

## REPORT ON SITE INVESTIGATION (SOIL CONTAMINATION) AT HAY LANE FARM, HAY LANE, LONGDON GREEN, STAFFORDSHIRE



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## **1. Introduction**

- 1.1 It is proposed to construct a residential scheme upon a parcel of land at Hay Lane Farm, Hay Lane, Longdon Green in Staffordshire. An indicative proposed site layout plan is included within the appendix which details the conversion and extension of two disused agricultural buildings to provide residential accommodation.
- 1.2 Upon the instruction of the client, Ms Annie Marshall, a Phase I and Phase II ground investigation has been carried out comprising the sinking of window sample boreholes, each with appropriate sampling and in-situ testing. Where applicable, the fieldwork was undertaken in accordance with BS 5930. The purpose of the investigation was to assess the prevailing ground conditions with regards to ground gases and a Contaminated Land Exposure Assessment (CLEA) for the proposed residential development.
- 1.3 This report contains a description of the site and its history, anticipated geology and strata encountered together with an environmental risk assessment which includes comments on the potential for contamination to affect future users and possible remedial measures. The investigation does not extend to and assessment of ground gases. A report was issued dated 12<sup>th</sup> September 2022, reference AJM/31553. Since the issue of this report, the proposed layout has changed and revised plans are included within the appendix.
- 1.4 We are confident that the conclusions drawn from the findings of this investigation and desk study are appropriate for the proposed development. However, we cannot guarantee that they would be accepted by regulatory authorities without question. It is recommended that the reports are submitted and approval gained from such bodies, prior to the undertaking of detailed design, construction work or other irreversible processes.

## **2. The Site**

### **2.1 Site Location**

- 2.1 The site of the planned development comprises a parcel of land at Hay Lane Farm, Hay Lane, Longdon Green in Staffordshire and extends across an area of approximately 0.08 hectares. National Grid Reference 408322 313504 denotes the centre of the site.

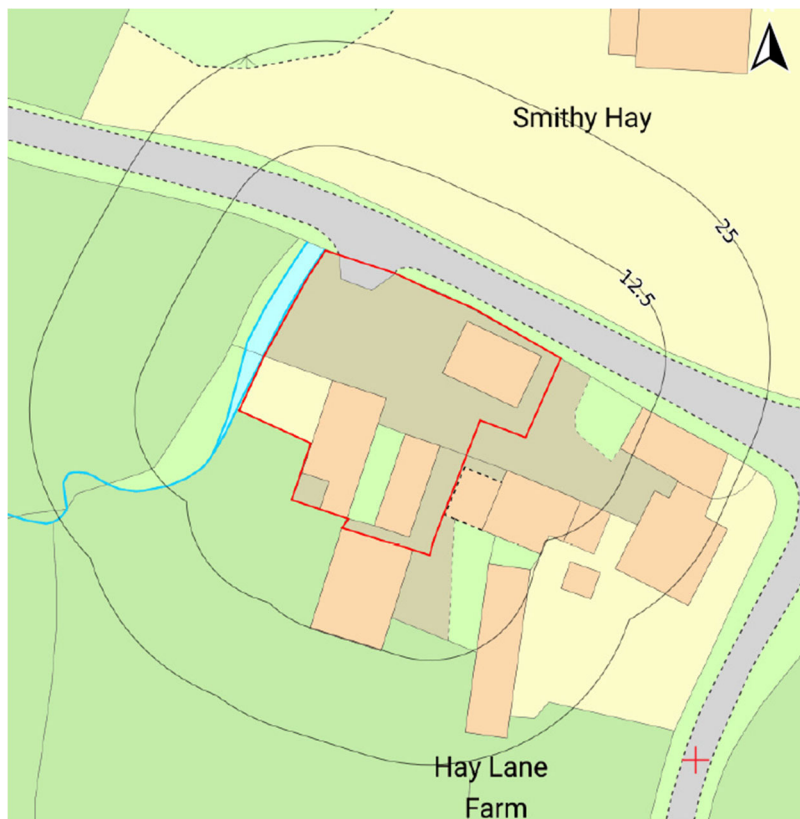
### **2.2 Existing Site Description**

- 2.2.1 A site walkover survey was carried out in early August 2022 and reference should be made to the Photofile included within the appendix. At the time of the walkover the site comprised the western

portion of an agricultural yard and was occupied by three single story agricultural buildings with the external areas being mostly concrete hardstanding and hard packed gravel. The western of the two southern buildings had an old metal oil drum within it along with plastic drums and containers, a ride on mower and old pieces of wood and metal. The eastern of the southern buildings appeared to be disused stables and the northern building's interior was not accessible. There was a pile of ash and burnt debris next to the western boundary. The western boundary consisted of mature trees and some shrubs and a small stream flowing north from fields that bounded the site to the south. The northern site boundary is Smithy Lane, to the west is a dwelling and a small surface watercourse is present along the western boundary, beyond which are agricultural fields.

2.2.2 Figure 1 below shows the location of the site and the approximate boundaries where development is to take place.

**Figure 1: Site Location and Boundaries (taken from the Groundsure report)**



### 3. Desk Study

#### 3.1 General Comments

3.1.1 As part of the Phase I Desk Study, a Groundsure report was obtained which provides details of historical site usage and also comments upon the environmental setting of the site. The Groundsure report is included within the appendix.

## 3.2 Site History

3.2.1 The history of the site and the surrounding area has been determined by reference to past editions of the Ordnance Survey and are included within the appendix. A summary of the history is detailed below.

3.2.2 **Mapping Date 1882-1884** The first edition of the Ordnance Survey records the site to comprise part of a wider agricultural field located to the south of Smithy Lane. There is a small, rectangular shaped structure, likely an outbuilding adjacent to Smithy Lane and is likely part of the 'Haylane Cottage' to the west. Hay Lane is present nearby to the east. To the west is a small surface watercourse and agricultural fields. Further agricultural fields predominate in the surrounding area, with the village of Longdon Green located nearby to the north east.

3.2.3 **Mapping Date 1898-1902** The 1898-1902 edition continues to record the site to comprise part of a wider unoccupied field located to the south of Smithy Lane. The small rectangular shaped building recorded to be present adjacent to Hay Lane on the 1882-1884 edition is now referred to as a 'Saw Pit'. This labelling does not, however, appear to relate to any form of excavation. To the east remains 'Haylane Cottage' and to the west is the surface watercourse. The surrounding land use remains predominantly agricultural.

3.2.4 **Mapping Date 1923** The 1923 edition continues to record the site to comprise part of a wider unoccupied field located to the south of Hay Lane. The small rectangular shaped building recorded to be present adjacent to Hay Lane is again referred to as a 'Saw Pit'. To the east remains 'Haylane Cottage' and to the west is the surface watercourse. The surrounding land use remains predominantly agricultural.

3.2.5 **Mapping Date 1961** By the date of publication of the 1961 edition the site has been developed for two rectangular shaped buildings which are likely the agricultural buildings on site at the present time. The small building adjacent to Smithy Lane recorded on previous editions is again detailed. To the east remains 'Haylane Cottage' and to the west is the surface watercourse. The surrounding land use remains predominantly agricultural, however some housing has also been developed.

3.2.6 **Mapping Date 1993** The 1993 edition continues to record the presence of the two rectangular shaped buildings which are likely the agricultural buildings on site at the present time together with

the small building adjacent to Smithy Lane. To the east remains 'Haylane Cottage' and to the west is the surface watercourse.

### 3.3 Environmental Details

3.3.1 The appended Groundsure report provides environmental information regarding the site and immediate area. The key points of note are as follows:

#### 3.3.2 Historical Industrial Land Uses

The Groundsure report lists the following Historical Industrial Land Uses:

- 'Saw Pit' on site (1924).
- Sewage Tanks located 350m to the north (1924-1954).
- Cuttings located 395m to the north (1971).
- Unspecified Pit located 406m to the east (1924).
- Historical Tanks located 215m to the north west (19660– 1999).
- There are no historical garages, petrol stations or energy features located within 500m.

3.3.3 The Groundsure report lists the following:

- There are no sites determined as Contaminated Land within 500m.
- There are no Control of Major Accident Hazards sites located within 500m.
- There no Regulated Explosive Sites within 500m.
- Three are no Hazardous substance storage/usage sites located within 500m.
- There are no historical licensed industrial activities located within 500m.
- There is no licensed industrial activities Part 1(A) located within 500m.
- There are no Licensed Pollutant Release sites located within 500m.
- There is a licensed discharge consent to controlled waters located 5m to the south west and is associated with sewage discharges into the Ben Brook.
- There are no pollutant releases to surface waters (Red List) within 500m.
- There is no pollutant release to the public sewer sites located within 500m.
- There are no List 1 or List 2 Dangerous Substances within 500m.
- There is a record of a Pollution Incident to Controlled Waters located 379m to the east. This occurred in 2001 and was classified as a Category 3 'minor' impact to Controlled Waters.
- There are no pollution inventory substances within 500m.

### 3.3.4 Hydrology & Hydrogeology

- In terms of *Groundwater Vulnerability*, the underlying 'solid' geology is classed as a 'Principal Aquifer' and also a Secondary B Aquifer.
- The site is located within a *Source Protection Zone III*.
- There is a groundwater abstraction license located 1,966m to the north.
- There is a surface water abstraction licenses located 1,153m to the west.
- There is a potable water abstraction licenses located 1,992m to the east.
- There is a small surface water feature located adjacent to the western boundary of the development plot.

### 3.3.5 Waste

- There are no former landfill sites within influencing distance (i.e., 250m).

## 3.4 Radon

3.4.1 The Groundsure Report states that no specific precautionary measures are required with respect to radon gas for the construction of new dwellings in the area.

## 3.5 Preliminary Conceptual Site Model

3.5.1 In accordance with Environment Agency (EA) document 'Land Contamination Risk Management' the information from the desk study has been used to generate a Preliminary Conceptual Site Model (PCSM). Its purpose is to identify potential previous and existing site sources of contamination and to link identified sources via potential pathways to receptors in order to identify if a possible pollutant linkage is present. The pollutant linkages will identify the possibility of significant harm.

3.5.2 The conceptual site model is based on a number of identified Source – Pathway – Receptor situations. For land or groundwater to be classed as contaminated a significant pollutant linkage will need to be identified which will include each component of the conceptual site model. The absence or removal of a source or interception of a pathway will 'break' the pollutant linkage.

3.5.3 The Conceptual Site model is characterised by the identification of the following:

- ▶ On-site Sources, which may impact on site receptors via existing pathways
- ▶ On-site Sources which may impact off site receptors via existing pathways



- ▶ Off-site Sources which may impact on site receptors via existing pathways

### **Potential Sources of Contamination**

- 3.5.4 From the old Ordnance Survey records and the site walkover, there are several potential sources of contamination, as described below.

### **On Site Historical Contamination Sources**

- 3.5.5 The first edition of the Ordnance Survey dated 1882-1884 records the site to comprise part of a wider agricultural field located to the south of Smithy Lane. There is a small, rectangular shaped structure, likely an outbuilding adjacent to Hay Lane and is likely part of the 'Haylane Cottage' to the west. The 1898-1902 edition continues to record the site to comprise part of a wider unoccupied field located to the south of Smithy Lane. The small rectangular shaped building recorded to be present adjacent to Hay Lane is now referred to as a 'Saw Pit'. This labelling does not, however, appear to relate to any form of excavation. By the date of publication of the 1961 edition the site has been developed for two rectangular shaped buildings which are likely the agricultural buildings on site at the present time. The small building adjacent to Smithy Lane recorded on previous editions is again detailed. The 1993 edition continues to record the presence of the two rectangular shaped buildings which are likely the agricultural buildings on site at the present time together with the small building adjacent to Smithy Lane.
- 3.5.6 In view of the absence of any commercial or industrial activities, the risk of encountering on site historical sources of contamination is likely to be low. However, it is possible that as part of the development of site for the existing agricultural buildings, soils / materials may have been imported in order to build up site levels or provide a sub-base material. Given the age, such soils could have been from an industrial source (e.g., discarded ash / clinker etc.) and therefore if present beneath the site, could pose a risk of contamination.

### **Potential on Site Current Contamination Sources**

- 3.5.7 At the present time the site comprised the western portion of an agricultural yard and was occupied by three single story agricultural buildings with the external areas being mostly concrete hardstanding and hard packed gravel. The western of the two southern buildings had an old metal oil drum within it along with plastic drums and containers, a ride on mower and old pieces of wood and metal. The eastern of the southern buildings appeared to be a disused stables and the northern building's interior was not accessible. There was a pile of ash and burnt debris next to the western

boundary. The western boundary consisted of mature trees and some shrubs and a small stream flowing north from fields that bounded the site to the south.

**Leakages from Oil Drums and Agricultural Vehicles -** The western of the two southern buildings had an old metal oil drum within it along with plastic drums and containers together with a ride on mower. There is a possibility of the soils in the vicinity of these drums and lawnmower may have become contaminated with hydrocarbons from accidental spillages or leakages from surface.

#### Potential Off-Site Contamination Sources

3.5.8 The early editions of the Ordnance Survey through to modern times detail the land use in the surrounding area to comprises predominantly of unoccupied agricultural fields together with the small watercourse adjacent to the western boundary. The village of Londgon Green is located nearby to the north east. In view of the absence of any significant off site commercial / industrial activities in the surrounding area, the possibility that any contaminants may have migrated onto the site is likely to be low.

3.5.9 Table 1 below summarises the Preliminary Conceptual Site Model

**Table 1 - Preliminary Conceptual Site**

Hazard	Pathway	Receptor
<p><b>Ground Gases</b></p> <p>Methane and carbon dioxide from any potentially infilled land and made ground soils beneath the site and from any off-site deposits of made ground. Hydrocarbon or VOC vapours from the volatilization of any hydrocarbon or chemically impacted soils beneath the site</p>	<p>Migration off-site</p> <p>Migration on-site</p> <p>Inhalation</p>	<p>Construction workers, future users of the proposed residential scheme and receptors affected by off-site migration</p>
<p><b>Heavy metals / PAHs in Soil</b></p> <p>Possibly contained within any potential made ground soils beneath the site</p>	<p>Groundwater</p> <p>Surface Water</p> <p>Dermal contact</p>	<p>Construction workers and future users of the proposed residential scheme</p>

<p><b>Petroleum Hydrocarbons</b></p> <p>Possibly contained within any potential made ground soils beneath the site</p>	<p>Groundwater</p> <p>Surface Water</p> <p>Dermal contact</p> <p>Inhalation</p>	<p>Construction workers and future users of the proposed residential scheme and receptors affected by off-site migration</p> <p>Principal Aquifer (Tarpoley Siltstone)</p> <p>The adjacent watercourse</p>
<p><b>Asbestos Containing Materials</b></p> <p>Potentially contained within any made ground soils beneath the site</p>	<p>Inhalation</p>	<p>Construction workers and future users of the proposed residential scheme</p>

## 4. Fieldwork

### 4.1 General Comments

4.1.1 The prevailing ground conditions were determined with the use of window sample boreholes. All the exploratory holes were undertaken, where appropriate, in accordance with BS 5930:2015+A12020. The locations of the exploratory holes was determined by access available external to the existing buildings and the presence of buried services.

### 4.2 Window Sample Boreholes

4.2.1 Five window sample boreholes (labelled WS1, WS2, WS3, WS4 and WS5) were sunk to depths of between 1.74m and 2.21m below the existing ground level to investigate the prevailing ground conditions. In-situ standard penetration tests (SPT's) were carried out in the cohesive soils as a simple guide to shear strength and an indicative in the granular soils of relative density. The SPT was initially designed to assess the relative density of granular soils and guides used to determine the shear strength of cohesive soils are drawn from empirical relationships. All such guides should be treated with due circumspection. Engineer verified logs are included within the appendix.

### 4.3 Sampling

4.3.1 During the logging of the boreholes, soil samples were collected for contamination analyses and placed into appropriate sampling containers (plastic tubs, amber jars and vials). The samples were then placed in cool boxes and collected by courier for delivery to Chemtest Laboratories.

## 4.4 Rationale of Exploratory Locations

- 4.4.1 The exploratory positions were chosen to determine the ground conditions and collect samples for geo-environmental analysis to assess possible risks to Human Health and Controlled Waters. Table 2 below summarises the rationale for the positioning of exploratory holes.

**Table 2: Rationale for The Positioning of Exploratory Holes**

Exploratory Hole	Reason for Selection of Position
WS1	Assess ground conditions and contamination.
WS3	Assess ground conditions and contamination.
WS4	Assess ground conditions and contamination.
WS5	Assess ground conditions and contamination.
WS6	Assess ground conditions and contamination.

## 5. Laboratory Testing

### 5.1 Geo-Environmental Testing

- 5.1.1 Testing for a range of contaminants were carried out by Chemtest Laboratories. The results of the tests are contained within the appendix and summarised below in Table 3.

**Table 3 – Summary of Geo-Environmental Testing**

Test Description	Number of Tests
Metals, pH, cyanide and phenols	5
Poly Aromatic Hydrocarbons	5
Petroleum Hydrocarbons	3
Asbestos (presence)	4

## 6. Ground Conditions

### 6.1 Recorded Ground Conditions

The available published geological information indicates the 'solid' geology to comprise the Tarporley Siltstone Formation of the Triassic Period. Superficial deposits are not recorded.

## 6.2 Encountered Ground Conditions

6.2.1 For full details of the strata encountered reference should be made to the appended engineer verified logs (appendix A). However, the salient features of the engineering geology can be summarised as follows.

**Surface Hardstanding** – recorded at the locations of WS2, WS3 and WS4 as surface concrete and extended to a depth of 0.05m.

**Made Ground** – encountered beneath the concrete hardstanding (WS2, WS3 and WS4) or from surface (WS1 and WS5) to depths of between 0.30m and 0.50m predominantly as a near surface horizon of firm and stiff sandy, gravelly clays with an horizon of gravelly sand recorded in WS5 from ground level to 0.20m. The made ground contains gravel sized fragments of hardcore, tile and brick together with quartz pebbles. No obvious visual or olfactory evidence of contamination (e.g. staining or odours) were recorded during the logging of the made ground, however organic odours were recorded in WS3 and WS4.

**Superficial Deposits:** recorded beneath the made ground to depths of between 0.60m and 1.10m predominantly as soft, firm and stiff sandy, gravelly clays. The clasts within the superficial deposits included quartz, sandstone and igneous lithologies. The soils in WS1 were characterised by occasional fragments of decaying wood fragments and organic odours were noted in WS2, WS3 and WS4.

**Re-worked Tarporley Siltstone Formation** : soils which reflect re-worked Tarporley Siltstone Formation were recorded beneath the superficial soils to depths of between 0.90m and 1.50m as stiff and very stiff sandy, slightly gravelly clays. The Geo-Environmental Engineer logging the soils from 0.85m to 1.10m was characterised by a moderate hydrocarbon odour.

**Wildmoor Sandstone:** residual soils were recorded beneath the re-worked deposits as a stiff and very stiff clay tending in parts to a silt containing sandstone, mudstone and siltstone lithorelicts. These soils reflect the uppermost weathered horizons of the Tarporley Siltstone Formation. As the degree of weathering decreases with increasing depth, the residual soils grade into engineering rockhead in the form of extremely weak mudstone at depths of between 1.60 and 2.00m below ground level.

## 6.3 Groundwater

6.3.1 Groundwater entries were not encountered during the sinking of the window sample boreholes.

## 7. Comments and Recommendations: Contamination

### 7.1 Updated Conceptual Site Model

#### *Potential On-Site Current Contaminant Sources – Updated*

7.1.1 The exploratory holes of this site investigation have revealed the presence of made ground to depths of between 0.30m and 0.50m predominantly as a near surface horizon of a firm and stiff sandy, gravelly clay with an horizon of gravelly sand recorded in WS5 from ground level to 0.20m. The made ground contains gravel sized fragments of hardcore, tile and brick together with quartz pebbles. No obvious visual or olfactory evidence of contamination (e.g. staining or odours) were recorded during the logging of the made ground, however organic odours were recorded in WS3 and WS4. The Geo-Environmental Engineer logging the natural, re-worked Tarporley Siltstone soils from 0.85m to 1.10m was characterised by a moderate hydrocarbon odour. When combined with the findings of the Preliminary Conceptual Site Model, it is therefore considered that the risk of current on-site sources of contamination affecting the Human Health of future site users can be deemed to be 'low' to 'moderate'.

7.1.2 On the basis of the information available to date there are a number of contaminant linkages between sources and receptors. These are discussed below.

#### Potential Receptors

- Human Health - Humans including construction workers and future occupiers of the planned residential scheme.
- Controlled Waters – the groundwater at some depth beneath the site and the adjacent surface watercourse.
- Other Receptors - Building substructures

#### Potential Pathways

- Human Health - Skin / eye contact, ingestion and inhalation during site development and by contact / inhalation from future occupiers.
- Controlled Waters - Percolating water may act to mobilise contaminants and transport them downwards under gravity towards the water table.

7.1.3 Table 4 (below) provides a summary of the Updated Conceptual Site Model.

**Table 4 - Summary of the Updated Conceptual Site Model**

Hazard	Pathway	Receptor
<p><b>Ground Gases</b></p> <p>Methane and carbon dioxide from the degradation of organic rich inclusions. Several sections of the made ground and underlying natural soils were characterised by organic odours</p> <p>Hydrocarbon vapours from the volatilization of hydrocarbon contaminated soils (WS2)</p>	<p>Migration off-site</p> <p>Migration on-site</p> <p>Inhalation</p>	<p>Construction workers, future users of the proposed residential scheme and receptors affected by off-site migration</p> <p><b>Risk = Moderate</b></p>
<p><b>Heavy metals / PAHs &amp; Petroleum Hydrocarbons in Soil</b></p> <p>Contained within the made ground soils beneath the site. Elevated concentrations of lead have been recorded within the made ground.</p>	<p>Groundwater</p> <p>Surface Water</p> <p>Dermal contact</p>	<p>Construction workers and future users of the proposed residential scheme</p> <p>Principal Aquifer (Tarpoley Siltstone Formation)</p> <p>Adjacent watercourse</p> <p><b>Risk = Moderate</b></p>
<p><b>Asbestos Containing Materials</b></p> <p>Potentially contained within the made ground soils beneath the site. No asbestos fibres have been recorded by the testing</p>	<p>Inhalation</p>	<p>Construction workers and future users of the proposed residential scheme</p> <p><b>Risk = Low</b></p>

## 7.2 Potential Contaminants of Concern

7.2.1 In view of the findings of the boreholes of this investigation and the history of the site and DOE Industry Profiles, the contamination testing has included a general range of commonly occurring contaminants as detailed below.

- Metals: cadmium, chromium, copper, lead, mercury, nickel, vanadium, zinc.
- Non-metals, semi metals and inorganics: arsenic, selenium, cyanide, asbestos, pH.
- Organics: phenols, poly aromatic hydrocarbons (PAHs) and petroleum hydrocarbons.

### **7.3 Contamination Analyses**

7.3.1 In order to assess the potential for contamination, samples of the made ground were forwarded to Chemtest Laboratories for analysis of the Potential Contaminants of Concern and in accordance with the Conceptual Site Model. The samples tested appeared to be representative of the made ground mantling the site. It should be appreciated that there remains the potential for unidentified areas of contamination. Suspect areas as may be identified in the future would have to be further investigated/assessed. Risk assessment work has its limitations and uncertainties ranging from those introduced by the type and quality of the data and analytical methods through to the choice of the model adopted.

### **7.4 Assessment of Risk to Human Health**

7.4.1 The CLEA (Contaminated Land Exposure Assessment) model combines information on the toxicity of soil contaminants with estimates of potential exposure by adults and children living, working and/or playing on land affected by contamination over long periods of time. By comparing predicted exposure with health criteria values on tolerable or acceptable contaminant intakes the model can be used to generate Critical Concentrations (Cc).

7.4.2 As the proposals include the conversion and extension of two disused agricultural buildings to provide residential accommodation of domestic dwellings, threshold values (Critical Concentration) for a 'residential with plant uptake' have been adopted for the assessment of contamination. The threshold values (Critical Concentrations) adopted are either Soil Guideline Values (SGVs) or Category 4 Screening Levels (C4SLs) as produced by Department of the Environment, Food & Rural Affairs / the Environment Agency, Soil Screening Values (SSVs) as produced by Atkins Consultants or Suitable for Usage Levels (S4UL) as produced by Land Quality Management Ltd / The Chartered Institute of Environmental Health (LQM/CIEH). Where "non-detects" were recorded in the sample data they have been replaced by the relevant method detection limit.

### **7.5 Discussion of Results**

Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium & zinc), cyanide and phenols

7.5.1 As part of the site investigation, testing was carried out by Chemtest Laboratories upon five samples of the shallow soils collected from the boreholes and the results are included within the appendix together with an assessment which compares the results of the testing with applicable Threshold Levels / Critical Concentrations. As detailed on the appended excel spreadsheet, either the



determinants are below the method limit of detection or below the applicable Threshold Levels / Critical Concentrations with the exception of the results for lead in the samples from WS1, WS2, WS3 and WS4. From a review of the ground conditions there is no obvious source of the elevated concentrations of lead recorded.

#### Polyaromatic Hydrocarbons (PAHs)

- 7.5.2 As part of the site investigation, testing was carried out by Chemtest Laboratories upon five samples of the shallow soils collected from the boreholes and trial pit and the results are included within the appendix together with an assessment which compares the results of the testing with applicable Threshold Levels / Critical Concentrations. As detailed on the appended excel spreadsheet, either the determinants are below the method limit of detection or below the applicable Threshold Levels / Critical Concentrations.

#### Petroleum Hydrocarbons

- 7.5.3 Soil Screening Values are available for the fractionated analysis of hydrocarbons in accordance with those outlined by the Total Petroleum Hydrocarbon Criteria Working Group (TPH CWG). As part of the site investigation, testing was carried out by Chemtest Laboratories upon three samples of the shallow soils collected from the boreholes, including a sample from the horizon in WS2 from 0.85m to 1.10m which was characterised by a moderate hydrocarbon odour and the results are included within the appendix together with an assessment which compares the results of the testing with applicable Threshold Levels / Critical Concentrations. As detailed on the appended excel spreadsheet, either the determinants are below the method limit of detection or below the applicable Threshold Levels / Critical Concentrations.

#### Benzene, Toluene, Ethylbenzene and Xylene (BTEX) & Methyl Tertiary Butyl Ether (MTBE)

- 7.5.4 As part of the site investigation, testing was carried out by Chemtest Laboratories upon three samples of the shallow soils collected from the boreholes and the results are included within the appendix together with an assessment which compares the results of the testing with applicable Threshold Levels / Critical Concentrations. As detailed on the appended excel spreadsheet, either the determinants are below the method limit of detection or below the applicable Threshold Levels / Critical Concentrations.

#### Asbestos

7.5.5 As part of the site investigation, testing has been carried out by Chemtest Laboratories upon four samples of the shallow soils collected from boreholes for the presence of asbestos and the results are included within the appendix. In summary, no asbestos fibres were recorded in the samples tested.

## 7.6 Risk to Controlled Waters

### *Environmental Setting*

7.6.1 In assessing the risk that the site could pose to Controlled Waters, the hydrogeological and hydrological conditions can be summarised as follows.

- In terms of *Groundwater Vulnerability*, the underlying 'solid' geology is classed as a 'Principal Aquifer' and also a Secondary B Aquifer.
- The site is located within a *Source Protection Zone III*.
- There is a groundwater abstraction license located 1,966m to the north.
- There is a surface water abstraction licenses located 1,153m to the west.
- There is a potable water abstraction licenses located 1,992m to the east.
- There is a small surface water feature located adjacent to the western boundary of the development plot.

7.6.2 In view of the hydrogeological and hydrological setting of the site and the findings of this investigation, the risk that the site poses to Controlled Waters (for this site this will be principally the groundwater beneath the site and adjacent surface watercourse) can be considered as 'low' to 'moderate'.

## 7.7 Recommendations for Remediation

### **Human Health**

7.7.1 The testing carried out as part of this investigation to date has demonstrated that there are concentrations of contaminants (lead) in the shallow made ground that pose a possible risk to Human Health i.e. occupiers of the future residential scheme. However, the contamination is not thought to pose a significant development constraint. In order to break the Source – Pathway – Receptor pollutant linkage, in the absence of any further testing and risk assessment, it is recommended that for preliminary design purposes, a remedial scheme is adopted to protect Human Health. The remedial scheme could either the removal of the made ground or, if the made

ground cannot be removed, include the importation of 600mm of clean materials of topsoil in garden areas.

- 7.7.2 Imported soils should be from a licensed source and be accompanied with appropriate documentation to confirm the soils are not waste or have a waste exemption. Agreement on the source of the imported materials would ideally be made with the appropriate Statutory Authorities before importation. The topsoil part of the Capping Layer should conform to the requirements of British Standards 3882: 2007 'Specification of Topsoil and requirements for use', or as agreed by the client. Topsoil and subsoil will be free of deleterious fragments such as concrete, brick, glass, wire, and metal or other potentially hazardous fragments which could cause injury. In addition, all imported materials must be free from invasive plant species (e.g., Japanese Knotweed).
- 7.7.3 All remediation works should be supervised by the contractor and monitored by a suitably qualified and experienced geo-environmental engineer on a visiting basis. The thickness of the capping layer should be verified and determined by the excavation of pits. The pits should be verified on site by the geo-environmental engineer. A Verification Report will need to be produced for submission to the appropriate regulatory bodies demonstrating that the recommendations made have been achieved in practise.
- 7.7.4 Construction workers should adopt basic Personnel Protective Equipment (PPE) which should include gloves, boots and overalls and washing facilities should be provided.
- 7.7.5 **Controlled Waters**
- 7.7.6 It is the is the remit of the Environment Agency to protect 'Controlled Waters', which includes groundwater and surface waters. In view of the geological conditions, current environmental settings and findings of this investigation it is considered that the risk the site poses to 'Controlled Waters' can be deemed to be 'low to 'moderate'. It is therefore unlikely that further consideration into the quality of the groundwater beneath the site will be required by the Environment Agency.

FOR AND ON BEHALF OF

**GIP LIMITED**



A. J. McHugh BSc (Hons), MSc, C Geol, FGS

**ASSOCIATE DIRECTOR**

Author Contact Details: andy@gipuk.com Tel: 01902 459 558



J. P. Hughes BSc, MSc, C Geol, FGS, C SCI

**MANAGING DIRECTOR**

## APPENDIX A





Building 62, Third Avenue  
The Pensnett Estate  
Kingswinford  
DY6 7XT  
Tel: 01902 459558  
Email: info@gipuk.com  
www.gipuk.com

# Windowless Sampler Borehole Log

Project Number: 31553  
Project Name: Hay Lane Farm, Longdon Green  
Client: Anne Marshall  
Engineer: J Mason Associates Ltd.  
Date Drilled: 16/08/2022  
Diameter: 100mm  
Depth Cased: 0.00m

National Grid:  
Ground Level:  
Final Depth: 1.82m

Borehole:	WS1	
Sheet 1 of 1		
Logged By:		TL
Checked By:		
Drilled By:	GW	

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
MADE GROUND: Brown very gravelly clayey SAND. Gravel is angular brick and hardcore.		0.10			0.00	D		
MADE GROUND: Firm desiccated greyish brown sandy slightly gravelly CLAY with some organic pockets and rootlets. Gravel is angular to rounded quartz, tile and brick.		0.45			0.10	D		
PROBABLE MADE GROUND: Stiff desiccated reddish brown, greyish brown and light brown sandy slightly gravelly CLAY with occasional rootlets. Gravel is sub-rounded to rounded quartz.		0.55			0.45	D		
					0.55	B		
					0.75	HV	47kPa	
					0.90	D		
		1.10			1.00	S	8 (1,1,1,2,3,2)	
		1.20			1.00	D		
					1.10	D		
		1.60			1.20	B		
Firm and in parts soft greyish brown and grey slightly gravelly slightly sandy silty CLAY with occasional becoming many (rom 0.90m) decaying wood fragments. Gravel is sub-rounded to rounded quartz and siltstone. (Superficial Deposits).		1.82			1.60	S	25 for 75mm	
Stiff reddish brown micaceous slightly gravelly slightly sandy silty CLAY. Gravel is rounded quartz. (Reworked Tarporley Siltstone Formation).								
Very stiff and in parts stiff reddish brown slightly sandy silty CLAY tending to in parts a slightly sandy clayey SILT with some becoming many mudstone and siltstone lithorelics. (Weathered Tarporley Siltstone Formation).								
Extremely weak reddish brown micaceous slightly sandy silty MUDSTONE. (Tarporley Siltstone Formation).								
Borehole Complete at 1.83m								

**Samples/Tests**

- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

Document 4.144

**Other Information:**

1. No groundwater encountered.
2. Borehole backfilled on completion.
3. Environmental Samples (plastic tub, amber jar & vial taken at 0.10m)



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# Windowless Sampler Borehole Log

Project Number: 31553  
Project Name: Hay Lane Farm, Longdon Green  
Client: Anne Marshall  
Engineer: J Mason Associates Ltd.  
Date Drilled: 16/08/2022  
Diameter: 100mm  
Depth Cased: 0.00m

Borehole:	WS2
Sheet 1 of 1	
Logged By:	TL
Checked By:	
Drilled By:	GW

National Grid:  
Ground Level:  
Final Depth: 1.74m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
MADE GROUND: Concrete.		0.05			0.05	B		
MADE GROUND: Firm dark greyish brown gravelly slightly sandy and in parts sandy CLAY with a medium cobble content. Gravel and cobbles are sub-angular to rounded quartz and igneous.		0.50			0.50	B		
Firm becoming stiff (from 0.75m) grey gravelly slightly sandy CLAY with some silt content and a slight organic odour. Gravel is sub-rounded to rounded quartz and igneous. (Superficial Deposits).		0.85			0.60	HV	48kPa	
Stiff reddish brown micaceous slightly sandy silty CLAY with rare rounded quartz gravel, some relic rootlets and a moderate hydrocarbon odour. (Reworked Tarporley Siltstone Formation).		1.10			0.80	HV	103kPa	
Very stiff reddish brown micaceous slightly sandy silty CLAY tending to in parts a clayey SILT with some (from 1.30m) becoming many (from 1.50m) mudstone, siltstone and sandstone lithorelics and occasional relic rootlets along fissures. (Weathered Tarporley Siltstone Formation).		1.10			0.85	D	15 (2,2,3,4,4,4)	
Extremely weak reddish brown micaceous slightly sandy silty MUDSTONE interlaminated with siltstone and sandstone. (Tarporley Siltstone Formation).		1.10			1.00	S		
		1.60			1.10	B		
		1.74			1.60	S	25 for 60mm	
Borehole Complete at 1.74m								

**Samples/Tests**

- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

**Other Information:**

1. No groundwater encountered.
2. Borehole backfilled on completion.
3. Environmental Samples (plastic tub, amber jar & vial taken at 0.25m & 0.90m).



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# Windowless Sampler Borehole Log

Project Number: 31553  
Project Name: Hay Lane Farm, Longdon Green  
Client: Anne Marshall  
Engineer: J Mason Associates Ltd.  
Date Drilled: 16/08/2022  
Diameter: 100mm  
Depth Cased: 0.00m

National Grid:  
Ground Level:  
Final Depth: 2.21m

Borehole:	WS3
Sheet 1 of 1	
Logged By:	TL
Checked By:	
Drilled By:	GW

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
MADE GROUND: Concrete.		0.05			0.05	D		
MADE GROUND: Firm dark greyish brown sandy slightly gravelly CLAY with some organic pockets and a moderate organic odour. Gravel is rounded quartz.		0.30			0.30	B		
Soft and in parts firm greyish brown and light grey sandy slightly gravelly CLAY with occasional rootlets and a moderate organic odour. Gravel is sub-rounded to rounded quartz and igneous. (Superficial Deposits).		0.40			0.40	HV	23kPa	
		0.55			0.55	HV	40kPa	
Stiff reddish brown micaceous slightly sandy silty CLAY with rare sub-rounded sandstone and quartz gravel. (Reworked Tarporley Siltstone Formation).		0.60			0.60	B	140kPa	
		0.70			0.70	HV	160kPa	
Very stiff and in parts stiff becoming very stiff (from 1.80m) reddish brown micaceous slightly sandy silty CLAY tending to in parts a clayey SILT with some (from 1.40m) becoming many (from 1.80m) mudstone, siltstone and sandstone lithorelics and some relic roots (from 0.90-1.80m). (Weathered Tarporley Siltstone Formation).		0.80			0.80	HV	212kPa	
		0.90			0.90	D	16 (3,3,3,4,4,5)	
Extremely weak reddish brown micaceous slightly sandy silty MUDSTONE interlaminated with siltstone and sandstone. (Tarporley Siltstone Formation).		1.00			1.00	HV		
		1.00			1.00	S		
Borehole Complete at 2.21m		1.80			1.80	B		
		2.00			2.00	D	25 for 60mm	
		2.21				S		

**Samples/Tests**

- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

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**Other Information:**

1. No groundwater encountered.
2. Borehole backfilled on completion.
3. Environmental Samples (plastic tub, amber jar & vial taken at 0.20m)





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# Windowless Sampler Borehole Log

Project Number: 31553  
Project Name: Hay Lane Farm, Longdon Green  
Client: Anne Marshall  
Engineer: J Mason Associates Ltd.  
Date Drilled: 16/08/2022  
Diameter: 100mm  
Depth Cased: 0.00m

Borehole:	WS4
Sheet 1 of 1	
Logged By:	TL
Checked By:	
Drilled By:	GW

National Grid:  
Ground Level:  
Final Depth: 1.82m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
MADE GROUND: Concrete.		0.05			0.05	B		
MADE GROUND: Firm dark grey, dark greyish brown and occasionally orangish brown sandy slightly gravelly and in parts gravelly CLAY with a slight organic odour. Gravel is ceramic pipe fragments and sub-rounded to rounded quartz.		0.45			0.45	B		
Firm and in parts soft greyish brown sandy slightly gravelly CLAY with a slight organic odour tending to a clayey very gravelly SAND with depth. Gravel is sub-rounded to rounded quartz and igneous. (Superficial Deposits).		0.70			0.70	B		
Very stiff reddish brown micaceous slightly sandy silty CLAY tending in parts to a slightly sandy clayey SILT with rare sub-angular to rounded sandstone and quartz gravel and occasional relic rootlets. (Reworked Tarporley Siltstone Formation).		1.50			0.90	HV	144kPa	
Very stiff reddish brown micaceous slightly sandy silty CLAY tending in parts to a slightly sandy clayey SILT with many mudstone, siltstone and sandstone lithorelics. (Weathered Tarporley Siltstone Formation).		1.70			1.00	S	16 (2,2,3,4,4,5)	
1.60m: Sub horizontal fissure within grey material containing relic rootlets.		1.82			1.00	B		
Extremely weak reddish brown micaceous slightly sandy silty MUDSTONE interlaminated with siltstone and sandstone. (Tarporley Siltstone Formation).						S	25 for 50mm	
Borehole Complete at 1.83m								

Samples/Tests	
U	Undisturbed
D	Disturbed
B	Bulk
W	Water
S/C	SPT/CPT
ES	Environmental Sample
HV	Hand Shear Vane
NR	No Recovery
	Water Strike
	Water Level

**Other Information:**

- No groundwater encountered.
- Borehole backfilled on completion.
- Environmental Samples (plastic tub, amber jar & vial taken at 0.25m)

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# Windowless Sampler Borehole Log

Project Number: 31553  
Project Name: Hay Lane Farm, Longdon Green  
Client: Anne Marshall  
Engineer: J Mason Associates Ltd.  
Date Drilled: 16/08/2022  
Diameter: 100mm  
Depth Cased: 0.00m

National Grid:  
Ground Level:  
Final Depth: 1.94m

Borehole:	WS5
Sheet 1 of 1	
Logged By:	TL
Checked By:	
Drilled By:	GW

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
MADE GROUND: Brown very gravelly SAND. Gravel is brick, tile and hardcore.		0.20			0.20	D		
MADE GROUND: Firm desiccated dark greyish brown gravelly slightly sandy CLAY. Gravel is angular to rounded brick, quartz and tile.		0.35			0.35	B		
Firm friable orangish brown and light brown sandy slightly gravelly CLAY tending in parts to a very clayey gravelly SAND. Gravel is sub-rounded to rounded quartz. (Superficial Deposits).		0.60			0.60	B		
Very stiff and in parts stiff reddish brown and occasionally grey micaceous slightly sandy slightly gravelly CLAY with some silt content and occasional relic rootlets. Gravel is sub-angular sandstone and siltstone. (Reworked Tarporley Siltstone Formation).		0.70			0.70	HV	180kPa	
Very stiff reddish brown and occasionally grey micaceous slightly sandy silty CLAY tending in parts to a clayey SILT with some mudstone, siltstone and sandstone lithorelics and occasional relic rootlets. (Weathered Tarporley Siltstone Formation).		0.80			0.80	HV	182kPa	
Extremely weak reddish brown micaceous slightly sandy silty MUDSTONE interlaminated with siltstone and sandstone. (Tarporley Siltstone Formation).		1.00			1.00	S	18 (3,3,4,4,5,5)	
		1.00			1.00	B		
		1.50			1.50	B		
		1.70			1.70			
		1.80			1.80	S	25 for 60mm	
Borehole Complete at 1.94m								

**Samples/Tests**

- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

Document 4.144

**Other Information:**

1. No groundwater encountered.
2. Borehole backfilled on completion.
3. Environmental Samples (plastic tub, amber jar & vial taken at 0.20m)

## APPENDIX B





## Results - Soil

**Project: AJM/31553 Hay Farm, Hay Lane, Longdon Green**

Client: Ground Investigation & Piling Ltd	Chemtest Job No.:		22-32320	22-32320	22-32320	22-32320	22-32320	22-32320	22-32320	
Quotation No.: Q20-21473	Chemtest Sample ID.:		1493477	1493478	1493479	1493480	1493481	1493482		
	Client Sample ID.:		WS1	WS2	WS2	WS3	WS4	WS5		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Top Depth (m):		0.10	0.25	0.90	0.20	0.25	0.20		
	Date Sampled:		18-Aug-2022	18-Aug-2022	18-Aug-2022	18-Aug-2022	18-Aug-2022	18-Aug-2022		
	Asbestos Lab:		NEW-ASB			NEW-ASB	NEW-ASB	NEW-ASB		
Determinand	Accred.	SOP	Units	LOD						
ACM Type	U	2192		N/A	-		-	-	-	
Asbestos Identification	U	2192		N/A	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
Moisture	N	2030	%	0.020	12	25	14	20	25	15
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones and Roots	Stones	Stones	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A	Sand	Sand	Clay	Sand	Sand	Sand
pH	M	2010		4.0	7.8	7.8		7.7	7.7	7.8
Cyanide (Total)	M	2300	mg/kg	0.50	0.70	< 0.50		< 0.50	0.50	0.60
Arsenic	M	2455	mg/kg	0.5	10	8.3		7.6	10	2.5
Cadmium	M	2455	mg/kg	0.10	0.47	0.25		0.44	0.39	< 0.10
Chromium	M	2455	mg/kg	0.5	13	11		11	16	8.4
Copper	M	2455	mg/kg	0.50	29	19		22	23	9.8
Mercury	M	2455	mg/kg	0.05	0.35	0.12		0.15	0.20	< 0.05
Nickel	M	2455	mg/kg	0.50	16	15		13	16	7.9
Lead	M	2455	mg/kg	0.50	450	290		630	360	7.8
Selenium	M	2455	mg/kg	0.25	0.48	0.48		0.51	0.53	< 0.25
Vanadium	U	2455	mg/kg	0.5	15	15		14	20	11
Zinc	M	2455	mg/kg	0.50	190	89		130	150	23
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	7.6	9.5		6.3	9.0	8.1
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aliphatic TPH >C16-C35	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0		< 5.0	< 5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0		

## Results - Soil

**Project: AJM/31553 Hay Farm, Hay Lane, Longdon Green**

Client: Ground Investigation & Piling Ltd	Chemtest Job No.:		22-32320	22-32320	22-32320	22-32320	22-32320	22-32320	22-32320
Quotation No.: Q20-21473	Chemtest Sample ID.:		1493477	1493478	1493479	1493480	1493481	1493482	
	Client Sample ID.:		WS1	WS2	WS2	WS3	WS4	WS5	
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
	Top Depth (m):		0.10	0.25	0.90	0.20	0.25	0.20	
	Date Sampled:		18-Aug-2022	18-Aug-2022	18-Aug-2022	18-Aug-2022	18-Aug-2022	18-Aug-2022	
	Asbestos Lab:		NEW-ASB			NEW-ASB	NEW-ASB	NEW-ASB	
Determinand	Accred.	SOP	Units	LOD					
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0		< 5.0	< 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10		< 10	< 10	
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	0.42	1.4	< 0.10	0.88	0.93
Pyrene	M	2700	mg/kg	0.10	0.54	1.5	< 0.10	0.77	1.3
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	1.0	< 0.10	0.76	0.38
Chrysene	M	2700	mg/kg	0.10	< 0.10	2.0	< 0.10	1.3	0.86
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	5.9	< 2.0	3.7	3.5
Benzene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	
Toluene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	
o-Xylene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

## Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

## **Report Information**

### **Key**

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U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

### **Sample Deviation Codes**

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage


If you require extended retention of samples, please email your requirements to:

[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



## APPENDIX C



Project Number		31553																				
Project Name		Hay Lane Farm, Hay Lane, Longdon Green, Staffordshire																				
Client		Annie Marshall																				
Engineer		J. Mason & Associates																				
Notes		Using SSVs where no free phase hydrocarbons have been observed.																				
		Building 62, Third Avenue, The Pensnett Estate, Kingswinford, West Midlands, DY6 7XT										T: 01902 459558 E: info@gipuk.com W: www.gipuk.com										
		C <sub>c</sub> Values Used Residential with plant uptake (1% SOM)																				
Data values in excess of the C <sub>c</sub> are shown in Red	Hole ID	Sample Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
			Arsenic	Cadmium	Chromium VI	Copper	Lead	Inorganic Mercury	Nickel	Selenium	Vanadium	Zinc	Free Cyanide	Phenols								
	WS1	0.10	10	0.47	0.5	29	450	0.35	16	0.48	15	190	0.7	0.1								
	WS2	0.25	8.3	0.25	0.5	19	290	0.12	15	0.48	15	89	0.5	0.1								
	WS3	0.20	7.6	0.44	0.5	22	630	0.15	13	0.51	14	130	0.5	0.1								
	WS4	0.25	10	0.39	0.5	23	360	0.2	16	0.53	20	150	0.5	0.1								
	WS5	0.20	2.5	0.1	0.5	9.8	7.8	0.05	7.9	0.25	11	23	0.6	0.1								
C <sub>c</sub>			37	22.1	20.5	4730	200	180	136	375	136	20000	34	267								
C <sub>c</sub> Source			ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	-	-	-	-	-	-	-
Data values in excess of the C <sub>c</sub> are shown in Red	Hole ID	Sample Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
			Acenaphthene	Anthracene	Benzo (a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(ghi) perylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(ah) anthracene	Fluoranthene	Fluorene	Indeno (123cd) pyrene	Naphthalene	Pyrene						
	WS1	0.10	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.42	0.1	0.1	0.1	0.54						
	WS2	0.25	0.1	0.1	1	0.1	0.1	0.1	0.1	2	0.1	1.4	0.1	0.1	0.1	1.5						
	WS3	0.20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1							
	WS4	0.25	0.1	0.1	0.76	0.1	0.1	0.1	0.1	1.3	0.1	0.88	0.1	0.1	0.1	0.77						
	WS5	0.20	0.1	0.1	0.38	0.1	0.1	0.1	0.1	0.86	0.1	0.93	0.1	0.1	0.1	1.3						
C <sub>c</sub>			608	10200	4.52	1.51	7.72	96.2	84.4	585	0.838	983	735	7.31	0.829	668						
C <sub>c</sub> Source			ATRISK June 2017	ATRISK June 2017	ATRISK 31/03/11	ATRISK 6/17 (MRL)	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK June 2017	ATRISK June 2017	ATRISK 31/03/11	ATRISK June 2017	ATRISK June 2017	-	-	-	-	-	-
Data values in excess of the C <sub>c</sub> are shown in Red	Hole ID	Sample Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			Aliphatic C5-C6	Aliphatic C6-C8	Aliphatic C8-C10	Aliphatic C10-C12	Aliphatic C12-C16	Aliphatic C16-C35	Aromatic C5-C7	Aromatic C7-C8	Aromatic C8-C10	Aromatic C10-C12	Aromatic C12-C16	Aromatic C16-C21	Aromatic C21-C35	Benzene	Toluene	Ethylbenzene	m-Xylene	o-Xylene	p-Xylene	MTBE
	WS1	0.10	1	1	1	1	1	1	1	1	1	1	1	1	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
	WS2	0.90	1	1	1	1	1	1	1	1	1	1	1	1	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
	WS3	0.20	1	1	1	1	1	1	1	1	1	1	1	1	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
C <sub>c</sub>			42.7	99.3	13.9	81.7	385	210000	0.137	113	20.5	70	165	319	1120	0.137	113	50.7	25	26.4	24	27.6
C <sub>c</sub> Source			ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017

## APPENDIX D



Hay Lane Farm, Hay Lane, Longdon Green, Rugeley, WS15 4QQ

## Order Details

**Date:** 18/08/2022  
**Your ref:** CMAPS-CM-1056616-5576-180822  
**Our Ref:** CMAPS-CM-1056616-5576-180822EDRGeo

## Site Details

**Location:** 408322 313504  
**Area:** 0.08 ha  
**Authority:** [Lichfield District Council](#)



**Summary of findings**

p. 2

**Aerial image**

p. 8

**OS MasterMap site plan**

p.13

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

## Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
<b>14</b>	<b>1.1</b>	<b><u>Historical industrial land uses</u></b>	3	0	0	15	-
<b>15</b>	<b>1.2</b>	<b><u>Historical tanks</u></b>	0	0	1	2	-
16	1.3	Historical energy features	0	0	0	0	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
<b>18</b>	<b>2.1</b>	<b><u>Historical industrial land uses</u></b>	3	0	0	20	-
<b>19</b>	<b>2.2</b>	<b><u>Historical tanks</u></b>	0	0	3	3	-
20	2.3	Historical energy features	0	0	0	0	-
20	2.4	Historical petrol stations	0	0	0	0	-
20	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
21	3.1	Active or recent landfill	0	0	0	0	-
21	3.2	Historical landfill (BGS records)	0	0	0	0	-
22	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
22	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
22	3.5	Historical waste sites	0	0	0	0	-
22	3.6	Licensed waste sites	0	0	0	0	-
<b>22</b>	<b>3.7</b>	<b><u>Waste exemptions</u></b>	0	3	1	12	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<b>25</b>	<b>4.1</b>	<b><u>Recent industrial land uses</u></b>	0	0	1	-	-
26	4.2	Current or recent petrol stations	0	0	0	0	-
26	4.3	Electricity cables	0	0	0	0	-
26	4.4	Gas pipelines	0	0	0	0	-
26	4.5	Sites determined as Contaminated Land	0	0	0	0	-



26	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
27	4.7	Regulated explosive sites	0	0	0	0	-
27	4.8	Hazardous substance storage/usage	0	0	0	0	-
27	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
27	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
27	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
28	4.12	Radioactive Substance Authorisations	0	0	0	0	-
<b>28</b>	<b>4.13</b>	<b><u>Licensed Discharges to controlled waters</u></b>	0	1	0	2	-
28	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
29	4.15	Pollutant release to public sewer	0	0	0	0	-
29	4.16	List 1 Dangerous Substances	0	0	0	0	-
29	4.17	List 2 Dangerous Substances	0	0	0	0	-
<b>29</b>	<b>4.18</b>	<b><u>Pollution Incidents (EA/NRW)</u></b>	0	0	0	2	-
30	4.19	Pollution inventory substances	0	0	0	0	-
30	4.20	Pollution inventory waste transfers	0	0	0	0	-
30	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
<b>31</b>	<b>5.1</b>	<b><u>Superficial aquifer</u></b>	Identified (within 500m)				
<b>33</b>	<b>5.2</b>	<b><u>Bedrock aquifer</u></b>	Identified (within 500m)				
<b>35</b>	<b>5.3</b>	<b><u>Groundwater vulnerability</u></b>	Identified (within 50m)				
36	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
36	5.5	Groundwater vulnerability- local information	None (within 0m)				
<b>37</b>	<b>5.6</b>	<b><u>Groundwater abstractions</u></b>	0	0	0	0	3
<b>38</b>	<b>5.7</b>	<b><u>Surface water abstractions</u></b>	0	0	0	0	5
<b>40</b>	<b>5.8</b>	<b><u>Potable abstractions</u></b>	0	0	0	0	2
<b>41</b>	<b>5.9</b>	<b><u>Source Protection Zones</u></b>	1	0	0	0	-
41	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
<b>42</b>	<b>6.1</b>	<b><u>Water Network (OS MasterMap)</u></b>	0	3	2	-	-



<b>43</b>	<b>6.2</b>	<b><u>Surface water features</u></b>	0	1	2	-	-
<b>43</b>	<b>6.3</b>	<b><u>WFD Surface water body catchments</u></b>	1	-	-	-	-
<b>44</b>	<b>6.4</b>	<b><u>WFD Surface water bodies</u></b>	0	0	0	-	-
<b>44</b>	<b>6.5</b>	<b><u>WFD Groundwater bodies</u></b>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
45	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
45	7.2	Historical Flood Events	0	0	0	-	-
45	7.3	Flood Defences	0	0	0	-	-
46	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
46	7.5	Flood Storage Areas	0	0	0	-	-
47	7.6	Flood Zone 2	None (within 50m)				
47	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
<b>48</b>	<b>8.1</b>	<b><u>Surface water flooding</u></b>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
<b>50</b>	<b>9.1</b>	<b><u>Groundwater flooding</u></b>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
51	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
52	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
52	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
52	10.4	Special Protection Areas (SPA)	0	0	0	0	0
52	10.5	National Nature Reserves (NNR)	0	0	0	0	0
53	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
<b>53</b>	<b>10.7</b>	<b><u>Designated Ancient Woodland</u></b>	0	0	0	0	2
53	10.8	Biosphere Reserves	0	0	0	0	0
53	10.9	Forest Parks	0	0	0	0	0
54	10.10	Marine Conservation Zones	0	0	0	0	0
<b>54</b>	<b>10.11</b>	<b><u>Green Belt</u></b>	1	0	0	0	0
54	10.12	Proposed Ramsar sites	0	0	0	0	0

54	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
55	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
55	10.15	Nitrate Sensitive Areas	0	0	0	0	0
<b>55</b>	<b>10.16</b>	<b><u>Nitrate Vulnerable Zones</u></b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>56</b>	<b>10.17</b>	<b><u>SSSI Impact Risk Zones</u></b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
57	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
58	11.1	World Heritage Sites	0	0	0	-	-
59	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
59	11.3	National Parks	0	0	0	-	-
59	11.4	Listed Buildings	0	0	0	-	-
<b>59</b>	<b>11.5</b>	<b><u>Conservation Areas</u></b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>-</b>	<b>-</b>
60	11.6	Scheduled Ancient Monuments	0	0	0	-	-
60	11.7	Registered Parks and Gardens	0	0	0	-	-

Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
<b>61</b>	<b>12.1</b>	<b><u>Agricultural Land Classification</u></b>	<b>Grade 3 (within 250m)</b>				
62	12.2	Open Access Land	0	0	0	-	-
62	12.3	Tree Felling Licences	0	0	0	-	-
62	12.4	Environmental Stewardship Schemes	0	0	0	-	-
62	12.5	Countryside Stewardship Schemes	0	0	0	-	-

Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
<b>63</b>	<b>13.1</b>	<b><u>Priority Habitat Inventory</u></b>	0	1	0	-	-
64	13.2	Habitat Networks	0	0	0	-	-
64	13.3	Open Mosaic Habitat	0	0	0	-	-
64	13.4	Limestone Pavement Orders	0	0	0	-	-

Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
<b>65</b>	<b>14.1</b>	<b><u>10k Availability</u></b>	<b>Identified (within 500m)</b>				
66	14.2	Artificial and made ground (10k)	0	0	0	0	-
67	14.3	Superficial geology (10k)	0	0	0	0	-





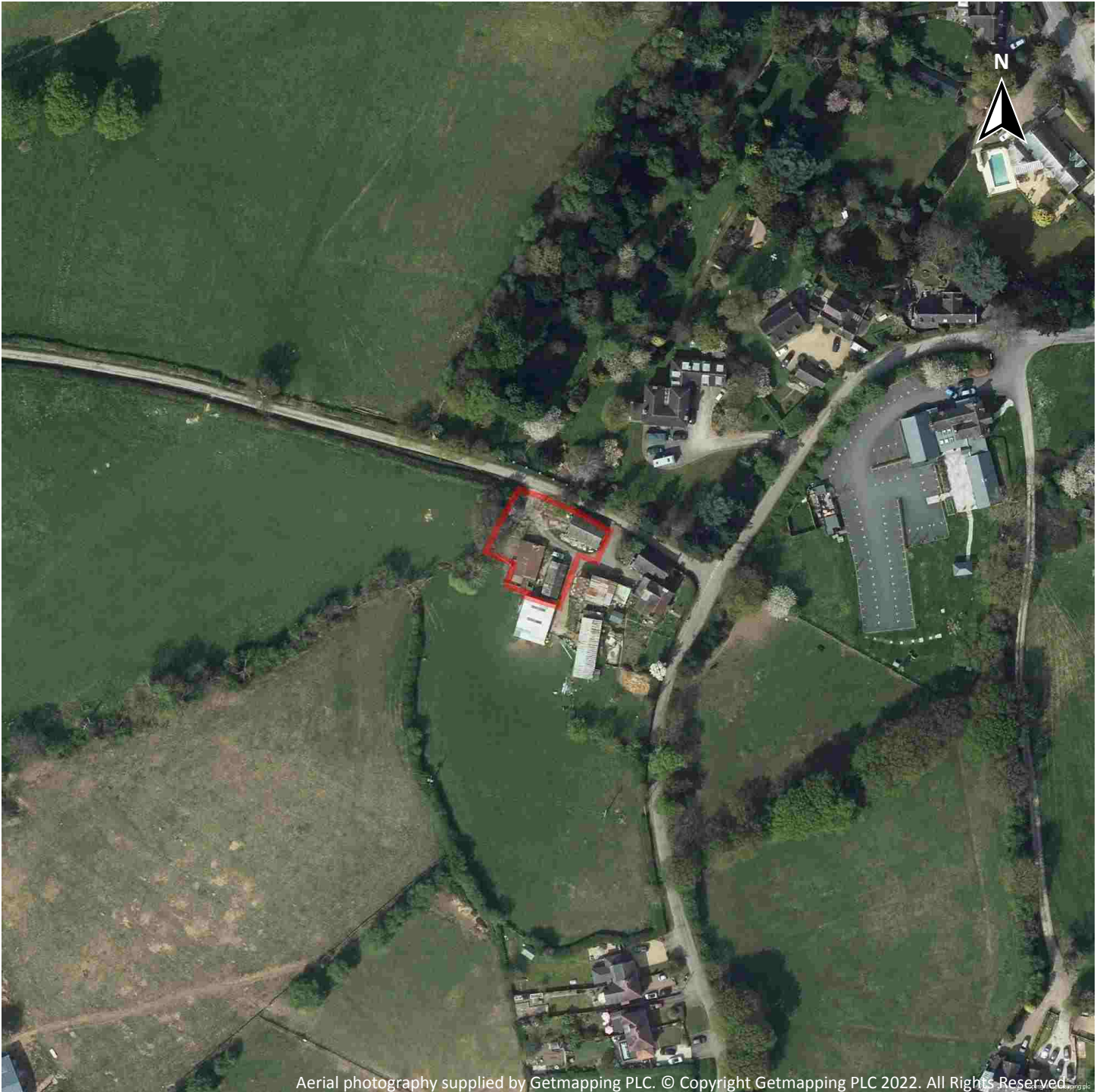
67	14.4	Landslip (10k)	0	0	0	0	-
68	14.5	Bedrock geology (10k)	0	0	0	0	-
68	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
<b>69</b>	<b>15.1</b>	<b><u>50k Availability</u></b>	Identified (within 500m)				
70	15.2	Artificial and made ground (50k)	0	0	0	0	-
70	15.3	Artificial ground permeability (50k)	0	0	-	-	-
<b>71</b>	<b>15.4</b>	<b><u>Superficial geology (50k)</u></b>	0	0	0	1	-
72	15.5	Superficial permeability (50k)	None (within 50m)				
72	15.6	Landslip (50k)	0	0	0	0	-
72	15.7	Landslip permeability (50k)	None (within 50m)				
<b>73</b>	<b>15.8</b>	<b><u>Bedrock geology (50k)</u></b>	1	0	0	0	-
<b>74</b>	<b>15.9</b>	<b><u>Bedrock permeability (50k)</u></b>	Identified (within 50m)				
74	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
75	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
<b>76</b>	<b>17.1</b>	<b><u>Shrink swell clays</u></b>	Very low (within 50m)				
<b>77</b>	<b>17.2</b>	<b><u>Running sands</u></b>	Negligible (within 50m)				
<b>78</b>	<b>17.3</b>	<b><u>Compressible deposits</u></b>	Negligible (within 50m)				
<b>79</b>	<b>17.4</b>	<b><u>Collapsible deposits</u></b>	Very low (within 50m)				
<b>80</b>	<b>17.5</b>	<b><u>Landslides</u></b>	Low (within 50m)				
<b>81</b>	<b>17.6</b>	<b><u>Ground dissolution of soluble rocks</u></b>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
82	18.1	Natural cavities	0	0	0	0	-
<b>83</b>	<b>18.2</b>	<b><u>BritPits</u></b>	0	0	0	1	-
<b>83</b>	<b>18.3</b>	<b><u>Surface ground workings</u></b>	3	1	5	-	-
84	18.4	Underground workings	0	0	0	0	0
84	18.5	Historical Mineral Planning Areas	0	0	0	0	-



84	18.6	Non-coal mining	0	0	0	0	0
84	18.7	Mining cavities	0	0	0	0	0
<b>84</b>	<b>18.8</b>	<b><u>JPB mining areas</u></b>	Identified (within 0m)				
<b>85</b>	<b>18.9</b>	<b><u>Coal mining</u></b>	Identified (within 0m)				
85	18.10	Brine areas	None (within 0m)				
85	18.11	Gypsum areas	None (within 0m)				
86	18.12	Tin mining	None (within 0m)				
86	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
<b>87</b>	<b>19.1</b>	<b><u>Radon</u></b>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
<b>88</b>	<b>20.1</b>	<b><u>BGS Estimated Background Soil Chemistry</u></b>	3	1	-	-	-
88	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
88	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
89	21.1	Underground railways (London)	0	0	0	-	-
89	21.2	Underground railways (Non-London)	0	0	0	-	-
89	21.3	Railway tunnels	0	0	0	-	-
89	21.4	Historical railway and tunnel features	0	0	0	-	-
89	21.5	Royal Mail tunnels	0	0	0	-	-
90	21.6	Historical railways	0	0	0	-	-
90	21.7	Railways	0	0	0	-	-
90	21.8	Crossrail 1	0	0	0	0	-
90	21.9	Crossrail 2	0	0	0	0	-
90	21.10	HS2	0	0	0	0	-



## Recent aerial photograph



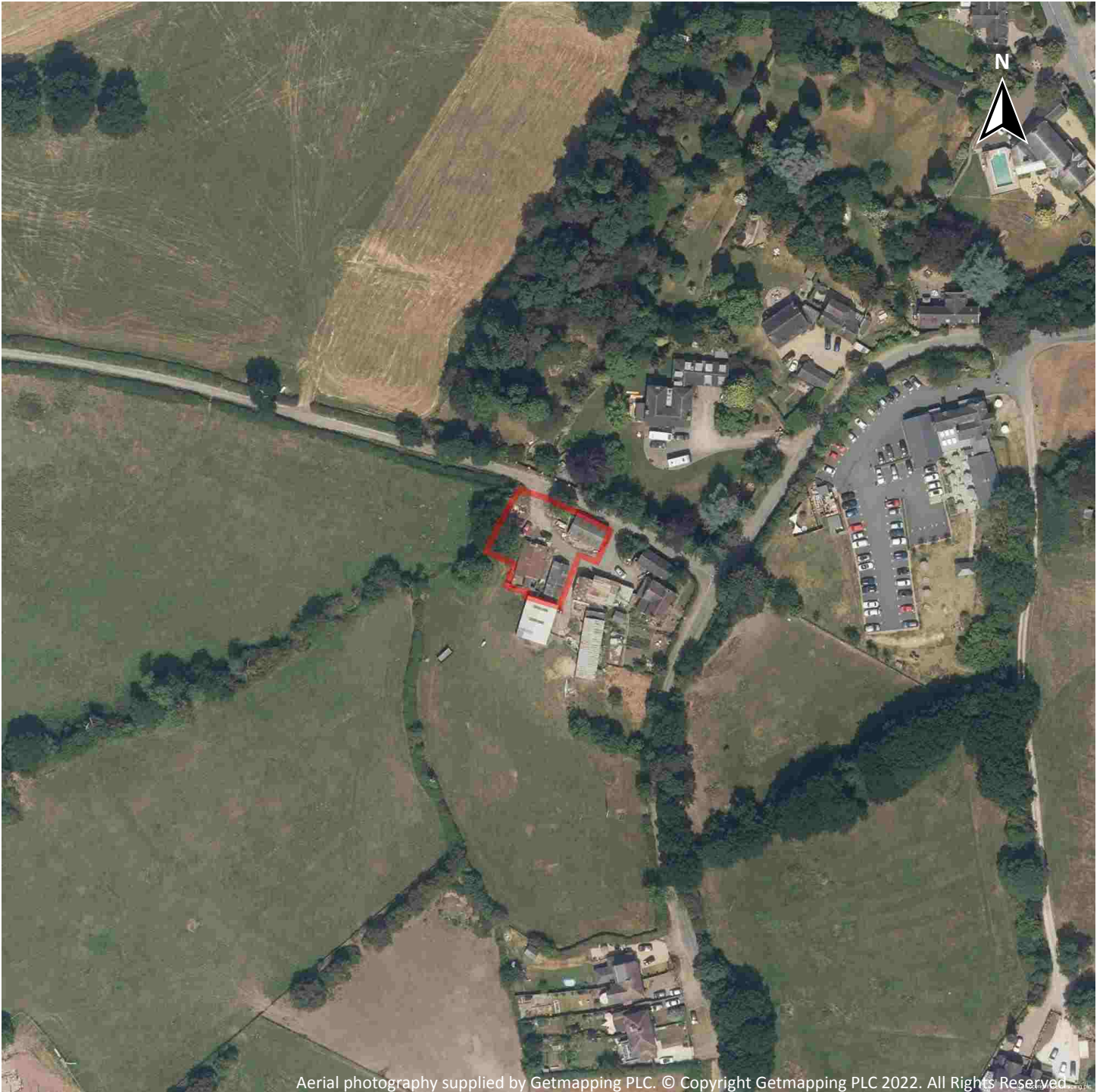
Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved

Capture Date: 16/04/2020

Site Area: 0.08ha



## Recent site history - 2018 aerial photograph



Capture Date: 01/07/2018

Site Area: 0.08ha



## Recent site history - 2015 aerial photograph



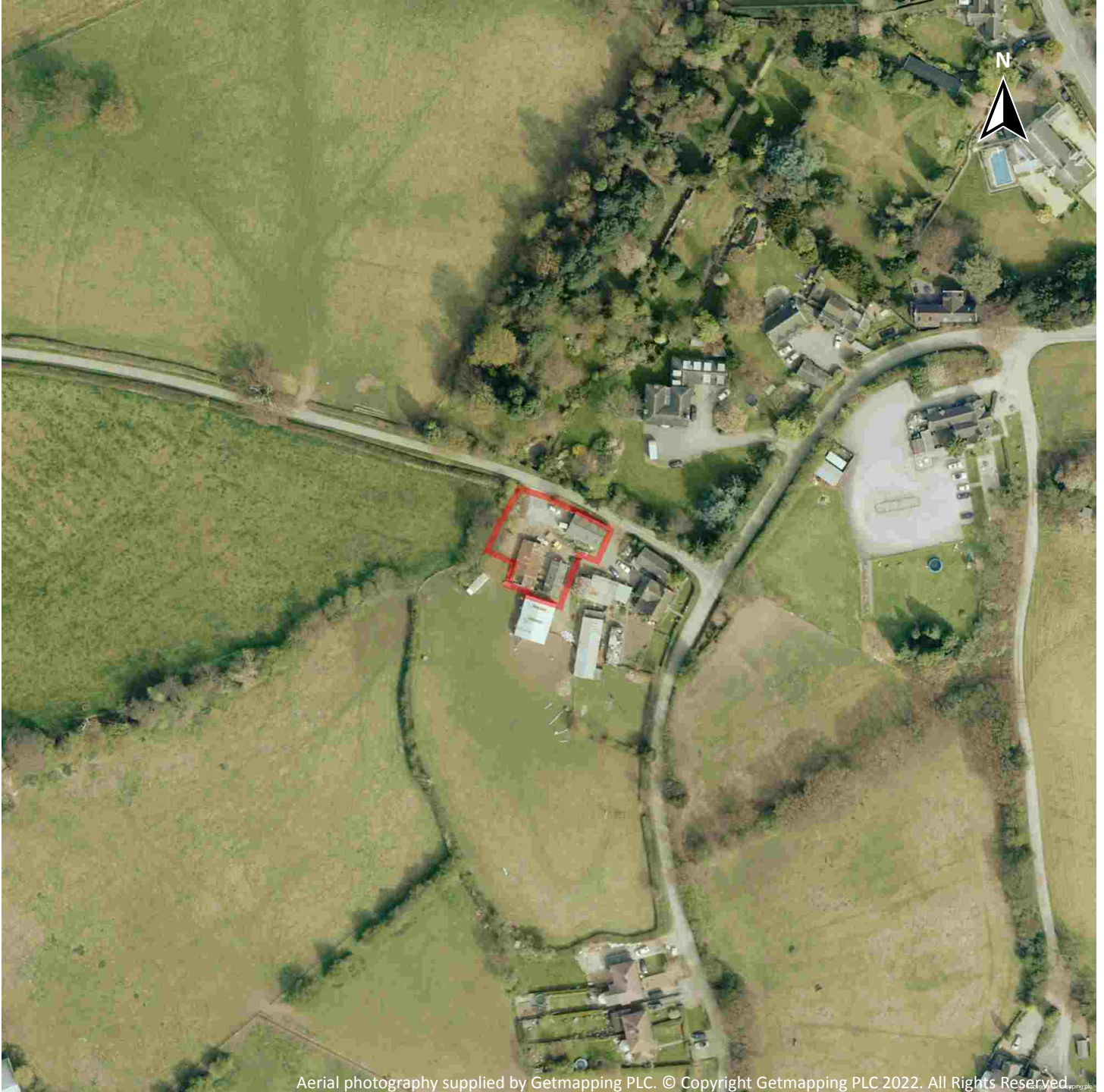
Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved

Capture Date: 04/10/2015

Site Area: 0.08ha



## Recent site history - 2010 aerial photograph



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Capture Date: 23/05/2010

Site Area: 0.08ha



## Recent site history - 1999 aerial photograph

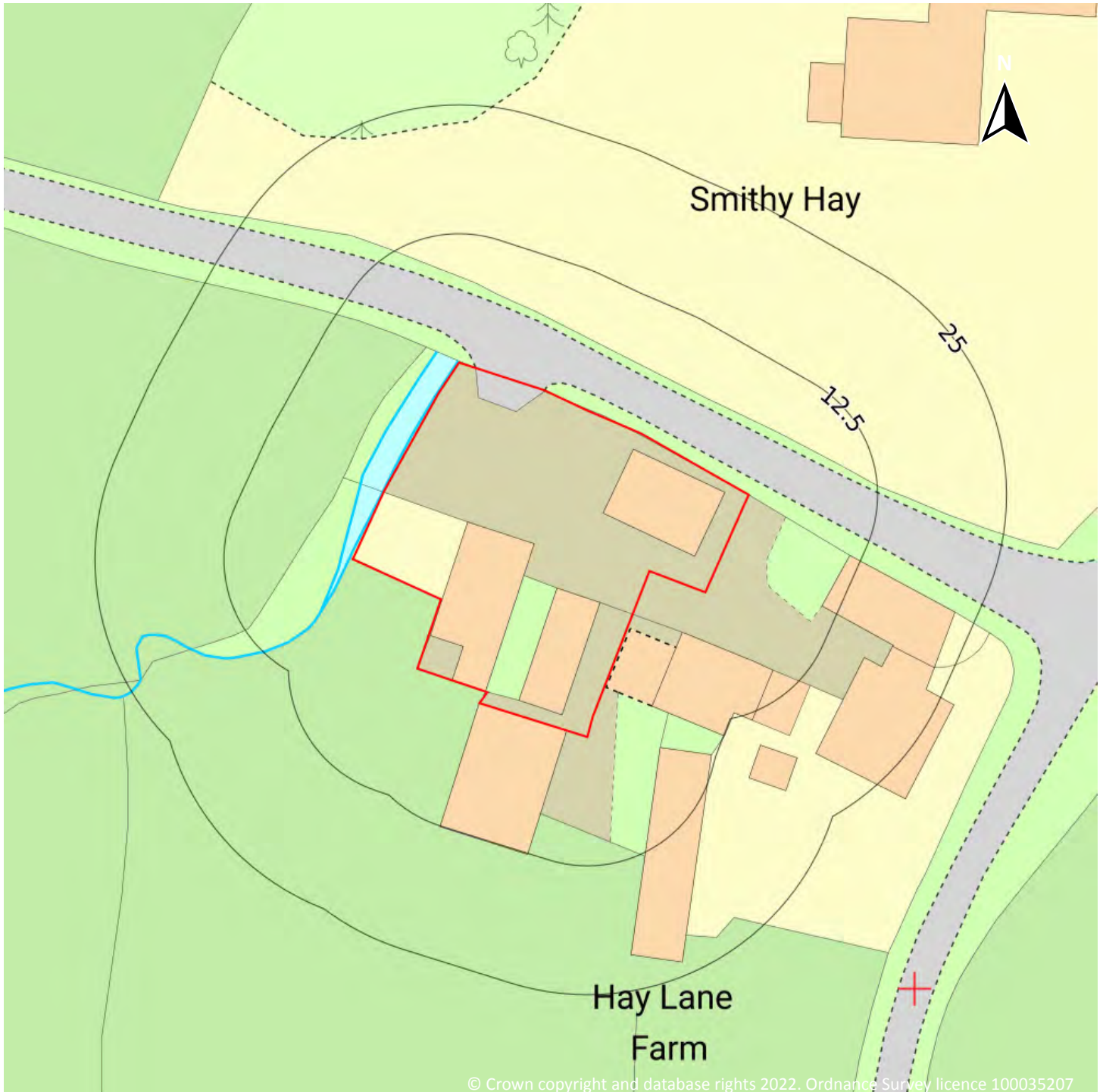


Capture Date: 01/09/1999

Site Area: 0.08ha



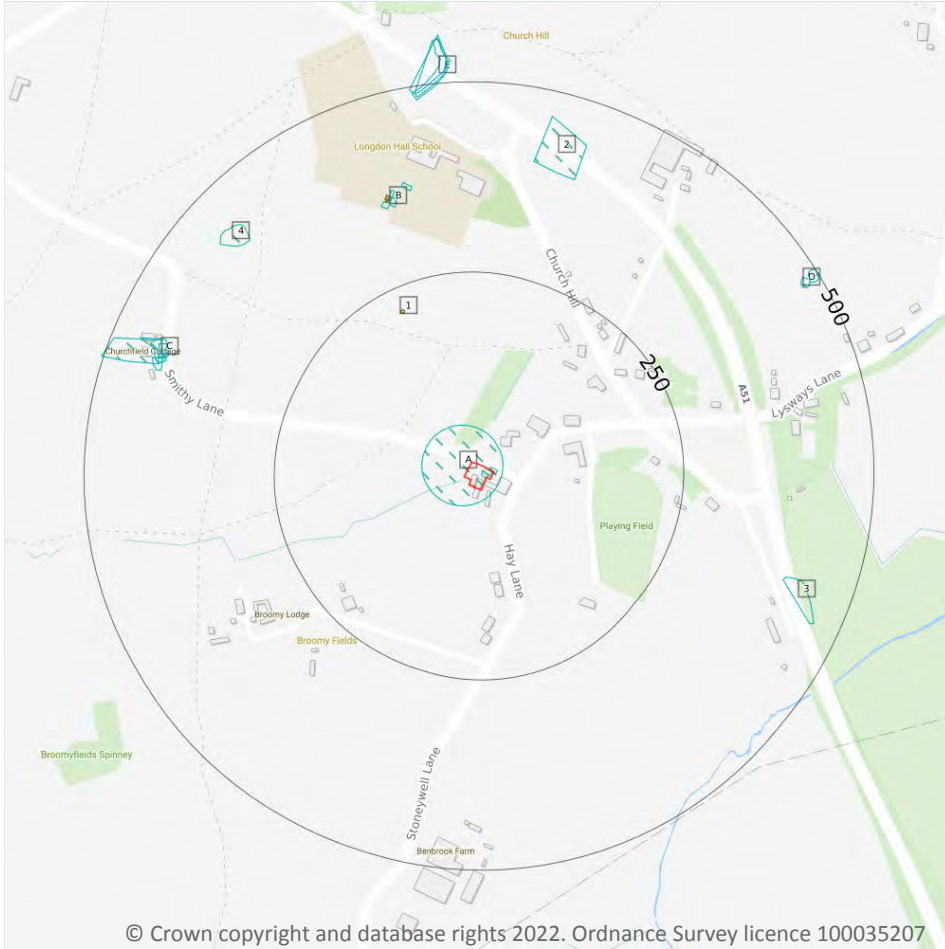
## OS MasterMap site plan



Site Area: 0.08ha



# 1 Past land use



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

## 1.1 Historical industrial land uses

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

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

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	On site	Saw Pit	1954	1630785

ID	Location	Land use	Dates present	Group ID
<b>A</b>	<b>On site</b>	<b>Saw Pit</b>	<b>1924</b>	<b>1679748</b>
<b>A</b>	<b>On site</b>	<b>Saw Pit</b>	<b>1924</b>	<b>1697645</b>
B	350m N	Sewage Tanks	1924 - 1954	1672067
B	351m N	Sewage Tanks	1924	1690920
B	366m N	Sewage Tanks	1924	1575708
2	395m N	Cuttings	1971	1561276
3	406m E	Unspecified Pit	1924	1607793
4	413m NW	Old Marl Pit	1882	1607307
C	420m W	Smithy	1924 - 1954	1678227
C	421m W	Smithy	1882	1746342
C	423m W	Smithy	1924	1644328
C	426m W	Smithy	1971	1702865
D	473m NE	Old Marl Pit	1924	1607308
E	482m N	Unspecified Ground Workings	1900 - 1924	1616750
D	485m NE	Old Marl Pit	1924 - 1954	1695106
E	485m N	Old Marl Pit	1924 - 1954	1750033
E	490m N	Unspecified Pit	1882	1607805

This data is sourced from Ordnance Survey / Groundsure.

## 1.2 Historical tanks

**Records within 500m**

**3**

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

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
1	215m NW	Unspecified Tank	1960 - 1999	274214



ID	Location	Land use	Dates present	Group ID
B	359m N	Sewage Tanks	1923	259435
B	361m N	Tanks	1960 - 1993	267877

*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

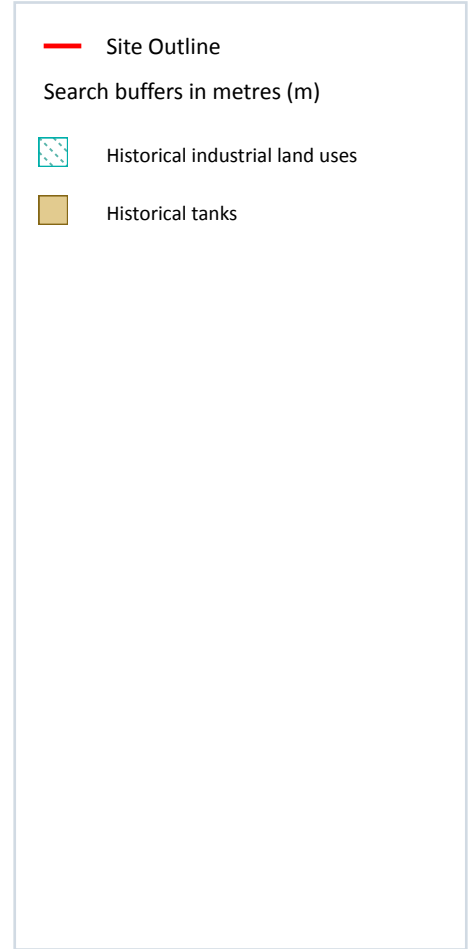
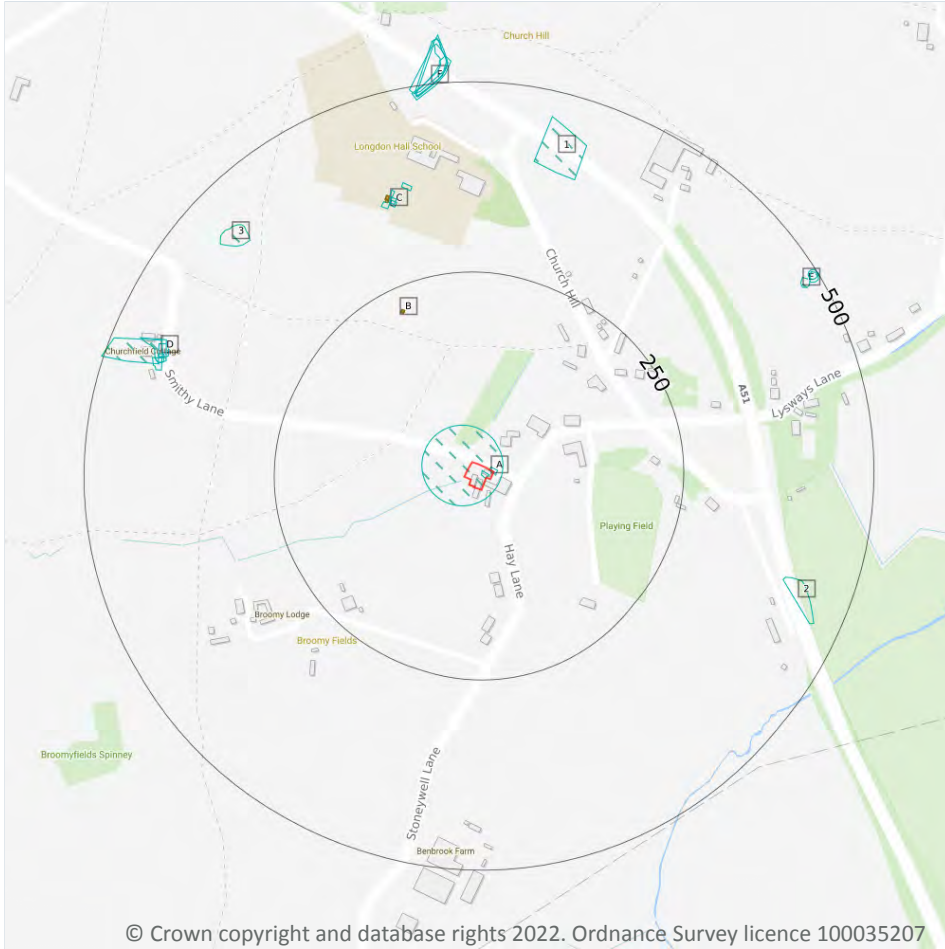
0

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



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### 2.1 Historical industrial land uses

Records within 500m

23

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	On site	Saw Pit	1924	1697645
A	On site	Saw Pit	1954	1630785
A	On site	Saw Pit	1924	1679748

ID	Location	Land Use	Date	Group ID
C	350m N	Sewage Tanks	1954	1672067
C	351m N	Sewage Tanks	1924	1690920
C	354m N	Sewage Tanks	1924	1672067
C	366m N	Sewage Tanks	1924	1575708
1	395m N	Cuttings	1971	1561276
2	406m E	Unspecified Pit	1924	1607793
3	413m NW	Old Marl Pit	1882	1607307
D	420m W	Smithy	1954	1678227
D	421m W	Smithy	1882	1746342
D	422m W	Smithy	1924	1678227
D	423m W	Smithy	1924	1644328
D	426m W	Smithy	1971	1702865
E	473m NE	Old Marl Pit	1924	1607308
F	482m N	Unspecified Ground Workings	1900	1616750
E	485m NE	Old Marl Pit	1924	1695106
F	485m N	Old Marl Pit	1954	1750033
F	486m N	Unspecified Ground Workings	1924	1616750
F	487m N	Old Marl Pit	1924	1750033
E	487m NE	Old Marl Pit	1954	1695106
F	490m N	Unspecified Pit	1882	1607805

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

## 2.2 Historical tanks

**Records within 500m**

**6**

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

Features are displayed on the Past land use - un-grouped map on **page 18**



ID	Location	Land Use	Date	Group ID
B	215m NW	Unspecified Tank	1960	274214
B	216m NW	Unspecified Tank	1999	274214
B	216m NW	Unspecified Tank	1993	274214
C	359m N	Sewage Tanks	1923	259435
C	361m N	Tanks	1960	267877
C	362m N	Tanks	1993	267877

*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.*







### 3.3 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 16

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

Features are displayed on the Waste and landfill map on **page 21**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	8m E	HAY LANE FARM, HAY LANE, RUGELEY, WS15 4QQ	WEX216590	Disposing of waste exemption	On a Farm	Burning waste in the open



ID	Location	Site	Reference	Category	Sub-Category	Description
A	21m SE	HAY LANE FARM, HAY LANE, RUGELEY, WS15 4QQ	WEX071261	Disposing of waste exemption	On a farm	Burning waste in the open
A	23m SE	Hay Lane Cottage WS15 4QQ	EPR/QE5483ZP /A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of waste from dredging of inland waters
1	118m S	SANDMART FARM, HAY LANE, LONGDON GREEN, RUGELEY, WS154QQ	WEX154654	Using waste exemption	On a Farm	Use of waste in construction
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Deposit of waste from dredging of inland waters
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Aerobic composting and associated prior treatment
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on agricultural land to confer benefit

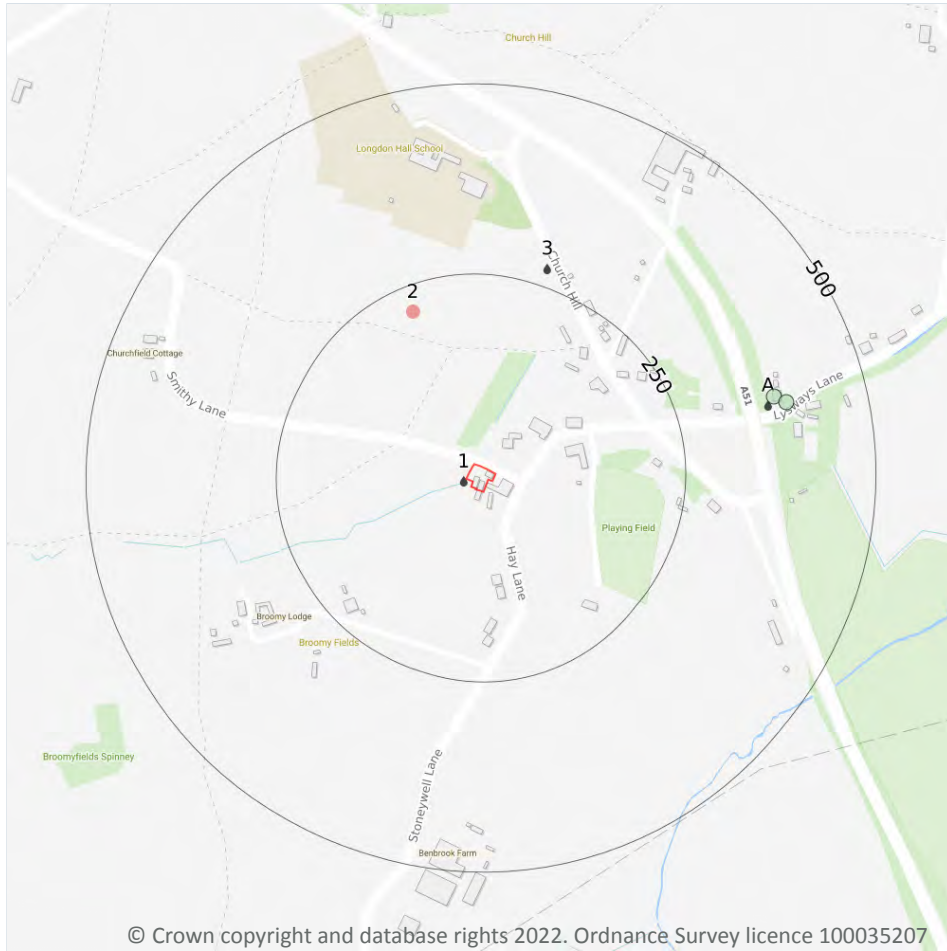


ID	Location	Site	Reference	Category	Sub-Category	Description
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Using waste exemption	Both agricultural and non- agricultural waste	Burning of waste as a fuel in a small appliance
B	340m SW	Broomy Fields Smithy Lane RUGELEY Staffordshire WS15 4QH	EPR/JH0578KN /A001	Using waste exemption	Both agricultural and non- agricultural waste	Use of waste for a specified purpose
C	494m S	BENBROOK FARM, STONEWELL LANE, RUGELEY, WS15 4QS	WEX195587	Using waste exemption	On a Farm	Use of waste in construction
C	494m S	BENBROOK FARM, STONEWELL LANE, RUGELEY, WS15 4QS	WEX111690	Using waste exemption	On a farm	Use of waste for a specified purpose
C	494m S	BENBROOK FARM, STONEWELL LANE, RUGELEY, WS15 4QS	WEX025155	Using waste exemption	On a farm	Use of waste in construction

*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
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

### 4.1 Recent industrial land uses

Records within 250m

1

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Company	Address	Activity	Category
2	216m N	Tank	Staffordshire, WS15	Tanks (Generic)	Industrial Features

*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

3

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

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Address	Details	
1	5m SW	SMITHY HAY, LONGDON GREEN, RUGELEY, STAFFORDSHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: T/07/01101/S Permit Version: 1 Receiving Water: BEN BROOK	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 29/08/1963 Effective Date: 29/08/1963 Revocation Date: -
3	274m N	LONGDON HALL SCHOOL, LONGDON GREEN, NR RUGELEY, STAFFORDSHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: T/07/10347/S Permit Version: 1 Receiving Water: LONGDON BROOK	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 08/05/1986 Effective Date: 08/05/1986 Revocation Date: -
A	369m E	THE RED LION PUBLIC HOUSE, HAY LANE, LONGDON GREEN, RUGELEY, STAFFORDSHIRE	Effluent Type: SEWAGE & TRADE COMBINED - UNSPECIFIED Permit Number: T/07/35694/T Permit Version: 1 Receiving Water: BEN BROOK	Status: REVOKED UNDER EPR 2010 Issue date: 12/06/2002 Effective Date: 12/06/2002 Revocation Date: 09/02/2015

*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

2

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

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Details	
A	379m E	Incident Date: 13/08/2001 Incident Identification: 23847 Pollutant: Contaminated Water Pollutant Description: Suspended Solids	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	393m E	Incident Date: 08/05/2003 Incident Identification: 156695 Pollutant: Sewage Materials Pollutant Description: Final Effluent	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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





#### 4.19 Pollution inventory substances

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

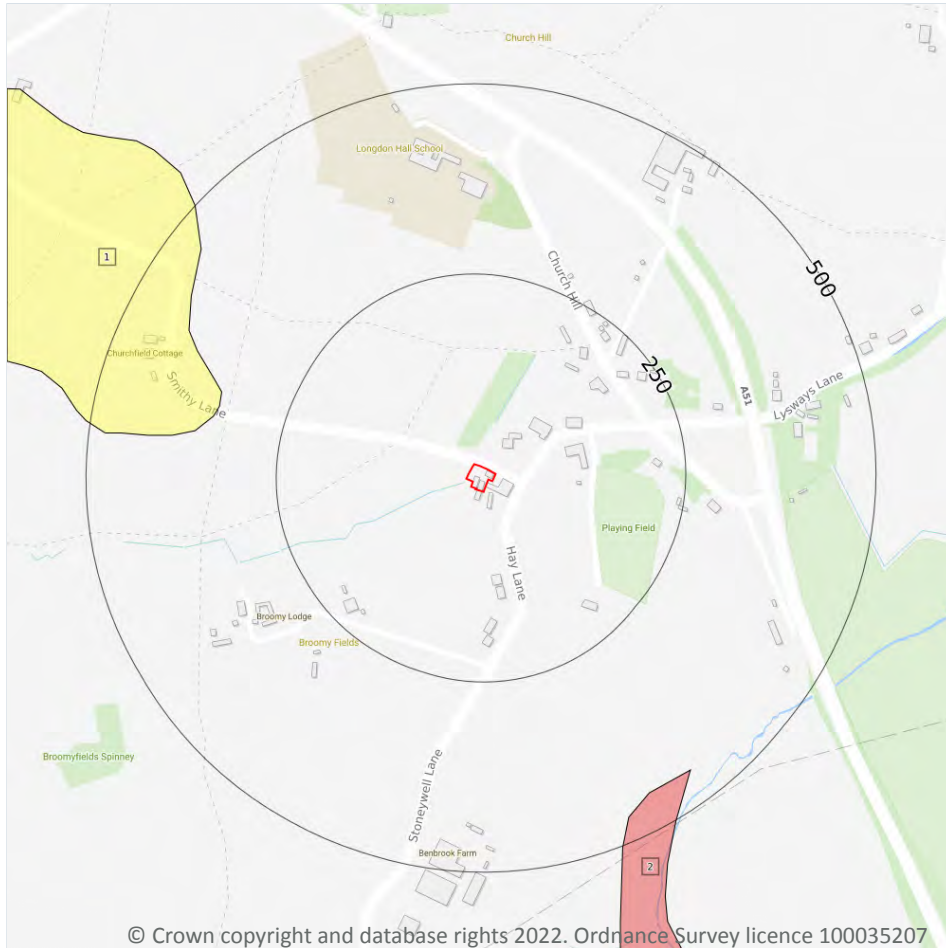
0

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



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

### 5.1 Superficial aquifer

Records within 500m

2

Aquifer status of groundwater held within superficial geology.

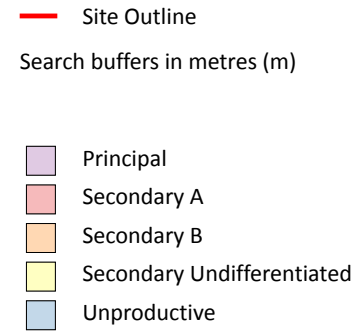
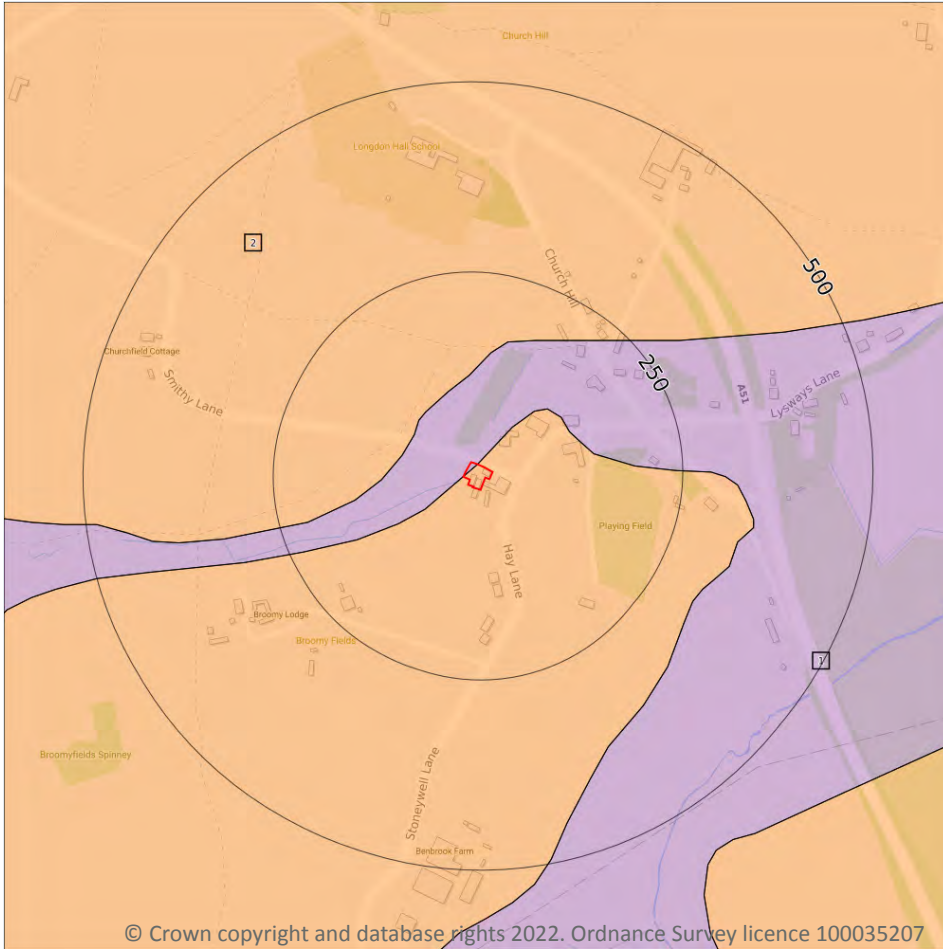
Features are displayed on the Hydrogeology map on **page 31**

ID	Location	Designation	Description
1	338m W	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	452m SE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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



## Bedrock aquifer



### 5.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 33**

ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	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

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





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

0

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

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

## 5.5 Groundwater vulnerability- local information

Records on site

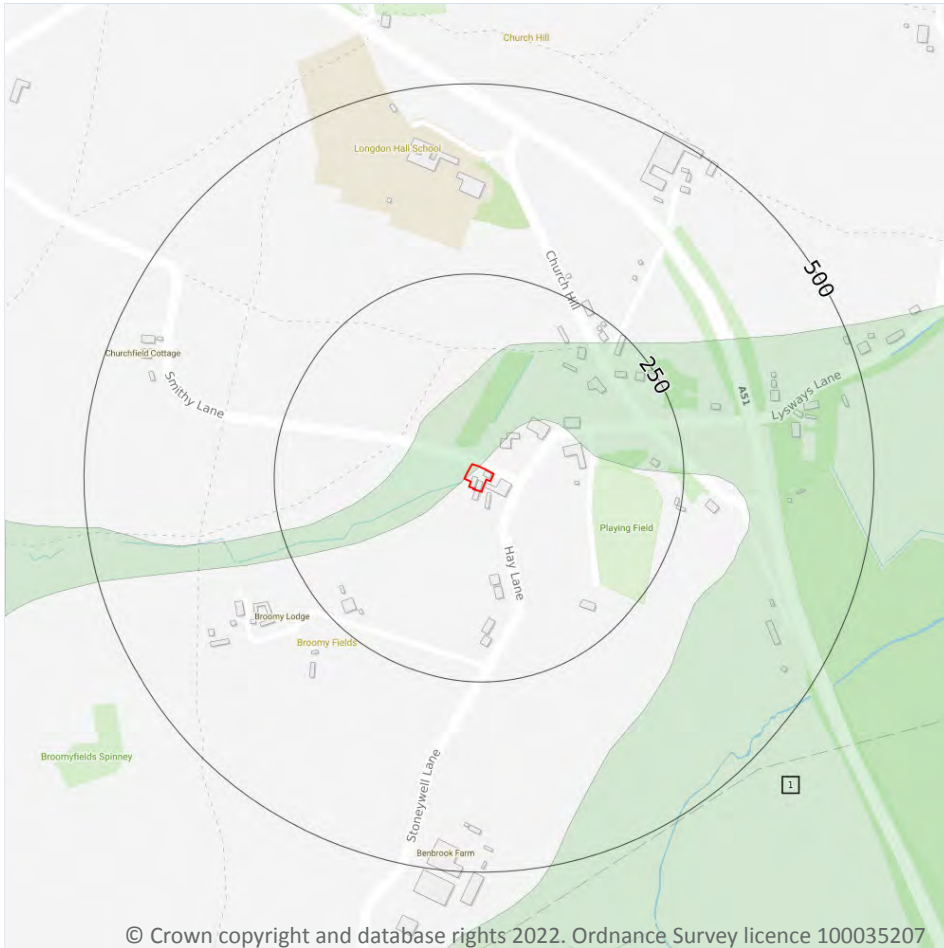
0

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

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



## Abstractions and Source Protection Zones



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### 5.6 Groundwater abstractions

Records within 2000m

3

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 37**



ID	Location	Details	
-	1966m N	Status: Historical Licence No: 03/28/05/0006 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: HANDSACRE HALL FARM, B'HOLE 1 Data Type: Point Name: BOSTON Easting: 408900 Northing: 315400	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 29/10/1965 Expiry Date: - Issue No: 100 Version Start Date: 07/02/1967 Version End Date: -
-	1992m E	Status: Active Licence No: 03/28/07/0097 Details: Water Bottling Direct Source: Groundwater Midlands Region Point: SEEDY MILL - BOREHOLE 'I' Data Type: Point Name: South Staffordshire Water Plc Easting: 410305 Northing: 313853	Annual Volume (m <sup>3</sup> ): 5,117,300 Max Daily Volume (m <sup>3</sup> ): 19,190 Original Application No: NPS/WR/027949 Original Start Date: 23/12/1998 Expiry Date: - Issue No: 105 Version Start Date: 30/03/2020 Version End Date: -
-	1992m E	Status: Active Licence No: 03/28/07/0097 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: SEEDY MILL - BOREHOLE 'I' Data Type: Point Name: South Staffordshire Water Plc Easting: 410305 Northing: 313853	Annual Volume (m <sup>3</sup> ): 5,117,300 Max Daily Volume (m <sup>3</sup> ): 19,190 Original Application No: NPS/WR/027949 Original Start Date: 23/12/1998 Expiry Date: - Issue No: 105 Version Start Date: 30/03/2020 Version End Date: -

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

## 5.7 Surface water abstractions

### Records within 2000m

5

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 37**



ID	Location	Details	
-	1153m W	Status: Active Licence No: 03/28/07/0092 Details: Lake & Pond Throughflow Direct Source: Surface Water Midlands Region Point: DARK LANE, LONGDON - TRIBUTARY OF BEN BROOK Data Type: Point Name: ROWE Easting: 407160 Northing: 313350	Annual Volume (m <sup>3</sup> ): 27,720 Max Daily Volume (m <sup>3</sup> ): 154 Original Application No: NPS/WR/016586 Original Start Date: 22/03/1995 Expiry Date: - Issue No: 101 Version Start Date: 15/07/2014 Version End Date: -
-	1881m E	Status: Active Licence No: 03/28/07/0084 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: POND ON MILL STREAM - TRIB OF BILSTON BROOK Data Type: Point Name: THE CLUB COMPANY (UK) LIMITED Easting: 410180 Northing: 313110	Annual Volume (m <sup>3</sup> ): 16,500 Max Daily Volume (m <sup>3</sup> ): 150 Original Application No: A/28/7/22 Original Start Date: 13/11/1991 Expiry Date: - Issue No: 101 Version Start Date: 22/10/2004 Version End Date: -
-	1935m SE	Status: Historical Licence No: 03/28/07/0041 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: LAND NR CURBOROUGH - BILSON/ASHMORE BRKS POINT 3 Data Type: Point Name: Pamela Latchford, Louise Atkins, Alan Lowe, Martin de Ridder Easting: 410100 Northing: 312700	Annual Volume (m <sup>3</sup> ): 6,819 Max Daily Volume (m <sup>3</sup> ): 981.93 Original Application No: - Original Start Date: 07/03/1966 Expiry Date: - Issue No: 102 Version Start Date: 13/10/2020 Version End Date: -
-	1940m SE	Status: Historical Licence No: 03/28/07/0041 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: LAND NR CURBOROUGH - BILSON/ASHMORE BROOKS POINT 1 Data Type: Point Name: Pamela Latchford, Louise Atkins, Alan Lowe, Martin de Ridder Easting: 410000 Northing: 312500	Annual Volume (m <sup>3</sup> ): 6,819 Max Daily Volume (m <sup>3</sup> ): 981.93 Original Application No: - Original Start Date: 07/03/1966 Expiry Date: - Issue No: 102 Version Start Date: 13/10/2020 Version End Date: -



ID	Location	Details	
-	1979m SE	Status: Historical Licence No: 03/28/07/0041 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: LAND NR CURBOROUGH - BILSON/ASHMORE BRKS POINT 2 Data Type: Point Name: Pamela Latchford, Louise Atkins, Alan Lowe, Martin de Ridder Easting: 410100 Northing: 312600	Annual Volume (m <sup>3</sup> ): 6,819 Max Daily Volume (m <sup>3</sup> ): 981.93 Original Application No: - Original Start Date: 07/03/1966 Expiry Date: - Issue No: 102 Version Start Date: 13/10/2020 Version End Date: -

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

## 5.8 Potable abstractions

<b>Records within 2000m</b>	<b>2</b>
-----------------------------	----------

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 37**

ID	Location	Details	
-	1992m E	Status: Active Licence No: 03/28/07/0097 Details: Water Bottling Direct Source: Groundwater Midlands Region Point: SEEDY MILL - BOREHOLE 'I' Data Type: Point Name: South Staffordshire Water Plc Easting: 410305 Northing: 313853	Annual Volume (m <sup>3</sup> ): 5,117,300 Max Daily Volume (m <sup>3</sup> ): 19,190 Original Application No: NPS/WR/027949 Original Start Date: 23/12/1998 Expiry Date: - Issue No: 105 Version Start Date: 30/03/2020 Version End Date: -
-	1992m E	Status: Active Licence No: 03/28/07/0097 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: SEEDY MILL - BOREHOLE 'I' Data Type: Point Name: South Staffordshire Water Plc Easting: 410305 Northing: 313853	Annual Volume (m <sup>3</sup> ): 5,117,300 Max Daily Volume (m <sup>3</sup> ): 19,190 Original Application No: NPS/WR/027949 Original Start Date: 23/12/1998 Expiry Date: - Issue No: 105 Version Start Date: 30/03/2020 Version End Date: -

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



## 5.9 Source Protection Zones

Records within 500m

1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 37**

ID	Location	Type	Description
1	On site	3	Total catchment

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

## 5.10 Source Protection Zones (confined aquifer)

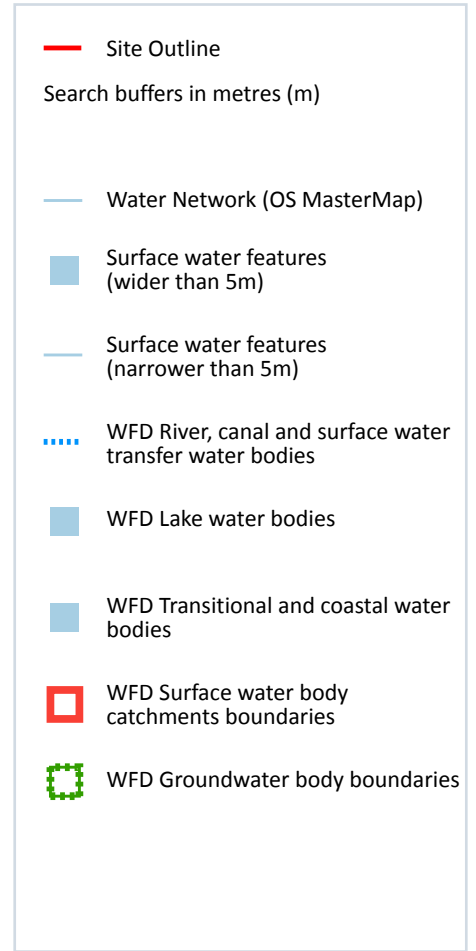
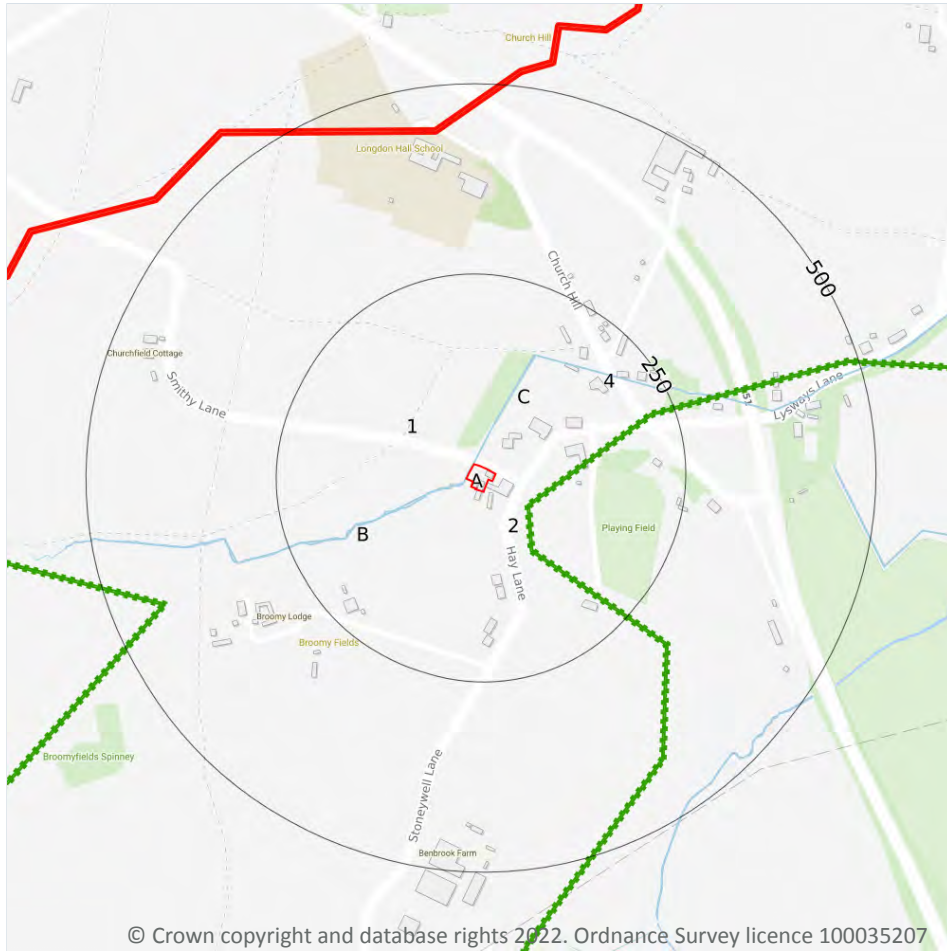
Records within 500m

0

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

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

## 6 Hydrology



### 6.1 Water Network (OS MasterMap)

Records within 250m

5

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

Features are displayed on the Hydrology map on **page 42**

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

ID	Location	Type of water feature	Ground level	Permanence	Name
A	1m NW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
B	6m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	61m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	162m NE	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-

*This data is sourced from the Ordnance Survey.*

## 6.2 Surface water features

<b>Records within 250m</b>	<b>3</b>
----------------------------	----------

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

Features are displayed on the Hydrology map on **page 42**

*This data is sourced from the Ordnance Survey.*

## 6.3 WFD Surface water body catchments

<b>Records on site</b>	<b>1</b>
------------------------	----------

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

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	On site	River	Bourne-Bilson Brook Catchment (trib of Trent)	GB104028047270	Trent - Sow to Tame Rivers and Lakes	Trent Valley Staffordshire

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



## 6.4 WFD Surface water bodies

<b>Records identified</b>	<b>1</b>
---------------------------	----------

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

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1771m E	River	Bourne-Bilson Brook Catchment (trib of Trent)	<a href="#">GB104028047270</a>	Bad	Fail	Bad	2019

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

## 6.5 WFD Groundwater bodies

<b>Records on site</b>	<b>1</b>
------------------------	----------

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

Features are displayed on the Hydrology map on **page 42**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	On site	Staffordshire Trent Valley - Mercia Mudstone East & Coal Measures	<a href="#">GB40402G300300</a>	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

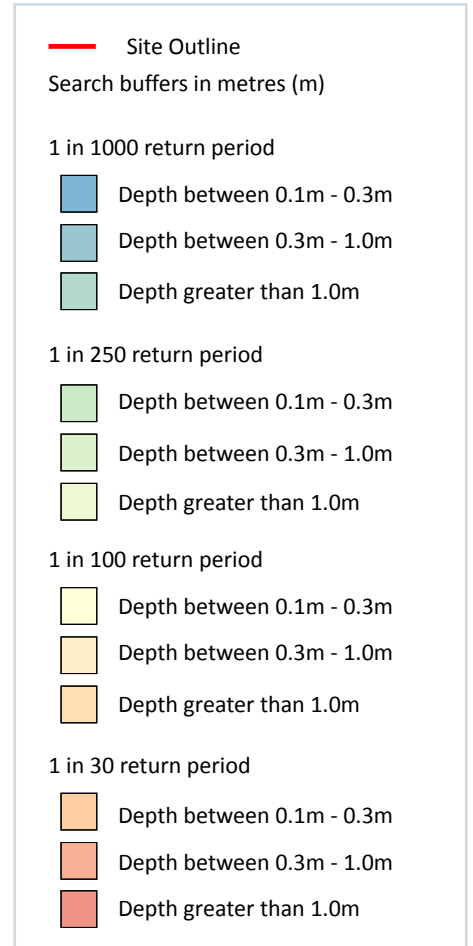
0

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**

**1 in 100 year, 0.1m - 0.3m**

**Highest risk within 50m**

**1 in 30 year, 0.3m - 1.0m**

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

Features are displayed on the Surface water flooding map on **page 48**

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

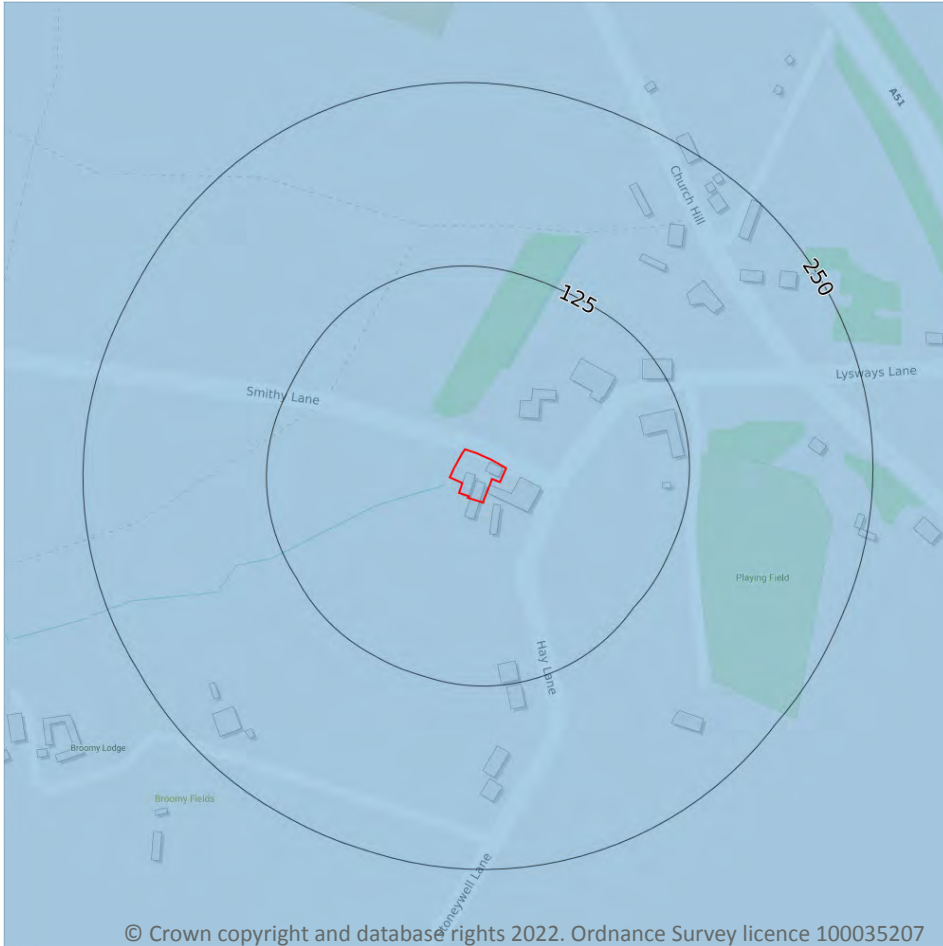
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Between 0.05m and 0.1m

*This data is sourced from Ambiental Risk Analytics.*



## 9 Groundwater flooding



### 9.1 Groundwater flooding

**Highest risk on site**

**Negligible**

**Highest risk within 50m**

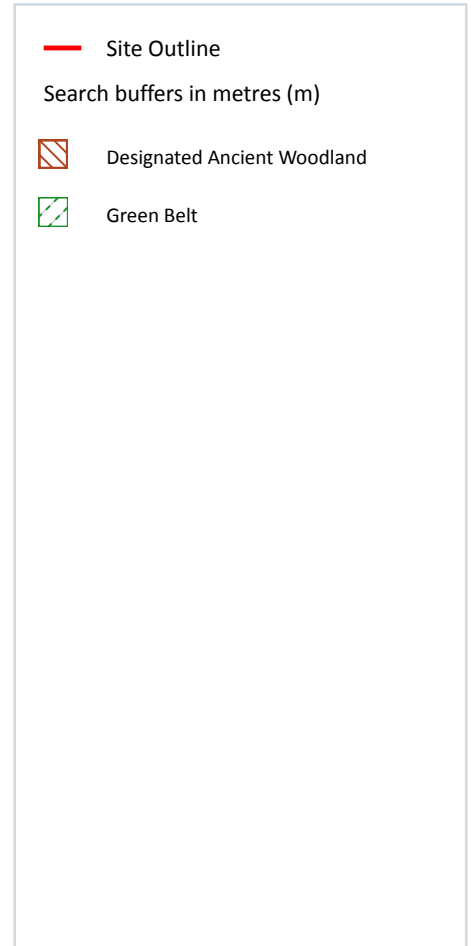
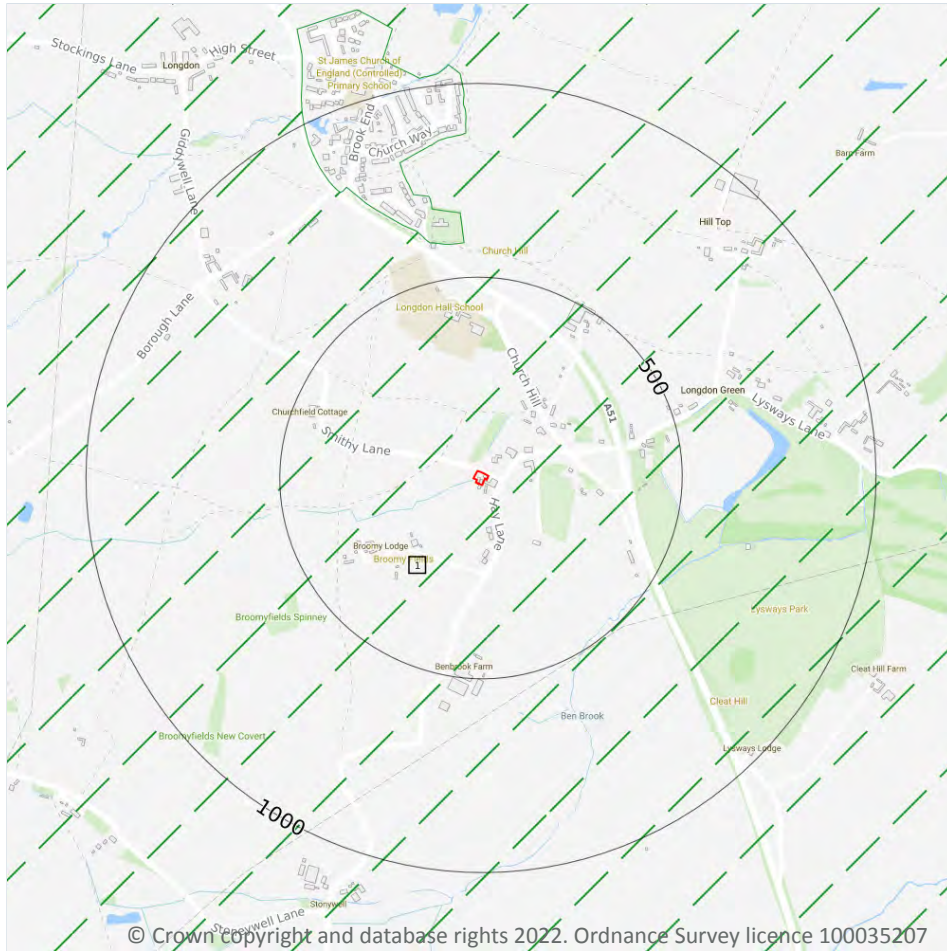
**Negligible**

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

Features are displayed on the Groundwater flooding map on **page 50**

*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

2

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

Features are displayed on the Environmental designations map on **page 51**

ID	Location	Name	Woodland Type
-	1600m W	George`s Hayes	Ancient & Semi-Natural Woodland
-	1624m W	Square Covert	Ancient & Semi-Natural Woodland

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

## 10.8 Biosphere Reserves

Records within 2000m

0

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

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

## 10.9 Forest Parks

Records within 2000m

0

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

*This data is sourced from the Forestry Commission.*





## 10.10 Marine Conservation Zones

Records within 2000m

0

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

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

## 10.11 Green Belt

Records within 2000m

1

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

Features are displayed on the Environmental designations map on **page 51**

ID	Location	Name	Local Authority name
1	On site	Birmingham	Lichfield

*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

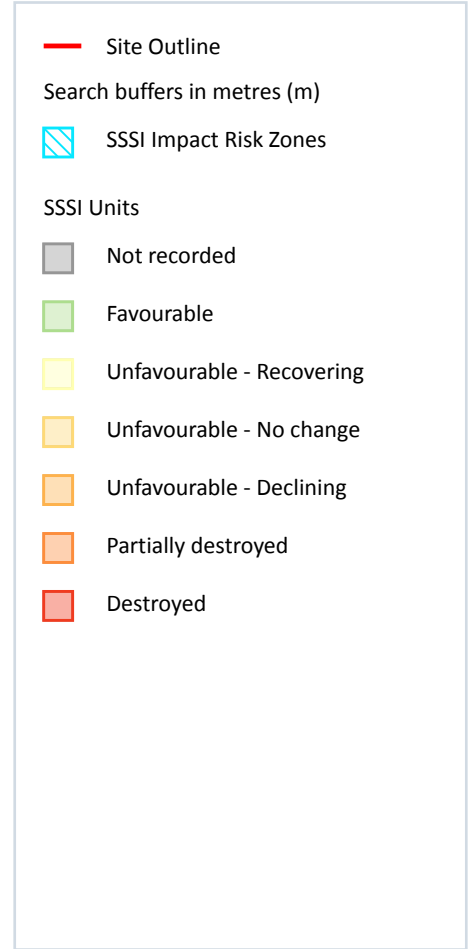
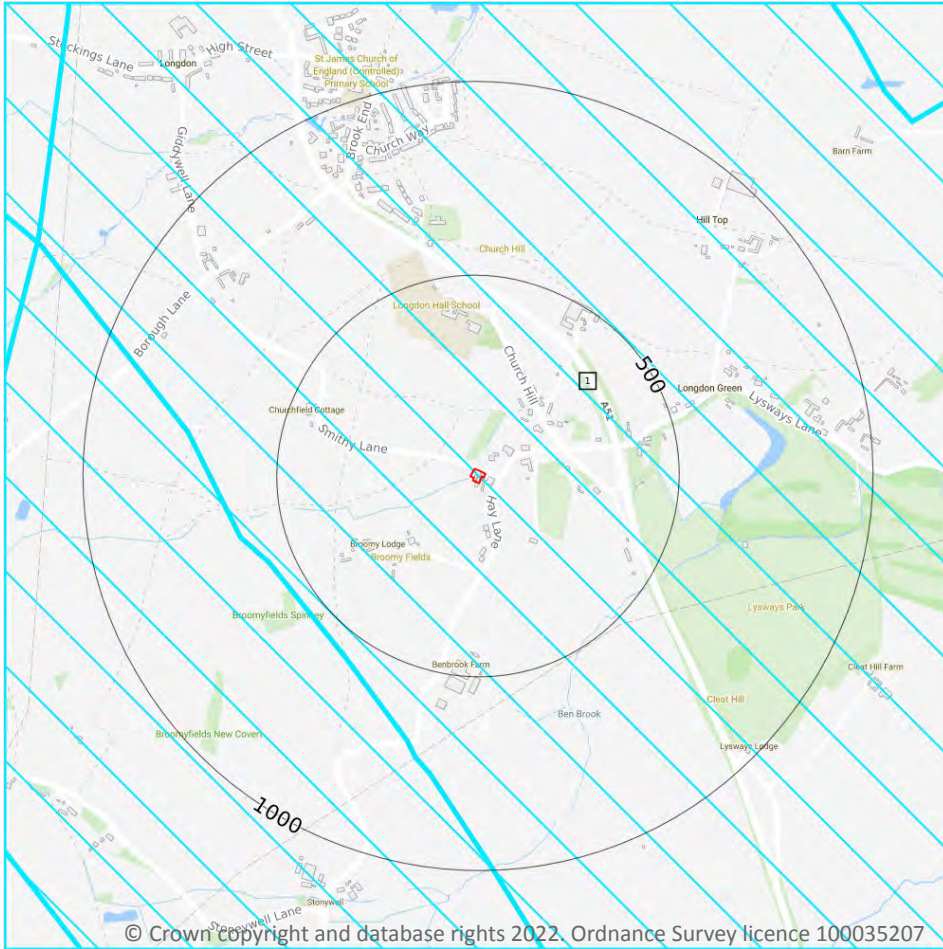
2

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	River Trent (source to confluence with Derwent)	Surface Water	308	Existing
On site	Lichfield	Groundwater	33	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

1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 56**

ID	Location	Type of developments requiring consultation
1	On site	<p><b>Infrastructure - Airports, helipads and other aviation proposals.</b></p> <p><b>Residential - Residential development of 50 units or more.</b></p> <p><b>Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas.</b></p> <p><b>Air pollution - Livestock &amp; poultry units with floorspace &gt; 500m<sup>2</sup>, slurry lagoons &amp; digestate stores &gt; 750m<sup>2</sup>, manure stores &gt; 3500t.</b></p> <p><b>Combustion - General combustion processes &gt;50mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.</b></p> <p><b>Notes: New residential/tourist accommodation in this area requires an hra and financial contributions to mitigate increased recreational disturbance on cannock chase. check with local planning authority.</b></p>

*This data is sourced from Natural England.*

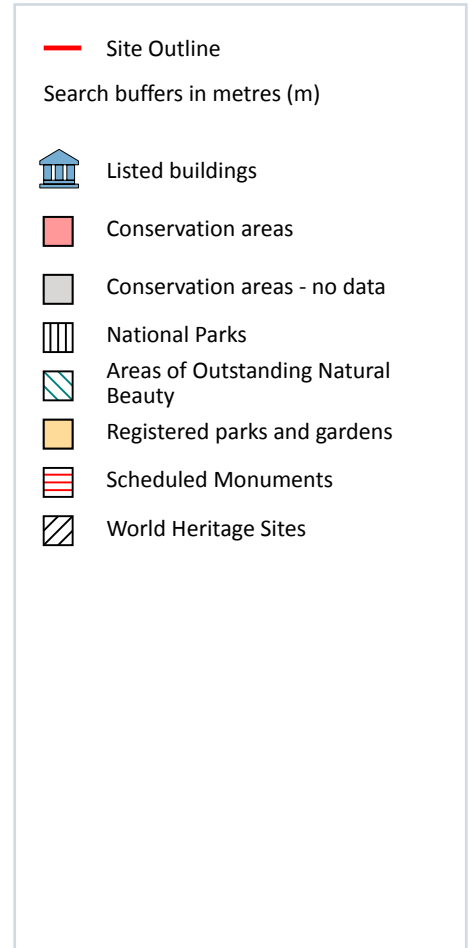
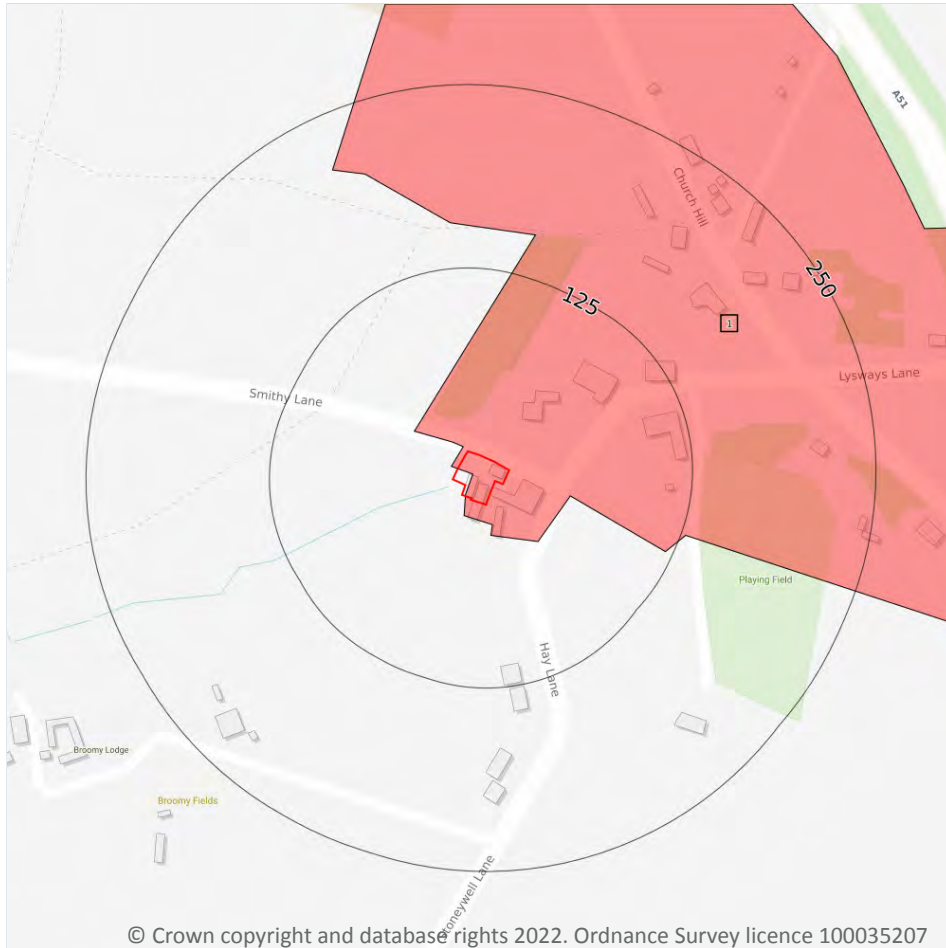
## 10.18 SSSI Units

<b>Records within 2000m</b>	<b>0</b>
-----------------------------	----------

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

1

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



Features are displayed on the Visual and cultural designations map on **page 58**

ID	Location	Name	District	Date of designation
1	On site	Longdon Green	Lichfield	unknown

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

## 11.6 Scheduled Ancient Monuments

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

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

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

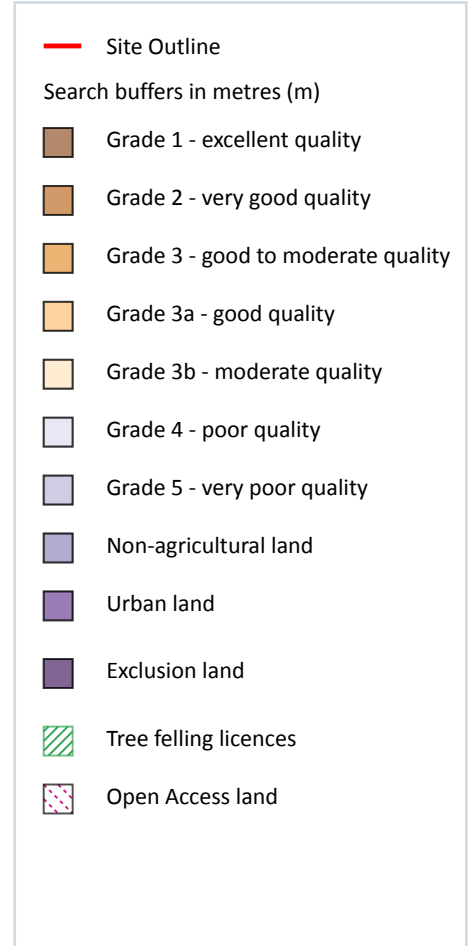
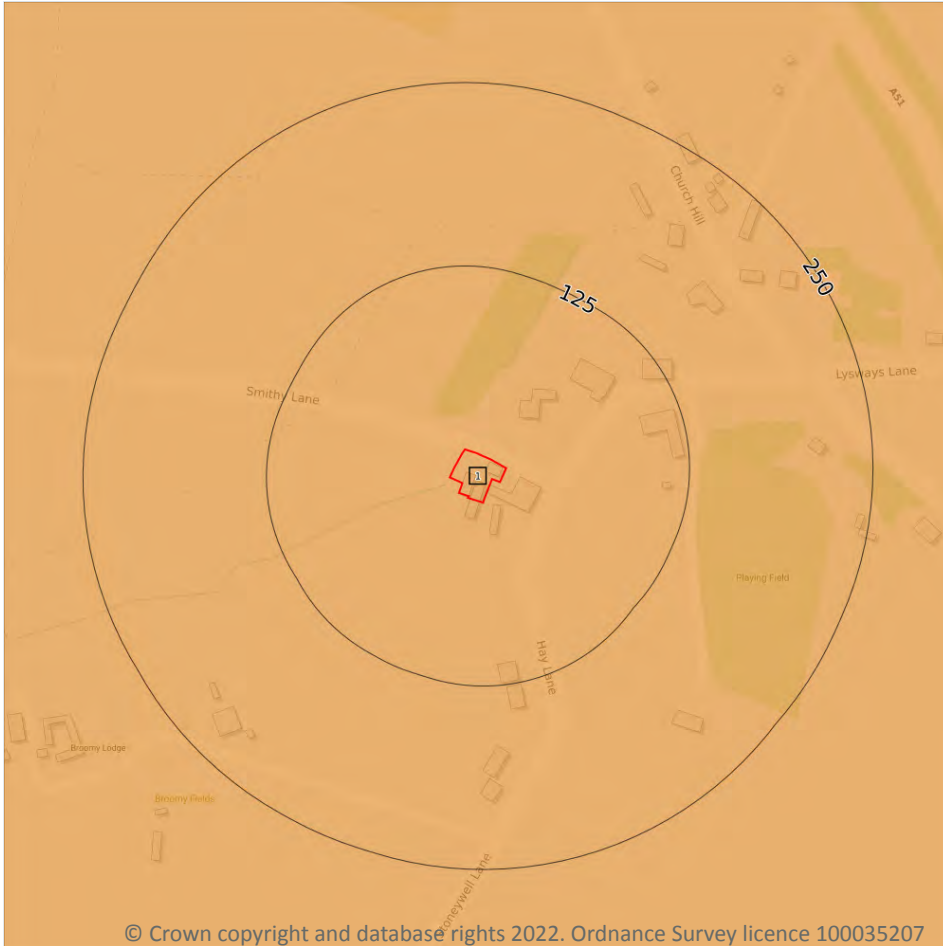
## 11.7 Registered Parks and Gardens

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

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

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

## 12 Agricultural designations



### 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 61**

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

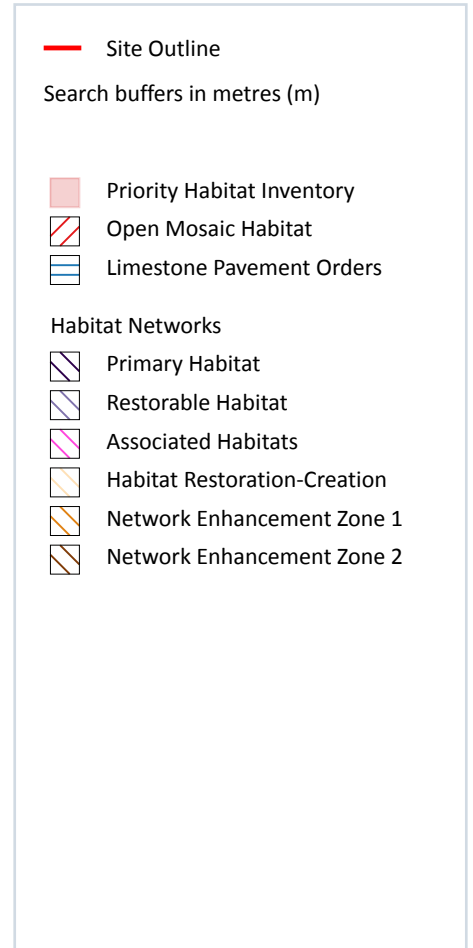
Records within 250m

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

1

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

Features are displayed on the Habitat designations map on **page 63**

ID	Location	Main Habitat	Other habitats
1	23m N	Deciduous woodland	Main habitat: DWOOD (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

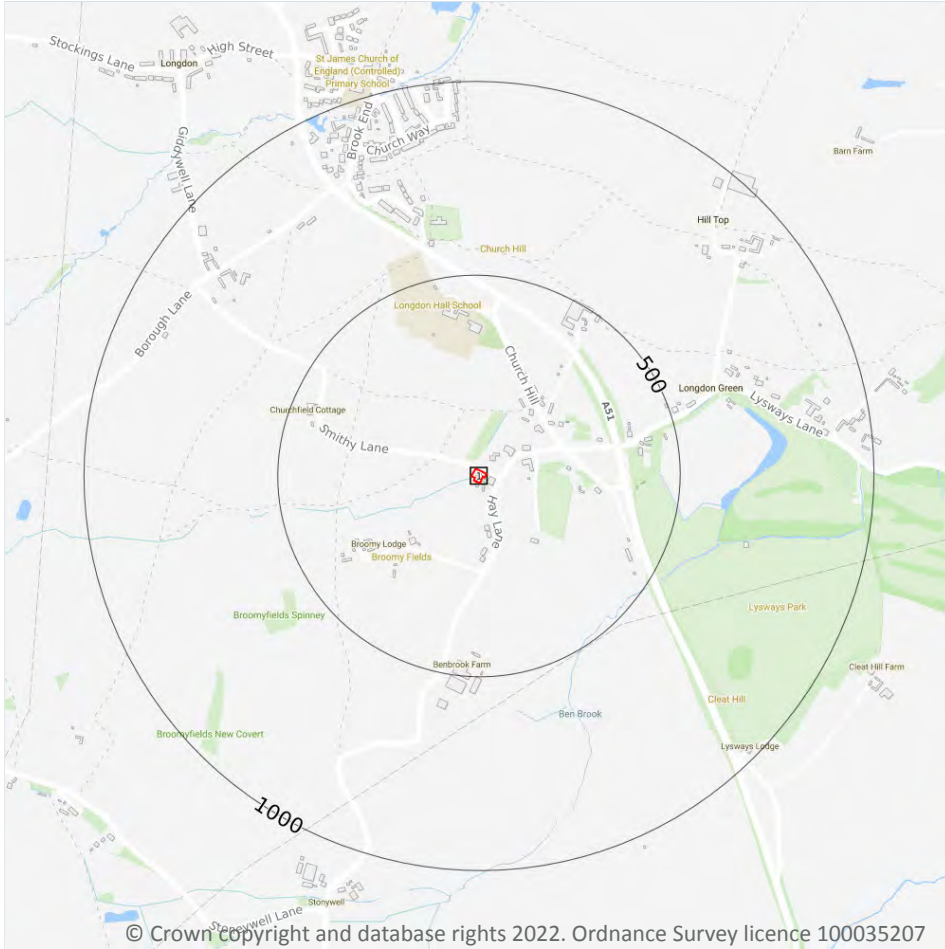
0

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 65](#)

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

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

### 14.3 Superficial geology (10k)

Records within 500m

0

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.

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

### 14.4 Landslip (10k)

Records within 500m

0

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

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



## Geology 1:10,000 scale - Bedrock

### 14.5 Bedrock geology (10k)

Records within 500m

0

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.

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

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

Records within 500m

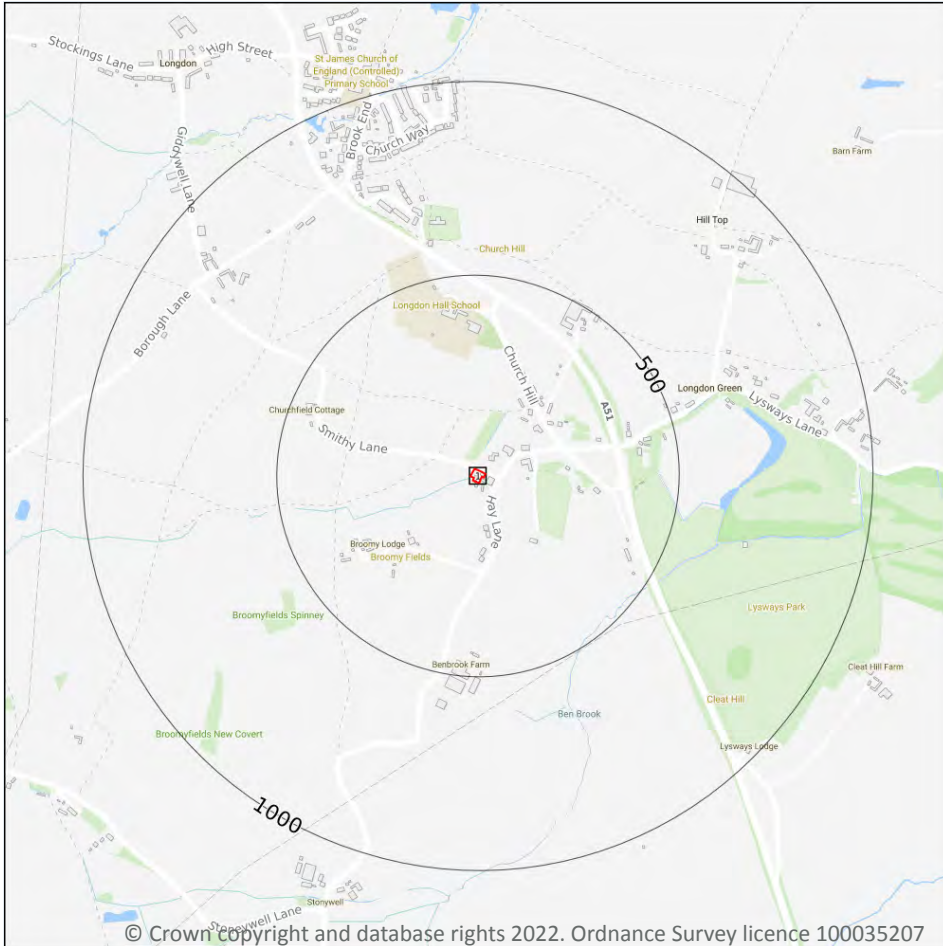
0

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

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



## 15 Geology 1:50,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- Geological map tile

### 15.1 50k Availability

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 69**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	EW154_lichfield_v4

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



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

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

Records within 500m

0

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

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

### 15.3 Artificial ground permeability (50k)

Records within 50m

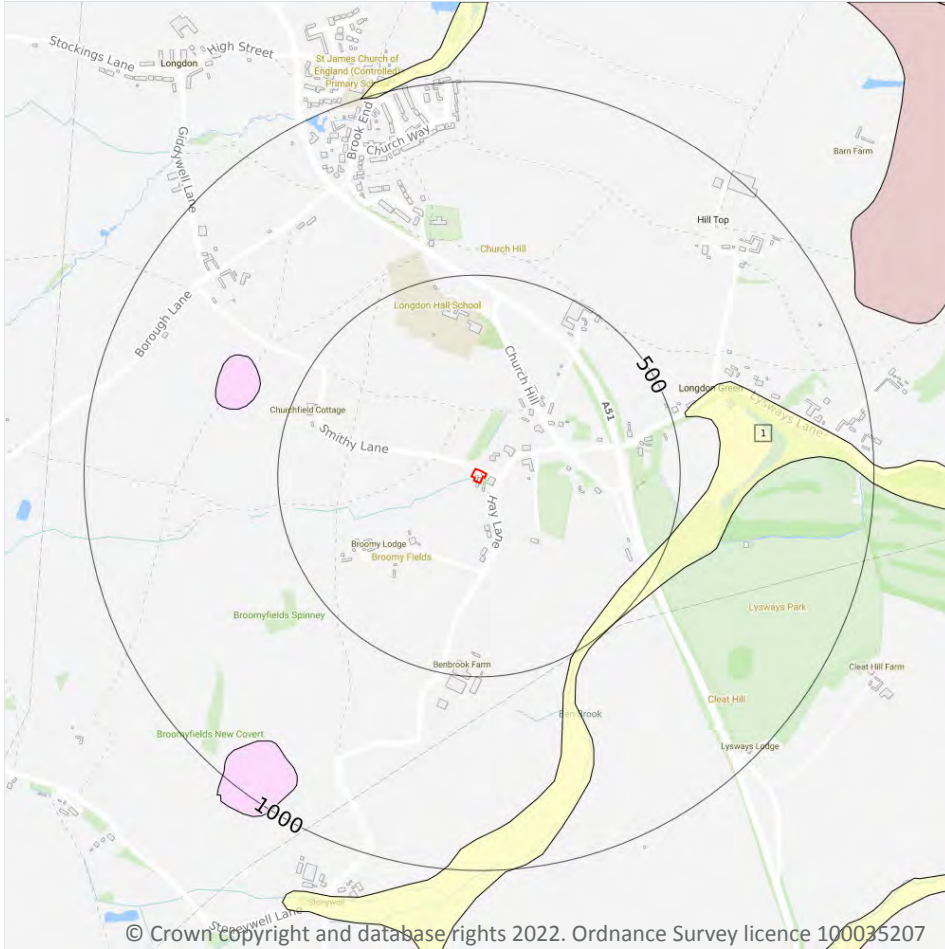
0

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

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



## Geology 1:50,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (50k)
- Superficial geology (50k)  
Please see table for more details.

### 15.4 Superficial geology (50k)

#### Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 71**

ID	Location	LEX Code	Description	Rock description
1	450m SE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

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

## 15.5 Superficial permeability (50k)

Records within 50m

0

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

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

## 15.6 Landslip (50k)

Records within 500m

0

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

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

## 15.7 Landslip permeability (50k)

Records within 50m

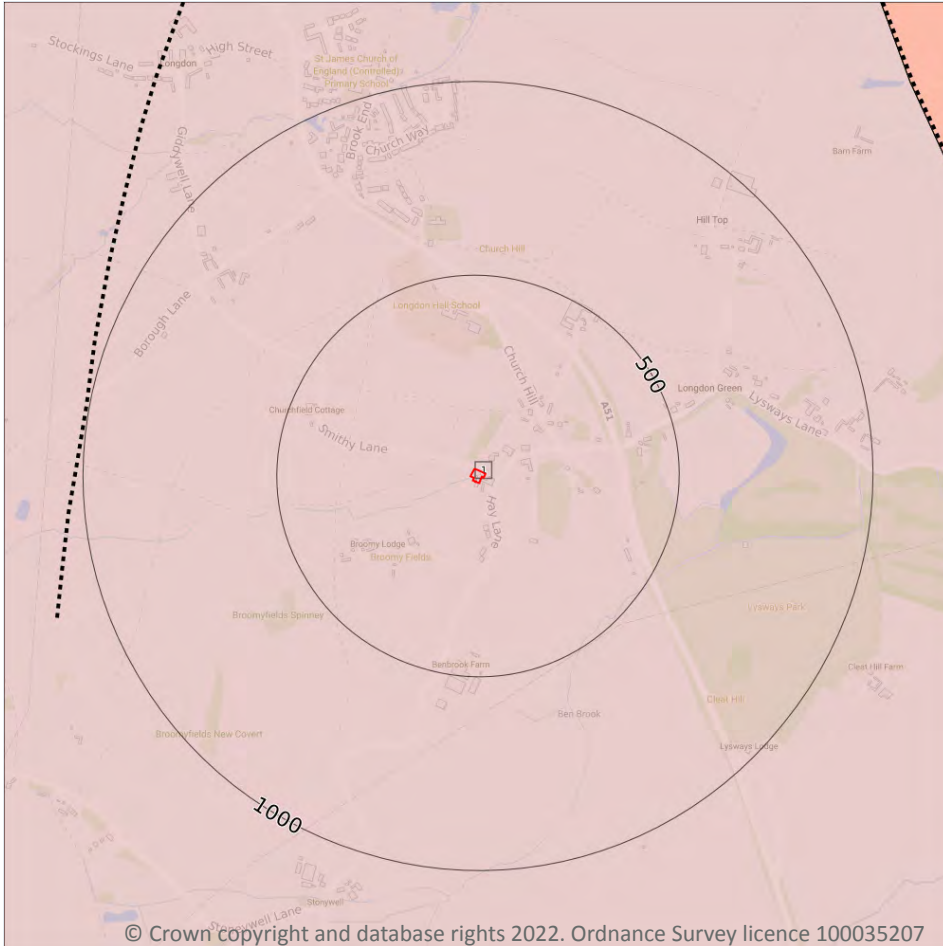
0

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

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



## Geology 1:50,000 scale - Bedrock



- Site Outline
- Search buffers in metres (m)
- ..... Bedrock faults and other linear features (50k)
- Bedrock geology (50k)  
Please see table for more details.

### 15.8 Bedrock geology (50k)

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 73**

ID	Location	LEX Code	Description	Rock age
1	On site	TPSF-MDST	TARPORLEY SILTSTONE FORMATION - MUDSTONE	OLENEKIAN

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

## 15.9 Bedrock permeability (50k)

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

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

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

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

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

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

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

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

## 16 Boreholes

### 16.1 BGS Boreholes

Records within 250m

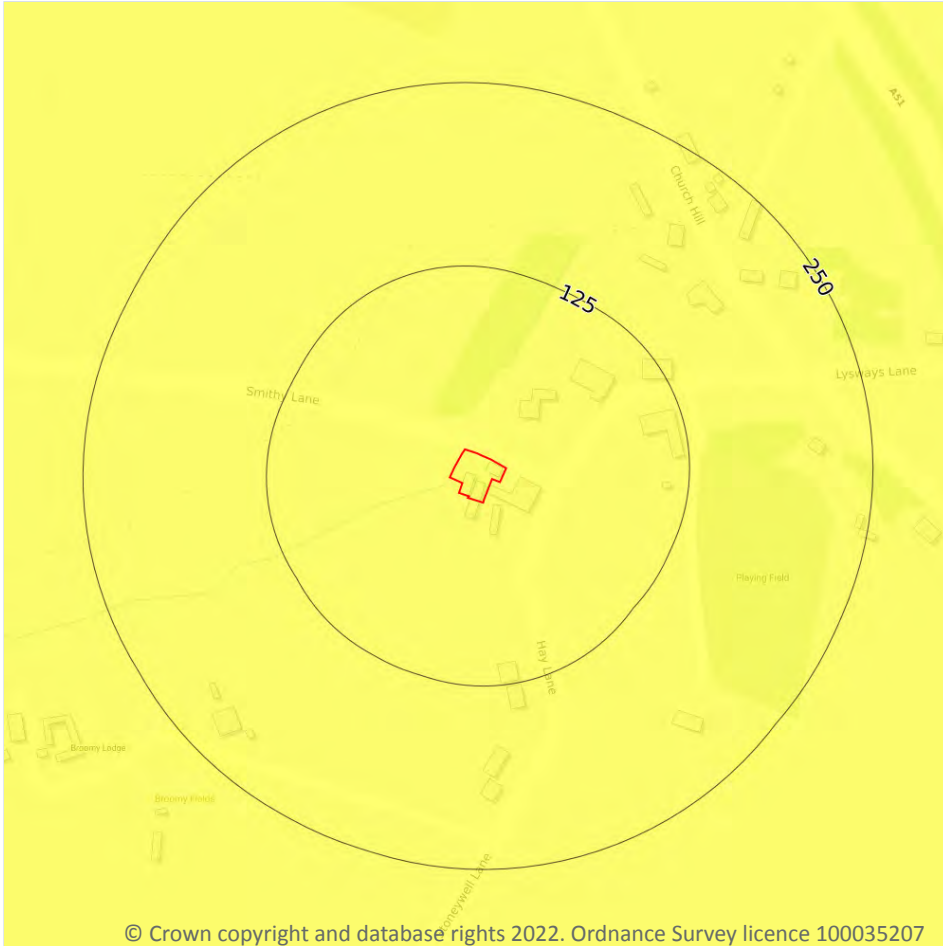
0

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



### 17.1 Shrink swell clays

Records within 50m

1

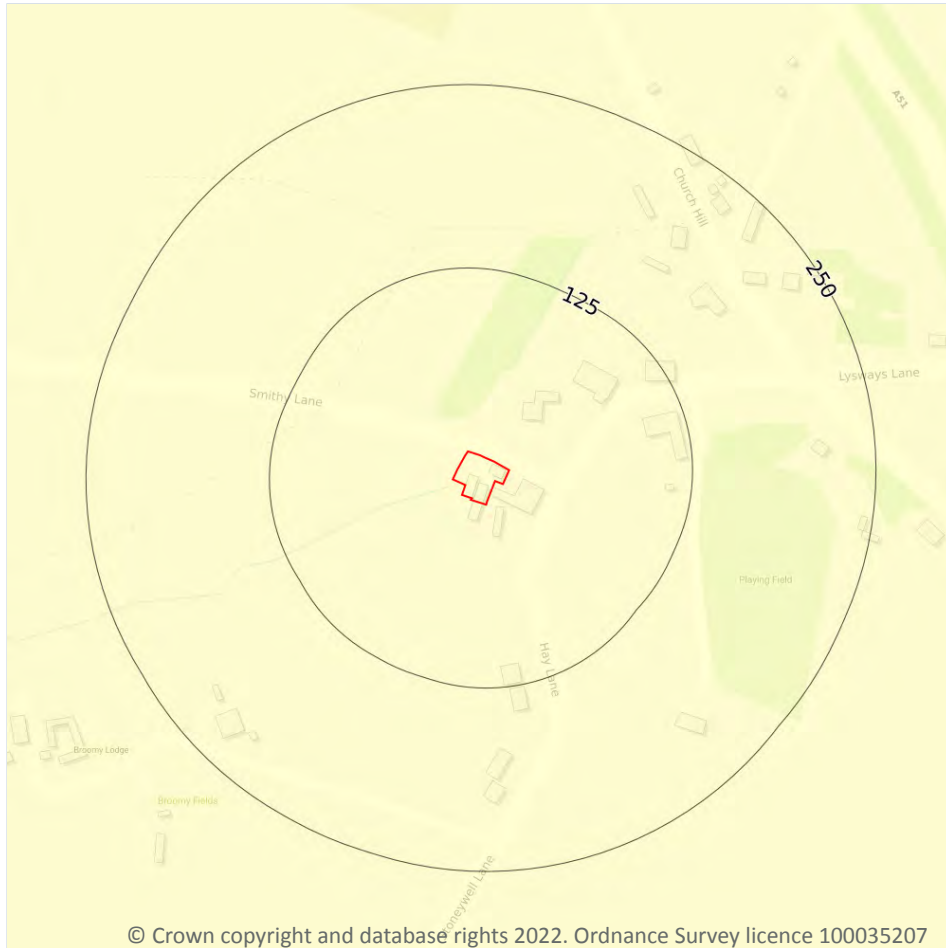
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 76**

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.

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

## Natural ground subsidence - Running sands



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### 17.2 Running sands

Records within 50m

1

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

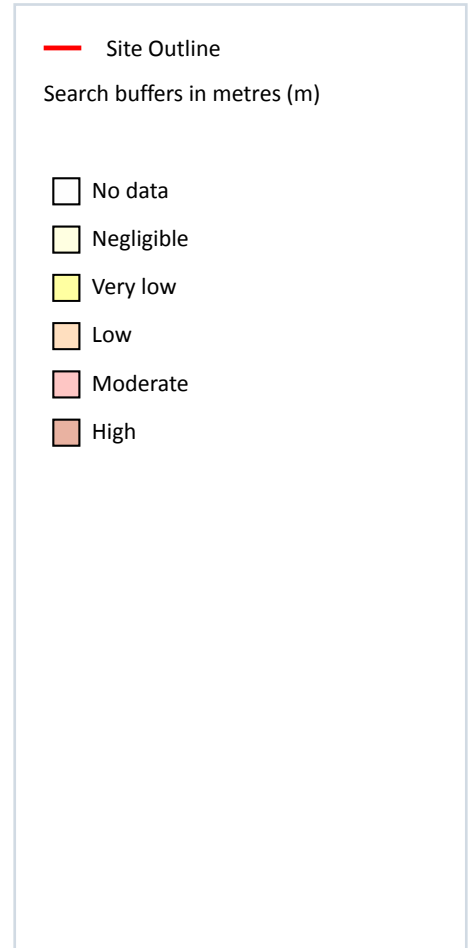
Features are displayed on the Natural ground subsidence - Running sands map on **page 77**

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

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



## Natural ground subsidence - Compressible deposits



### 17.3 Compressible deposits

Records within 50m

1

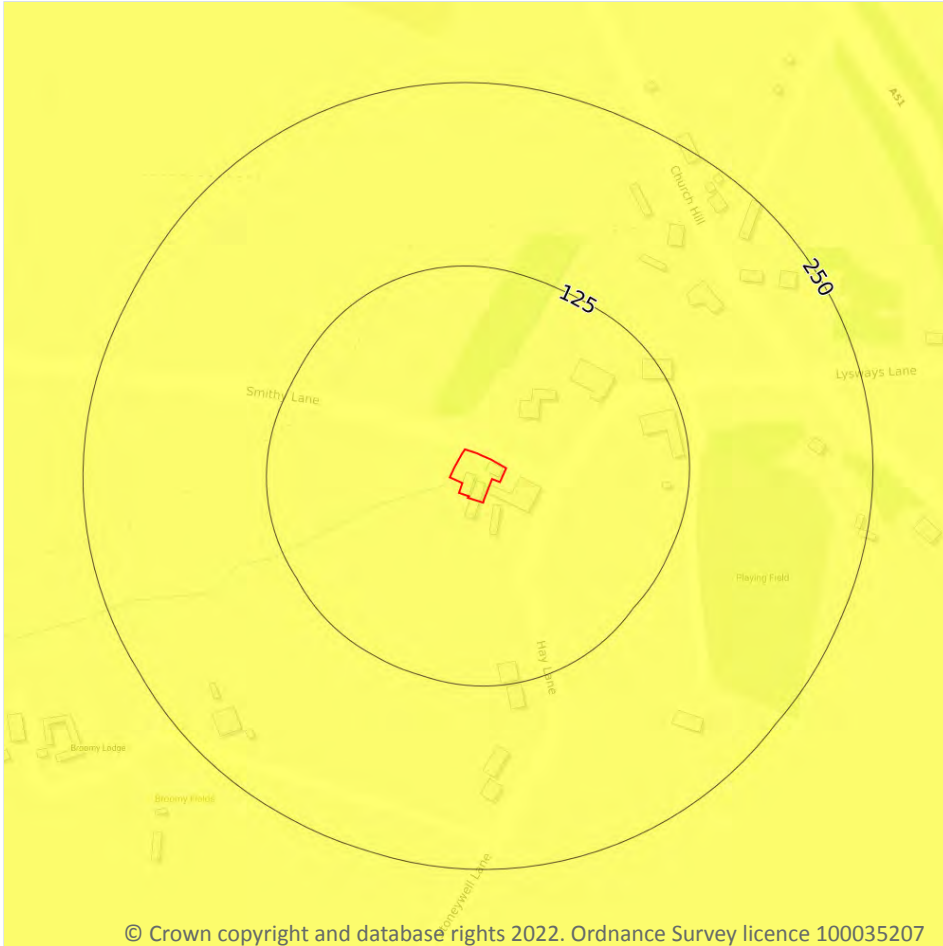
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

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

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

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

## Natural ground subsidence - Collapsible deposits



### 17.4 Collapsible deposits

Records within 50m

1

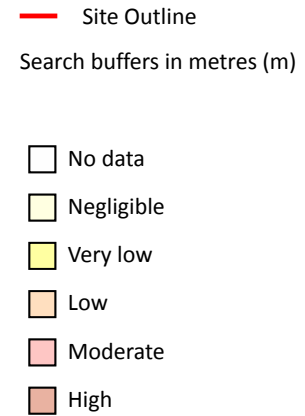
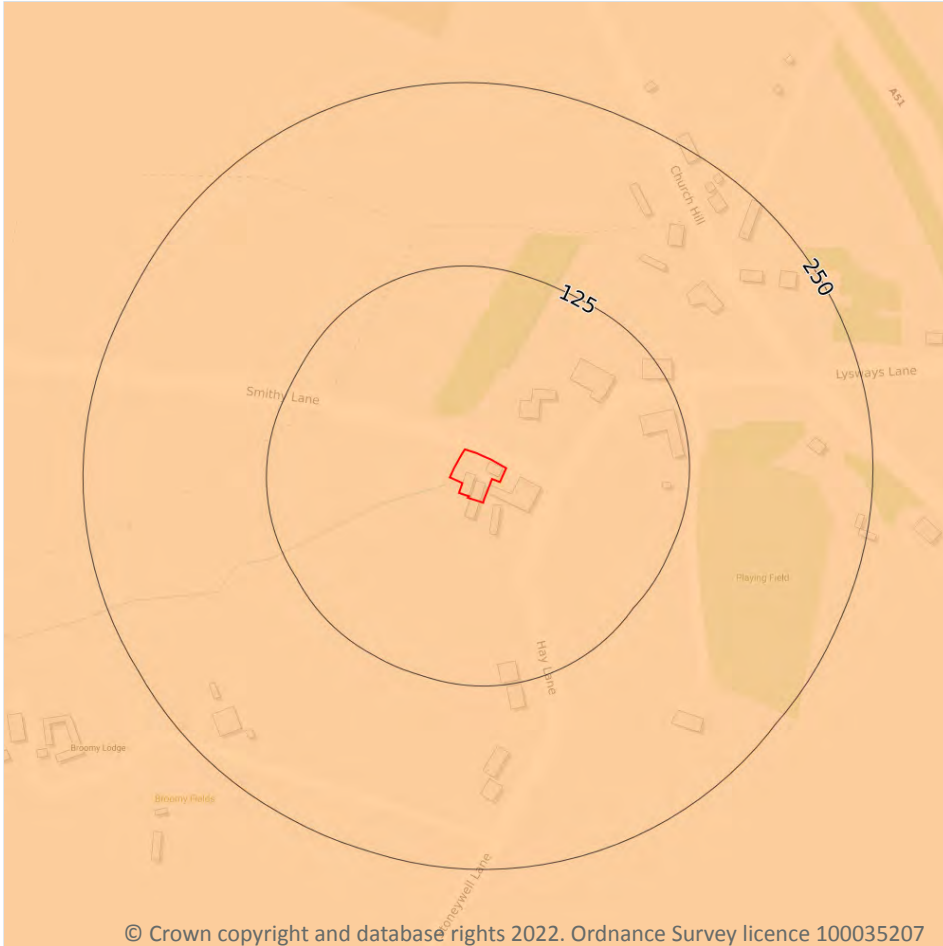
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 79**

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



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### 17.5 Landslides

#### Records within 50m

1

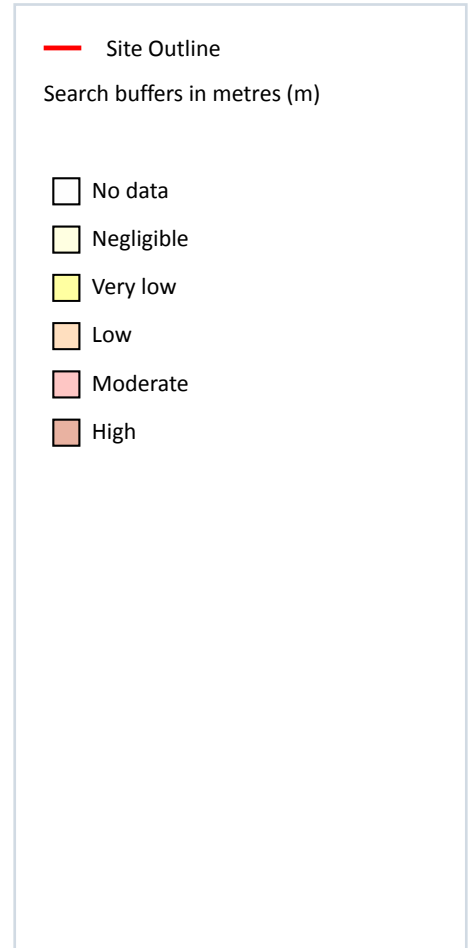
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 80**

Location	Hazard rating	Details
On site	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

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

## Natural ground subsidence - Ground dissolution of soluble rocks



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### 17.6 Ground dissolution of soluble rocks

#### Records within 50m

1

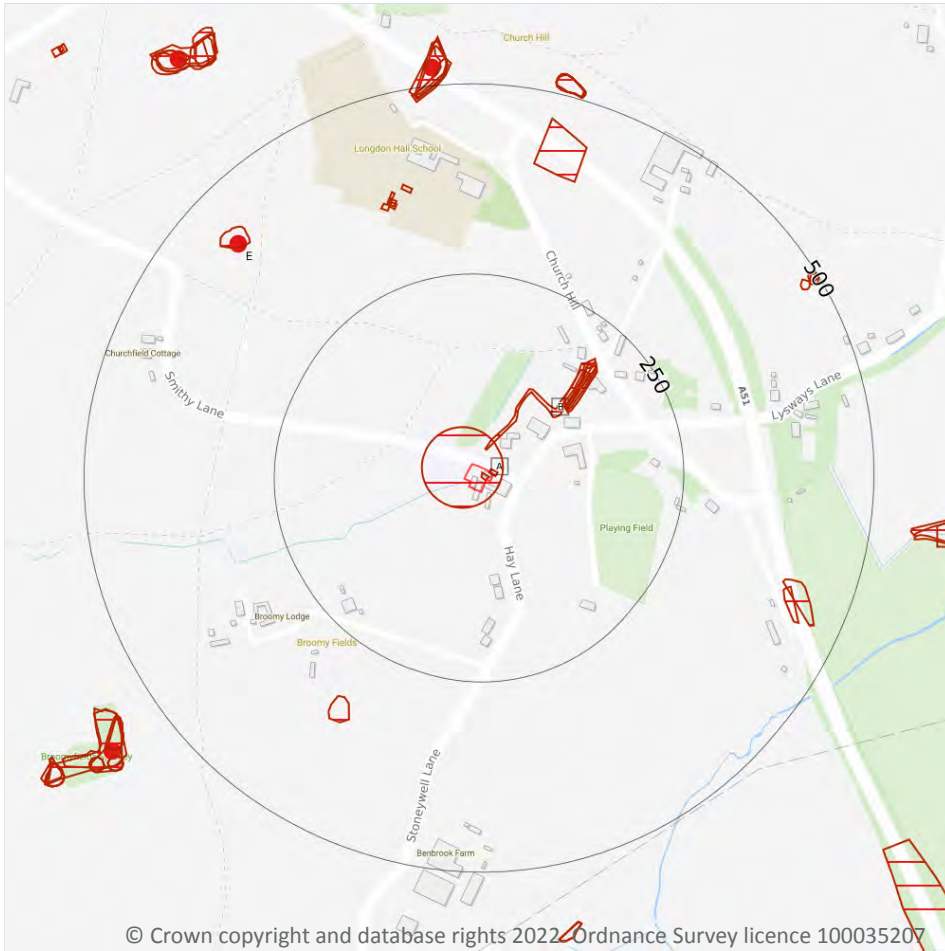
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 81**

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 82**

ID	Location	Details	Description
E	422m NW	Name: Longdon Hall Address: Longdon, RUGELEY, Staffordshire Commodity: Clay & Shale 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

**9**

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 82**

ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Saw Pit	1924	1:10560
A	On site	Saw Pit	1954	1:10560
A	On site	Saw Pit	1924	1:10560
B	24m NE	Ponds	1882	1:10560
B	127m NE	Pond	1900	1:10560
B	127m NE	Fish Pond	1924	1:10560
B	128m NE	Fish Pond	1924	1:10560
B	128m NE	Pond	1971	1:10000
B	129m NE	Fish Ponds	1954	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 is data is sourced from Ordnance Survey/Groundsure.*

## 18.5 Historical Mineral Planning Areas

Records within 500m

0

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

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

## 18.6 Non-coal mining

Records within 1000m

0

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

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

## 18.7 Mining cavities

Records within 1000m

0

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

*This data is sourced from Stantec UK Ltd.*

## 18.8 JPB mining areas

Records on site

1

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



Location	Details
On site	In addition to being located inside an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property which may supplement this information. Please note, the plans held by JPB may also relate to non-mining records. Further details and a quote for services (if appropriate) can be obtained by emailing this report to <a href="mailto:enquiries.gs@jpb.co.uk">enquiries.gs@jpb.co.uk</a> .

*This data is sourced from Johnson Poole and Bloomer.*

## 18.9 Coal mining

<b>Records on site</b>	<b>1</b>
------------------------	----------

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

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

*This data is sourced from the Coal Authority.*

## 18.10 Brine areas

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

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

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

## 18.11 Gypsum areas

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

Generalised areas that may be affected by gypsum extraction.

*This data is sourced from British Gypsum.*



## 18.12 Tin mining

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

Generalised areas that may be affected by historical tin mining.

*This data is sourced from Groundsure.*

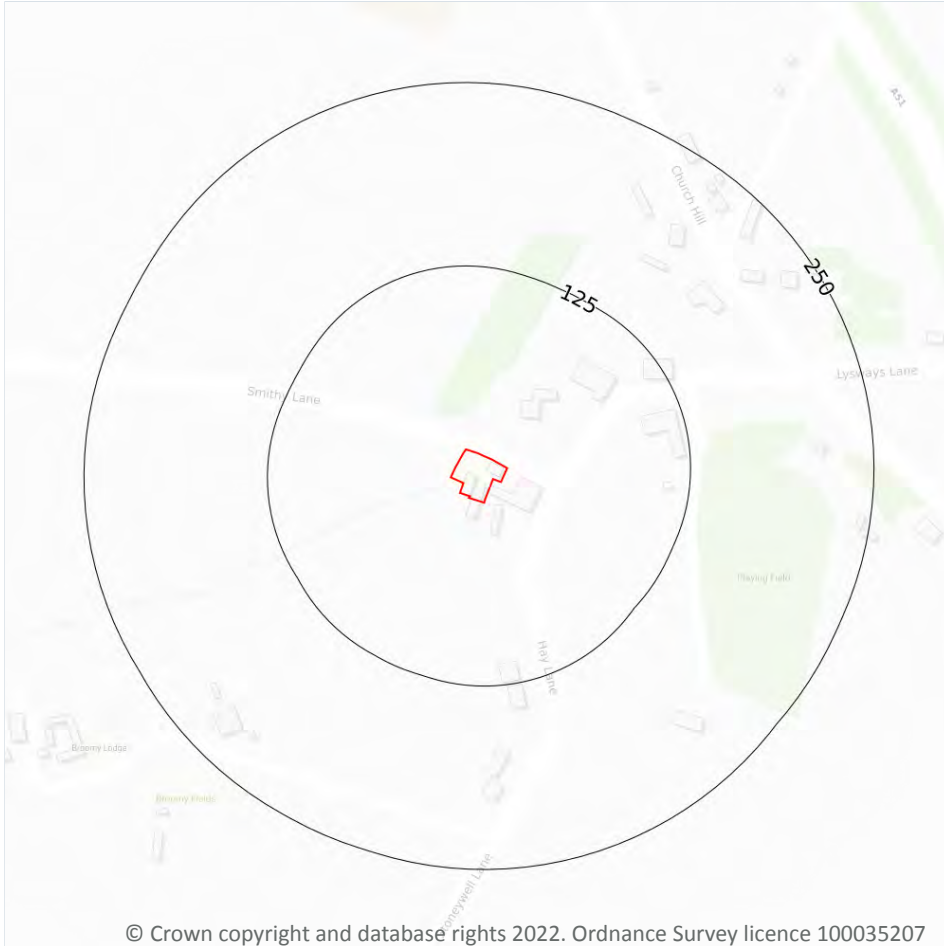
## 18.13 Clay mining

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



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— Site Outline  
Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

### 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 87**

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

4

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 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	40 - 60 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
6m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg

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

### 20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

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

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

### 20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

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

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



## 21 Railway infrastructure and projects

### 21.1 Underground railways (London)

Records within 250m 0

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

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

### 21.2 Underground railways (Non-London)

Records within 250m 0

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

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

### 21.3 Railway tunnels

Records within 250m 0

Railway tunnels taken from contemporary Ordnance Survey mapping.

*This data is sourced from the Ordnance Survey.*

### 21.4 Historical railway and tunnel features

Records within 250m 0

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

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

### 21.5 Royal Mail tunnels

Records within 250m 0

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



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

## 21.6 Historical railways

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

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

*This data is sourced from OpenStreetMap.*

## 21.7 Railways

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

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

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

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

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

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

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

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

*This data is sourced from HS2 Ltd.*



---

## Data providers

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

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4QQ

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**Report Ref:** CMAPS-CM-1056616-5576-180822HIS  
**Grid Ref:** 408323, 313505

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**Map date:** 1882-1884

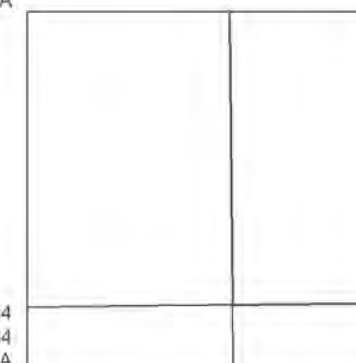
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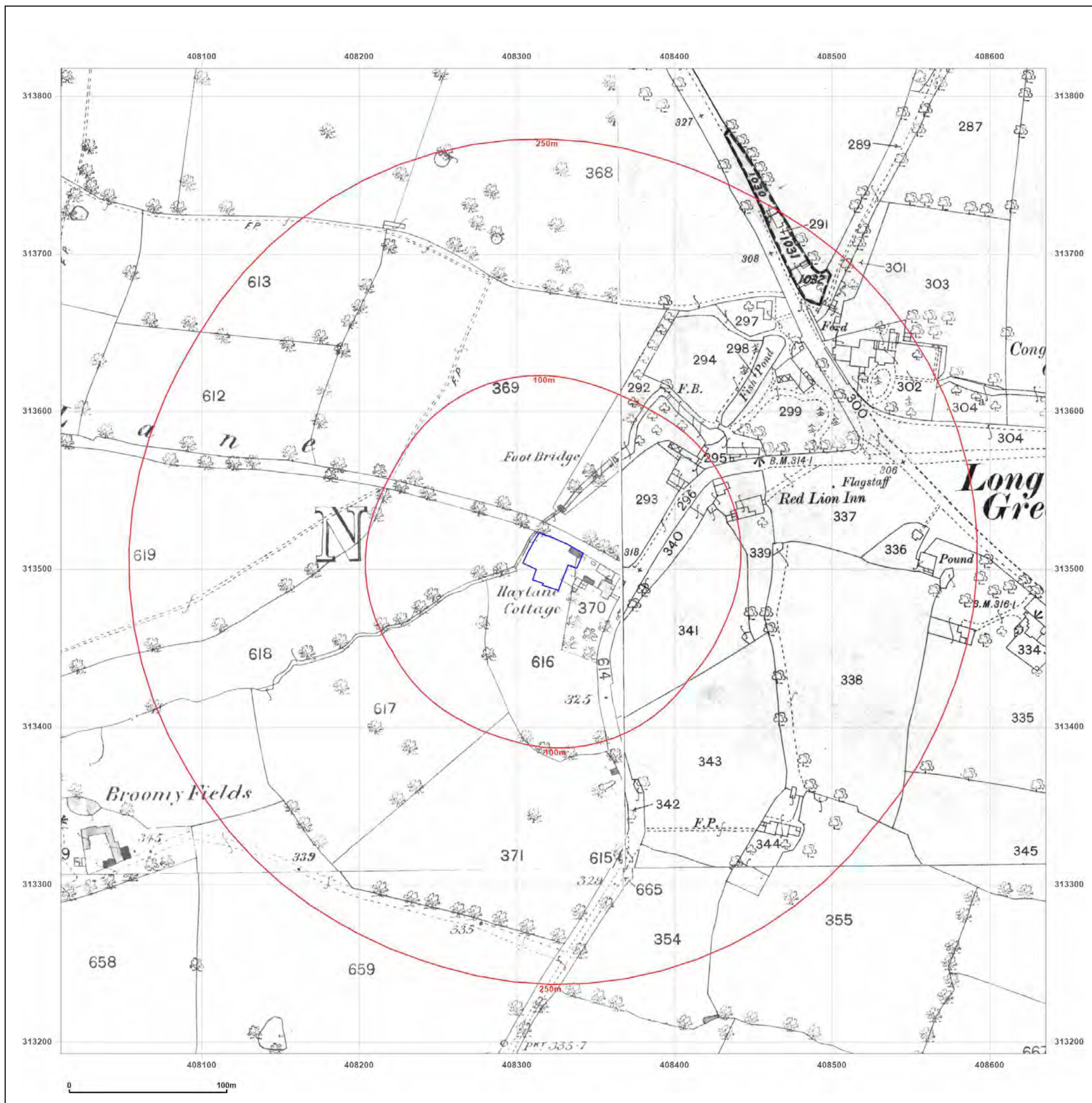


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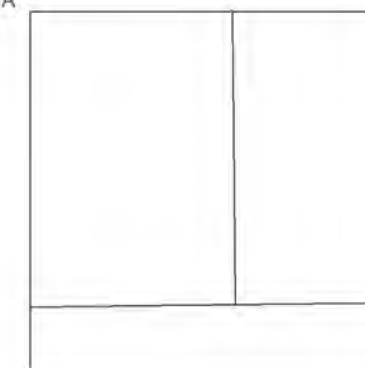
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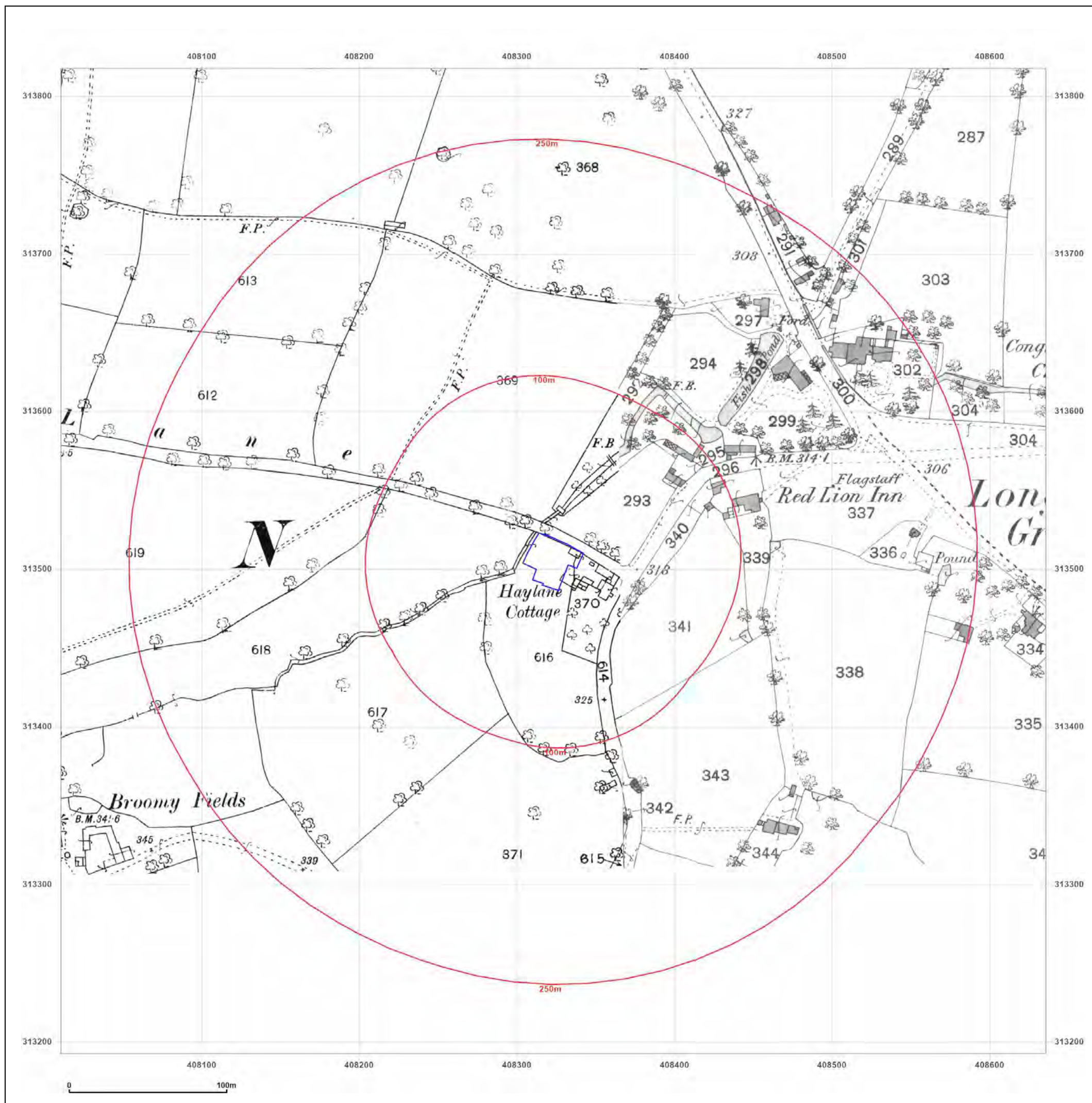


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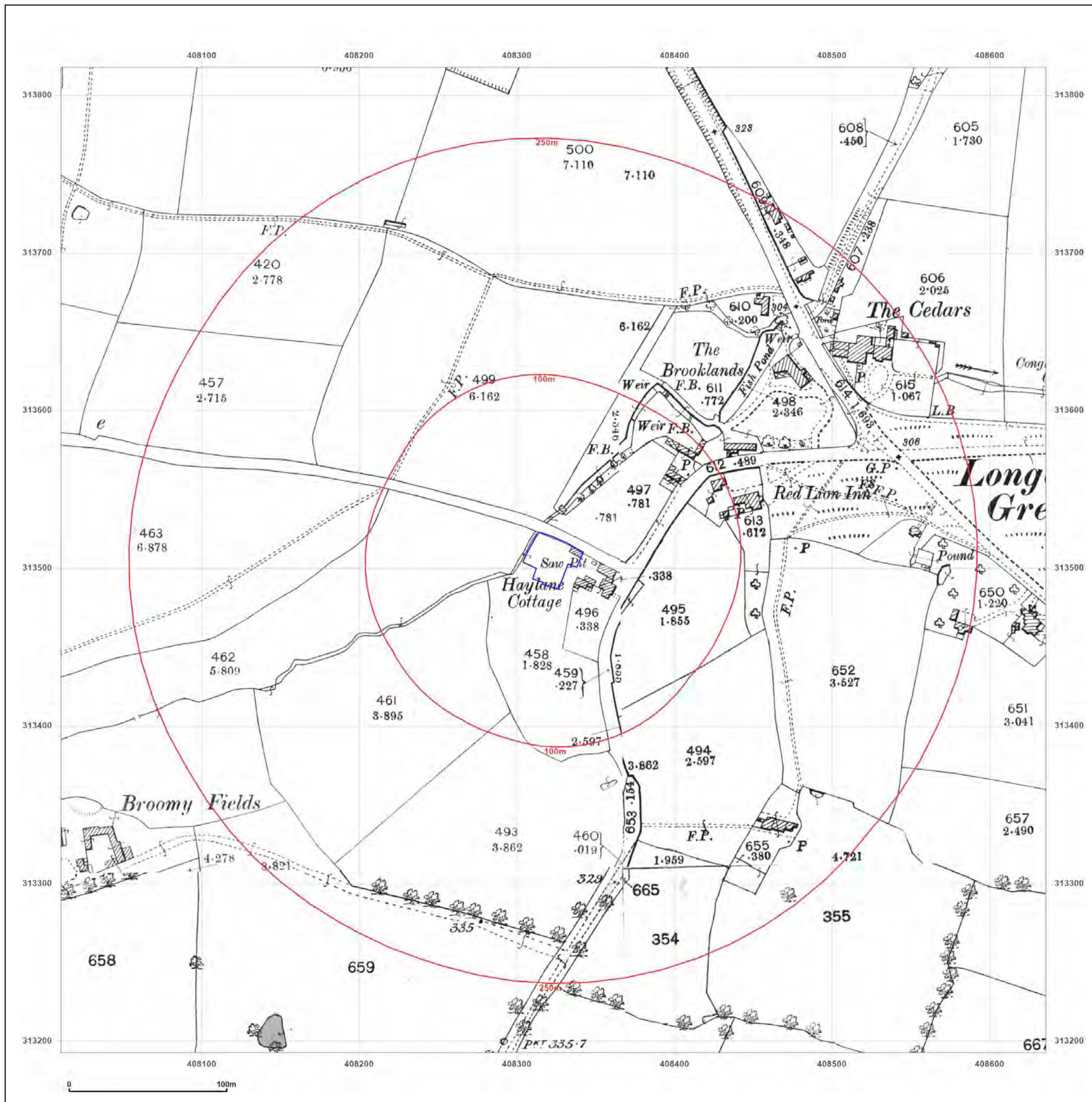


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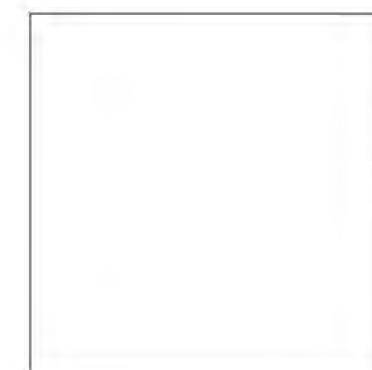
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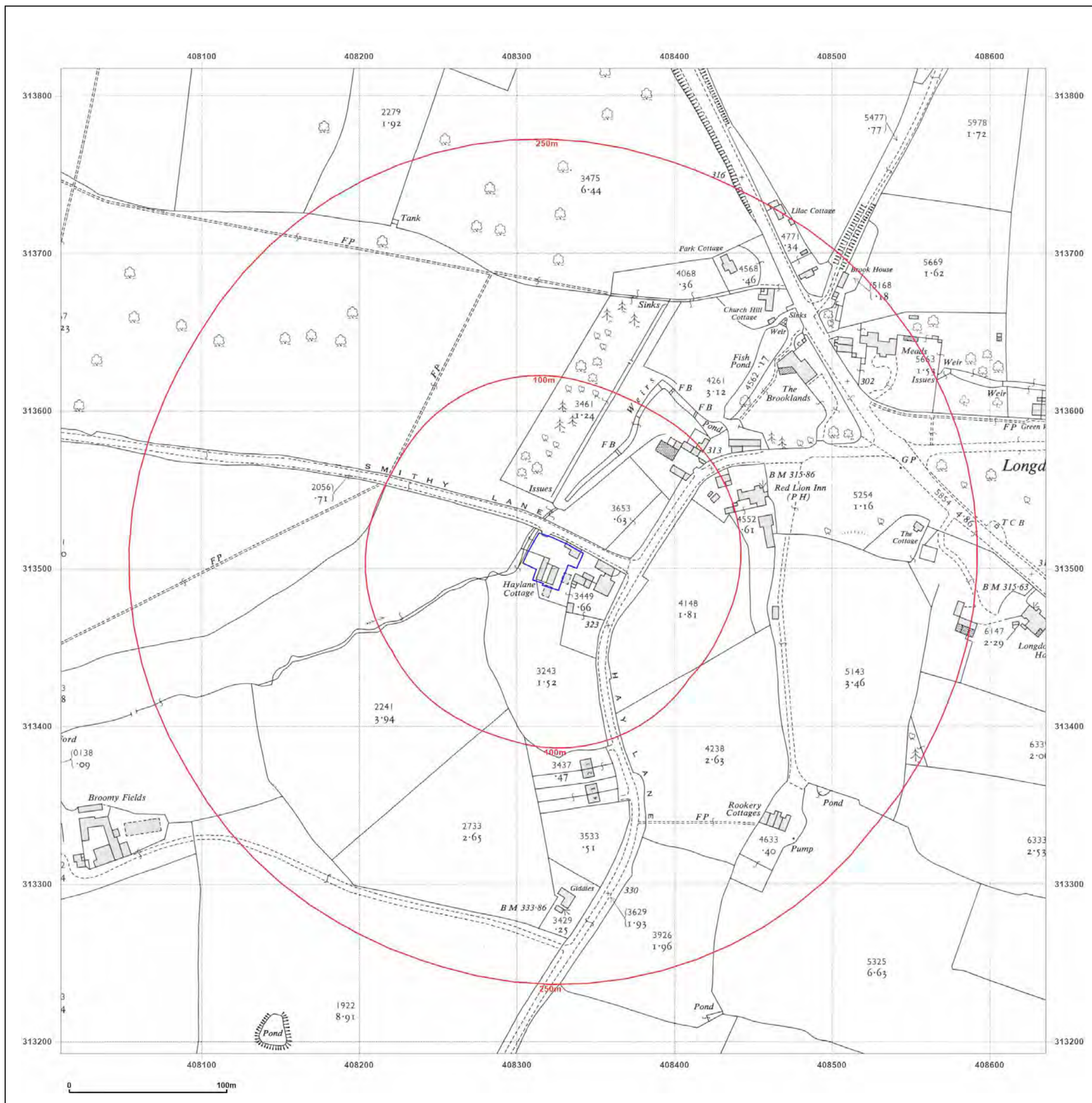


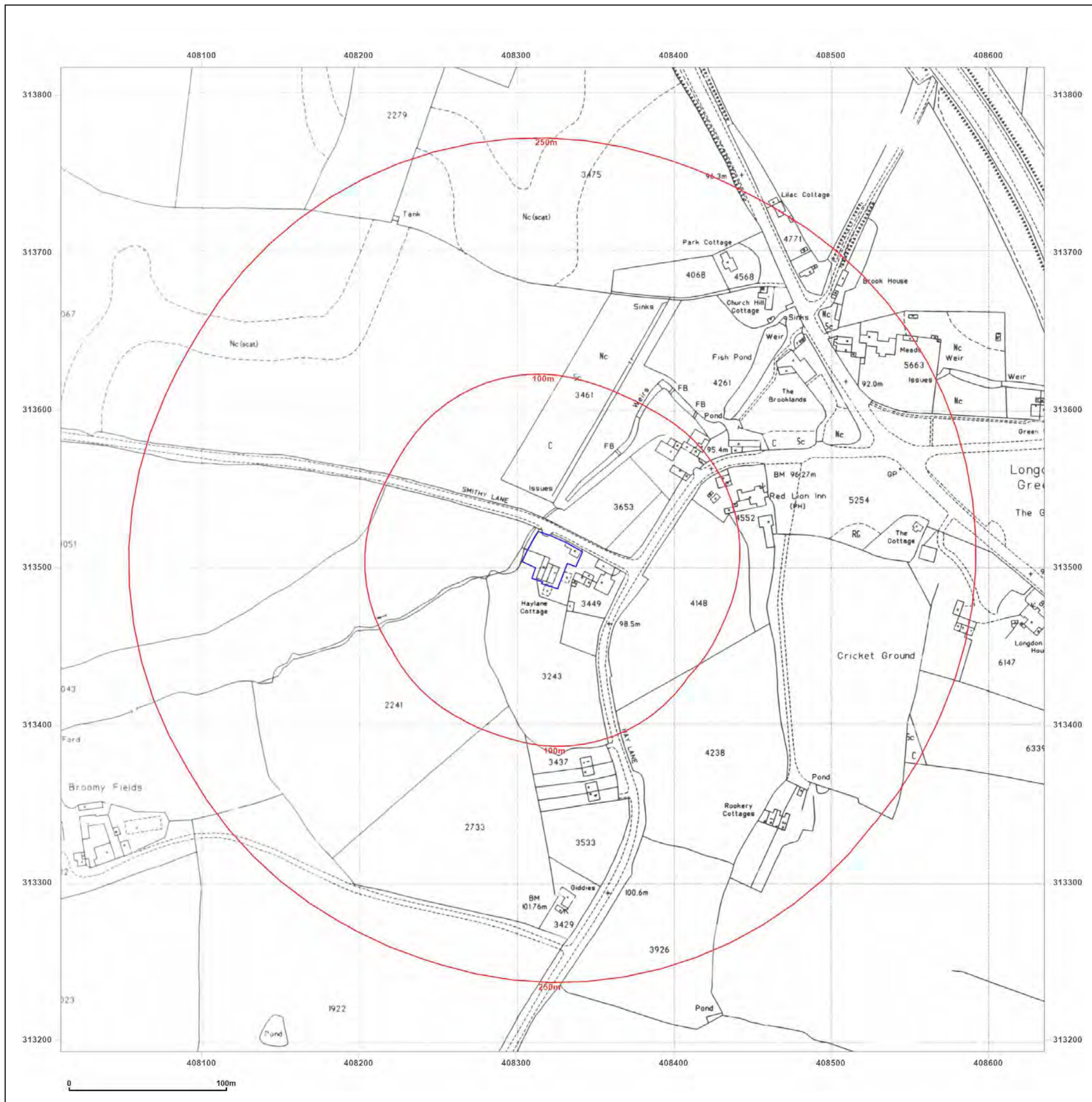
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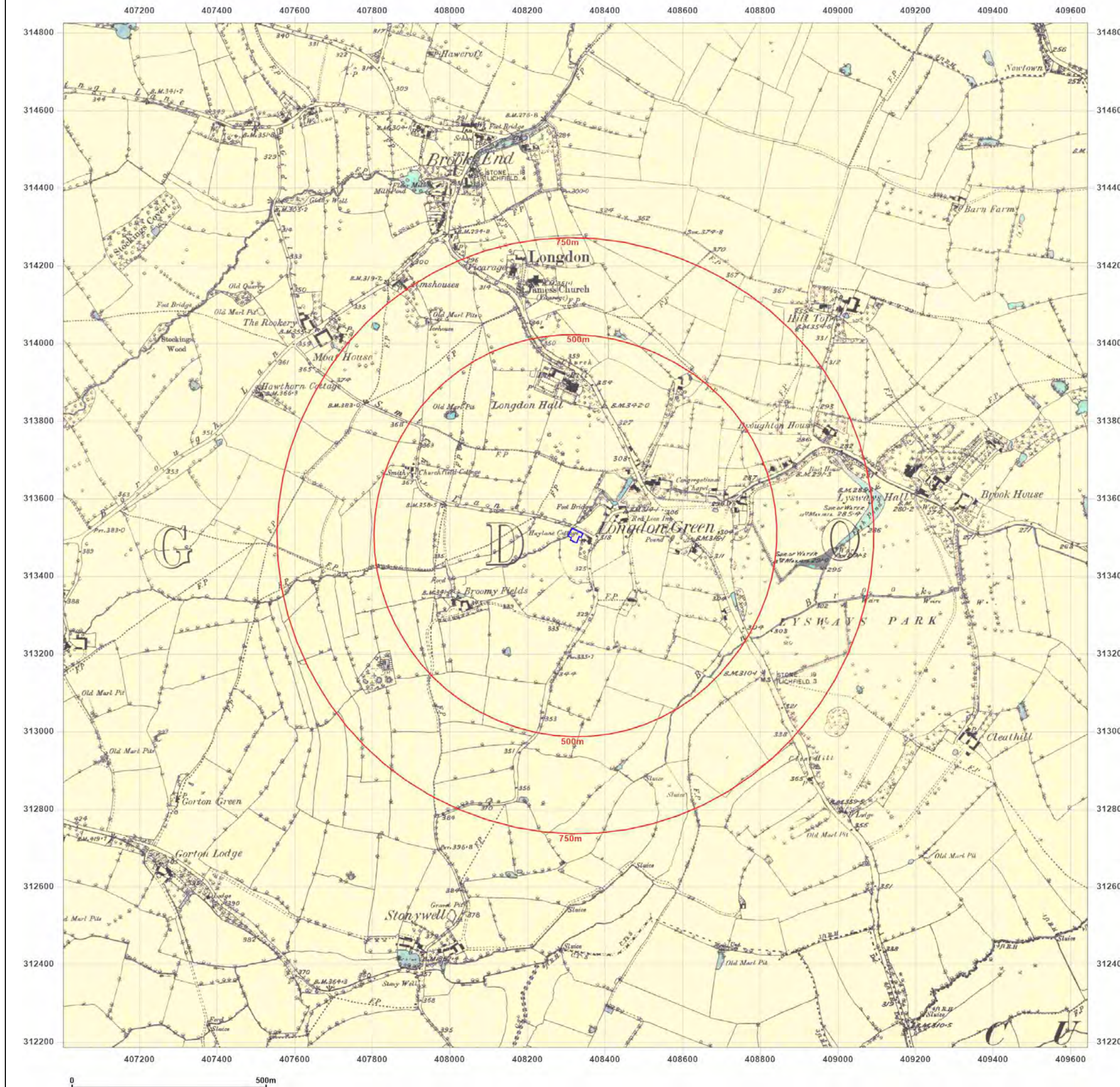


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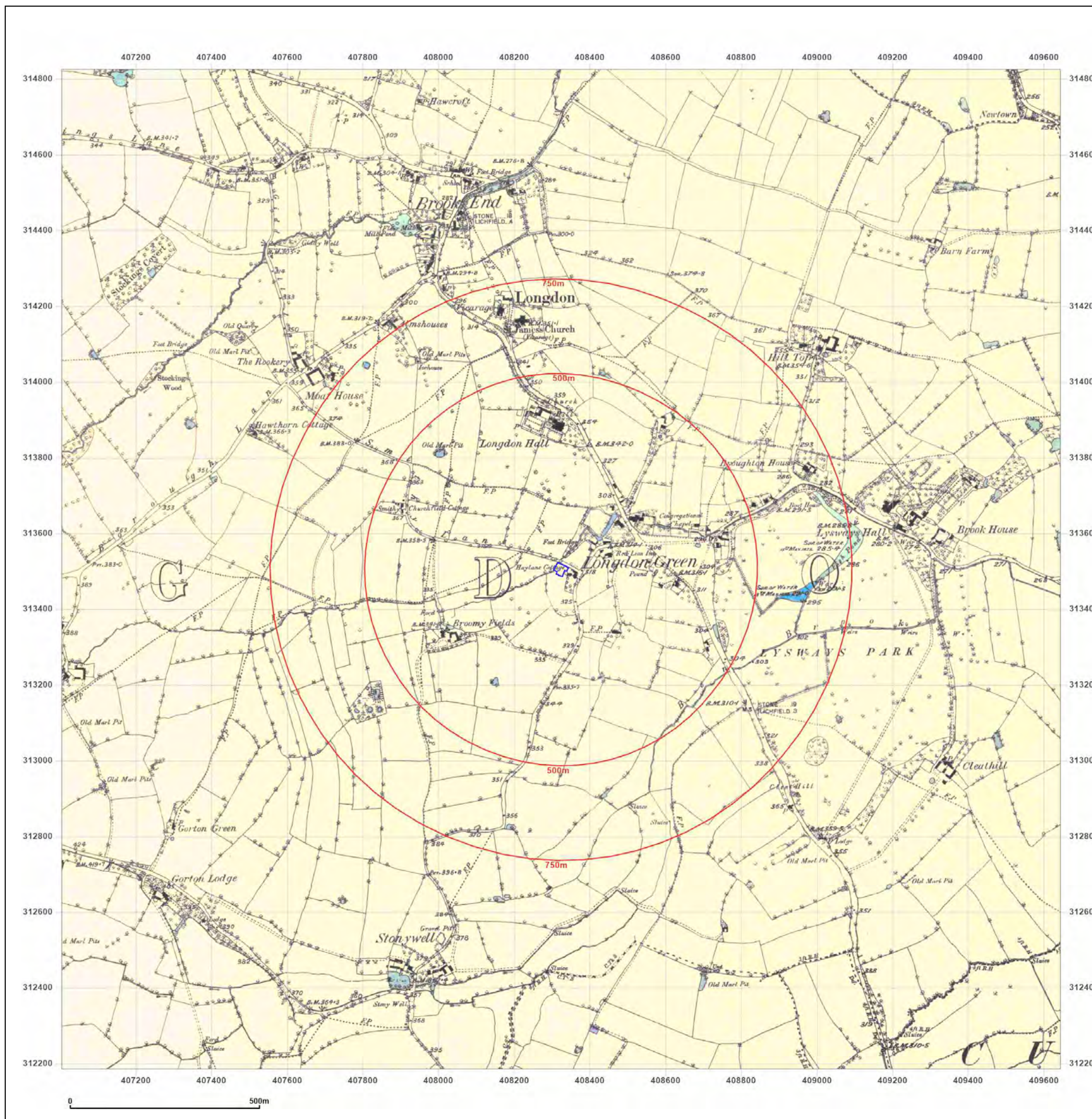


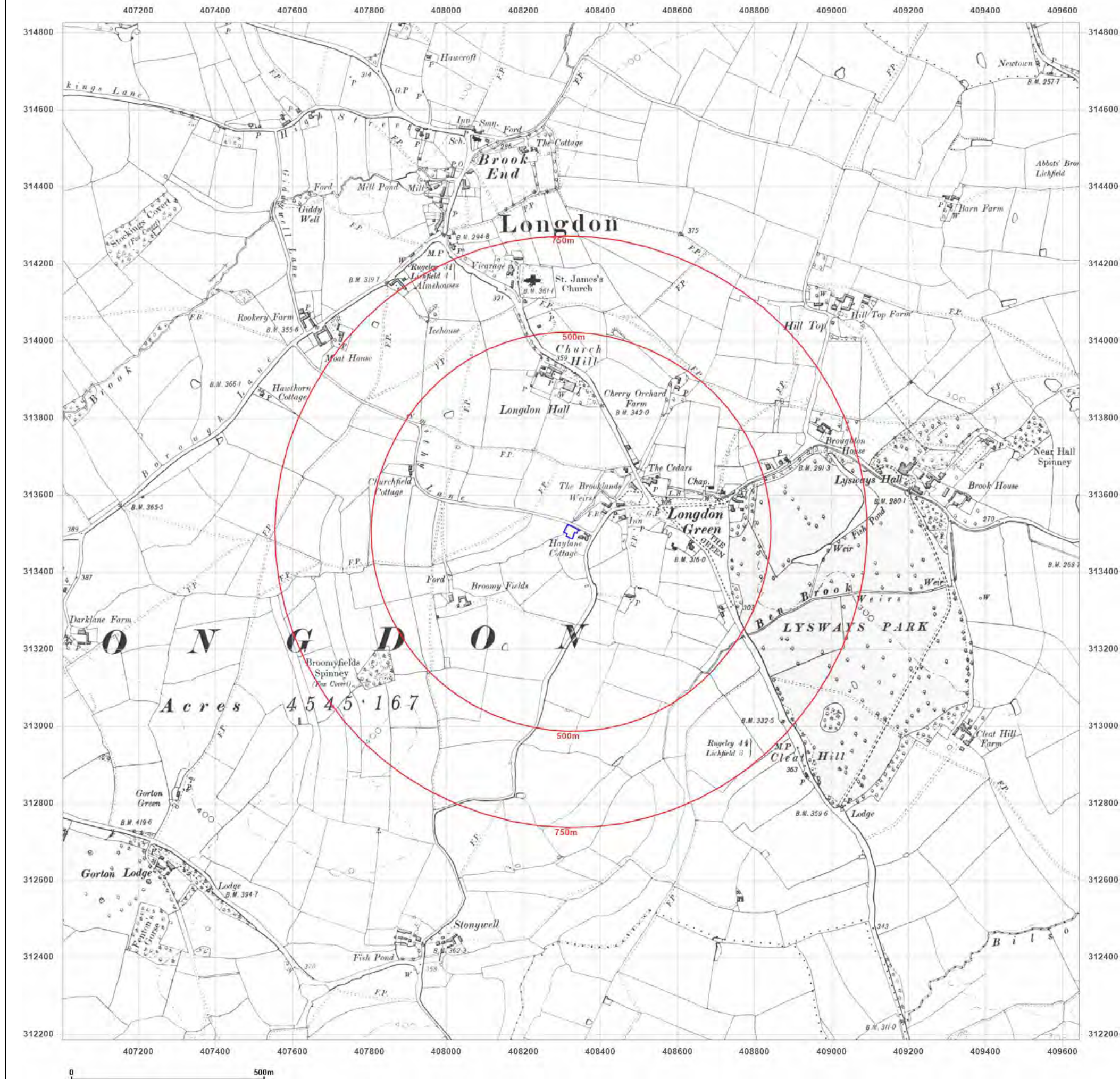
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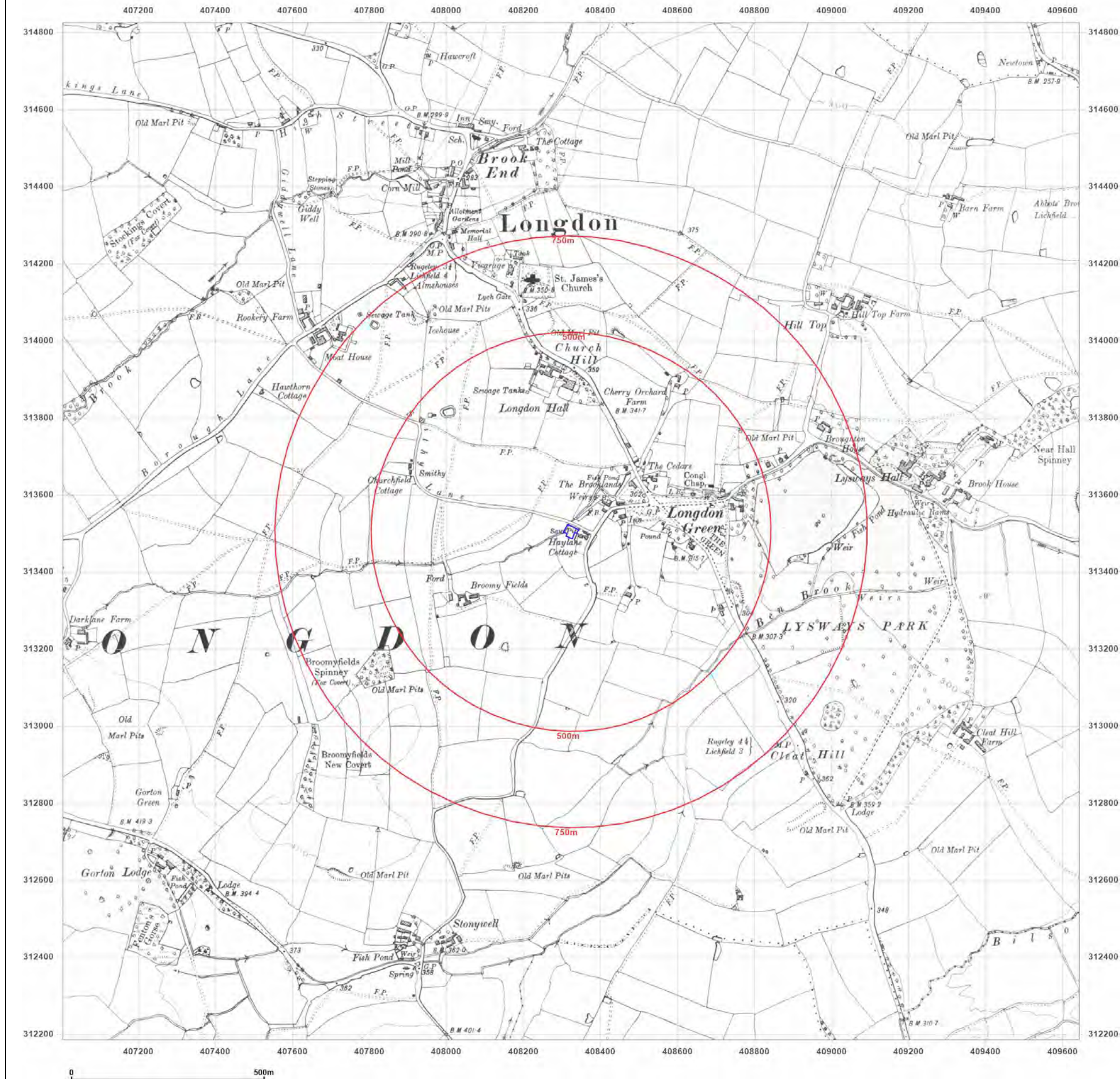
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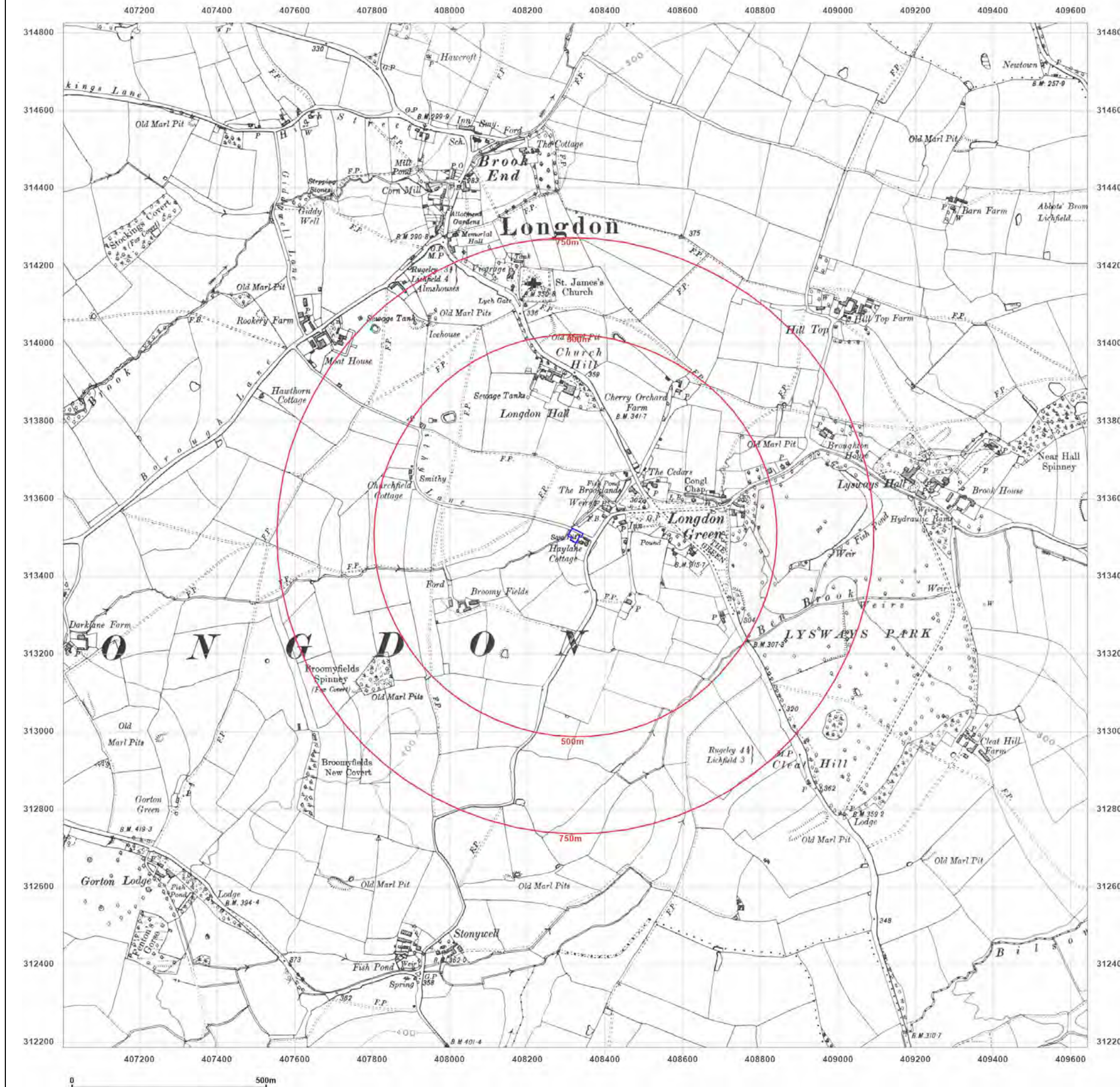


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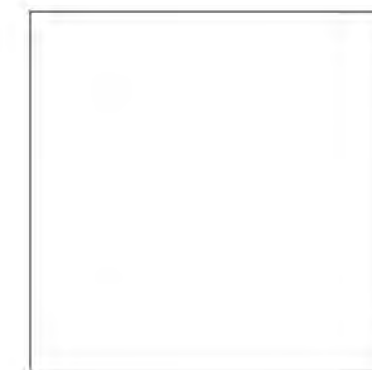
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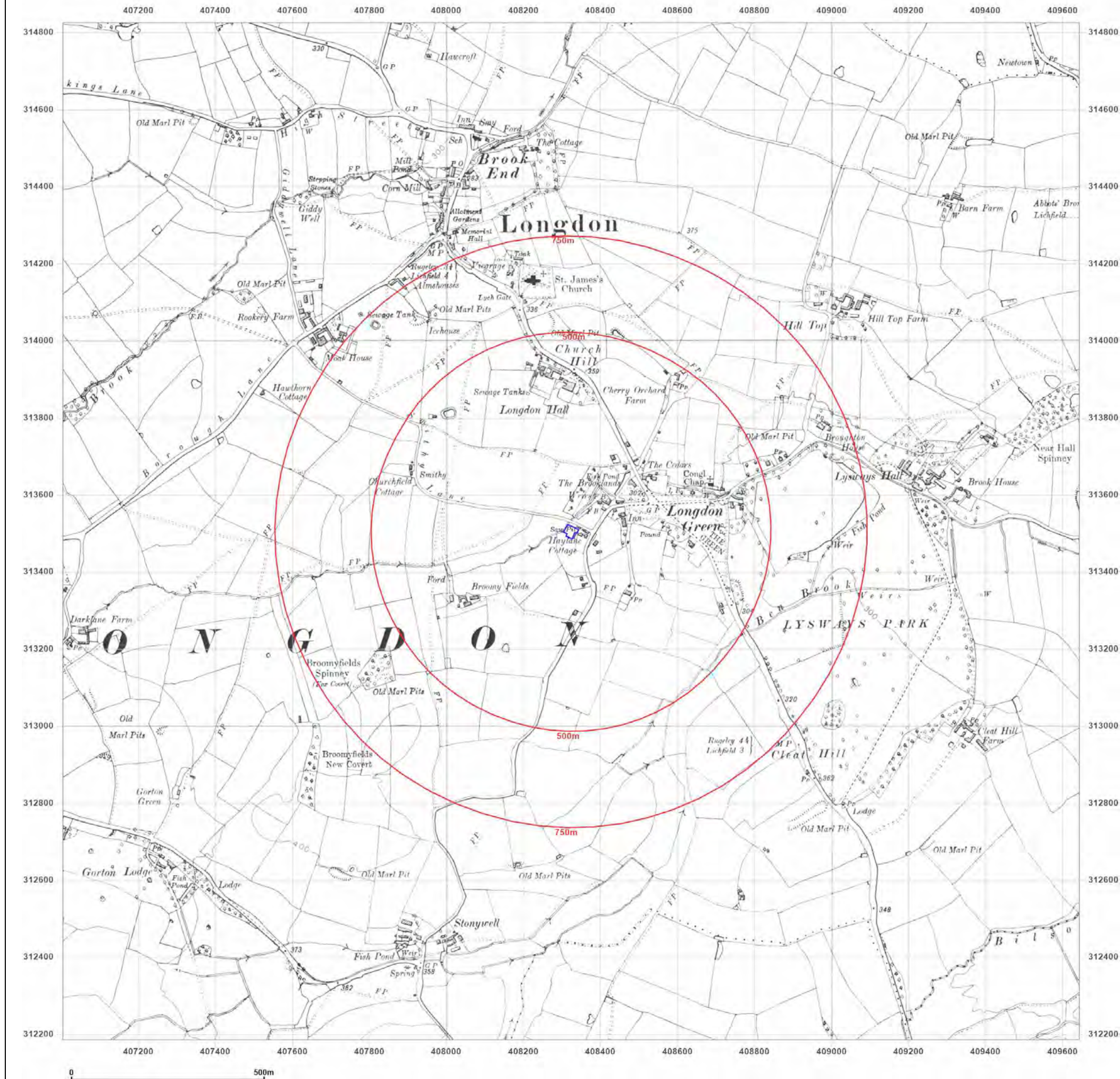


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**Map Name:** Provisional

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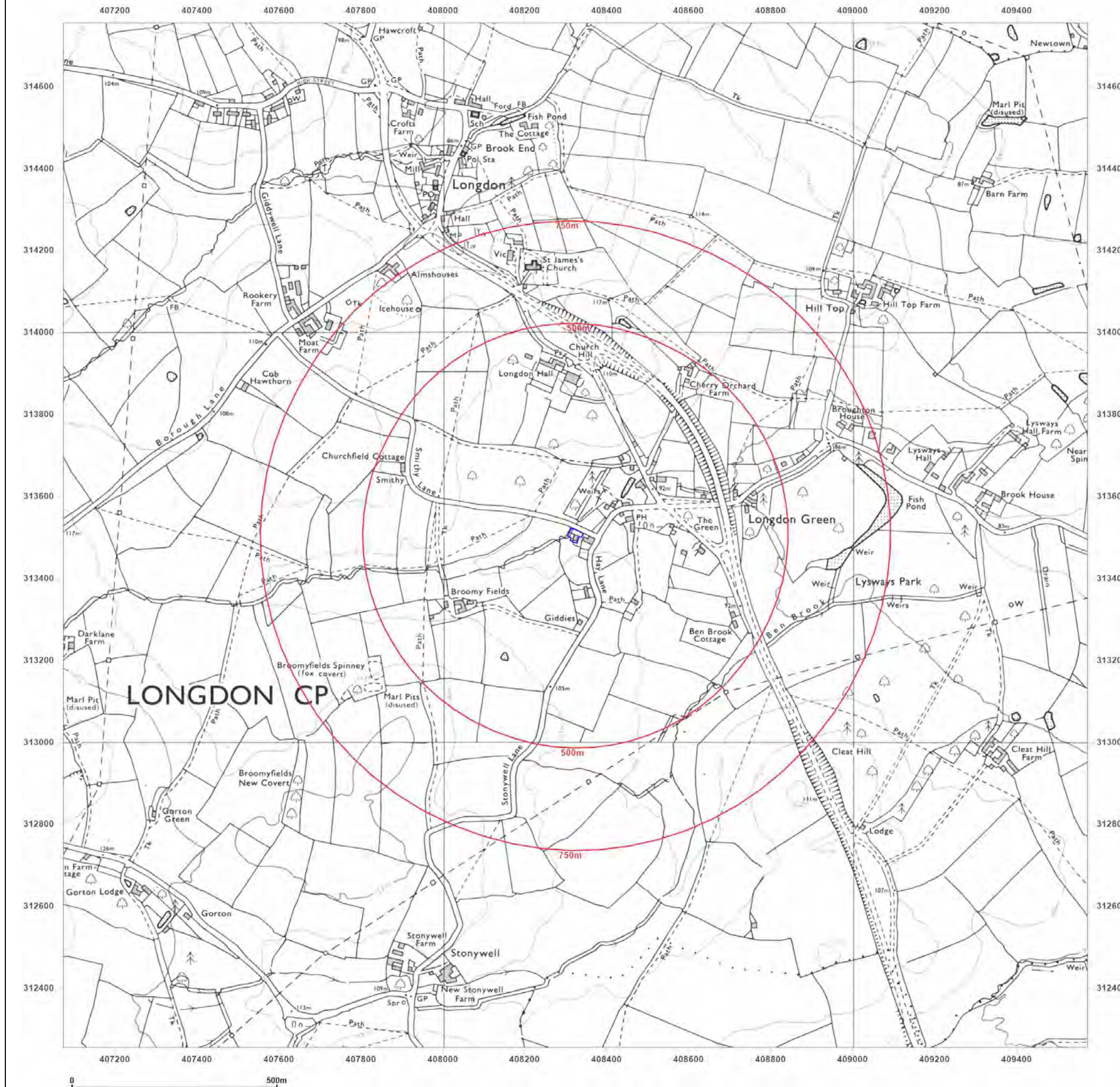


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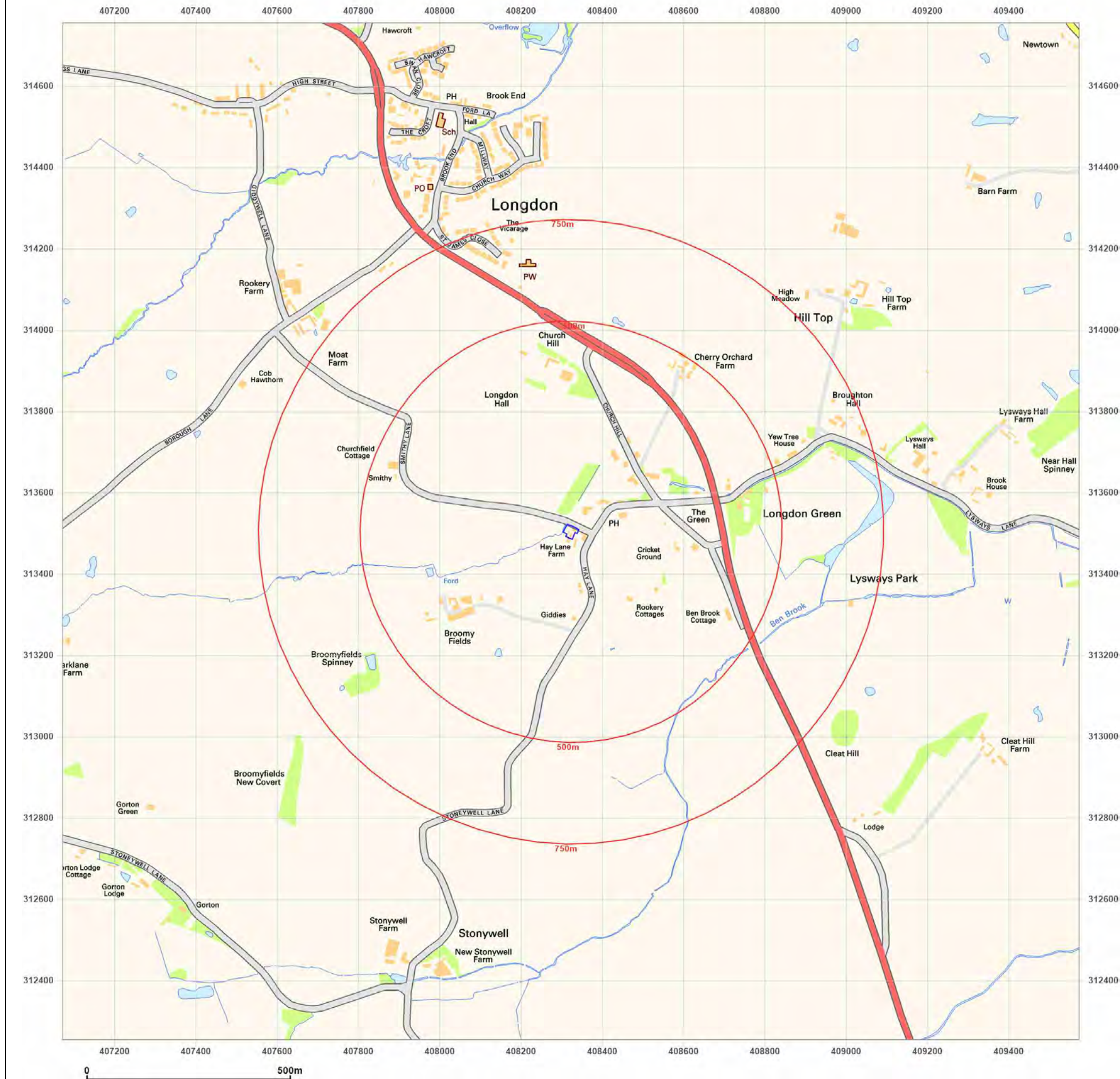


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**Site Details:**

Hay Lane Farm, Hay Lane,  
Longdon Green, Rugeley, WS15  
4QQ

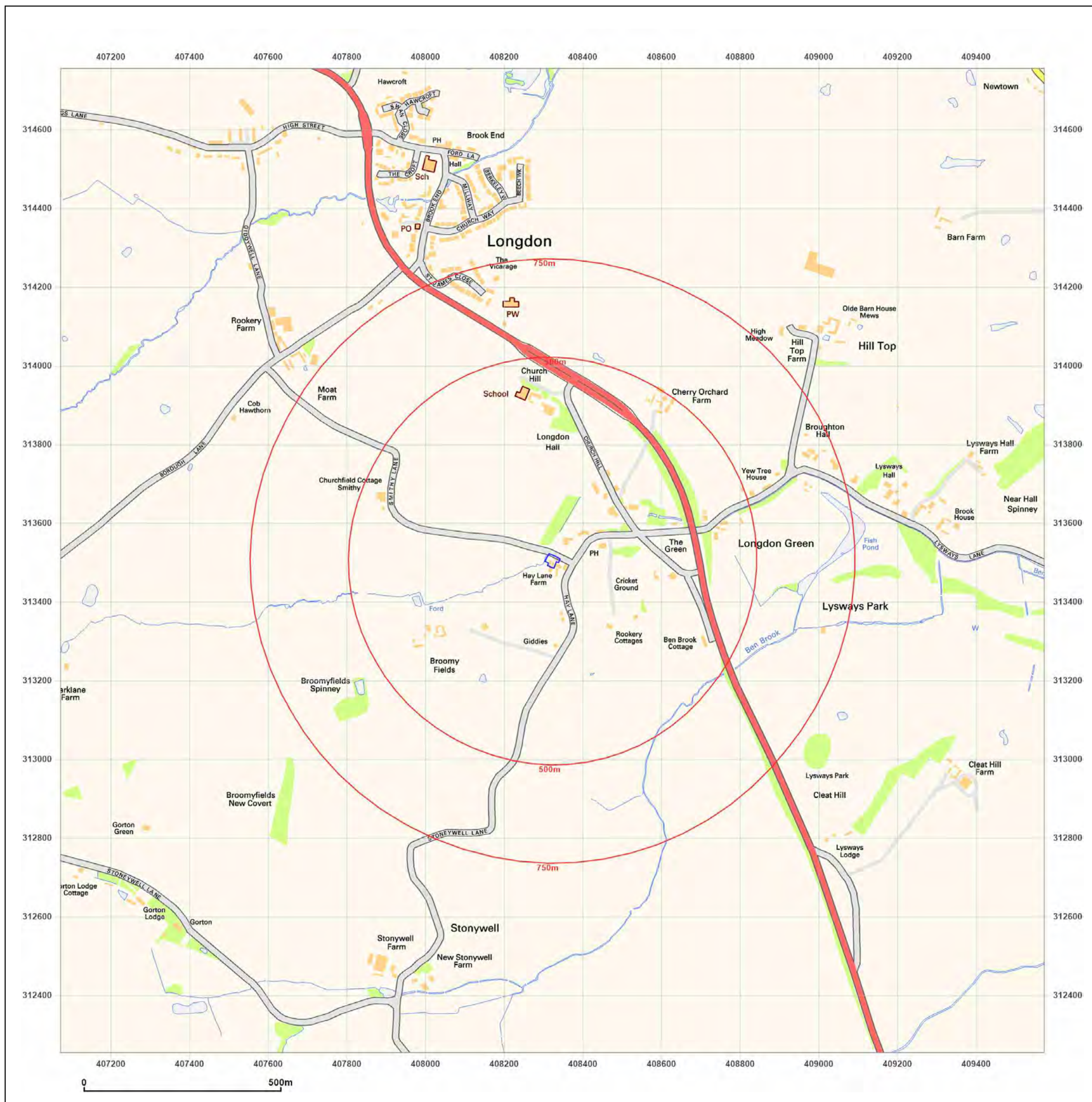
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**Grid Ref:** 408323, 313505

**Map Name:** National Grid

**Map date:** 2010

**Scale:** 1:10,000

**Printed at:** 1:10,000



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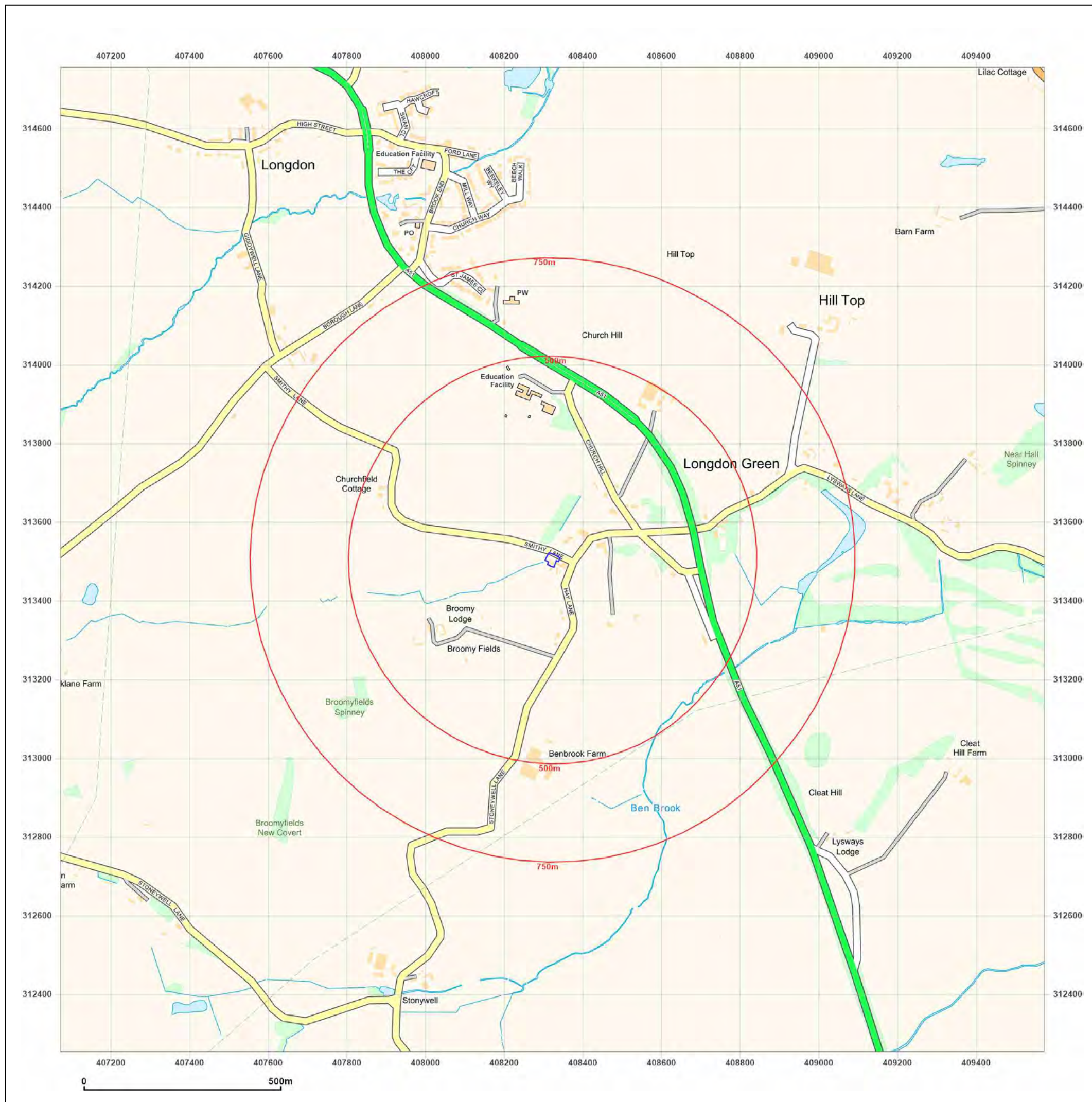


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Hay Lane Farm, Hay Lane,  
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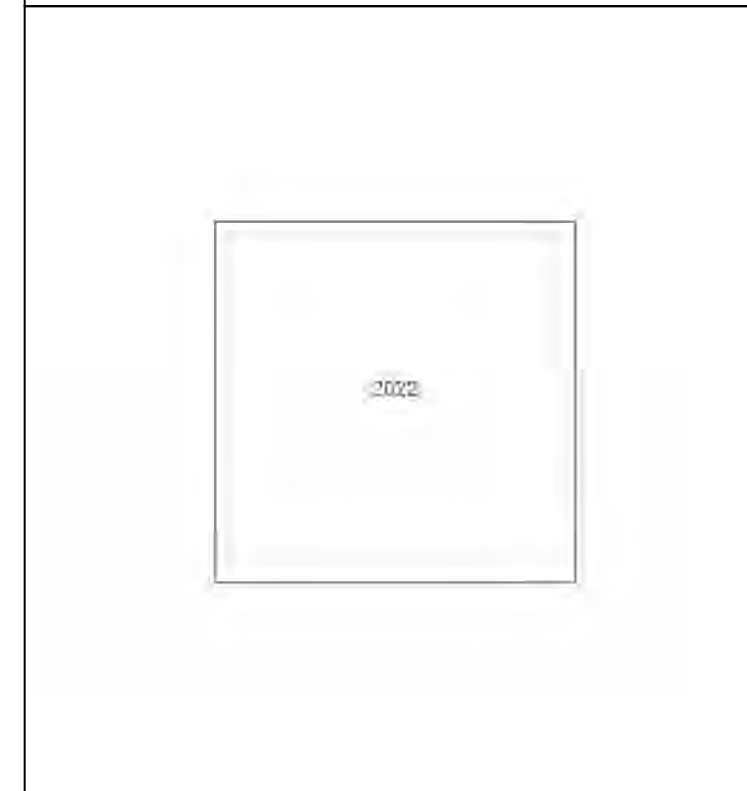
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**Report Ref:** CMAPS-CM-1056616-5576-180822HIS  
**Grid Ref:** 408323, 313505

**Map Name:** National Grid

**Map date:** 2022

**Scale:** 1:10,000

**Printed at:** 1:10,000



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Production date: 18 August 2022

Map legend available at:  
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## APPENDIX E







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**TITLE:** Site Investigation at Hay Farm, Hay Lane, Longdon Green

**PHOTOGRAPH No :** 1 & 2

**CONTRACT:** 31553

**DATE:** August 2022



**CLIENT :** Anne Marshall



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**TITLE:** Site Investigation at Hay Farm, Hay Lane, Longdon Green

**PHOTOGRAPH No :** 3 & 4

**CONTRACT:** 31553

**DATE:** August 2022



**CLIENT :** Anne Marshall



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Website [www.gipuk.com](http://www.gipuk.com)

**TITLE:** Site Investigation at Hay Farm, Hay Lane, Longdon Green

**PHOTOGRAPH No :** 5 & 6

**CONTRACT:** 31553

**DATE:** August 2022



**CLIENT :** Anne Marshall



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Website [www.hipuk.com](http://www.hipuk.com)

**TITLE:** Site Investigation at Hay Farm, Hay Lane, Longdon Green

**PHOTOGRAPH No :** 7 & 8

**CONTRACT:** 31553

**DATE:** August 2022



**CLIENT :** Anne Marshall



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**TITLE:** Site Investigation at Hay Farm, Hay Lane, Longdon Green

**PHOTOGRAPH No :** 9 & 10

**CONTRACT:** 31553

**DATE:** August 2022



**CLIENT :** Anne Marshall



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Website [www.hipuk.com](http://www.hipuk.com)

**TITLE:** Site Investigation at Hay Farm, Hay Lane, Longdon Green

**PHOTOGRAPH No :** 11 & 12

**CONTRACT:** 31553

**DATE:** August 2022



**CLIENT :** Anne Marshall



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Website [www.hipuk.com](http://www.hipuk.com)

**TITLE:** Site Investigation at Hay Farm, Hay Lane, Longdon Green

**PHOTOGRAPH No :** 13 & 14

**CONTRACT:** 31553

**DATE:** August 2022

## APPENDIX F







**Key**

WS - Window Sample Borehole

**Note - this plan has been superceeded**



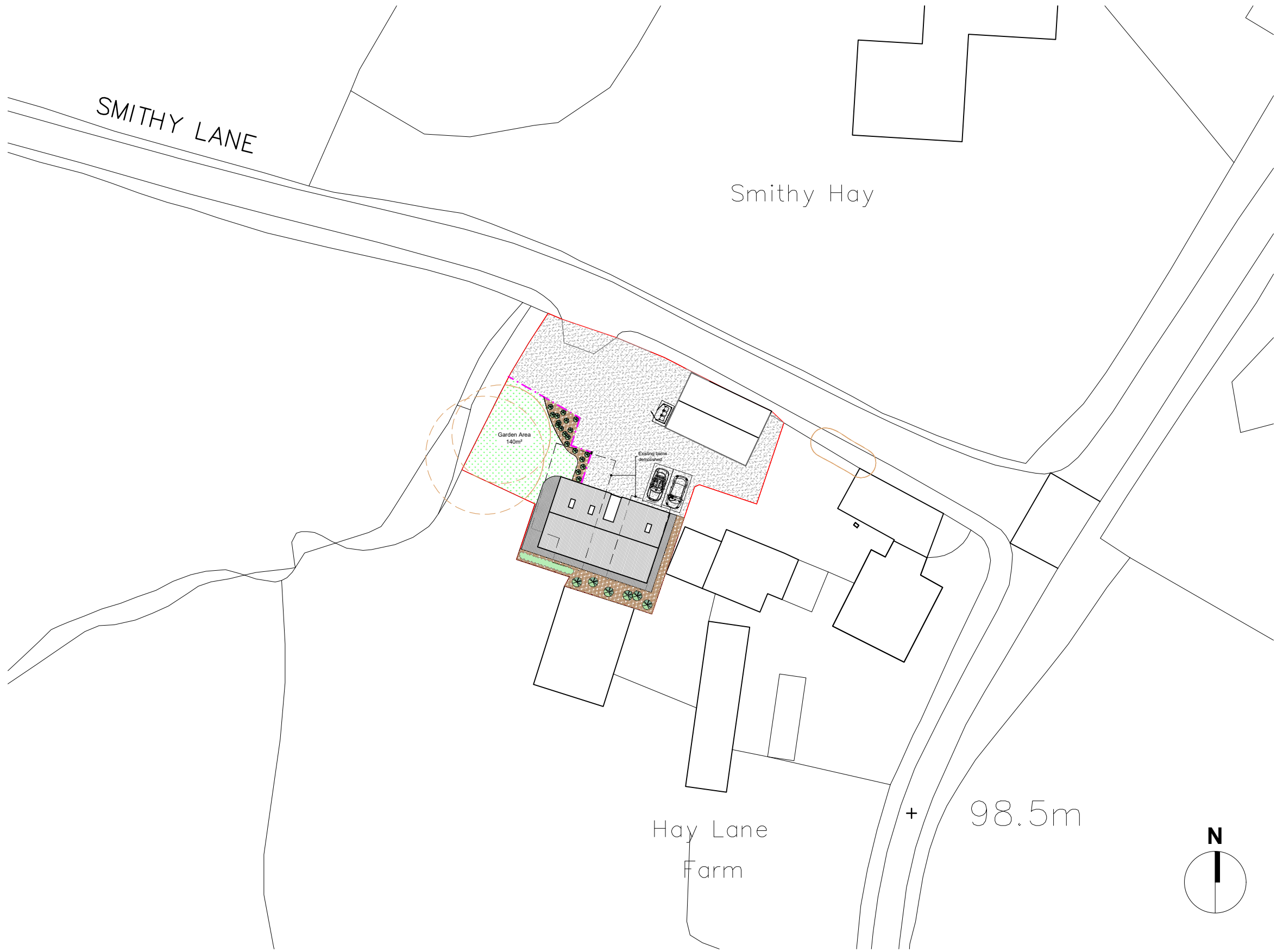
Building 62, Third Avenue, The Pensnett Estate,  
Kingswinford, West Midlands, DY6 7XT  
Tel: 01902 459558 Email: info@gipuk.com  
Website: www.gipuk.com

**Title:** Ground Investigation at Hay Lane Farm, Hay Lane, Longdon Green, Staffordshire  
Plan Detailing Existing Site Layout & Approximate Exploratory Hole Locations.

**Client:** Ms Annie Marshall  
**Engineer:** J. Mason & Associates

<b>Scale:</b> Not to Scale	<b>Date:</b> September 2022
<b>Contract:</b> 31553	<b>Drg:</b> 1

All positions are approximate as shown



- Key:**
- Site boundary
  - 1.8m Closeboard fence
  - 900mm post & rail fence
  - Root protection area
  - Tree Protection Fencing
  - Grass
  - Paving slabs
  - Self Binding Gravel
  - Red Brindle Block Paving
  - Bark chippings

**Site Area = 794m<sup>2</sup>**

X	FIRST ISSUE.	MB	15.05.23
Rev:	Details:	By / Chk:	Date:

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**H&S HAZARDS:**

Significant hazards relative to the architectural design shown on this drawing have been assessed and highlighted with reasonable skill and care using a warning triangle system.

This drawing is to be read in conjunction with all other hazards/risks which have been identified and recorded within the construction phase H&S plan.

It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Significant hazards are defined as: -

- Those not likely to be obvious to a competent contractor or other designers.
- Those of an unusual nature.
- Those likely to be difficult to manage effectively.

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Client:  
**Ms Annie Marshall**

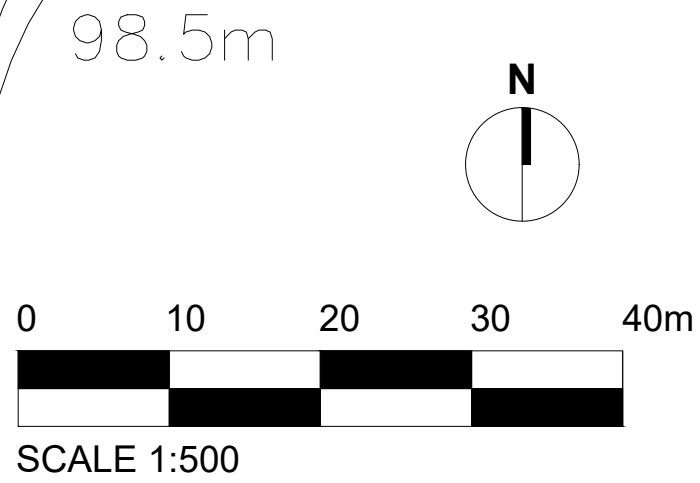
Project:  
**Hay Lane Farm**

Drawing Title:  
**Block Plan**

Stage: <b>RIBA 3</b>	Status: <b>Planning</b>	Sheet Size: <b>A3</b>
Job Number: <b>2502</b>	Date: <b>15.05.2023</b>	Scale: <b>1:500</b>

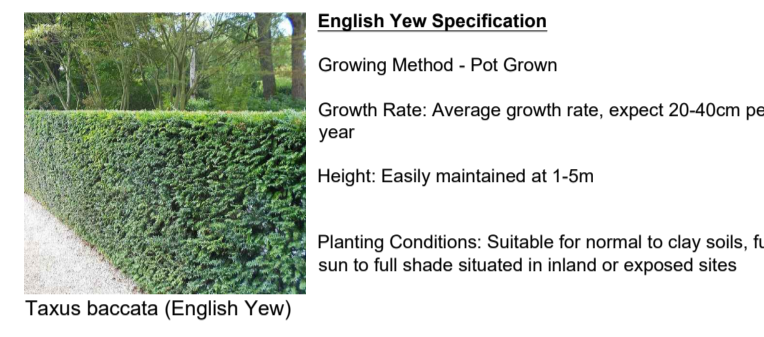
Revision:  
**2502-01**      -

**1** Block Plan  
 1:500





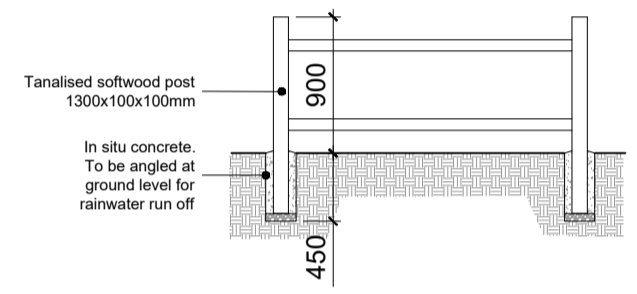
- Key:**
- Site boundary
  - 1.8m Closeboard fence
  - 900mm post & rail fence
  - Root protection area
  - Tree Protection Fencing
  - Grass
  - Paving slabs
  - Self Binding Gravel
  - Red Brindle Block Paving
  - Bark chippings



**Proposed Planting Schedule**

- Acer Campestre, 60-80cm, (10%)
- Corylus Avellana, 60-80cm, (10%)
- Crataegus monogyna, 60-80cm, (30%)
- Ilex aquatulum, 60-80cm, (20%)
- Prunus spinosa, 60-80cm, (30%)

Whips to be planted at 5 per linear metre in double staggered rows 500mm apart.



**GENERAL NOTES:**

1.0 SOILS: Subsoil to be scarified to 300mm depth prior to spreading topsoil to alleviate compaction. Imported topsoil to be in accordance with BS3882 'Premium Grade' or as approved. As saved topsoil (and imported if requested) to be laboratory tested to BS3882 and ameliorated as required to meet the required specification. Screened or manufactured topsoil is not acceptable. Grass areas to be a minimum depth of 150mm, shrub beds 450mm depth and forestry/transplants 300mm depth. Incorporate proprietary non peat compost to BSI PAS 100 to 50mm depth evenly worked into soil.

2.0 EXISTING TREES: Where trees are to be retained they should be subject to a full arboricultural inspection to assess condition and safety. Retained trees shall be protected from damage by erection of 2.3m weldmesh fencing on a scaffold framework in accordance with BS 5837:2005 Fig 2. These barriers shall be maintained in position and in good condition until works are complete. Fencing to be located in accordance with Table 2 at a radius of 12 times the stem diameter (single stem trees) or 10 times the basal diameter (trees with more than one stem below 1.5m from ground) refer to Clause 5.2.2 Further precautions are to be taken as detailed within BS5837:2005 9.4

3.0 TREE SURGERY / REMOVAL: Tree surgery and tree removal to be carried out by a registered tree surgeon in accordance with BS 3998:1989.

4.0 TREE PLANTING: All trees to be in accordance with BS 3936 / 5236. Trees to be planted in accordance with BS4428 and securely staked using 2no tree stakes and tied using 2no straps per tree (No stake and crossbar type planting method should be used). Trees to be planted in pits 1000x1000x750mm backfilled with topsoil mixed with tree planting compost, ensuring tree pits are a minimum of 75mm deeper and 150mm wider than the tree roots. Base of pits to be broken up to a depth of 150mm. All trees to be container grown. The base of trees to be planted in grass areas are to be covered with 75mm depth bark mulch to 1.0m diameter and kept weed free.

5.0 SHRUB PLANTING: Plants are to be in accordance with BS3936 and handled in accordance with CPSE guidelines and planted in accordance with BS 4428. All plants to have a minimum of three breaks, except Hedera with a minimum of two. Well water plants immediately after planting and prior spreading of mulch. Shrub areas to be covered with 75mm bark mulch and kept weed free.

7.0 HEDGE PLANTING: Plants to be in accordance with BS3936 and handled in accordance with CPSE guidelines and planted in accordance with BS 4428. Hedge plants to be planted in double staggered rows 300mm apart at 450mm centres. Well water plants immediately after planting and prior spreading of mulch. Shrub areas to be covered with 75mm bark mulch and kept weed free.

8.0 TURFING: Grass turf areas to be Tillers 'Arena' or similar approved cultivated Topsoil to be cultivated and levelled as required and any debris or stones greater than 50mm diameter removed. Pre-turfing fertiliser to be applied in accordance with manufacturers instructions. Turf to be laid from planks with broken joint well butted up. Well water after laying to avoid shrinkage.

9.0 MAINTENANCE: To be carried out at approximately monthly intervals to include the following:

- Eradicate weeds by hand or chemical means
- Cut out dead or damaged stock or branches, prune as required
- Ensure all shrubs and trees are firmed in, securely staked and tied
- Collect litter, sweep and tidy site
- Apply suitable pesticides, fungicides and fertilisers as required
- Carry out grass mowing to turf when attained 100mm, cut to 35mm

X	FIRST ISSUE	15.05.23	MB
Rev:	Details:	By / Chk:	Date:

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5053992

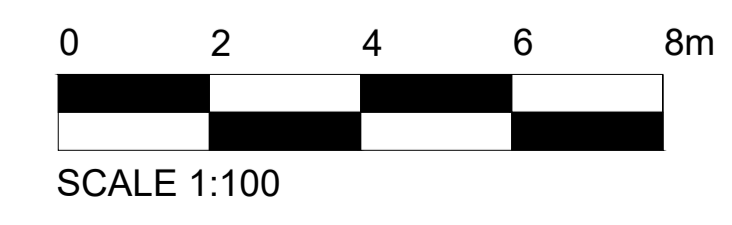
Client:  
**Ms Annie Marshall**

Project:  
**Hay Lane Farm**

Drawing Title:  
**Proposed Site Plan**

Stage: <b>RIBA 3</b>	Status: <b>Planning</b>	Sheet Size: <b>A1</b>
Job Number: <b>2502</b>	Date: <b>15.05.2023</b>	Scale: <b>As Noted</b>
<b>2502-03</b>		Revision: <b>-</b>

1 Site Plan  
1:100



## APPENDIX G



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## General Notes

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2. This report is provided for sole use by the Client and is confidential to the Client and the Client's professional advisors. No responsibility whatsoever for the contents of the report will be accepted to any other person other than the Client.
3. Professional Indemnity Insurance covering any work, reports or opinion expressed by GIP Limited or any data created in its commission will not engage until all fees are paid.
4. The report and/or opinion will be prepared for the specific purpose stated in the document and in relation to the nature and extent of proposals made available to us at the time of your enquiry. The recommendations should not be used for other schemes on or adjacent to the site without further reference to Ground Investigation and Piling Limited.
5. Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by GIP Ltd for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested. We cannot be held liable for any incorrect information supplied to us.
6. Unless stated otherwise, no consultations with authorities or funders or other interested third parties have been carried out. GIP Ltd are unable to give categorical assurance that the findings will be accepted by these third parties as such bodies may have unpublished, more stringent objectives. Further work may be required by these parties.
7. We are confident that the conclusions drawn from the findings of this investigation and desk study are appropriate for the proposed development. However, we cannot guarantee that they would be accepted by regulatory authorities without question. It is recommended that the reports are submitted and approval gained from such bodies, prior to the undertaking of detailed design, construction work or other irreversible processes.
8. The report will be based on the ground conditions encountered in the exploratory holes together with results of field and laboratory testing in the context of the proposed development. Conditions between exploratory holes have been interpolated, however soils and rock conditions are highly variable and may differ from our interpolation. There may be conditions, appertaining to the site, which may not be revealed by the investigation, and which may not be taken into account in the report.
9. The intrusive environmental site investigation aspects of the Services are limited sampling of the site at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and facilities, and natural and other activities on-site. In addition, chemical analysis was carried out for a limited number of parameters as stipulated in the quotation or contract between the client and GIP Ltd [based on an understanding of the available operational and historical information] and it should not be inferred that other chemical species are not present.
10. Methods of construction and/or design other than those proposed by the designers or referred to in the report may require consideration during the evolution of the proposals and further assessment of the geotechnical data would be required to provide discussion and recommendation appropriate to these methods.
11. The accuracy of the results reported will depend upon the technique of measurement, investigation and test used and these values should not be regarded necessarily as characteristic of the strata as a whole. Where such measurements are critical, the technique of the investigation will need to be reviewed and supplementary investigation undertaken in accordance with the advice of the company where necessary.
12. Whilst the report may express an opinion on possible configurations of strata between or beyond exploratory holes, or on possible presence of a feature based on either visual, verbal, written, cartographical, photographic or published evidence, this will be for guidance only and no liability can be accepted for its accuracy.
13. Ground conditions should be monitored during the construction of the works and the recommendations of the report re-evaluated on the light of these data by the supervising geotechnical engineers.

14. Any comments on groundwater conditions will be based on observations made at the time of the investigation, unless specifically stated otherwise. It should be noted, however, that the observations are subject to the method and speed of the boring, drilling or excavation and that groundwater levels will vary due to seasonal or other effects. This may have implications on other recommendations, including foundations and excavations.
15. Unless specifically stated, the investigation will not take into account possible effects of mineral extraction, solution features (e.g. in chalk or limestone) and geological faulting.
16. The economic viability of the proposals referred to in the report, or of the solutions put forward to any problems encountered, will depend on very many factors in addition to geotechnical considerations hence its evaluation will be outside the scope of the report.
17. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on-site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.