



Roy & Rachael Allum

**SYCAMORE LODGE,
GREEN LANE,
HICKLING PASTURES,
NOTTINGHAMSHIRE**

Phase I Geo-Environmental Desk Study Report



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PHASE I GEO-ENVIRONMENTAL DESK STUDY REPORT FOR ROY & RACHAEL ALLUM AT SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, NOTTINGHAMSHIRE

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FOREWORD

This report has been prepared by Castle Rock Geotech with all reasonable skill, care and diligence within the terms of the Contract with the client and taking account of the information made available by the client, as well as the manpower and resources devoted to it by agreement with the client.

Castle Rock Geotech disclaims any responsibility to the client and others in respect of any matters outside the scope of the above Contract.

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PHASE I GEO-ENVIRONMENTAL DESK STUDY REPORT FOR A PROPOSED RESIDENTIAL REDEVELOPMENT AT SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, NOTTINGHAMSHIRE

1.0 INTRODUCTION

1.1 Background

Castle Rock Geotech (CRG) was instructed by Alan Joyce Architects Ltd (*'Project Managers'*) acting on behalf of Roy and Rachael Allum (*'Client'*) to undertake a Phase I Geo-Environmental Desk Study in order to provide a due diligence geo-environmental contaminated land assessment for a proposed residential redevelopment at Sycamore Lodge, Green Lane, Hickling Pastures, Nottinghamshire, LE14 3QF.

1.2 Proposed Development

At the time of writing the exact nature of the redevelopment had not been finalised with the Planning Consultant. Preliminary discussions with the Client indicate a preliminary proposal of a residential development comprising the demolition of the existing structures and the construction of two dwellings and a barn, or the conversion and possible extension of existing barns.

CRG's enquiries have encompassed the entire boundary of the proposed development site, however, the comments made in the report are primarily focussed on the area of the existing barns which are the preferred option for the proposed redevelopment.

1.3 Objectives

The purpose of this Phase I Geo-Environmental Desk Study is to gather all readily available information within the public domain in order to make preliminary assessments of the environmental liability issues and development constraints which may be encountered during future redevelopment of the site, on the basis of the historical and current land use of the site and its environs and the nature of the proposed development.

The objectives of the Phase I Geo-Environmental Desk Study included the following:

- Provision of a desk-based study of the historical development, environmental setting, geology, hydrogeology, hydrology, mining and stability issues.
- Assessment of the presence and likely extent of any potential contaminative environmental hazards associated with the historical land uses on the site and in the surrounding area.
- Development of a Preliminary Conceptual Site Model (PSCM), including identification of potentially unacceptable risks arising from contamination at the site.
- Assess potential environmental liabilities associated with the site.

This report was prepared solely for the use of Roy & Rachael Allum, Alan Joyce Architects Ltd, their clients and appointees. No responsibility will be accepted where this report, either in its entirety or in part, is used by a third party, or for any development other than that described here.

The findings and opinions conveyed via the desk study report are based on information obtained from a variety of sources as detailed within this report, which Castle Rock Geotech believe to be reliable. Nevertheless, Castle Rock Geotech cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

New information, improved practices or changes in legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore, with any changes to the proposed development, or should the development proceed after the expiry of one year from the date of the report, the report should be referred back to Castle Rock Geotech for re-assessment and, if necessary, re-appraisal.

1.4 Scope of Works

This assessment has been conducted in general accordance with guidance in the Environment Agency's guidance document '*Model Procedures for the Management of Land Contamination*', (CLR) 11, and other pertinent industry good practice guidance and comprises of the following:

- A site walk-over to examine the current site condition and use.
- Review of historical mapping to ascertain historical land use of the site and surrounding area, paying particular attention to the potential for contamination.
- Review of published geology, hydrogeology, hydrology, coal mining, mining, radon gas data and stability issues pertaining to the site and surrounding area.
- Review of Groundsure Enviro+Geo Insight Report.
- Development of a Preliminary Conceptual Site Model identifying potential sources of contamination, sensitive receptors and plausible pathways linking the two; and
- Recommendations for further assessment or management of potential constraints, if required.

The review of information relevant to the site was carried out within a maximum radius of 250m. However, the presence of significant features identified in the environmental database report such as groundwater abstractions and landfills beyond this distance has been incorporated into the report.

1.5 Sources of Information

The following sources of information have been consulted as part of the desk study for the site.

- A series of County Series and Ordnance Survey Maps dated 1883 to 2022.
- A Groundsure Enviro+Geo Insight Report (Ref: HMD-8815549).
- British Geological Survey (BGS) maps and publications for the site including 1:50,000 Series Sheet 142, '*Melton Mowbray*' (Solid & Drift Edition), dated 2002.
- British Geological Survey Website – www.bgs.ac.uk.
- Multi Agency Geographical Information for the Countryside (MAGIC) maps - www.magic.defra.gov.uk.
- Flood map for planning Website – flood-map-for-planning.service.gov.uk.
- The Coal Authority and The Law Society publication '*Coal Mining and Brine Subsidence Searches – Directory and Guidance*', Sixth Edition (2006).
- The Coal Authority Interactive map viewer – www.mapapps2.bgs.ac.uk/coalauthority.

- BRE Report ‘*Radon: Guidance on Protective Measures for New Buildings*’, (2015 Edition).
- Public Health England Website – www.ukradon.org.
- Rushcliffe Borough Council (RBC) Planning Portal website – <https://www.rushcliffe.gov.uk/planning>.
- Regional unexploded bomb risk maps.

1.6 Limitations of the Study

The findings and opinions provided in this document are made in good faith and are based on data provided by third parties (Groundsure, Environment Agency, the Coal Authority and Regulatory Bodies) and the report was undertaken in accordance with the conditions described for ‘*Phase I Desk Study / Environmental Audit*’ in the attached Notes on Limitations (**Appendix IV**).

The accuracy of map extracts cannot be guaranteed, and it should be recognised that different conditions on and adjacent to the site may have existed between and subsequent to the various map editions.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The development site is located on the northern side of Green Lane approximately 2.0kms to the south-west of the village of Hickling and 11kms north-west of Melton Mowbray. The site lies within Sycamore Lodge, a former farm, as shown on the Site Location Plans presented as **Figure 1**. Currently, the development site comprises a two storey brick and tile residential property with a number of surrounding barns and stables and associated courtyards, lawns, garden beds and garden areas. The site is centred on approximate Ordnance Survey Grid Reference ⁴67435E, ³27400N.

2.2 Site Description

A site reconnaissance / walk-over was carried out by a Geo-Environmental Consultant from CRG on the 21st June 2022.

The overall development site is approximately rectangular in plan and covers an area of approximately 0.86 hectares. The site is broadly flat lying at an elevation of between 110m OD and 111mOD, as shown on the '*Topography Survey*' drawing presented as **Figure 2**.

The site is entered via a broad gravel landscaped driveway off Green Lane which forms the southern boundary of the site. The driveway curves to the west around the main grassed front lawn and ends in a square gravel surfaced parking space in front of the main brick and tile residential dwelling (Sycamore Lodge) to the west and bounded by a series of single storey brick and tile roofed, concrete floored covered garage spaces and the southern eave end of a single storey brick and slate roofed outbuilding to the north.

A wooden 5-bar gate is located on the northern curve of the main driveway and gives access to an open area of lawn and landscaping in the north-eastern corner of the property. A small landscaped pond is present in the western corner of this area and the wider grassed area is bounded to the west (from south to north) by a concrete floored wooden post supported steel roofed shelter and a single storey, brick built and corrugated asbestos roofed series of old barns/byres. Concrete at surface was observed to be unstained and in good condition.

At the northern end of these outbuildings is a series of corrugated iron roofed wooded lean-tos, and an asbestos roofed wood store which give access to a narrow north-south trending concrete floored yard between the eastern series of single storey barns and a single storey brick and slate roofed outbuilding to the west. Concrete was observed to be in moderate to poor condition, with no evidence of staining.

Another, west-east trending, double storey, Victorian brick walled and pitched asbestos roofed outbuilding is present to the north-east, with an associated corrugated iron lean-to and a large circular metal silo. Several broken asbestos sheets were present leaning on the concrete base of the silo. A derelict corrugated iron tunnel house is present across the grassed lawn to the north of the pitched roof barn, with an overgrown meadow beyond extending to the site boundary.

At the eastern end of the pitched roof barn a single storey series of brick built, corrugated asbestos roofed barns extend to the south and enclose a small gravelled courtyard with some localised landscaping and garden beds between the pitched roof barn and the surrounding single storied brick barns/byres. Concrete and brick floors in the byres and barns were observed to be in moderate to good condition, with no evidence of staining.

A series of arbours, hedgerows and landscaping lawns extends along the western side of the site either side of a gravel path which leads along the western site boundary to Green Lane.

A summary of the land use surrounding the site is presented in **Table 1** below:

TABLE 1: SURROUNDING LAND USE		
<i>Direction</i>	<i>Adjacent</i>	<i>Nearby</i>
North	Agricultural fields	Agricultural fields
South	Green Lane	Agricultural fields
West	Agricultural fields	Agricultural fields
East	Agricultural fields	Agricultural fields

Aerial photographs (1999 to recent) showing the site area are presented on pages 8 to 12 inclusive of the Groundsure Enviro+Geo Insight Report presented in **Appendix II**.

Photographs / plates (Plates 1 to 14 inclusive) of the site area and immediate environs at the time of the walk-over survey are presented in **Appendix III**.

3.0 SITE HISTORY

3.1 Ordnance Survey Plans 1883 to 2022

A series of County Series and Ordnance Survey historical maps dating from 1883 to 2022, which are listed and presented in **Appendix I** of this report, have been examined in order to provide an indication of the land use history of the site and its environs. A summary of the site history is tabulated in **Table 2** below:

TABLE 2: SUMMARY OF SITE HISTORY		
Date	Features on the Site	Features Surrounding the Site
1883 - 1967	<ul style="list-style-type: none"> The site comprises a Farmhouse and crewyard to the north in their present-day layout. The site is first designated 'Sycamore Lodge' on the 1920 map edition. On the earlier maps, the site is accessed via tracks from Green Lane to the south-west and south-east of the site. On the 1920 and subsequent maps, access is via the present-day track from Green Lane directly to the south of the farm buildings. A Pump is shown at the south-western corner of the crewyard. This is no longer shown on the 1950 and subsequent maps. A number of trees, possibly comprising an Orchard, are shown to the east of the farm buildings with a pond on the site boundary beyond the Orchard. 	<ul style="list-style-type: none"> Mainly open agricultural fields are present to all sides of the site and in the wider site environs. An 'Old Gravel Pit' is identified approximately 100m to the north-west of the site. The junction of Green Lane with the Melton Road (today the A606) is shown approximately 220m to the south-west of the site. The village of Upper Broughton lies approximately 1.3kms to the south-east of the site.
1971 - 2022	<ul style="list-style-type: none"> A number of additional farm buildings are shown, mainly to the north and east of the crewyard, with further additions on the 2003 map edition. A second, wider access drive from Green lane is shown in the eastern part of the site on the 2003 map edition. 	<ul style="list-style-type: none"> The 'Old Gravel Pit' is designated 'Pit (Disused)'.

3.2 Historical Map Review Summary

The historical mapping indicates that on the earliest historical maps the redevelopment site comprised of a crewyard with an adjacent Farmhouse to the south, approximately in their present-day layout, with a Pump adjacent to the south-western corner of the crewyard, which is no longer shown on later map editions. A number of additional farm buildings are shown on later map editions, mainly to the north and east of the crewyard.

Mainly open fields have been present in the wider site environs over the mapping period. An 'Old Gravel Pit' is identified approximately 100m to the north-west of the site which is later designated a 'Pit (Disused)'.

It is considered that the historical use of the crewyard part of the development site throughout the mapping period, with associated potentially contaminative agricultural related activities may have impacted upon the environmental quality of the site.

The mainly agricultural land use in the wider site environs over the mapping period is considered unlikely to have influenced the environmental quality of the site. The 'Old Gravel Pit' is considered to be of sufficient distance from the site not to influence its environmental quality.

3.3 Unexploded Ordnance (UXO) Assessment

Review of the unexploded ordnance risk maps available online indicates the site to be in an area of low risk from WW2 UXO. No further assessment is required.

4.0 GEOLOGICAL SETTING

4.1 Geology

Artificial / Made Ground

The Groundsure Geo Insight Report presented in **Appendix II** indicates that there are no records of Artificial or Made Ground on site or within 500m of the site.

Superficial Deposits

The available geological mapping and the Groundsure Enviro+Geo Insight Report indicate the site to be directly underlain by an unknown thickness of Glacial Till deposits (Diamicton – formerly termed Boulder Clay) comprising strata of the Oadby Member (ODTL) of Quaternary age.

The Glacial Till (Oadby Member) is described as *'brown to reddish-brown with stones and matrix derived primarily from Upper Carboniferous and Triassic rocks; subordinate sand, gravel and stoneless clay and silt. Red pebbly clay and silty clay with rock fragments'*.

Bedrock

The geological maps and the Groundsure Enviro+Geo Insight Report indicate the superficial drift deposits to be directly underlain by strata of the bedrock strata of the Foston Member, part of the Scunthorpe Mudstone Formation (SMd, formerly termed the Lower Lias Clay), of Lower Jurassic age. The Foston Member (Fst) is described as comprising *'a group of several thin, probably impersistent limestone beds separated by mudstone beds, approximately 35m thick'*.

Faults

A west to east trending fault is identified by the BGS geological maps and the Groundsure Geo Insight report within the northern part of the site. The fault described as a 'normal fault, inferred' and is downthrown to the south.

4.2 Hydrogeology

A review of the Groundsure Enviro+Geo Insight Report presented in **Appendix II**, has revealed the following information with regards to the hydrogeology and hydrological assessment of the site:

The superficial geology beneath the site comprising the Glacial Till is classified as a Secondary - undifferentiated (formerly classified as Minor) Aquifer. Secondary Aquifers (undifferentiated) comprise of layers which have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

The underlying Scunthorpe Mudstone Formation deposits are classified as a Secondary 'B' Aquifer. Secondary B Aquifers are described as *'predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former Non-Aquifers'*

4.3 Hydrology

Surface Waters

- A surface water course is identified approximately 275m to the north of the site.
- The site lies within the Water Framework Directive surface water body catchment area and falls into the Dalby Brook Catchment Area, which ultimately drains into the Trent via the River Smite.
- A small pond is present adjacent to the central eastern boundary of the site.

Flood Risk

- The site is not located within an Environment Agency floodplain.
- The site lies within Flood Zone 1 and has a **Low** probability of flooding.
- The risk of surface water flooding on site or within 50m of the site is recorded as **Negligible**.
- The risk of groundwater flooding on site or within 50m of the site is also **Negligible**.
- The foregoing should not be considered a complete Flood Risk Assessment (FRA).

4.4 Coal Mining

The site does not lie within an area requiring the commission of a Coal Mining Report in accordance with The Coal Authority and The Law Society publication '*Coal Mining and Brine Subsidence Claim Searches – Directory and Guidance*', Sixth Edition (2006).

Reference to the Groundsure Enviro+Geo Insight Report (**Appendix II**) indicates that the site is not located within a Coal Mining area as defined by the Coal Authority.

Reference to the Coal Authority Interactive map viewer confirms the site as not lying within a '*Development High Risk Area*'.

No specific investigation or mitigation measures in relation to coal mining issues are considered necessary for the proposed development of the site.

4.5 Mining, Ground Workings and Natural Cavities

Details of mining, ground workings are summarised as follows:

- There are no records of Natural Cavities (sinkholes and caves) within 500m of the site.
- There are no records of BritPits (British Pits) within 50m of the site. A single record exists within 50 – 250m of the site, the status of which is described as ceased. This relates to Sycamore Lodge Gravel Pit, located 127m to the north-west of the site.
- There are two records of Historical Surface Ground Working Features on site and a further 16 no. are identified within 250m of the site. The On-site records relate to a Pond and the off-site records relates to further ponds and the 'Old Gravel Pit' to the north-west of the site.
- There are no records of Underground Workings or Historical Non-Coal Mining identified within 1km of the site.
- The site is not located in an area which could be affected by past, current or future Coal Mining (see Section 4.3. above).
- The site is not located in an area subject to Brine, Gypsum or Tin extraction or Clay mining.

4.6 Natural Ground Subsidence

Geotechnical Data presented within the Groundsure Enviro+Geo Insight Report identifies the following ground conditions / stability issues relating to the Glacial Till deposits.

The Natural Ground Subsidence rating is obtained through six natural ground stability hazard datasets, which are supplied by the BGS, presented in **Table 3** below:

TABLE 3: NATURAL GROUND SUBSIDENCE		
<i>Natural Ground Subsidence</i>	<i>Hazard Rating</i>	<i>Details / Comments</i>
Shrink – Swell Clays	Low	Ground conditions predominantly medium plasticity.
Running Sands	Very Low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.
Compressible Deposits	Negligible	Compressible strata are not thought to occur.
Collapsible Deposits	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
Landslides	Very Low	Slope instability problems are not likely to occur.
Ground Dissolution of Soluble Rocks	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

4.7 Radon Gas

Radon is a colourless, odourless radioactive gas. It is formed by the radioactive decay of small amounts of uranium that occur naturally in all rocks and soils.

Reference was made to the Building Research Establishment (BRE) Report BR211-2015 ‘*Radon: Guidance on Protective Measures for New Buildings*’ and the Groundsure Enviro+Geo Insight Report to provide an assessment of potential for radon gas.

This assessment indicates that the site is situated in an area where protection measures are currently not required for radon gas.

5.0 ENVIRONMENTAL SETTING

5.1 General

A review has been made of all regulatory and environmental data recorded for the site in order to assess the environmental sensitivity of the site and identify any land uses and risks associated with the site and the surrounding area.

Information was principally sourced from a Groundsure Enviro+Geo Insight Report, a copy of which is included as **Appendix II** and has revealed the following relevant information (details are only listed where they are within potential influencing distance, i.e. within 250m of the site).

5.2 Historical Industrial Land Uses

- A total of 6 no. Potentially Contaminative Historical Land Uses are recorded within a 500m radius of the site dated between 1883 and 1950. These all relate to the 'Old Gravel Pit / Disused Pit' 67m to 75m to the north-west of the site.

5.3 Waste and Landfill Sites

- There are no records of active or recent Landfill, Local Authority or Environment Agency Sites or records of Historical Waste and Licensed Waste Sites within 500m of the site.

5.4 Current Industrial Land Uses

- There is a single record of Current Industrial Land Uses On-site and a second within 500m of the site. The on-site record relates to a Silo used in Farming. The Off-site record is located 136m to the north-west of the site and relates to Unspecified Quarries or Mine Workings (Disused).
- There are no records of Sites determined as Contaminated Land under Part 2A of the Environmental Protection Act 1990 within 500m of the site.

5.5 Water Abstraction Licences and Discharge Consents

- There are 6 no. Groundwater Abstraction Licences, located within 2km of the site, the nearest of which is located 291m to the west of the site and is designated 'Historical'. No active licenses are identified.
- A single Surface Water Abstraction Licence is recorded within 2km of the site, this is located 1967m to the west of the site and is described as 'Active'.
- There are no records of Potable Abstraction Licences located within 2km of the site.
- There are no records of Licensed Discharges to Controlled Waters within 500m of the site.

5.6 Groundwater Vulnerability

The Glacial Till deposits directly underlying the site are classified as a Secondary Undifferentiated Aquifer of medium vulnerability with a Low (L1) leaching potential.

The site is not recorded as being located in a Groundwater Source Protection Zone (SPZ).

The Groundsure Enviro+Geo Insight Report (**Appendix II**) confirms the bedrock hydrogeology of the site and immediate environs (see Section 4.2 – above).

5.7 Designated Environmentally Sensitive Land Uses

- The site is located within a Nitrate Vulnerable Zone (NVZ). This is primarily an agricultural land use designation and the majority of this area of the country is defined as a Nitrate Vulnerable Zone. This classification is not considered to present a potential risk to the development of the site.

5.8 Local Authority Issues

A review of the pertinent planning information available online held on the RBC Planning Portal website has been undertaken.

Historical Planning Applications

Full planning permission (Application 19/02868/FUL) was granted in February 2020 for the conversion and extension of existing barns and outbuildings to form two new dwellings.

Planning permission Ref. L1/86/0395/P (86/00395/L1P) for single storey and first floor extensions was approved in June 1986.

6.0 PRELIMINARY RISK ASSESSMENT

6.1 Introduction

The DEFRA publication ‘*Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance*’ (dated April 2012) states the following with regards to the production of a Conceptual Site Model (CSM) for a site:

‘The process of risk assessment involves understanding the risks presented by land, and the associated uncertainties. In practice, this understanding is usually developed and communicated in the form of a ‘Conceptual Model’. The development of a CSM is typically undertaken in an iterative process, reflecting the changes in understanding as more detailed site information becomes available.

In developing a CSM, and specifically in the context of land contamination, consideration needs to be given to three essential elements, which form the basis of any risk present. The statutory guidance Sections 3.8 and 3.9 (April 2012) states the following with respect to Part 2A.

Historical contamination of land may present harm to human health and the environment. Current UK legislation stipulates that the risk associated with any potential land contamination is assessed and remediated, if necessary. Under the Town and Country Planning Act 1990 (as amended), potential land contamination is a "material planning consideration" together with the National Planning Policy Framework (March 2012), which means that a planning authority must consider contamination when they prepare development plans or consider individual applications for planning permission. It is the responsibility of the developer to carry out the remediation where it is required and satisfy the Local Authority that the remediation has been carried out as agreed.

‘Under Part 2A, for a relevant risk to exist there needs to be one or more contaminant (source) - pathway - receptor [CPR] linkages – contaminant linkage’ – by which a relevant receptor might be affected by the contaminants in question. In other words, for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters. For the purposes of this guidance:

- (a) A ‘contaminant’ is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of Controlled Waters.
- (b) A ‘receptor’ is something that could be adversely affected by a contaminant, for example a person, an organism, and ecosystem, property, or Controlled Waters. The various types of receptors that are relevant under the Part 2A regime are explained in later sections.
- (c) A ‘pathway’ is a route by which a receptor is or might be affected by a contaminant.

The term ‘contaminant linkage’ means the relationship between a contaminant, a pathway and a receptor. All three elements of a contaminant linkage must exist in relation to a particular land area before the land can be considered potentially to be contaminated land under Part 2A, including evidence of the actual presence of contaminants. The term ‘significant contaminant linkage’, as used in this Guidance, means a contaminant linkage which gives rise to a level of risk sufficient to justify a piece of land being determined as contaminated land. The term ‘significant contaminant’ means the contaminant which forms part of a ‘significant contaminant linkage.’

6.2 Preliminary Conceptual Site Model

This section of the report presents the characteristics of the site and provides a systematic evaluation of the risks to enable uncertainties and further assessment needs or other actions to be identified. It draws on the information presented in earlier sections of the report to identify plausible contaminant – pathway – receptor contaminant linkages in the context of the proposed land use scenario.

A summary of the Preliminary Conceptual Site Model is presented in **Table 4**.

6.2.1 Potential Sources of Ground Contamination [C]

On-Site Potential Sources

It is considered that the historical use of the crewyard part of the development site throughout the mapping period, with associated potentially contaminative agricultural related activities may have impacted upon the environmental quality of the site.

The following potential **On-Site** sources of ground contamination have been identified:

- Asbestos containing materials (ACMs) as roofing and internal insulation to the outbuildings, storage of broken sheeting and possible waste fragments in the Made Ground sourced from the importation of Made Ground sub-base, historical refurbishment of pre-existing buildings and weathering from existing ACMs within the existing buildings.
- Made Ground is likely to be present due to the presence of outbuildings and yard areas. Potential contamination such as metals, polycyclic aromatic hydrocarbons (PAHs) and asbestos associated with the construction and/or demolition of former buildings / structures, historical uncontrolled waste disposal/storage or historical importation of Made Ground to the site from a potentially contaminated source (if present).
- Potential organic and inorganic contamination from storage and leakage of fuels and/or historical heating oil storage.
- Potential pesticide and herbicide contamination of shallow soils associated with past agricultural land use and/or localised storage.
- Potentially aggressive ground conditions in the underlying Made Ground (if present) and the underlying natural bedrock strata including possible natural metal enrichment (NME).
- Potential generation of ground gases from both biodegradable materials within any topsoil, Made Ground underlying the site (if present) or organic matter rich horizons within the Glacial Till deposits. Potential ground gases include methane (flammable and asphyxiant) and carbon dioxide (asphyxiant).

Potential Off-Site Sources

In view of the mainly agricultural land use in the wider site environs over the mapping period and the distance of the ‘Old Gravel Pit’ from the site it is considered that there are no **Off-Site** sources of contamination.

6.2.2 Potential Migration Pathways [P]

The potential migration pathways at the site are primarily:

Human Receptors

- Direct skin contact with the contaminated soils.
- Inhalation of soil dust, fibres and vapours.
- Ingestion of drinking water in compromised supply pipes.
- Bio-accumulation of contaminants in vegetables grown in impacted soils and subsequent ingestion.
- Accumulation of ground gas or vapours within buildings followed by inhalation.

Controlled Waters

- Vertical and lateral migration of contaminants into the underlying Secondary Undifferentiated superficial Aquifer and the bedrock Secondary 'B' Aquifer via incident rainfall through contaminated Made Ground.
- Migration of contamination to surface watercourse through lateral migration and overland flow.

Buildings

- Accumulation of ground gas within buildings, generating an explosive atmosphere.
- Direct contact between construction materials and aggressive ground conditions.

Plants in Gardens and Landscaping

- Bio-accumulation of contaminants in plants and vegetables grown in impacted soils in gardens and soft landscaped areas.

6.2.3 Potential Receptors [R]

The potential receptors at the site are:

- The construction personnel (i.e., site workers including site investigation, construction and service workers in contact with contaminated soils/dust and/or groundwater) involved with the development and post-development (intrusive maintenance workers) of the site, (typically short term (acute) exposure).
- The future end users / site occupants - typically long term (chronic) exposure).
- Controlled Waters in the nearby surface water course and the underlying Secondary Undifferentiated and Secondary B Aquifers.
- Residents of the existing farmhouse.
- Buildings / construction materials.
- Flora and Fauna in gardens and soft landscaped areas.

6.3 Summary

The Preliminary Conceptual Site Model (PCSM) of possible CPR pollutant linkages, applicable to the Sycamore Lodge site, is summarised in **Table 4** (below).

TABLE 4: PRELIMINARY CONCEPTUAL SITE MODEL				
Contaminant [C]	Pathway [P]	Receptor [R]	Potential Pollutant Linkage	Comments / Possible Mitigation
Potentially contaminated soils associated with the sites current and historic usage	Ingestion and dermal contact	Site / Construction Workers	Yes	<p>Construction personnel could potentially be exposed to contamination associated with the sites current / historical land use. However, this will only be possible where exposure pathway exists (e.g. during development works). ^(A)</p> <p>The chemical composition of the in-situ soils is currently unknown. Phase II ground investigation works will be required to investigate the chemical composition of the soils at the site. ^(B)</p> <p>Construction personnel to wear appropriate PPE.</p>
	Inhalation of dust / fugitive fibres	Site / Construction Workers	Yes	<p>As above ^(A) and ^(B).</p> <p>Construction personnel to wear appropriate PPE. Appropriate control measures can be implemented during construction activities (i.e. dust suppression measures) which would significantly reduce the risk of exposure to dust inhalation and also the impact on the General Public or nearby residential properties.</p> <p>An asbestos survey is required on the existing site buildings and all identified ACM to be removed by a licenced contractor prior to demolition</p> <p>Any identified asbestos bearing construction materials (ACMs) in Made Ground soils should be identified and treated.</p>
	Ingestion and dermal contact	End Users (Residents)	Yes	<p>End users could potentially be exposed to contamination associated with the sites current / historical land use. However, this will only be possible where exposure pathway exists (e.g. garden and soft landscaped areas). ^(C)</p> <p>As above ^(B).</p>
	Inhalation of dust / fugitive fibres	End Users	Yes	As above ^(B) and ^(C) .
	Vertical and lateral migration / leaching of contamination	Underlying Groundwater and water quality in the onsite pond (Controlled Waters)	Yes	<p>The site is underlain by a Secondary Undifferentiated and Secondary B Aquifers. The site is not located within a SPZ.</p> <p>Contamination may be present at the site associated with the sites current and historic land use. The chemical composition of the in-situ soils is currently unknown. Localised Phase II Exploratory Investigation Works will be required to investigate the chemical composition of the soils at the site and potential risks to Controlled Waters.</p>
	Services / foundations in contact with shallow soils	Construction Materials (including potable water supply pipes / other utilities)	Yes	<p>As above ^(B).</p> <p>Chemical testing is required to confirm the risk of sulphate/acid attack on buried concrete and risk to underground services.</p>
Ground Gases	Vertical and lateral migration	Site / Construction Workers, Buildings and End Users	Yes	Ground gas monitoring may be required to assess the ground gas regime at the site and/or the requirement for provision of gas protection measures including a gas membrane.

6.4 Preliminary Qualitative Risk Assessment

A preliminary risk assessment has been undertaken based on the findings of the Conceptual Site Model and the potential pollutant linkages that may exist at the site in accordance with Contaminated Land Report (CLR) 11. The risk classification gives a guide and consequence in accordance with UK CIRIA report C552 (*Contaminated Land Risk Assessment: A Guide to Good Practice, 2001*) and modified by CRG which is summarised in **Table 5** below. Professional judgement has been used to estimate the combination of probability and consequence of harm posed by the pollutant linkages identified.

TABLE 5: RISK CLASSIFICATION RATING TERMINOLOGY

<i>Risk Rating</i>	<i>Description</i>
Very High	<p>There is a high probability that severe harm could arise to a designated receptor from an identified source, or there is evidence that severe harm to a designated receptor is currently happening.</p> <p>Contaminants very likely to represent an unacceptable risk to identified targets.</p> <p>Site probably not suitable for proposed use without mitigation.</p> <p>Enforcement action possible.</p> <p>Urgent action required.</p>
High	<p>Harm is likely to arise to a designated receptor from an identified source.</p> <p>Contaminants likely to represent an unacceptable risk to identified targets.</p> <p>Site probably not suitable for proposed use without mitigation.</p> <p>Action required in the medium term.</p>
Moderate	<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>
Moderate / Low	<p>It is possible that harm could arise to a receptor. However, a combination of likelihood and consequence results in a risk that is above Low but is not of sufficient concern to be classified as Moderate. It can be driven by cases where there is an acute risk which carries a severe consequence, but where the exposure is unlikely. Such harm would at worst normally be mild. The risk is unlikely to present a substantial liability. Some limited further investigation may be required to clarify the risk and any associated liability. If subsequent remediation works are necessary, they are likely to be limited in extent.</p>
Low	<p>It is possible that harm could arise to a designated receptor from an identified source, but it is likely that this harm, if realised, would at worst normally be mild.</p>
Ver Low / Negligible	<p>There is a low possibility that harm could arise to a receptor. In an event of such being realised is not likely to be severe.</p> <p>If contamination sources are present, they are considered to be minor in nature and extent.</p> <p>Site suitable for proposed use without mitigation.</p> <p>No further action required.</p>

Organic and Inorganic Contamination in any Made Ground

The presence, extent and provenance of any Made Ground related to historic site re-profiling is unknown but given the age of the site, the potential appears to be limited, however, intrusive ground investigation is considered to be required.

Should contamination be identified, risks to construction personnel / site operatives working in contact with impacted soils can be mitigated by the use of appropriate personal protective equipment (PPE) and adherence to established best practice working methods, for example as stated in '*HSG 66 Protection of Workers and the General Public During Redevelopment of Contaminated Land*'. As a minimum this would require full protective clothing, gloves, eye protection and the restriction of eating and smoking to controlled locations away from any areas of potentially contaminated ground.

Post-development, hardstanding beneath the proposed development dwellings and associated access and parking infrastructure will serve to locally sever the pollutant linkages to site end users. However, in areas of private gardens and soft landscaping, direct exposure (inhalation, ingestion, dermal contact) pathways to both Human Health receptors and the infiltration pathway to Controlled Waters may remain.

A potential pathway also exists between potentially contaminated soils and plants used in soft landscaping and garden areas via direct uptake and bio-accumulation, particularly with regards to pesticide and herbicide residues.

Risk from these potential pathways in soft landscaping areas could be mitigated by provision of imported 'clean' sub-soil / topsoil, source removal of contaminated soils and/or provision of infiltration/capillary breaks in sensitive areas.

Based on the above and in accordance with **Table 5**, the risk to Human Health from this potential linkage is considered **Very Low / Low**.

Controlled Waters

The provenance and composition of any Made Ground on the site is unknown. Given the Secondary B Aquifer classification of the underlying bedrock and the location of the site outside of any designated Source Protection Areas, the sensitivity of the site with respect to Controlled Waters is considered Low.

Based on the above and in accordance with **Table 5**, risk to Controlled Waters in the underlying aquifer and also the nearby surface water course is considered to be **Very Low**.

Should significant hydrocarbon, pesticide/herbicide or leachable metal contamination be present the risk to Controlled Waters in the Aquifer could be mitigated by source removal of grossly contaminated soils.

Asbestos Containing Materials

ACMs have been observed in the existing outbuilding infrastructure and storage of waste cement bonded asbestos sheeting and fragments at some locations. As such, a full asbestos survey by a licensed contractor is required.

All identified ACMs should be removed by a licensed asbestos contractor prior to demolition.

The potential exists for the presence of small fragments of ACMs in any Made Ground soils, either from historic demolition or localised storage. If present such materials pose a potential risk through the release of airborne fibres when disturbed during any future site redevelopment groundworks. Intrusive ground investigation is required to determine the presence of these materials.

During redevelopment works, risk to site operatives and neighbouring residence from any identified asbestos soil contamination can be managed by adoption of suitable PPE and management systems for excavated soils in accordance with the '*Control of Asbestos Regulations 2012*' (CAR2012). Depending on the extent and degree of ACMs contamination this could include recovery, double bagging and off-site disposal of any encountered by a licensed asbestos contractor under controlled conditions, supported by precautionary air quality monitoring to demonstrate fibre release is being managed. Soils with residual asbestos fibres could then potentially be re-used in areas of lower sensitivity, for example beneath the building slabs or car parking areas.

In view of the above the potential risk from ACMs in soils is considered **Low**, although it is considered that this could be reduced to **Very Low** should further ground investigation not detect any ACMs or free fibres.

Aggressive Ground Conditions

The potential exists for aggressive ground conditions both in any imported Made Ground on the site and in the underlying natural ground. Any contaminants, particularly hydrocarbon compounds if present within the shallow soils could corrode utility pipes and/or foundations.

Risk can be mitigated through adoption of a suitable design class for below ground concrete and other building materials, potentially coupled with source removal of any gross contamination. However, additional environmental testing is recommended to more accurately assess the level of protection required.

Risk posed by shallow contamination in the Made Ground to potable / water supply pipes could be mitigated through a more detailed assessment of the chemical characteristics along the lines of any services to be installed and provision of this data to the utilities provider to ensure that a suitable pipe material is used. Alternatively the use of an approved contamination resistant barrier pipe such as *Protecta-pipe* would be sufficient to mitigate any potential risk.

Ground Gas to Site End Users

The risk from ground gases is considered **Very Low**, however potential exists for the generation of ground gases from potential localised hydrocarbon contamination and/or biodegradable material within any underlying Made Ground, Topsoil or organic matter rich horizons in the Glacial Till deposits.

The likely presence and significance of On-site ground gases should be further assessed as part of the Phase II intrusive ground investigation. A period of ground gas monitoring may be required in order to characterise the nature of the ground gas regime beneath the site.

Alternatively, the risk associated with elevated ground gases to the Human Health of future site end users can be mitigated through the incorporation of suitable protection measures to restrict the ingress of ground gas or odorous vapours into the proposed redevelopment buildings.

7.0 GEOTECHNICAL CONSIDERATIONS

7.1 General

It is anticipated that the footprint of the proposed residential redevelopment will be underlain by Glacial Till deposits consisting of firm to stiff stony clays. The following discussion is, therefore, provisional and subject to confirmation of the finalisation of the proposed development and by an intrusive ground investigation.

7.2 Foundations

Where new foundations are required, traditional spread foundations (strip or trench fill) bearing upon the upper levels of the Glacial Till deposits are considered likely to be appropriate, depending on the thickness of any Made Ground present. Spread foundations should be keyed a minimum 0.30m into the natural strata. A safe net bearing capacity of the order of 90kN/m² is deemed appropriate for preliminary foundation design purposes.

Further investigation (see Section 9.1) would be required in order to fully determine an appropriate bearing strata and foundation type.

7.3 General Construction Advice

Ease of Excavation and Stability

Shallow excavations for foundations and services at this site should be readily achieved using conventional mechanical plant.

Significant groundwater issues within excavations are unlikely to be encountered at shallow depths. However, it should be noted that groundwater may be encountered during wetter periods of the year and may cause local difficulties. If dewatering is required, pumping from open sumps should be adequate.

7.4 Protection of Buried Concrete

Glacial Till deposits generally have a low potential for elevated sulphate concentrations.

For preliminary design purposes for shallow spread foundations, the natural soils are considered likely to fall within Design Sulphate (DS) Class DS-1, an ACEC Class AC-1 is anticipated.

7.5 Road Pavements / Hardstanding Construction

At this stage it is anticipated that a California Bearing Ratio (CBR) value of the order of 2% may be assumed for the design of road pavements / hardstanding founded on the natural substrate encountered at the site. Actual CBR's should be confirmed by *in situ*-testing at road formation level by a specialist geotechnical contractor.

7.6 Soakaways / Drainage

Soakaways within the anticipated natural 'cohesive' clay soils are unlikely to provide a suitable form of drainage beneath the site. The viability of soakaways should be confirmed by *in-situ* soakaway testing.

8.0 ENVIRONMENTAL CONSIDERATIONS

8.1 Conclusions

The historical mapping indicates that on the earliest historical maps the redevelopment site comprised of a crewyard with a Farmhouse adjacent to the south, approximately in their present-day layout, with a Pump adjacent to the south-western corner of the crewyard.

Historically, mainly open fields and agricultural buildings have been present in the wider site environs over the mapping period. An 'Old Gravel Pit' is identified approximately 75m to the north-west of the site.

It is considered that the historical use of the redevelopment site throughout the mapping period as a crewyard with associated potentially contaminative agricultural related activities may have had some limited impact upon the environmental quality of the site.

The near surface geology beneath the site comprises a Secondary Undifferentiated Aquifer associated with the Glacial Till deposits. The site does not, however, lie within a Groundwater Source Protection Zone (SPZ), as designated by the Environment Agency. With the exception, of the On-site pond, no surface water courses are identified within 250m of the site.

The composition, extent and provenance of any Made Ground on the site is unknown, therefore, some intrusive investigation is required. Potential contaminants in this material could include metals, hydrocarbons, pesticides, herbicides and asbestos associated with historical importation of Made Ground on to parts of the site from a potentially contaminated source and/or construction/demolition of pre-existing site buildings. While no current fuel or heating oil tanks, or pesticide/herbicide storage areas are currently present on site, the potential for historic storage of these potential contaminants cannot be discounted.

Asbestos containing materials are present in the existing outbuilding infrastructure and storage of waste cement bonded asbestos sheeting and fragments at some locations, and the potential for localised areas of associated soil ACMs fragment and fibre contamination cannot be discounted.

A full asbestos survey by a licensed contractor is required and identified ACMs should be removed by a licensed asbestos contractor prior to demolition. In addition intrusive ground investigation is required to quantify the presence of any potential ACMs in soils.

During development works, risk to site operatives from any identified asbestos soil contamination can be managed by adoption of suitable PPE and management systems for excavated soils in accordance with the '*Control of Asbestos Regulations 2012*' (CAR2012).

Post-development, hardstanding provided by the parking spaces and patios may serve to sever the pollutant linkages to site end users over some areas of the site, while risk to Human Health in areas of gardens and soft landscaping could be mitigated by provision of imported 'clean' subsoil and topsoil, source removal of any contaminated soils and/or provision of infiltration/capillary breaks in sensitive areas.

The environmental risk of the site with respect to Controlled Waters is considered **Very Low**, however, shallow soil contamination has the potential to migrate laterally and vertically via rainfall infiltration.

The potential exists for the generation of ground gases/vapours within any underlying Made Ground and natural strata, and a period of ground gas monitoring may be required in order to characterise the nature of the ground gas regime beneath the site.

Based on the Phase I Geo-Environmental Desk Study, it is considered that the site represents an overall potential **Very Low / Low** risk of significant cost or liability to the owner or occupier of the site in relation to land contamination issues.

A targeted Phase II ground investigation is required to investigate and better quantify the potential risk environmental liability / cost issues.

8.2 Statutory Liability

There are four possible grounds for the determination of land as Contaminated Land:

- (a) Significant harm is being caused to a human, or relevant non-human, receptor.
- (b) There is a significant possibility of significant harm being caused to a human, or relevant non-human, receptor.
- (c) Significant pollution of Controlled Waters is being caused.
- (d) There is a significant possibility of significant pollution of Controlled Waters being caused.

To date no definitive pollutant pathways have been elucidated, although a number of potential linkages have been identified as discussed in the previous sections of this report and intrusive ground investigation is required.

Under the Environmental Protection Act 1990: Part 2A statutory guidance for definition of Contaminated Land, sites may be classified into 4 Categories, of which Categories 1 and 2 would meet the definition of Contaminated Land and Categories 3 and 4 would not.

#

Based on the findings of the desk study review and the site walk-over, it is considered that this site would fall within Category 3 for both Human Health and Controlled Waters. Category 3 includes land where the authority considers that regulatory intervention under Part 2A is not warranted and serious pollution of Controlled Waters is very unlikely.

Placement of land in Category 3 does not preclude the owner or occupier of the land acting to reduce risks outside of the Part 2A regime if required, for example through localised remediation of gross contamination and/or severance of potential pollutant pathways under development planning conditions.

In view of the above, the potential for Statutory Authority action based on 'Pollution of Controlled Waters' or 'Significant Harm' as defined by Part IIA of the Environmental Protection Act 1990 is considered to be **Low Risk**, subject to further quantification of identified potential pollutant linkages through intrusive ground investigation works.

8.3 Third Party Liability

On the basis of the Phase I Geo-Environmental Desk Study, it is considered that the potential for contamination to migrate Off-site is **Very Low**. As such, the site represents an overall potential **Very Low Risk** of significant cost or liability to the owner or occupier of the site in relation to land contamination issues.

9.0 FURTHER WORKS

9.1 Phase II Ground Investigation

It is recommended that an intrusive Phase II ground investigation is undertaken in order to assess the contamination status of the underlying ground conditions for any potential environmental liability issues and future development constraints. Assessment will indicate whether remediation or mitigation measures are likely to be required during future redevelopment and the suitability of the ground for certain foundation solutions (if required).

The proposed Phase II ground investigation works outlined below should be adequate to investigate the issues raised in the Phase I Geo-Environmental Desk Study. The investigation should be carried out in general accordance with BS 5930:2015 '*Code of Practice for ground investigations*' and BS 10175. 2011. '*Investigation of potentially contaminated sites – Code of practice*'.

Based on our current understanding (Preliminary Conceptual Site Model) of the site, the Phase II intrusive works should comprise the following:

- Hand excavated trial holes to determine the depth and type of the existing foundations to the structures proposed for redevelopment and their bearing horizon.
- A series of geo-environmental boreholes across the site to determine the extent and nature of any Made Ground and to characterise the nature of the natural strata underlying the site.
- Provision of ground gas monitoring installations in selected boreholes if significant Made Ground and/or or organic matter rich horizons are encountered.
- Recovery of representative soil samples from all horizons encountered for environmental analysis.
- In-situ testing and soil sampling for geotechnical laboratory testing for design parameters for foundation design purposes.
- Soil contamination (screening) analysis should include as a minimum: metals and inorganic determinants, TPH speciated to the UK Criteria Working Group (TPHCWG) aliphatic and aromatic compounds, BTEX – benzene, toluene, ethyl benzene, xylenes and MTBE, speciated PAHs, phenols, sulphate, pH, selected pesticide and herbicide screening and asbestos screening (with quantification if identified).
- If significant Made Ground and/or or organic matter rich horizons are encountered, a programme of ground gas monitoring in order to comply with the 'Low' generation potential source / residential development case (CIRIA Report C665). Monitoring to be undertaken wherever possible at times of falling and low atmospheric conditions.

The report should include details of the intrusive investigation, the ground conditions encountered, potential contaminative status of site soils throughout the soil profile and a site-specific assessment of risk to Human Health and Controlled Waters.

The report would include an updated / revised Conceptual Site Model, quantitative risk assessment of any identified contamination issues, establish the ground gas regime and if necessary, a preliminary remediation strategy for the site.

9.2 Statutory Consultation

In accordance with normal planning requirements, CRG would recommend that a copy of this report is issued to the Local Authority by the Client and/or Project Manager for review/comment and approval prior to commencing with the redevelopment of the Sycamore Lodge site.

FIGURE 1

Site Location Plans



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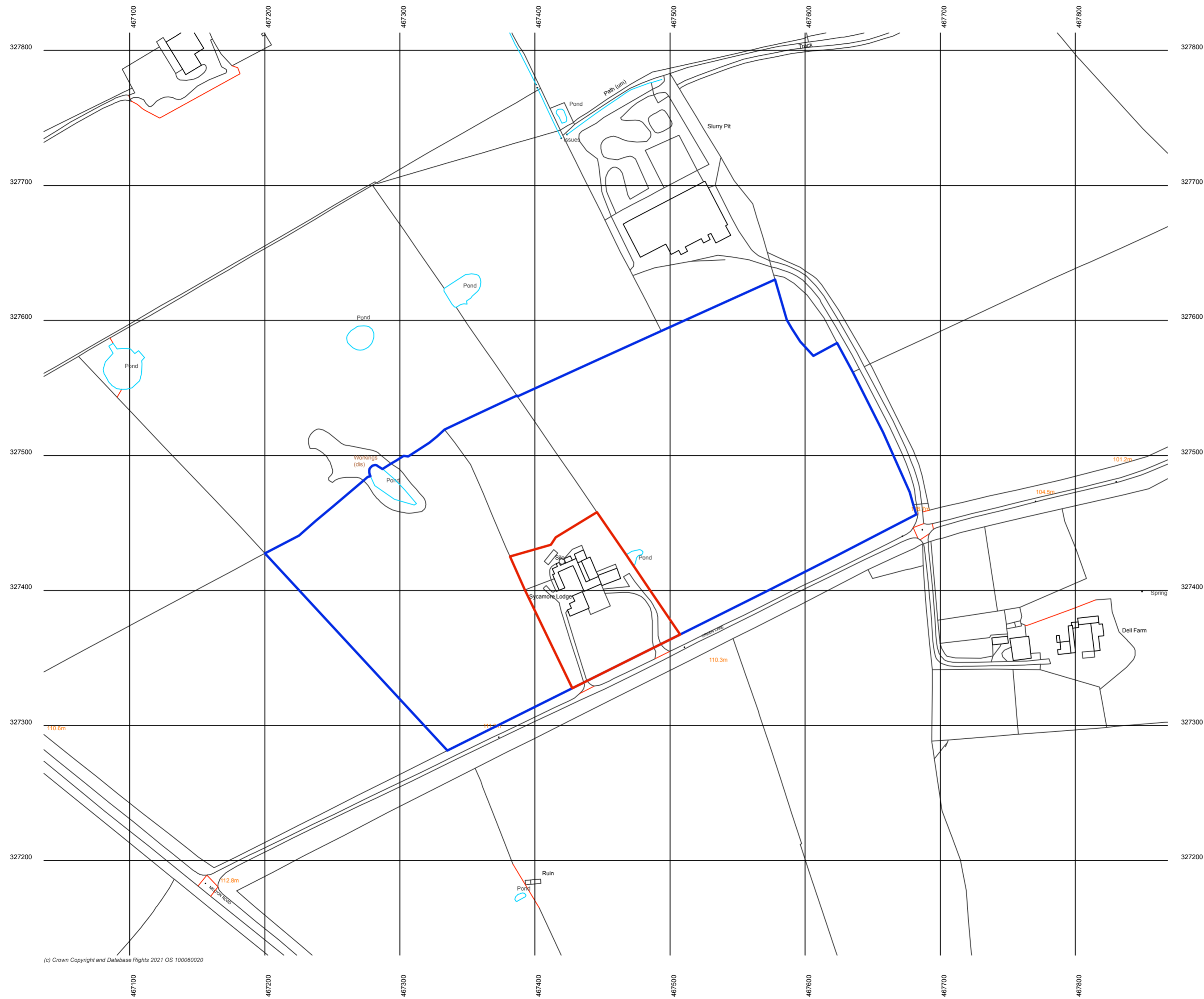
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Green Lane, Hickling Pastures, Notts.**

Title: SITE LOCATION PLAN

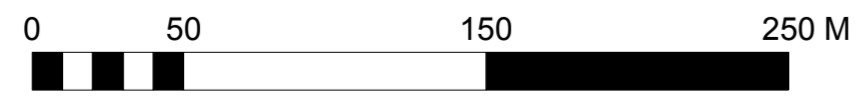
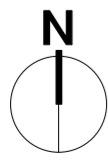
Project No. 220103N
Date drawn: 07/07/22

Scale: NTS
Figure 1 (1)

Client: Roy and Rachael Allum



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CLIENT
 Roy & Rachael Allum

PROJECT
 Sycamore Lodge

DRAWING
 Site Location Plan

PROJECT NUMBER 3966	SCALE @ A2 1:1250	DATE Jan '22	BY JW
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DRAWING NUMBER 01	REVISION	STATUS Preliminary
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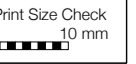
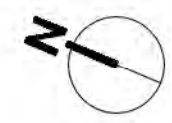


FIGURE 2

Topography Survey



EXISTING BUILDINGS
906.6m² total floor area approx



EXISTING SITE PLAN

Drawing Title
Scale: 1:200

REV. DATE DESCRIPTION BY

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CLIENT
Roy & Rachael Allum

PROJECT
Sycamore Lodge

DRAWING
Topography Survey

PROJECT NUMBER 3966 SCALE @A1 1:200 DATE March '22 BY CS

DRAWING NUMBER 02 REVISION STATUS Preliminary

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APPENDIX I

Historical County Series & Ordnance Survey Mapping

Site Details:

SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QF

Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

Map date: 1884

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1884
 Revised 1884
 Edition N/A
 Copyright N/A
 Levelled N/A

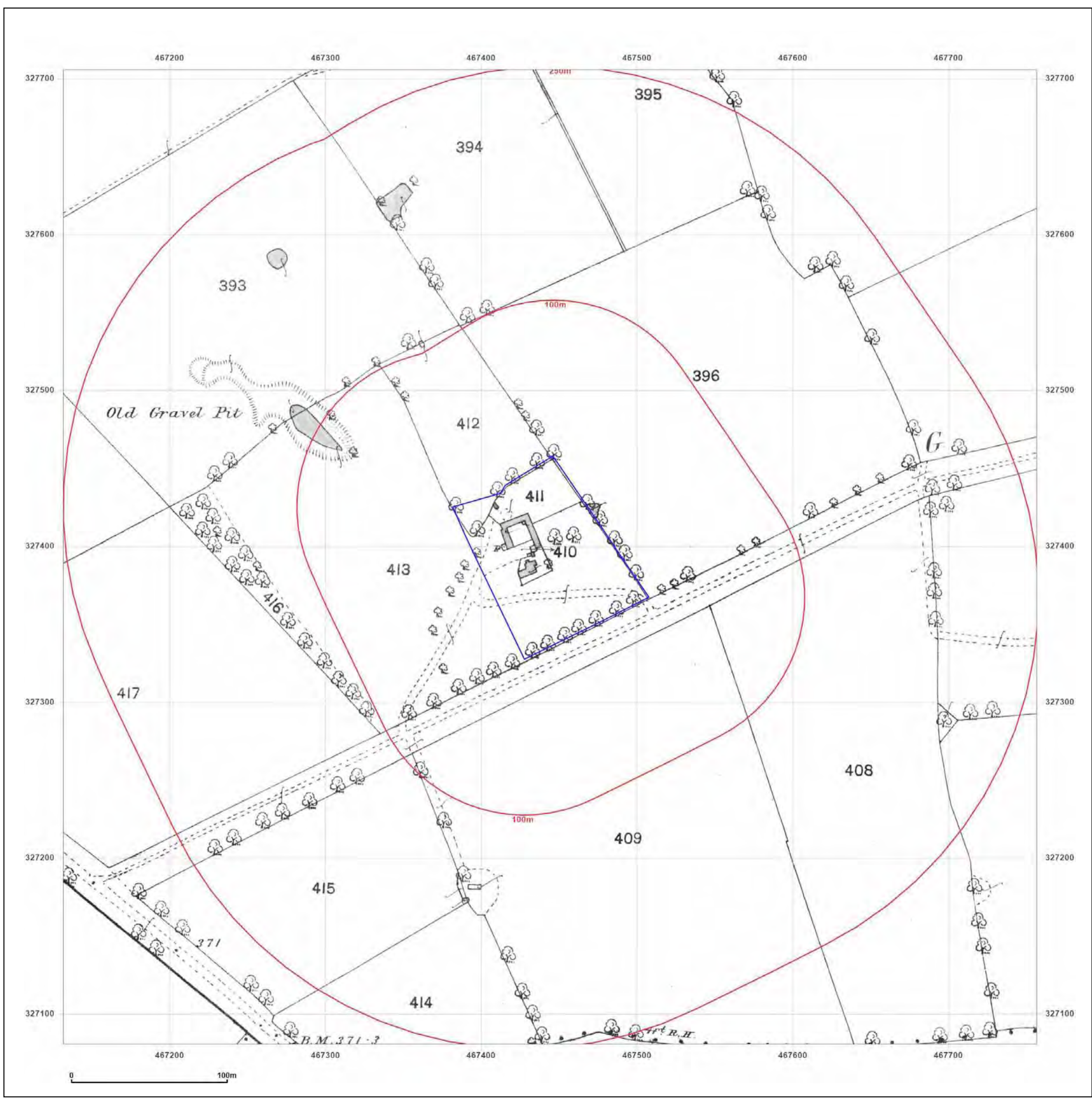


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Site Details:
 SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QF

Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series
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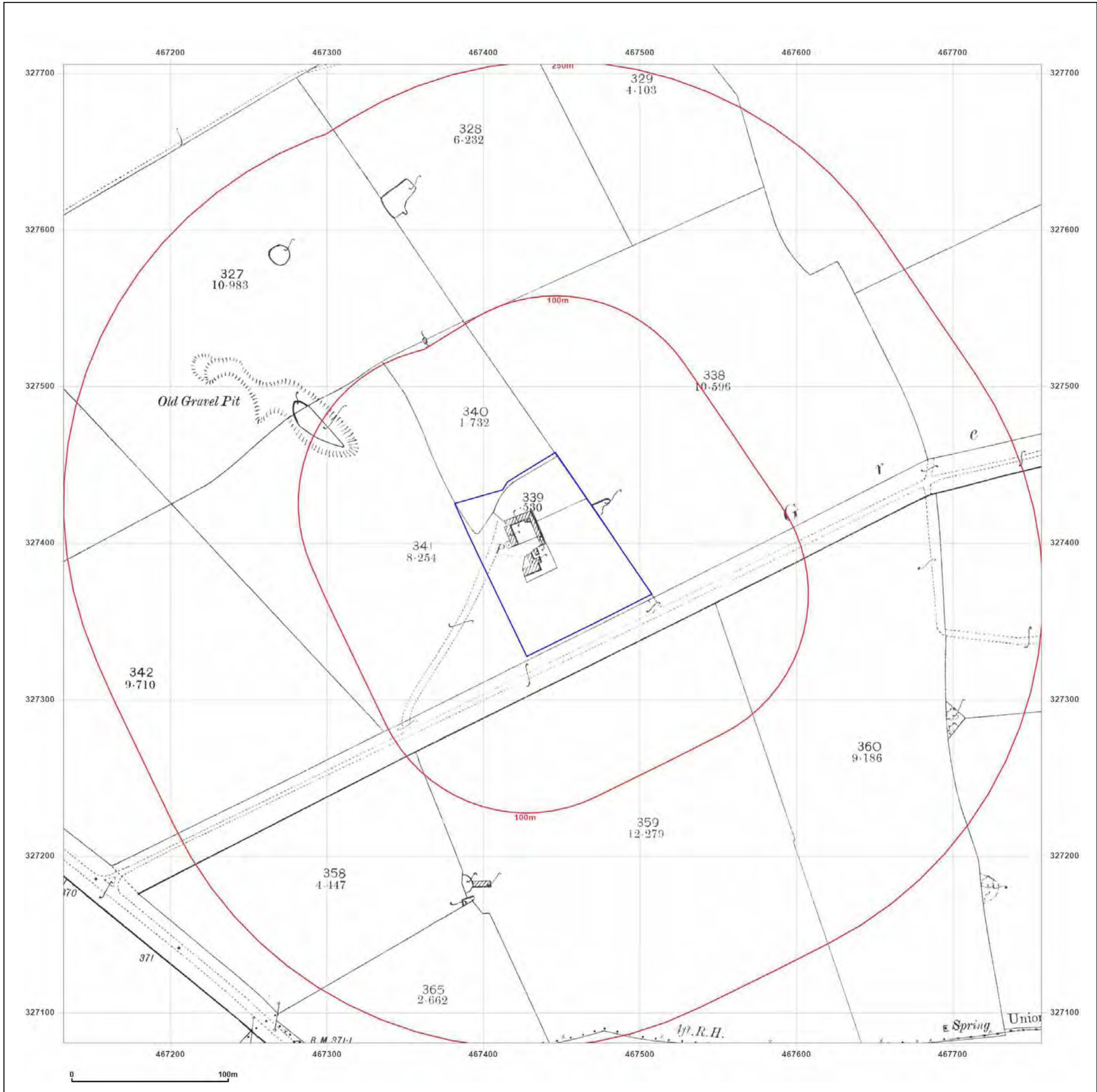
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Site Details:

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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

Map date: 1920

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1920
 Revised 1920
 Edition N/A
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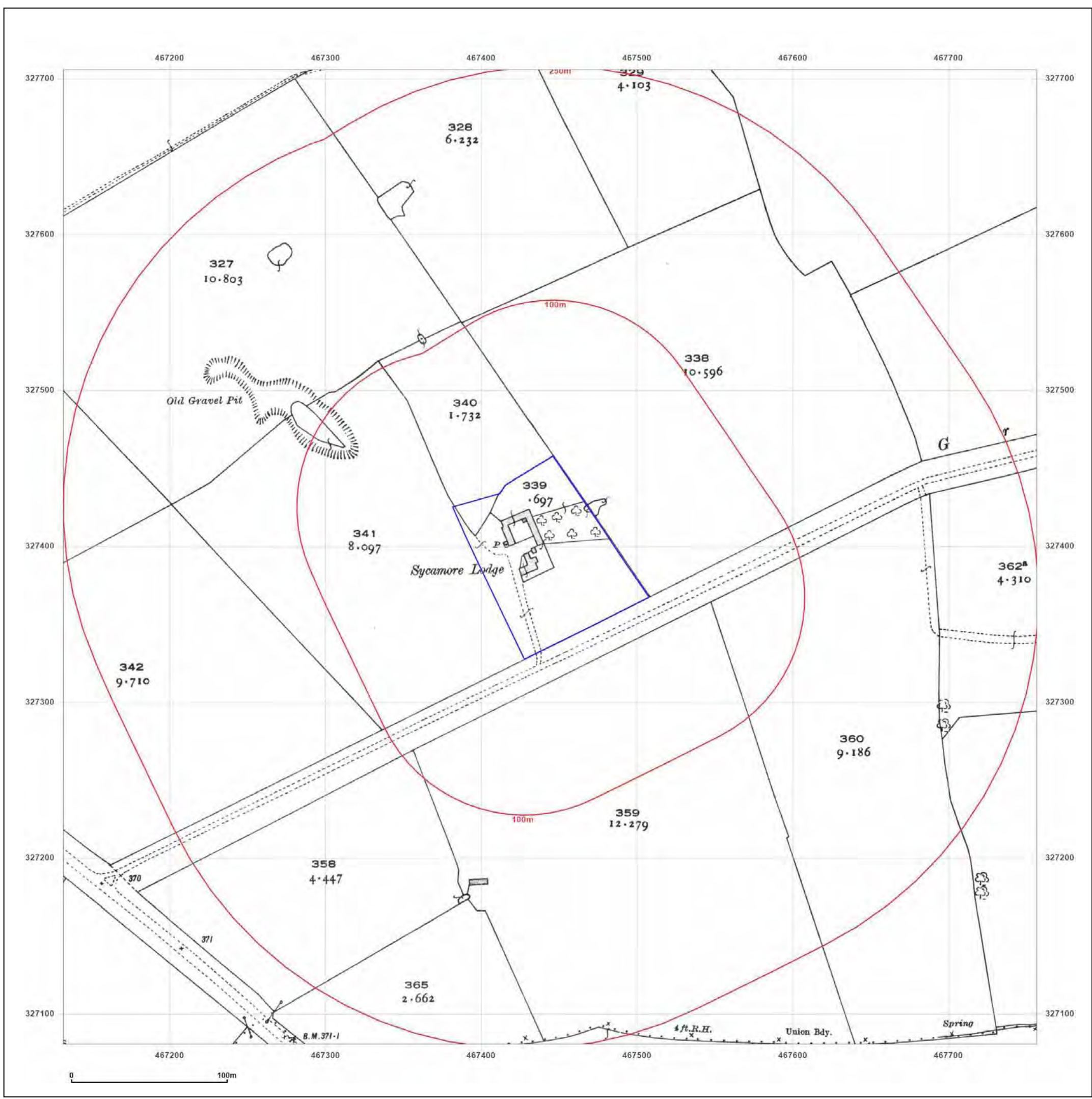


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Site Details:
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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: National Grid
Map date: 1971
Scale: 1:2,500
Printed at: 1:2,500



Surveyed 1971
 Revised 1971
 Edition N/A
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 Levelled 1962

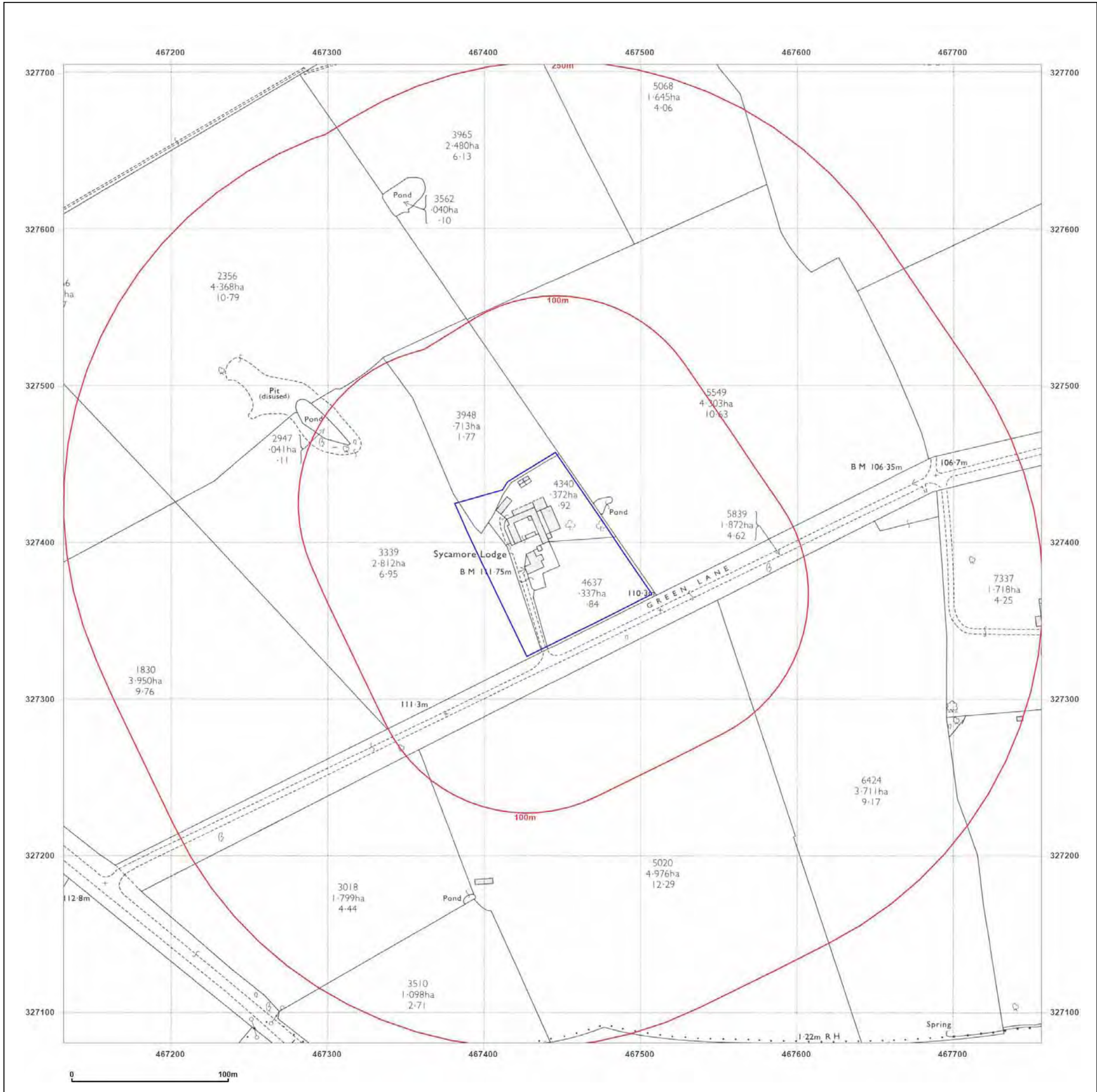
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Site Details:

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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: National Grid

Map date: 1971

Scale: 1:2,500

Printed at: 1:2,500



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

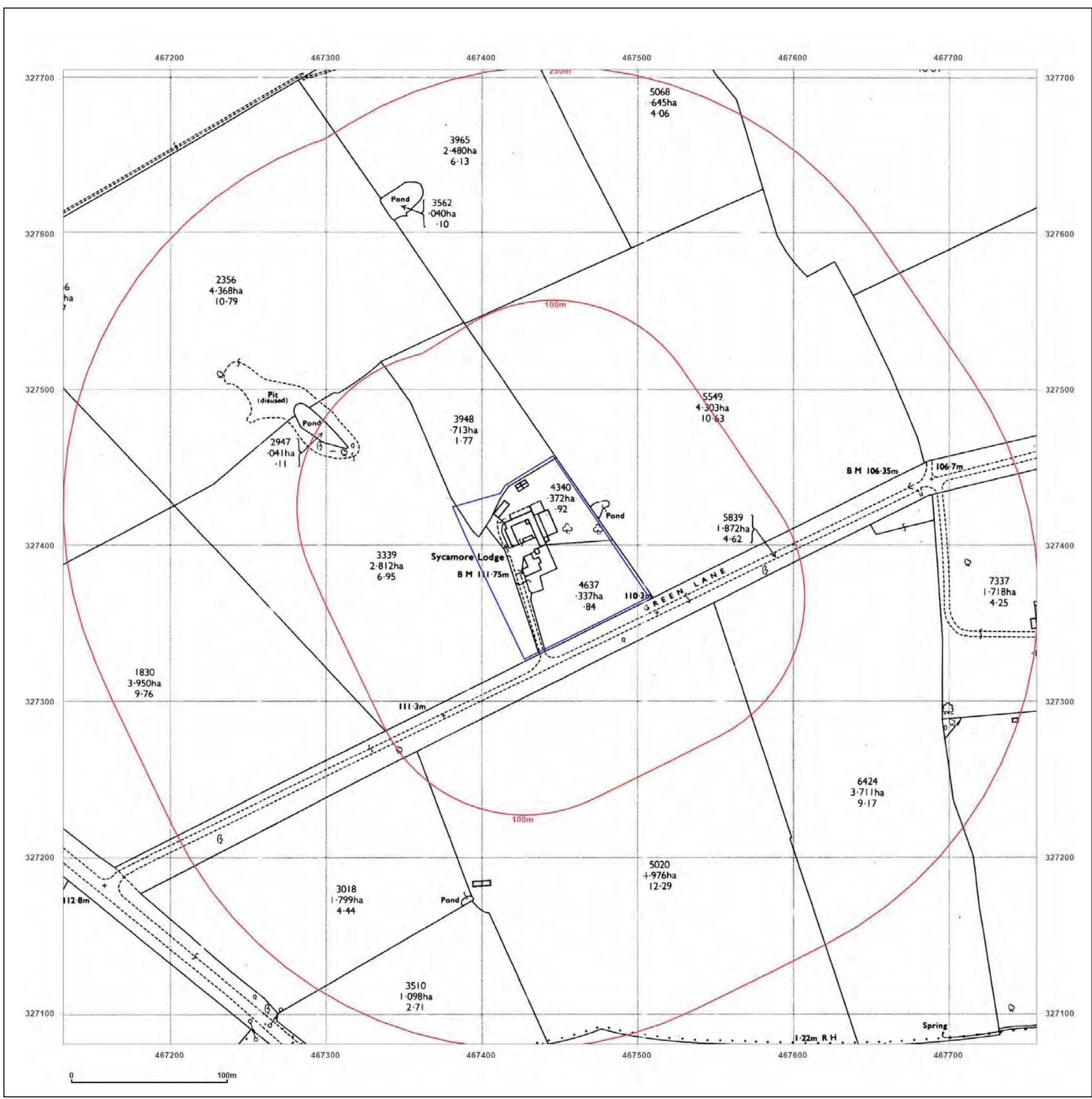


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Site Details:
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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: National Grid
Map date: 1993
Scale: 1:2,500
Printed at: 1:2,500



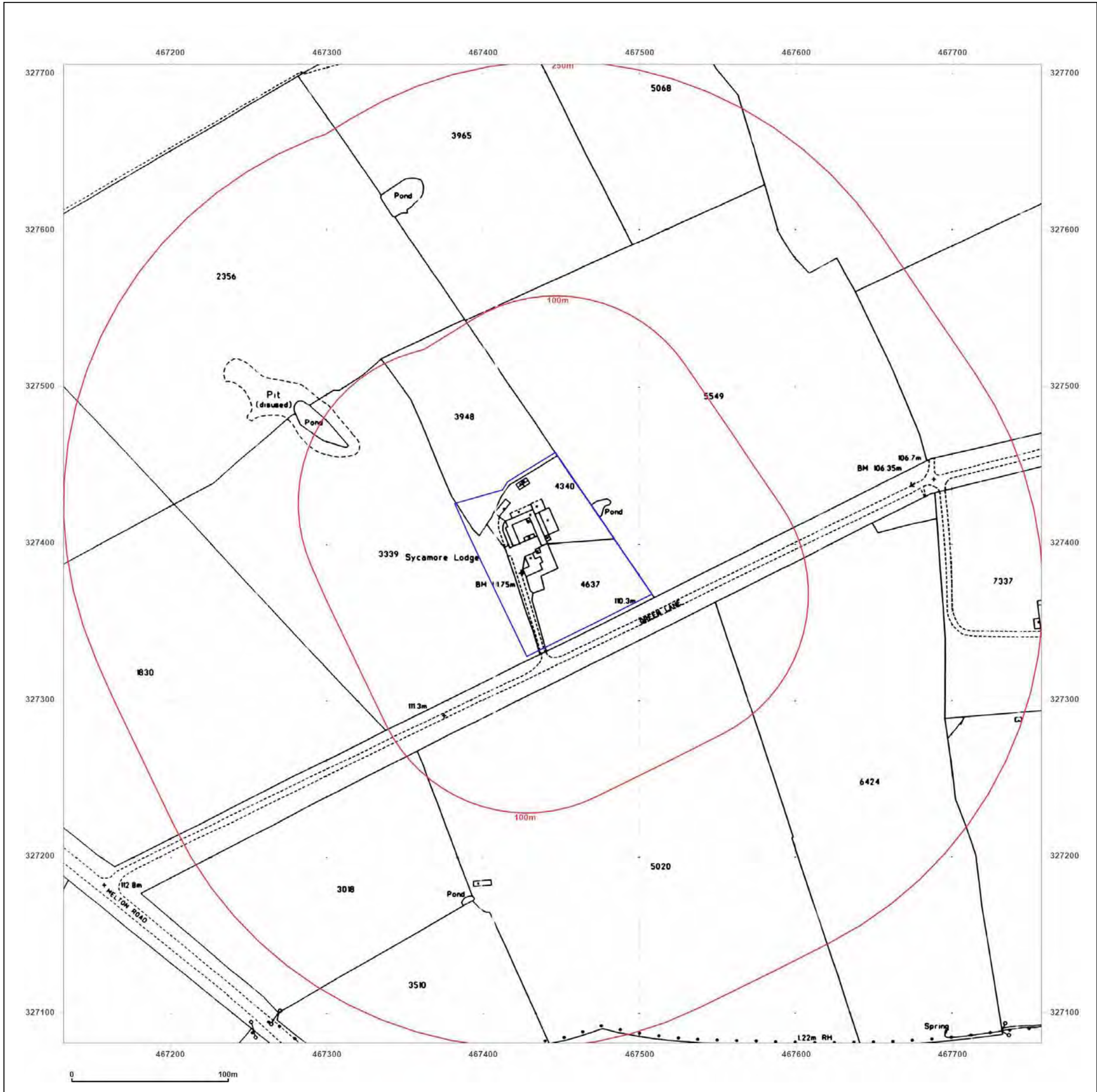
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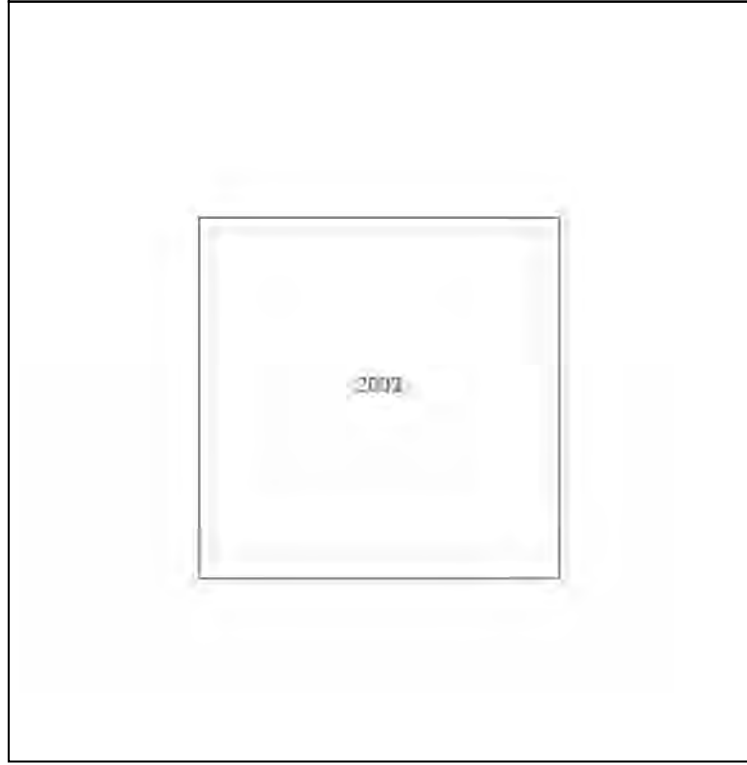
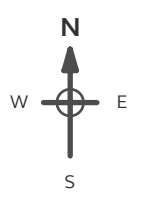
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Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: LandLine

Map date: 2003

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Printed at: 1:1,250

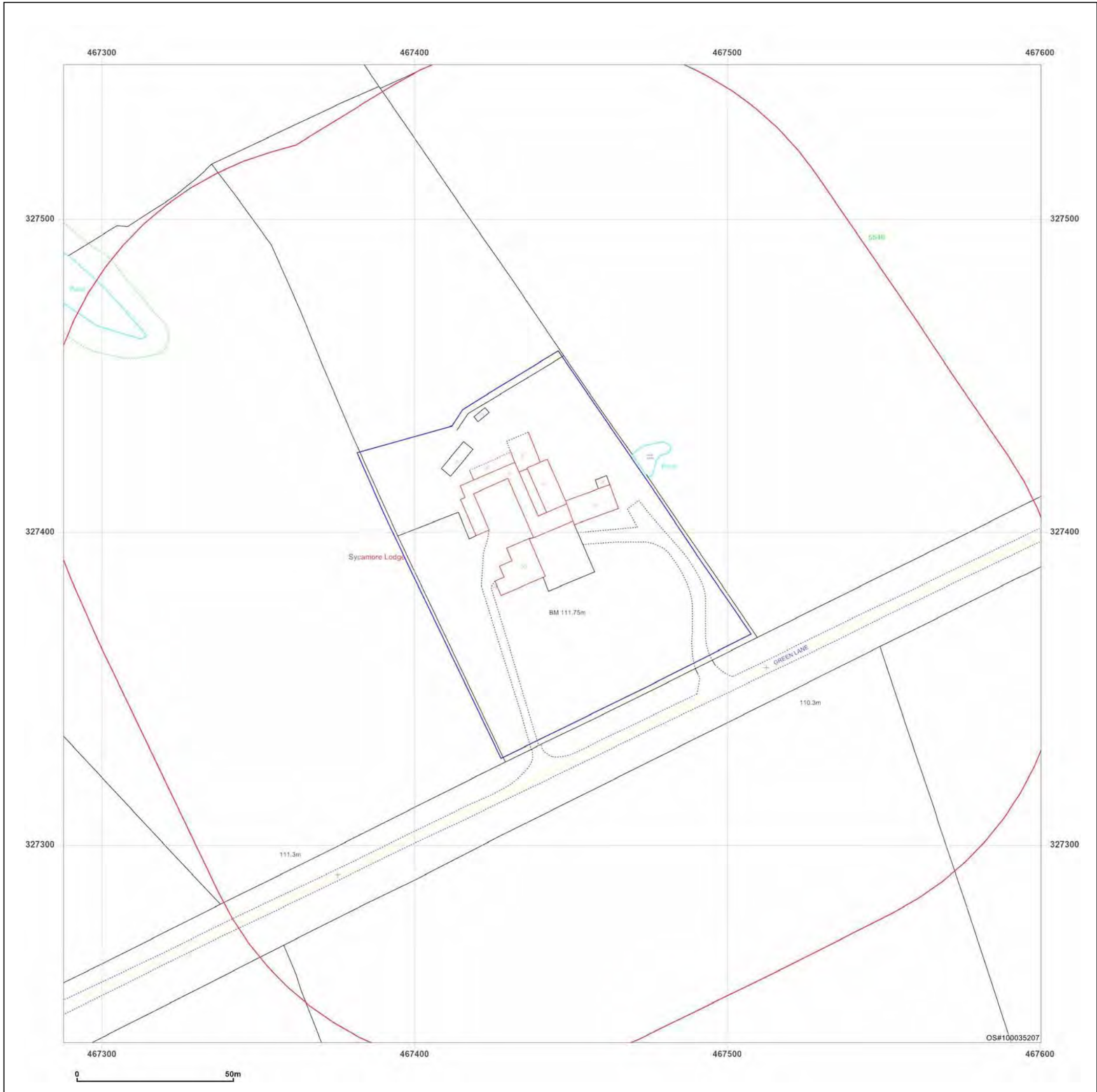


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Site Details:

SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QF

Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

Map date: 1883-1884

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1883
 Revised 1883
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
 Revised 1883
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
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 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A

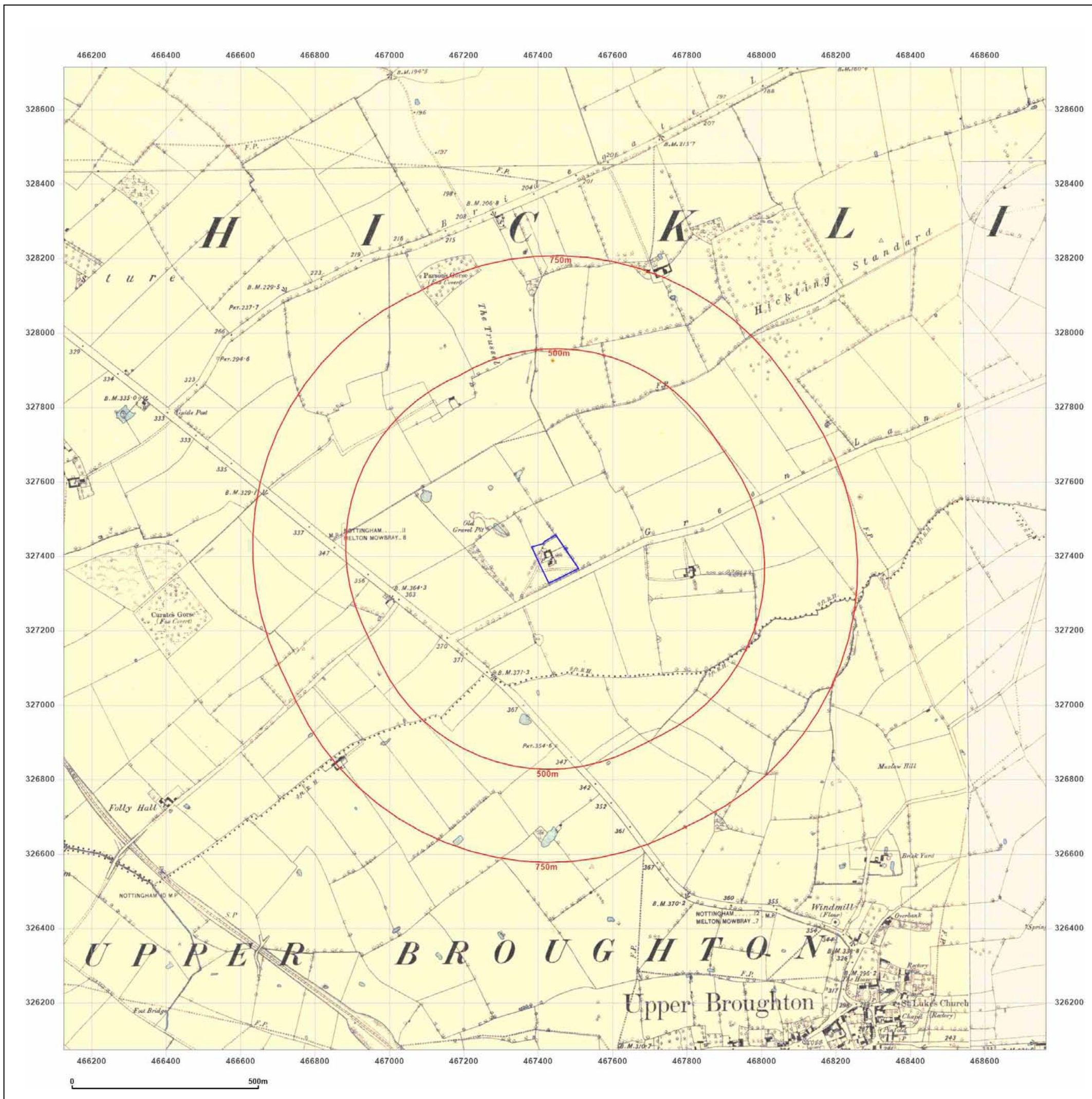


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Site Details:

SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QF

Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

Map date: 1883-1884

Scale: 1:10,560

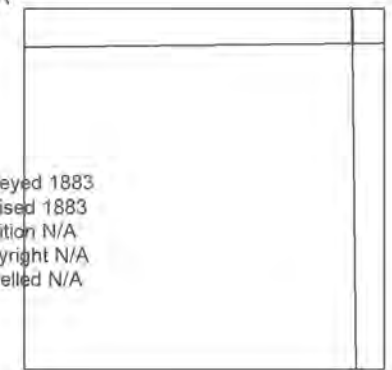
Printed at: 1:10,560



Surveyed 1883
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
 Revised 1883
 Edition N/A
 Copyright N/A
 Levelled N/A

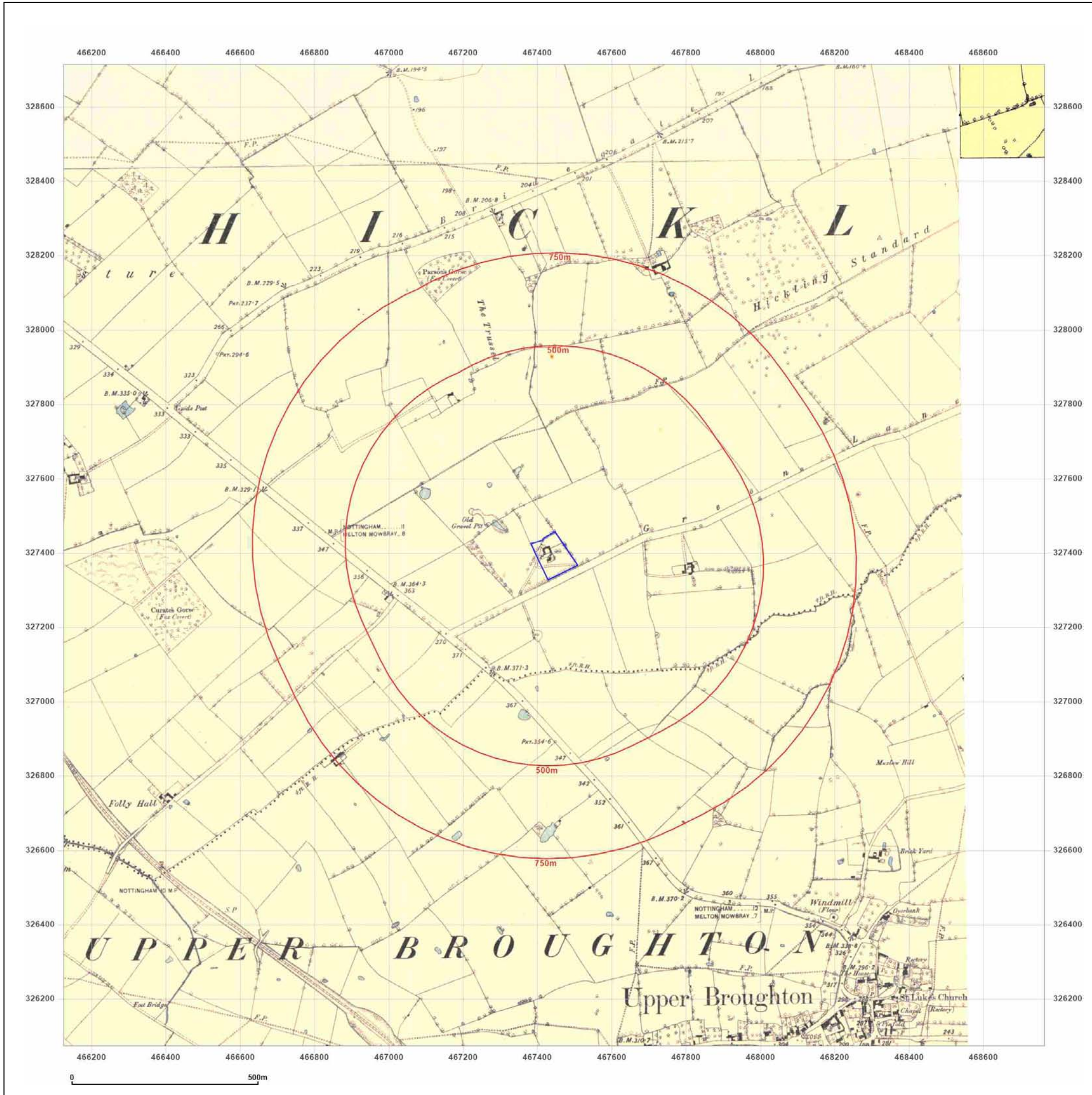


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Site Details:

SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QP

Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

Map date: 1899-1901

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1883
 Revised 1899
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
 Revised 1899
 Edition N/A
 Copyright N/A
 Levelled N/A

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

Surveyed 1883
 Revised 1901
 Edition N/A
 Copyright N/A
 Levelled N/A

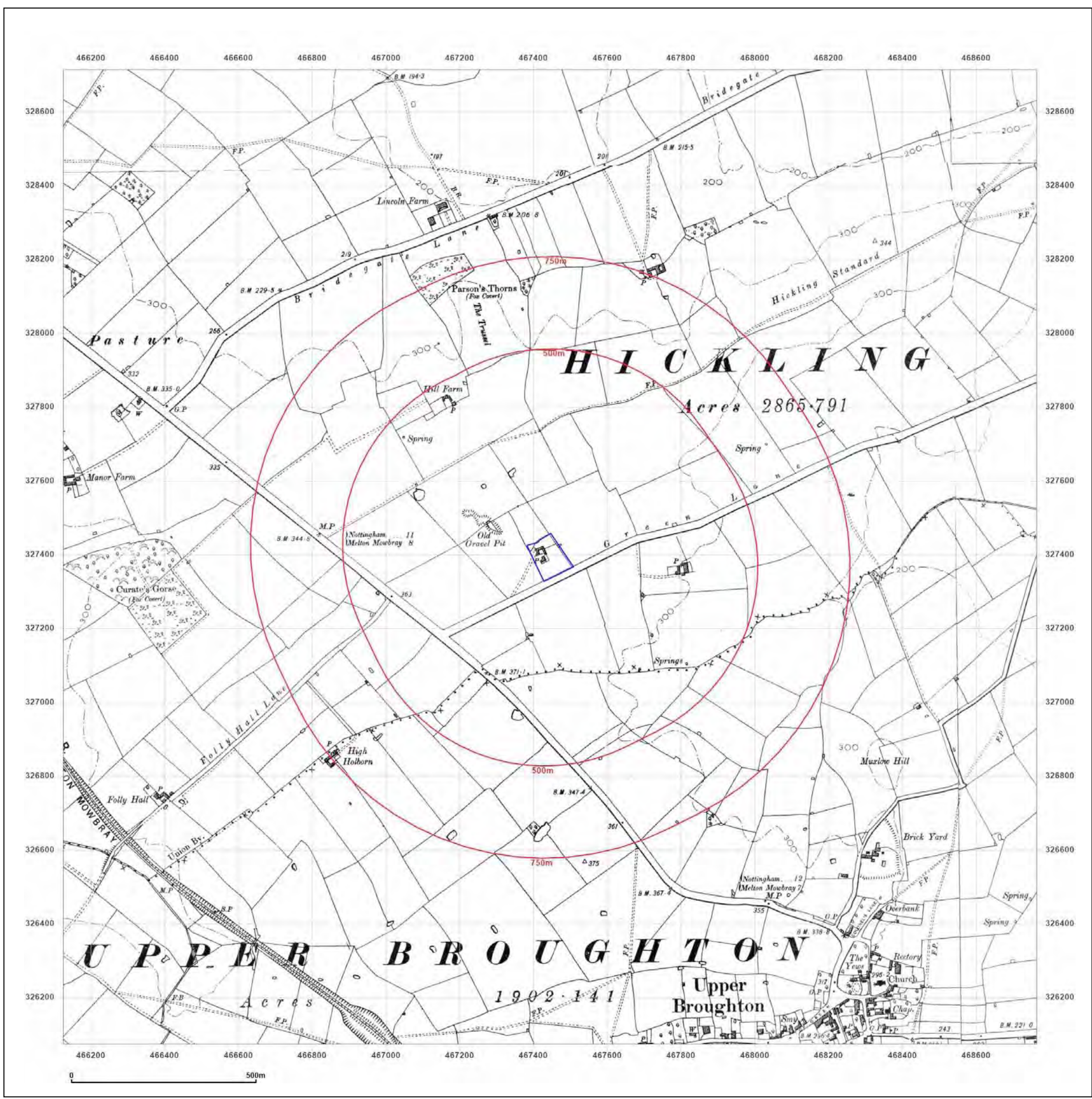


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Site Details:

SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QP

Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

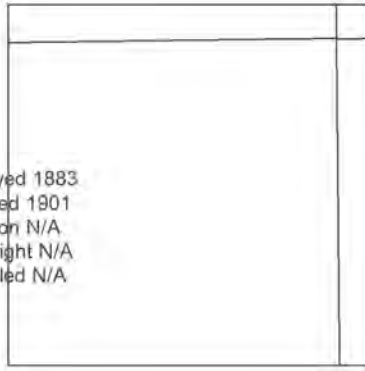
Map date: 1900-1901

Scale: 1:10,560

Printed at: 1:10,560



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



Surveyed 1883
 Revised 1901
 Edition N/A
 Copyright N/A
 Levelled N/A

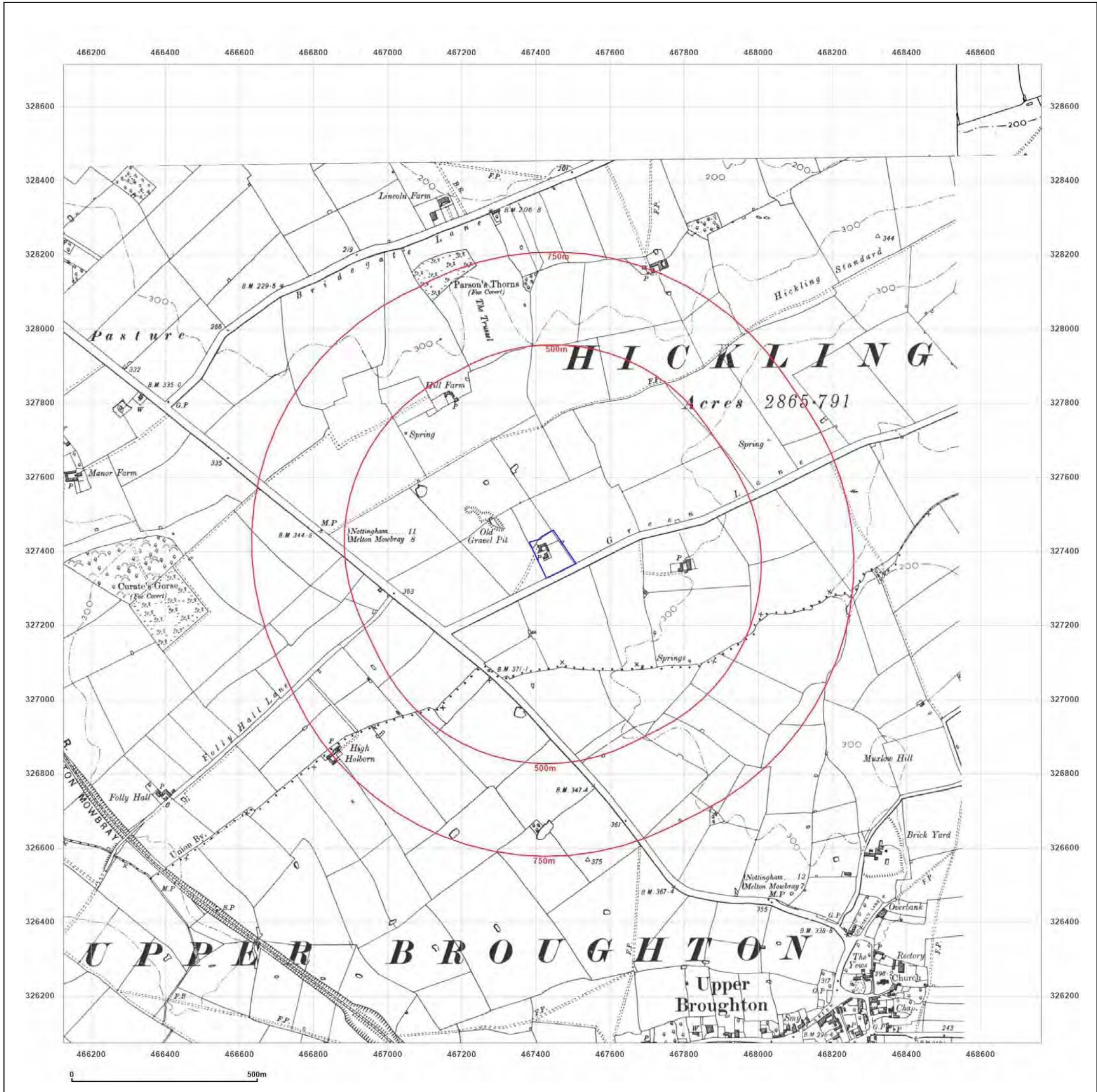


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Site Details:

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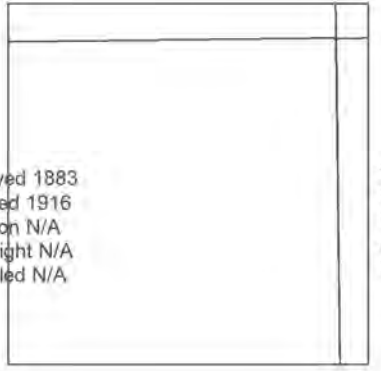
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Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

Map date: 1915-1916

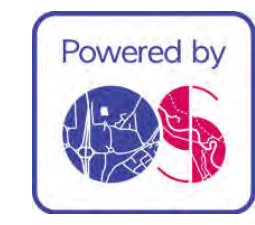
Scale: 1:10,560

Printed at: 1:10,560

Surveyed 1883
Revised 1915
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1883
Revised 1916
Edition N/A
Copyright N/A
Levelled N/A

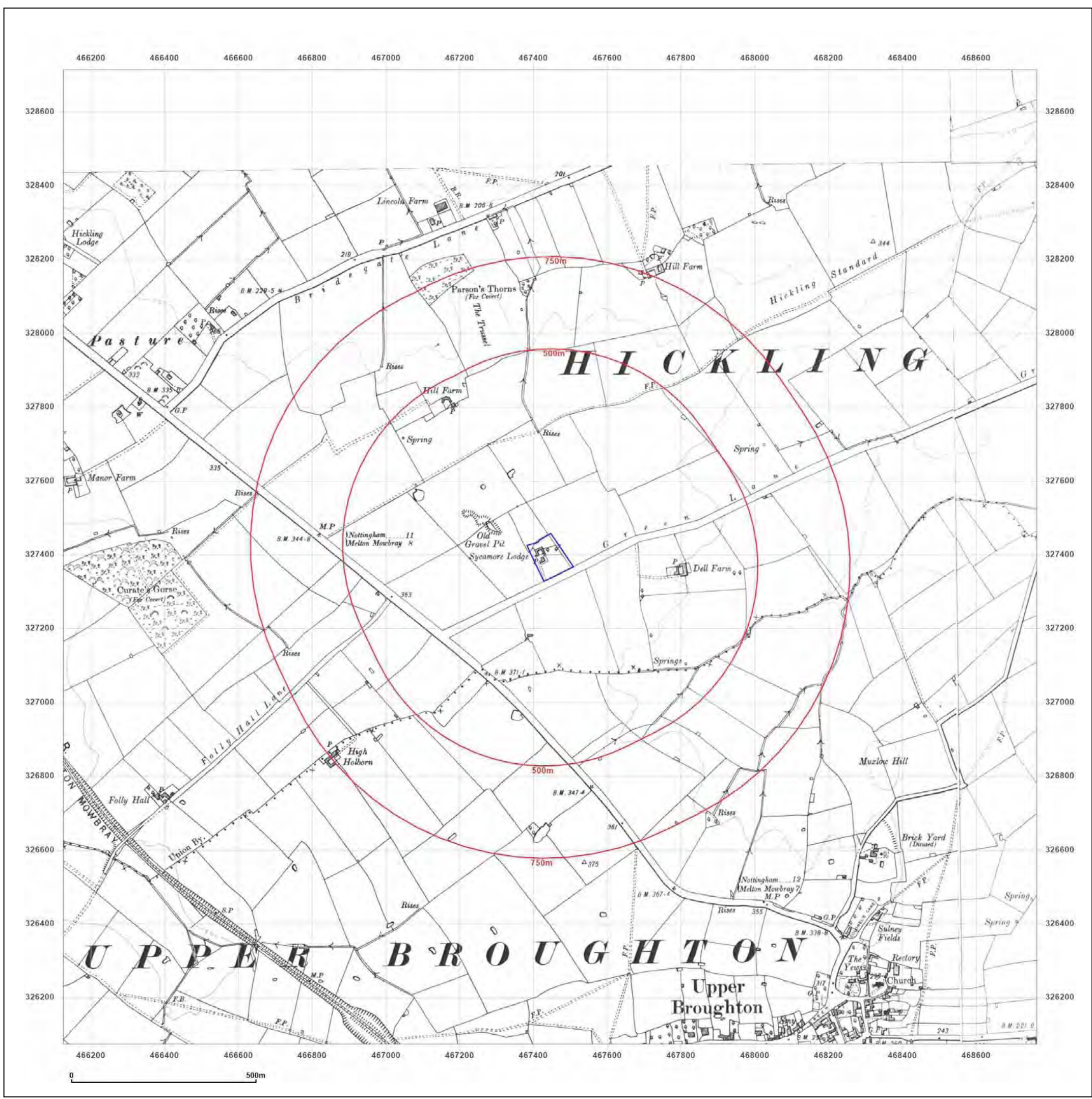


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Site Details:

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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: County Series

Map date: 1950

Scale: 1:10,560

Printed at: 1:10,560



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 Revised 1950
 Edition N/A
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 Levelled N/A

Surveyed 1883
 Revised 1950
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
 Revised 1950
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1883
 Revised 1950
 Edition N/A
 Copyright N/A
 Levelled N/A

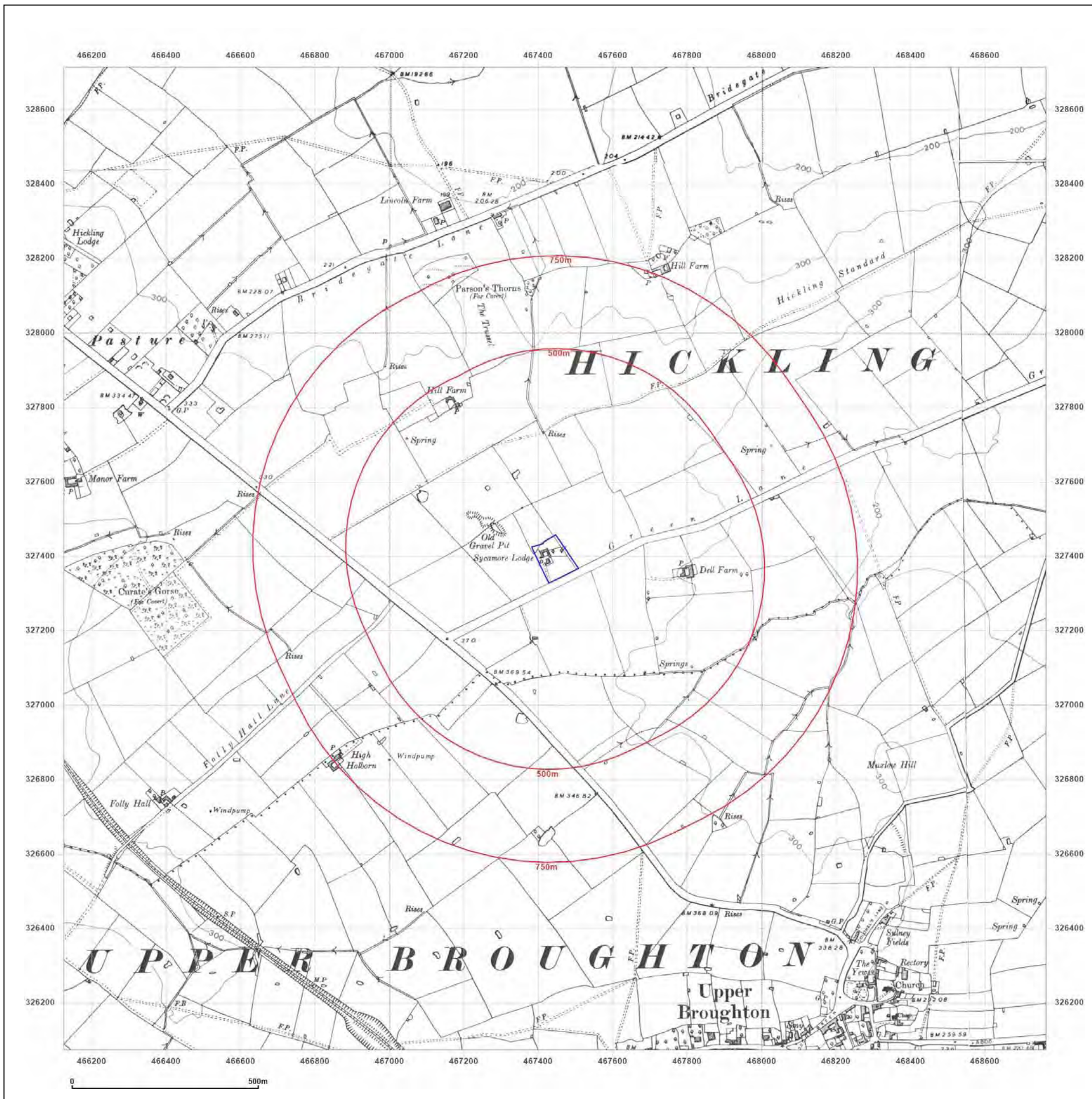


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Site Details:

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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: Provisional

Map date: 1958

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
 Revised 1958
 Edition N/A
 Copyright N/A
 Levelled N/A

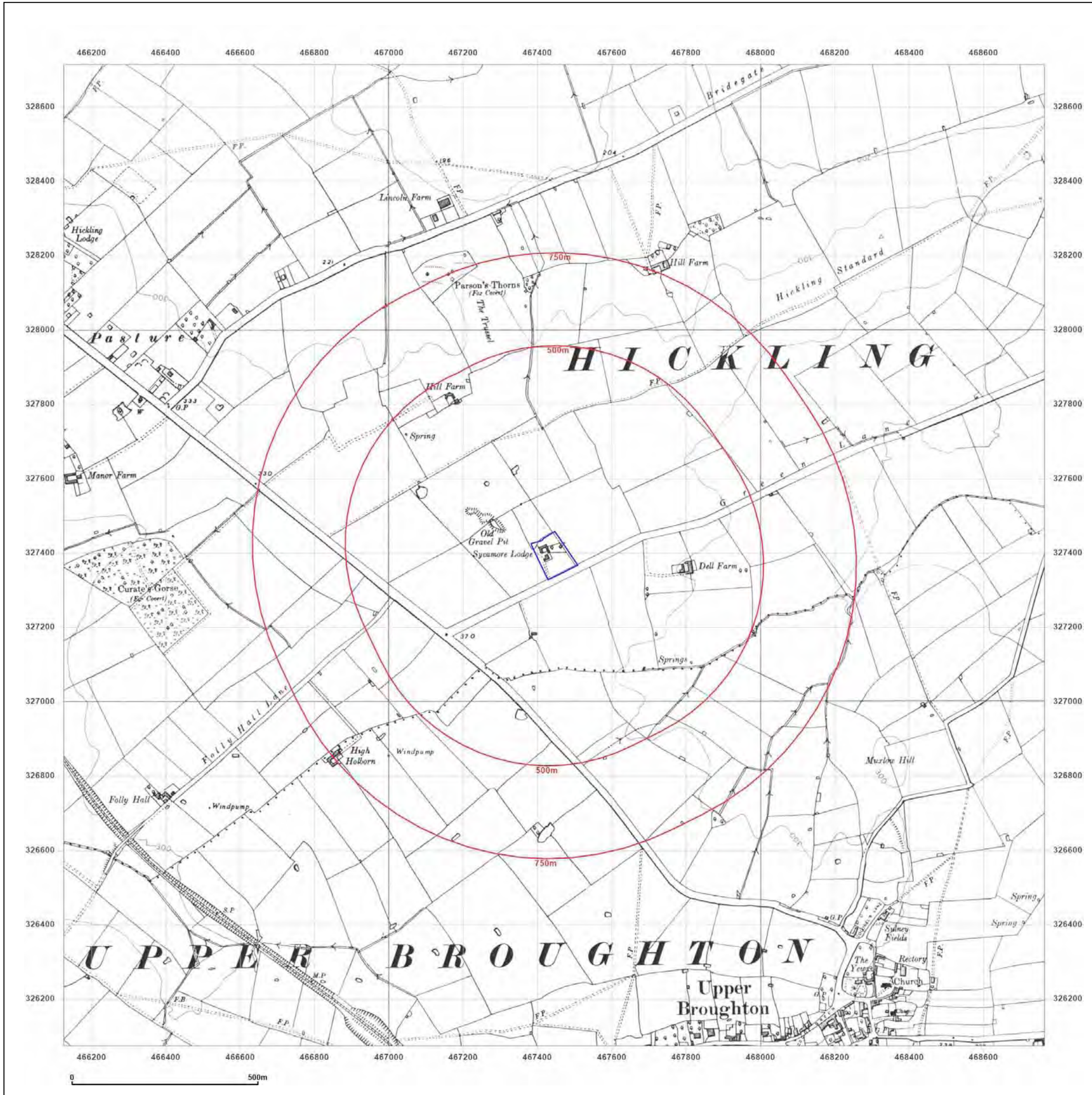


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Site Details:

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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: Provisional

Map date: 1967

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
 Revised 1967
 Edition N/A
 Copyright N/A
 Levelled N/A

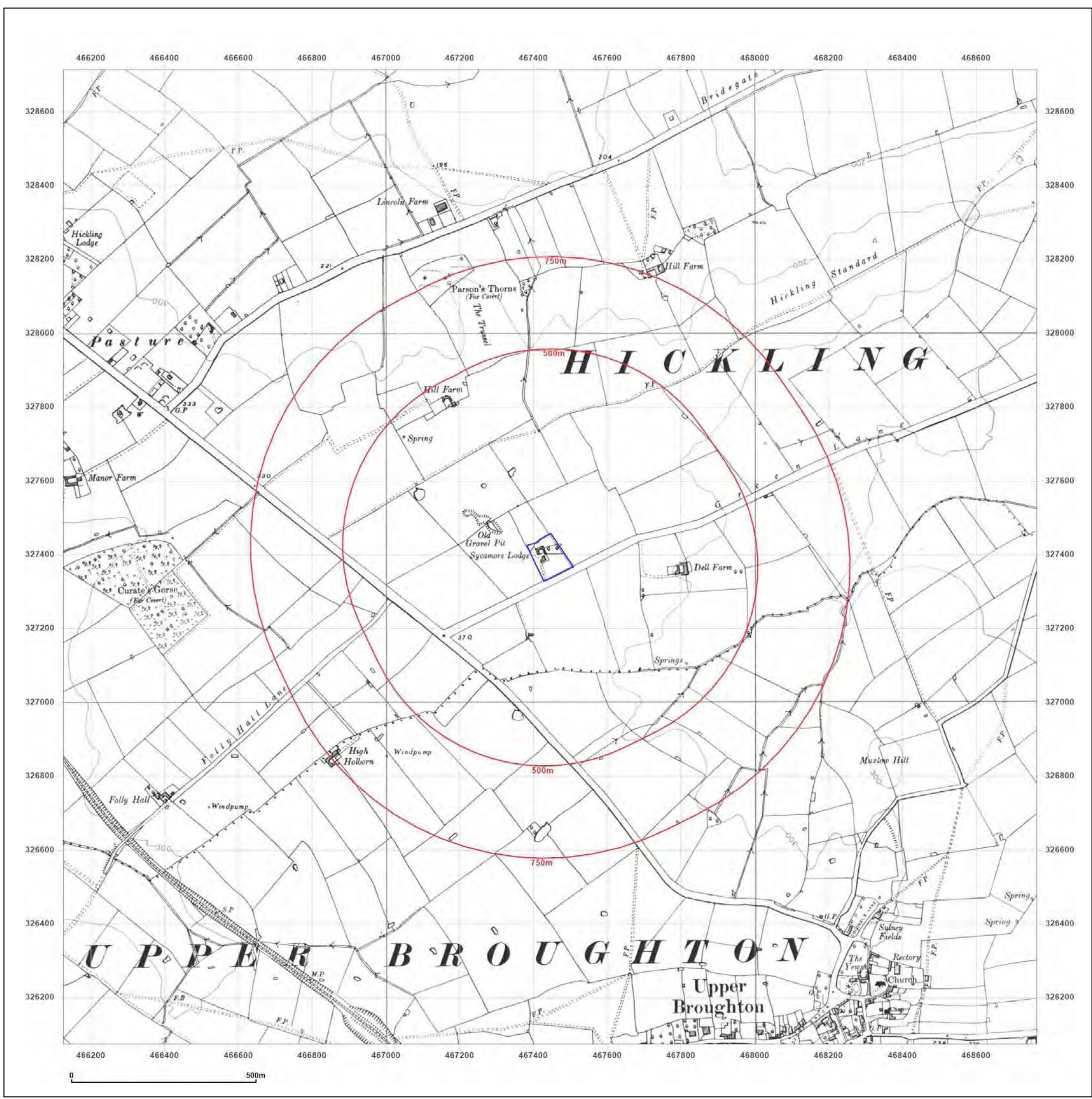


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Site Details:

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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: National Grid

Map date: 1975

Scale: 1:10,000

Printed at: 1:10,000



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

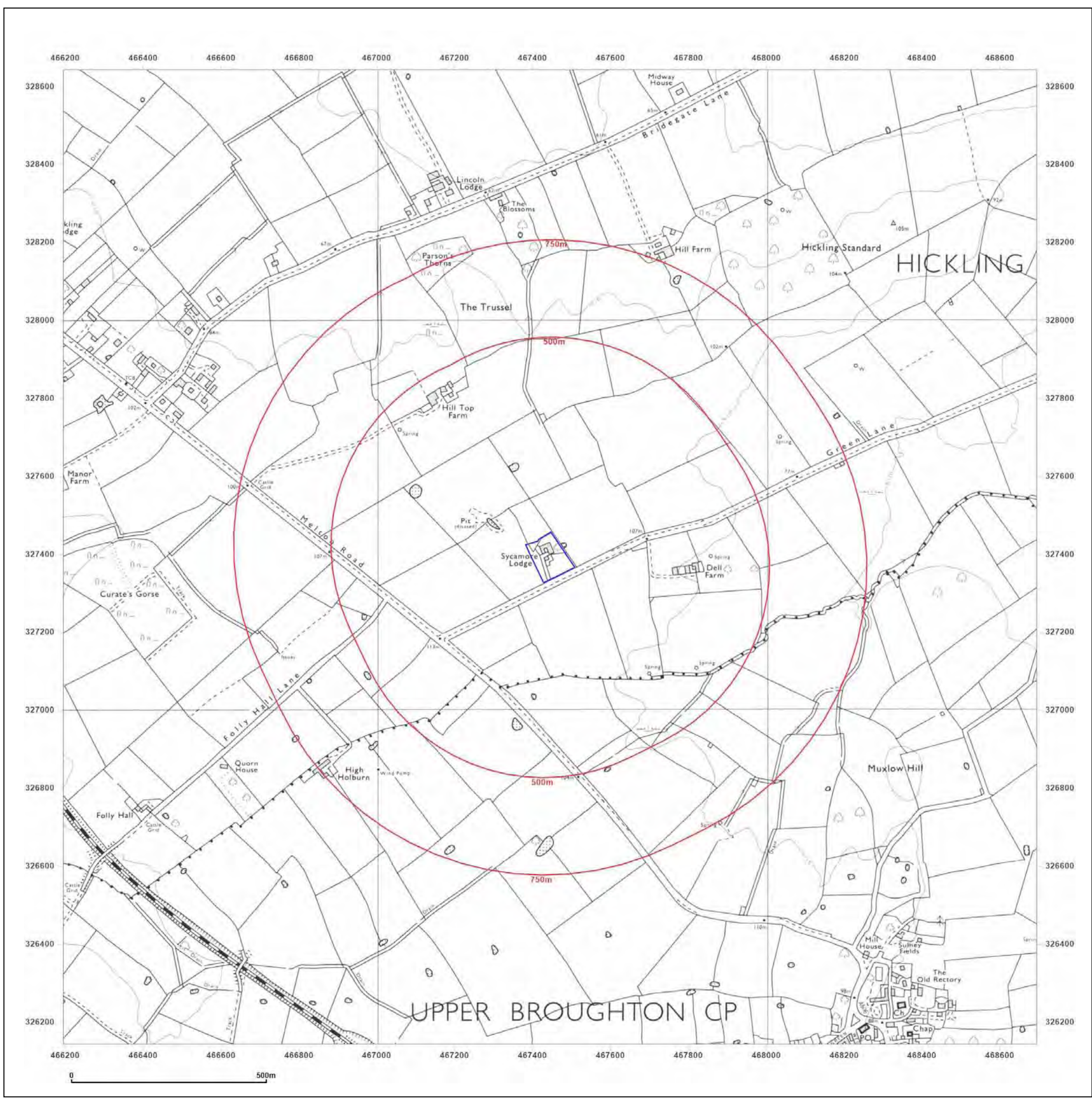


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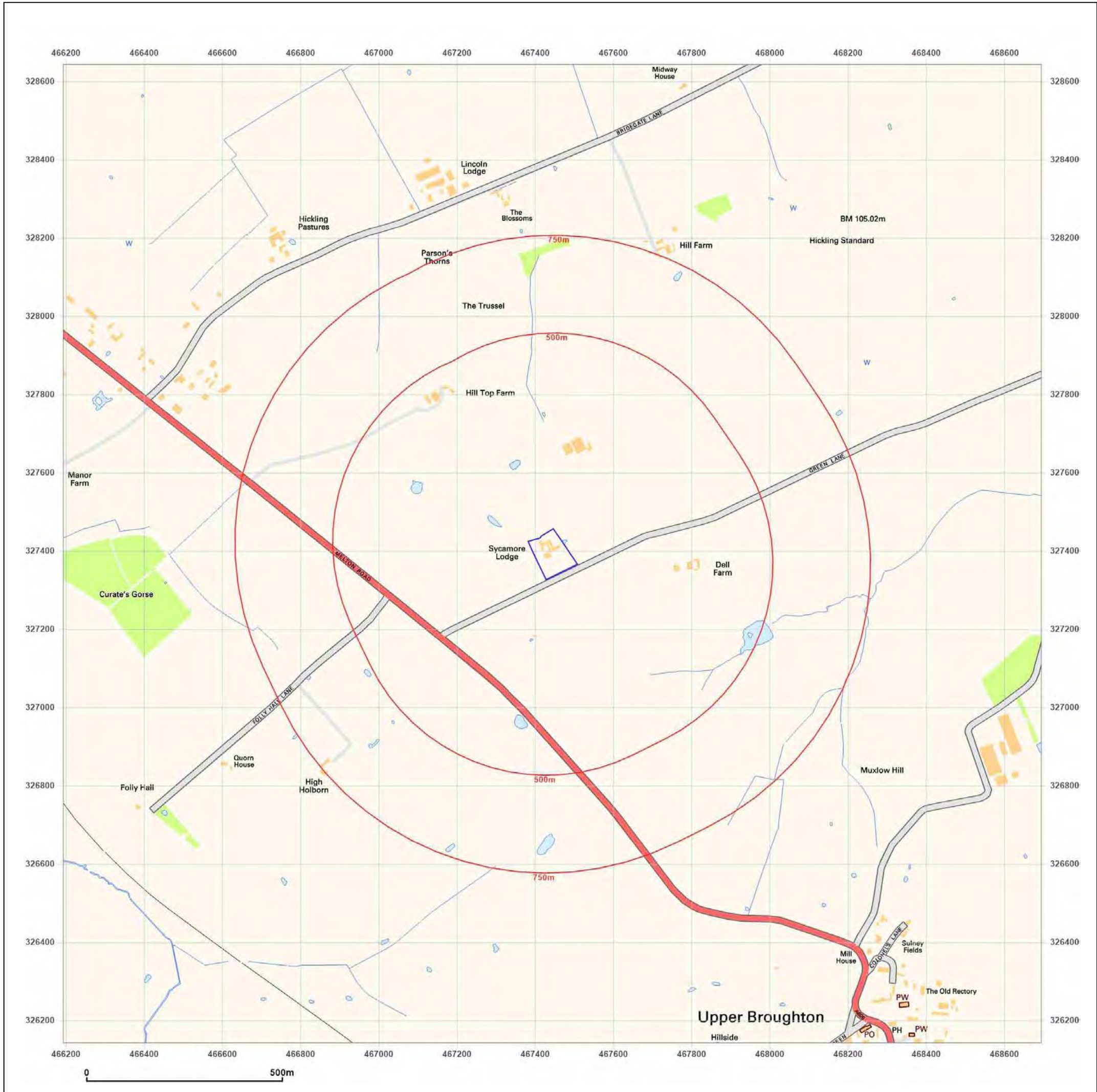
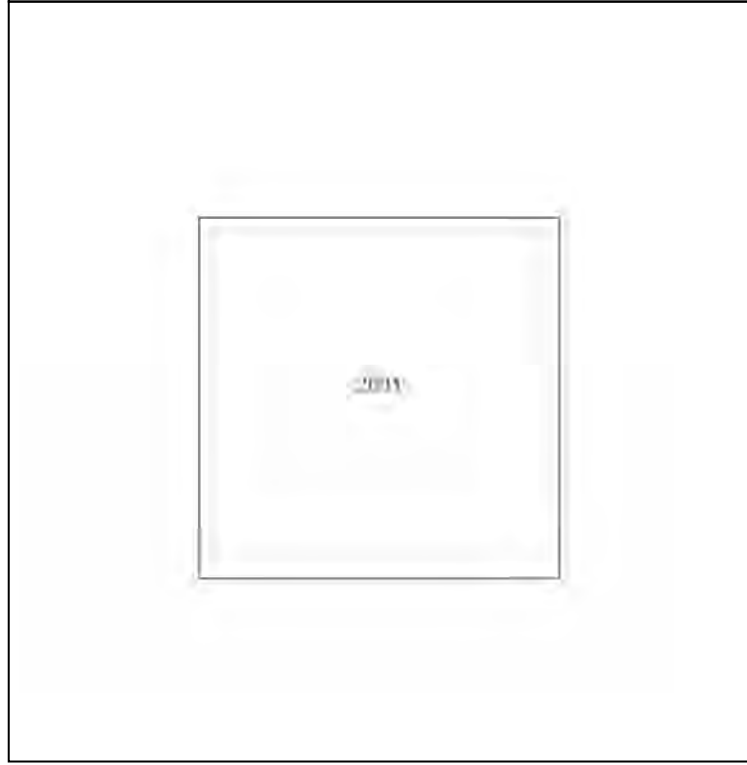
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Site Details:
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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000



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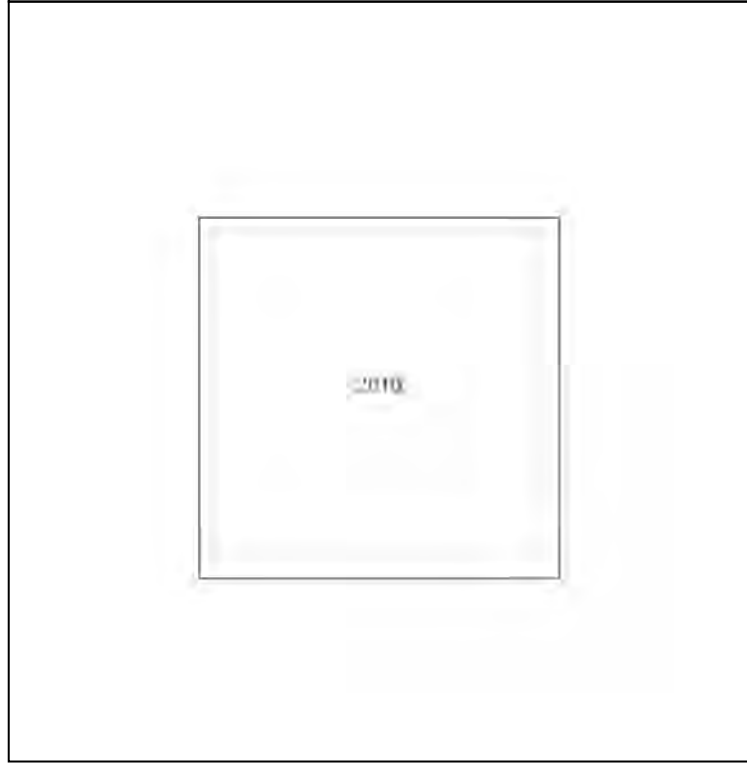
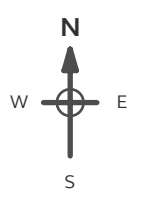
Production date: 12 June 2022

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Site Details:
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Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000



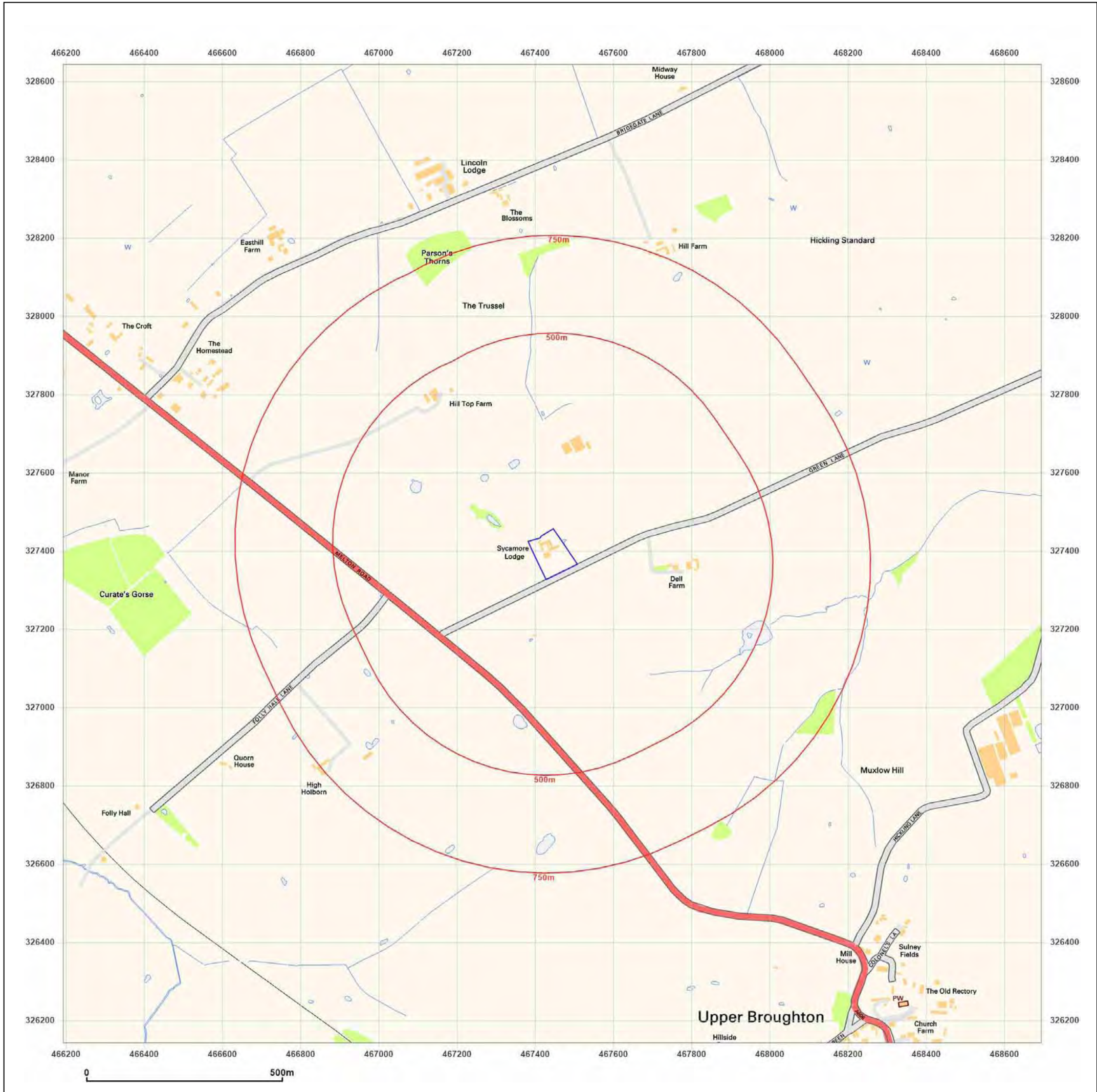
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Production date: 12 June 2022

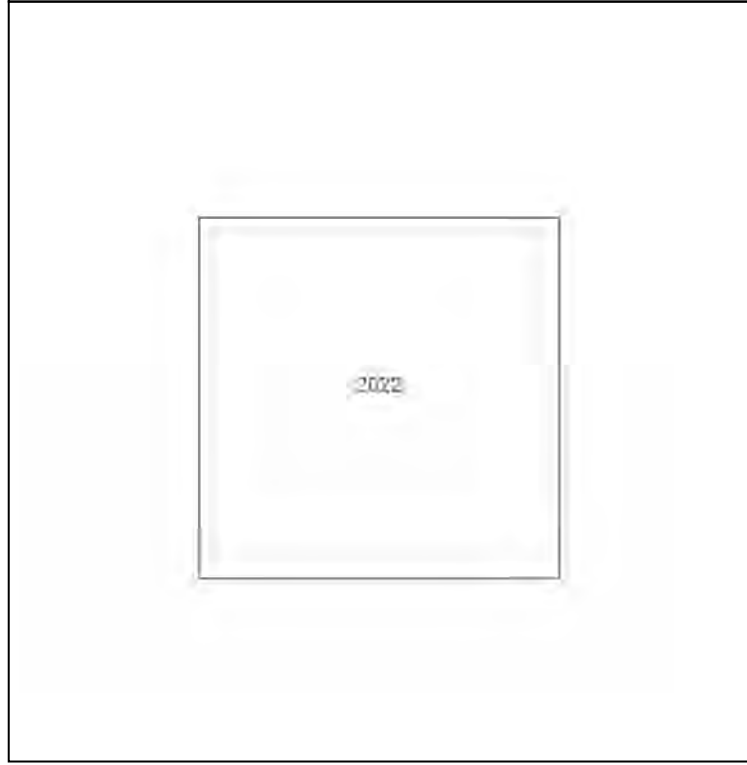
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Site Details:
 SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QF

Client Ref: 220103N
Report Ref: HMD-8815548
Grid Ref: 467444, 327393

Map Name: National Grid
Map date: 2022
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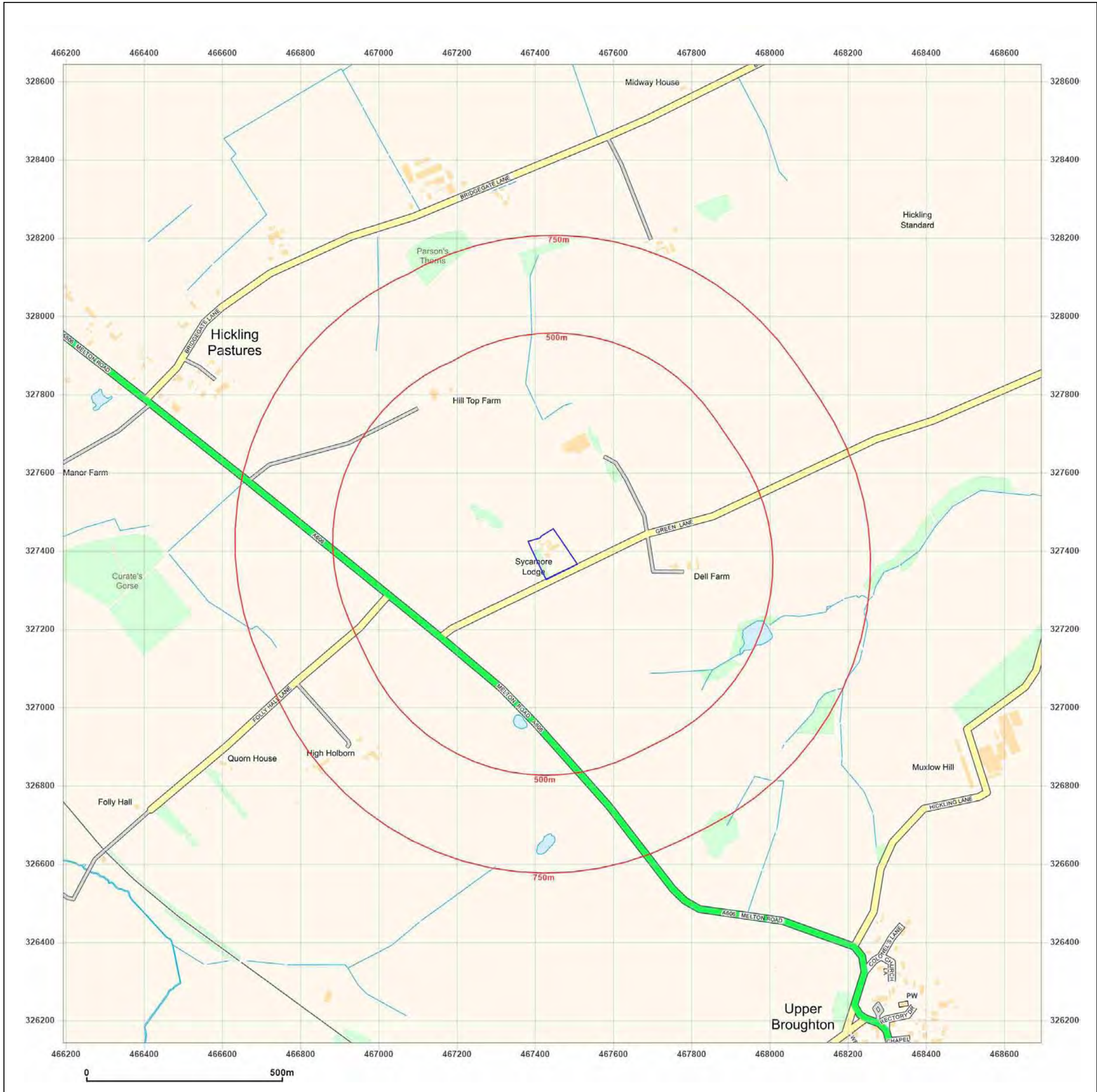


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APPENDIX II

Groundsure Enviro+Geo Insight Report

SYCAMORE LODGE, GREEN LANE, HICKLING PASTURES, LE14 3QF

Order Details

Date: 12/06/2022
Your ref: 220103N
Our Ref: HMD-8815549

Site Details

Location: 467435 327400
Area: 0.86 ha
Authority: [Rushcliffe Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.13

groundsure.com/insightuserguide

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	<u>Historical industrial land uses</u>	0	0	6	0	-
15	1.2	Historical tanks	0	0	0	0	-
15	1.3	Historical energy features	0	0	0	0	-
15	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
17	2.1	<u>Historical industrial land uses</u>	0	0	7	0	-
18	2.2	Historical tanks	0	0	0	0	-
18	2.3	Historical energy features	0	0	0	0	-
18	2.4	Historical petrol stations	0	0	0	0	-
19	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
20	3.1	Active or recent landfill	0	0	0	0	-
20	3.2	Historical landfill (BGS records)	0	0	0	0	-
21	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
21	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
21	3.5	Historical waste sites	0	0	0	0	-
21	3.6	Licensed waste sites	0	0	0	0	-
21	3.7	<u>Waste exemptions</u>	0	0	0	7	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
23	4.1	<u>Recent industrial land uses</u>	1	0	1	-	-
24	4.2	Current or recent petrol stations	0	0	0	0	-
24	4.3	Electricity cables	0	0	0	0	-
24	4.4	Gas pipelines	0	0	0	0	-
24	4.5	Sites determined as Contaminated Land	0	0	0	0	-



24	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
25	4.7	Regulated explosive sites	0	0	0	0	-
25	4.8	Hazardous substance storage/usage	0	0	0	0	-
25	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
25	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
25	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
26	4.12	Radioactive Substance Authorisations	0	0	0	0	-
26	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
26	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
26	4.15	Pollutant release to public sewer	0	0	0	0	-
26	4.16	List 1 Dangerous Substances	0	0	0	0	-
27	4.17	List 2 Dangerous Substances	0	0	0	0	-
27	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
27	4.19	Pollution inventory substances	0	0	0	0	-
27	4.20	Pollution inventory waste transfers	0	0	0	0	-
27	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
28	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
30	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
32	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
33	5.4	<u>Groundwater vulnerability- soluble rock risk</u>	Identified (within 0m)				
33	5.5	Groundwater vulnerability- local information	None (within 0m)				
34	5.6	<u>Groundwater abstractions</u>	0	0	0	2	4
36	5.7	<u>Surface water abstractions</u>	0	0	0	0	1
36	5.8	Potable abstractions	0	0	0	0	0
37	5.9	Source Protection Zones	0	0	0	0	-
37	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
38	6.1	Water Network (OS MasterMap)	0	0	0	-	-



38	6.2	Surface water features	0	0	0	-	-
39	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
39	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
40	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
41	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
41	7.2	Historical Flood Events	0	0	0	-	-
41	7.3	Flood Defences	0	0	0	-	-
42	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
42	7.5	Flood Storage Areas	0	0	0	-	-
43	7.6	Flood Zone 2	None (within 50m)				
43	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding					
44	8.1	Surface water flooding	Negligible (within 50m)				

Page	Section	Groundwater flooding					
45	9.1	<u>Groundwater flooding</u>	Low (within 50m)				

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
46	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
46	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
46	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
46	10.4	Special Protection Areas (SPA)	0	0	0	0	0
47	10.5	National Nature Reserves (NNR)	0	0	0	0	0
47	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
47	10.7	Designated Ancient Woodland	0	0	0	0	0
47	10.8	Biosphere Reserves	0	0	0	0	0
48	10.9	Forest Parks	0	0	0	0	0
48	10.10	Marine Conservation Zones	0	0	0	0	0
48	10.11	Green Belt	0	0	0	0	0
48	10.12	Proposed Ramsar sites	0	0	0	0	0



48	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
49	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
49	10.15	Nitrate Sensitive Areas	0	0	0	0	0
49	10.16	<u>Nitrate Vulnerable Zones</u>	1	0	1	0	2
50	10.17	<u>SSSI Impact Risk Zones</u>	3	-	-	-	-
51	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
52	11.1	World Heritage Sites	0	0	0	-	-
52	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
52	11.3	National Parks	0	0	0	-	-
52	11.4	Listed Buildings	0	0	0	-	-
53	11.5	Conservation Areas	0	0	0	-	-
53	11.6	Scheduled Ancient Monuments	0	0	0	-	-
53	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
54	12.1	<u>Agricultural Land Classification</u>	Grade 3 (within 250m)				
55	12.2	Open Access Land	0	0	0	-	-
55	12.3	Tree Felling Licences	0	0	0	-	-
55	12.4	Environmental Stewardship Schemes	0	0	0	-	-
55	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
56	13.1	<u>Priority Habitat Inventory</u>	0	0	13	-	-
57	13.2	Habitat Networks	0	0	0	-	-
57	13.3	Open Mosaic Habitat	0	0	0	-	-
57	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
59	14.1	<u>10k Availability</u>	Identified (within 500m)				
60	14.2	Artificial and made ground (10k)	0	0	0	0	-
61	14.3	<u>Superficial geology (10k)</u>	1	0	3	1	-



62	14.4	<u>Landslip (10k)</u>	0	0	0	3	-
63	14.5	<u>Bedrock geology (10k)</u>	2	0	1	7	-
64	14.6	<u>Bedrock faults and other linear features (10k)</u>	1	0	1	1	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
65	15.1	<u>50k Availability</u>	Identified (within 500m)				
66	15.2	Artificial and made ground (50k)	0	0	0	0	-
66	15.3	Artificial ground permeability (50k)	0	0	-	-	-
67	15.4	<u>Superficial geology (50k)</u>	1	0	3	1	-
68	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
68	15.6	<u>Landslip (50k)</u>	0	0	0	3	-
69	15.7	Landslip permeability (50k)	None (within 50m)				
70	15.8	<u>Bedrock geology (50k)</u>	2	0	1	5	-
71	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
71	15.10	<u>Bedrock faults and other linear features (50k)</u>	1	0	1	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
73	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
74	17.1	<u>Shrink swell clays</u>	Low (within 50m)				
75	17.2	<u>Running sands</u>	Very low (within 50m)				
76	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
77	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
78	17.5	<u>Landslides</u>	Very low (within 50m)				
79	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
80	18.1	Natural cavities	0	0	0	0	-
81	18.2	<u>BritPits</u>	0	0	1	0	-
81	18.3	<u>Surface ground workings</u>	2	0	16	-	-
82	18.4	Underground workings	0	0	0	0	0
82	18.5	Historical Mineral Planning Areas	0	0	0	0	-



82	18.6	Non-coal mining	0	0	0	0	0
83	18.7	Mining cavities	0	0	0	0	0
83	18.8	JPB mining areas	None (within 0m)				
83	18.9	Coal mining	None (within 0m)				
83	18.10	Brine areas	None (within 0m)				
83	18.11	Gypsum areas	None (within 0m)				
84	18.12	Tin mining	None (within 0m)				
84	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
85	19.1	Radon	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
86	20.1	<u>BGS Estimated Background Soil Chemistry</u>	3	2	-	-	-
86	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
86	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
87	21.1	Underground railways (London)	0	0	0	-	-
87	21.2	Underground railways (Non-London)	0	0	0	-	-
87	21.3	Railway tunnels	0	0	0	-	-
87	21.4	Historical railway and tunnel features	0	0	0	-	-
87	21.5	Royal Mail tunnels	0	0	0	-	-
88	21.6	Historical railways	0	0	0	-	-
88	21.7	Railways	0	0	0	-	-
88	21.8	Crossrail 1	0	0	0	0	-
88	21.9	Crossrail 2	0	0	0	0	-
88	21.10	HS2	0	0	0	0	-



Recent aerial photograph



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Capture Date: 29/03/2019

Site Area: 0.86ha



Recent site history - 2018 aerial photograph



Capture Date: 01/07/2018

Site Area: 0.86ha



Recent site history - 2013 aerial photograph



Capture Date: 15/07/2013

Site Area: 0.86ha



Recent site history - 2010 aerial photograph

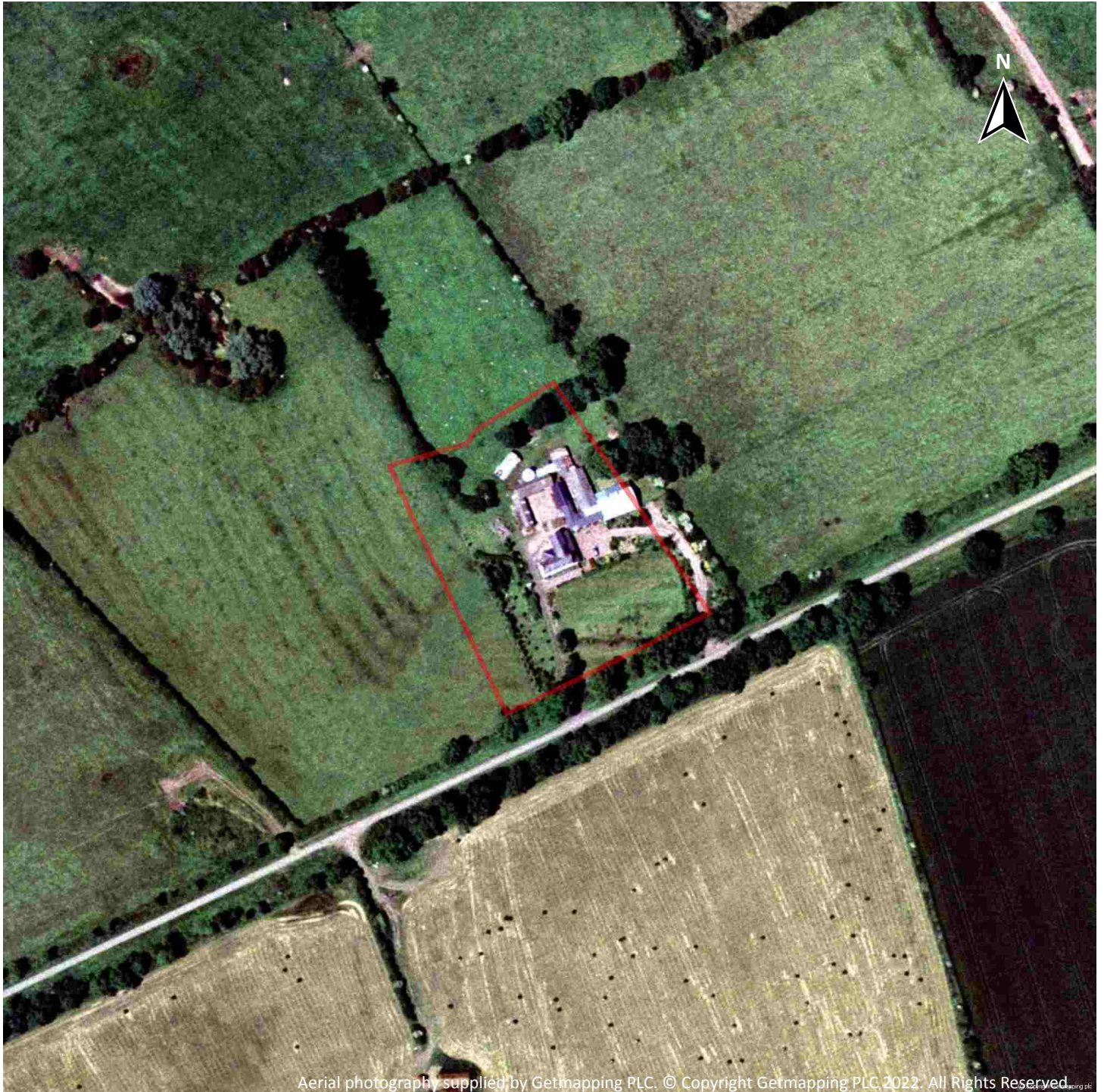


Capture Date: 23/05/2010

Site Area: 0.86ha



Recent site history - 1999 aerial photograph



Capture Date: 18/06/1999

Site Area: 0.86ha



OS MasterMap site plan



Site Area: 0.86ha

1 Past land use



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

1.1 Historical industrial land uses

Records within 500m

6

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 14**

ID	Location	Land use	Dates present	Group ID
A	67m NW	Old Gravel Pit	1883	1705086

ID	Location	Land use	Dates present	Group ID
A	67m NW	Old Gravel Pit	1901	1738658
A	68m NW	Unspecified Disused Pit	1974	1589562
A	74m NW	Old Gravel Pit	1900	1655121
A	74m NW	Old Gravel Pit	1916 - 1950	1738236
A	75m NW	Old Gravel Pit	1950	1673336

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

0

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'.

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

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

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**

2.1 Historical industrial land uses

Records within 500m

7

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	67m NW	Old Gravel Pit	1883	1705086
A	67m NW	Old Gravel Pit	1901	1738658
A	68m NW	Unspecified Disused Pit	1974	1589562

ID	Location	Land Use	Date	Group ID
A	74m NW	Old Gravel Pit	1900	1655121
A	74m NW	Old Gravel Pit	1950	1738236
A	74m NW	Old Gravel Pit	1916	1738236
A	75m NW	Old Gravel Pit	1950	1673336

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

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

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'.

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

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

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

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

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

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



— Site Outline

Search buffers in metres (m)

● Waste exemptions

3.1 Active or recent landfill

Records within 500m **0**

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

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

3.2 Historical landfill (BGS records)

Records within 500m **0**

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m 0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m 0

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

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

3.5 Historical waste sites

Records within 500m 0

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

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

3.6 Licensed waste sites

Records within 500m 0

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

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

3.7 Waste exemptions

Records within 500m 7

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 20**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	309m E	Dell Farm Green Lane MELTON MOWBRAY Leicestershire LE14 3QF	EPR/TE5289M J/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of waste from dredging of inland waters
A	309m E	Dell Farm Green Lane MELTON MOWBRAY Leicestershire LE14 3QF	EPR/TE5289M J/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
A	309m E	Dell Farm Green Lane MELTON MOWBRAY Leicestershire LE14 3QF	EPR/TE5289M J/A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open
A	309m E	Dell Farm Green Lane MELTON MOWBRAY Leicestershire LE14 3QF	EPR/TE5289M J/A001	Treating waste exemption	Agricultural Waste Only	Aerobic composting and associated prior treatment
A	309m E	Dell Farm Green Lane MELTON MOWBRAY Leicestershire LE14 3QF	EPR/TE5289M J/A001	Using waste exemption	Agricultural Waste Only	Spreading waste on agricultural land to confer benefit
A	309m E	Dell Farm Green Lane MELTON MOWBRAY Leicestershire LE14 3QF	EPR/TE5289M J/A001	Using waste exemption	Agricultural Waste Only	Use of mulch
A	309m E	Dell Farm Green Lane MELTON MOWBRAY Leicestershire LE14 3QF	EPR/TE5289M J/A001	Storing waste exemption	Non- Agricultural Waste Only	Storage of sludge

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



4 Current industrial land use



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

4.1 Recent industrial land uses

Records within 250m

2

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 23**

ID	Location	Company	Address	Activity	Category
1	On site	Silo	Nottinghamshire, LE14	Hoppers and Silos	Farming
2	136m NW	Workings (Dis)	Nottinghamshire, LE14	Unspecified Quarries Or Mines	Extractive Industries

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

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

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

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

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

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

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

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

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

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

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

0

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

This data is sourced from the Health and Safety Executive.

4.8 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 0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m 0

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

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

4.14 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

0

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

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

4.19 Pollution inventory substances

Records within 500m

0

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

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

4.20 Pollution inventory waste transfers

Records within 500m

0

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

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

4.21 Pollution inventory radioactive waste

Records within 500m

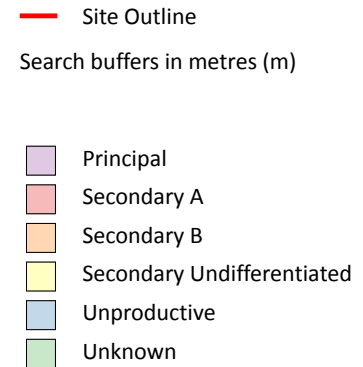
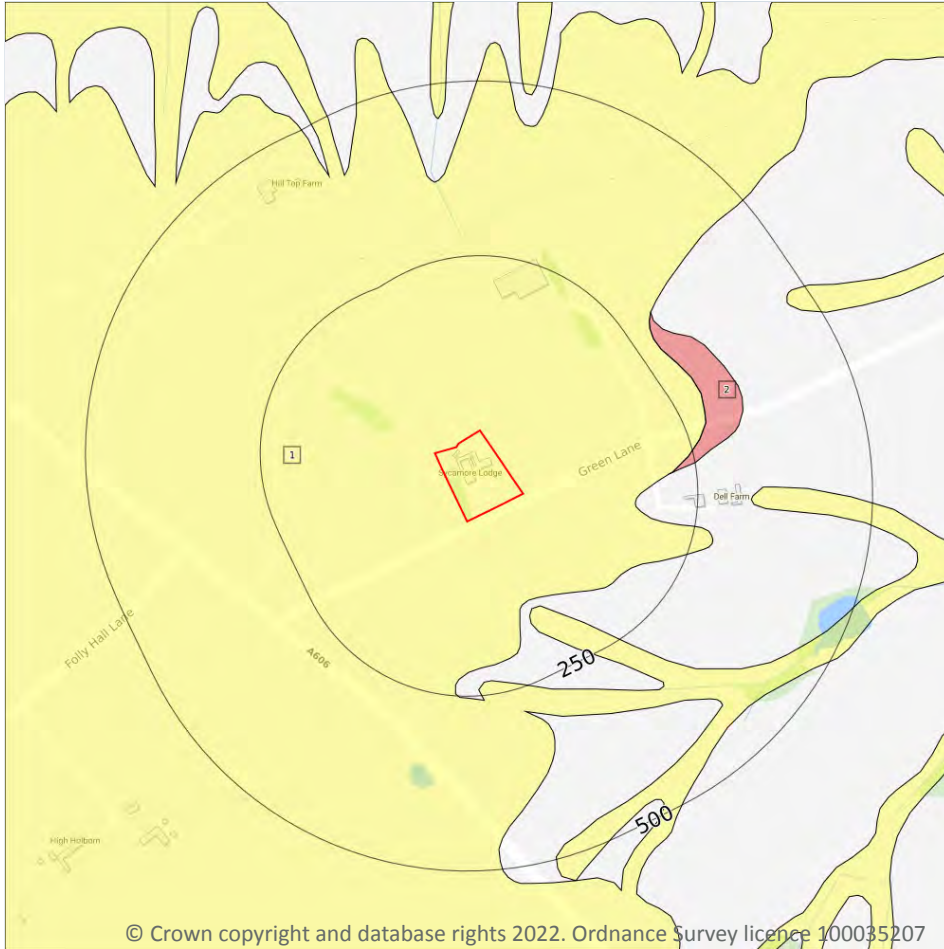
0

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

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



5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m

2

Aquifer status of groundwater held within superficial geology.

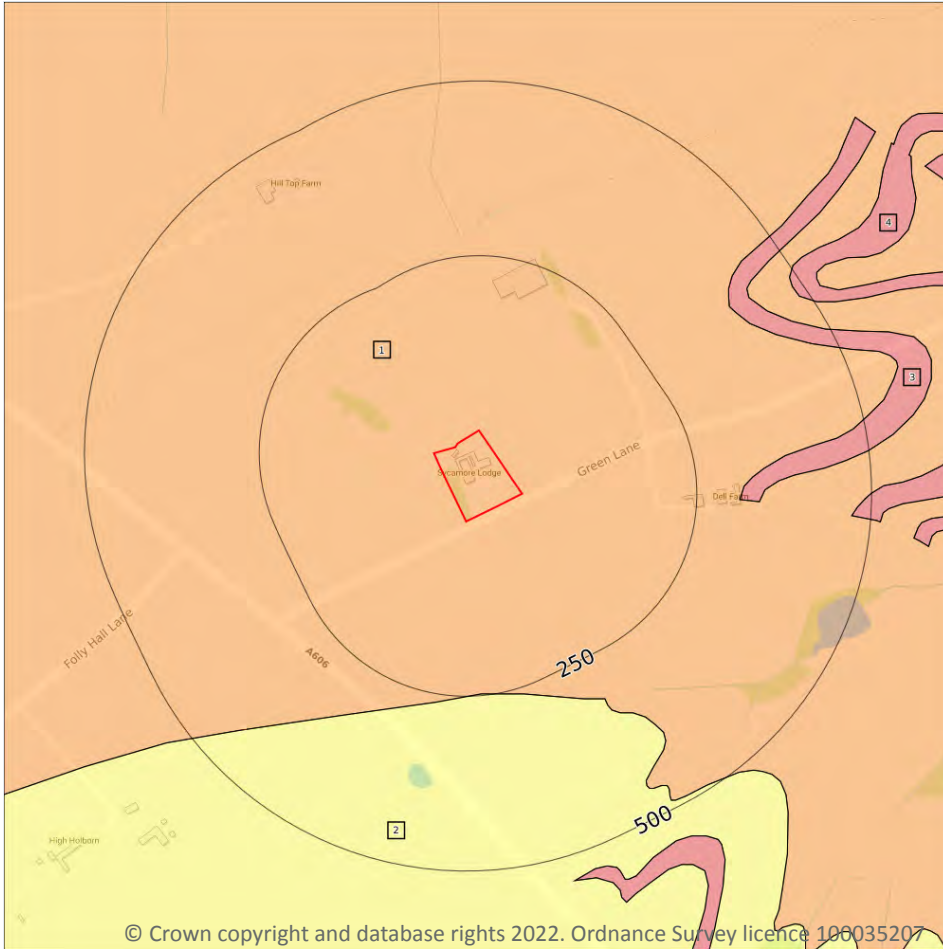
Features are displayed on the Hydrogeology map on **page 28**

ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	211m 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



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

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5.2 Bedrock aquifer

Records within 500m

4

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 30**

ID	Location	Designation	Description
1	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
2	248m S	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

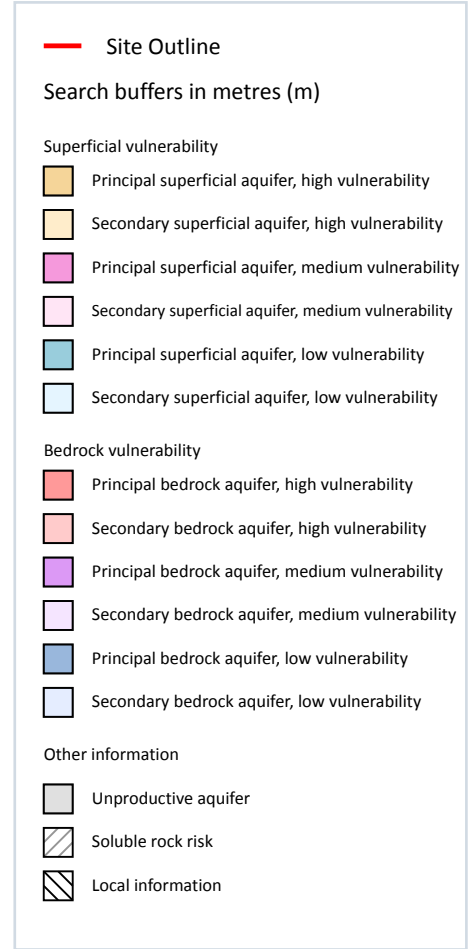
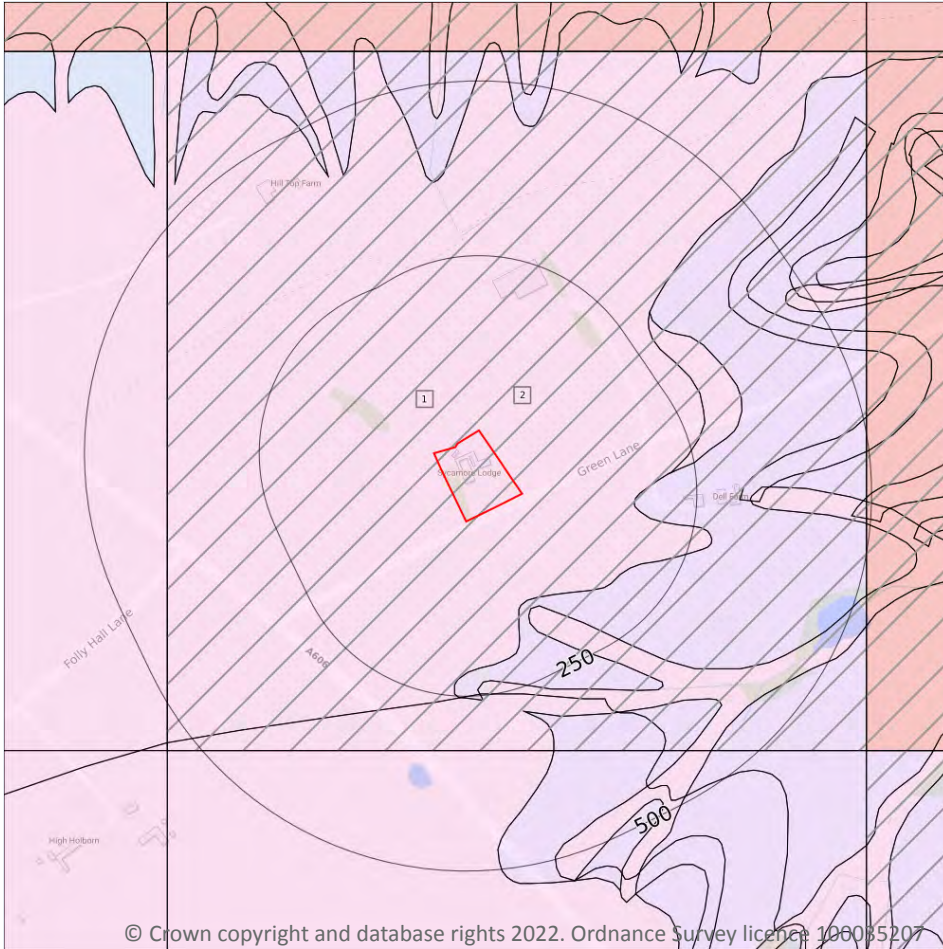


ID	Location	Designation	Description
3	312m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	473m E	Secondary 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.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

1

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

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

Features are displayed on the Groundwater vulnerability map on **page 32**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

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

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

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	0.0%

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

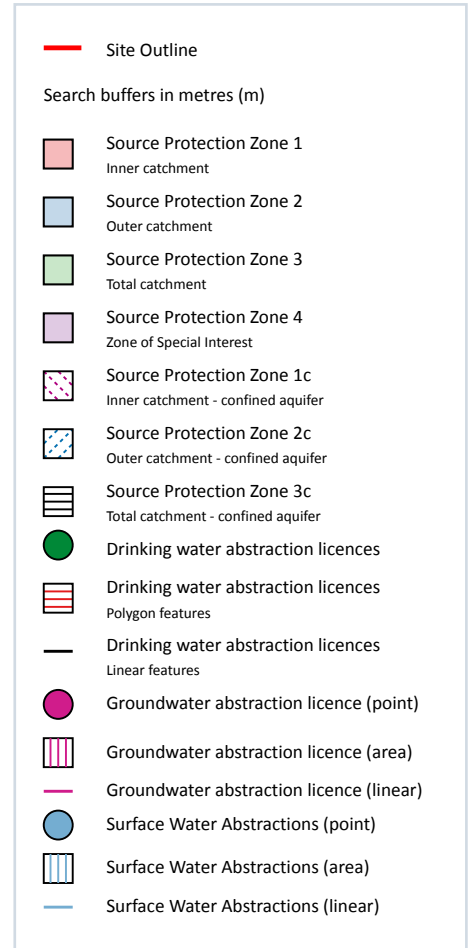
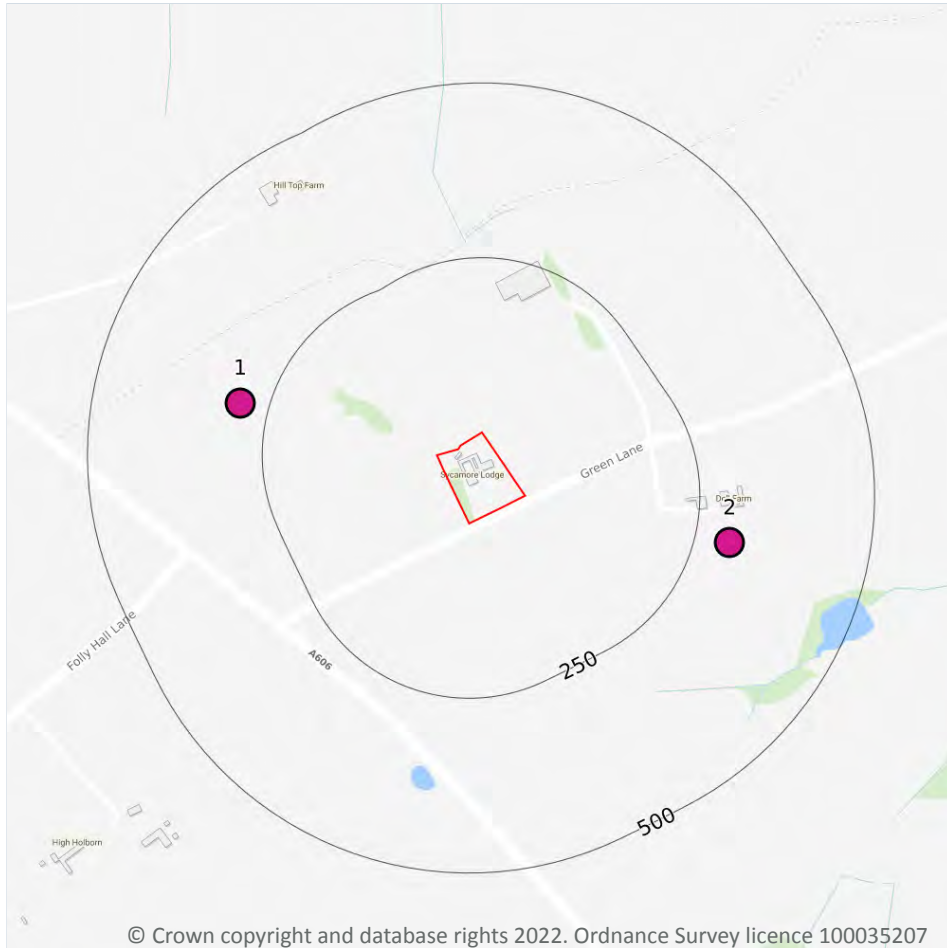
5.5 Groundwater vulnerability- local information

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

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

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

Abstractions and Source Protection Zones



5.6 Groundwater abstractions

Records within 2000m

6

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 34**

ID	Location	Details	
1	291m W	Status: Historical Licence No: 03/28/66/0016 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: SYCAMORE LODGE, HICKLING - WELL Data Type: Point Name: BLATHERWICK Easting: 467100 Northing: 327500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1965 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -
2	300m E	Status: Historical Licence No: 03/28/66/0010 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: DELL FARM, HICKLING - WELL Data Type: Point Name: FOULKES Easting: 467800 Northing: 327300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 29/10/1965 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -
-	956m NE	Status: Historical Licence No: 03/28/66/0017 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: HILL FARM, HICKLING - WELL (1) Data Type: Point Name: B S & W A ROBINSON Easting: 467900 Northing: 328300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1965 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -
-	1066m NE	Status: Historical Licence No: 03/28/66/0017 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: HILL FARM, HICKLING - WELL(2) Data Type: Point Name: B S & W A ROBINSON Easting: 468100 Northing: 328300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1965 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -
-	1428m S	Status: Historical Licence No: 03/28/62/0084 Details: Horticultural Watering Direct Source: Groundwater Midlands Region Point: SULNEY NURSERY, UPPER BROUGHTON, LEICS - BOREHOLE Data Type: Point Name: CARRIER LANDSCAPES LIMITED Easting: 466900 Northing: 326000	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 22/09/2003 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 22/09/2003 Version End Date: -

ID	Location	Details	
-	1511m N	Status: Historical Licence No: 03/28/66/0014 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: BARLANDS FIELDS - WELL Data Type: Point Name: WOOLLEY Easting: 467900 Northing: 328900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1965 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	1
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Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 34**

ID	Location	Details	
-	1967m W	Status: Active Licence No: 03/28/62/0060 Details: Spray Irrigation - Storage Direct Source: Surface Water Midlands Region Point: BROUGHTON GRANGE - FAIRHAM BROOK Data Type: Point Name: BROOK Easting: 465450 Northing: 327800	Annual Volume (m ³): 9,092 Max Daily Volume (m ³): 327 Original Application No: - Original Start Date: 19/10/1979 Expiry Date: - Issue No: 101 Version Start Date: 03/12/2018 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0
-----------------------------	----------

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

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

5.9 Source Protection Zones

Records within 500m

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)

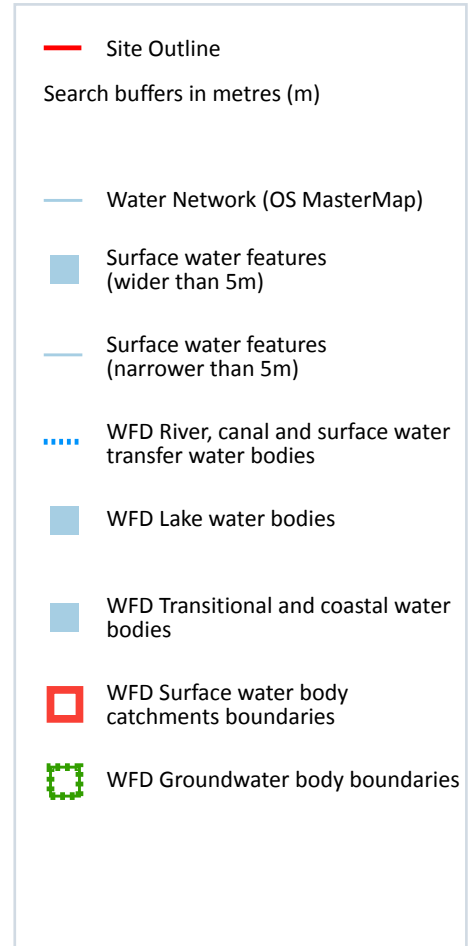
Records within 500m

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

0

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

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

0

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.

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 38**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	On site	River	Dalby Brook Catchment (trib of Smite)	GB104028047230	Nottinghamshire South B	Trent Lower and Erewash

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 38**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1472m E	River	Dalby Brook Catchment (trib of Smite)	GB104028047230	Moderate	Fail	Moderate	2019

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 38**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	On site	Lower Trent Erewash - Secondary Combined	<u>GB40402G990300</u>	Good	Good	Good	2019

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 the sea

Records within 50m

0

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

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

Negligible

Highest risk within 50m

Negligible

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.

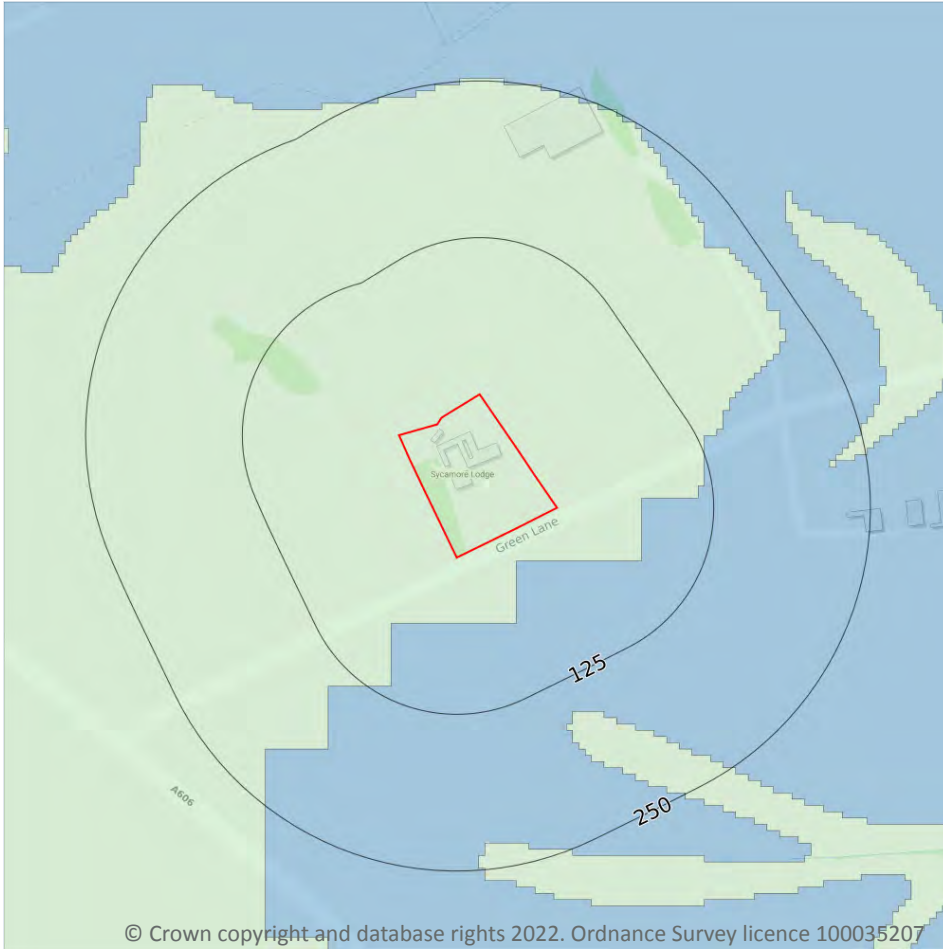
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site. The table below shows the maximum flood depths for a range of return periods for the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

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

This data is sourced from Ambiental Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Low

Highest risk within 50m

Low

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 45**

This data is sourced from Ambient Risk Analytics.

10 Environmental designations

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m

0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m

0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m

0

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

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



10.5 National Nature Reserves (NNR)

Records within 2000m

0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m

0

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

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

10.7 Designated Ancient Woodland

Records within 2000m

0

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

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

10.8 Biosphere Reserves

Records within 2000m

0

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

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



10.9 Forest Parks

Records within 2000m

0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m

0

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

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

10.11 Green Belt

Records within 2000m

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

4

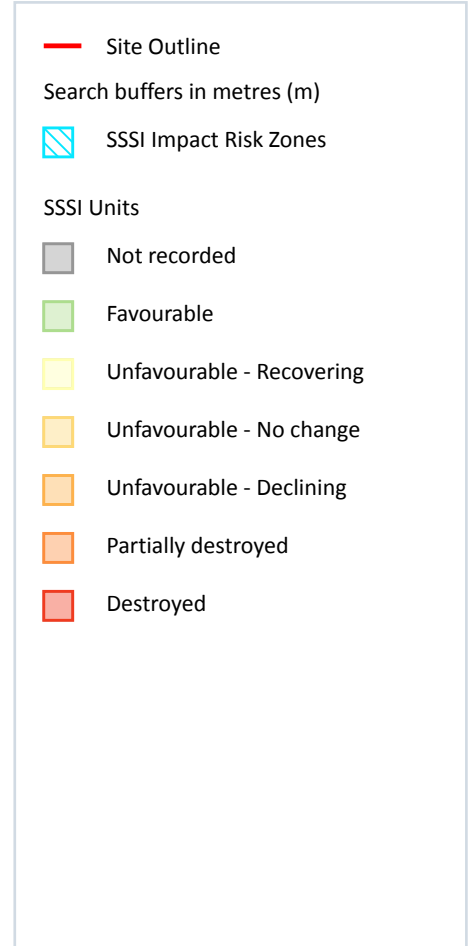
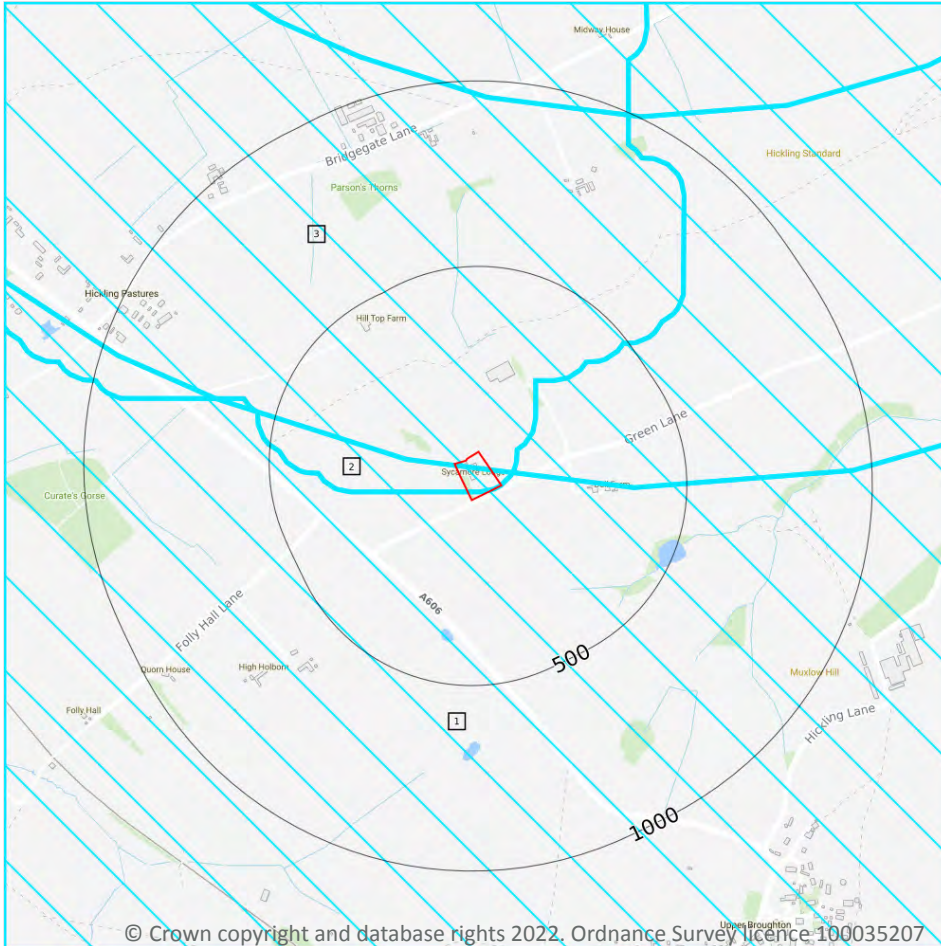
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	SMITE R NVZ	Surface Water	317	Existing
103m W	Fairham Brook Catchment (trib of Trent) NVZ	Surface Water	322	Existing
1346m SE	SMITE R NVZ	Surface Water	317	Existing
1376m SW	Fairham Brook Catchment (trib of Trent) NVZ	Surface Water	322	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

3

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 50**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Livestock & poultry units with floorspace > 500m ² , slurry lagoons & digestate stores > 750m ² , manure stores > 3500t.

ID	Location	Type of developments requiring consultation
2	On site	Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.
3	On site	Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t. Discharges - Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

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

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

11.3 National Parks

Records within 250m

0

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

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

11.4 Listed Buildings

Records within 250m

0

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



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

11.5 Conservation Areas

Records within 250m

0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m

0

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

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

11.7 Registered Parks and Gardens

Records within 250m

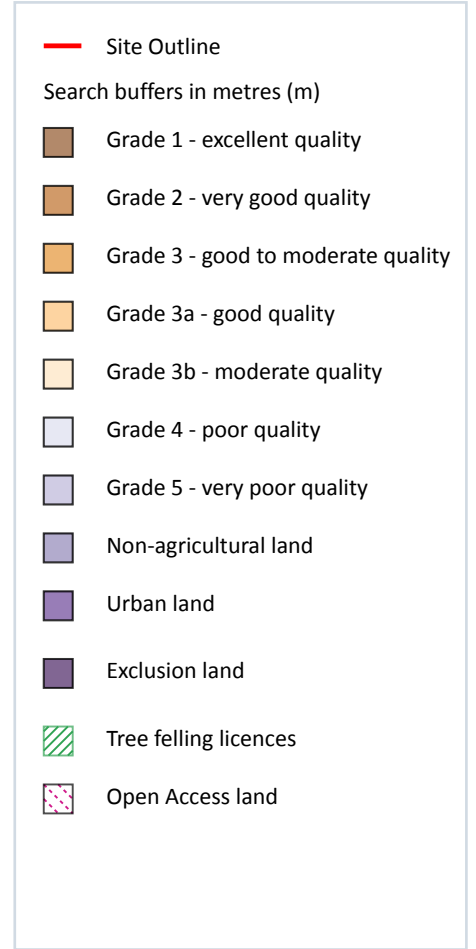
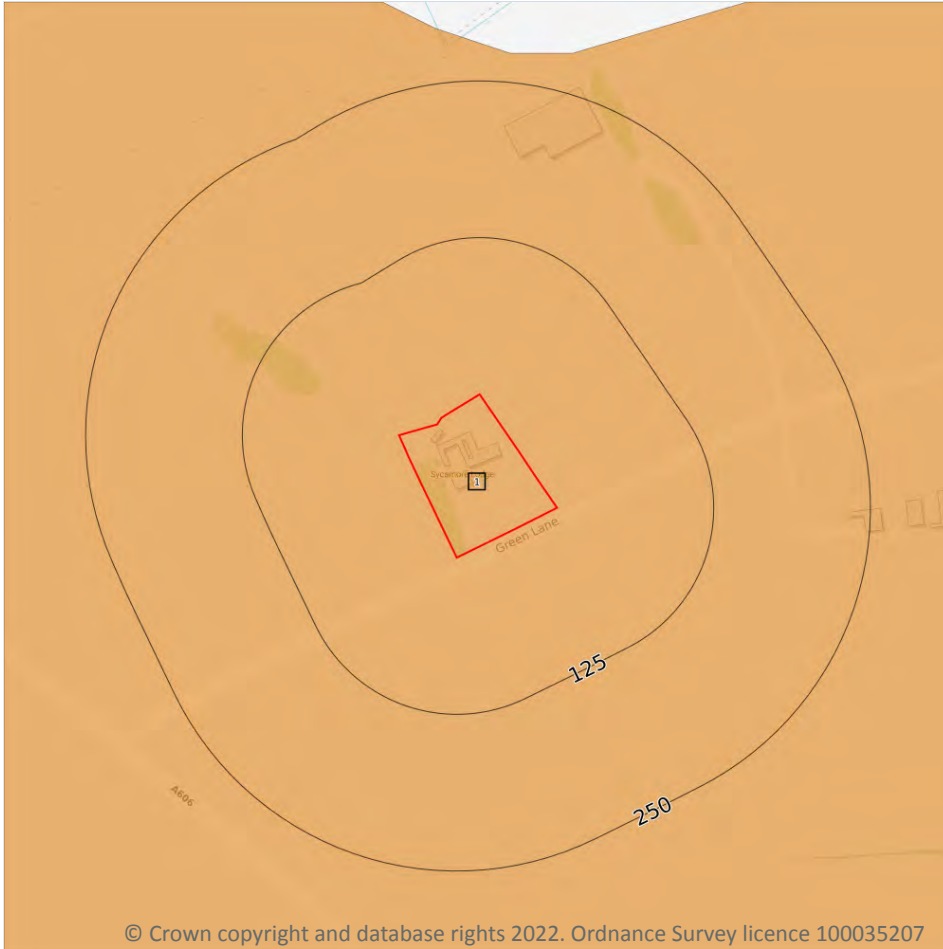
0

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

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



12 Agricultural designations



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12.1 Agricultural Land Classification

Records within 250m

1

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 54**

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.

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m

0

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

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

12.3 Tree Felling Licences

Records within 250m

0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

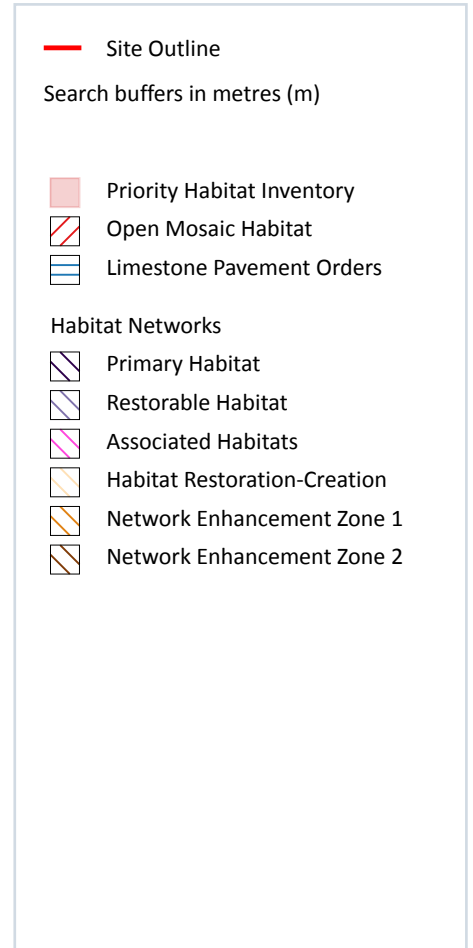
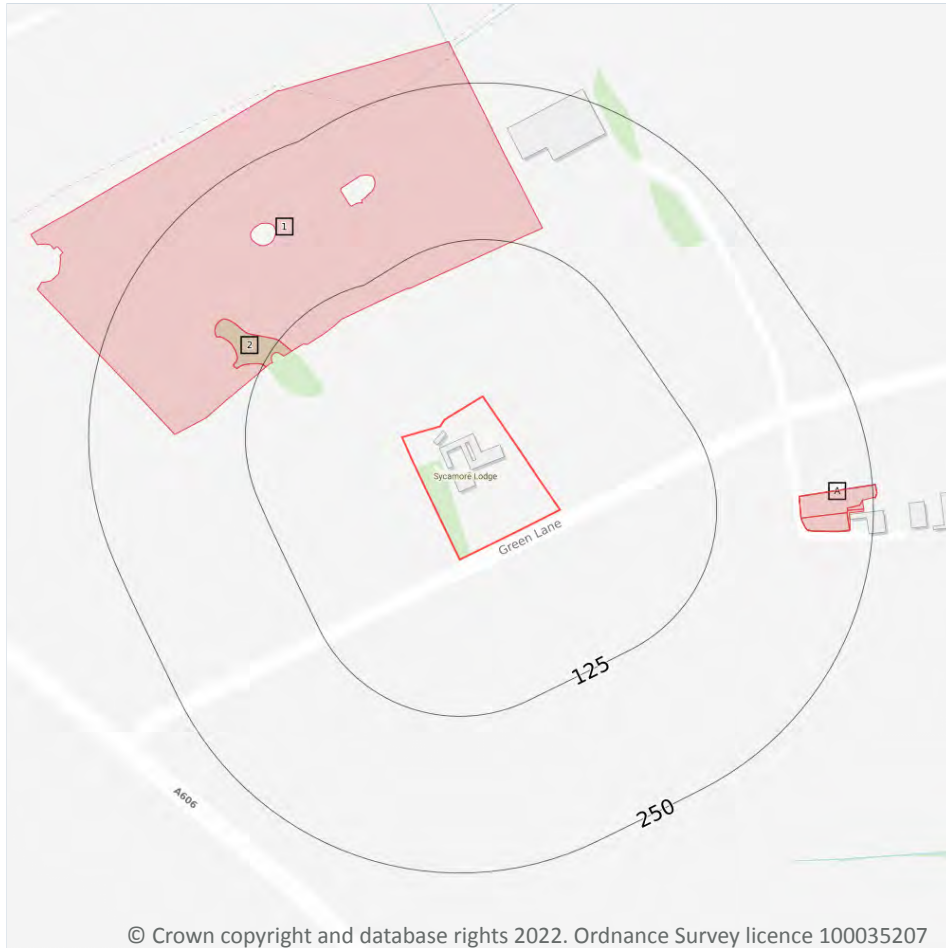
0

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

13

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 56**

ID	Location	Main Habitat	Other habitats
1	103m NW	Good quality semi-improved grassland	Main habitat: QQSIG (INV > 50%)
2	112m NW	Good quality semi-improved grassland	Main habitat: QQSIG (INV > 50%)
A	191m E	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset
A	191m E	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset

ID	Location	Main Habitat	Other habitats
A	192m E	Traditional orchard	Main habitat: TORCH (INV > 50%)
A	192m E	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset
A	195m E	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset
A	196m E	Traditional orchard	Main habitat: TORCH (INV > 50%)
A	197m E	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset
A	202m E	Traditional orchard	Main habitat: TORCH (INV > 50%)
A	226m E	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset
A	229m E	Traditional orchard	Main habitat: TORCH (INV > 50%)
A	229m E	Traditional orchard	Main habitat: TORCH (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave

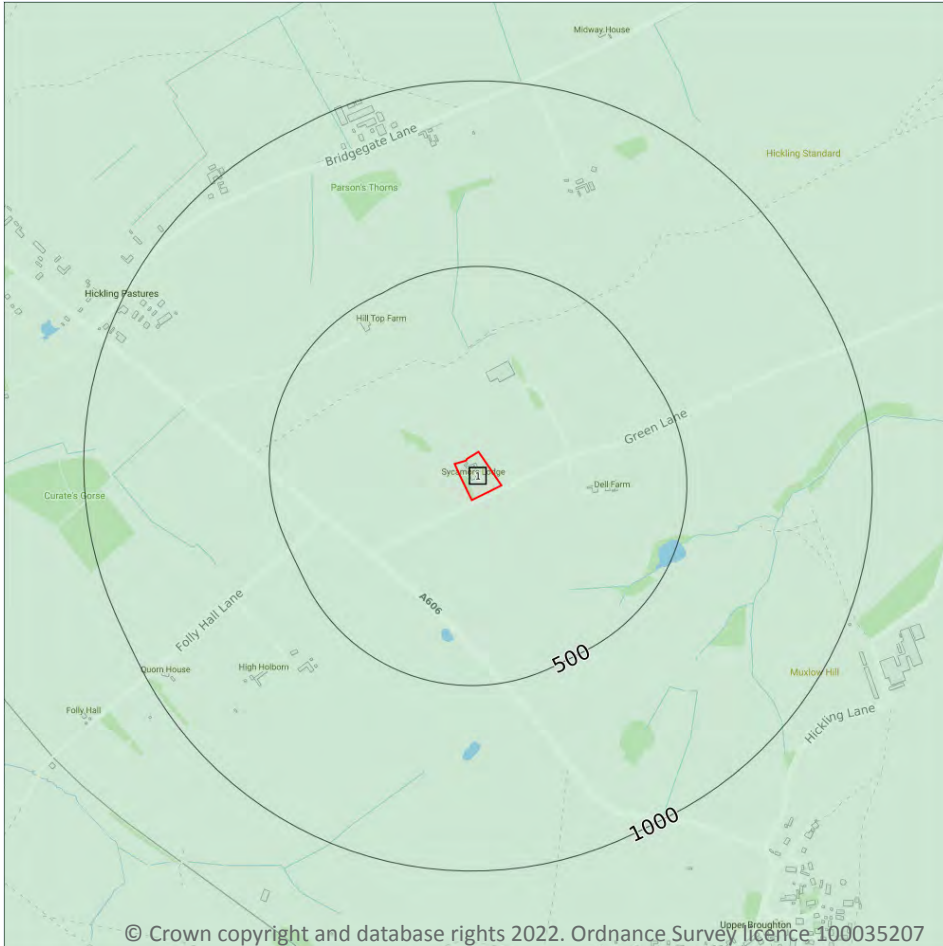


them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 59**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SK62NE

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

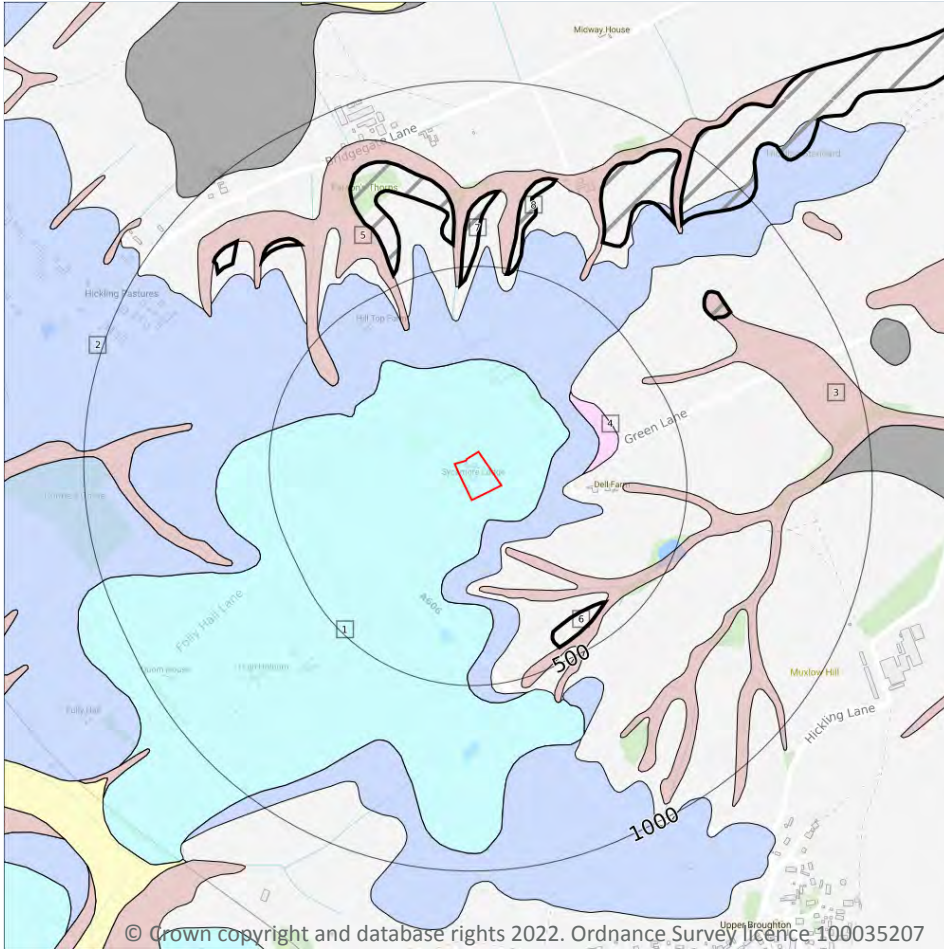
0

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.

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

5

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 61**

ID	Location	LEX Code	Description	Rock description
1	On site	ODT-DMTN	Oadby Member - Diamicton	Diamicton
2	69m SE	ODTL-DMTN	Oadby Member (lias-rich) - Diamicton	Diamicton
3	157m SE	HEAD-DMTN	Head - Diamicton	Diamicton

ID	Location	LEX Code	Description	Rock description
4	222m E	GFDUA-XSV	Glaciofluvial Deposits, Anglian - Sand And Gravel	Sand And Gravel
5	380m NW	HEAD-DMTN	Head - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

3

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.

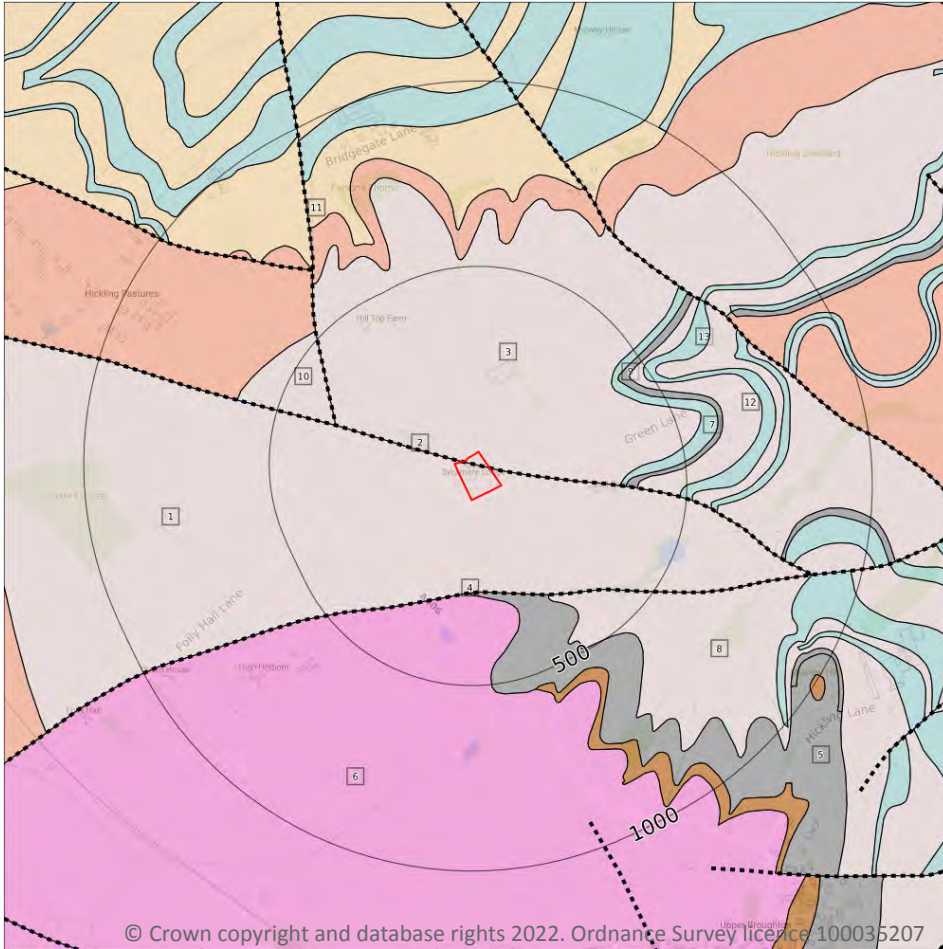
Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 61**

ID	Location	LEX Code	Description	Rock description
6	402m SE	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
7	453m N	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
8	485m N	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry

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

10

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 63**

ID	Location	LEX Code	Description	Rock age
1	On site	FSTL-MDLM	Foston Member - Mudstone And Limestone, Interbedded	Sinemurian Age
3	On site	FSTL-MDLM	Foston Member - Mudstone And Limestone, Interbedded	Sinemurian Age
5	249m S	CHAM-MDFEST	Charmouth Mudstone Formation - Mudstone And Ironstone	Pliensbachian Age - Sinemurian Age

ID	Location	LEX Code	Description	Rock age
6	251m S	CHAM-MDST	Charmouth Mudstone Formation - Mudstone	Pliensbachian Age - Sinemurian Age
7	319m E	LTGL-LMST	Littlegate Limestones Bed - Limestone	Sinemurian Age
8	320m SE	FSTL-MDLM	Foston Member - Mudstone And Limestone, Interbedded	Sinemurian Age
9	335m E	FSTL-MDPHM	Foston Member - Mudstone With Phosphate-mudstone	Sinemurian Age
10	338m W	FSTL-MDLM	Foston Member - Mudstone And Limestone, Interbedded	Sinemurian Age
12	366m E	FSTL-MDLM	Foston Member - Mudstone And Limestone, Interbedded	Sinemurian Age
13	482m E	FNTL-LMST	Fenton Limestone Bed - Limestone	Sinemurian Age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

3

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.

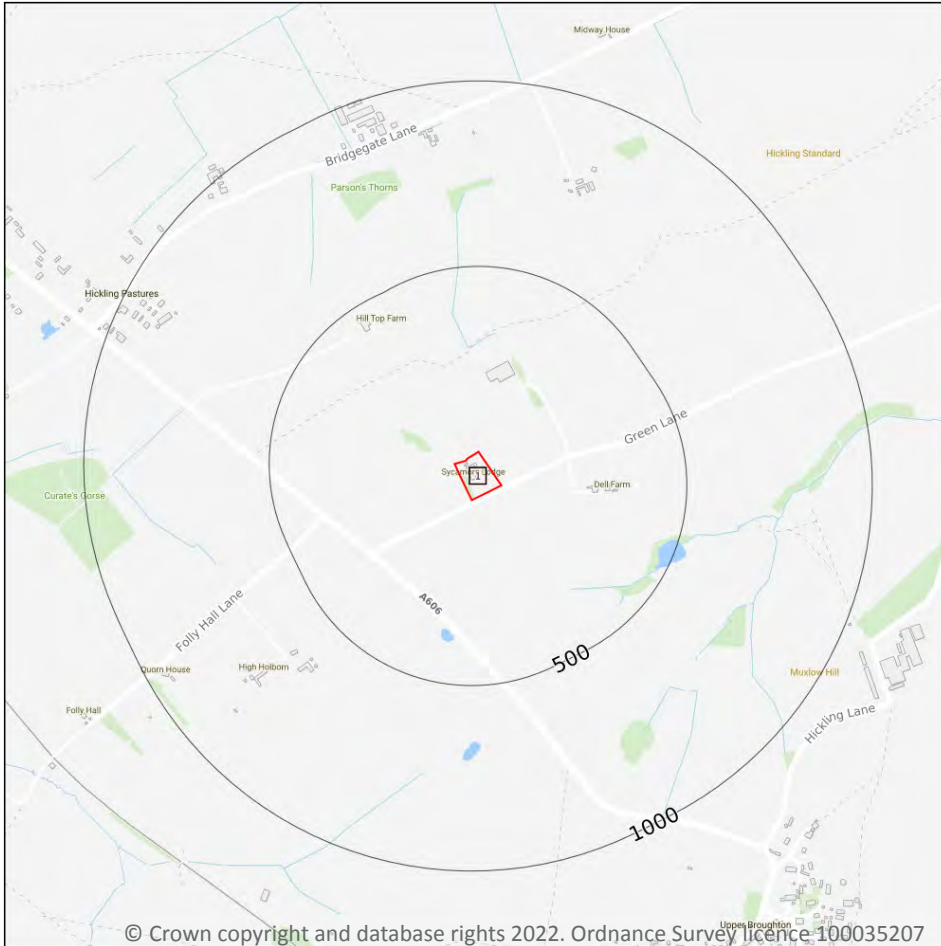
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 63**

ID	Location	Category	Description
2	On site	FAULT	Normal fault, inferred
4	249m S	FAULT	Normal fault, inferred
11	338m W	FAULT	Normal fault, inferred

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 65**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW142_melton_mowbray_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

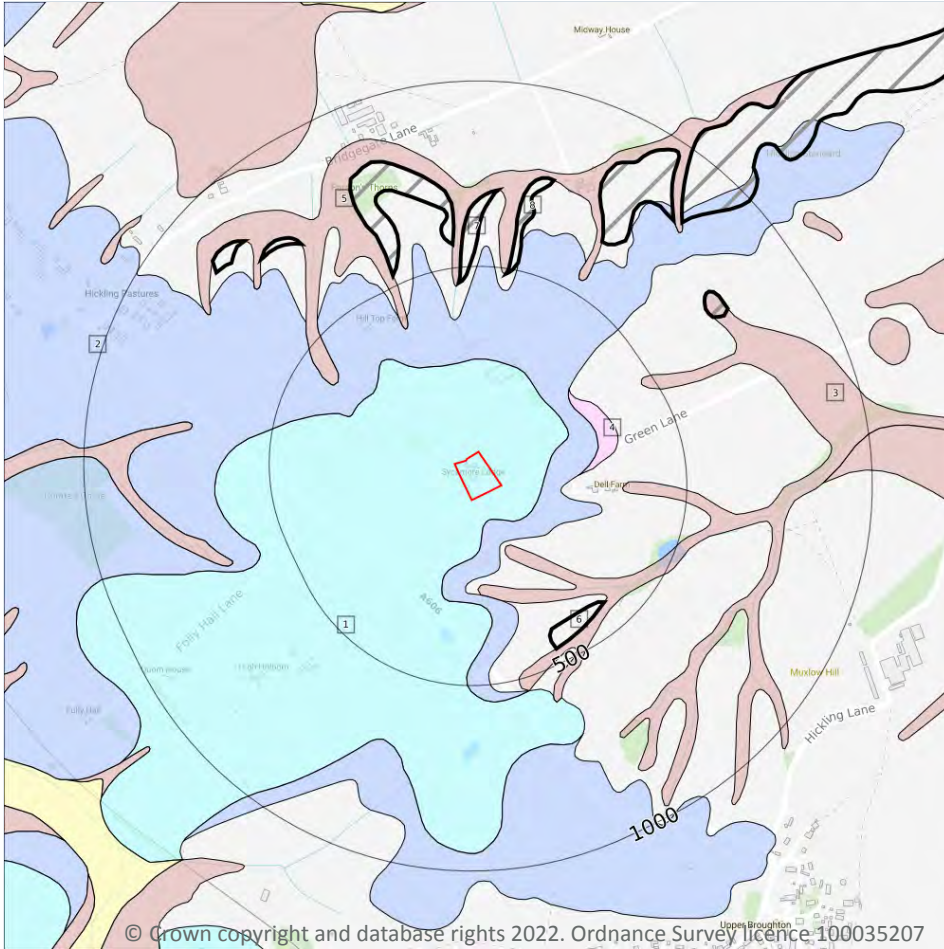
0


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

5

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 67**

ID	Location	LEX Code	Description	Rock description
1	On site	ODT-DMTN	OADBY MEMBER	DIAMICTON
2	69m SE	ODTL-DMTN	OADBY MEMBER (LIAS-RICH)	DIAMICTON
3	153m SE	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
4	211m E	GFDMP-XSV	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL
5	384m NW	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m

1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Moderate	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m

3

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.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 67**

ID	Location	LEX Code	Description	Rock description
6	400m SE	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY
7	458m N	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY
8	486m N	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY

This data is sourced from the British Geological Survey.



15.7 Landslip permeability (50k)

Records within 50m

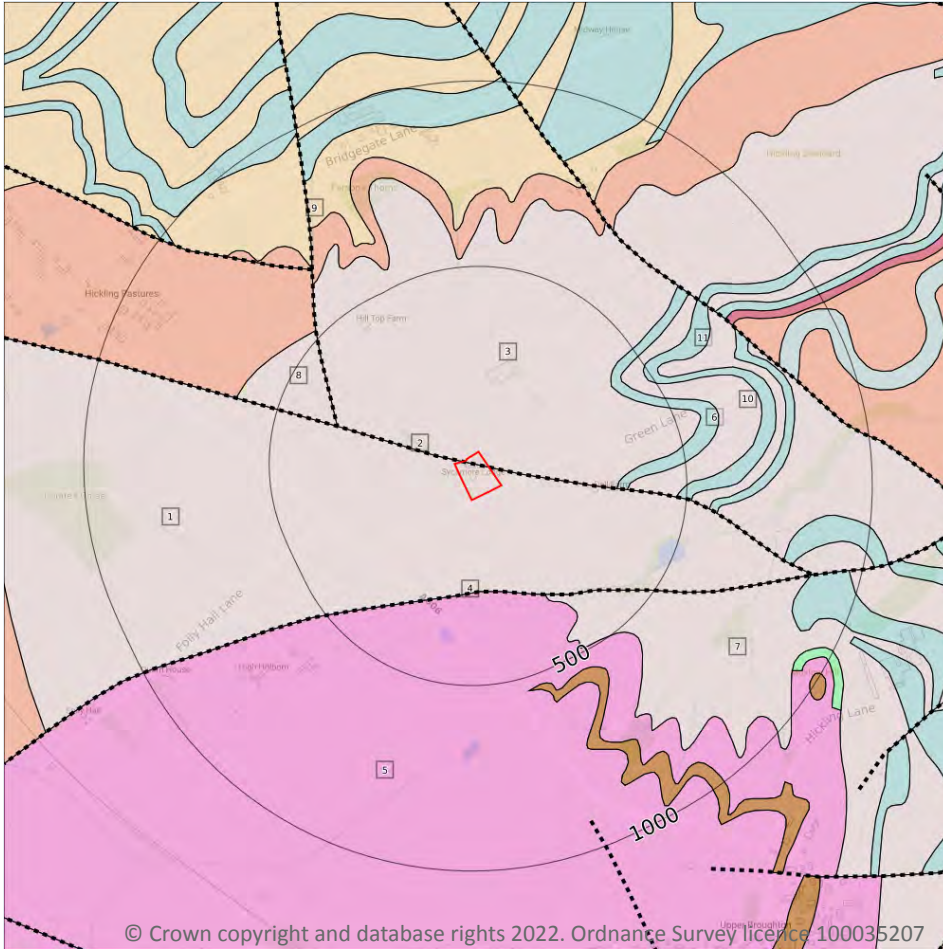
0

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

8

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 70**

ID	Location	LEX Code	Description	Rock age
1	On site	FSTL-MDLM	FOSTON MEMBER - MUDSTONE AND LIMESTONE, INTERBEDDED	SINEMURIAN
3	On site	FSTL-MDLM	FOSTON MEMBER - MUDSTONE AND LIMESTONE, INTERBEDDED	SINEMURIAN

ID	Location	LEX Code	Description	Rock age
5	248m S	CHAM-MDST	CHARMOUTH MUDSTONE FORMATION - MUDSTONE	SINEMURIAN
6	312m E	LTGL-LMST	LITTLEGATE LIMESTONES BED - LIMESTONE	SINEMURIAN
7	315m SE	FSTL-MDLM	FOSTON MEMBER - MUDSTONE AND LIMESTONE, INTERBEDDED	SINEMURIAN
8	332m W	FSTL-MDLM	FOSTON MEMBER - MUDSTONE AND LIMESTONE, INTERBEDDED	SINEMURIAN
10	340m E	FSTL-MDLM	FOSTON MEMBER - MUDSTONE AND LIMESTONE, INTERBEDDED	SINEMURIAN
11	473m E	FNTL-LMST	FENTON LIMESTONE BED - LIMESTONE	SINEMURIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

1

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

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

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

3

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.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 70**

ID	Location	Category	Description
2	On site	FAULT	Fault, inferred, displacement unknown
4	248m S	FAULT	Fault, inferred
9	332m W	FAULT	Fault, inferred, displacement unknown



This data is sourced from the British Geological Survey.



16 Boreholes

16.1 BGS Boreholes

Records within 250m

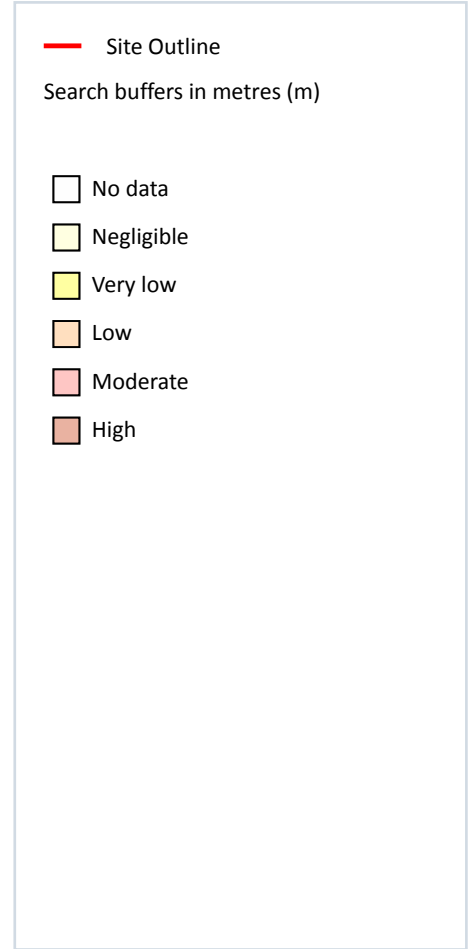
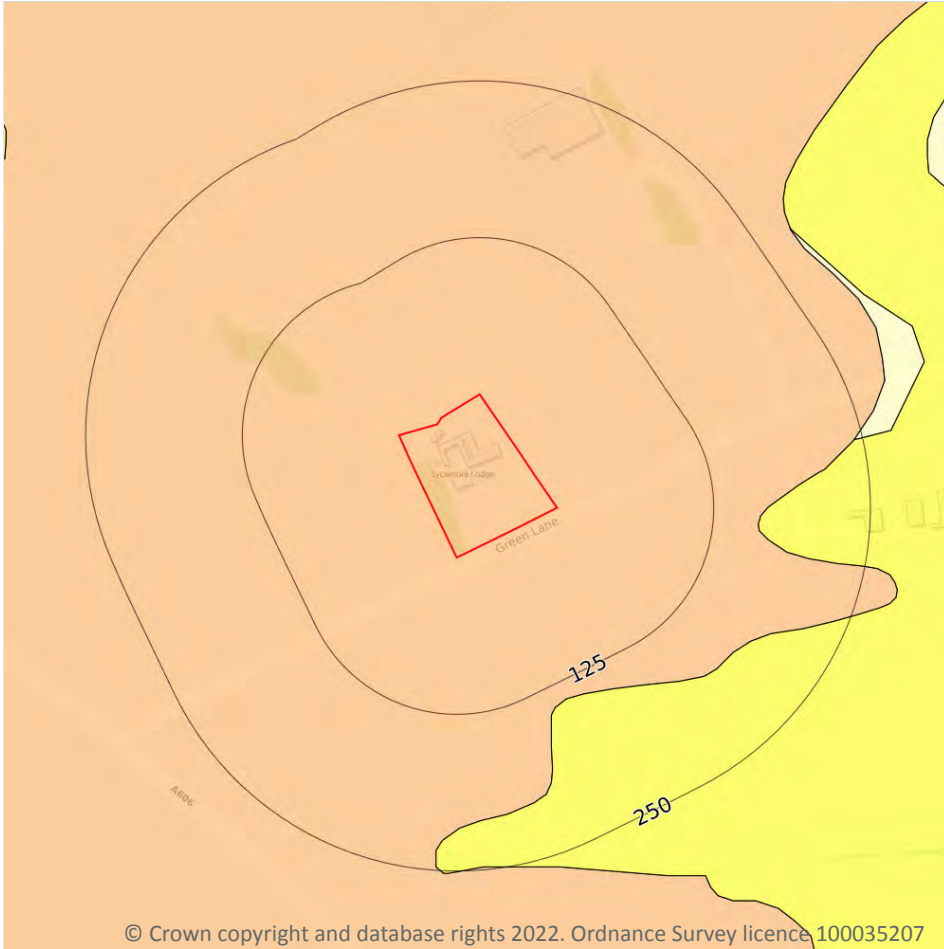
0

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.

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



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17.1 Shrink swell clays

Records within 50m

1

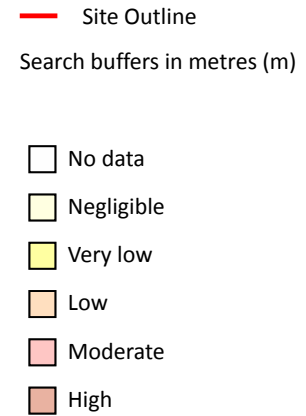
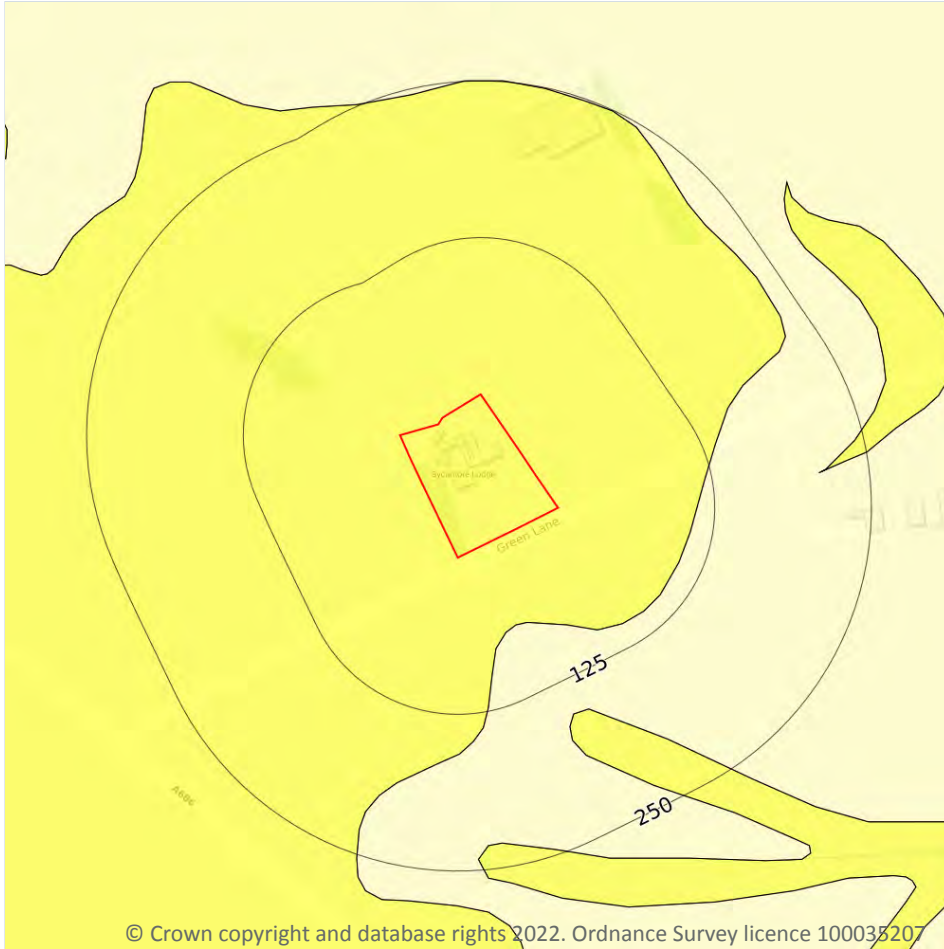
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 74**

Location	Hazard rating	Details
On site	Low	Ground conditions predominantly medium plasticity.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



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17.2 Running sands

Records within 50m

1

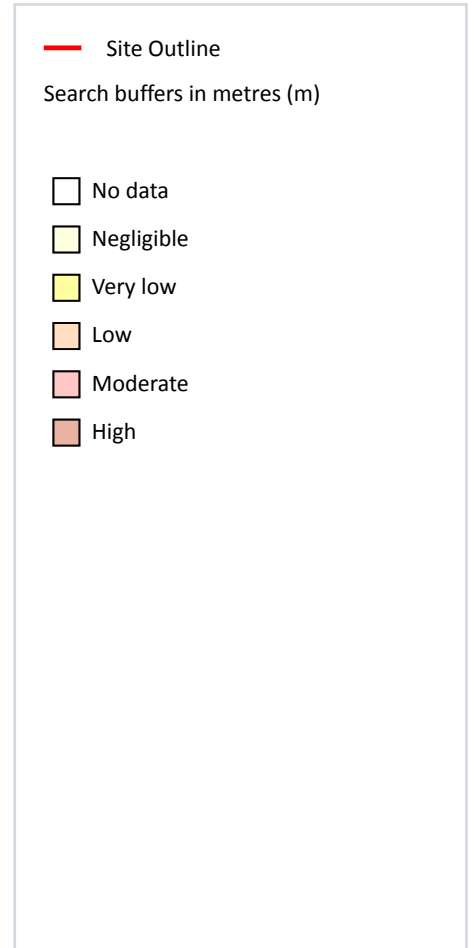
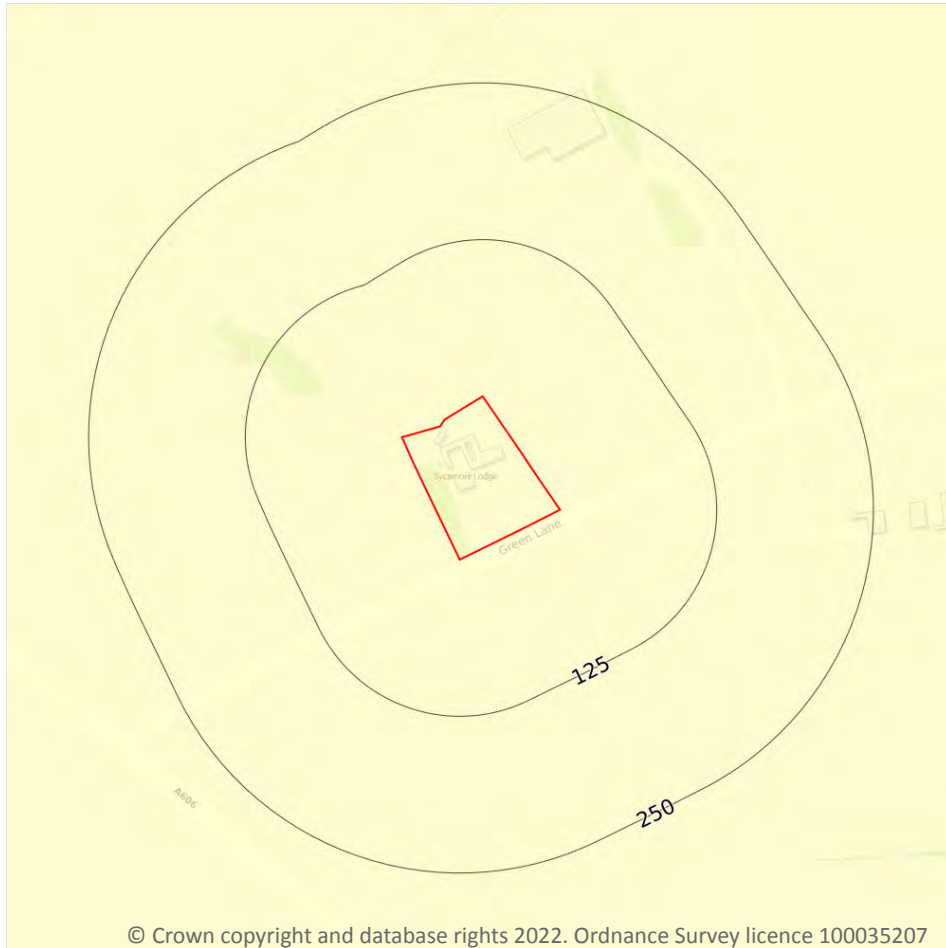
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 75**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

1

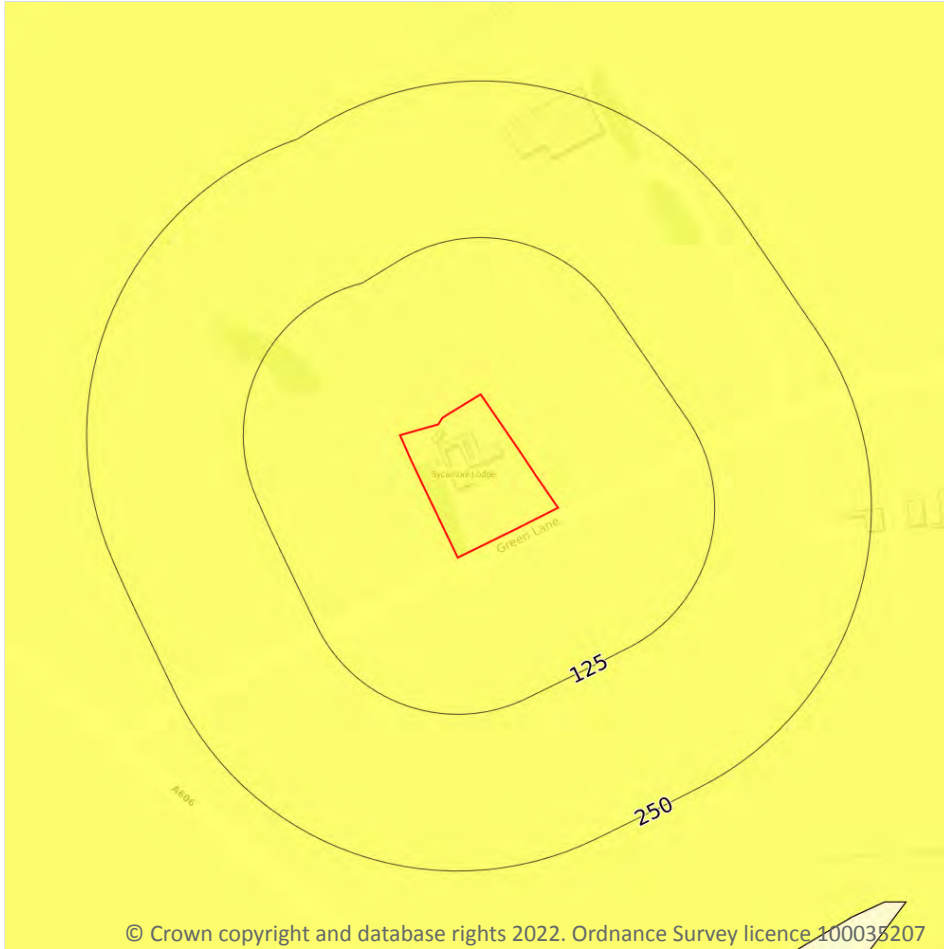
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 76**

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



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17.4 Collapsible deposits

Records within 50m

1

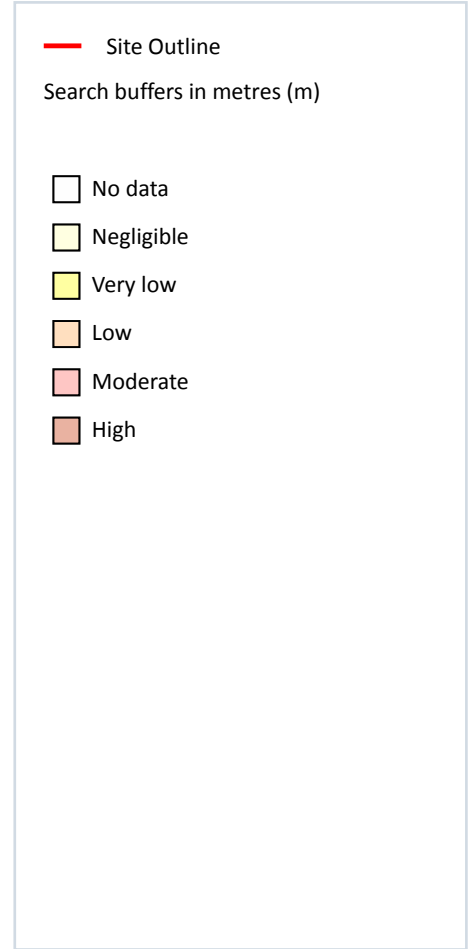
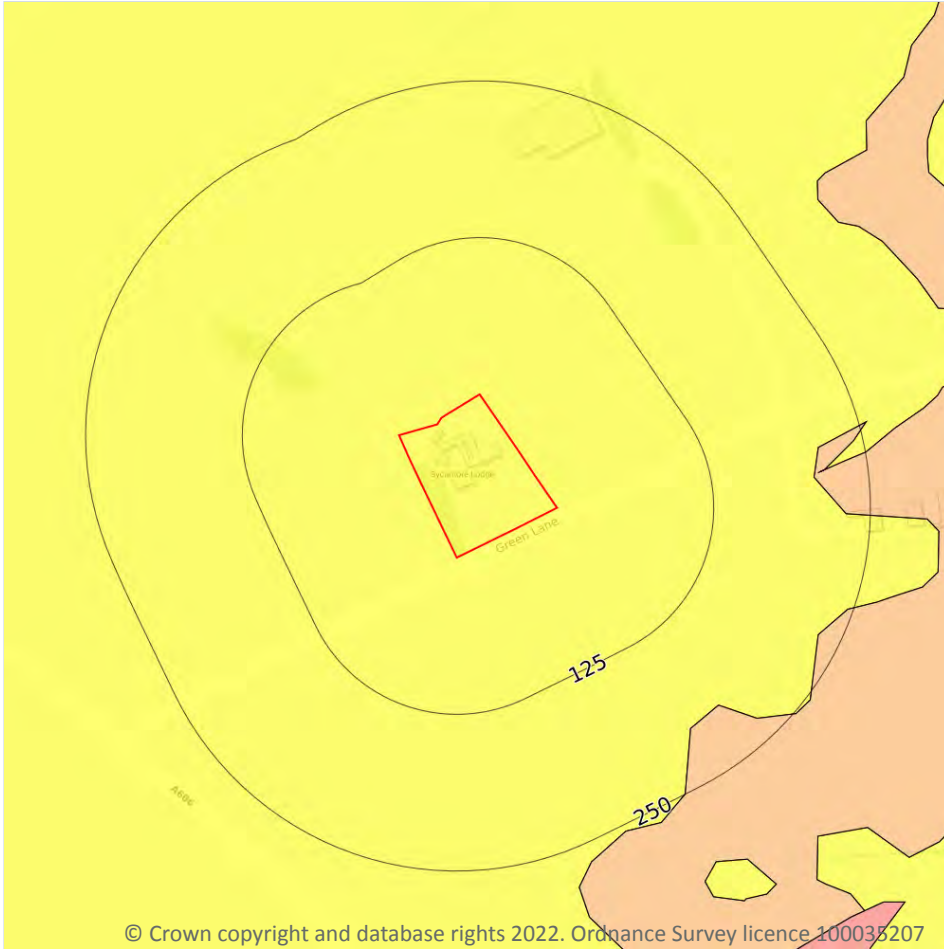
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 77**

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

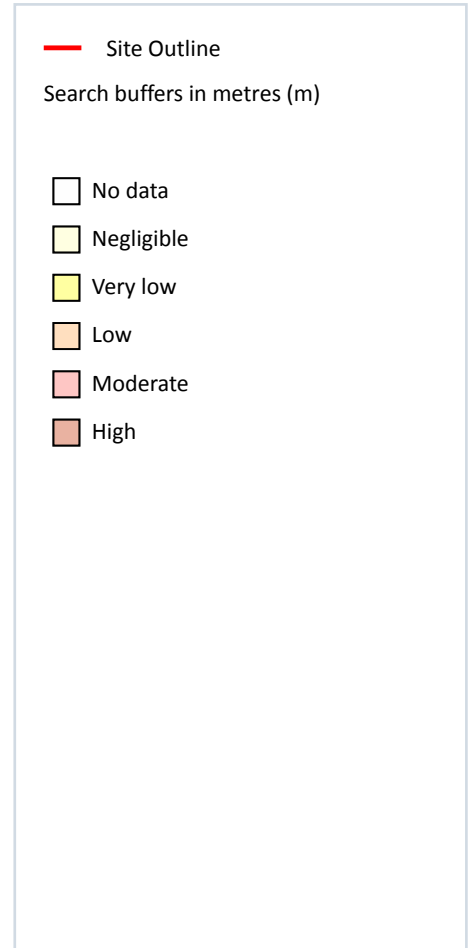
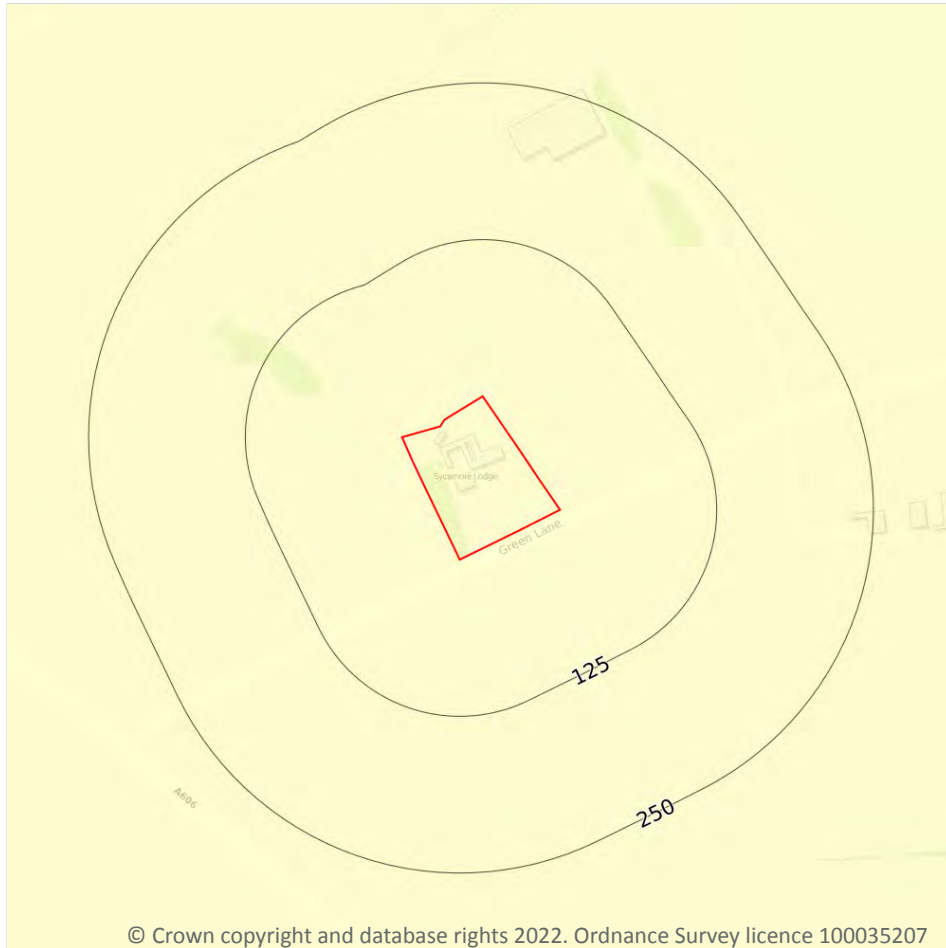
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 78**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 79**

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

This data is sourced from the British Geological Survey.

18 Mining, 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	1
----------------------------	----------

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on **page 80**

ID	Location	Details	Description
B	127m NW	Name: Sycamore Lodge Gravel Pit Address: Hickling Pastures, Keyworth, NOTTINGHAM, Nottinghamshire Commodity: Sand & Gravel 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	18
----------------------------	-----------

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 80**

ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Pond	1950	1:10560
A	On site	Pond	1916	1:10560
B	67m NW	Old Gravel Pit	1883	1:10560
B	67m NW	Old Gravel Pit	1901	1:10560
B	68m NW	Unspecified Disused Pit	1974	1:10000
B	74m NW	Old Gravel Pit	1950	1:10560
B	74m NW	Old Gravel Pit	1916	1:10560
B	74m NW	Old Gravel Pit	1900	1:10560
B	74m NW	Pond	1900	1:10560
B	75m NW	Old Gravel Pit	1950	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
B	77m NW	Pond	1883	1:10560
B	77m NW	Pond	1901	1:10560
B	89m NW	Pond	1950	1:10560
B	89m NW	Pond	1916	1:10560
C	183m NW	Pond	1950	1:10560
C	183m NW	Pond	1916	1:10560
D	191m NW	Pond	1950	1:10560
D	191m NW	Pond	1916	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

0

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

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

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

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

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

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

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

This data is sourced from the Coal Authority.

18.10 Brine areas

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

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

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

18.11 Gypsum areas

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

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.



18.12 Tin mining

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

This data is sourced from Groundsure.

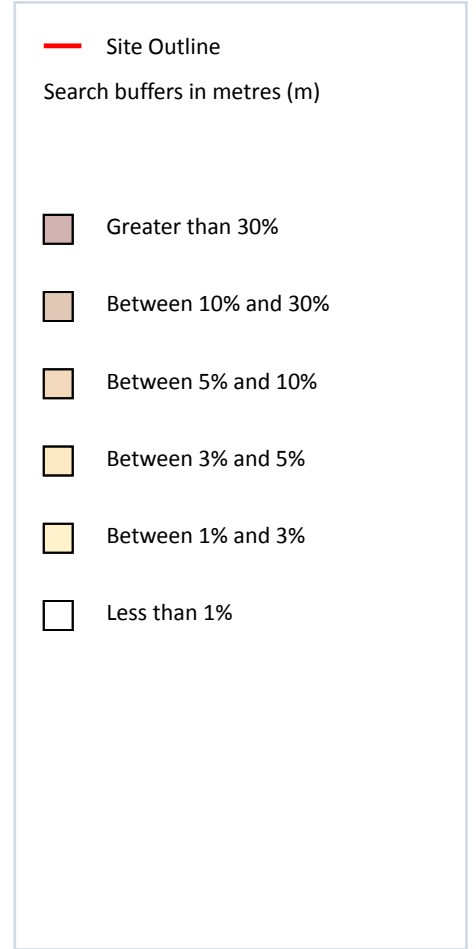
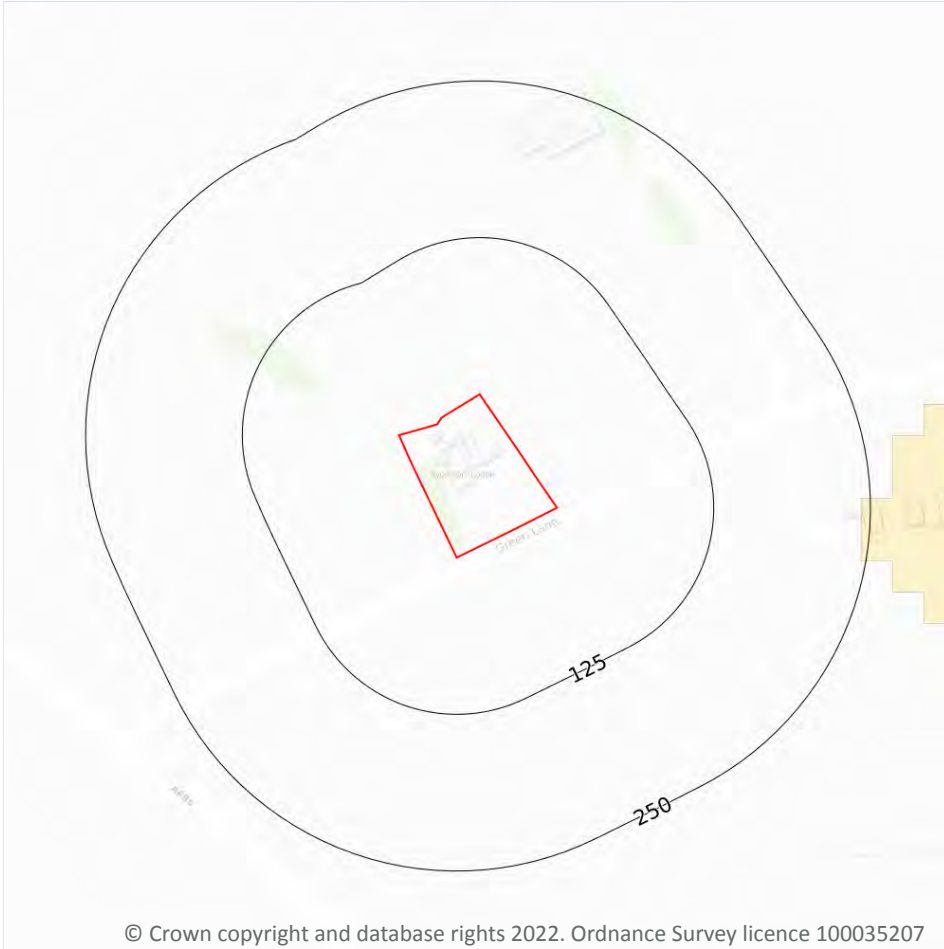
18.13 Clay mining

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

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

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

19 Radon



19.1 Radon

Records on site

1

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

Features are displayed on the Radon map on **page 85**

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

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

5

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
18m NE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
42m NW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

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

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects

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.



Data providers

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

Terms and conditions

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



APPENDIX III

Site Photographs / Plates

APPENDIX III – SITE PHOTOGRAPHS / PLATES

CASTLE ROCK GEOTECH



Geological, Geotechnical &
Environmental Consultants
Nottingham, England.

**Project: Sycamore Lodge,
Green Lane, Hickling Pastures, Notts.**

Client: Roy and Rachael Allum



Plate 1: The main entrance, viewed north from Green Lane



Plate 2: The front lawn and Sycamore Lodge, viewed west from the driveway

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Plate 3: Sycamore Lodge, viewed from the parking area



Plate 4: Sycamore Lodge garages, viewed from the parking area

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Plate 5: Steel roofed shelter and brick and asbestos roofed barn/byres



Plate 6: The pond located adjacent eastern boundary

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Plate 7: Interior of the eastern single storey barn



Plate 8: The rear lean-tos and outbuildings

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Plate 9: View of the narrow yard, viewed north towards the woodstore



Plate 10: Steep roofed barn, asbestos roof and silo

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Plate 11: Asbestos sheets adjacent to silo



Plate 12: Corrugated iron tunnel barn

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Plate 13: Steep asbestos roofed barn and single storey asbestos roofed byres, viewed south



Plate 14: Interior of single storey byres

APPENDIX IV

Notes on Limitations

NOTES ON LIMITATIONS

PHASE I DESK STUDY / ENVIRONMENTAL AUDIT:-

Castle Rock Geotech have prepared this report solely for the use of the Client and / or his agent and is not suitable for any other circumstances than for the purpose for which it was prepared. This document has been prepared for the titled project only and should any third party wish to use or rely upon the contents of the report, written approval from Castle Rock Geotech must be sought. Castle Rock Geotech accepts no responsibility or liability

- a) for the consequences of this document being used for the purpose other than that for which it was commissioned and;
- b) for this document to any other party other than the person by whom it was commissioned.

The assessment and judgements given in this report are directed by both the finite data on which they are based and the proposed works to which they are addressed. The data essentially comprised a study of available documented information from various sources together with discussions with relevant authorities and other interested parties. The information reviewed is not exhaustive and has been accepted in good faith as providing representative and true data pertaining to site conditions. If additional information becomes available which might impact our environmental conclusions, we request the opportunity to review the information, reassess the potential concerns and modify our opinion if warranted.

Unless otherwise stated, Castle Rock Geotech will not undertake any desk study searches or risk assessments for potential unexploded ordnance, and we therefore cannot be held liable for any delays or costs incurred either directly or indirectly as a result of the identification of unexploded ordnance risks on the site, or for losses incurred either directly or indirectly as a result of accidental detonations of ordnance on site during investigations and / or subsequent development works.

The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist.

It should be noted that any risks identified in this report are perceived risks based on the available information. Actual risks can only be assessed following an intrusive ground investigation of the site.

Castle Rock Geotech does not warrant work / data undertaken / provided by others.





CASTLE ROCK GEOTECH

***SITE INVESTIGATIONS
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