



Wrexham Association

Football Club

Kop Development

Geotechnical and Contaminated Land Desk
study Report

WREXHAM AFC – KOP STAND DEVELOPMENT GEOTECHNICAL AND CONTAMINATED LAND DESK STUDY REPORT

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1. INTRODUCTION

Ramboll UK Ltd (Ramboll) has been appointed by Wrexham Association Football Club (WAFC) to provide geo-environmental and geotechnical services to support the planning application for the proposed WAFC – Kop Stand development.

This Geotechnical and Contaminated Land Desk Study Report comprises a review of currently available pertinent information and will be used to inform a risk register for the proposed development, and risk qualification and mitigation through targeted site investigation and surveys. Information obtained through the assessment will further be used to inform parameters used in feasibility design.

1.1. Development Proposals

The Wrexham Gateway Partnership (Established in 2018) comprises of Welsh Government, Wrexham County Borough Council and Wrexham Glyndŵr University. The Wrexham Gateway project will result in the redevelopment of the site around Wrexham General railway station, as well as improvements to WAFC's Racecourse Ground by creating a new stand at the Kop end. New floodlights will also be included as part of the Wrexham Gateway project under a separate live application (Planning Ref: P/2022 /0548).

The Kop Stand development will include the demolition of the current Kop Stand and construction of a new standing terrace with capacity for up to 5,500 spectators, raising the overall capacity of the stadium to approximately 15,000 for league games.

The first floor of the new stand will be fitted out with the club offices and community space. The club store will also move to the ground level concourse. Each of those uses will be relocated from existing stands providing improved accommodation and facilitating wider improvements at the ground.

The new stand will also provide new hospitality spaces on the upper level with capacity for up to 500 persons on match days and up to 250 persons (banqueting) on non-match days.

The proposed improvements will enable the Racecourse Ground to be brought up to UEFA Category 4 standards, enabling the stadium to be used for international and Premier League football matches.

The general arrangements of the concourse (yellow), offices/community use area (blue), concessions (orange) and a hospitality lounge (purple) is presented in Figure 1.1. The proposed site layout, including defined boundaries is presented in Figure 1.2.

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Figure 1.1: Proposed stand arrangement

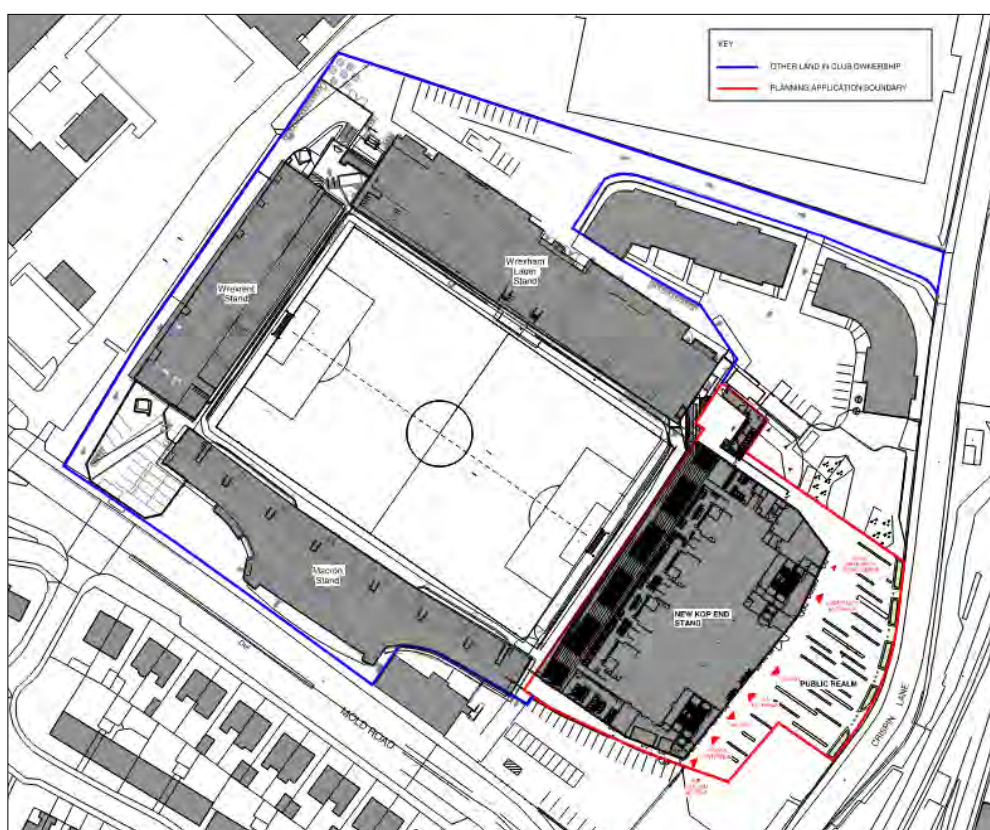


Figure 1.2: Proposed site layout and defined boundaries

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1.2. Objectives

The objective of this desk study is to collate and present available information that is considered to be pertinent to the proposed development, including preliminary geotechnical and geo-environmental recommendations, risks and constraints associated with the ground and groundwater conditions.

1.3. Scope of Works

The scope of this study is as follows:

- Review of historical and recent Ordnance Survey plans to identify activities which might have led to contamination of soil or groundwater both on the development site and on adjacent sites;
- Review of published records and plans on the geology and hydrogeology of the site to assess the vulnerability and sensitivity of groundwater and surface water resources to contamination if present;
- Review of the Groundsure environmental database report for environmental permits, records and incidents at the site and surrounding area;
- Review of existing information for the site and surrounding area relating to ground conditions (where available); and
- Provide recommendations for a ground investigation to inform the design and construction of the development and to provide information to enable any risks from contaminated land to be established.

1.4. Limitations

This report has been prepared for Wrexham Association Football Club (the Client) and shall not be relied upon by any third party unless that party has been granted a contractual right to rely on this report for the purpose for which it was prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this report or in respect of any matters outside the agreed scope of the services or the purpose for which the report and the associated agreed scope were intended or any other services provided by Ramboll.

In preparation of the report and performance of any other services, Ramboll has relied upon publicly available information, information provided by the client and information provided by third parties. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.

Ramboll's services are not intended as legal advice, nor do they provide an exhaustive review of site conditions and/or compliance. This report and accompanying documents are intended solely for the use and benefit of the client for this purpose only and may not be used by or disclosed to, in whole or in part, any other person without the express written consent of Ramboll. Ramboll neither owes nor accepts any duty to any third party, unless formally agreed by Ramboll through that party entering into, at Ramboll's sole discretion, a written reliance agreement.

This report addresses contaminated land and geotechnical issues only. Ramboll's scope of services for this assignment did not include collecting samples of any environmental media. Ramboll cannot rule out the existence of conditions, including, but not limited to, contamination not identified and defined by the data and information available to and/or obtained by Ramboll. Specifically, this assessment must not be considered as an asbestos survey (whether in built structures, waste, soils, etc.), even though the subject of asbestos-containing materials may have been discussed in the report. Any reference to flood risk does not constitute a flood risk assessment.

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2. SOURCES OF INFORMATION

The agencies, authorities, organisations, and individuals which have been contacted and/or their records reviewed during the course of this study are listed in Table 2.1.

Table 2-1: Summary of Information Sources

Source	Information
Groundsure [1]	Historical Ordnance Survey (OS) maps (Appendix 1) Environmental Information (Appendix 2)
Coal Authority [2]	Coal Mining Report (Appendix 3)
Zetica [3]	Unexploded ordnance risk data ¹
British Geological Survey (BGS) [4] [5] [6]	BGS Online Viewer ² BGS GeoIndex (onshore) database ³ BGS, 1993. Wrexham. England and Wales Sheet 121. Solid and Drift. 1:50,000
MAGIC website (Multi Agency Geographic Information for the Countryside) [7]	Various including environmental designations and surface water ⁴

In addition a visual site inspection was conducted by a geotechnical engineer and a contaminated land specialist on the 10th September 2021.

¹ <https://zeticauxo.com/downloads-and-resources/risk-maps/>

² <https://mapapps.bgs.ac.uk/geologyofbritain/home.html>

³ <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/>

⁴ <https://magic.defra.gov.uk/magicmap.aspx>

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3. SITE DETAILS

3.1. Site Location and Description

The site is located within the eastern region of the existing Racecourse Ground football stadium on Mold Road, close to the A483 dual carriageway and immediately to the northwest of the town centre, between the Wrexham General railway station and the university campus. The approximate centre of the site is at UK National Grid Reference SJ 32885 50952.

The site can be defined as the area of land currently occupied by the existing, derelict Kop stand and a parcel of land lying immediately to the east, comprising a grassed mound.

In addition, an area of land between the site and Crispin Lane is intended to be used as a compound during construction works and part of this area is proposed to be used as access to the new stand. Currently the ground surface in this area comprises demolition rubble associated with removal of the former buildings which occupied the area.

3.2. Site History

The history of the site and surrounding area has been determined based on OS Maps dating from 1874 to 2021 and aerial photos from 2000 to 2020 obtained as part of the Groundsure Report [1]. A summary of the history has been provided within Table 3-1 and the historical maps have been provided within Appendix 1.

Table 3-1: Historical Land Use Summary

Historical Map	Site	Surrounding Area (<250m)
1874 1:500	The site is shown as open area with the southern end extending into a 'race course'.	The Turf Hotel is shown to the southwest of the site and west of this is a small stand. An unnamed road is located further to the south (in a similar location to Mold Road). A landscaped area with trees, paths and a pond is shown close to the south eastern site boundary. To the east is Crispin Lane, beyond which is Wrexham railway station with associated tracks, sidings and a goods shed. A number of buildings are shown to the northeast of the site (immediately east of Crispin Lane).
1899 1:2,500	Site is shown as an open area.	A drill shed is shown to the east of the site (within the potential construction compound area). A large building is shown close to the south eastern site boundary which extends into the potential construction compound area. To the east of the railway area is Cambrian Iron Works and a Steam Saw Mill which is also labelled as 'timber'. Further to the south are residential properties adjacent to an unnamed road (now Maesgwyn Road). To the east of this are railway lines and sidings with areas of possible ground workings indicated associated with cutting and fill. Much of the area to the west and northwest of the site is still largely open land.
1912 1:2,500	The western end of the site is shown as forming the eastern end of a Football	A tramway is shown in the road south of the site (Mold Road). A timber yard is shown at the Steam Saw Mill to the east.

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Historical Map	Site	Surrounding Area (<250m)
	Ground with some earthworks present.	A stand is shown along the northern side of the football ground. Maesgwyn Road is now labelled with additional residential buildings shown to the east of this road. Oil tanks are shown approximately 220m to the southeast by railway sidings.
1937-1939 1:2,500	The earthworks associated with the football ground in the west of the site area has increased in extent. A rectangular structure is shown at the eastern boundary extending into the site area.	The stand along the north of the football ground has increased in size along with stands shown to the west and southwest of the football ground. The building southeast has reduced in size. The road to the south is now shown as the A541 and houses are shown to the south of this road. An Omnibus Depot is shown to the east of Maesgwyn Road / south of A541. A Joinery Works is shown immediately east of the Saw Mill and further to the east is residential housing. The Cambrian Works (Engineering) is shown to the north and north of this is a large unlabelled structure located immediately east of the railway. The oil tanks to the southeast are no longer labelled.
1957-1958 1:1,250 1958 1:2,2500	The site area is shown as 'terraces' associated with 'The Race Course (Wrexham FC) football ground.	A bowling green is shown immediately south of the site. The road south of the site is shown as Mold Road (which becomes Regent Street to the east of the railway) and the area south of this has been developed with residential housing. To the west of the football ground is Denbighshire Technical College. A playing field is shown north of the college. The area south east of the site is shown as a garage which extends into the proposed construction compound area. The former Omnibus Depot is shown as a Bus Depot and on the opposite side of Maesgwyn Road is a warehouse. To the east a garage is shown east of the railway lines. The area east of the railway (east of the site) is shown as 'works'
1968 1:1,250	A stand is shown towards the central western part of the site area although terraces are still shown. Lighting towers are shown at the northern and southern end of the site area.	The buildings associated with the drill shed east of the site (Crispin Lane) are no longer shown. A building associated with the garage is present in the south of the potential construction compound area. The bus depot on Maesgwyn Road is shown as a garage and the warehouse as an electrical works. A garage is shown to the west of the site, south of Mold Road in a similar area to the existing petrol station. The former saw mill buildings to the east of the railway area is shown as a warehouse and Cambrian Works (Engineering) is still shown immediately north with an electrical substation between two site areas. Further north is another large warehouse.

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Historical Map	Site	Surrounding Area (<250m)
1975-1979 1:1,250	A slope is shown in the east of the site.	A new building is shown approximately 160m north of the site (shown on the 1:10,000 scale map as a school) with a path connecting to Denbighshire Technical College. Numerous houses south of Mold Road have been cleared and shown as a largely open areas with Westminster Court towards the south.
1977-1982 1:1,250	The stand is shown similar to the existing layout.	The bowling green immediately south is no longer shown. New houses are shown to south of Mold Road.
1989-1992	No significant changes are shown.	The former building associated with the garage which extended into the south of the proposed construction compound area is no longer shown. A small structure is shown within this area between the site and Crispin Lane. Further to the south, on Maesgwyn Road is another garage and a depot. The number of railway lines to the east appears to have reduced. The Cambrian Works (Engineering) is no longer shown and a depot is present in this area. A factory is shown at the warehouse to the south. Denbighshire Technical College is shown as North East Wales Institute of Higher Education.
1992-1994	No significant changes are shown.	Small structures are shown close to the south and south eastern site boundary. The garage building to the south east is shown as extending into the south of the proposed construction compound area. Buildings to the south of the two garages and depot on Maesgwyn Road are shown as a trading centre and Fire Brigade HQ.
2000 Aerial Photo	Site comprises a stand area of soft cover in the east.	A number of structures are shown immediately east of the site within the proposed construction compound area. Numerous vehicles are present to the south and east of the site associated with the garage. Car parking is shown to the north of the football ground and beyond this is a football pitch. 2001 1:10,000 scale map shows a recreation ground and sports centre to the north of the football ground and beyond this the school is shown as a college.
2003 1:1,250	No significant changes are shown.	A number of structures are shown immediately east of the site within the proposed construction compound area. The garage building to the southeast appears to have been redeveloped and this extends into the southern end of the proposed construction compound area.
2009 Aerial Photo	No significant changes are shown.	Only a limited number of vehicles are present at the garage to the southeast and the northern part of the garage which extended into the southern end of the proposed construction compound is no longer present.

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Historical Map	Site	Surrounding Area (<250m)
2017 Aerial Photo	No significant changes are shown.	Two rectangular structures immediately east of the site appear to be in ruins. The area immediately northeast of the site appears derelict. Further to the north, two buildings have been constructed in the parking area north / northeast of the football ground.

3.3. Environmental Database Records

Information presented in Table 3.2 has been obtained from a review of a Groundsure environmental database (dated August 2021) relating to the development site boundary and surrounding areas which has been provided within Appendix 2. A summary of these records has been provided in the following table for categories where the Groundsure report indicates these are present within 500 m, categories where no records are indicated have not been included (e.g. contaminated land entries, landfills).

Table 3.2: Summary of Key Environmental Database Information

Data Type	Distance			Comments
	On Site	<250 m	250 - 500 m	
Historical waste sites	0	2	0	2 no. records relating to a scrap yard approximately 125m to the south.
Licensed waste management facilities	0	6	0	6 no. records all relating to Jacques Garage on Mold Road associated with metal recycling for vehicle dismantling approximately 120m south.
Waste Exemptions	0	0	1	1 no. record 488m to the south east for sorting and de-naturing controlled drugs for disposal.
Registered radioactive substances	0	3	1	3 no. records relating to the keeping and use of radioactive materials and disposal of radioactive waste by Glyndwr University 215m to the north west which are indicated as having been revoked / cancelled.
Petrol stations	0	2	1	1 no. record relating to Shell on Mold Road 207m to the west which is shown as 'open'. 2 no. records which are shown as being 'obsolete' relating to former petrol stations on Regent Street 245m to the southeast and Rhosddu road 389m to the east.

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Data Type	Distance			Comments
	On Site	<250 m	250 - 500 m	
Recent industrial uses	1	20	0	Closest two records are indicated as pylons onsite and 1m from the site which relate to stadium lighting. Other records within 250m include vehicle repair and servicing, railway station, electricity substations, service station, garages, water pumping station, chimney, sewage pumping station.
Historical industrial land uses (grouped records)	3	78	85	Records onsite relate to a drill shed, unspecified ground workings and heap (associated with the existing stand). Records within 250m relate to railway sidings, railway station, railway buildings, cuttings, sawmill, unspecified commercial / industrial, goods shed, unspecified works, iron works, unspecified factory, unspecified heap, omnibus depot, unspecified ground workings, nursery.
Historical garages (grouped records)	0	20	7	Closest 7 no. records relate to a former garage 7m to 20m southeast / south of the site with the other 13 no. records within 250m for garages 80m to 237m from the site.
Historical tanks (grouped records)	0	1	39	1 no. record within 250m relates to oil tanks in 1912 220m to the southeast.
Licensed pollutant release (Part A(2)/B)	0	1	0	1 no. record relating to the unloading of petrol into storage at service stations.
Pollution incidents	0	0	1	1 no. record for '2 pollutants including smoke' in 2014 as category 4 (no impact) to land and air.
Radon affected area (Y/N)	Y	N/A	N/A	The site is located in an area where between 3% and 5% of dwellings are above the action level for Radon indicating basic protection measures are required.

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3.4. Unexploded Ordnance

The Zetica Online UXO Risk Map ⁵ indicates that the study area is located in an area of low risk with no strategic Second World War (WWII) targets located within 1km of the study area. The nearest strategic WWII target relates to utilities located approximately 1.5km south of the site.

⁵ <https://zeticauxo.com/downloads-and-resources/risk-maps/>

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4. GROUND CONDITIONS

4.1. Geology

The BGS online viewer [4] shows the geology beneath the site to comprise Glaciofluvial Sheet Deposits (superficial deposits) overlying bedrock geology comprising the Etruria Formation which is Carboniferous in age.

The south western corner of the Racecourse football ground is underlain by the Carboniferous Lower Pennine Coal Measures Formation (shown in grey below).

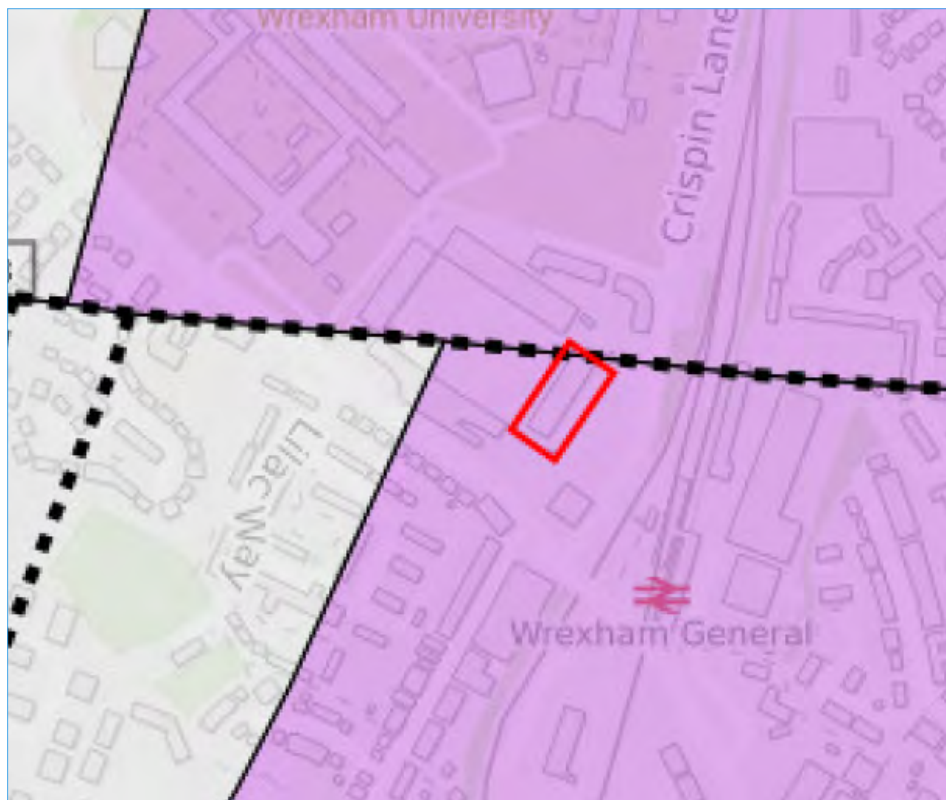


Figure 4.1: The site with respect to bedrock the location of the Etruria formation (purple) and the Pennine Lower Coal Measures (grey)

An unnamed fault, shown as a black dotted line in Figure 4.1 is shown to cross the site in an east-west direction.

No ground investigation information has been provided to Ramboll for review and there are no historical borehole logs available from the BGS online viewer [4] for the site. Therefore, selected nearby borehole logs, considered to be pertinent to the development have been reviewed. However due to their distance, their relevance to the site is considered to be limited.

Approximately 250m to the south of the site, 13 boreholes (reference SJ35SW740 to SJ35SW752) were drilled to approximately 4m bgl. The investigation encountered “brown clayey sand and gravel over compact to dense brown sand with small to large gravel”. No bedrock was indicated as having been encountered. A sketch of the geological cross section is provided in Figure 4.3 and Figure 4.4. The orientation and location of the geological cross section is shown in Figure 4.2.

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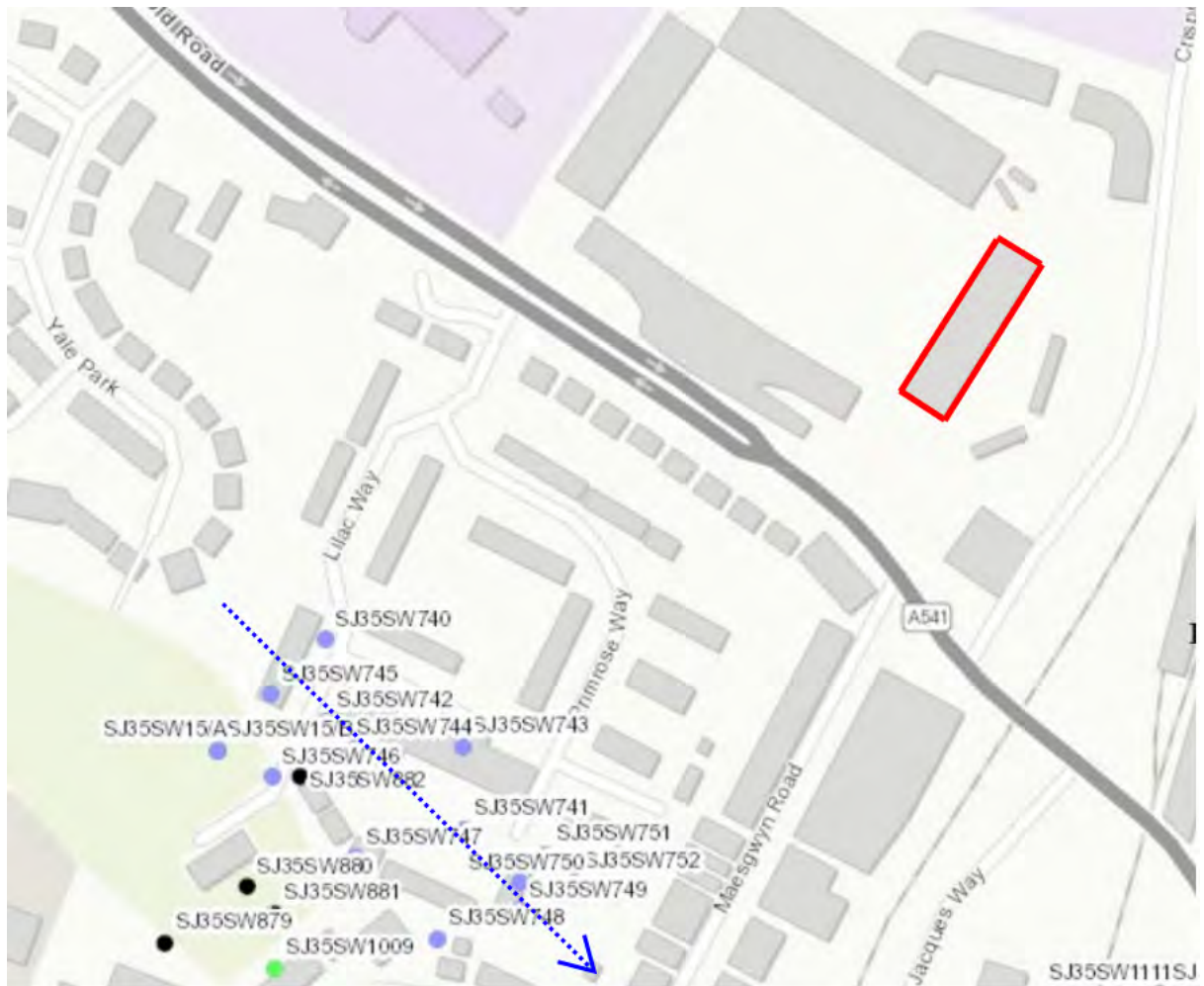


Figure 4.2: Configuration of the geological cross sections

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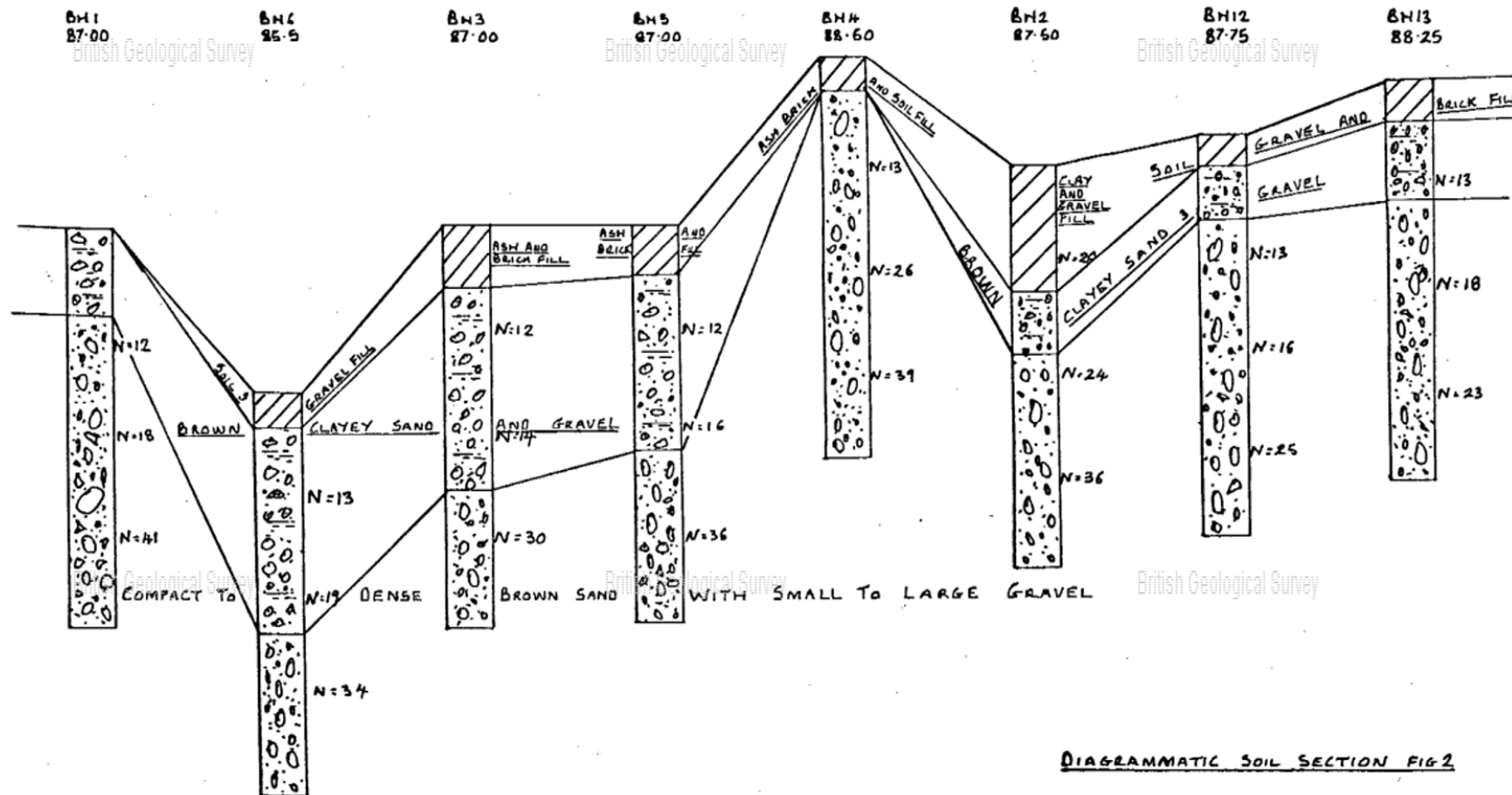


Figure 4.3: Geological cross section sketch

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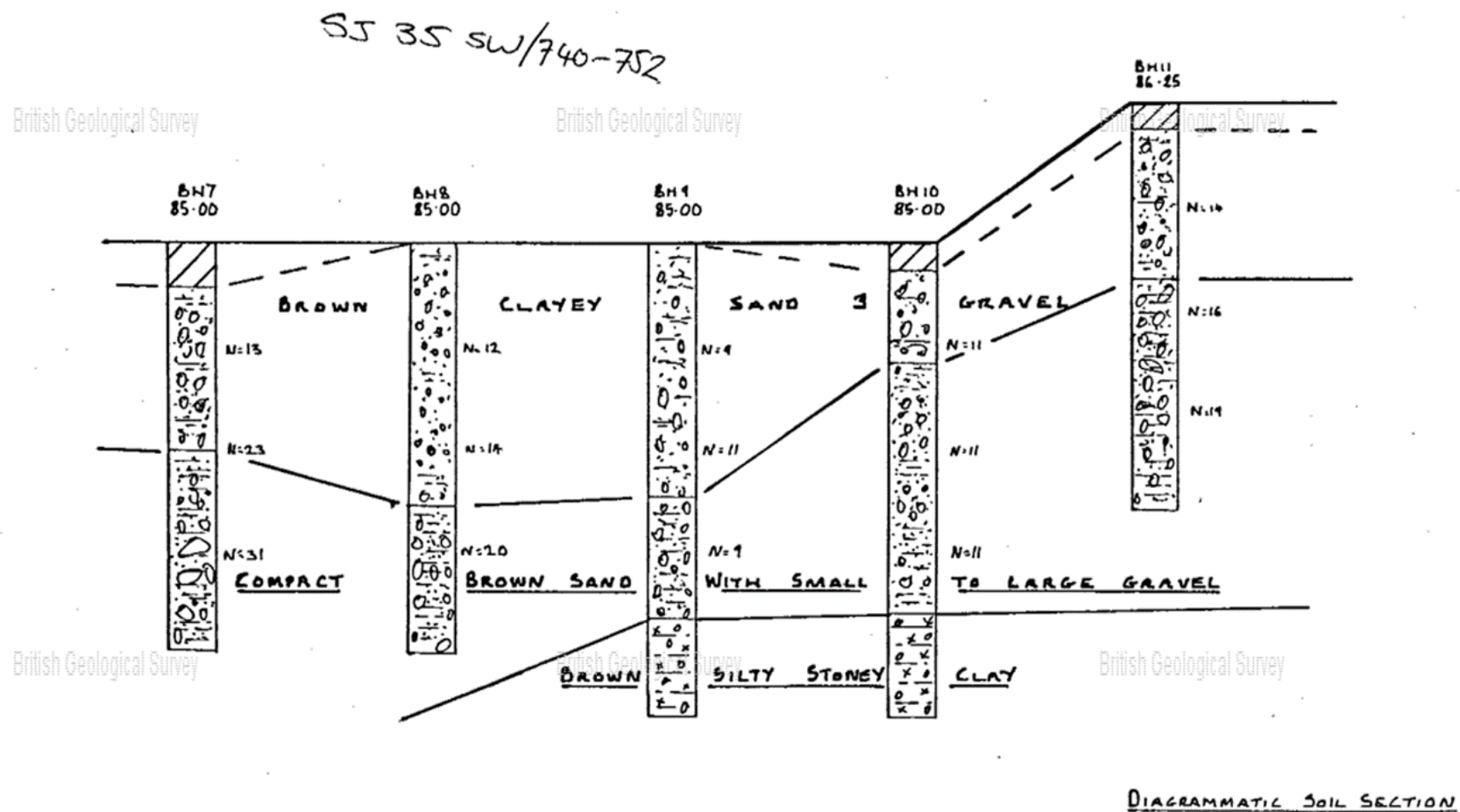


Figure 4.4: Geological cross section sketch

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Approximately 200m north of the site borehole SJ35SW1015 was drilled to approximately 10m bgl at 'Yale School'. The borehole log reported 'Drift' material to 9.1m bgl at which point rockhead was encountered (although the nature of the bedrock was not reported).

Borehole SJ35SW15/A, located approximately 300m to the south of the site, was drilled to 10m bgl and reported only 'gravel'. The borehole reported the resting groundwater depth to be 1.5m bgl however ground level at this location is unknown.

4.2. Description of Key Geological Strata

4.2.1. Made Ground

Made ground is not shown on the BGS viewer although it is likely to be present on site associated with the existing football stand and previous uses identified within the adjacent potential construction compound area. These materials are likely to be highly variable.

During the site visit the existing Kop stand was seen to comprise stepped concrete. Where visible the underlying soil was seen to comprise clayey sand and gravel with cobbles of stone, brick, and concrete.

The ground surface in the area to the south-east of the stand was seen to comprise demolition rubble of variable composition and grading, including brick, concrete, stone, metal, plastic and wood.

4.2.2. Glaciofluvial Sheet Deposits

Glaciofluvial deposits are indicated on geological maps to be present beneath the site which are Devensian in age. The BGS viewer describes these as comprising sands and gravel.

The 13 no. boreholes (reference SJ35SW740 to SJ35SW752) shown in Figure 4.3 and Figure 4.4 reported brown clayey sand and gravel over compact to dense brown sand with small to large gravel, anticipated to be glaciofluvial deposits. None of the 13 locations were advanced to the next stratum and subsequently all locations have an unproven depth.

4.2.3. Etruria Formation Bedrock

Geological maps indicate the solid geology underlying the site to be the Etruria Formation. The BGS lexicon of rock units ⁶ defines the Etruria Formation bedrock to comprise mottled mudstone, with lenticular sandstones and conglomerates referred to as 'espleys' with coal seams being rare.

4.3. Hydrogeology

The Groundsure report indicates the Devensian sands and gravel and the Etruria Formation are classified as Secondary A Aquifers. Secondary A Aquifers are defined as 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.

The site is not located within a groundwater abstraction source protection zone. Three records relating to groundwater abstractions are provided in the Groundsure report between 279m and 334m from the site for Carlsberg Tetley Brewing Ltd, all of which are indicated as being historical. However, there may be private (unlicensed) abstractions (that are generally of smaller scale) which have not been provided within the Groundsure report.

⁶ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=ETM>

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Under the Water Framework Directive classification scheme, groundwater in the bedrock at the site associated with the 'Dee Carboniferous Coal Measures' is identified as having a 'poor' chemical rating and 'good' quantitative status.

4.4. Hydrology

There are no surface water features within the site area. The nearest identified surface water feature is a pond approximately 230m to the southeast.

The Groundsure report indicates the risk from surface water and river and coastal flooding is negligible at the site although higher risks are present within 50m. The risk of groundwater flooding on site is shown as being moderate.

The site is not indicated as being within an area at risk of neither surface water flooding or flooding from rivers or the sea.

Under the Water Framework Directive classification scheme, surface water in the River Gwenfro 328m to the southwest of the site is indicated as having a 'fail' chemical rating and 'good' ecological rating.

4.5. Environmentally Designated Sites

The site is not located in or adjacent to a site designated for nature conservation.

The nearest statutory designated site is the Gatewen Marsh Site of Special Scientific Interest which is located approximately 715m west of the site.

4.6. Geotechnical Hazards and Risks

The Groundsure report indicates the site is at very low risk of natural ground subsidence from: running sands, collapsible deposits and landslides. The risk of natural ground subsidence from compressible deposits, shrink/swell clays and ground dissolution of soluble rocks is indicated to be negligible across the site.

4.7. Coal Mining

The Coal Authority interactive viewer [8] shows the north section of the site to be situated within an area of historical coal mining activity as shown in Figure 4.5. A coal mining report has been obtained from the Coal Authority [2] (and provided in Appendix 3).

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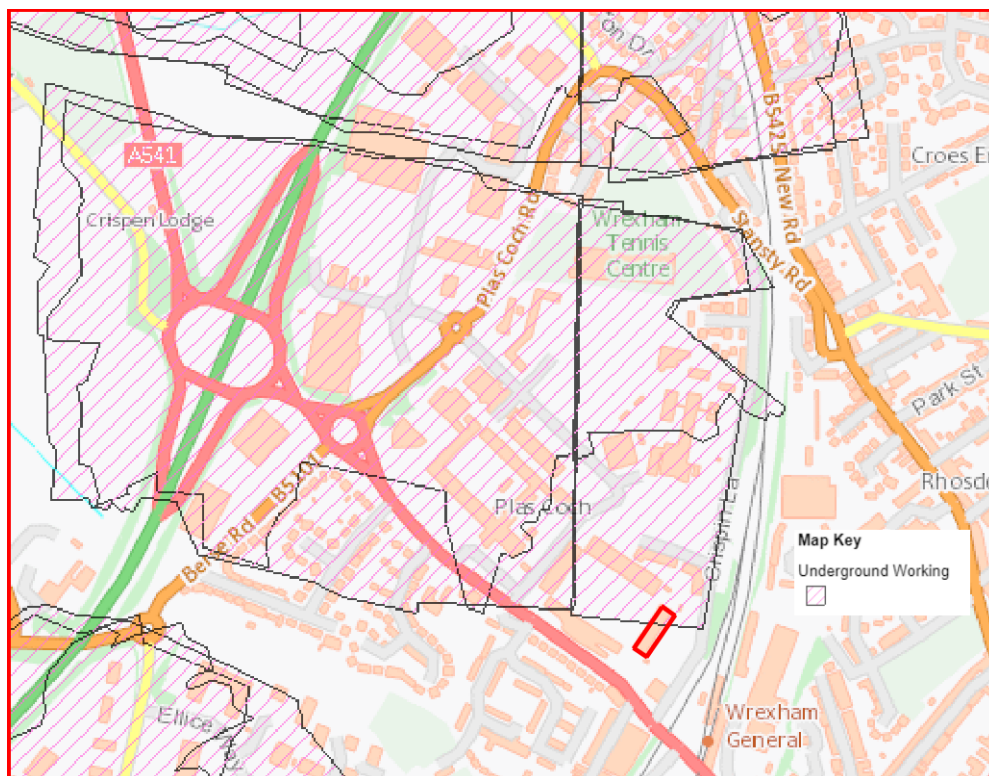


Figure 4.5: Coal Authority Interactive Viewer showing the site (shown in red) with respect to reported areas of underground working

The Coal Authority indicate they do not have any records of remediated sites or coal mining subsidence within 50m, mine entries within 100m, or records of opencast mines, Coal Authority managed tips, mine gas or mine water treatment schemes within 500m. No probable unrecorded shallow workings are indicated. The Coal Authority have identified coal working beneath the site at 365m bgl and to the northwest of the site, coal mining took place at depths ranging from 322m bgl to 352m bgl. Additional details of the coal working are presented in Table 4-1.

Table 4-1: Coal mining depths identified by the Coal Authority

Colliery	Seam	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	QUAKER	3U5J	322	North-West	7.1	East	140	1921
unnamed	QUAKER	3U5N	331	North-West	7.1	East	140	1921
unnamed	MAIN	3V3Y	352	North-West	7.1	East	210	1917
unnamed	MAIN	3V3F	365	Beneath site	7.1	East	210	1917

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5. PRELIMINARY GEOTECHNICAL ASSESSMENT

5.1. The development

The proposed development will provide the addition of a new standing terrace with capacity for up to 5,500 spectators in addition to new community space and offices on the first floor and new hospitality spaces on the second floor. The club store will also move to the ground level concourse. The proposed improvements will raise the overall capacity of the stadium to approximately 15,500 for league games. Additionally, the improvements will enable the Racecourse Ground to be brought up to UEFA standards, enabling the stadium to be used for international football matches.

At present no ground investigation data is available within the site boundary.

5.2. Anticipated geology

The findings of this report indicate that the site is likely to be underlain by Made Ground associated with development of the existing football ground stand area underlain by fluvioglacial sheet deposits of Devensian sands and gravel to an unknown depth. The solid geology underlying the superficial deposits is anticipated to be mudstone of the Etruria Formation.

The borehole data obtained during the 1975 ground investigation, circa 250m to the south of the site, encountered made ground underlain by brown clayey sand and gravel over compact to dense brown sand with 'small to large' gravel to an unproven depth, greater than 3.66m bgl.

Ground movement associated with historical mining is unlikely to pose a significant risk to the proposed development due to the depth at which workings were carried out.

The fault is unlikely to present a significant risk of ground movement. It may, however act as a pathway for mine gas to migrate towards the surface. If this is found to be the case then construction techniques such as piling may be restricted.

5.3. Foundation options

At this preliminary stage there is limited geotechnical information to inform the foundation design. Additionally, there is insufficient information available regarding the imposed loadings associated with the proposed development to offer a suitable, Eurocode compliant foundation solution.

Considering the current site usage, there is the potential for significant thicknesses of Made Ground at the site. Made Ground is not usually considered a suitable founding stratum due to its inherent variability in composition and degree of compaction/strength. Shallow foundations, such as raft, pad or strip foundations bearing on the anticipated sands and gravel may be feasible subject to the findings of a site-specific ground investigation. Alternatively, a deep foundation solution such as piles may be required to support the proposed structure, bearing onto the solid geology or the lower levels of the Devensian sands and gravel to be suitable. The feasibility of each solution should be explored following a comprehensive geotechnical ground investigation.

The final foundation solution will depend on the magnitude of structural loads in addition to the underlying ground conditions as identified during ground investigation.

5.4. Excavations

Existing areas of hardstanding and/or foundations are likely to require breaking out prior to development. Excavations for foundation construction and/or services installation may require

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support depending on ground conditions and depth. Alternatively, excavation works may be possible in open cut but will need to be sloped to prevent instability.

Any required shallow excavation works should remain relatively stable in the short term however if man entry is required then some form of mechanical support should be used, or slopes should be battered back to a safe angle (typically 1(v) in 2(h) to 1 in 3).

5.5. Earthworks

Excavated material or suitably crushed and processed concrete/brick may be suitable to be reused as engineering fill for the proposed works. The suitability of any excavated material to be reused will be determined following a review of the information obtained during the ground investigation.

5.6. Groundwater

At present the groundwater regime is unknown across the site. Subsequently, any future ground investigation should include groundwater monitoring to better understand the groundwater regime across the site.

Groundwater control measures may be required during excavation works; however, this will be further reviewed following the ground investigation.

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6. PRELIMINARY CONTAMINATION ASSESSMENT

6.1. Legislative Framework

The regime for contaminated land was set out in Part 2A (ss.78A-78YC) of the Environmental Protection Act 1990 (EPA), as inserted by S.57 of The Environment Act 1995 and came into effect in England on 1st April 2000 as The Contaminated Land (England) Regulations 2000 (SI 2000/227). These regulations were subsequently revoked with the provision of The Contaminated Land (England) Regulations 2006 (SI 2006/1380) (as amended), which came into force in August 2006, and consolidated the previous regulations and amendments. Revised statutory guidance ("the Guidance") for local authorities on how to implement the regime, including the decision-making process on whether land is contaminated land in the legal sense, has been published by Defra and entered into force in April 2012.

Under Part 2A of the EPA Section 78A(2), "contaminated land" is defined as "land which appears... to be in such a condition, by reason of substances in, on or under the land, that:

- a) significant harm is being caused or there is a significant possibility of such harm being caused⁷; or
- b) significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused".

The pollution of controlled waters is defined in Section 78A(9) of the Act as "the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter".

6.2. Risk Assessment Framework

"Significant harm" or "significant pollution of controlled waters" is defined in the Guidance on risk-based criteria and must be the result of one or more relevant 'contaminant linkages' relating to the land.

The presence of a contaminant linkage relies on the Source-Pathway-Receptor concept, where all three factors must be present and potentially or actually linked for a potential risk to exist. For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- A source - a substance that is capable of causing pollution or harm;
- A receptor - something which could be adversely affected by the contaminant; and
- A pathway - a route by which the contaminant can reach the receptor.

If one of these elements is absent there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway.

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

⁷ Water Act 2003 (Commencement No. 11) Order 2012

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Table 6.1: Classification of Risk (after NHBC/EA 2008)

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high	High	Moderate	Low
	Likely	High	Moderate	Moderate / Low	Low
	Low Likelihood	Moderate	Moderate / Low	Low	Very low
	Unlikely	Moderate/ Low	Low	Very low	Very low

6.3. Preliminary Conceptual Site Model and Risk Assessment

Based on the development proposal outlined in Section 1.1 of this report, a preliminary conceptual site model has been developed and qualitative risk assessment undertaken to identify and assess the potential risks associated with environmental conditions at and in the vicinity of the site based on the available information. This is presented in Table 6.2 below.

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Table 6.2: Conceptual Site Model

Source	Pathway	Receptor	Risk of Contaminant Linkage
Onsite: Potential for made ground and localised spills (oils / fuels) from vehicles. No significant contamination sources identified from current or historical site uses.	Dermal contact / ingestion	Site users	Low. No potentially significant existing or historical contamination sources identified onsite. However, made ground is present associated with the existing stand and former garage extended into the potential construction compound area. The existing development area comprises hard and soft cover with limited access to the soft cover area. Made ground associated with the existing stand will be removed during construction and the proposed development comprises predominantly hard cover.
	Dermal contact / ingestion	Construction workers	Moderate. Potential for greater exposure to contaminants if present by workers during excavation and stockpiling.
	Inhalation of gas / vapours	Site users	Moderate / Low. No potentially significant sources of gas or vapours have been identified within the site area and no evidence of shallow coal mining. Although made ground is present associated with the existing stand this is not enclosed or in use. Made ground associated with the existing stand will be removed during construction. Potential for higher risk
	Inhalation of gas / vapours	Construction workers	Moderate. Possible risk to workers within confined spaces including deeper excavations if these are present from gas or vapours.
	Leaching to groundwater & groundwater Flow	Groundwater within Glacial Till deposits and Sandstone bedrock.	Low. No significant onsite potential contamination sources. Development site will comprise hard cover following construction. Made ground associated with the existing stand will be removed during construction. It will be necessary to ensure foundations do not lead to new preferential pathways for contaminant migration.
	Run-off.	Surface water as controlled water.	Low. No surface water courses onsite or close to the site. Potential for run-off into drains. No significant potential contamination sources identified within the site area.

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Source	Pathway	Receptor	Risk of Contaminant Linkage
	Direct contact	Buildings and services	Low. No significant onsite potential contamination sources identified. Made ground associated with the existing stand will be removed during construction.
Offsite: In addition to made ground, potential current and historical off-site contamination sources in the vicinity of the site including: • Various railway features including tracks, sidings, goods shed / depot. • Scrapyard • Various works, depots, warehouses • Garages and petrol stations	Groundwater flow	Groundwater within Glacial Till deposits and Sandstone bedrock.	Moderate / Low. A number of potential sources of contamination have been identified within the surrounding area and presence of Glacial sand and gravels could allow contaminant migration although this will depend on groundwater flow direction which is not currently known so could be higher.
	Inhalation of gas / vapours	Existing and future users	Moderate / Low. No potentially significant sources of ground gas identified within surrounding area. A number of possible sources of organic contaminants have been identified which could give rise to vapours due to migration within groundwater if this were to be towards the site so risk could be higher.

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7. HAZARD REGISTER

This risk register is based on the review of documentary evidence concerning the site setting and ground conditions underlying the site, carried out in this desk study. General and particular risks to the proposed development have been identified and collated into this register for the site which provides a focus for actions required to mitigate the effects of each item at the earliest stage in the design development. The hazards are limited to the information available at the time of preparation. The identified hazards are summarised in Table 7-1.

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Table 7-1: Hazard Register

Subject	Hazard	Consequence	Information to Client
Geology			
Made Ground	Thickness of the Made Ground / Fill across the site is unknown and likely to be variable. Potential for unknown historic foundations and other sub-surface obstructions to exist within the material, i.e. large concrete fragments, whole bricks and granite size cobble clasts.	Delays due to unforeseen ground conditions; cost and programme implications. Chemical attack on sub-surface construction materials (concrete). Additional excavation (and disposal) required to reach competent strata.	Undertake an EC7 compliant ground investigation to characterise ground conditions for detailed design. The results shall be used for system selection and concept design of the substructure and potential ground improvement works, and update the recommendations for the mitigation and management of ground based risks within this register.
Unknown Ground Conditions	At present the ground conditions are based off available geological mapping and historical boreholes undertaken circa 200m away from the site. A project specific ground investigation has not been undertaken and therefore site-specific ground conditions and geotechnical design parameters are not fully understood.	Over conservative or unsafe substructure design. Excessive and/or differential settlement. Delays due to unforeseen ground conditions; cost and programme implications.	
Aggressive Ground Conditions	Ground chemistry and its aggressivity to buried structural materials have not been characterised.	Long term exposure resulting in deterioration of concrete strength, leading to unsafe design and additional maintenance costs. Programming and cost implications and excavation complications.	

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Subject	Hazard	Consequence	Information to Client
Ground Gas	Ground gases can be generated from any organic material present in the Made Ground on or adjacent to the site. In addition ground gas associated with deep coal mining may migrate via geological faults. Site located in an area where 3-5% of dwellings exceed the radon action level.	Accumulation in confined spaces. Risk of inhalation of potentially poisonous gas by construction workers and/or occupants of the site. Ground gas protection measures may be required. Risk to future site users from radon ingress to buildings.	Undertake ground gas monitoring to establish the ground gas regime present at the site and to assess whether ground gas protection measures are required. Design development to consider potential risks from radon and mitigation requirements. In the event that ground gas protection measures are required, incorporate the measures into the substructure design of the scheme.
Material re-use	Insitu material may be unsuitable for reuse.	Increased costs to export unsuitable material from site. If contaminated, disposal costs will increase further.	The suitability of any excavated material to be reused will be determined following a review of the information obtained during the ground investigation.
Hydrology and Hydrogeology			
Groundwater	The groundwater regime at the site has not been characterised.	Instability of construction works. Potential risk to site receptors. Programming and cost implications. Potential environmental liability.	Undertake an EC7 compliant, design ground investigation to characterise ground water conditions for detailed design. Ground investigation should include installation of standpipes and / or piezometers and groundwater monitoring.

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Subject	Hazard	Consequence	Information to Client
		Potential ingress into excavations for shallow foundations. Health and safety impact on site operatives.	Monitoring of any historical installations that remain on-site.
		Reduction in the effective stress of the ground, and hence its bearing capacity. Uplift of shallow structures.	The groundwater level, including seasonal variations will be considered during substructure design.
		Water entering pile bores can reduce the strength and adhesion of the London Clay Formation, negatively influencing pile capacity. If a piled foundation solution is required, piles might provide a preferential pathway for any underlying contaminants to the underlying aquifer.	Groundwater should be controlled during any piling works to prevent groundwater infiltrating through the Superficial Deposits, entering the bore.
	The aggressivity of the groundwater regime has not been determined.	Damage to structural materials.	Undertake a project specific ground investigation to characterise groundwater regime and potential sources of contamination at the site for detailed design.
Ground Contamination			
Contamination	The Made Ground on site or the historical land uses could be a source of potential contamination. Should materials require off-site disposal, they will be subject to current waste management and duty of care regulations.	Potential risk to site receptors. Programming and cost implications. Potential environmental liability and possible increased disposal costs if material's contaminated. Potential damage to structural materials.	Undertake sampling during a site investigation to characterise potential sources of contamination identified at the site. Undertake a screening assessment to identify how risks should be managed for the proposed development.

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Subject	Hazard	Consequence	Information to Client
Obstructions			
Services	At present the layout/arrangement of underground services on site is unknown.	Puncturing/disturbing underground services (including third party services to adjacent developments) whose locations are not precisely known during the ground investigation or construction works. Removal/re-routing of services carries cost and programme implications. Health and safety risk.	Obtain all existing service drawings for the site. All exploratory holes are to be CAT scanned prior to excavation for both ground investigation and during construction stage. If required, liaison should be initiated with service providers to discuss the requirements for any necessary diversions.
Existing foundations	Existing foundation solution arrangement/layout is unknown.	Presence of existing sub-surface structures may obstruct any future ground investigation works and foundation construction.	Obtain all existing service drawings for the site. Contractor to develop and implement necessary measures to minimise the impact of relic foundations on construction.
Other			
Excavations	Instability of excavation works.	Health and safety risk. Programme and cost implications.	If man entry is required to enter excavation then some form of mechanical support should be used, or slopes should be battered back to a safe angle (typically 1(v) in 2(h) to 1 in 3).
Mining	The site is located in an area of historical coal mining activity. Workings in two coal seams have been identified beneath the site.	Subsidence due to untreated mine workings resulting in damage to properties as part of the development. Delay associated with Planning, stakeholder consultations and Planning	The CMRA detailed the historical coal mining activity to have taken place at depths ranging from 322m bgl to 365m bgl, subsequently any associated risks are considered to be low.

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Subject	Hazard	Consequence	Information to Client
		Condition sign off / approvals required from Coal Authority.	

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8. CONCLUSIONS AND RECOMMENDATIONS

8.1. Conclusions

No potentially significantly contaminating land uses have been identified within the development site area. However, a large mound is present which supports the existing stand and historical maps from the early 1900s to mid-1900s show this increased in size prior to a stand first being shown in the 1970s.

Land uses identified within the construction compound area includes a former drill shed and a garage which extended further to the south.

A number of potentially contaminating land uses have been identified within the surrounding area (<250m) which include:

- Various railway uses (railway lines, sidings, station, goods shed / depot, oil tanks);
- Various works including a saw mill with timber yard, Cambrian Iron Works / Cambrian Works (engineering), joinery, depot, warehouses;
- Garages and petrol stations; and
- Scrap yard

There is no evidence of shallow coal mining beneath the site. The Coal Authority have identified coal working beneath the site at 365m bgl and to the northwest of the site, coal mining took place at depths ranging from 322m bgl to 352m bgl. No records have been identified for remediated sites or coal mining subsidence within 50m, mine entries within 100m, or records of opencast mines, Coal Authority managed tips, mine gas or mine water treatment schemes within 500m.

The potential risks from contamination are considered moderate / low or low although a higher risk could be present if contaminants were to be migrating towards the site in groundwater. There is also the potential for a higher risk to construction workers during excavations and stockpiling without mitigation where contamination is present.

The site is located in an area where basic radon protection measures will be required.

Foundations proposals are not known at this stage, but it will be necessary to ensure these do not lead to new preferential pathways being introduced for contaminant migration.

At this preliminary stage there is limited geotechnical information to inform the foundation design. The ground conditions are anticipated to be made ground associated with the existing football ground stand area underlain Devensian Sands and Gravel to an unknown depth. The solid geology underlying the superficial deposits is considered to be Mudstone of the Etruria Formation.

The inherent variability in composition and strength of made ground often makes the material an unlikely founding stratum. The sands and gravels anticipated to be underlying the made ground would likely be a more suitable founding stratum.

A shallow foundation solution i.e. raft, pad or strip foundations, bearing onto the anticipated sands and gravels may be feasible, alternatively a deeper foundation solution i.e. piled foundations, bearing onto the solid geology or the lower levels of the Devensian sands and gravel may prove to be more suitable.

The final foundation solution will depend on the magnitude of imposed loads in addition to the underlying ground conditions identified during a targeted ground investigation.

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8.2. Recommendations

It is recommended that a ground investigation is undertaken to obtain site-specific information on the ground conditions. The investigation will obtain information on geotechnical conditions and contamination at the site to inform the design and construction of the proposed development, and to identify any mitigation measures or remediation that may be required to reduce potential risks (if present). The ground investigation works would be based on the following:

- Cable percussion boreholes to determine ground and groundwater conditions, undertake in-situ testing, and obtain samples of soil for laboratory analysis;
- Dynamic sampling to obtain information on shallow ground and groundwater conditions;
- Trial pitting to obtain information on the made ground and underlying soils including within the mound which extends beneath the existing stand;
- Infiltration testing within selected trial pits and/or boreholes to inform drainage design;
- Installation of wells for subsequent groundwater and ground gas monitoring; and
- Recovery of samples for geotechnical and chemical laboratory testing.

However, it is likely that the existing mound will provide some limitation on the ground investigation in terms of locations for undertaking exploratory holes.

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APPENDIX 1
HISTORICAL MAPS

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APPENDIX 2
GROUNDSURE REPORT

WREXHAM FOOTBALL CLUB, THE RACECOURSE, MOLD ROAD, WREXHAM, LL11 2AH

Order Details

Date: 10/08/2021
Your ref: PO_1620042677
Our Ref: HMD-33-8113686
Client: Ramboll UK Ltd

Site Details

Location: 332874 350929
Area: 0.31 ha
Authority: [Wreccsam - Wrexham County Borough Council](#)



Summary of findings

p. 2 **Aerial image**

p. 8

OS MasterMap site plan

p.13 groundsure.com/insightuserguide

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	3	6	72	85	-
21	1.2	Historical tanks	0	0	1	39	-
22	1.3	Historical energy features	0	0	7	14	-
23	1.4	Historical petrol stations	0	0	1	0	-
24	1.5	Historical garages	0	6	14	7	-
25	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
26	2.1	Historical industrial land uses	4	7	100	123	-
35	2.2	Historical tanks	0	0	1	73	-
38	2.3	Historical energy features	0	0	19	36	-
40	2.4	Historical petrol stations	0	0	1	0	-
40	2.5	Historical garages	0	7	29	11	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
43	3.1	Active or recent landfill	0	0	0	0	-
43	3.2	Historical landfill (BGS records)	0	0	0	0	-
44	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
44	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
44	3.5	Historical waste sites	0	0	2	0	-
45	3.6	Licensed waste sites	0	0	6	0	-
46	3.7	Waste exemptions	0	0	0	1	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
48	4.1	Recent industrial land uses	1	2	18	-	-
50	4.2	Current or recent petrol stations	0	0	2	1	-
50	4.3	Electricity cables	0	0	0	0	-
50	4.4	Gas pipelines	0	0	0	0	-
50	4.5	Sites determined as Contaminated Land	0	0	0	0	-



51	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
51	4.7	Regulated explosive sites	0	0	0	0	-
51	4.8	Hazardous substance storage/usage	0	0	0	0	-
51	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
51	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
52	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	1	0	-
52	4.12	<u>Radioactive Substance Authorisations</u>	0	0	3	0	-
53	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	1	10	-
54	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
54	4.15	Pollutant release to public sewer	0	0	0	0	-
55	4.16	List 1 Dangerous Substances	0	0	0	0	-
55	4.17	List 2 Dangerous Substances	0	0	0	0	-
55	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	0	1	-
55	4.19	Pollution inventory substances	0	0	0	0	-
56	4.20	Pollution inventory waste transfers	0	0	0	0	-
56	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
57	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
59	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
60	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
61	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
61	5.5	Groundwater vulnerability- local information	None (within 0m)				
62	5.6	<u>Groundwater abstractions</u>	0	0	0	3	1
63	5.7	<u>Surface water abstractions</u>	0	0	0	0	6
65	5.8	Potable abstractions	0	0	0	0	0
65	5.9	Source Protection Zones	0	0	0	0	-
65	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
66	6.1	Water Network (OS MasterMap)	0	0	0	-	-



66	6.2	Surface water features	0	0	0	-	-
67	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
67	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
67	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
69	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
69	7.2	Historical Flood Events	0	0	0	-	-
69	7.3	Flood Defences	0	0	0	-	-
69	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
70	7.5	Flood Storage Areas	0	0	0	-	-
71	7.6	Flood Zone 2	None (within 50m)				
71	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
72	8.1	<u>Surface water flooding</u>	1 in 100 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
74	9.1	<u>Groundwater flooding</u>	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
75	10.1	<u>Sites of Special Scientific Interest (SSSI)</u>	0	0	0	0	1
76	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
76	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
76	10.4	Special Protection Areas (SPA)	0	0	0	0	0
76	10.5	National Nature Reserves (NNR)	0	0	0	0	0
77	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
77	10.7	<u>Designated Ancient Woodland</u>	0	0	0	0	9
77	10.8	Biosphere Reserves	0	0	0	0	0
78	10.9	Forest Parks	0	0	0	0	0
78	10.10	Marine Conservation Zones	0	0	0	0	0
78	10.11	Green Belt	0	0	0	0	0
78	10.12	Proposed Ramsar sites	0	0	0	0	0



78	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
79	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
79	10.15	Nitrate Sensitive Areas	0	0	0	0	0
79	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
80	<u>10.17</u>	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
81	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
82	11.1	World Heritage Sites	0	0	0	-	-
83	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
83	11.3	National Parks	0	0	0	-	-
83	<u>11.4</u>	<u>Listed Buildings</u>	0	0	3	-	-
84	11.5	Conservation Areas	0	0	0	-	-
84	<u>11.6</u>	<u>Scheduled Ancient Monuments</u>	0	0	3	-	-
85	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
86	12.1	Agricultural Land Classification	None (within 250m)				
86	12.2	Open Access Land	0	0	0	-	-
86	12.3	Tree Felling Licences	0	0	0	-	-
86	12.4	Environmental Stewardship Schemes	0	0	0	-	-
87	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
88	13.1	Priority Habitat Inventory	0	0	0	-	-
88	13.2	Habitat Networks	0	0	0	-	-
88	13.3	Open Mosaic Habitat	0	0	0	-	-
88	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
89	<u>14.1</u>	<u>10k Availability</u>	Identified (within 500m)				
90	<u>14.2</u>	<u>Artificial and made ground (10k)</u>	1	0	3	3	-
92	<u>14.3</u>	<u>Superficial geology (10k)</u>	1	1	4	3	-

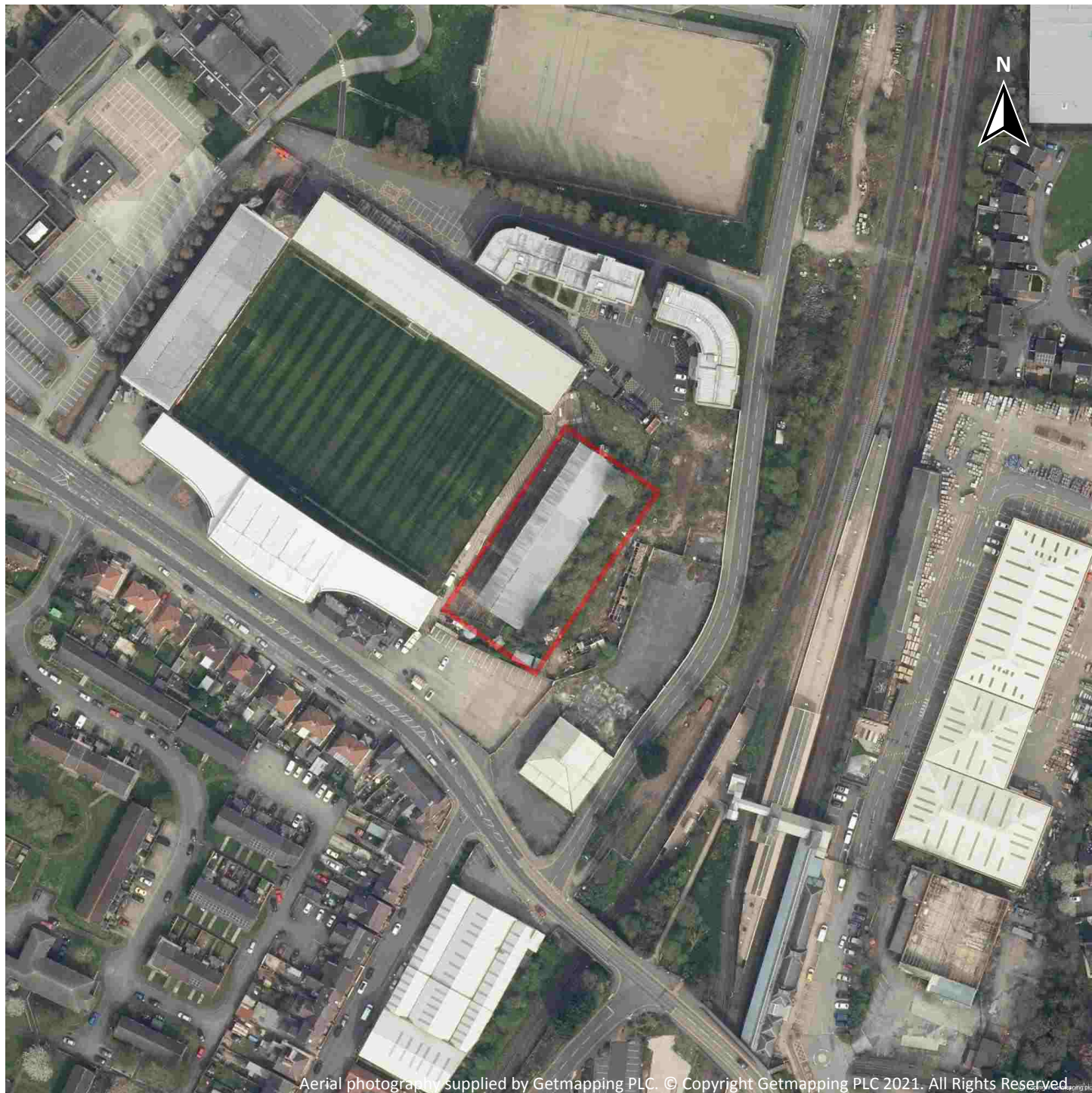


93	14.4	Landslip (10k)	0	0	0	0	-
94	14.5	<u>Bedrock geology (10k)</u>	2	0	1	2	-
95	14.6	<u>Bedrock faults and other linear features (10k)</u>	1	0	0	5	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
96	15.1	<u>50k Availability</u>	Identified (within 500m)				
97	15.2	<u>Artificial and made ground (50k)</u>	0	0	1	3	-
98	15.3	Artificial ground permeability (50k)	0	0	-	-	-
99	15.4	<u>Superficial geology (50k)</u>	1	0	2	3	-
100	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
100	15.6	Landslip (50k)	0	0	0	0	-
100	15.7	Landslip permeability (50k)	None (within 50m)				
101	15.8	<u>Bedrock geology (50k)</u>	2	0	1	2	-
102	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
102	15.10	<u>Bedrock faults and other linear features (50k)</u>	1	0	0	5	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
104	16.1	<u>BGS Boreholes</u>	0	0	15	-	-
Page	Section	Natural ground subsidence					
106	17.1	<u>Shrink swell clays</u>	Negligible (within 50m)				
107	17.2	<u>Running sands</u>	Very low (within 50m)				
108	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
109	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
110	17.5	<u>Landslides</u>	Very low (within 50m)				
111	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
113	18.1	Natural cavities	0	0	0	0	-
114	18.2	BritPits	0	0	0	0	-
114	18.3	<u>Surface ground workings</u>	3	0	19	-	-
115	18.4	Underground workings	0	0	0	0	0
115	18.5	Historical Mineral Planning Areas	0	0	0	0	-



115	18.6	<u>Non-coal mining</u>	1	0	1	0	1
116	18.7	Mining cavities	0	0	0	0	0
116	18.8	JPB mining areas	None (within 0m)				
116	18.9	<u>Coal mining</u>	Identified (within 0m)				
117	18.10	Brine areas	None (within 0m)				
117	18.11	Gypsum areas	None (within 0m)				
117	18.12	Tin mining	None (within 0m)				
117	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
118	19.1	<u>Radon</u>	Between 3% and 5% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
119	20.1	<u>BGS Estimated Background Soil Chemistry</u>	2	1	-	-	-
119	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
119	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
120	21.1	Underground railways (London)	0	0	0	-	-
120	21.2	Underground railways (Non-London)	0	0	0	-	-
121	21.3	Railway tunnels	0	0	0	-	-
121	21.4	<u>Historical railway and tunnel features</u>	0	6	73	-	-
124	21.5	Royal Mail tunnels	0	0	0	-	-
124	21.6	Historical railways	0	0	0	-	-
124	21.7	<u>Railways</u>	0	0	27	-	-
126	21.8	Crossrail 1	0	0	0	0	-
126	21.9	Crossrail 2	0	0	0	0	-
126	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 10/04/2020

Site Area: 0.31ha



Recent site history - 2017 aerial photograph

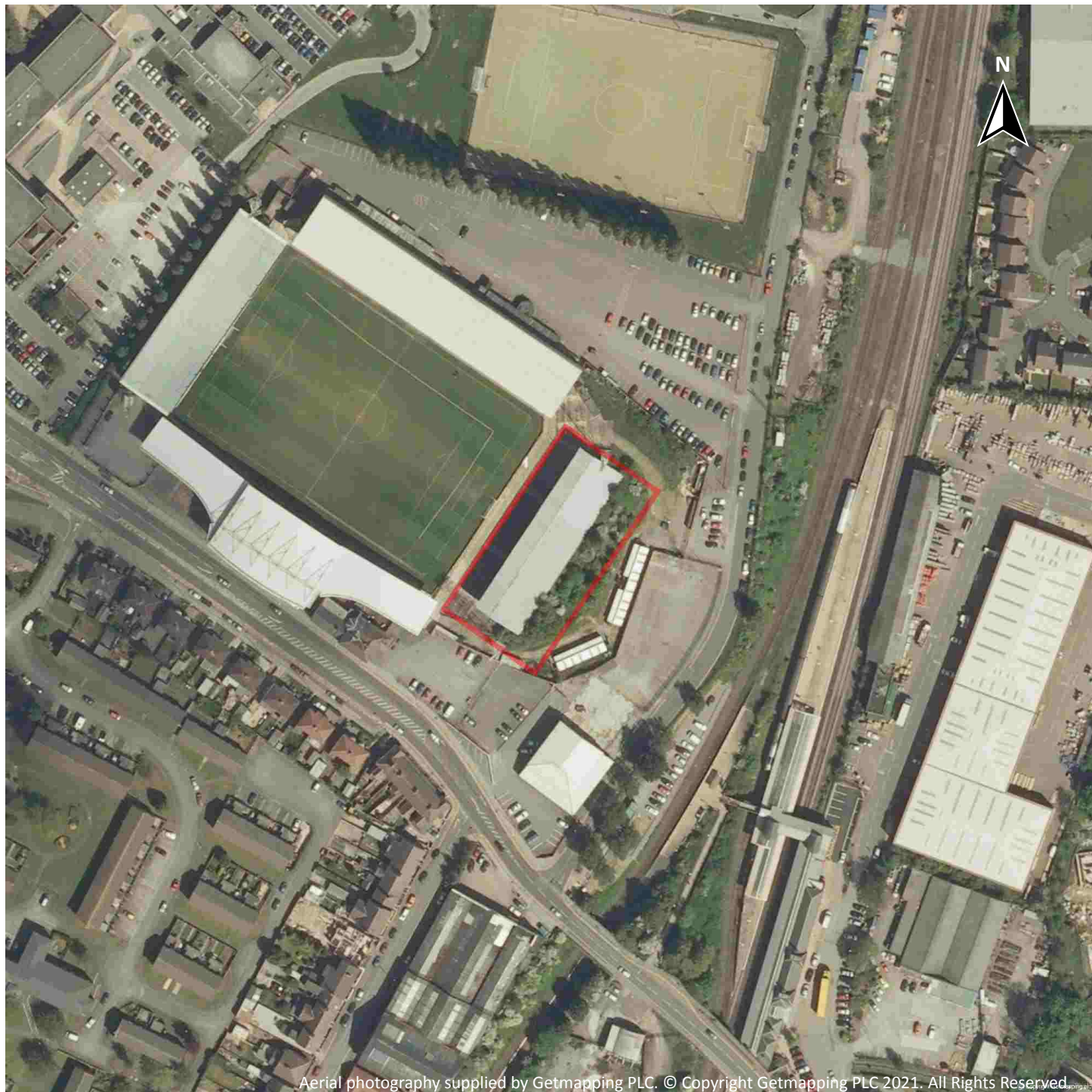


Capture Date: 07/05/2017

Site Area: 0.31ha



Recent site history - 2009 aerial photograph



Capture Date: 01/06/2009

Site Area: 0.31ha



Recent site history - 2003 aerial photograph



Capture Date: 04/08/2003

Site Area: 0.31ha



Recent site history - 2000 aerial photograph



Capture Date: 04/09/2000

Site Area: 0.31ha



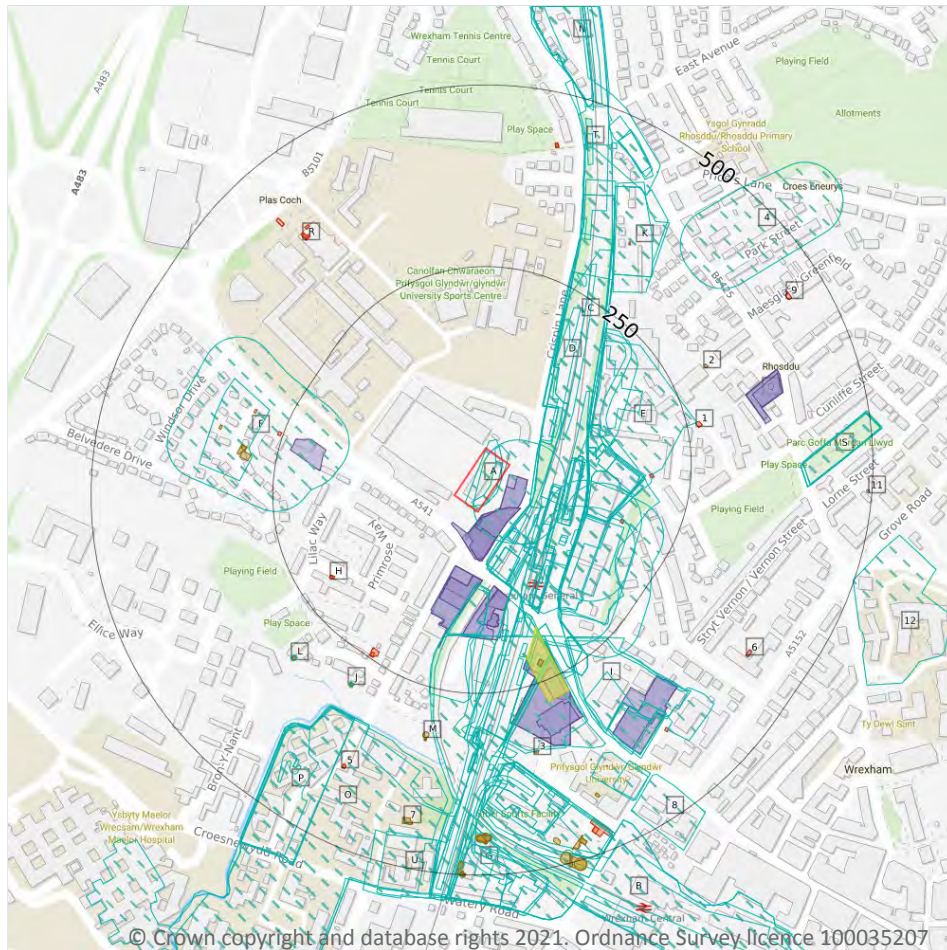
OS MasterMap site plan



Site Area: 0.31ha



1 Past land use



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

1.1 Historical industrial land uses

Records within 500m

166

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

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

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Heap	1964	802682



ID	Location	Land use	Dates present	Group ID
A	On site	Drill Shed	1898	835893
A	On site	Unspecified Ground Workings	1974 - 1980	944414
A	35m E	Railway Sidings	1974	867342
A	35m E	Railway Sidings	1980	949527
A	38m E	Railway Sidings	1938	903601
A	38m E	Railway Sidings	1985 - 1989	916078
A	38m E	Railway Sidings	1992	926994
A	48m SE	Railway Station	1909	903976
A	51m SE	Railway Station	1974 - 1980	928764
B	52m E	Railway Sidings	1964	871251
A	53m SE	Railway Station	1949	941841
A	53m SE	Railway Station	1938	863432
A	54m E	Railway Sidings	1872 - 1898	855994
C	54m E	Railway Sidings	1938 - 1949	974501
A	55m NE	Railway Building	1992	819225
A	62m SE	Cuttings	1980	947182
A	62m SE	Cuttings	1964	952799
A	62m SE	Cuttings	1974	860195
A	65m SE	Railway Station	1938	918607
A	65m SE	Railway Station	1909	966105
A	67m SE	Railway Station	1938 - 1949	902468
D	67m NE	Railway Sidings	1909	886155
A	67m SE	Railway Station	1964	919393
A	68m SE	Railway Station	1872	970266
A	74m SE	Sawmill	1949	900445
D	78m NE	Railway Sidings	1909	873079
A	80m E	Railway Building	1964	867123
A	81m E	Railway Sidings	1909	927430



ID	Location	Land use	Dates present	Group ID
A	81m E	Railway Building	1985 - 1992	866553
A	81m E	Unspecified Commercial/Industrial	1974 - 1980	984214
A	83m SE	Railway Station	1974 - 1992	930339
A	84m SE	Steam Saw Mill	1898	821936
A	86m E	Goods Shed	1872 - 1898	976793
A	86m E	Railway Building	1938	979053
A	88m E	Railway Building	1938 - 1949	856228
A	96m SE	Sawmill	1872	871448
E	98m E	Unspecified Depot	1992	818105
B	98m S	Cuttings	1938	937537
B	101m S	Cuttings	1938	889732
B	105m S	Cuttings	1949 - 1964	870088
A	105m SE	Railway Station	1898	864343
A	107m E	Unspecified Works	1964	865668
A	108m E	Iron Works	1898	846385
A	108m E	Iron Works	1938 - 1949	960735
A	108m E	Unspecified Works	1974 - 1980	905220
A	109m E	Iron Works	1938	949544
A	109m E	Sawmill	1909	978162
A	114m SE	Railway Building	1992	889508
A	114m SE	Railway Building	1974 - 1985	977169
A	115m E	Iron Works	1909	957206
A	120m SE	Railway Station	1872	895329
E	120m NE	Unspecified Works	1964	829778
A	121m SE	Timber Yard	1872	796269
A	122m SE	Unspecified Commercial/Industrial	1974 - 1980	971976
E	126m NE	Unspecified Commercial/Industrial	1974 - 1980	894771
B	129m S	Railway Sidings	1992	904541



ID	Location	Land use	Dates present	Group ID
A	132m SE	Railway Building	1898	819232
E	136m E	Unspecified Ground Workings	1909	799091
B	146m SE	Railway Station	1938	822848
A	146m SE	Unspecified Factory	1992	821298
D	146m NE	Unspecified Heap	1872	802681
B	150m SE	Railway Building	1938	987931
B	157m S	Railway Sidings	1872	865226
F	158m W	Omnibus Depot	1949	809627
B	166m S	Railway Building	1974 - 1985	982659
B	170m S	Unspecified Ground Workings	1898	799086
G	170m S	Railway Sidings	1938 - 1949	955462
G	170m S	Railway Sidings	1898	958574
B	172m S	Unspecified Pit	1938 - 1949	957778
B	192m S	Railway Building	1938	819228
B	200m SE	Railway Building	1938	819231
B	206m S	Railway Sidings	1910	872860
B	209m S	Railway Sidings	1910	927936
B	210m S	Railway Building	1872	819229
I	212m SE	Nursery	1938 - 1949	882346
I	212m SE	Nursery	1898	940141
I	214m SE	Nursery	1910	869695
B	219m SE	Nursery	1872	948013
B	221m SE	Railway Building	1938	819230
B	221m SE	Nursery	1898 - 1910	964101
C	260m NE	Unspecified Heap	1872	802680
K	277m NE	Unspecified Depot	1992	877379
F	280m NW	Bus Depot	1974 - 1992	960120
I	283m SE	Nursery	1938	943824



ID	Location	Land use	Dates present	Group ID
J	290m SW	Unspecified Tank	1938 - 1949	847520
J	292m SW	Unspecified Tank	1938	963646
J	294m SW	Unspecified Tank	1910	967478
B	294m S	Railway Building	1872	819244
B	295m S	Railway Building	1974 - 1985	947188
K	297m NE	Unspecified Depot	1980	904866
K	297m NE	Unspecified Depot	1974	948405
B	297m S	Railway Building	1872	871704
B	302m S	Railway Buildings	1938	833432
B	302m S	Railway Building	1898	930221
B	302m S	Railway Building	1938 - 1949	987802
B	303m S	Railway Building	1910	895911
L	310m SW	Unspecified Tank	1938 - 1949	846203
L	311m SW	Unspecified Tank	1910 - 1938	857537
N	318m NE	Railway Sidings	1872 - 1909	881993
I	329m SE	Unspecified Works	1964	829777
I	329m SE	Unspecified Commercial/Industrial	1974 - 1980	901493
O	330m SW	Hospital	1964	969451
O	330m SW	General Hospital	1985 - 1992	973163
P	331m SW	General Hospital	1949	956398
P	331m SW	Fever Hospital	1938	973847
B	332m S	Railway Building	1938 - 1949	971910
O	332m SW	Hospital	1974 - 1980	850793
B	334m S	Railway Building	1898	986643
B	335m S	Railway Building	1910	923858
P	336m SW	Fever Hospital	1938	986721
B	347m S	Railway Building	1938	819239
G	348m S	Brewery	1992	895690



ID	Location	Land use	Dates present	Group ID
G	348m S	Beer Works	1898	938416
G	348m S	Beer Works	1938 - 1949	955802
G	348m S	Brewery	1964	900985
G	350m S	Beer Works	1910 - 1938	937529
G	353m S	Brewery	1974 - 1989	908374
4	364m NE	Rope Walk	1872	794185
B	364m S	Railway Sidings	1910	963543
G	374m SE	Infirmary	1910	867506
P	376m SW	Fever Hospital	1898 - 1910	920341
B	398m S	Railway Building	1938	819256
S	400m E	Cemetery	1872	843657
S	400m E	Disused Cemetery	1938 - 1949	863896
S	400m E	Disused Cemetery	1898	988441
G	401m SE	Infirmary	1872 - 1898	958933
B	402m S	Railway Building	1964	819240
S	403m E	Disused Cemetery	1938	862324
S	404m E	Disused Cemetery	1909	962469
N	414m NE	Railway Sidings	1964	928424
T	415m N	Carriage Shed	1872	822991
B	416m S	Corn Mill	1872	823100
B	417m S	Unspecified Mill	1938 - 1949	873543
P	418m SW	Unspecified Ground Workings	1910	799085
P	421m SW	Filter Bed	1910	797126
G	424m S	Unspecified Pit	1964	838965
B	428m S	Unspecified Works	1964	976136
T	430m NE	Cuttings	1872	936088
T	433m NE	Cuttings	1909 - 1949	891001
T	435m NE	Cuttings	1938	971848



ID	Location	Land use	Dates present	Group ID
8	435m SE	Barracks	1872	843594
T	438m N	Railway Building	1964	819222
B	439m S	Unspecified Works	1974 - 1980	894500
B	441m S	Unspecified Tanks	1992	814892
B	442m S	Unspecified Works	1985 - 1989	898719
B	444m S	Unspecified Tank	1938	846376
B	446m S	Unspecified Tank	1974 - 1989	906906
B	447m S	Unspecified Mill	1898	959707
T	447m NE	Railway Building	1872	819221
U	455m S	Unspecified Workhouse	1872 - 1898	915846
U	456m S	Union Workhouse	1910	832195
B	457m S	Unspecified Commercial/Industrial	1910	796412
B	457m S	Railway Building	1938	819243
10	461m S	Railway Sidings	1910	882628
G	464m S	Railway Sidings	1910	982230
G	481m S	Unspecified Tanks	1992	814891
N	488m N	Locomotive Works	1898	939580
N	490m N	Railway Sidings	1938	967219
N	491m N	Unspecified Commercial/Industrial	1938	796398
N	491m N	Locomotive Works	1949	983889
N	498m N	Railway Sidings	1909	903995
B	498m S	Unspecified Mill	1938	921029
12	499m E	Hospital	1964 - 1989	887257
N	499m N	Locomotive Works	1909	871319
B	499m S	Unspecified Mill	1910	909204

This data is sourced from Ordnance Survey / Groundsure.



1.2 Historical tanks

Records within 500m

40

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

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

ID	Location	Land use	Dates present	Group ID
B	220m SE	Oil Tanks	1912	108726
F	286m W	Tanks	1970 - 1989	129862
J	293m SW	Unspecified Tank	1912	109497
F	293m W	Tanks	1989 - 1992	130721
F	294m W	Tanks	1970 - 1988	133323
F	295m NW	Unspecified Tank	1957 - 1958	123359
2	300m NE	Tanks	1973 - 1990	138030
M	311m S	Unspecified Tank	1970 - 1978	124399
L	312m SW	Unspecified Tank	1912	109496
M	320m S	Unspecified Tank	1978	128684
M	321m S	Unspecified Tank	1970	147693
F	333m W	Unspecified Tank	1957 - 1958	131994
3	339m S	Tanks	1989 - 1992	137696
K	343m NE	Unspecified Tank	1973	132497
K	343m NE	Unspecified Tank	1990	148181
G	374m SE	Pump and Tank	1874	120597
G	392m SE	Pump and Tank	1874	120596
G	420m SE	Unspecified Tank	1990	109505
7	432m S	Tanks	1989 - 1996	123683
B	442m S	Tanks	1989	129408
B	442m S	Unspecified Tank	1957 - 1970	132334



ID	Location	Land use	Dates present	Group ID
B	445m S	Tanks	1996	128983
B	445m S	Tanks	1989	143501
B	445m S	Tanks	1989	133106
B	445m S	Tanks	1970 - 1989	125574
B	454m S	Tanks	1989	126802
B	455m S	Tanks	1989	130982
G	461m S	Tanks	1963 - 1996	130424
G	468m S	Tanks	1996 - 1999	141527
G	471m S	Tanks	1990	147660
B	482m S	Tanks	1996	138655
G	484m S	Unspecified Tank	1989 - 1996	127943
G	489m S	Tanks	1996 - 1999	140077
G	489m S	Tanks	1990	126381
11	493m E	Unspecified Tank	1912	109504
B	496m S	Tanks	1989	149393
G	497m S	Tanks	1990	143248
B	497m S	Tanks	1989	141735
B	498m S	Tanks	1989	123467
B	498m S	Tanks	1970	133861

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

21

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

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



ID	Location	Land use	Dates present	Group ID
A	171m SE	Electricity Substation	1968 - 1990	71092
A	193m E	Electricity Substation	1988 - 1990	79141
H	199m SW	Electricity Substation	1978 - 1992	83383
H	201m SW	Electricity Substation	1989	73660
B	223m S	Electricity Substation	1989 - 1992	73196
J	236m SW	Electricity Substation	1970 - 1989	72796
J	241m SW	Electricity Substation	1992	77496
F	253m W	Electricity Substation	1968 - 1994	64747
1	262m E	Electricity Substation	1973 - 1990	71372
R	378m NW	Electricity Substation	1994	72295
R	379m NW	Electricity Substation	1968 - 1988	67167
R	389m NW	Electricity Substation	1992	60082
5	393m SW	Electricity Substation	1989 - 1992	72404
I	394m SE	Electricity Substation	1968 - 1990	72590
R	414m NW	Electricity Substation	1994	68713
6	416m SE	Electricity Substation	1988 - 1990	75740
T	425m N	Electricity Substation	1988	64682
T	425m N	Electricity Substation	1968 - 1994	76726
9	445m NE	Electricity Substation	1973 - 1990	74043
G	450m S	Electricity Substation	1958 - 1968	74154
G	462m S	Electricity Substation	1988	78410

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

1

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



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

ID	Location	Land use	Dates present	Group ID
B	177m SE	Filling Station	1988	1464

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

27

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

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

ID	Location	Land use	Dates present	Group ID
A	7m SE	Garage	1982	23877
A	7m SE	Garage	1970 - 1978	25536
A	8m SE	Garage	1992	22475
A	10m SE	Garage	1958	22868
A	12m SE	Garage	1957	23496
A	20m S	Garage	1989	23588
B	80m S	Garage	1978 - 1988	27806
B	80m SW	Garage	1970 - 1989	25997
B	88m S	Garage	1992	20839
B	88m S	Garage	1989 - 1992	25791
B	104m S	Garage	1978 - 1988	26955
B	105m S	Garage	1970	22784
B	110m S	Garage	1989 - 1992	25716
B	111m S	Garage	1957	20824
B	141m S	Garage	1958	22372
F	187m W	Garage	1970 - 1988	27645



ID	Location	Land use	Dates present	Group ID
B	188m SE	Garage	1970 - 1978	24804
B	192m SE	Garage	1978 - 1982	24409
B	213m S	Garage	1957 - 1988	25128
B	237m SE	Garage	1958	20670
B	280m SE	Garage	1968	24150
B	285m SE	Garage	1958	23497
I	320m SE	Garage	1988	22145
I	334m SE	Garage	1968	27338
Q	338m E	Garage	1958 - 1990	26007
Q	339m E	Garage	1973	21402
Q	348m E	Garage	1958	21311

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

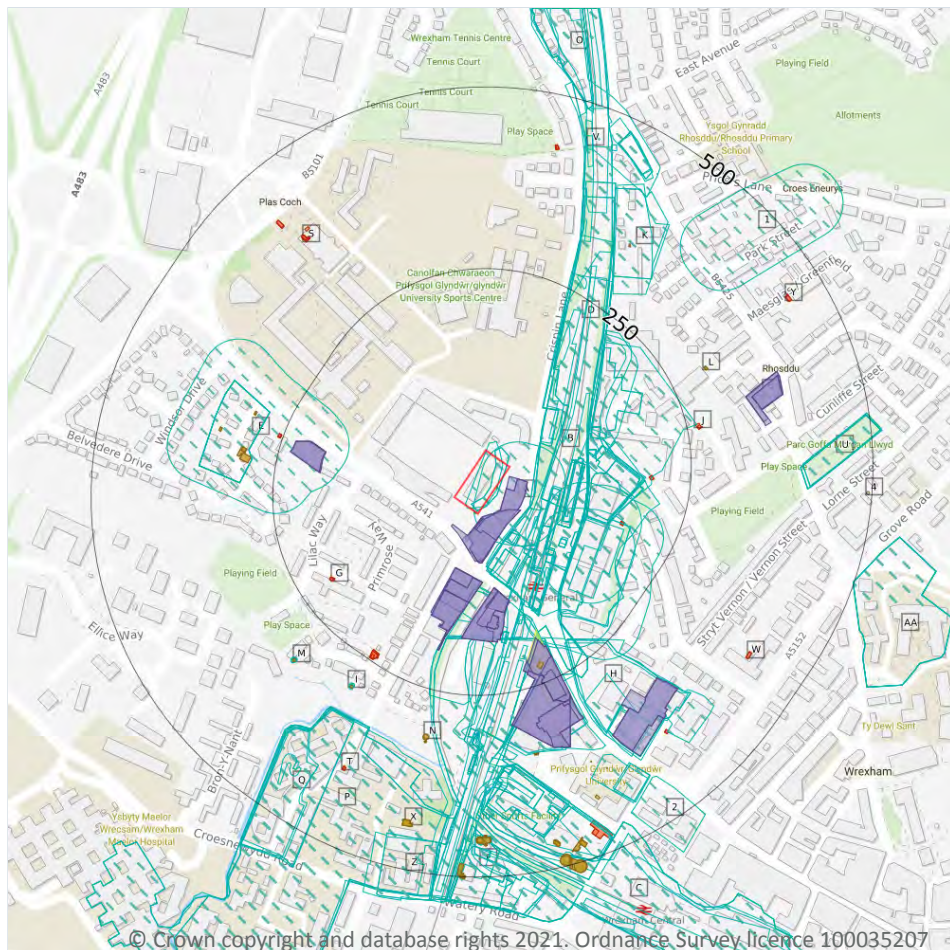
Records within 500m

0

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

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

2 Past land use - un-grouped



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

2.1 Historical industrial land uses

Records within 500m

234

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 26**

ID	Location	Land Use	Date	Group ID
A	On site	Drill Shed	1898	835893
A	On site	Unspecified Ground Workings	1980	944414
A	On site	Unspecified Ground Workings	1974	944414



ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Heap	1964	802682
A	35m E	Railway Sidings	1980	949527
A	35m E	Railway Sidings	1974	867342
B	38m E	Railway Sidings	1938	903601
A	38m E	Railway Sidings	1989	916078
A	38m E	Railway Sidings	1992	926994
A	38m E	Railway Sidings	1985	916078
A	48m SE	Railway Station	1909	903976
A	51m SE	Railway Station	1980	928764
A	51m SE	Railway Station	1974	928764
C	52m E	Railway Sidings	1964	871251
A	53m SE	Railway Station	1949	941841
A	53m SE	Railway Station	1938	863432
B	54m E	Railway Sidings	1898	855994
D	54m E	Railway Sidings	1938	974501
D	54m E	Railway Sidings	1949	974501
B	55m NE	Railway Building	1992	819225
A	55m E	Railway Sidings	1872	855994
A	62m SE	Cuttings	1980	947182
A	62m SE	Cuttings	1964	952799
A	62m SE	Cuttings	1974	860195
A	65m SE	Railway Station	1938	918607
A	65m SE	Railway Station	1909	966105
A	67m SE	Railway Station	1938	902468
A	67m SE	Railway Station	1949	902468
B	67m NE	Railway Sidings	1909	886155
A	67m SE	Railway Station	1964	919393
A	68m SE	Railway Station	1872	970266



ID	Location	Land Use	Date	Group ID
A	74m SE	Sawmill	1949	900445
B	78m NE	Railway Sidings	1909	873079
A	80m E	Railway Building	1964	867123
A	81m E	Railway Sidings	1909	927430
A	81m E	Railway Building	1989	866553
A	81m E	Railway Building	1992	866553
A	81m E	Unspecified Commercial/Industrial	1980	984214
A	81m E	Unspecified Commercial/Industrial	1974	984214
A	81m E	Railway Building	1985	866553
A	83m SE	Railway Station	1989	930339
A	83m SE	Railway Station	1992	930339
A	83m SE	Railway Station	1980	930339
A	83m SE	Railway Station	1974	930339
A	83m SE	Railway Station	1985	930339
A	84m SE	Steam Saw Mill	1898	821936
A	86m E	Goods Shed	1898	976793
A	86m E	Goods Shed	1872	976793
A	86m E	Railway Building	1938	979053
A	88m E	Railway Building	1938	856228
A	88m E	Railway Building	1949	856228
A	96m SE	Sawmill	1872	871448
B	98m E	Unspecified Depot	1992	818105
C	98m S	Cuttings	1938	937537
C	101m S	Cuttings	1938	889732
C	105m S	Cuttings	1949	870088
A	105m SE	Railway Station	1898	864343
A	107m E	Unspecified Works	1964	865668
A	108m E	Iron Works	1938	960735



ID	Location	Land Use	Date	Group ID
A	108m E	Iron Works	1949	960735
A	108m E	Iron Works	1898	846385
A	108m E	Unspecified Works	1980	905220
A	108m E	Unspecified Works	1974	905220
A	109m E	Iron Works	1938	949544
A	109m E	Sawmill	1909	978162
A	114m SE	Railway Building	1992	889508
A	114m SE	Railway Building	1980	977169
A	114m SE	Railway Building	1974	977169
A	114m SE	Railway Building	1985	977169
A	115m E	Iron Works	1909	957206
A	120m SE	Railway Station	1872	895329
B	120m NE	Unspecified Works	1964	829778
A	121m SE	Timber Yard	1872	796269
A	122m SE	Unspecified Commercial/Industrial	1980	971976
A	122m SE	Unspecified Commercial/Industrial	1974	971976
B	126m NE	Unspecified Commercial/Industrial	1980	894771
B	126m NE	Unspecified Commercial/Industrial	1974	894771
C	129m S	Railway Sidings	1992	904541
A	132m SE	Railway Building	1898	819232
B	136m E	Unspecified Ground Workings	1909	799091
C	136m S	Cuttings	1964	870088
C	146m SE	Railway Station	1938	822848
A	146m SE	Unspecified Factory	1992	821298
B	146m NE	Unspecified Heap	1872	802681
C	150m SE	Railway Building	1938	987931
C	151m SE	Railway Building	1938	987931
C	157m S	Railway Sidings	1872	865226

ID	Location	Land Use	Date	Group ID
E	158m W	Omnibus Depot	1949	809627
C	166m S	Railway Building	1980	982659
C	166m S	Railway Building	1974	982659
C	166m S	Railway Building	1985	982659
C	170m S	Unspecified Ground Workings	1898	799086
F	170m S	Railway Sidings	1938	955462
F	170m S	Railway Sidings	1949	955462
F	170m S	Railway Sidings	1898	958574
C	172m S	Unspecified Pit	1938	957778
C	172m S	Unspecified Pit	1949	957778
F	172m S	Railway Sidings	1938	955462
C	192m S	Railway Building	1938	819228
C	200m SE	Railway Building	1938	819231
C	206m S	Railway Sidings	1910	872860
C	209m S	Railway Sidings	1910	927936
C	210m S	Railway Building	1872	819229
H	212m SE	Nursery	1938	882346
H	212m SE	Nursery	1949	882346
H	212m SE	Nursery	1898	940141
H	214m SE	Nursery	1910	869695
C	219m SE	Nursery	1872	948013
C	221m SE	Nursery	1910	964101
C	221m SE	Railway Building	1938	819230
C	223m SE	Nursery	1898	964101
D	260m NE	Unspecified Heap	1872	802680
K	277m NE	Unspecified Depot	1992	877379
E	280m NW	Bus Depot	1989	960120
E	280m NW	Bus Depot	1992	960120



ID	Location	Land Use	Date	Group ID
E	280m NW	Bus Depot	1980	960120
E	280m NW	Bus Depot	1974	960120
E	280m NW	Bus Depot	1985	960120
H	283m SE	Nursery	1938	943824
I	290m SW	Unspecified Tank	1938	847520
I	290m SW	Unspecified Tank	1949	847520
I	292m SW	Unspecified Tank	1938	963646
I	294m SW	Unspecified Tank	1910	967478
C	294m S	Railway Building	1872	819244
C	295m S	Railway Building	1980	947188
C	295m S	Railway Building	1974	947188
C	295m S	Railway Building	1985	947188
K	297m NE	Unspecified Depot	1980	904866
K	297m NE	Unspecified Depot	1974	948405
C	297m S	Railway Building	1872	871704
C	302m S	Railway Building	1938	987802
C	302m S	Railway Building	1949	987802
C	302m S	Railway Building	1898	930221
C	302m S	Railway Buildings	1938	833432
C	303m S	Railway Building	1910	895911
M	310m SW	Unspecified Tank	1938	846203
M	310m SW	Unspecified Tank	1949	846203
M	311m SW	Unspecified Tank	1938	857537
M	314m SW	Unspecified Tank	1910	857537
O	318m NE	Railway Sidings	1909	881993
H	329m SE	Unspecified Commercial/Industrial	1980	901493
H	329m SE	Unspecified Commercial/Industrial	1974	901493
H	329m SE	Unspecified Works	1964	829777

ID	Location	Land Use	Date	Group ID
P	330m SW	Hospital	1964	969451
P	330m SW	General Hospital	1989	973163
P	330m SW	General Hospital	1992	973163
P	330m SW	General Hospital	1985	973163
Q	331m SW	Fever Hospital	1938	973847
Q	331m SW	General Hospital	1949	956398
C	332m S	Railway Building	1938	971910
C	332m S	Railway Building	1949	971910
P	332m SW	Hospital	1980	850793
P	332m SW	Hospital	1974	850793
C	334m S	Railway Building	1898	986643
C	335m S	Railway Building	1910	923858
Q	336m SW	Fever Hospital	1938	986721
C	347m S	Railway Building	1938	819239
F	348m S	Brewery	1992	895690
F	348m S	Beer Works	1938	955802
F	348m S	Beer Works	1949	955802
F	348m S	Beer Works	1898	938416
F	348m S	Brewery	1964	900985
F	350m S	Beer Works	1938	937529
F	350m S	Beer Works	1910	937529
F	353m S	Brewery	1989	908374
F	353m S	Brewery	1980	908374
F	353m S	Brewery	1974	908374
F	353m S	Brewery	1985	908374
O	357m NE	Railway Sidings	1872	881993
1	364m NE	Rope Walk	1872	794185
C	364m S	Railway Sidings	1910	963543



ID	Location	Land Use	Date	Group ID
F	374m SE	Infirmary	1910	867506
Q	376m SW	Fever Hospital	1898	920341
Q	380m SW	Fever Hospital	1910	920341
C	398m S	Railway Building	1938	819256
U	400m E	Disused Cemetery	1938	863896
U	400m E	Disused Cemetery	1949	863896
U	400m E	Disused Cemetery	1898	988441
U	400m E	Cemetery	1872	843657
F	401m SE	Infirmary	1872	958933
C	402m S	Railway Building	1964	819240
F	403m SE	Infirmary	1898	958933
U	403m E	Disused Cemetery	1938	862324
U	404m E	Disused Cemetery	1909	962469
O	414m NE	Railway Sidings	1964	928424
V	415m N	Carriage Shed	1872	822991
C	416m S	Corn Mill	1872	823100
C	417m S	Unspecified Mill	1938	873543
C	417m S	Unspecified Mill	1949	873543
Q	418m SW	Unspecified Ground Workings	1910	799085
Q	421m SW	Filter Bed	1910	797126
F	424m S	Unspecified Pit	1964	838965
C	428m S	Unspecified Works	1964	976136
V	430m NE	Cuttings	1872	936088
V	433m NE	Cuttings	1938	891001
V	433m NE	Cuttings	1949	891001
V	435m NE	Cuttings	1938	971848
2	435m SE	Barracks	1872	843594
V	436m NE	Cuttings	1909	891001



ID	Location	Land Use	Date	Group ID
V	438m N	Railway Building	1964	819222
C	439m S	Unspecified Works	1980	894500
C	439m S	Unspecified Works	1974	894500
C	441m S	Unspecified Tanks	1992	814892
C	442m S	Unspecified Works	1989	898719
C	442m S	Unspecified Works	1985	898719
C	444m S	Unspecified Tank	1938	846376
C	446m S	Unspecified Tank	1989	906906
C	446m S	Unspecified Tank	1980	906906
C	446m S	Unspecified Tank	1974	906906
C	446m S	Unspecified Tank	1985	906906
C	447m S	Unspecified Mill	1898	959707
V	447m NE	Railway Building	1872	819221
Z	455m S	Unspecified Workhouse	1898	915846
Z	455m S	Unspecified Workhouse	1872	915846
Z	456m S	Union Workhouse	1910	832195
C	457m S	Unspecified Commercial/Industrial	1910	796412
C	457m S	Railway Building	1938	819243
3	461m S	Railway Sidings	1910	882628
F	464m S	Railway Sidings	1910	982230
F	481m S	Unspecified Tanks	1992	814891
O	488m N	Railway Sidings	1898	881993
O	488m N	Locomotive Works	1898	939580
O	490m N	Railway Sidings	1938	967219
O	491m N	Unspecified Commercial/Industrial	1938	796398
O	491m N	Locomotive Works	1949	983889
O	498m N	Railway Sidings	1909	903995
C	498m S	Unspecified Mill	1938	921029

ID	Location	Land Use	Date	Group ID
AA	499m E	Hospital	1989	887257
AA	499m E	Hospital	1980	887257
AA	499m E	Hospital	1974	887257
AA	499m E	Hospital	1985	887257
AA	499m E	Hospital	1964	887257
O	499m N	Locomotive Works	1909	871319
C	499m S	Unspecified Mill	1910	909204

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

74

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 26**

ID	Location	Land Use	Date	Group ID
C	220m SE	Oil Tanks	1912	108726
E	286m W	Tanks	1970	129862
E	286m W	Tanks	1989	129862
I	293m SW	Unspecified Tank	1912	109497
E	293m W	Tanks	1989	130721
E	294m W	Tanks	1978	133323
E	294m W	Tanks	1982	133323
E	294m W	Tanks	1988	133323
E	294m W	Tanks	1992	130721
E	294m W	Tanks	1970	133323
E	295m NW	Unspecified Tank	1957	123359
E	296m NW	Unspecified Tank	1958	123359
L	300m NE	Tanks	1990	138030



ID	Location	Land Use	Date	Group ID
L	301m NE	Tanks	1973	138030
N	311m S	Unspecified Tank	1978	124399
N	312m S	Unspecified Tank	1970	124399
M	312m SW	Unspecified Tank	1912	109496
N	320m S	Unspecified Tank	1978	128684
N	321m S	Unspecified Tank	1970	147693
E	333m W	Unspecified Tank	1957	131994
E	334m W	Unspecified Tank	1958	131994
C	339m S	Tanks	1989	137696
C	340m S	Tanks	1992	137696
K	343m NE	Unspecified Tank	1973	132497
K	343m NE	Unspecified Tank	1990	148181
F	374m SE	Pump and Tank	1874	120597
F	392m SE	Pump and Tank	1874	120596
F	420m SE	Unspecified Tank	1990	109505
X	432m S	Tanks	1996	123683
X	432m S	Tanks	1996	123683
X	432m S	Tanks	1989	123683
X	433m S	Tanks	1989	123683
X	433m S	Tanks	1989	123683
C	442m S	Unspecified Tank	1958	132334
C	442m S	Tanks	1989	129408
C	443m S	Unspecified Tank	1957	132334
C	443m S	Unspecified Tank	1963	132334
C	443m S	Unspecified Tank	1970	132334
C	443m S	Tanks	1989	129408
C	445m S	Tanks	1996	128983
C	445m S	Tanks	1996	128983



ID	Location	Land Use	Date	Group ID
C	445m S	Tanks	1989	143501
C	445m S	Tanks	1989	133106
C	445m S	Tanks	1970	125574
C	446m S	Tanks	1989	125574
C	454m S	Tanks	1989	126802
C	455m S	Tanks	1989	130982
F	461m S	Tanks	1996	130424
F	461m S	Tanks	1996	130424
F	461m S	Tanks	1989	130424
F	461m S	Tanks	1989	130424
F	462m S	Tanks	1963	130424
F	462m S	Tanks	1970	130424
F	462m S	Tanks	1989	130424
F	468m S	Tanks	1996	141527
F	468m S	Tanks	1999	141527
F	471m S	Tanks	1990	147660
F	471m S	Tanks	1990	147660
C	482m S	Tanks	1996	138655
C	482m S	Tanks	1996	138655
F	484m S	Unspecified Tank	1996	127943
F	484m S	Unspecified Tank	1996	127943
F	485m S	Unspecified Tank	1989	127943
F	489m S	Tanks	1996	140077
F	489m S	Tanks	1999	140077
F	489m S	Tanks	1990	126381
F	489m S	Tanks	1990	126381
4	493m E	Unspecified Tank	1912	109504
C	496m S	Tanks	1989	149393



ID	Location	Land Use	Date	Group ID
F	497m S	Tanks	1990	143248
F	497m S	Tanks	1990	143248
C	497m S	Tanks	1989	141735
C	498m S	Tanks	1989	123467
C	498m S	Tanks	1970	133861

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

55

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 26**

ID	Location	Land Use	Date	Group ID
A	171m SE	Electricity Substation	1990	71092
A	171m SE	Electricity Substation	1988	71092
A	171m SE	Electricity Substation	1968	71092
A	171m SE	Electricity Substation	1968	71092
A	193m E	Electricity Substation	1990	79141
A	193m E	Electricity Substation	1988	79141
G	199m SW	Electricity Substation	1978	83383
G	199m SW	Electricity Substation	1982	83383
G	199m SW	Electricity Substation	1988	83383
G	200m SW	Electricity Substation	1992	83383
G	201m SW	Electricity Substation	1989	73660
C	223m S	Electricity Substation	1989	73196
C	223m S	Electricity Substation	1992	73196
I	236m SW	Electricity Substation	1978	72796
I	236m SW	Electricity Substation	1982	72796



ID	Location	Land Use	Date	Group ID
I	236m SW	Electricity Substation	1988	72796
I	237m SW	Electricity Substation	1970	72796
I	237m SW	Electricity Substation	1989	72796
I	241m SW	Electricity Substation	1992	77496
E	253m W	Electricity Substation	1975	64747
E	253m W	Electricity Substation	1968	64747
E	253m W	Electricity Substation	1994	64747
E	253m W	Electricity Substation	1994	64747
E	253m W	Electricity Substation	1992	64747
E	253m W	Electricity Substation	1994	64747
E	253m W	Electricity Substation	1988	64747
J	262m E	Electricity Substation	1990	71372
J	265m E	Electricity Substation	1973	71372
S	378m NW	Electricity Substation	1994	72295
S	379m NW	Electricity Substation	1975	67167
S	379m NW	Electricity Substation	1968	67167
S	381m NW	Electricity Substation	1988	67167
S	389m NW	Electricity Substation	1992	60082
T	393m SW	Electricity Substation	1989	72404
T	394m SW	Electricity Substation	1992	72404
H	394m SE	Electricity Substation	1990	72590
H	394m SE	Electricity Substation	1988	72590
H	394m SE	Electricity Substation	1968	72590
H	394m SE	Electricity Substation	1968	72590
S	414m NW	Electricity Substation	1994	68713
S	416m NW	Electricity Substation	1994	68713
W	416m SE	Electricity Substation	1990	75740
W	416m SE	Electricity Substation	1988	75740

ID	Location	Land Use	Date	Group ID
V	425m N	Electricity Substation	1988	64682
V	425m N	Electricity Substation	1994	76726
V	425m N	Electricity Substation	1994	76726
V	425m N	Electricity Substation	1992	76726
V	425m N	Electricity Substation	1994	76726
V	425m N	Electricity Substation	1975	76726
V	425m N	Electricity Substation	1968	76726
Y	445m NE	Electricity Substation	1990	74043
Y	446m NE	Electricity Substation	1973	74043
F	450m S	Electricity Substation	1958	74154
F	450m S	Electricity Substation	1968	74154
F	462m S	Electricity Substation	1988	78410

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

1

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'.

Features are displayed on the Past land use - un-grouped map on **page 26**

ID	Location	Land Use	Date	Group ID
C	177m SE	Filling Station	1988	1464

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

47

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'.



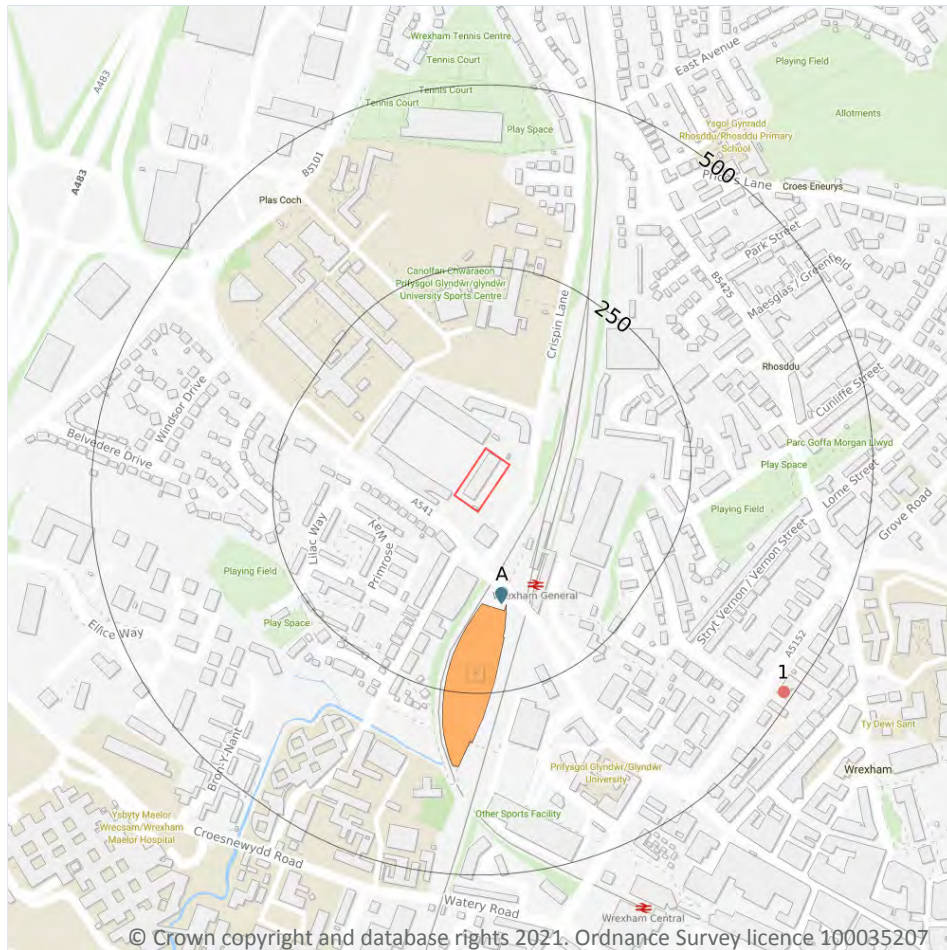
Features are displayed on the Past land use - un-grouped map on **page 26**

ID	Location	Land Use	Date	Group ID
A	7m SE	Garage	1982	23877
A	7m SE	Garage	1970	25536
A	8m SE	Garage	1978	25536
A	8m SE	Garage	1992	22475
A	10m SE	Garage	1958	22868
A	12m SE	Garage	1957	23496
A	20m S	Garage	1989	23588
C	80m S	Garage	1978	27806
C	80m S	Garage	1982	27806
C	80m S	Garage	1988	27806
C	80m SW	Garage	1970	25997
C	88m S	Garage	1992	20839
C	88m S	Garage	1989	25791
C	104m S	Garage	1978	26955
C	104m S	Garage	1982	26955
C	104m S	Garage	1988	26955
C	105m S	Garage	1970	22784
C	110m S	Garage	1992	25716
C	110m S	Garage	1989	25716
C	111m S	Garage	1957	20824
C	114m SW	Garage	1992	25791
C	115m SW	Garage	1989	25997
C	141m S	Garage	1958	22372
E	187m W	Garage	1978	27645
E	187m W	Garage	1982	27645
E	187m W	Garage	1988	27645
C	188m SE	Garage	1970	24804

ID	Location	Land Use	Date	Group ID
E	188m W	Garage	1970	27645
C	192m SE	Garage	1978	24409
C	192m SE	Garage	1982	24409
C	213m S	Garage	1988	25128
C	219m SE	Garage	1957	25128
C	227m S	Garage	1978	24804
C	227m S	Garage	1982	25128
C	237m SE	Garage	1958	20670
C	238m S	Garage	1970	24804
C	280m SE	Garage	1958	25128
C	280m SE	Garage	1968	24150
C	285m SE	Garage	1958	23497
C	285m SE	Garage	1957	25128
H	320m SE	Garage	1988	22145
H	334m SE	Garage	1968	27338
H	334m SE	Garage	1968	27338
R	338m E	Garage	1990	26007
R	339m E	Garage	1973	21402
R	347m E	Garage	1958	26007
R	348m E	Garage	1958	21311

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical waste sites
- Licensed waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m

0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m

0

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

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

3.5 Historical waste sites

Records within 500m

2

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 43**

ID	Location	Address	Further Details	Date
B	126m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1992
B	127m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1988

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

3.6 Licensed waste sites

Records within 500m

6

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

Features are displayed on the Waste and landfill map on **page 43**

ID	Location	Details		
A	118m S	Site Name: Jacques Garage Site Address: Mold Road, Wrexham, Clwyd, LL11 2AD Correspondence Address: -	Type of Site: Metal Recycling Site (Vehicle Dismantler) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JAC001 EPR reference: LP3194FV/V002 Operator: Jacques Garage Waste Management licence No: 37037 Annual Tonnage: 5000	Issue Date: 29/09/1992 Effective Date: - Modified: 30/11/2001 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Expired
A	119m S	Site Name: - Site Address: Jacques Garage, Wrexham, Wrexham, LL11 2AD Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: LP3194FV EPR reference: - Operator: Jacques Garage Waste Management licence No: 0 Annual Tonnage: 5000	Issue Date: 29/09/1992 Effective Date: 29/09/1992 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired
A	119m S	Site Name: - Site Address: Jacques Garage, Wrexham, Clwyd, LL11 2AD Correspondence Address: -	Type of Site: Metal Recycling Site (Vehicle Dismantler) Size: - Environmental Permitting Regulations (Waste) Licence Number: LP3194FV EPR reference: - Operator: Jacques Garage Waste Management licence No: 37037 Annual Tonnage: 5000	Issue Date: 29/09/1992 Effective Date: 29/09/1992 Modified: - Surrendered Date: - Expiry Date: 24/04/2007 Cancelled Date: - Status: Expired



ID	Location	Details		
A	119m S	Site Name: - Site Address: Jacques Garage, Wrexham, Clwyd, LL11 2AD Correspondence Address: -	Type of Site: Metal Recycling Site (Vehicle Dismantler) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: LP3194FV EPR reference: - Operator: - Waste Management licence No: 37037 Annual Tonnage: 5000	Issue Date: 29/09/1992 Effective Date: 29/09/1992 Modified: - Surrendered Date: - Expiry Date: 24/04/2007 Cancelled Date: - Status: Expired
A	119m S	Site Name: - Site Address: Jacques Garage, Wrexham, Clwyd, LL11 2AD Correspondence Address: -	Type of Site: Metal Recycling Site (Vehicle Dismantler) Size: - Environmental Permitting Regulations (Waste) Licence Number: LP3194FV EPR reference: - Operator: Jacques Garage Waste Management licence No: 37037 Annual Tonnage: 5000	Issue Date: 29/09/1992 Effective Date: 29/09/1992 Modified: - Surrendered Date: - Expiry Date: 24/04/2007 Cancelled Date: - Status: Expired
A	119m S	Site Name: - Site Address: Jacques Garage, Clwyd, Wrexham, Wrexham, LL11 2AD Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: LP3194FV EPR reference: - Operator: Jacques Garage Waste Management licence No: 37037 Annual Tonnage: 5000	Issue Date: 29/09/1992 Effective Date: 29/09/1992 Modified: - Surrendered Date: - Expiry Date: 24/04/2007 Cancelled Date: - Status: Expired

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 43**

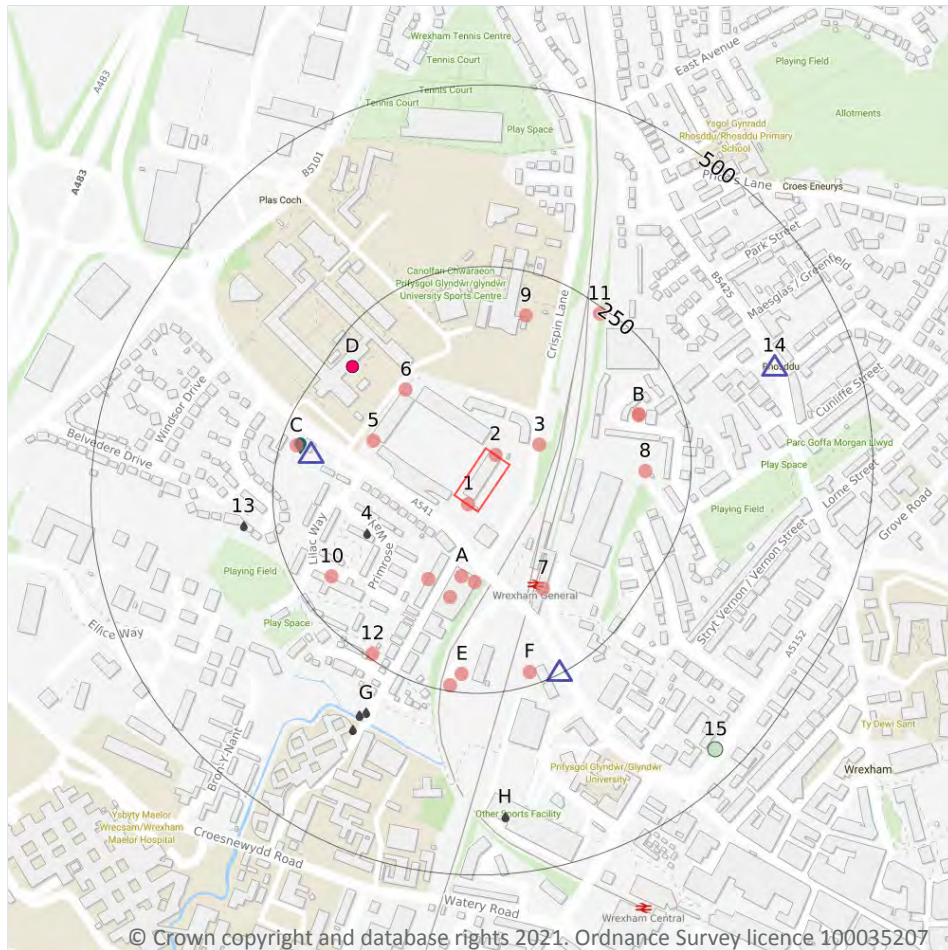


ID	Location	Site	Reference	Category	Sub-Category	Description
1	488m SE	16, GROSVENOR ROAD, WREXHAM, LL11 1BU	WEX161147	Treating waste exemption	Not on a Farm	Sorting and de-naturing of controlled drugs for disposal

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Licensed pollutant release (Part A(2)/B)
- Radioactive Substance Authorisations
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

21

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 48**

ID	Location	Company	Address	Activity	Category
1	On site	Pylon	Clwyd, LL11	Electrical Features	Infrastructure and Facilities
2	1m NE	Pylon	Clwyd, LL11	Electrical Features	Infrastructure and Facilities
3	50m NE	Mast	Clwyd, LL11	Telecommunications Features	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
A	91m S	Kwik-Fit (GB) Limited	Watery Road, Wrexham, Clwyd, LL13 7SY	Vehicle Repair, Testing and Servicing	Repair and Servicing
A	96m S	ATS Euromaster Ltd	Dave Bennet Car Repairs Maesgwyn Garage, Mold Road, Wrexham, Clwyd, LL11 2AD	Vehicle Parts and Accessories	Motoring
A	116m SW	G F S Blinds	1 THE PAVILION, MAESGWYN ROAD, Wrexham, Clwyd, LL11 2AR	Curtains and Blinds	Consumer Products
A	123m S	B D Performance	Unit B, Maesgwyn Road, Wrexham, Clwyd, LL11 2AP	Vehicle Repair, Testing and Servicing	Repair and Servicing
5	135m NW	Pylon	Clwyd, LL11	Electrical Features	Infrastructure and Facilities
6	136m NW	Pylon	Clwyd, LL11	Electrical Features	Infrastructure and Facilities
7	138m SE	Wrexham General Rail Station	Clwyd, LL11	Railway Stations, Junctions and Halts	Public Transport, Stations and Infrastructure
8	187m E	Electricity Sub Station	Clwyd, LL11	Electrical Features	Infrastructure and Facilities
B	190m E	Pumping Station	Clwyd, LL11	Water Pumping Stations	Industrial Features
9	191m N	Chimney	Clwyd, LL11	Chimneys	Industrial Features
B	191m E	Sewage Pumping Station	Clwyd, LL11	Waste Storage, Processing and Disposal	Infrastructure and Facilities
10	202m SW	Electricity Sub Station	Clwyd, LL11	Electrical Features	Infrastructure and Facilities
E	224m S	Electricity Sub Station	Clwyd, LL11	Electrical Features	Infrastructure and Facilities
C	228m W	Shell Service Station	Mold Road, Wrexham, Clwyd, LL11 2AF	Petrol and Fuel Stations	Road and Rail
F	231m S	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
11	241m NE	Mast	Clwyd, LL11	Telecommunications Features	Infrastructure and Facilities
E	242m S	Sewage Pumping Station	Clwyd, LL11	Waste Storage, Processing and Disposal	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
12	243m SW	Electricity Sub Station	Clwyd, LL11	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	3
----------------------------	----------

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 48**

ID	Location	Company	Address	LPG	Status
C	207m W	SHELL	Mold Road, Wrexham, Wrexham, LL11 2AF	No	Open
F	245m SE	OBSOLETE	Regent Street, Wrexham, Wrexham, LL11 1PF	Not Applicable	Obsolete
14	389m E	OBSOLETE	Rhosddu Road, Wrexham, Wrexham, LL11 2NW	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0
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High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0
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High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0
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Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m**0**

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m**0**

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

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

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

Records within 500m

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 48**

ID	Location	Address	Details	
C	223m W	Shell UK Ltd, Mold Road, Wrexham, LL11 2AF	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

3

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

Features are displayed on the Current industrial land use map on **page 48**

ID	Location	Address	Details	
D	215m NW	Glyndwr University, Multidisciplinary Research And Innovation Centre,north East Wales Institute,plas Coch, Wrexham, Clwyd, LL11 2AW	Operator: Glyndwr University Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: AW1209 Date of approval: 21/01/1997	Effective from: 21/01/1997 Last date of update: 01/01/2015 Status: Revoked/cancelled
D	215m NW	Glyndwr University, Multidisciplinary Research And Innovation Centre, North East Wales Institute, Plas Coch, Wrexham, Clwyd, LL11 2AW	Operator: Glyndwr University Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AW1233 Date of approval: 15/01/1997	Effective from: 21/01/1997 Last date of update: 01/01/2015 Status: Superseded By Variation
D	215m NW	Glyndwr University, Multidisciplinary Research And Innovation Centre, North East Wales Institute, Plas Coch, Wrexham, Clwyd, LL11 2AW	Operator: Glyndwr University Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AW1233 Date of approval: 01/12/2003	Effective from: 01/01/2004 Last date of update: 01/01/2015 Status: Revoked/cancelled

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



4.13 Licensed Discharges to controlled waters

Records within 500m

11

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 48**

ID	Location	Address	Details	
4	131m SW	WREXHAM MOLD ROAD DEPOT, MOLD ROAD DEPOT	Effluent Type: UNSPECIFIED Permit Number: CM0062401 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF GWENFRO	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 16/06/1970 Effective Date: 16/06/1970 Revocation Date: 06/01/1993
13	293m W	WREXHAM MOLD ROAD DEPOT, MOLD ROAD DEPOT	Effluent Type: UNSPECIFIED Permit Number: CM0026101 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF GWENFRO	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 21/12/1964 Effective Date: 21/12/1964 Revocation Date: 06/01/1993
G	317m SW	Wrexham Maesglas SPS, Maesgwyn Rd, Rhosrobin, Wrexham, LL11 2AP	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: CM0194101 Permit Version: 3 Receiving Water: Afon Gwenfro	Status: Effective Issue date: 06/02/2020 Effective Date: 06/02/2020 Revocation Date: -
G	317m SW	Wrexham Maesglas SPS, Maesgwyn Rd, Rhosrobin, Wrexham, LL11 2AP	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: CM0194101 Permit Version: 3 Receiving Water: Afon Gwenfro	Status: Effective Issue date: 06/02/2020 Effective Date: 06/02/2020 Revocation Date: -
G	324m SW	MEASGWYN SEWAGE PUMPING STATION, MAESGWYN PUMPING STATION, MEASGWYN ROAD, Wrexham	Effluent Type: MISCELLANEOUS DISCHARGES - EMERGENCY DISCHARGES Permit Number: CM0194101 Permit Version: 2 Receiving Water: Afon Gwenfro	Status: Effective Issue date: 28/03/2002 Effective Date: 29/03/2002 Revocation Date: -
G	324m SW	MEASGWYN SEWAGE PUMPING STATION, MAESGWYN PUMPING STATION, MEASGWYN ROAD, Wrexham	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: CM0194101 Permit Version: 2 Receiving Water: Afon Gwenfro	Status: Effective Issue date: 28/03/2002 Effective Date: 29/03/2002 Revocation Date: -



ID	Location	Address	Details	
G	346m SW	MAESGWYN PS	Effluent Type: UNSPECIFIED Permit Number: CM0194101 Permit Version: 1 Receiving Water: GWENFRO	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 19/10/1989 Effective Date: 19/10/1989 Revocation Date: 28/03/2002
H	421m S	WREXHAM LAGER BREWERY CENTRAL ROAD, WREXHAM LAGER BREWERY CENTRAL RO, CENTRAL ROAD WREXHAM, WREXHAM	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0088101 Permit Version: 1 Receiving Water: RIVER GWENFRO	Status: REVOKED - UNSPECIFIED Issue date: 06/02/1980 Effective Date: 06/02/1980 Revocation Date: 14/11/1995
H	421m S	WREXHAM LAGER BREWERY CENTRAL ROAD, WREXHAM LAGER BREWERY CENTRAL RO, CENTRAL ROAD WREXHAM, WREXHAM	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0088101 Permit Version: 2 Receiving Water: RIVER GWENFRO	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 14/11/1995 Effective Date: 15/11/1995 Revocation Date: 06/03/2001
H	421m S	WREXHAM LAGER BREWERY CENTRAL ROAD, WREXHAM LAGER BREWERY CENTRAL RO, CENTRAL ROAD WREXHAM, WREXHAM	Effluent Type: UNSPECIFIED Permit Number: CM0024702 Permit Version: 1 Receiving Water: GWENFRO	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY Issue date: 22/09/1964 Effective Date: 22/09/1964 Revocation Date: 17/02/1986
H	421m S	WREXHAM LAGER BREWERY CENTRAL ROAD, WREXHAM LAGER BREWERY CENTRAL RO, CENTRAL ROAD WREXHAM, WREXHAM	Effluent Type: UNSPECIFIED Permit Number: CM0024701 Permit Version: 1 Receiving Water: GWENFRO	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 22/09/1964 Effective Date: 22/09/1964 Revocation Date: 17/02/1986

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

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

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

4.15 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

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



4.16 List 1 Dangerous Substances

Records within 500m

0

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

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

4.17 List 2 Dangerous Substances

Records within 500m

0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m

1

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

Features are displayed on the Current industrial land use map on **page 48**

ID	Location	Details	
15	462m SE	Incident Date: 24/07/2014 Incident Identification: 1260426 Pollutant: Multiple Pollutants Pollutant Description: 2 Pollutants Including Smoke	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m

0

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

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

4.20 Pollution inventory waste transfers

Records within 500m**0**

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

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

4.21 Pollution inventory radioactive waste

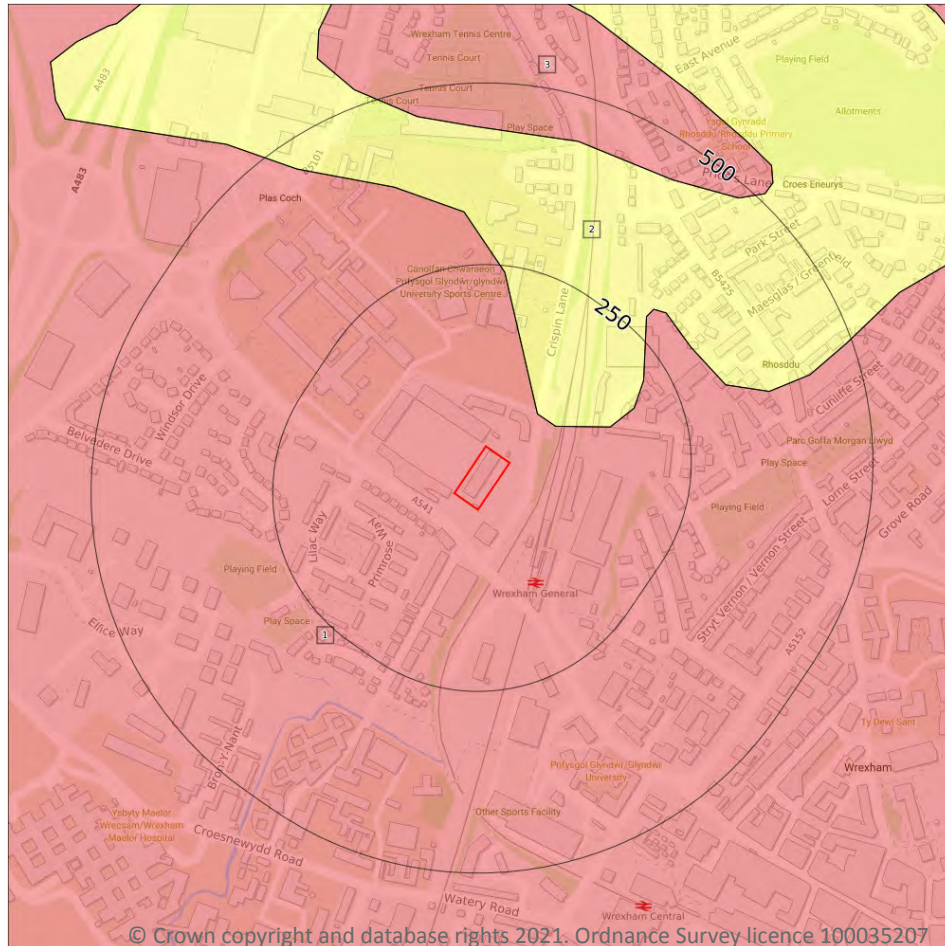
Records within 500m**0**

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

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



5 Hydrogeology - Superficial aquifer



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

5.1 Superficial aquifer

Records within 500m

3

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 57**

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
2	77m NE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

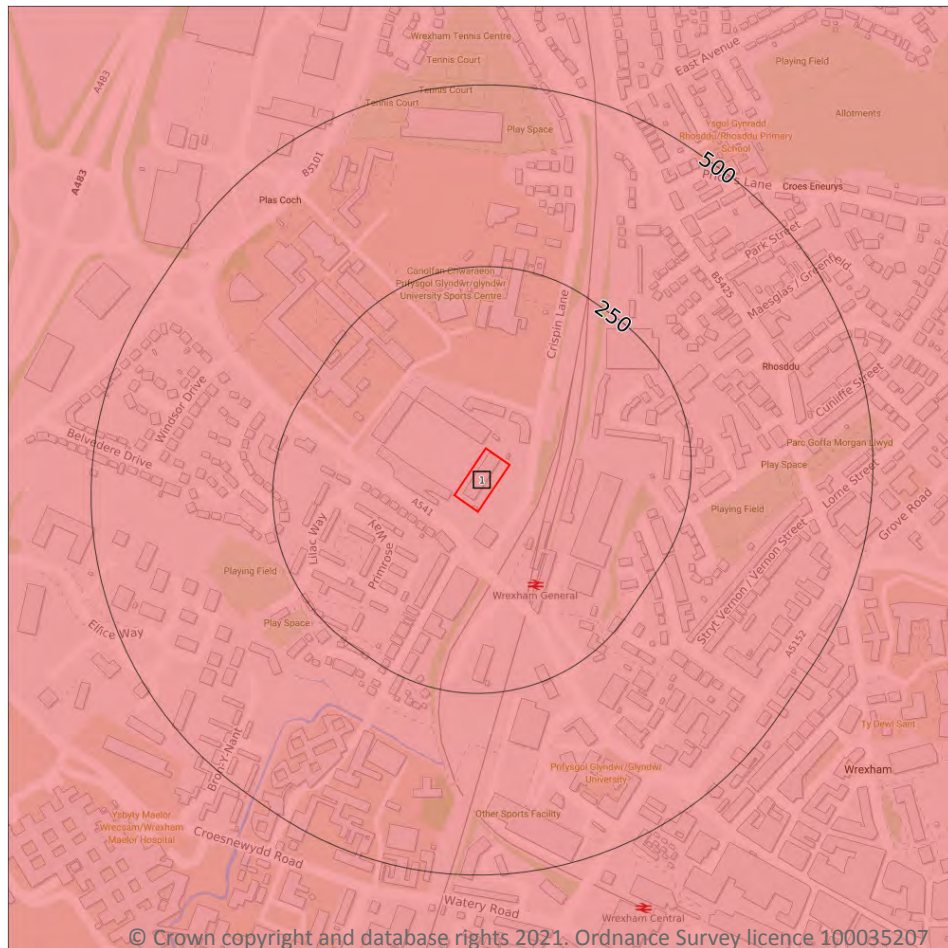


ID	Location	Designation	Description
3	433m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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



Bedrock aquifer



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

5.2 Bedrock aquifer

Records within 500m

1

Aquifer status of groundwater held within bedrock geology.

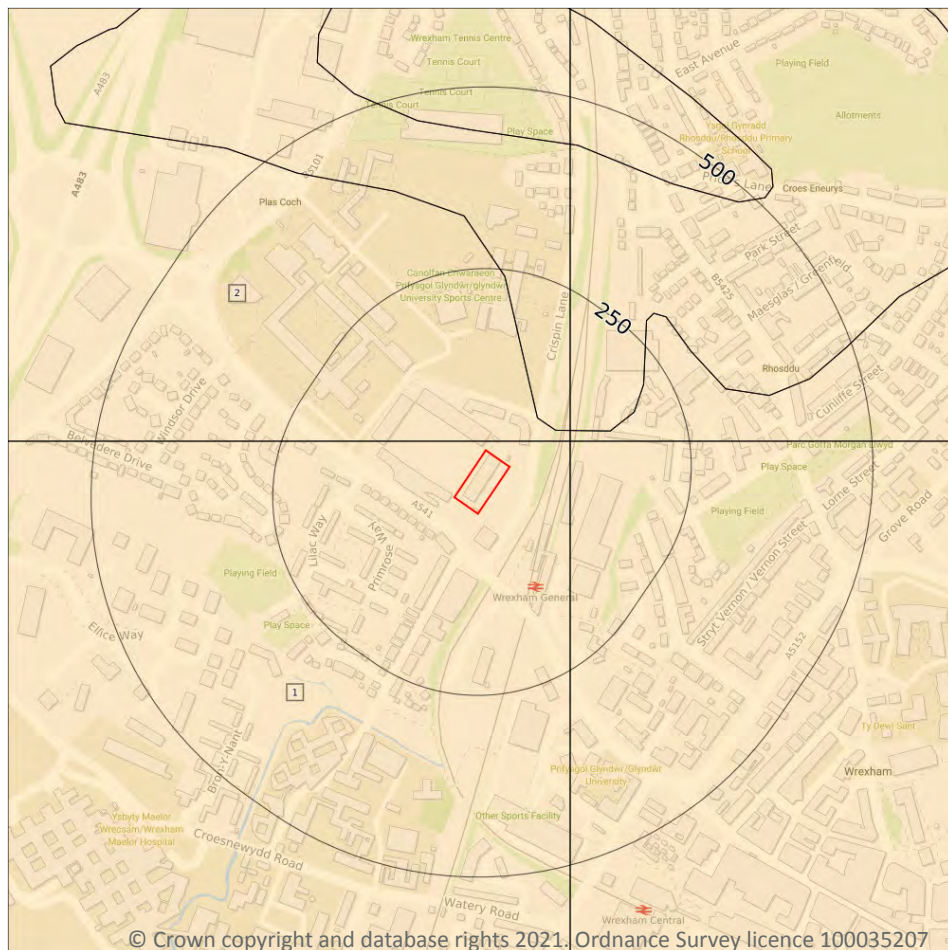
Features are displayed on the Bedrock aquifer map on [page 59](#)

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



— Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

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 60**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	12m N	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: High	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

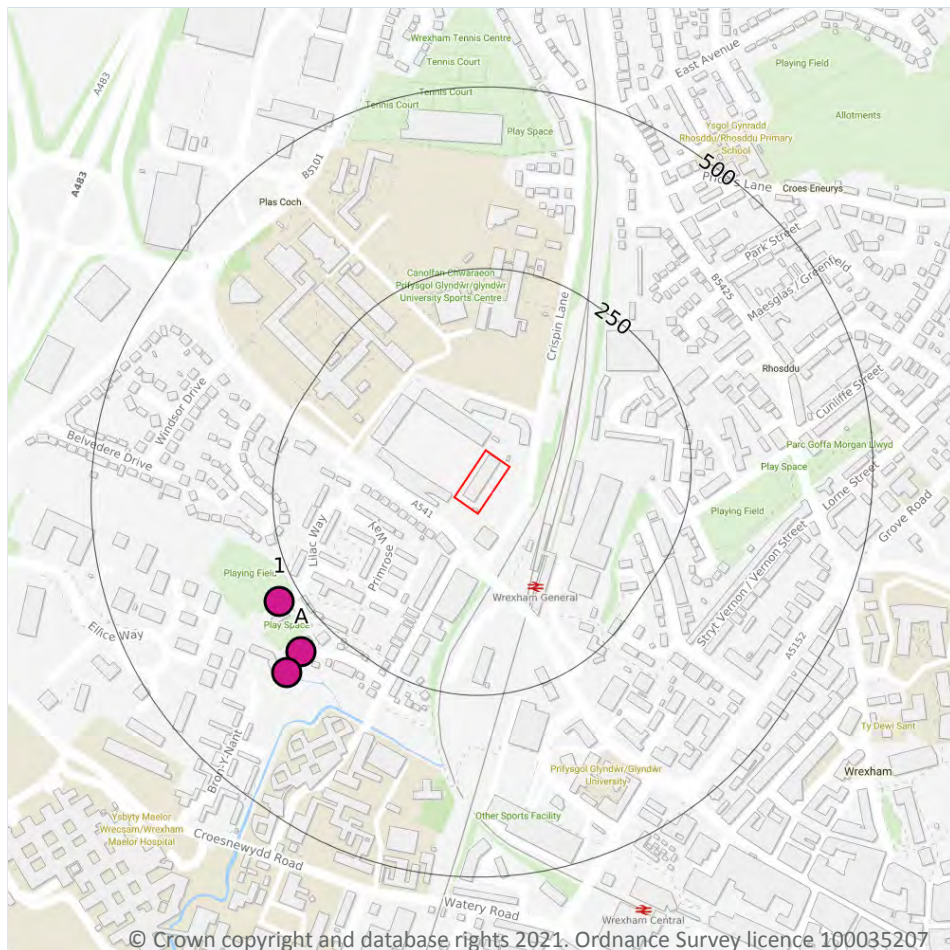
Records on site

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
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

4

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 62**

ID	Location	Details	
1	279m SW	Status: Historical Licence No: 24/67/7/0012 Details: Process water Direct Source: EAW Groundwater Point: WELL NO.1 Data Type: Point Name: Carlsberg Tetley Brewing Ltd. Easting: 332600 Northing: 350780	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 04/05/1970 Version End Date: -
A	299m SW	Status: Historical Licence No: 24/67/7/0012 Details: Process water Direct Source: EAW Groundwater Point: WELL NO.3 Data Type: Point Name: Carlsberg Tetley Brewing Ltd. Easting: 332630 Northing: 350710	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 04/05/1970 Version End Date: -
A	334m SW	Status: Historical Licence No: 24/67/7/0012 Details: Process water Direct Source: EAW Groundwater Point: WELL NO.2 Data Type: Point Name: Carlsberg Tetley Brewing Ltd. Easting: 332610 Northing: 350681	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 04/05/1970 Version End Date: -
-	1739m E	Status: Active Licence No: WA/067/0007/0017 Details: Dewatering - Very Low Direct Source: Salop Formation (Warwickshire Group) Point: - Data Type: Poly4 Name: - Easting: 334642 Northing: 350626	Annual Volume (m ³): 27,030 Max Daily Volume (m ³): 159.12 Original Application No: - Original Start Date: Dec 16 2020 12:00AM Expiry Date: Mar 31 2021 12:00AM Issue No: - Version Start Date: - Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m

6

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 62**



ID	Location	Details	
-	768m SE	Status: Historical Licence No: 24/67/7/0147 Details: Effluent/Slurry Dilution Direct Source: EAW Surface Water Point: RIVER GWENFRO Data Type: Point Name: Wrexham County Borough Easting: 333230 Northing: 350220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 24/02/1967 Expiry Date: - Issue No: 100 Version Start Date: 24/02/1967 Version End Date: -
-	849m SW	Status: Historical Licence No: 24/67/7/0135 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: RIVER GWENFRO Data Type: Point Name: Rees Easting: 332350 Northing: 350230	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 24/02/1967 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1983 Version End Date: -
-	965m SW	Status: Historical Licence No: 24/67/7/0135 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: TRIBUTARY OF RIVER GWENFRO Data Type: Line Name: Morris Easting: 331800 Northing: 350100	Annual Volume (m ³): 4546 Max Daily Volume (m ³): 511.434 Original Application No: - Original Start Date: 24/02/1967 Expiry Date: - Issue No: 101 Version Start Date: 13/06/2003 Version End Date: -
-	1370m SW	Status: Historical Licence No: 24/67/7/0135 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: TRIBUTARY OF RIVER GWENFRO Data Type: Line Name: Morris Easting: 331100 Northing: 350060	Annual Volume (m ³): 4546 Max Daily Volume (m ³): 511.434 Original Application No: - Original Start Date: 24/02/1967 Expiry Date: - Issue No: 101 Version Start Date: 13/06/2003 Version End Date: -
-	1370m W	Status: Historical Licence No: 24/67/7/0135 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: RIVER GWENFRO Data Type: Line Name: Morris Easting: 331190 Northing: 350560	Annual Volume (m ³): 4546 Max Daily Volume (m ³): 511.434 Original Application No: - Original Start Date: 24/02/1967 Expiry Date: - Issue No: 101 Version Start Date: 13/06/2003 Version End Date: -



ID	Location	Details	
-	1370m W	Status: Active Licence No: 24/67/7/0135 Details: Spray Irrigation - Direct - High Direct Source: - Point: - Data Type: Line Name: - Easting: 331190 Northing: 350560	Annual Volume (m ³): 4,546 Max Daily Volume (m ³): 981.96 Original Application No: - Original Start Date: Jun 13 2003 12:00AM Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0
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Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

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

5.9 Source Protection Zones

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

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

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

5.10 Source Protection Zones (confined aquifer)

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

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

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

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 66**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River WB catchment	Gwenfro	GB111067051730	Clywedog - Dee	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 66**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
3	328m SW	River	Gwenfro	GB111067051730	Moderate	Fail	Good	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 66**



ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Dee Carboniferous Coal Measures	GB41102G204800	Poor	Poor	Good	2016

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



7 River and coastal flooding

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m

0

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

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

7.2 Historical Flood Events

Records within 250m

0

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

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

7.3 Flood Defences

Records within 250m

0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m

0

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

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

7.5 Flood Storage Areas

Records within 250m

0

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

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



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

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

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

7.7 Flood Zone 3

Records within 50m

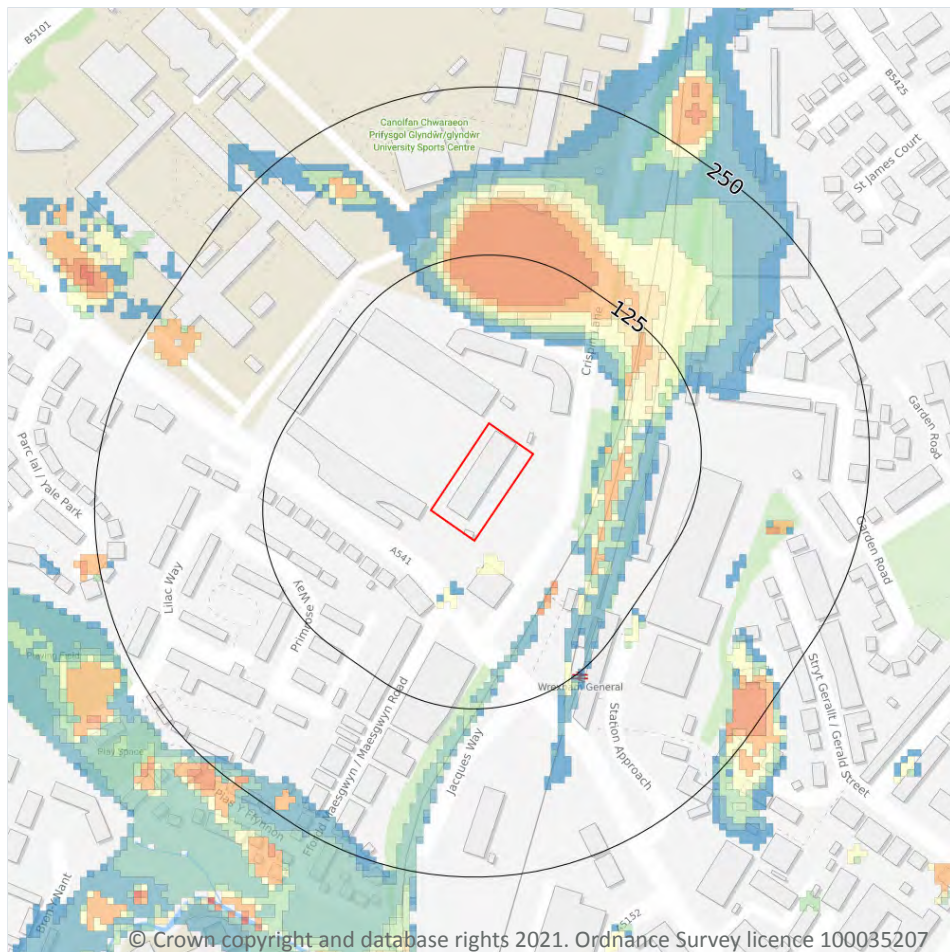
0

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

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



8 Surface water flooding



— 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

Negligible

Highest risk within 50m

1 in 100 year, 0.1m - 0.3m

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 72**

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

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

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

This data is sourced from Ambiantal 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

Moderate

Highest risk within 50m

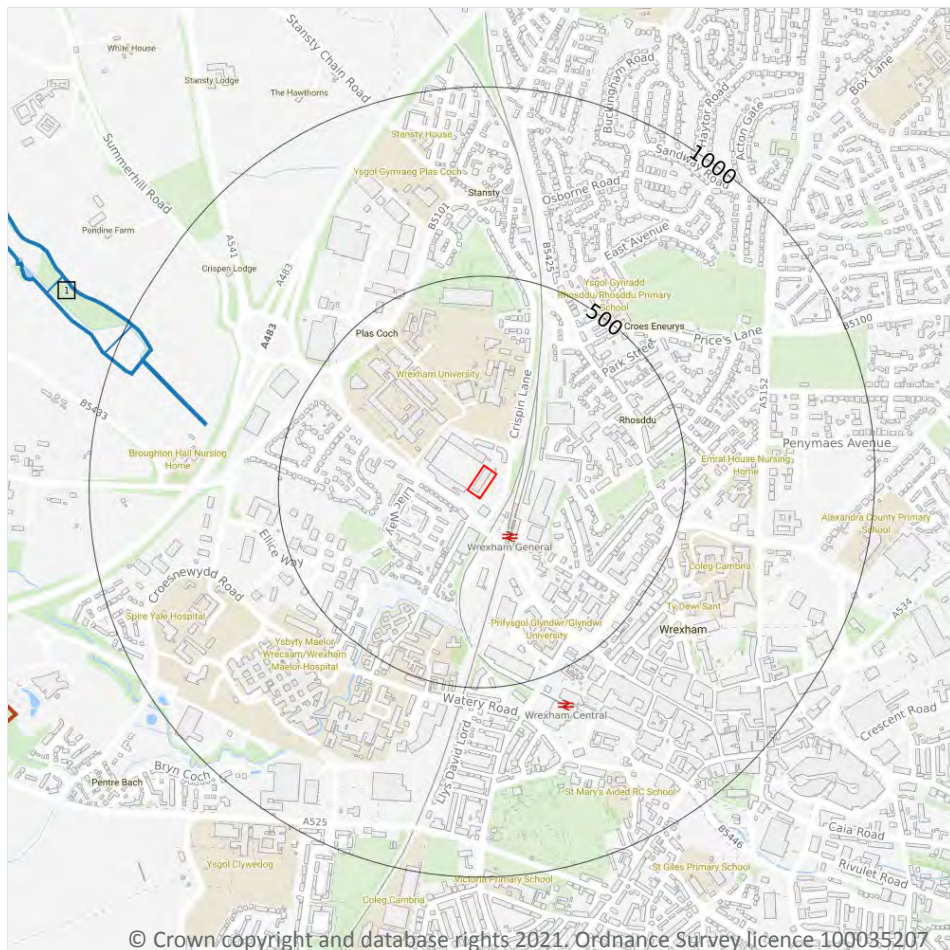
Moderate

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

Features are displayed on the Groundwater flooding map on **page 74**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Sites of Special Scientific Interest (SSSI)
- Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

1

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

Features are displayed on the Environmental designations map on **page 75**

ID	Location	Name	Data source
1	715m W	Gatewen Marsh	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

0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m

0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m

0

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

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



10.6 Local Nature Reserves (LNR)

Records within 2000m

0

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

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

10.7 Designated Ancient Woodland

Records within 2000m

9

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 75**

ID	Location	Name	Woodland Type
2	1333m SW	Unknown	Restored Ancient Woodland Site
-	1437m S	Unknown	Ancient Semi Natural Woodland
-	1710m S	Unknown	Ancient Semi Natural Woodland
-	1877m W	Unknown	Restored Ancient Woodland Site
-	1884m NW	Unknown	Restored Ancient Woodland Site
-	1923m S	Unknown	Ancient Semi Natural Woodland
-	1923m NW	Unknown	Restored Ancient Woodland Site
-	1972m SW	Unknown	Ancient Semi Natural Woodland
-	1999m S	Unknown	Restored 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

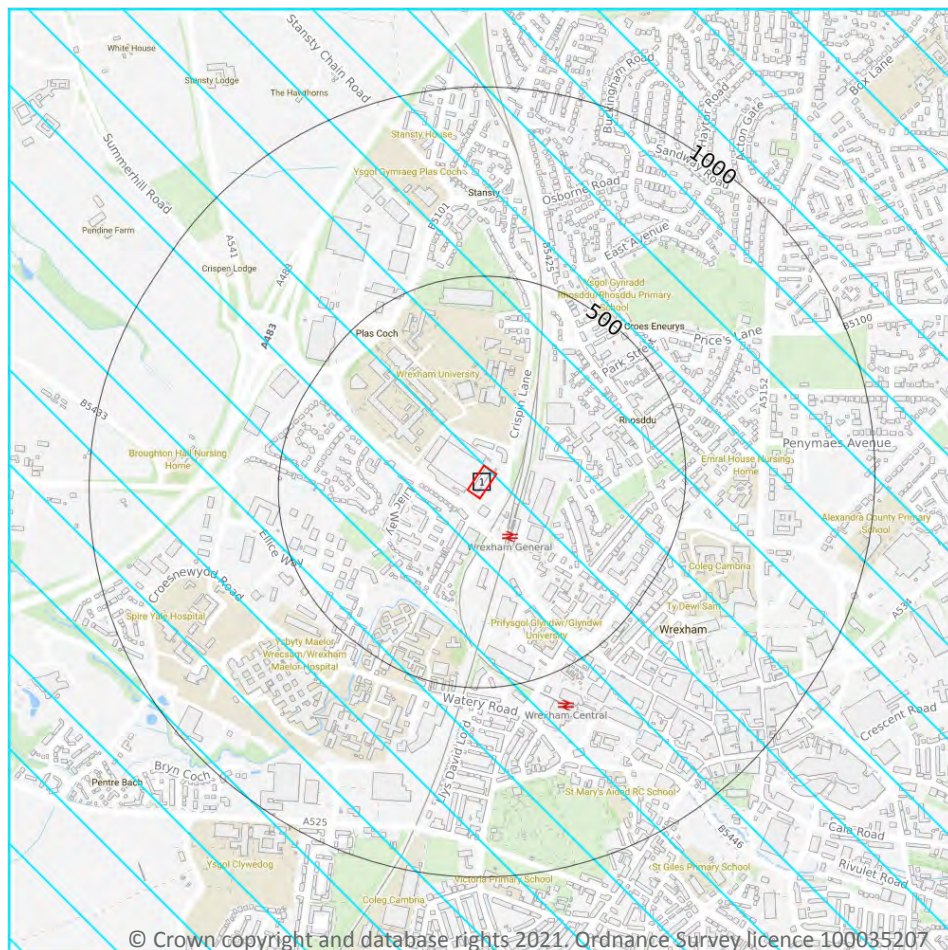
Records within 2000m

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 80**

ID	Location	Type of developments requiring consultation
1	On site	Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion



This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m

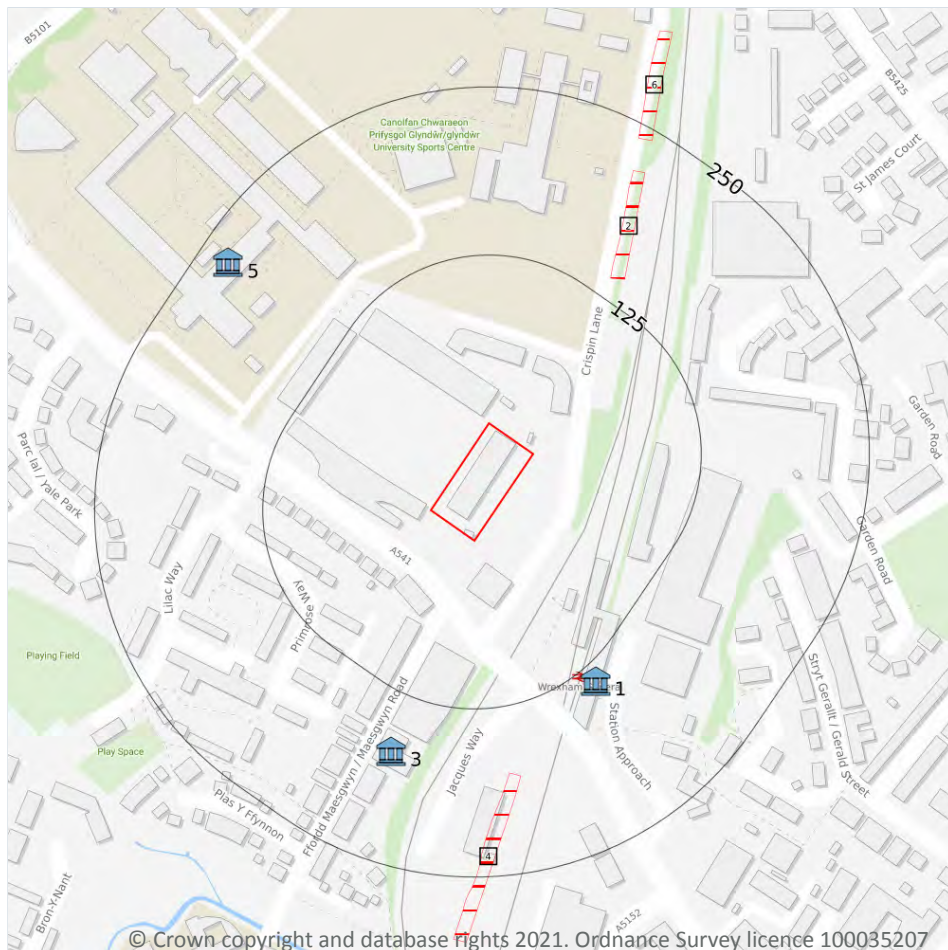
0

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

0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

11.3 National Parks

Records within 250m

0

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

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

11.4 Listed Buildings

Records within 250m

3

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

Features are displayed on the Visual and cultural designations map on **page 82**

ID	Location	Name	Grade	Reference Number	Listed date
1	138m SE	Wrexham General Station: Entrance Building, Close By And Below The A451 Bridge Carrying The Road NW To Mold	II	1855	05/09/1986
3	168m S	The Former Mines Rescue Centre, On The E Side Of Maesgwyn Road Approximately 200M South Of The Junction With Regent Street	II	87623	18/08/2010



ID	Location	Name	Grade	Reference Number	Listed date
5	228m NW	Newi: Plas Coch (Former Denbighshire Technical College), Situated On The Western Edge Of The Town Adjacent To The Roundabout Forming The Junction Of Mold Road, Berse Road And Plas Coch Road	II	1851	31/01/1994

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

3

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.

Features are displayed on the Visual and cultural designations map on **page 82**

ID	Location	Ancient monument name	Reference number
2	140m NE	Wat's Dyke at Crispin Lane, Wrexham	3946
4	175m S	Wat's Dyke: Section SSW of Wrexham Station, 130m Long	600
6	239m NE	Wat's Dyke at Crispin Lane, Wrexham	3946

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

12.1 Agricultural Land Classification

Records within 250m

0

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.

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.

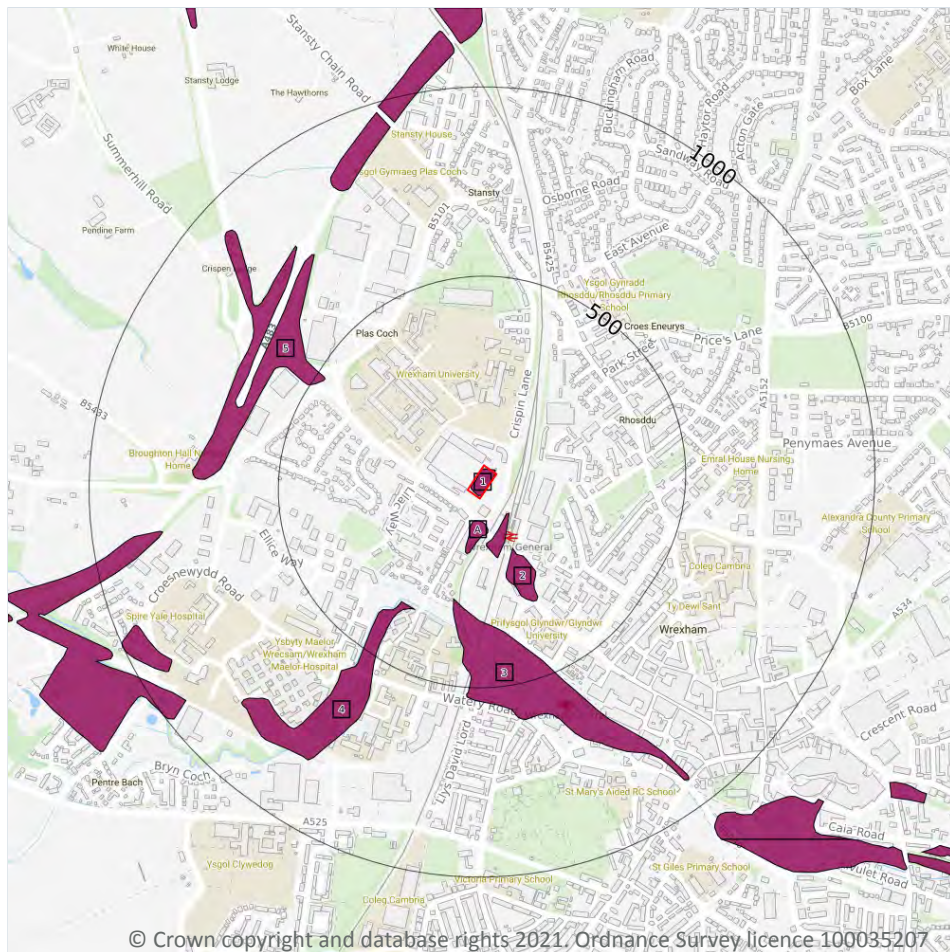
Features are displayed on the Geology 1:10,000 scale - Availability map on **page 89**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SJ35SW

This data is sourced from the British Geological Survey.



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



— Site Outline
Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

7

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

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 90**

ID	Location	LEX Code	Description	Rock description
1	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	59m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	81m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	157m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

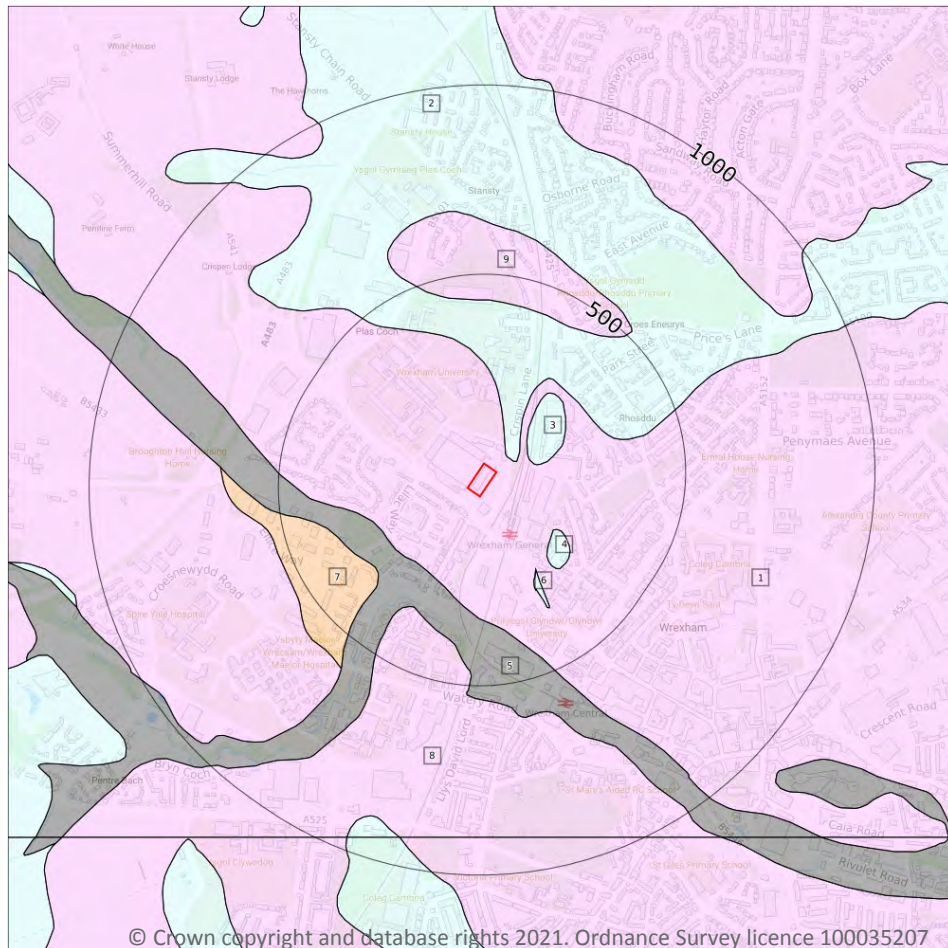


ID	Location	LEX Code	Description	Rock description
3	274m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	340m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	476m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m

9

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 92**

ID	Location	LEX Code	Description	Rock description
1	On site	GFDU-XSV	Glaciofluvial Deposits - Sand And Gravel	Sand And Gravel
2	50m NE	TILL-DMTN	Till - Diamicton	Diamicton
3	93m E	TILL-DMTN	Till - Diamicton	Diamicton
4	210m SE	TILL-DMTN	Till - Diamicton	Diamicton



ID	Location	LEX Code	Description	Rock description
5	239m SW	ALV-C	Alluvium - Clay (unlithified Deposits Coding Scheme)	Clay
6	243m SE	TILL-DMTN	Till - Diamicton	Diamicton
7	322m SW	RTDU-XSV	River Terrace Deposits (undifferentiated) - Sand And Gravel	Sand And Gravel
8	340m SW	GFDU-XSV	Glaciofluvial Deposits - Sand And Gravel	Sand And Gravel
9	424m NE	GFDU-XSV	Glaciofluvial Deposits - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

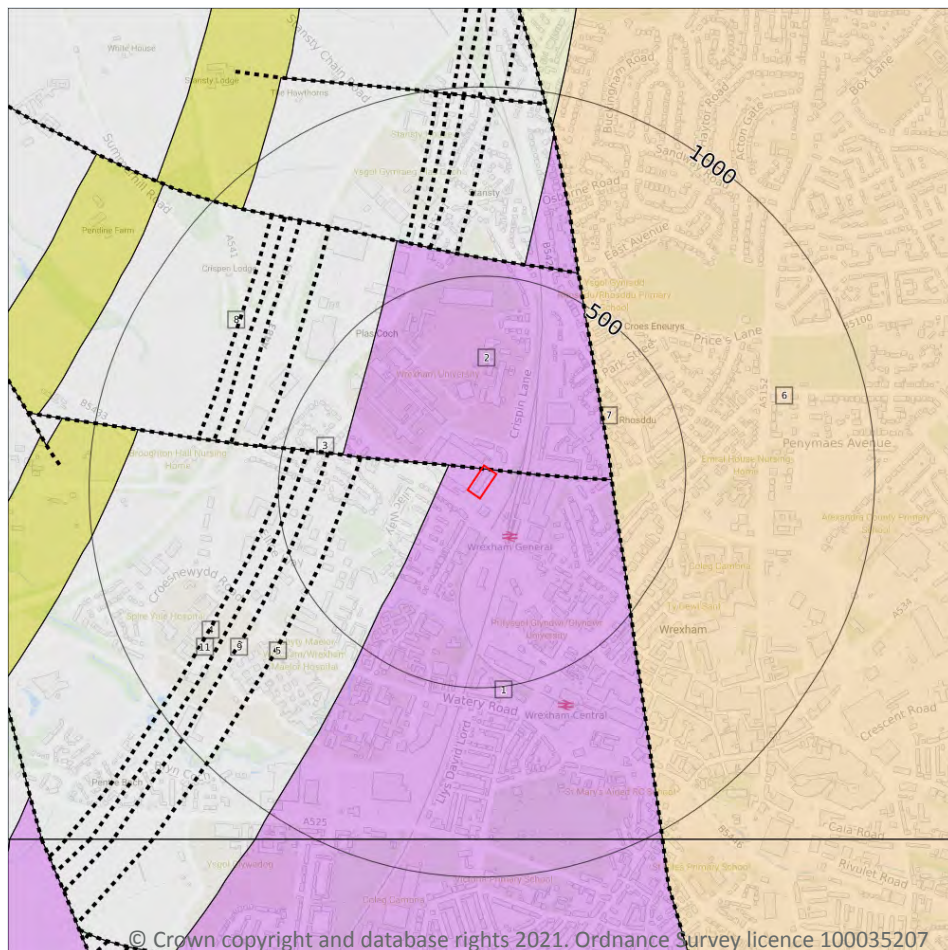
0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m

5

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 94**

ID	Location	LEX Code	Description	Rock age
1	On site	ETM-MDST	Etruria Formation - Mudstone	Westphalian Age
2	On site	ETM-MDST	Etruria Formation - Mudstone	Westphalian Age
4	72m NW	PLMC-MDSS	Pennine Lower Coal Measures Formation And Pennine Middle Coal Measures Formation (undifferentiated) - Mudstone, Siltstone And Sandstone	Bolsovan Sub-age - Langsettian Sub-age



ID	Location	LEX Code	Description	Rock age
6	301m E	SAL-MDSC	Salop Formation - Mudstone, Sandstone And Conglomerate	Cisuralian Epoch - Westphalian D Sub-age
8	343m W	PLMC-MDSS	Pennine Lower Coal Measures Formation And Pennine Middle Coal Measures Formation (undifferentiated) - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Langsettian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

6

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

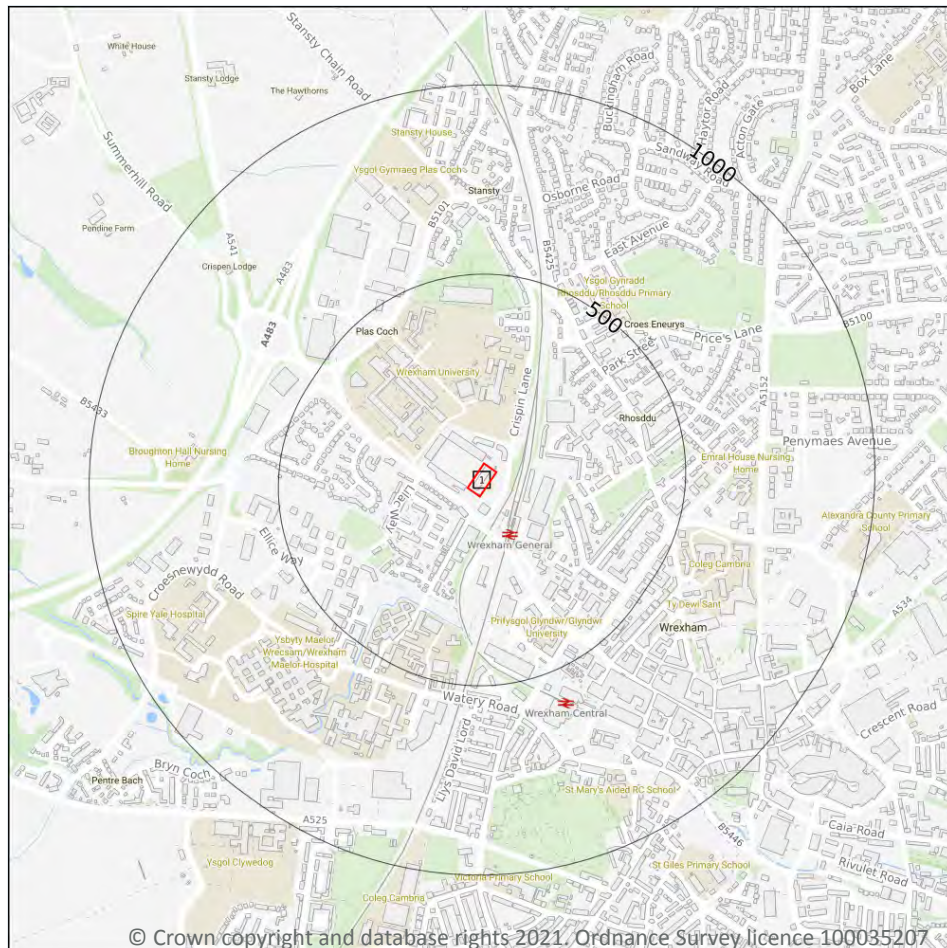
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 94**

ID	Location	Category	Description
3	On site	FAULT	Normal fault, inferred
5	296m W	ROCK	Coal seam, inferred
7	301m E	FAULT	Normal fault, inferred
9	382m W	ROCK	Coal seam, inferred
10	434m W	ROCK	Coal seam, inferred
11	474m W	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

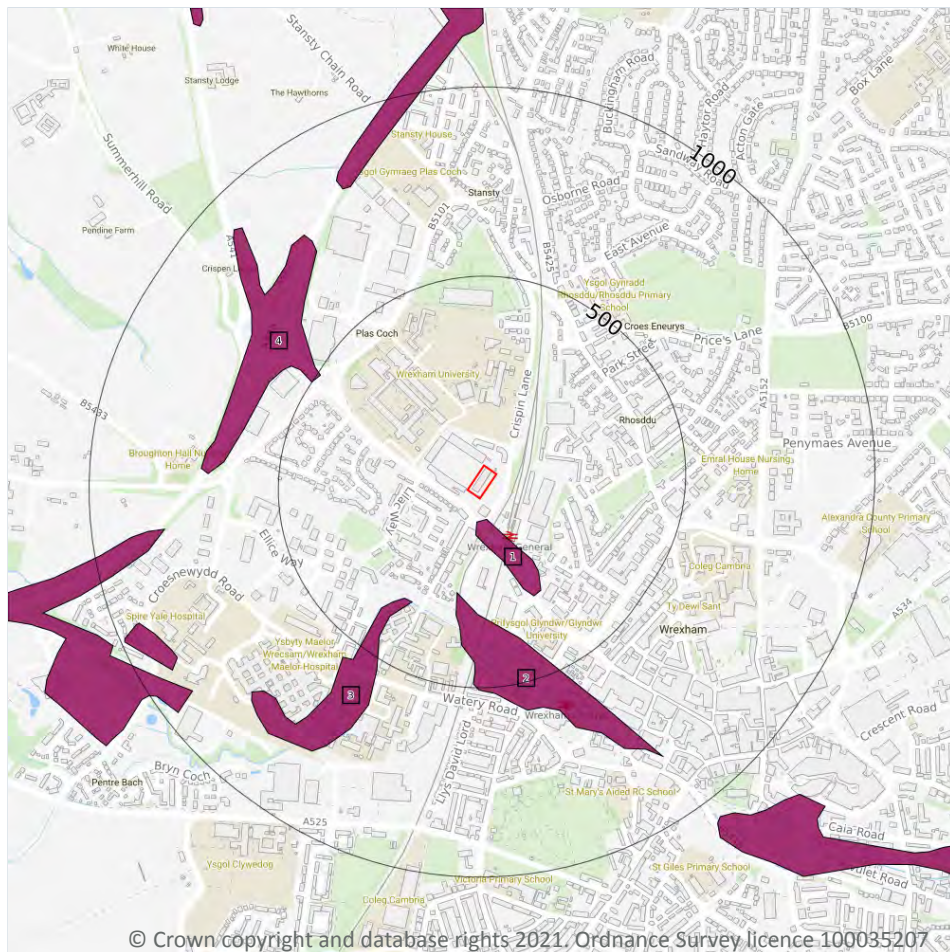
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 96**

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



— Site Outline
Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

4

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.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 97**

ID	Location	LEX Code	Description	Rock description
1	58m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	256m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	327m SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	492m NW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT



This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

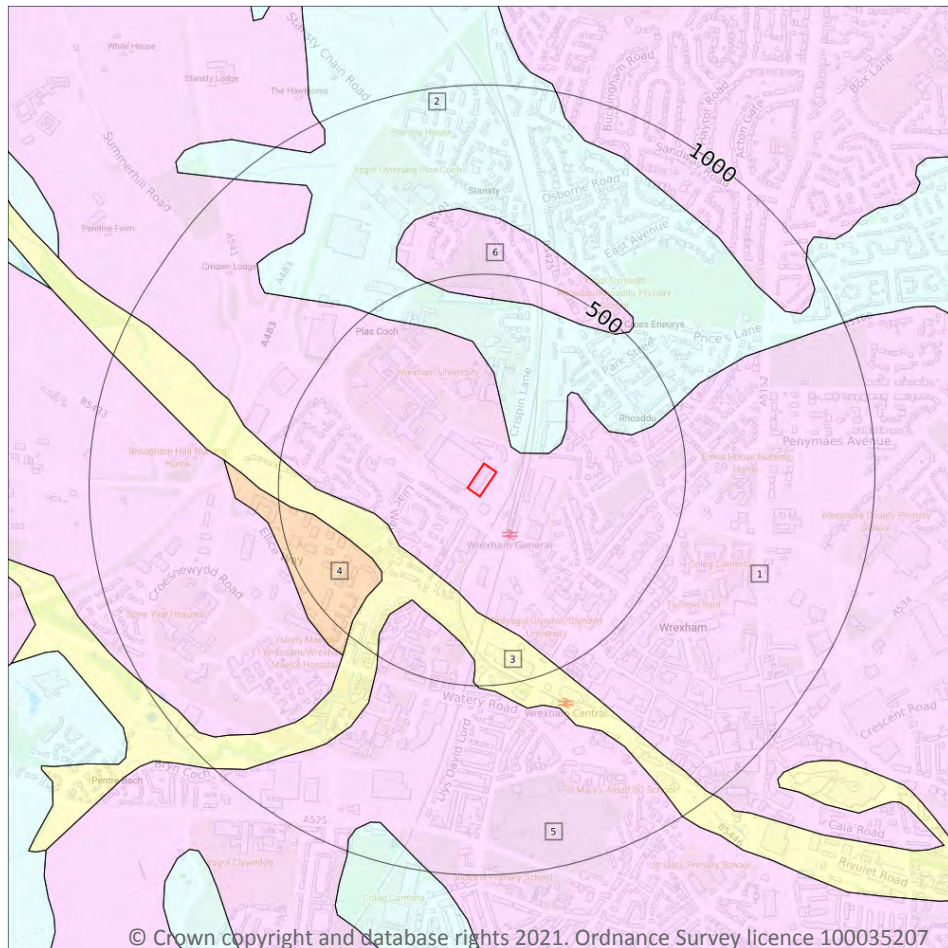
0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m

6

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 99**

ID	Location	LEX Code	Description	Rock description
1	On site	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	77m NE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
3	230m SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	313m SW	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL



ID	Location	LEX Code	Description	Rock description
5	327m SW	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL
6	433m N	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m

1

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

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

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

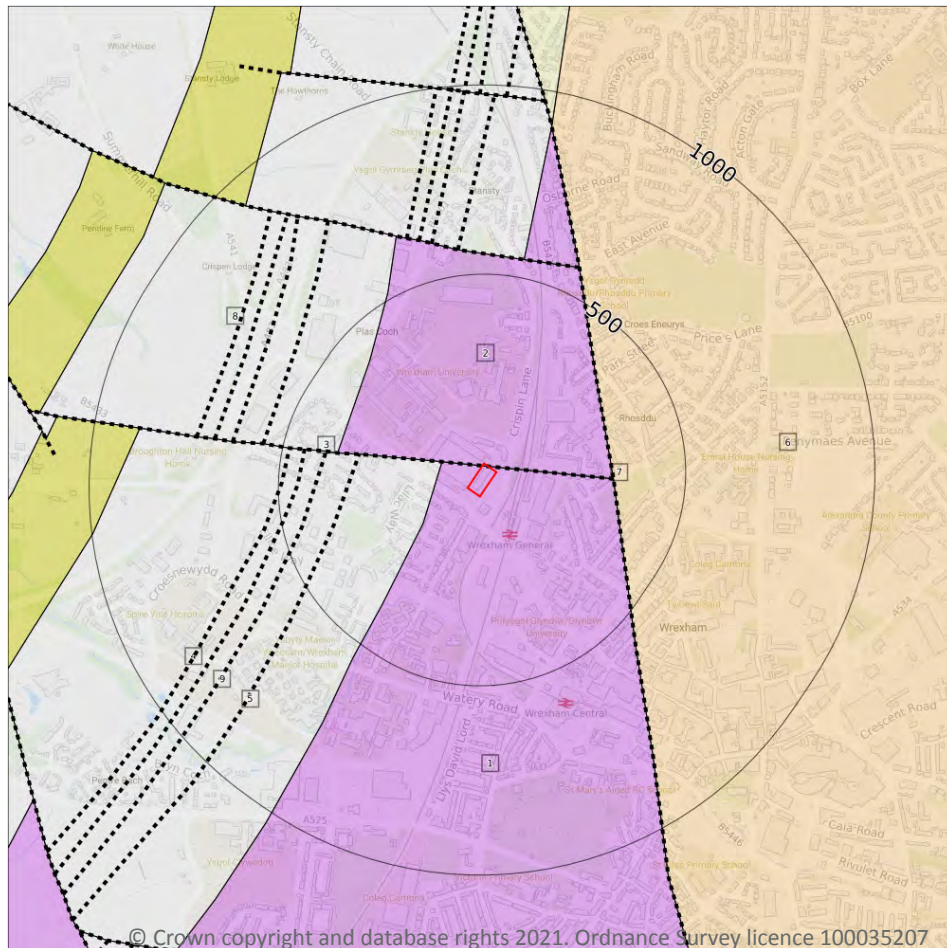
0

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

5

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 101**

ID	Location	LEX Code	Description	Rock age
1	On site	ETM-MDST	ETRURIA FORMATION - MUDSTONE	WESTPHALIAN
2	On site	ETM-MDST	ETRURIA FORMATION - MUDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
4	85m W	PLMC-MDSS	PENNINE LOWER COAL MEASURES FORMATION AND PENNINE MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED) - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	302m E	SAL-MDSC	SALOP FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
8	355m W	PLMC-MDSS	PENNINE LOWER COAL MEASURES FORMATION AND PENNINE MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED) - MUDSTONE, SILTSTONE AND 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	Low	Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

6

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 101**

ID	Location	Category	Description
3	On site	FAULT	Fault, inferred, displacement unknown
5	300m W	ROCK	Coal seam, inferred
7	302m E	FAULT	Fault, inferred, displacement unknown
9	386m W	ROCK	Coal seam, inferred
10	442m W	ROCK	Coal seam, inferred

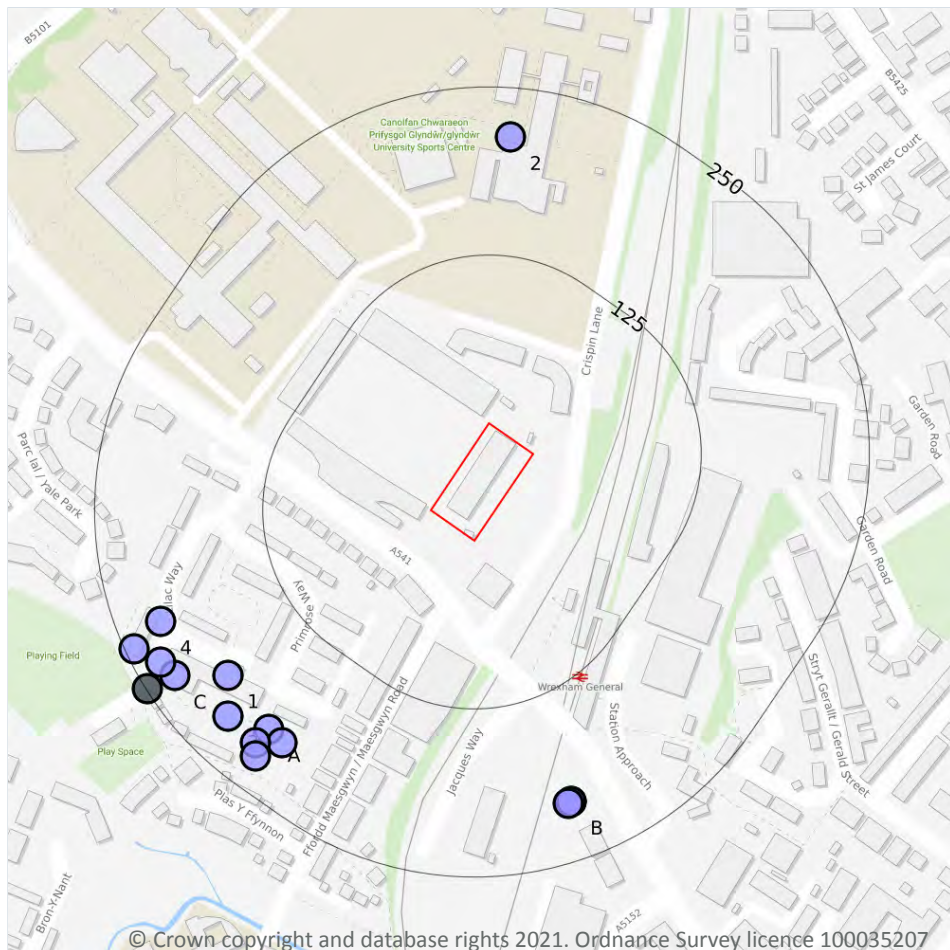


ID	Location	Category	Description
11	482m W	ROCK	Coal seam, inferred

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

15

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 104**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	194m SW	332690 350800	WREXHAM, MAESGWYN 4	3.66	N	155603
A	203m SW	332720 350760	WREXHAM, MAESGWYN 12	3.66	N	155611
A	205m SW	332730 350750	WREXHAM, MAESGWYN 13	3.66	N	155612

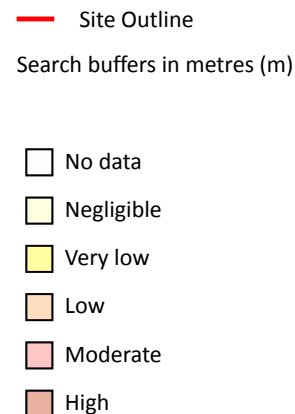
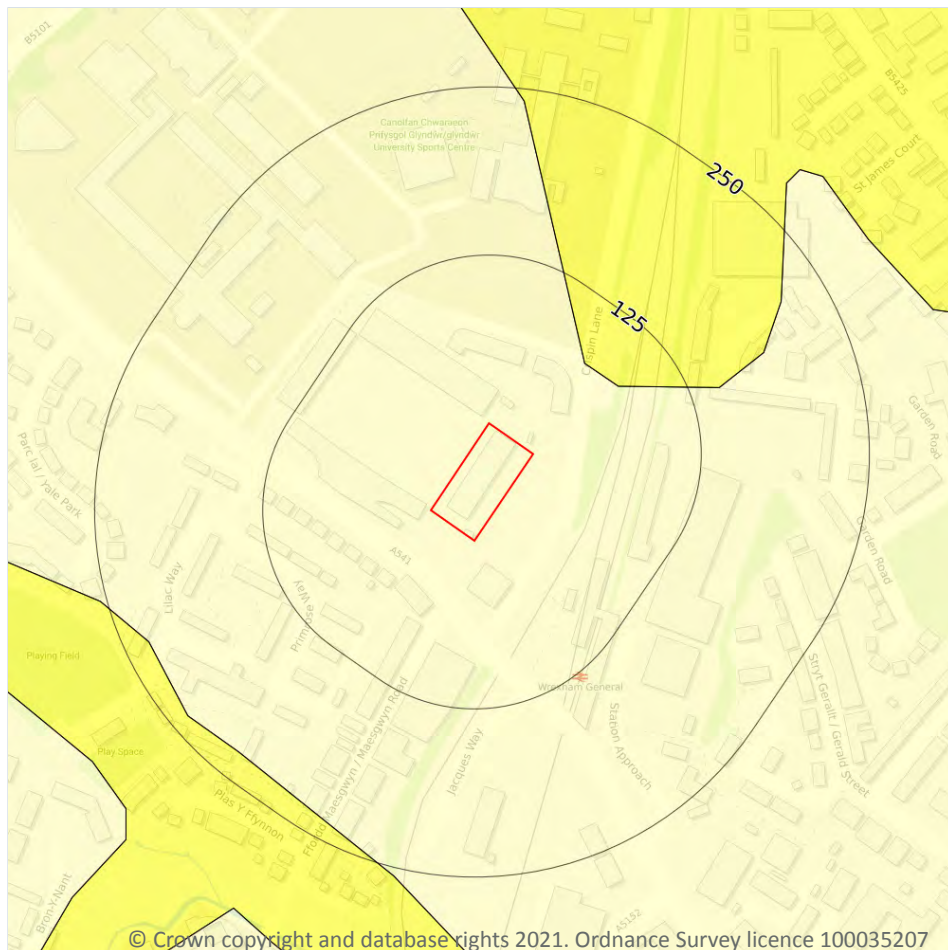


ID	Location	Grid reference	Name	Length	Confidential	Web link
B	207m S	332945 350706	KIRBY'S OF WREXHAM 2	1.8	N	17565372
B	207m S	332945 350706	KIRBY'S OF WREXHAM 1	4.5	N	17565371
B	207m S	332943 350705	KIRBY'S OF WREXHAM 2A	5.0	N	17565373
2	213m N	332900 351200	YALE SCHOOL WREXHAM	9.14	N	155875
3	215m SW	332690 350770	WREXHAM, MAESGWYN 2	3.66	N	155601
A	217m SW	332710 350750	WREXHAM, MAESGWYN 11	3.66	N	155610
4	217m SW	332640 350840	WREXHAM, MAESGWYN 1	3.66	N	155600
A	225m SW	332710 350740	WREXHAM, MAESGWYN 10	4.26	N	155609
C	227m SW	332650 350800	WREXHAM, MAESGWYN 5	3.66	N	155604
C	230m SW	332640 350810	WREXHAM, MAESGWYN 3	3.66	N	155602
C	243m SW	332620 350820	WREXHAM, MAESGWYN 6	3.66	N	155605
C	249m SW	332630 350790	MAESGWYN PARK 4	-	Y	N/A

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m

1

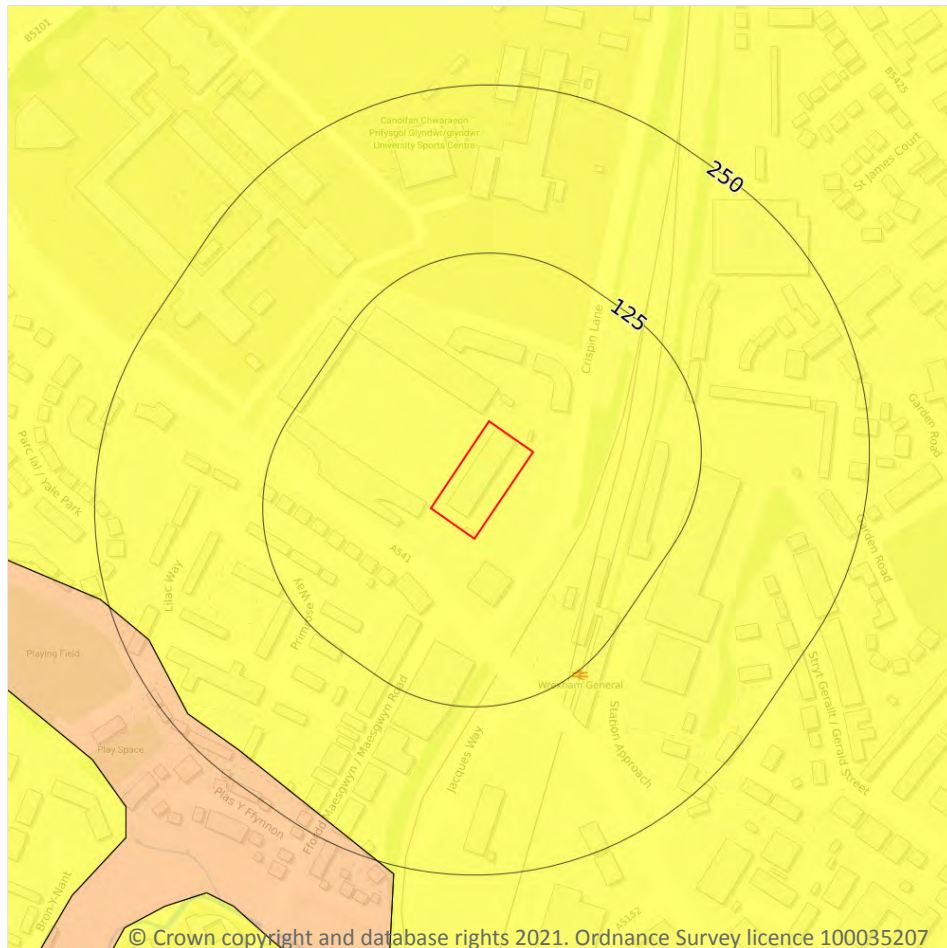
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 106**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



- 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.

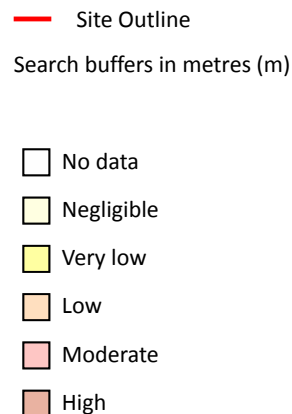
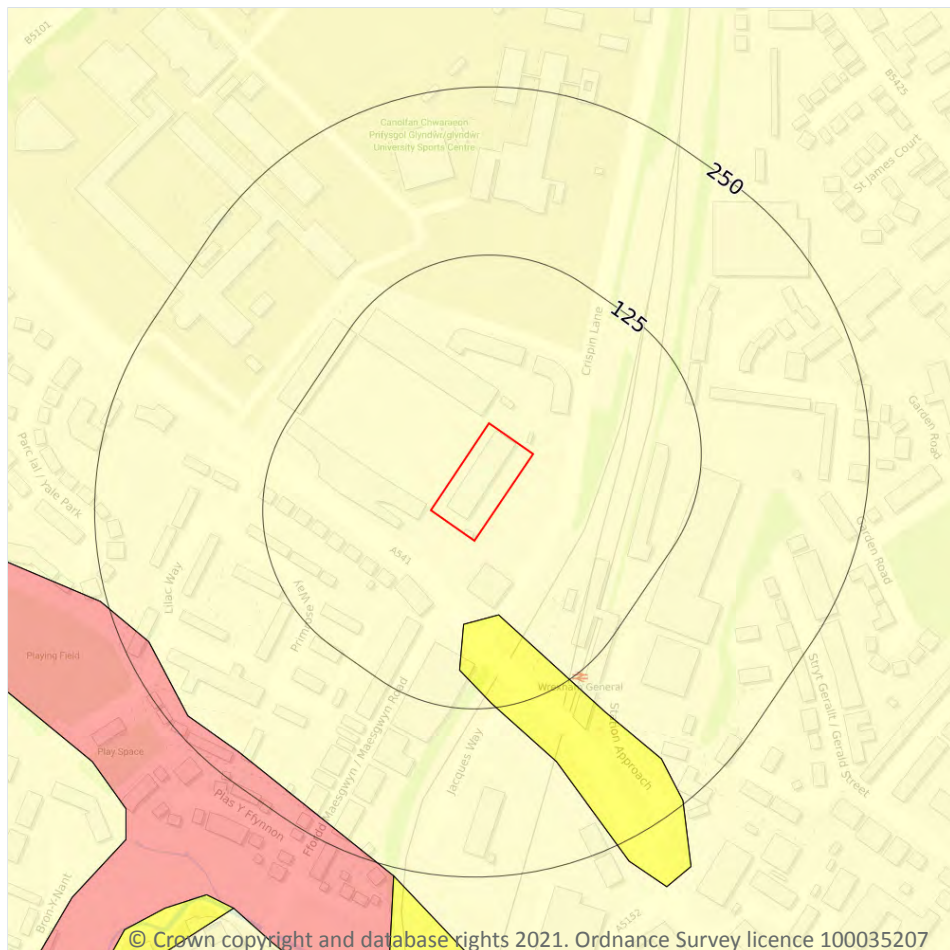
Features are displayed on the Natural ground subsidence - Running sands map on **page 107**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

1

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

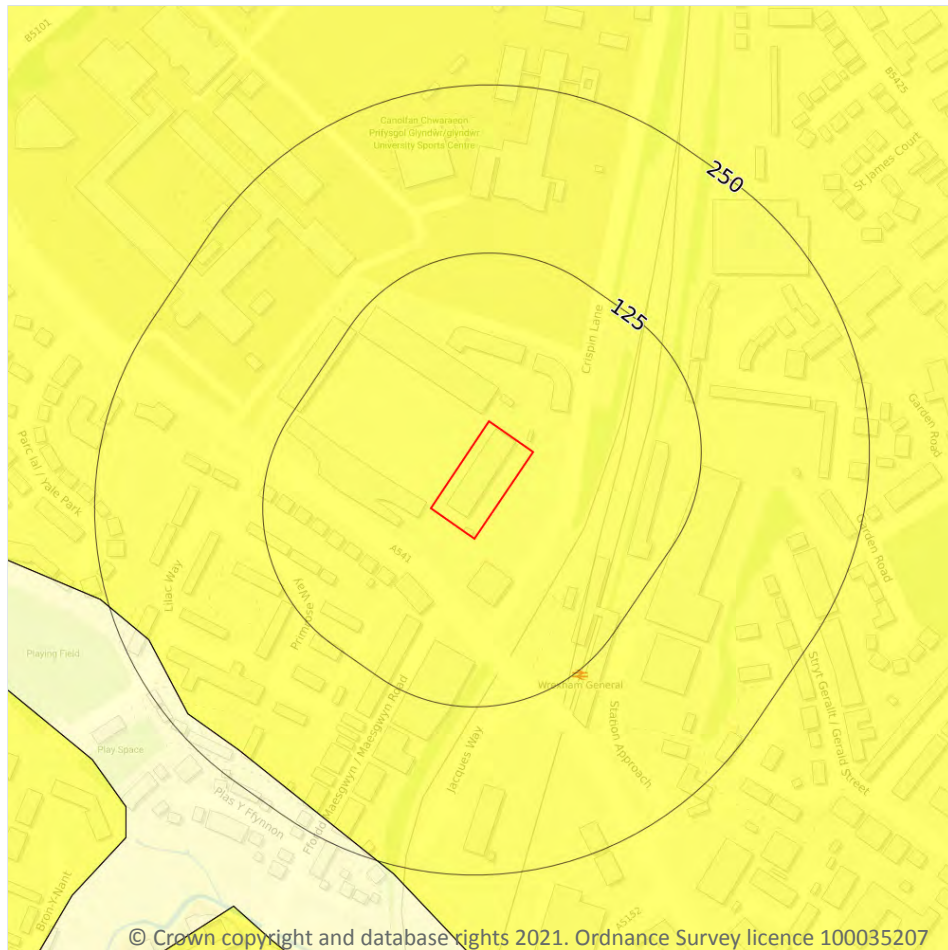
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 108**

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

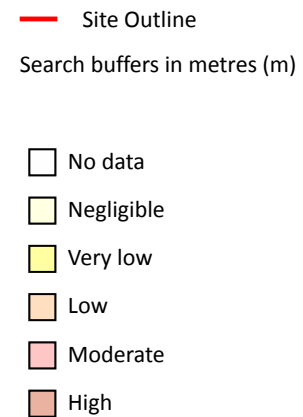
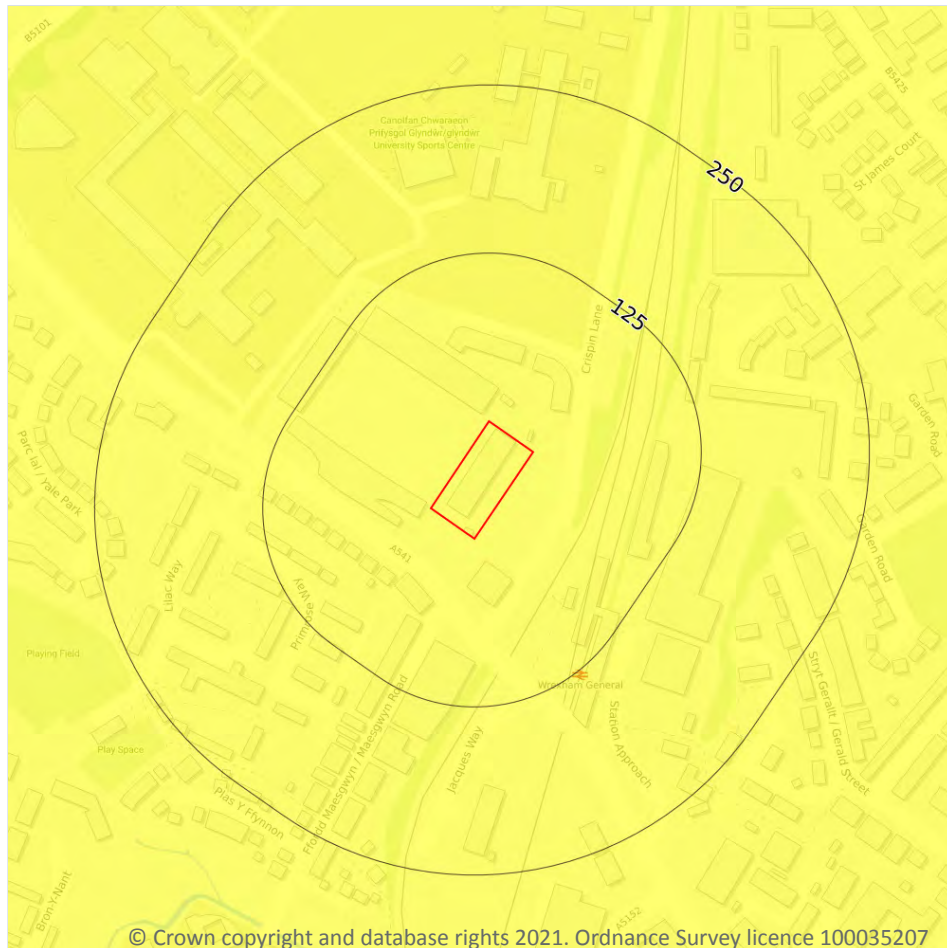
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 109**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



17.5 Landslides

Records within 50m

1

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

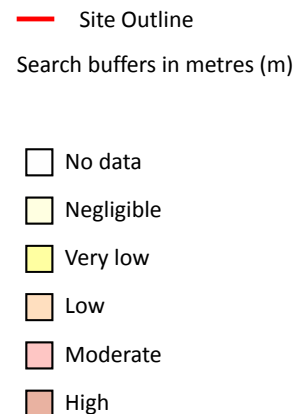
Features are displayed on the Natural ground subsidence - Landslides map on **page 110**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

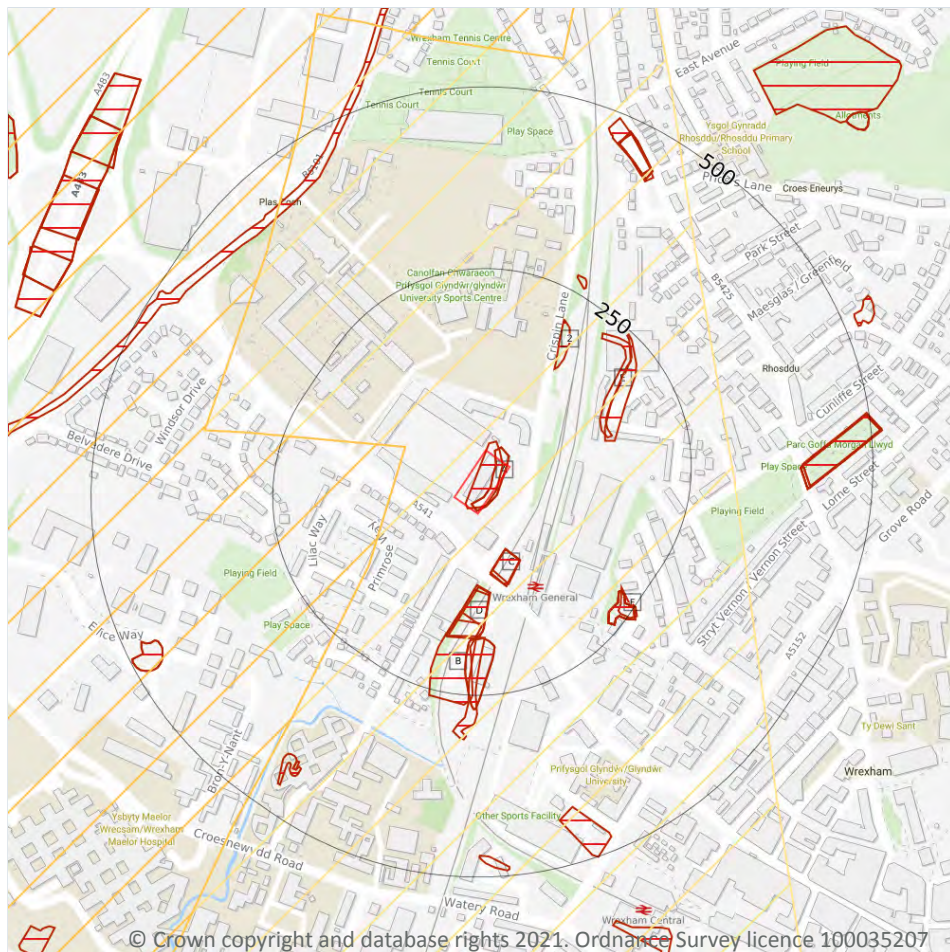
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 111**

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

This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- ▢ Natural cavities (Area)
 - Natural cavities (Point)
 - BritPits
 - ▢ Surface ground workings
 - ▢ Underground workings
 - ▢ Historical Mineral Planning Areas
 - Mining Cavities
- 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 Natural cavities

Records within 500m

0

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

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

22

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 113**

ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Unspecified Ground Workings	1980	1:10000
A	On site	Unspecified Ground Workings	1974	1:10000
A	On site	Unspecified Heap	1964	1:10560
C	62m SE	Cuttings	1980	1:10000
C	62m SE	Cuttings	1964	1:10560
C	62m SE	Cuttings	1974	1:10000
D	98m S	Cuttings	1938	1:10560
D	101m S	Cuttings	1938	1:10560
D	105m S	Cuttings	1949	1:10560
E	136m E	Unspecified Ground Workings	1909	1:10560
E	136m E	Pond	1872	1:10560
B	136m S	Cuttings	1964	1:10560
2	146m NE	Unspecified Heap	1872	1:10560
B	170m S	Unspecified Ground Workings	1898	1:10560
B	172m S	Unspecified Pit	1938	1:10560
B	172m S	Unspecified Pit	1949	1:10560
F	221m SE	Pond	1992	1:10000



ID	Location	Land Use	Year of mapping	Mapping scale
F	221m SE	Pond	1989	1:10000
F	221m SE	Pond	1980	1:10000
F	221m SE	Pond	1974	1:10000
F	221m SE	Pond	1985	1:10000
F	221m SE	Pond	1964	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

3

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 113**

ID	Location	Name	Commodity	Class	Likelihood
B	On site	Not available	Vein Mineral	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered



ID	Location	Name	Commodity	Class	Likelihood
1	85m W	Not available	Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	900m S	Not available	Vein Mineral	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m

0

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

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site

0

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site

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.



18.10 Brine areas

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

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

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

18.11 Gypsum areas

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

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

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

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

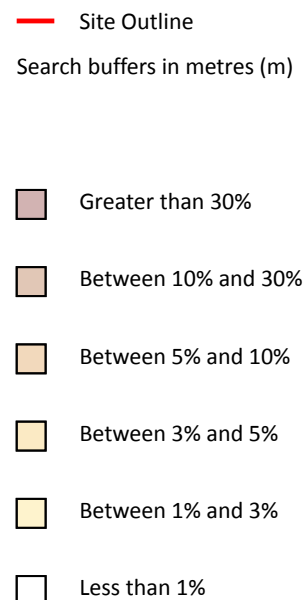
18.13 Clay mining

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

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

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

19 Radon



19.1 Radon

Records on site

1

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

Features are displayed on the Radon map on **page 118**

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

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



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

3

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
13m NW	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m

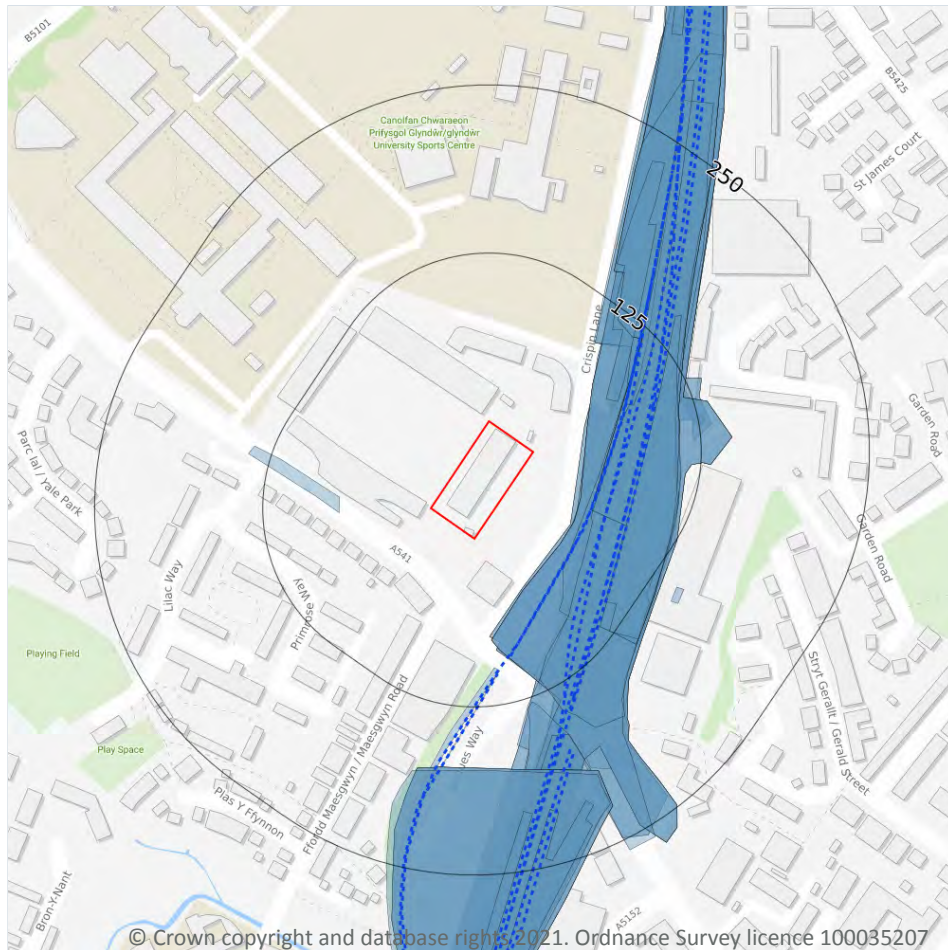
0

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

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- C2 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

21.1 Underground railways (London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

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



This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

79

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 120**

Location	Land Use	Year of mapping	Mapping scale
35m E	Railway Sidings	1980	10000
35m E	Railway Sidings	1974	10000
38m E	Railway Sidings	1938	10560
38m E	Railway Sidings	1989	10000
38m E	Railway Sidings	1992	10000
38m E	Railway Sidings	1985	10000
52m E	Railway Sidings	1964	10560
53m E	Railway	1872	-
54m E	Railway Sidings	1938	10560
54m E	Railway Sidings	1949	10560
54m E	Railway Sidings	1898	10560
55m E	Railway Sidings	1872	10560
56m E	Railway Sidings	1937	2500
57m E	Railway Sidings	1912	2500
63m E	Railway Sidings	1970	1250
64m E	Railway Sidings	1978	1250
64m E	Railway Sidings	1982	1250



Location	Land Use	Year of mapping	Mapping scale
64m E	Railway Sidings	1899	2500
64m NE	Railway Sidings	1957	1250
64m NE	Railway Sidings	1970	1250
65m NE	Railway Sidings	1978	1250
65m NE	Railway Sidings	1982	1250
65m NE	Railway Sidings	1988	1250
66m NE	Railway Sidings	1958	2500
67m NE	Railway Sidings	1909	10560
68m W	Tramway Sidings	1912	2500
69m NE	Railway Sidings	1958	2500
77m NE	Railway Sidings	1957	1250
78m NE	Railway Sidings	1958	2500
78m NE	Railway Sidings	1978	1250
78m NE	Railway Sidings	1909	10560
81m E	Railway Sidings	1909	10560
81m E	Railway Sidings	1970	1250
83m E	Railway Sidings	1978	1250
91m E	Railway Sidings	1968	1250
91m E	Railway Sidings	1958	1250
94m SE	Railway Sidings	1957	1250
95m SE	Railway Sidings	1958	2500
97m S	Railway Sidings	1978	1250
100m E	Railway Sidings	1968	1250
103m E	Railway Sidings	1958	2500
106m NE	Railway Sidings	1988	1250
107m NE	Railway Sidings	1975	1250
107m NE	Railway Sidings	1957	1250
107m NE	Railway Sidings	1968	1250



Location	Land Use	Year of mapping	Mapping scale
112m SE	Railway Sidings	1957	1250
113m NE	Railway Sidings	1973	1250
113m NE	Railway Sidings	1958	1250
118m E	Railway Sidings	1968	1250
118m E	Railway Sidings	1958	1250
118m E	Railway Sidings	1958	2500
129m S	Railway Sidings	1992	10000
145m SE	Railway Sidings	1912	2500
151m SE	Railway Sidings	1978	1250
152m SE	Railway Sidings	1958	2500
157m S	Railway Sidings	1872	10560
159m S	Railway Sidings	1957	1250
160m S	Railway Sidings	1970	1250
160m S	Railway Sidings	1937	2500
168m SE	Railway Sidings	1937	2500
170m SE	Railway Sidings	1978	1250
170m SE	Railway Sidings	1982	1250
170m SE	Railway Sidings	1988	1250
170m SE	Railway Sidings	1992	1250
170m SE	Railway Sidings	1989	1250
170m S	Railway Sidings	1938	10560
170m S	Railway Sidings	1949	10560
170m S	Railway Sidings	1898	10560
171m SE	Railway Sidings	1957	1250
172m S	Railway Sidings	1938	10560
174m S	Railway Sidings	1899	2500
177m NE	Railway Sidings	1973	1250
177m NE	Railway Sidings	1958	1250



Location	Land Use	Year of mapping	Mapping scale
179m S	Railway Sidings	1874	2500
180m S	Railway Sidings	1912	2500
180m S	Railway Sidings	1937	2500
181m S	Railway Sidings	1899	2500
206m S	Railway Sidings	1910	10560
209m S	Railway Sidings	1910	10560

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m

0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m

27

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways. Features are displayed on the Railway infrastructure and projects map on **page 120**

Location	Name	Type
55m E	Not given	Single Track
55m E	Borderlands Line	rail
64m E	Not given	Single Track



Location	Name	Type
65m E		rail
68m E	Not given	Single Track
72m E	Not given	Single Track
78m E	Shrewsbury to Chester Line	rail
78m E	Not given	Multi Track
79m SE	Not given	Single Track
81m E	Shrewsbury to Chester Line	rail
92m E	Not given	Multi Track
95m E	Not given	Multi Track
97m NE	Not given	Single Track
101m SE	Shrewsbury to Chester Line	rail
102m S	Not given	Single Track
104m SE	Shrewsbury to Chester Line	rail
108m SE	Not given	Multi Track
138m SE	Not given	Multi Track
151m NE	Not given	Single Track
157m SE	Not given	Multi Track
159m NE	Not given	Single Track
170m NE	Not given	Multi Track
171m SE		rail
176m SE		rail
191m NE	Not given	Multi Track
230m NE	Not given	Single Track
247m NE	Not given	Multi Track

This data is sourced from Ordnance Survey and OpenStreetMap.



21.8 Crossrail 1

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

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

This data is sourced from HS2 Ltd.

Data providers

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

Terms and conditions

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



WREXHAM AFC – KOP STAND DEVELOPMENT
GEOTECHNICAL AND CONTAMINATED LAND DESK STUDY REPORT

APPENDIX 3
COAL AUTHORITY MINING REPORT

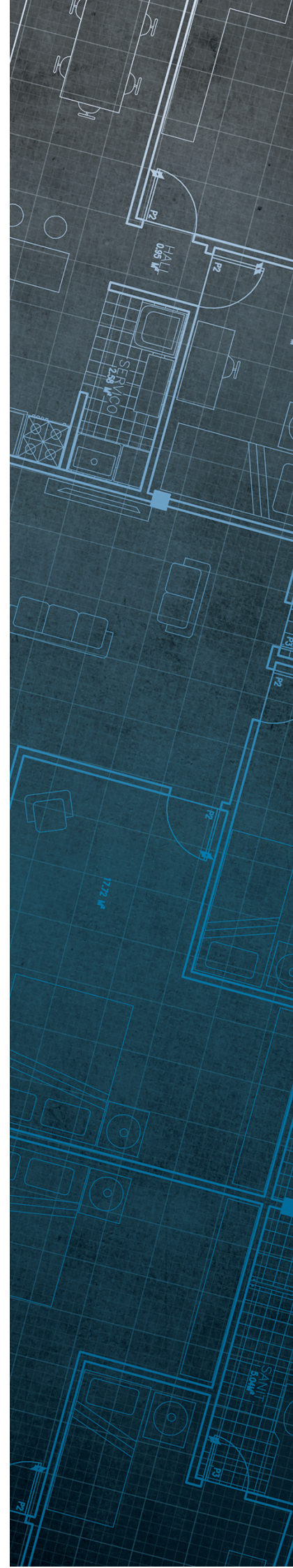


The Coal
Authority

Consultants Coal Mining Report

Wrexham Football Club, The
Racecourse, Mold Road, Wrexham,
LI11 2ah
Wrexham

Date of enquiry:	10 August 2021
Date enquiry received:	10 August 2021
Issue date:	10 August 2021
Our reference:	51002594026001
Your reference:	HMD-33-8113685



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

GROUNDSURE LIMITED

Enquiry address

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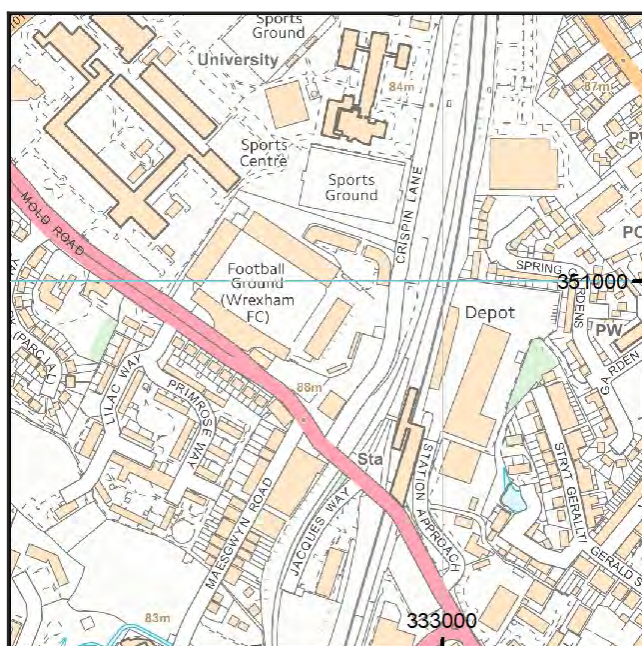
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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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	QUAKER	Coal	3U5J	322	North-West	7.1	East	140	1921
unnamed	QUAKER	Coal	3U5N	331	North-West	7.1	East	140	1921
unnamed	MAIN	Coal	3V3Y	352	North-West	7.1	East	210	1917
unnamed	MAIN	Coal	3V3F	365	Beneath Property	7.1	East	210	1917

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

7170	7601	NW1478
------	------	--------

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

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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

None recorded within 50 metres of the enquiry boundary.

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.

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.

Section 4 – Further information

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

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.

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.

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.

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.

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.

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 

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+44 (0)1623 637 000 (International)
www.groundstability.com

