Groundfirst

Reliable ground quality services

Phase 1 contaminated land report

Land west of Pendil, Llangollen Road, Acrefair, Wrexham, LL14 3RS

Site address	Land west of Pendil Llangollen Road Acrefair Wrexham LL14 3RS
Site coordinates	327699, 342987
Report prepared for	JJ&K Developments Ltd 7 Bolton Road Ashton-In-Makerfield Wigan WN4 8AA
Report reference	4452R1
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The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to Ground First at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

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Issue	Date	Status	Comment	Author	Recipient
1	07-Oct-25	Final		AJS	JJ&K Developments Ltd

Report summary: contaminated land risks

The purpose of this Ground First report is to provide clear and pragmatic advice regarding the nature and potential significance of contaminated land hazards which may be present at the study site.

Potential contaminated land risks have been assessed by considering two key items:

1. The likelihood that **sources of contamination** are present within the sub surface beneath the site. This gives a measure of the potential for contamination to be occurring at the site.
2. The **consequence or severity of any impacts** should contamination be present. The consequence or severity of impact is inferred from the nature of any **potential receptors** (i.e., something that could be adversely affected by a contaminant, such as people, an ecological system, property or a water body) as well as any **relevant pathways** (i.e., a route or means by which a receptor can be exposed to or affected by a contaminant) relating to the site and the surrounding area.

The assessment findings are summarised as follows:

1. **Probability/likelihood** of contamination being present at the Site	High likelihood	
	Likely	
	Low likelihood	
	Unlikely	
2. Potential **severity/consequence** of any impacts	Severe	
	Medium	
	Mild	
	Minor	
3. **Overall land quality risks posed by the Site**	Very high	
	High	
	Moderate	
	Moderate/low	
	Low	
	Very low	

Risk Key:

Very High	High	Moderate	Moderate/Low	Low	Very Low
There is a high probability that severe harm could arise to a designated receptor from an identified hazard without appropriate remediation action	Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remediation action	It is possible that without appropriate remediation action harm could arise to a designated receptor. It is relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that such harm would be relatively mild	It is possible that harm could arise to a designated receptor from an identified hazard. It is likely any harm would be mild+B4:AM44	It is possible that harm could arise to a designated receptor from an identified hazard. It is likely that, at worst if any harm was realised any effects would be mild	The presence of an identified hazard does not give rise to the potential to cause harm to a receptor

Recommendations (for next steps)

✓	**Appropriate mitigation measures will be required in order to manage the identified health risks posed by the prevailing ground conditions present beneath the Site.** **The current development proposals include relevant mitigation measures, which must be implemented and verified in line with prevailing technical guidance and best practice.** **A watching brief should be maintained by the developer during all future groundworks activities in order to identify any signs of ground contamination.**	Based on the findings of the Phase 1 contaminated land risk assessment, a number of potentially significant contaminant linkages have been identified at the study Site, in the context of a future residential land use. The risk assessment has therefore identified a **Moderate risk** of in-situ contamination impacting on relevant human receptors (i.e., future Site residents). No significant risks have been identified in relation to local controlled waters receptors. In order to manage the identified contaminant linkages, the following mitigation measures are proposed - see Section 2.7 for further details (it is noted that the majority of these measures are included within the existing development proposals): - Suitable PPE and working methods will be adopted by all groundworkers. - A clean cover system will be created across all soft standing areas proposed within the rear garden space. - Barrier water supply pipe is recommended for use, should the water supply pipes be laid within any Made Ground. - A radon sump will be installed as part of the foundation construction. - The property foundation design will include appropriate gas protection measures including a ground bearing raft, passive ventilation and a gas resistant membrane. - The potential for aggressive ground conditions will be considered when specifying relevant building / foundation materials. - Any waste soils / Made Ground will require appropriate waste classification prior to being removed off-Site for appropriate treatment, re-use or disposal. - It is recommended that the appointed groundworks contractor maintains a watching brief throughout the construction phase of development. The remedial actions identified above will require independent validation / verification to ensure that they have been appropriately implemented

1. Introduction

1.1 Background

The study site (from herein known as 'the Site') occupies a c. 0.15 ha plot of brownfield land situated to the west of the existing Pendil property on Llangollen Road, Acrefair, Wrexham, LL14 3RS. A Site location plan is shown in Section 1.5. The recent Site setting is shown in Sections 1.6 and 1.7; this indicates the absence of any built structures on-Site; the neighbouring land use is predominantly residential. It is noted that groundworks have recently commenced on-Site, including general levelling activity and the excavation of the property foundation, the placement of a geotextile membrane across the southern part of the Site and the importation of sub soil (to be used in order to create a clean cover layer across external parts of the Site). Further details of the current Site condition are described in Section 2.5.

A planning consultation response was provided by the Council's contaminated land officer on 23 November 2023. This response included the following comments, *'It is noted that the proposed development is within 250 metres of a former landfill site known as 'Air products' and on an area of land subject to waste management exemption. In light of this, it will be necessary to condition any future consent so as to ensure that any potential contamination migration issues are adequately dealt with'*.

Planning approval was granted by the Council in March 2024 (further to application ref: P/2023/0746) for the erection of a new dwelling on-Site. The approved development plans are shown in Section 1.8. Key elements of the development include the following:

- The property foundation will comprise a 150 mm thick reinforced raft, void space and overlying block and beam floor.
- A radon sump will be incorporated within the property foundation.
- The detached garage structure to be constructed with a 250 mm thick reinforced concrete slab.
- The existing ground surface will be levelled and a minimum 0.6 m thick clean cover layer created across all soft standing areas. The cover layer will comprise a geotextile membrane, imported subsoil and a 0.1 m depth of imported topsoil.

The planning decision notice includes a condition (Nr 5) requiring 'a phased site investigation of the nature and extent of contamination' which may be present on-Site.

It is noted that a mining assessment and subsequent remedial ground improvement works (grouting) were undertaken at the Site in 2002 (see Section 3.7). These works were performed in support of a previous residential development proposal.

Ground First was commissioned by JJ&K Developments Ltd. (the Client) on 17 September 2025 to undertake an assessment of land contamination risks in response to planning condition Nr 5.

This report has been undertaken by firstly compiling information concerning the Site and the surrounding area, including current and historical land uses, geological records and registered pollution incidents, as well as observations made during a Site inspection. The information which is gathered has then used to construct a 'conceptual site model', including an understanding of likely contaminant sources, pathways and receptors. Finally, a preliminary assessment of risks posed to identified receptors (i.e., people, buildings or the natural environment) from the anticipated land quality at the Site has been performed. The risk assessment methodology is consistent with CIRIA C552 (2001); see Section 3.4 for details.

1.2 Purpose of this report

The purpose of this report is to provide clear and pragmatic advice regarding the nature and potential significance of any contamination hazards which may be present at the Site.

1.3 Report contents

This report is divided into two sections, as described below:

Section	Content	Purpose
Section 2: **LAND QUALITY ASSESSMENT**	A summary of the site history and environmental setting, the findings of the preliminary risk assessment and associated recommendations	To present a clear and concise overview of the land quality issues facing the Site, including recommendations of how to manage any land contamination which may be present
Section 3: **SUPPORTING INFORMATION**	A collection of site specific information on which the land quality assessment is based	To provide detailed information in support of the risk assessment; this section also represents a source of reference data for use in any subsequent site works/assessments

1. Introduction

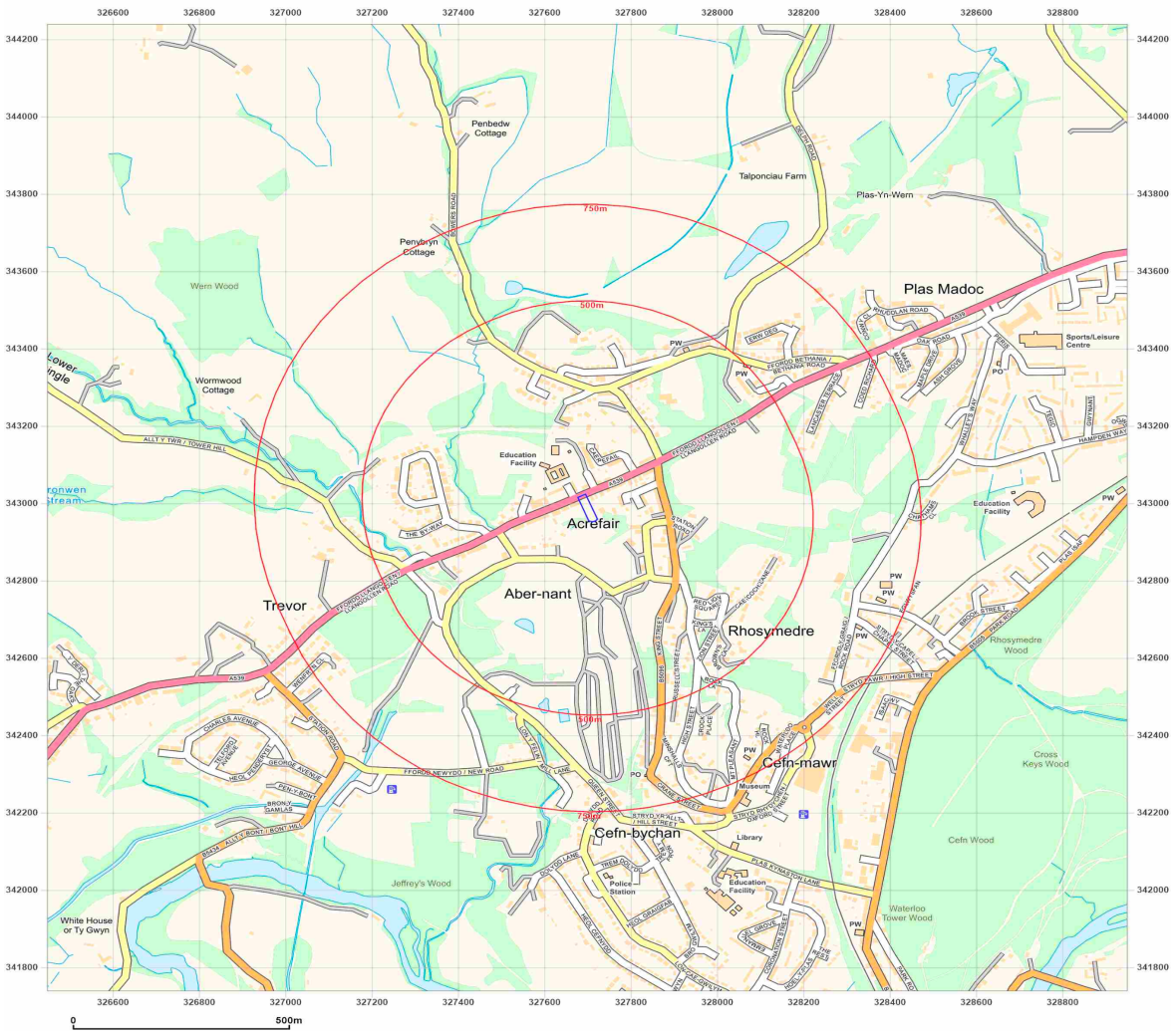
1.4 Report limitations

It is noted that the findings presented in this report are in part based on information supplied by third parties. Whilst we assume that all information is representative of past and present conditions we can offer no guarantee as to its validity.

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

1. Introduction

1.5 Site location plan



Site boundary shown as blue line

1. Introduction

1.6 Site layout - pre development



Site boundary shown as red line

Aerial image taken in 2021 (prior to recent groundworks activities)

1. Introduction

1.7 Site profile - pre development





Point	Level
a	10.000
b	10.151
c	10.131
d	9.742
e	8.753
f	8.003
g	8.003
h	8.303
i	10.088
j	8.203

Site boundary shown as red dotted line

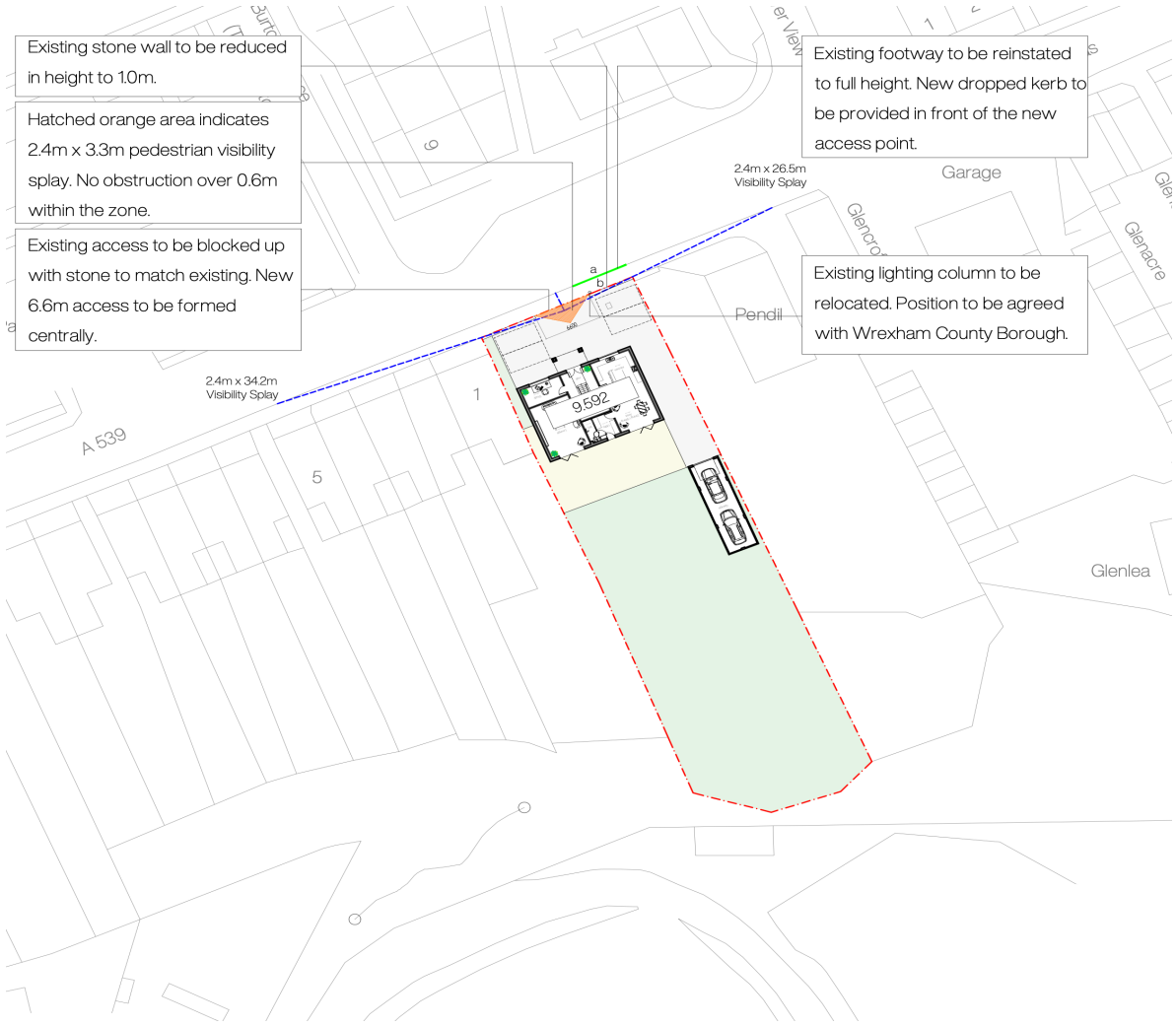
Note: level survey information pre-dates recent groundworks / levelling activity



View across development Site prior to Site clearance and initial groundworks - former rail embankment evident to rear

1. Introduction

1.8 Approved development plan

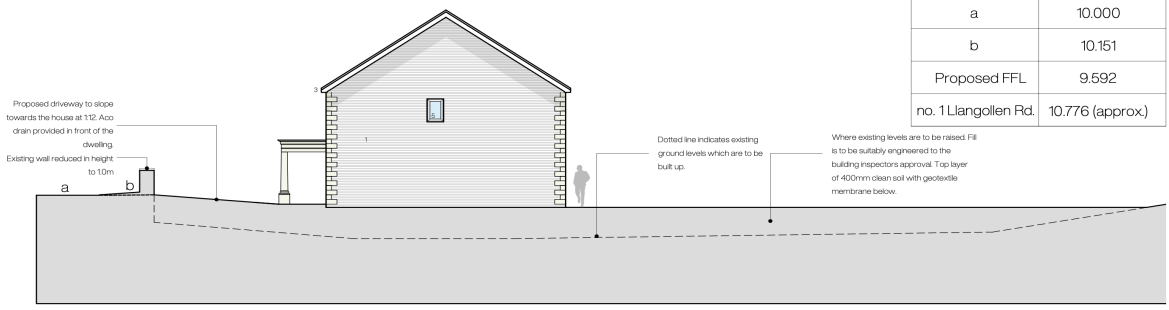


Site boundary shown as red dotted line

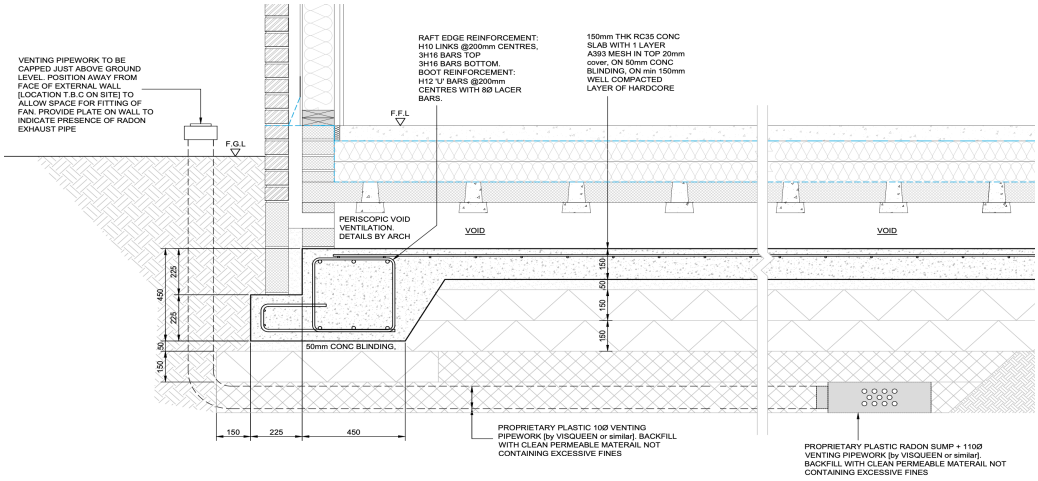
1. Introduction

1.8 Approved development plan

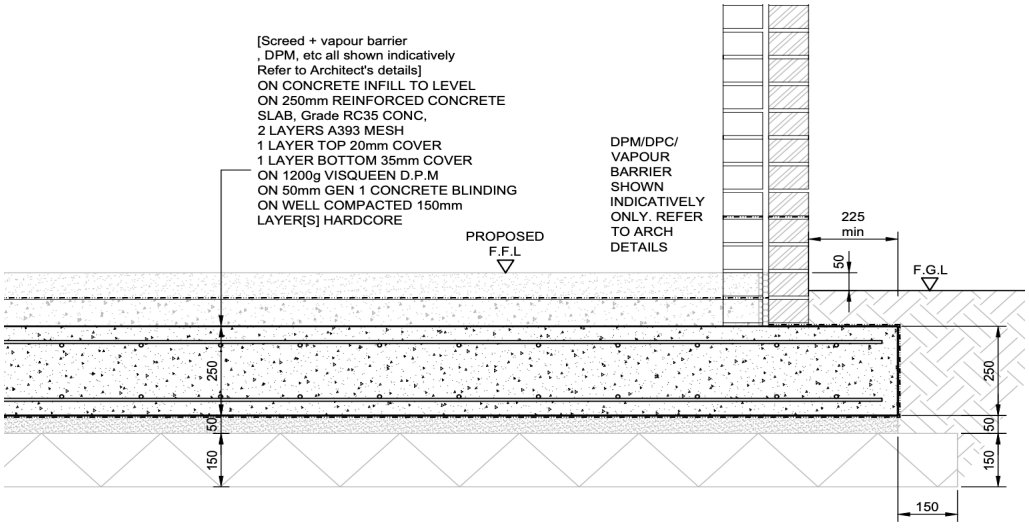
Point	Level
a	10.000
b	10.151
Proposed FFL	9.592
no. 1 Llangollen Rd.	10.776 (approx.)



Site section (North-South) post-development



Property foundation design - including raft, void space and radon sump



Garage foundation construction - including 250 mm thick reinforced concrete slab

2. Land quality assessment

2.1 Site details

Site name:	Land west of Pendil, Llangollen Road, Acrefair, Wrexham, LL14 3RS	Current land cover:	The Site is currently subject to initial groundworks associated with the approved development; no built structures are as yet present
Current use:	Undeveloped land (groundworks commenced on Site in Feb / March 2025)		
End use:	Detached residential dwelling with private garden space	Site area:	c. 0.15 ha

2.2 Conceptual understanding (potential sources of contamination)

Site history
(historical land use based on mapping presented in Section 3.5)

Date	Description of land use
1875 1:2,500 scale mapping	The southern half of the Site is largely occupied by a rail line and associated embankment; the northern half of the Site appears to be undeveloped, as does the adjoining land immediately to the east and west. The present-day Llangollen Road is evident along the northern edge of the Site; a row of assumed terraced properties is mapped on the opposite side of the road. Old coal shafts are mapped c. 115 m north, c. 120 m north-west, c. 165 m north-east, c. 175 m to the east, c. 190 m north-west, c. 200 m and 240 m north-east, and c. 235 m to the south (note: no shaft is mapped close to the north-western corner of the Site, as shown on the Consultants Coal Mining report obtained for the Site - see Sections 2.3 and 3.6). Assumed mining spoil heaps are evident around the shaft locations with further modest heaps mapped c. 40 m south-west, c. 65 m east and c. 85 m south-east. A further rail line is mapped c. 125 m to the north. A gasworks, including one gas holder, is mapped c. 130 m to the south-east. An iron works is recorded c. 205 m north-east. An iron foundry is shown c. 200 m to the south.
1899 1:2,500 scale mapping	The Site remains as previously. Additional shafts are labelled c. 90 m to the south. Further residential properties are evident c. 40 m to the west. The gasworks located to the south-east has expanded, including the construction of a second gas holder.
1912 1:2,500 scale mapping	No obvious land use changes are evident on-Site. Terraced properties are mapped adjacent to the north-western edge of the Site (note: according to a plaque observed during the Site inspection, the neighbouring properties were erected in 1901). An air shaft is mapped c. 65 m to the south. The pre-existing shaft mapped c. 90 m to the south is labelled as a 'clay' shaft. A small section of suspected drainage (c. 25 m in length) is evident c. 25 m to the south-west of the Site - it is assumed that the wider drainage channel is culverted.
1938 1:10,560 scale mapping	No significant land use changes are evident on-Site or within the surrounding land area.
1949 1:10,560 scale mapping	No obvious land use changes are evident on-Site. Miscellaneous commercial / industrial development is evident from c. 60 m to the south / south-west of the Site.
1962-1963 1:2,500 scale mapping	No obvious land use changes are evident on-Site; the railway and embankment remain in the south of the Site. A structure is mapped directly to the east of the Site (in the position of the present-day Pendil property). A suspected garage is evident c. 25 m to the east / north-east; a series of suspected lock-up garages are shown to the rear of the garage (from c. 15 m to the east of the Site). The complex of pre-existing buildings to the south appears to be a sports complex (including a tennis court, bowling green, pavilion, etc). The gasworks is no longer mapped to the south-east; a 'works' is now evident in this area - two circular features remain, albeit larger than, and in slightly different positions, to the previous gas holders.

POTENTIAL SOURCES OF CONTAMINATION

Source description

The land use history suggests that there is potential for ground contamination to be present at the Site and/or within the surrounding land area. Potential sources of contamination include:

Made Ground is known to the present across the Site, including suspected mining spoil (as identified during drilling works performed in 2002 - see Section 3.7) plus materials used in the construction of a former railway embankment (present in the south of the Site). The Made Ground could include a range of potential contaminants.

Former railway land in the south of the Site may have given rise to localised ground contamination associated with both historical engine and rolling stock use (i.e., coal residues, oils and lubricants, diesel, etc.) plus any relevant land management activities (potentially including the application of herbicides to control vegetation growth).

Coal mining activity is known to have occurred across the local area (including directly beneath the Site - see Sections 2.3 and 3.7); the presence of worked coal seams may have given rise to residual mine gasses.

The long standing **garage premises** (including possible fuel retailing) situated c. 20 m to the east / north-east may have given rise to various contaminants including the potential for petroleum hydrocarbons.

The former **lock-up garages** positioned from c. 15 m to the east of the Site may have resulted in some localised ground contamination (i.e., relating to low volume fuel or chemical storage, vehicle storage and repairs/respraying, etc.) albeit any such impacts are likely to be constrained by the modest scale of these uses and the assumed presence of concrete flooring within the lock-up units.

Potential for miscellaneous **low-level domestic waste disposal** associated with the long-standing residential land uses bordering the Site to the east and west.

***Note**: the former gasworks, iron works, iron foundry, chemical works, engineering works, etc. identified on historical land use mapping are not considered to have given rise to significant ground contamination (in relation to the Site itself) given the reasonable distance of these features from the Site (>100 m) and also the time that has elapsed since the closure of these industrial activities.*

LIKELY

PROBABILITY OF CONTAMINATION

2. Land quality assessment

2.2 Conceptual understanding (potential sources of contamination)

Site history (historical land use based on mapping presented in Section 3.5) Cont.	1972-1977 1:2,500 scale mapping	The rail line formerly present in the south of the Site appears to have been dismantled; the embankment however remains in place. The former rail line c. 125 m north is also shown to be dismantled. The northern half of the Site remains undeveloped. The properties to the north of the Site have been cleared; a car park is shown c. 20 m to the west. The building c. 25 m east / north-east of the Site is confirmed to be a garage.	POTENTIAL SOURCES OF CONTAMINATION	*As above*	**LIKELY**	**PROBABILITY** OF CONTAMINATION
	1988-1992 1:1,250 scale mapping	No obvious land use changes are evident on-Site. Residential development is evident from c. 20 m to the north of the Site.				
	1994 1:1,250 scale mapping	No obvious land use changes are evident on-Site. The former rail line and associated embankment situated c. 190 m to the east of the Site has been cleared; this area now includes an extension to a pre-existing engineering works.				
	2003 1:1,250 scale mapping	No obvious land use changes are evident on-Site or within the surrounding land area.				
	2006 Aerial photography	The Site appears to be largely covered by vegetation, including mature trees at the southern end of the Site. An area of exposed ground / possible hard standing is evident in the north of the Site, along with a possible section of retaining wall (note: this may relate to a previous residential development proposal, as referenced in the 2002 ground investigation report - see Section 3.7). The former railway land neighbouring the Site is also heavily vegetated. The garage situated c. 30 m to the east / north-east includes a canopy structure to the front; there are no vehicles or other signs of activity in and around the garage building. Extensive car parking is evident from c. 30 m to the south.				
	2009-2012 Aerial photography	The Site is covered entirely in vegetation. The car parking areas to the south of the Site appear to have been disused by 2012. The former engineering works situated c. 220 m to the east of the Site was cleared between 2010 and 2012.				
	2018 Aerial photography	The Site remains covered by vegetation including tree cover in the southern half of the Site. The rear gardens associated with the neighbouring properties to the west have been extended south across the former railway embankment. The car parking areas to the south are derelict / overgrown. The industrial land c. 140 m to the south has been entirely cleared. The Air Products Landfill located c. 180 m north-east (see 'landfills and waste sites' section below) is heavily vegetated, including mature trees.				
	2020-2021 Aerial photography	The former tree cover had been cleared from the southern half of the Site by 2020; aerial images from April 2021 indicate that the Site (and neighbouring land to the south-east) had been cleared of all vegetation and potentially levelled (this activity may have related to a 2021 planning permission for residential development (see Section 2.4)); the Site had however been revegetated by late 2021.				
	2025 1:10,000 scale mapping	Note: initial groundworks are evident on aerial imagery taken in May 2025, including some material stockpiling.				

2. Land quality assessment

2.2 Conceptual understanding (potential sources of contamination)

Site history (historical land use based on mapping presented in Section 3.5)	Additional information	The EnviroInsight report (see Section 3.3) contains the following additional information: - There are no historical fuel filling stations recorded within 500 m of the Site. It is however noted that the garage located c. 25 m to the north-east of the Site has a relic canopy structure. - There are no records of any military land within 500 m of the Site. - The Flexsys Rubber Chemicals Ltd. Ruabon Works site (used for the manufacture and use of organic chemicals) was previously located c. 140 m to the south-west of the Site. The works appears latterly to have been operated by Solutia UK Ltd., Dupont Air Products Nanomaterials Ltd., and Air Products Electronics Advanced Materials Europe Ltd. - Assorted BritPits (associated with former coal, clay and shale mining) have been identified within 200 m of the Site, including c. 85 m south, c. 105 m south and c. 185 m north-west. Multiple other surface ground workings are mapped within 100 m of the Site. The Client has provided the following information relating to the land use history: - The land has been under the current ownership for the last 3 years; the Client is not aware of any contamination that has occurred within this period. - There has been no known development activity on-Site (other than the historical railway embankment). - The initial groundworks performed during early 2025 included the clearance of all former tree cover, the redistribution of the railway embankment materials across the Site, and compaction of the resultant development platform. - No off-Site waste disposal has taken place since the commencement of the current development activity.	**POTENTIAL SOURCES OF CONTAMINATION**	*As above*	**LIKELY**	**PROBABILITY** OF CONTAMINATION

2. Land quality assessment

2.2 Conceptual understanding (potential sources of contamination)

Current land use

The Site is currently occupied by a brownfield development plot; there are no built structures situated on-Site although initial groundworks have recently commenced including general levelling activity and the excavation of the property foundation, the placement of a geotextile membrane across the southern part of the Site and the importation of assorted sub soil (to be used in order to create a clean cover layer across external parts of the Site). Further details of the current Site condition are described in Section 2.5.

Photographs showing the current Site condition are included in Section 3.2.

The current Site use is considered unlikely to be associated with any significant contaminant sources.

UNLIKELY

Neighbouring industrial land uses *(see environmental data report in Section 3.3 for full listing)*

The following commercial / industrial land uses have been identified within 100 m of the Site based on available data records:

Nr	Nearest distance	Land use / permitted activity / authorisation
1	Close to Site	Fuel station entries
0	NA	Gas pipelines and high voltage underground cables
0	NA	Control of major accident hazards sites (COMAH) or regulated explosive sites
0	NA	Hazardous substance storage / use in accordance with the Planning (Hazardous Substances) Regulations 2015
0	NA	Notification of installations handling hazardous substances (NIHHS) sites
0	NA	Sites determined as Contaminated Land under Part IIA of the Environmental Protection Act 1990
0	NA	Licensed discharges to controlled waters
0	NA	Historical licensed industrial activities (IPC)
0	NA	Licensed industrial activities (Part A(1) or Part A(2)/B).

No recent industrial land uses are recorded in the EnviroInsight data report within a 50 m radius of the Site.

The EnviroInsight report includes a recorded obsolete petrol station on-Site. It is assumed that this record refers to the former garage premises situated c. 20 m to the east / north-east of the Site; this premises is currently operated as a hand car wash.

LOW LIKELI-HOOD

Radon

According to a Site-specific radon report (centred on the neighbouring property to the south-west - see Section 3.9) the Site lies in an area where between 5% and 10% of homes are at or above the UK radon action level (200 Bq/m3).

Basic radon protection measures will be required as part of the proposed Site redevelopment. Note: a radon sump is included within the current foundation design (see Section 1.8), which is understood to have been approved by Building Control.

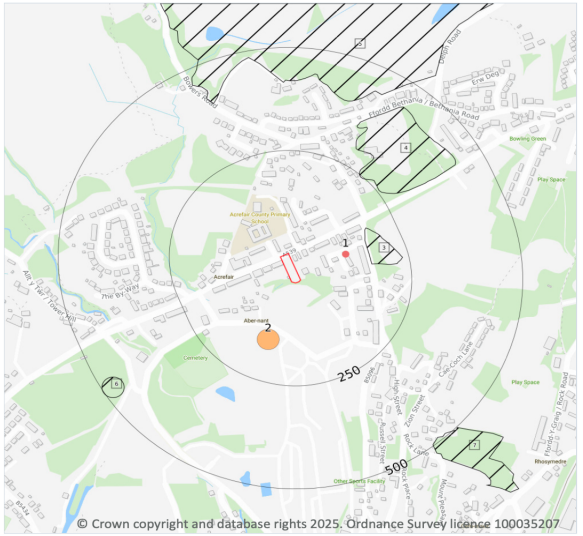
LOW LIKELI-HOOD

POTENTIAL **SOURCES** OF CONTAMINATION

PROBABILITY OF CONTAMINATION

2. Land quality assessment

2.2 Conceptual understanding (potential sources of contamination)

EA recorded pollution incidents	No Environment Agency (EA) / Natural Resources Wales (NRW) pollution incidents have been recorded within 100 m of the Site.	POTENTIAL **SOURCES** OF CONTAMINATION	No associated contamination hazards have been identified in relation to the study Site.	**NEGLIGIBLE**	**PROBABILITY** OF CONTAMINATION
Landfills / waste sites *(see environmental data report in Section 3.3 for full listing)*	There are no Environment Agency (EA) listed active or recent landfills located within 500 m of the Site. There are no British Geological Survey (BGS) or Local Authority listed historical landfills recorded within 500 m of the Site. The following EA / NRW listed historical landfills are recorded within 250 m of the Site: The Air Products landfill is located c. 170 m to the east of the Site (shown as ref: 3 on the adjacent plan). Details contained in the EnviroInsight report (see Section 3.3) indicate that the landfill was licensed to Air Products UK Ltd. (who operated an engineering works on the adjoining land up until 2009) for the disposal of inert and industrial wastes. The landfill is recorded as having been operational between 1977 and 1991. The licence was surrendered in 1993. The landfill extents shown on NRW records (as per the adjacent plan) correspond to an area of land situated between King Street and two former railway lines; this land was partly occupied by sizeable railway embankments which pre-dated the first available land use mapping (produced in the 1870s); additional land raising (including possible mining spoil?) is mapped in this area during the early 1900s. The mapped landform remained unchanged up until the mid 1990s, at which time the area appears to have been remodelled, including the construction of new industrial buildings over the southern eastern part of the recorded landfill. Based on available land use mapping, the Air Products landfill appears most likely to have been formed by placing waste materials over long-standing Made Ground (i.e., wastes are likely to be present 'above' ground opposed to within a former excavation or depression). Further information relating to the landfill was provided by the Council following an environmental information request (see Section 2.4). It is noted that Council records, as supplied by Environment Agency Wales, suggest that the landfill received only inert wastes. A second Air Products landfill is located c. 250 m to the north-east of the Site (shown as ref: 4 on the adjacent plan). The landfill was licensed to Air Products UK Ltd. for the disposal of inert and industrial wastes. The landfill is recorded as having been operational between 1950 and 1960. There is no available information relating to the licence surrender. There are no recorded waste exemptions within 100 m of the Site. Note: a waste exemption appears to have been registered for the study Site in 1991 for the use of appropriate waste materials in construction (see Local Authority Consultation information presented in Section 2.4). The following historical waste sites are recorded within 500 m of the Site: A waste transfer station planning application (Denbighshire B.C.) was associated with the FlexysRubberChemical / Ruabon Works site situated c. 125 m to the south of the Site (shown as ref: 2 on the adjacent plan). The application related to hazardous substance consent for storage and use of 37 tonnes of substance classified as 'very toxic'. There are no licensed waste sites recorded within 500 m of the Site.		The historical landfills identified within 250 m of the Site could potentially pose a contaminant risk to the Site (predominantly through the migration of any ground gases), should any relevant contaminant linkages be present. It is noted that potential gas risks will be constrained by the reasonable distance to the recorded landfills and also the time that has elapsed since infilling ceased. 	**LOW LIKELI-HOOD**	

2. Land quality assessment

2.3 Conceptual understanding (environmental sensitivity / potential severity of impacts)

Geology and groundwater
(see the environmental data report in Section 3.3 for full details)

British Geological Survey (BGS) mapping indicates that the Site and surrounding land are underlain by superficial Till deposits (comprising of diamicton) - see adjacent map. The superficial deposits are classified as a Secondary Undifferentiated Aquifer. The groundwater vulnerability of the superficial aquifer is classified as Low.

BGS mapping indicates that the bedrock geology consists of the Pennine Lower Coal Measures Formation (mudstone, siltstone and sandstone) which is classified as Secondary A Aquifer. The groundwater vulnerability of the bedrock aquifer is classified as Low to Medum.

An inferred coal seam is mapped at outcrop (ground surface) directly adjacent to the north-western corner of the Site (trending approximately north-south).

BGS mapping indicates the absence of any appreciable artificial ground / Made Ground within 500 m of the Site. Note: this appears to be inconsistent with the known presence of legacy colliery spoil within the local area.

A Consultants Coal Mining report was obtained for the study Site in September 2025 (see Section 3.6). Salient information contained within the Coal Mining report includes the following:

- Past underground mining has occurred locally including several worked seams present within 40 m of the ground surface beneath the Site.
- Probable unrecorded shallow workings are recorded below the Site.
- The Fireclay Group (Stone) seam is mapped at outcrop c. 3 m to the west of the Site.
- A single mine entry is recorded within 50 m of the Site; this feature is positioned c. 10 m to the west of the Site (i.e., below the neighbouring properties).
- No faults, fissures or breaklines are recorded local to the Site.
- No Coal Authority manged tips are located within 500 m of the Site.
- The Coal Authority has not received a damage notice or claim for the Site, or any property within 50 m of the enquiry boundary, since 31 October 1994.
- No mine gas incidents have been recorded within 500 m of the Site.
- No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

BGS borehole record SJ24SE428 is located on-Site (albeit the positional accuracy of the borehole is listed as +/- 100 m); the boreholes was drilled to a depth of 35.96 m bgl in 1941. The borehole log recorded a 1.4 m layer of clay, over 2.9 m of shale, 3 m of Blue Marl, and c. 27 m of 'Silica Rock'. A narrow band of fire clay was also recorded at a depth of c. 7.6 m bgl.
The static water level (SWL) was reported to be 13 feet below surface (c. 4 m bgl)

Note: additional exploratory boreholes were drilled at the study Site during 2002 as part of a ground investigation / mining risk assessment (see below).

There are no mapped Source Protection Zones (SPZ) within a 500 m radius of the Site.

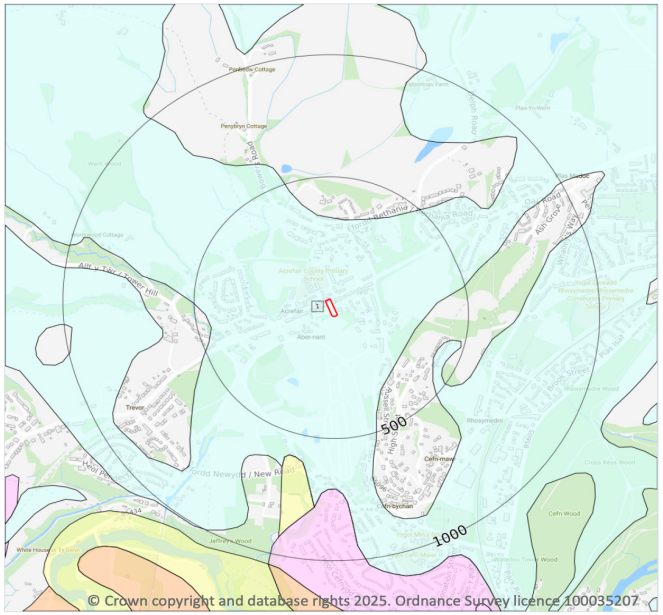
There are no licensed groundwater abstractions within 1 km of the Site.

The Enviro Insight report indicates that there is a Low risk of groundwater flooding at or within 50 m of the Site.

POTENTIAL **RECEPTORS**

A Secondary (Undifferentiated) Aquifer is assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

A Secondary (A) Aquifer comprises permeable layers capable of supporting water supply at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.



BGS superficial geology - Till deposits shaded in blue

MILD

POTENTIAL SEVERITY OF IMPACT

2. Land quality assessment

2.3 Conceptual understanding (environmental sensitivity / potential severity of impacts)

		POTENTIAL RECEPTORS		POTENTIAL SEVERITY OF IMPACT
Geohazards	The Site is located within a Mining Remediation Authority Coal Mining Development High Risk area. Ground investigation works performed in 2002 confirmed the presence of shallow coal workings beneath the Site. The Site is not mapped at a location which has potentially been affected by salt or brine extraction. Borehole records relating to a ground investigation performed on-Site during 2002 (see below) confirm the presence of Made Ground deposits beneath the Site - including a c. 1.1 m thickness of colliery spoil. No specific natural hazards (with a hazard rating of moderate or above) have been recorded by the BGS at the Site.		Possible geohazards have been identified from the available desk-based and ground investigation information. Legacy ground stability issues associated with former coal mining activities appear to have been addressed (to the satisfaction of the Coal Authority - see below planning consultation comments) by remedial grouting works undertaken in 2002. It is understood that residual ground stability risks (posed by both shallow coal workings / possible mine entries and local Made Ground) will be addressed through the specification of an appropriate raft foundation (see Section 1.8).	**MEDIUM**	
Surface water *(see the environmental data report in Section 3.3 for full details)*	A small section of drainage channel (c. 20 m in length) is mapped c. 20 m to the south-west of the Site. The channel appears to be culverted upstream and downstream of the open section. The drainage feature is assumed to flow towards the south-west, entering a larger watercourse (Trefnant Brook) c. 375 m to the south-west of the Site. Note: the open drainage channel was not accessible during a recent Site visit (see Section 2.5); no evidence of an open channel was observed in around The Oaks public highway situated to the south-west of the Site, confirming the culverted nature of the water feature. The Site is located within fluvial Flood Zone 1. There are no licensed surface water abstractions within 1 km of the Site.		The nearby inland river could potentially be impacted by any on-Site ground contamination, should any relevant contaminant linkages be present. It is noted that any pollution risks may be constrained by the largely culverted nature of the watercourse.	**MILD**	
Environmental designations *(see the environmental data report in Section 3.3 for full details)*	There are no environmentally designated sites recorded within 250 m of the Site.		Given the absence of any designated sites, no associated contamination risks have been identified.	**NEGLIGIBLE**	
Human receptors	Proposed residents/users of the Site.		Human receptors are proposed to be present on Site.	**SEVERE**	

2. Land quality assessment

2.3 Conceptual understanding (environmental sensitivity / potential severity of impacts)

Ground investigation information *(see Section 3.7 for full details)*	A mining investigation report was prepared for the study Site in August 2002 by Nkc Geotech Ltd. (see Section 3.7). This report provides summary information concerning the following ground investigation: - The drilling of one borehole to a depth of 30 m in the north of the Site (below the proposed building footprint). - The 'foundation soils' comprised of colliery derived shale fill to a depth of 1.1 m, overlying firm brown sandy clay to a depth of c. 3.0 m bgl. Soft dark grey to black shale was recorded below 3.0 m bgl. - A 0.9 m thick coal seam was recorded at a depth of 9.2 m bgl; the Yard Coal seam (1.3 m thick) was recorded at a depth of 13.2 m bgl. - Predominantly collapsed pillar and stall workings were reported within the Yard Coal seam at 13.5 m bgl. - No methane or carbon dioxide emissions (both recorded as 0%) were measured during the investigation ('in hole gas testing'). The August 2002 report concluded that, *'there are old and unrecorded mineworkings present in the Yard Coal. Subsidence of these workings could cause crown holes to be formed on the site, with dimensions of up to 1.4 deep and 1.9 m diameter'*. In response to this, the report recommended that ground improvement works be undertaken including the stabilisation of the mineworkings by grouting. A follow-up mining report was prepared by Nkc Geotech Ltd. in September 2002 (see Section 3.7). This report provides summary information concerning the following ground improvement works: - Eight holes were drilled into the Yard Coal workings, typically to a depth of 15 m bgl. The holes were subsequently grouted using a 4:1:1 mix of sand: PFA: cement (two of the eight holes required no grouting). In total,12.9 tonnes of grout was injected. The holes were positioned at a 3 m to 6 m spacing across the proposed building footprint and immediate surroundings. - Soil quality testing was performed on two samples derived from two separate boreholes; both boreholes were taken from a depth of 0.5 m bgl. The soil quality results for arsenic and PAHs were reported to exceed prevailing domestic threshold concentrations (which were considered to be protective of human health). Sulphate concentrations were also reported to be high. In the context of present-day soil screening values, the 2002 soil quality data do not exceed published Generic Assessment Criteria (including S4UL values) although the reported total PAH concentrations could potentially show evidence of contamination (note: speciated PAH results are not available from the 2002 testing). The September 2002 report concluded that a raft foundation was required, designed to span a 3 m width. A 500 mm clean cover layer comprising of clean imported topsoil was also recommended across all garden areas.

2. Land quality assessment

2.4 Planning consultation responses (application ref: P/2023/0746)	
Local Authority	The Council's contaminated land officer provided a consultation response on 23 November 2023 in relation to planning application (P/2023/0746). The response included the following comments: *It is noted that the proposed development is within 250 metres of a former landfill site known as 'Air products' and on an area of land subject to waste management exemption. In light of this, it will be necessary to condition any future consent so as to ensure that any potential contamination migration issues are adequately dealt with.*
Natural Resources Wales (NRW)	NRW provided a consultation response on 21 March 2024 in relation to planning application (P/2023/0746). The response included the following comments in relation to land quality: *We note that there is a record of a historic landfill site 170m from the proposed development site. Natural Resources Wales considers that the controlled waters at this site are not of the highest environmental sensitivity, therefore we will not be providing detailed site-specific advice or comments with regards to land contamination issues for this site. It is recommended that the requirements of Planning Policy Wales and the Guiding Principles for Land Contamination (GPLC) should be followed. These comments are based on our assumption that gross contamination is not present at this location. If, during development, gross contamination is found to be present at the site the Local Planning Authority may wish to reconsult Natural Resources Wales.*
Coal Authority (now Mining Remediation Authority)	An initial response was provided by the Coal Authority (planning and development manager) on 11 December 2020; this included the following comments: *I have reviewed the proposals and confirm that the application site falls within the defined Development High Risk Area; therefore within the application site and surrounding area there are coal mining features and hazards which need to be considered in relation to the determination of this planning application.* *The Coal Authority records indicate that the site lies within an area of both recorded and historic unrecorded coal mining and within 20m of the site boundary, to the west of the site, is a recorded mine entry (CA ref: 327342-406). However based on the information that we hold it is unlikely that this mining feature will affect this particular development.* *The planning application is accompanied by 2no. Mining Investigation Reports, dated 14 August 2020 and 18 September 2002 prepared for the application site by Nkc Geotech Ltd. These Reports have been informed by the findings of intrusive site investigations that confirmed that shallow coal mine workings are present beneath the site. Appropriate drawings / borehole logs are appended to the Reports. We note that ground stabilisation works were subsequently carried out by Mr Neil Catlow (Engineering Geologist) at Nkc Geotech Ltd and recommendations have been made that foundation design (raft foundation to span 3.0m) will also be required.* *The Coal Authority considers that the content and conclusions of the Mining Investigation Reports, dated 14 August 2020 and 18 September 2002, based on the professional opinion of Nkc Geotech Ltd. are sufficient for the purposes of the planning system in demonstrating that the application site has been made safe and stable for the proposed development. The Coal Authority therefore has no objection to the proposed development. However further consideration of foundation design / gas protection measures will be required as part of the applicant's subsequent building regulation application.* A subsequent consultation letter was issued on 6 December 2023; this letter confirmed that the Coal Authority did not object to the application but maintained the views contained within the earlier response (dated 11 December 2020).

2. Land quality assessment

2.4 Additional Local Authority consultation

An Environmental Information Request (EIR) was submitted to Wrexham County Borough Council (WCBC) on 22 September 2024, requesting any relevant information held by the Council, including further details of the former Air Products landfill recorded c. 170 m to the north-east of the Site, plus details of the waste management exemption referenced in the Council's November 2023 planning consultation response (see above).

A response was provided by WCBC on 2 October 2025 (see Section 3.8). The information supplied by the Council included the following:

Based on information formerly supplied by the Environment Agency Wales (EAW), the former Air Products Landfill was situated c. 173 m to the east of the Site. The landfill licence was active between 1977 and 1992 and was surrendered in April 1993. The EAW records suggest the landfill received 100% inert waste. The assumed waste depth was 2 m. There are no available records relating to the landfill construction / engineering. In addition there is no available ground investigation information relating to the landfilled area.

EAW records also refer to the former Air Products Social Club Landfill situated c. 251 m to the north-east of the Site. The final recorded waste input was in 1960. The EAW records suggest the landfill received 80% industrial waste and 20% inert waste. The assumed waste depth was 3 m.

A waste management exemption was registered with the Environment Agency by CM Edwards for the 'adjoining land to pendil, Llangollen Road' in May 1999. The exemption appears to relate to the storage and use of waste materials for construction purposes. A letter issued by the Environment Agency to CM Edwards on 18 May 1999 outlines the general terms of the exemption, including a requirement for any imported waste to be clean and uncontaminated. It is uncertain whether any wastes were imported under this exemption, however, WCBC comments indicate that the exemption was registered in connection with an earlier planning application - given that no development activity appears to have been undertaken on-Site since 1999 (other than that commenced in 2025), it is less likely that any wastes were imported under the previous exemption.

The Contaminated Land Team has not determined any land as 'contaminated land' under Part 2A of the Environmental Protection Act 1990 within this area of the County Borough, therefore the Team is not aware of any Contaminated Land issues relating to the site or immediate surrounds.

2. Land quality assessment

2.4 Planning records

The WCBC on-line planning register was inspected in order to collate any relevant information from previous planning submissions associated with postcodes LL14 3RS and LL14 3RT.

Planning approval was granted by the Council in April 2021 (further to application ref: 'P/2020/0771) for the erection of a dwelling with a new vehicular access at the study Site. The decision notice did not include any specific conditions relating to land contamination (albeit a consultation response provided by the Council's contaminated land officer on 3 December 2020 recommended that a condition be attached to any planning approval, requiring the phased assessment of any contaminated land risks). The mining assessment reports described above (and reproduced in Section 3.7) were submitted in support of this application. Note: it is assumed that the 2002 mining investigation and ground improvement works were performed in anticipation of an earlier residential development at the study Site; however, no associated planning records are available on the Council planning portal (no residential development was undertaken on-Site during the early 2000s).

Planning approval was granted by the Council in October 2013 (further to application ref: P/2013/0434) for the erection of three dwellings at the Garage, Llangollen Road, Acrefair (i.e., c. 20 m to the east / north-east of the Site). Note: the planning decision notice plus any supporting documents were not available on the Council's planning portal at the time of reporting.

No residential development has taken place at the former garage premises to date.

2. Land quality assessment

2.5 Site inspection (see photographs in Section 3.2)

Inspection date	22/09/2025	General site condition	The Site was under development at the time of the Site inspection; security fencing was present along the Site frontage and recent groundworks and material importation activities were evident. The Site appeared to be generally tidy and well managed.
Ground First consultant	Andy Singleton	Site contact (position)	Chris Rowe (land owner)
Topography	The natural Site topography appears to have been modified both historically and also as a result of recent development activity. Historical OS mapping indicates the presence of a raised railway embankment in the south of the Site. The original embankment landform remained evident to the south-east of the Site during the walkover (see Photograph 24 in Section 3.2); the upper surface of the embankment was of the order 2.0 m to 2.5 m above the typical Site ground level. The Client has indicated that at the time of the Site purchase (in 2022) the embankment sloped down towards the west, including a c. '4 foot step' within the embankment profile; as such, the height of the embankment in the south-west of the Site was (prior to the 2025 groundworks) around 1 m above the current ground level (see Photograph 17 in Section 3.2). Groundworks performed during February / March 2025 included the levelling of the former railway embankment; the excavated materials are understood to have been spread across the majority of the Site area in order to create a level development platform (note: based on level survey information supplied by the Client (see Section 1.7), the central and northern parts of the Site were previously of the order 2 m lower than the neighbouring public highway and c. 1.6 m below the finished property floor level). As a result of the initial groundworks, the main Site surface was observed to be relatively flat and level during the Site inspection (see Photograph 3 in Section 3.2). The main exceptions to this included a c. 0.5 m deep foundation excavation located in the north of the Site (see Photographs 7 and 8 in Section 3.2) and the placement of a c. 0.2 m to 0.3 m thickness of imported sub soil (and the creation of temporary sub soil stockpiles) in the south of the Site - see Photographs 13, 21 and 25 in Section 3.2. The land to the south of the Site slopes away steeply to the south / south-west. The Site ground levels were typically of the order 0.6 m to 1.0 m lower than the adjacent property to the west (see Photographs 17 and 28 in Section 3.2). The prevailing Site levels were c. 0.4 m to 0.5 m higher than the Pendil property to the east (facilitated by a retaining wall), although levels were broadly consistent between the Pendil rear garden / detached garage and the study Site (see Photographs 5 and 26 in Section 3.2).	Ground cover	The Site had been cleared of all former vegetation - see Photographs in Section 3.2. The Client has indicated that previous tree cover was removed from the southern part of the Site in c. February 2025. The ground surface across the central and northern parts of the Site largely comprised of Made Ground (see Photographs 8 to 10 in Section 3.2) including suspected mining spoil. Imported subsoil was evident in the south of the Site (see Photographs 13, 15, 16 and 17 in Section 3.2). Imported quarry stone was also observed at the front edge of the Site (see Photographs 3 and 6 in Section 3.2) and also along the proposed driveway in the north-east (see Photograph 5 in Section 3.2).
Current site land use	The Site was under development at the time of the Site inspection - the Client has indicated that development activity commenced in February / March 2025. Initial groundworks included the redistribution of the rail embankment fill previously located in the south of the Site, the excavations associated with the property foundation, plus the placement of a geotextile membrane across the southern part of the Site and the importation of assorted sub soil (intended to create a clean cover layer across external parts of the Site). The sub soil has been supplied by DNT Group Ltd. and is understood to originate from an agricultural field relating to a local development site. Some of the sub soil had been placed over the geotextile with additional stockpiles of soil evident across the southern end of the Site. The placed soil typically comprised of tan brown slightly gravelly silty sand with minimal man-made material (see Photographs 19 and 20 in Section 3.2); the stockpiled soils typically included mid to dark brown gravelly silty sand - occasional brick fragments were observed within selected stockpiles.	On-Site structures	There were no built structures present on-Site (see Photographs in Section 3.2).

2. Land quality assessment

2.5 Site inspection (see photographs in Section 3.2)

Visual / olfactory evidence of contamination	Made Ground was observed across the central and northern parts of the Site (see Photographs 8 to 10 in Section 3.2) including suspected mining spoil with occasional brick, concrete, clinker, etc. The exposed former rail embankment situated to the south-east of the Site was observed to include some brick, tile, ash and possible clinker.		On site drainage	All incident rainfall is assumed to drain directly to ground. Note: the foundation excavation was entirely dry despite heavy rainfall during the proceeding days. No drainage infrastructure was observed on-Site. Note: the Client is understood to have previously undertaken infiltration testing on-Site in order to inform land drainage options. The excavation created for the testing identified c. 1 m of granular fill / Made Ground overlying clay. The Made Ground was reported to be free draining.
Bulk storage tanks (fuel and chemical storage)	No evidence of any past or present bulk storage tanks was observed on-Site or within the surrounding land areas.		Invasive species	No direct evidence of any invasive species was observed during the site walkover. Note: the walkover did not include a botanical survey and hence it is possible that some invasive plant species may be locally present.
Neighbouring land uses	N	Llangollen Road; residential properties and two commercial premises (including a barber shop) are located beyond the road.	Off-site contaminant sources	A hand car wash was observed c. 20 m to the east / north-east of the Site (see Photographs 29 and 30 in Section 3.2). A canopy structure was observed at the front of the garage, although no pump stands were present. A number of manhole covers were identified in and around the former forecourt; it is unknown whether these covers relate to any former fuel storage tanks or fuel interceptor infrastructure. *Note: Ground First spoke with the operatives of the car wash; the operatives were unaware of the former garage use or the presence of any past or present buried infrastructure (including any former fuel storage tanks).* The former Air Products landfill was observed c. 170 m to the east . north-east of the Site (see Photograph 35 in Section 3.2). The western edge of the mapped landfill sloped steeply up to a crest level around 6 m to 8 m above the adjacent public highway. The sloping ground was covered by mature vegetation. It was noted that the land on the opposing side of Llangollen Road (to the north of the landfill - see Photograph 36 in Section 3.2) was somewhat lower, suggesting that the Air Products landfill may have been built up relative to natural ground levels. The base of the landfill (along King Street) was estimated to be over 5 m higher than the ground level at the study Site.
	E	Pendil property and an associated domestic garage are located directly to the east; a hand car wash business is present c. 20 m to the east.		
	S	Overgrown brownfield land is present to the south of the Site (this area was inaccessible during the Site inspection).		
	W	A row of residential properties is present directly to the west. A public car park is situated c. 20 m to the west / north-west.		
Local water features	The modest section of open drainage mapped c. 20 m to the south-west of the Site was inaccessible at the time of the Site visit (due to steeply sloping ground and dense vegetation directly to the south of the Site; the land to the south was also fenced off c. 100 m to the south-west - see Photograph 33 in Section 3.2). A section of channelised watercourse was observed c. 290 m to the west / south-west of the Site (see Photograph 31 in Section 3.2.); the wider drainage channel appears to be heavily modified / engineered and was not identified at ground surface further to the south (downstream).		Distance to nearest residential property	Residential properties were observed directly to the east and west of the Site (see Photographs 26 and 28 in Section 3.2).

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
On-Site sources								
1	Potential for **inorganic and low volatility organic contaminants** to be locally present within the subsurface soils (i.e., potentially associated with known Made Ground / fill derived from suspected colliery spoil, a former rail embankment and possible material imported to Site under a 1991	Dermal contact, soil & soil dust ingestion, inhalation of soil dust	HH	Future Site occupants & construction workers	**MEDIUM**	**LIKELY**	**MODERATE RISK**	The risk ratings reflect the presence of colliery spoil and other fill materials across the entire Site (as recorded by the 2002 ground investigation and observed during a recent Site inspection). Whilst limited soil testing from 2002 did not identify any significant chemical contamination, there remains the potential for assorted contaminants, including metals and PAHs. *It is noted that the proposed development plans allow for a clean cover layer designed to manage potential health risks.*
2		Consumption of home grown produce	HH	Future Site occupants	**MEDIUM**	**LIKELY**	**MODERATE RISK**	
3		Ingress into water supply pipework and subsequent water ingestion	HH	Future Site occupants	**MEDIUM**	**LOW LIKELIHOOD**	**MODERATE/LOW RISK**	The risk rating reflect the presence of colliery spoil and other fill materials across the entire Site (as recorded by the 2002 ground investigation and observed during a recent Site inspection). Hence, various organic contaminants could be present in and around the proposed pipe run. It is noted that the planned property is situated close to the public highway and therefore future water pipes will only pass through a short section of Made Ground, if any. *Consideration should be given to the use of barrier water supply pipework.*
4		Building materials in direct contact with aggressive ground	PROP	Future site buildings	**MEDIUM**	**LOW LIKELIHOOD**	**MODERATE/LOW RISK**	Aggressive ground conditions (including elevated sulphate concentrations) may be present at the Site (associated with the in-situ Made Ground), although Site-specific soil testing would be required to verify this.

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
5		Dissolution into pore water and subsequent lateral / vertical migration	CW	Till Secondary undifferentiated Aquifer Pennine Lower Coal Measures Formation Secondary A Aquifer	**MILD**	**LOW LIKELIHOOD**	**LOW RISK**	The risk rating reflects the likely presence of some land contamination (based on the known land use history and recent Site observations) but also the modest sensitivity of the superficial Till - i.e., the 2002 drilling records indicate that the Till is comprised of firm brown sandy clay; the groundwater vulnerability of the superficial aquifer is classified as Low; there are no mapped SPZs within a 500 m radius of the Site; plus there are no licensed groundwater abstractions within 1 km of the Site. Natural Resources Wales has also confirmed that the controlled waters at the Site 'are not of the highest environmental sensitivity'. It is further noted that background groundwater quality is likely to be impaired by a long history of industrial activity across the local area.
6		Dissolution into pore water and subsequent lateral / vertical migration via any shallow groundwater Potential preferential migration via any land drains or other drainage infrastructure	CW	Modest engineered drainage channel c. 20 m south-west	**MEDIUM**	**UNLIKELY**	**LOW RISK**	The risk rating reflects the likely presence of some land contamination (based on the known land use history and recent Site observations) but also the modest scale of the nearby watercourse; the largely culverted nature of the watercourse; the known presence of clayey Till deposits below the on-Site Made Ground; as well as the absence of any licensed surface water abstractions within 1 km of the Site. It is further noted that background surface water quality is likely to be impaired by a long history of industrial activity across the local area.

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
7	Limited potential for localised **volatile organic contaminants** to be present within the subsurface soils (i.e., i.e., potentially associated with known Made Ground / fill, and/or residues associated with former railway activities)	Dermal contact, ingestion & inhalation of soils & soil dust	HH	Future Site occupants & construction workers	**MEDIUM**	**UNLIKELY**	**LOW RISK**	The risk ratings reflect the likely absence of any significant VOC contamination on-Site. Despite the known presence of Made Ground across the Site, this material appears largely to have been in-situ for over 100 years - as such the potential for a significant residual source of volatile organic compounds is considered to be low The Site owner has also confirmed the absence of any known past or present fuel/chemical storage activities on-Site. *It is noted that the proposed development plans allow for a raft foundation design, including a ventilated sub floor void space, which will offer protection from any localised VOCs.*
8		Consumption of home grown produce	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	
9		Ingress into water supply pipework and subsequent water ingestion	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	
10		Migration of vapours into the proposed buildings; inhalation indoors	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	
11		Migration of vapours to surface; inhalation outdoors	HH	Future Site occupants & construction workers	**MEDIUM**	**UNLIKELY**	**LOW RISK**	
12		Dissolution into pore water and subsequent lateral / vertical migration	CW	Till Secondary undifferentiated Aquifer Pennine Lower Coal Measures Formation Secondary A Aquifer	**MILD**	**UNLIKELY**	**VERY LOW RISK**	The risk rating reflects the likely absence of any significant VOC contamination (based on the known land use history) and also the modest sensitivity of the superficial Till - i.e., the 2002 drilling records indicate that the Till is comprised of firm brown sandy clay; the groundwater vulnerability of the superficial aquifer is classified as Low; there are no mapped SPZs within a 500 m radius of the Site; plus there are no licensed groundwater abstractions within 1 km of the Site. Natural Resources Wales has also confirmed that the controlled waters at the Site 'are not of the highest environmental sensitivity'. It is further noted that background groundwater quality is likely to be impaired by a long history of industrial activity across the local area.

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
13	Limited potential for localised **volatile organic contaminants** to be present within the subsurface soils (i.e., i.e., potentially associated with known Made Ground / fill, and/or residues associated with former railway activities) *Cont.*	Dissolution into pore water and subsequent lateral / vertical migration via any shallow groundwater Potential preferential migration via any land drains or other drainage infrastructure	CW	Modest engineered drainage channel c. 20 m south-west	**MEDIUM**	**UNLIKELY**	**LOW RISK**	The risk rating reflects the likely absence of any significant VOC contamination (based on the known land use history); the modest scale of the nearby watercourse; the largely culverted nature of the watercourse; the known presence of clayey Till deposits below the on-Site Made Ground; as well as the absence of any licensed surface water abstractions within 1 km of the Site. It is further noted that background surface water quality is likely to be impaired by a long history of industrial activity across the local area.
14	Potential for **asbestos containing materials** (ACM) to be locally present within the sub surface soils (i.e., potentially associated with known Made Ground / fill present on-Site)	Disturbance of in-situ soils / Made Ground resulting in the liberation of any asbestos fibres to atmosphere and potential inhalation	HH	Construction workers	**MEDIUM**	**LOW LIKELIHOOD**	**MODERATE/LOW RISK**	The risk ratings reflect the widespread presence of Made Ground across the Site (including evidence of some demolition type materials) which may potentially include ACMs. *It is noted that the proposed development plans allow for a clean cover layer designed to manage potential health risks.*
15			HH	Future Site occupants	**MEDIUM**	**LOW LIKELIHOOD**	**MODERATE/LOW RISK**	
16	Potential for naturally occurring **radon gas** present within the sub surface	Lateral and vertical migration into proposed structures; subsequent inhalation and potential to cause ill health	HH	Future Site occupants	**MEDIUM**	**LOW LIKELIHOOD**	**MODERATE/LOW RISK**	Radon mapping indicates that 5-10% of homes are above the radon action limit As such, basic radon protection measures will be required within the proposed property. *Note: the current development proposals include a radon sump (as agreed with Building Control)*

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
17	Potential for **methane** to be present within the subsurface soils (i.e., potentially associated with known Made Ground / fill present on-Site)	Lateral and vertical migration into proposed structures; potential to cause an explosion	HH	Proposed on-Site property and associated occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	The risk ratings reflect the widespread presence of Made Ground across the study Site, which could represent a possible source of ground gas. However, a significant gas source is considered to be unlikely based on the prevailing conceptual ground model, including the following considerations: - The Made Ground appears to comprise largely of inert materials (including colliery spoil) with an assumed low gassing potential. - The Made Ground has been in-situ for over 100 years and is therefore less likely to pose an ongoing gas risk. - The volume of Made Ground is relatively modest, especially within the curtilage of the planned property (where Made Ground thicknesses are of the order 1 m). It is noted that the majority of Made Ground has been excavated from beneath the property itself in order to create the building foundation. *It is noted that the proposed development plans allow for a raft foundation design, including a ventilated sub floor void space, which will offer protection from any localised ground gasses.*
18	Potential for **carbon dioxide** to be present within the subsurface soils (i.e., potentially associated with known Made Ground / fill present on-Site)	Lateral and vertical migration into proposed structures; potential to cause asphyxiation/toxic effects	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
19	Potential for **methane** to be present within the subsurface soils (i.e., potentially associated with shallow coal workings)	Lateral and vertical migration into proposed structures; potential to cause an explosion	HH	Proposed on-Site property and associated occupants	**MEDIUM**	**LOW LIKELIHOOD**	**MODERATE/LOW RISK**	The presence of a worked coal seam directly beneath the Site represents a credible source of residual mine gasses. The prevailing conceptual gas model includes the following aspects: **SOURCE** - The Site is located within a Development High Risk area. - Ground investigation works performed in 2002 confirmed the presence of shallow coal workings (up to 1.3 m deep) directly beneath the Site (at a depth of c. 13 m bgl). - No discernible methane or carbon dioxide concentrations were recorded within the exploratory hole drilled on-Site during 2002 (albeit this was a one-off reading). **PATHWAY** - A single mine entry is recorded within 50m of the Site; this feature is positioned c. 10m to the west of the Site. - No faults, fissures or breaklines are recorded local to the Site. - Some clayey deposits are present directly beneath the Site (c. 2 m of firm sandy clay was encountered during the 2002 mining investigation; clay was also encountered at a depth of c. 1 m during recent infiltration testing). - The worked Yard Coal seam was grouted during 2002 in and around the proposed property footprint **RECEPTOR** The proposed detached property is situated directly over a shallow worked coal seam, albeit the local workings have been stabilised / grout-filled. Based on the CL:AIRE methodology (see Section 3.10) the Site is located with a High Risk Zone which will require either detailed gas risk assessment or the adoption of appropriate mitigation measures. *It is noted that the proposed development plans allow for a raft foundation design, including a ventilated sub floor void space, which will offer protection from any mine gasses.*
20	Potential for **carbon dioxide** to be present within the subsurface soils (i.e., potentially associated with shallow coal workings)	Lateral and vertical migration into proposed structures; potential to cause asphyxiation/toxic effects	HH	Future Site occupants	**MEDIUM**	**LOW LIKELIHOOD**	**MODERATE/LOW RISK**	
						RISK RATING (**on-Site** sources)	**MODERATE RISK**	

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
Off Site sources (former garage activities c. 20 m to the east; former landfill c. 170 m to the east / north-east)								
21	The former garage premises may have given rise to some **volatile organic contaminants** within the local subsurface (i.e., potentially associated with former garage operations, including possible bulk fuel storage, waste oil storage, waste batteries, etc.) *Note: it remains unclear whether any former fuel retailing was undertaken at the garage premises.*	Lateral and vertical migration onto Site (in the vapour phase, dissolved phase or as free phase product); volatilisation and ingress into proposed structures; inhalation indoors	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	The risk ratings reflect the potential for some localised VOCs (including residual petroleum hydrocarbons) to be present in and around the former garage. However, the associated risks to future Site occupants are likely to be constrained by the moderate distance to the former garage; the time that has elapsed since the closure of the garage, the presence of clayey Till deposits at or close to ground surface (recorded as firm sandy clay within the 2002 on-Site borehole), as well as local topographic controls (i.e., the Site is at a lower elevation than the former garage, whilst the intervening property (Pendil) is lower lying than both the Site and the garage) which will discourage vapour migration onto Site. *It is noted that the proposed development plans allow for a raft foundation design, including a ventilated sub floor void space, which will offer protection from any localised VOCs.*
22		Lateral and vertical migration onto Site (in the vapour phase, dissolved phase or as free phase product); volatilisation and emission at ground surface; inhalation outdoors	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	
23		Lateral migration onto Site within any shallow groundwater (in either the dissolved phase or as free phase); ingress into water supply pipework and subsequent water ingestion	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	The risk rating reflects the potential for some localised VOCs (including residual petroleum hydrocarbons) to be present in and around the former garage. However, there does not appear to be a significant pathway connecting any residual off-Site contamination with the proposed Site water supply, given the presence of clayey Till deposits close to ground surface (recorded as firm sandy clay within the 2002 on-Site borehole) plus the absence of any shallow groundwater within several meters of ground surface (as observed in 2002; as recorded on a historical on-Site BGS borehole log, and based on recent excavations performed on-Site). It is further noted that the planned property is situated close to the public highway and therefore future water pipes will only pass through a short section of ground before entering the residence.

2. Land quality assessment

2.6 Preliminary Risk Assessment

Nr	Sources	Pathways	TYPE	Receptors	Consequence	Probability	Risk classification	Comments
Off Site sources (former garage activities c. 20 m to the east; former landfill c. 170 m to the east / north-east)								
24	Limited potential for **methane** to be present within the subsurface (potentially associated with the historical landfill situated c. 170 m to the east)	Lateral and vertical migration into proposed structures; potential to cause an explosion	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	The risk ratings reflect the likely absence of a significant gas source associated with the former landfill, based on the following considerations: **SOURCE** - EAW records indicate that the landfill received only inert waste streams (albeit the EnviroInsight report refers to inert and industrial wastes). - The volume of waste deposited appears to be relatively modest based on the mapped extents and an estimated 2 m waste thickness (as recorded by the EAW). Note: the landfill appears most likely to have been formed by placing waste materials over long-standing Made Ground (i.e., wastes are likely to be present 'above' ground opposed to within a former excavation or depression). - The last waste materials were deposited c. 35 years ago; as such, even if some putrescible content was present, the gas potential of any such material will likely have been significantly reduced. **PATHWAY** - The landfill surface is heavily vegetated, including nature tree cover, which may have disturbed any capping materials (if indeed the landfill was formally engineered); as such, any localised ground gases may vent directly to atmosphere (opposed to moving laterally towards the proposed development). - The former landfill is located c. 170 m beyond the Site boundary, at a higher elevation (> 5m higher than the Site elevation), reducing the potential for significant on-Site gas migration. - The local area, including both the Site and the landfill, is underlain by Till deposits (recorded as firm sandy clay within the 2002 on-Site borehole) which will also constrain lateral gas movements. **RECEPTOR** The proposed development plans allow for a raft foundation design, including a ventilated sub floor void space, which will offer protection from any localised ground gasses.
25	Limited potential for **carbon dioxide** to be present within the subsurface soils (potentially associated with the historical landfill situated c. 170 m to the east)	Lateral and vertical migration into proposed structures; potential to cause asphyxiation/toxic effects	HH	Future Site occupants	**MEDIUM**	**UNLIKELY**	**LOW RISK**	
						RISK RATING (**off-Site** sources)	**LOW RISK**	

2. Land quality assessment

2.7 Conclusions and next steps

✓	**Appropriate mitigation measures will be required in order to manage the identified health risks posed by the prevailing ground conditions present beneath the Site.** **The current development proposals include relevant mitigation measures, which must be implemented and verified in line with prevailing technical guidance and best practice.** **A watching brief should be maintained by the developer during all future groundworks activities in order to identify any signs of ground contamination.**	Based on the findings of the Phase 1 contaminated land risk assessment, a number of potentially significant contaminant linkages have been identified at the study Site, in the context of a future residential land use. The risk assessment has therefore identified a Moderate risk of in-situ contamination impacting on relevant human receptors (i.e., future Site residents). No significant risks have been identified in relation to local controlled waters receptors. In order to manage the identified contaminant linkages, the following mitigation measures are proposed *(it is noted that the majority of these measures are included within the existing development proposals):*
		Suitable PPE and working methods will be adopted by all groundworkers to minimise soil exposure during future development activities.
		A **clean cover system** will be created across all soft standing areas proposed within the rear garden space (it is understood that the modest space to the front of the property will be covered by hard standing). The formation level will be suitably compacted prior to the creation of the cover system (in order to reduce ground instability and any differential settlement, as well as to deter burrowing animals). A suitable geotextile membrane (designed to prevent root penetration and soil mixing as well as to act as a demarcation layer) will be fitted across the rear garden space prior to the placement of clean imported materials. The geomembrane will be laid in parallel layers with an overlap of at least 20 cm between adjoining sheets. A minimum 600 mm thick clean cover system will be created above the geomembrane using imported soils sourced from a reputable supplier. Note: should the soil materials be derived from a greenfield site (opposed to a commercial soil supplier) an accompanying Materials Management Plan (in line with the principles of the Definition of Waste: Code of Practice – DowCoP (CL:AIRE, 2011)) may be required (note: all future soil importation activity must be agreed with the Council in advance). All imported aggregate will be virgin material derived from a reputable supplier.
		Barrier water supply pipe is recommended for use, should the water supply pipes be laid within any Made Ground. All future service corridors will be backfilled with clean and inert imported materials.
		A **radon sump** will be installed as part of the foundation construction; the radon protection measures will be agreed in advance with Building Control.
		The property foundation will be designed in order to offer suitable **protection from any residual mine gasses** associated with known shallow coal workings. In lieu of any recent gas monitoring data, the gas protection measures within the proposed property will be consistent with the requirements of gas characteristic situation CS2 (BS8485 (BSI, 2019)). In order to offer CS2 level protection a 'minimum gas protection score' of 3.5 points is required (BSI, 2019). As such, the proposed property foundation will incorporate the following design: - *Structural barrier*: formation of a monolithic reinforced raft with minimal service penetrations. - *Passive ventilation*: a passive sub-floor dispersal layer (a clear void space with periscopic vents) will be included below the flooring layer. A radon sump will also be installed. - *Gas membrane*: installation of a gas resistant / low permeability gas membrane across the property foundation. The membrane sections will be secured using appropriate means. Any services which penetrate the membrane will be appropriately secured. The gas membrane and all associated fittings will be installed by a suitably experienced contractor in line with the manufacturers specification and prevailing best practice.
		The potential for **aggressive ground conditions** (including possible elevated sulphate concentrations) will be considered when specifying relevant building / foundation materials.
		Any **waste soils / Made Ground** resulting from the Site remediation and / or development activities will require appropriate waste classification (as per EA, 2021) prior to being removed off-Site for appropriate treatment, re-use or disposal. All waste management activities must be carried out in compliance with current waste management legislation including Duty of Care for waste handling.
		It is recommended that the appointed groundworks contractor maintains a **watching brief** throughout the construction phase of development. Should any signs of potential contamination be identified, all works must be halted on the affected area and advice sought from a suitably qualified and experienced environmental consultant.
		The remedial actions identified above will require independent validation / verification to ensure that they have been appropriately implemented (including visual inspections, soil sampling and testing, review of relevant documentation, etc,). A verification report will be required on completion of the verification activities. A verification plan should be agreed with the Council in advance.

3. Supporting information

The following supporting information is contained in this section:

Section	Content
3.1	Referenced materials used in the Phase 1 reporting
3.2	Site photographs
3.3	Published environmental data records (Groundsure Enviro and Geo Insight report for LAND WEST OF PENDIL, LLANGOLLEN ROAD, ACREFAIR, WREXHAM, LL14 3RS. REF: GS-H4M-CD3-CJ1-M9R) including: • Aerial photographs and site map • Environmental permits, incidents and registers • Landfill and other waste sites • Current land use information • Geology • Hydrogeology and hydrology • Flooding • Designated environmentally sensitive sites • Other environmental data
3.4	CIRIA C552 risk assessment methodology
3.5	Historical land use mapping
3.6	Consultants Coal Mining report - land west of Pendil
3.7	Ground investigation reporting - 2002
3.8	Information supplied by Wrexham County Borough Council (WCBC)
3.9	Radon report
3.10	CL:AIRE coal mine gas emission risk assessment methodology

Disclaimer

This report has been prepared by Ground First in its professional capacity as a contaminated land consultancy, with reasonable skill, care and diligence within the agreed scope and terms of contract and taking account of the manpower and resources devoted to it by agreement with its client, and is provided by Ground First solely for the internal use of its client.

The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to Ground First at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

This report is confidential to the client. The client may submit the report to regulatory bodies, where appropriate. Should the client wish to release this report to any other third party for that party's reliance, Ground First may, by prior written agreement, agree to such release, provided that it is acknowledged that Ground First accepts no responsibility of any nature to any third party to whom this report or any part thereof is made known. Ground First accepts no responsibility for any loss or damage incurred as a result, and the third party does not acquire any rights whatsoever, contractual or otherwise, against Ground First except as expressly agreed with Ground First in writing.

3. Supporting information

3.1 References

The following references were used to inform the conceptual site model and preliminary risk assessment:

British Geological Survey, 2025. GeoIndex Onshore (https://www.bgs.ac.uk/map-viewers/geoindex-onshore/).

British Standards Institute, 2017. Investigation of potentially contaminated sites – code of practice. BS 10175:2011+A2:2017.

British Standards Institute, 2019. Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. BS8485:2015+A1:2019.

CIRIA, 2001. Contaminated land risk assessment. A guide to good practice. Publication C552. CIRIA London. ISBN 0-86017-552 9.

CL:AIRE, 2011. The Definition of Waste: Development Industry Code of Practice. Version 2. ISBN 978-1-905046-23-2.

CL:AIRE, 2021. Good Practice for Risk Assessment for Coal Mine Gas Emissions. ISBN: 978-1-905046-39-3.

Environment Agency, 2021. Technical Guidance WM3: Waste Classification – Guidance on the classification and assessment of waste. Version 1.2.GB.

Environment Agency, 2023. Land Contamination Risk Management (https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm).

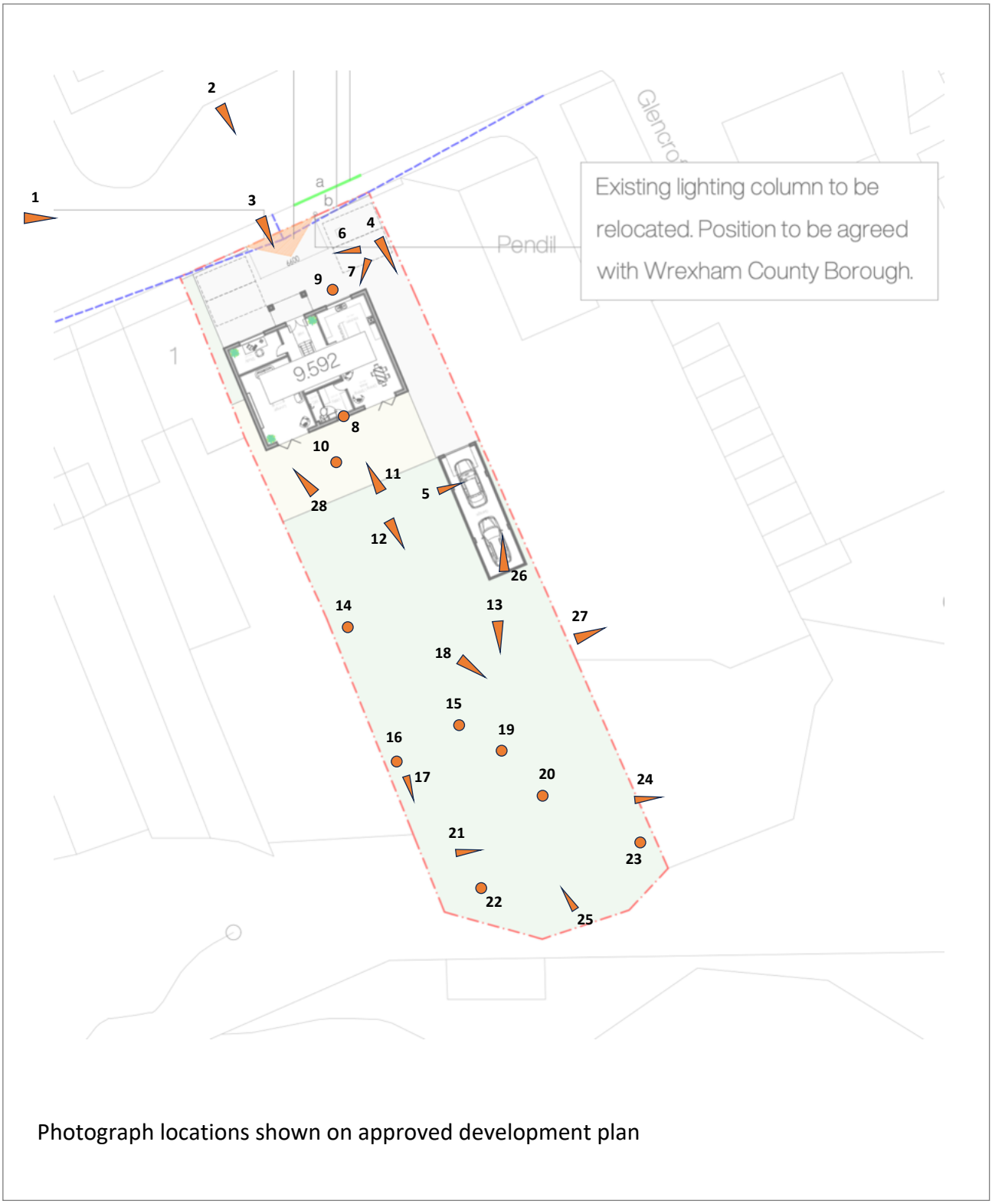
EPG, 2018. Screening approach for landfill gas migration around landfill sites. Ground Gas Information Sheet No 3. Paper 1.0 5/9/2018. Author: Steve Wilson.

Groundsure, 2025. Groundsure Enviro and Geo Insight report for LAND WEST OF PENDIL, LLANGOLLEN ROAD, ACREFAIR, WREXHAM, LL14 3RS. REF: GS-H4M-CD3-CJ1-M9R

3. Supporting information

3.2 Site photographs

Photograph locations:



Photograph locations shown on approved development plan



Photograph locations shown on aerial image dating from 2021



Photograph 1

Description: Site setting – Llangollen Road and neighbouring properties
Date: 22/09/2025
Location: View from public highway – looking to the east



Photograph 2

Description: Site frontage
Date: 22/09/2025
Location: View from public highway – looking to the south / south-east



Photograph 3

Description: Site under development (groundworks underway)
Date: 22/09/2025
Location: View from front edge of the Site – looking to the south / south-east



Photograph 4

Description: Proposed driveway and retaining wall along Site boundary
Date: 22/09/2025
Location: North-eastern edge of the Site – looking to the south / south-east



Photograph 5

Description: Imported stone along proposed driveway / garage footprint
Date: 22/09/2025
Location: Eastern edge of the Site – looking to the east



Photograph 6

Description: Imported stone present at front edge of the Site
Date: 22/09/2025
Location: Northern edge of the Site – looking the west



Photograph 7

Description: Propoerty foundation excavation
Date: 22/09/2025
Location: Northern part of the Site – looking to the south-west



Photograph 8

Description: Exposed Made Ground within the face of the foundation excavation
Date: 22/09/2025
Location: Northern part of the Site



Photograph 9

Description: Made Ground evident at ground surface
Date: 22/09/2025
Location: Northern part of the Site



Photograph 10

Description: Made Ground evident at ground surface
Date: 22/09/2025
Location: Northern part of the Site



Photograph 11

Description: Foundation excavation
Date: 22/09/2025
Location: Northern part of the Site – looking to the north / north-west



Photograph 12

Description: Central and southern parts of the Site (groundworks underway)
Date: 22/09/2025
Location: View from central part of the Site – looking to the south / south-east



Photograph 13

Description: Southern part of the Site (imported subsoil evident)
Date: 22/09/2025
Location: View from central part of the Site – looking to the south



Photograph 14

Description: Geotextile present on-Site (awaiting placement under imported sub soil)
Date: 22/09/2025
Location: Western edge of the Site



Photograph 15

Description: Subsoil placed on geotextile membrane
Date: 22/09/2025
Location: Southern part of the Site



Photograph 16

Description: Subsoil placed on geotextile membrane
Date: 22/09/2025
Location: South-western part of the Site



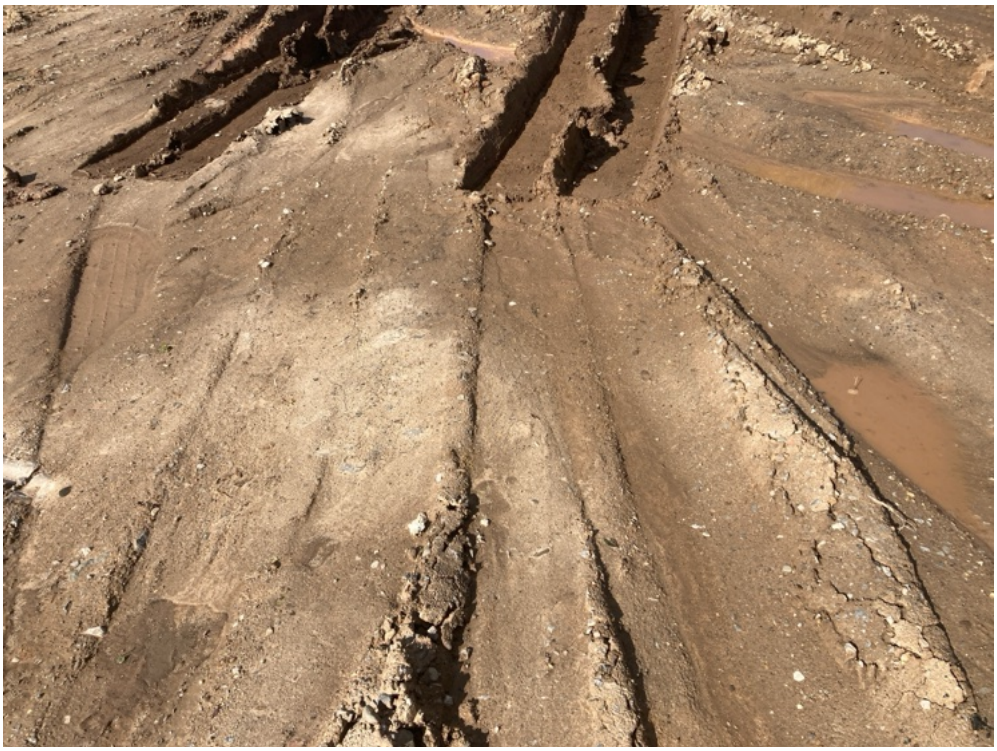
Photograph 17

Description: Subsoil placed on geotextile membrane
Date: 22/09/2025
Location: South-western edge of the Site – looking to the south



Photograph 18

Description: Stockpiled subsoil
Date: 22/09/2025
Location: Southern end of the Site plus adjoining land to the east



Photograph 19

Description: Surface of imported subsoil placed on-Site
Date: 22/09/2025
Location: Southern end of the Site



Photograph 20

Description: Surface of imported subsoil placed on-Site
Date: 22/09/2025
Location: Southern end of the Site



Photograph 21

Description: Stockpiled subsoil (awaiting placement on-Site)
Date: 22/09/2025
Location: Southern end of the Site plus adjoining land to the east



Photograph 22

Description: Example of stockpiled subsoil
Date: 22/09/2025
Location: Southern end of the Site



Photograph 23

Description: Example of stockpiled subsoil – occasional brick fragments evident
Date: 22/09/2025
Location: Southern end of the Site



Photograph 24

Description: Stockpiled subsoil and adjacent railway embankment
Date: 22/09/2025
Location: Land directly to the south-east of the Site – looking to the east



Photograph 25

Description: Site under development
Date: 22/09/2025
Location: View from rear edge of the Site – looking to the north / north-west



Photograph 26

Description: Neighbouring property to the east
Date: 22/09/2025
Location: View from eastern edge of the Site – looking to the north



Photograph 27

Description: Neighbouring domestic garage to the east
Date: 22/09/2025
Location: View from eastern edge of the Site – looking to the east



Photograph 28

Description: Neighbouring property to the west
Date: 22/09/2025
Location: View from north-western edge of the Site – looking to the north-west



Photograph 29

Description: Car wash operation (former garage premises)
Date: 22/09/2025
Location: View from public highway - looking to the south-west



Photograph 30

Description: Former garage forecourt (current car wash operation)
Date: 22/09/2025
Location: Land c. 35 m to the north-east of the Site



Photograph 31

Description: Channelised watercourse
Date: 22/09/2025
Location: Watercourse c. 290 m to the west / south-west of the Site



Photograph 32

Description: Former railway bridge (illustrating the extent of the associated embankment)
Date: 22/09/2025
Location: Land c. 195 m south-west of the Site



Photograph 33

Description: Fenced-off brownfield land positioned adjacent to the Site
Date: 22/09/2025
Location: Land positioned to the south / south-west of the Site



Photograph 34

Description: Former industrial land
Date: 22/09/2025
Location: Land c. 125 m south-west of the Site



Photograph 35

Description: Edge of former Air Products landfill
Date: 22/09/2025
Location: Land c. 180 m to the east of the Site



Photograph 36

Description: Landform on opposite side of road to the former Air Products landfill
Date: 22/09/2025
Location: Land c. 200 m to the north-east of the Site

3. Supporting information

3.3 Environmental data report

Readily available environmental information relating to the Site and its surrounding area has been provided by Groundsure.

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

LAND WEST OF PENDIL, LLANGOLLEN ROAD, ACREFAIR, WREXHAM, LL14 3RS

Order Details

Date: 19/09/2025

Your ref: 4452

Our Ref: GS-H4M-CD3-CJ1-M9R

Site Details

Location: 327699 342987

Area: 0.15 ha

Authority: Wrecsam - Wrexham County Borough Council ↗



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Summary of findings p. 2 >

OS MasterMap site plan p.14 >

Aerial image p. 9 >

Insight User Guide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	1	2	161	247	-
30 >	1.2 >	Historical tanks >	0	0	16	49	-
33 >	1.3 >	Historical energy features >	0	0	7	0	-
34	1.4	Historical petrol stations	0	0	0	0	-
34 >	1.5 >	Historical garages >	0	3	0	0	-
34	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
35 >	2.1 >	Historical industrial land uses >	2	2	203	323	-
55 >	2.2 >	Historical tanks >	0	0	33	82	-
59 >	2.3 >	Historical energy features >	0	0	13	0	-
60	2.4	Historical petrol stations	0	0	0	0	-
60 >	2.5 >	Historical garages >	0	5	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
61	3.1	Active or recent landfill	0	0	0	0	-
61	3.2	Historical landfill (BGS records)	0	0	0	0	-
62	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
62 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	2	3	-
63 >	3.5 >	Historical waste sites >	0	0	1	0	-
64	3.6	Licensed waste sites	0	0	0	0	-
64 >	3.7 >	Waste exemptions >	0	0	1	0	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
65 >	4.1 >	Recent industrial land uses >	0	0	5	-	-
66	4.2	National Geographic Database (NGD) - Current or recent tanks	0	0	0	-	-
66 >	4.3 >	Current or recent petrol stations >	1	0	0	0	-
66	4.4	Electricity cables	0	0	0	0	-
66	4.5	Gas pipelines	0	0	0	0	-

67	4.6	Sites determined as Contaminated Land	0	0	0	0	-
67 >	4.7 >	Control of Major Accident Hazards (COMAH) >	0	0	1	0	-
67	4.8	Regulated explosive sites	0	0	0	0	-
67 >	4.9 >	Hazardous substance storage/usage >	0	0	2	2	-
68 >	4.10 >	Historical licensed industrial activities (IPC) >	0	0	23	0	-
71 >	4.11 >	Licensed industrial activities (Part A(1)) >	0	0	61	0	-
81 >	4.12 >	Licensed pollutant release (Part A(2)/B) >	0	0	1	0	-
82	4.13	Radioactive Substance Authorisations	0	0	0	0	-
82 >	4.14 >	Licensed Discharges to controlled waters >	0	0	1	2	-
83	4.15	Pollutant release to surface waters (Red List)	0	0	0	0	-
83	4.16	Pollutant release to public sewer	0	0	0	0	-
83	4.17	List 1 Dangerous Substances	0	0	0	0	-
83 >	4.18 >	List 2 Dangerous Substances >	0	0	1	0	-
84 >	4.19 >	Pollution Incidents (EA/NRW) >	0	0	3	2	-
84	4.20	Pollution inventory substances	0	0	0	0	-
85	4.21	Pollution inventory waste transfers	0	0	0	0	-
85	4.22	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
86 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
87 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
88 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
89	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
89	5.5	Groundwater vulnerability- local information	None (within 0m)				
90 >	5.6 >	Groundwater abstractions >	0	0	0	0	2
91 >	5.7 >	Surface water abstractions >	0	0	0	0	12
94 >	5.8 >	Potable abstractions >	0	0	0	0	5
95	5.9	Source Protection Zones	0	0	0	0	-
96	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m

97 >	6.1 >	Water Network (OS MasterMap) >	0	2	6	-	-
98 >	6.2 >	Surface water features >	0	1	2	-	-
98 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
99 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
99 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
100	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
100	7.2	Historical Flood Events	0	0	0	-	-
100	7.3	Flood Defences	0	0	0	-	-
101	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
101	7.5	Flood Storage Areas	0	0	0	-	-
102	7.6	Flood Zone 2	None (within 50m)				
102	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding >	
103 >	8.1 >	Surface water flooding >	1 in 30 year, Greater than 1.0m (within 50m)

Page	Section	Groundwater flooding >	
105 >	9.1 >	Groundwater flooding >	Low (within 50m)

Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
106 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	2
107	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
107 >	10.3 >	Special Areas of Conservation (SAC) >	0	0	0	0	2
108	10.4	Special Protection Areas (SPA)	0	0	0	0	0
108	10.5	National Nature Reserves (NNR)	0	0	0	0	0
108	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
109 >	10.7 >	Designated Ancient Woodland >	0	0	0	1	75
112	10.8	Biosphere Reserves	0	0	0	0	0
112	10.9	Forest Parks	0	0	0	0	0
112	10.10	Marine Conservation Zones	0	0	0	0	0
112	10.11	Green Belt	0	0	0	0	0

112	10.12	Proposed Ramsar sites	0	0	0	0	0
113	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
113	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
113	10.15	Nitrate Sensitive Areas	0	0	0	0	0
113	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
114 >	**10.17 >**	**SSSI Impact Risk Zones >**	1	-	-	-	-
115	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
116 >	**11.1 >**	**World Heritage Sites >**	2	0	0	-	-
117	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
117	11.3	National Parks	0	0	0	-	-
117	11.4	Listed Buildings	0	0	0	-	-
117	11.5	Conservation Areas	0	0	0	-	-
118	11.6	Scheduled Ancient Monuments	0	0	0	-	-
118	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
119 >	**12.1 >**	**Agricultural Land Classification >**	Grade 3b (within 250m)				
120	12.2	Open Access Land	0	0	0	-	-
120	12.3	Tree Felling Licences	0	0	0	-	-
120	12.4	Environmental Stewardship Schemes	0	0	0	-	-
120	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
121	13.1	Priority Habitat Inventory	0	0	0	-	-
121	13.2	Habitat Networks	0	0	0	-	-
121	13.3	Open Mosaic Habitat	0	0	0	-	-
121	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
122 >	**14.1 >**	**10k Availability >**	Identified (within 500m)				
123	14.2	Artificial and made ground (10k)	0	0	0	0	-

124	14.3	Superficial geology (10k)	0	0	0	0	-
124	14.4	Landslip (10k)	0	0	0	0	-
125	14.5	Bedrock geology (10k)	0	0	0	0	-
125	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
126 >	15.1 >	**50k Availability >**	Identified (within 500m)				
127	15.2	Artificial and made ground (50k)	0	0	0	0	-
127	15.3	Artificial ground permeability (50k)	0	0	-	-	-
128 >	15.4 >	**Superficial geology (50k) >**	1	0	0	0	-
129 >	15.5 >	**Superficial permeability (50k) >**	Identified (within 50m)				
129	15.6	Landslip (50k)	0	0	0	0	-
129	15.7	Landslip permeability (50k)	None (within 50m)				
130 >	15.8 >	**Bedrock geology (50k) >**	1	0	0	3	-
131 >	15.9 >	**Bedrock permeability (50k) >**	Identified (within 50m)				
131 >	15.10 >	**Bedrock faults and other linear features (50k) >**	0	1	4	10	-
Page	Section	**Boreholes >**	On site	0-50m	50-250m	250-500m	500-2000m
133 >	16.1 >	**BGS Boreholes >**	1	0	28	-	-
Page	Section	**Natural ground subsidence >**					
136 >	17.1 >	**Shrink swell clays >**	Very low (within 50m)				
137 >	17.2 >	**Running sands >**	Very low (within 50m)				
138 >	17.3 >	**Compressible deposits >**	Negligible (within 50m)				
139 >	17.4 >	**Collapsible deposits >**	Very low (within 50m)				
140 >	17.5 >	**Landslides >**	Very low (within 50m)				
141 >	17.6 >	**Ground dissolution of soluble rocks >**	Negligible (within 50m)				
Page	Section	**Mining and ground workings >**	On site	0-50m	50-250m	250-500m	500-2000m
143 >	18.1 >	**BritPits >**	0	0	4	5	-
147 >	18.2 >	**Surface ground workings >**	0	1	127	-	-
151 >	18.3 >	**Underground workings >**	0	0	3	39	132
158	18.4	Underground mining extents	0	0	0	0	-

158 >	18.5 >	Historical Mineral Planning Areas >	0	0	0	1	-
159 >	18.6 >	Non-coal mining >	1	0	0	1	7
160	18.7	JPB mining areas	None (within 0m)				
160	18.8	The Coal Authority non-coal mining	0	0	0	0	-
160 >	18.9 >	Researched mining >	0	0	0	2	-
161 >	18.10 >	Mining record office plans >	0	0	0	1	-
161 >	18.11 >	BGS mine plans >	0	1	0	0	-
161 >	18.12 >	Coal mining >	Identified (within 0m)				
162	18.13	Brine areas	None (within 0m)				
162	18.14	Gypsum areas	None (within 0m)				
162	18.15	Tin mining	None (within 0m)				
162	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
163	19.1	Natural cavities	0	0	0	0	-
163	19.2	Mining cavities	0	0	0	0	0
163	19.3	Reported recent incidents	0	0	0	0	-
163	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
165 >	20.1 >	Radon >	Between 5% and 10% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
167 >	21.1 >	BGS Estimated Background Soil Chemistry >	2	0	-	-	-
167	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
167	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
168	22.1	Underground railways (London)	0	0	0	-	-
168	22.2	Underground railways (Non-London)	0	0	0	-	-
169	22.3	Railway tunnels	0	0	0	-	-
169 >	22.4 >	Historical railway and tunnel features >	3	0	32	-	-
170	22.5	Royal Mail tunnels	0	0	0	-	-

171 >	22.6 >	Historical railways >	1	0	6	-	-
171	22.7	Railways	0	0	0	-	-
171	22.8	Crossrail 2	0	0	0	0	-
172	22.9	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 14/05/2023

Site Area: 0.15ha

Recent site history - 2020 aerial photograph



Capture Date: 10/04/2020

Site Area: 0.15ha

Recent site history - 2014 aerial photograph



Capture Date: 25/07/2014

Site Area: 0.15ha

Recent site history - 2009 aerial photograph



Capture Date: 01/06/2009

Site Area: 0.15ha

Recent site history - 2001 aerial photograph



Capture Date: 28/07/2001

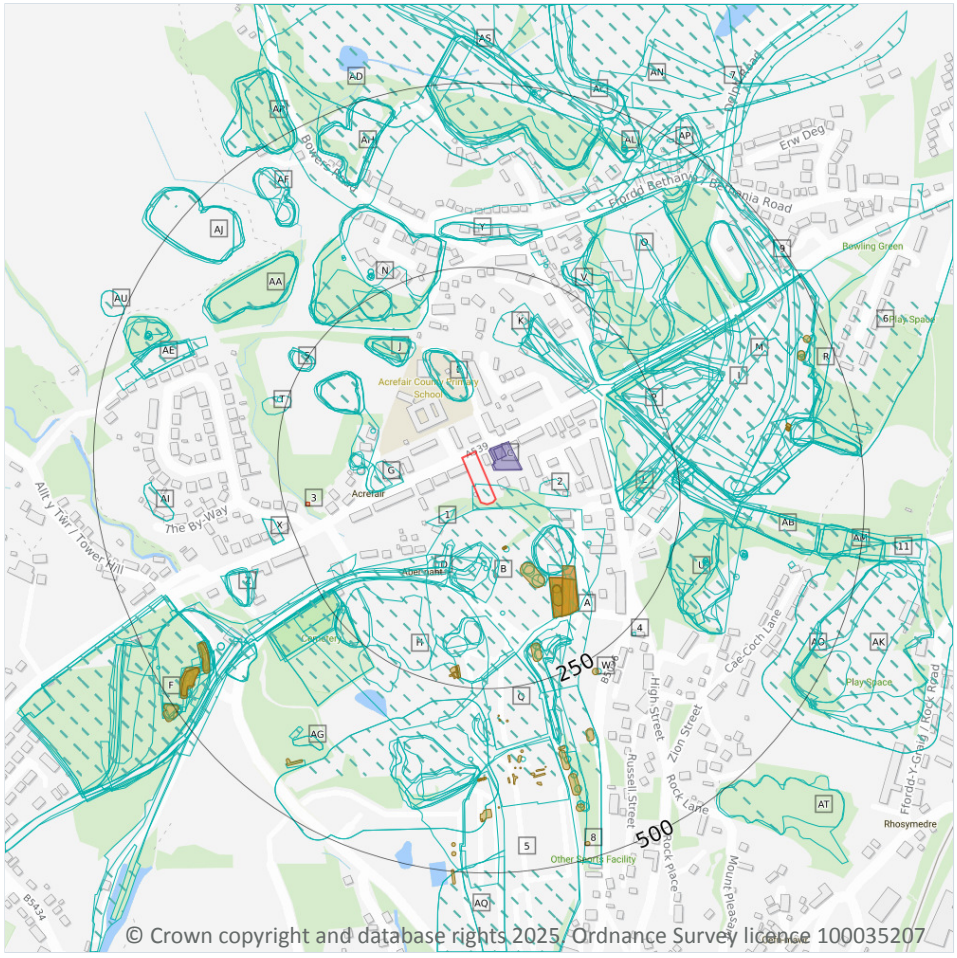
Site Area: 0.15ha

OS MasterMap site plan



Site Area: 0.15ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	411

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Railway Sidings**	**1949 - 1960**	**971803**

ID	Location	Land use	Dates present	Group ID
B	5m S	Unspecified Commercial/Industrial	1960	872721
1	36m SW	Unspecified Heap	1873	841438
B	52m S	Unspecified Ground Workings	1938	939274
B	54m S	Unspecified Ground Workings	1910	925399
B	56m S	Unspecified Pit	1949 - 1960	885803
2	60m E	Unspecified Heap	1873	841439
B	62m S	Unspecified Tank	1960	848855
D	64m SW	Railway Sidings	1938	989213
D	70m SW	Railway Sidings	1910	904667
E	70m N	Unspecified Heap	1949	928315
E	70m N	Unspecified Heap	1873 - 1898	996695
E	71m N	Unspecified Heap	1910	999163
E	71m N	Unspecified Heap	1960	955702
F	72m S	Railway Sidings	1898	957986
E	73m N	Unspecified Heap	1938	897225
B	75m SE	Unspecified Heap	1910	872171
B	77m S	Unspecified Shaft	1898	824863
B	77m SE	Unspecified Heap	1938	895324
B	81m SE	Unspecified Heap	1873	997134
B	81m SE	Unspecified Heap	1960 - 1977	984118
B	81m SE	Unspecified Heap	1985 - 1994	988925
B	84m S	Unspecified Tank	1960	848854
G	86m W	Unspecified Heap	1873	877174
B	92m SE	Unspecified Tank	1977	913668
B	92m SE	Unspecified Tank	1985 - 1994	1008098
B	95m SE	Unspecified Tanks	1960	819002
B	95m SW	Railway Building	1898	853367
B	98m SE	Unspecified Tank	1949	967991

ID	Location	Land use	Dates present	Group ID
D	99m SW	Railway Sidings	1949	961896
G	101m W	Unspecified Heaps	1910	898726
B	103m S	Unspecified Ground Workings	1960	917510
G	111m W	Unspecified Heap	1949 - 1960	973862
B	112m SE	Unspecified Commercial/Industrial	1949	867505
B	114m SE	Unspecified Tank	1985 - 1994	878374
B	114m SE	Unspecified Tank	1977	955461
G	117m W	Unspecified Heaps	1873	891152
B	118m SE	Unspecified Tank	1949	872936
H	123m S	Iron Foundry	1873	857003
G	123m W	Unspecified Old Shafts	1898	844787
B	130m SE	Gas Works	1873	852805
G	132m W	Unspecified Pit	1949	827613
G	133m W	Unspecified Tank	1960	848871
G	136m W	Unspecified Heap	1960	841481
B	137m SE	Unspecified Tank	1960	849940
B	138m SE	Unspecified Tanks	1960	818999
B	138m SE	Gasometer	1910	860486
B	139m SE	Unspecified Tank	1949	879608
B	143m SE	Gasometer	1873	879974
B	143m SE	Unspecified Tank	1898	952474
B	146m S	Unspecified Tank	1960	848853
I	149m NE	Railway Sidings	1898	997459
G	149m NW	Unspecified Heaps	1949	861468
G	149m NW	Unspecified Heaps	1898	1003786
J	149m NW	Unspecified Heap	1949	874461
J	150m NW	Unspecified Heap	1960	873800
B	152m S	Unspecified Foundry	1898 - 1910	918465

ID	Location	Land use	Dates present	Group ID
H	152m SW	Unspecified Heap	1873	841443
J	152m NW	Unspecified Heap	1910	940504
K	152m N	Unspecified Heap	1873	940753
J	152m NW	Unspecified Heap	1873	942687
B	152m SE	Gasometer	1910	812112
B	152m SE	Unspecified Tank	1898	950999
B	153m SE	Unspecified Tank	1949	874449
G	153m NW	Unspecified Heap	1960 - 1977	937369
G	153m NW	Unspecified Heap	1985 - 1994	947219
J	154m NW	Unspecified Heap	1938	894405
K	154m NE	Railway Sidings	1949	884701
G	154m NW	Unspecified Heap	1938	968485
G	155m NW	Unspecified Heap	1910	879554
J	155m NW	Unspecified Heap	1977	890943
J	155m NW	Unspecified Heap	1985 - 1994	1006785
B	156m S	Unspecified Heap	1938	1005818
B	156m S	Unspecified Heap	1910	911091
K	156m NE	Railway Sidings	1960	949015
K	157m NE	Railway Sidings	1938	897040
K	157m NE	Unspecified Heap	1977	875753
K	157m NE	Unspecified Heap	1985 - 1994	888752
B	160m S	Unspecified Heap	1873	952911
L	163m E	Railway Sidings	1949	880568
L	163m E	Unspecified Heap	1938	984354
K	163m NE	Railway Sidings	1910	860867
M	164m E	Railway Sidings	1938	976966
L	165m E	Railway Sidings	1960	1009708
L	172m E	Unspecified Heap	1873	976813

ID	Location	Land use	Dates present	Group ID
I	173m E	Railway Sidings	1873	912919
L	176m E	Railway Buildings	1960	810632
B	183m S	Unspecified Heap	1873	988033
D	183m SW	Unspecified Heap	1873	841441
N	185m NW	Unspecified Heap	1873	889619
N	185m NW	Unspecified Ground Workings	1898 - 1910	976014
A	186m SE	Unspecified Ground Workings	1938	882410
L	189m E	Railway Building	1873 - 1898	891442
M	192m E	Railway Sidings	1910	995962
M	194m NE	Engineering Works	1898	861653
M	194m NE	Engineering Works	1949	895985
M	194m NE	Engineering Works	1910	863530
M	194m NE	Unspecified Works	1960	900510
A	195m S	Unspecified Tank	1985 - 1994	934065
A	195m S	Unspecified Tank	1977	960781
A	197m S	Unspecified Ground Workings	1910	1007223
O	197m NE	Unspecified Ground Workings	1910	923397
O	198m NE	Unspecified Ground Workings	1938	981290
A	199m S	Unspecified Quarry and Ground Workings	1873	820320
O	199m NE	Unspecified Ground Workings	1960 - 1977	991104
A	200m S	Unspecified Ground Workings	1949	1002426
A	201m S	Unspecified Ground Workings	1960	905266
O	202m NE	Unspecified Ground Workings	1985 - 1994	1003667
P	203m NE	Unspecified Ground Workings	1949	813109
M	204m NE	Unspecified Commercial/Industrial	1938	822309
Q	204m S	Unspecified Commercial/Industrial	1910	908941
D	205m SW	Unspecified Heap	1873	999700
R	205m NE	Iron Works	1873	808505

ID	Location	Land use	Dates present	Group ID
Q	207m S	Unspecified Works	1960	924385
N	207m NW	Unspecified Ground Workings	1949	967338
N	209m NW	Unspecified Ground Workings	1985	923695
N	209m NW	Unspecified Ground Workings	1960 - 1977	989297
A	209m S	Unspecified Tank	1977	894439
A	209m S	Unspecified Tank	1985 - 1994	1008457
P	212m NE	Unspecified Pit	1938	948330
M	213m NE	Unspecified Works	1977	901161
M	213m NE	Unspecified Works	1985 - 1994	978222
N	217m NW	Unspecified Pit	1949	860523
L	218m E	Unspecified Ground Workings	1910	813108
N	219m NW	Unspecified Pit	1938	870276
N	221m NW	Unspecified Ground Workings	1994	862829
N	222m N	Unspecified Heap	1938	889490
O	222m NE	Unspecified Heap	1949	897086
D	229m SW	Unspecified Heap	1938	985949
D	231m SW	Cemetery	1977	985550
D	231m SW	Cemetery	1985 - 1994	1001229
L	231m E	Railway Sidings	1898	951798
D	231m SW	Unspecified Heap	1910	930898
D	231m SW	Burial Ground	1873	844705
D	231m SW	Cemetery	1949	921856
D	231m SW	Cemetery	1898	942302
D	232m SW	Cemetery	1960	869702
M	234m NE	Unspecified Heap	1938	984456
D	234m SW	Cemetery	1910 - 1938	935111
D	235m SW	Unspecified Heap	1949 - 1960	901502
S	236m NW	Unspecified Heap	1873 - 1910	890447

ID	Location	Land use	Dates present	Group ID
S	236m NW	Unspecified Heap	1949	944459
H	236m SW	Unspecified Heap	1873	841442
M	237m NE	Unspecified Ground Workings	1949	948568
S	239m NW	Unspecified Heap	1960	929973
L	239m E	Railway Sidings	1949	939018
L	240m E	Railway Sidings	1910	1001271
S	240m NW	Unspecified Heap	1938	897952
L	240m E	Railway Station	1960	867629
L	240m E	Railway Sidings	1960	881293
L	241m E	Railway Building	1898	853366
L	242m E	Railway Station	1910	893966
L	244m E	Railway Station	1938 - 1949	923273
L	244m E	Railway Station	1873	981215
T	244m W	Unspecified Heap	1873	841478
M	245m E	Railway Sidings	1960	887181
M	245m NE	Unspecified Ground Workings	1873	974161
O	246m NE	Unspecified Heap	1898	875687
U	246m E	Unspecified Heaps	1938	968845
U	247m E	Unspecified Heaps	1949	978638
U	247m E	Unspecified Ground Workings	1910	892513
L	247m E	Railway Station	1898	932977
U	248m E	Unspecified Heaps	1960	936797
U	249m E	Unspecified Ground Workings	1873	863284
T	257m W	Unspecified Old Shafts	1898	844786
4	259m SE	Unspecified Old Shaft	1898	823479
O	259m NE	Unspecified Heap	1873	977093
V	260m NE	Unspecified Ground Workings	1949	929632
M	261m E	Railway Sidings	1949	974035

ID	Location	Land use	Dates present	Group ID
N	261m NW	Unspecified Ground Workings	1938	975389
N	261m NW	Unspecified Heap	1910	928432
M	261m NE	Cuttings	1873	807172
Q	266m S	Unspecified Works	1977	872094
Q	266m S	Unspecified Works	1985 - 1994	995906
X	266m SW	Police Station	1977	923940
X	266m SW	Police Station	1985 - 1994	936359
W	266m SE	Unspecified Tank	1873	849861
V	267m N	Unspecified Old Shaft	1898	822925
V	267m N	Smithy	1898	832542
N	270m NW	Unspecified Old Shaft	1960	902812
N	272m NW	Old Coal Shaft	1949	893229
N	272m NW	Unspecified Old Shaft	1898	898716
N	272m NW	Old Coal Shaft	1910	867023
N	274m NW	Unspecified Old Shaft	1938	994457
N	277m NW	Unspecified Disused Shaft	1977	989453
N	277m NW	Unspecified Disused Shaft	1985	1008652
Q	283m S	Unspecified Heap	1938	868986
Y	284m N	Unspecified Ground Workings	1910	813107
Y	285m N	Unspecified Heap	1960	920761
Y	286m N	Unspecified Heap	1938	894291
O	287m NE	Unspecified Heap	1873	948060
U	287m SE	Unspecified Ground Workings	1977	985252
U	287m SE	Unspecified Ground Workings	1985 - 1994	993697
Q	290m S	Unspecified Ground Workings	1910	813113
Q	291m S	Unspecified Heap	1873	900978
Q	292m S	Unspecified Pit	1873	827602
U	293m E	Old Coal Shafts	1910	897032

ID	Location	Land use	Dates present	Group ID
U	293m E	Unspecified Disused Shafts	1977	970236
U	293m E	Unspecified Disused Shafts	1985 - 1994	983776
U	293m E	Unspecified Old Shafts	1938	876819
U	295m E	Old Coal Shafts	1949	996723
U	296m E	Unspecified Old Shafts	1960	990499
L	310m E	Unspecified Ground Workings	1873	813106
N	312m NW	Unspecified Old Shaft	1960	1007636
Z	314m SW	Unspecified Heap	1873	906479
N	315m NW	Unspecified Old Shaft	1938	947077
L	320m E	Unspecified Heap	1910	841440
AA	320m NW	Unspecified Heap	1949	873574
AA	320m NW	Unspecified Heap	1873 - 1898	922086
AB	321m E	Cuttings	1873 - 1898	1002358
AB	321m E	Cuttings	1949	1005903
Q	324m S	Unspecified Heap	1949	968111
Q	324m S	Unspecified Heap	1898	991250
Z	325m SW	Unspecified Heap	1960	957429
Q	326m S	Unspecified Commercial/Industrial	1910	822071
AB	326m E	Cuttings	1960 - 1977	982443
AB	326m E	Cuttings	1985 - 1994	1009789
AA	327m NW	Unspecified Heap	1960 - 1977	869291
AA	327m NW	Unspecified Heap	1985 - 1994	922436
AB	327m E	Cuttings	1910 - 1938	974698
Q	327m S	Unspecified Heap	1873	1005482
Z	327m SW	Unspecified Heap	1938	991960
AA	327m NW	Unspecified Heap	1938	1009210
AA	328m NW	Unspecified Heap	1910	933325
Z	329m SW	Unspecified Heap	1910	979058

ID	Location	Land use	Dates present	Group ID
5	330m S	Chemical Works	1949	944594
Z	331m SW	Unspecified Heap	1949	875743
Q	335m S	Unspecified Tanks	1949 - 1960	867875
U	339m E	Unspecified Old Shaft	1898	822926
Q	339m S	Unspecified Ground Workings	1910	813112
U	339m E	Unspecified Disused Shafts	1977	903780
U	339m E	Unspecified Disused Shafts	1985 - 1994	927040
U	342m E	Old Coal Shafts	1910	836764
U	343m E	Unspecified Old Shafts	1938	985041
U	343m E	Old Coal Shaft	1949	810900
Q	343m S	Unspecified Tank	1985 - 1994	873137
Q	343m S	Unspecified Tank	1977	1000387
Q	343m S	Unspecified Heap	1960	871821
Q	343m S	Unspecified Old Shaft	1898	822927
U	344m E	Unspecified Old Shafts	1960	981367
Q	346m S	Unspecified Tank	1898	848852
Q	353m S	Unspecified Tanks	1949 - 1960	874131
AC	357m N	Opencast Workings	1985	949792
AC	357m N	Opencast Workings	1977	975841
L	357m E	Unspecified Pit	1985 - 1994	886955
L	357m E	Unspecified Pit	1977	898051
Q	358m S	Unspecified Heap	1938	938699
Q	358m S	Unspecified Tank	1977	925225
Q	358m S	Unspecified Tank	1985 - 1994	986315
L	360m E	Unspecified Ground Workings	1873	813105
F	362m SW	Unspecified Heap	1938	910866
Q	362m S	Chemical Works	1873	865797
F	363m SW	Unspecified Heap	1949	989058

ID	Location	Land use	Dates present	Group ID
F	364m SW	Unspecified Heap	1910	984379
AD	364m NW	Unspecified Works	1960	834990
F	368m SW	Railway Sidings	1873	940974
F	371m SW	Railway Sidings	1949	907764
Q	372m S	Chemical Works	1898 - 1910	947158
F	374m SW	Railway Sidings	1960	906694
F	376m SW	Railway Sidings	1938	953734
F	377m SW	Railway Sidings	1910	959664
AE	377m NW	Cuttings	1873	920723
Q	380m S	Unspecified Tank	1985 - 1994	914964
Q	380m S	Unspecified Tank	1977	972213
AF	389m NW	Unspecified Heaps	1873	904064
AE	389m W	Cuttings	1960 - 1977	869311
AE	389m W	Cuttings	1985 - 1994	885742
AG	390m SW	Unspecified Ground Workings	1985 - 1994	864402
AG	390m SW	Unspecified Ground Workings	1977	925638
AF	390m NW	Unspecified Heap	1949	841480
AG	390m SW	Old Lime Kiln	1910 - 1938	864507
AD	391m NW	Fire Clay Works	1938	905249
AE	391m W	Cuttings	1938 - 1949	917392
AF	392m NW	Refuse Heap	1960	808621
AF	394m NW	Unspecified Ground Workings	1910	813143
AE	394m W	Cuttings	1910	990030
AF	395m NW	Unspecified Heaps	1938	1007669
AH	395m NW	Unspecified Heap	1873 - 1898	905401
AH	395m NW	Unspecified Heap	1949	990585
AH	396m NW	Unspecified Heap	1985 - 1994	867976
AH	396m NW	Unspecified Heap	1960 - 1977	967340

ID	Location	Land use	Dates present	Group ID
AH	396m NW	Unspecified Heap	1910	899705
F	398m SW	Unspecified Disused Shaft	1985 - 1994	896267
F	398m SW	Unspecified Disused Shaft	1977	948566
AI	398m W	Unspecified Heap	1985 - 1994	931673
AI	398m W	Unspecified Heap	1977	993344
AH	399m NW	Unspecified Heap	1938	895308
Q	400m S	Unspecified Tank	1977	958271
Q	400m S	Unspecified Tank	1985 - 1994	982476
AC	401m N	Unspecified Heaps	1960	968362
AC	401m N	Unspecified Ground Workings	1910	999176
AC	402m N	Unspecified Heaps	1938	925228
AC	402m N	Unspecified Heap	1949	887573
AC	404m N	Unspecified Heaps	1873	949933
AC	405m N	Unspecified Heap	1977	878003
AC	405m N	Unspecified Heap	1985 - 1994	911483
AB	406m E	Unspecified Old Shafts	1960	844780
I	407m NE	Unspecified Heap	1949 - 1960	1007011
L	408m E	Unspecified Ground Workings	1910	814670
I	409m NE	Unspecified Heap	1910	985501
L	409m E	Unspecified Heap	1938	984364
L	409m E	Unspecified Heap	1977	936441
L	409m E	Unspecified Heap	1985 - 1994	951541
I	410m NE	Unspecified Heap	1938	1007509
L	410m E	Unspecified Heap	1960	940323
L	411m E	Unspecified Heap	1949	894167
I	412m NE	Unspecified Heap	1873	882990
AJ	414m NW	Unspecified Heap	1960 - 1977	883228
AJ	414m NW	Unspecified Heap	1985 - 1994	974484

ID	Location	Land use	Dates present	Group ID
F	415m SW	Fire Clay Works	1873 - 1898	978122
F	415m SW	Fire Clay Works	1949	996950
F	416m SW	Unspecified Works	1960	835320
AJ	417m NW	Unspecified Heap	1873 - 1898	878630
AJ	417m NW	Unspecified Heap	1949	909163
F	417m SW	Unspecified Tanks	1873	953301
F	417m SW	Unspecified Tanks	1960	981065
F	417m SW	Unspecified Tank	1898	849775
F	417m SW	Fire Clay Works	1938	897533
AJ	418m NW	Unspecified Heap	1938	975268
AJ	418m NW	Unspecified Heap	1910	993304
I	419m NE	Unspecified Ground Workings	1985 - 1994	938221
I	419m NE	Unspecified Ground Workings	1977	961483
F	419m SW	Unspecified Tanks	1949	997079
F	419m SW	Fire Clay Works	1910	876369
F	420m SW	Unspecified Tanks	1910 - 1938	905603
Q	421m S	Unspecified Tank	1977	867536
Q	421m S	Unspecified Tank	1985 - 1994	896045
F	423m SW	Unspecified Tanks	1910	889435
AG	423m SW	Unspecified Tanks	1960	819001
Q	425m S	Unspecified Tank	1949	942564
F	425m SW	Unspecified Tank	1898	849776
AE	426m NW	Unspecified Heap	1938	903565
AE	426m W	Unspecified Heap	1873 - 1898	906775
AE	433m NW	Unspecified Heap	1977	916307
AE	433m NW	Unspecified Heap	1985 - 1994	921649
AK	433m SE	Unspecified Disused Quarry	1985	908319
AK	433m SE	Unspecified Disused Quarry	1977	975065

ID	Location	Land use	Dates present	Group ID
AE	435m NW	Unspecified Heap	1960	944342
AF	436m NW	Unspecified Heap	1949 - 1960	891245
6	438m E	Railway Sidings	1873	985619
AL	440m NE	Unspecified Heap	1938	999002
AL	441m NE	Unspecified Ground Workings	1949	921417
AM	442m E	Cuttings	1985 - 1994	1002230
AM	442m E	Cuttings	1960 - 1977	1007721
AM	445m E	Cuttings	1873	896771
AM	445m E	Cuttings	1898	907503
AM	445m E	Cuttings	1949	949196
F	445m SW	Unspecified Tank	1898	849794
AN	448m NE	Brick and Tile Works	1898 - 1910	869507
AE	450m W	Unspecified Old Shaft	1960	886977
AN	451m NE	Brick and Tile Works	1873	930419
AE	453m W	Unspecified Disused Shaft	1977	865849
AE	453m W	Unspecified Disused Shaft	1985 - 1994	869463
AL	453m NE	Unspecified Disused Old Shafts	1960	820873
AE	454m W	Old Coal Shaft	1949	913637
AE	454m W	Unspecified Old Shaft	1898	1002343
R	454m NE	Unspecified Tank	1938	933825
AL	454m NE	Coal Shafts	1873	824048
AE	455m W	Old Coal Shaft	1938	878393
R	455m NE	Unspecified Tank	1873 - 1898	962330
AL	455m NE	Old Coal Shafts	1949	904696
AL	455m NE	Old Coal Shafts	1910 - 1938	909290
R	455m NE	Unspecified Tank	1960	875052
AE	456m W	Old Coal Shaft	1910	875251
F	460m SW	Unspecified Tank	1898	849795

ID	Location	Land use	Dates present	Group ID
AO	461m SE	Railway Sidings	1910 - 1938	902463
AK	461m SE	Unspecified Quarry	1910	879587
AL	462m NE	Coal Shafts	1873	824049
AP	466m NE	Unspecified Heap	1910	924750
AK	468m SE	Unspecified Quarry	1938	882349
F	469m SW	Unspecified Tank	1898	849796
AP	470m NE	Unspecified Heap	1938	899896
AQ	470m S	Pottery	1873	812042
AK	470m SE	Unspecified Quarry	1898	964648
AK	471m E	Unspecified Quarry	1960	864352
AO	471m SE	Unspecified Heap	1949	842699
AK	472m E	Unspecified Quarry	1949	940763
R	472m NE	Unspecified Tank	1873 - 1898	860899
7	473m NE	Tramway Sidings	1910 - 1938	893102
AC	477m N	Unspecified Heap	1910	913100
AQ	478m S	Disused Pottery	1898	822871
AP	479m NE	Cuttings	1873	807170
AR	479m NW	Unspecified Heap	1873 - 1898	948454
AR	479m NW	Unspecified Heap	1949	981301
AR	480m NW	Unspecified Heaps	1960 - 1977	871356
AR	480m NW	Unspecified Heaps	1985	986131
AS	480m N	Railway Sidings	1960	909928
9	480m NE	Railway Building	1910 - 1938	980900
AR	481m NW	Unspecified Heaps	1910	1010007
AR	482m NW	Unspecified Heaps	1938	930782
AP	483m NE	Unspecified Heap	1960	889546
10	484m N	Unspecified Ground Workings	1949	1003701
AR	485m NW	Unspecified Heap	1994	894233

ID	Location	Land use	Dates present	Group ID
AS	485m N	Railway Sidings	1949	998036
11	485m E	Railway Sidings	1949	938957
AC	489m N	Unspecified Shaft	1960	824861
F	489m SW	Unspecified Shaft	1873	824862
L	489m E	Coke Ovens	1873	806107
AC	490m N	Clay Shaft	1910	943551
AC	490m N	Clay Shafts	1949	826346
F	491m SW	Unspecified Tanks	1960	993525
F	493m SW	Unspecified Tank	1938	849793
AC	493m N	Clay Shaft	1938	878680
AS	494m N	Tramway Sidings	1910 - 1938	898852
F	494m SW	Unspecified Tanks	1898	909829
AP	494m NE	Coal Shafts	1873	824050
F	495m SW	Unspecified Tanks	1910	903293
AT	497m SE	Unspecified Quarry	1910	1003651
AT	499m SE	Unspecified Quarry	1938	863832
AU	499m NW	Unspecified Heap	1873 - 1898	874838
AU	499m NW	Unspecified Heap	1949	900654

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**65**

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
B	62m S	Unspecified Tank	1963	135330
B	62m S	Unspecified Tank	1977	152951
B	62m S	Unspecified Tank	1988	130824
B	62m S	Unspecified Tank	1992	142713
B	93m SE	Tanks	1963 - 1992	139804
B	128m SE	Gas Works	1873 - 1875	145321
B	128m SE	Gas Works	1875 - 1912	151276
B	128m SE	Gas Works	1912	142277
B	140m SE	Gas Works	1899	128244
B	140m SE	Gasometer	1875	137276
B	141m SE	Gasometers	1899 - 1912	134441
A	199m S	Tanks	1963 - 1992	128602
B	221m S	Tanks	1963 - 1977	141570
B	223m S	Tanks	1988 - 1992	141444
B	225m S	Unspecified Tank	1963 - 1992	140081
B	235m S	Tanks	1988 - 1992	126969
W	264m SE	Unspecified Tank	1873	115371
Q	286m S	Unspecified Tank	1912	115401
Q	292m S	Unspecified Tank	1912	115400
Q	294m S	Unspecified Tank	1912	115399
Q	333m SE	Tanks	1963 - 1992	139885
Q	336m S	Unspecified Tank	1875	126721
Q	342m S	Tanks	1963	108787
Q	344m S	Tanks	1899	108776
Q	344m S	Tanks	1963 - 1992	150639
Q	348m S	Tanks	1963 - 1992	141316
Q	349m S	Unspecified Tank	1912	115402
Q	359m S	Unspecified Tank	1912	115404

ID	Location	Land use	Dates present	Group ID
Q	359m S	Unspecified Tank	1912	115403
Q	364m S	Unspecified Tank	1912	115405
Q	366m S	Tanks	1912	108779
Q	367m S	Tanks	1912	108778
Q	369m S	Tanks	1912	108780
Q	370m S	Unspecified Tank	1977	134882
Q	370m S	Unspecified Tank	1963	144179
Q	371m S	Unspecified Tank	1992	130611
Q	371m S	Unspecified Tank	1988	131451
Q	372m S	Tanks	1912	108777
Q	372m S	Unspecified Tank	1963	148029
Q	372m S	Unspecified Tank	1977	154318
Q	373m S	Tanks	1912	108774
Q	373m S	Unspecified Tank	1992	135139
Q	373m S	Unspecified Tank	1988	136233
Q	383m S	Tanks	1963 - 1992	149732
Q	383m S	Tanks	1912	108775
L	404m E	Unspecified Tank	1972 - 1988	153247
L	404m E	Tanks	1994	150961
L	405m E	Tanks	1991	140995
L	406m E	Tanks	1991	144035
Q	410m S	Unspecified Tank	1963 - 1977	145272
Q	414m S	Tanks	1963 - 1992	149285
F	419m SW	Tanks	1912	144364
F	422m SW	Tanks	1875 - 1899	128052
AG	425m SW	Tanks	1875	149341
Q	425m S	Unspecified Tank	1963 - 1992	149991
F	443m SW	Tanks	1912	154183

ID	Location	Land use	Dates present	Group ID
F	445m SW	Tanks	1899	126791
F	445m SW	Tanks	1875	146429
R	452m NE	Unspecified Tank	1873 - 1962	147765
Q	461m S	Unspecified Tank	1875	123287
R	469m NE	Unspecified Tank	1873 - 1899	128183
Q	473m S	Unspecified Tank	1875	123286
8	477m S	Unspecified Tank	1963 - 1992	127665
F	495m SW	Tanks	1899 - 1912	126792
Q	497m S	Tanks	1963	111502

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**7**

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
B	128m SE	Gas Works	1875 - 1912	71248
B	128m SE	Gas Works	1873 - 1875	85512
B	128m SE	Gas Works	1912	85246
B	140m SE	Gas Works	1899	91809
B	140m SE	Gasometer	1875	79930
B	141m SE	Gasometers	1899 - 1912	84720
3	215m W	Electricity Substation	1988 - 1992	81436

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	3

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
C	13m NE	Garage	1977	23276
C	15m NE	Garage	1991 - 1992	25320
C	24m NE	Garage	1994	23971

This data is sourced from Ordnance Survey / Groundsure.

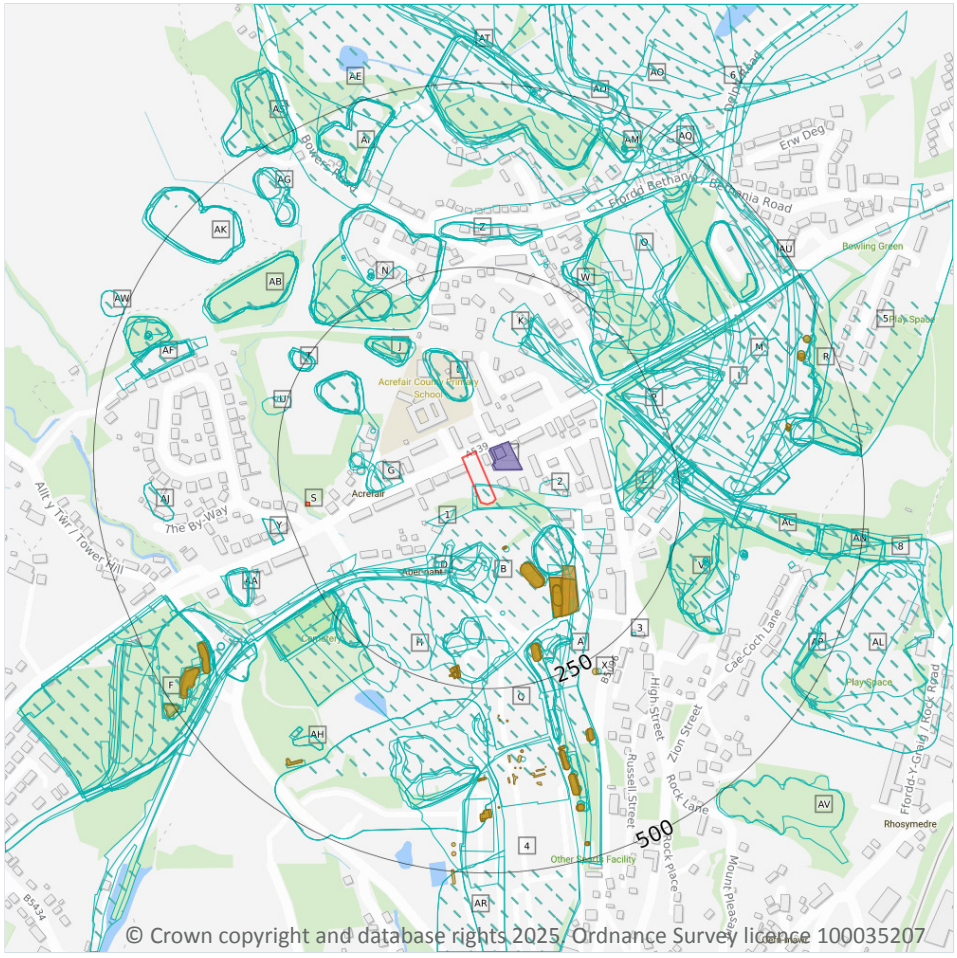
1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped



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2.1 Historical industrial land uses

Records within 500m	530

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 35 >**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Railway Sidings**	**1949**	**971803**
A	**On site**	**Railway Sidings**	**1960**	**971803**
B	5m S	Unspecified Commercial/Industrial	1960	872721

ID	Location	Land Use	Date	Group ID
1	36m SW	Unspecified Heap	1873	841438
B	52m S	Unspecified Ground Workings	1938	939274
B	52m S	Unspecified Ground Workings	1938	939274
B	54m S	Unspecified Ground Workings	1910	925399
B	56m S	Unspecified Pit	1949	885803
B	57m S	Unspecified Pit	1960	885803
2	60m E	Unspecified Heap	1873	841439
B	62m S	Unspecified Tank	1960	848855
D	64m SW	Railway Sidings	1938	989213
D	70m SW	Railway Sidings	1910	904667
E	70m N	Unspecified Heap	1873	996695
E	70m N	Unspecified Heap	1949	928315
E	70m N	Unspecified Heap	1898	996695
E	71m N	Unspecified Heap	1910	999163
E	71m N	Unspecified Heap	1960	955702
F	72m S	Railway Sidings	1898	957986
E	73m N	Unspecified Heap	1938	897225
E	73m N	Unspecified Heap	1938	897225
B	75m SE	Unspecified Heap	1910	872171
B	77m S	Unspecified Shaft	1898	824863
B	77m SE	Unspecified Heap	1938	895324
B	77m SE	Unspecified Heap	1938	895324
B	81m SE	Unspecified Heap	1873	997134
B	81m SE	Unspecified Heap	1994	988925
B	81m SE	Unspecified Heap	1977	984118
B	81m SE	Unspecified Heap	1985	988925
B	81m SE	Unspecified Heap	1960	984118
B	84m S	Unspecified Tank	1960	848854

ID	Location	Land Use	Date	Group ID
G	86m W	Unspecified Heap	1873	877174
B	92m SE	Unspecified Tank	1994	1008098
B	92m SE	Unspecified Tank	1977	913668
B	92m SE	Unspecified Tank	1985	1008098
B	95m SE	Unspecified Tanks	1960	819002
B	95m SW	Railway Building	1898	853367
B	98m SE	Unspecified Tank	1949	967991
D	99m SW	Railway Sidings	1949	961896
G	101m W	Unspecified Heaps	1910	898726
B	103m S	Unspecified Ground Workings	1960	917510
G	111m W	Unspecified Heap	1960	973862
B	112m SE	Unspecified Commercial/Industrial	1949	867505
B	114m SE	Unspecified Tank	1994	878374
B	114m SE	Unspecified Tank	1977	955461
B	114m SE	Unspecified Tank	1985	878374
G	116m W	Unspecified Heap	1949	973862
G	117m W	Unspecified Heaps	1873	891152
B	118m SE	Unspecified Tank	1949	872936
H	123m S	Iron Foundry	1873	857003
G	123m W	Unspecified Old Shafts	1898	844787
B	130m SE	Gas Works	1873	852805
G	132m W	Unspecified Pit	1949	827613
G	133m W	Unspecified Tank	1960	848871
G	136m W	Unspecified Heap	1960	841481
B	137m SE	Unspecified Tank	1960	849940
B	138m SE	Unspecified Tanks	1960	818999
B	138m SE	Gasometer	1910	860486
B	139m SE	Unspecified Tank	1949	879608

ID	Location	Land Use	Date	Group ID
B	143m SE	Gasometer	1873	879974
B	143m SE	Unspecified Tank	1898	952474
B	146m S	Unspecified Tank	1960	848853
I	149m NE	Railway Sidings	1898	997459
G	149m NW	Unspecified Heaps	1949	861468
G	149m NW	Unspecified Heaps	1898	1003786
J	149m NW	Unspecified Heap	1949	874461
J	150m NW	Unspecified Heap	1960	873800
B	152m S	Unspecified Foundry	1910	918465
H	152m SW	Unspecified Heap	1873	841443
J	152m NW	Unspecified Heap	1910	940504
K	152m N	Unspecified Heap	1873	940753
J	152m NW	Unspecified Heap	1873	942687
B	152m SE	Gasometer	1910	812112
B	152m SE	Unspecified Tank	1898	950999
B	153m SE	Unspecified Tank	1949	874449
G	153m NW	Unspecified Heap	1994	947219
G	153m NW	Unspecified Heap	1977	937369
G	153m NW	Unspecified Heap	1985	947219
G	153m NW	Unspecified Heap	1960	937369
J	154m NW	Unspecified Heap	1938	894405
J	154m NW	Unspecified Heap	1938	894405
K	154m NE	Railway Sidings	1949	884701
G	154m NW	Unspecified Heap	1938	968485
G	154m NW	Unspecified Heap	1938	968485
G	155m NW	Unspecified Heap	1910	879554
J	155m NW	Unspecified Heap	1994	1006785
J	155m NW	Unspecified Heap	1977	890943

ID	Location	Land Use	Date	Group ID
J	155m NW	Unspecified Heap	1985	1006785
B	156m S	Unspecified Heap	1938	1005818
B	156m S	Unspecified Heap	1938	1005818
B	156m S	Unspecified Heap	1910	911091
K	156m NE	Railway Sidings	1960	949015
K	157m NE	Railway Sidings	1938	897040
K	157m NE	Unspecified Heap	1994	888752
K	157m NE	Unspecified Heap	1977	875753
K	157m NE	Unspecified Heap	1985	888752
B	160m S	Unspecified Heap	1873	952911
L	163m E	Railway Sidings	1949	880568
L	163m E	Unspecified Heap	1938	984354
L	163m E	Unspecified Heap	1938	984354
K	163m NE	Railway Sidings	1910	860867
M	164m E	Railway Sidings	1938	976966
L	165m E	Railway Sidings	1960	1009708
L	172m E	Unspecified Heap	1873	976813
I	173m E	Railway Sidings	1873	912919
B	175m S	Unspecified Foundry	1898	918465
L	176m E	Railway Buildings	1960	810632
B	183m S	Unspecified Heap	1873	988033
D	183m SW	Unspecified Heap	1873	841441
N	185m NW	Unspecified Heap	1873	889619
N	185m NW	Unspecified Ground Workings	1898	976014
A	186m SE	Unspecified Ground Workings	1938	882410
A	186m SE	Unspecified Ground Workings	1938	882410
L	189m E	Railway Building	1873	891442
L	189m E	Railway Building	1898	891442

ID	Location	Land Use	Date	Group ID
M	192m E	Railway Sidings	1910	995962
M	194m NE	Engineering Works	1949	895985
M	194m NE	Engineering Works	1898	861653
M	194m NE	Engineering Works	1910	863530
M	194m NE	Unspecified Works	1960	900510
A	195m S	Unspecified Tank	1994	934065
A	195m S	Unspecified Tank	1977	960781
A	195m S	Unspecified Tank	1985	934065
A	197m S	Unspecified Ground Workings	1910	1007223
O	197m NE	Unspecified Ground Workings	1910	923397
O	198m NE	Unspecified Ground Workings	1938	981290
O	198m NE	Unspecified Ground Workings	1938	981290
A	199m S	Unspecified Quarry and Ground Workings	1873	820320
O	199m NE	Unspecified Ground Workings	1960	991104
A	200m S	Unspecified Ground Workings	1949	1002426
A	201m S	Unspecified Ground Workings	1960	905266
O	202m NE	Unspecified Ground Workings	1994	1003667
O	202m NE	Unspecified Ground Workings	1977	991104
O	202m NE	Unspecified Ground Workings	1985	1003667
P	203m NE	Unspecified Ground Workings	1949	813109
M	204m NE	Unspecified Commercial/Industrial	1938	822309
Q	204m S	Unspecified Commercial/Industrial	1910	908941
D	205m SW	Unspecified Heap	1873	999700
R	205m NE	Iron Works	1873	808505
Q	207m S	Unspecified Works	1960	924385
N	207m NW	Unspecified Ground Workings	1949	967338
N	209m NW	Unspecified Ground Workings	1977	989297
N	209m NW	Unspecified Ground Workings	1985	923695

ID	Location	Land Use	Date	Group ID
N	209m NW	Unspecified Ground Workings	1960	989297
A	209m S	Unspecified Tank	1994	1008457
A	209m S	Unspecified Tank	1977	894439
A	209m S	Unspecified Tank	1985	1008457
P	212m NE	Unspecified Pit	1938	948330
P	212m NE	Unspecified Pit	1938	948330
M	213m NE	Unspecified Works	1994	978222
M	213m NE	Unspecified Works	1977	901161
M	213m NE	Unspecified Works	1985	978222
N	217m NW	Unspecified Pit	1949	860523
N	217m NW	Unspecified Ground Workings	1910	976014
L	218m E	Unspecified Ground Workings	1910	813108
N	219m NW	Unspecified Pit	1938	870276
N	219m NW	Unspecified Pit	1938	870276
N	221m NW	Unspecified Ground Workings	1994	862829
N	222m N	Unspecified Heap	1938	889490
N	222m N	Unspecified Heap	1938	889490
O	222m NE	Unspecified Heap	1949	897086
D	229m SW	Unspecified Heap	1938	985949
D	229m SW	Unspecified Heap	1938	985949
D	231m SW	Cemetery	1994	1001229
D	231m SW	Cemetery	1977	985550
D	231m SW	Cemetery	1985	1001229
L	231m E	Railway Sidings	1898	951798
D	231m SW	Unspecified Heap	1910	930898
D	231m SW	Burial Ground	1873	844705
D	231m SW	Cemetery	1949	921856
D	231m SW	Cemetery	1898	942302

ID	Location	Land Use	Date	Group ID
D	232m SW	Cemetery	1960	869702
M	234m NE	Unspecified Heap	1938	984456
M	234m NE	Unspecified Heap	1938	984456
D	234m SW	Cemetery	1938	935111
D	235m SW	Unspecified Heap	1960	901502
T	236m NW	Unspecified Heap	1873	890447
T	236m NW	Unspecified Heap	1949	944459
T	236m NW	Unspecified Heap	1898	890447
H	236m SW	Unspecified Heap	1873	841442
M	237m NE	Unspecified Ground Workings	1949	948568
D	237m SW	Cemetery	1910	935111
T	239m NW	Unspecified Heap	1960	929973
L	239m E	Railway Sidings	1949	939018
T	239m NW	Unspecified Heap	1910	890447
D	240m SW	Unspecified Heap	1949	901502
L	240m E	Railway Sidings	1910	1001271
T	240m NW	Unspecified Heap	1938	897952
T	240m NW	Unspecified Heap	1938	897952
L	240m E	Railway Station	1960	867629
L	240m E	Railway Sidings	1960	881293
L	241m E	Railway Building	1898	853366
L	242m E	Railway Station	1910	893966
L	244m E	Railway Station	1938	923273
L	244m E	Railway Station	1873	981215
U	244m W	Unspecified Heap	1873	841478
L	244m E	Railway Station	1949	923273
M	245m E	Railway Sidings	1960	887181
M	245m NE	Unspecified Ground Workings	1873	974161

ID	Location	Land Use	Date	Group ID
O	246m NE	Unspecified Heap	1898	875687
V	246m E	Unspecified Heaps	1938	968845
V	246m E	Unspecified Heaps	1938	968845
V	247m E	Unspecified Heaps	1949	978638
V	247m E	Unspecified Ground Workings	1910	892513
L	247m E	Railway Station	1898	932977
V	248m E	Unspecified Heaps	1960	936797
V	249m E	Unspecified Ground Workings	1873	863284
U	257m W	Unspecified Old Shafts	1898	844786
3	259m SE	Unspecified Old Shaft	1898	823479
O	259m NE	Unspecified Heap	1873	977093
W	260m NE	Unspecified Ground Workings	1949	929632
M	261m E	Railway Sidings	1949	974035
N	261m NW	Unspecified Ground Workings	1938	975389
N	261m NW	Unspecified Ground Workings	1938	975389
N	261m NW	Unspecified Heap	1910	928432
M	261m NE	Cuttings	1873	807172
Q	266m S	Unspecified Works	1994	995906
Q	266m S	Unspecified Works	1977	872094
Q	266m S	Unspecified Works	1985	995906
Y	266m SW	Police Station	1994	936359
Y	266m SW	Police Station	1977	923940
Y	266m SW	Police Station	1985	936359
X	266m SE	Unspecified Tank	1873	849861
W	267m N	Unspecified Old Shaft	1898	822925
W	267m N	Smithy	1898	832542
N	270m NW	Unspecified Old Shaft	1960	902812
N	272m NW	Old Coal Shaft	1949	893229

ID	Location	Land Use	Date	Group ID
N	272m NW	Unspecified Old Shaft	1898	898716
N	272m NW	Old Coal Shaft	1910	867023
N	274m NW	Unspecified Old Shaft	1938	994457
N	274m NW	Unspecified Old Shaft	1938	994457
N	277m NW	Unspecified Disused Shaft	1977	989453
N	277m NW	Unspecified Disused Shaft	1985	1008652
Q	283m S	Unspecified Heap	1938	868986
Q	283m S	Unspecified Heap	1938	868986
Z	284m N	Unspecified Ground Workings	1910	813107
Z	285m N	Unspecified Heap	1960	920761
Z	286m N	Unspecified Heap	1938	894291
Z	286m N	Unspecified Heap	1938	894291
O	287m NE	Unspecified Heap	1873	948060
V	287m SE	Unspecified Ground Workings	1994	993697
V	287m SE	Unspecified Ground Workings	1977	985252
V	287m SE	Unspecified Ground Workings	1985	993697
Q	290m S	Unspecified Ground Workings	1910	813113
Q	291m S	Unspecified Heap	1873	900978
Q	292m S	Unspecified Pit	1873	827602
V	293m E	Old Coal Shafts	1910	897032
V	293m E	Unspecified Disused Shafts	1994	983776
V	293m E	Unspecified Disused Shafts	1977	970236
V	293m E	Unspecified Disused Shafts	1985	983776
V	293m E	Unspecified Old Shafts	1938	876819
V	293m E	Unspecified Old Shafts	1938	876819
V	295m E	Old Coal Shafts	1949	996723
V	296m E	Unspecified Old Shafts	1960	990499
L	310m E	Unspecified Ground Workings	1873	813106

ID	Location	Land Use	Date	Group ID
N	312m NW	Unspecified Old Shaft	1960	1007636
AA	314m SW	Unspecified Heap	1873	906479
N	315m NW	Unspecified Old Shaft	1938	947077
N	315m NW	Unspecified Old Shaft	1938	947077
L	320m E	Unspecified Heap	1910	841440
AB	320m NW	Unspecified Heap	1873	922086
AB	320m NW	Unspecified Heap	1949	873574
AB	320m NW	Unspecified Heap	1898	922086
AC	321m E	Cuttings	1949	1005903
AC	321m E	Cuttings	1898	1002358
AC	321m E	Cuttings	1873	1002358
Q	324m S	Unspecified Heap	1949	968111
Q	324m S	Unspecified Heap	1898	991250
AA	325m SW	Unspecified Heap	1960	957429
Q	326m S	Unspecified Commercial/Industrial	1910	822071
AC	326m E	Cuttings	1994	1009789
AC	326m E	Cuttings	1977	982443
AC	326m E	Cuttings	1985	1009789
AC	326m E	Cuttings	1960	982443
AB	327m NW	Unspecified Heap	1994	922436
AB	327m NW	Unspecified Heap	1977	869291
AB	327m NW	Unspecified Heap	1985	922436
AB	327m NW	Unspecified Heap	1960	869291
AC	327m E	Cuttings	1910	974698
Q	327m S	Unspecified Heap	1873	1005482
AA	327m SW	Unspecified Heap	1938	991960
AA	327m SW	Unspecified Heap	1938	991960
AB	327m NW	Unspecified Heap	1938	1009210

ID	Location	Land Use	Date	Group ID
AB	327m NW	Unspecified Heap	1938	1009210
AB	328m NW	Unspecified Heap	1910	933325
AC	328m E	Cuttings	1938	974698
AA	329m SW	Unspecified Heap	1910	979058
4	330m S	Chemical Works	1949	944594
AA	331m SW	Unspecified Heap	1949	875743
Q	335m S	Unspecified Tanks	1949	867875
Q	338m SE	Unspecified Tanks	1960	867875
V	339m E	Unspecified Old Shaft	1898	822926
Q	339m S	Unspecified Ground Workings	1910	813112
V	339m E	Unspecified Disused Shafts	1994	927040
V	339m E	Unspecified Disused Shafts	1977	903780
V	339m E	Unspecified Disused Shafts	1985	927040
V	342m E	Old Coal Shafts	1910	836764
V	343m E	Unspecified Old Shafts	1938	985041
V	343m E	Unspecified Old Shafts	1938	985041
V	343m E	Old Coal Shaft	1949	810900
Q	343m S	Unspecified Tank	1994	873137
Q	343m S	Unspecified Tank	1977	1000387
Q	343m S	Unspecified Tank	1985	873137
Q	343m S	Unspecified Heap	1960	871821
Q	343m S	Unspecified Old Shaft	1898	822927
V	344m E	Unspecified Old Shafts	1960	981367
Q	346m S	Unspecified Tank	1898	848852
Q	353m S	Unspecified Tanks	1949	874131
AD	357m N	Opencast Workings	1977	975841
AD	357m N	Opencast Workings	1985	949792
L	357m E	Unspecified Pit	1994	886955

ID	Location	Land Use	Date	Group ID
L	357m E	Unspecified Pit	1977	898051
L	357m E	Unspecified Pit	1985	886955
Q	358m S	Unspecified Heap	1938	938699
Q	358m S	Unspecified Heap	1938	938699
Q	358m S	Unspecified Tank	1994	986315
Q	358m S	Unspecified Tank	1977	925225
Q	358m S	Unspecified Tank	1985	986315
Q	358m S	Unspecified Tanks	1960	874131
L	360m E	Unspecified Ground Workings	1873	813105
F	362m SW	Unspecified Heap	1938	910866
F	362m SW	Unspecified Heap	1938	910866
Q	362m S	Chemical Works	1873	865797
F	363m SW	Unspecified Heap	1949	989058
F	364m SW	Unspecified Heap	1910	984379
AE	364m NW	Unspecified Works	1960	834990
F	368m SW	Railway Sidings	1873	940974
F	371m SW	Railway Sidings	1949	907764
Q	372m S	Chemical Works	1898	947158
F	374m SW	Railway Sidings	1960	906694
F	376m SW	Railway Sidings	1938	953734
F	377m SW	Railway Sidings	1910	959664
AF	377m NW	Cuttings	1873	920723
Q	380m S	Unspecified Tank	1994	914964
Q	380m S	Unspecified Tank	1977	972213
Q	380m S	Unspecified Tank	1985	914964
AG	389m NW	Unspecified Heaps	1873	904064
AF	389m W	Cuttings	1994	885742
AF	389m W	Cuttings	1977	869311

ID	Location	Land Use	Date	Group ID
AF	389m W	Cuttings	1985	885742
AF	389m W	Cuttings	1960	869311
AH	390m SW	Unspecified Ground Workings	1994	864402
AH	390m SW	Unspecified Ground Workings	1977	925638
AH	390m SW	Unspecified Ground Workings	1985	864402
AG	390m NW	Unspecified Heap	1949	841480
AH	390m SW	Old Lime Kiln	1938	864507
AE	391m NW	Fire Clay Works	1938	905249
AF	391m W	Cuttings	1938	917392
AH	392m SW	Old Lime Kiln	1910	864507
AG	392m NW	Refuse Heap	1960	808621
AF	393m W	Cuttings	1949	917392
AG	394m NW	Unspecified Ground Workings	1910	813143
AF	394m W	Cuttings	1910	990030
AG	395m NW	Unspecified Heaps	1938	1007669
AG	395m NW	Unspecified Heaps	1938	1007669
AI	395m NW	Unspecified Heap	1873	905401
AI	395m NW	Unspecified Heap	1949	990585
AI	395m NW	Unspecified Heap	1898	905401
AI	396m NW	Unspecified Heap	1994	867976
AI	396m NW	Unspecified Heap	1977	967340
AI	396m NW	Unspecified Heap	1985	867976
AI	396m NW	Unspecified Heap	1960	967340
AI	396m NW	Unspecified Heap	1910	899705
F	398m SW	Unspecified Disused Shaft	1994	896267
F	398m SW	Unspecified Disused Shaft	1977	948566
F	398m SW	Unspecified Disused Shaft	1985	896267
AJ	398m W	Unspecified Heap	1994	931673

ID	Location	Land Use	Date	Group ID
AJ	398m W	Unspecified Heap	1977	993344
AJ	398m W	Unspecified Heap	1985	931673
AI	399m NW	Unspecified Heap	1938	895308
AI	399m NW	Unspecified Heap	1938	895308
Q	399m S	Chemical Works	1910	947158
Q	400m S	Unspecified Tank	1994	982476
Q	400m S	Unspecified Tank	1977	958271
Q	400m S	Unspecified Tank	1985	982476
AD	401m N	Unspecified Heaps	1960	968362
AD	401m N	Unspecified Ground Workings	1910	999176
AD	402m N	Unspecified Heaps	1938	925228
AD	402m N	Unspecified Heaps	1938	925228
AD	402m N	Unspecified Heap	1949	887573
AD	404m N	Unspecified Heaps	1873	949933
AD	405m N	Unspecified Heap	1994	911483
AD	405m N	Unspecified Heap	1977	878003
AD	405m N	Unspecified Heap	1985	911483
AC	406m E	Unspecified Old Shafts	1960	844780
I	407m NE	Unspecified Heap	1949	1007011
L	408m E	Unspecified Ground Workings	1910	814670
I	409m NE	Unspecified Heap	1910	985501
L	409m E	Unspecified Heap	1938	984364
L	409m E	Unspecified Heap	1938	984364
L	409m E	Unspecified Heap	1994	951541
L	409m E	Unspecified Heap	1977	936441
L	409m E	Unspecified Heap	1985	951541
I	410m NE	Unspecified Heap	1938	1007509
I	410m NE	Unspecified Heap	1938	1007509

ID	Location	Land Use	Date	Group ID
I	410m NE	Unspecified Heap	1960	1007011
L	410m E	Unspecified Heap	1960	940323
L	411m E	Unspecified Heap	1949	894167
I	412m NE	Unspecified Heap	1873	882990
AK	414m NW	Unspecified Heap	1994	974484
AK	414m NW	Unspecified Heap	1977	883228
AK	414m NW	Unspecified Heap	1985	974484
AK	414m NW	Unspecified Heap	1960	883228
F	415m SW	Fire Clay Works	1873	978122
F	415m SW	Fire Clay Works	1949	996950
F	415m SW	Fire Clay Works	1898	978122
F	416m SW	Unspecified Works	1960	835320
AK	417m NW	Unspecified Heap	1873	878630
AK	417m NW	Unspecified Heap	1949	909163
AK	417m NW	Unspecified Heap	1898	878630
F	417m SW	Unspecified Tanks	1873	953301
F	417m SW	Unspecified Tanks	1960	981065
F	417m SW	Unspecified Tank	1898	849775
F	417m SW	Fire Clay Works	1938	897533
AK	418m NW	Unspecified Heap	1938	975268
AK	418m NW	Unspecified Heap	1938	975268
AK	418m NW	Unspecified Heap	1910	993304
I	419m NE	Unspecified Ground Workings	1994	938221
I	419m NE	Unspecified Ground Workings	1977	961483
I	419m NE	Unspecified Ground Workings	1985	938221
F	419m SW	Unspecified Tanks	1949	997079
F	419m SW	Fire Clay Works	1910	876369
F	420m SW	Unspecified Tanks	1938	905603

ID	Location	Land Use	Date	Group ID
Q	421m S	Unspecified Tank	1994	896045
Q	421m S	Unspecified Tank	1977	867536
Q	421m S	Unspecified Tank	1985	896045
F	423m SW	Unspecified Tanks	1910	889435
AH	423m SW	Unspecified Tanks	1960	819001
Q	425m S	Unspecified Tank	1949	942564
F	425m SW	Unspecified Tank	1898	849776
AF	426m NW	Unspecified Heap	1938	903565
AF	426m NW	Unspecified Heap	1938	903565
AF	426m W	Unspecified Heap	1873	906775
AF	426m W	Unspecified Heap	1898	906775
AF	433m NW	Unspecified Heap	1994	921649
AF	433m NW	Unspecified Heap	1977	916307
AF	433m NW	Unspecified Heap	1985	921649
AL	433m SE	Unspecified Disused Quarry	1977	975065
AL	433m SE	Unspecified Disused Quarry	1985	908319
AF	435m NW	Unspecified Heap	1960	944342
AG	436m NW	Unspecified Heap	1960	891245
AG	436m NW	Unspecified Heap	1949	891245
5	438m E	Railway Sidings	1873	985619
AM	440m NE	Unspecified Heap	1938	999002
AM	440m NE	Unspecified Heap	1938	999002
AM	441m NE	Unspecified Ground Workings	1949	921417
AN	442m E	Cuttings	1994	1002230
AN	442m E	Cuttings	1977	1007721
AN	442m E	Cuttings	1985	1002230
AN	442m E	Cuttings	1960	1007721
F	444m SW	Unspecified Tanks	1910	905603

ID	Location	Land Use	Date	Group ID
AN	445m E	Cuttings	1949	949196
AN	445m E	Cuttings	1898	907503
AN	445m E	Cuttings	1873	896771
F	445m SW	Unspecified Tank	1898	849794
AO	448m NE	Brick and Tile Works	1898	869507
AF	450m W	Unspecified Old Shaft	1960	886977
AO	451m NE	Brick and Tile Works	1873	930419
AF	453m W	Unspecified Disused Shaft	1994	869463
AF	453m W	Unspecified Disused Shaft	1977	865849
AF	453m W	Unspecified Disused Shaft	1985	869463
AM	453m NE	Unspecified Disused Old Shafts	1960	820873
AF	454m W	Old Coal Shaft	1949	913637
AF	454m W	Unspecified Old Shaft	1898	1002343
R	454m NE	Unspecified Tank	1938	933825
AM	454m NE	Coal Shafts	1873	824048
AF	455m W	Old Coal Shaft	1938	878393
R	455m NE	Unspecified Tank	1898	962330
AM	455m NE	Old Coal Shafts	1949	904696
AM	455m NE	Old Coal Shafts	1910	909290
R	455m NE	Unspecified Tank	1960	875052
AF	456m W	Old Coal Shaft	1910	875251
AM	457m NE	Old Coal Shafts	1938	909290
R	460m NE	Unspecified Tank	1873	962330
F	460m SW	Unspecified Tank	1898	849795
AP	461m SE	Railway Sidings	1938	902463
AL	461m SE	Unspecified Quarry	1910	879587
AM	462m NE	Coal Shafts	1873	824049
AP	463m SE	Railway Sidings	1910	902463

ID	Location	Land Use	Date	Group ID
AQ	466m NE	Unspecified Heap	1910	924750
AL	468m SE	Unspecified Quarry	1938	882349
F	469m SW	Unspecified Tank	1898	849796
AQ	470m NE	Unspecified Heap	1938	899896
AQ	470m NE	Unspecified Heap	1938	899896
AR	470m S	Pottery	1873	812042
AL	470m SE	Unspecified Quarry	1898	964648
AL	471m E	Unspecified Quarry	1960	864352
AP	471m SE	Unspecified Heap	1949	842699
AL	472m E	Unspecified Quarry	1949	940763
R	472m NE	Unspecified Tank	1898	860899
6	473m NE	Tramway Sidings	1938	893102
R	476m NE	Unspecified Tank	1873	860899
AD	477m N	Unspecified Heap	1910	913100
AR	478m S	Disused Pottery	1898	822871
AQ	479m NE	Cuttings	1873	807170
AS	479m NW	Unspecified Heap	1873	948454
AS	479m NW	Unspecified Heap	1949	981301
AS	479m NW	Unspecified Heap	1898	948454
AS	480m NW	Unspecified Heaps	1977	871356
AS	480m NW	Unspecified Heaps	1985	986131
AS	480m NW	Unspecified Heaps	1960	871356
AT	480m N	Railway Sidings	1960	909928
AU	480m NE	Railway Building	1910	980900
AS	481m NW	Unspecified Heaps	1910	1010007
AU	482m NE	Railway Building	1938	980900
AS	482m NW	Unspecified Heaps	1938	930782
AS	482m NW	Unspecified Heaps	1938	930782

ID	Location	Land Use	Date	Group ID
AQ	483m NE	Unspecified Heap	1960	889546
7	484m N	Unspecified Ground Workings	1949	1003701
AS	485m NW	Unspecified Heap	1994	894233
AT	485m N	Railway Sidings	1949	998036
8	485m E	Railway Sidings	1949	938957
AD	489m N	Unspecified Shaft	1960	824861
F	489m SW	Unspecified Shaft	1873	824862
L	489m E	Coke Ovens	1873	806107
AD	490m N	Clay Shaft	1910	943551
AD	490m N	Clay Shafts	1949	826346
F	491m SW	Unspecified Tanks	1960	993525
F	493m SW	Unspecified Tank	1938	849793
AD	493m N	Clay Shaft	1938	878680
AT	494m N	Tramway Sidings	1910	898852
F	494m SW	Unspecified Tanks	1898	909829
AQ	494m NE	Coal Shafts	1873	824050
F	495m SW	Unspecified Tanks	1910	903293
AT	496m N	Tramway Sidings	1938	898852
AV	497m SE	Unspecified Quarry	1910	1003651
AV	499m SE	Unspecified Quarry	1938	863832
AW	499m NW	Unspecified Heap	1873	874838
AW	499m NW	Unspecified Heap	1949	900654
AW	499m NW	Unspecified Heap	1898	874838

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	115

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

Features are displayed on the Past land use - un-grouped map on **page 35 >**

ID	Location	Land Use	Date	Group ID
B	62m S	Unspecified Tank	1963	135330
B	62m S	Unspecified Tank	1977	152951
B	62m S	Unspecified Tank	1988	130824
B	62m S	Unspecified Tank	1992	142713
B	93m SE	Tanks	1963	139804
B	93m SE	Tanks	1977	139804
B	93m SE	Tanks	1988	139804
B	93m SE	Tanks	1992	139804
B	128m SE	Gas Works	1875	151276
B	128m SE	Gas Works	1875	145321
B	128m SE	Gas Works	1899	151276
B	128m SE	Gas Works	1912	151276
B	128m SE	Gas Works	1912	142277
B	139m SE	Gas Works	1873	145321
B	140m SE	Gas Works	1899	128244
B	140m SE	Gasometer	1875	137276
B	140m SE	Gasometer	1875	137276
B	141m SE	Gasometers	1899	134441
B	141m SE	Gasometers	1912	134441
A	199m S	Tanks	1963	128602
A	199m S	Tanks	1977	128602
A	199m S	Tanks	1988	128602
A	199m S	Tanks	1992	128602

ID	Location	Land Use	Date	Group ID
B	221m S	Tanks	1963	141570
B	221m S	Tanks	1977	141570
B	223m S	Tanks	1988	141444
B	223m S	Tanks	1992	141444
B	225m S	Unspecified Tank	1963	140081
B	225m S	Unspecified Tank	1977	140081
B	227m S	Unspecified Tank	1988	140081
B	227m S	Unspecified Tank	1992	140081
B	235m S	Tanks	1988	126969
B	235m S	Tanks	1992	126969
X	264m SE	Unspecified Tank	1873	115371
Q	286m S	Unspecified Tank	1912	115401
Q	292m S	Unspecified Tank	1912	115400
Q	294m S	Unspecified Tank	1912	115399
Q	333m SE	Tanks	1988	139885
Q	333m SE	Tanks	1992	139885
Q	333m SE	Tanks	1963	139885
Q	333m SE	Tanks	1977	139885
Q	336m S	Unspecified Tank	1875	126721
Q	336m S	Unspecified Tank	1875	126721
Q	342m S	Tanks	1963	108787
Q	344m S	Tanks	1899	108776
Q	344m S	Tanks	1988	150639
Q	344m S	Tanks	1992	150639
Q	344m S	Tanks	1963	150639
Q	344m S	Tanks	1977	150639
Q	348m S	Tanks	1988	141316
Q	348m S	Tanks	1992	141316

ID	Location	Land Use	Date	Group ID
Q	348m S	Tanks	1963	141316
Q	348m S	Tanks	1977	141316
Q	349m S	Unspecified Tank	1912	115402
Q	359m S	Unspecified Tank	1912	115404
Q	359m S	Unspecified Tank	1912	115403
Q	364m S	Unspecified Tank	1912	115405
Q	366m S	Tanks	1912	108779
Q	367m S	Tanks	1912	108778
Q	369m S	Tanks	1912	108780
Q	370m S	Unspecified Tank	1963	144179
Q	370m S	Unspecified Tank	1977	134882
Q	371m S	Unspecified Tank	1988	131451
Q	371m S	Unspecified Tank	1992	130611
Q	372m S	Tanks	1912	108777
Q	372m S	Unspecified Tank	1963	148029
Q	372m S	Unspecified Tank	1977	154318
Q	373m S	Tanks	1912	108774
Q	373m S	Unspecified Tank	1988	136233
Q	373m S	Unspecified Tank	1992	135139
Q	383m S	Tanks	1963	149732
Q	383m S	Tanks	1977	149732
Q	383m S	Tanks	1912	108775
Q	383m S	Tanks	1988	149732
Q	383m S	Tanks	1992	149732
L	404m E	Unspecified Tank	1972	153247
L	404m E	Tanks	1994	150961
L	405m E	Tanks	1991	140995
L	405m E	Unspecified Tank	1980	153247

ID	Location	Land Use	Date	Group ID
L	405m E	Unspecified Tank	1988	153247
L	406m E	Tanks	1991	144035
Q	410m S	Unspecified Tank	1963	145272
Q	410m S	Unspecified Tank	1977	145272
Q	414m S	Tanks	1963	149285
Q	414m S	Tanks	1977	149285
Q	414m S	Tanks	1988	149285
Q	414m S	Tanks	1992	149285
F	419m SW	Tanks	1912	144364
F	422m SW	Tanks	1875	128052
F	422m SW	Tanks	1875	128052
F	422m SW	Tanks	1899	128052
AH	425m SW	Tanks	1875	149341
AH	425m SW	Tanks	1875	149341
Q	425m S	Unspecified Tank	1988	149991
Q	425m S	Unspecified Tank	1992	149991
Q	426m S	Unspecified Tank	1963	149991
Q	426m S	Unspecified Tank	1977	149991
F	443m SW	Tanks	1912	154183
F	445m SW	Tanks	1875	146429
F	445m SW	Tanks	1875	146429
F	445m SW	Tanks	1899	126791
R	452m NE	Unspecified Tank	1873	147765
R	452m NE	Unspecified Tank	1899	147765
R	452m NE	Unspecified Tank	1912	147765
R	453m NE	Unspecified Tank	1962	147765
Q	461m S	Unspecified Tank	1875	123287
R	469m NE	Unspecified Tank	1873	128183

ID	Location	Land Use	Date	Group ID
R	469m NE	Unspecified Tank	1899	128183
Q	473m S	Unspecified Tank	1875	123286
Q	477m S	Unspecified Tank	1963	127665
Q	477m S	Unspecified Tank	1977	127665
Q	477m S	Unspecified Tank	1988	127665
Q	477m S	Unspecified Tank	1992	127665
F	495m SW	Tanks	1912	126792
Q	497m S	Tanks	1963	111502

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**13**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. 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 35 >**

ID	Location	Land Use	Date	Group ID
B	128m SE	Gas Works	1875	71248
B	128m SE	Gas Works	1875	85512
B	128m SE	Gas Works	1899	71248
B	128m SE	Gas Works	1912	71248
B	128m SE	Gas Works	1912	85246
B	139m SE	Gas Works	1873	85512
B	140m SE	Gas Works	1899	91809
B	140m SE	Gasometer	1875	79930
B	140m SE	Gasometer	1875	79930
B	141m SE	Gasometers	1899	84720
B	141m SE	Gasometers	1912	84720
S	215m W	Electricity Substation	1988	81436

ID	Location	Land Use	Date	Group ID
S	215m W	Electricity Substation	1992	81436

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	5

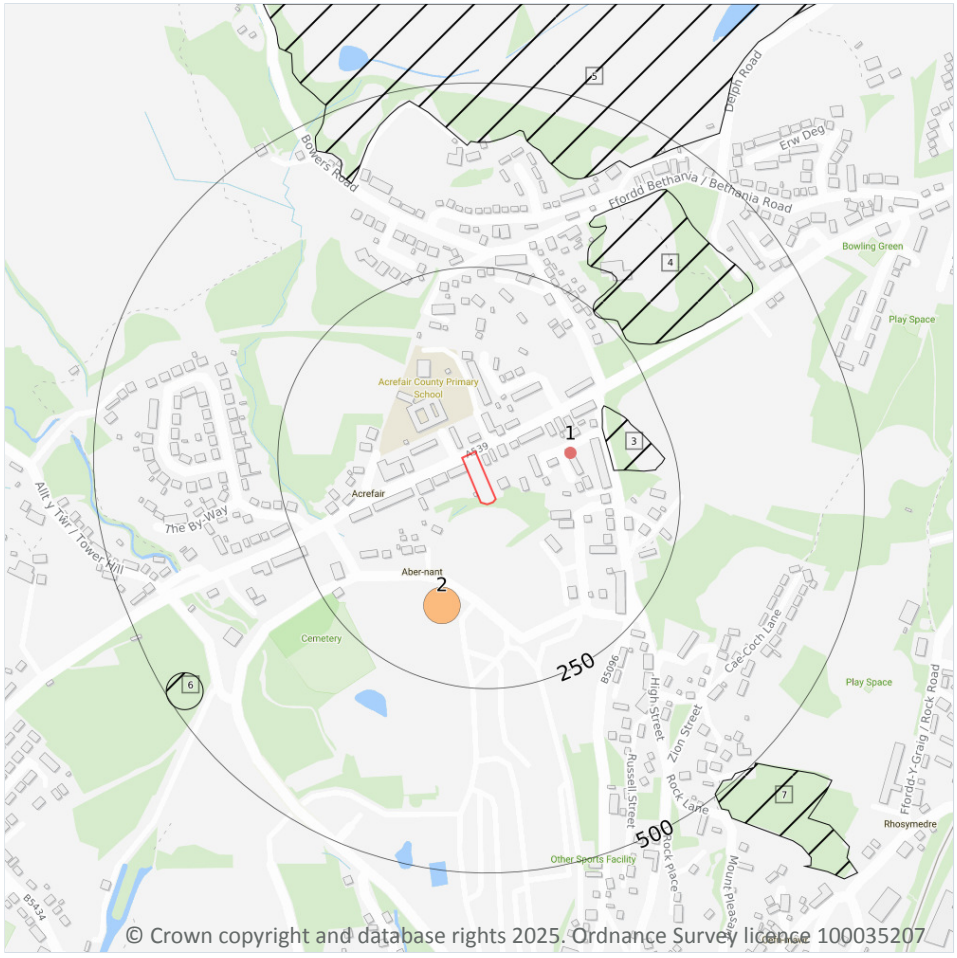
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 35 >**

ID	Location	Land Use	Date	Group ID
C	13m NE	Garage	1977	23276
C	15m NE	Garage	1991	25320
C	15m NE	Garage	1991	25320
C	15m NE	Garage	1992	25320
C	24m NE	Garage	1994	23971

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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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	5

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.

Features are displayed on the Waste and landfill map on **page 61 >**

ID	Location	Details		
3	165m E	Site Address: Air Products, Llangollen Road, Wrexham, Acrefair Licence Holder Address: -	Waste Licence: Yes Site Reference: WMBC L/8, WMBC L/58 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 01/09/1977 Licence Surrender: 30/04/1993	Operator: - Licence Holder: Air Products UK Limited First Recorded 01/09/1977 Last Recorded: 31/12/1991
4	247m NE	Site Address: Air Products Social Club, Acrefair, Wrexham, Clwyd Licence Holder Address: -	Waste Licence: - Site Reference: - Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: Air Products United Kingdom Limited First Recorded 31/12/1950 Last Recorded: 31/12/1960
5	393m N	Site Address: The Delph, Acrefair, Wrexham, Clwyd Licence Holder Address: -	Waste Licence: Yes Site Reference: WMBC L/32 Waste Type: Inert, Industrial, Household, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 05/08/1981 Licence Surrender: 31/12/1986	Operator: - Licence Holder: Northern Strip Mining First Recorded 30/11/1981 Last Recorded: 31/12/1986

ID	Location	Details		
6	451m SW	Site Address: Edwards Brickyard, Trevor, Llangollen, Clwyd Licence Holder Address: -	Waste Licence: Yes Site Reference: - Waste Type: Inert, Industrial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: J C Edward First Recorded 31/12/1987 Last Recorded: 31/12/1995
7	490m SE	Site Address: Rhosmedre Quarry, Rhosmedre Licence Holder Address: -	Waste Licence: Yes Site Reference: L17 Waste Type: Industrial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 31/12/1977 Licence Surrender: 30/04/1994	Operator: - Licence Holder: Monsanto Plc First Recorded - Last Recorded: -

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

3.5 Historical waste sites

Records within 500m	**1**

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

Features are displayed on the Waste and landfill map on **page 61 >**

ID	Location	Address	Further Details	Date
2	124m S	Site Address: FlexysRubberChemical,RuabonWks, (Dupont Air Products Nano Mate, Cefn Mawr, WREXHAM, Clwyd, LL14	Type of Site: Waste Transfer Station Planning application reference: 00/2008/0287 Description: Scheme comprises hazardous substance consent for storage and use of 37 tonnes of substance classified as 'very toxic'. An application (ref: 00/2008/0287) for detailed planning permission was submitted to Denbighshire B.C. Data source: Historic Planning Application Data Type: Point	-

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	1

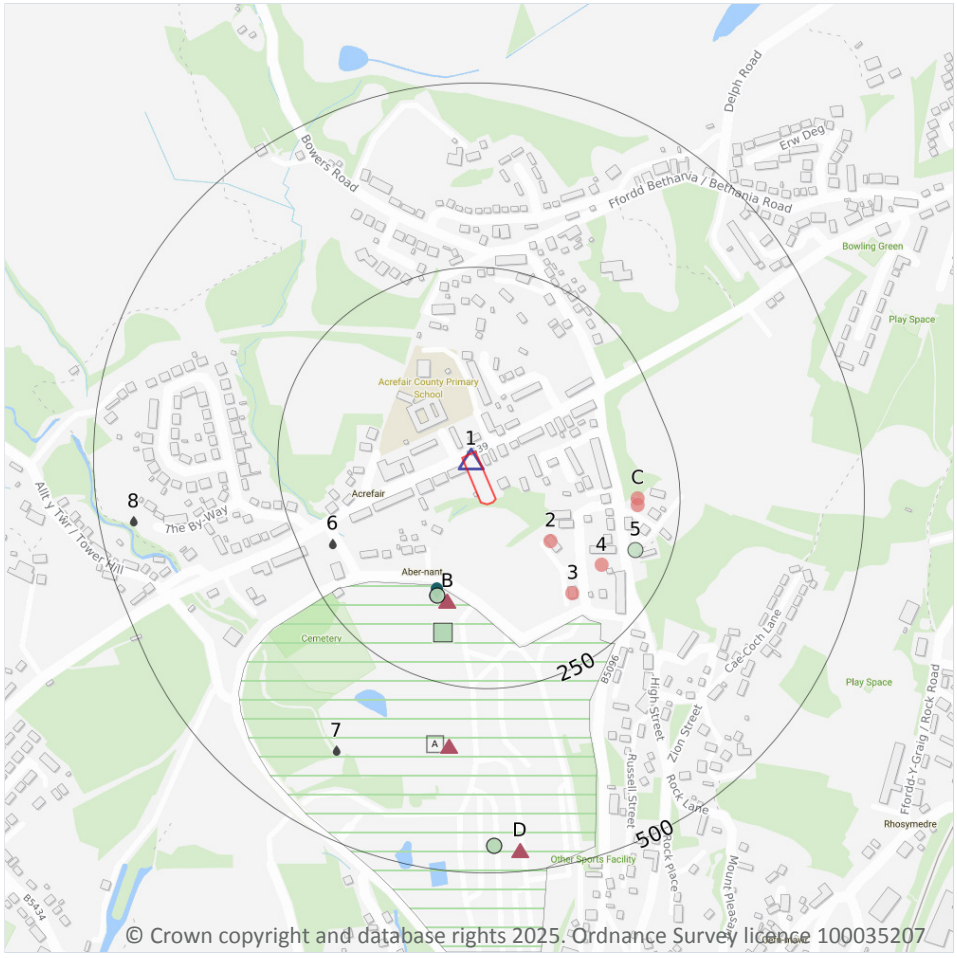
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 61 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	117m NE	Gower Homes, Caer Efail, Acrefair, Wrexham, Wrexham, Ll143gb	NRW-WME005017	Using waste exemption	Not on a farm	Use of waste in construction

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

4 Current industrial land use



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4.1 Recent industrial land uses

Records within 250m	5

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Company	Address	Activity	Category
2	93m SE	Deescan	Unit 1 and 2, Rose Hill Enterprise Park, Cefn Mawr, Wrexham, Clwyd, LL14 3QA	Electrical Components	Industrial Products
3	164m SE	Revader Security Ltd	Unit 3, Rose Hill Enterprise Park, Cefn Mawr, Wrexham, Clwyd, LL14 3QA	Electronic Equipment	Industrial Products
4	169m SE	Works	Clwyd, LL14	Unspecified Works Or Factories	Industrial Features

ID	Location	Company	Address	Activity	Category
C	192m E	Electricity Sub Station	Clwyd, LL14	Electrical Features	Infrastructure and Facilities
C	192m E	Foden Works	Clwyd, LL14	Unspecified Works Or Factories	Industrial Features

This data is sourced from Ordnance Survey.

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

Records within 250m	0

Current or recent tanks identified from the Ordnance Survey NGD.

This data is sourced from Ordnance Survey.

4.3 Current or recent petrol stations

Records within 500m	1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Company	Address	LPG	Status
1	**On site**	**UK**	**A439, Acrefair, Wrexham, Wrexham, LL14 3RS**	**Not Applicable**	**Obsolete**

This data is sourced from Experian.

4.4 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.5 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.6 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.7 Control of Major Accident Hazards (COMAH)

Records within 500m	1

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

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Company	Address	Operational status	Tier
A	126m SW	Flexsys Rubber Chemicals Ltd	Flexsys Rubber Chemicals Ltd, Ruabon Works, Cefm Mawr, Wrexham, LL14 3SL	Historical COMAH Site	-

This data is sourced from the Health and Safety Executive.

4.8 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.9 Hazardous substance storage/usage

Records within 500m	4

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.

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Details	
B	141m S	Application reference number: P/2001/0606 Application status: Withdrawn Application date: 27/06/2001 Address: Flexsys Rubber Chemicals Ltd, Nipa Tcc Plant, Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL	Details: Hazardous Substance Consent For The Storage And Use Of 12 Tonnes Of Substance Classified As 'very Toxic' Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
B	141m S	Application reference number: CB/1999/3736 Application status: Approved Application date: 11/10/1999 Address: Flexsys Rubber Chemicals Ltd, Ruabon Works, Cefn Mawr, Wrexham, Clwyd, Wales, LL14 3BH	Details: Deemed Hazardous Substance Consent. Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
A	333m S	Application reference number: P/2008/0207 Application status: Withdrawn Application date: 28/02/2008 Address: Flexsys Rubber Chemicals Dupont Air Products Nano Materials Ltd, Ruabon Works, CEFN Mawr Wrexham	Details: Hazardous substances consent for storage and use of 37 tonnes of substance classified as 'very toxic' Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
D	471m S	Application reference number: 6/0002/0627 Application status: Historical Consent Application date: 12/08/1992 Address: Monsanto Plc, Ruabon Works, Cefn, Mawr, Wrexham, Clwyd, LL14 3SL	Details: Deemed Hazardous Substance Consent 20627 Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.10 Historical licensed industrial activities (IPC)

Records within 500m	**23**

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.

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Details	
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Combustion Processes Permit Number: AA2127	Original Permit Number: IPCAPP Date Approved: 2-4-1992 Effective Date: 2-4-1992 Status: Surrendered
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: AB5709	Original Permit Number: IPCAPP Date Approved: 3-3-1992 Effective Date: 3-3-1992 Status: Surrendered

ID	Location	Details	
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: AK5750	Original Permit Number: IPCAIRAPP Date Approved: 23-2-1994 Effective Date: 27-2-1994 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: AK5768	Original Permit Number: IPCAIRAPP Date Approved: 21-2-1994 Effective Date: 27-2-1994 Status: Superseded By Variation
B	140m SW	Operator: Solutia UK Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: AK5776	Original Permit Number: IPCAIRAPP Date Approved: 16-2-1994 Effective Date: 22-2-1994 Status: Surrendered
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: AK5784	Original Permit Number: IPCAIRAPP Date Approved: 23-2-1994 Effective Date: 27-2-1994 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: AK5792	Original Permit Number: IPCAIRAPP Date Approved: 16-2-1994 Effective Date: 22-2-1994 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Processes Involving Halogens Permit Number: AL7618	Original Permit Number: IPCAIRAPP Date Approved: 1-6-1994 Effective Date: 3-6-1994 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Inorganic Chemical Processes Permit Number: AN9000	Original Permit Number: IPCAIRAPP Date Approved: 28-11-1994 Effective Date: 30-11-1994 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Inorganic Chemical Processes Permit Number: AY1242	Original Permit Number: IPCMAJVAR Date Approved: 2-7-1997 Effective Date: 6-7-1997 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: BC6756	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation

ID	Location	Details	
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: BC6764	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Revoked - Now Ippc
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: BC6772	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: BC6799	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Revoked
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Processes Involving Halogens Permit Number: BC7612	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Inorganic Chemical Processes Permit Number: BD8738	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: BH0810	Original Permit Number: IPCMAJVAR Date Approved: 31-8-2000 Effective Date: 1-9-2000 Status: Revoked - Now Ippc
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Processes Involving Halogens Permit Number: BJ0951	Original Permit Number: IPCMINVAR Date Approved: 31-8-2000 Effective Date: 1-9-2000 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Inorganic Chemical Processes Permit Number: BJ5198	Original Permit Number: IPCMINVAR Date Approved: 30-11-2000 Effective Date: 4-12-2000 Status: Superseded By Variation
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Processes Involving Halogens Permit Number: BJ8774	Original Permit Number: IPCMINVAR Date Approved: 21-5-2001 Effective Date: 25-5-2001 Status: Superseded By Variation

ID	Location	Details	
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Inorganic Chemical Processes Permit Number: BL5008	Original Permit Number: IPCMAJVAR Date Approved: 20-3-2003 Effective Date: 28-3-2003 Status: Revoked - Now Ippc
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Processes Involving Halogens Permit Number: BL6454	Original Permit Number: IPCMINVAR Date Approved: 31-8-2001 Effective Date: 3-9-2001 Status: Revoked - Now Ippc
B	140m SW	Operator: Flexsys Rubber Chemicals Ltd Address: Ruabon Works, Cefn Mawr, Wrexham, Clwyd, LL14 3SL Process: Manufacture And Use Of Organic Chemicals Permit Number: BV4070	Original Permit Number: IPCMINVAR Date Approved: 6-8-2003 Effective Date: 11-8-2003 Status: Revoked - Now Ippc

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

4.11 Licensed industrial activities (Part A(1))

Records within 500m **61**

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

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Details	
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: - Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: BQ4173 Original Permit Number: BQ4173	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: DP3134TV Original Permit Number: NP3335GR	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/10/2010 Status: DETERMINATION

ID	Location	Details	
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: FP3439KB Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EPR/NP3335GR/V007 Process: CREATED BY IED - DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT Permit Number: NP3531ZH Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 25/03/2013 Effective Date: 25/03/2013 Last date noted as effective: 01/07/2013 Status: EFFECTIVE
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: DP3134TV Original Permit Number: NP3335GR	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/10/2010 Status: DETERMINATION
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS EAEPRBV2689IEV003 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: KP3536KS Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 07/05/2010 Effective Date: 07/05/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS EAEPRBV2689IEV003 Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT Permit Number: KP3536KS Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 07/05/2010 Effective Date: 07/05/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS EPR/BV2689IE/V005 Process: ASSOCIATED PROCESS Permit Number: UP3731ZY Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 22/03/2013 Effective Date: 22/03/2013 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS EPR/BV2689IE/V005 Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT Permit Number: UP3731ZY Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 22/03/2013 Effective Date: 22/03/2013 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS EPR/BV2689IE/V005 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: UP3731ZY Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 22/03/2013 Effective Date: 22/03/2013 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS Process: ASSOCIATED PROCESS Permit Number: UP3838AC Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 14/07/2015 Effective Date: 14/07/2015 Last date noted as effective: 17/11/2015 Status: SURRENDER EFFECTIVE
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT Permit Number: UP3838AC Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 14/07/2015 Effective Date: 14/07/2015 Last date noted as effective: 17/11/2015 Status: SURRENDER EFFECTIVE
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: UP3838AC Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 14/07/2015 Effective Date: 14/07/2015 Last date noted as effective: 17/11/2015 Status: SURRENDER EFFECTIVE
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LTD Installation Name: - Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: BV2689 Original Permit Number: BV2689	EPR Reference: - Issue Date: 13/04/2004 Effective Date: 13/04/2004 Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS

ID	Location	Details	
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: DP3134TV Original Permit Number: NP3335GR	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/10/2010 Status: DETERMINATION
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: NP3335GR Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 23/12/2008 Effective Date: 23/12/2008 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: NP3335GR Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 23/12/2008 Effective Date: 23/12/2008 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: NP3335GR Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 23/12/2008 Effective Date: 23/12/2008 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: NP3437CY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 26/10/2012 Effective Date: 26/10/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: NP3437CY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 26/10/2012 Effective Date: 26/10/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: NP3437CY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 26/10/2012 Effective Date: 26/10/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: NP3437CY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 26/10/2012 Effective Date: 26/10/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EPR/NP3335GR Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT Permit Number: NP3531ZH Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 25/03/2013 Effective Date: 25/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
B	140m SW	Operator: CLARIANT UK LTD Installation Name: - Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: BV1950 Original Permit Number: BV1950	EPR Reference: - Issue Date: 13/04/2004 Effective Date: 13/04/2004 Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS
B	140m SW	Operator: CLARIANT UK LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: BV1950IQ Original Permit Number: BV1950IQ	EPR Reference: - Issue Date: 13/04/2004 Effective Date: 13/04/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: CLARIANT UK LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: CP3833XG Original Permit Number: BV1950IQ	EPR Reference: - Issue Date: 17/12/2008 Effective Date: 17/12/2008 Last date noted as effective: 17/11/2015 Status: SURRENDER EFFECTIVE
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: EP3738GP Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 19/01/2009 Effective Date: 19/01/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: DP3232MG Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 24/05/2007 Effective Date: 24/05/2007 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: EP3738GP Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 19/01/2009 Effective Date: 19/01/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: EP3738GP Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 19/01/2009 Effective Date: 19/01/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: EP3738GP Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 19/01/2009 Effective Date: 19/01/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS EAEPRBV2689IEV003 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: TP3836KW Original Permit Number: FP3939KF	EPR Reference: - Issue Date: 15/06/2010 Effective Date: 15/06/2010 Last date noted as effective: 17/11/2015 Status: REVOKED
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: BV2689IE Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 13/04/2004 Effective Date: 13/04/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: FP3939KF Original Permit Number: FP3939KF	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: FP3939KF Original Permit Number: FP3939KF	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: FP3939KF Original Permit Number: FP3939KF	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: FP3939KF Original Permit Number: FP3939KF	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS EAEPRBV2689IEV003 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: GP3539KM Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 01/09/2009 Effective Date: 01/09/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS EAEPRBV2689IEV003 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: TP3836KW Original Permit Number: FP3939KF	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 06/01/2010 Status: DETERMINATION
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: NP3335GR Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 23/12/2008 Effective Date: 23/12/2008 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: EP3035TW Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 01/04/2010 Effective Date: 01/04/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: EP3035TW Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 01/04/2010 Effective Date: 01/04/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: EP3035TW Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 01/04/2010 Effective Date: 01/04/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: EP3035TW Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 01/04/2010 Effective Date: 01/04/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: FP3439KB Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: FP3439KB Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: AIR PRODUCTS ELECTRONICS ADVANCED MATERIALS EUROPE LIMITED Installation Name: RUABON CHEMICAL WORKS Process: CREATED BY IED - DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT Permit Number: UP3731ZY Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 22/03/2013 Effective Date: 22/03/2013 Last date noted as effective: 01/07/2013 Status: EFFECTIVE
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: YP3534TY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 03/11/2010 Effective Date: 03/11/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: YP3534TY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 03/11/2010 Effective Date: 03/11/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: YP3534TY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 03/11/2010 Effective Date: 03/11/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: YP3534TY Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 03/11/2010 Effective Date: 03/11/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/BQ4173IK/V005 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: BQ4173IK Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 13/04/2004 Effective Date: 13/04/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: DP3232MG Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 24/05/2007 Effective Date: 24/05/2007 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; HALOGEN CONTAINING COMPOUNDS EG HALOCARBONS Permit Number: DP3232MG Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 24/05/2007 Effective Date: 24/05/2007 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: FLEXSYS RUBBER CHEMICALS LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; OXYGEN CONTAINING COMPOUNDS EG ALCOHOLS Permit Number: DP3232MG Original Permit Number: BQ4173IK	EPR Reference: - Issue Date: 24/05/2007 Effective Date: 24/05/2007 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EA/EPR/NP3335GR/T001 Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: FP3439KB Original Permit Number: NP3335GR	EPR Reference: - Issue Date: 31/08/2009 Effective Date: 31/08/2009 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	140m SW	Operator: DUPONT AIR PRODUCTS NANOMATERIALS LIMITED Installation Name: RUABON CHEMICAL WORKS Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: YP3931MV Original Permit Number: BV2689IE	EPR Reference: - Issue Date: 06/06/2007 Effective Date: 06/06/2007 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS Process: ORGANIC CHEMICALS; SULPHUR CONTAINING COMPOUNDS EG SULPHIDES Permit Number: DP3134TV Original Permit Number: NP3335GR	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/10/2010 Status: DETERMINATION
B	140m SW	Operator: Solutia UK Ltd Installation Name: Ruabon Chemical Works Process: DISPOSAL OF NON-HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 50 TONNES PER DAY (OR 100 TONNES PER DAY IF THE ONLY WASTE TREATMENT ACTIVITY IS ANAEROBIC DIGESTION) INVOLVING ONE OR MORE OF THE FOLLOWING ACTIVITIES, AND EXCLUDING ACTIVITIES COVERED BY COUNCIL DIRECTIVE 91/271/EEC CONCERNING URBAN WASTE-WATER TREATMENT(4)—PHYSICO-CHEMICAL TREATMENT Permit Number: NP3335GR Original Permit Number: -	EPR Reference: - Issue Date: 09/11/2022 Effective Date: 08/11/2022 Last date noted as effective: 11/08/2025 Status: Effective
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS EPR/NP3335GR/V007 Process: - Permit Number: NP3335GR Original Permit Number: NP3531ZH	EPR Reference: - Issue Date: 25/03/2013 Effective Date: 25/03/2013 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
B	140m SW	Operator: SOLUTIA UK LTD Installation Name: RUABON CHEMICAL WORKS Process: DISPOSAL OF NON-HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 50 TONNES PER DAY (OR ... Permit Number: NP3335GR Original Permit Number: NP3531ZH	EPR Reference: - Issue Date: 28/11/2017 Effective Date: 28/11/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE

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

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

Records within 500m	**1**

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.

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Address	Details	
B	134m SW	Flexsys Rubber Chemicals Ltd, Dupont Air Products, Nanomaterials Limited, Clariant UK Ltd, Ruabon Chemical Works, Ruabon Works, Cefn Mawr, Wrexham, LL14 3SL	Process: Use of Organic Chemicals; Chemical & Acid Processes Status: Historical Permit Permit Type: Part B	Enforcement: Enforcements Notified Date of enforcement: 30/03/2006 Comment: Wood processing

This data is sourced from Local Authority records.

4.13 Radioactive Substance Authorisations

Records within 500m	**0**

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

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

4.14 Licensed Discharges to controlled waters

Records within 500m	**3**

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

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Address	Details	
6	208m SW	CEFNMONSANTOSSO, LL143SN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: CM0175201 Permit Version: 2 Receiving Water: TREF Y NANT BROOK	Status: Effective Issue date: 08/09/2010 Effective Date: 08/09/2010 Revocation Date: -
7	390m SW	Cefn Monsanto CSO, Nr Rubber Factory, Aber-Nant, Cefn Mawr, Wrexham, LL14 3SN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: CM0175201 Permit Version: 0 Receiving Water: TREF Y NANT BROOK	Status: Effective Issue date: 17/12/2019 Effective Date: 17/12/2019 Revocation Date: -
8	455m W	TREFYNANTPARKTREFORNEARWREXHAM, TREFYNANTPARKTREFORNEARWREX, TREFORNEARWREXHAM, NEARWREXHAM	Effluent Type: UNSPECIFIED Permit Number: CM0084501 Permit Version: 1 Receiving Water: TREFYNANT BROOK	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 08/01/1979 Effective Date: 08/01/1979 Revocation Date: 06/01/1993

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

4.15 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.16 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.17 List 1 Dangerous Substances

Records within 500m	0

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

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

4.18 List 2 Dangerous Substances

Records within 500m	1

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.

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Name	Status	Receiving Water	Authorised Substances
B	183m S	Flexsys Rubber Chemicals Ltd, Ruabon Works	Not Active	-	Iron, Zinc, Toluene, Xylene

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

4.19 Pollution Incidents (EA/NRW)

Records within 500m	5

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

Features are displayed on the Current industrial land use map on **page 65 >**

ID	Location	Details	
B	139m SW	Incident Date: 12/03/2003 Incident Identification: 142687 Pollutant: Inorganic Chemicals/Products Pollutant Description: Other Inorganic Chemical or Product	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	139m SW	Incident Date: 22/09/2002 Incident Identification: 109670 Pollutant: Organic Chemicals/Products Pollutant Description: Phenols and Creosote	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	201m E	Incident Date: 19/08/2003 Incident Identification: 183334 Pollutant: Organic Chemicals/Products Pollutant Description: Solvents	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
D	464m S	Incident Date: 07/09/2002 Incident Identification: 106093 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
D	464m S	Incident Date: 07/09/2002 Incident Identification: 106093 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.20 Pollution inventory substances

Records within 500m	0

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

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

4.21 Pollution inventory waste transfers

Records within 500m	0

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

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

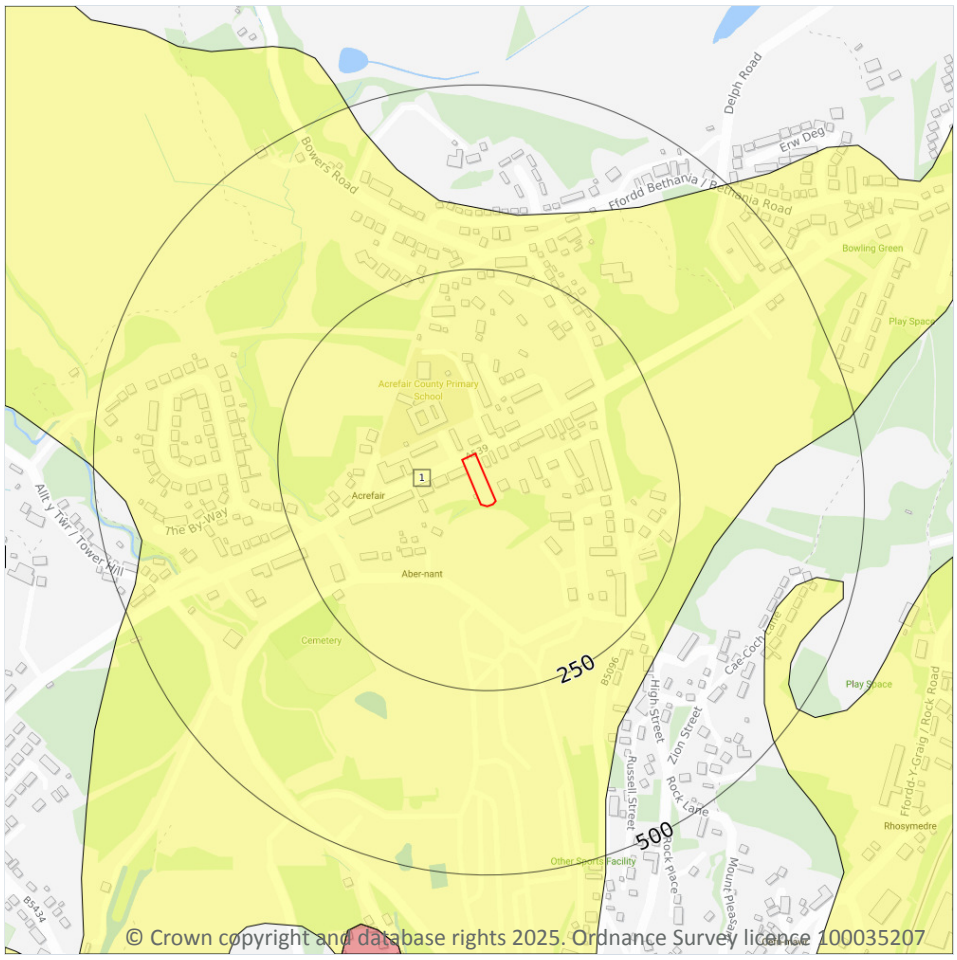
4.22 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m	1

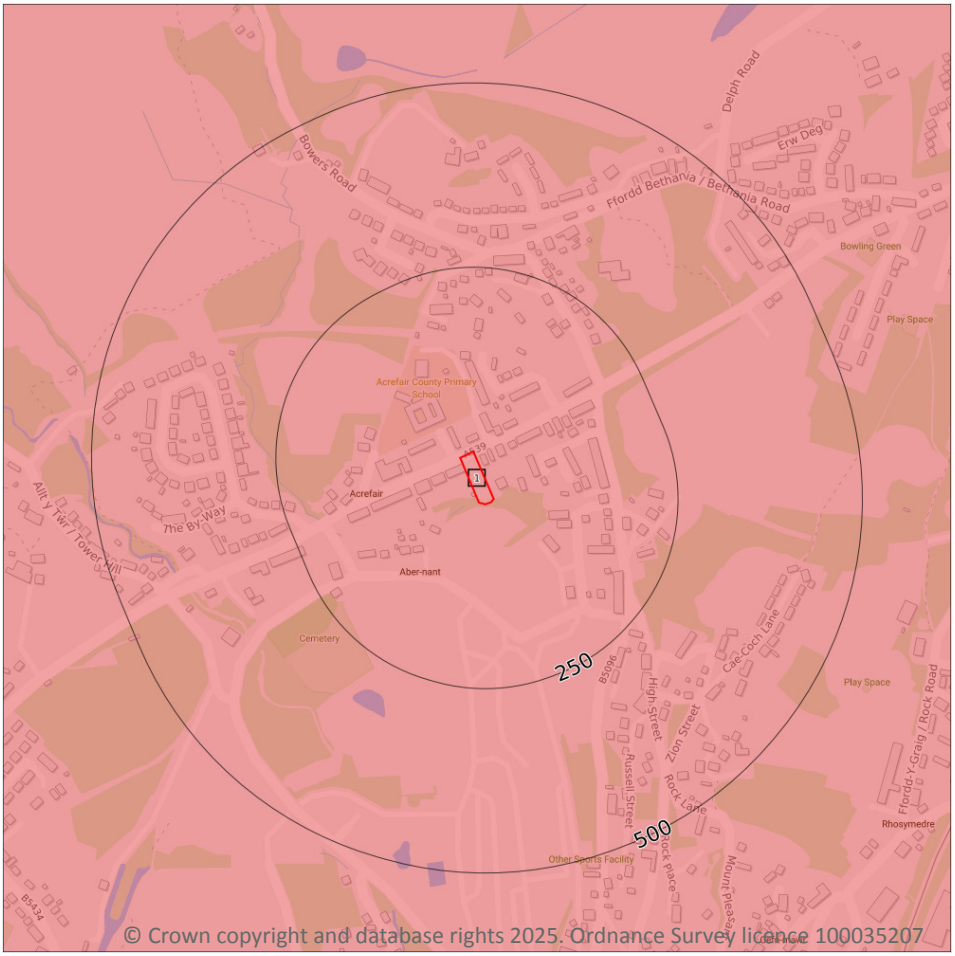
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 86 >**

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

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

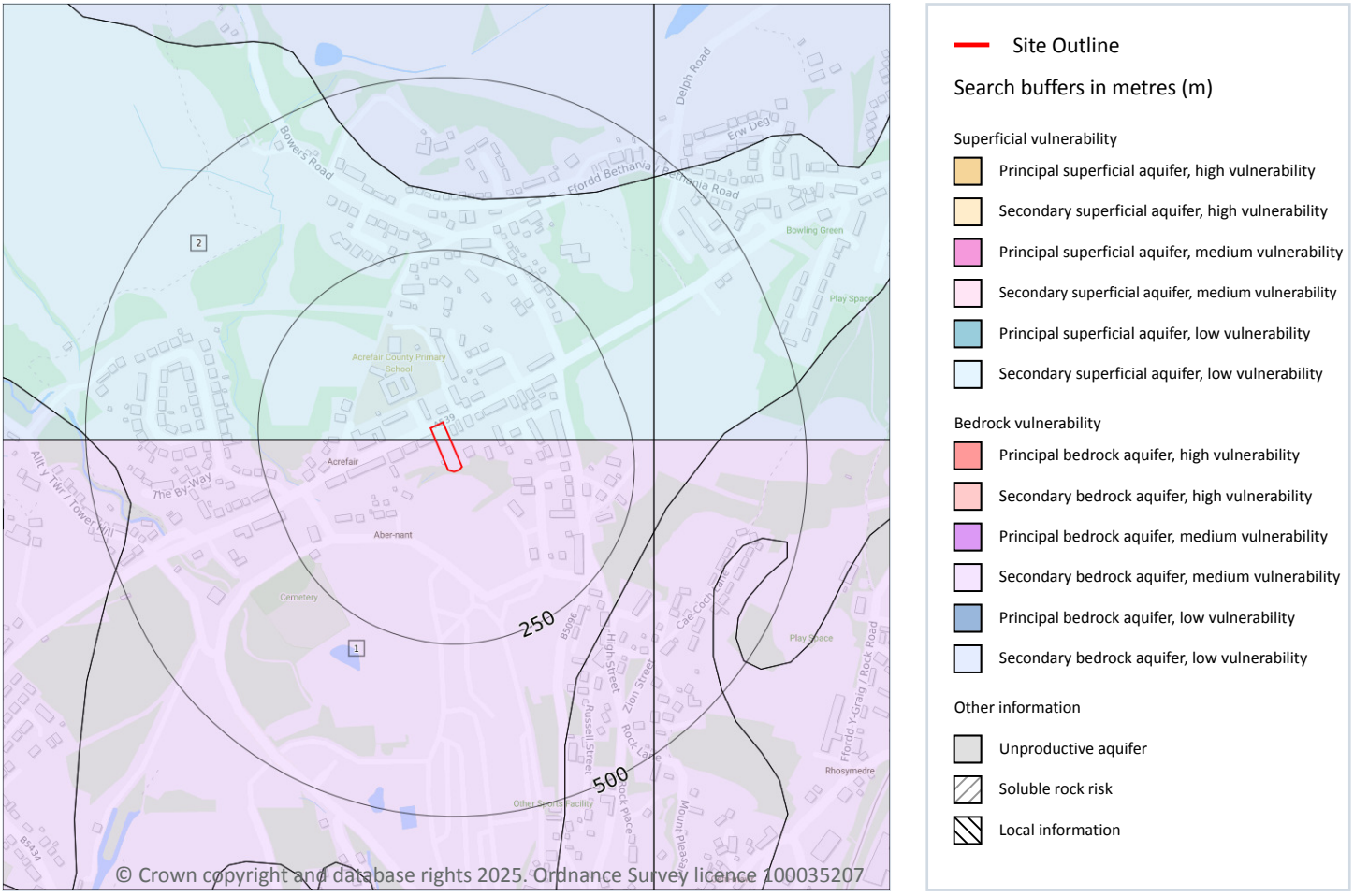
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 87 >**

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.

Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m	2

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

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

Features are displayed on the Groundwater vulnerability map on **page 88 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: Low	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	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



Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	2

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 90 >**

ID	Location	Details	
-	1613m NW	Status: Historical Licence No: 24/67/5/0009 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL Data Type: Point Name: Philips Easting: 326830 Northing: 344390	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 09/08/1966 Expiry Date: - Issue No: 100 Version Start Date: 09/08/1966 Version End Date: -
-	1821m N	Status: Historical Licence No: 24/67/5/0046 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: 35 FT DEEP, 8FT DIA. WELL Data Type: Point Name: Lloyd Easting: 328100 Northing: 344800	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 12/10/1973 Expiry Date: - Issue No: 100 Version Start Date: 12/10/1973 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**12**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 90 >**

ID	Location	Details	
-	1097m SW	Status: Historical Licence No: 24/67/5/0017 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: EAW Surface Water Point: RIVER DEE AT PONTCYSYLLTE Data Type: Point Name: Solutia UK Limted Easting: 327200 Northing: 341980	Annual Volume (m^3): 2727600 Max Daily Volume (m^3): 7728.2 Original Application No: - Original Start Date: 26/06/1967 Expiry Date: - Issue No: 102 Version Start Date: 21/12/2009 Version End Date: -

ID	Location	Details	
-	1120m SW	Status: Active Licence No: 24/67/5/0057 Details: Transfer between Sources (Post Water Act 2003) - Very Low Direct Source: River Dee Point: - Data Type: Line Name: - Easting: 327211 Northing: 341949	Annual Volume (m^3): 18302196 Max Daily Volume (m^3): 50006 Original Application No: - Original Start Date: 05/02/2024 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1130m SW	Status: Active Licence No: 24/67/5/0057 Details: Transfer between Sources (Post Water Act 2003) - Very Low Direct Source: River Dee Point: - Data Type: Point Name: - Easting: 327217 Northing: 341935	Annual Volume (m^3): 18302196 Max Daily Volume (m^3): 50006 Original Application No: - Original Start Date: 05/02/2024 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1130m SW	Status: Historical Licence No: 24/67/5/0057 Details: Transfer between Sources (Pre Water Act 2003) - Very Low Direct Source: River Dee Point: - Data Type: Point Name: - Easting: 327217 Northing: 341935	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 22/12/2015 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1133m SW	Status: Historical Licence No: 24/67/5/0057 Details: Transfer Between Sources (Pre Water Act 2003) Direct Source: EAW Surface Water Point: RIVER DEE AT PONTCYSYLLTE Data Type: Point Name: United Utilities Water Limited Easting: 327217 Northing: 341932	Annual Volume (m^3): 18302196 Max Daily Volume (m^3): 50006 Original Application No: - Original Start Date: 27/06/1978 Expiry Date: - Issue No: 104 Version Start Date: 12/11/2014 Version End Date: -

ID	Location	Details	
-	1182m SW	Status: Historical Licence No: 24/67/5/0057 Details: Transfer between Sources (Pre Water Act 2003) Direct Source: EAW Surface Water Point: RIVER DEE AT PONTCYSYLLTE Data Type: Point Name: United Utilities Water Limited Easting: 327080 Northing: 341950	Annual Volume (m^3): 18302196 Max Daily Volume (m^3): 50006 Original Application No: - Original Start Date: 27/06/1978 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2002 Version End Date: -
-	1182m SW	Status: Historical Licence No: 24/67/5/0057 Details: Potable Water Supply - Storage Direct Source: EAW Surface Water Point: RIVER DEE AT PONTCYSYLLTE Data Type: Point Name: United Utilities Water Limited Easting: 327080 Northing: 341950	Annual Volume (m^3): 18302196 Max Daily Volume (m^3): 50006 Original Application No: - Original Start Date: 27/06/1978 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2006 Version End Date: -
-	1424m W	Status: Historical Licence No: 24/67/5/0002 Details: Potable Water Supply - Direct Direct Source: EAW Surface Water Point: TREFNANT BROOK Data Type: Point Name: Dee Valley Water Plc Easting: 326320 Northing: 343450	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 05/07/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/07/1966 Version End Date: -
-	1768m SW	Status: Historical Licence No: 24/67/5/0004 Details: Potable Water Supply - Direct Direct Source: EAW Surface Water Point: OEROG SPRINGS, TREVOR Data Type: Point Name: Dee Valley Water Plc Easting: 326160 Northing: 342090	Annual Volume (m^3): 1163776 Max Daily Volume (m^3): 341 Original Application No: - Original Start Date: 17/10/2001 Expiry Date: - Issue No: 101 Version Start Date: 17/10/2001 Version End Date: -
-	1788m SW	Status: Historical Licence No: 24/67/5/0004 Details: Potable Water Supply - Direct - Medium Direct Source: Groundwater fed spring Point: - Data Type: Point Name: - Easting: 326160 Northing: 342050	Annual Volume (m^3): 1163776 Max Daily Volume (m^3): 4080 Original Application No: - Original Start Date: 05/12/2018 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

ID	Location	Details	
-	1788m SW	Status: Active Licence No: 24/67/5/0004 Details: Potable Water Supply - Direct - Medium Direct Source: Groundwater fed spring Point: - Data Type: Point Name: - Easting: 326160 Northing: 342050	Annual Volume (m^3): 1163776 Max Daily Volume (m^3): 341 Original Application No: - Original Start Date: 05/12/2018 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1877m W	Status: Historical Licence No: 24/67/5/0027 Details: General Farming & Domestic Direct Source: EAW Surface Water Point: SPRING Data Type: Point Name: Trevor Tower Estate Easting: 325810 Northing: 343220	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 23/10/1967 Expiry Date: - Issue No: 100 Version Start Date: 25/07/1973 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	**5**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 90 >**

ID	Location	Details	
-	1182m SW	Status: Historical Licence No: 24/67/5/0057 Details: Potable Water Supply - Storage Direct Source: EAW Surface Water Point: RIVER DEE AT PONTCYSYLLTE Data Type: Point Name: United Utilities Water Limited Easting: 327080 Northing: 341950	Annual Volume (m^3): 18302196 Max Daily Volume (m^3): 50006 Original Application No: - Original Start Date: 27/06/1978 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2006 Version End Date: -

ID	Location	Details	
-	1424m W	Status: Historical Licence No: 24/67/5/0002 Details: Potable Water Supply - Direct Direct Source: EAW Surface Water Point: TREFNANT BROOK Data Type: Point Name: Dee Valley Water Plc Easting: 326320 Northing: 343450	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 05/07/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/07/1966 Version End Date: -
-	1768m SW	Status: Historical Licence No: 24/67/5/0004 Details: Potable Water Supply - Direct Direct Source: EAW Surface Water Point: OEROG SPRINGS, TREVOR Data Type: Point Name: Dee Valley Water Plc Easting: 326160 Northing: 342090	Annual Volume (m^3): 1163776 Max Daily Volume (m^3): 341 Original Application No: - Original Start Date: 17/10/2001 Expiry Date: - Issue No: 101 Version Start Date: 17/10/2001 Version End Date: -
-	1788m SW	Status: Historical Licence No: 24/67/5/0004 Details: Potable Water Supply - Direct - Medium Direct Source: Groundwater fed spring Point: - Data Type: Point Name: - Easting: 326160 Northing: 342050	Annual Volume (m^3): 1163776 Max Daily Volume (m^3): 4080 Original Application No: - Original Start Date: 05/12/2018 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1788m SW	Status: Active Licence No: 24/67/5/0004 Details: Potable Water Supply - Direct - Medium Direct Source: Groundwater fed spring Point: - Data Type: Point Name: - Easting: 326160 Northing: 342050	Annual Volume (m^3): 1163776 Max Daily Volume (m^3): 341 Original Application No: - Original Start Date: 05/12/2018 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	**0**

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

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

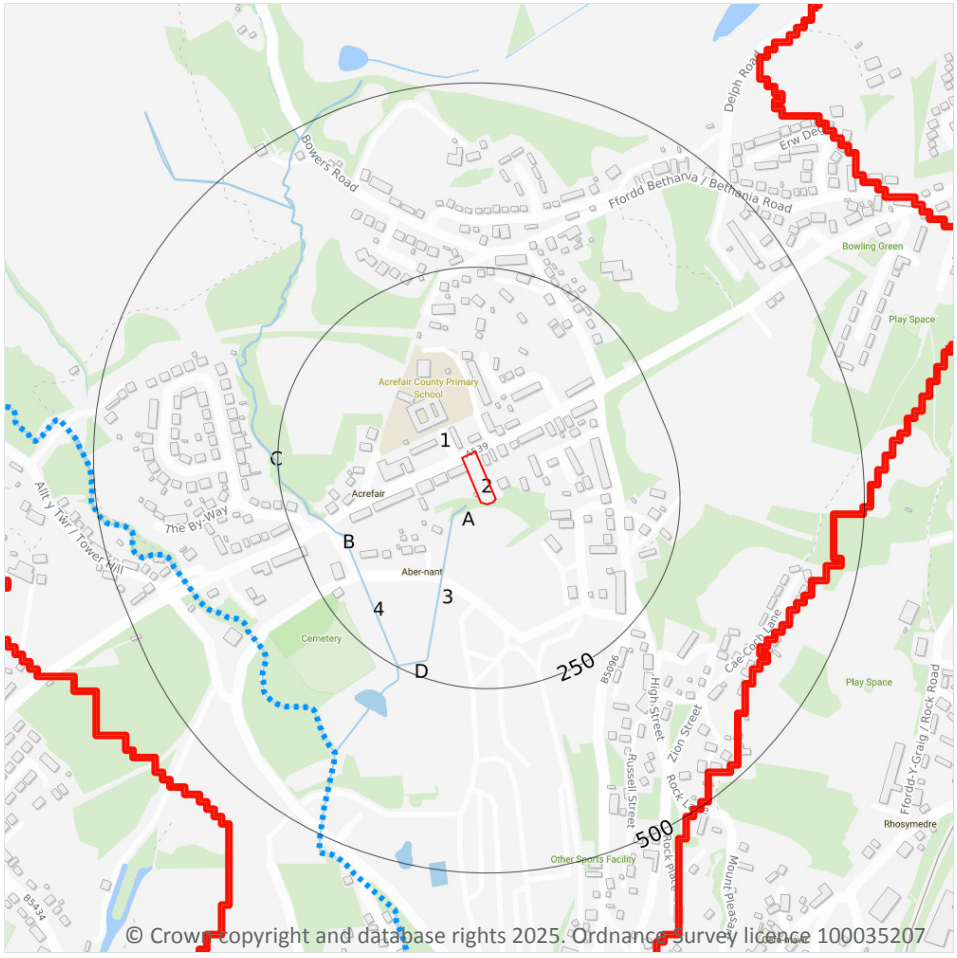
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



6.1 Water Network (OS MasterMap)

Records within 250m	8

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 97 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	19m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
3	42m SW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
4	189m SW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
B	189m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	197m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	207m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	226m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	249m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	3

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 97 >**

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 97 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River WB catchment**	**Trefnant Brook**	**GB111067052010**	**Dee Middle Ceiriog to Alwen**	**Dee**

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 97 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
7	357m SW	River	Trefnant Brook	GB111067052010	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 97 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Dee Silurian/Ordovician**	**GB41102G200200**	**Good**	**Good**	**Good**	**2017**

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

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

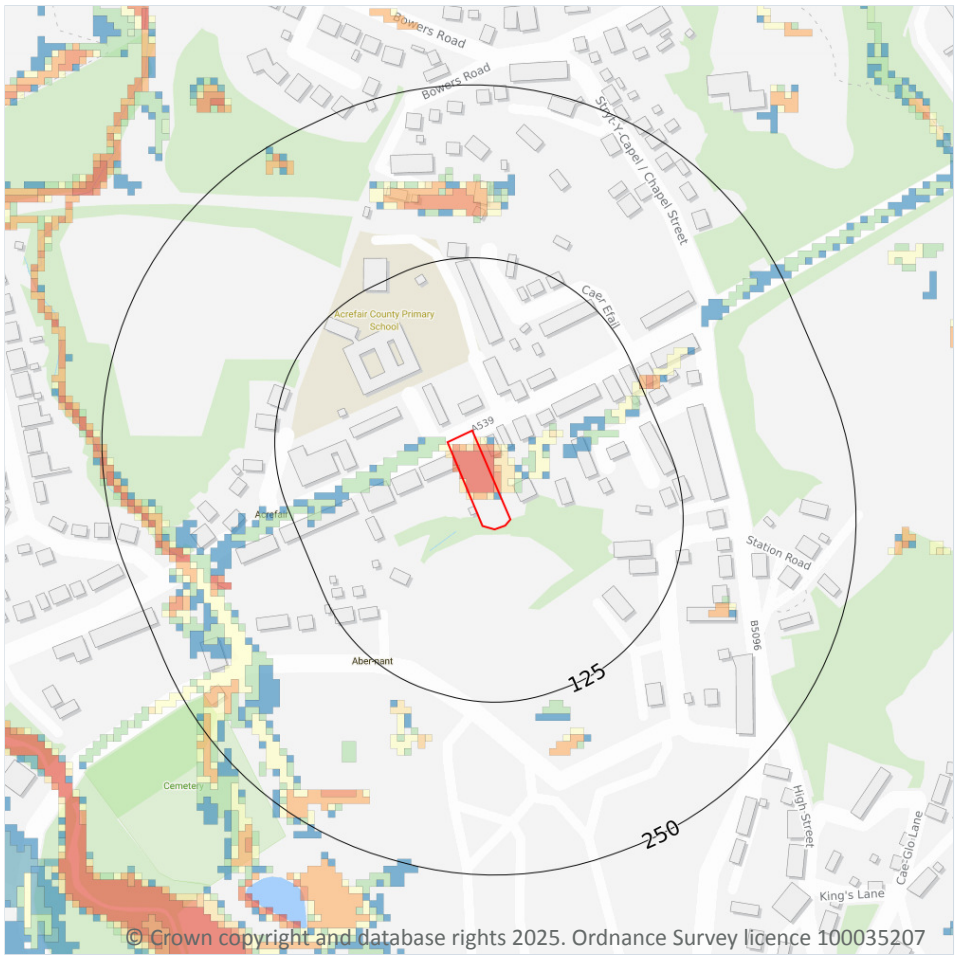
7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, Greater than 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 103 >**

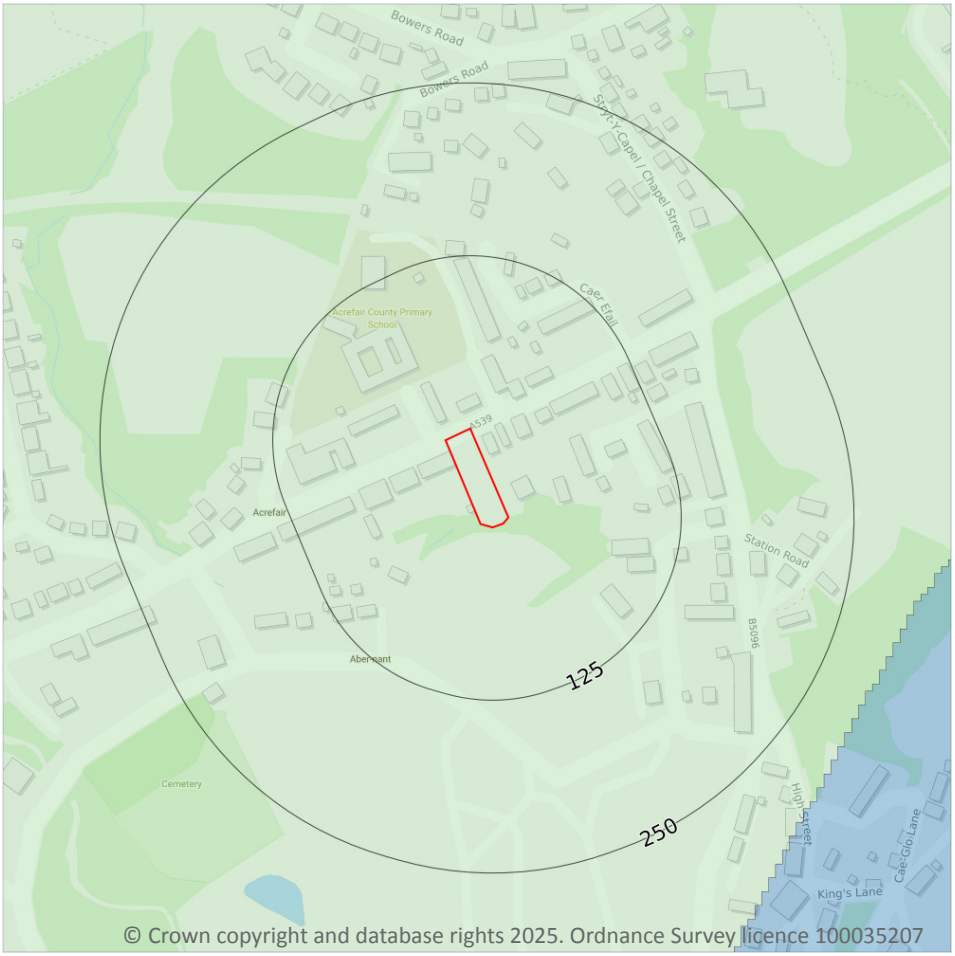
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Greater than 1.0m
1 in 30 year	Greater than 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

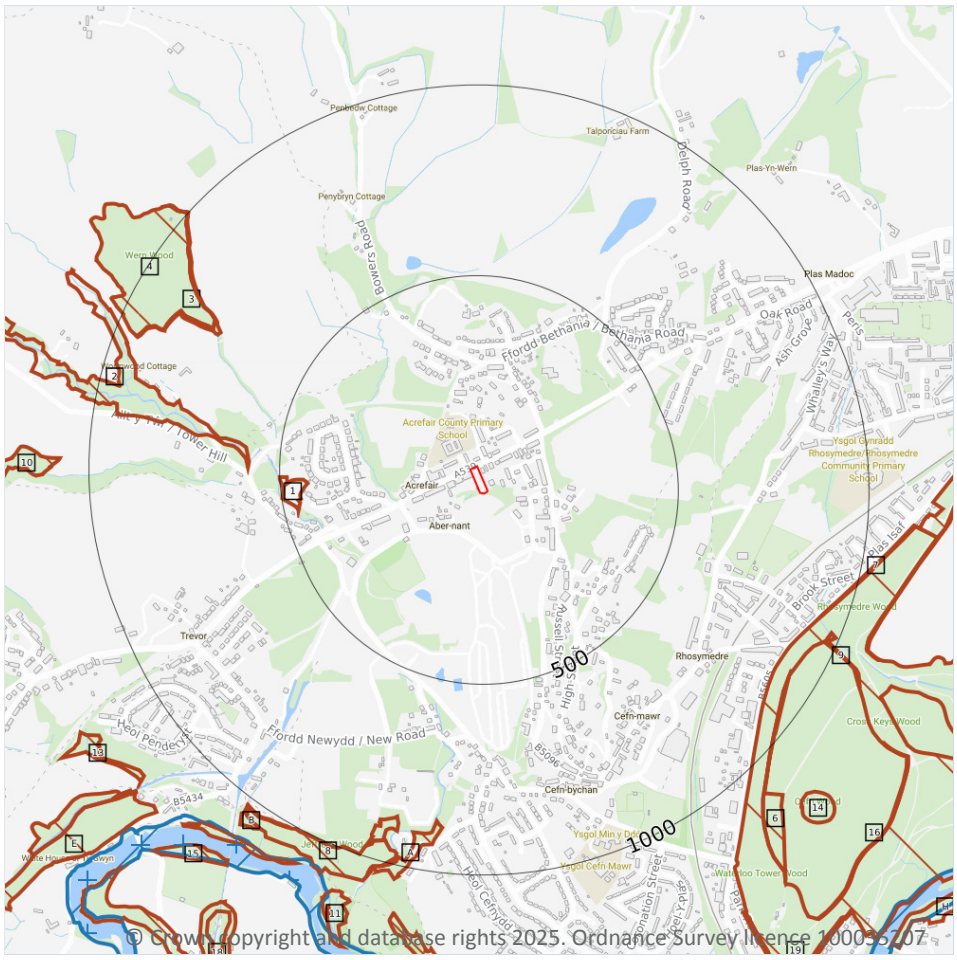
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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

Features are displayed on the Groundwater flooding map on **page 105 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Special Areas of Conservation (SAC)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	2

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

Features are displayed on the Environmental designations map on **page 106 >**

ID	Location	Name	Data source
C	1063m SW	Afon Dyfrdwy (River Dee)	Natural Resources Wales

ID	Location	Name	Data source
-	1704m SE	Afon Dyfrdwy (River Dee)	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	**2**

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 106 >**

ID	Location	Name	Features of interest	Habitat description	Data source
C	1063m SW	River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)	Rivers with floating vegetation often dominated by water-crowfoot; Mixed woodland on base-rich soils associated with rocky slopes; Western acidic oak woodland; Alder woodland on floodplains; Sea lamprey; Brook lamprey; River lamprey; Twaite shad; Atlantic salmon; Bullhead; Freshwater pearl mussel; Otter; Floating water-plantain	Broad-leaved deciduous woodland; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Improved grassland; Inland water bodies (Standing water, Running water); Salt marshes, Salt pastures, Salt steppes	Natural Resources Wales

ID	Location	Name	Features of interest	Habitat description	Data source
-	1890m SE	River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)	Rivers with floating vegetation often dominated by water-crowfoot; Mixed woodland on base-rich soils associated with rocky slopes; Western acidic oak woodland; Alder woodland on floodplains; Sea lamprey; Brook lamprey; River lamprey; Twaite shad; Atlantic salmon; Bullhead; Freshwater pearl mussel; Otter; Floating water-plantain	Broad-leaved deciduous woodland; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Improved grassland; Inland water bodies (Standing water, Running water); Salt marshes, Salt pastures, Salt steppes	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	76

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 106 >**

ID	Location	Name	Woodland Type
1	428m W	Unknown	Restored Ancient Woodland Site
2	580m W	Unknown	Restored Ancient Woodland Site
3	746m NW	Unknown	Restored Ancient Woodland Site
4	768m NW	Unknown	Restored Ancient Woodland Site
A	867m S	Unknown	Restored Ancient Woodland Site
A	876m S	Unknown	Restored Ancient Woodland Site
5	886m SE	Unknown	Restored Ancient Woodland Site
6	928m SE	Unknown	Ancient Semi Natural Woodland
7	931m E	Unknown	Restored Ancient Woodland Site
8	944m S	Unknown	Restored Ancient Woodland Site
9	967m SE	Unknown	Restored Ancient Woodland Site
B	1010m SW	Unknown	Restored Ancient Woodland Site
D	1072m E	Unknown	Ancient Semi Natural Woodland
10	1076m W	Unknown	Restored Ancient Woodland Site
B	1084m SW	Unknown	Ancient Semi Natural Woodland
11	1108m S	Unknown	Ancient Semi Natural Woodland
12	1125m S	Unknown	Restored Ancient Woodland Site
D	1138m E	Unknown	Ancient Semi Natural Woodland
13	1152m SW	Unknown	Ancient Semi Natural Woodland
14	1153m SE	Unknown	Plantation on Ancient Woodland Site
15	1169m SW	Unknown	Ancient Semi Natural Woodland
E	1185m SW	Unknown	Restored Ancient Woodland Site

ID	Location	Name	Woodland Type
E	1204m SW	Unknown	Ancient Semi Natural Woodland
16	1236m SE	Unknown	Plantation on Ancient Woodland Site
17	1257m W	Unknown	Restored Ancient Woodland Site
18	1263m SW	Unknown	Ancient Semi Natural Woodland
19	1291m SE	Unknown	Restored Ancient Woodland Site
-	1300m W	Unknown	Restored Ancient Woodland Site
20	1356m SW	Unknown	Restored Ancient Woodland Site
-	1422m W	Unknown	Restored Ancient Woodland Site
-	1437m W	Unknown	Plantation on Ancient Woodland Site
21	1456m SW	Unknown	Ancient Semi Natural Woodland
-	1460m NW	Unknown	Plantation on Ancient Woodland Site
-	1473m W	Unknown	Plantation on Ancient Woodland Site
-	1552m S	Unknown	Ancient Woodland Site of Unknown Category
H	1567m SE	Unknown	Ancient Semi Natural Woodland
-	1585m S	Unknown	Restored Ancient Woodland Site
-	1585m NW	Unknown	Plantation on Ancient Woodland Site
-	1588m SE	Unknown	Restored Ancient Woodland Site
-	1596m SE	Unknown	Restored Ancient Woodland Site
-	1616m W	Unknown	Plantation on Ancient Woodland Site
-	1617m W	Unknown	Restored Ancient Woodland Site
-	1617m E	Unknown	Restored Ancient Woodland Site
-	1625m E	Unknown	Ancient Semi Natural Woodland
-	1644m NW	Unknown	Restored Ancient Woodland Site
-	1646m NW	Unknown	Plantation on Ancient Woodland Site
-	1649m SE	Unknown	Restored Ancient Woodland Site
-	1664m SE	Unknown	Ancient Woodland Site of Unknown Category
-	1674m NW	Unknown	Restored Ancient Woodland Site
-	1697m S	Unknown	Restored Ancient Woodland Site

ID	Location	Name	Woodland Type
-	1707m W	Unknown	Plantation on Ancient Woodland Site
-	1723m W	Unknown	Plantation on Ancient Woodland Site
-	1725m W	Unknown	Restored Ancient Woodland Site
-	1727m S	Unknown	Ancient Semi Natural Woodland
-	1733m SE	Unknown	Restored Ancient Woodland Site
-	1740m E	Unknown	Ancient Semi Natural Woodland
-	1757m W	Unknown	Plantation on Ancient Woodland Site
-	1761m S	Unknown	Ancient Semi Natural Woodland
-	1820m S	Unknown	Ancient Semi Natural Woodland
-	1823m W	Unknown	Restored Ancient Woodland Site
-	1827m S	Unknown	Restored Ancient Woodland Site
-	1873m S	Unknown	Restored Ancient Woodland Site
-	1873m S	Unknown	Restored Ancient Woodland Site
-	1881m W	Unknown	Restored Ancient Woodland Site
-	1883m S	Unknown	Restored Ancient Woodland Site
-	1884m S	Unknown	Restored Ancient Woodland Site
-	1908m W	Unknown	Plantation on Ancient Woodland Site
-	1909m W	Unknown	Plantation on Ancient Woodland Site
-	1913m W	Unknown	Plantation on Ancient Woodland Site
-	1922m W	Unknown	Restored Ancient Woodland Site
-	1925m E	Unknown	Ancient Semi Natural Woodland
-	1929m W	Unknown	Restored Ancient Woodland Site
-	1937m SE	Unknown	Plantation on Ancient Woodland Site
-	1942m SE	Unknown	Ancient Semi Natural Woodland
-	1954m S	Unknown	Ancient Semi Natural Woodland
-	1999m W	Unknown	Plantation on Ancient Woodland Site

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.

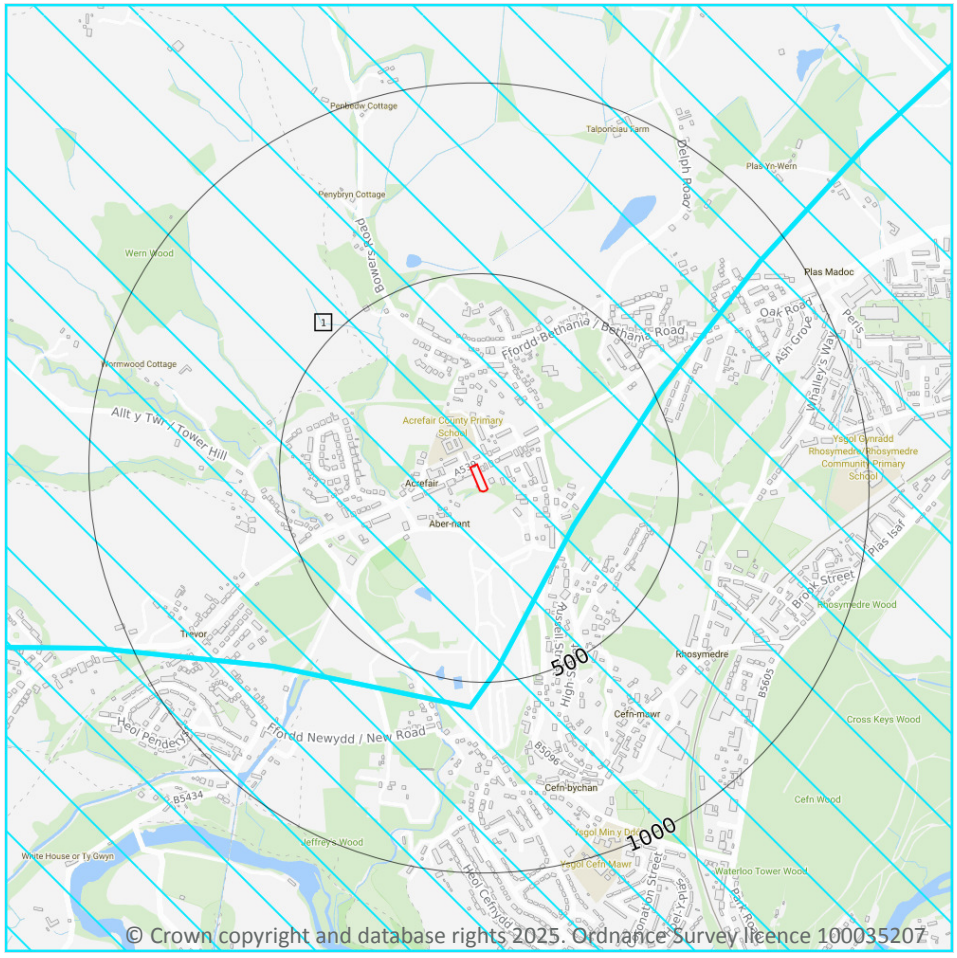
10.16 Nitrate Vulnerable Zones

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



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 114 >**

ID	Location	Type of developments requiring consultation
1	**On site**	**https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0000000630000&notes=&location=328222,346690%20(IRZ%20polygon%20centre)**

This data is sourced from Natural England.

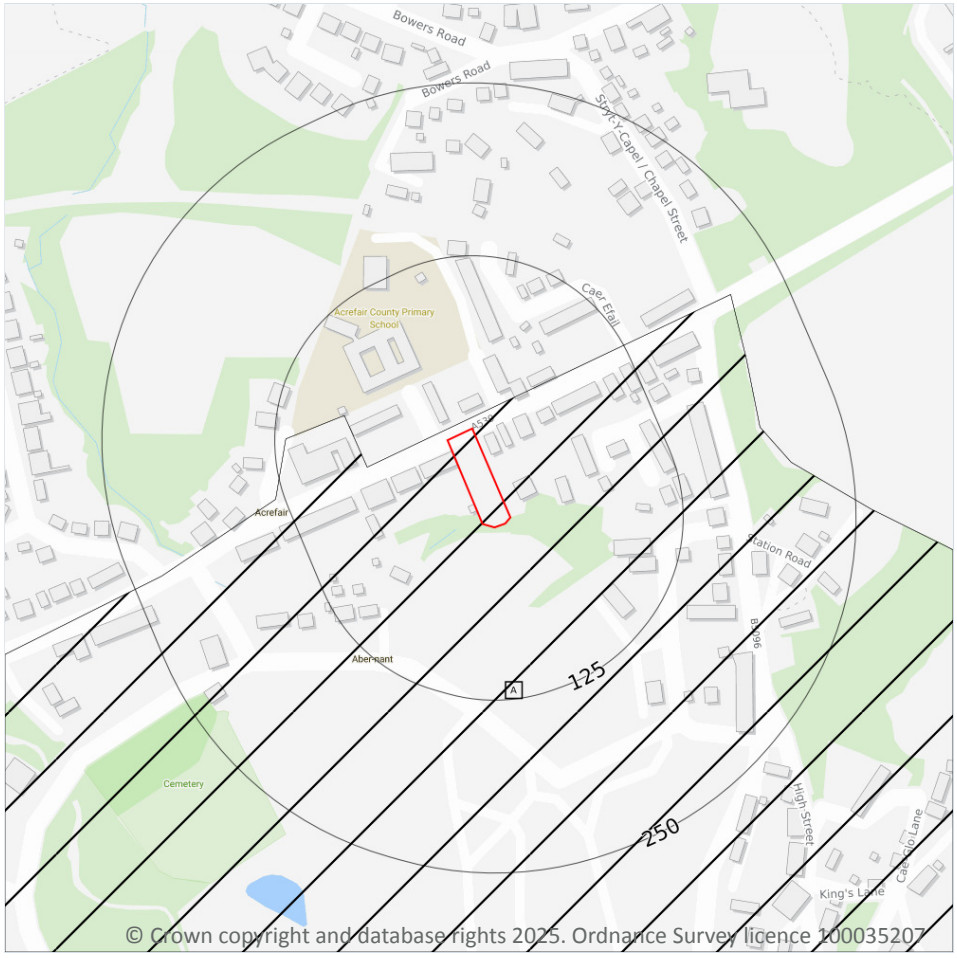
10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

11.1 World Heritage Sites

Records within 250m	2

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.

Features are displayed on the Visual and cultural designations map on **page 116 >**

ID	Location	Name	Data Source
A	**On site**	**Pontcysyllte Aqueduct and Canal Buffer Zone**	**Historic England**
A	**On site**	**Pontcysyllte Aqueduct and Canal Essential Setting**	**CADW**

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	0

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

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	2

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

Features are displayed on the Agricultural designations map on **page 119 >**

ID	Location	Classification	Description
2	131m W	Grade 3b	Moderate quality agricultural land
3	154m NW	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. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	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.

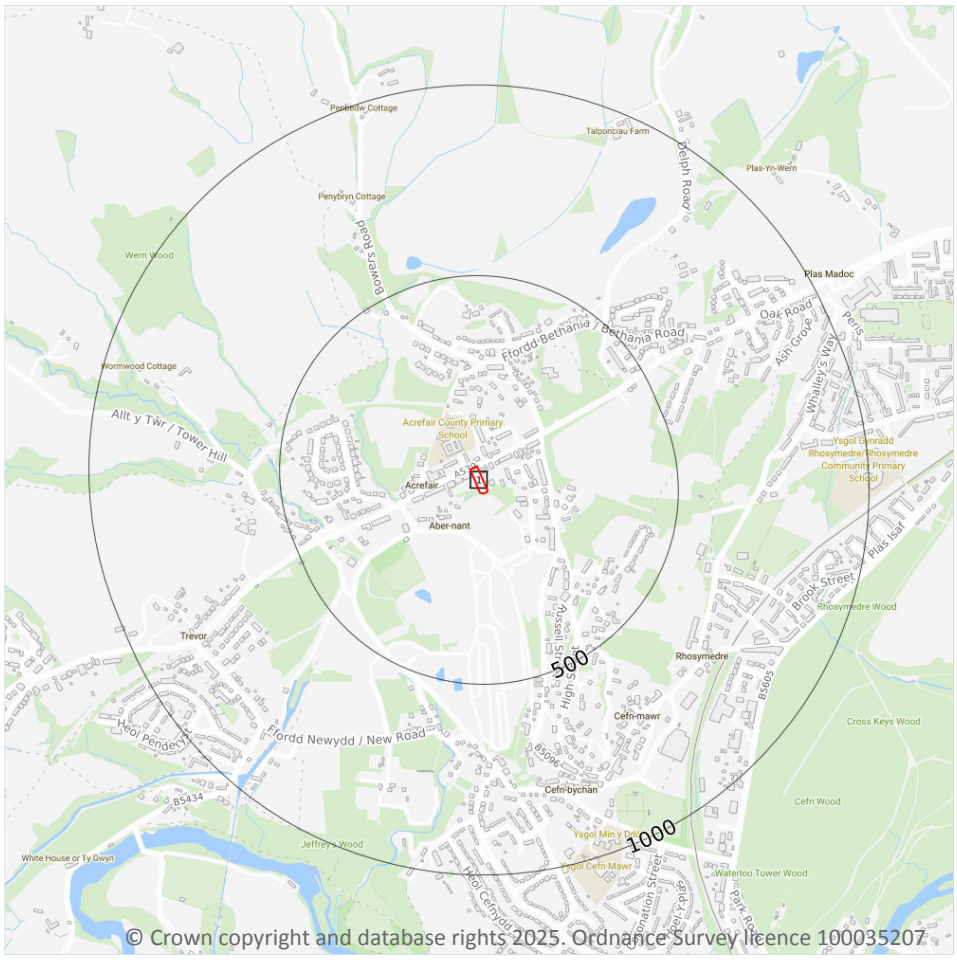
13.4 Limestone Pavement Orders

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



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 122 >**

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.

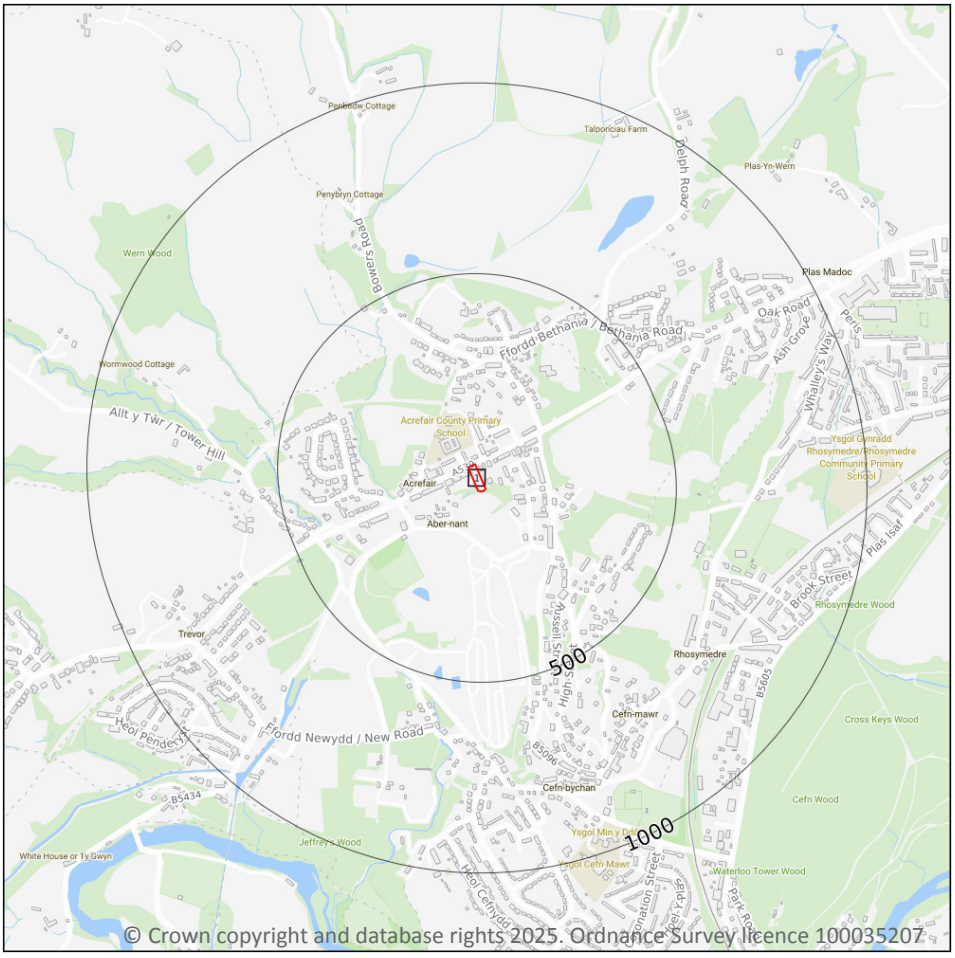
14.6 Bedrock faults and other linear features (10k)

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 126 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW121_wrexham_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

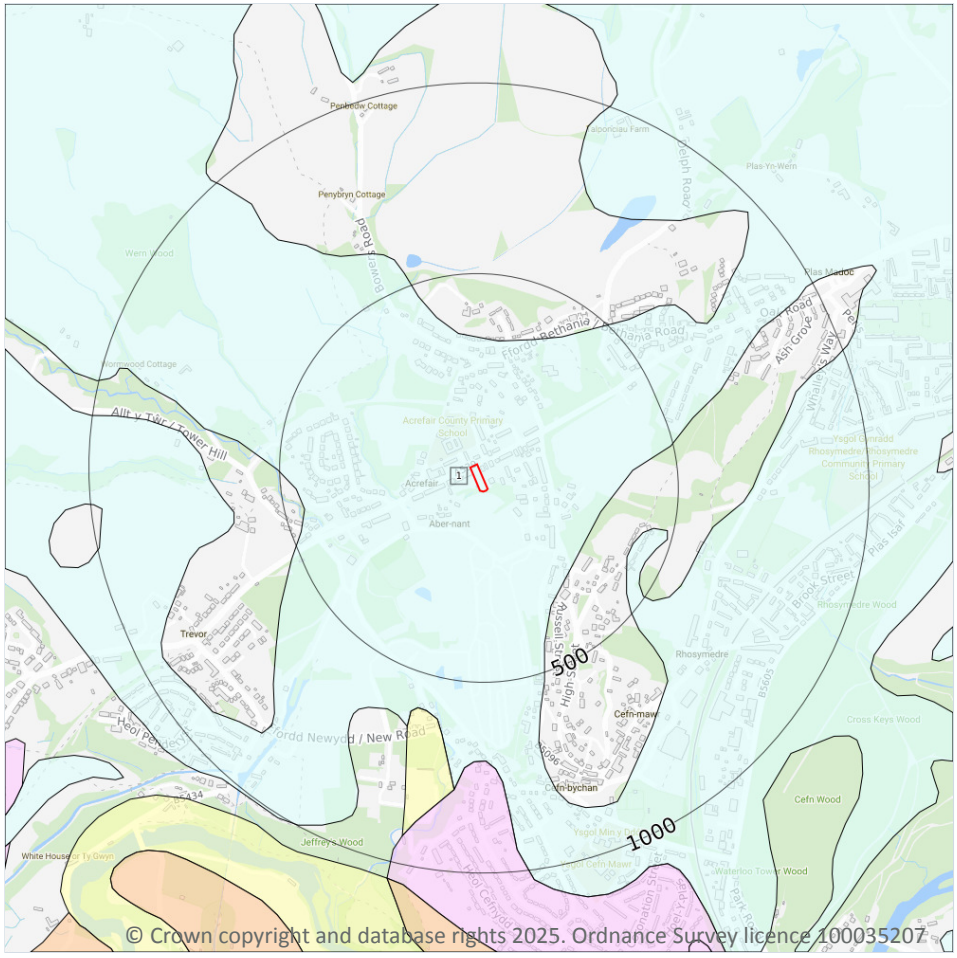
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m	1

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 128 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

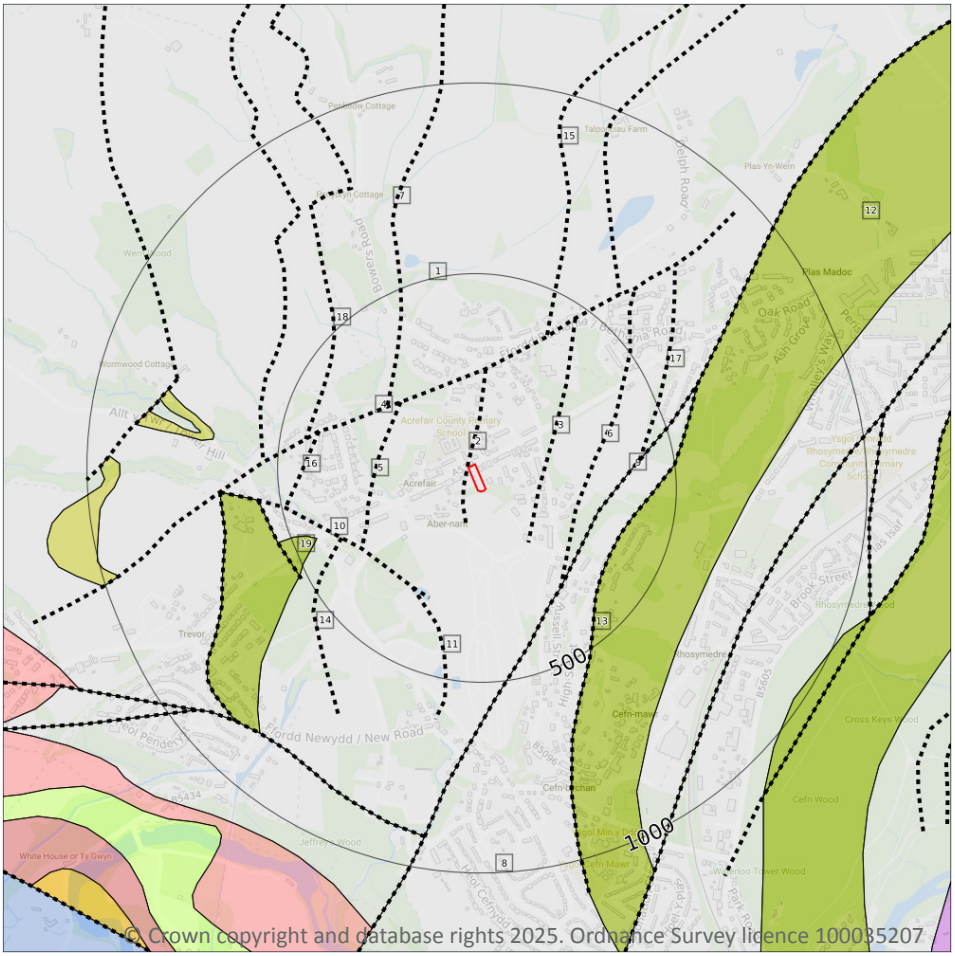
15.7 Landslip permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **4**

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 130 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLMC-MDSS**	**PENNINE LOWER COAL MEASURES FORMATION AND PENNINE MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED) - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**

ID	Location	LEX Code	Description	Rock age
8	291m SE	PLMC-MDSS	PENNINE LOWER COAL MEASURES FORMATION AND PENNINE MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED) - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	369m SE	CF-SDST	CEFN ROCK - SANDSTONE	WESTPHALIAN
19	439m SW	CF-SDST	CEFN ROCK - SANDSTONE	WESTPHALIAN

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**	**Moderate**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**15**

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.

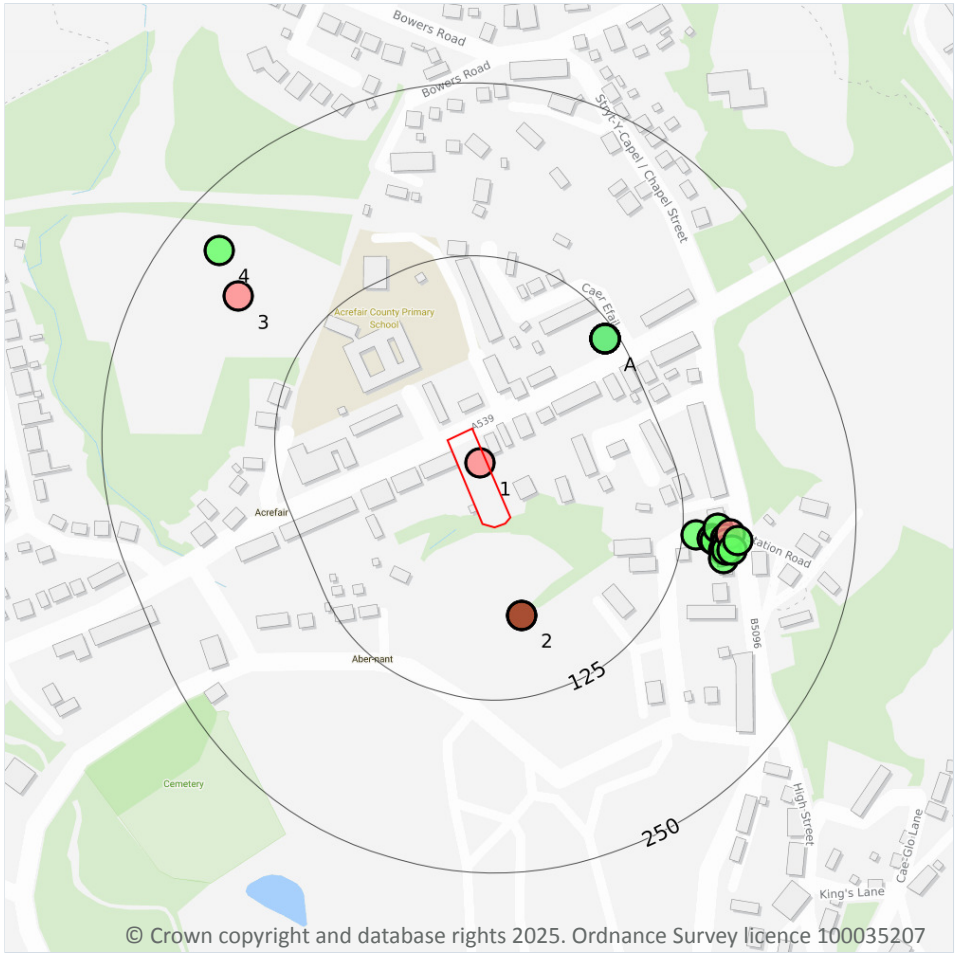
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 130 >**

ID	Location	Category	Description
2	3m W	ROCK	Coal seam, inferred
3	137m E	ROCK	Coal seam, inferred
4	223m N	FAULT	Fault, inferred, displacement unknown
5	229m W	ROCK	Coal seam, inferred
6	243m E	ROCK	Coal seam, inferred
7	266m NW	ROCK	Coal seam, inferred
9	291m SE	FAULT	Fault, inferred, displacement unknown

ID	Location	Category	Description
10	305m SW	FAULT	Fault, inferred, displacement unknown
11	306m SW	ROCK	Coal seam, inferred
13	369m SE	ROCK	Coal seam, inferred
14	378m SW	ROCK	Coal seam, inferred
15	383m NE	ROCK	Coal seam, inferred
16	403m W	ROCK	Coal seam, inferred
17	410m E	ROCK	Coal seam, inferred
18	427m W	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m **29**

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

Features are displayed on the Boreholes map on **page 133 >**

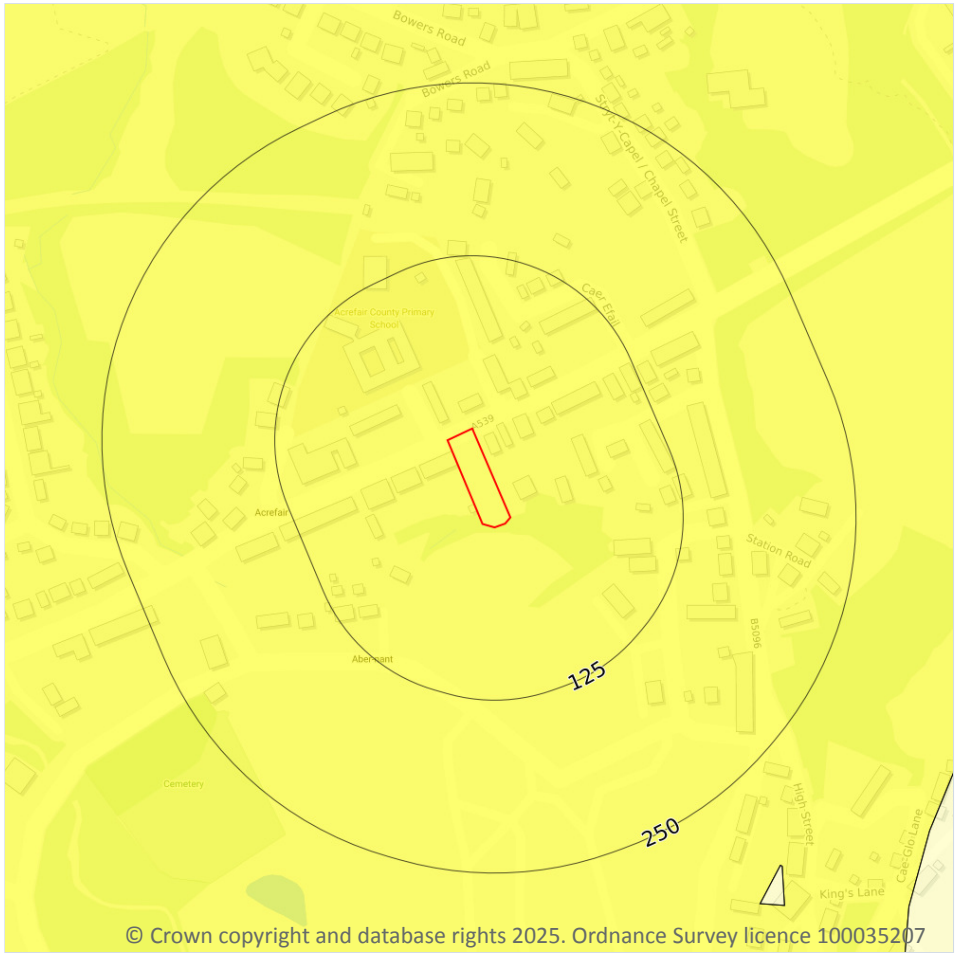
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**327700 343000**	**J. EDWARDS ACREFAIR**	**35.96**	**N**	**144112** ↗
2	66m S	327730 342890	ABERNANT CEFN COLLIERY	-1.0	N	144331 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. TP.6	2.45	N	144101 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. TP.7	2.6	N	144102 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. TP.2	2.3	N	144097 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. TP.3	2.45	N	144098 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. TP.4	2.25	N	144099 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. TP.5	2.25	N	144100 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. 2	19.55	N	144092 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. 3	18.65	N	144093 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. 4	19.15	N	144094 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. 5	9.4	N	144095 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. TP.1	2.4	N	144096 ↗
A	116m NE	327790 343090	ACREFAIR, BURTON TERRACE. 1	21.35	N	144091 ↗
B	135m E	327856 342948	KING STREET CEFI MAWR WREXHAM 11	30.0	N	18423227 ↗
B	147m E	327868 342945	KING STREET CEFI MAWR WREXHAM 12	30.0	N	18423301 ↗
B	149m E	327870 342944	KING STREET CEFI MAWR WREXHAM 9	30.0	N	18423221 ↗
B	150m E	327872 342953	KING STREET CEFI MAWR WREXHAM 10	30.0	N	18423225 ↗
B	156m E	327877 342945	KING STREET CEFI MAWR WREXHAM 2	30.0	N	18423205 ↗
B	156m E	327876 342937	KING STREET CEFI MAWR WREXHAM 7	30.0	N	18423214 ↗
B	157m E	327877 342937	KING STREET CEFI MAWR WREXHAM SHAFT	60.0	N	18423304 ↗
B	157m E	327876 342931	KING STREET CEFI MAWR WREXHAM 5	30.0	N	18423211 ↗
B	157m E	327878 342942	KING STREET CEFI MAWR WREXHAM 3	30.0	N	18423207 ↗
B	158m E	327878 342937	KING STREET CEFI MAWR WREXHAM 8	30.0	N	18423215 ↗
B	160m E	327881 342949	KING STREET CEFI MAWR WREXHAM 1	34.0	N	18423204 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
B	162m E	327882 342937	KING STREET CEFI MAWR WREXHAM 6	30.0	N	18423212 ↗
B	165m E	327886 342944	KING STREET CEFI MAWR WREXHAM 4	30.0	N	18423209 ↗
3	184m NW	327525 343121	TREF-Y-NANT HALL, O/C SITE. 1	39.62	N	143716 ↗
4	215m NW	327511 343154	TREF-Y-NANT HALL, O/C SITE. 2	20.12	N	143717 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



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Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

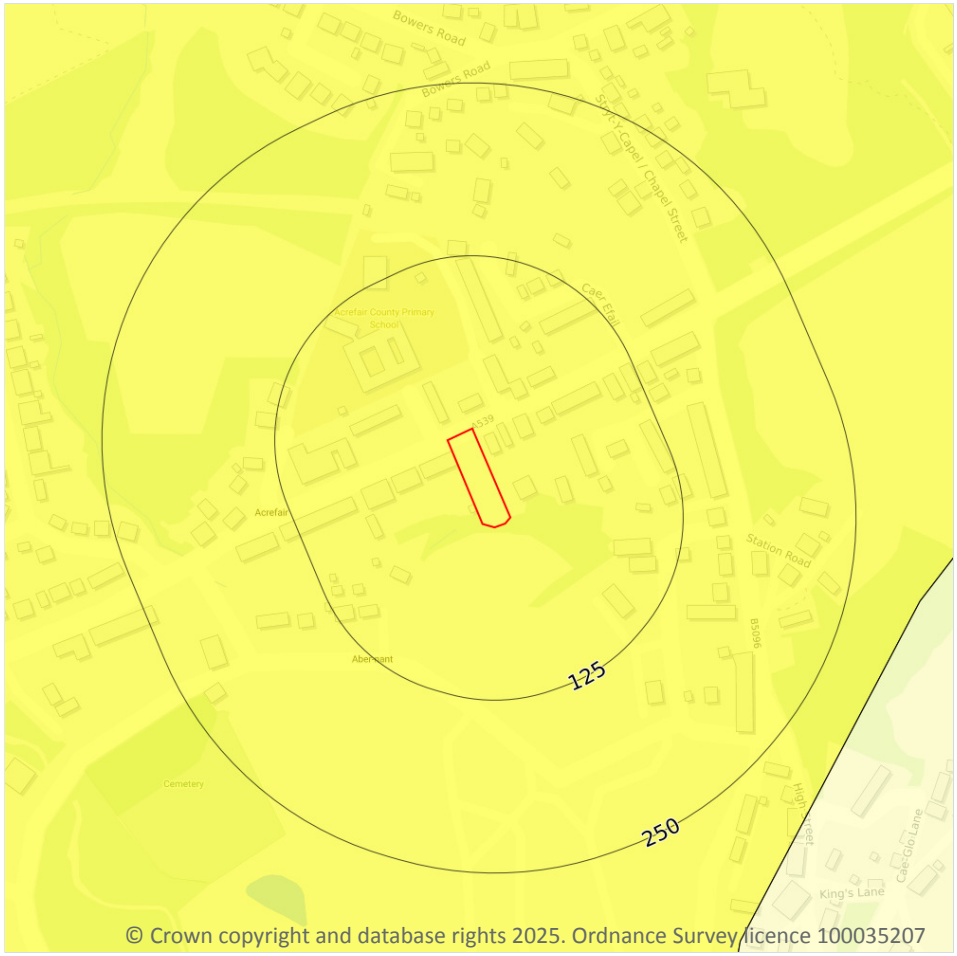
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 136 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

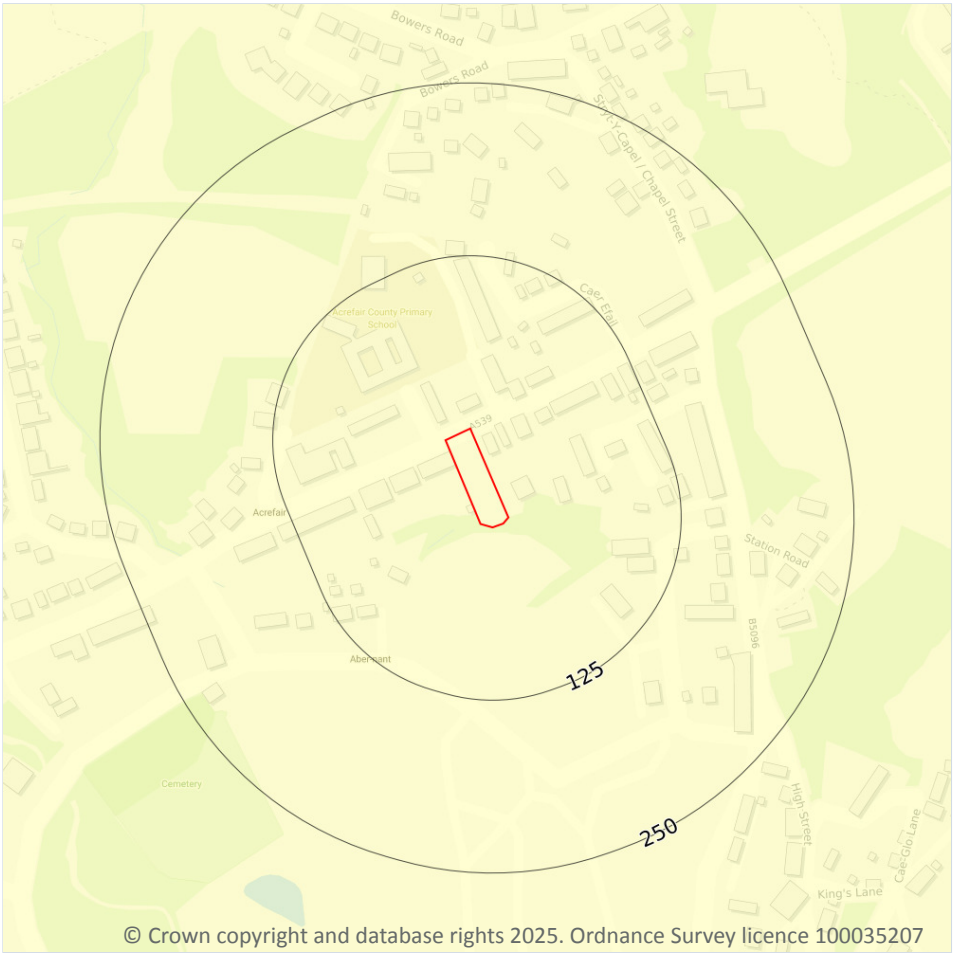
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 137 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

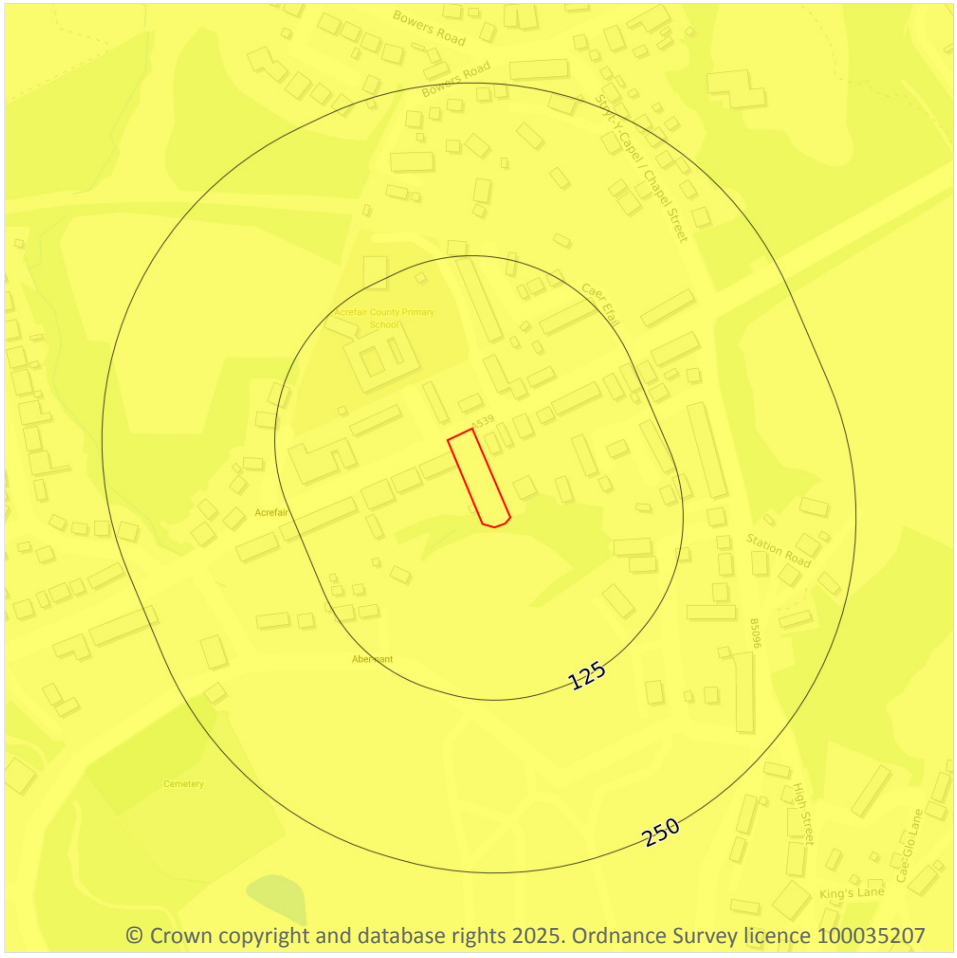
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 138 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

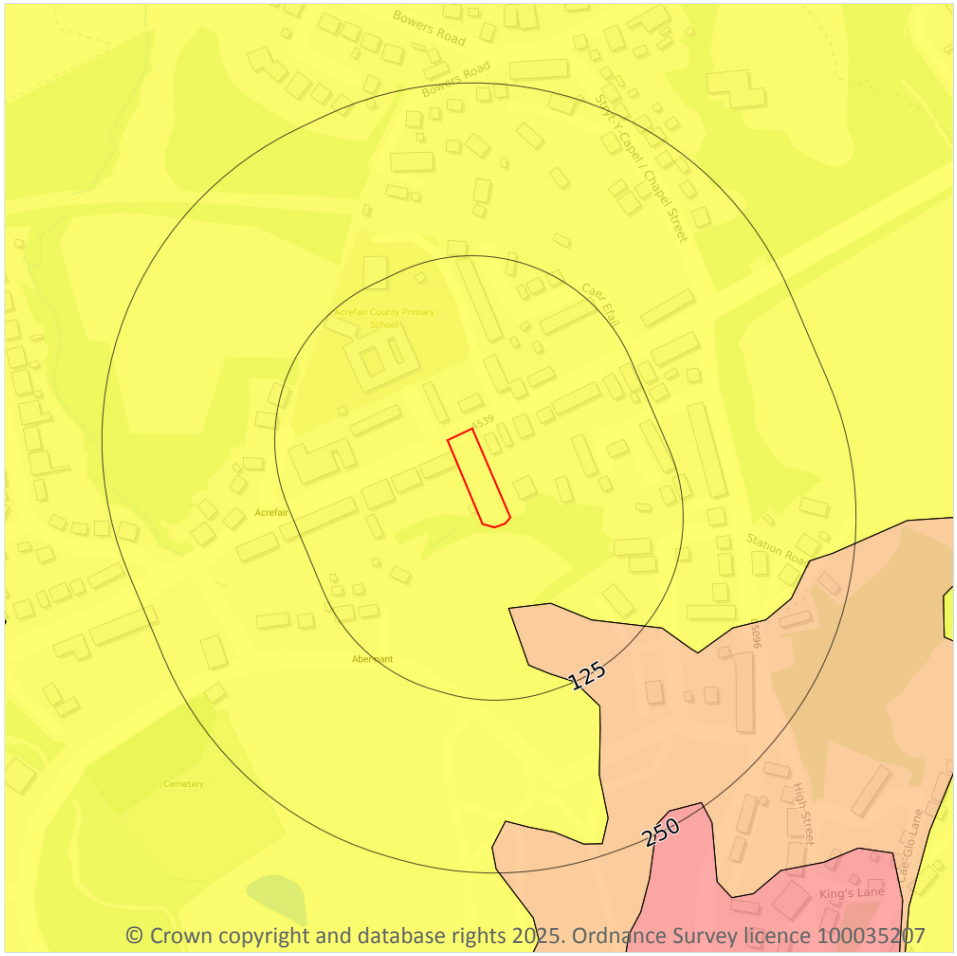
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 139 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

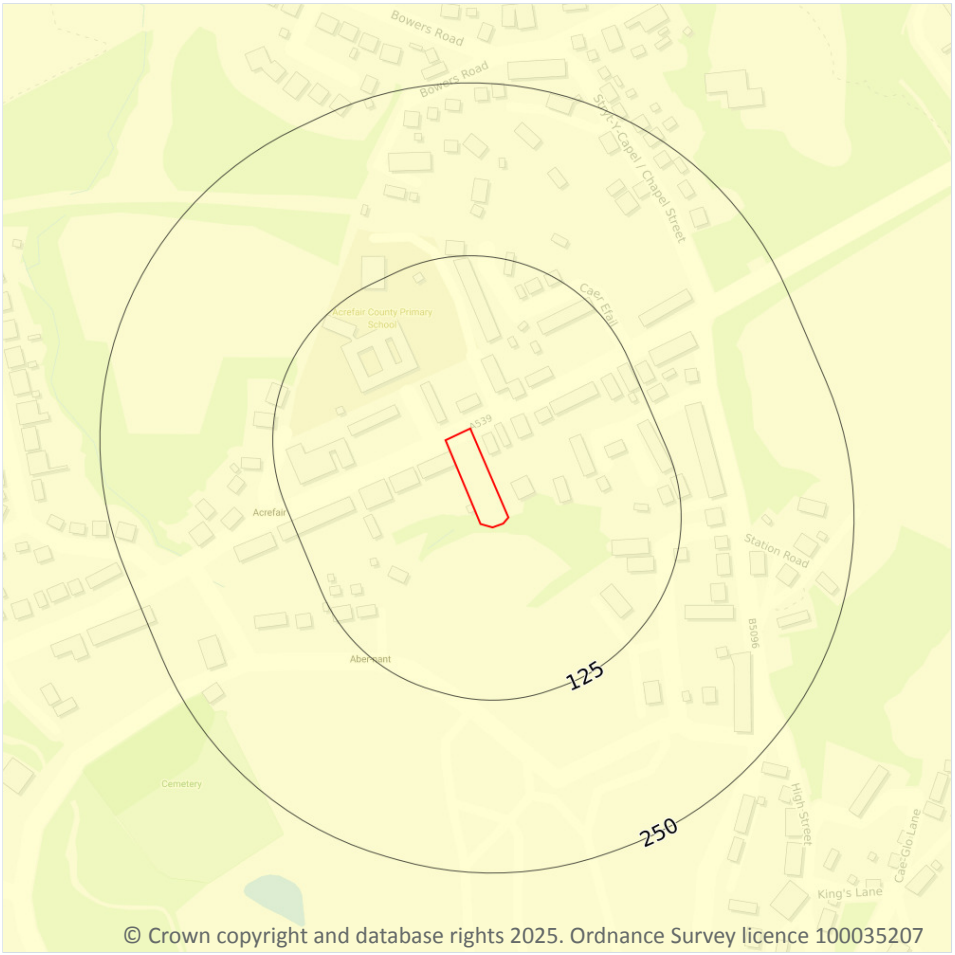
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 140 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

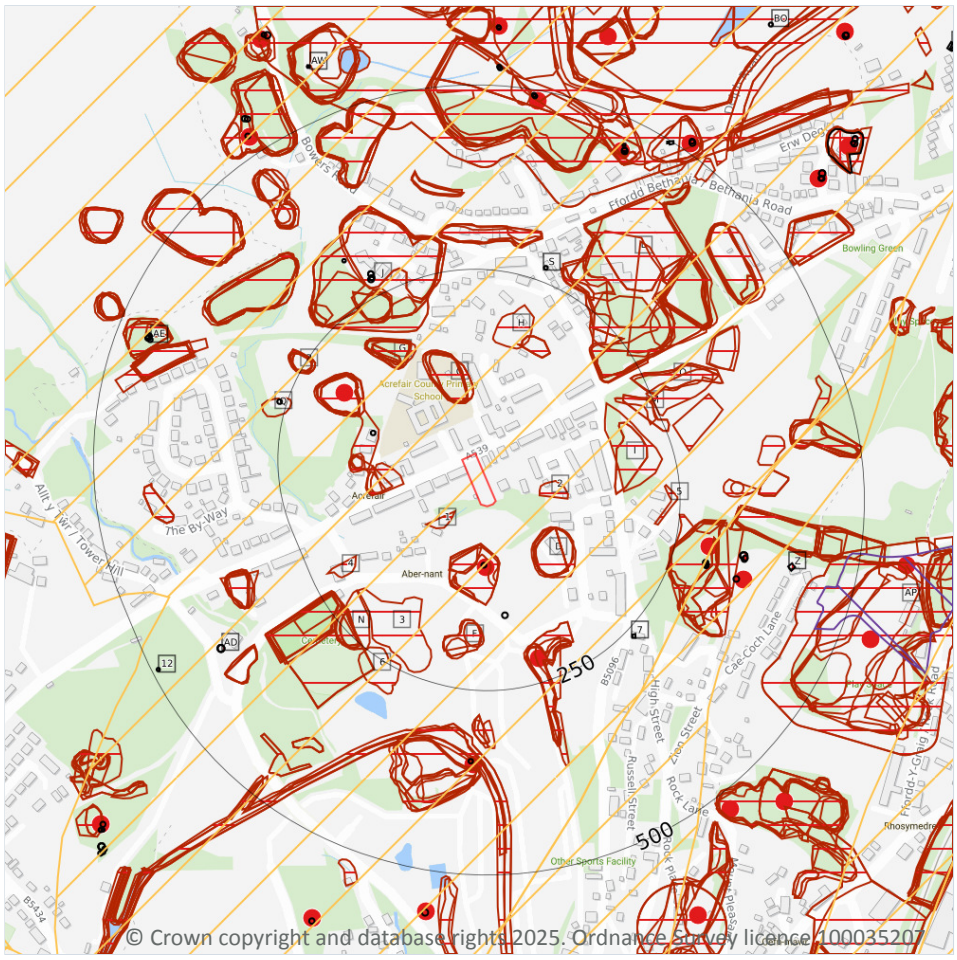
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 141 >**

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

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	9

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

Features are displayed on the Mining and ground workings map on **page 143 >**

ID	Location	Details	Description
B	83m S	Name: Plas Kynaston Address: Cefn-mawr, WREXHAM, Denbighshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
B	106m S	Name: Edward's Clay Pit Address: Aber-nant, Cefn-mawr, Ruabon, WREXHAM, Clwyd Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
E	183m NW	Name: Tre-y-nant Hall Address: Cefn-mawr, WREXHAM, Denbighshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

ID	Location	Details	Description
K	218m S	Name: Plas-aber-nant Address: Cefn-mawr, WREXHAM, Denbighshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
R	296m E	Name: Caeglo Colliery, Bye Pit Address: Cefn-mawr, Ruabon, WREXHAM, Clwyd Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
T	350m S	Name: Plas Kynaston Address: Cefn-mawr, WREXHAM, Denbighshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

ID	Location	Details	Description
R	352m E	Name: Caeglo Colliery, Wards Deep Engine Pit Address: Cefn-mawr, Ruabon, WREXHAM, Clwyd Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AM	455m NE	Name: Delph Address: Ruabon, WREXHAM, Denbighshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
AC	486m N	Name: Penbedw Fireclay Works Address: Acrefair, Ruabon, WREXHAM, Clwyd Commodity: Fireclay Status: Ceased	Type: Working is wholly underground, access by shaft, adit, drift or incline. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun' Ee' - Scots). May also be locally termed `Quarry' or `Underground Quarry' when referring to sites extracting building stone (e.g. in Dorset and Wiltshire). The location given is that of the mine entrance and may be approximate for older sites shown on contemporaneous mapping by the Geological Survey used as the source document. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	128

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

Features are displayed on the Mining and ground workings map on **page 143 >**

ID	Location	Land Use	Year of mapping	Mapping scale
1	36m SW	Unspecified Heap	1873	1:10560
B	52m S	Unspecified Ground Workings	1938	1:10560
B	52m S	Unspecified Ground Workings	1938	1:10560
B	54m S	Unspecified Ground Workings	1910	1:10560
B	56m S	Unspecified Pit	1949	1:10560
B	57m S	Unspecified Pit	1960	1:10560
2	60m E	Unspecified Heap	1873	1:10560
C	70m N	Unspecified Heap	1873	1:10560
C	70m N	Unspecified Heap	1949	1:10560
C	70m N	Unspecified Heap	1898	1:10560
C	71m N	Unspecified Heap	1910	1:10560
C	71m N	Unspecified Heap	1960	1:10560
C	73m N	Unspecified Heap	1938	1:10560
C	73m N	Unspecified Heap	1938	1:10560
D	75m SE	Unspecified Heap	1910	1:10560
D	77m SE	Unspecified Heap	1938	1:10560
D	77m SE	Unspecified Heap	1938	1:10560
D	81m SE	Unspecified Heap	1873	1:10560
D	81m SE	Unspecified Heap	1960	1:10560
D	81m SE	Unspecified Heap	1994	1:10000
D	81m SE	Unspecified Heap	1977	1:10000
D	81m SE	Unspecified Heap	1985	1:10000
E	86m W	Unspecified Heap	1873	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
E	101m W	Unspecified Heaps	1910	1:10560
B	103m S	Unspecified Ground Workings	1960	1:10560
E	111m W	Unspecified Heap	1960	1:10560
E	116m W	Unspecified Heap	1949	1:10560
E	117m W	Unspecified Heaps	1873	1:10560
E	132m W	Unspecified Pit	1949	1:10560
E	136m W	Unspecified Heap	1960	1:10560
E	149m NW	Unspecified Heaps	1949	1:10560
E	149m NW	Unspecified Heaps	1898	1:10560
G	149m NW	Unspecified Heap	1949	1:10560
G	150m NW	Unspecified Heap	1960	1:10560
3	152m SW	Unspecified Heap	1873	1:10560
G	152m NW	Unspecified Heap	1910	1:10560
H	152m N	Unspecified Heap	1873	1:10560
G	152m NW	Unspecified Heap	1873	1:10560
E	153m NW	Unspecified Heap	1960	1:10560
E	153m NW	Unspecified Heap	1994	1:10000
E	153m NW	Unspecified Heap	1977	1:10000
E	153m NW	Unspecified Heap	1985	1:10000
G	154m NW	Unspecified Heap	1938	1:10560
G	154m NW	Unspecified Heap	1938	1:10560
E	154m NW	Unspecified Heap	1938	1:10560
E	154m NW	Unspecified Heap	1938	1:10560
E	155m NW	Unspecified Heap	1910	1:10560
G	155m NW	Unspecified Heap	1994	1:10000
G	155m NW	Unspecified Heap	1977	1:10000
G	155m NW	Unspecified Heap	1985	1:10000
F	156m S	Unspecified Heap	1938	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
F	156m S	Unspecified Heap	1938	1:10560
F	156m S	Unspecified Heap	1910	1:10560
H	157m NE	Unspecified Heap	1994	1:10000
H	157m NE	Unspecified Heap	1977	1:10000
H	157m NE	Unspecified Heap	1985	1:10000
F	160m S	Unspecified Heap	1873	1:10560
I	163m E	Unspecified Heap	1938	1:10560
I	163m E	Unspecified Heap	1938	1:10560
I	172m E	Unspecified Heap	1873	1:10560
F	183m S	Unspecified Heap	1873	1:10560
4	183m SW	Unspecified Heap	1873	1:10560
J	185m NW	Unspecified Heap	1873	1:10560
J	185m NW	Unspecified Ground Workings	1898	1:10560
K	186m SE	Unspecified Ground Workings	1938	1:10560
K	186m SE	Unspecified Ground Workings	1938	1:10560
K	197m S	Unspecified Ground Workings	1910	1:10560
L	197m NE	Unspecified Ground Workings	1910	1:10560
L	198m NE	Unspecified Ground Workings	1938	1:10560
L	198m NE	Unspecified Ground Workings	1938	1:10560
K	199m S	Unspecified Quarry and Ground Workings	1873	1:10560
L	199m NE	Unspecified Ground Workings	1960	1:10560
K	200m S	Unspecified Ground Workings	1949	1:10560
K	201m S	Unspecified Ground Workings	1960	1:10560
L	202m NE	Unspecified Ground Workings	1994	1:10000
L	202m NE	Unspecified Ground Workings	1977	1:10000
L	202m NE	Unspecified Ground Workings	1985	1:10000
M	203m NE	Unspecified Ground Workings	1949	1:10560
N	205m SW	Unspecified Heap	1873	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
J	207m NW	Unspecified Ground Workings	1949	1:10560
J	209m NW	Unspecified Ground Workings	1960	1:10560
J	209m NW	Unspecified Ground Workings	1977	1:10000
J	209m NW	Unspecified Ground Workings	1985	1:10000
M	212m NE	Unspecified Pit	1938	1:10560
M	212m NE	Unspecified Pit	1938	1:10560
J	217m NW	Unspecified Pit	1949	1:10560
J	217m NW	Unspecified Ground Workings	1910	1:10560
5	218m E	Unspecified Ground Workings	1910	1:10560
J	219m NW	Unspecified Pit	1938	1:10560
J	219m NW	Unspecified Pit	1938	1:10560
J	221m NW	Unspecified Ground Workings	1994	1:10000
J	222m N	Unspecified Heap	1938	1:10560
J	222m N	Unspecified Heap	1938	1:10560
L	222m NE	Unspecified Heap	1949	1:10560
N	229m SW	Unspecified Heap	1938	1:10560
N	229m SW	Unspecified Heap	1938	1:10560
N	231m SW	Cemetery	1994	1:10000
N	231m SW	Cemetery	1977	1:10000
N	231m SW	Cemetery	1985	1:10000
N	231m SW	Unspecified Heap	1910	1:10560
N	231m SW	Burial Ground	1873	1:10560
N	231m SW	Cemetery	1949	1:10560
N	231m SW	Cemetery	1898	1:10560
N	232m SW	Cemetery	1960	1:10560
O	234m NE	Unspecified Heap	1938	1:10560
O	234m NE	Unspecified Heap	1938	1:10560
N	234m SW	Cemetery	1938	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
N	235m SW	Unspecified Heap	1960	1:10560
P	236m NW	Unspecified Heap	1873	1:10560
P	236m NW	Unspecified Heap	1949	1:10560
P	236m NW	Unspecified Heap	1898	1:10560
6	236m SW	Unspecified Heap	1873	1:10560
O	237m NE	Unspecified Ground Workings	1949	1:10560
N	237m SW	Cemetery	1910	1:10560
P	239m NW	Unspecified Heap	1960	1:10560
P	239m NW	Unspecified Heap	1910	1:10560
N	240m SW	Unspecified Heap	1949	1:10560
P	240m NW	Unspecified Heap	1938	1:10560
P	240m NW	Unspecified Heap	1938	1:10560
Q	244m W	Unspecified Heap	1873	1:10560
O	245m NE	Unspecified Ground Workings	1873	1:10560
L	246m NE	Unspecified Heap	1898	1:10560
R	246m E	Unspecified Heaps	1938	1:10560
R	246m E	Unspecified Heaps	1938	1:10560
R	247m E	Unspecified Heaps	1949	1:10560
R	247m E	Unspecified Ground Workings	1910	1:10560
R	248m E	Unspecified Heaps	1960	1:10560
R	249m E	Unspecified Ground Workings	1873	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	**174**

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

Features are displayed on the Mining and ground workings map on **page 143 >**

ID	Location	Land Use	Year of mapping	Mapping scale
B	77m S	Unspecified Shaft	1898	1:10560
E	123m W	Unspecified Old Shafts	1898	1:10560
F	146m S	Air Shaft	1898	1:10560
Q	257m W	Unspecified Old Shafts	1898	1:10560
7	259m SE	Unspecified Old Shaft	1898	1:10560
S	267m N	Unspecified Old Shaft	1898	1:10560
J	270m NW	Unspecified Old Shaft	1960	1:10560
J	272m NW	Old Coal Shaft	1949	1:10560
J	272m NW	Unspecified Old Shaft	1898	1:10560
J	277m NW	Unspecified Disused Shaft	1977	1:10000
J	277m NW	Unspecified Disused Shaft	1985	1:10000
R	293m E	Unspecified Disused Shafts	1994	1:10000
R	293m E	Unspecified Disused Shafts	1977	1:10000
R	293m E	Unspecified Disused Shafts	1985	1:10000
R	295m E	Old Coal Shafts	1949	1:10560
R	296m E	Unspecified Old Shafts	1960	1:10560
J	312m NW	Unspecified Old Shaft	1960	1:10560
R	339m E	Unspecified Old Shaft	1898	1:10560
R	339m E	Unspecified Disused Shafts	1994	1:10000
R	339m E	Unspecified Disused Shafts	1977	1:10000
R	339m E	Unspecified Disused Shafts	1985	1:10000
R	343m E	Old Coal Shaft	1949	1:10560
T	343m S	Unspecified Old Shaft	1898	1:10560
R	344m E	Unspecified Old Shafts	1960	1:10560
AD	398m SW	Unspecified Disused Shaft	1994	1:10000
AD	398m SW	Unspecified Disused Shaft	1977	1:10000
AD	398m SW	Unspecified Disused Shaft	1985	1:10000
Z	406m E	Unspecified Old Shafts	1960	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
AE	450m W	Unspecified Old Shaft	1960	1:10560
AE	453m W	Unspecified Disused Shaft	1994	1:10000
AE	453m W	Unspecified Disused Shaft	1977	1:10000
AE	453m W	Unspecified Disused Shaft	1985	1:10000
AM	453m NE	Unspecified Disused Old Shafts	1960	1:10560
AE	454m W	Old Coal Shaft	1949	1:10560
AE	454m W	Unspecified Old Shaft	1898	1:10560
AM	454m NE	Coal Shafts	1873	1:10560
AM	455m NE	Old Coal Shafts	1949	1:10560
AM	462m NE	Coal Shafts	1873	1:10560
AC	489m N	Unspecified Shaft	1960	1:10560
12	489m SW	Unspecified Shaft	1873	1:10560
AC	490m N	Clay Shafts	1949	1:10560
AQ	494m NE	Coal Shafts	1873	1:10560
AQ	510m NE	Unspecified Disused Old Shafts	1960	1:10560
AQ	512m NE	Old Coal Shafts	1949	1:10560
AC	521m N	Unspecified Shaft	1960	1:10560
AC	523m N	Unspecified Shaft	1949	1:10560
AR	523m NW	Unspecified Shaft	1949	1:10560
AR	543m NW	Unspecified Shaft	1960	1:10560
AR	545m NW	Clay Shafts	1949	1:10560
AV	553m S	Unspecified Old Shaft	1898	1:10560
AW	570m NW	Unspecified Old Shaft	1960	1:10560
BA	576m N	Unspecified Shaft	1960	1:10560
BA	577m N	Old Coal Shaft	1949	1:10560
BH	596m NE	Old Coal Shafts	1949	1:10560
BH	596m NE	Unspecified Old Shafts	1960	1:10560
BH	600m NE	Unspecified Disused Shafts	1977	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
BH	600m NE	Unspecified Disused Shafts	1985	1:10000
BK	606m S	Unspecified Old Shaft	1898	1:10560
BH	628m NE	Unspecified Old Shafts	1960	1:10560
BI	629m NW	Unspecified Old Shaft	1960	1:10560
BI	633m NW	Old Coal Shaft	1949	1:10560
-	643m N	Unspecified Shafts	1898	1:10560
-	644m N	Old Coal Shafts	1949	1:10560
-	644m N	Unspecified Old Shafts	1960	1:10560
-	657m N	Old Coal Shafts	1949	1:10560
-	657m N	Unspecified Old Shafts	1960	1:10560
-	658m N	Unspecified Old Shafts	1960	1:10560
BH	660m NE	Unspecified Old Shafts	1960	1:10560
BH	660m NE	Old Coal Shafts	1949	1:10560
BH	665m NE	Unspecified Disused Shafts	1977	1:10000
BH	665m NE	Unspecified Disused Shafts	1985	1:10000
BP	668m SW	Unspecified Old Shafts	1898	1:10560
BP	674m SW	Unspecified Old Shafts	1960	1:10560
BP	676m SW	Old Coal Shafts	1949	1:10560
-	680m W	Unspecified Shaft	1873	1:10560
BP	688m SW	Unspecified Disused Shaft	1994	1:10000
BP	688m SW	Unspecified Disused Shaft	1977	1:10000
BP	688m SW	Unspecified Disused Shaft	1985	1:10000
BP	689m SW	Unspecified Old Shafts	1898	1:10560
BP	693m SW	Unspecified Old Shafts	1960	1:10560
BP	697m SW	Old Coal Shafts	1949	1:10560
-	697m S	Unspecified Disused Shaft	1994	1:10000
-	697m S	Unspecified Disused Shaft	1977	1:10000
-	697m S	Unspecified Disused Shaft	1985	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
-	697m S	Unspecified Old Shaft	1960	1:10560
-	699m N	Old Coal Shafts	1949	1:10560
-	699m S	Old Coal Shaft	1949	1:10560
-	700m N	Unspecified Old Shafts	1960	1:10560
BO	704m NE	Old Coal Shafts	1949	1:10560
-	706m N	Unspecified Old Shafts	1898	1:10560
-	721m NW	Unspecified Shaft	1960	1:10560
-	721m NW	Clay Shafts	1949	1:10560
-	727m N	Unspecified Old Shafts	1960	1:10560
-	728m N	Old Coal Shafts	1949	1:10560
-	729m N	Old Coal Shafts	1949	1:10560
-	729m N	Unspecified Old Shafts	1898	1:10560
-	729m N	Unspecified Old Shafts	1960	1:10560
-	747m N	Old Coal Shafts	1949	1:10560
BZ	753m NE	Old Coal Shaft	1949	1:10560
BZ	753m NE	Unspecified Old Shaft	1898	1:10560
BZ	755m NE	Unspecified Old Shaft	1960	1:10560
-	762m N	Old Coal Shafts	1949	1:10560
-	765m N	Unspecified Old Shafts	1960	1:10560
-	771m N	Old Coal Shaft	1949	1:10560
-	773m N	Unspecified Old Shafts	1960	1:10560
-	773m N	Unspecified Shafts	1898	1:10560
-	774m N	Unspecified Shafts	1898	1:10560
-	775m N	Old Coal Shafts	1949	1:10560
-	777m N	Unspecified Old Shafts	1960	1:10560
-	780m N	Old Coal Shafts	1949	1:10560
-	782m N	Unspecified Old Shafts	1960	1:10560
-	785m N	Unspecified Disused Shafts	1960	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
-	808m N	Old Coal Shafts	1949	1:10560
-	808m N	Unspecified Shafts	1898	1:10560
-	811m N	Unspecified Old Shaft	1960	1:10560
-	813m N	Old Coal Shafts	1949	1:10560
-	813m N	Unspecified Shafts	1898	1:10560
-	815m N	Unspecified Old Shafts	1960	1:10560
-	822m N	Unspecified Old Shafts	1960	1:10560
-	823m N	Old Coal Shafts	1949	1:10560
-	823m N	Unspecified Old Shafts	1898	1:10560
-	826m NE	Old Coal Shafts	1949	1:10560
-	829m NE	Unspecified Old Shafts	1960	1:10560
-	842m N	Unspecified Shafts	1898	1:10560
CD	844m NE	Old Coal Shaft	1949	1:10560
-	845m N	Old Coal Shaft	1949	1:10560
-	845m N	Unspecified Shafts	1898	1:10560
-	846m N	Unspecified Old Shafts	1960	1:10560
CD	846m NE	Unspecified Old Shaft	1960	1:10560
-	849m N	Old Coal Shafts	1949	1:10560
-	849m N	Unspecified Shafts	1898	1:10560
-	853m N	Unspecified Old Shafts	1960	1:10560
-	853m N	Unspecified Shafts	1898	1:10560
-	854m N	Old Coal Shafts	1949	1:10560
-	856m NE	Unspecified Old Shaft	1898	1:10560
-	857m N	Unspecified Old Shafts	1960	1:10560
-	857m N	Old Coal Shafts	1949	1:10560
-	857m N	Unspecified Shafts	1898	1:10560
-	859m NE	Old Coal Shafts	1949	1:10560
-	862m NE	Unspecified Old Shafts	1960	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
-	868m NW	Old Coal Shaft	1949	1:10560
-	868m N	Unspecified Old Shaft	1960	1:10560
-	874m N	Old Coal Shaft	1949	1:10560
-	874m N	Unspecified Shafts	1898	1:10560
-	881m N	Unspecified Old Shaft	1960	1:10560
-	886m N	Unspecified Old Shafts	1898	1:10560
-	888m SE	Disused Colliery	1949	1:10560
-	888m SE	Colliery	1898	1:10560
-	899m N	Unspecified Shafts	1898	1:10560
-	919m N	Unspecified Shafts	1898	1:10560
-	921m N	Old Coal Shaft	1949	1:10560
-	923m N	Unspecified Old Shaft	1960	1:10560
-	935m N	Old Coal Shafts	1949	1:10560
-	935m N	Unspecified Shafts	1898	1:10560
-	943m N	Old Coal Shaft	1949	1:10560
-	943m N	Unspecified Old Shafts	1898	1:10560
-	948m N	Unspecified Disused Shaft	1994	1:10000
-	948m N	Unspecified Disused Shaft	1977	1:10000
-	948m N	Unspecified Disused Shaft	1985	1:10000
-	949m N	Unspecified Old Shaft	1960	1:10560
-	953m N	Old Coal Shafts	1949	1:10560
-	953m N	Unspecified Shafts	1898	1:10560
-	956m N	Unspecified Old Shafts	1960	1:10560
-	957m S	Unspecified Disused Shaft	1994	1:10000
-	957m S	Unspecified Disused Shaft	1977	1:10000
-	957m S	Unspecified Disused Shaft	1985	1:10000
-	963m N	Unspecified Shafts	1898	1:10560
-	963m N	Unspecified Shafts	1898	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
-	968m N	Old Coal Shaft	1949	1:10560
-	971m N	Unspecified Old Shafts	1960	1:10560
-	982m NE	Unspecified Shafts	1898	1:10560
-	986m NE	Old Coal Shafts	1949	1:10560
-	988m NE	Unspecified Old Shafts	1960	1:10560
-	996m SE	Unspecified Shaft	1898	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	**0**

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	**1**

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.

Features are displayed on the Mining and ground workings map on **page 143 >**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
AP	457m E	Cefn No.2	Not available	Not available	Not available	Not available

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	9

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

Features are displayed on the Mining and ground workings map on **page 143 >**

ID	Location	Name	Commodity	Class	Likelihood
A	**On site**	**Not available**	**Iron Ore (Bedded)**	**B**	**Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.**
8	291m SE	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
15	629m SE	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
-	672m W	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
-	708m W	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
19	759m SE	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
20	845m SW	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.

ID	Location	Name	Commodity	Class	Likelihood
-	914m W	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
-	934m SW	Not available	Iron Ore (Bedded)	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

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

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	2

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

Location	Mineral type
302m SW	Stone
360m W	Stone

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	**1**

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

Location	Mineral
278m W	Fireclay

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	**1**

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

Location	Mineral
3m S	Clay & Shale

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	**1**

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

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

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

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

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

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

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

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

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

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

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

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

This data is sourced from Groundsure.

19.4 Historical incidents

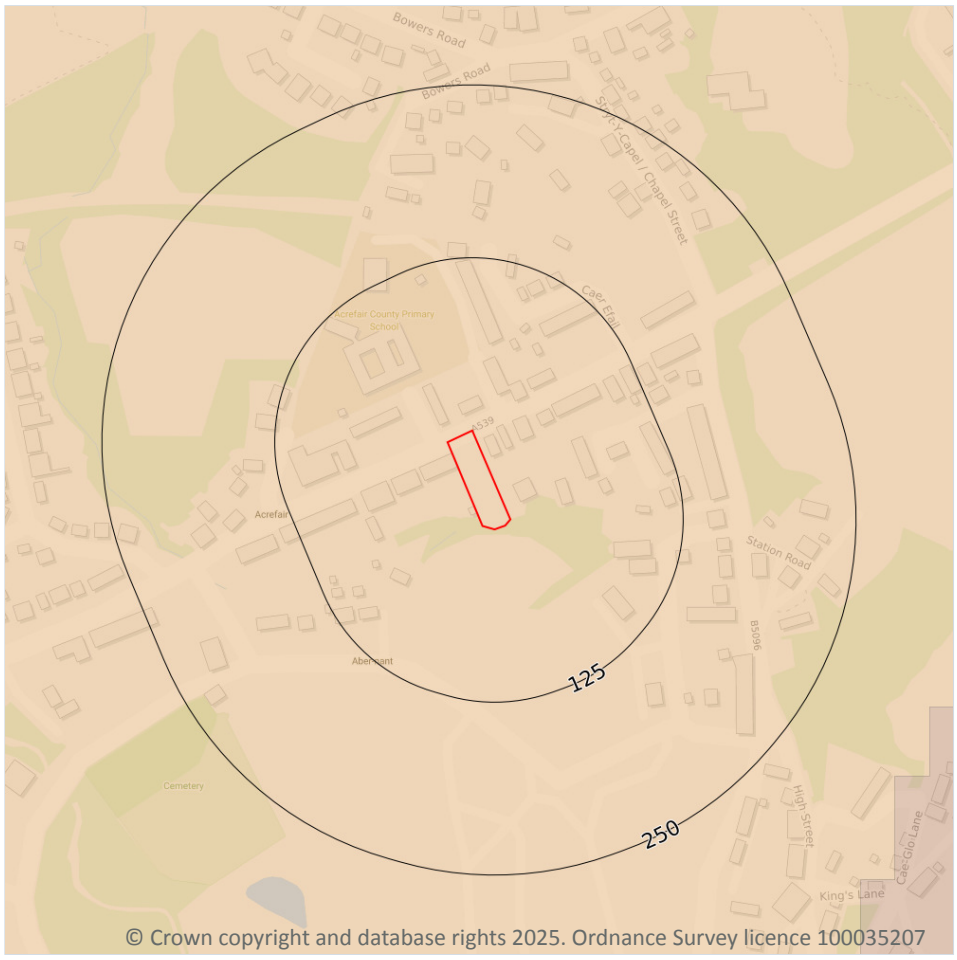
Records within 500m	0

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

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

This data is sourced from Groundsure.

20 Radon



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Site Outline

Search buffers in metres (m)

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

20.1 Radon

Records on site	1

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

Features are displayed on the Radon map on **page 165 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 5% and 10%**	**Basic**

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

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	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^2. 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^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

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

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

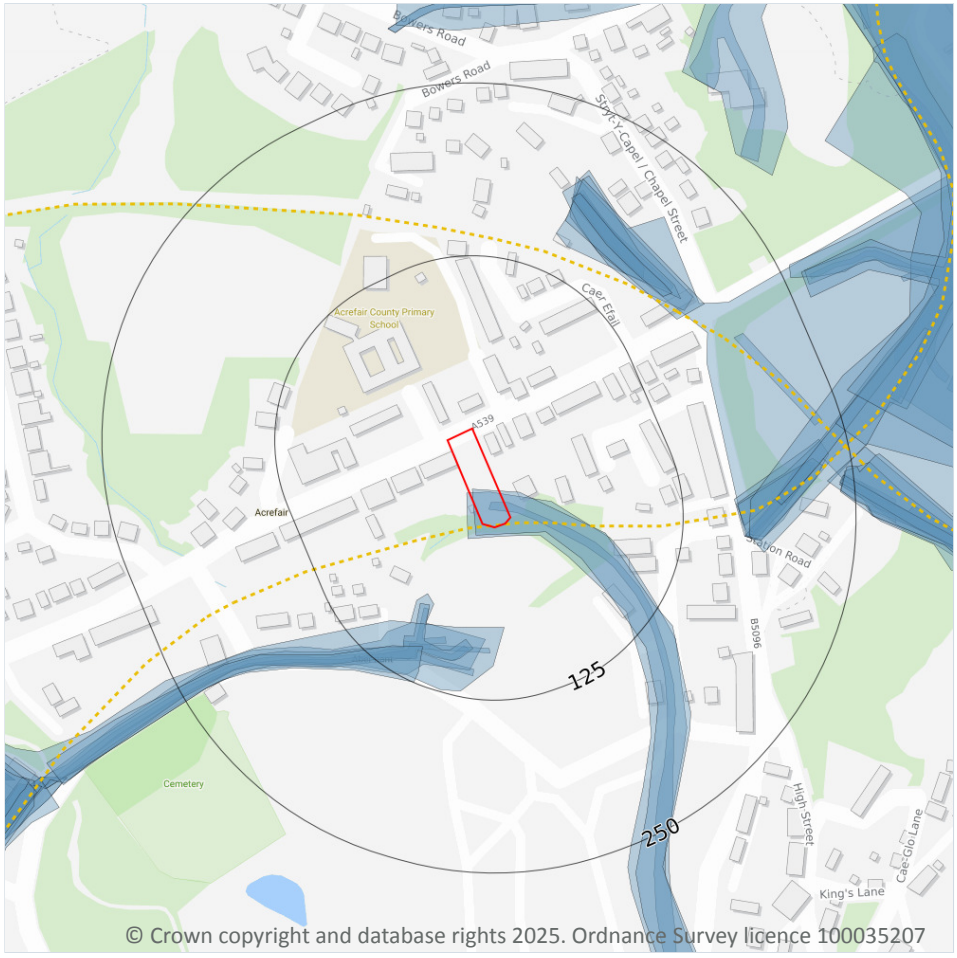
21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects



Site Outline

Search buffers in metres (m)

- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

22.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	35

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.

Features are displayed on the Railway infrastructure and projects map on **page 168 >**

Location	Land Use	Year of mapping	Mapping scale
On site	**Railway Sidings**	**1963**	**2500**
On site	**Railway Sidings**	**1960**	**10560**
On site	**Railway Sidings**	**1949**	**10560**
64m SW	Railway Sidings	1938	10560
70m SW	Railway Sidings	1910	10560
72m S	Railway Sidings	1898	10560
73m SW	Tramway Sidings	1912	2500
88m S	Railway Sidings	1899	2500
99m SW	Railway Sidings	1949	10560
149m NE	Railway Sidings	1898	10560
154m NE	Railway Sidings	1949	10560
156m NE	Railway Sidings	1960	10560
157m NE	Railway Sidings	1938	10560
162m NE	Railway Sidings	1962	2500
163m E	Railway Sidings	1949	10560
163m NE	Railway Sidings	1910	10560
164m E	Railway Sidings	1938	10560

Location	Land Use	Year of mapping	Mapping scale
164m NE	Railway Sidings	1912	2500
164m NE	Railway Sidings	1899	2500
165m E	Railway Sidings	1960	10560
170m E	Railway Sidings	1899	2500
170m E	Railway Sidings	1873	2500
172m E	Railway Sidings	1912	2500
172m E	Railway Sidings	1963	2500
173m E	Railway Sidings	1873	10560
192m E	Railway Sidings	1910	10560
200m NE	Railway Sidings	1873	2500
231m E	Railway Sidings	1898	10560
239m E	Railway Sidings	1949	10560
239m E	Railway Sidings	1912	2500
239m E	Railway Sidings	1899	2500
240m E	Railway Sidings	1910	10560
240m E	Railway Sidings	1960	10560
242m E	Railway Sidings	1963	2500
245m E	Railway Sidings	1960	10560

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	7

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

Features are displayed on the Railway infrastructure and projects map on **page 168 >**

Location	Description
On site	**Abandoned**
137m N	Abandoned
171m NE	Razed
188m SW	Abandoned
193m NE	Abandoned
210m SW	Abandoned
235m E	Razed

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.9 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

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3. Supporting information

3.4 Risk assessment methodology

The method of risk evaluation adopted in this document is consistent with CIRIA C552 (2001). Hence, risk is considered to be a function of both the probability (likelihood) of contamination occurring at the study site and also the potential severity (consequence) of the environmental impacts associated with this contamination.

The classification system used to define contaminant probability, consequence and risk is described in the following tables.

Table A: Classification of probability

Classification	Definition
High likelihood	There is a contaminant linkage and an event that appears either very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a contaminant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term, and likely over the long term.
Low likelihood	There is a contaminant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is contaminant linkage but circumstances are such that it is improbable that an event would occur even in the long term.

Table B: Classification of consequence

Classification	Receptor	Definition	Examples
Severe (acute risks)	Humans	Short-term (acute) risk to human health likely to result in "significant harm" as defined in the CTL Statutory Guidance	High concentrations of cyanide on the surface of an informal recreation area
	Controlled waters	Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource	Major spillage of contaminants from site into controlled water
	Property	Catastrophic damage to buildings/property	Explosion resulting from methane accumulation, causing building collapse (can also equate to an acute human health risk if buildings are occupied)
	Ecology	A short-term risk to a particular ecosystem, or organism forming part of such eco-system	Potentially long term derogation of a designated site or protected species
Medium (long-term)	Humans	Chronic damage to human health ("significant harm" as defined in the CTL Statutory Guidance)	Concentrations of a contaminant from site exceed the GAC or SSAC
	Controlled waters	Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution)	Leaching of contaminants from a site to a Principal or Secondary Aquifer
	Property	Significant damage to crops, buildings, structures and services	Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability)
	Ecology	A significant change in a particular ecosystem, or organism forming part of such ecosystem	Death of a species within a designated nature reserve

3. Supporting information

Table B: Classification of consequence (continued)

Classification	Receptor	Definition	Examples
Mild (long-term; less sensitive receptors)	Humans	Contamination present although unlikely to constitute a significant chronic health risk to sensitive receptors	Concentrations of chemical species that exceed the GAC or SSAC for a low sensitive land-use e.g. public open space
	Controlled waters	Pollution of non-sensitive water resources	Pollution of non-classified groundwater
	Property	Damage to sensitive buildings/structures/services	Aggressive ground conditions leading to potential for long term degradation of buried concrete
	Ecology	Damage to the environment	Localised damage to aquatic habitat causing temporary relocation of certain species
Minor (long-term; less significant receptors)	Humans	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc.)	The presence of contaminants at such concentrations that protective equipment is required during site works
	Controlled waters	Potential minor release of contamination to local water features	Short term or low volume release of potentially polluting material to a secondary surface water course of low existing quality
	Property	Easily reparable effects of damage to buildings, structures and services. Harm which may result in a financial loss, or expenditure to resolve	The loss of plants in a landscaping scheme. Discolouration of concrete
	Ecology	Short term, localised damage may occur; consequences are spatially and temporally limited	Short term or localised disruption to in situ flora or fauna; no lasting effects

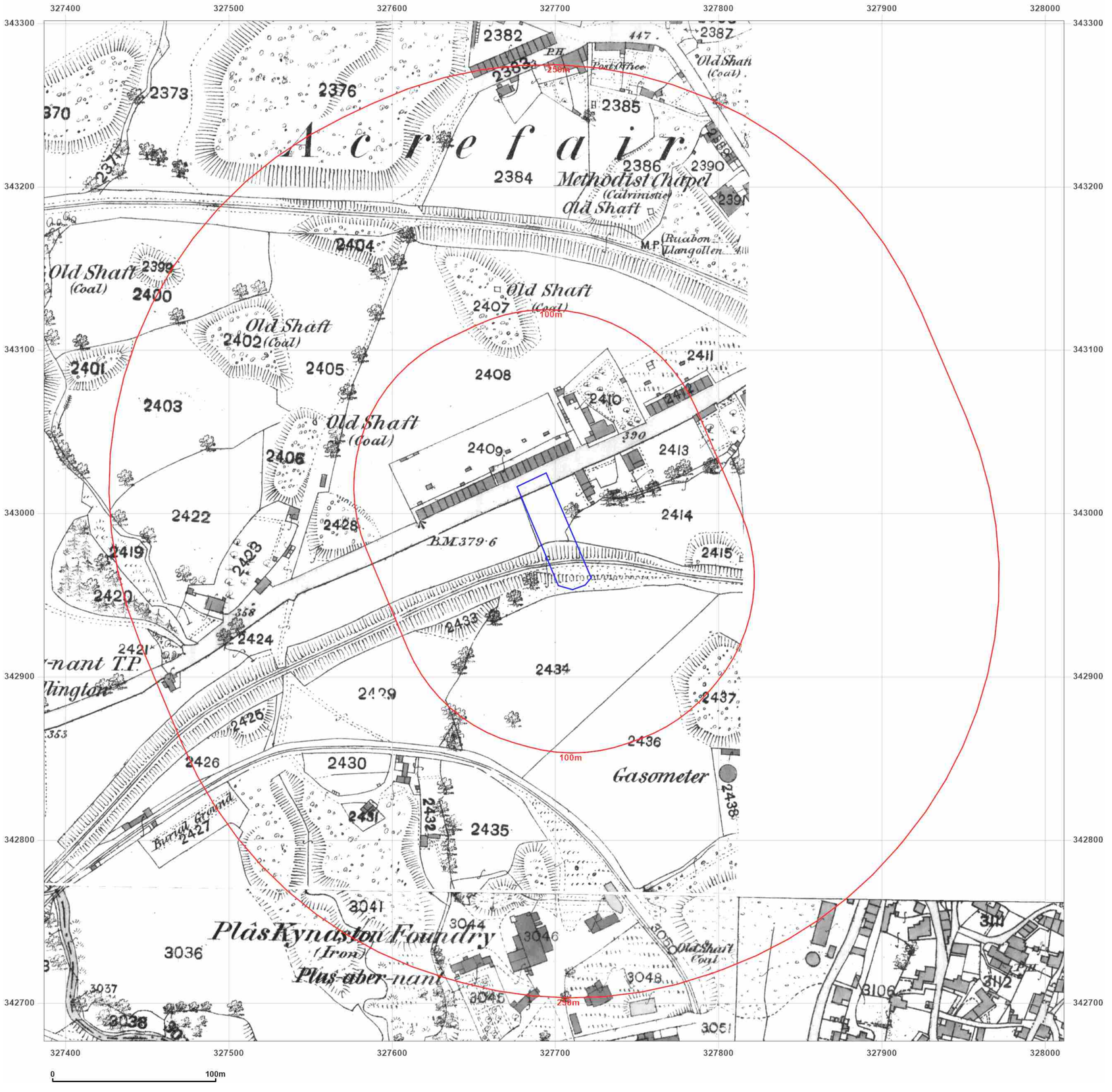
Table C: Risk classification (comparison of consequence and probability)

Probability	Consequence (severity)			
	Severe	**Medium**	**Mild**	**Minor**
High likelihood	Very high risk	High risk	Moderate risk	Low risk
Likely	High risk	Moderate risk	Moderate/low risk	Low risk
Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

3. Supporting information

3.5 Historical land use mapping

Available historical land use mapping relating to the Site and its surrounding area have been provided by Groundsure.



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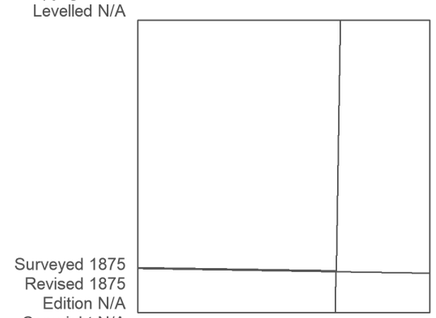
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Grid Ref: 327699, 342989

Map Name: County Series
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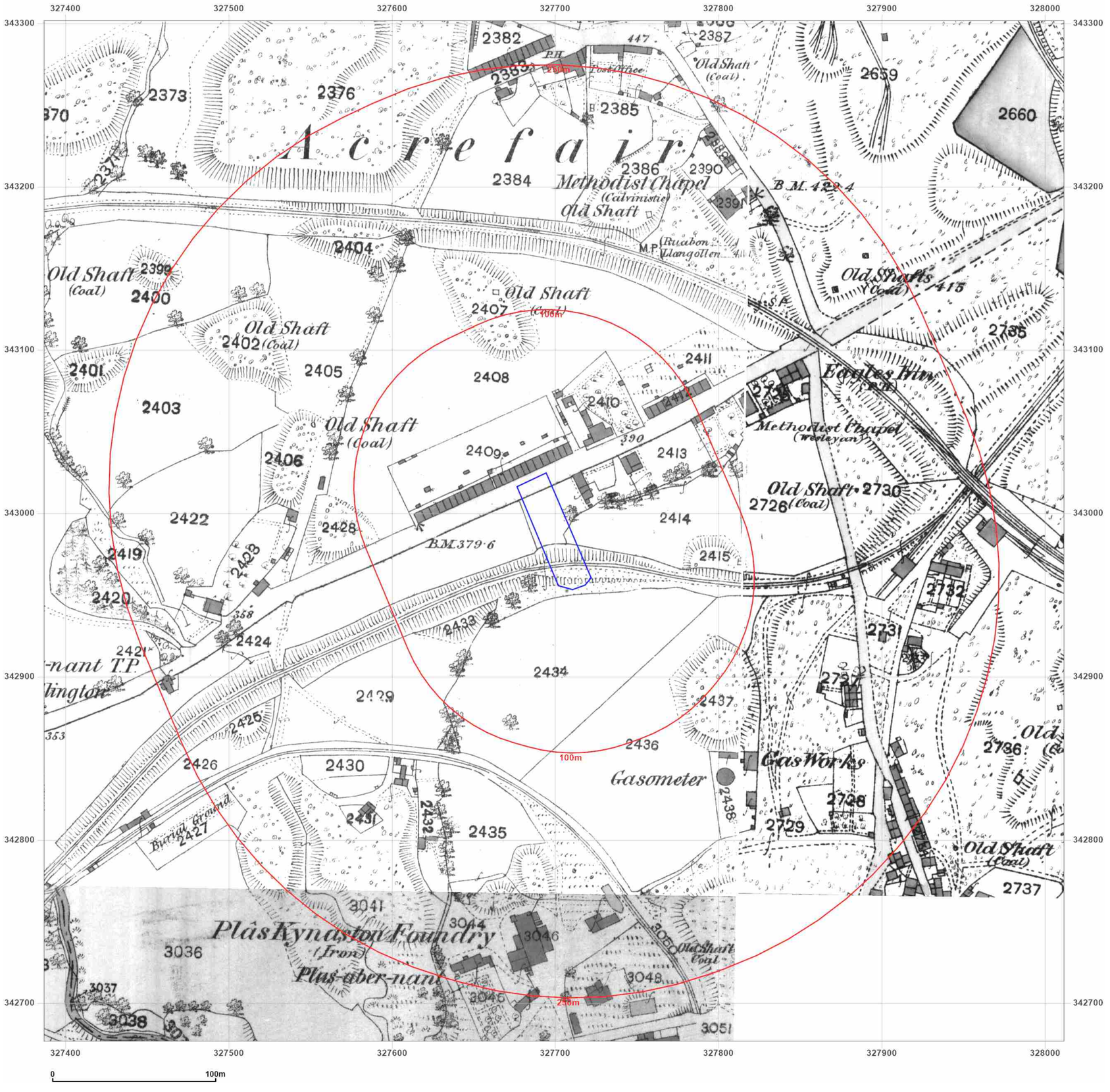
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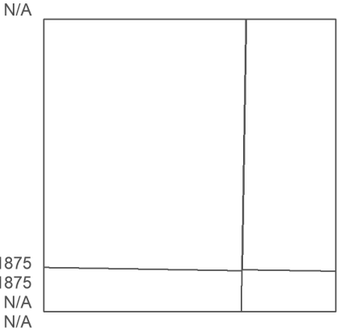
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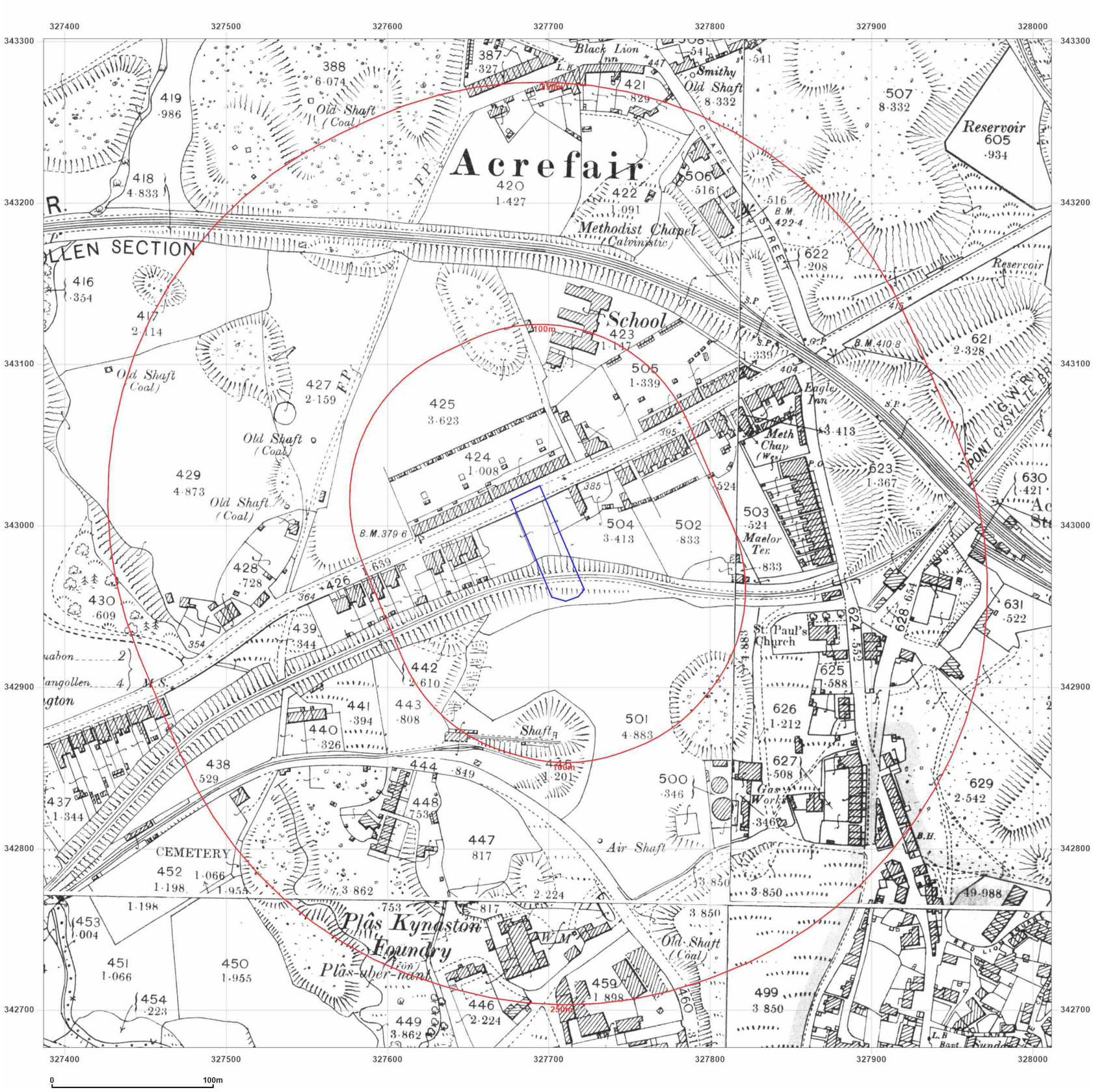
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Grid Ref: 327699, 342989

Map Name: County Series

Map date: **1899**

Scale: 1:2,500

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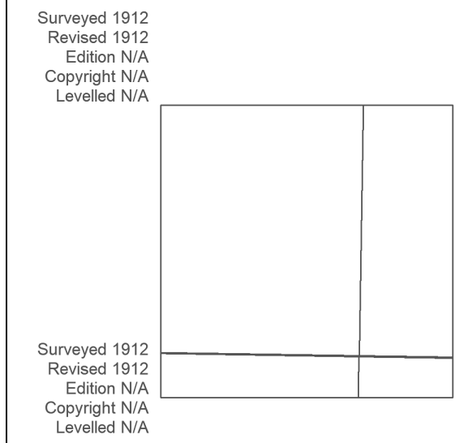
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Map date: **1912**

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Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1962-1963**

Scale: 1:2,500

Printed at: 1:2,500

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Revised N/A	Revised 1961
Edition N/A	Edition N/A
Copyright N/A	Copyright 1962
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Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1962-1963**

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Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1972-1977**

Scale: 1:2,500

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Map Name: National Grid

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Map Name: National Grid

Map date: **1988-1991**

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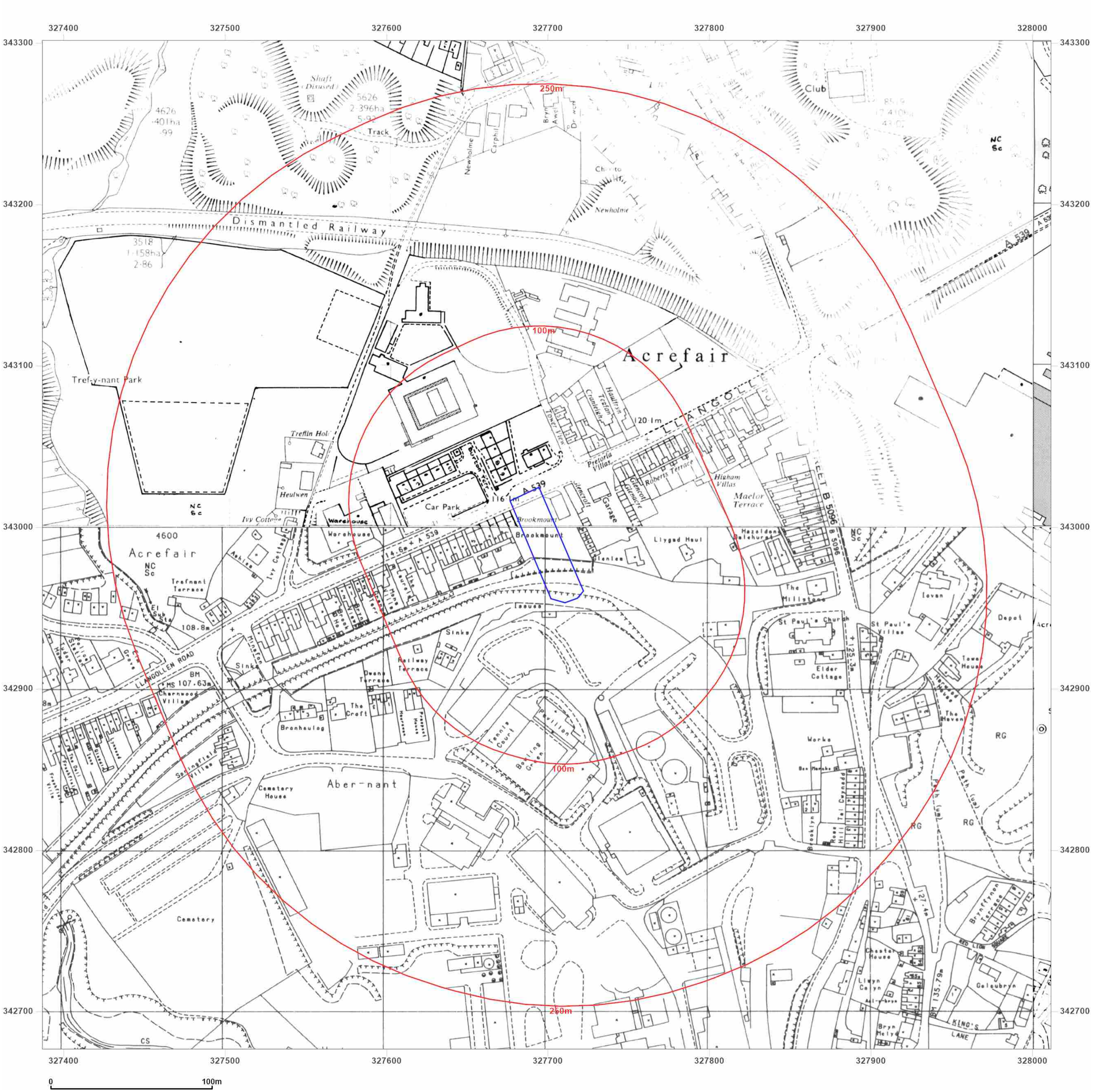
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Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1991-1994**

Scale: 1:2,500

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Map Name: National Grid

Map date: **1991-1994**

Scale: 1:2,500

Printed at: 1:2,500

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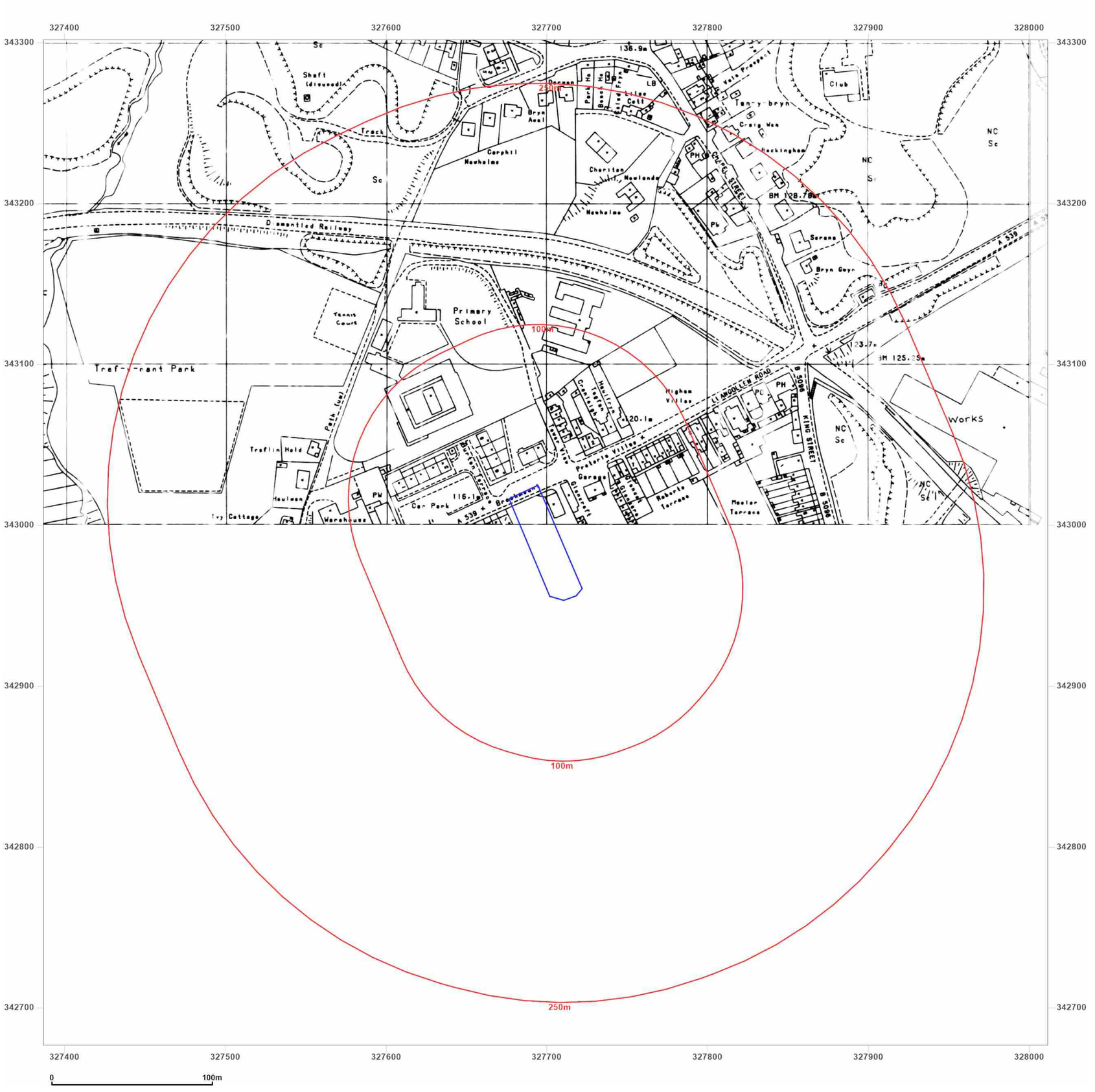
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LAND WEST OF PENDIL,
LLANGOLLEN ROAD, ACREFAIR,
WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1993-1994**

Scale: 1:2,500

Printed at: 1:2,500

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

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

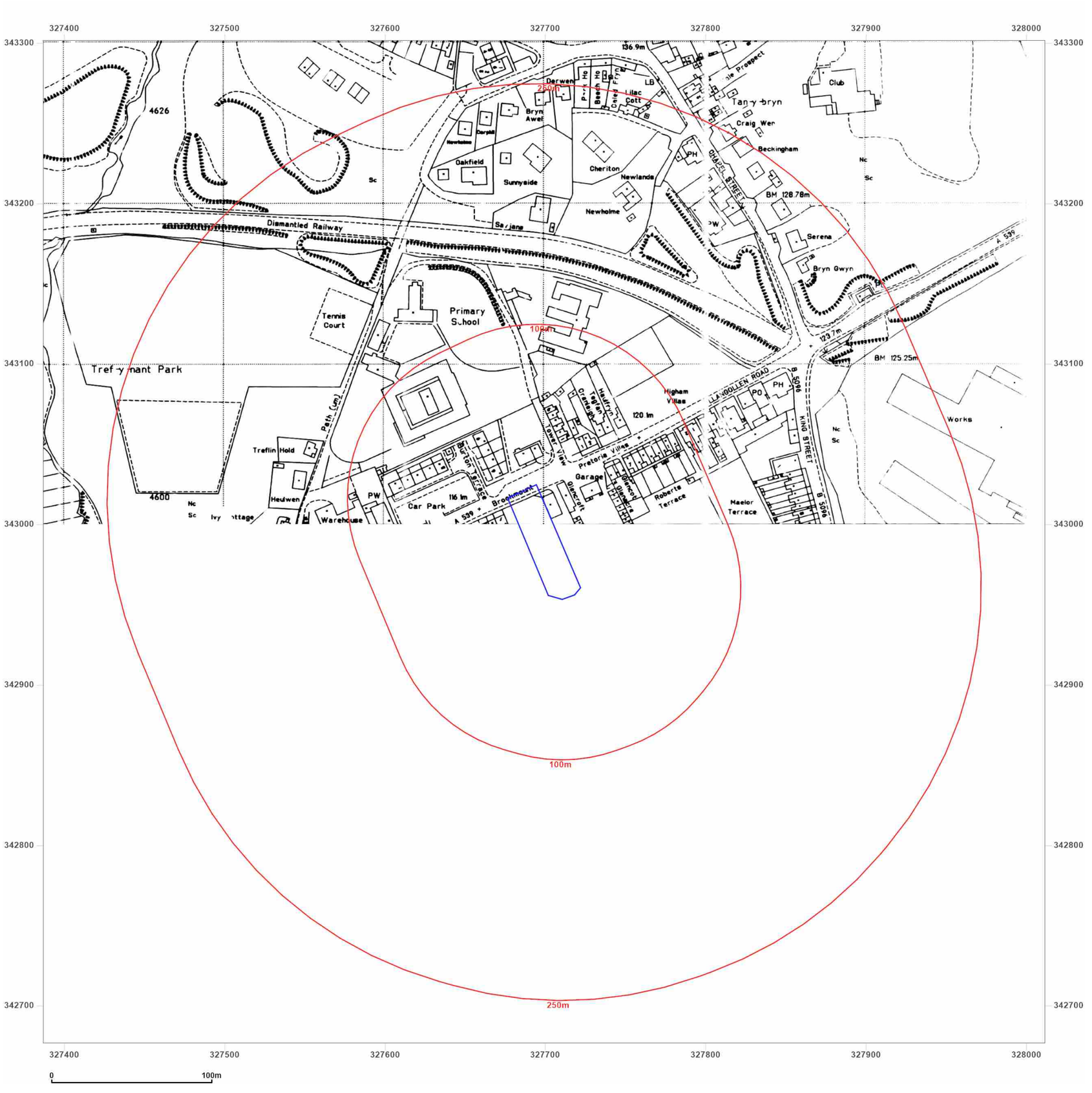
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Site Details:

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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1994**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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2003

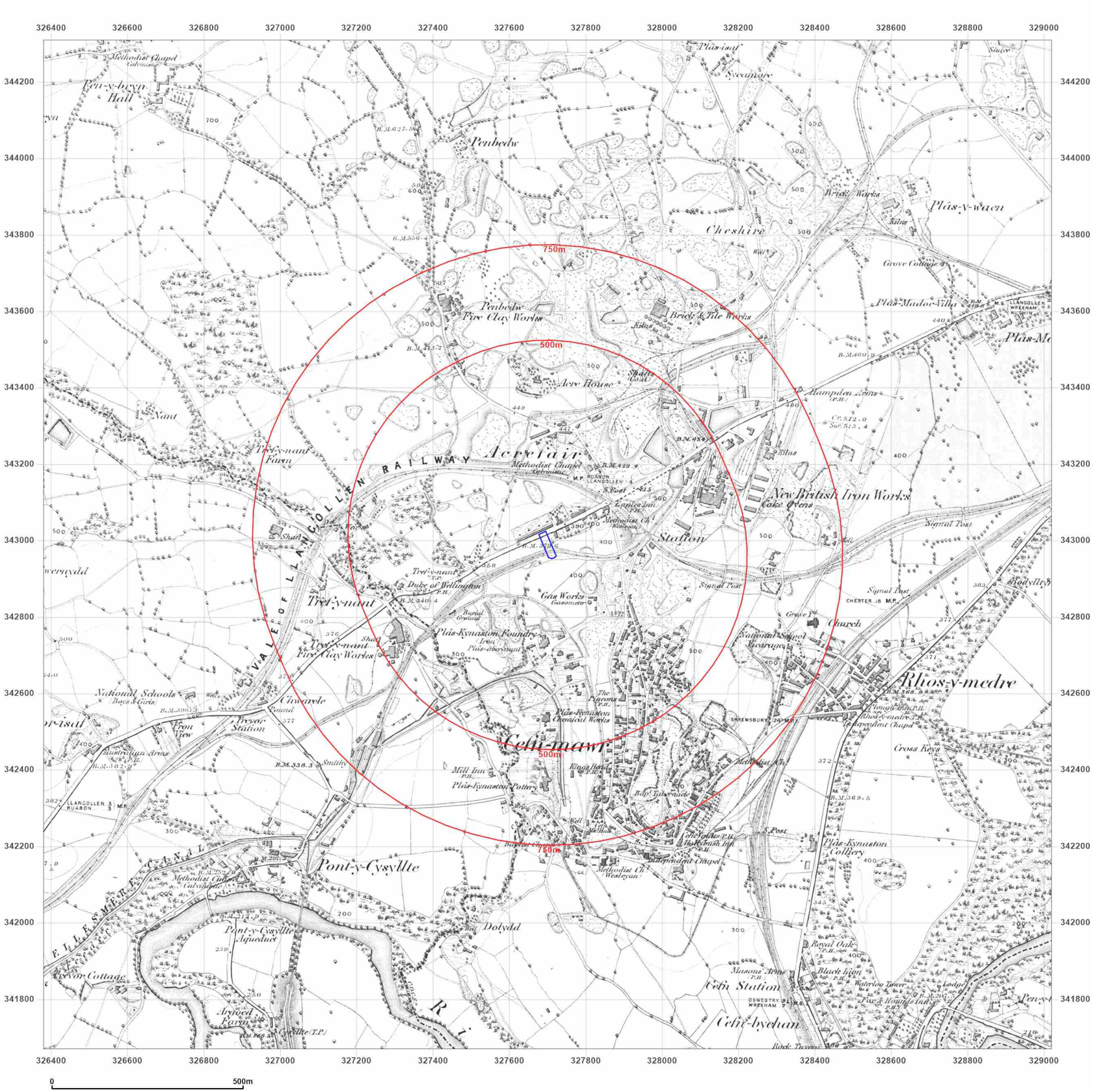
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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: County Series

Map date: **1873**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1873
Revised 1873
Edition N/A
Copyright N/A
Levelled N/A

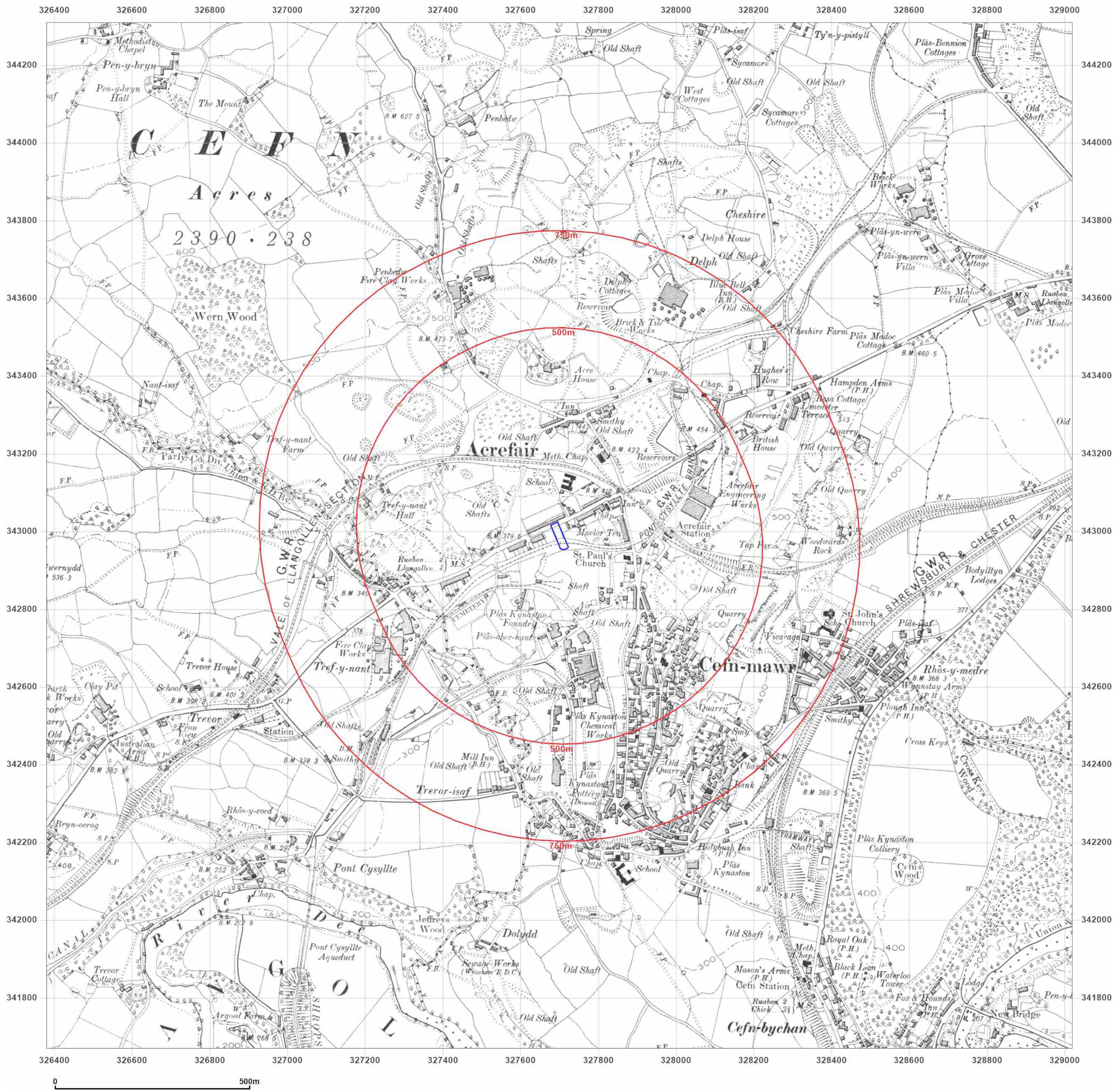
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Site Details:

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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1872
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

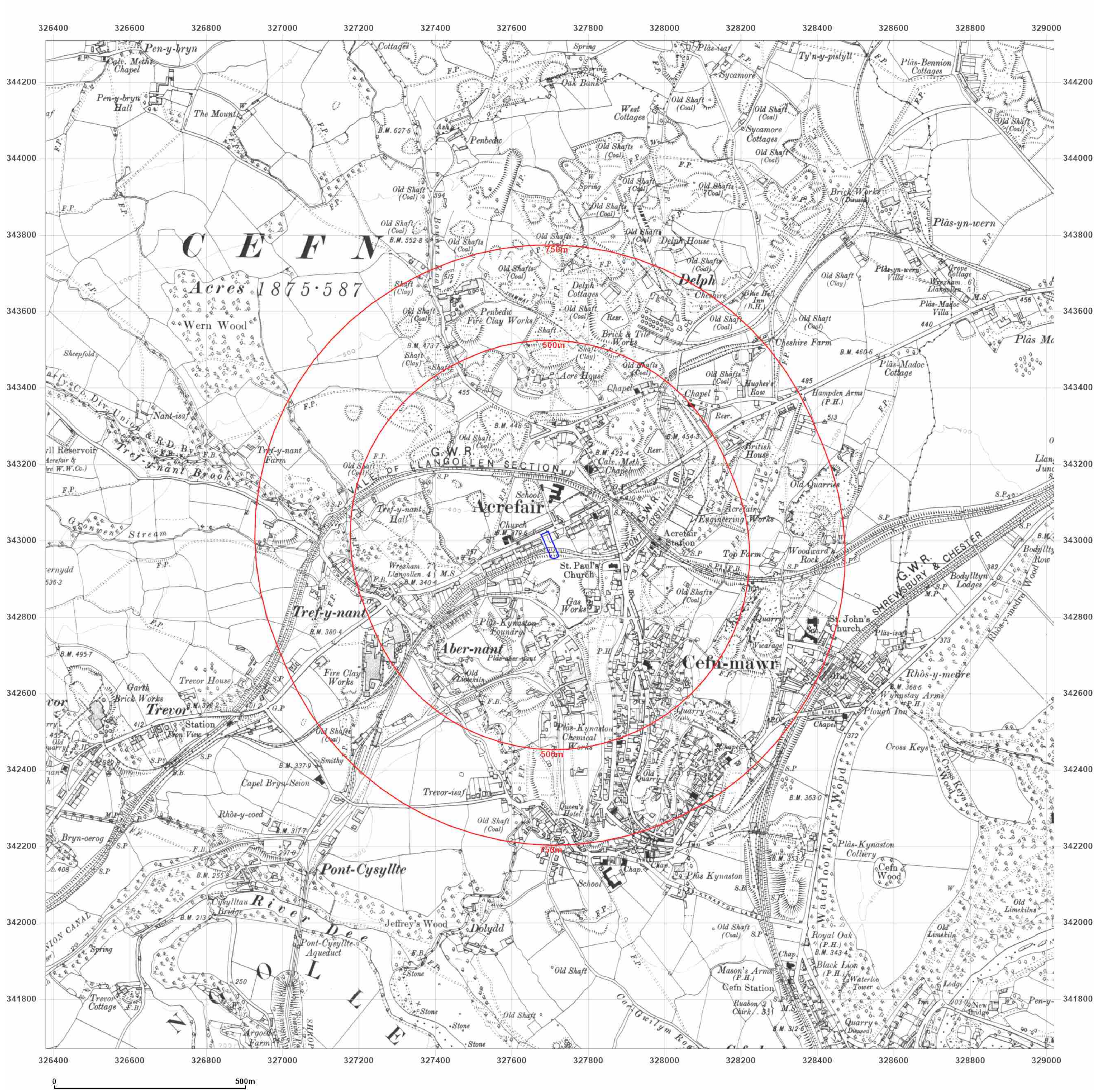
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Site Details:

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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: County Series

Map date: **1910**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1872
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

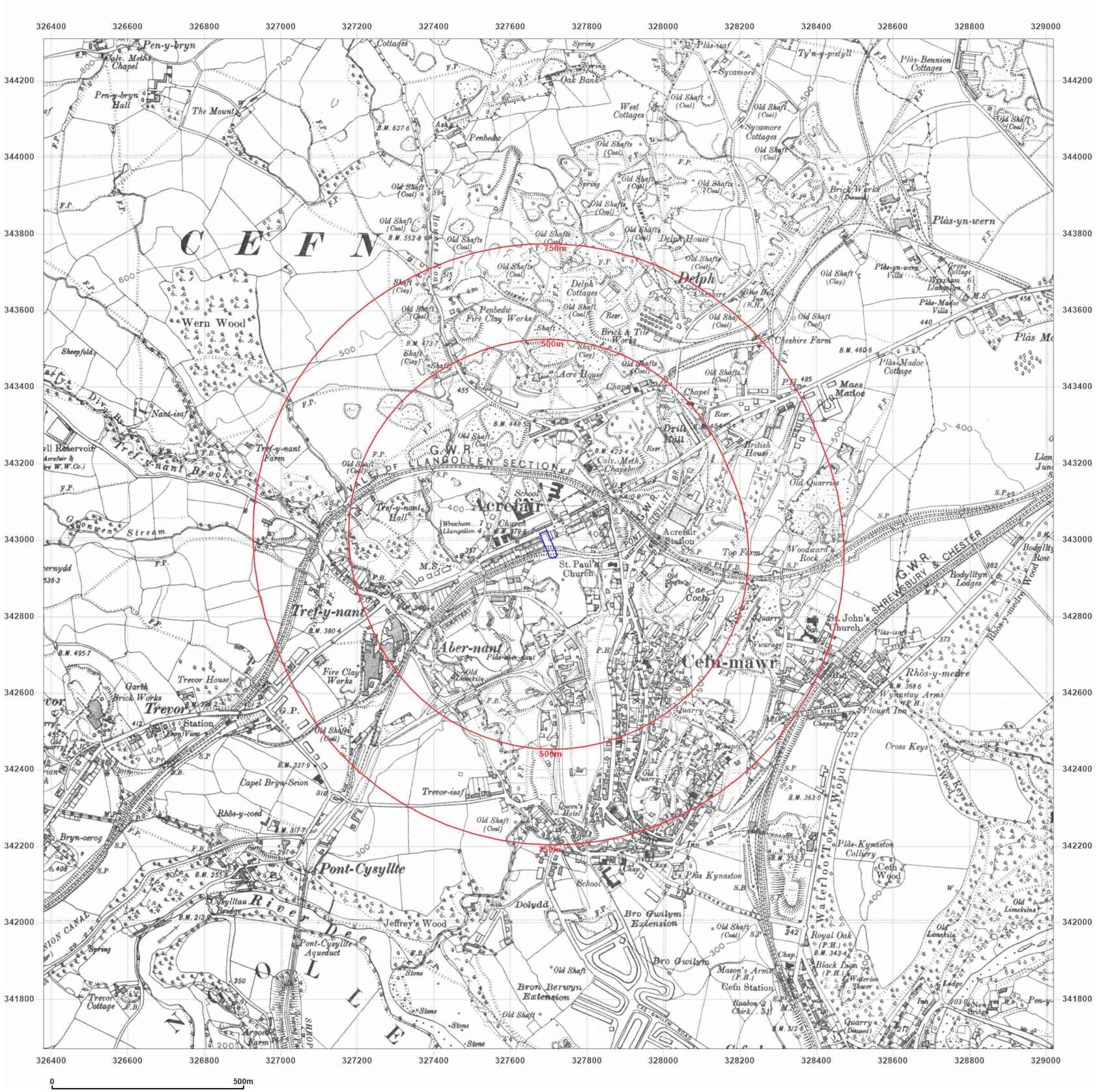
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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1872
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

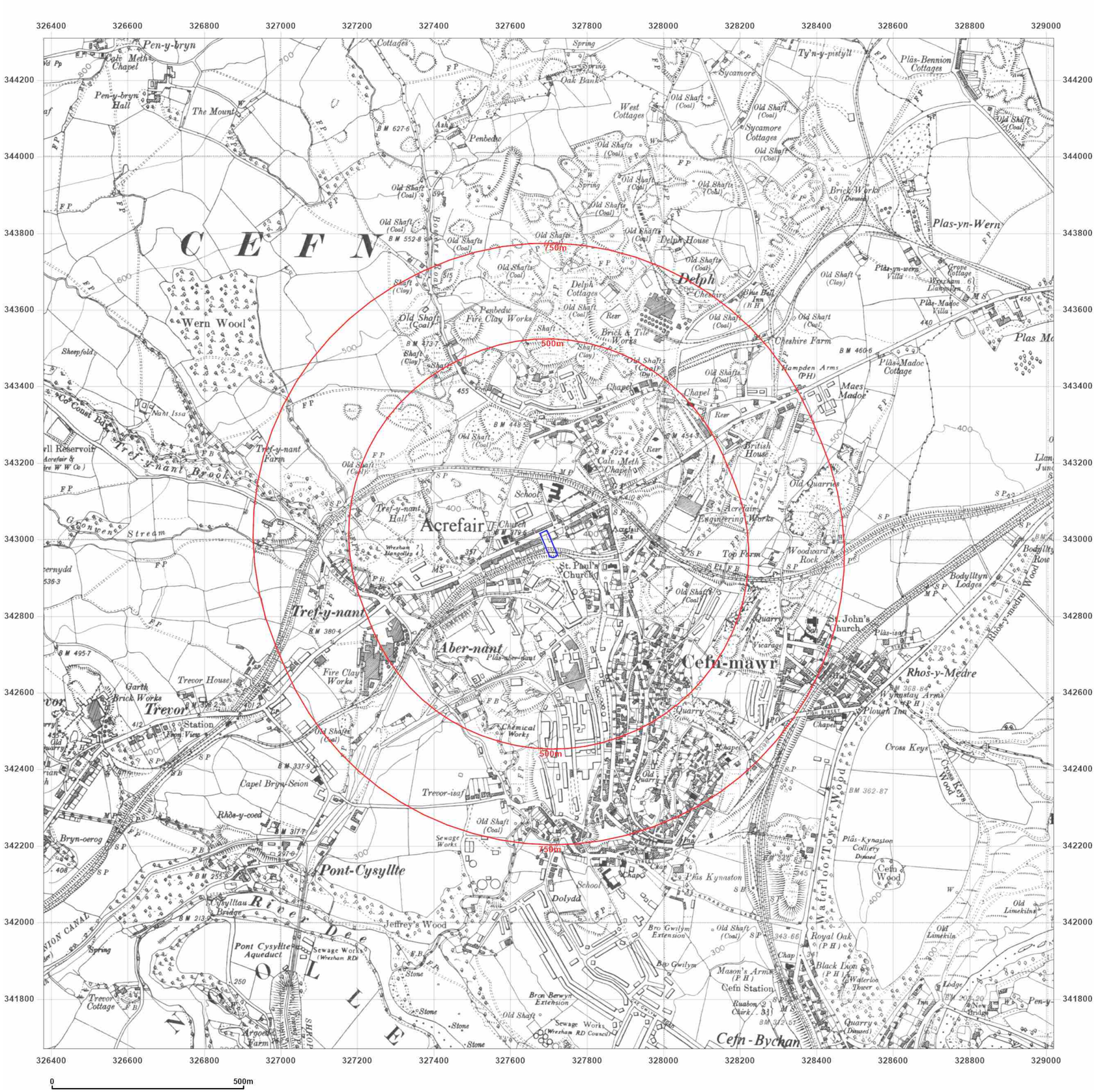
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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: County Series

Map date: **1949**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1872
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

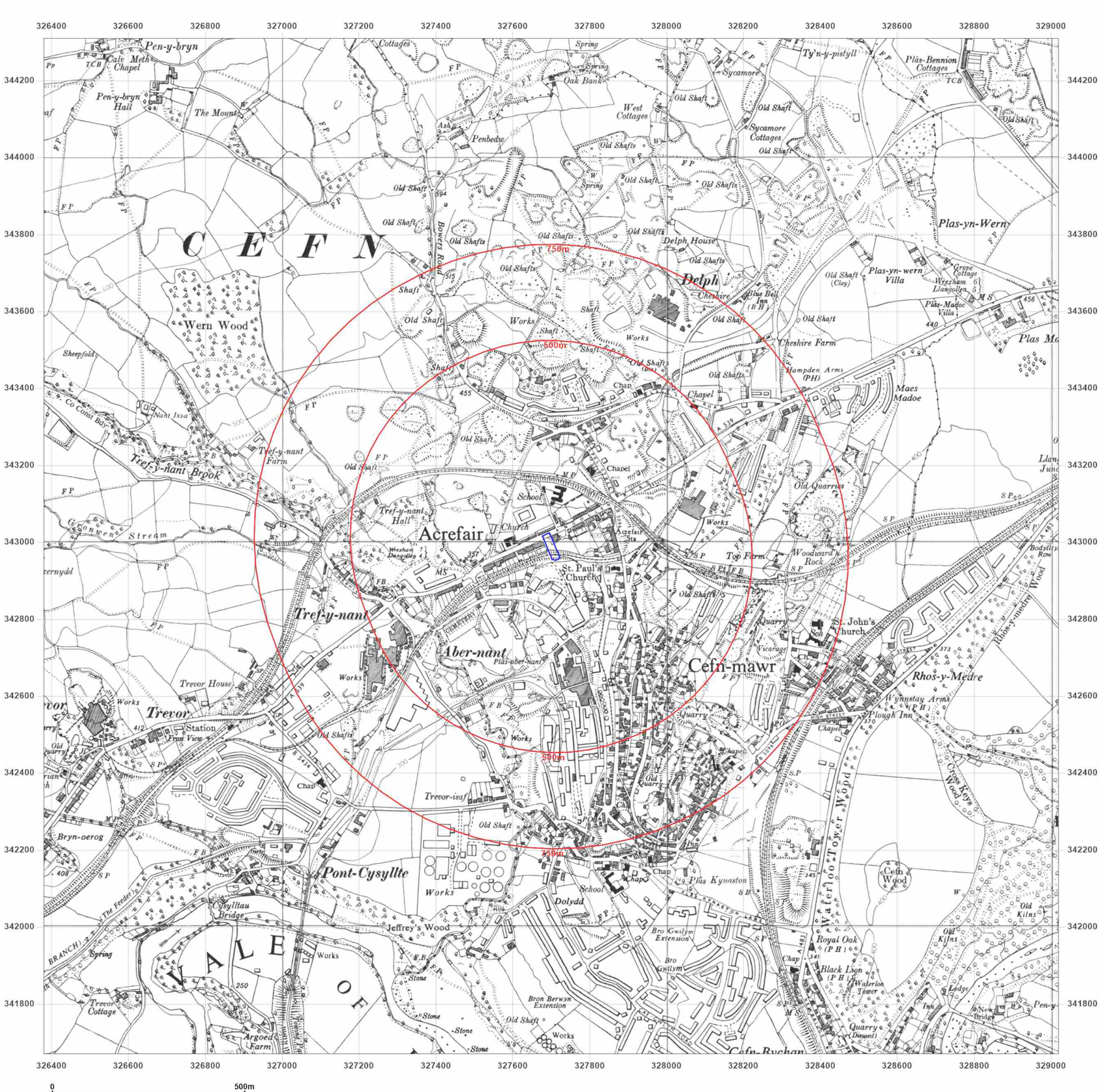
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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: Provisional

Map date: **1960**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1960
Revised 1960
Edition N/A
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Site Details:

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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1977**

Scale: 1:10,000

Printed at: 1:10,000

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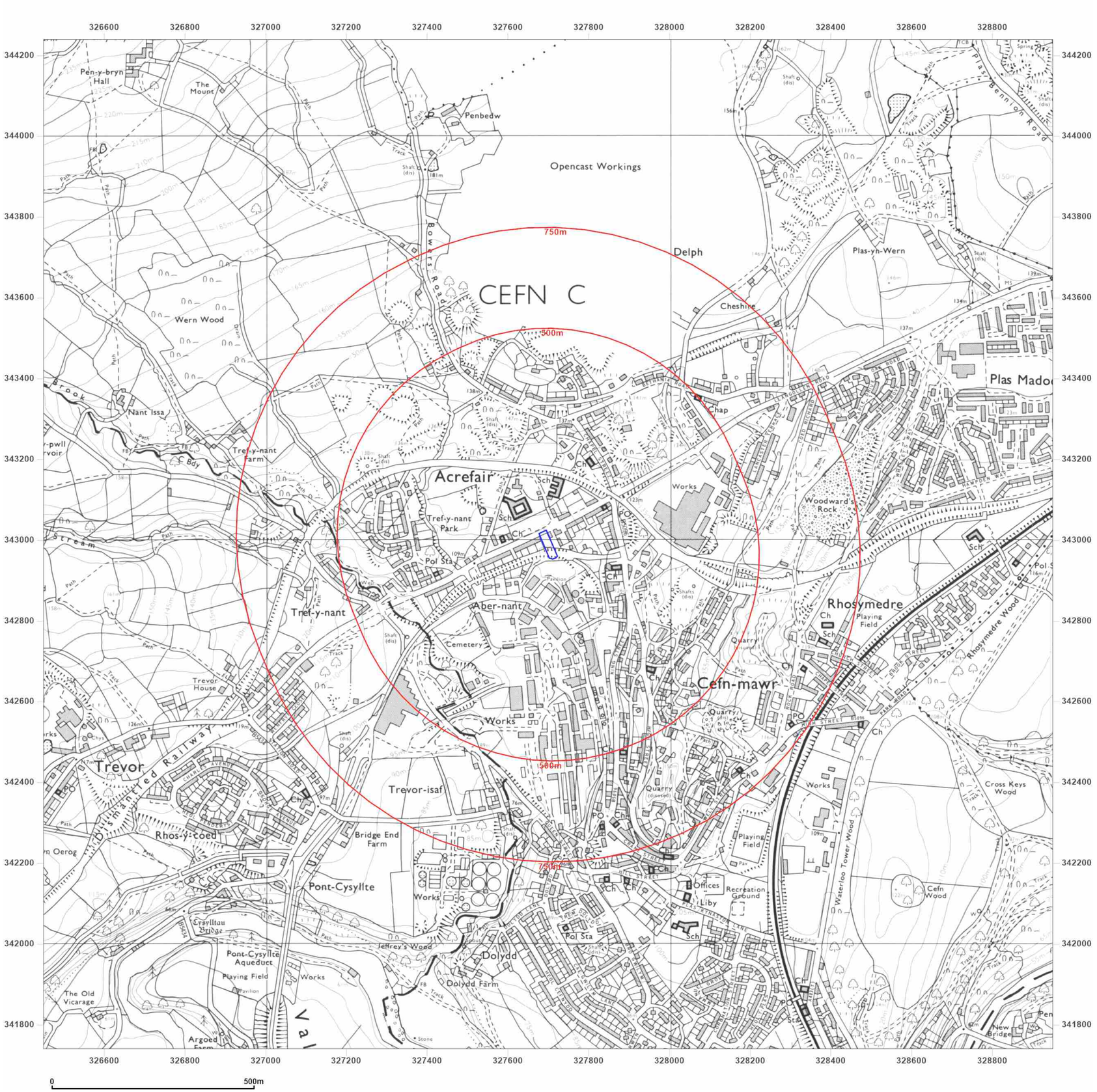
Surveyed 1971
Revised 1976
Edition N/A
Copyright 1977
Levelled 1973

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Site Details:

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Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1985**

Scale: 1:10,000

Printed at: 1:10,000

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Site Details:

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WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **1994**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1971
Revised 1994
Edition N/A
Copyright N/A
Levelled N/A

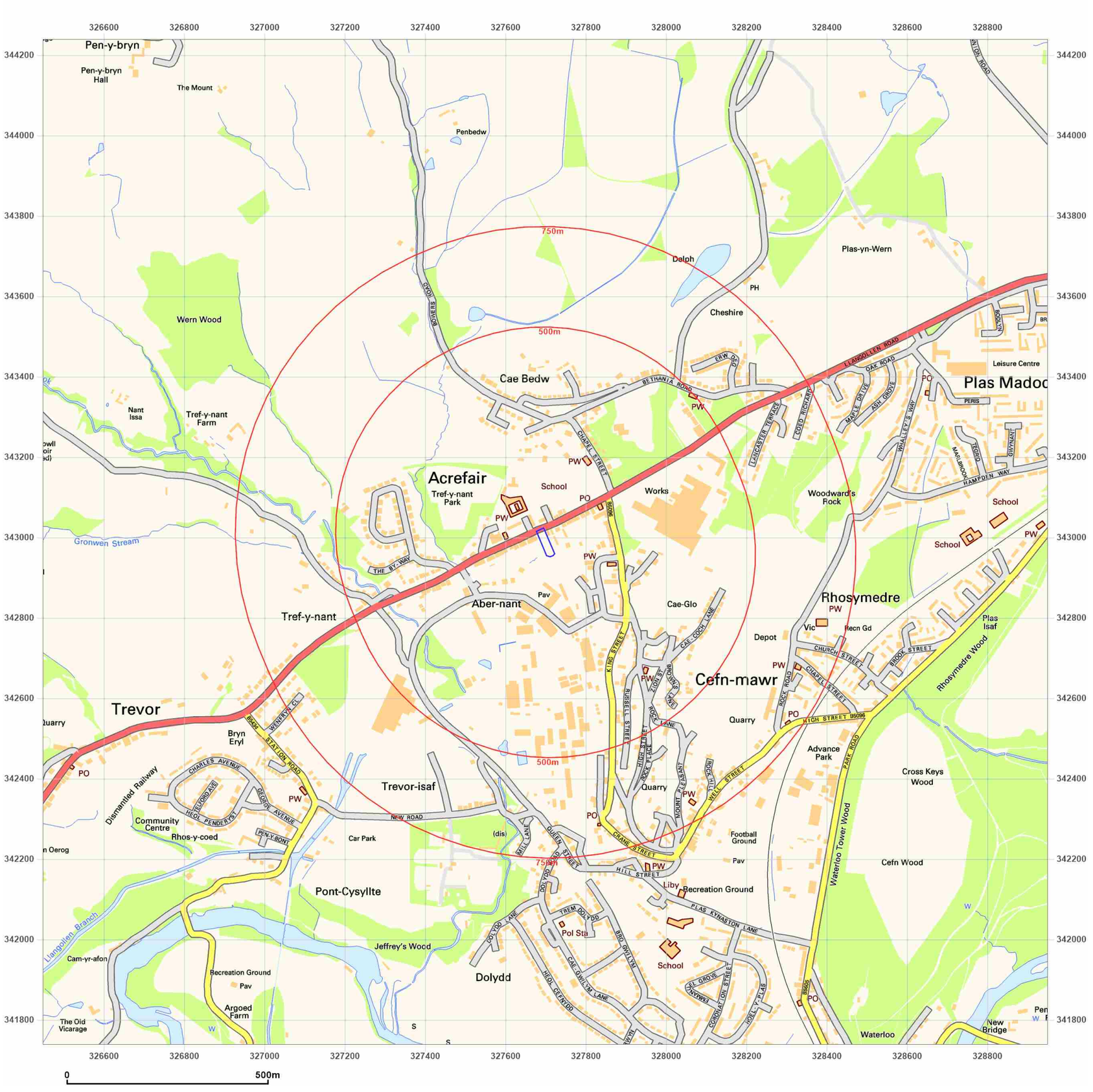
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Site Details:

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LLANGOLLEN ROAD, ACREFAIR,
WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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2001

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Site Details:

LAND WEST OF PENDIL,
LLANGOLLEN ROAD, ACREFAIR,
WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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2010

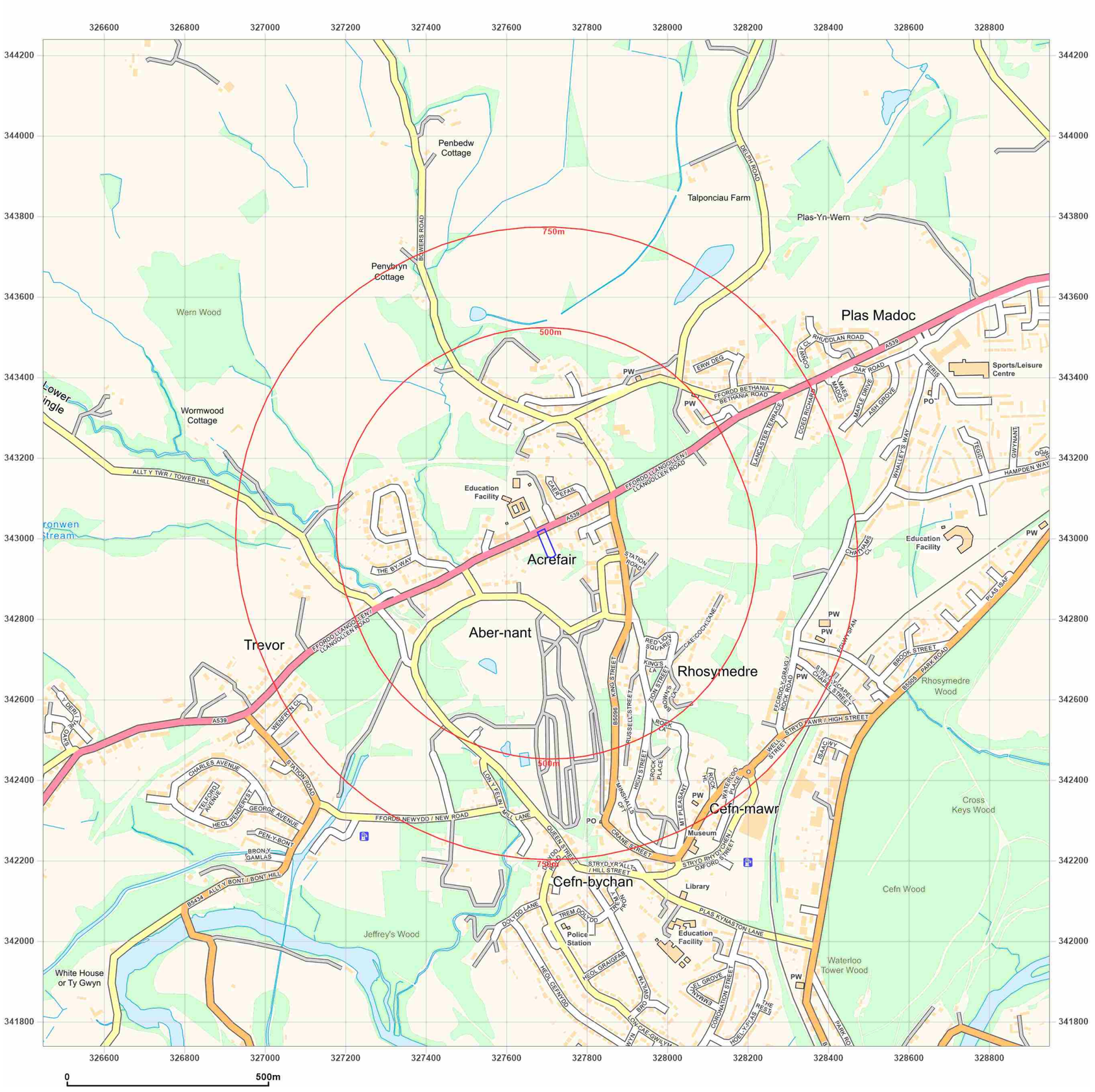
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Site Details:

LAND WEST OF PENDIL,
LLANGOLLEN ROAD, ACREFAIR,
WREXHAM, LL14 3RS

Client Ref: 4452
Report Ref: GS-KCJ-E6Q-G3D-HJZ
Grid Ref: 327699, 342989

Map Name: National Grid

Map date: **2025**

Scale: 1:10,000

Printed at: 1:10,000

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3. Supporting information

3.6 Consultants Coal Mining Report - land west of Pendil

A Consultants Coal Mining Report was supplied by the Mining Remediation Authority in September 2025.

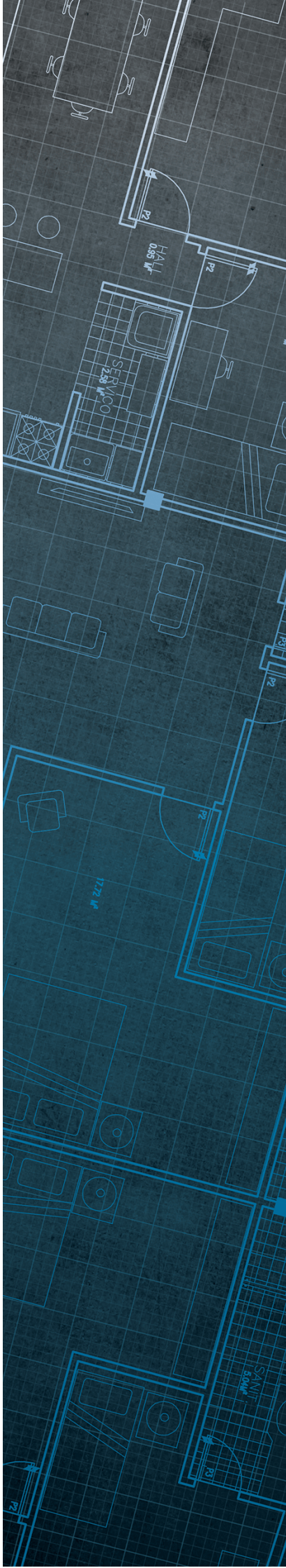
The Coal Authority

Consultants

Coal Mining Report

Land West Of Pendil
Llangollen Road
Acrefair
Wrexham
Wrexham
LL14 3RS

Date of enquiry:	**19 September 2025**
Date enquiry received:	**19 September 2025**
Issue date:	**19 September 2025**
Our reference:	**51003526096001**
Your reference:	**4452**



Consultants
Coal Mining Report

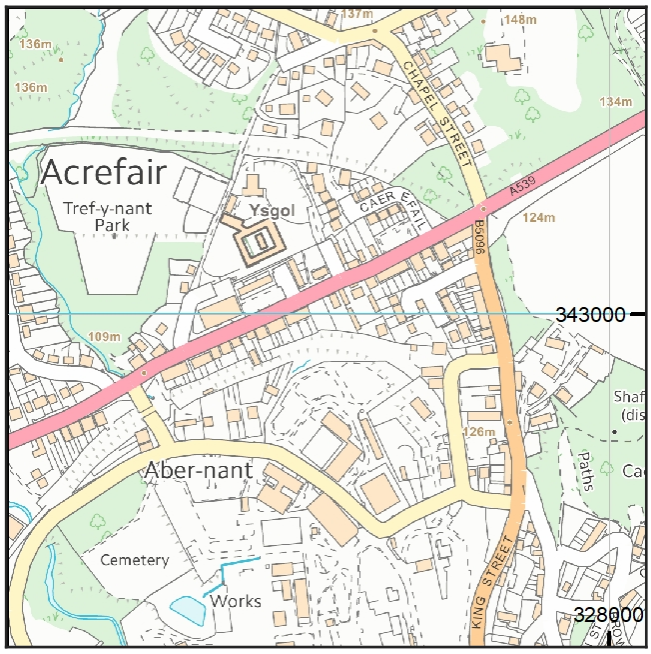
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Andrew Singleton

Enquiry address

Land West Of Pendil
Llangollen Road
Acrefair
Wrexham
Wrexham
LL14 3RS



Approximate position of property

Map data

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0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	FIRECAMP	Coal	384M	14	South-East	9.0	East	220	1912
unnamed	NANT (SOFT 5 QTRS)	Coal	38WG	22	Beneath Property	9.5	East	160	1912
unnamed	RUABON YARD (SOFT 5 QTRS)	Coal	7H2M	38	Beneath Property	9.0	East	110	1862
unnamed	WALL AND BENCH	Coal	7903	154	Beneath Property	9.0	South-East	110	1860
unnamed	WALL AND BENCH	Coal	7902	166	South-East	9.0	East	110	1860

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

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Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	327342-203	327775 342978	Treatment details unknown.*	Coal	
Shaft	327342-204	327815 342971	Treatment details unknown.*	Coal	
Adit	327342-206	327708 342870	Treatment details unknown.*	Coal	
Adit	327342-207	327709 342879	Treatment details unknown.*	Coal	
Shaft	327342-208	327737 342896	This entry was reinforced concrete capped using 2.44m long RSJ^s with mesh reinforcement and 5m3 of concrete during 1977. The shaft was fenced on completion. The specification for these works is unknown.	Coal	
Shaft	327342-406	327671 342998	Treatment details unknown.*	Coal	
Shaft	327342-409	327625 342926	Treatment details unknown.*	Coal	
Shaft	327342-483	327582 342998	Treatment details unknown.*	Coal	
Shaft	327342-485	327608 342935	Treatment details unknown.*	Coal	
Adit	327342-557	327677 342880	Treatment details unknown.*	Coal	

*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entries were left untreated when abandoned.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

2334	13855	NW1411
NW1401	14892	NW1503
16713	PO0	9549

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
FIRECLAY GROUP (STONE)	Fireclay	Yes	2.7	West	15

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

Distance to site investigation (m)	Direction
Within	N/A
Within	N/A

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

Section 46 notices
No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices
The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

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Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

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Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

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Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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The Coal Authority

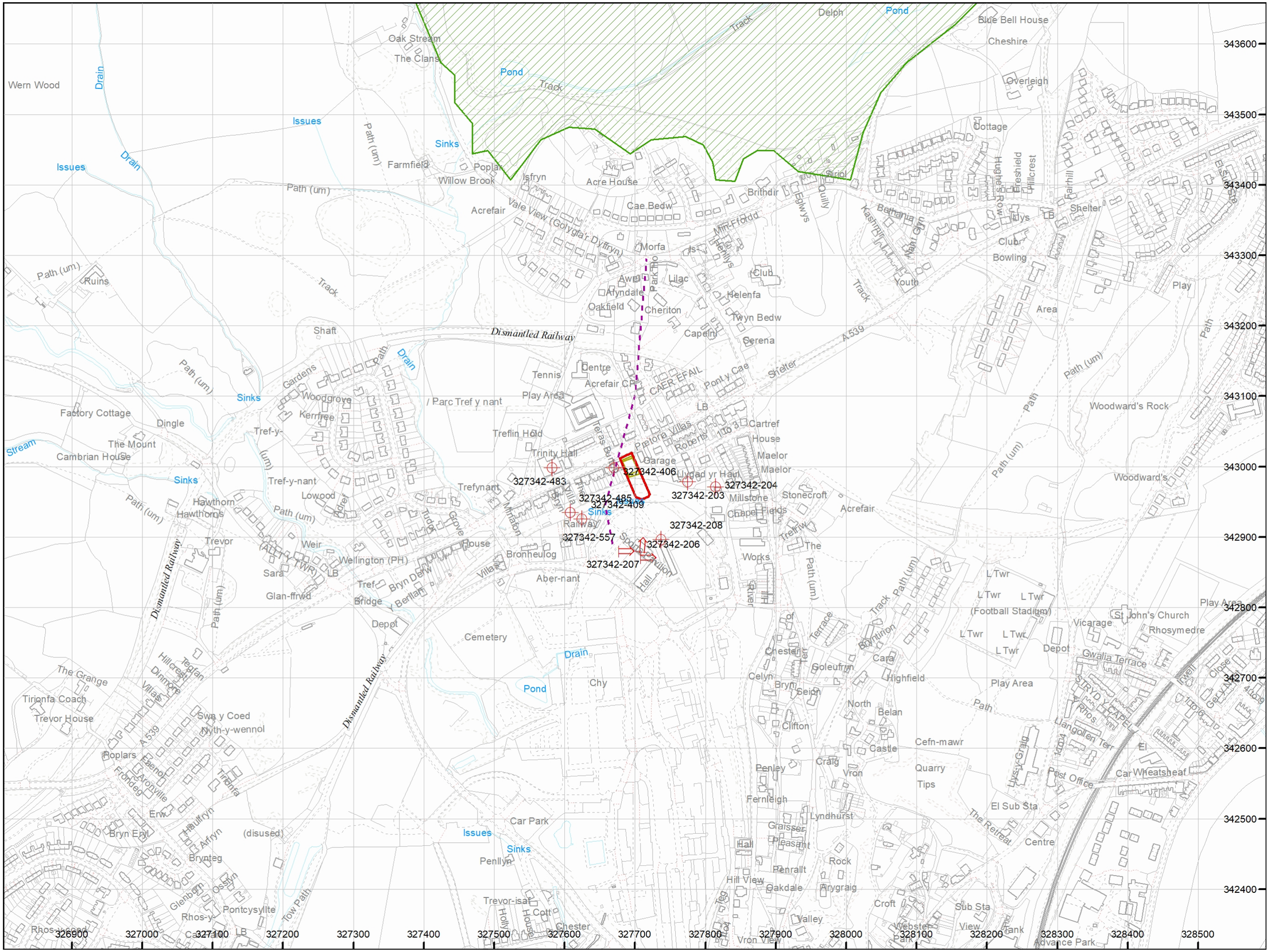
Summary of findings

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The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Disused adit
- Outcrop (Conjectured)
- Unlicensed opencast site
- Site investigations

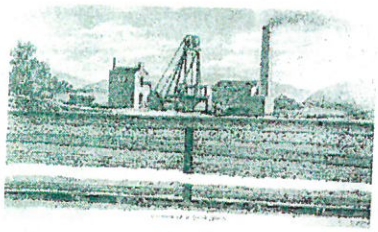


How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

3. Supporting information

3.7 Ground investigation reporting - 2002

Ground investigation and ground improvement works were undertaken by Nkc Geotech Ltd. at the study Site during 2002.



Nkc Geotech Ltd
25 Grosvenor Road
Wrexham
LL11 1BT

tel
01352 762080
fax
01352 762081
email
neil@nkc.co.uk

Mining Investigation Report

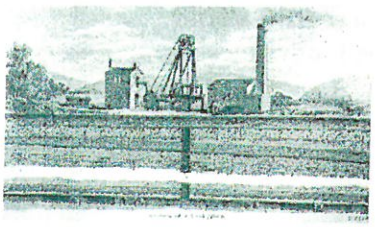


Adj Pendil, Llangollen Road, Acrefair

0209
14 August 2002

C M Edwards
Pendil
Llangollen Road
Acrefair
LL14 3RS
3 0209 14 August 2002

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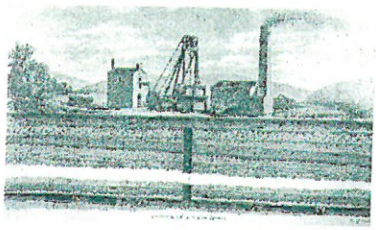
contents

5 site description and investigation results
6 management of geotechnical hazards
7 borehole plan
8 contamination testing
9 drilling logs and section

extract

This report meets NHBC D5 Detailed Investigation requirements
The site is undermined by old workings

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Site
A plot for one dwelling at Adj Pendil, Llangollen Road, Acrefair

Investigation and site work by
Neil Catlow B.Sc F.G.S Engineering geologist.

Records inspected
Coal Authority at Mansfield.
Geological Survey.
My previous investigations in this vicinity.

Investigation results

Ground level
Unchanged throughout the investigation.

Site history
The site was formerly a domestic garden.

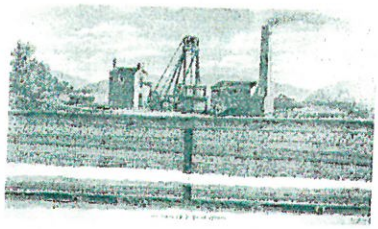
Contamination
Contamination testing is in progress, and the results and interpretation will be included in the final report.

Gas testing
There were no methane or carbon dioxide emissions during the investigation period. See borehole logs for gas testing results.

Radon
The site lies in an area susceptible to radon. Radon can only be accurately detected over a three month test period, beyond the scope of this investigation. Precautions against radon accumulation should be taken in the absence of evidence of no radon presence.

Foundation soils
Colliery derived shale fill upto 1.0m in thickness overlying brown sandy clay. Grey shale rockhead at predominantly 3.0m. See borehole logs for SPT testing results.

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Shallow mineworkings
Predominantly collapsed pillar & stall workings in the Yard Coal at 13.5m.
See log for Bh1.

Disused mineshafts
There are no records of any shafts on the site, but the Yard Coal workings are shallow and old unrecorded shafts might be present.

Hazard management

There are old and unrecorded mineworkings present in the Yard Coal. Subsidence of these workings could cause crown holes to be formed on the site, with dimensions of upto 1.4m deep and 1.9m diameter. There may also be old and unrecorded mineshafts upto 2.0m in diameter present under the fill.

Ground improvement
Stabilise the mineworkings by grouting to prevent further void migration under the proposed buildings.

and

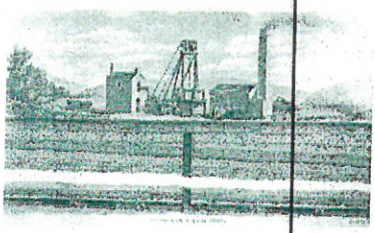
Specialist foundations
Use a structural foundation designed to span 3.0m in case there are old infilled crown holes and unrecorded shafts present.

Contamination
Contamination results will follow in the final report

For Nkc Geotech Ltd

Neil Catlow, B.Sc, F.G.S

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Disused railway

Borehole plan

Scale 1:200

Bh 1

Pendil

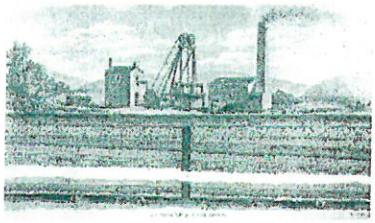
N

Brookmount Terrace

Llangollen Road

7 0209 14 August 2002

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Bh 1

REF	0209	**SITE**	Adj Pendil, Llangollen Road, Acrefair
Bh	1	**CLIENT**	Mr Edwards
		TITLE	n/a
		ORIGIN	printout direct from rig on site drilled & logged by Neil Catlow
		DATE	14 August 2002
		SCALE	1:200
		OSGN	
		ORIENTATION	vertical
		FLUSH	water
		BIT	t/c 75mm

	DEPTH	STRATA	GRAPHIC	DESCRIPTION	SPT N value	SECTION
0.0	0.0	fill		grey shale		ground level
0.5						
1.0	1.1	clay		brown sandy, firm	8 @ 1.0m	
1.5						
2.0					9 @ 2.0m	
2.5						
3.0	3.0	shale		dark grey, soft drilling with black shale layers	15 @ 3.0m	rockhead
3.5						
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0	9.2	coal		black, soft drilling		
9.5						
10.0	10.1	shale		dark grey, soft drilling		
10.5						
11.0						
11.5						
12.0						
12.5						
13.0	13.2	coal		black, loose and soft		
13.5						
14.0						old workings in Yard Coal
14.5	14.5	shale		grey, firm drilling		
15.0						
15.5						
16.0						
16.5						
17.0						
17.5						
18.0						
18.5						
19.0						
19.5						
20.0						
20.5						
21.0						
21.5						
22.0						
22.5						
23.0						
23.5						
24.0						
24.5						
25.0						
25.5						
26.0						
26.5						
27.0						
27.5						
28.0						
28.5						
29.0						
29.5						
30.0	30.0			bottom of hole		

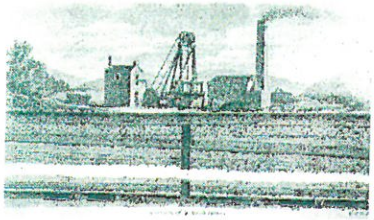
IN HOLE GAS TESTING

% oxygen	20.7
% methane	0.0
% carbon dioxide	0.0
% LEL	0.0

Nkc Geotech Ltd
25 Grosvenor Road
Wrexham
LL11 1BT

www.nkc.co.uk

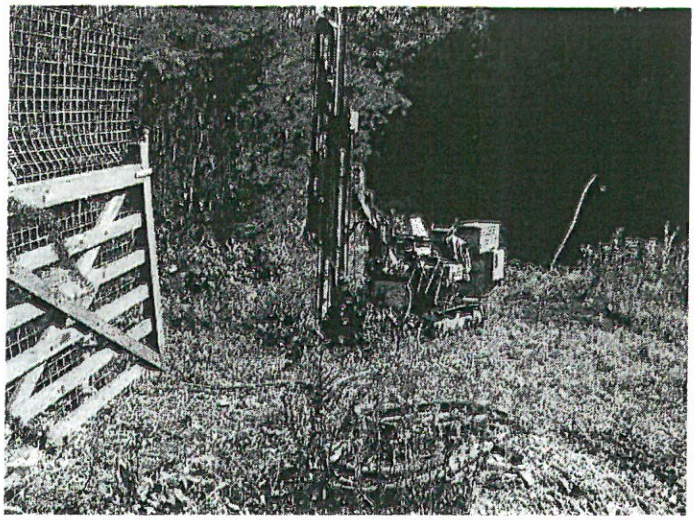
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25 Grosvenor Road
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tel
01352 762080
fax
01352 762081
email
neil@nkc.co.uk

Mining Investigation Report

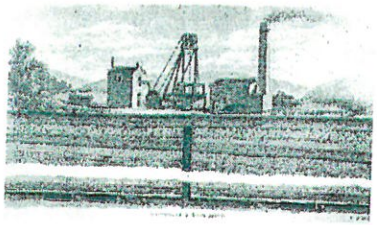


Pendil, Llangollen Road, Acrefair

0209
19 September 2002

C M Edwards
Pendil
Llangollen Road
Acrefair
LL14 3RS
3 0209 19 September 2002

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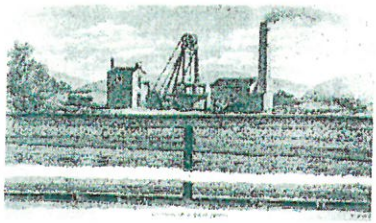
contents

5 site description and results of remedial work
6 borehole plan
7 results of remedial work
8 method statement

extract

This report meets NHBC D6 requirements and supplements a previous D5 detailed investigation report
The site is undermined by old workings which have now been stabilised
There is some contamination

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Site
A plot for a dwelling adjacent to Pendil, Llangollen Road, Acrefair

Stabilisation and site work by
Neil Catlow B.Sc F.G.S Engineering geologist.

Remedial work

Previous detailed investigation
Investigated by myself in August 2002, when shallow mineworkings were proved in the Yard Coal at a depth of 9.2m. There is 1.0m of colliery derived fill on the site, and the foundation soils are firm sandy clays. There were no gas emissions.

Current remedial work
A total of 8 holes were drilled into the Yard Coal workings, and subsequently grouted.
See results of remedial work.

Foundation design
A raft designed to span 3.0m will be required.

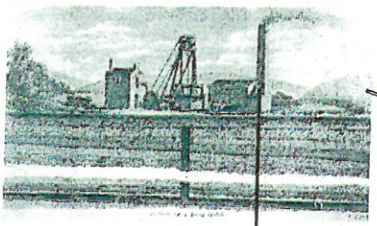
Contamination testing
The results of the contamination testing carried out at the time of the initial investigation are appended.
Levels of arsenic, polyaromatic hydrocarbons, and sulphate exceed the domestic theshold but are below domestic action levels. Whilst the arsenic and PAH levels are typical for coalfield sites, sulphate is particularly high and may indicate a previous industrial use. I recommend clean imported topsoil 500mm thick is used in the gardens to prevent uptake of contaminants by vegetation and to protect children playing in the garden areas.

For Nkc Geotech Ltd

Neil Catlow, B.Sc, F.G.S

5 0209 19 September 2002

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Borehole plan

Scale 1:200

Disused railway

Bh B

Bh 4

Bh 7

Bh 1

Bh 3

Bh 6

Pendil

Bh 8

Bh 2

Bh 5

N

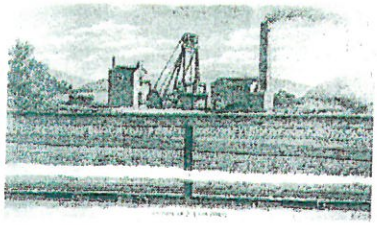
Brookmount Terrace

Bh A

6 0209 19 September 2002

Llangollen Road

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Results of remedial work

hole	seam depth*	hole depth	grout take	status code	comments
Bh 1	8.3	15.0	0.0	sd	
Bh 2	7.7	15.0	1.6	cn	
Bh 3	9.2	30.0	1.6	cd	
Bh 4	9.0	15.0	4.0	vd	
Bh 5	7.4	15.0	2.1	cn	
Bh 6	8.9	15.0	1.6	cd	
Bh 7	8.2	15.0	0.0	sd	
Bh 8	9.5	15.0	2.0	cd	

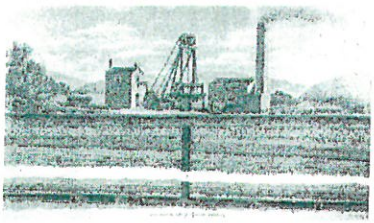
Grout mix 4:1 rockdust/PFA/cement and measured in dry tonnes
Injection pressure <150kN/m2
All work carried out by Neil Catlow B.Sc, F.G.S

Total grout take dry tonnes 12.9

* or depth to mineworkings or migrating cavity

Status codes **sd** solid **cd** collapsed **cn** cavitation **vd** void

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Method statement for remedial works

Stabilisation of mineworkings by grouting

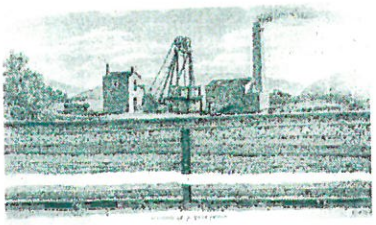
This work follows an initial investigation of a site which has shown that a coal seam of ecomonic importance is present at shallow depth and has been mined. There are therefore geotechnical hazards present.

Shallow mineworkings are stabilised by drilling a grid of holes 65mm or 75mm diameter down through the coal seam on an initial 6.0m grid pattern over the bearing area of the proposed building, reducing to 3.0m spacing when open workings are encountered. The workings are grouted using 4:1:1 sand/PFA/cement ready-mixed grout injected by casing to the bottom of the hole, and pressurised to 150 - 200kN/m2 when filled.

I carry out all this site work personally, and keep full records of each hole.

The report is submitted on completion is required for NHBC Validation D7.

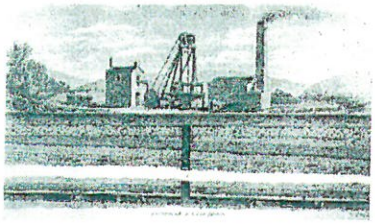
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Contamination tested to ICRCL 59/83
samples are taken by flight auger from 0.5m depth

	Bh A	%	domestic threshold mg/kg	%	domestic action level mg/kg	%	open space threshold mg/kg
Group A toxic							
Arsenic	31.0	310%	10	n/a	n/a	77%	40
Cadmium	<1.0	<33%	3	n/a	n/a	7%	15
Chromium Hex	<1.0	<4%	25	n/a	n/a		n/a
Chromium total	19.0	3%	600	n/a	n/a	2%	1000
Lead	42.0	8%	500	n/a	n/a	2%	2000
Mercury	<1.0	<100%	1	n/a	n/a	5%	20
Selenium	<1.0	<33%	3	n/a	n/a	17%	6
Group B phytotoxic							
Boron	<1.0	<33%	3	n/a	n/a	n/a	n/a
Copper	19.0	15%	130	n/a	n/a	n/a	n/a
Nickel	26.0	37%	70	n/a	n/a	n/a	n/a
Zinc	59.0	20%	300	n/a	n/a	n/a	n/a
PAH	297.0	594%	50	59%	500	30%	1000
Phenols	<0.1	<2%	5	0%	200	2%	5
Cyanides free	<2.5	<10%	25	0%	500	2%	100
complex	<2.5	<1%	250	0%	1000	1%	250
Thiocyanate	1.0	2%	50	n/a	none	2%	50
Sulphate	5100.0	255%	2000	51%	10000	255%	2000
Sulphide	26.0	10%	250	3%	1000	10%	250
Sulphur	0.2	0%	5000	0%	20000	0%	5000
Acidity	7.5				3		

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Contamination tested to ICRCL 59/83
samples are taken by flight auger from 0.5m depth

	Bh B	%	domestic threshold mg/kg	%	domestic action level mg/kg	%	open space threshold mg/kg
Group A toxic							
Arsenic	33.0	330%	10	n/a	n/a	82%	40
Cadmium	<1.0	<33%	3	n/a	n/a	7%	15
Chromium Hex	<0.1	<0%	25	n/a	n/a		n/a
Chromium total	20.0	3%	600	n/a	n/a	2%	1000
Lead	83.0	17%	500	n/a	n/a	4%	2000
Mercury	<1.0	<100%	1	n/a	n/a	5%	20
Selenium	<1.0	<33%	3	n/a	n/a	17%	6
Group B phytotoxic							
Boron	<1.0	<33%	3	n/a	n/a	n/a	n/a
Copper	22.0	17%	130	n/a	n/a	n/a	n/a
Nickel	27.0	39%	70	n/a	n/a	n/a	n/a
Zinc	99.0	33%	300	n/a	n/a	n/a	n/a
PAH	337.0	674%	50	67%	500	34%	1000
Phenols	<0.1	<2%	5	0%	200	2%	5
Cyanides free	<2.5	<10%	25	0%	500	2%	100
complex	<2.5	<1%	250	0%	1000	1%	250
Thiocyanate	<1.0	<2%	50	n/a	none	2%	50
Sulphate	2600.0	130%	2000	26%	10000	130%	2000
Sulphide	137.0	55%	250	14%	1000	55%	250
Sulphur	0.2	0%	5000	0%	20000	0%	5000
Acidity	7.8				3		

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3. Supporting information

3.8 Information supplied by Wrexham County Borough Council (WCBC)

The attached information was provided by WCBC following an Environmental Information Request (EIR).

Cyngor Bwrdeistref Sirol Wrecsam/ Wrexham County Borough Council
Neuadd y Dref, Wrecsam. LL11 1AY
Guildhall, Wrexham. LL11 1AY
DX: 721924 - Wrexham 4
www.wrecsam.gov.uk www.wrexham.gov.uk
Cyfnewid Testun/Text Relay: 18001

wrexham
COUNTY BOROUGH COUNCIL
CYNGOR BWRDEISTREF SIROL
wrecsam

Andy Singleton
Groundfirst

BY EMAIL ONLY

Eich Cyf/Your Ref	
Ein Cyf/Our ref	Search 1129
Dyddiad/Date	02 October 2025
Gofynner am/Ask for	Angela Roberts
Rhif Cyswllt/Contact No	01978 298771
E-bost/E-mail	contaminatedland@wrexham.gov.uk

Dear Andy

SEARCH ENQUIRY – P/2023/0746, LAND WEST OF PENDIL, LLANGOLLEN ROAD, ACREFAIR, WREXHAM LL14 3RS

Further to your email dated 22 September 2025 I can provide the following comments in response to your enquiry.

The Contaminated Land Team does not yet have a comprehensive database regarding historic land use or contamination, but based on what records we do hold I can respond as follows.

• Any details of the waste materials placed within the Air Products landfill (note: commercial environmental reporting suggests that this included 'inert / industrial' wastes deposited between 1977 and 1991)?

The following information is from data received approximately 20+ years ago from the then Environment Agency Wales (EAW), now Natural Resources Wales, i.e. it is not based on records held within the Council.

At its closest point the 'Air Products' landfill is 173m to the east of the site. The EAW data states:

Site Name: AIR PRODUCTS, ACREFAIR
Post 76
Surrendered: 30/04/1993
Inert: 100
Industrial: 0
Housecom: 0
Site Ref: 6955/0002
Notes: Assumed waste depth 2m. Licence L/8 operated between 1977 & 1992. On 14.2.92 WMBC L/58 was issued to air products for tipping of builders rubble. This licence was surrendered on 23/4/93 at the request of the

Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi.
We welcome correspondence in Welsh. We will respond to any correspondence in Welsh and this will not lead to any delay.

operators.A.W.SDrainage is assumed to be to the south, towards a tributary of the River Dee.

I notice you have mentioned the commercial environmental reporting suggests the Air Products landfill included 'inert / industrial' wastes deposited between 1977 and 1991, so that is slightly different to the above which implies it was just an inert landfill. Please note, there is another landfill known as 'Air Products Social Club', at its closest point it is 251m to the north east (see EAW notes below), this one does have that mix of waste type that the commercial report refers to, however the date is not correct so I do not think the two are being mixed up.

Site Name: AIR PRODUCTS SOCIAL CLUB
Pre 76
Final Input: 31/12/1960
Inert: 20
Industrial: 80
Housecom: 0
Site Ref: 6955/0003
Notes: Assumed waste depth 3m. Unlicensed site. No records of deposited waste, but thought to contain industrial waste.A.W.S.

• Any ground investigation / gas monitoring information relating to the Air Products landfill

I have gone back through our records and we do not have any details of a ground investigation or gas monitoring information relating to the Air Products landfill. There are records of a site investigation of former Air Products land (not landfill) which is situated further east, over 430m away, which is currently being developed for housing, but I have not supplied these as they do not relate to a landfill and the site is quite a distance away. I also have a Phase 1 report for a proposed housing development on the former Air Products Social Club site, but a Phase 2 report has not been submitted at this time – this area of land is c. 300m away and is not the landfill of concern therefore again I have not supplied this report.

• Any information concerning the landfill engineering / construction?

The Team does not hold any such records.

• Details of the 'waste management exemption' attributed to the site?

Attached to my email are details of the site exemption, there was an old planning application which had expired and the attached letter (split into 2) was part of the documentation about that.

• Any known contaminated land issues relating to the site and immediate surrounds as a result of former industrial activities?

The Contaminated Land Team has not determined any land as 'contaminated land' under Part 2A of the Environmental Protection Act 1990 within this area of the County Borough, therefore the Team is not aware of any Contaminated Land issues relating

to the site or immediate surrounds. From historical mapping you may be aware that there are historical/existing industrial activities in the vicinity of the property, however the Team has no record of any land contamination assessments in relation to those activities. E.g. there is a garage to the east and to the south historical mapping indicates a former works/factory.

Should you have any queries then please do not hesitate to contact me on the above number.

Yours sincerely



Mrs Angela Roberts
Contaminated Land Officer

ASIANTAETH YR AMGYLCHEDD CYMRU
ENVIRONMENT AGENCY WALES

Eich cyf/Your ref:

Ein cyf/Our ref: NOW-681-E

Enquiries: Miss K L Woodley - Ext 4551

Dyddiad/Date: 18 May 1999

Mr C M Edwards
Pendil
Llangollen Road
Acrefair
Wrexham
LL14 3RP

Dear Sir

THE WASTE MANAGEMENT LICENSING REGULATIONS 1994

Name of establishment undertaking registration: C M Edwards

Location of exempt activity: Adjoining land to Pendil, Llangollen Road, Acrefair, Wrexham

Registration under Reg 17. Schedule 3 Paragraph: 19

Further to your recent correspondence regarding the registration of an exempt waste management activity I can confirm that this Agency has registered the activity in accordance with Regulation 18 of The Waste Management Licensing Regulations 1994.

I must stress that the registration of this activity, in accordance with the above legislation, does not constitute an approval of the activity by this Agency. Registration does not remove your responsibility to comply with all relevant legislation and, in particular, the conditions specified in Schedule 3 of the 1994 Regulations relating to the exempt activity. Failure to comply with the conditions of the exemption or other relevant legislation could result in enforcement action being taken against you.

Please ensure that any waste imported on site is clean and uncontaminated, you must comply with the duty of care as set out in Section 34 of the Environmental Protection Act 1990. I also wish to draw your attention to Paragraph 4, Schedule 4 of the 1994 Regulations which states that relevant objectives in relation to disposal or recovery of waste include:-

Cont/d...

Asiantaeth yr Amgylchedd Cymru
Llwyn Brain , Ffordd Penlan , Parc Menai, Bangor, Gwynedd, LL57 4BP
Ffon 01248 670770, Ffacs 01248 670561, GTN 7-26 X 4000

Environment Agency Wakes
Llwyn Brain, Ffordd Penlan, Parc Menai, Bangor, Gwynedd, LL57 4BP
Tel 01248 670770, Fax 01248 670561, GTN 7-26 X 4000

(a) ensuring that waste is recovered or disposed of without endangering human health and without using processes or methods which could harm the environment and in particular without-

i) risk to water, air, soil, plants or animals ; or
ii) causing nuisance through noise or odours ; or
iii) adversely affecting the countryside or places of special interest.

You should ensure that any disposal or recovery operations which you undertake meet the above objectives. If they do not, you may be liable for prosecution under Section 33 of the Environmental Protection Act 1990.

Please note that the fact that you have registered as exempt from the requirement to hold a waste management licence does not mean that you have planning consent. You must check with your local planning authority to ensure that this activity has the benefit of planning consent before any materials are imported on site. You should also consider whether you will need to contact other statutory bodies or sections of the Environment Agency in terms of this facility, for example land drainage, flood defence, conservation and water pollution etc.

I trust that this information is of assistance to you. However, if you require any further assistance or information regarding this matter please contact this office of the Agency.

Yours faithfully

K L Woodley

KAREN WOODLEY
Licensing Assistant

Asiantaeth yr Amgylchedd Cymru
Llwyn Brain , Ffordd Penlan , Parc Menai, Bangor, Gwynedd, LL57 4BP
Ffon 01248 670770, Ffacs 01248 670561, GTN 7-26 X 4000

Environment Agency Wales
Llwyn Brain, Ffordd Penlan, Parc Menai, Bangor, Gwynedd, LL57 4BP
Tel 01248 670770, Fax 01248 670561, GTN 7-26 X 4000

3. Supporting information

3.9 Radon report

A radon report was obtained from the UK Health Security Agency for the nearest recorded property to the development Site (1 Brookmount, Llangollen Road, Acrefair, Wrexham, LL14 3RT).

Report of address search for radon risk

Issued by UK Health Security Agency and British Geological Survey. This is Based upon Crown Copyright and is reproduced, where applicable, with the permission of Land & Property Services under delegated authority from the Controller of His Majesty's Stationery Office, © Crown copyright and database right 2014MOU512.

Address searched: 1 Brookmount, Llangollen Road, Acrefair, Wrexham, LL14 3RT
Date of report: 23 September 2025

Guidance for existing properties

Is this property in a radon Affected Area? - Yes

A radon Affected Area is defined as where the radon level in at least one property in every hundred is estimated to be at or above the Action Level.

The estimated probability of the property being above the Action Level for radon is: 5-10%

The probability result is only valid for properties above ground. All basement and cellar areas are considered to be at additional risk from high radon levels.
The result may not be valid for buildings larger than 25 metres.
If this site if for redevelopment, you should undertake a GeoReport provided by the British Geological Survey.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the UK Health Security Agency. UKHSA advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from UKHSA or https://www.ukradon.org

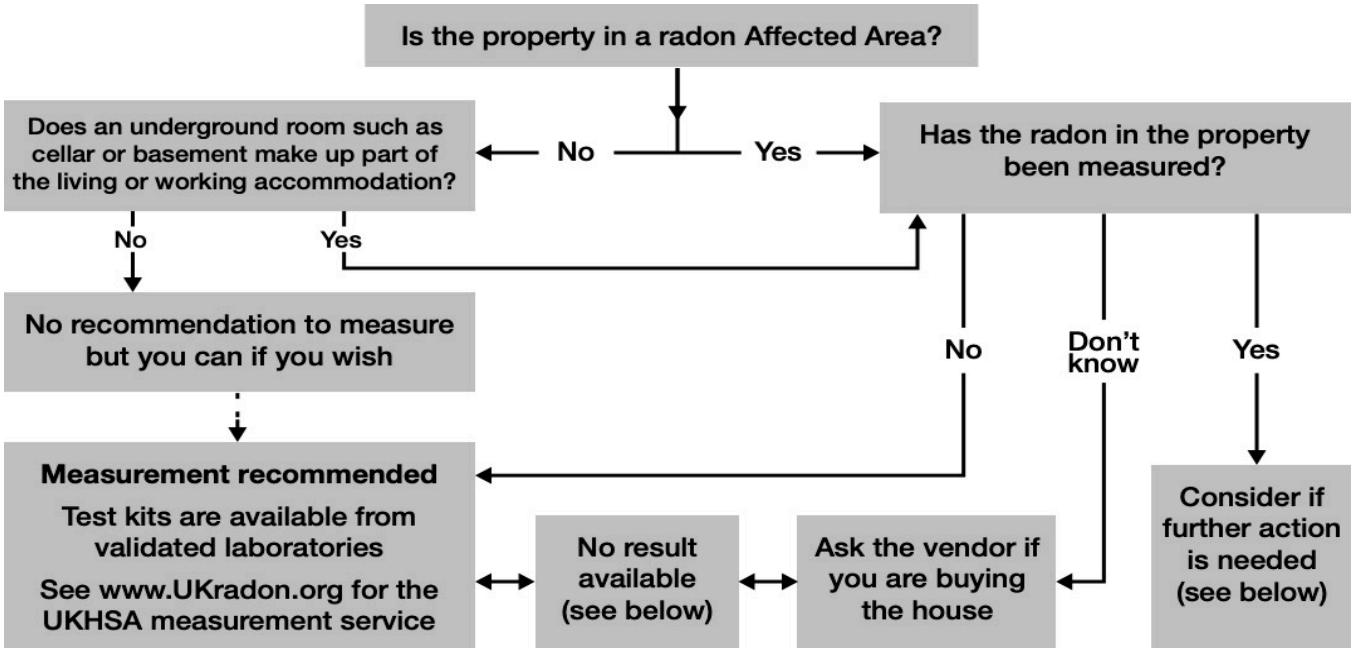
Guidance for new buildings and extensions to existing properties

What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - Basic Protection

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

UKHSA guidance for occupiers and prospective purchases



Existing radon test results: There is no public record of individual radon measurements. Results of previous tests can only be obtained from the seller. Radon levels can be significantly affected by changes to the building or its use, particularly by alterations to the heating and ventilation which can also be affected by changes in occupier. If in doubt, test again for reassurance.

Radon Bond: This is simply a retained fund, the terms of which are negotiated between the purchaser and the vendor. It allows the conveyance of the property to proceed without undue delay. The purchaser is protected against the possible cost of radon reduction work and the seller does not lose sale proceeds if the result is low. Make sure the agreement allows enough time to complete the test, get the result and arrange the work if needed.

High Results: Exposure to high levels of radon increases the risk of developing lung cancer. If a test in a home gives a result at or above the Action Level of 200 Becquerels per cubic metre of air (Bq/m3), formal advice will be given to lower the level. Radon reduction will also be recommended if the occupants include smokers or ex-smokers when the radon level is at or above the Target Level of 100 Bq/m3; these groups have a higher risk. Information on health risks and radon reduction work is available from UKHSA. Guidance about radon reduction work is also available from some Local Authorities, the Building Research Establishment and specialist contractors.

UKHSA designated radon website:	https://www.ukradon.org
Building Research Establishment:	http://www.bre.co.uk/page.jsp?id=3137

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3. Supporting information

3.10 CL:AIRE coal mine gas emission risk assessment methodology

The methodology adopted in this document for evaluating potential mine gas risks associated with legacy coal mining activities is consistent with the screening approach outlined in the 2021 CL:AIRE guidance document: Good Practice for Risk Assessment for Coal Mine Gas Emissions. The approach outlined by CL:AIRE focuses on the prevailing conceptual ground model, including an evaluation of potential mine gas sources, possible gas migration pathways and relevant receptors. The decision support tool contained in the 2021 guidance is included below:

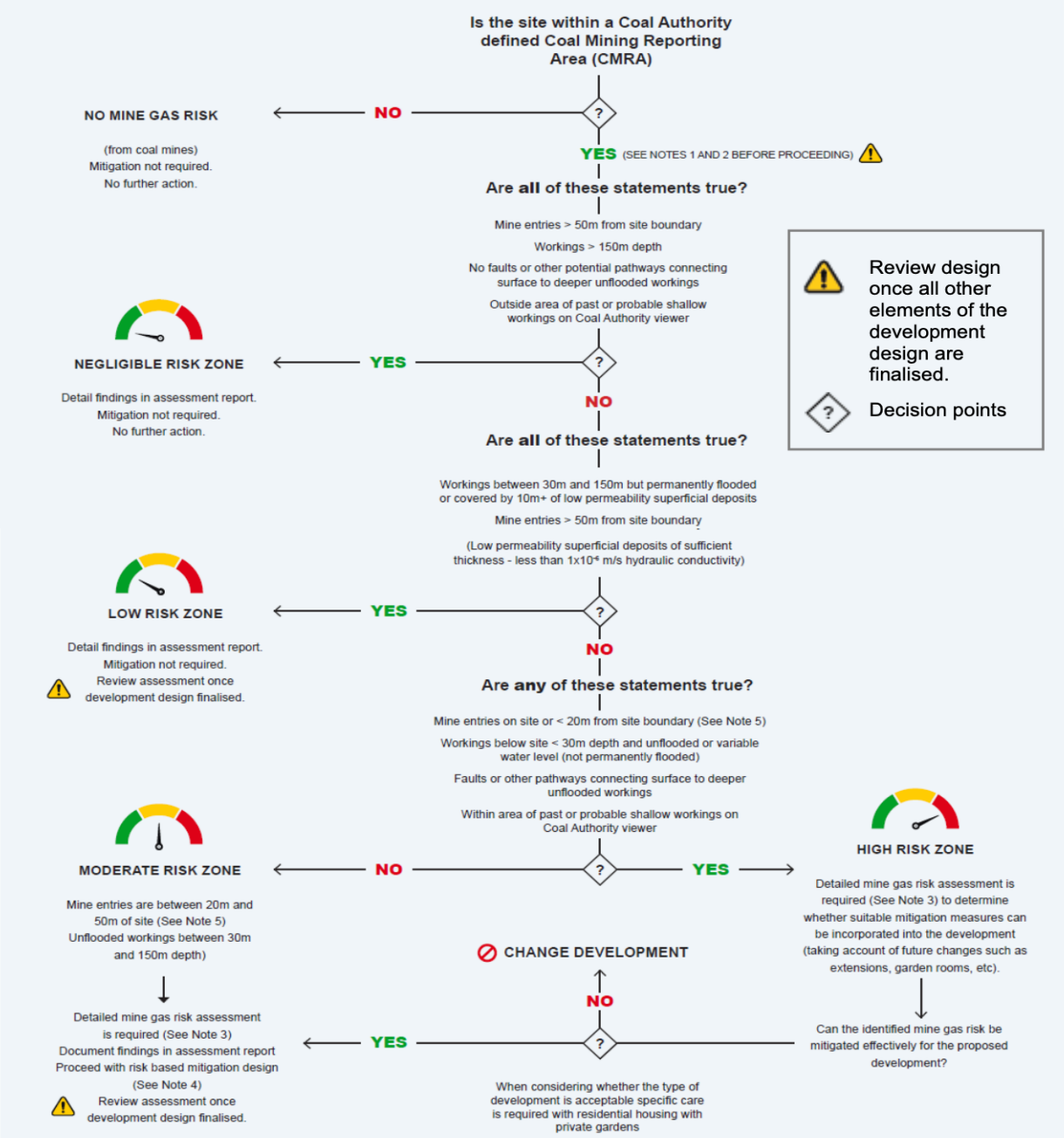


Figure 13.1: Decision support tool for mine gas risk assessment.