

# Mica Environmental Ltd



## Land at Rhyd Y Carw Mill, Trefeglwys, Powys

Phase One Environmental Risk Assessment Report

December 2020

# **MICA ENVIRONMENTAL LTD**

## **Land at Rhyd Y Carw Mill, Trefeglwys, Powys**

### **Phase One Environmental Risk Assessment Report**

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# 1 Introduction

## 1.1 Terms of Reference

Mica Environmental Limited has prepared this report on behalf of Straightforward Properties Ltd following instruction from Robin Breese-Davies on 1<sup>st</sup> December 2020. The report relates to a plot of land at Rhyd y Carw Mill, Trefeglyws, Powys.

The investigation was undertaken in accordance with Mica Environmental Ltd's proposal dated 26<sup>th</sup> November 2020.

It is understood that a planning application was made under reference 20/1304/FUL for proposed conversion and extension of existing barns into accommodation and an events unit and installation of a package treatment plant. This application has been withdrawn pending consultations.

During planning consultations, the Powys Council Contaminated Land Officer raised the fact that the subject site is identified as potential contaminated land on their records due to the presence of 'unknown filled ground' associated with the former mill race. Conditions were recommended to be applied to any planning consent granted by the planners, including

### "Condition 1. Preliminary Investigation

No development shall commence until a preliminary investigation and assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the local planning authority. This investigation and assessment must be carried out by or under the direction of a suitably qualified competent person, in accordance with current guidance and best practice, and shall assess any contamination on the site, whether or not it originates on the site.

The report of the findings shall include:

- A desk study
- A site reconnaissance
- Formulation of an initial conceptual model
- A preliminary risk assessment

If the preliminary risk assessment identifies there are potentially unacceptable risks a detailed scope of works for an intrusive investigation, including details of the risk assessment methodologies, must be prepared by a suitably qualified competent person. The contents of the scheme and scope of works are subject to the approval in writing of the local planning authority."

Further conditions are suggested should unacceptable risks be identified by the preliminary assessment.

## 1.2 Objectives

This Phase One Environmental Assessment aims to meet the initial requirements of the Contaminated Land Officer, by providing a preliminary assessment of the nature and extent of possible contamination on the site and developing a site conceptual model per the procedures in the guidance. This will help to establish what further investigative actions, if any, are required to clarify site conditions and to demonstrate the risks posed by any potential contamination to the proposed development and wider environment are acceptable.

## 1.3 Sources of Information

The following sources of information have been consulted during the preparation of this report:

- Observations made during site visit on 8<sup>th</sup> December 2020 (see Appendix A)
- Ordnance Survey Explorer Map 214, Llanidloes & Newtown, 1:25 000-scale.
- Groundsure Environmental Data Report (see Appendix B).
- Historical and current maps at 1:10560, 1:10000, 1:2500 and 1:1250 scales dating from 1885 to 2020 within the Groundsure Report (see Appendix B).
- Anecdotal Information from client
- Powys Council Planning Portal for 20/1304/FUL
- Tithe map 1847 – Parish of Trefeglwys

## 1.4 Report Layout

The report is laid out as follows:

This section details the terms of reference, objectives and sources of information used in the assessment. Sections 2, 3 and 4 present the factual data relating to site layout, environmental setting and history of the site. Section 5 outlines the regulatory background to the assessment and Section 6 presents the conceptual site model. A summary and recommendations are presented in Sections 7 and 8.

Figures are presented following the text.

Site photographs, where referenced in the text, are presented in Appendix A. The Groundsure Environmental dataset, including historical maps, is provided in Appendix B.

## 1.5 Limitations

This report provides available factual data for the site obtained only from the sources described in the text and related to the site on the basis of the location information provided by the client. Where any data or information supplied by the client or other external source, including that from previous desk studies or report, has been used, it has been assumed that the information is correct. No responsibility can be accepted by Mica Environmental Limited for inaccuracies within this data or information.

Information obtained during the site reconnaissance represents only visually obtainable data. There may be other conditions prevailing at the site, which have not been accessible and have therefore not been taken into account in this report.

The recommendations made relate to the Statutory Guidance at the time of report production, and the risk-based approach adopted by DEFRA, Natural Resources Wales (NRW), the Environment Agency (EA) and other regulatory authorities. The recommendations may need to be re-visited if significant changes are made to the risk-based approach currently adopted or the proposed development is altered.

This report provides an assessment of the potential risks from contamination issues only. Other issues such as slope stability are beyond the scope of this assessment.

This report is produced solely for the benefit of the client, and no liability is accepted for any reliance placed upon it by any other party unless specifically agreed in writing with Mica Environmental Limited.

## 2 Land Use and Site Setting

### 2.1 Site Location

The site is located at NGR 295872 290613 approximately 1km to the west of Trefeglwys, Powys, as shown on Figure 1.

The site is in a rural location, just to the north of the River Trannon and at an elevation of approximately 150m asl. It is accessed off a rough track leading south from the road between Trefeglwys and Llaw-r-glyn. (see Photo 1).

### 2.2 Site Description

#### 2.2.1 Current

The site of some 0.2 hectares is roughly triangular in shape with maximum dimensions of approximately 85m by 40m. The current site layout is indicated on Figure 2.

The access track enters the site in its northeast corner. Land slopes down to the south, towards the River Trannon, although the site does not extend as far as the bank of the river. The access track and an attached levelled off parking area are made up of placed quarry-sourced hardcore.

The west of the site contains a rough barn structure surrounded by grazing land, within a larger agricultural field. There are some mounds of soil around the area of the barn (see Photo 2). The south, and lowest lying part of the site, contains a brick-built outbuilding with stoned level yard area to its front. At the southern end of this is a breezeblock, wood and metal sheeting addition (Photo 3). The remainder of the site is rough grass. In the south of the site, bonfire residue was noted, and can be seen in Photo 3.

The land rises up to the northeast corner, with the levelled car-parking area to the east of the track. (Photo 4).

There is an overhead electricity line and pole present just to the north of the eastern barn. A shallow manhole covered with paving slab is present to the south of the western barn, as can be seen in Photo 2. A flow of clean water was noted in the base at a depth of 0.8m bgl.

#### 2.2.2 Proposed Layout

The proposed layout of the site is presented in Figure 3. It is understood that the intention is for the western barn to be extended to the north and the whole converted to an accommodation block. The southern section of the brick-built barn will be demolished and the building extended to form an open plan studio. As part of the proposals a self-contained waste water treatment plant is also proposed.



### 2.3 Surrounding Land Use

The site is surrounded by agricultural grazing land to the north, west and south. Land immediately to the east of the site is in residential use with the former mill building and associated gardens present. Further to the east is also pasture land. The River Trannon is located less than 20m to the south of the site, with its southern bank being considerably higher than the northern bank, although there is a ford crossing point just to the south of the site, together with a footbridge (see Photo 3).

### 2.4 Site Walkover

Site was visited on 6<sup>th</sup> December 2020 to undertake a site walkover. Observations are discussed above in section 2.2 and 2.3. Photographs taken are presented in Appendix A.

### 2.5 Previous Investigations

The client has not advised Mica Environmental of any previous contamination assessments undertaken for the site.

## 3 Environmental Setting

### 3.1 Geology

The Geology Report within the Groundsure information indicates drift geology (shallow deposits) at the site comprises Glaciofluvial Sheet Deposits (sand and gravel). There is also the possibility of some Alluvium (gravel, sand, silt and clay) overlying the Glaciofluvial Sheet Deposits in the far south of the site.

The bedrock at the site is indicated as the Rhayader Mudstones Formation, a pale grey and green mudstone.

### 3.2 Hydrogeology

The drift deposits will exhibit variable permeability with the Glaciofluvial Sheet Deposits likely to have high to very high permeability, and the alluvium very low to high permeability, depending upon clay content. The drift deposits are considered a Secondary A aquifer which are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important base flow to rivers. These are generally aquifers formerly described as Minor Aquifers.

The solid geology of the Rhayader Mudstones Formation is classified as a Secondary (B) Aquifer: These are generally predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the units formerly classified as non-aquifers.

Based on local hydrological, geological, hydrogeological and soil properties the Superficial deposits are considered have low vulnerability to a pollutant discharged at surface, and the Bedrock geology is considered to have medium vulnerability.

There are no groundwater abstraction licences (required for abstractions of > 20 cubic metres per day) or source protection zones recorded within 500m of the site. There are three historical abstractions recorded, all located more than 1500m to the east or southeast of site licensed in 1966 and 1967 for general farming and domestic uses.

### 3.3 Hydrology

The nearest surface water feature to site is the River Trannon which flows in an easterly direction, at its nearest point just 17m to the south of site.

The Water Framework Directive objectives for the river have an overall rating of Moderate, with a good chemical rating and a moderate ecological rating (last reporting cycle 2016).

There are no surface water abstraction licences recorded within 2km of the site.

There are two current licensed discharges within 500m of the site; both of these relate to non-water company final/treated sewage effluent discharged to the River Trannon and Nant Y Bachws respectively, 92m west and 476m to the southeast of site.

### 3.4 Environmental and Cultural Heritage Designations

#### 3.4.1 Environmental Designations

There are no Special Protection Areas (SPA), Ramsar sites, Special Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR), within 500m of the site.

There are six areas of Ancient Woodland within 500m of the site, the nearest being an area of ancient semi-natural woodland at a distance of 13m just beyond the River Trannon to the south of the site; the others being 241m to the west, 335 to 371m to the north of site (three contiguous areas) and 440m to the northwest.

#### 3.4.2 Visual and Cultural Designations

There are no Scheduled Ancient Monuments, Areas of Outstanding Natural Beauty (AONB), or World Heritage Sites within 250m of the site.

There are three listed building entries between 50m and 250m from the site:

132m to NW, Barn at Rhyd Carw

145m to NW, Former Cow House at Rhyd Y Carw

199m to NW Rhyd Y Carw the Pont Lanerch Emrys, 92m and 105m to the northeast of site.

Although there are no designations on the site, it is noted that the Clwyd Powys Archaeological Trust provided a consultee response to the planning application under planning Ref 20/1304/FUL indicating that they were interested in potential features in the north of the site – including the buried stone-lined culvert, which originally carried water to the mill waterwheel and the sub-surface remains of a preserved Roman road on the north side of the western barn.

### 3.5 Waste Management and Landfill Activities

There are no operational or non-operational landfills, waste treatment, transfer or waste disposal sites recorded within 500m of the site.

### 3.6 Radon

The site is in an intermediate probability radon area as between 3% and 5% of homes are estimated to be above the residential action level based on BGS and PHE data. Consequently, the site is in an area where basic radon protective measures are required for new dwellings or extensions. The proposals for the site are commercial in nature, but it is noted they have a residential element and it would be prudent to incorporate basic radon protection within the construction design, which should be confirmed with the intended approved Building Inspector.

### 3.7 Environmental Permits, Consents, Licences, and Authorisations

There are no historic Industrial Pollution Control, Part A(1), Part A(2), Part B or IPPC activities or enforcements recorded within 500m of the site.

There are no Control of Major Accident Hazards (COMAH) sites or Hazardous Substance Storage Sites recorded within 500m of the site.

There are no sites determined as Contaminated Land under Part IIa of the EPA 1990 within 500m of the site.

### 3.8 Pollution Incidents

There are no pollution incidents recorded within 500m of the site.

## 4 Site History

### 4.1 Historical Map Review

Historical and current maps at 1:10560, 1:10000, 1:2500 and 1:1250 scales dating from 1885 to 2020 were reviewed. These maps are presented in Appendix B. In addition, aerial photographs dating between 2001 and 2016, presented within the Groundsure Enviro & Geo Insight Report were reviewed. A summary of the findings is presented in Table 1 below.

Table 1: Historical Map Review

Date/Map Scale	Site	Surrounding Area
1885 1:10560 1886 1:2500	The site falls within the western part of a cluster of buildings labelled as 'Corn Mill'. There is a rectangular structure indicated in the west of the site and a further L-shaped structure in the south of the site. A narrow watercourse is shown in the north of the site, traversing west to east.	<p>20m to the south of site is a 'Ford' and a foot bridge across a wider river. The river is indicated to flow in an easterly direction. The on-site watercourse (mill race) runs in a south-easterly direction to join with the river at a point some 125m to the SW of site. There are further small channels connecting the watercourse to the main river located 25m to the W and 150m to the W, although the main feeding point of the mill race appears to be 500m to the W of the site.</p> <p>Immediately to the east of site, a large L-shaped building is shown, (assumed to be the main mill building) as it appears to be constructed over the watercourse. A small footbridge across the watercourse is labelled just to the E of this.</p> <p>There are no other buildings indicated within 100m of the site.</p> <p>50m to the east of site the course of a Roman Road is shown.</p>
1903 1:10560 1902 1:2500	Cluster of buildings is now labelled as "Rhyd Y Carw Mill (Corn)". The narrow watercourse is labelled as 'Mill Race'. Westernmost barn is depicted half as long as previously shown. Small bridge possibly indicated over the mill race in the central north of site.	No significant changes.
1948 1:10560	No significant changes.	No significant changes.

Date/Map Scale	Site	Surrounding Area
1981 1:2500 1982 1:10000	Mill Race is no longer shown. Barn in east of site is shown larger than previously.	Two new probable residential properties now present 100m to the SE of site. Sheep Dip indicated 150m to the north of site.
1992 1:10000 1995 1:2500	No discernible changes.	No significant changes.
2001 Aerial Photograph, May 2001 1:10000 2003 1:1250	Apart from buildings, site appears grass.	Surrounding land to N, W and S is grazing land.
2009 Aerial Photography, June 2010 1:10000	Rough track appears present looping up from the ford and around the western side of the western barn before heading east to the northeast corner of the site. Apart from buildings and track, site surface appears grass.	No significant changes.
2014 Aerial Photography, April	Looping track no longer evident.	No significant changes.
Aerial Photography August 2016	No discernible changes.	No significant changes.
Aerial Photography April 2019	Ground to west of eastern barn appears bare mud or stone. Rest of site grass.	No significant changes.
2020 1:10000	No discernible changes.	No significant changes.

The Tithe map, dating from 1847, was also viewed and this shows the site to be part of field number 1155 (Meadow on the accompanying apportionment). Two small buildings are indicated in roughly the same positions as the current barns. The adjacent plot (field 1153) is described “House, Mill Yard etc” on the apportionment. The mill race appears to be indicated by a line on the map.

## 4.2 Other Site History Sources

### 4.2.1 Anecdotal Information

It is understood, from the site owner, that the access track was upgraded with stone and drainage in June 2019. The topsoil removed during the access improvements was piled up next to the western barn in readiness for future landscaping of the site.

Potable water is fed over the footbridge from the south side of the river. A drain was laid to improve the track drainage, and a manhole is present on site.

The client has spoken to a previous owner of the site, who was born at the mill in the late 1930s and grew up there. He advises that the mill race was back filled before he grew up, as he never saw it open. He believes from earlier conversations with his family, that the higher ground to the north of the mill race was chipped out and used to backfill the channel using gravity to assist the process.

## 5 Regulatory Background

Part IIA of the 1990 Environmental Protection makes provisions for a risk-based framework for the identification, assessment and management of contaminated land within Wales.

This statutory contaminated land regime was introduced specifically to address the historical legacy of land contamination and provides a definition for contaminated land which applies where an ‘unacceptable risk’ (Significant Possibility of Significant Harm) to specific receptors is demonstrated based on current use.

Guidance on the Part IIA regime was issued by the Welsh Government – “Contaminated Land Statutory Guidance 2012”. This Guidance introduced a new four-category system for classifying land under Part 2A for cases of a Significant Possibility of Significant Harm to human health, where Category 1 includes land where the level of risk is clearly unacceptable and Category 4 includes land where the level of risk posed is acceptably low. In relation to the 4-category system, land is determined as ‘contaminated land’ under Part 2A if it falls within Categories 1 or 2, such that the Category 2/3 border defines the point at which land is determined under the legislation.

Statutory control for development on land affected by contamination is applied by the planning system under guidance in Planning Policy Wales (PPW) (current issue edition 9 November 2016). Generally, once development is complete, the land should not be capable of being determined as contaminated land under Part IIA:

‘13.6.1 Local planning authorities should take into account the nature, scale and extent of contamination which may pose risks to health. Land contamination must be considered in the preparation of development plans to ensure that:

- new development is not undertaken without an understanding of the risks, including those associated with the previous land use, mine and landfill gas emissions, and rising groundwater from abandoned mines;
- development does not take place without appropriate remediation;
- consideration is given to the potential impacts which remediation of land contamination might have upon the natural and historic environments.

....

13.7.4 A development proposal may introduce changes to a site which may result in land being designated as contaminated under Part IIA, where such land would not be considered contaminated in its existing state under the provision of the regime. The onus will remain with the developer to ensure that the development of the site will not result in designation as contaminated land under Part IIA. The local planning authority will need to ensure that the land is suitable for its proposed use.

Guidance considers both the proposed development and the land, on the principle of ‘suitable for use’. In this context, the sensitivity of the proposed end use is implicitly considered within the risk assessment process. The process of risk assessment is an evaluation of the probability of harm, and comprises the identification of sources of contamination (hazards), receptors that may be affected by the contamination and pathways by which the receptors may be harmed.

Risk is defined as: 'a combination of probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence'.

Current best practice involves the development of a conceptual site model, identifying potential sources of contamination, receptors, contaminant migration or exposure pathways and whether potential 'pollutant linkages' exist, and thus the potential for 'significant risk'. This requires the identification of hazards associated with contamination and an assessment of the risk associated with these hazards in view of the end usage of the site.

The developer is responsible for ensuring the site is suitable for its proposed use.

## 6 Conceptual Site Model

### 6.1 Sources

Previous agricultural pasture uses and out-buildings associated with the water-powered corn mill are unlikely to have given rise to significant sources of contamination. However, it is noted that the former mill race has been back-filled at some point; anecdotally this happened prior to 1940, but Ordnance Survey 1:10560 scale mapping still shows the mill race on the 1948 edition. It should be noted, however, that the 1948 publication relied on the previous survey of 1884, and small changes such as the backfilling of the rural mill race may not have been processed within the issued revision. It is considered that the recollection of the area by a local resident who grew up at the site (see section 4.2.1) is likely to provide a more precise timeline, particularly the presence/absence of a watercourse through their garden.

The suggestion that the mill race was backfilled using the ground of the higher slope to the north is feasible given the topography and the likelihood that physical effort required to undertake the backfilling would be minimised. The site's rural location and lack of industry in the immediate vicinity makes it unlikely that industrial waste was deposited, however it is noted that the Van lead mines are only 3km to the south of the site as the crow flies, but two valleys away.

There is uncertainty regarding the backfill of the mill race, and it is therefore considered as a potential feasible source.

The bonfire residue noted during the site walk-over is a potential source of PAH and metals; but it is understood that this will be removed by the client as part of the site preparation works and, on this basis, is discounted from the risk assessment.

The site falls within an area where naturally occurring radon gas may be considered a potential source.

### 6.2 Pathways

Potential pathways are the means by which an identified hazard can migrate or encounter any receptors. Typically, such migration pathways to humans (e.g. development workers or users of the future property) can include inhalation of indoor vapours, inhalation of outdoor vapours, inhalation/ingestion of dust, dermal contact, ingestion of contaminants through fruit and vegetable consumption grown in contaminated soil, migration of ground gasses via fissures in underlying geology.

Based on the desk study information, including end use and uncertainty regarding potential contaminants, all the pathways are viable at this stage. Additionally, due to the potential for hydrocarbon contamination, a direct contact pathway is possible to building fabric such as plastic water pipes or concrete structures should there be significant hydrocarbon or solvent in the backfill material, however the length of time the material has been deposited for tends to make any risk very low.



The overlying recent geology is likely to be relatively permeable, the underlying geology less permeable with any flow via fracture flow. Movement of contamination via leaching of contaminants and transport in underlying groundwater could be a potential feasible pathway, but only if gross contamination is present.

The mill race historically has formed a direct pathway to the River Trannon, and dependent on backfill along its route could act as a preferential pathway for mobile potential contaminants to the controlled waters of the river.

### 6.3 Receptors

The proposed use of the site is commercial but with a residential element. As a conservative approach at this stage of the assessment, a residential use with sensitive receptors has been assumed. Construction workers can also be considered as a potential receptor, especially as they are most likely to be digging in the ground on site, so should contaminated soils be present, they would be more likely to encounter these via inhalation/ingestion of dust, and dermal contact.

There is an adjacent residential property which could potentially be impacted by dust movements migrating off site during redevelopment if not appropriately managed.

The River Trannon is downgradient from the site, and is a controlled water potential receptor.

The underlying minor aquifer could be considered as a potential receptor, although it is not a particularly sensitive one.

Building materials can potentially be affected by contaminants. The unknown nature of potential contamination could include hydrocarbons and organics which can impact on plastic water pipes and concrete materials, and although at this stage there is no indication that such contamination is present on site it has been considered in the risk assessment table until further information is available.

There are no ecological designations likely to be affected by the potential contamination.

It is understood that archaeological features are under separate consideration. The nature of any contamination, if present, is unclear at the moment, but it is not considered feasible that potential contamination will have significant chemical impact on buried stonework.

## 6.4 Tabular Preliminary Conceptual Site Model and Risk Estimation

### 6.4.1 Feasible Pollutant Linkages and Risk Estimation

A two-stage assessment has been carried out based on the identified contaminants, pathways and receptors. As no site investigation data is available at this preliminary stage, this is based on professional judgement, with an estimate of the potential for a substance to be present on site, and in what potential concentration/quantity; at this stage the estimates are conservative. Initially, the column designated as 'Potential Consequence of Hazard' gives an indication of the sensitivity of a given receptor to a particular source/contaminant of concern (CoC) being considered. It is a worst-case classification and is based on full exposure via the particular linkage being examined. The derivation of the classes used to rank this particular aspect is as follows:

Table 2: Classification Definition

Classification	Human Health	Controlled Water	Ecological	Built Environment
Severe	Permanent damage to human health	Extensive pollution of sensitive water resources	Extensive change to the number of one or more species or ecosystems	Permanent damage to buildings, structures or the environment
Moderate	Non-permanent health effects to humans	Pollution of non-sensitive water resources or minor / localised pollution of sensitive water resources	Change to population densities of non-sensitive species	Damage to sensitive buildings, structures or the environment
Mild	Minor short-term health effects to humans	Minor / localised impact to non-sensitive water resources	Some change to population densities but with no negative effects on the function of the ecosystem	Easily repairable effects of damage to buildings or structures
Negligible	No measurable effects on humans	Insubstantial impact to non-sensitive water resources	No significant changes to population densities in the environment or in any ecosystem	Very slight non-structural damage or cosmetic harm to buildings or structures

Subsequently, in the column entitled ‘Likelihood’, an assessment is made of the probability of the selected source and receptor being linked by the identified pathway. This assessment is ranked based on site specific conditions as follows:

Very unlikely 0 to 5%;

Unlikely 5 to 45%;

Possible 45 to 55%;

Likely 55 to 95%;

Almost Certain 95 to 100% (i.e. impact noted during the investigation).

The ‘Risk Estimation’ column is an overall assessment of the actual risk, which considers the likely consequence of a given risk being realised and the likelihood of that risk being realised. The risk classifications are assigned using the following consequence/likelihood matrix:

Table 3: Consequence –Likelihood Matrix

Consequence		Risk				
	Severe	Low	Low to moderate	Moderate to high	Very High	Very High
Moderate	Negligible to low	Low	Moderate	Moderate to high	High	
Mild	Negligible	Low	Low	Low to moderate	Moderate	
Negligible	Negligible	Negligible	Negligible to low	Low	Low	
Likelihood:	Very Unlikely	Unlikely	Possible	Likely	Almost Certain	

Table 4 below details risk estimation classification scenarios.

Table 4: Risk Estimation Classification

Potential Significance – Risk Estimation Classification	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.
High	Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild or localised. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.
Negligible	The presence of an identified source does not give rise to the potential for significant harm.

#### 6.4.2 Assessment

The highest estimated risk (of moderate) relates to the potential source pathway receptor linkage between potential contaminants in fill material on site and future site users. A low risk was identified for construction workers and nearby off-site residents during earthworks. See Table 5 below.

An intrusive site investigation comprising trial pits and sampling is proposed to gather more information on the potential sources and to allow a revision of the preliminary risk assessment once empirical data and visual observation of sub-surface conditions is available.

Table 5: Summary of Potential Feasible Pollutant Linkages and Preliminary Risk Estimation

Contaminant (Source)	Pathway(s)	Receptor	Potential Consequence of Hazard	Likelihood of Source-Pathway-Receptor Linkage	Risk Estimation	Comments
Mill-Race backfill materials of unknown origin	inhalation/ingestion of dust, dermal contact, inhalation of indoor vapours, ingestion of contaminants through fruit and vegetable consumption grown in contaminated soil	Humans (Future site users)	Severe	Unlikely to possible	Moderate	Ingestion of contaminants through fruit and vegetable consumption is only relevant if future full-time residential use
	inhalation/ingestion of dust, dermal contact	Humans (Construction Workers)	Severe	Very Unlikely	Low	Risk can be minimised through use of standard construction H&S and PPE
	inhalation/ingestion of dust	Off-site residents	Severe	Very Unlikely	Low	Potential to affect residents in Rhyd Y Carw Mill building if significant contamination mobilised during construction
	Direct chemical attack	Concrete, plastic water pipes	Mild to Moderate	Unlikely	Low	
	Leaching of contaminants  Baseflow to river of potentially contaminated shallow groundwater	Shallow Groundwater (Minor Aquifer)  River Trannon	Mild  Moderate	Unlikely	Low	Only potentially an issue if gross contamination encountered at the site
Mill-Race backfill with potential for ground gas generation (carbon dioxide, methane)	Lateral or vertical migration	Build up of gas in sub-floor voids/confined spaces leading to unacceptable levels	Moderate	Very Unlikely	Negligible to Low	Quantity and constituents of Made Ground/Fill currently unknown. Backfilling likely pre-1940s, gassing activity if any likely to have ceased.
Naturally occurring radon gas	Migration	Build up of unacceptable levels in habitable rooms	Severe	Very Unlikely	Low	Can be mitigated through use of radon protection measures in construction

## 7 Summary

The 0.2ha site is located in a rural setting within 25m of the River Trannon. Identified previous potentially contaminative uses of the site are limited, and the main point of concern is the backfilled mill race which runs across the north of the site.

The date and method of in-filling is not known, but local residents believe it was backfilled prior to 1940 using nearby natural ground from the adjacent higher ridge.

The highest estimated risk is a moderate risk to future site users from the unknown nature of the backfill, as it has not been confirmed that the backfill is natural ground.

A site investigation is recommended to provide visual observation and empirical data for the backfill material and help clarify the risks to future site users and the wider environment.

## 8 Recommendations

An outline scope for an intrusive site investigation is proposed below.

Initially a single day trial pitting exercise using a mechanical excavator is proposed to expose the former mill race at a minimum of three locations along its path within the proposed development site area. In addition, a pit will be excavated into the rough ground to the south of western barn to provide visual confirmation that it is stored topsoil.

An indicative trial pit location plan is provided in Figure 4.

All trial holes will be photographed and logged in accordance with BS5930.

Soil samples will be collected to provide information on the fill material. It is possible that the former mill race was constructed in a stone-lined channel, in which case best efforts will be made to avoid damage to the structure.

Depending upon the variability and nature of the encountered fill material, samples will be collected and scheduled for analysis. As a minimum, all samples will be scheduled for pH and toxic (9) metals analysis, and in addition, a selection of samples may be scheduled for polyaromatic hydrocarbons; semi-volatile organic suite; total petroleum hydrocarbons (TPH-CWG); soil organic matter, sulphate. However, if the ground appears natural and there is no visual or olfactory evidence of hydrocarbon or volatile compounds, then the analysis may be limited to the pH and metals. A minimum of four samples will be scheduled.

Should significant (>1m) depth of buried Made Ground be encountered, then additional characterisation of the Made Ground may be made using the approach set out in CL:AIRE Research Bulletin RB17 2012, A Pragmatic Approach to Ground Gas Risk Assessment.

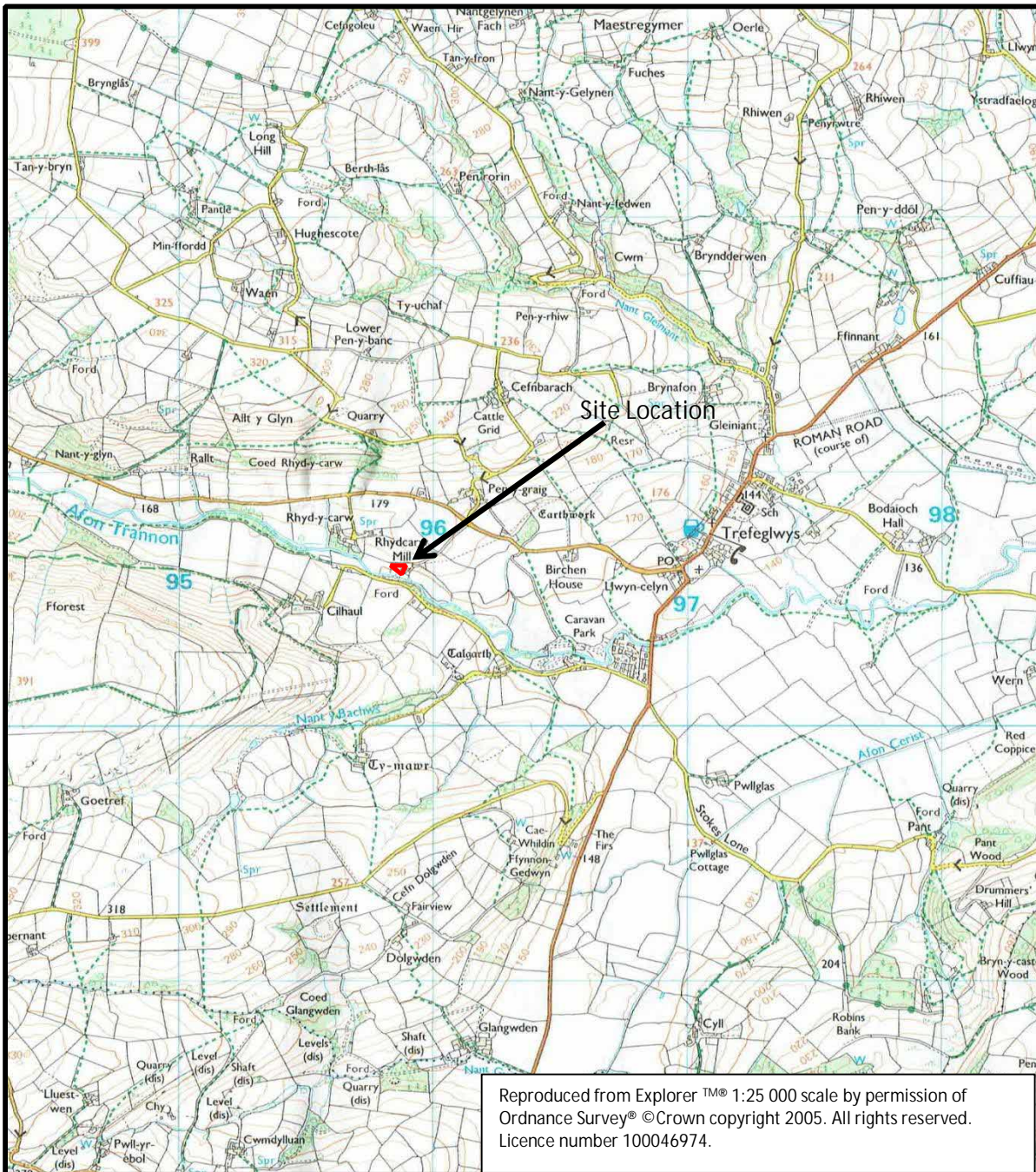
The exact scope of testing is likely to be revised on site during the fieldwork dependent upon the ground conditions and backfill material encountered during the investigation.

Samples will be sent to a UKAS and MCERTS accredited laboratory for analysis. A factual and interpretative report with updated risk assessment, using generic assessment criteria (DEFRA

C4SL and CIEH/LQM S4ULs) initially based on a residential use without plant uptake will then be produced.

## Figures

Figure 1	Site Location Plan
Figure 2	Current Layout Plan
Figure 3	Proposed Layout Plan
Figure 4	Proposed Site Investigation



MENV07149 – Rhyd y Carw Mill, Trefeglwys, Powys

Figure 1 Site Location Map

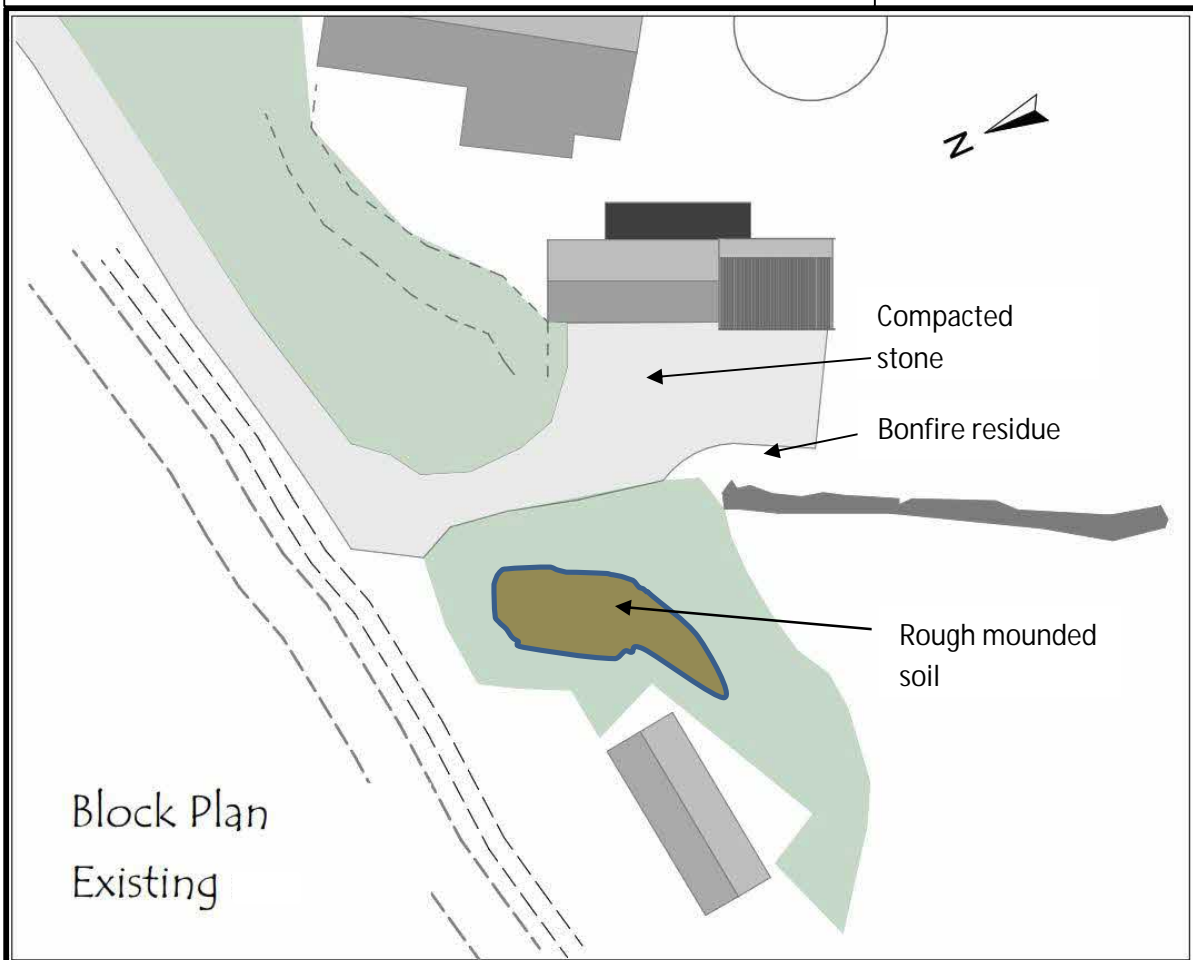
Scale (Approx)



(approx)



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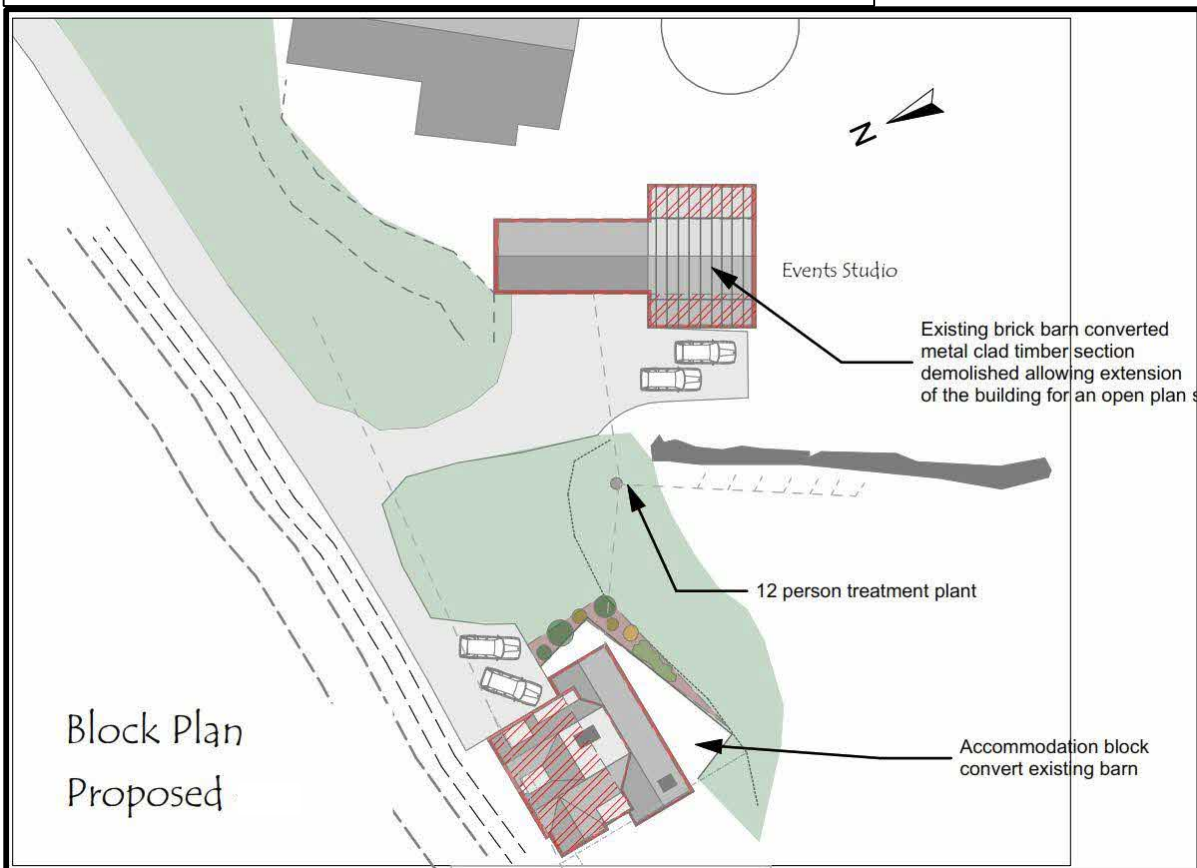


MENV07149 – Rhyd y Carw Mill, Trefeglwys, Powys

Figure 2 Current Site Layout

Scale (Approx) 0 10m

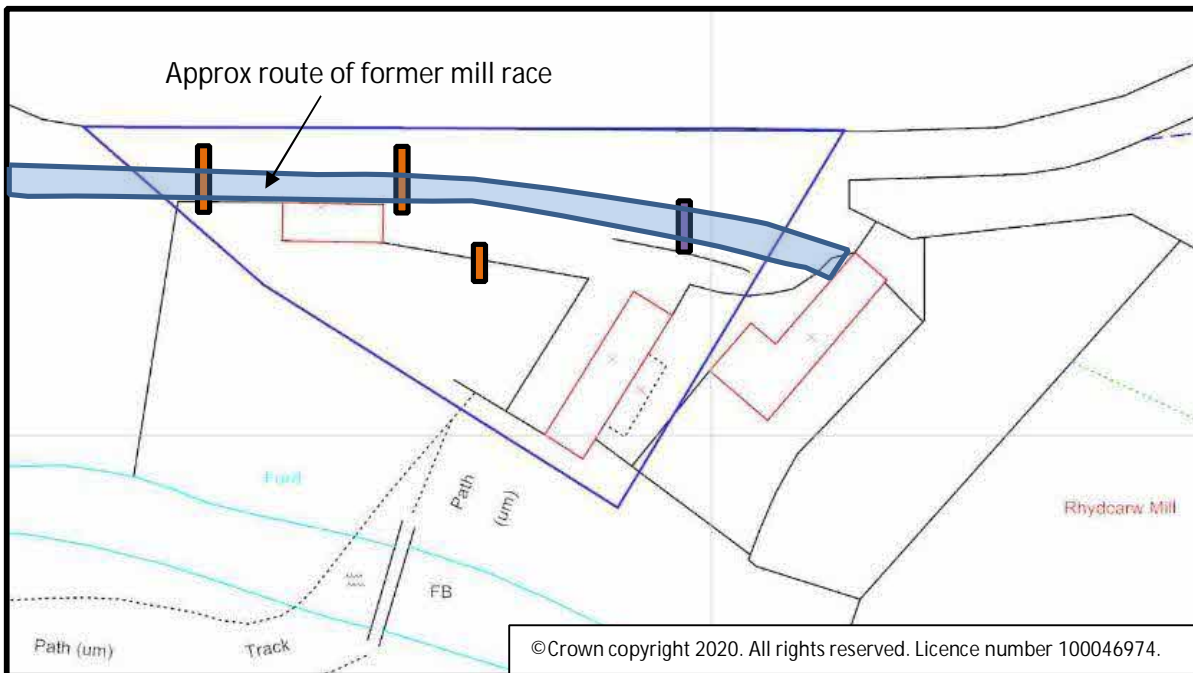
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Figure 3 Proposed Site Layout

Scale (Approx) 0  $\longleftrightarrow$  10m



MENV07149 – Rhyd y Carw Mill, Trefeglwys, Powys

Figure 4 Proposed Site Investigation Trial Pit Locations

Scale (Approx) 0 50m

- Proposed trial hole location (approx.)
- Tentative location for trial hole, subject to accessibility, safety and stability issues, alternative location may be necessary.



## Appendix A

### Photographs

Photographs taken 6<sup>th</sup> December 2020



Photograph 1: Access track to site looking E



Photograph 2: Barn in western part of site, mounded earth/disturbed ground in middle ground, drainage manhole centre.

Photographs taken 6<sup>th</sup> December 2020



Photograph 3: Southern part of the site looking S



Photograph 4: Eastern Site looking E

## Appendix B

### Groundsure Data

Site Details

Land at Rhyd y Carw Mill,  
Trefeglwys, SY17 5PU

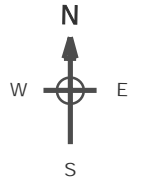
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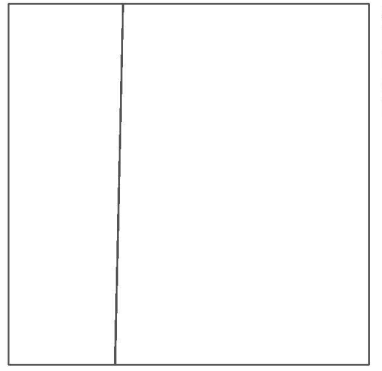
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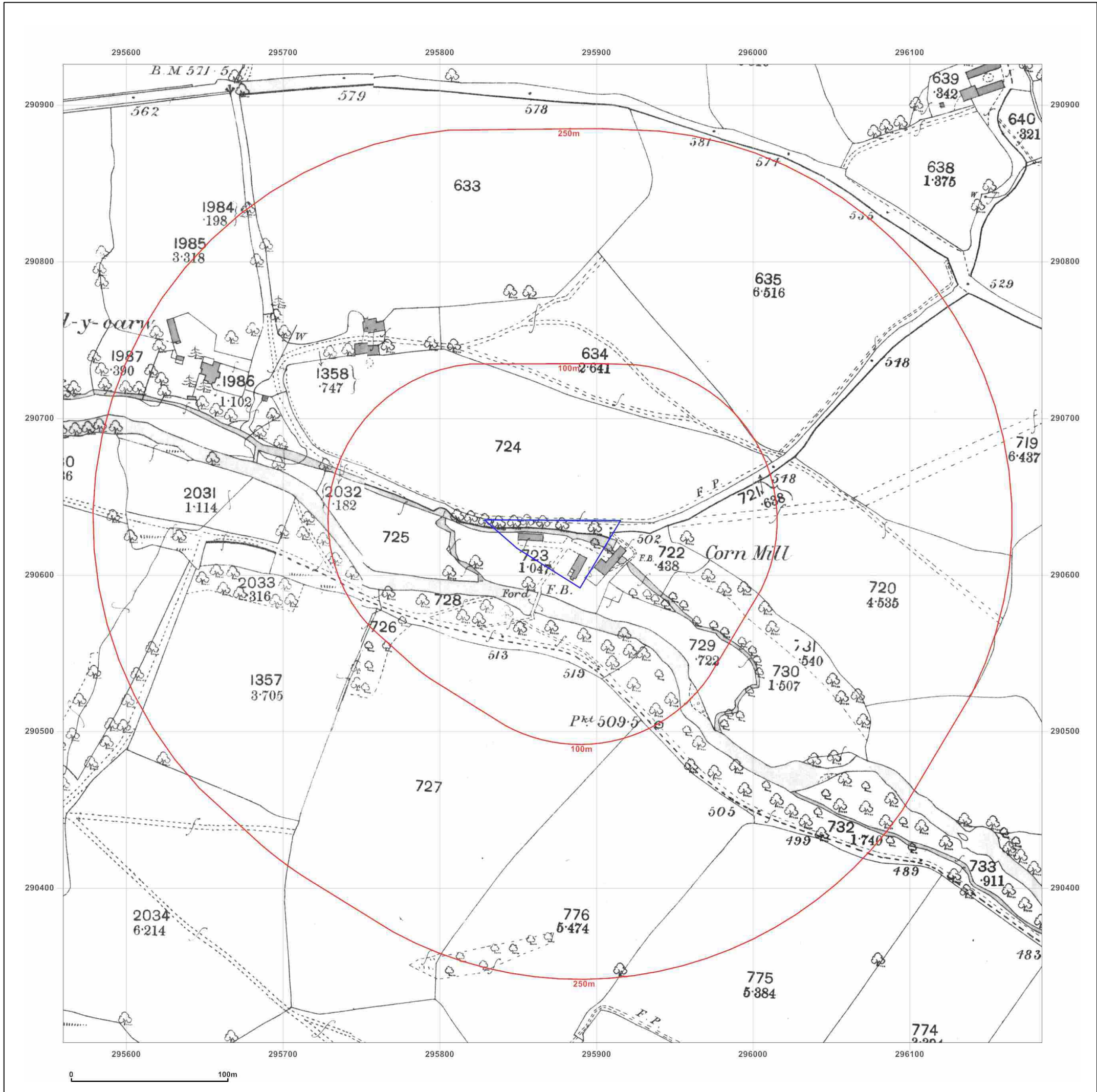


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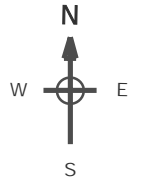
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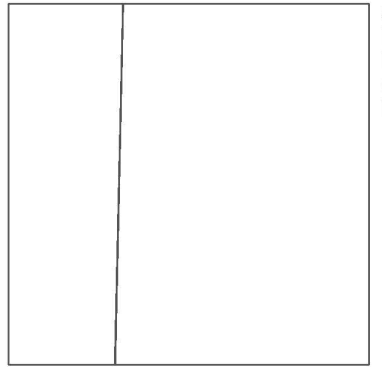
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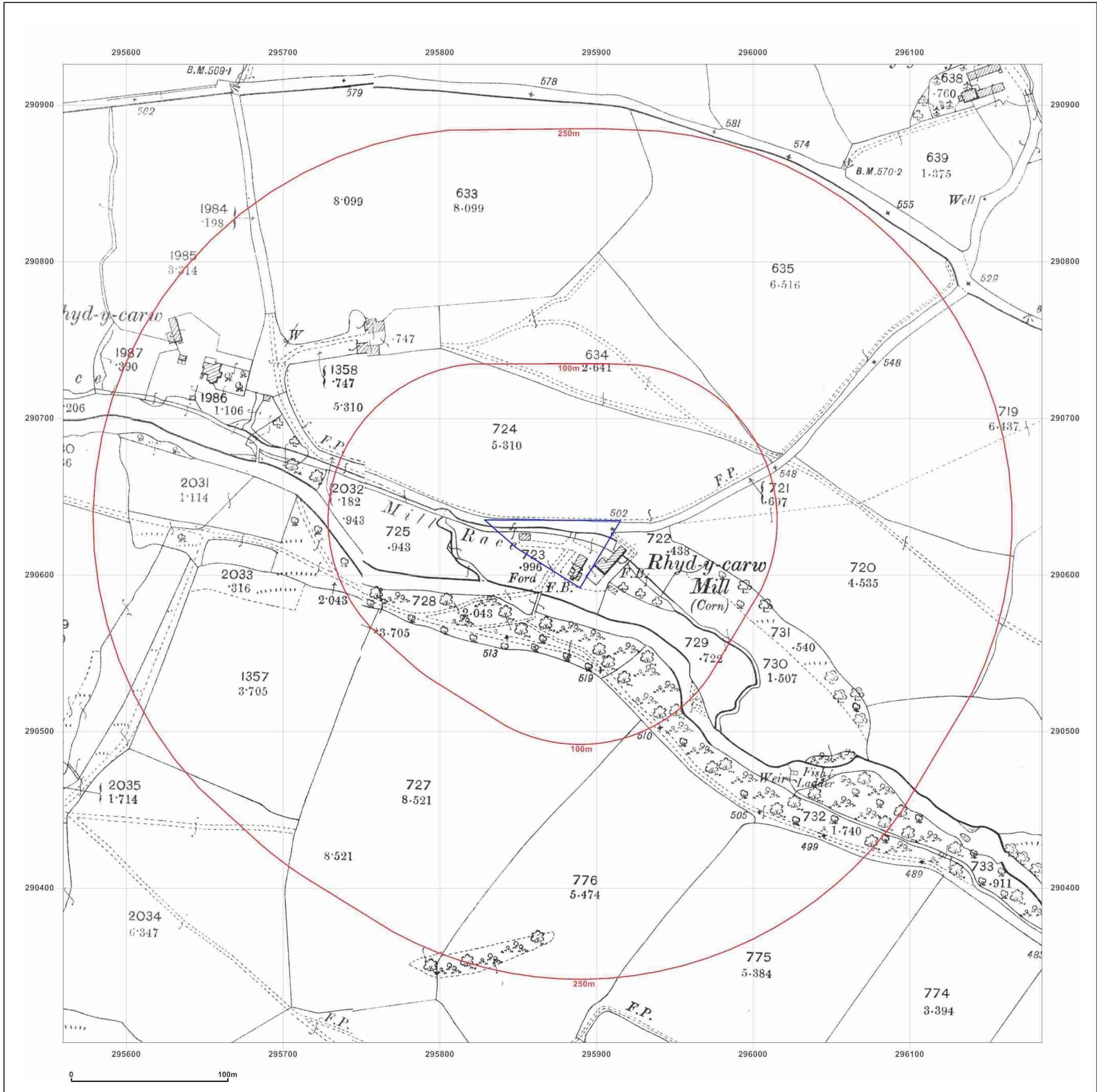


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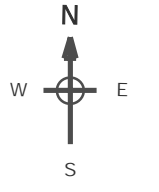
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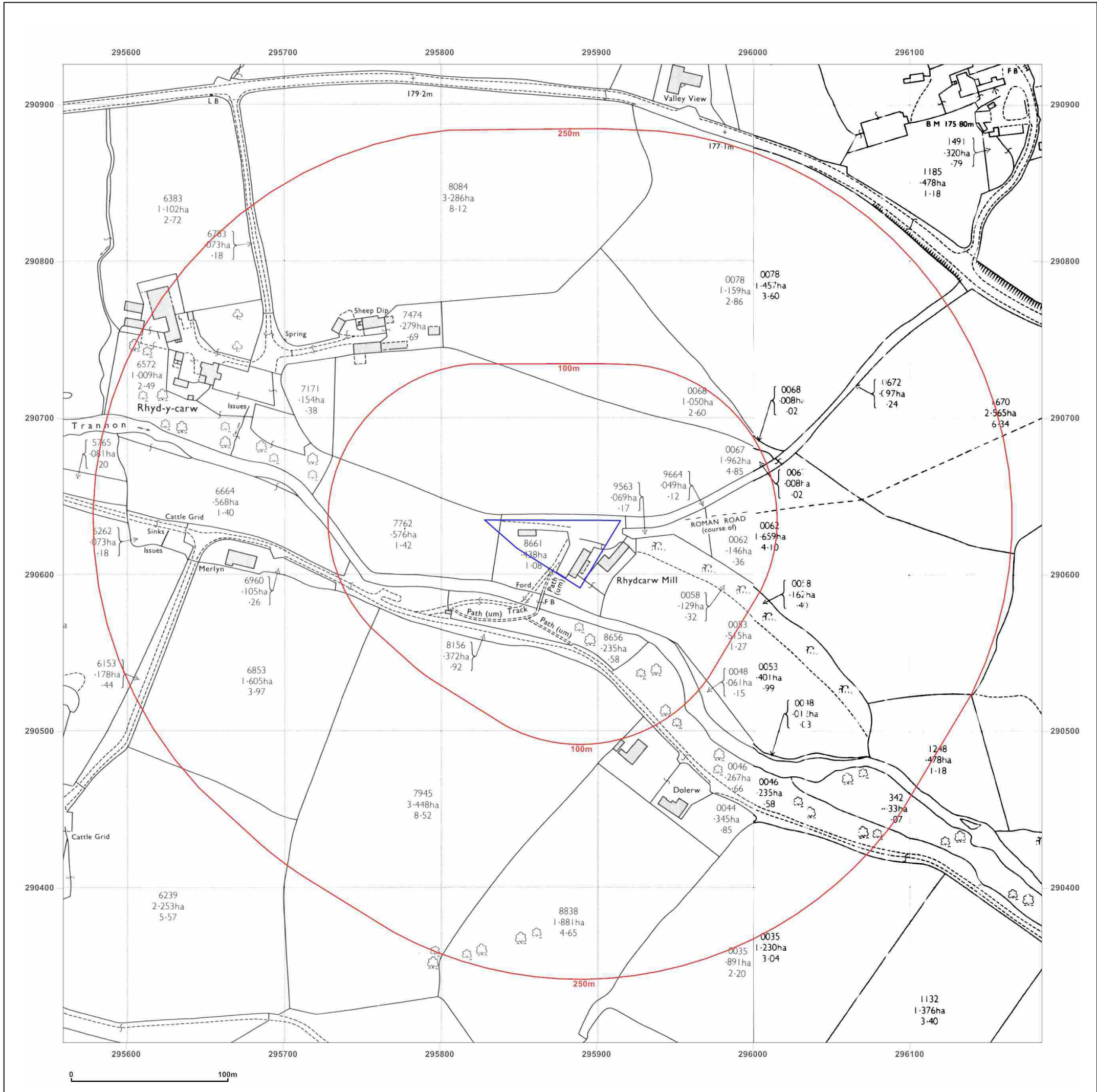


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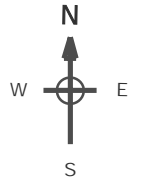
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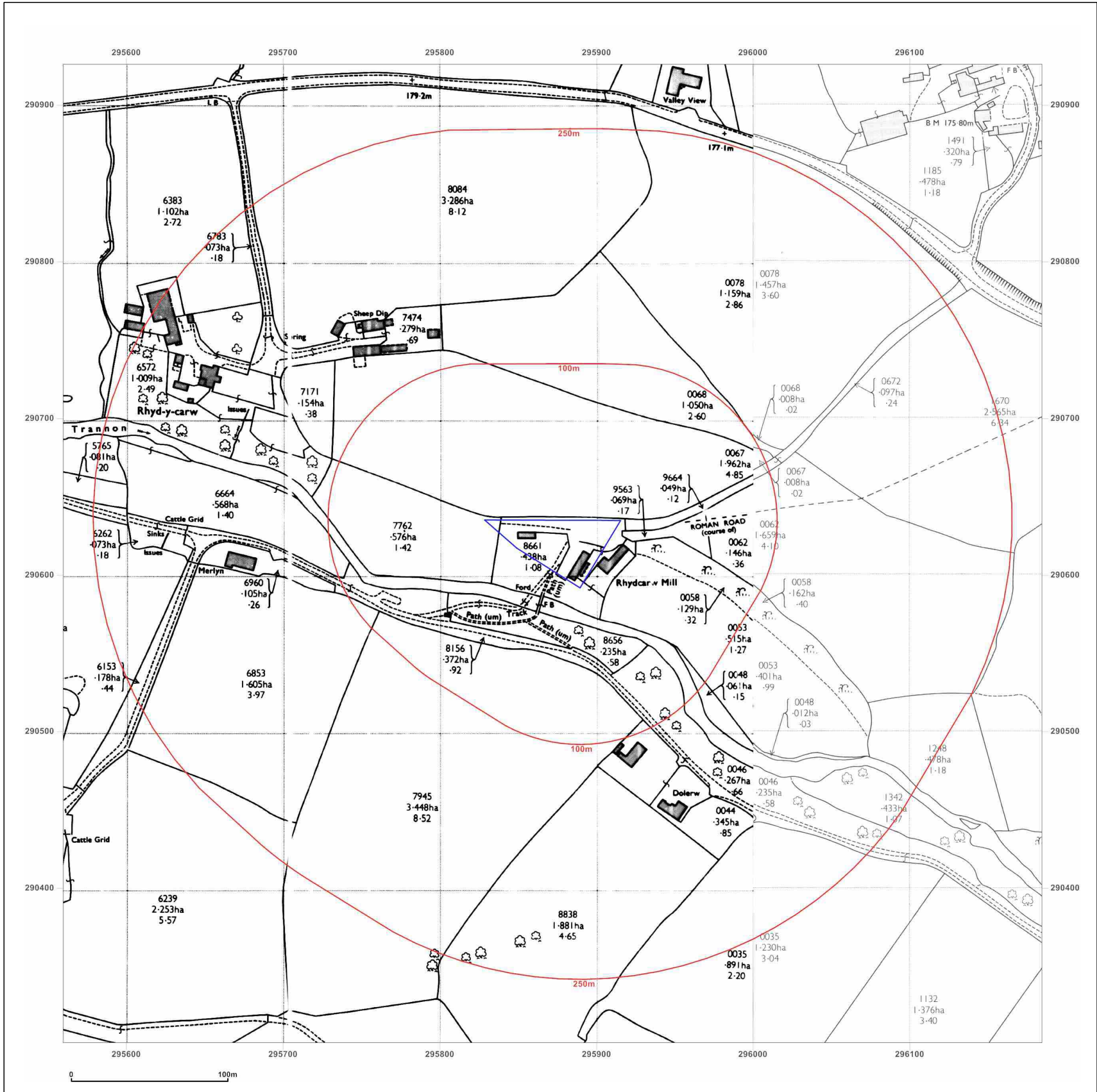


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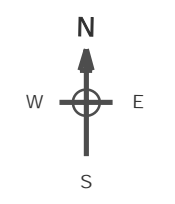
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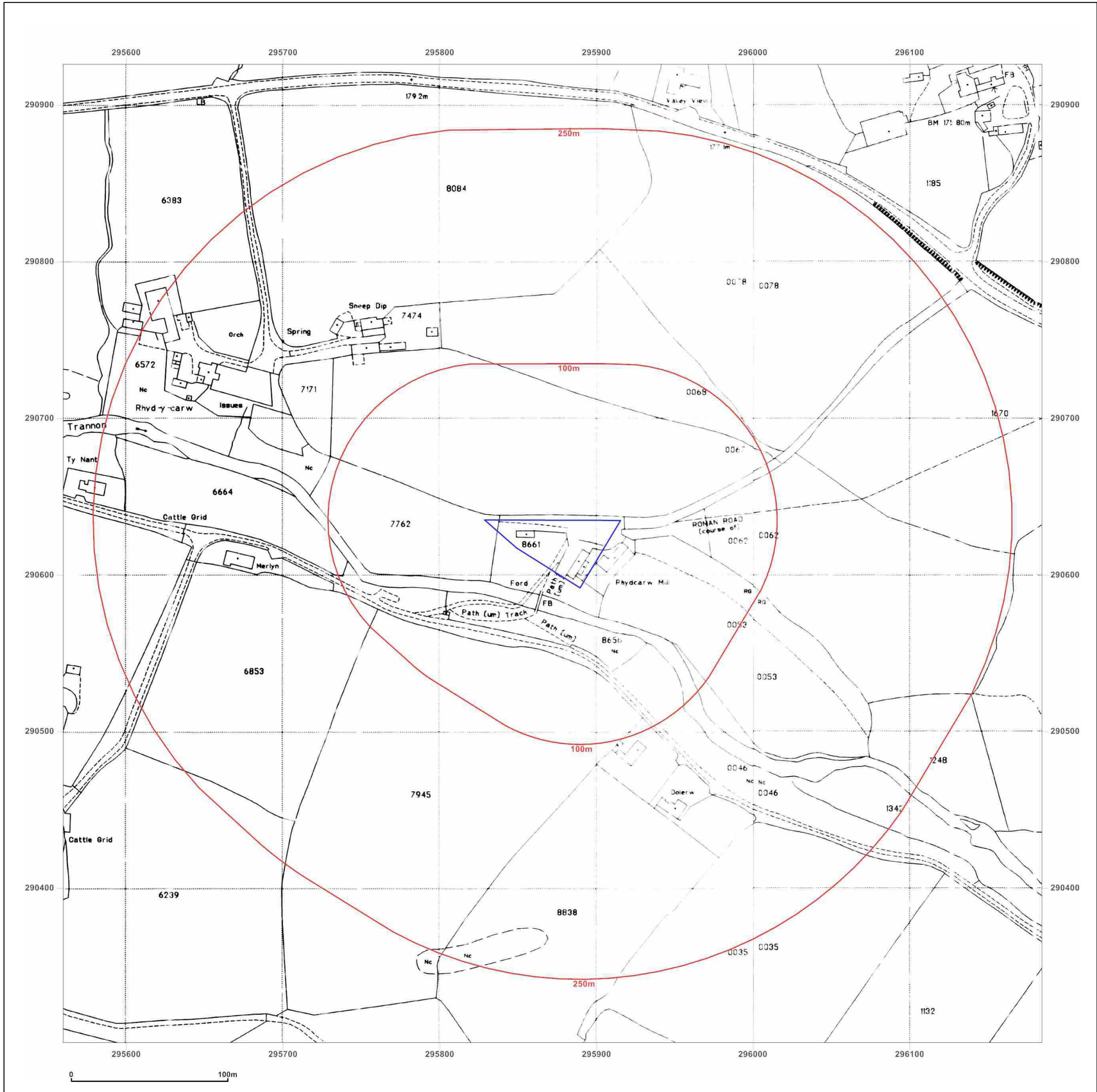
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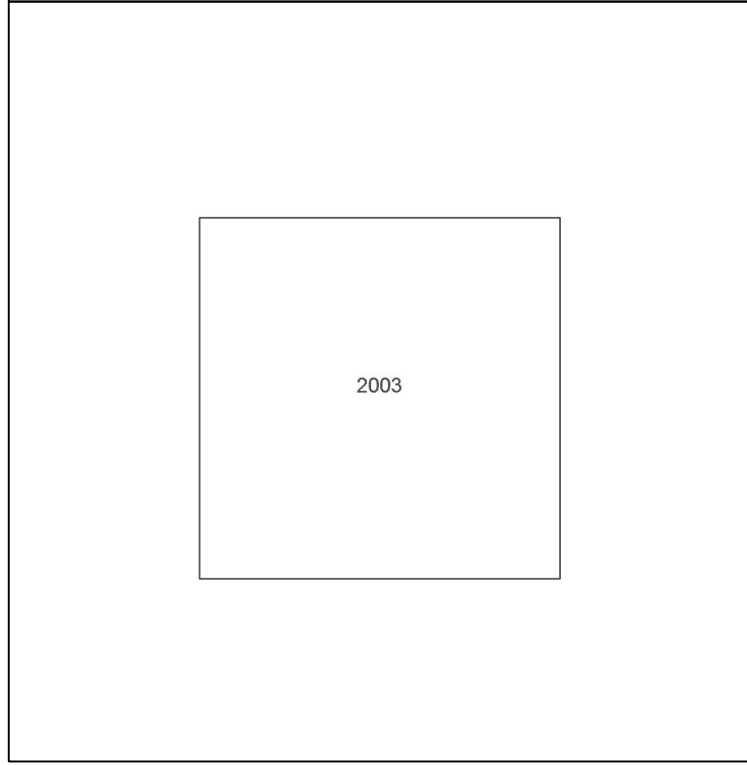
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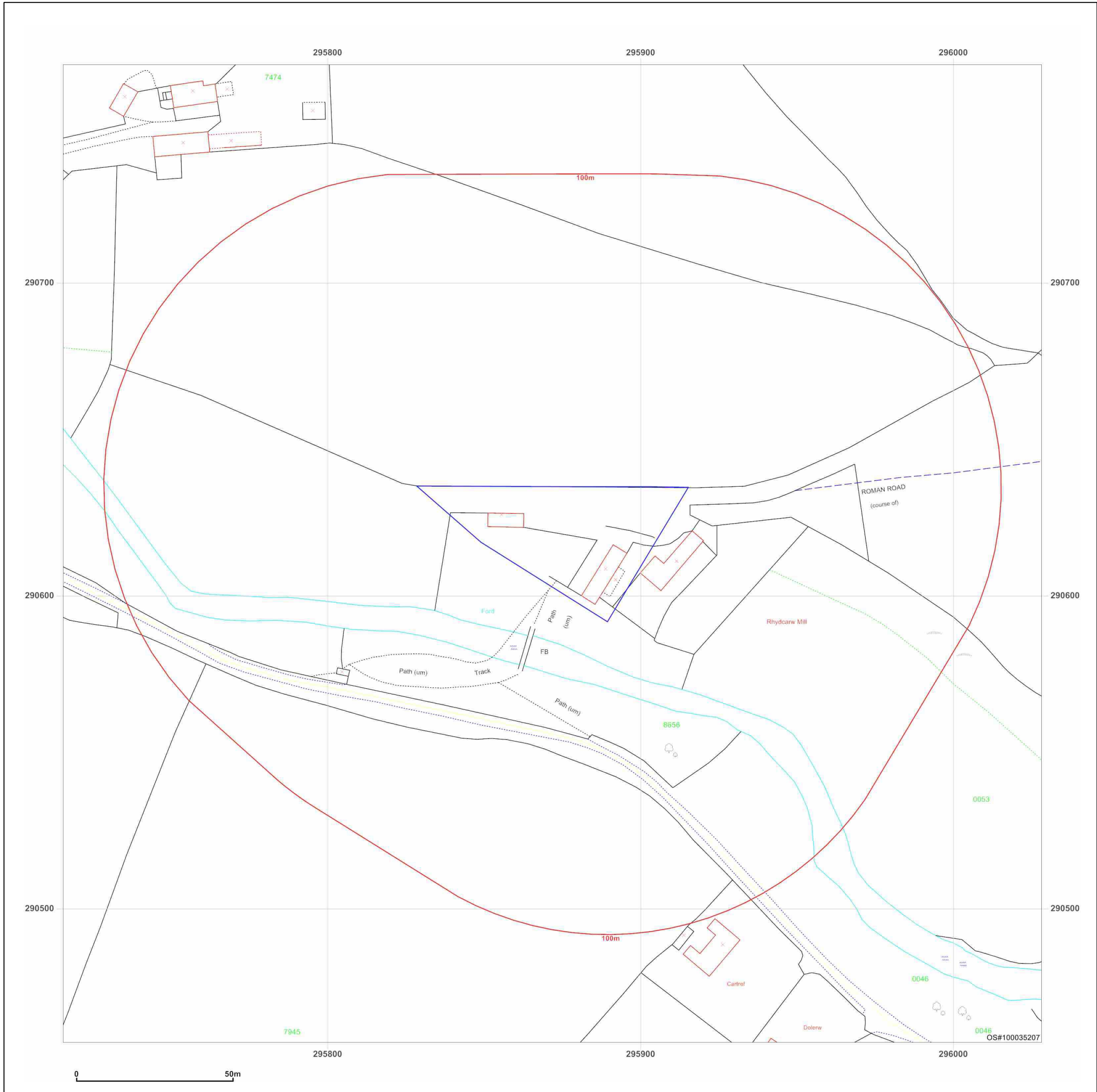


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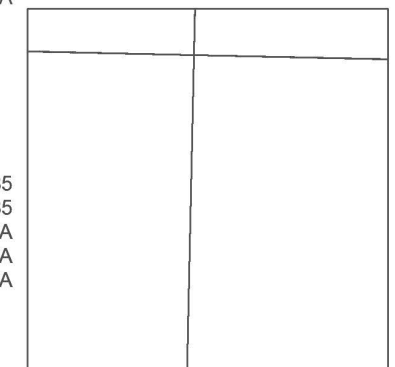
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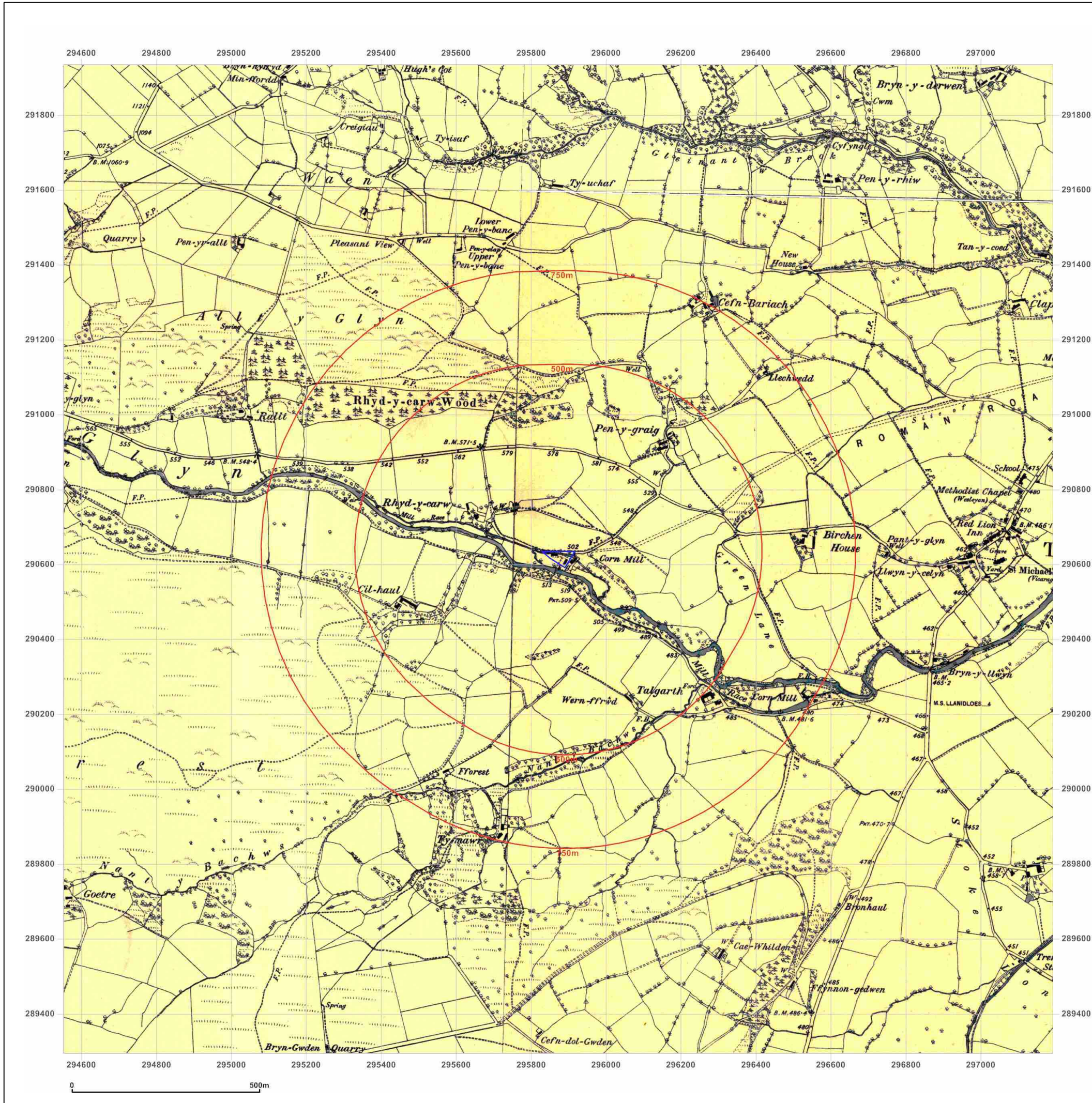


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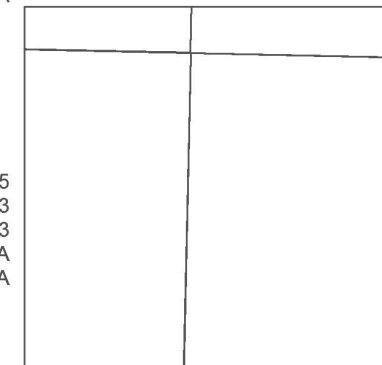


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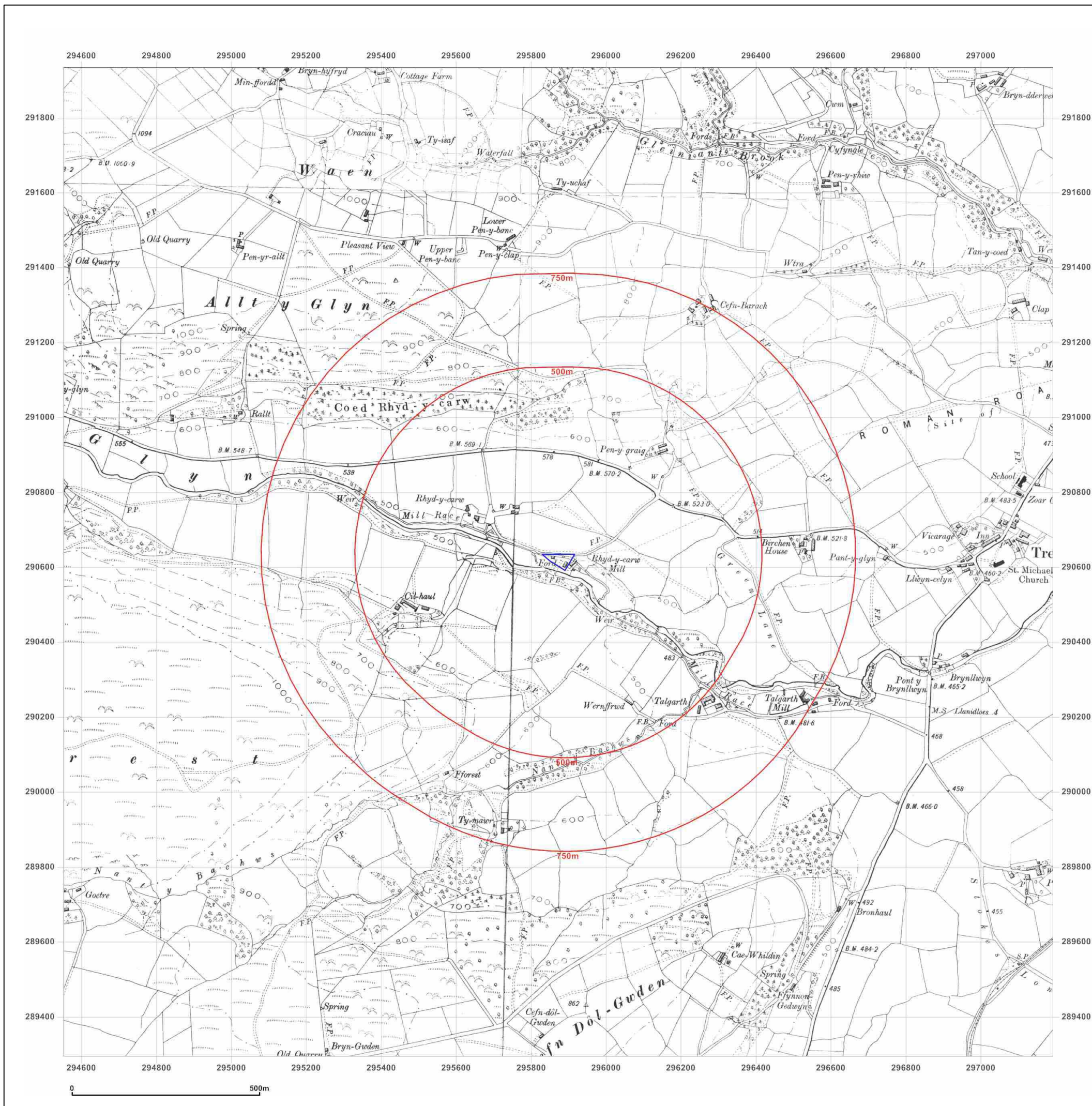


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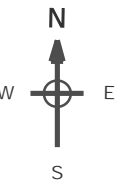
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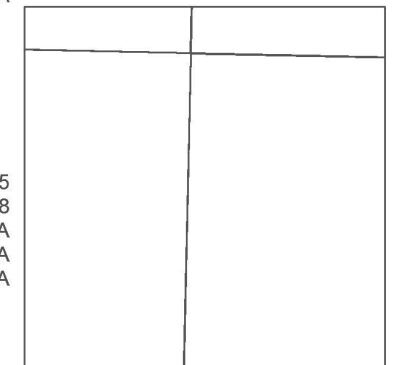


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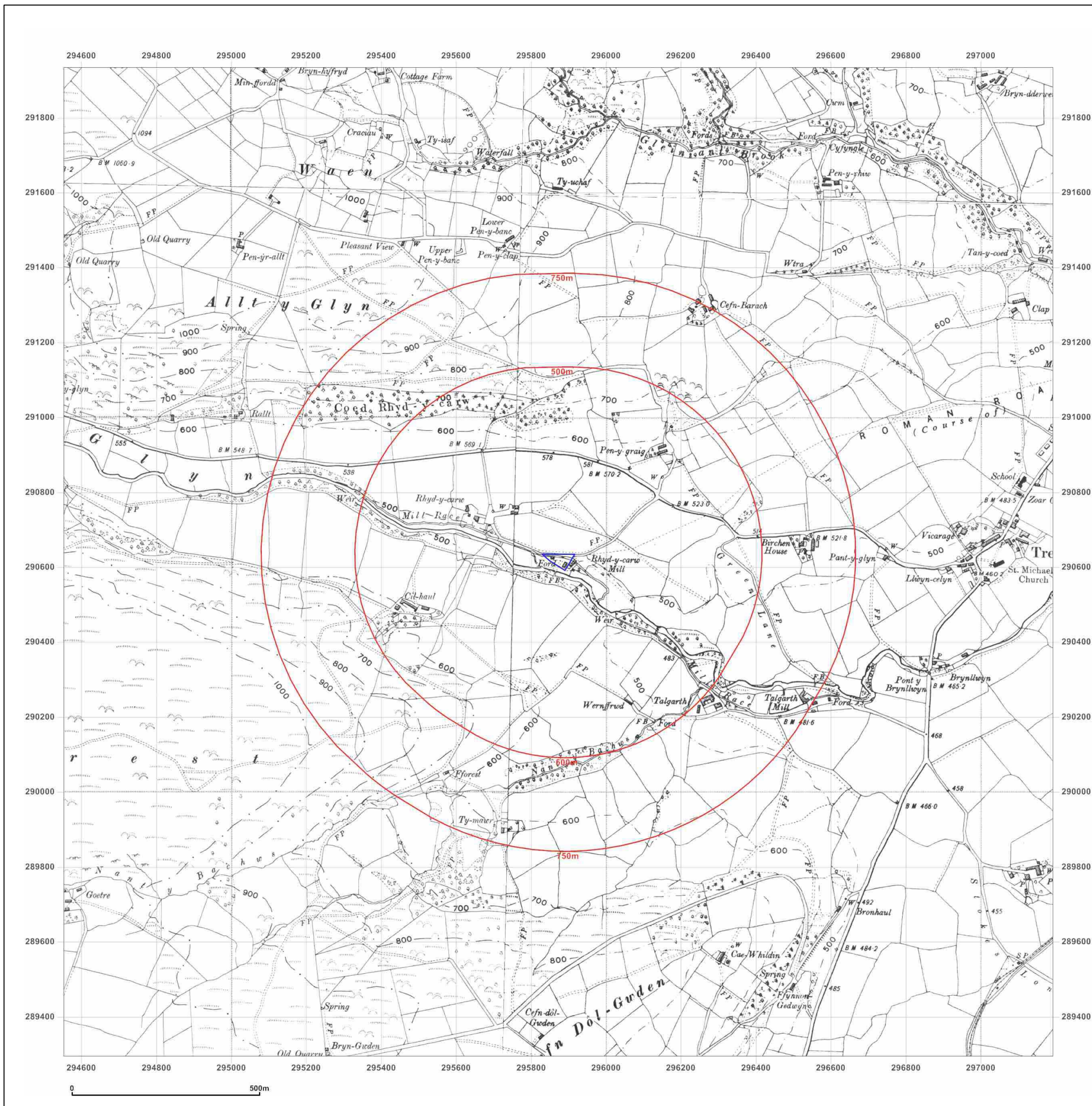


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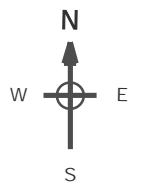
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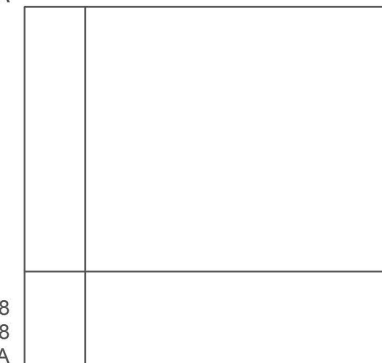
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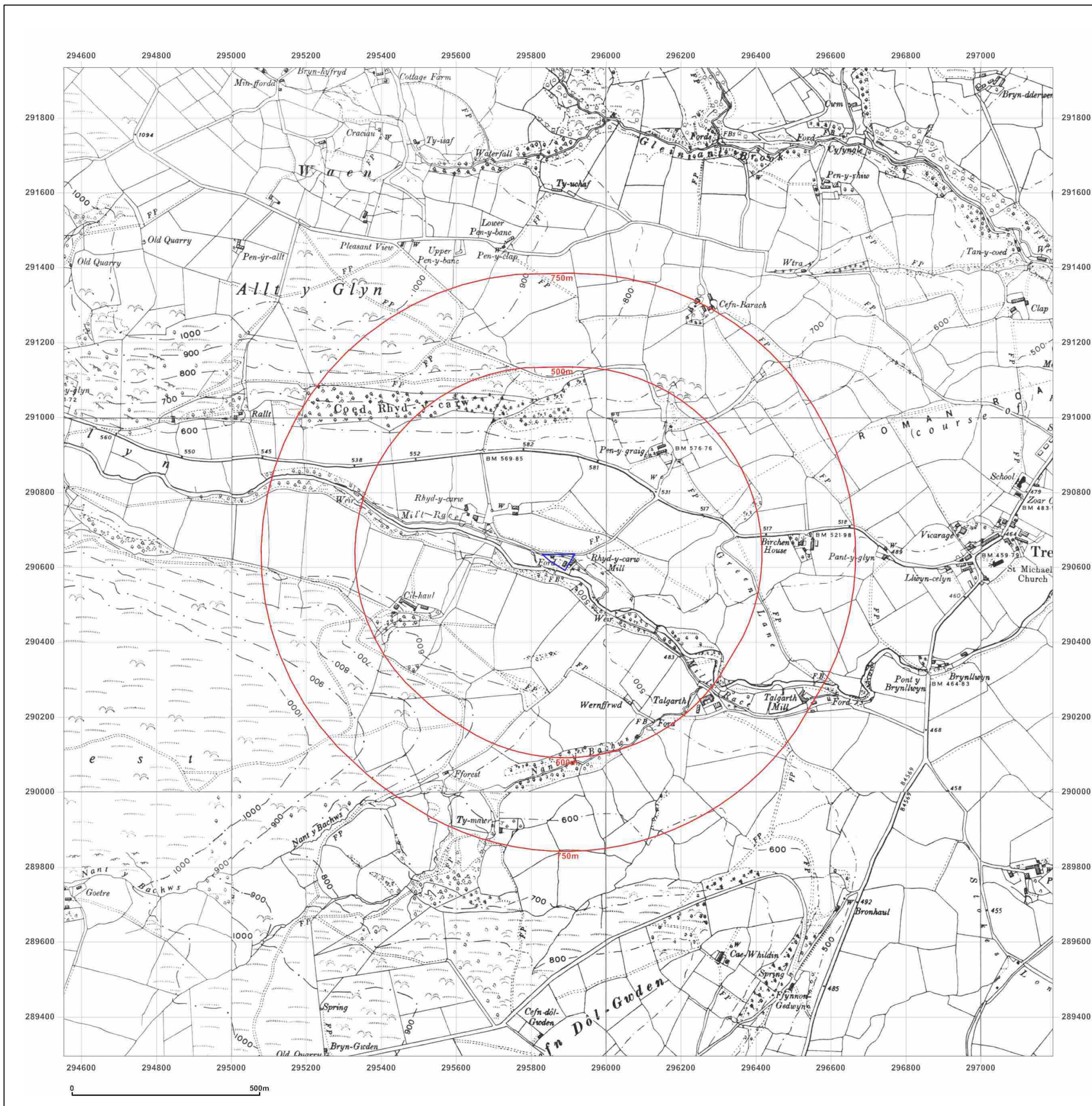


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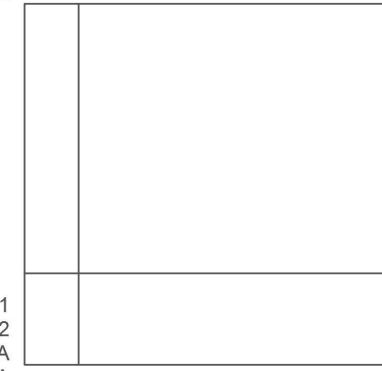
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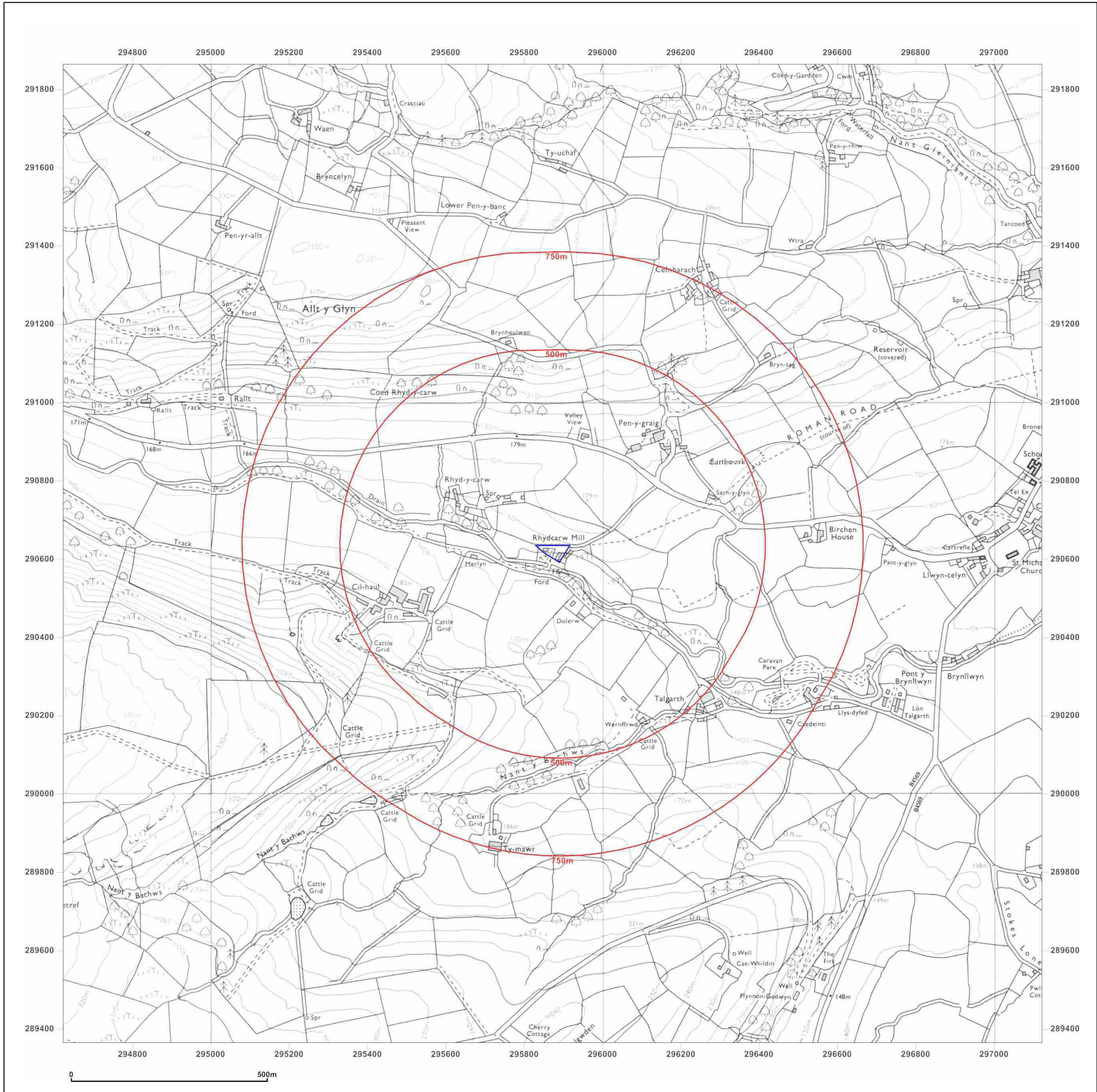


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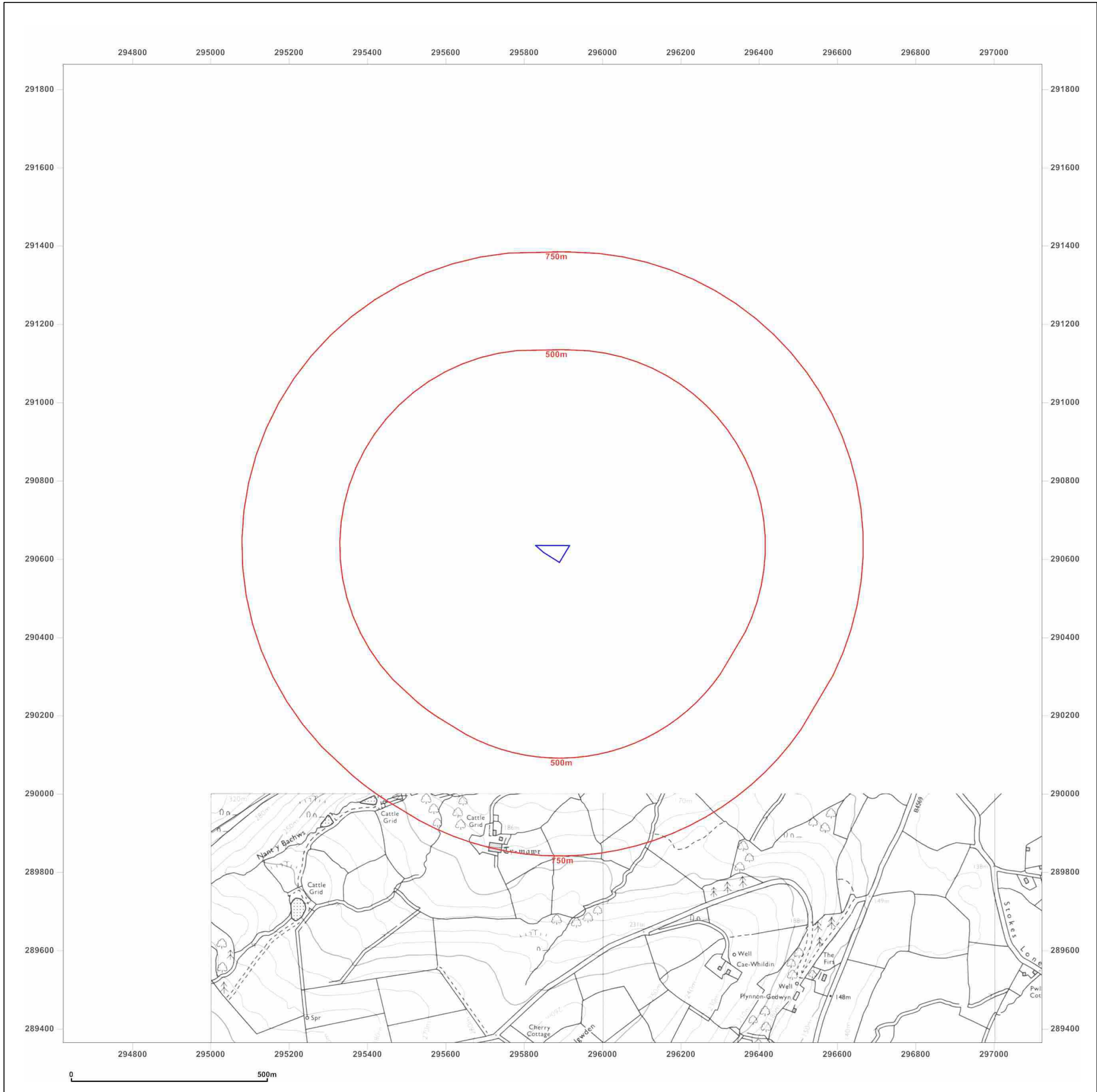
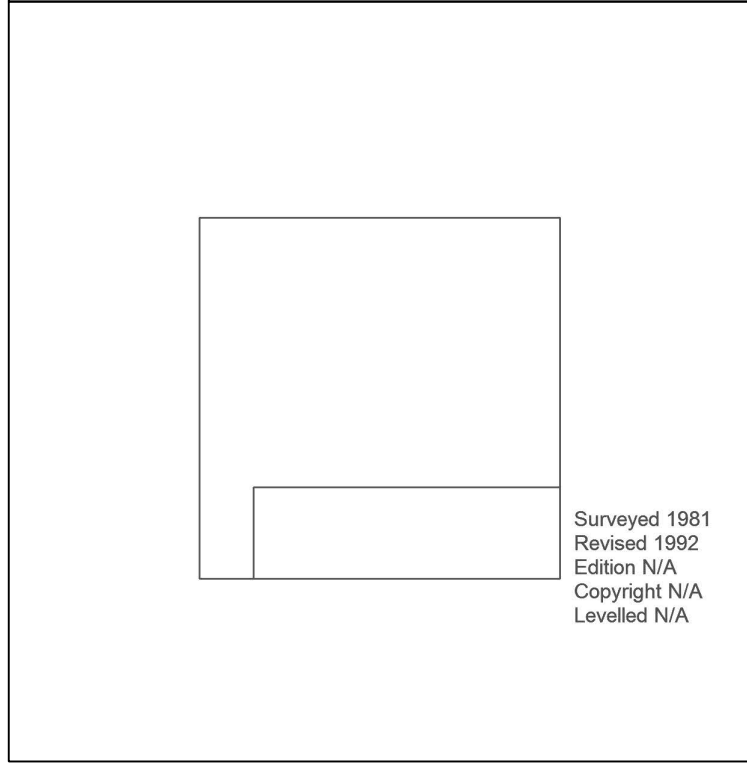
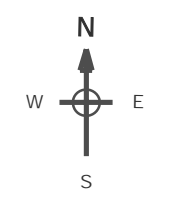
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Site Details

Land at Rhyd y Carw Mill,  
Trefeglwys, SY17 5PU

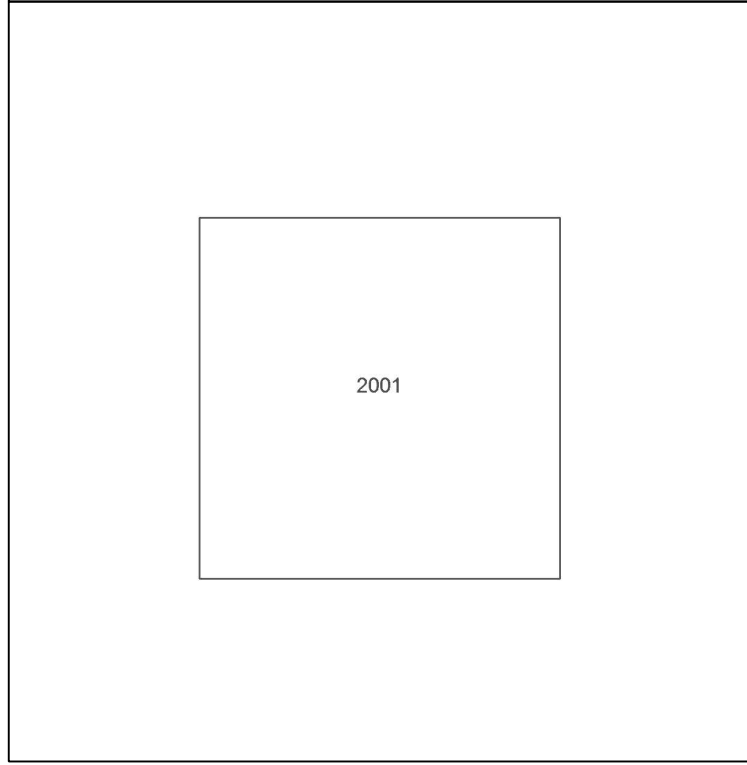
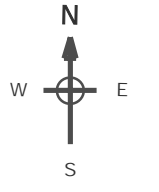
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Report Ref: HMD-162-7346951  
Grid Ref: 295872, 290613

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

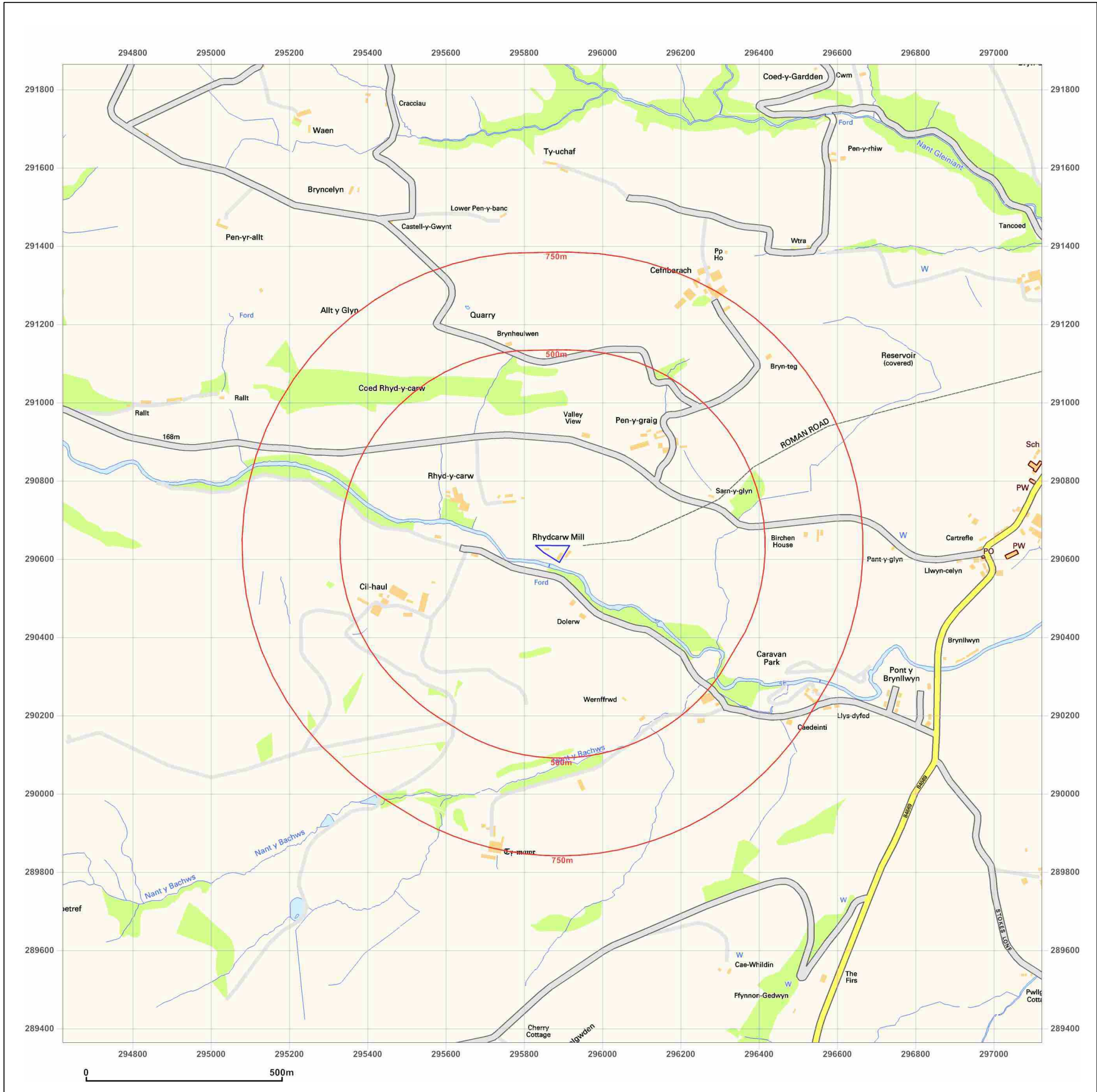


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Site Details

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Trefeglwys, SY17 5PU

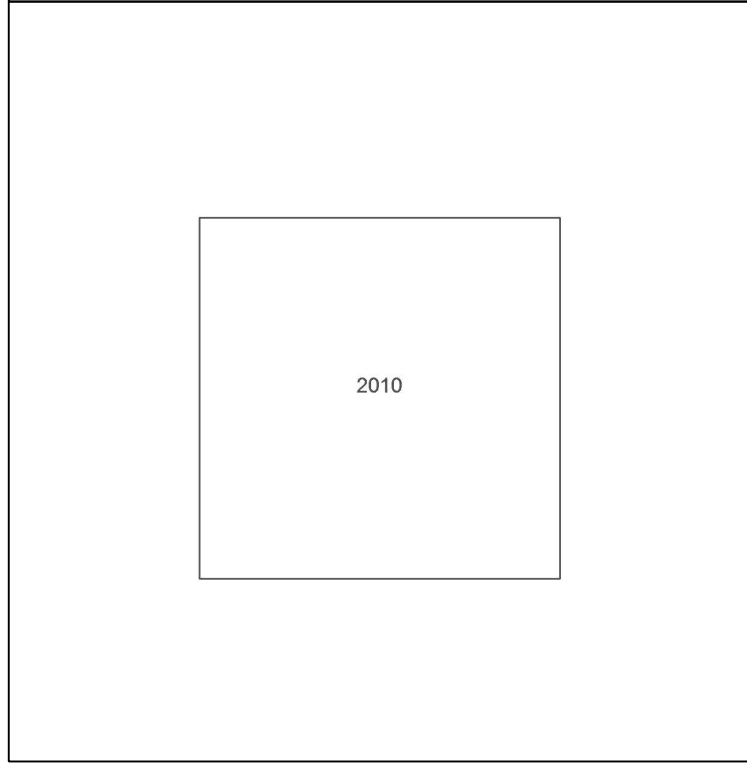
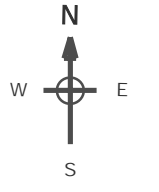
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Report Ref: HMD-162-7346951  
Grid Ref: 295872, 290613

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

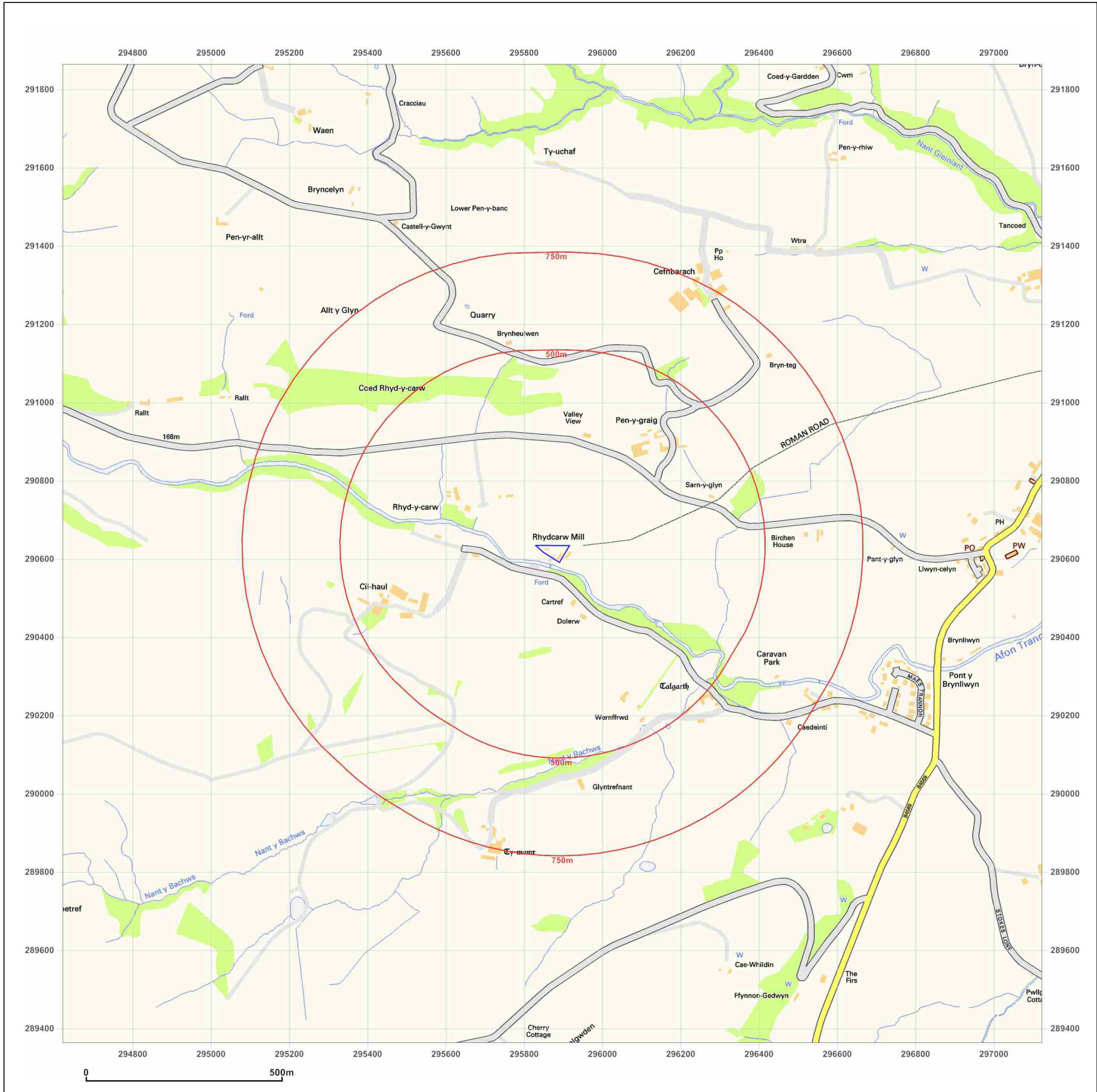


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Site Details

Land at Rhyd y Carw Mill,  
Trefeglwys, SY17 5PU

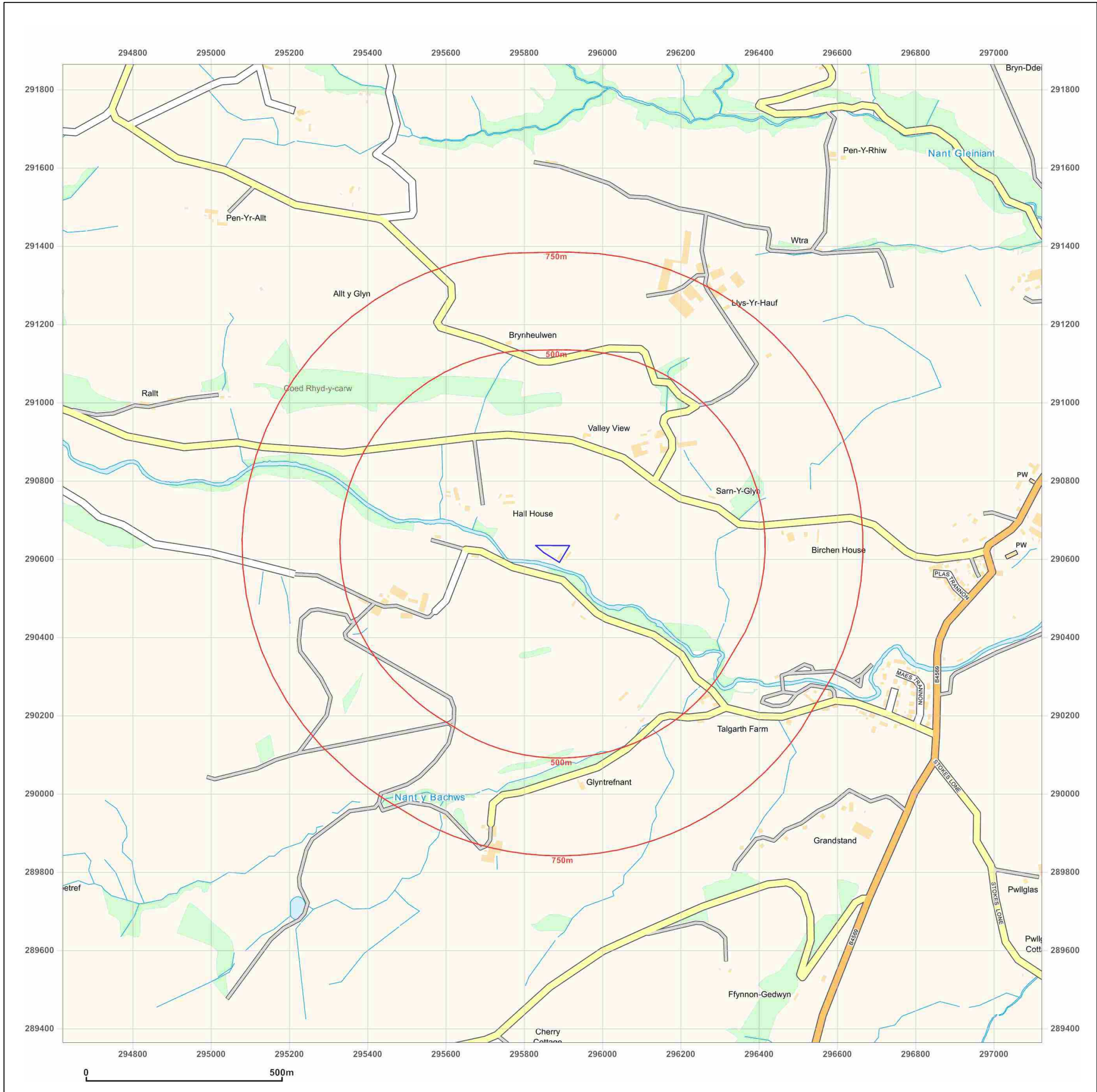
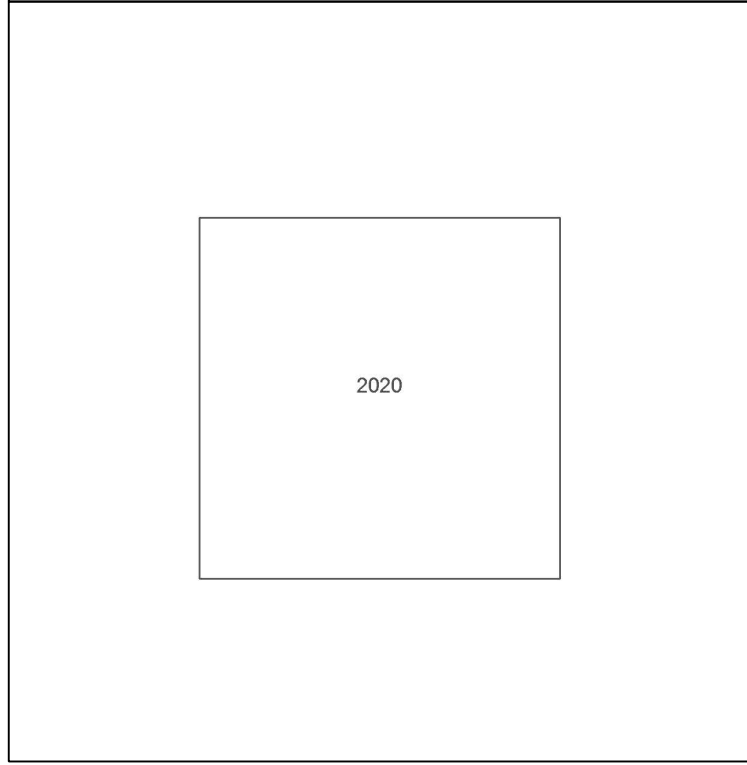
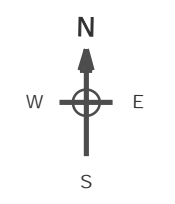
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Report Ref: HMD-162-7346951  
Grid Ref: 295872, 290613

Map Name: National Grid

Map date: 2020

Scale: 1:10,000

Printed at: 1:10,000



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Land at Rhyd y Carw Mill, Trefeglwys, SY17 5PU

**Order Details**

Date: 07/12/2020  
Your ref: MENV07149  
Our Ref: HMD-162-7346952  
Client: Mica Environmental Limited

**Site Details**

Location: 295877 290620  
Area: 0.2 ha  
Authority: [Powys County Council](#)



**Summary of findings**

p. 2

**Aerial image**

p. 8

**OS MasterMap site plan**

p.13

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## 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	0	-
15	1.2	Historical tanks	0	0	0	0	-
15	1.3	Historical energy features	0	0	0	0	-
15	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
16	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
<b>17</b>	<b>2.1</b>	<b><u>Historical industrial land uses</u></b>	5	0	0	0	-
18	2.2	Historical tanks	0	0	0	0	-
18	2.3	Historical energy features	0	0	0	0	-
18	2.4	Historical petrol stations	0	0	0	0	-
18	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
19	3.1	Active or recent landfill	0	0	0	0	-
19	3.2	Historical landfill (BGS records)	0	0	0	0	-
20	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
20	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
20	3.5	Historical waste sites	0	0	0	0	-
20	3.6	Licensed waste sites	0	0	0	0	-
<b>20</b>	<b>3.7</b>	<b><u>Waste exemptions</u></b>	0	0	0	23	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<b>23</b>	<b>4.1</b>	<b><u>Recent industrial land uses</u></b>	0	0	1	-	-
24	4.2	Current or recent petrol stations	0	0	0	0	-
24	4.3	Electricity cables	0	0	0	0	-
24	4.4	Gas pipelines	0	0	0	0	-
24	4.5	Sites determined as Contaminated Land	0	0	0	0	-





24	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
25	4.7	Regulated explosive sites	0	0	0	0	-
25	4.8	Hazardous substance storage/usage	0	0	0	0	-
25	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
25	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
25	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
26	4.12	Radioactive Substance Authorisations	0	0	0	0	-
<b>26</b>	<b>4.13</b>	<b><u>Licensed Discharges to controlled waters</u></b>	0	0	1	1	-
26	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
27	4.15	Pollutant release to public sewer	0	0	0	0	-
27	4.16	List 1 Dangerous Substances	0	0	0	0	-
27	4.17	List 2 Dangerous Substances	0	0	0	0	-
27	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
27	4.19	Pollution inventory substances	0	0	0	0	-
28	4.20	Pollution inventory waste transfers	0	0	0	0	-
28	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
<b>29</b>	<b>5.1</b>	<b><u>Superficial aquifer</u></b>	Identified (within 500m)				
<b>30</b>	<b>5.2</b>	<b><u>Bedrock aquifer</u></b>	Identified (within 500m)				
<b>31</b>	<b>5.3</b>	<b><u>Groundwater vulnerability</u></b>	Identified (within 50m)				
32	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
32	5.5	Groundwater vulnerability- local information	None (within 0m)				
<b>33</b>	<b>5.6</b>	<b><u>Groundwater abstractions</u></b>	0	0	0	0	3
34	5.7	Surface water abstractions	0	0	0	0	0
35	5.8	Potable abstractions	0	0	0	0	0
35	5.9	Source Protection Zones	0	0	0	0	-
35	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>36</b>	<b>6.1</b>	<b><u>Water Network (OS MasterMap)</u></b>	0	1	2	-	-



37	6.2	<u>Surface water features</u>	0	1	1	-	-
37	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
38	6.4	<u>WFD Surface water bodies</u>	0	1	0	-	-
38	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
39	7.1	<u>Risk of Flooding from Rivers and Sea (RoFRaS)</u>	High (within 50m)				
40	7.2	Historical Flood Events	0	0	0	-	-
40	7.3	Flood Defences	0	0	0	-	-
40	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
40	7.5	Flood Storage Areas	0	0	0	-	-
41	7.6	<u>Flood Zone 2</u>	Identified (within 50m)				
42	7.7	<u>Flood Zone 3</u>	Identified (within 50m)				
Page	Section	Surface water flooding					
43	8.1	<u>Surface water flooding</u>	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
45	9.1	<u>Groundwater flooding</u>	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
46	10.1	<u>Sites of Special Scientific Interest (SSSI)</u>	0	0	0	0	1
47	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
47	10.3	<u>Special Areas of Conservation (SAC)</u>	0	0	0	0	1
47	10.4	Special Protection Areas (SPA)	0	0	0	0	0
48	10.5	National Nature Reserves (NNR)	0	0	0	0	0
48	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
48	10.7	<u>Designated Ancient Woodland</u>	0	1	1	4	40
50	10.8	Biosphere Reserves	0	0	0	0	0
50	10.9	Forest Parks	0	0	0	0	0
50	10.10	Marine Conservation Zones	0	0	0	0	0
51	10.11	Green Belt	0	0	0	0	0
51	10.12	Proposed Ramsar sites	0	0	0	0	0



51	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
51	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
51	10.15	Nitrate Sensitive Areas	0	0	0	0	0
52	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
53	10.17	SSSI Impact Risk Zones	0	-	-	-	-
53	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
54	11.1	World Heritage Sites	0	0	0	-	-
55	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
55	11.3	National Parks	0	0	0	-	-
<b>55</b>	<b>11.4</b>	<b>Listed Buildings</b>	0	0	<b>3</b>	-	-
56	11.5	Conservation Areas	0	0	0	-	-
56	11.6	Scheduled Ancient Monuments	0	0	0	-	-
56	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
<b>57</b>	<b>12.1</b>	<b>Agricultural Land Classification</b>	Grade 3b (within 250m)				
58	12.2	Open Access Land	0	0	0	-	-
58	12.3	Tree Felling Licences	0	0	0	-	-
58	12.4	Environmental Stewardship Schemes	0	0	0	-	-
59	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
60	13.1	Priority Habitat Inventory	0	0	0	-	-
60	13.2	Habitat Networks	0	0	0	-	-
60	13.3	Open Mosaic Habitat	0	0	0	-	-
60	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>61</b>	<b>14.1</b>	<b>10k Availability</b>	Identified (within 500m)				
62	14.2	Artificial and made ground (10k)	0	0	0	0	-
63	14.3	Superficial geology (10k)	0	0	0	0	-

63	14.4	Landslip (10k)	0	0	0	0	-
64	14.5	Bedrock geology (10k)	0	0	0	0	-
64	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>65</b>	<b>15.1</b>	<b><u>50k Availability</u></b>	Identified (within 500m)				
66	15.2	Artificial and made ground (50k)	0	0	0	0	-
66	15.3	Artificial ground permeability (50k)	0	0	-	-	-
<b>67</b>	<b>15.4</b>	<b><u>Superficial geology (50k)</u></b>	2	0	2	2	-
<b>68</b>	<b>15.5</b>	<b><u>Superficial permeability (50k)</u></b>	Identified (within 50m)				
68	15.6	Landslip (50k)	0	0	0	0	-
68	15.7	Landslip permeability (50k)	None (within 50m)				
<b>69</b>	<b>15.8</b>	<b><u>Bedrock geology (50k)</u></b>	1	0	1	1	-
<b>70</b>	<b>15.9</b>	<b><u>Bedrock permeability (50k)</u></b>	Identified (within 50m)				
<b>70</b>	<b>15.10</b>	<b><u>Bedrock faults and other linear features (50k)</u></b>	0	0	0	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
71	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
<b>72</b>	<b>17.1</b>	<b><u>Shrink swell clays</u></b>	Very low (within 50m)				
<b>73</b>	<b>17.2</b>	<b><u>Running sands</u></b>	Low (within 50m)				
<b>75</b>	<b>17.3</b>	<b><u>Compressible deposits</u></b>	Low (within 50m)				
<b>77</b>	<b>17.4</b>	<b><u>Collapsible deposits</u></b>	Very low (within 50m)				
<b>78</b>	<b>17.5</b>	<b><u>Landslides</u></b>	Very low (within 50m)				
<b>79</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
80	18.1	Natural cavities	0	0	0	0	-
81	18.2	BritPits	0	0	0	0	-
81	18.3	Surface ground workings	0	0	0	-	-
81	18.4	Underground workings	0	0	0	0	0
81	18.5	Historical Mineral Planning Areas	0	0	0	0	-

<b>81</b>	<b>18.6</b>	<b><u>Non-coal mining</u></b>		<b>1</b>	0	0	0	5
82	18.7	Mining cavities		0	0	0	0	0
82	18.8	JPB mining areas		None (within 0m)				
83	18.9	Coal mining		None (within 0m)				
83	18.10	Brine areas		None (within 0m)				
83	18.11	Gypsum areas		None (within 0m)				
83	18.12	Tin mining		None (within 0m)				
83	18.13	Clay mining		None (within 0m)				
<b>Page</b>	<b>Section</b>	<b>Radon</b>						
<b>84</b>	<b>19.1</b>	<b><u>Radon</u></b>	<b>Between 3% and 5% (within 0m)</b>					
<b>Page</b>	<b>Section</b>	<b>Soil chemistry</b>	<b>On site</b>	<b>0-50m</b>	<b>50-250m</b>	<b>250-500m</b>	<b>500-2000m</b>	
<b>85</b>	<b>20.1</b>	<b><u>BGS Estimated Background Soil Chemistry</u></b>	2	0	-	-	-	
85	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-	
85	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-	
<b>Page</b>	<b>Section</b>	<b>Railway infrastructure and projects</b>	<b>On site</b>	<b>0-50m</b>	<b>50-250m</b>	<b>250-500m</b>	<b>500-2000m</b>	
86	21.1	Underground railways (London)	0	0	0	-	-	
86	21.2	Underground railways (Non-London)	0	0	0	-	-	
86	21.3	Railway tunnels	0	0	0	-	-	
86	21.4	Historical railway and tunnel features	0	0	0	-	-	
86	21.5	Royal Mail tunnels	0	0	0	-	-	
87	21.6	Historical railways	0	0	0	-	-	
87	21.7	Railways	0	0	0	-	-	
87	21.8	Crossrail 1	0	0	0	0	-	
87	21.9	Crossrail 2	0	0	0	0	-	
87	21.10	HS2	0	0	0	0	-	

## Recent aerial photograph



Capture Date: 21/04/2019

Site Area: 0.2ha



## Recent site history - 2016 aerial photograph



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Capture Date: 16/08/2016

Site Area: 0.2ha



## Recent site history - 2014 aerial photograph



Capture Date: 16/04/2014

Site Area: 0.2ha





## Recent site history - 2009 aerial photograph



Capture Date: 02/06/2009

Site Area: 0.2ha



## Recent site history - 2001 aerial photograph

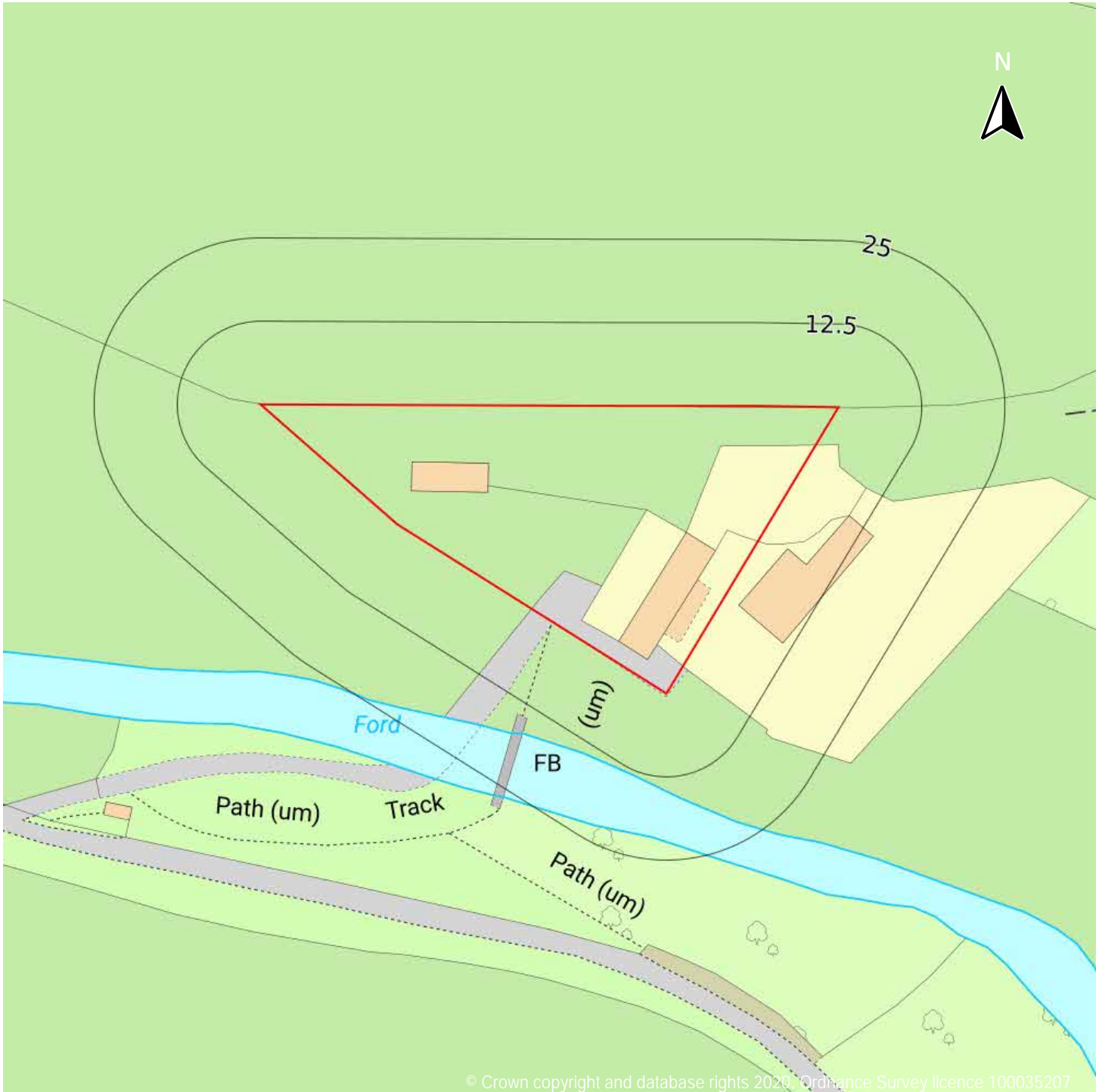


Capture Date: 23/05/2001

Site Area: 0.2ha



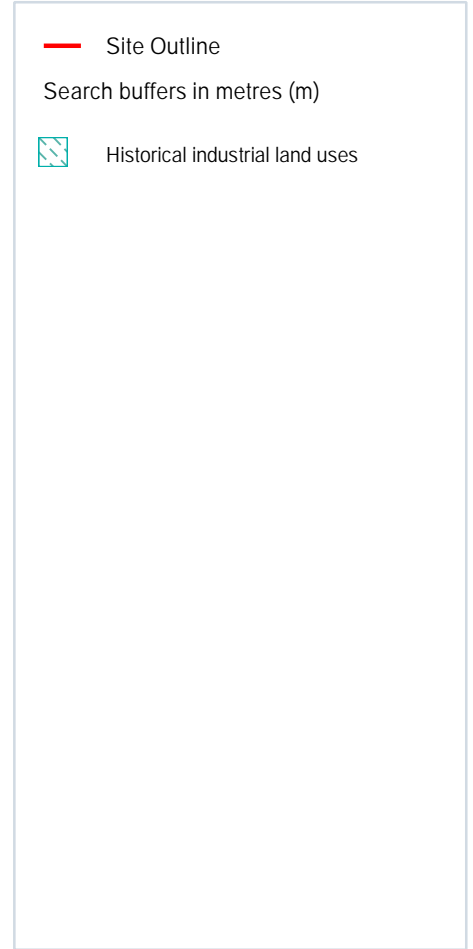
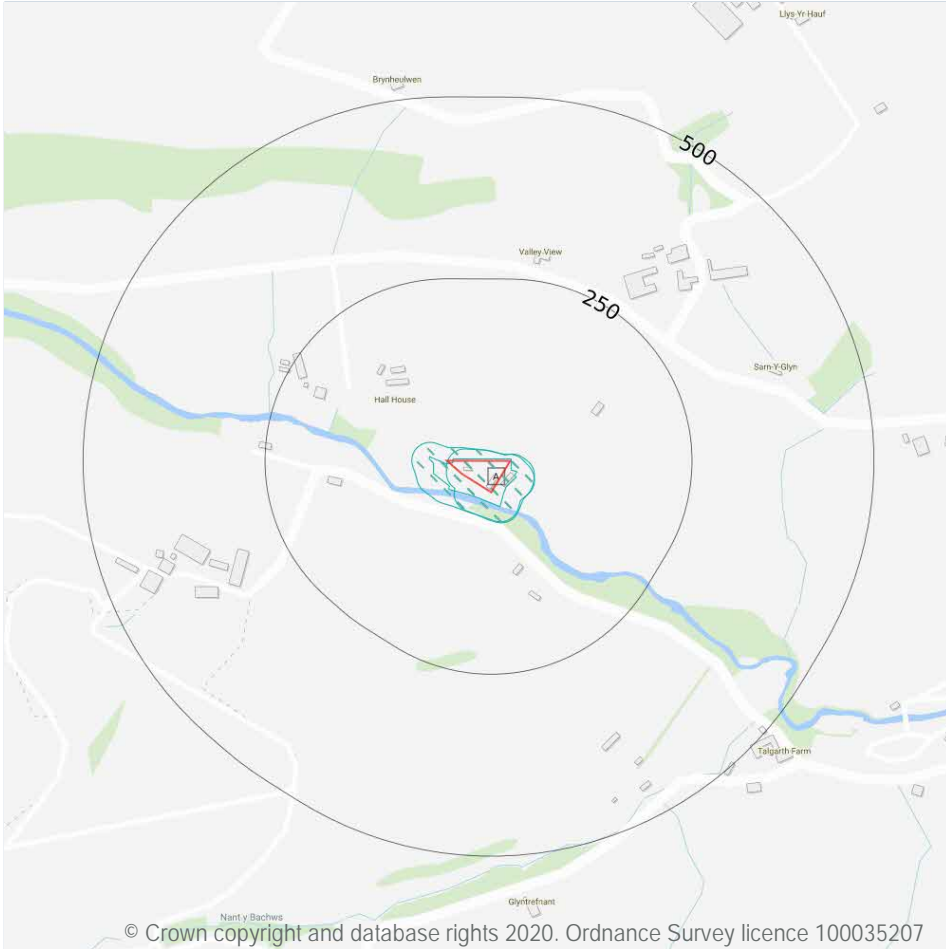
## OS MasterMap site plan



Site Area: 0.2ha



## 1 Past land use



### 1.1 Historical industrial land uses

Records within 500m

3

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	Corn Mill	1885	254366

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Mill	1948 - 1981	292435
A	On site	Unspecified Mill	1903 - 1948	315293

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

## 1.2 Historical tanks

Records within 500m 0

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

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

## 1.3 Historical energy features

Records within 500m 0

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

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

## 1.4 Historical petrol stations

Records within 500m 0

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

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

## 1.5 Historical garages

Records within 500m

0

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

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

## 1.6 Historical military land

Records within 500m

0

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

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

## 2 Past land use - un-grouped



— Site Outline

Search buffers in metres (m)

Historical industrial land uses

### 2.1 Historical industrial land uses

Records within 500m 5

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

Features are displayed on the Past land use - un-grouped map on [page 17](#)

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Mill	1948	292435
A	On site	Unspecified Mill	1981	292435
A	On site	Unspecified Mill	1903	315293

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Mill	1948	315293
A	On site	Corn Mill	1885	254366

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

## 2.2 Historical tanks

Records within 500m 0

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

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

## 2.3 Historical energy features

Records within 500m 0

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

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

## 2.4 Historical petrol stations

Records within 500m 0

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

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

## 2.5 Historical garages

Records within 500m 0

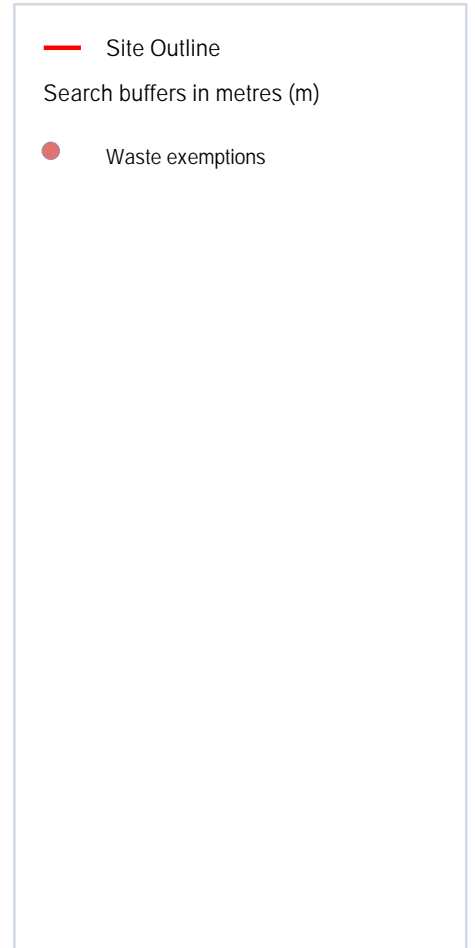
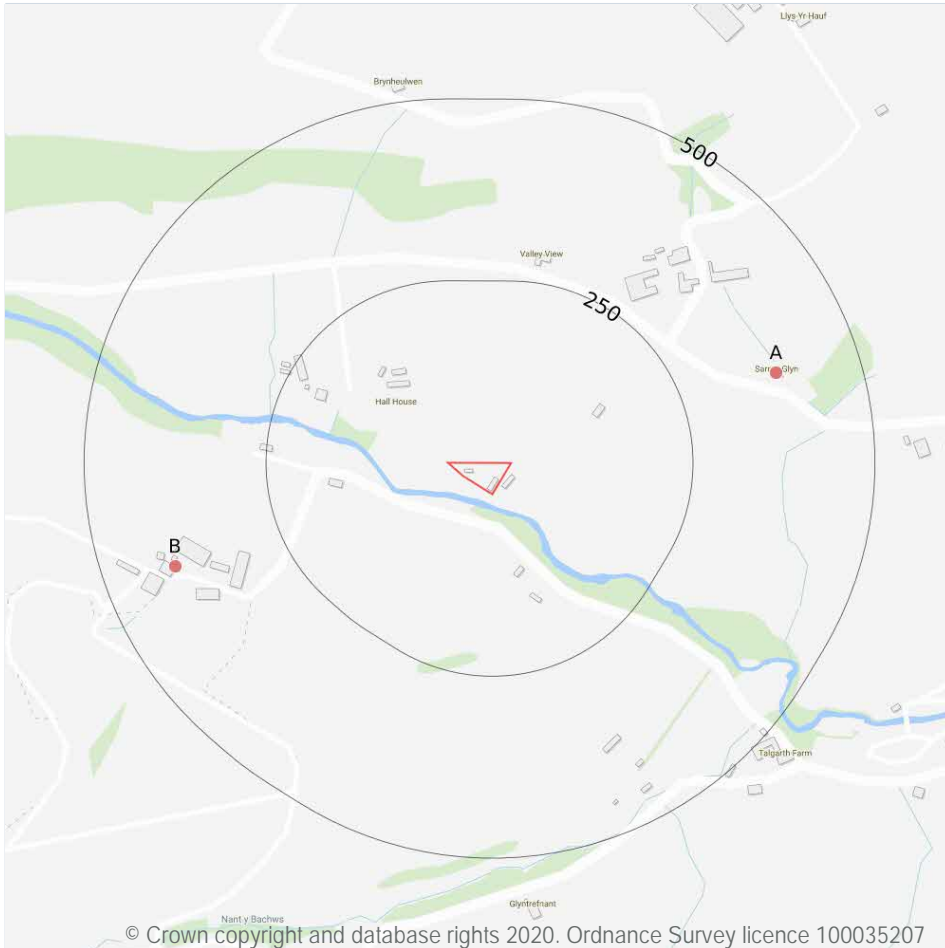
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

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





## 3 Waste and landfill



### 3.1 Active or recent landfill

Records within 500m

0

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

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

### 3.2 Historical landfill (BGS records)

Records within 500m

0

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

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

### 3.3 Historical landfill (LA/mapping records)

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

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

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

### 3.4 Historical landfill (EA/NRW records)

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

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

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

### 3.5 Historical waste sites

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

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

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

### 3.6 Licensed waste sites

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

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

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

### 3.7 Waste exemptions

Records within 500m	23
---------------------	----

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 19**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	384m E	Rallt, Trefeglwys, Caersws, Powys, SY175RG	NRW-WME 012871	Using waste exemption	On a farm	Use of waste in construction
A	384m E	Rallt, Trefeglwys, Caersws, Powys, SY175RG	NRW-WME 012871	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	384m E	Rallt, Trefeglwys, Caersws, Powys, SY175RG	NRW-WME 012871	Disposing of waste exemption	On a farm	Burning waste in the open
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Disposing of waste exemption	On a farm	Burning waste in the open
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Using waste exemption	On a farm	Use of waste in construction
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Using waste exemption	On a farm	Use of waste for a specified purpose
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Disposing of waste exemption	On a farm	Disposal by incineration
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Disposing of waste exemption	On a farm	Deposit of waste from a portable sanitary convenience
A	384m E	Birchen House Trefeglwys Caersws Powys SY175RG	NRW-WME 024807	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising

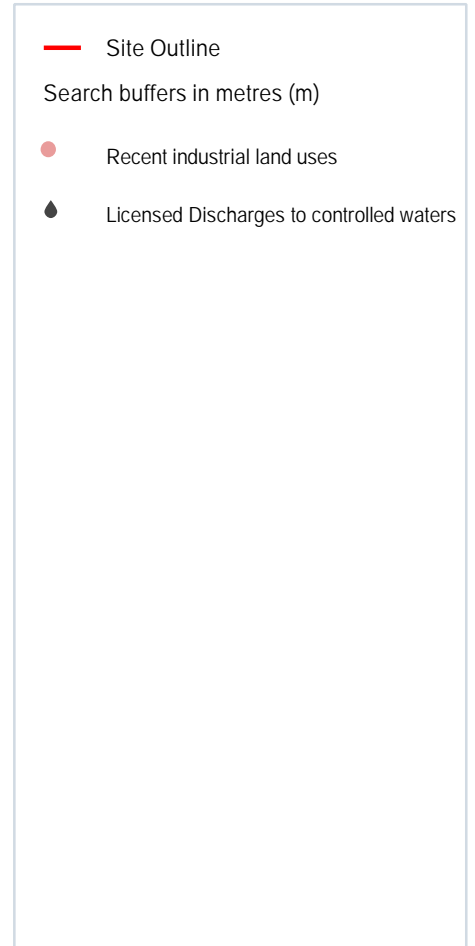
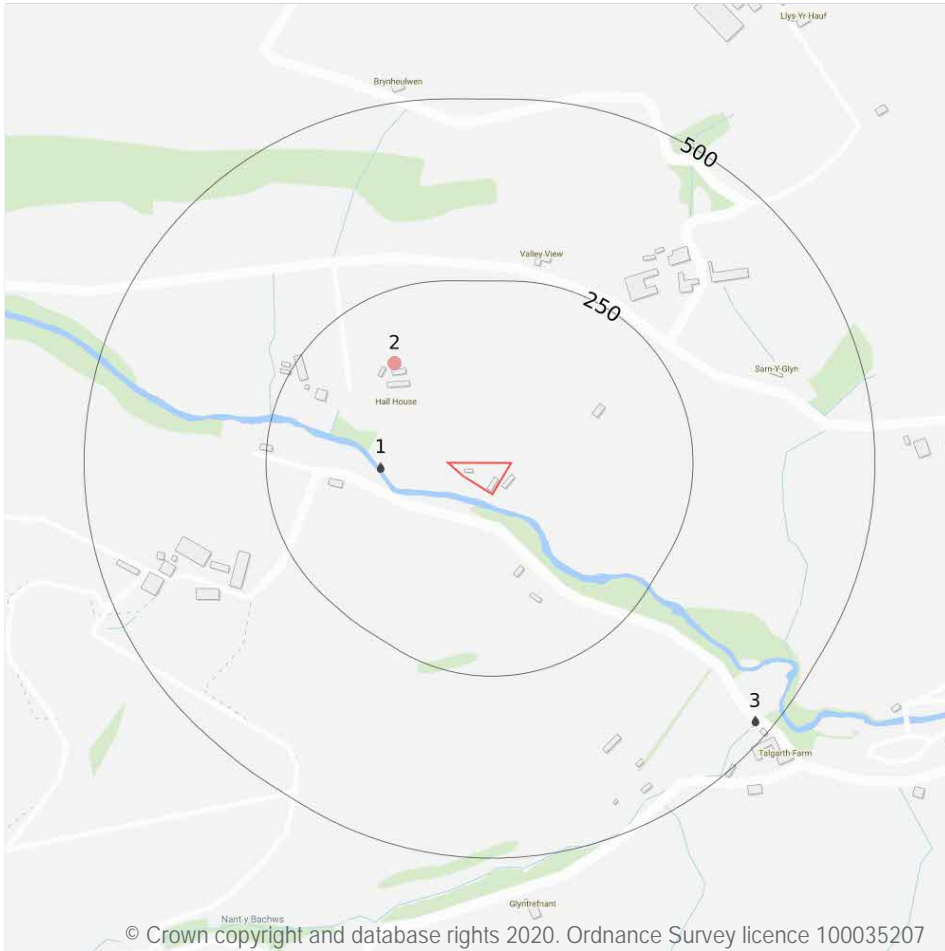


ID	Location	Site	Reference	Category	Sub-Category	Description
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Using waste exemption	On a farm	Use of waste in construction
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Treating waste exemption	On a farm	Treatment of sheep dip for disposal
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Storing waste exemption	On a farm	Storage of waste in a secure place
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Disposing of waste exemption	On a farm	Burning waste in the open
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Storing waste exemption	On a farm	Storage of waste in secure containers
B	402m W	R G Jenkins & Co, Cil Haul, Trefeglwys, Caersws, Powys, SY17 5PU	NRW-WME 050100	Using waste exemption	On a farm	Spreading of plant matter to confer benefit

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



## 4 Current industrial land use



### 4.1 Recent industrial land uses

Records within 250m

1

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 23](#)

ID	Location	Company	Address	Activity	Category
2	155m NW	Sheep Dip	Powys, SY17	Sheep Dips and Washes	Farming

*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

2

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 23**

ID	Location	Address	Details	
1	92m W	THYD Y CARW BARN, TREFEGLWYS, POWYS, SY17 5PU	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: NPSWQD002574 Permit Version: 1 Receiving Water: AFON TRANNON	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY Issue date: 23/06/2008 Effective Date: 23/06/2008 Revocation Date: -
3	476m SE	TALGARTH BARN CONVERSIONS, TALGARTH, TREFEGLWYS, CAERSWS, POWYS, SY17 5PU	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: S/01/56067/S Permit Version: 1 Receiving Water: NANT Y BACHWS	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY Issue date: 08/02/2005 Effective Date: 08/02/2005 Revocation Date: -

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

## 4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

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

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





## 4.15 Pollutant release to public sewer

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

Discharges of Special Category Effluents to the public sewer.

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

## 4.16 List 1 Dangerous Substances

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

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

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

## 4.17 List 2 Dangerous Substances

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

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

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

## 4.18 Pollution Incidents (EA/NRW)

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

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

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

## 4.19 Pollution inventory substances

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

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

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

## 4.20 Pollution inventory waste transfers

Records within 500m

0

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

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

## 4.21 Pollution inventory radioactive waste

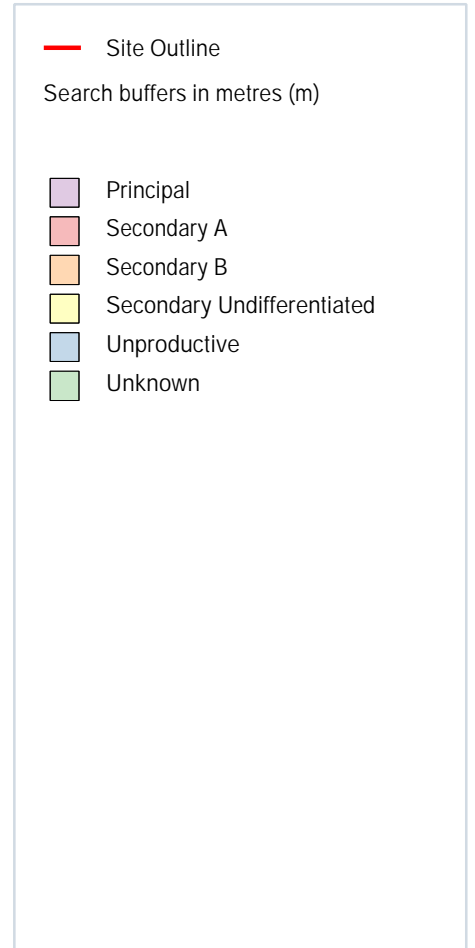
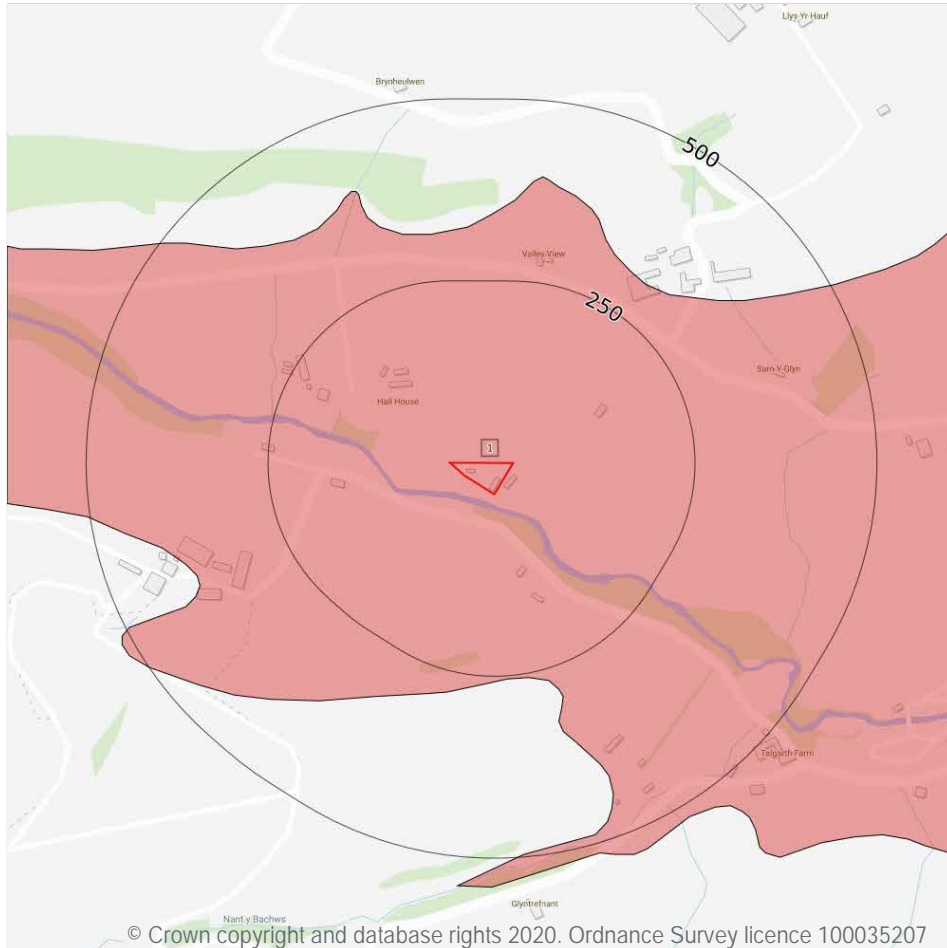
Records within 500m

0

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

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

## 5 Hydrogeology - Superficial aquifer



### 5.1 Superficial aquifer

Records within 500m

1

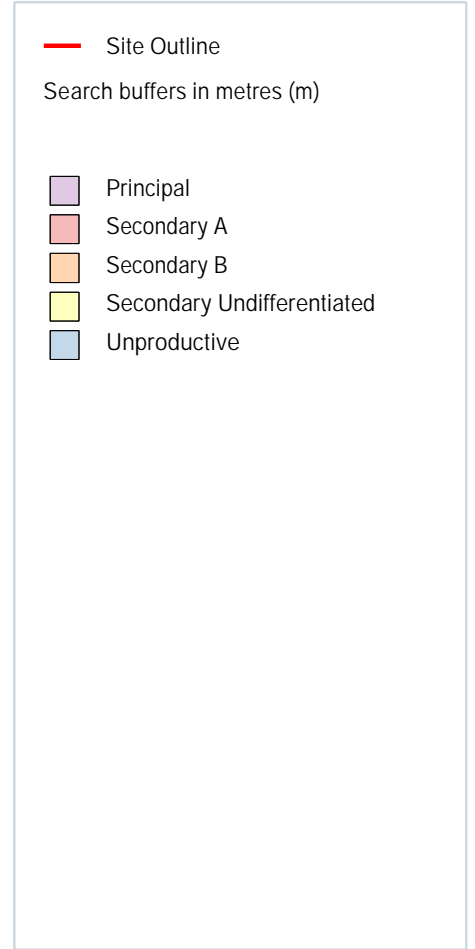
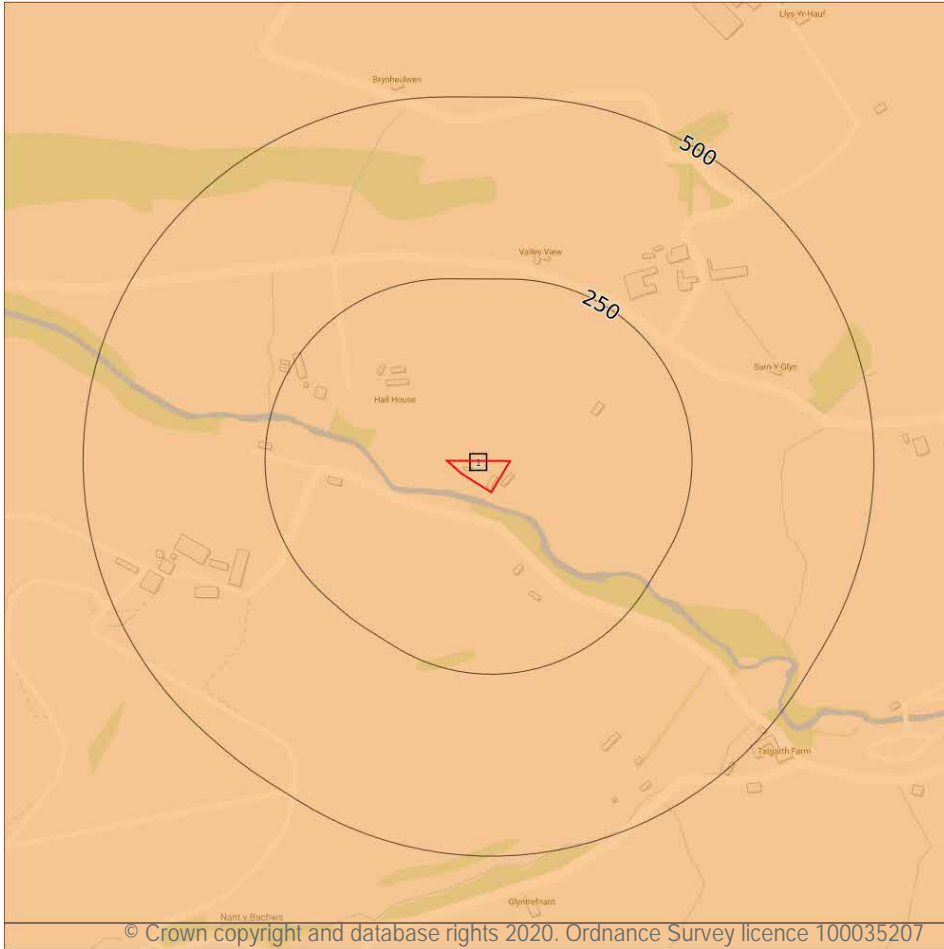
Aquifer status of groundwater held within superficial geology.

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

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

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

## Bedrock aquifer



### 5.2 Bedrock aquifer

Records within 500m

1

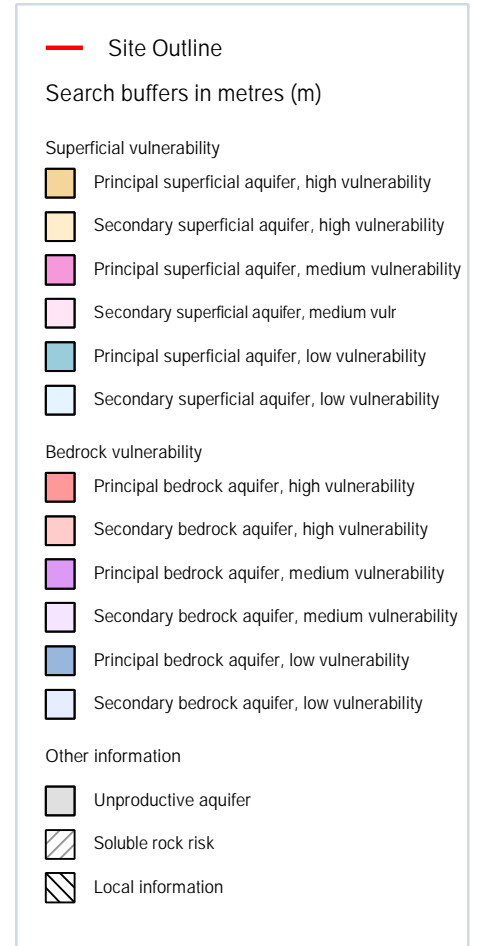
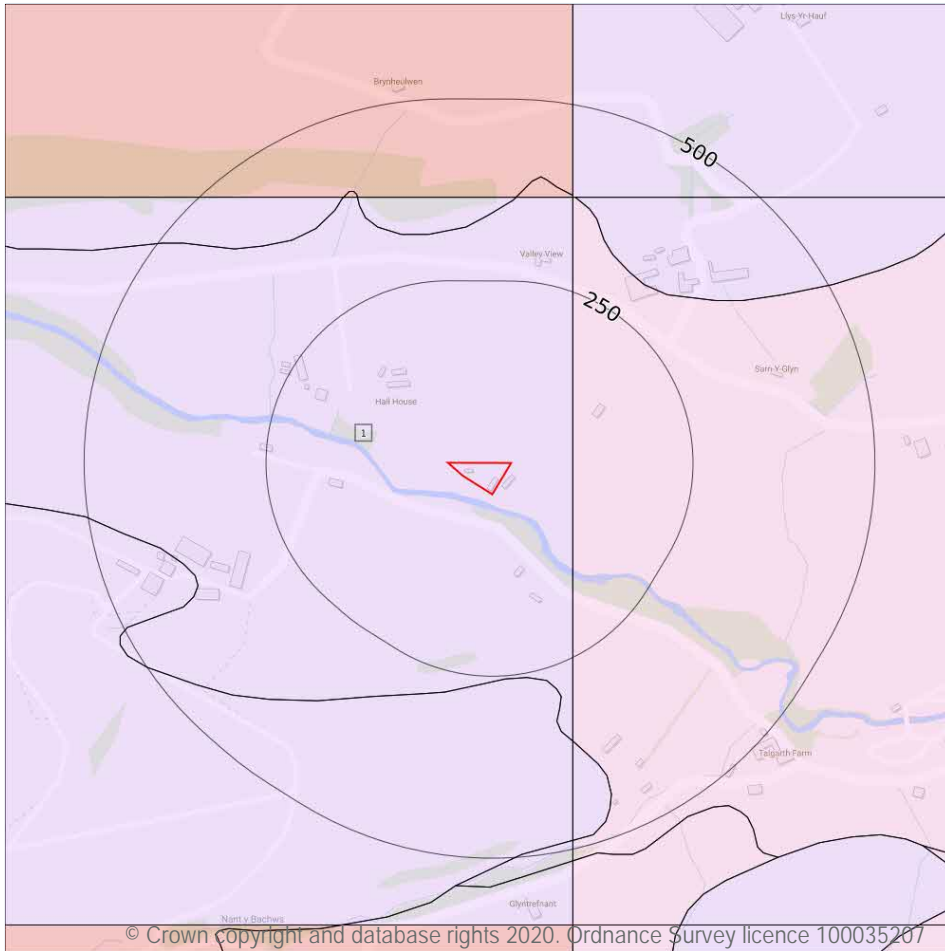
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on [page 30](#)

ID	Location	Designation	Description
1	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers

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

## Groundwater vulnerability



### 5.3 Groundwater vulnerability

Records within 50m

1

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

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

Features are displayed on the Groundwater vulnerability map on **page 31**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	<b>Summary Classification:</b> Secondary bedrock aquifer - Medium Vulnerability <b>Combined classification:</b> Productive Bedrock Aquifer, Productive Superficial Aquifer	<b>Leaching class:</b> Low <b>Infiltration value:</b> 40-70% <b>Dilution value:</b> >550mm/year	<b>Vulnerability:</b> Low <b>Aquifer type:</b> Secondary <b>Thickness:</b> <3m <b>Patchiness value:</b> <90% <b>Recharge potential:</b> Low	<b>Vulnerability:</b> Medium <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.*

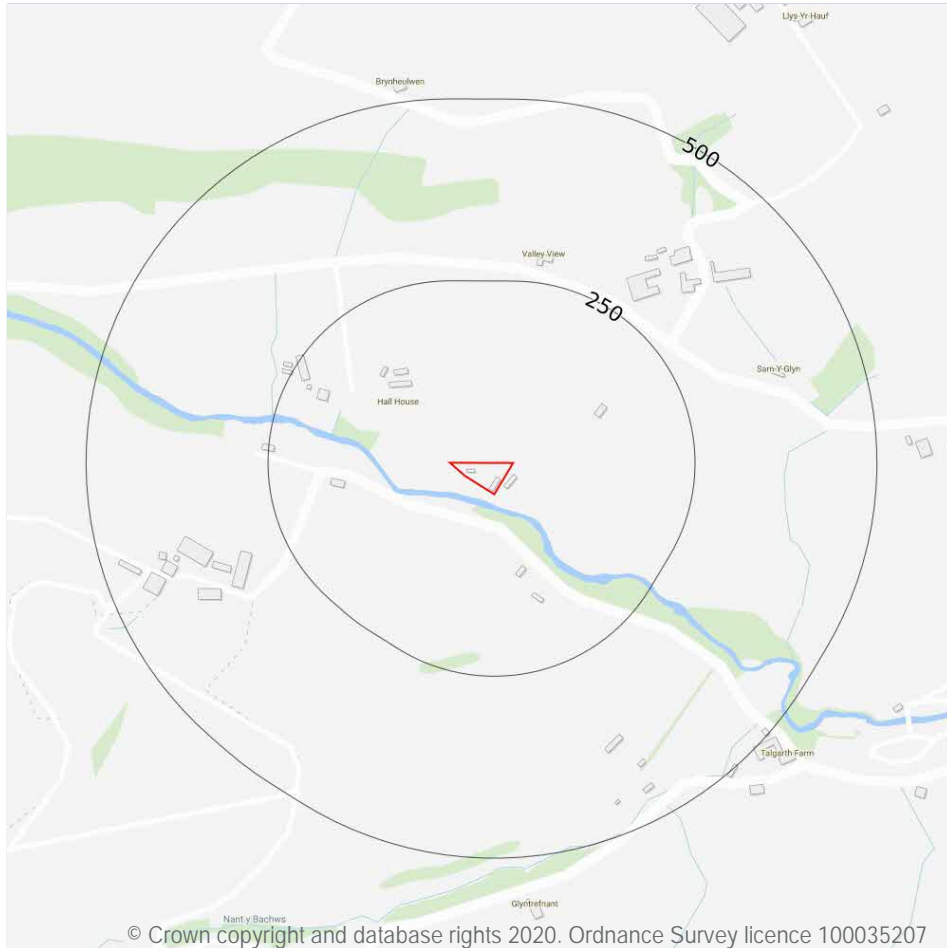
## 5.5 Groundwater vulnerability- local information

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.

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

## Abstractions and Source Protection Zones



### 5.6 Groundwater abstractions

Records within 2000m

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 33**

ID	Location	Details	
-	1503m SE	Status: Historical Licence No: 18/54/01/0404 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: PWLLGLAS, TREFEGLWYS - WELL Data Type: Point Name: DAVIES Easting: 297100 Northing: 289700	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 22/09/1967 Expiry Date: - Issue No: 100 Version Start Date: 22/09/1967 Version End Date: -
-	1692m E	Status: Historical Licence No: 18/54/01/0103 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: BODAI OCH HALL Data Type: Point Name: MESSRS T E DAVIES & CO Easting: 297600 Northing: 290800	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 22/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 22/11/1966 Version End Date: -
-	1985m E	Status: Historical Licence No: 18/54/01/0103 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: BODAI OCH HALL Data Type: Point Name: MESSRS T E DAVIES & CO Easting: 297900 Northing: 290700	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 22/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 22/11/1966 Version End Date: -

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

## 5.7 Surface water abstractions

Records within 2000m

0

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

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





## 5.8 Potable abstractions

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

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

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

## 5.9 Source Protection Zones

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

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

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

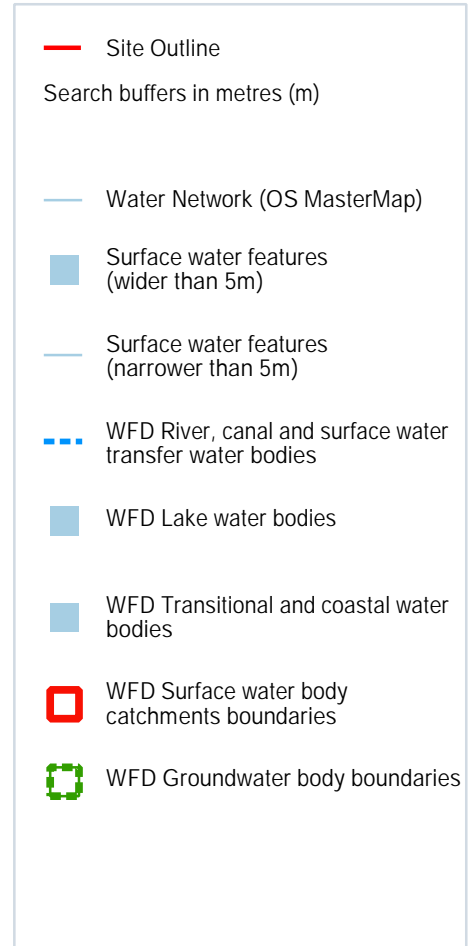
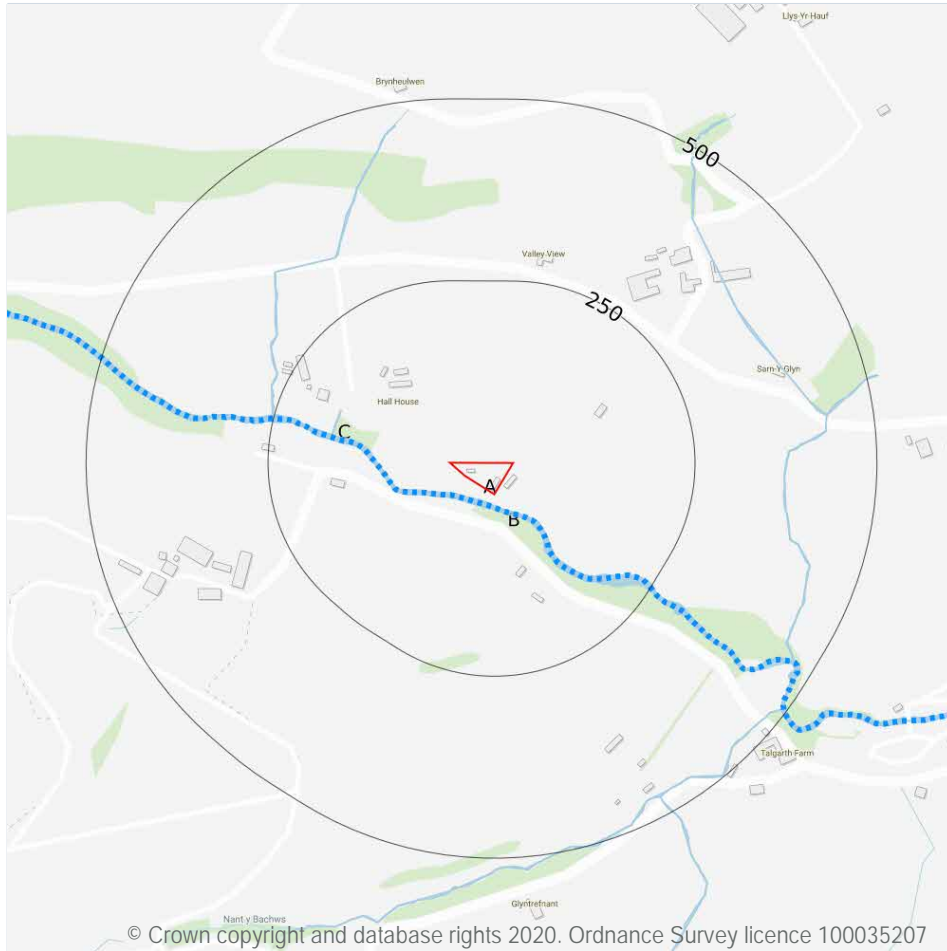
## 5.10 Source Protection Zones (confined aquifer)

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

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

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

## 6 Hydrology



### 6.1 Water Network (OS MasterMap)

Records within 250m

3

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 36](#)

ID	Location	Type of water feature	Ground level	Permanence	Name
B	17m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Trannon

ID	Location	Type of water feature	Ground level	Permanence	Name
C	165m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	166m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Trannon

*This data is sourced from the Ordnance Survey.*

## 6.2 Surface water features

Records within 250m

2

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 36**

*This data is sourced from the Ordnance Survey.*

## 6.3 WFD Surface water body catchments

Records on site

1

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

Features are displayed on the Hydrology map on **page 36**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River WB catchment	Afon Trannon - source to nr Argoed	GB109054049230	Severn source to Trannon	Severn Uplands

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



## 6.4 WFD Surface water bodies

Records identified

1

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

Features are displayed on the Hydrology map on **page 36**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
1	17m S	River	Afon Trannon - source to nr Argoed	GB109054049230	Moderate	Good	Moderate	2016

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

## 6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

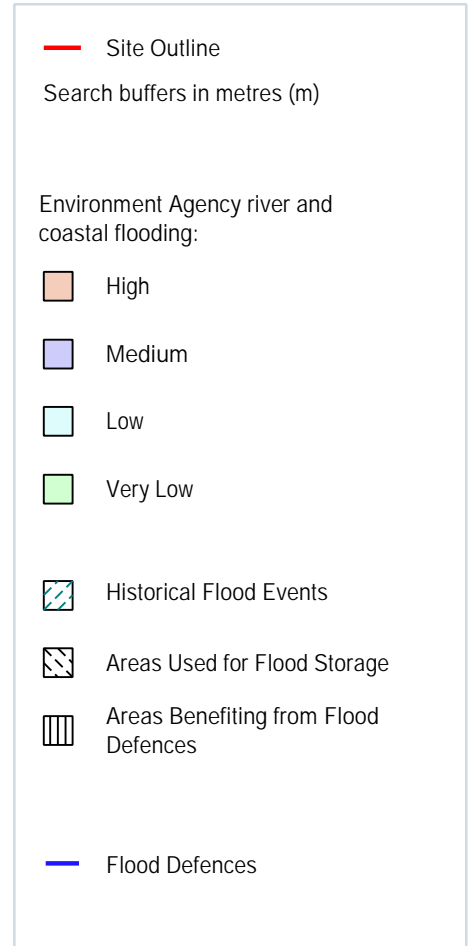
Features are displayed on the Hydrology map on **page 36**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Severn Uplands - Lower Palaeozoic	GB40902G205300	Poor	Poor	Good	2016

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



## 7 River and coastal flooding



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

Records within 50m

12

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 39**

Distance	RoFRaS flood risk
On site	Medium
0 - 50m	High

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

## 7.2 Historical Flood Events

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

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

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

## 7.3 Flood Defences

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

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

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

## 7.4 Areas Benefiting from Flood Defences

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

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

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

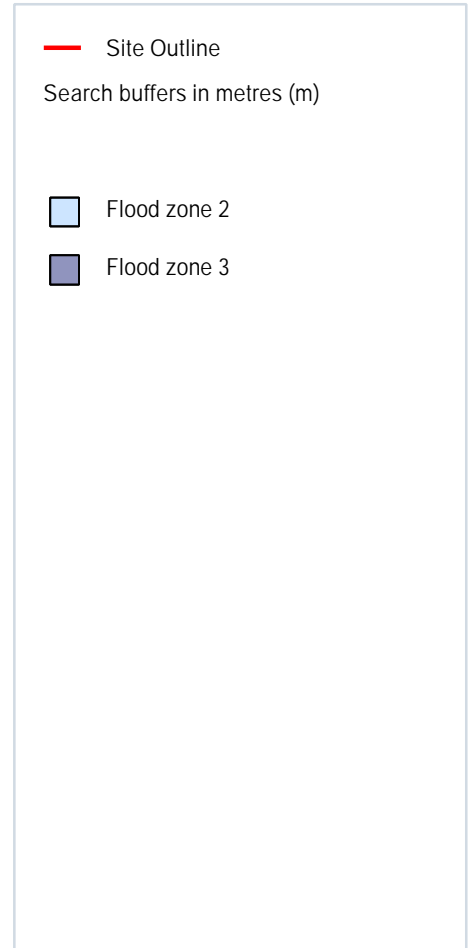
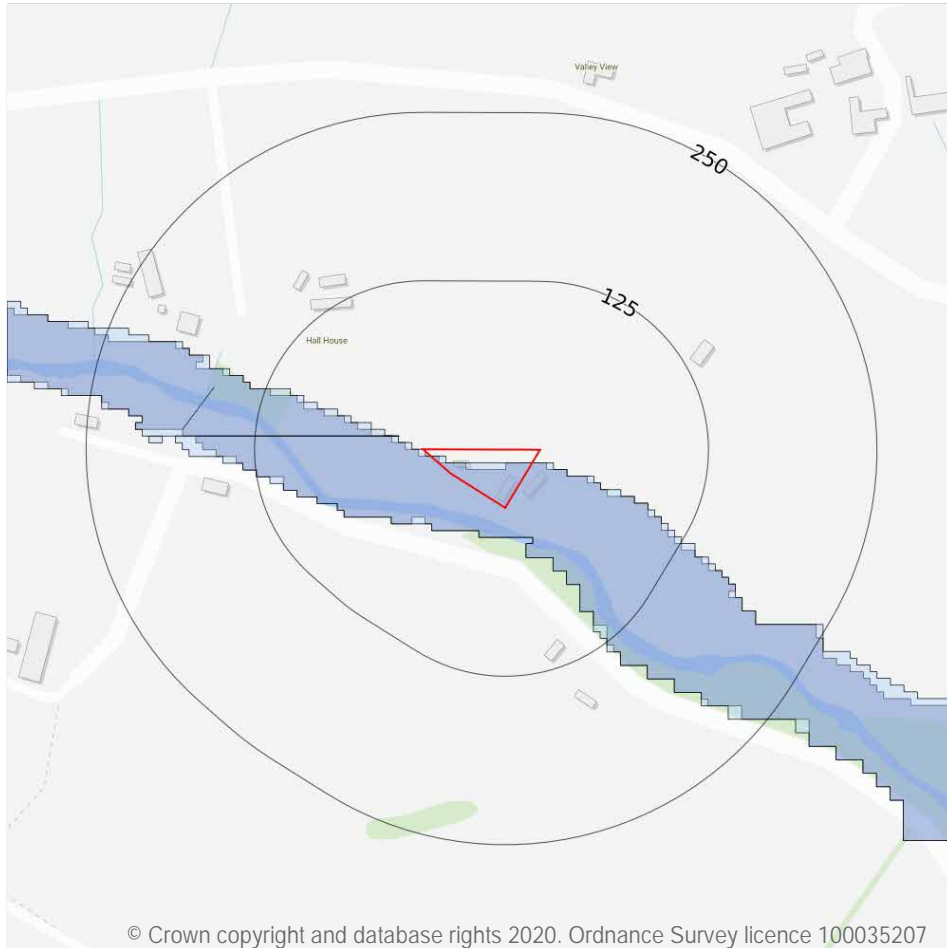
## 7.5 Flood Storage Areas

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

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

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

## River and coastal flooding - Flood Zones



### 7.6 Flood Zone 2

Records within 50m

1

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

Features are displayed on the River and coastal flooding map on **page 39**

Location	Type
On site	Zone 2 - (Fluvial /Tidal Models)

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

## 7.7 Flood Zone 3

Records within 50m

1

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

Features are displayed on the River and coastal flooding map on **page 39**

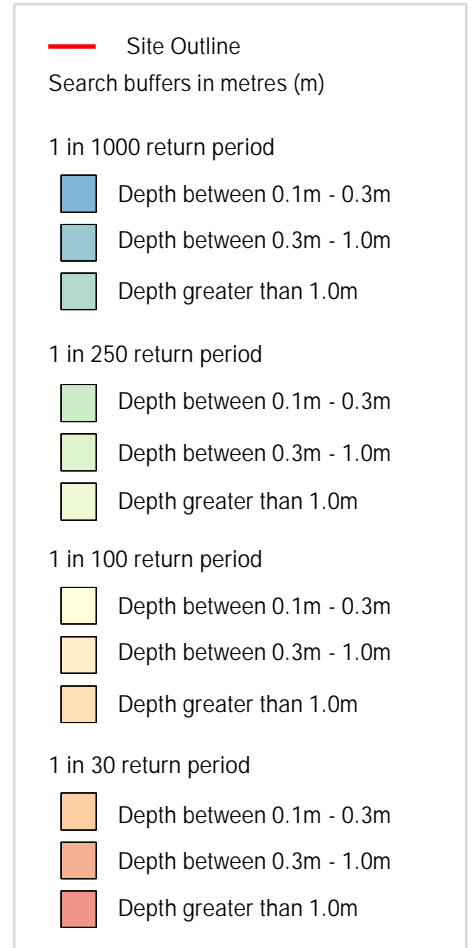
Location	Type
On site	Zone 3 - (Fluvial Models)

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





## 8 Surface water flooding



### 8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, Greater than 1.0m

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

Features are displayed on the Surface water flooding map on **page 43**

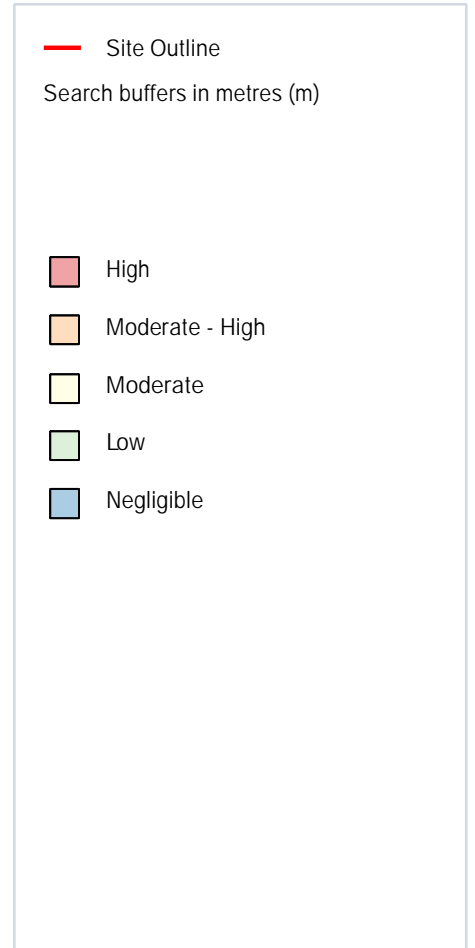
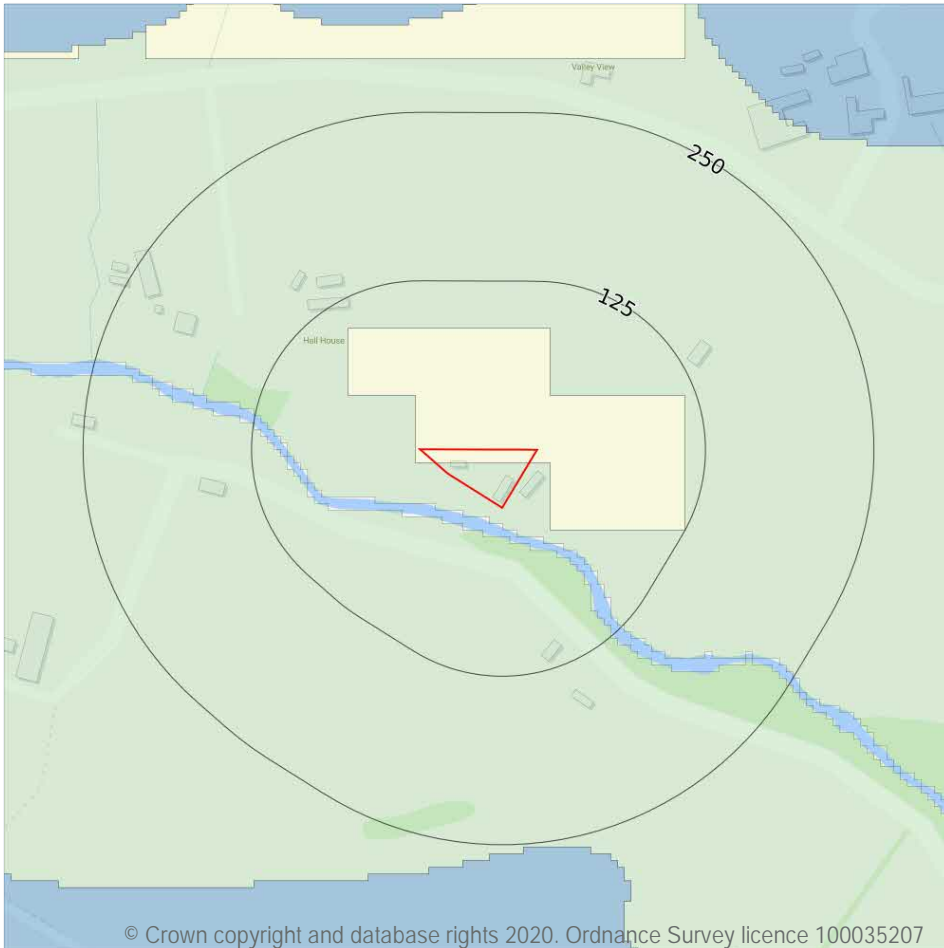
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

*This data is sourced from Ambiental Risk Analytics.*

## 9 Groundwater flooding



### 9.1 Groundwater flooding

Highest risk on site

Moderate

Highest risk within 50m

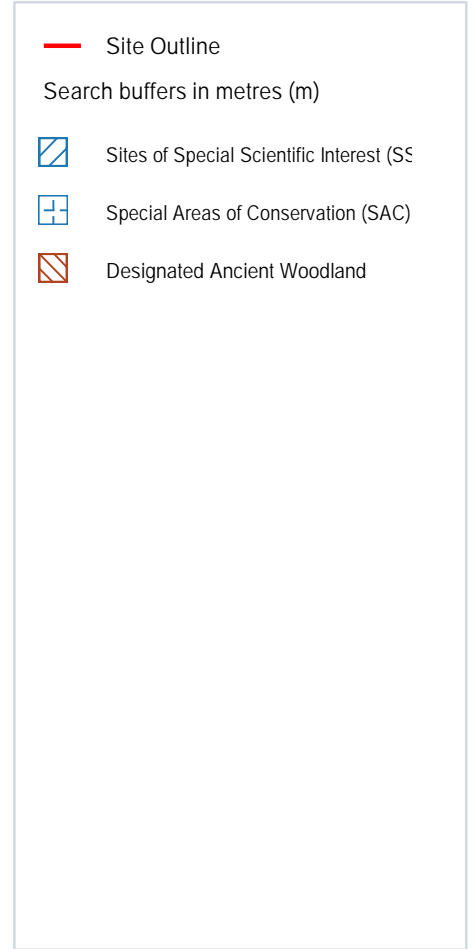
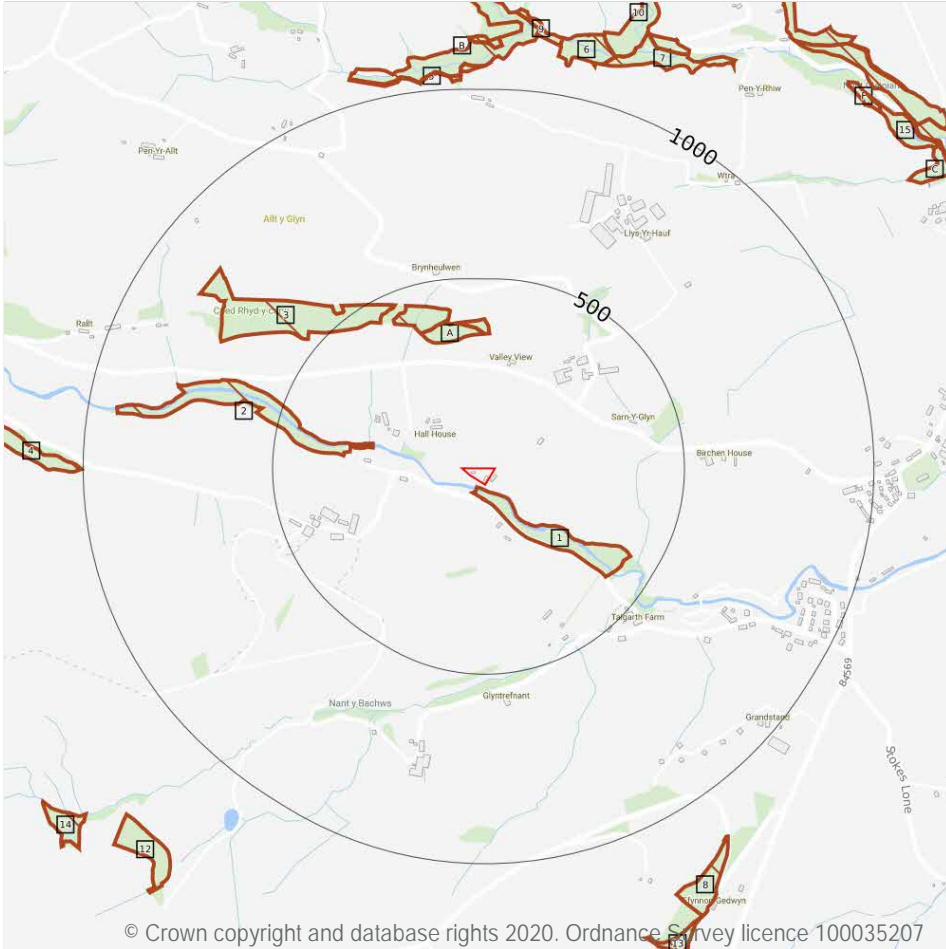
Moderate

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

Features are displayed on the Groundwater flooding map on **page 45**

*This data is sourced from Ambiental Risk Analytics.*

## 10 Environmental designations



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

Records within 2000m

1

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

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Data source
-	1635m W	Coedydd Llaur-Y-Glyn	Natural Resources Wales

*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

1

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.

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Features of interest	Habitat description	Data source
-	1635m W	Coedydd Llawr-y-glyn	Western acidic oak woodland.	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites); Coniferous woodland; Dry grassland, Steppes; Inland water bodies (Standing water, Running water); Broad-leaved deciduous woodland; Heath, Scrub, Maquis and Garrigue, Phygrana	Natural Resources Wales

*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

46

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 46**

ID	Location	Name	Woodland Type
1	13m SW	Unknown	Ancient Semi Natural Woodland
2	241m W	Unknown	Ancient Semi Natural Woodland
A	335m N	Unknown	Ancient Semi Natural Woodland
A	355m N	Unknown	Ancient Semi Natural Woodland
A	371m N	Unknown	Restored Ancient Woodland Site
3	440m NW	Unknown	Restored Ancient Woodland Site
4	1005m W	Unknown	Ancient Semi Natural Woodland
5	1020m N	Unknown	Ancient Semi Natural Woodland
B	1024m N	Unknown	Ancient Semi Natural Woodland
6	1080m N	Unknown	Ancient Semi Natural Woodland

ID	Location	Name	Woodland Type
7	1104m N	Unknown	Restored Ancient Woodland Site
B	1109m N	Unknown	Ancient Semi Natural Woodland
8	1125m SE	Unknown	Restored Ancient Woodland Site
9	1128m N	Unknown	Ancient Semi Natural Woodland
10	1132m N	Unknown	Restored Ancient Woodland Site
-	1258m N	Unknown	Restored Ancient Woodland Site
12	1268m SW	Unknown	Ancient Semi Natural Woodland
13	1269m S	Unknown	Restored Ancient Woodland Site
C	1331m NE	Unknown	Ancient Semi Natural Woodland
-	1346m N	Unknown	Restored Ancient Woodland Site
14	1348m SW	Unknown	Ancient Semi Natural Woodland
-	1355m N	Unknown	Plantation on Ancient Woodland Site
F	1369m NE	Unknown	Ancient Semi Natural Woodland
15	1374m NE	Unknown	Ancient Semi Natural Woodland
F	1378m NE	Unknown	Ancient Semi Natural Woodland
16	1379m NE	Unknown	Ancient Semi Natural Woodland
C	1426m NE	Unknown	Ancient Semi Natural Woodland
-	1429m S	Unknown	Ancient Semi Natural Woodland
-	1440m N	Unknown	Plantation on Ancient Woodland Site
-	1440m N	Unknown	Ancient Semi Natural Woodland
C	1487m NE	Unknown	Ancient Semi Natural Woodland
-	1624m W	Unknown	Ancient Semi Natural Woodland
-	1634m W	Unknown	Ancient Semi Natural Woodland
-	1668m S	Unknown	Ancient Semi Natural Woodland
-	1701m S	Unknown	Ancient Semi Natural Woodland
-	1704m W	Unknown	Ancient Semi Natural Woodland
-	1706m W	Unknown	Ancient Semi Natural Woodland
-	1748m S	Unknown	Ancient Semi Natural Woodland



ID	Location	Name	Woodland Type
-	1829m S	Unknown	Ancient Semi Natural Woodland
-	1849m W	Unknown	Ancient Semi Natural Woodland
-	1900m SE	Unknown	Restored Ancient Woodland Site
-	1910m S	Unknown	Ancient Semi Natural Woodland
-	1947m S	Unknown	Plantation on Ancient Woodland Site
-	1956m W	Unknown	Plantation on Ancient Woodland Site
-	1958m NW	Unknown	Ancient Semi Natural Woodland
-	1972m W	Unknown	Ancient Semi Natural Woodland

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

## 10.8 Biosphere Reserves

Records within 2000m

0

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

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

## 10.9 Forest Parks

Records within 2000m

0

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

*This data is sourced from the Forestry Commission.*

## 10.10 Marine Conservation Zones

Records within 2000m

0

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

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





## 10.11 Green Belt

Records within 2000m

0

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

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

## 10.12 Proposed Ramsar sites

Records within 2000m

0

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

*This data is sourced from Natural England.*

## 10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

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

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

## 10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

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

*This data is sourced from Natural England.*

## 10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was



closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

*This data is sourced from Natural England.*

## 10.16 Nitrate Vulnerable Zones

Records within 2000m

0

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.

*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	0
-----------------	---

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.

*This data is sourced from Natural England.*

### 10.18 SSSI Units

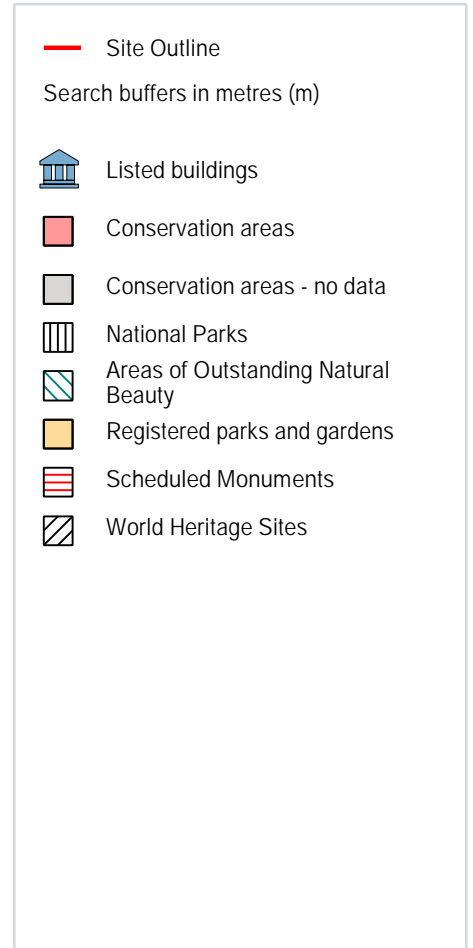
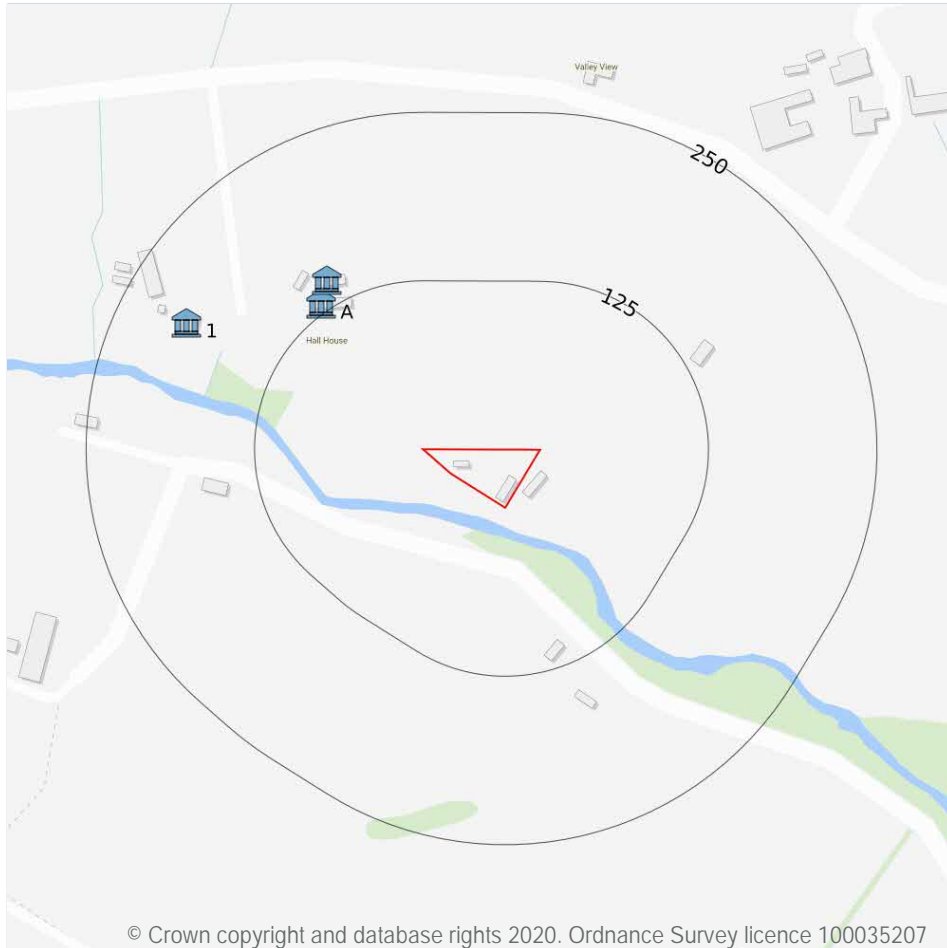
Records within 2000m	0
----------------------	---

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

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



## 11 Visual and cultural designations



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### 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

3

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.

Features are displayed on the Visual and cultural designations map on **page 54**

ID	Location	Name	Grade	Reference Number	Listed date
A	132m NW	Barn At Rhyd Y Carw, Located 100M E Of The Farmhouse	II	83252	18/11/2004
A	145m NW	Former Cow-House At Rhyd Y Carw, Located 100M E Of The Farmhouse And Immediately N Of The Barn	II	83253	18/11/2004
1	199m NW	Rhyd Y Carw, Located Off The S Side Of The Lane Which Runs W From Trefeglwys To Llawr Y Glyn, And On The N Banks Of The Afon Trannon. Approx. 1.4Km From Trefeglwys	II*	7590	10/03/1953

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



## 11.5 Conservation Areas

Records within 250m

0

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

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

## 11.6 Scheduled Ancient Monuments

Records within 250m

0

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

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

## 11.7 Registered Parks and Gardens

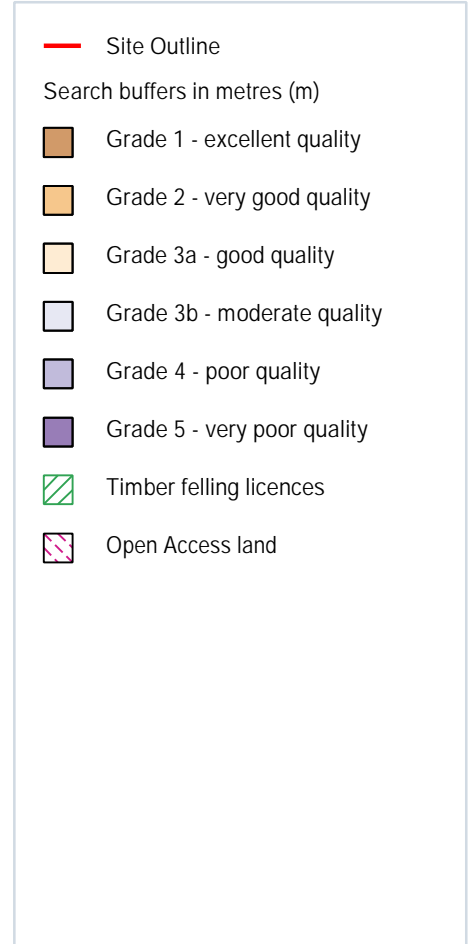
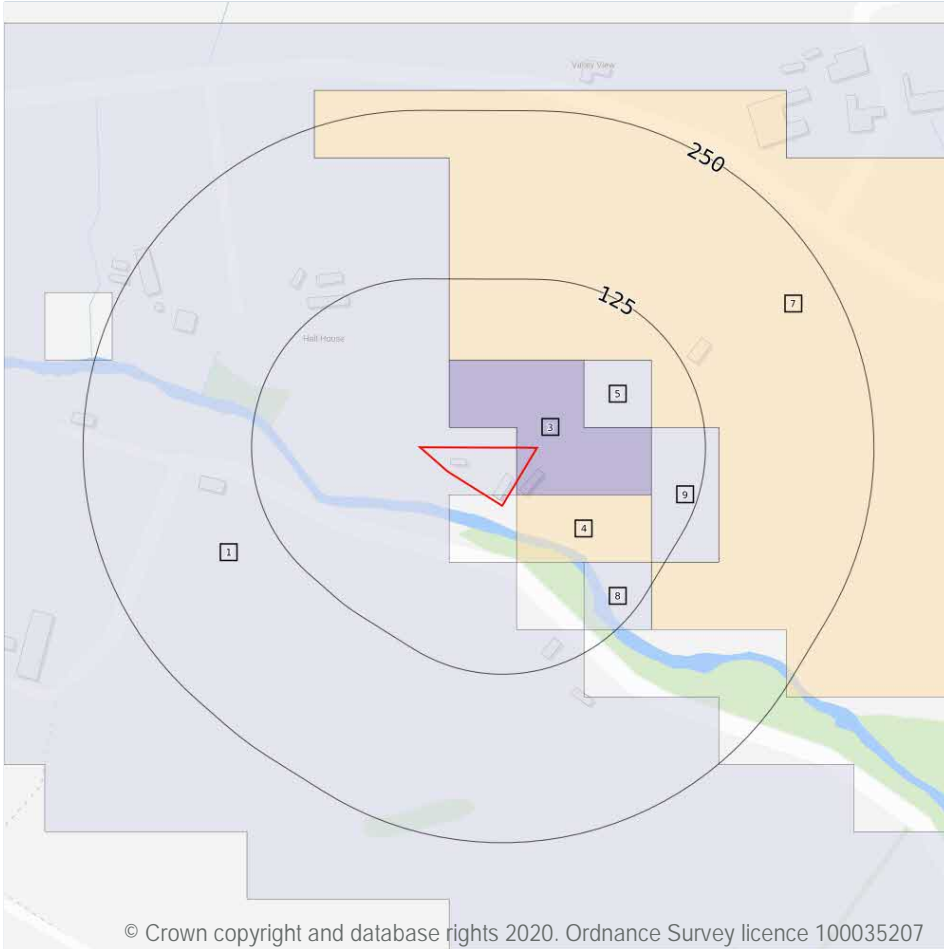
Records within 250m

0

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

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

## 12 Agricultural designations



### 12.1 Agricultural Land Classification

Records within 250m

7

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 57](#)

ID	Location	Classification	Description
1	On site	Grade 3b	Moderate quality agricultural land
3	On site	Grade 4	Poor quality agricultural land
4	5m SE	Grade 3a	Good to moderate quality agricultural land

ID	Location	Classification	Description
5	38m NE	Grade 3b	Moderate quality agricultural land
7	65m N	Grade 3a	Good to moderate quality agricultural land
8	74m SE	Grade 3b	Moderate quality agricultural land
9	85m E	Grade 3b	Moderate quality agricultural land

*This data is sourced from Natural Resources Wales.*

## 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.

*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	0
---------------------	---

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

*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

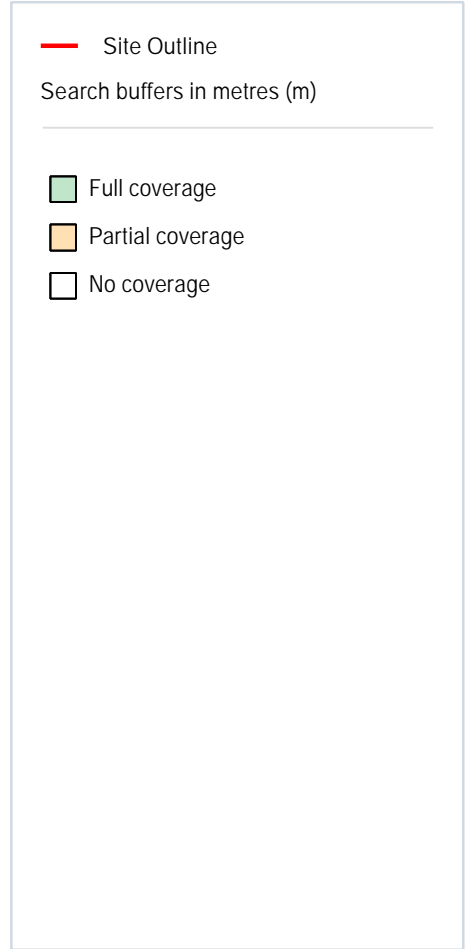
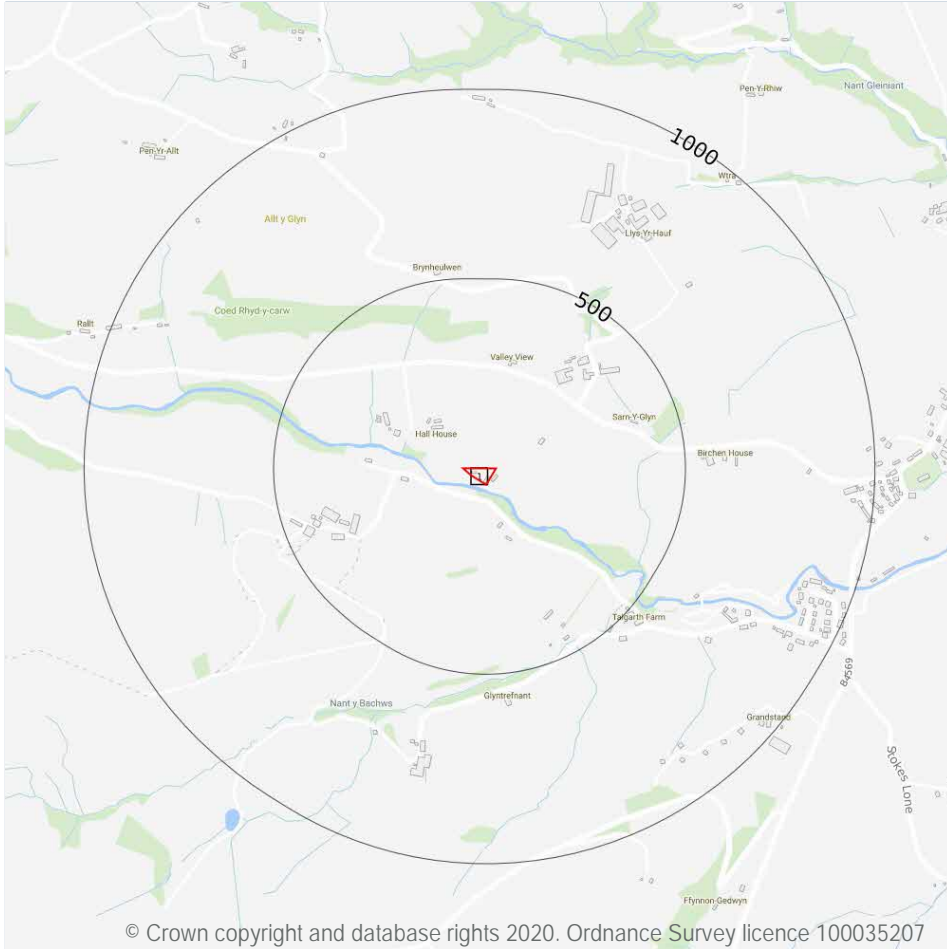
Records within 250m	0
---------------------	---

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



### 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 61](#)

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

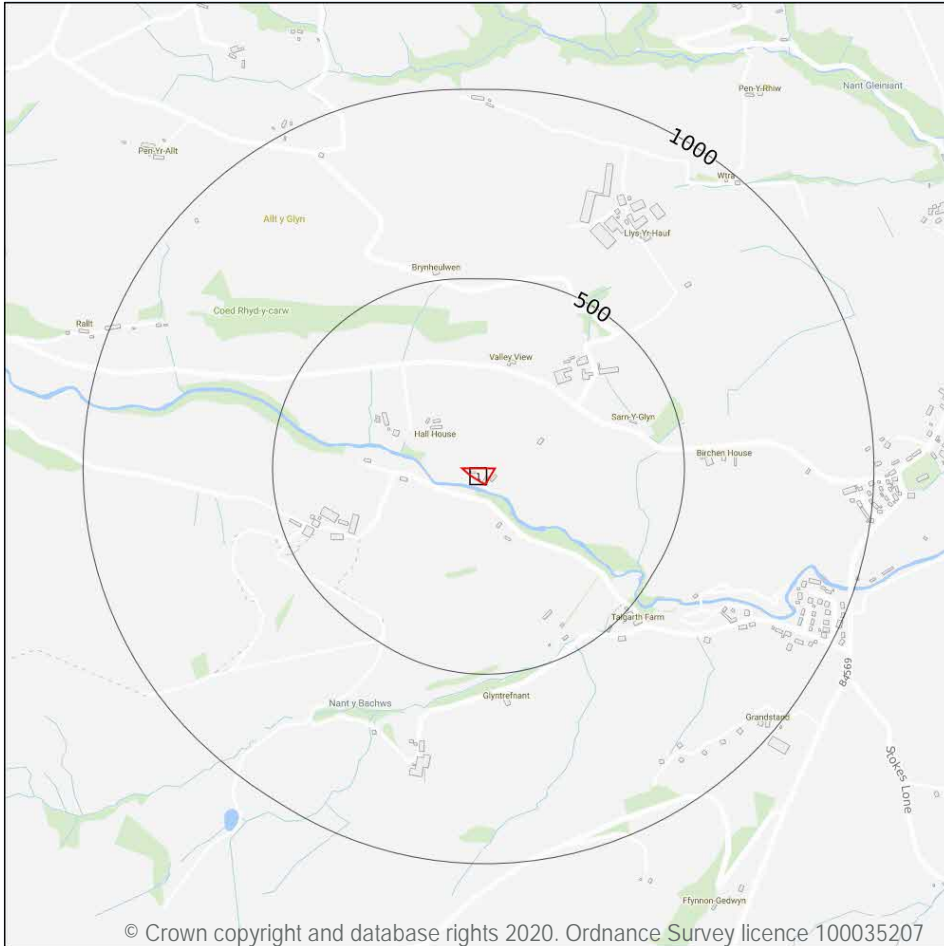
0

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. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on [page 65](#)

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW164_Ilanidloes

*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
--------------------	---

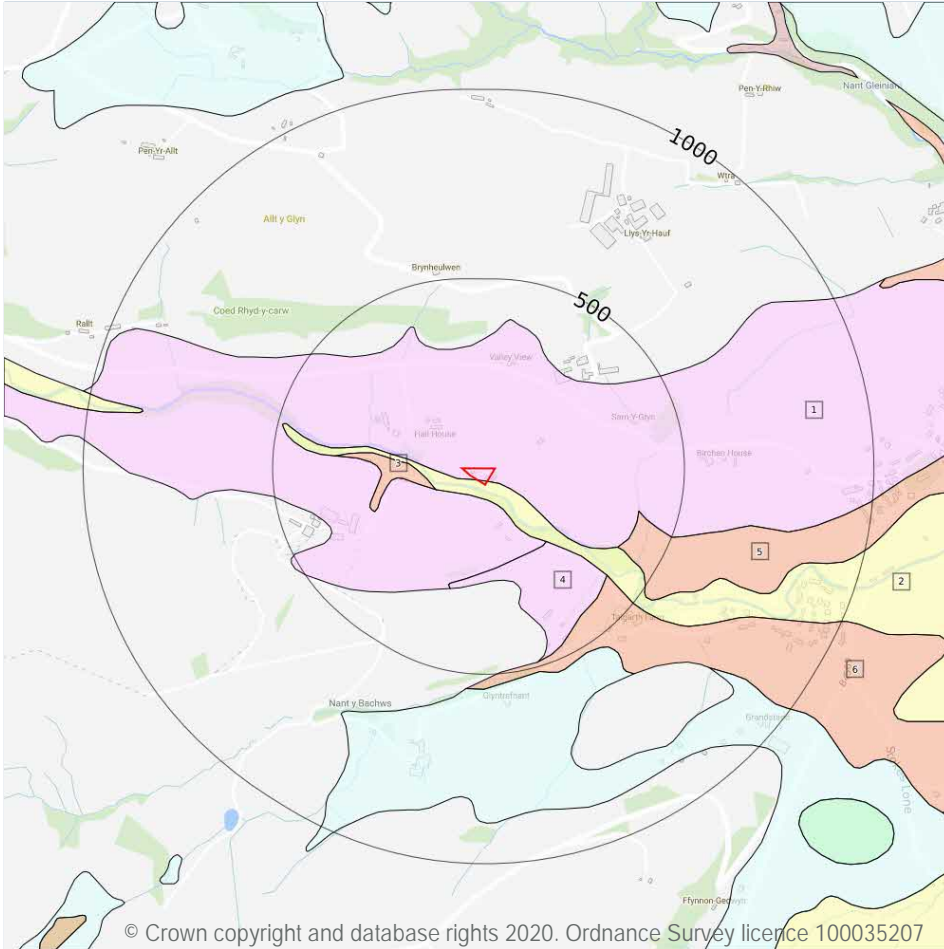
A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

*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

6

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 67](#)

ID	Location	LEX Code	Description	Rock description
1	On site	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	On site	ALV-XV SZC	ALLUVIUM	GRAVEL, SAND, SILT AND CLAY
3	89m SW	ALF-XSV	ALLUVIAL FAN DEPOSITS	SAND AND GRAVEL
4	211m SE	GFNQD-XSV	GLACIOFLUVIAL FAN DEPOSITS, DEVENSIAN	SAND AND GRAVEL



ID	Location	LEX Code	Description	Rock description
5	385m SE	ALF-XSV	ALLUVIAL FAN DEPOSITS	SAND AND GRAVEL
6	401m SE	ALF-XSV	ALLUVIAL FAN DEPOSITS	SAND AND GRAVEL

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

## 15.5 Superficial permeability (50k)

Records within 50m	<b>2</b>
--------------------	----------

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	Very High	High
On site	Intergranular	Very High	Low

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

## 15.6 Landslip (50k)

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

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.*

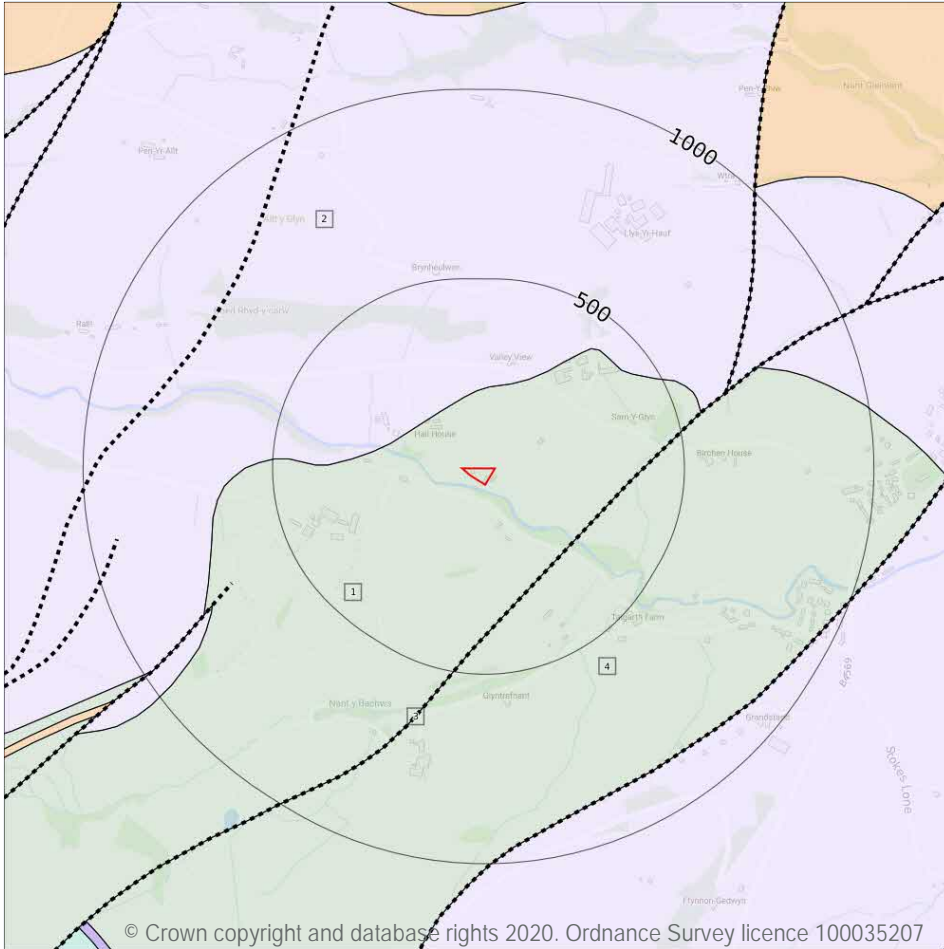
## 15.7 Landslip permeability (50k)

Records within 50m	<b>0</b>
--------------------	----------

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

3

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 69](#)

ID	Location	LEX Code	Description	Rock age
1	On site	RHS-M DST	RHAYADER MUDSTONES FORMATION - MUDSTONE	AERONIAN
2	157m NW	CAM-MDST	CAERAU MUDSTONES FORMATION - MUDSTONE	TELYCHIAN
4	273m SE	RHS-MDST	RHAYADER MUDSTONES FORMATION - MUDSTONE	AERONIAN

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

## 15.9 Bedrock permeability (50k)

Records within 50m

1

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

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

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

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

Records within 500m

1

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

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

ID	Location	Category	Description
3	273m SE	FAULT	Fault, inferred, displacement unknown

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

## 16 Boreholes

### 16.1 BGS Boreholes

Records within 250m

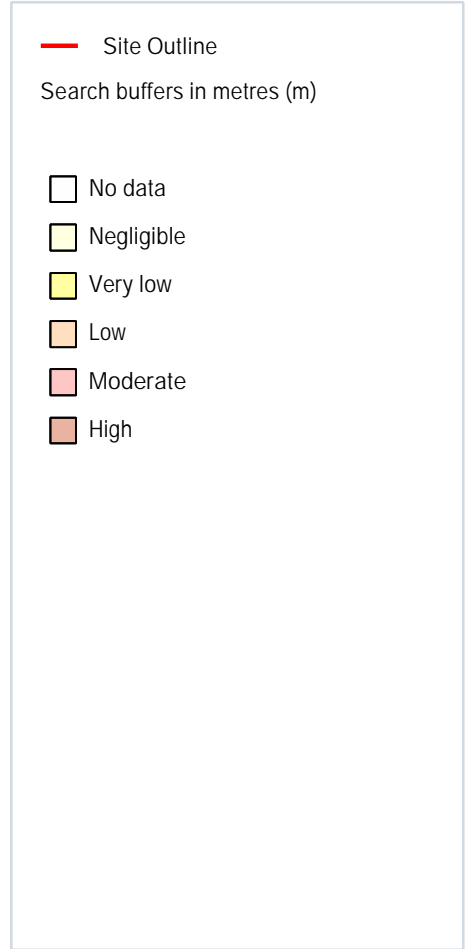
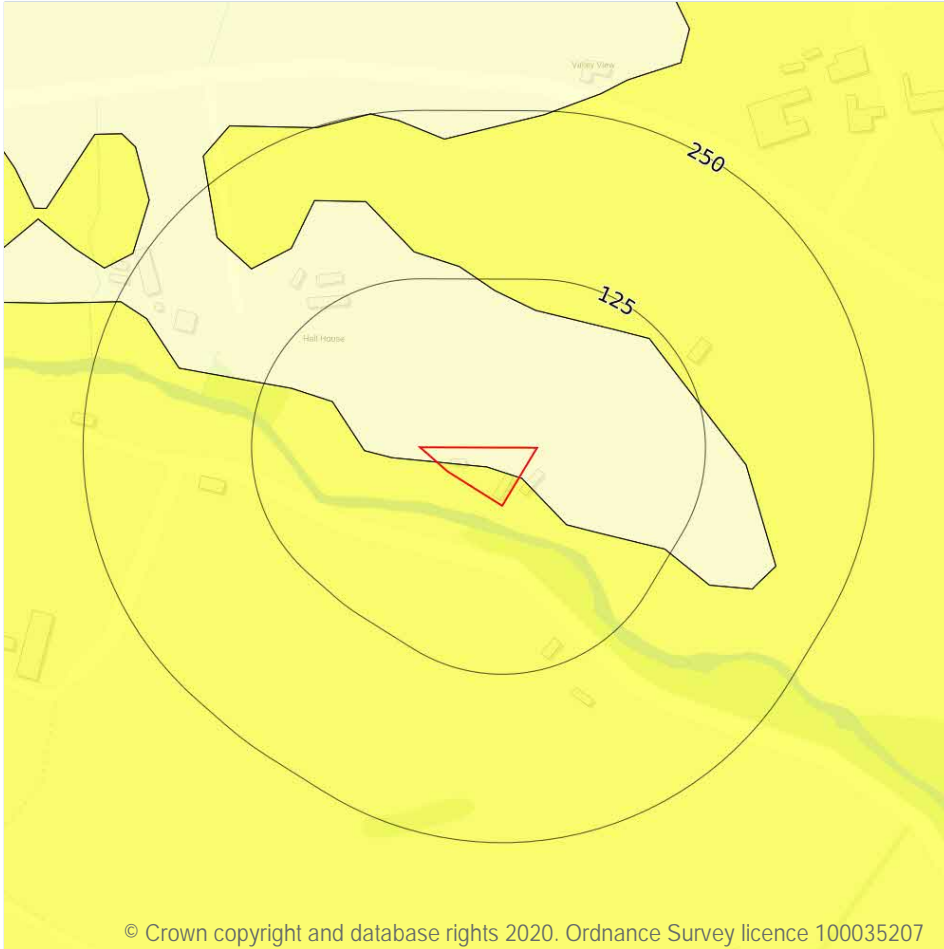
0

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

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



## 17 Natural ground subsidence - Shrink swell clays



### 17.1 Shrink swell clays

Records within 50m

2

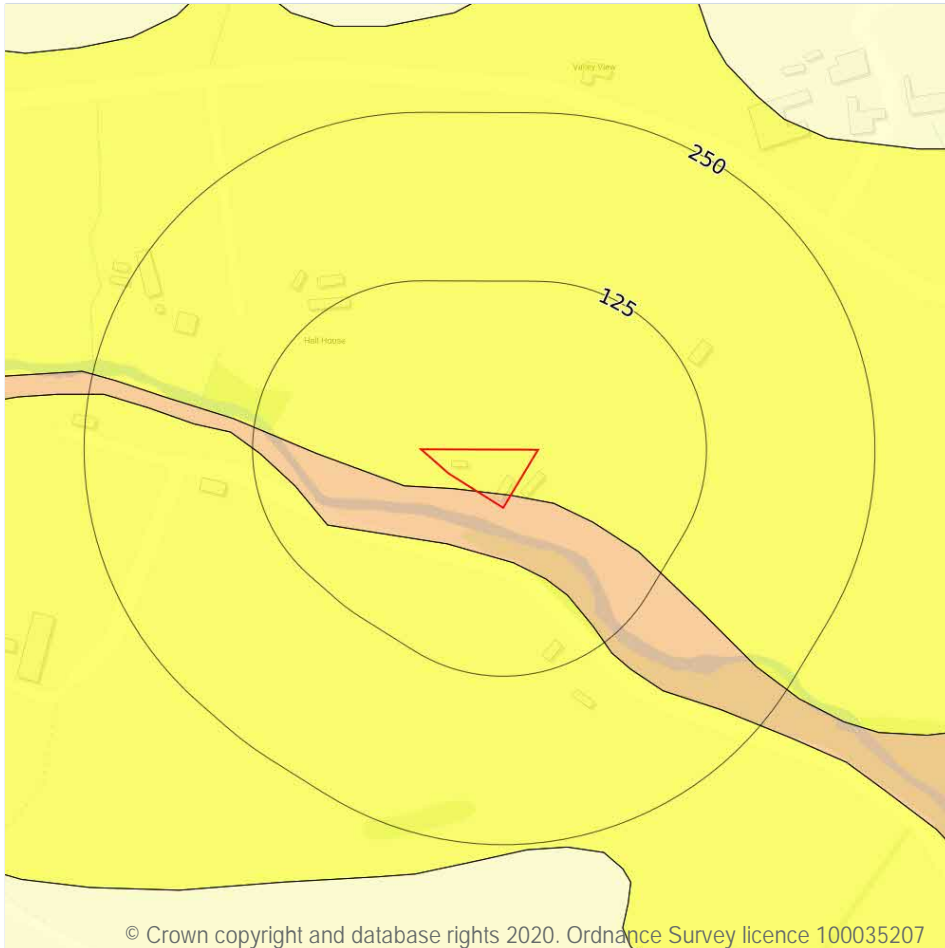
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 72](#)

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

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

## Natural ground subsidence - Running sands



— Site Outline  
Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

### 17.2 Running sands

Records within 50m

2

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 73](#)

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

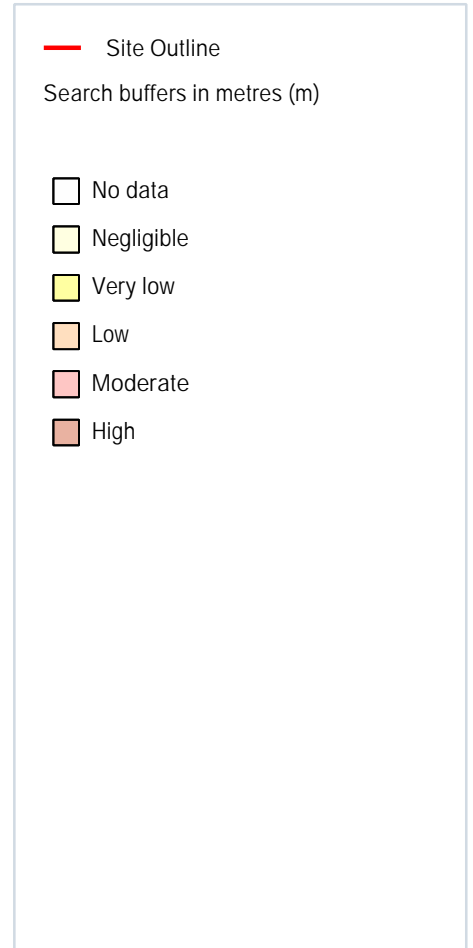
Location	Hazard rating	Details
On site	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.

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





## Natural ground subsidence - Compressible deposits



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### 17.3 Compressible deposits

Records within 50m

2

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.

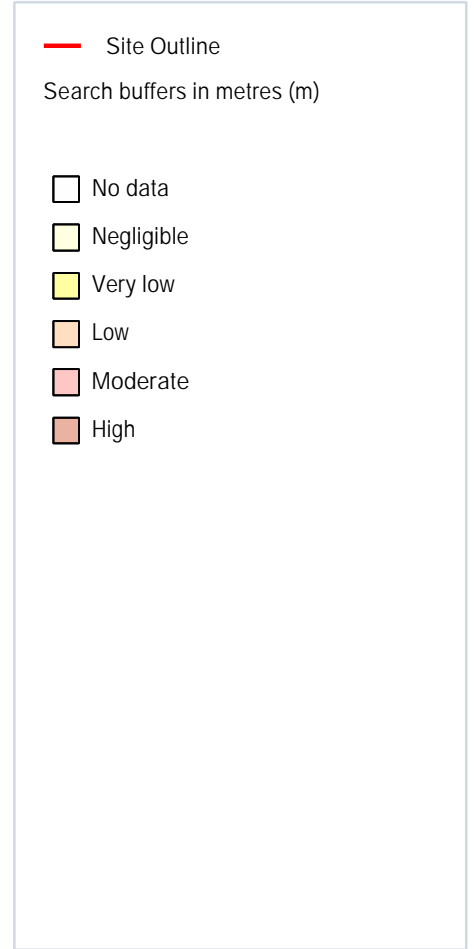
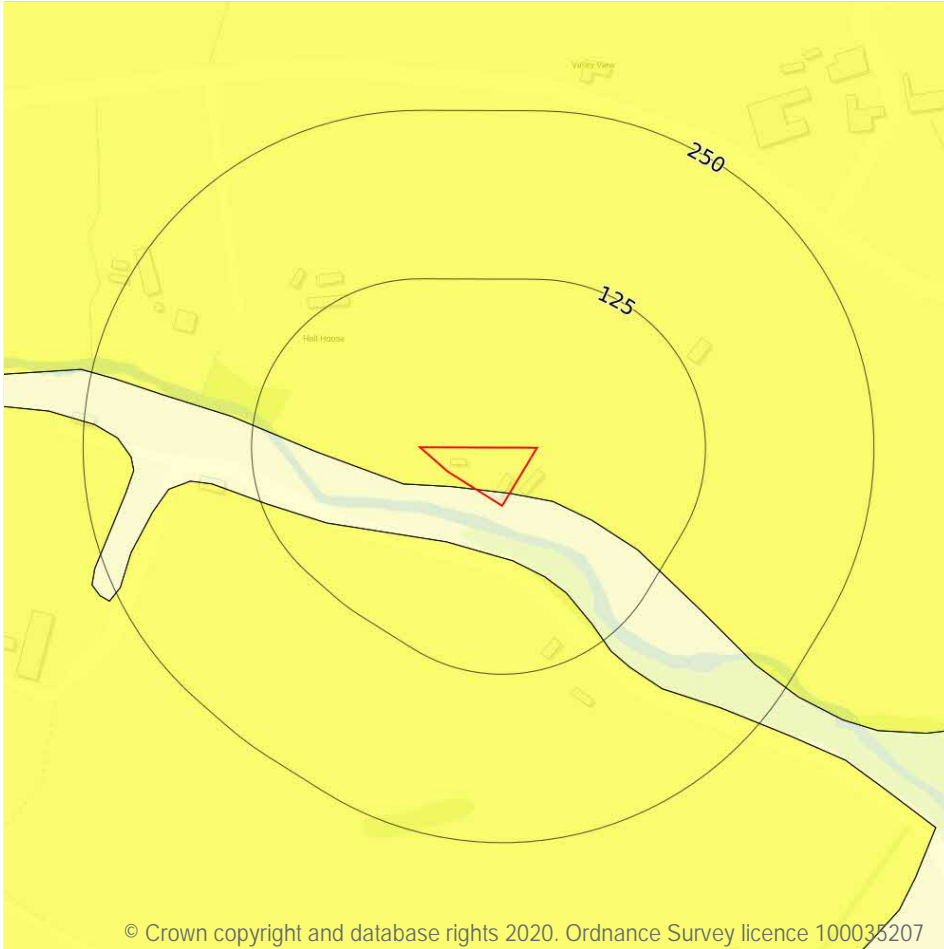
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 75**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
On site	Low	Compressibility and uneven settlement potential may be present. Land use should consider specifically the compressibility and variability of the site.

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



## Natural ground subsidence - Collapsible deposits



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### 17.4 Collapsible deposits

Records within 50m

2

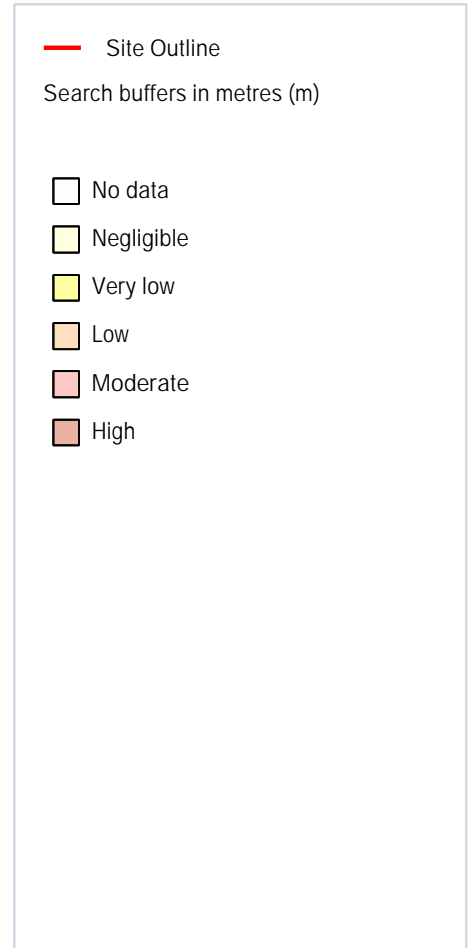
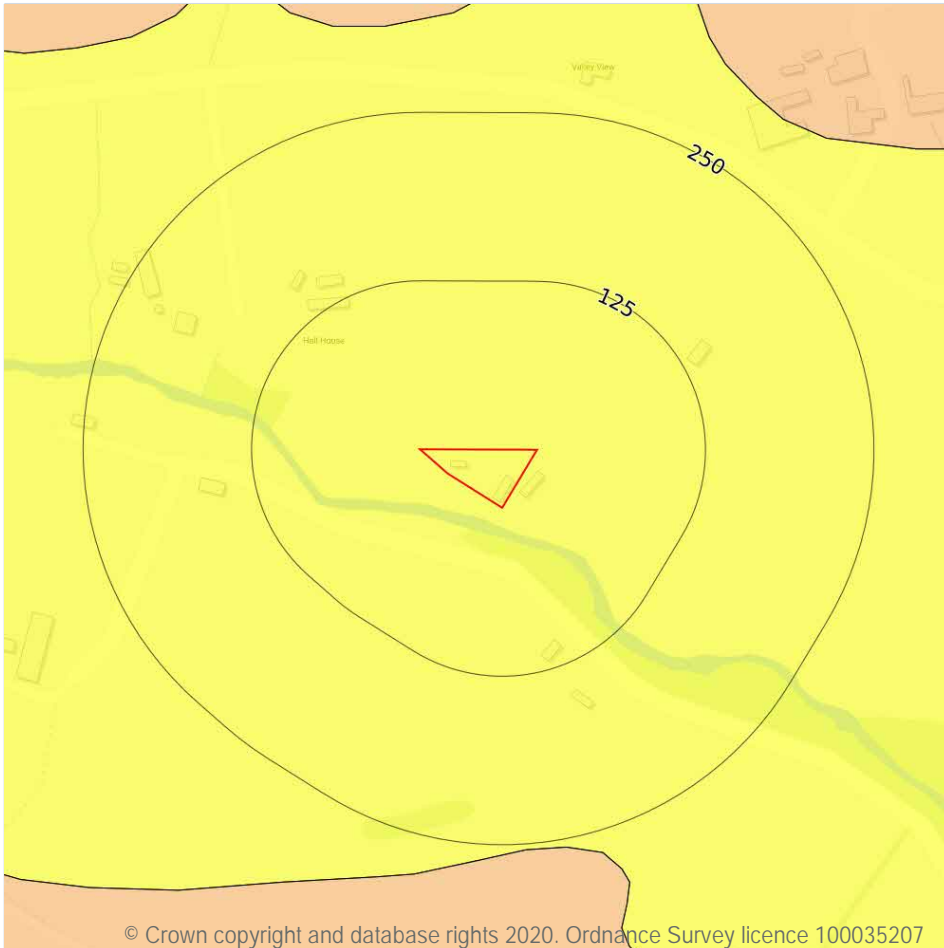
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 77](#)

Location	Hazard rating	Details
On site	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.
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

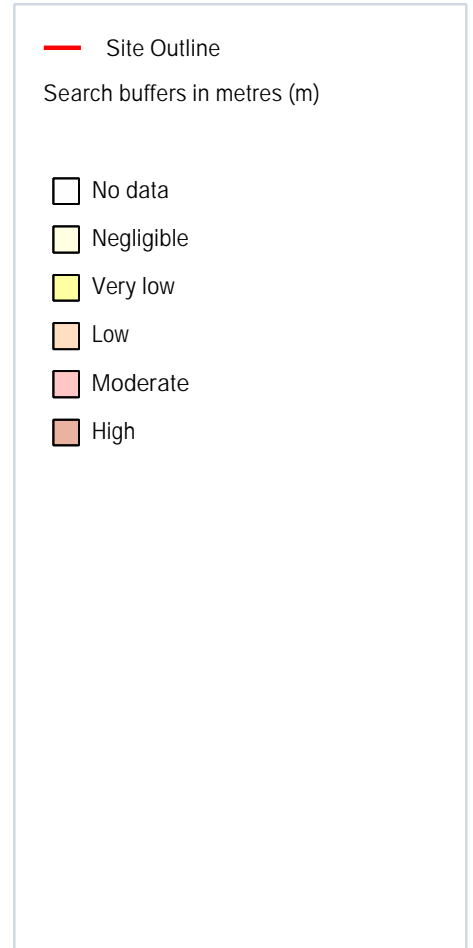
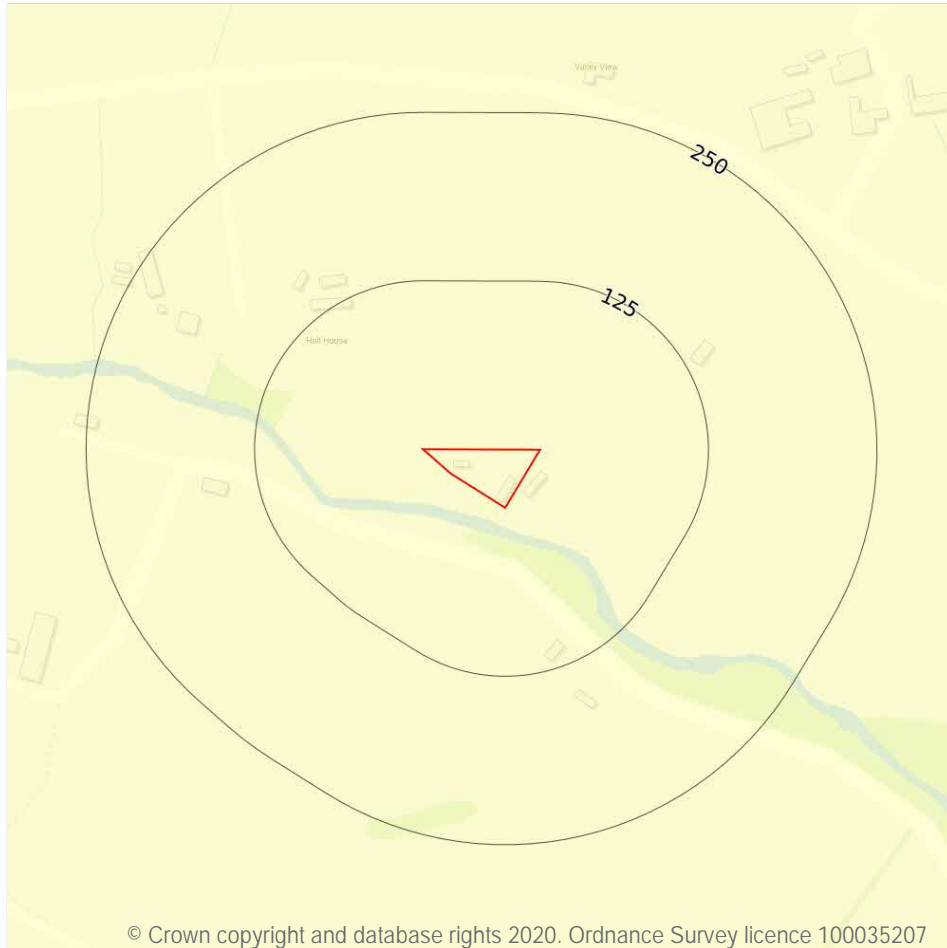
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

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

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

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

## Natural ground subsidence - Ground dissolution of soluble rocks



### 17.6 Ground dissolution of soluble rocks

Records within 50m

1

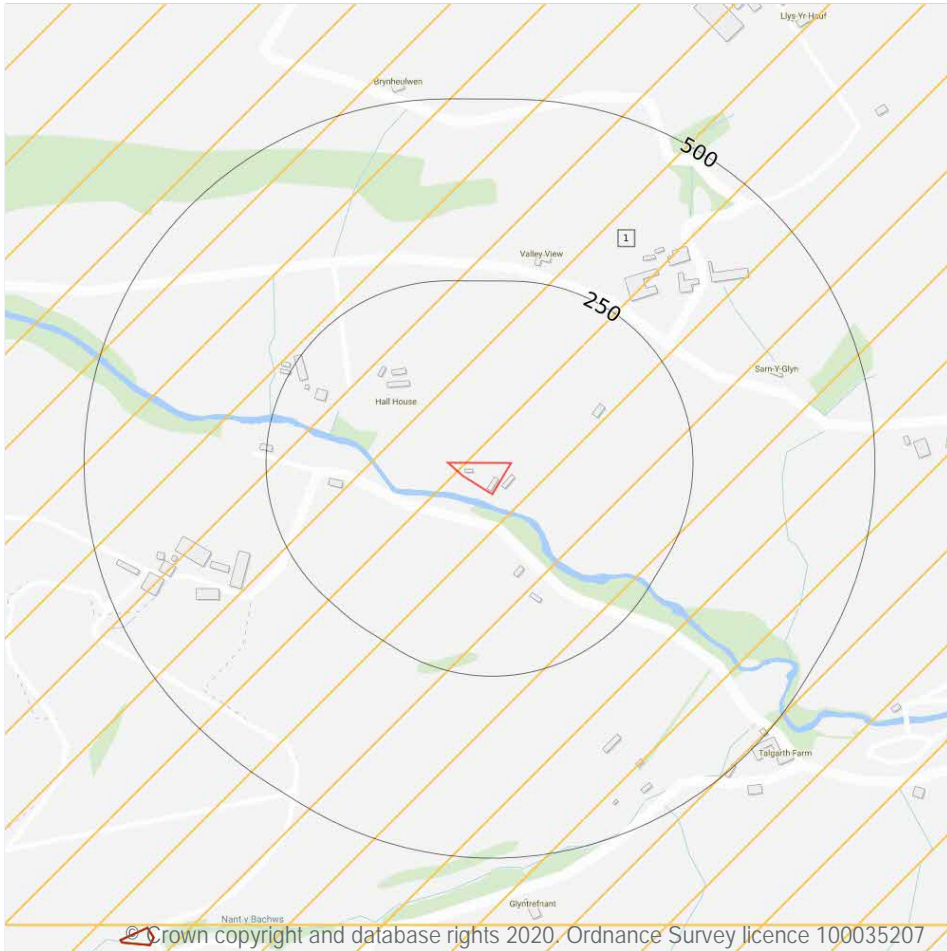
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 79](#)

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

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

## 18 Mining, ground workings and natural cavities



### 18.1 Natural cavities

Records within 500m

0

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

*This data is sourced from Peter Brett Associates (PBA).*

## 18.2 BritPits

Records within 500m

0

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.

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

## 18.3 Surface ground workings

Records within 250m

0

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

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

## 18.4 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

6

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

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



ID	Location	Name	Commodity	Class	Likelihood
1	On site	Berwyn Hills	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
2	592m S	Berwyn Hills	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	828m W	Berwyn Hills	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	912m SW	Mid Wales	Vein Mineral	C	Small scale underground mining may have occurred; mine adits, shafts and tunnels may be present. Potential for localised difficult ground conditions are at a level where they should be considered
-	915m SW	Mid Wales	Vein Mineral	C	Small scale underground mining may have occurred; mine adits, shafts and tunnels may be present. Potential for localised difficult ground conditions are at a level where they should be considered
-	960m SW	Mid Wales	Vein Mineral	C	Small scale underground mining may have occurred; mine adits, shafts and tunnels may be present. Potential for localised difficult ground conditions are at a level where they should be considered

*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 Peter Brett Associates (PBA).*

## 18.8 JPB mining areas

Records on site

0

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

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





## 18.9 Coal mining

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

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

*This data is sourced from the Coal Authority.*

## 18.10 Brine areas

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

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

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

## 18.11 Gypsum areas

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

Generalised areas that may be affected by gypsum extraction.

*This data is sourced from British Gypsum.*

## 18.12 Tin mining

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

Generalised areas that may be affected by historical tin mining.

*This data is sourced from Mining Searches UK.*

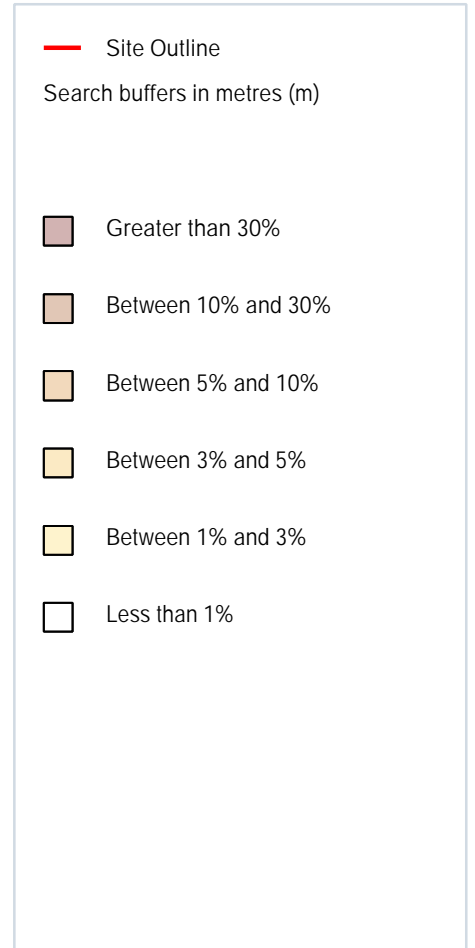
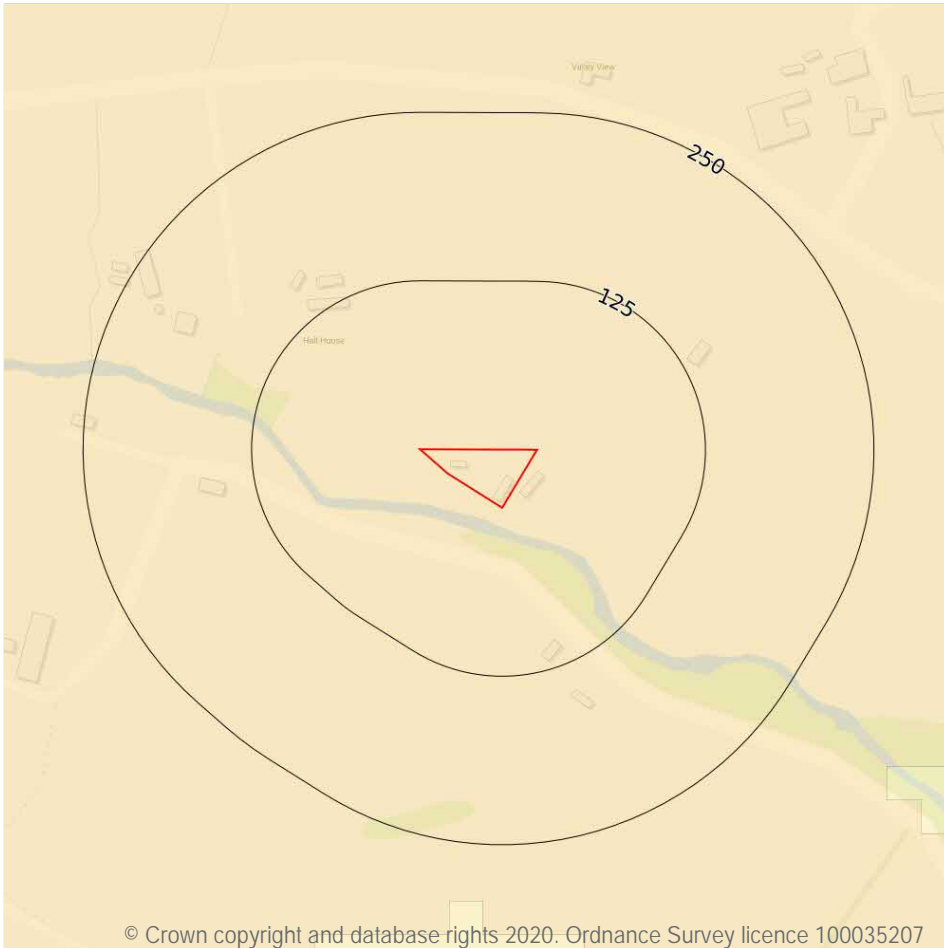
## 18.13 Clay mining

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

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

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

## 19 Radon



### 19.1 Radon

Records on site

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 84**

Location	Estimated properties affected	Radon Protection Measures required
On site	Between 3% and 5%	Basic

*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

2

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

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

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

### 20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

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

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

### 20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

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

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



## 21 Railway infrastructure and projects

### 21.1 Underground railways (London)

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

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

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

### 21.2 Underground railways (Non-London)

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

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

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

### 21.3 Railway tunnels

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

Railway tunnels taken from contemporary Ordnance Survey mapping.

*This data is sourced from the Ordnance Survey.*

### 21.4 Historical railway and tunnel features

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

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

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

### 21.5 Royal Mail tunnels

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

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

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

## 21.6 Historical railways

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

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

*This data is sourced from OpenStreetMap.*

## 21.7 Railways

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

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

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

## 21.8 Crossrail 1

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

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

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

## 21.9 Crossrail 2

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

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

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

## 21.10 HS2

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

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

*This data is sourced from HS2 Ltd.*



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## Data providers

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

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