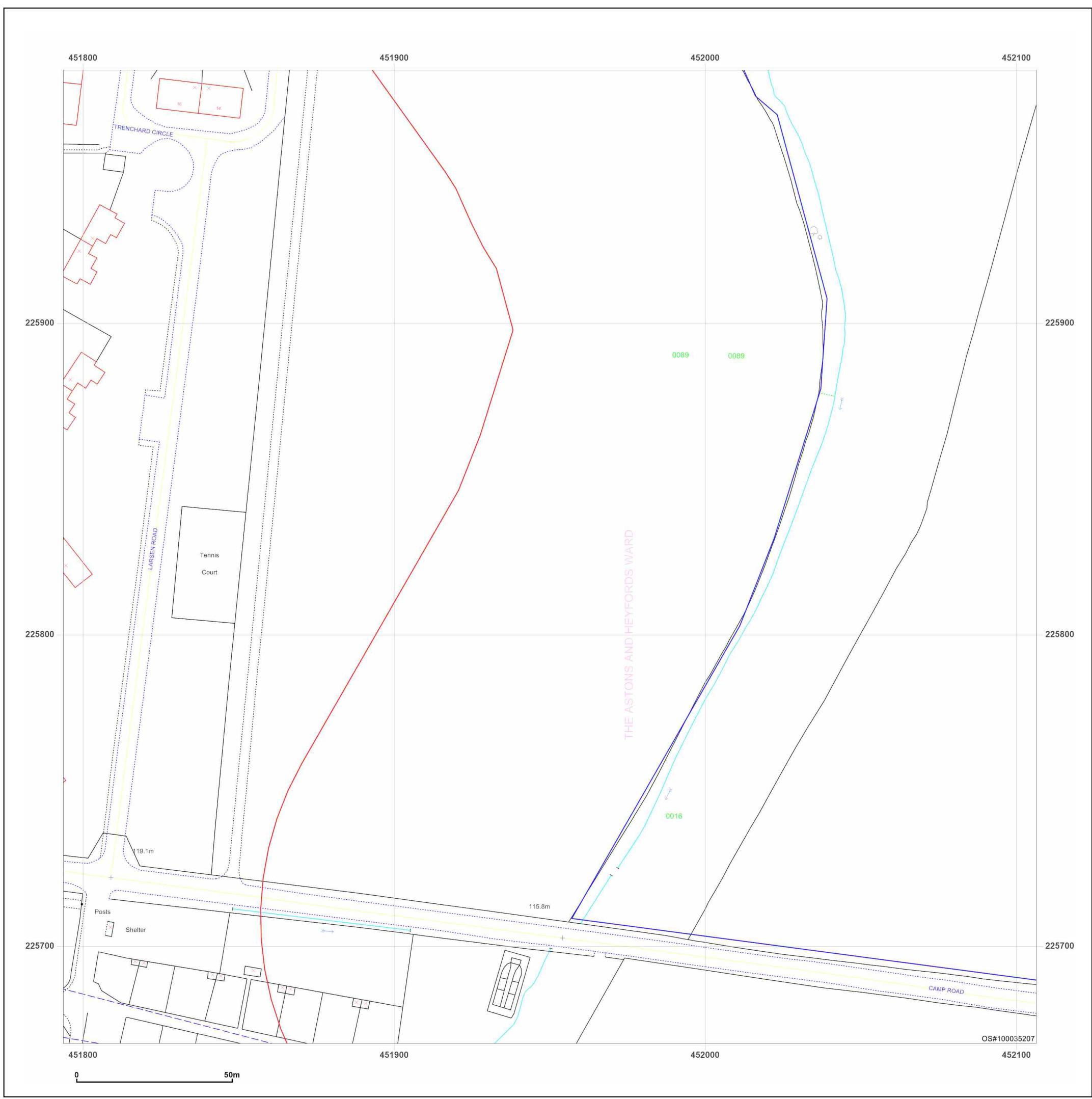


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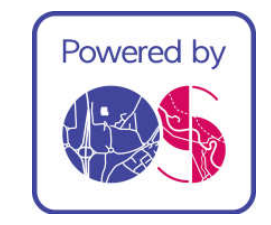
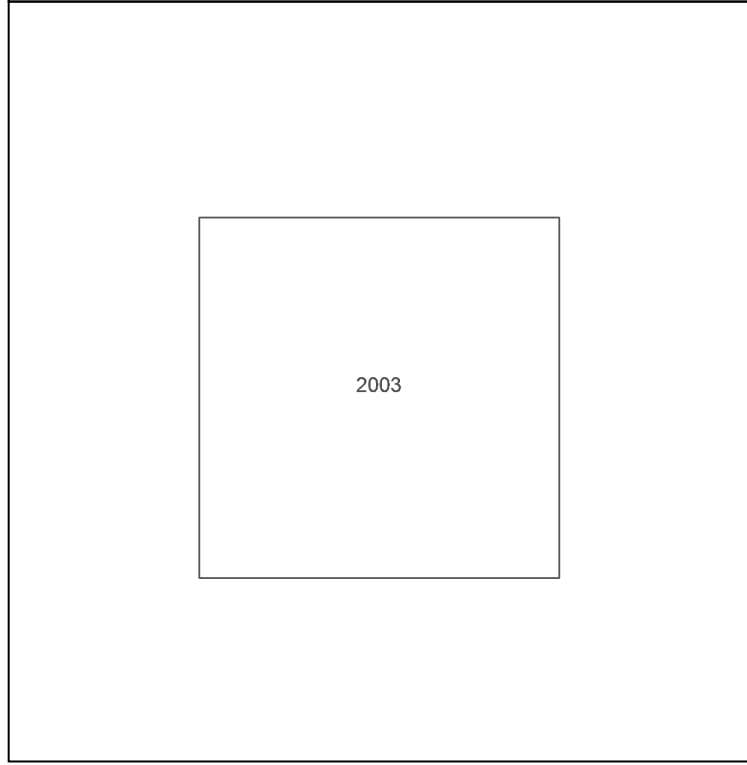
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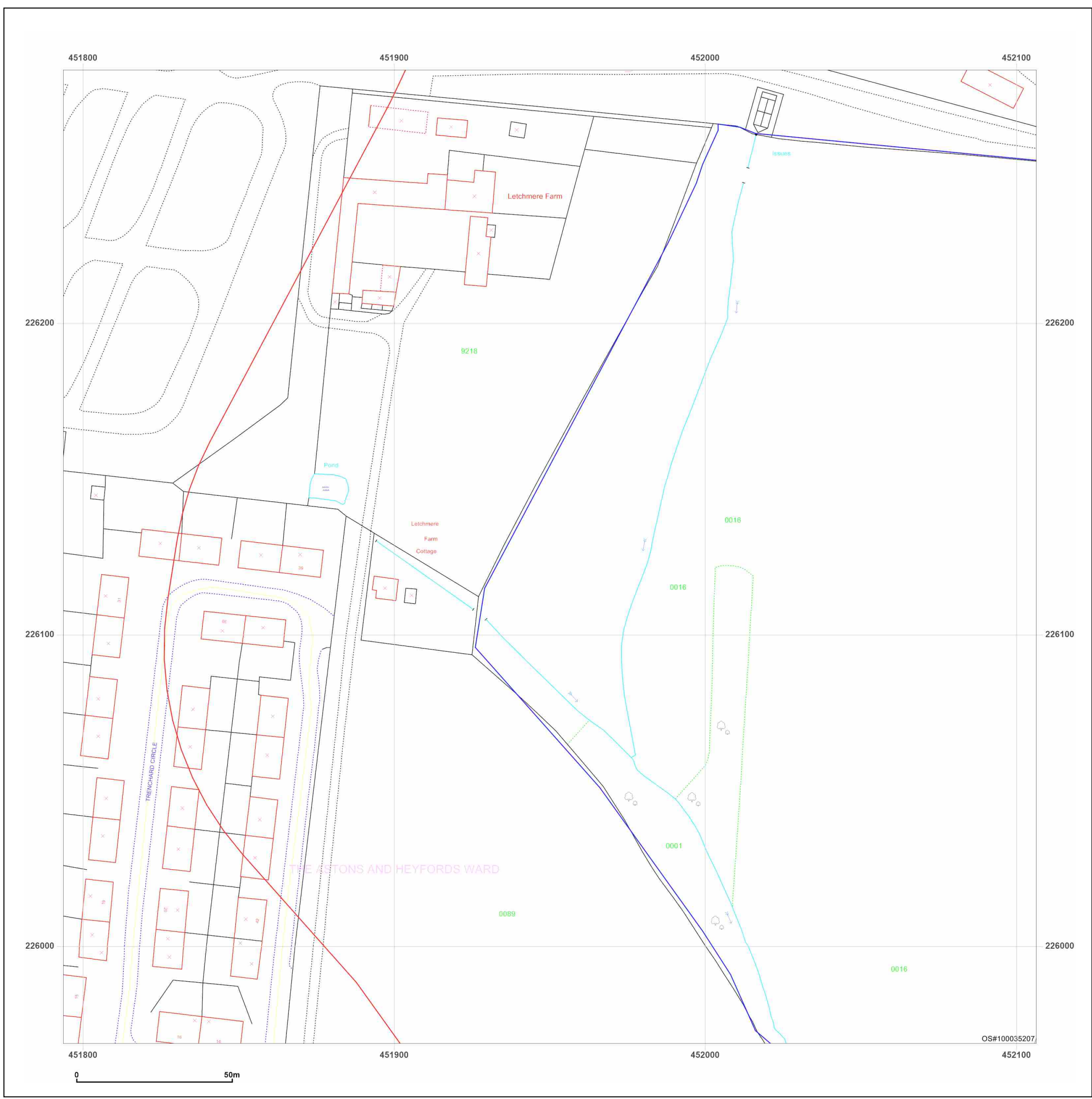


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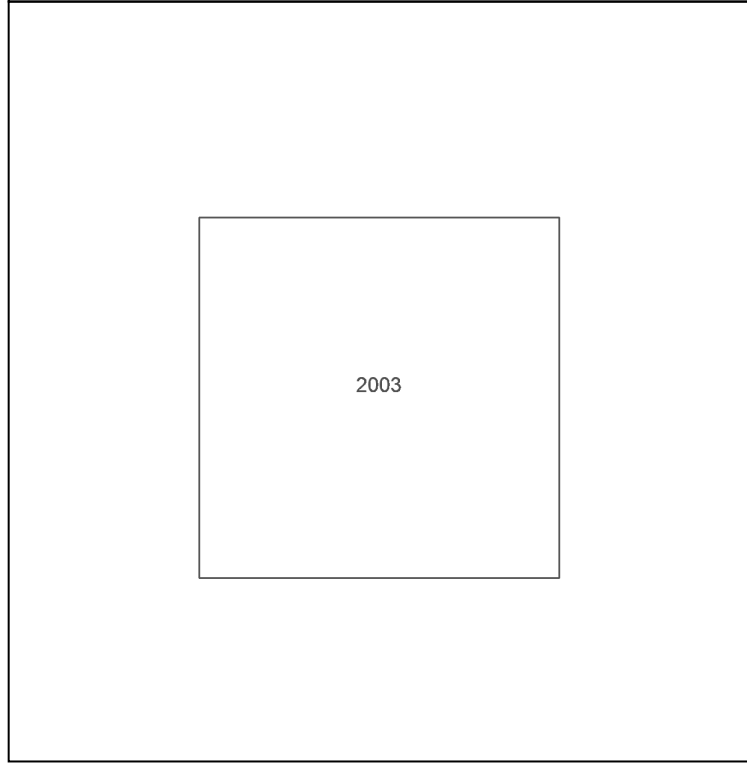
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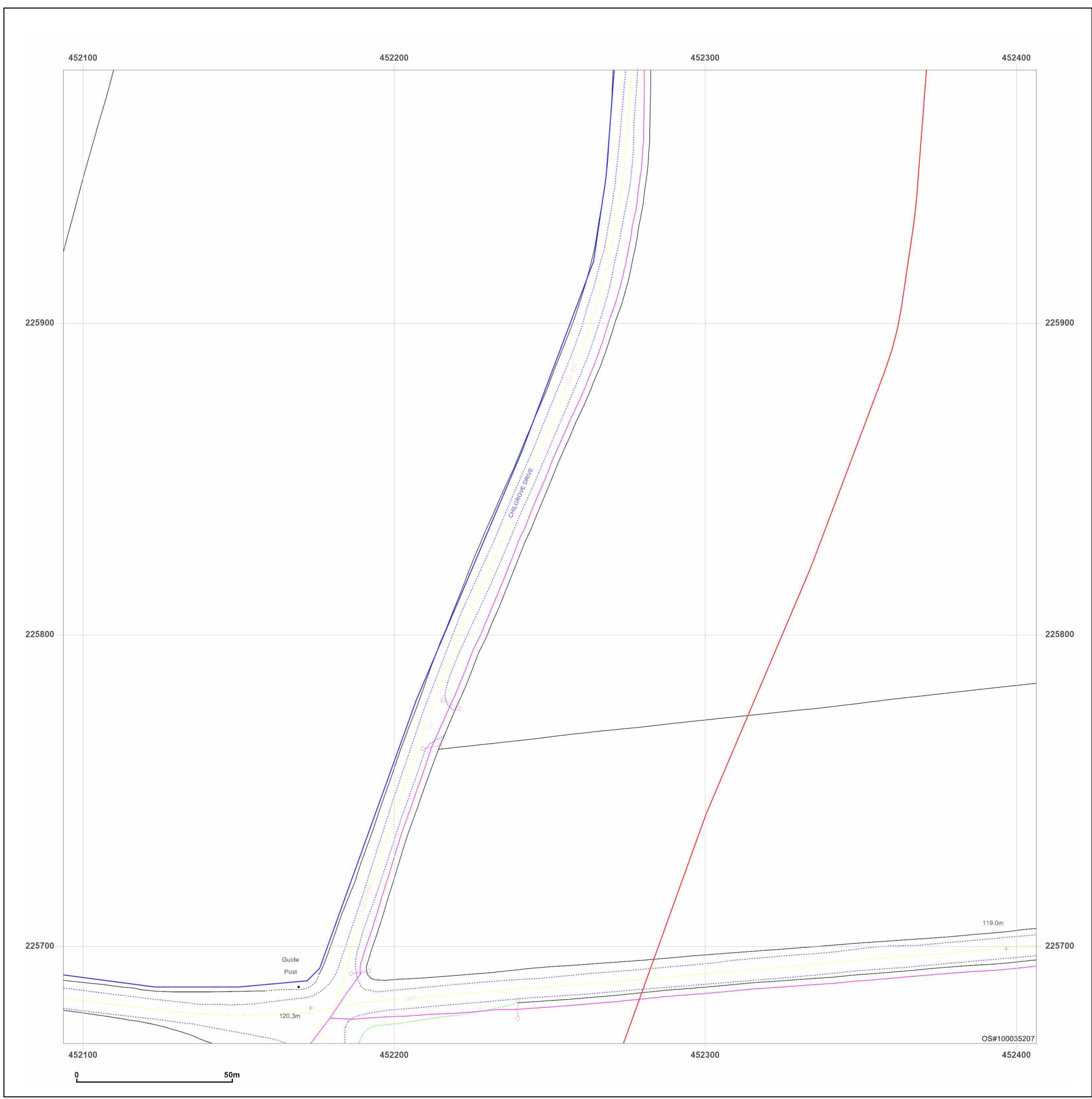


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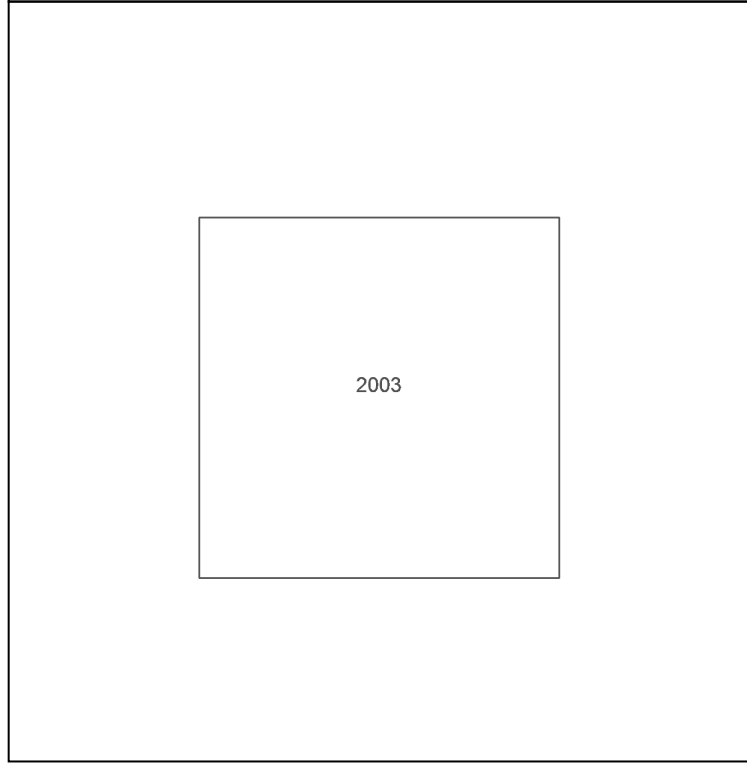
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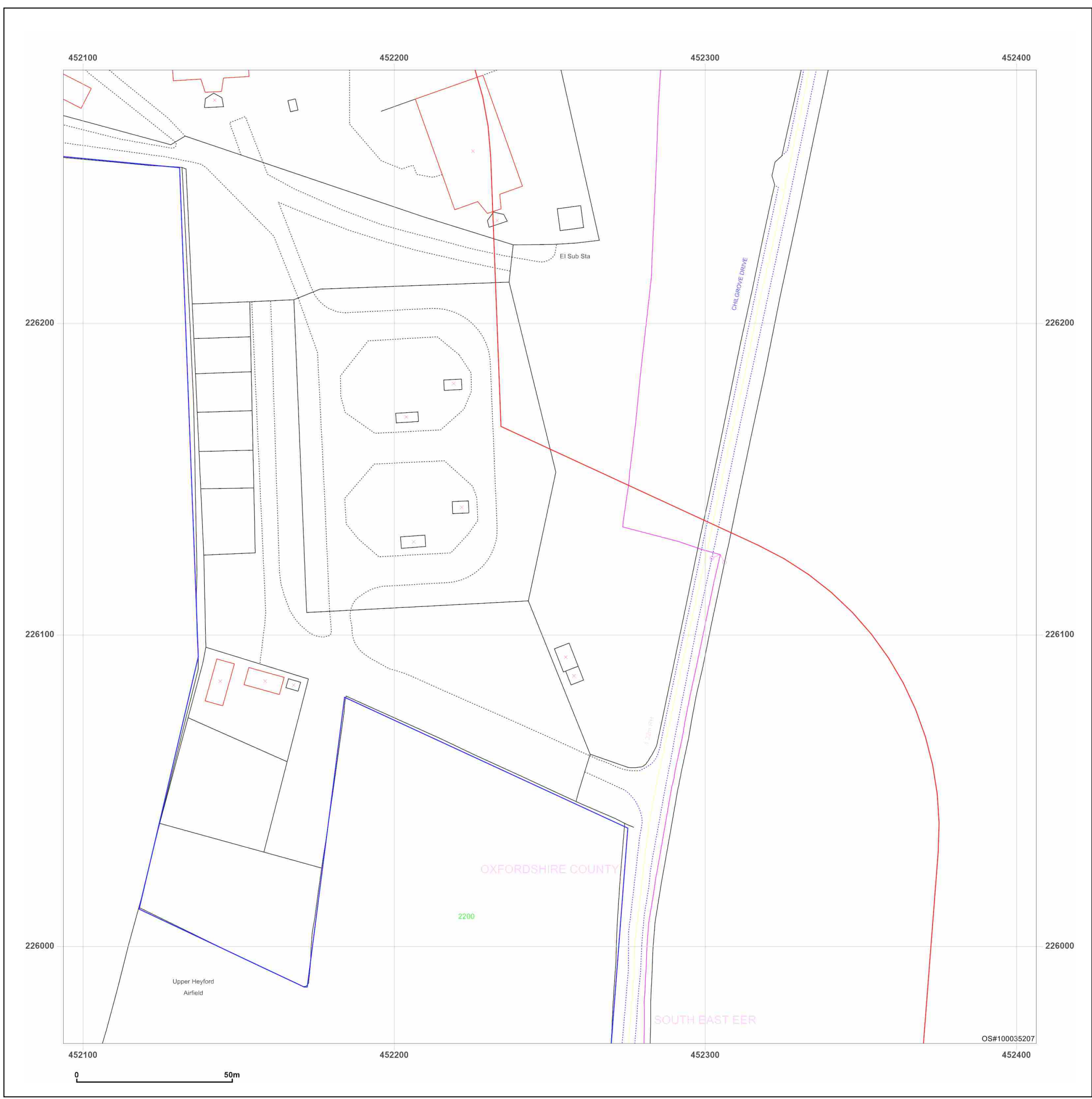


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**Printed at:** 1:10,560



Surveyed 1880  
 Revised 1880  
 Edition N/A  
 Copyright N/A  
 Levelled N/A

Surveyed 1875  
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 Copyright N/A  
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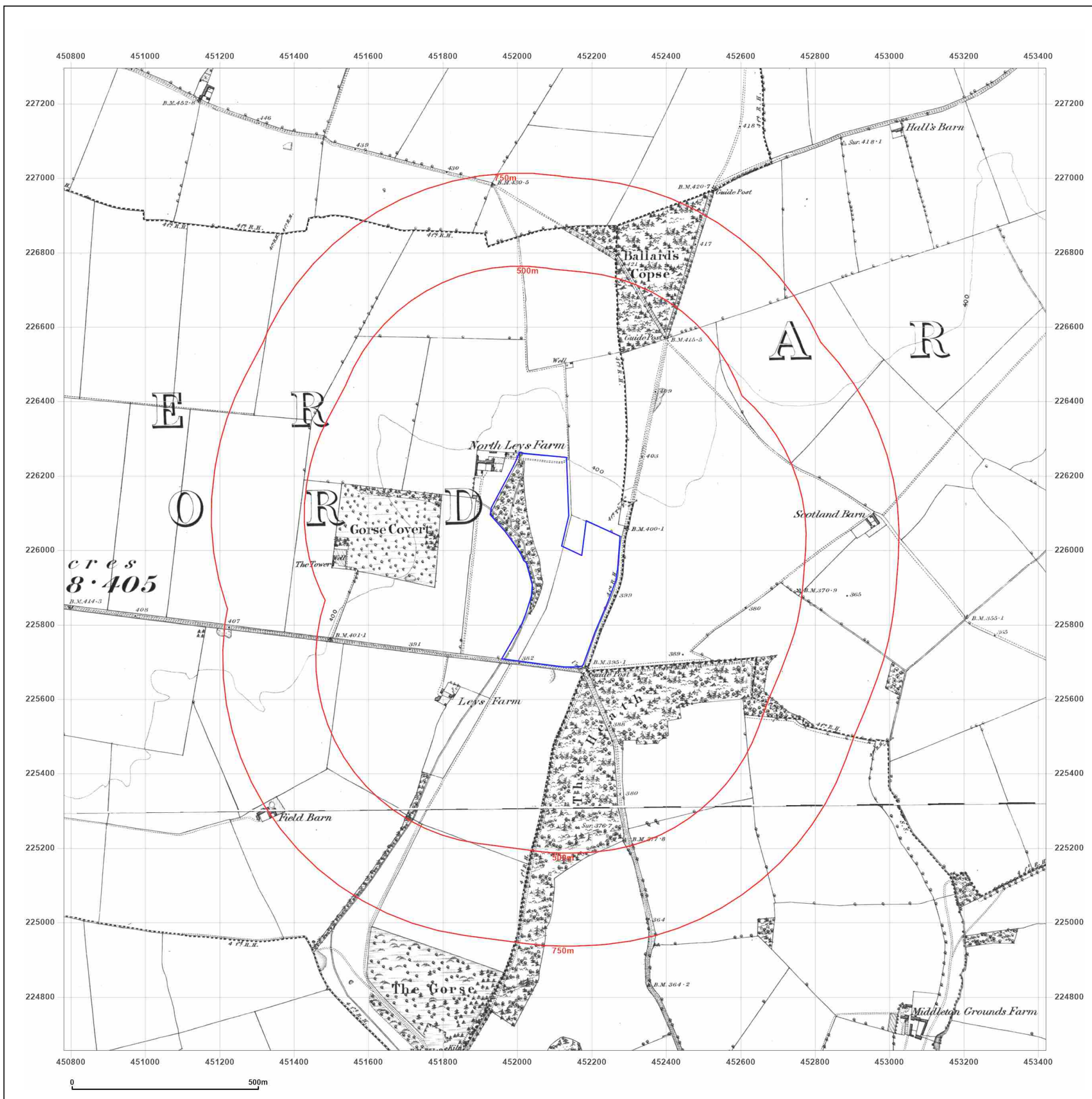


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 Revised 1898  
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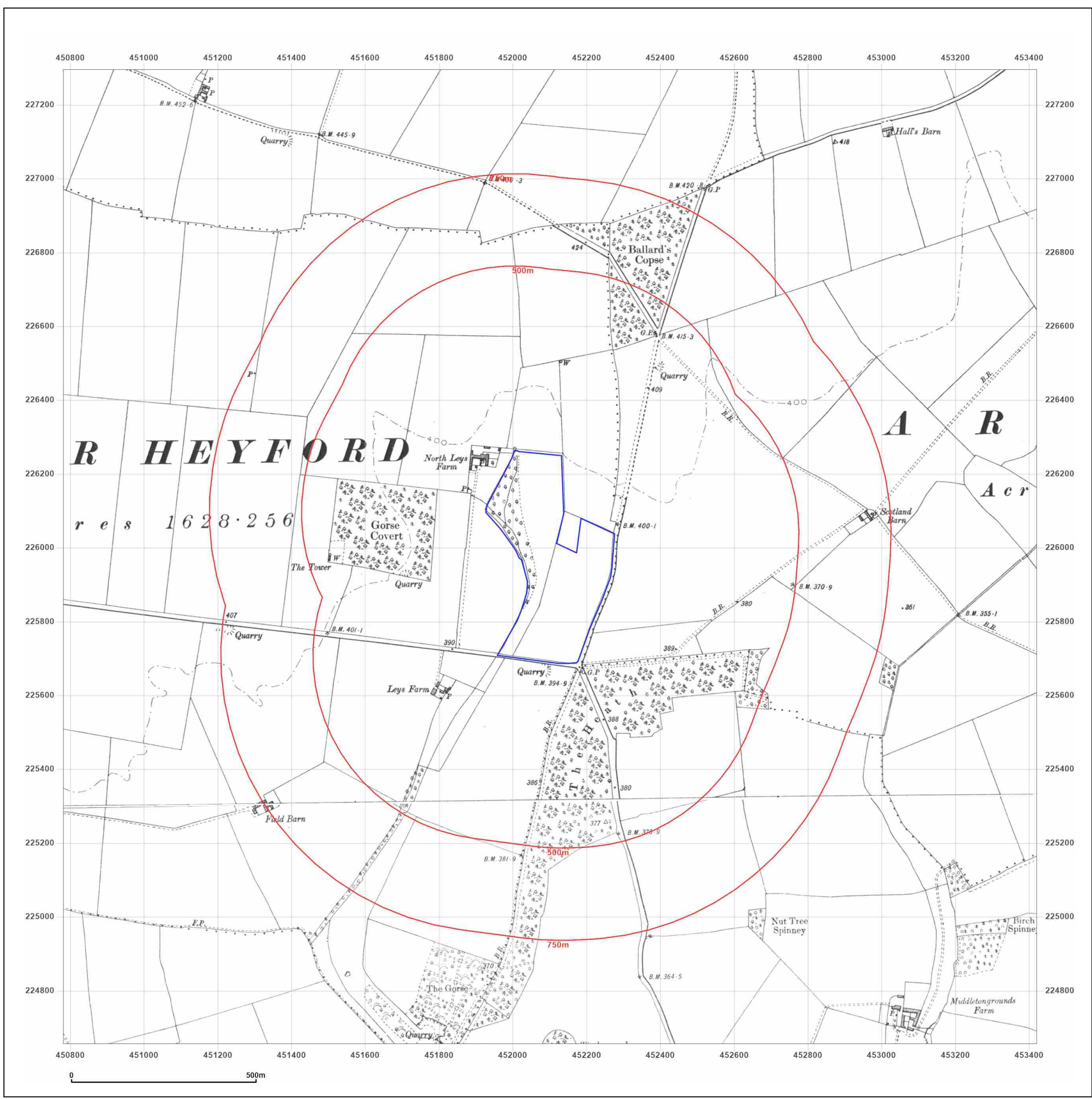


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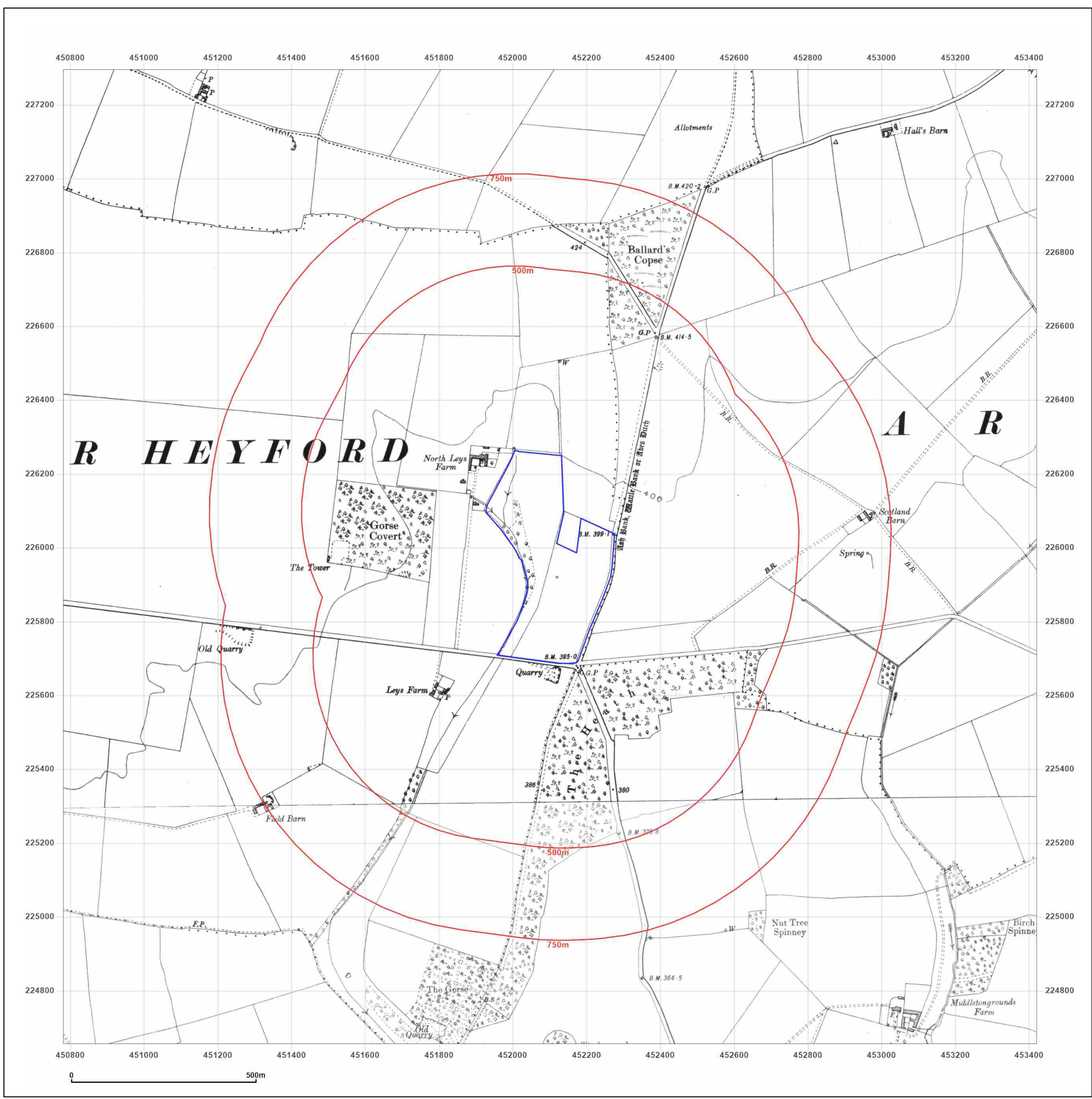


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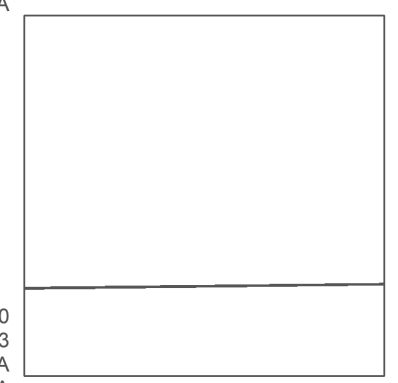
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 Edition N/A  
 Copyright N/A  
 Levelled N/A



Surveyed 1880  
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 Edition N/A  
 Copyright N/A  
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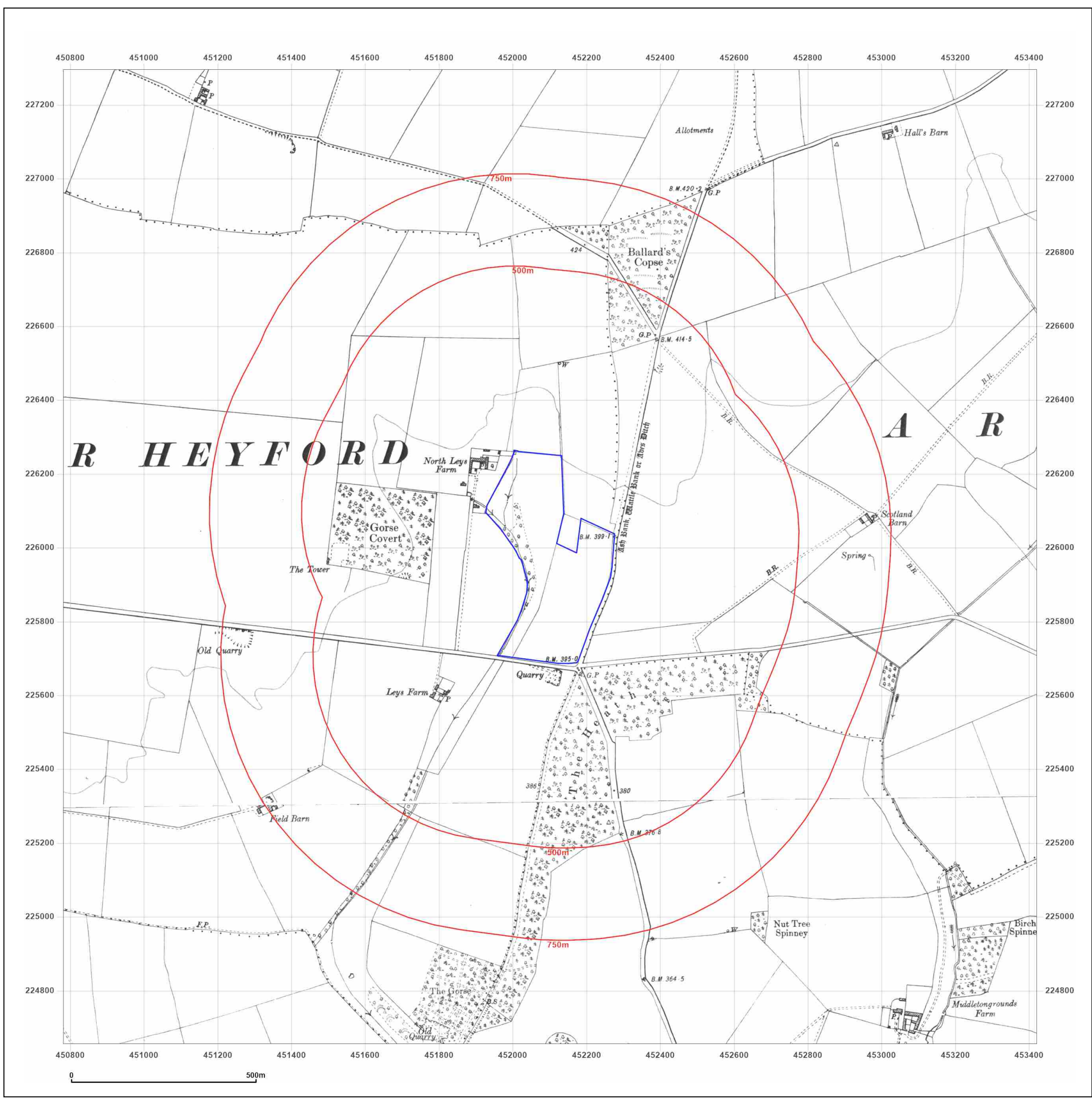


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Surveyed 1880  
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 Edition N/A  
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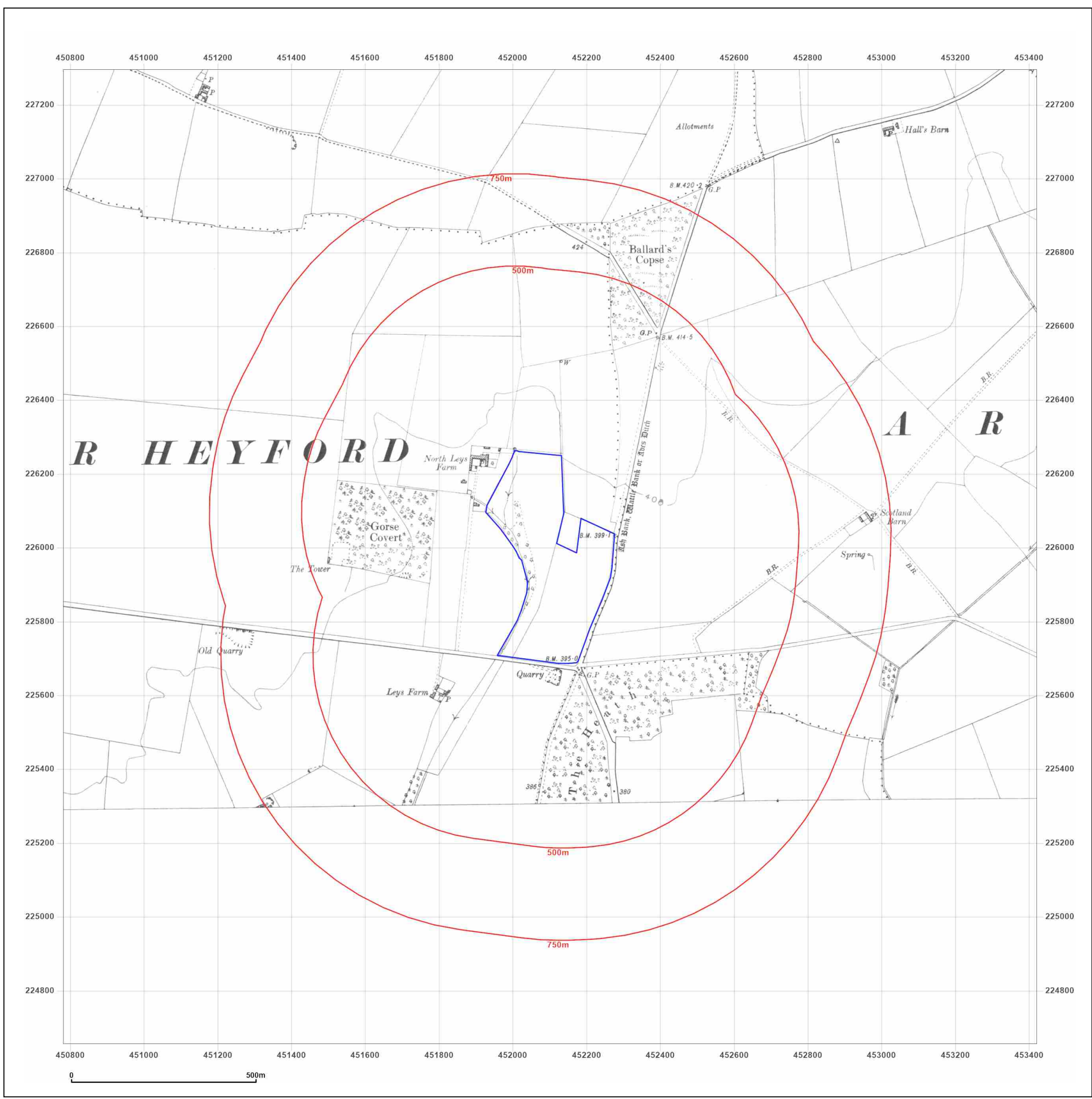


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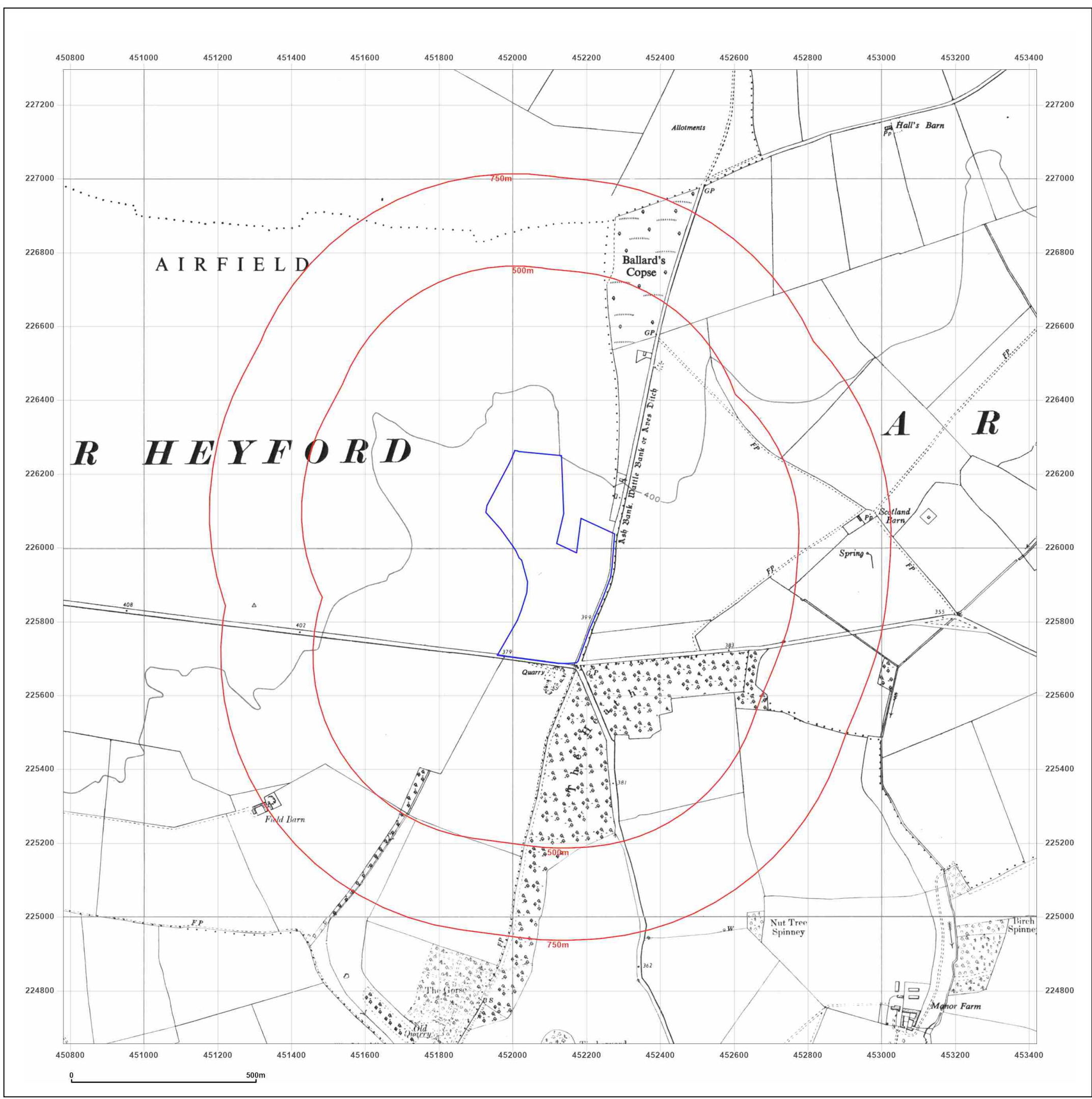


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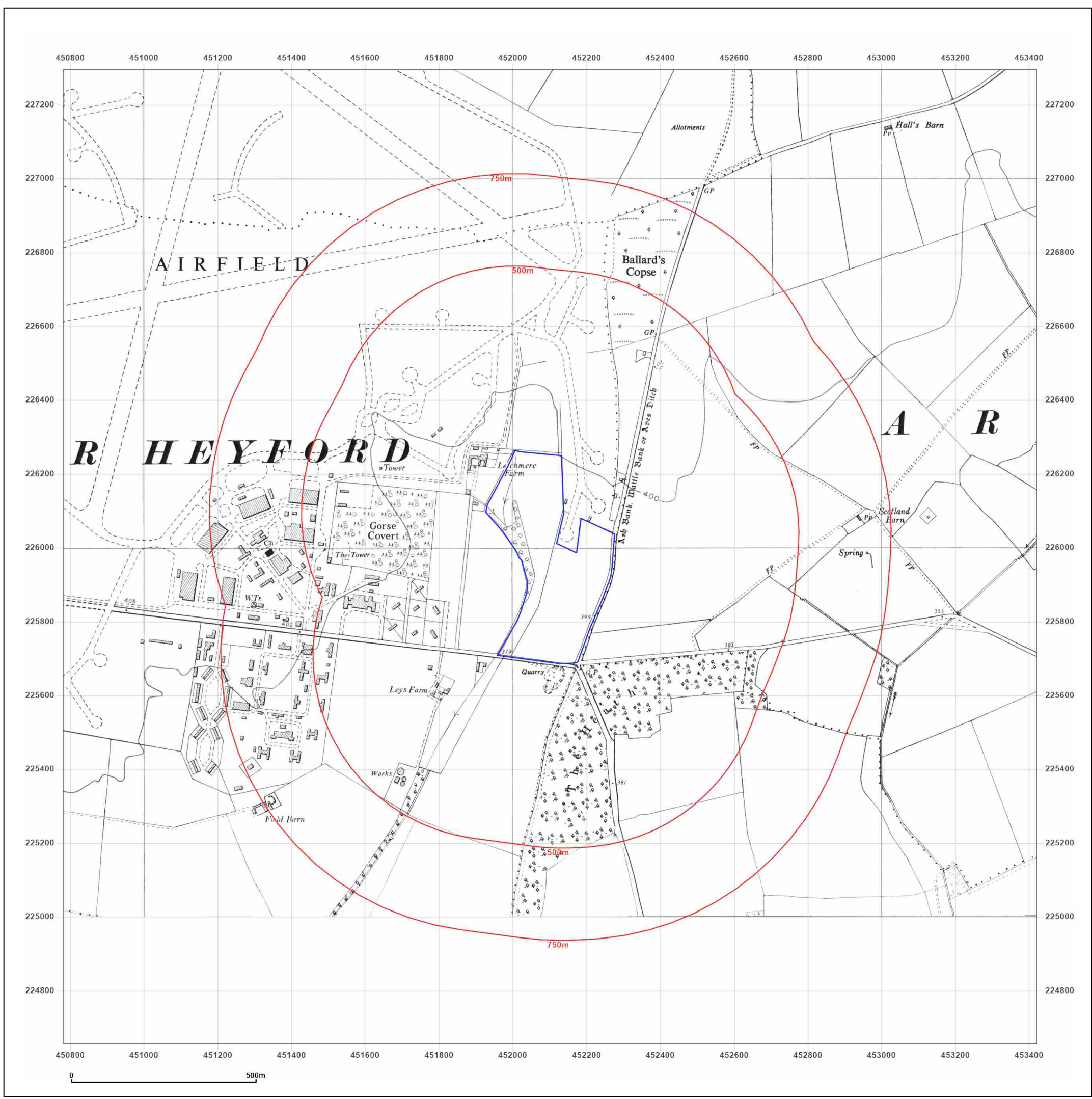


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 Levelled N/A

Surveyed 1977  
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 Copyright N/A  
 Levelled N/A

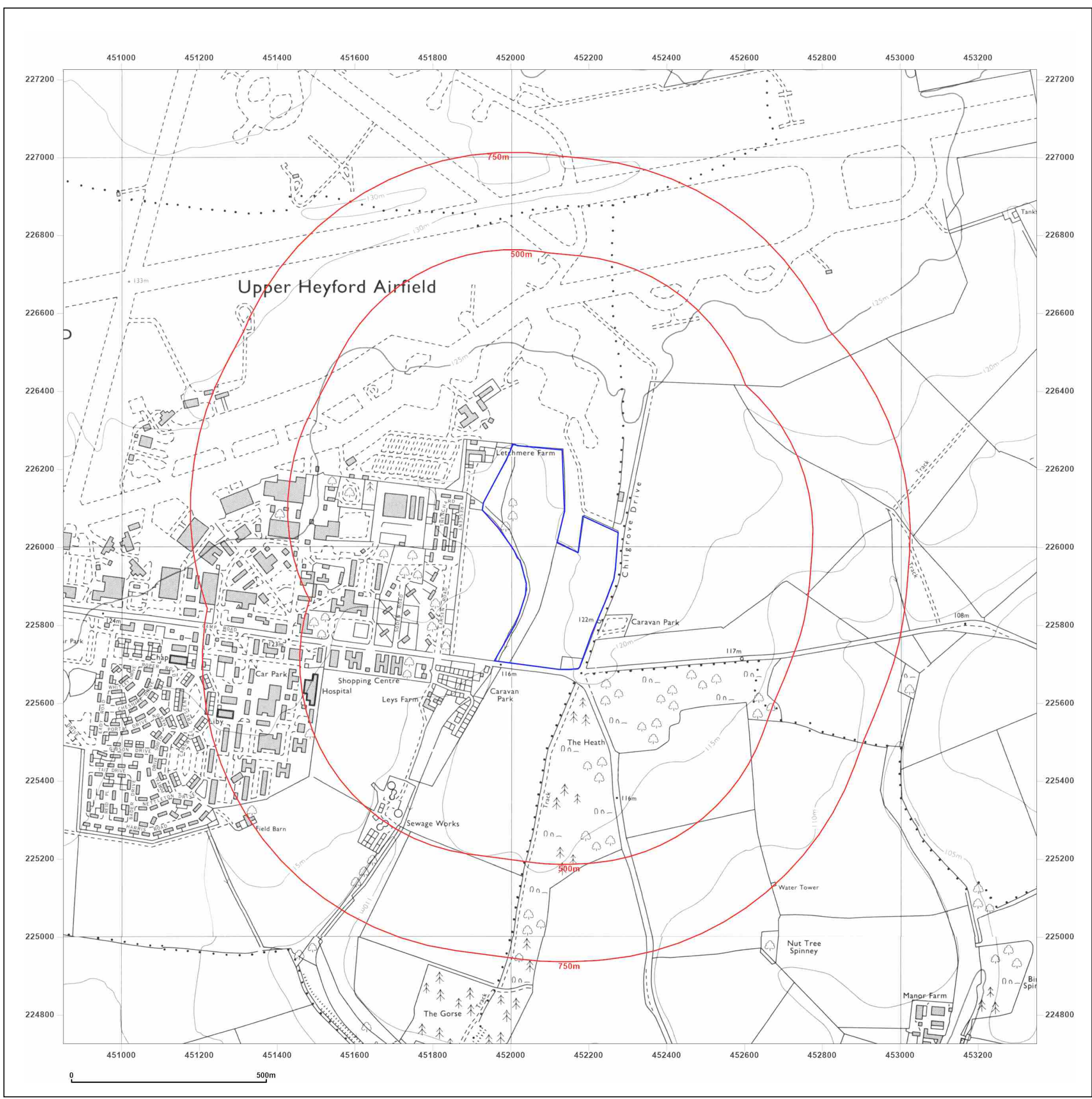


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Surveyed 1975  
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 Edition N/A  
 Copyright N/A  
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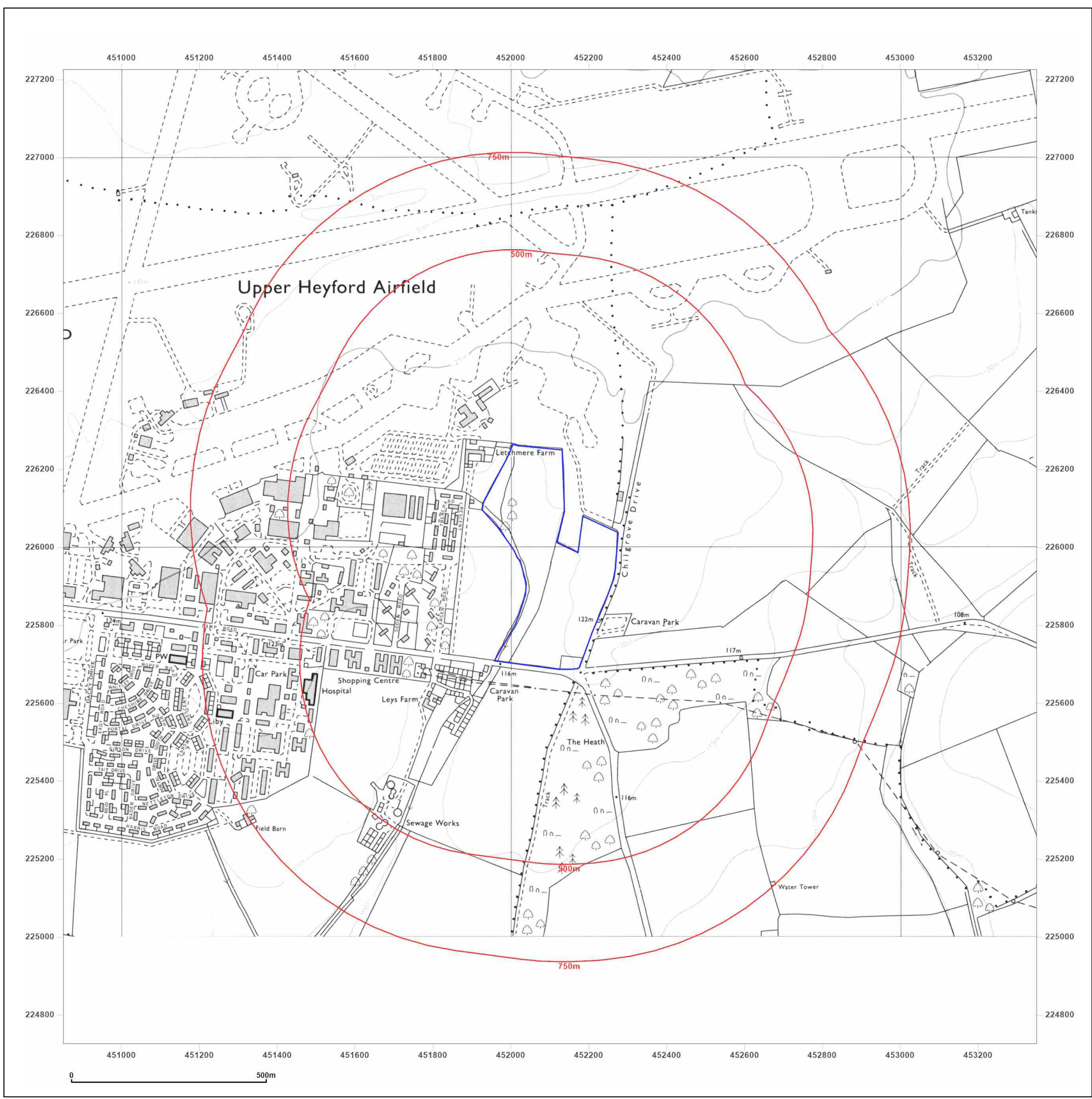


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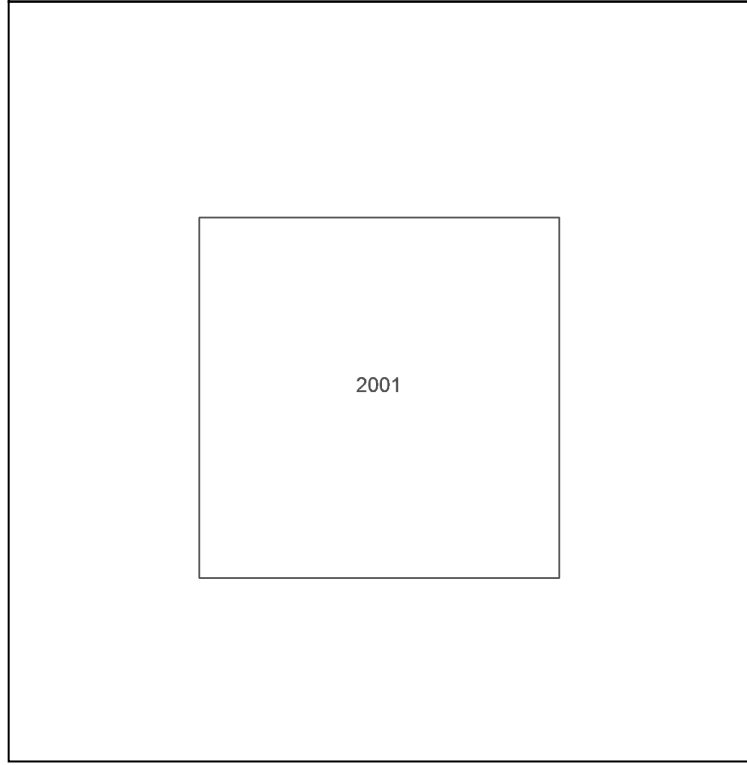
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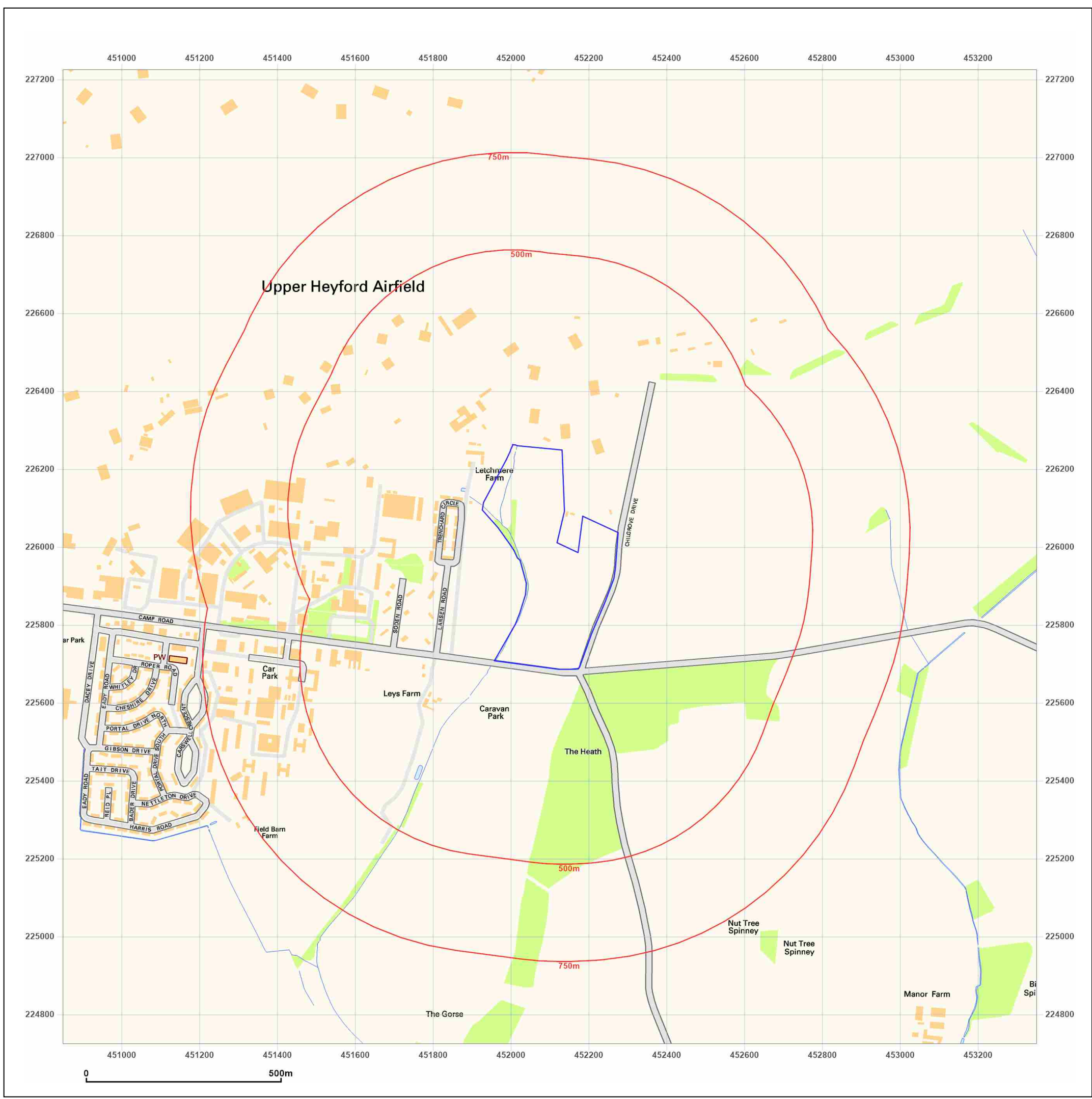


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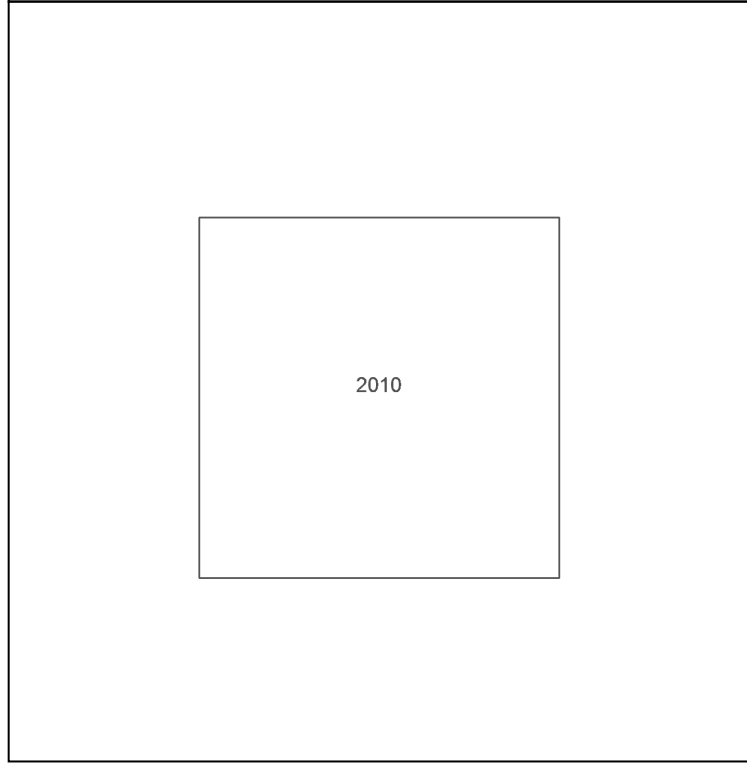
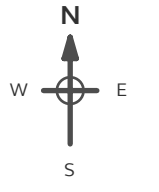
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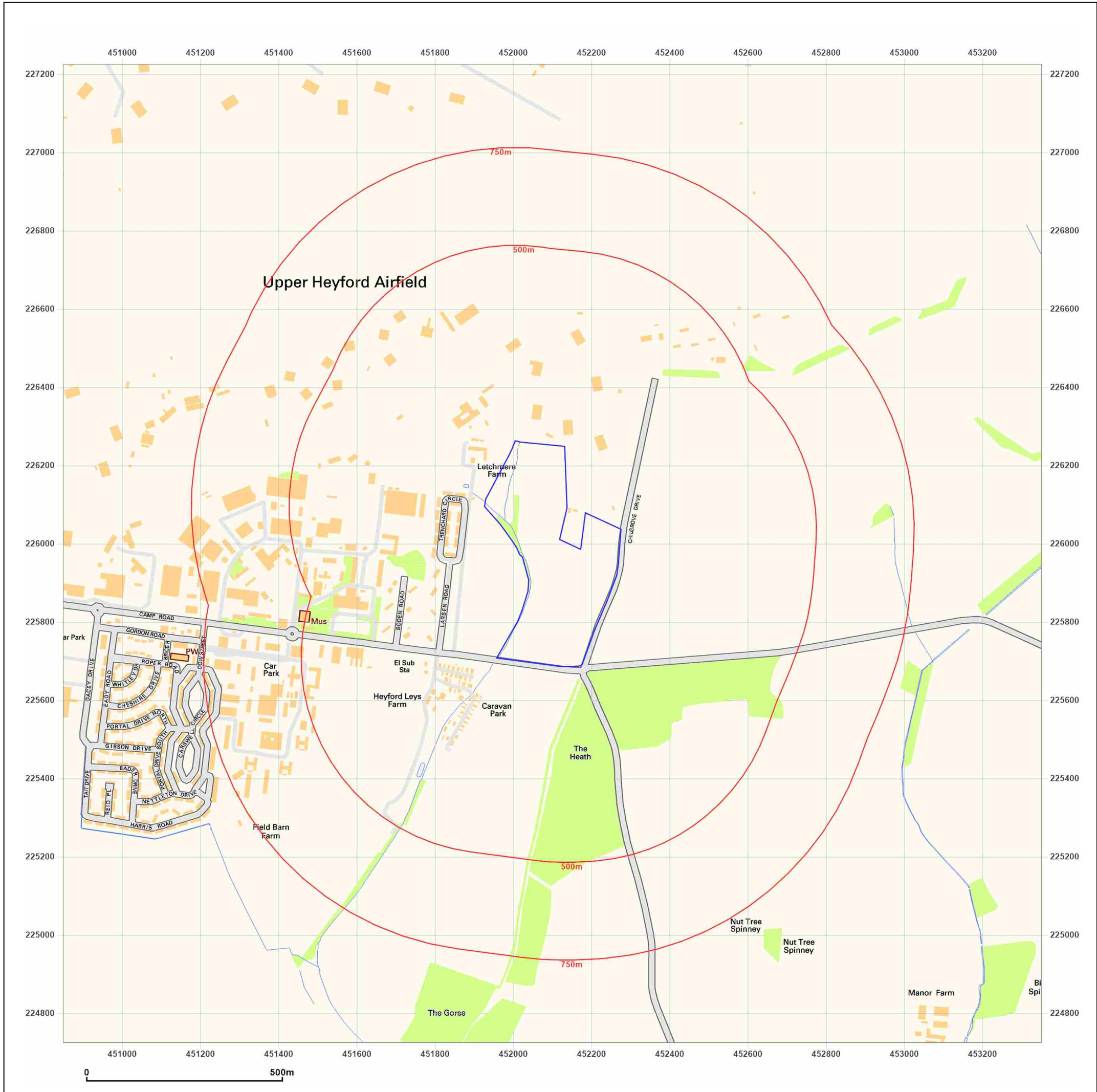


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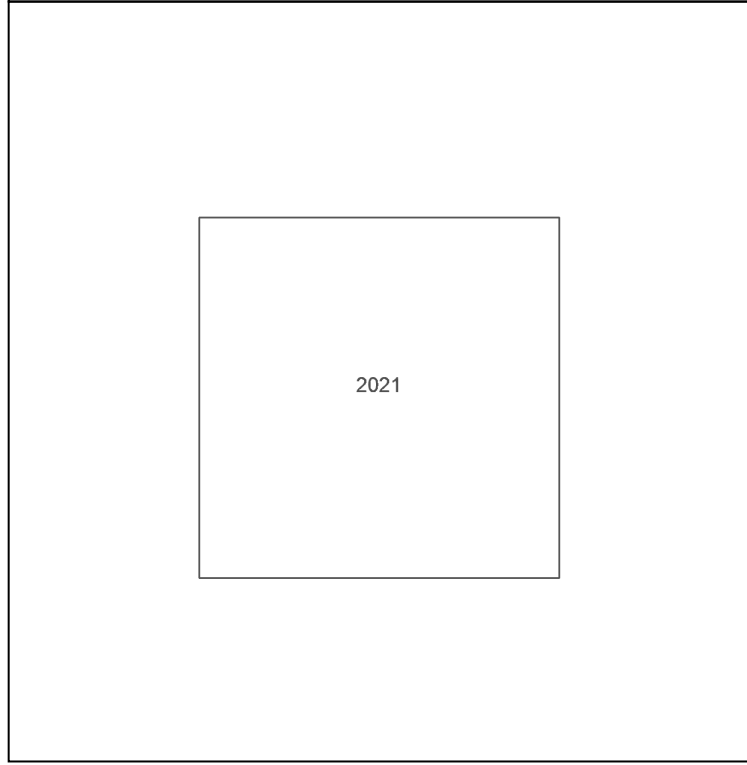
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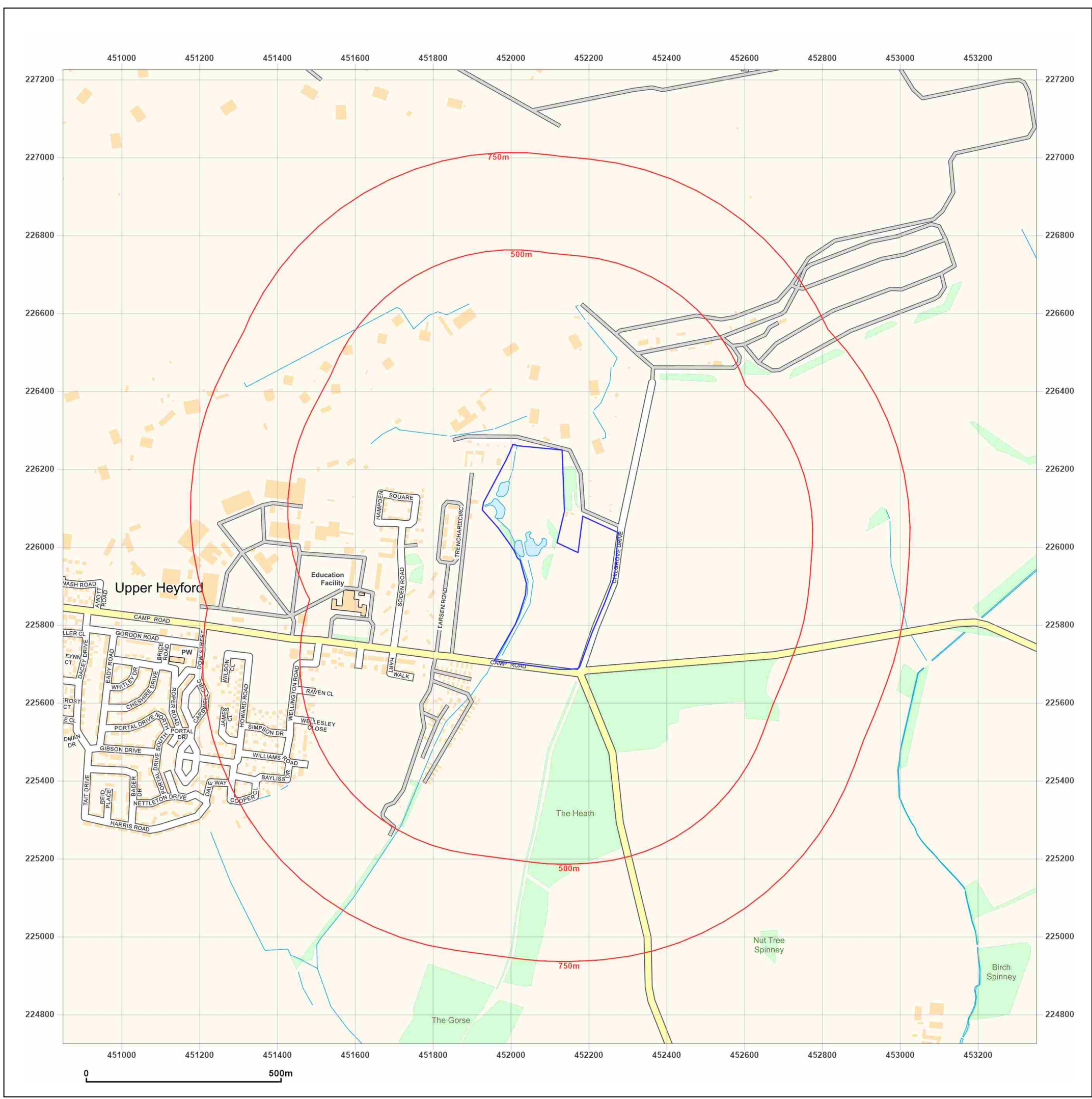


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**Appendix 4: Preliminary UXO Risk Assessment**

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# Preliminary UXO Risk Assessment

<b>Client</b>	BWB Consulting
<b>Project</b>	Camp Road, Upper Heyford
<b>Site Address</b>	Camp Road, Upper Heyford. OX25 5AF
<b>Report Reference</b>	PA13887-00
<b>Date</b>	16/07/21
<b>Originator</b>	KH

## Assessment Objective

This preliminary risk assessment is a qualitative screening exercise to assess the likely potential of encountering unexploded ordnance (UXO) at the Camp Road, Upper Heyford site. The assessment involves the consideration of the basic factors that affect the potential for UXO to be present at a site as outlined in Stage One of the UXO risk management process.

## Background

This assessment uses the sources of information available in-house to 1<sup>st</sup> Line Defence Ltd to enable the placement of a development site in context with events that may have led to the presence of German air-delivered or Allied military UXO. The report will identify any immediate necessity for risk mitigation or additional research in the form of a Detailed UXO Risk Assessment. It makes use of 1<sup>st</sup> Line Defence’s extensive historical archives, library and unique geo-databases, as well as internet resources, and is researched and compiled by UXO specialists and graduate researchers.


The assessment directly follows CIRIA C681 guidelines “Unexploded Ordnance, a Guide for the Construction Industry”. The document will therefore assess the following factors:

- Basic Site Data
- Previous Military Use
- Indicators of potential aerial delivered UXO threat
- Consideration of any Mitigating Factors
- Extent of Proposed Intrusive Works
- Any requirement for Further Work

It should be noted that the vast majority of construction sites in the UK will have a low or negligible risk of encountering UXO and should be able to be screened out at this preliminary stage. The report is meant as a common sense ‘first step’ in the UXO risk management process. The content of the report and conclusions drawn are based on basic, preliminary research using the information available to 1<sup>st</sup> Line Defence at the time this report was produced. It should be noted that the only way to entirely negate risk from UXO to a project would be to support the works proposed with appropriate UXO risk mitigation measures. It is rarely possible to state that there is absolutely ‘no’ risk from UXO to a project.





Risk Assessment Considerations	
<p>Site location and description/current use</p>	<p>The site is located in Upper Heyford, Oxfordshire, and is situated immediately south of the disused Upper Heyford Airfield.</p> <p>The site is bordered by Camp Road to the south, and Chilgrove Drive to the east. Several structures and a large area of car parking borders the site to the north.</p> <p>Ground on site comprises primarily open ground in the form of grassland, although other soft- ground is present in areas of dirt and landscaped natural ground, tress, and scrub.</p> <p>The site is approximately centred on the OS grid reference: <b>SP 52039 25752.</b></p> 
<p>Are there any indicators of current/historical military activity on/close to the site?</p>	<p>During WWII, the site was situated immediately south of RAF Upper Heyford, a military airbase utilised by Bomber Command, and again following WWII servicing the British military during the Cold War. The exact nature of military activity at the adjacent airfield is unclear at this preliminary stage, and the risk of any related activity occurring on site which could result in the sites contamination with items of UXO cannot entirely be discounted.</p> <p>An online archaeological database service was consulted which indicates a “bomb stores access road” to have been present approximately 430m north- east of the site boundary.<sup>1</sup> Given the lack of sources available at this preliminary stage, the exact position of this bomb store could not be identified. Site plans of the airfield may need to be obtained from archives in order to assess the presence of any such features nearby the site.</p>
<p>What was the pre- and post-WWII history of the site?</p>	<p>Wartime historical maps show the site to have been occupied by open ground, likely farmland, both prior to and following WWII. However, wartime historical mapping shows the boundary of the nearby airfield to have been censored- with no features recorded within the confines of the airfield. It is possible that military features on site, or in the immediate vicinity have been censored- therefore it was not possible to ascertain the exact condition of the site, or the presence of any military structures in the immediate vicinity.</p> <p>Military site plans may need to be obtained from archival sources in order to obtain uncensored mapping of the site area.</p>
<p>Was the area subject to bombing during WWII?</p>	<p>During WWII the site was situated within the Rural District (RD) of Ploughly. According to Home Office (HO) statistics, Ploughly sustained an overall very low density of bombing, with an average of 3.5 items of ordnance falling per 1,000 acres. This consisted of 275 HE bombs and three oil bombs falling across 79,910 acres of land.</p> <p>1<sup>st</sup> Line Defence has identified a news report from April of 2019 which reported an unexploded bomb to have been encountered at a building site at the former RAF Upper Heyford airfield- resulting in the closure of Camp Road.<sup>2</sup></p>

<sup>1</sup> <https://archaeologydataservice.ac.uk/library/browse/issue.xhtml?recordId=1152087&recordType=GreyLitSeries>

<sup>2</sup> <https://www.oxfordmail.co.uk/news/17546873.unexploded-bomb-upper-heyford-cordon-lifted/>





Is there any evidence of bomb damage on/close to the site?	No bomb damage reports or mapping was available at this preliminary stage.
To what degree would the site have been subject to access?	Given the uncertainty of the nature or usage of the site during WWII, it is unclear if it would have been regularly accessed by military or civilian personnel. If the site had been occupied by open ground, as depicted in wartime OS mapping, access is likely to have been infrequent. Infrequent access can increase the possibility for UXO to fall atop the site unnoticed and unreported, remaining at risk of later encounter.
To what degree has the site been developed post-WWII?	Recent aerial imagery suggest the site has not undergone any significant developed post- WWII.
What is the nature and extent of the intrusive works proposed?	The nature and extent of works proposed was not available at the time of writing.

**Summary and Conclusions**

During WWII, the site was situated within the Rural District of Ploughly. Home Office statistics suggest that Ploughly sustained an overall over low density of bombing with an average of 3.5 items of ordnance falling per 1,000 acres. However, given the presence of RAF Upper Heyford approximately 1km south-west of the site, this density may have been significantly higher for the local site area.

Based on the record of an unexploded bomb encountered at a building site at RAF Upper Heyford in April of 2019- which resulted in the closure of Camp Road, the possibility of encounter of similar ordnance on site cannot be discounted at this preliminary stage. The nature of this unexploded ordnance was unclear, however it is possible that it could have been related to either German bombing targeting the airfield, or the storage or disposal of Allied bombs associated with the Allied bomber aircraft nearby. Based on these conditions and the lack of immediately available records, the site is considered to be at a significant risk of encounter of items of unexploded wartime ordnance.

**Recommendations**

In accordance with CIRIA guidelines, it is recommended that **further research** should be undertaken in the form of a **Detailed UXO Risk Assessment**.

Further research is deemed necessary in order to obtain written records of bombing in the general site area, and of allied military activity in the immediate site area. Further investigation would entail archive / record office visits to consult additional records of relevance, including any available local written records, historical maps, aerial imagery, and military site plans of the adjacent airfield.

**Prior to or in lieu of a Detailed Assessment, it is recommended that appropriate UXO Risk Mitigation Measures are provided for intrusive works proposed.**

If the client has any anecdotal or empirical evidence of UXO risk on site, please contact 1st Line Defence.





**Appendix 5: Classification of Risk**

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## BWB RISK ASSESSMENT CLASSIFICATION (AFTER CIRIA REPORT C552, CONTAMINATED LAND RISK ASSESSMENT: A GUIDE TO GOOD PRACTICE, 2001)

CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001 sets out a methodology for estimating risk. The methodology for risk evaluation is a qualitative method for interpreting the output for the risk estimation stage of the assessment. It involves the classification of the:

- Magnitude of the potential consequence (severity) of risk occurring
- Magnitude of the probability (likelihood) of the risk occurring

The classification of consequence and probability are set out in table A1 and A2 below

**Table A1 Classification of Consequence**

Classification	Definition	Examples
<b>Severe (Sv)</b>	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment protection Act 1990, Part IIA. Short term risk of pollution of controlled waters. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem	High concentrations of cyanide on the surface of an informal recreation area  Major spillage of contaminants from site into controlled water.  Explosion causing building collapse (can also equate to a short term human health risk if buildings are occupied.)
<b>Medium (Md)</b>	Chronic damage to Human Health ("significant harm"). Pollution of controlled waters. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of contaminants from site exceeding generic or site specific screening criteria  Leaching of contaminants into a major or minor aquifer.  Death of species within a designated nature reserve.
<b>Mild (Mi)</b>	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment	Pollution of non-classified groundwater  Damage to building rendering it unsafe to occupy. (e.g. foundation damage resulting in instability)
<b>Minor (Mr)</b>	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by measures such as protective clothing etc). Easily reparable effects of damage to buildings, structures and services	The presence of contaminants at such concentration that protective equipment is required during site works.  The loss of plants in a landscaping scheme.  Discolouration of concrete.

The classification of consequence does not take into account the probability of the consequence being realised. Therefore there may be more than one consequence for a particular pollutant linkage. Both a severe and medium classification can result in death. Severe relates to short term (acute) risk while medium relates to long term (chronic) risk. Mild relates to significant harm but to less sensitive receptors. Minor classification relates to harm which is not significant but could have a financial cost.

**Table A2 Classification of Probability**

Classification	Definition
<b>High likelihood (Hi)</b>	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor or harm or pollution
<b>Likely (Li)</b>	There is a pollutant 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.
<b>Low likelihood (Lw)</b>	There is a pollutant 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 event would take place and is less likely in the short term.
<b>Unlikely (UI)</b>	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The classification gives a guide as to the severity and consequence of identified risk when compared with other risk presented on the site. It should be noted that if a risk is identified it cannot be classified as “no risk” but as “very low risk”. Differing stakeholders may have a different view on the acceptability of a risk.

Once the consequence and probability have been classified these can be compared using a matrix (Table A3) to identify an overall risk category. These categories and the actions required are categorised in Table A4

**Table A3 Risk Evaluation Matrix**

		Consequence			
		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High likelihood (Hi)	Very high risk (VH)	High Risk (H)	Moderate Risk (M)	Mod/low risk (M/L)
	Likely (Li)	High risk (H)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)
	Low likelihood (Lw)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)
	Unlikely (UI)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)	Very low risk (VL)

**Table A4 Risk Categorisations**

<p><b>Very high risk (VH)</b></p>	<p>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. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.</p>
<p><b>High risk (H)</b></p>	<p>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) is required and remedial works may be necessary in the short-term and are likely over the longer-term.</p>
<p><b>Moderate risk (M)</b></p>	<p>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. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer-term.</p>
<p><b>Low risk (L)</b></p>	<p>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.</p>
<p><b>Very low risk (VL)</b></p>	<p>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.</p>

**Reference**

Rudland, D J, Lancefield, R M, Mayell, P N; 2001; Contaminated land Risk Assessment. A guide to Good Practice; CIRIA Report C552.

