PHASE I GEO-ENVIRONMENTAL DESK STUDY REPORT

Coleg Sir Gar - Pibwrlwyd Campus

November 2022

hsp consulting

CIVIL | STRUCTURAL | GEOTECHNICAL & ENVIRONMENTAL | TRAFFIC AND TRANSPORT

Lawrence House | 6 Meadowbank Way | Nottingham | NG16 3SB

01773 535555 | design@hspconsulting.com | www.hspconsulting.com

Coleg Sir Gar - Pibwrlwyd Campus

Phase I Geo-Environmental Desk Study Report

This report was produced by HSP Consulting Engineers Ltd for Gleeds Management Services Ltd as the Phase I Geo-Environmental Desk Study Report for Coleg Sir Gar Pibwrlwyd Campus (North of Pibwrlwyd Lane) to provide a preliminary assessment of potential ground related redevelopment constraints and to support a feasibility study.

This report may not be used by any person other than Gleeds Management Services Ltd and must not be relied upon by any other party without the explicit written permission of HSP Consulting Engineers Ltd. In any event, HSP Consulting Engineers Ltd accepts no liability for any costs, liabilities or losses arising as a result of the use or reliance upon the contents of this report by any person other than Gleeds Management Services Ltd.

All parties to this report do not intend any of the terms of the Contracts (Rights of Third Party Act 1999) to apply to this report. Please note that this report does not purport to provide definitive legal advice.

Issue & Revision History

Revision	Status	Originated	Checked	Approved	Date
-	FINAL	N.Shafii BSc (Hons), MSc, FGS	K. Murray BSc (Hons), MSc FGS, ProfGradIMMM	H.Pratt B.Eng (Hons), C.Eng, F.Cons.E, M.I.C.E, MI Mgt.	25.11.2022
Document Reference: HSP2022-C4103-G-GPI-1111				**Project Number:** C4103	

This document is also available in hard copy; please contact the author to obtain a copy.

HSP Consulting Engineers Ltd, Lawrence House, 6 Meadowbank Way, Nottingham, NG16 3SB
T 01773 535555 **W** www.hspconsulting.com

Contents

Appendices

Appendix I	-	Site Location Plan and Site Test to Fit Plan (Proposed Development)
Appendix II	-	Emapsite™ Groundsure Enviro and Geo Insight Report
Appendix III	-	Emapsite™ Historical Map Pack
Appendix IV	-	Basis for Contaminated Land Qualitative Risk Assessment
Appendix V	-	Site Walkover Photographs

Executive Summary

HSP Consulting has been commissioned by Gleeds Management Services Ltd to provide technical studies to inform the feasibility study to enable design of a proposed scheme at an existing further education facility on the site. The geo-environmental desk study (Phase I) is one of a series of studies providing information on likely constraints to the redevelopment of the site. The purpose of the report is to collate background historical and geo-environmental data to address where possible land contamination and stability matters within Planning Policy Guidance.

The site is irregular in shape and is approximately 4.11Ha in area. Vehicle access is gained from the south of the site off Pibwrlwyd Lane, which runs along the length of the site. The site is split into two distinct zones with a trackway separating the two zones; farm zone in the east and developed zone in the west. The eastern area is comprised of fallow. The developed area is occupied by Coleg Sir Gar and is comprised of eight mixed storey buildings with associated hardstanding and soft landscaped areas.

The first edition mapping shows that the site as open fields until the late 1950s where the western section of site was used occupied by Farm Institute. From 1969, the site was replaced by a college until present day.

The surrounding site area is predominantly rural with several isolated buildings from earliest mapping with a railway track present 90m west of the site. Limited development in the form of the expansion of buildings 20m south of the site was identified from 1969. A tank and filter bed was also recorded 20m south of the site from 1969.

The site is underlain by superficial deposits of the Till in the east and Glaciofluvial Deposits in the west. The bedrock geology of site is underlain by Tetragraptus Beds composed of conglomerates, shales and grits. Till is described as Secondary Undifferentiated Aquifer and the Glaciofluvial Deposits are designated as a Secondary A Aquifer. The bedrock geology of Tetragraptus Beds are classified as a Secondary B Aquifer.

The site is not within a flood zone. There is a low risk to the site from groundwater flooding and negligible risk from surface water flooding. There is a negligible risk to the site from surface water flooding or flooding from rivers/sea.

The eastern site area is within an area where 3% to 5% of the properties are above the action level for Radon. The western half of the site is located within an area where 1% to 3% of the properties are above the action level for Radon. Basic radon protection measures will be required for any new development on the site.

The Preliminary Conceptual Site Model indicates a low possibility that harm could arise to a designated receptor from identified hazards.

The executive summary contains an overview of key findings and conclusions. However, no reliance should be placed on the executive summary until the whole of the report has been read. Other

sections of the report may contain information which puts into context the findings noted within the executive summary.

1. Introduction

1.1 Background

This report has been prepared to support a feasibility study for a proposed scheme at the further education site. The assumed development is based upon the 'Site Test to Fit Coleg Sir Gar' May 2022, completed by Scott Brownrigg, provided by the client. The document provides four current options indicating the proposed likely building configuration. It is understood that the most likely option includes a proposed games court in the north of the site, proposed car park in the centre of site and a proposed three-storey building in the south.

1.2 Scope and Limitations

HSP Consulting Engineers Ltd has been commissioned by Gleeds Management Services to provide technical studies to inform the feasibility study to enable design of extensions to an existing education facility on the site. The geo-environmental desk study (Phase I) is one of a series of studies providing information on likely constraints to the redevelopment of the site. The purpose of the report is to collate background historical and geo-environmental data to address where possible land contamination and stability matters within Planning Policy Guidance.

The recommendations made in this report are based on the assessment of the published information and information provided by the Client.

1.3 Report Objectives

The objectives of this report are to:

- Establish the geological and hydrogeological conditions using existing available/published information.
- Summarise available information and identify site specific geotechnical and environmental hazards which may place a constraint upon the proposed site use.
- Produce a Conceptual Site Model and preliminary qualitative environmental risk assessment identifying potential pollution linkages between sources of contamination, pathways and receptors.
- Provide recommendations for Phase II Ground Investigation and any other assessments required.

1.4 Sources of Information

The following sources of information were used during the preparation of this report.

- Emapsite^{TM} Groundsure Enviro and Geo Insight Ref: EMS-812432_1045201
- Emapsite^{TM} Groundsure Historical Mapping Ref: EMS-812432_1045200 Various Scales
- Google Earth Pro Historical Aerial Photography (Accessed: October 2022)
- British Geological Survey. Onshore Geoindex. www.bgs.ac.uk
- Coal Authority Interactive Map: https://mapapps2.bgs.ac.uk/coalauthority/home.html

- DEFRA Magic Map: http://defra.gov.uk/magicmap.asp-909
- British Geological Survey. 1:63,360 geological map series, sheet number 229, Carmarthen, 1967.

A walkover was undertaken by HSP Consulting on the 23rd September 2022. The purpose of the walkover was to record the current land use, topography and principal physical features and to identify, where possible, visual and olfactory indicators of contamination.

2. Site Setting

2.1 The Site

2.1.1 Location

The site is located approximately 2.7km south from the town of Carmarthen and is accessed from Pibwrlwyd Lane. The approximate National Grid Reference for the centre of the site is 241198, 218295. A Site Location Plan is included in Appendix I.

2.1.2 Description

The site is irregular in shape and is approximately 4.11Ha in area. Vehicle access is gained from the south of the site off Pibwrlwyd Lane, which runs south along the length of the site.

The site is split into two distinct zones with a trackway separating the two zones; the east zone comprises an agricultural field which was fallow at the time of the walkover and the west zone is developed.

The developed area is occupied by Coleg Sir Gar and is comprised of eight mixed storey buildings with associated hardstanding and soft landscaped areas. The buildings are mixed CLASP-style buildings with flat roofs or brick and concrete spray with pitched roof. A large car park is present on the northeast section of the developed area and a smaller car park is present centrally south of the developed area. Two storage container and a skip are present in the small car park.

The topography of the site as observed on Google Earth Aerial Imagery was from 25m AOD in the north sloping to 13m AOD in the south of the site.

The site boundaries are comprised of mixed metal fencing, mature trees and hedgerow.

No visual or olfactory evidence of contamination was identified during the walkover.

2.1.3 Surrounding Land Use

The main features of interest identified are:

North:	Agricultural fields.
East:	Agricultural fields.
South:	Coleg Sir Gar and residential housing.
West:	A484, residential housing and agricultural fields.

2.1.4 Proposed End Use

Proposed outline development options are provided within the ‘Site Test to Fit’ provided in Appendix I. These indicate the proposed building area in four separate locations currently. It is understood that the most likely option includes a proposed games court in the north of the site, a proposed car park in the centre of site and a proposed three-storey building in the south.

2.2 Geology

2.2.1 Made Ground

Made ground is not indicated on site in either the BGS mapping or the Emap data set in Appendix II.

2.2.2 Superficial Deposits

BGS mapping shows the site is underlain by Till in the east of the site and Glaciofluvial Deposits in the west of the site. Till is described as Diamicton. Glaciofluvial Deposits are characterised by sand and gravels.

2.2.3 Bedrock Geology

BGS bedrock mapping indicated the site is underlain by Tetragraptus Beds - Mudstone of the Ordovician Period. No description has been provided by the BGS.

2.2.4 Structural Geology

No faults or structural features have been identified within a 250m of the site boundary.

2.2.5 Historical Boreholes

There are no BGS borehole records available within 250m of the site boundary.

2.2.6 Geological Hazard Ratings

The Emapsite™ Insight Report provides ground stability data for the site and surrounding area, a summary is provided in Table 2.2 below:

Table 2.2 - Summary of BGS Hazard Ratings

Hazard	Located	Direction	Hazard Potential
Potential for Collapsible Rocks Stability Hazards	On-site	-	Very Low
Potential for Landslide Ground Stability Hazards	On-site	E-W, S N	Very Low Low
Potential for Ground Dissolution Stability Hazards	On-site	-	Negligible
Potential for Compressible Ground Stability Hazards	On-Site	-	Negligible
Potential for Running Sand Ground Stability Hazards	On-site	N E-W, S	Negligible Very Low
Potential for Shrinking or Swelling Clay Ground Stability Hazards	On-site	-	Very Low

2.3 Mining

2.3.1 BGS Mineral Sites

There are no records of mineral extraction within 250m of the site.

2.3.2 Brine Extraction

No Brine Extraction Areas have been identified within a 250m radius of the site.

2.3.3 Surface Ground Workings

There are fourteen records of surface workings within 250m radius of the site. The records relate to pond (1) 84m southeast, filter beds (2) 32m south and cuttings (11) closest 72m west.

2.3.4 Non-Coal Mining

There is a record of non-coal mining on site. The record relates to a Class B Vein mineral where localised small scale underground mining may have occurred. The potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered.

2.3.5 Coal Mining

The site is not located in an area affected by Coal Mining.

2.4 Hydrogeology

2.4.1 Aquifer Units

The Glaciofluvial Deposits are classified as a Secondary A Aquifer which is described by the Environment Agency (EA) 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. These are generally aquifers formerly classified as minor aquifers'.* Till is designated as a Secondary Undifferentiated Aquifer, described by the EA as *'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'*.

The bedrock deposits of Tetragraptus Beds are classified as Secondary B Aquifer, described by the EA as *'Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thing permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.'*

2.4.2 Groundwater Vulnerability

The site is not located within a Source Protection Zone.

The superficial deposits are classified as low vulnerability. The bedrock geology are classified as medium vulnerability due to well connected features.

2.4.3 Groundwater Abstractions

There are no active or historical groundwater abstraction licences within 1km of the site boundary.

There are four records potable groundwater abstraction licence within 2km of the site boundary. All four records are located 1281m northwest of the site with license number 22/60/3/0022.

2.4.4 Groundwater Discharge Consents

There are no groundwater discharge consents within 250m of the site.

2.5 Hydrology

2.5.1 Nearest Surface Water Course

There are twenty-seven surface water features within 250m radius of the site, all except one entry appear to be drainage channels or small streams on the boundary line of fields. The closest is located 2m east of the site. One entry located 202m west of the site is related to the Afon Tywi (River Towy).

2.5.2 Surface Water Quality

There is a surface water body quality record within 250m radius of the site. It is related to Tywi & Taf & Gwendraeth – Three Rivers Estuary with an overall rating of Moderate in 2019.

2.5.3 Surface Water Abstractions

There are no records of surface water abstractions within 1km of the site.

2.5.4 Surface Water Discharge Consents

There are no discharge consents to surface waters within 250m of the site

2.6 Flood Risk

There is no risk to the site from flooding from rivers and/or the sea, and the site does not fall within a flood zone.

The closest flood defences are recorded 97m west of the site. No historical floods have been recorded.

There is negligible risk from surface water flooding and a low risk from groundwater flooding.

Although the report provides some information on flood risk this does not constitute a flood risk assessment for the site. The flood risk information provided only relates to flooding from Rivers or Seas and surface water. It does not account for flooding from other sources such as blockages in drainage systems and artificial water features. A separate Flood Risk Assessment is likely to be required for the site.

2.7 Radon

The eastern area of the site is located within an area where 3% to 5% of the properties are above the action level for Radon. The western area of the site is located within an area of 1% to 3% of the properties are above the action level for Radon. Therefore, basic radon protection will be required for any new development on the site.

2.8 Sensitive Land Uses, Ecological and Statutory Designations

A Site of Special Scientific Interest (SSSI) has been identified within a 250m radius of the site. The record relates to Afon Tywi (River Towy) located 202m west of the site. Afon Tywi (River Towy) is also designated as a Special Area of Conservation (SAC).

A Listed Building is recorded within 250m radius of the site. The record relates to a Grade II Listed Building Pibwr Farmhouse located 68m south of the site.

There are no records of sensitive land use (LNR, Designated Greenbelt, Ancient Woodland, Environmentally Sensitive Areas, etc) have been identified within a 250m radius of the site.

3. Site History

The following section details the historical development of the site, with reference to historical Ordnance Survey maps. All distances are approximate and given from the site boundary. Descriptions in italics are as identified on the historical plans. For a complete list of maps consulted refer to the Emapsite™ Historical Mapping presented in Appendix III.

Table 3 - Summary of Historical Maps

Published Map Date & Scale	Land Use on Site	Surrounding Land Use
Date: 1886 - 1907 Scale: 1:2,500 1:10,560 County Series	The earliest available mapping shows the site to be occupied by fields. An small area of heath land is located in the south of the site.	The surrounding area is predominantly fields and farmland. A road is recorded immediately south of the site. There are several buildings identified 10m south of the site. Two *springs* are located 100m south of the site and 120m southeast of the site. The stream south of the site is replaced by a *well* in 1906. A road is identified immediately west of the site. A small building is recorded 50m west of the site. A railway line orientated north to south is located 90m west of the site within a cutting. Afon Tywi (River Towy) is recorded 202m west of the site with a flow direction north to south.
Date: 1948 - 1963 Scale: 1:10,560 County Series Provisional	The western area of site is recorded as *Farm Institute* with three buildings in the south and an orchard located centrally west.	The well is no longer recorded.
Date: 1969 - 1992 Scale: 1:1,250 1:2,500 1:10,000 1:10,560 County Series Provisional National Grid	Farm Institute is no longer recorded on site. The western area of site is now recorded as *Pibwrlwyd Rural Technical College* with associated buildings and hardstanding. A slope is shown in the southwest .	A stream is identified immediately east of the site with a flow direction north to south. Additional buildings have been recorded 20m south of the site. *Filter Beds* are recorded 20m south of the site. A *tank* is recorded 20m south of the site.
Date: 1993 - 2020 Scale: 1:1,250 1:10,000 LandLine National Grid Aerial Photography	The site is in its current day layout as a college.	The filter beds are no longer recorded.

4. Environmental Data

4.1 Polluting Activity

4.1.1 Pollution Incidents

There are five records of pollution incidents within 250m radius of the site. The closest record relates to Inert Materials and Waste located 193m southwest from the site. The incident has a Category 3 (Minor Impact) for land and a Category 4 (No Impact) for water and air.

4.2 Licensed Industrial Activity

4.2.1 Control of Major Accidents Hazards (COMAH)

There are no records within 250m of the site for historical COMAH and Notification of Installations Handling Hazardous Substances (NIHHS).

4.2.2 Licensed Sites

There are no Part 2 A or Part B Licences recorded within 250m radius of the site.

There are no Registered Radioactive Substance Licences recorded within 250m of the site.

4.2.3 Industrial Activities

There are two recent industrial land uses recorded within a 250m radius of the site. The closest is located on site and relates to a telecommunications mast. The other entry relates to a tank located 16m south of the site.

There are twenty-one historical land uses recorded within a 250m radius of the site. The closest is unspecified commercial/industrial identified recorded 3m south of the site. The other records relate to cuttings (11), railway sidings (5), unspecified tank (2) and filter beds (2).

4.2.4 Fuel Stations & Tanks

There are no recorded petrol stations located within 250m of the site.

There are six records of historical tanks within 250m radius of the site. The first four entries relate to a tank located approximately 21m south of the site from 1968 to 1987. Two further entries relate to a tank 41m south from 1987 to 1997. It is unknown what constituents were held in the tanks.

There are no records of high-pressure underground pipelines (oil and gas) within 250m of the site.

4.3 Waste and Material Storage Locations

4.3.1 Landfill

There is one record of Active or Recent landfill site recorded within a 250m radius of the site. The record relates to Pibwrlwyd Inert Landfill located 86m south of the site and is licenced for Non Biodegradeable wastes. The status is shown as closure.

There are two records of historical landfill sites recorded within a 250m radius of the site. The closest record relates to Pibwrlwyd Farm located 123m north of the site for inert, industrial and household waste.

4.3.2 Licensed Waste Sites

There are seven records of licensed waste sites within 250m radius of the site. The records all relate to Pibwrlwyd Inert Landfill for non biodegradeable waste.

4.3.3 Waste Exemptions

There is one waste exemption within 250m radius of the site. The record is located 20m south of the site and relates to spreading waste on agricultural land.

4.5 Summary

Based on the information collated for the desk study, the geo-environmental setting of the site is summarised as follows:

- The first edition mapping shows that the site as open fields until the late 1950s where the western section of site was occupied by Farm Institute. From 1969, the Farm Institute was no longer shown, having been replaced by a college until present day. The eastern area of the site has remained as agricultural land.
- The surrounding site area is predominantly rural with several isolated buildings from earliest mapping with a railway track present 90m west of the site. Limited development in the form of the expansion of buildings 20m south of the site was identified from 1969. A tank and filter bed were also recorded from 1969 to 1993.
- The site is underlain by superficial deposits of Till in the east and Glaciofluvial Deposits in the west. The bedrock geology of site is underlain by Tetragraptus Beds – mudstone.
- The site is not within a flood zone. There is a low risk to the site from groundwater flooding and negligible risk from surface water flooding. There is a negligible risk to the site from flooding from rivers/sea.
- Till is described as Secondary Undifferentiated Aquifer and the Glaciofluvial Deposits are designated as a Secondary A Aquifer. The bedrock geology of Tetragraptus Beds are classified as a Secondary B Aquifer.
- The eastern site area is within an area where 3% to 5% of the properties are above the action level for Radon. The western half of the site is located within an area where 1% to 3% of the properties are above the action level for Radon. Basic radon protection measures will be required for any new development on the site.
- There is a record of active or recent landfill identified as PIbwrlwyd Inert Landfill which is located 86m south of the site. There are two records of historical landfills within 250m radius of the site, the closest relates to Pibwrlwyd Farm 123m north of the site.

Based on the above, the environmental sensitivity of the site can be considered to be low at this stage.

5. Preliminary Conceptual Site Model (PCSM)

5.1 Introduction

The approach to the human health risk assessment reported here follows the principals given in the Land Contamination Risk Management (LCRM) Guidance https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm i.e. application of the following assessment hierarchy:

The basis of above guidance is the development of the conceptual site model (CSM) which is the representation of the source-pathway-receptor (pollutant) linkages upon which the assessment of risk can be based.

5.2 Risk Assessment Approach

The approach to the human health risk assessment reported here follows the principals given in LCRM guidance, i.e. application of the following assessment hierarchy:

- Tier 1 risk screening by establishment of potential pollutant linkages, i.e. the preliminary conceptual site model (PCSM), or
- Tier 2 generic quantitative assessment using generic assessment criteria (GACs) that represent 'acceptably low' risk, or
- Tier 3 quantitative risk assessment using site specific assessment criteria (SSACs) that represent 'unacceptable risk', or where generic assessment criteria are not available, or they are not applicable to the CSM.

The potential sources of contamination based on historical and current land uses were identified using the Emapsite™ Enviro + Geo Insight Report and Emapsite™ Historical Mapping (Appendix II & III) and Department of the Environment Industry Profiles. In the absence of a standard scenario for a school environment the standard exposure scenario of residential without home grown produce has been used to identify potential exposure pathways for human health receptors. Controlled water, flora and fauna and property receptors have also been included within the PCSM. There is no change to the current end use of the site.

5.3 Preliminary Conceptual Site Model

The PCSM was produced by undertaking a Source-Pathway-Receptor analysis of the site:

Sources (**S**) are potential or known contaminant sources, e.g. a former land use:
Pathways (**P**) are environmental systems through which a contaminant could migrate, e.g. air, groundwater.
Receptors (**R**) are sensitive environmental receptors that could be adversely affected by a contaminant, e.g. Site Occupiers, groundwater resources.

5.3.1 For a pollutant linkage to exist between a contaminant source and a receptor, a pathway must be present.

5.3.2 Sources

The potential sources of contamination within 250m of the site and associated groups of potentially contaminative substances are outlined below. The list of potential contaminants was derived from the Department of the Environment Industry Profiles. The activities and substances listed below should not be considered exhaustive and provides a guide to the likely range of contaminants which may be present.

On Site

S1: Historical and Contemporary land use: Made Ground associated with development of the site.
Inorganic and organic contaminants including heavy metals, metalloids, sulfates/sulphur containing compounds, TPH's, PAHs and asbestos.

S2: Historical land use: Former use as an orchard and agricultural land.
Inorganic and organic contaminants including heavy metals, metalloids, herbicides and pesticides.

Off Site

S3: Historical and Contemporary land use: Tank, filter beds, railway
PAHs, Inorganic and organic contaminants including heavy metals, metalloids, cyanides, sulfates/sulphur containing compounds, TPH's and asbestos.

On and Off Site Sources

S4: Ground Gases: Made Ground
Carbon dioxide and methane.

S5: Ground Gases: Recent and Historical Landfill
Carbon dioxide and methane.

5.3.3 Pathways

The site is underlain by superficial deposits classified as Secondary A Aquifer and Secondary Undifferentiated Aquifer. The bedrock deposits are classified as Secondary A Aquifer. The nearest surface water feature is a small stream located immediately east of the site. Afon Tywi is located 202m west of the site.

P1: Human uptake:

- Dermal contact with soils and dust
- Ingestion of soils and dust
- Inhalation of soils, dust and vapour

P2: Horizontal and vertical migration of contaminants through potentially permeable soils
P3: Direct Contact
P4: Migration along preferential pathways via underground services and drainage runs (pipes, culverts and granular material)
P5: Overland flow / surface runoff
P6: Vertical and lateral migration of ground gases and/or vapour
P7: Root uptake

5.3.4 Receptors

R1: End Users: Staff and students
R2: Construction and maintenance workers
R3: Controlled Water: Groundwater and surface waters within 250m.
R4: Property: Services (e.g. drinking water supply pipes) and structures/buildings (concrete used in foundations)
R5: Adjacent residential properties
R6: Proposed flora and fauna

5.3.5 Preliminary Qualitative Risk Assessment

For each potential pollutant linkage identified within the PCSM, the potential risk has been assessed on the probability of a pollution event and the severity it may have on the identified receptors. The results are presented in Table 5.3 below. The methodology for the assessment is presented in Appendix IV.

Table 5.3 Preliminary Conceptual Site Model and Qualitative Risk Assessment

Source	Pathway	Receptor	Consequence	Probability	Risk	Comments
On site **S1:** Historical and Contemporary land use: Made Ground associated with development of the site **S2:** Historical land use: Orchard.	**P1:** Human uptake pathways	**R1:** End Users	Mild	Low Likelihood	Low	There is some limited potential for Made Ground associated with the historic use of the site and the licence to use waste in construction materials at the site. It is possible that end users / construction workers will come into contact with potentially contaminated soils across the site. Any pesticides from former orchard and agricultural usage would have been limited and removed from the west of the site during development for a college. This should be quantified during a ground investigation. Given the potential for limited contamination, the risk is considered to be **LOW.**
		R2: Construction and Maintenance workers	Mild	Low Likelihood	Low	
	P2: Horizontal and vertical migration of mobile contaminants through potentially permeable soils. **P4**: Migration along preferential pathways (man-made) **P5**: Overland flow/surface runoff	**R3:** Controlled Waters: Groundwater and Surface water	Medium	Unlikely	Low	The permeable soils beneath the site are limited to the superficial deposits which are classified as a Secondary A and Secondary Undifferentiated Aquifer. Surface waters surrounding the site are drainage channels, small streams and Afon Tywi (River Towy). Given the limited potential pathways and low vulnerability of the receptors, the risk to groundwater and surface water is considered to be **LOW.**
	P3: Direct Contact **P4**: Migration along preferential pathways (man-made) **P5**: Overland flow/surface runoff	**R4:** Property, services and substructures	Medium	Unlikely	Low	Made Ground and natural deposits may be aggressive to concrete and underground utilities. The risk is considered to be **LOW.** However, this should be quantified by further site investigation.
	P7: Root uptake.	**R6:** Proposed Flora and fauna	Mild	Unlikely	Very Low	Proposals for the development show no additions to soft landscaping. The risk at this stage of uptake to proposed flora and fauna is considered to be **VERY LOW.**
Off site	**P1**: Human uptake pathways	**R1:** End Users	Mild	Unlikely	Very Low	Potential sources of off-site contamination have been identified within 250m of the site; however, due to permeable ground conditions being limited to

S3: Historical and Contemporary Land Use: Tank and Filter Beds.	**P2:** Horizontal and vertical migration of mobile contaminants through potentially permeable soils and rocks.	**R3:** Controlled Waters: Surface Water, Groundwater	Mild	Unlikely	Very Low	superficial deposits the pathway to the site is restricted. The risk is considered to be **VERY LOW.**
On and Off Site **S4:** Ground Gases from made ground **S5:** Ground Gases from historical and recent landfill	**P6**: Vertical and lateral migration of ground gases and/or vapour.	**R1:** End Users	Medium	Low Likelihood	Low	Sources of ground gases have been identified from Made Ground both on and off site due to development. Made Ground (**S4)** is expected to be shallow and historical and recent landfill **(S5)** is particularly aged, and likely to have suitably degraded to concentrations that flow rates of ground gases are unlikely to be of significance to impact human health. However, the risk at present remains unknown and should be investigated further as part of any ground investigation. At this stage the risk is considered to be **LOW**.

6. Preliminary Engineering Constraints and Recommendations

According to the 'Site Test to Fit' there are four current potential building locations at the site. It is understood that the most likely option includes a proposed games court in the north of the site, proposed car park in the centre of site and a proposed three-storey building in the south.

6.1 Geotechnical Constraints

Made ground may be present across the site due to former land uses and the use of waste in construction materials on site.

Limited but possible sources of ground gas have been identified, although the likelihood of significant ground gas is low.

The groundwater regime on site is unknown and should be assessed further, if possible.

The soils and groundwater on site may be aggressive to buried/surface concrete and proposed utilities and should be assessed further.

6.2 Environmental Constraints

Any Made Ground on site may contain elevated concentrations of potentially harmful contaminants which may present a risk to the receptors identified in the PCSM including end users, adjacent residential buildings, or construction workers.

Potential sources of ground gas have been identified in the form of potential Made Ground, historical and recent landfill, although this is expected to be limited. Given the nature of the site, ground gas monitoring may be required in accordance with BS8485:2015.

The Preliminary Conceptual Site Model indicates a moderate to low possibility that harm could arise to a designated receptor from identified hazards.

6.3 Recommendations

HSP would recommend that an intrusive geo-environmental investigation be undertaken across the site to confirm the recommendations outlined above.

The objectives of the investigation should be as follows:

- To establish the ground conditions laterally and vertically across the site, including the presence, distribution and composition of any Made Ground.
- To obtain soil samples for contamination analysis, in order to refine the PCSM and undertake generic quantitative risk assessment.
- To obtain data on the ground gas and groundwater regime.
- To obtain geotechnical design parameters for the proposed new buildings including in-situ and laboratory testing.

- To assess if the soils and groundwater on site are likely to be aggressive to buried/surface concrete and proposed utilities.

As a guide the following ground investigation scope is likely to be required

- Windowless Samper Boreholes and Cable Percussive boreholes with in-situ testing and sample recovery.
- Standard CLEA chemical analysis suites (to include total metals/semi metals, inorganics, PAH speciated & TPH CWG) plus Asbestos Screen & ID.
- Dual purpose gas and groundwater monitoring wells.
- 4No monitoring events (weekly for four weeks) for ground gases and groundwater levels (this will be reviewed based on the findings of the ground investigation).
- Geotechnical Testing to include Plasticity Index & moisture content, BRE Sulphates (soils and groundwater, if present).

Appendix I

DO NOT SCALE

NOTES:

- Red Line Boundary

N

hsp consulting
Lawrence House, Meadowbank Way,
Eastwood, Nottingham, NG16 3SB
Tel: 01773 535 555 Fax: 0870 600 6091
www.hspconsulting.com

CLIENT:
Gleeds Management Ltd

PROJECT:
Coleg Sir Gar – Pibwrlwyd Campus

TITLE:
Site Location Plan

SCALE@SIZE :	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
NS	OCT 2022
PROJECT No:	DRAWING No:
C4103	502

COLEG SIR GAR

Site Test to Fit - Site Review

Scale 1:1000 @A1

Key:

- Option 1
- Option 2
- Option 3
- Preferred location for sports pitches
- Proposed building

Site Weaknesses:

Option 1

- The area is at risk of flooding.
- The access to the site is limited due to the existing facilities.
- Ground bearing quality is uncertain .

Option 2

- The access to the site is limited due to the existing facilities.
- There is a steep gradient at the site, therefore this will require consideration of the building location in order to avoid excess costly earthworks.
- Topography would result in a new building appearing as over-bearing to neighbouring dwellings along Pibwrlwyd Lane.

Site Strengths:

Option 3

- Elevated area allows better views from the site.
- Establishing a better relationship between the north and south part of the site.
- Better access from the main road - Pibwrlwyd Lane.
- Opportunity to make the site as the central hub of the campus.
- Opportunity for future expansion on the eastern part of the site (green area).
- Opportunity to create a relationship between the campus site and future residential facilities on the northern part of the site.

COLEG SIR GAR

Site Test to Fit - 3 Storey Scenario

Scale 1:1000 @A1

Key:

- Proposed building
- Opportunity for future expansion
- Potential temporary car park
- Proposed car park location with approx. 128 spaces
- Proposed games courts location

Site Weaknesses:

- Significant level changes within the topography.
- The topography of the site needs to be considered and retaining walls will potentially be introduced.

Site Strengths:

- More connected with the southern part of the campus due to proximity.
- Better access from the main road - Pibwrlwyd Lane.
- Close proximity to the potential temporary car park.
- Establishes a better relationship with the campus.

COLEG SIR GAR

Site Test to Fit - 3 Storey Scenario

Scale 1:1000 @A1

Key:

- Proposed building
- Opportunity for future expansion
- Potential temporary car park
- Proposed car park location with approx. 128 spaces
- Proposed games courts location

Site Weaknesses:

- The area is far from the southern part of the campus.
- There is no connection between the northern and southern part of the campus.
- Little opportunity for the overall campus hub.
- Does not relate to anything.
- The games courts are dislocated from the main campus.

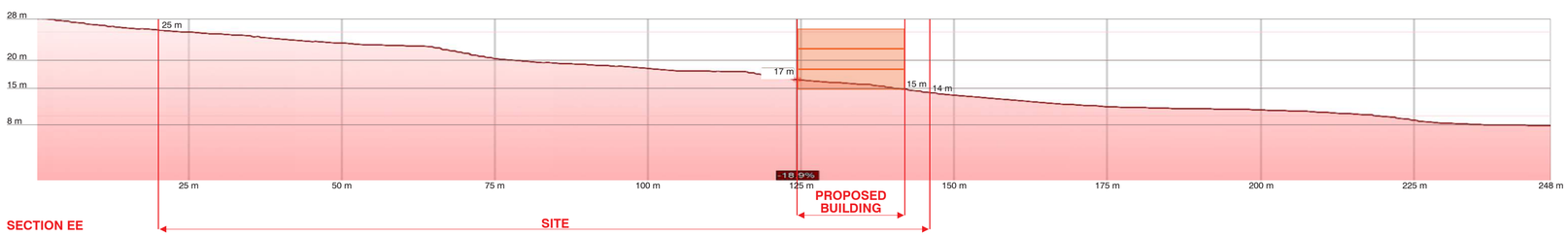
Site Strengths:

- The flattest area of the site.
- Phasing demolition strategy.

COLEG SIR GAR

Site Test to Fit - 3 Storey Scenario

Scale 1:1000 @A1



Key:

- Proposed building
- Opportunity for future expansion
- Potential temporary car park
- Proposed car park location with approx. 128 spaces
- Proposed games courts location
- If the building was to be moved as far as possible to the western part of the area
- Potential early demolishing of the building
- Extension of the existing car park
- Connection between the South and North part of the campus

Site Weaknesses:

- Significant level changes within the topography.
- The topography of the site needs to be considered and retaining walls will potentially be introduced.

Site Strengths:

- More connected with the southern part of the campus due to proximity.
- Better access from the main road - Pibwrlwyd Lane.
- Close proximity to the potential temporary car park.
- Establishes a better relationship with the campus.
- Linear building following the contours of the site requires less excavation into the hill.

Appendix II

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

Order Details

Date: 23/09/2022

Your ref: EMS_812432_1005425

Our Ref: EMS-812432_1045201

Site Details

Location: 241198 218295

Area: 4.11 ha

Authority: Sir Gaerfyrddin - Carmarthenshire County Council

Contact us with any questions at:
info@groundsure.com
08444 159 000

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	0	5	15	26	-
16	1.2	Historical tanks	0	4	0	0	-
17	1.3	Historical energy features	0	0	0	1	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
18	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
19	2.1	Historical industrial land uses	0	5	16	31	-
21	2.2	Historical tanks	0	6	0	0	-
22	2.3	Historical energy features	0	0	0	1	-
22	2.4	Historical petrol stations	0	0	0	0	-
22	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
24	3.1	Active or recent landfill	0	0	1	0	-
25	3.2	Historical landfill (BGS records)	0	0	0	0	-
25	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
25	3.4	Historical landfill (EA/NRW records)	0	0	2	0	-
26	3.5	Historical waste sites	0	0	0	0	-
26	3.6	Licensed waste sites	0	0	7	0	-
28	3.7	Waste exemptions	0	1	0	0	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
29	4.1	Recent industrial land uses	0	2	0	-	-
30	4.2	Current or recent petrol stations	0	0	0	1	-
30	4.3	Electricity cables	0	0	0	0	-
30	4.4	Gas pipelines	0	0	0	0	-
30	4.5	Sites determined as Contaminated Land	0	0	0	0	-

30	**4.6**	**Control of Major Accident Hazards (COMAH)**	0	0	0	1	-
31	4.7	Regulated explosive sites	0	0	0	0	-
31	4.8	Hazardous substance storage/usage	0	0	0	0	-
31	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
31	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
32	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	0	1	-
32	4.12	Radioactive Substance Authorisations	0	0	0	0	-
32	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	3	-
33	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
33	4.15	Pollutant release to public sewer	0	0	0	0	-
33	4.16	List 1 Dangerous Substances	0	0	0	0	-
33	4.17	List 2 Dangerous Substances	0	0	0	0	-
34	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	5	2	-
35	4.19	Pollution inventory substances	0	0	0	0	-
35	4.20	Pollution inventory waste transfers	0	0	0	0	-
35	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
36	**5.1**	**Superficial aquifer**	Identified (within 500m)				
38	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
39	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
40	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
40	5.5	Groundwater vulnerability- local information	None (within 0m)				
42	**5.6**	**Groundwater abstractions**	0	0	0	0	16
46	**5.7**	**Surface water abstractions**	0	0	0	0	3
47	**5.8**	**Potable abstractions**	0	0	0	0	4
48	5.9	Source Protection Zones	0	0	0	0	-
48	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
49	**6.1**	**Water Network (OS MasterMap)**	0	5	22	-	-

52	6.2	Surface water features	0	2	15	-	-
52	6.3	WFD Surface water body catchments	2	-	-	-	-
52	6.4	WFD Surface water bodies	0	0	1	-	-
53	6.5	WFD Groundwater bodies	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
54	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
55	7.2	Historical Flood Events	0	0	0	-	-
55	7.3	Flood Defences	0	0	1	-	-
55	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
55	7.5	Flood Storage Areas	0	0	0	-	-
56	7.6	Flood Zone 2	None (within 50m)				
56	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
57	8.1	Surface water flooding	Negligible (within 50m)

Page	Section	Groundwater flooding	
58	9.1	Groundwater flooding	Low (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
59	10.1	Sites of Special Scientific Interest (SSSI)	0	0	1	1	0
60	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
60	10.3	Special Areas of Conservation (SAC)	0	0	1	0	1
61	10.4	Special Protection Areas (SPA)	0	0	0	0	0
61	10.5	National Nature Reserves (NNR)	0	0	0	0	0
61	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
62	10.7	Designated Ancient Woodland	0	0	0	0	20
63	10.8	Biosphere Reserves	0	0	0	0	0
63	10.9	Forest Parks	0	0	0	0	0
63	10.10	Marine Conservation Zones	0	0	0	0	0
63	10.11	Green Belt	0	0	0	0	0
63	10.12	Proposed Ramsar sites	0	0	0	0	0

64	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
64	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
64	10.15	Nitrate Sensitive Areas	0	0	0	0	0
64	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
65	10.17	SSSI Impact Risk Zones	0	-	-	-	-
65	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
66	11.1	World Heritage Sites	0	0	0	-	-
67	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
67	11.3	National Parks	0	0	0	-	-
67	**11.4**	**Listed Buildings**	0	0	1	-	-
68	11.5	Conservation Areas	0	0	0	-	-
68	11.6	Scheduled Ancient Monuments	0	0	0	-	-
68	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
69	**12.1**	**Agricultural Land Classification**	Grade 3a (within 250m)				
70	12.2	Open Access Land	0	0	0	-	-
70	12.3	Tree Felling Licences	0	0	0	-	-
70	12.4	Environmental Stewardship Schemes	0	0	0	-	-
70	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
71	13.1	Priority Habitat Inventory	0	0	0	-	-
71	13.2	Habitat Networks	0	0	0	-	-
71	13.3	Open Mosaic Habitat	0	0	0	-	-
71	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
72	**14.1**	**10k Availability**	Identified (within 500m)				
73	14.2	Artificial and made ground (10k)	0	0	0	0	-
74	14.3	Superficial geology (10k)	0	0	0	0	-

74	14.4	Landslip (10k)	0	0	0	0	-
75	14.5	Bedrock geology (10k)	0	0	0	0	-
75	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
76	**15.1**	**50k Availability**	Identified (within 500m)				
77	15.2	Artificial and made ground (50k)	0	0	0	0	-
77	15.3	Artificial ground permeability (50k)	0	0	-	-	-
78	**15.4**	**Superficial geology (50k)**	2	0	2	3	-
79	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
79	15.6	Landslip (50k)	0	0	0	0	-
79	15.7	Landslip permeability (50k)	None (within 50m)				
80	**15.8**	**Bedrock geology (50k)**	1	0	0	1	-
81	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
81	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
82	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
83	**17.1**	**Shrink swell clays**	Very low (within 50m)				
84	**17.2**	**Running sands**	Very low (within 50m)				
86	**17.3**	**Compressible deposits**	Negligible (within 50m)				
87	**17.4**	**Collapsible deposits**	Very low (within 50m)				
88	**17.5**	**Landslides**	Low (within 50m)				
90	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
92	18.1	Natural cavities	0	0	0	0	-
93	18.2	BritPits	0	0	0	0	-
93	**18.3**	**Surface ground workings**	0	2	12	-	-
94	18.4	Underground workings	0	0	0	0	0
94	18.5	Historical Mineral Planning Areas	0	0	0	0	-

94	**18.6**	**Non-coal mining**	1	0	0	0	0
94	18.7	Mining cavities	0	0	0	0	0
95	18.8	JPB mining areas	None (within 0m)				
95	18.9	Coal mining	None (within 0m)				
95	18.10	Brine areas	None (within 0m)				
95	18.11	Gypsum areas	None (within 0m)				
95	18.12	Tin mining	None (within 0m)				
96	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
97	**19.1**	**Radon**	Between 3% and 5% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
99	**20.1**	**BGS Estimated Background Soil Chemistry**	3	3	-	-	-
99	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
100	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
101	21.1	Underground railways (London)	0	0	0	-	-
101	21.2	Underground railways (Non-London)	0	0	0	-	-
102	21.3	Railway tunnels	0	0	0	-	-
102	**21.4**	**Historical railway and tunnel features**	0	0	8	-	-
102	21.5	Royal Mail tunnels	0	0	0	-	-
103	21.6	Historical railways	0	0	0	-	-
103	**21.7**	**Railways**	0	0	5	-	-
103	21.8	Crossrail 1	0	0	0	0	-
103	21.9	Crossrail 2	0	0	0	0	-
104	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 13/04/2020

Site Area: 4.11ha

Recent site history - 2017 aerial photograph

Capture Date: 25/05/2017

Site Area: 4.11ha

Recent site history - 2013 aerial photograph

Capture Date: 04/06/2013

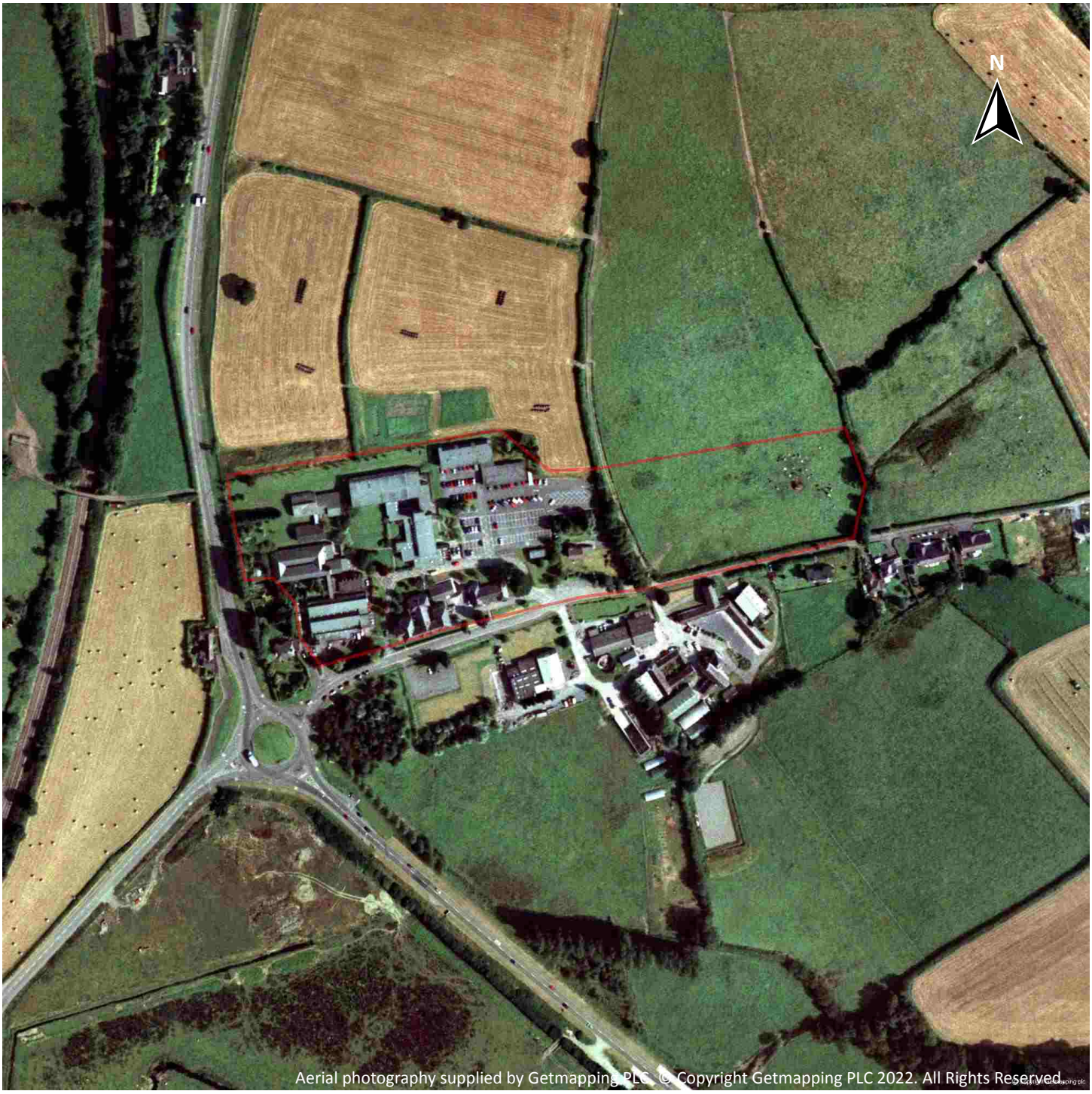
Site Area: 4.11ha

Recent site history - 2009 aerial photograph

Capture Date: 11/09/2009

Site Area: 4.11ha

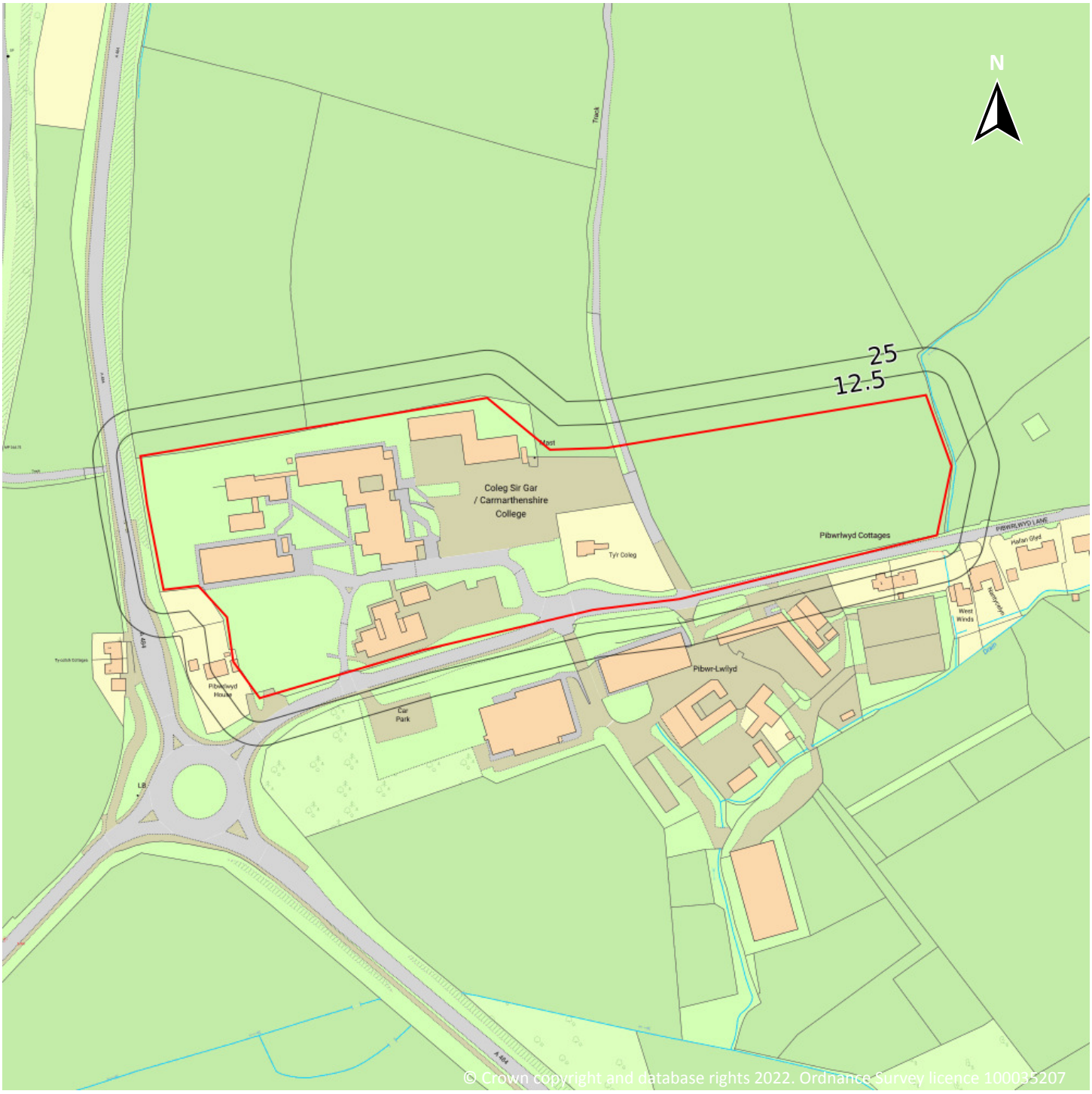
Recent site history - 2000 aerial photograph



Capture Date: 21/07/2000

Site Area: 4.11ha

OS MasterMap site plan



Site Area: 4.11ha

1 Past land use

Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	46

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	3m S	Unspecified Commercial/Industrial	1989	264057

ID	Location	Land use	Dates present	Group ID
A	32m S	Unspecified Tank	1989	252579
A	32m S	Filter Beds	1971	255883
A	35m S	Filter Beds	1989	255881
A	44m S	Unspecified Tank	1989	252580
B	72m W	Cuttings	1971	285834
B	72m W	Cuttings	1989	313250
B	72m W	Cuttings	1907	311279
B	75m W	Cuttings	1887	285039
B	75m W	Cuttings	1948	317415
1	78m W	Cuttings	1963	315969
C	88m W	Cuttings	1963 - 1971	277433
C	88m W	Cuttings	1989	302518
D	103m NW	Railway Sidings	1963	292184
E	122m NW	Railway Sidings	1905 - 1907	313870
F	132m NW	Railway Sidings	1948	302001
G	226m N	Railway Sidings	1989	272875
G	226m N	Railway Sidings	1971	285686
F	242m N	Cuttings	1989	287574
F	242m N	Cuttings	1971	304001
E	335m N	Junction Station	1907	263919
E	335m N	Railway Station	1963	315657
E	339m N	Railway Station	1948	284371
E	339m N	Railway Station	1887	305813
E	341m N	Railway Building	1963	256317
3	343m NE	Nursery	1887	311214
G	368m N	Railway Sidings	1938 - 1948	305072
D	388m N	Unspecified Depot	1989	254417
4	398m N	Cuttings	1989	268738

ID	Location	Land use	Dates present	Group ID
5	404m E	Cuttings	1989	268741
G	411m N	Railway Sidings	1886	271457
D	436m N	Railway Buildings	1963	277446
D	436m N	Railway Buildings	1948	309787
D	447m N	Railway Buildings	1886	251528
D	447m N	Engine Shed	1948	298319
D	453m N	Railway Building	1886	256318
D	455m N	Engine Shed	1905 - 1938	317279
G	457m N	Railway Sidings	1905	309715
D	458m N	Engine Shed	1963	295259
H	469m NE	Nursery	1948	294164
D	476m N	Goods Shed	1905 - 1938	313949
6	476m NE	Nursery	1886	279871
D	477m N	Goods Shed	1948	301447
D	478m N	Goods Shed	1963	287287
H	490m NE	Nursery	1963	280646
H	491m NE	Nursery	1907	277814

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**4**

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

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

ID	Location	Land use	Dates present	Group ID
A	21m S	Unspecified Tank	1987 - 1997	36292

ID	Location	Land use	Dates present	Group ID
A	22m S	Unspecified Tank	1987	33203
A	23m S	Unspecified Tank	1968	35506
A	41m S	Unspecified Tank	1987 - 1997	36580

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	1

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

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

ID	Location	Land use	Dates present	Group ID
2	332m N	Electricity Substation	1997	17413

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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

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

This data is sourced from Ordnance Survey / Groundsure.

1.6 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

2.1 Historical industrial land uses

Records within 500m	52

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 19**

ID	Location	Land Use	Date	Group ID
A	3m S	Unspecified Commercial/Industrial	1989	264057
A	32m S	Filter Beds	1971	255883
A	32m S	Unspecified Tank	1989	252579

ID	Location	Land Use	Date	Group ID
A	35m S	Filter Beds	1989	255881
A	44m S	Unspecified Tank	1989	252580
B	72m W	Cuttings	1971	285834
B	72m W	Cuttings	1989	313250
B	72m W	Cuttings	1907	311279
B	75m W	Cuttings	1948	317415
B	75m W	Cuttings	1887	285039
1	78m W	Cuttings	1963	315969
C	88m W	Cuttings	1971	277433
C	88m W	Cuttings	1963	277433
C	88m W	Cuttings	1989	302518
D	103m NW	Railway Sidings	1963	292184
E	122m NW	Railway Sidings	1907	313870
E	132m NW	Railway Sidings	1948	302001
F	226m N	Railway Sidings	1971	285686
F	226m N	Railway Sidings	1989	272875
E	242m N	Cuttings	1971	304001
E	242m N	Cuttings	1989	287574
G	335m N	Junction Station	1907	263919
G	335m N	Railway Station	1963	315657
G	339m N	Railway Station	1948	284371
G	339m N	Railway Station	1887	305813
G	341m N	Railway Building	1963	256317
3	343m NE	Nursery	1887	311214
D	368m N	Railway Sidings	1948	305072
D	388m N	Unspecified Depot	1989	254417
4	398m N	Cuttings	1989	268738
5	404m E	Cuttings	1989	268741

ID	Location	Land Use	Date	Group ID
F	411m N	Railway Sidings	1886	271457
F	415m N	Railway Sidings	1948	305072
F	419m N	Railway Sidings	1938	305072
F	424m N	Railway Sidings	1905	313870
D	436m N	Railway Buildings	1948	309787
D	436m N	Railway Buildings	1963	277446
D	447m N	Engine Shed	1948	298319
D	447m N	Railway Buildings	1886	251528
D	453m N	Railway Building	1886	256318
D	455m N	Engine Shed	1938	317279
F	457m N	Railway Sidings	1905	309715
D	458m N	Engine Shed	1905	317279
D	458m N	Engine Shed	1963	295259
H	469m NE	Nursery	1948	294164
D	476m N	Goods Shed	1938	313949
6	476m NE	Nursery	1886	279871
D	477m N	Goods Shed	1948	301447
D	478m N	Goods Shed	1963	287287
D	479m N	Goods Shed	1905	313949
H	490m NE	Nursery	1963	280646
H	491m NE	Nursery	1907	277814

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**6**

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

Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
A	21m S	Unspecified Tank	1987	36292
A	22m S	Unspecified Tank	1997	36292
A	22m S	Unspecified Tank	1987	33203
A	23m S	Unspecified Tank	1968	35506
A	41m S	Unspecified Tank	1987	36580
A	41m S	Unspecified Tank	1997	36580

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	1

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 19**

ID	Location	Land Use	Date	Group ID
2	332m N	Electricity Substation	1997	17413

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

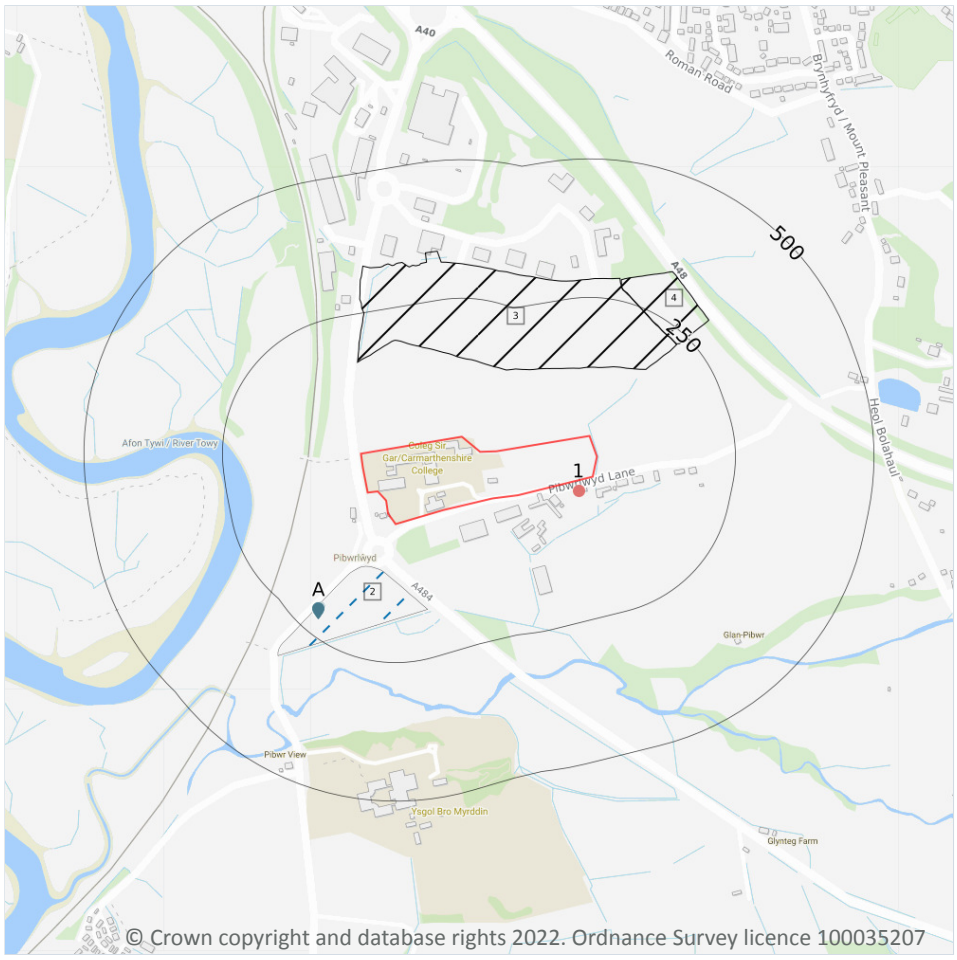
2.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Active or recent landfill

Historical landfill (EA/NRW)

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Details	
2	86m S	Operator: Davies John Alan Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthen, Carmarthenshire, SA31 2NH	WML Number: 34080 EPR Reference: DAV002 Landfill type: A5 : Landfill taking Non-Biodegradeable Wastes Status: Closure IPPC Reference: - EPR Number: EAEPR\EA/EPR/MP3498FG/A001

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	2

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

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Details		
3	123m N	Site Address: Pibwrlwyd Farm Licence Holder Address: -	Waste Licence: - Site Reference: - Waste Type: Inert, Industrial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded 27/10/1992 Last Recorded: 27/04/1993
4	228m NE	Site Address: Pibwrlwyd Lane Licence Holder Address: -	Waste Licence: Yes Site Reference: - Waste Type: Inert, Industrial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 31/10/1992 Licence Surrender: -	Operator: - Licence Holder: Chelverton Properties Limited First Recorded 31/10/1992 Last Recorded: 30/04/1993

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	7

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

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Details		
A	208m SW	Site Name: Pibwrlwyd Inert Landfill Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthen, Carmarthenshire, SA31 2NH Correspondence Address: -	Type of Site: Landfill taking Non-Biodegradeable Wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAV002 EPR reference: MP3498FG/A001 Operator: Davies John Alan Waste Management licence No: 34080 Annual Tonnage: 150000	Issue Date: 05/11/1993 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Closure
A	210m SW	Site Name: Pibwrlwyd Inert Landfill Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthen, Carmarthenshire, SA31 2NH Correspondence Address: -	Type of Site: Landfill taking Non-Biodegradeable Wastes Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAV002 EPR reference: EA/EPR/MP3498FG/A001 Operator: Davies John Alan Waste Management licence No: 34080 Annual Tonnage: 150000	Issue Date: 05/11/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Closure
A	210m SW	Site Name: - Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthen, Carmarthenshire, SA31 2NH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: MP3498FG EPR reference: - Operator: John Alan Davies Waste Management licence No: 0 Annual Tonnage: 0	Issue Date: 05/11/1993 Effective Date: 05/11/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
A	210m SW	Site Name: - Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthen, Carmarthenshire, SA31 2NH Correspondence Address: -	Type of Site: Landfill taking Non-Biodegradeable Wastes Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: MP3498FG EPR reference: - Operator: - Waste Management licence No: 34080 Annual Tonnage: 0	Issue Date: 05/11/1993 Effective Date: 05/11/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	210m SW	Site Name: - Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthen, Carmarthenshire, SA31 2NH Correspondence Address: -	Type of Site: Landfill taking Non-Biodegradeable Wastes Size: - Environmental Permitting Regulations (Waste) Licence Number: MP3498FG EPR reference: - Operator: John Alan Davies Waste Management licence No: 34080 Annual Tonnage: 0	Issue Date: 05/11/1993 Effective Date: 05/11/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	210m SW	Site Name: - Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthenshire, Carmarthen, Carmarthenshire, SA31 2NH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: MP3498FG EPR reference: - Operator: John Alan Davies Waste Management licence No: 34080 Annual Tonnage: 0	Issue Date: 05/11/1993 Effective Date: 05/11/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	210m SW	Site Name: - Site Address: Pibwrlwyd Inert Landfill, Pibwrlwyd, Carmarthen, Carmarthenshire, SA31 2NH Correspondence Address: -	Type of Site: Landfill taking Non-Biodegradeable Wastes Size: - Environmental Permitting Regulations (Waste) Licence Number: MP3498FG EPR reference: - Operator: John Alan Davies Waste Management licence No: 34080 Annual Tonnage: 0	Issue Date: 05/11/1993 Effective Date: 05/11/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

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

3.7 Waste exemptions

Records within 500m	1

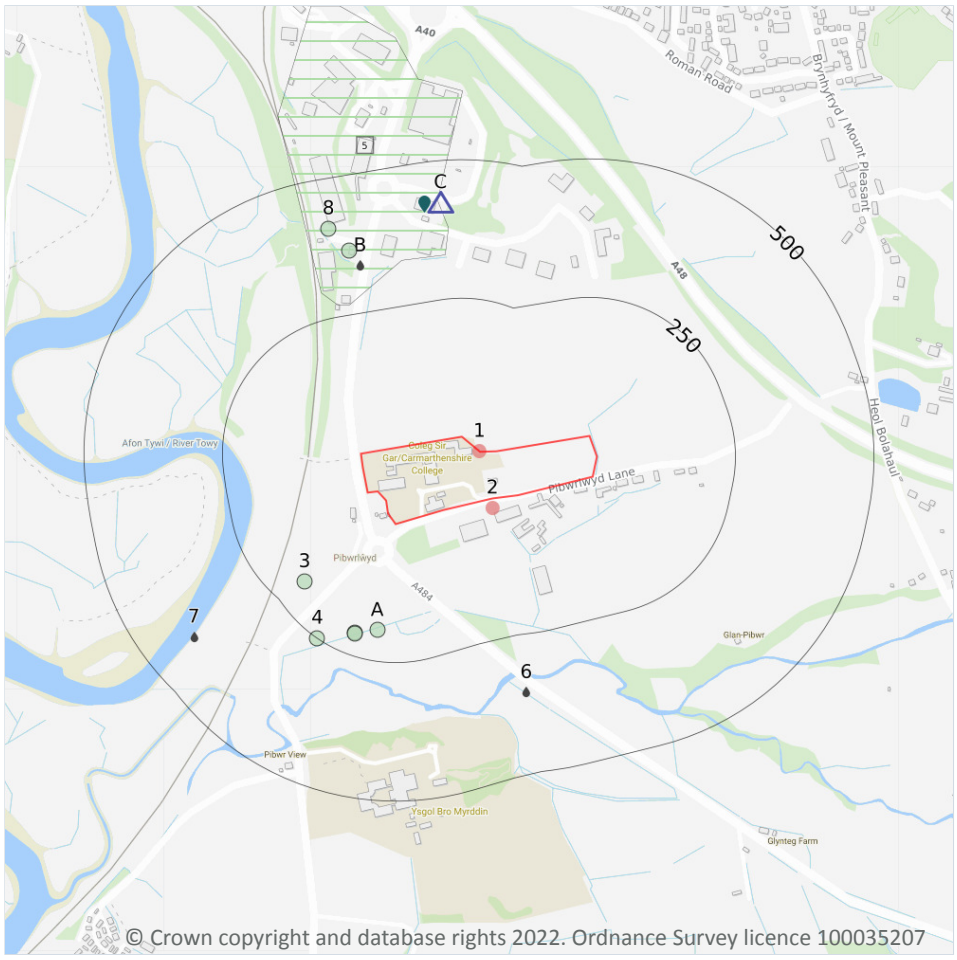
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	20m S	Coleg Sir Gâr, Coleg Sir Gâr, Pibwrlwyd Campus, Carmarthen, Sir Gaerfyrddin, SA312NH	NRW-WME028875	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit

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
- Control of Major Accident Hazards
- Licensed pollutant release (Part A(2)/B)
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	2

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Company	Address	Activity	Category
1	0m NE	Mast	Dyfed, SA31	Telecommunications Features	Infrastructure and Facilities
2	16m S	Tank	Dyfed, SA31	Tanks (Generic)	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Company	Address	LPG	Status
C	425m N	MORRISONS	Llanelli Road, Parc Pensarn, Carmarthen, Carmarthenshire, SA31 2NF	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	1

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

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Company	Address	Operational status	Tier
5	268m N	Kemira Fertilisers Depot	Kemira Fertilisers Depot, Myrtle Hill, Pensarn, Carmarthen, SA31 2NG	Historical NIHHS Site	-

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 29**

ID	Location	Address	Details	
C	424m N	Morrison Supermarkets Plc, Parc Pensarn, Llanelli Road, Carmarthen, Carmarthenshire, SA31 2NF	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	3

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

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Address	Details	
B	335m N	PS AT PARC PENSARN PENSARN CARMART, PS AT PARC PENSARN PENSARN CARM, PENSARN CARMARTHEN, Carmarthen	Effluent Type: - Permit Number: BP0225701 Permit Version: 1 Receiving Water: TRIB. OF RIVER TYWI	Status: Effective Issue date: 12/11/1992 Effective Date: 12/11/1992 Revocation Date: -
6	354m S	PIBWRLWYD TECHNICAL COLLEGE ST	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: BN0021401 Permit Version: 1 Receiving Water: NANT PIBWR	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 06/03/1969 Effective Date: 06/03/1969 Revocation Date: 24/12/1991

ID	Location	Address	Details	
7	407m SW	IDOLE/CWMFFRWD STW	Effluent Type: UNSPECIFIED Permit Number: BN0082901 Permit Version: 1 Receiving Water: TOWY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 31/07/1973 Effective Date: 31/07/1973 Revocation Date: 27/03/1995

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	7

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 29**

ID	Location	Details	
3	193m SW	Incident Date: 01/07/2002 Incident Identification: 88436 Pollutant: Inert Materials and Wastes Pollutant Description: Mineral Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	194m S	Incident Date: 10/01/2014 Incident Identification: 1192814 Pollutant: Sewage Materials Pollutant Description: Other Sewage Material	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
A	209m S	Incident Date: 15/10/2013 Incident Identification: 1167862 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	211m S	Incident Date: 28/10/2013 Incident Identification: 1171546 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
4	249m SW	Incident Date: 04/12/2014 Incident Identification: 1299337 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
B	365m N	Incident Date: 29/05/2001 Incident Identification: 6988 Pollutant: Sewage Materials Pollutant Description: Other Sewage Material	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
8	410m N	Incident Date: 30/04/2015 Incident Identification: 1333458 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Food and Drink	Water Impact: - Land Impact: Category 3 (Minor) 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.

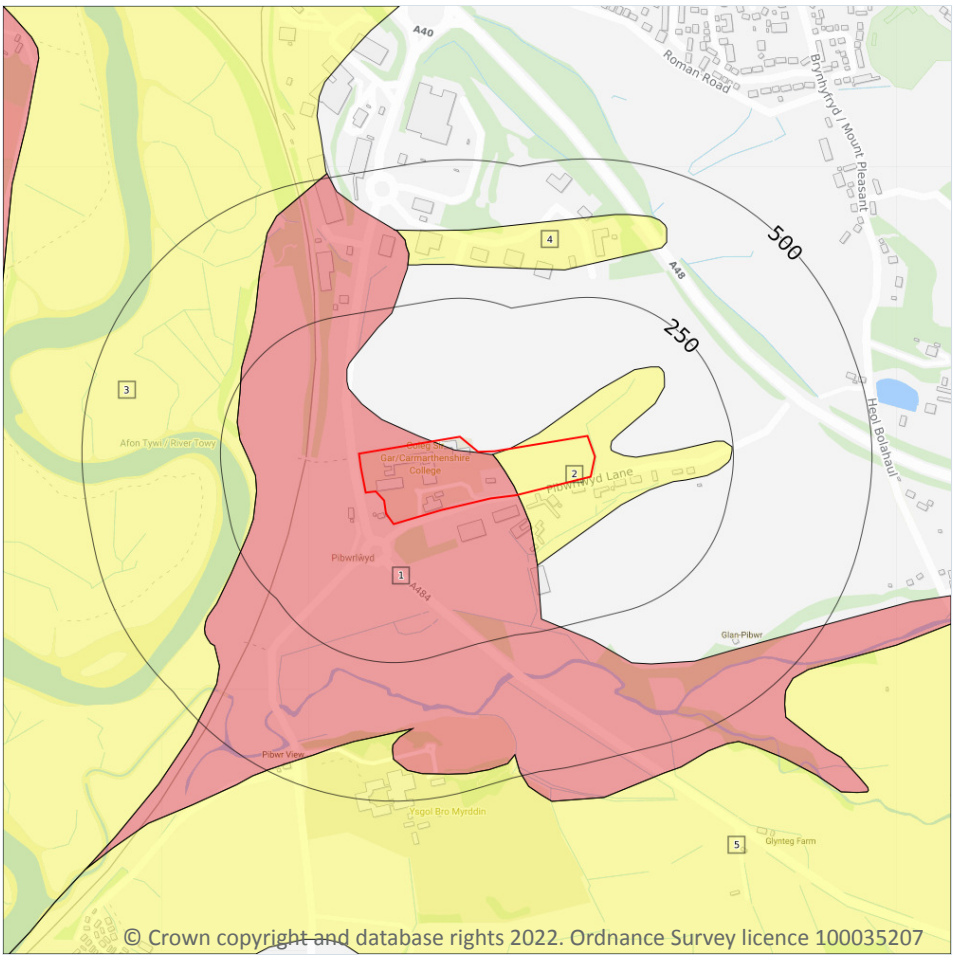
4.21 Pollution inventory radioactive waste

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	5

Aquifer status of groundwater held within superficial geology.

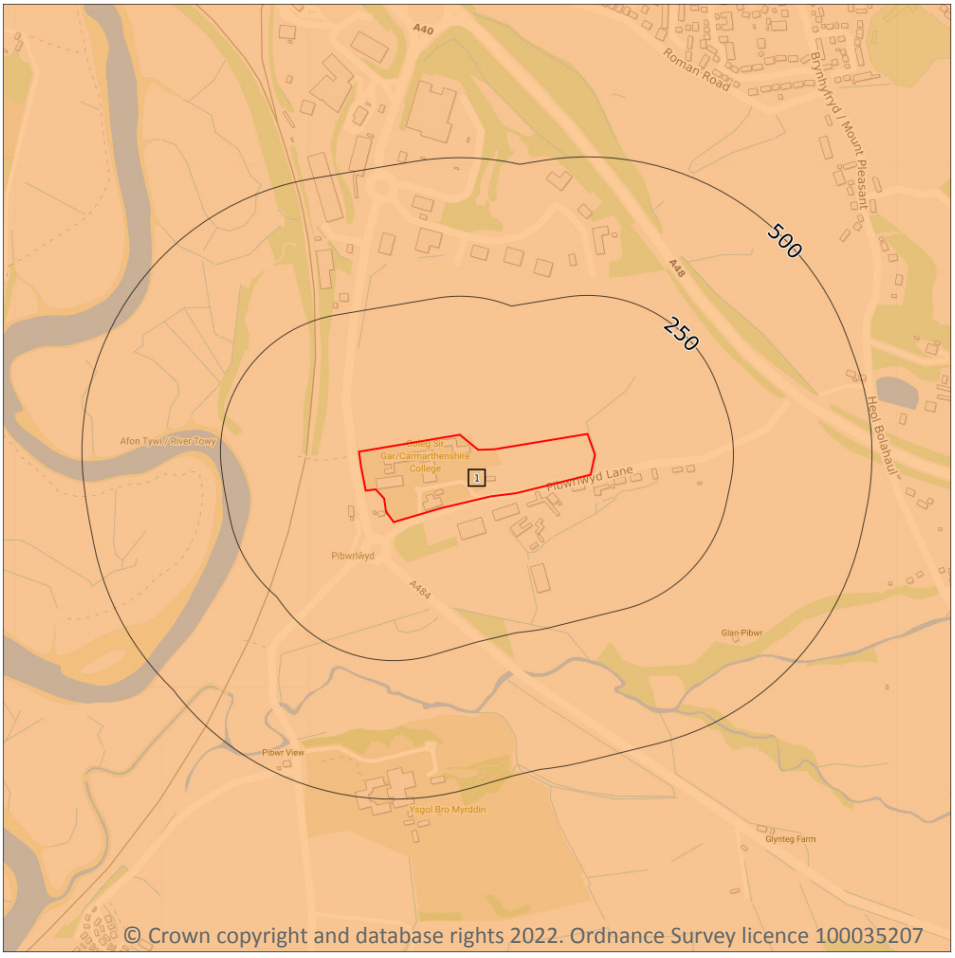
Features are displayed on the Hydrogeology map on **page 36**

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

ID	Location	Designation	Description
3	190m W	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	302m N	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
5	371m S	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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

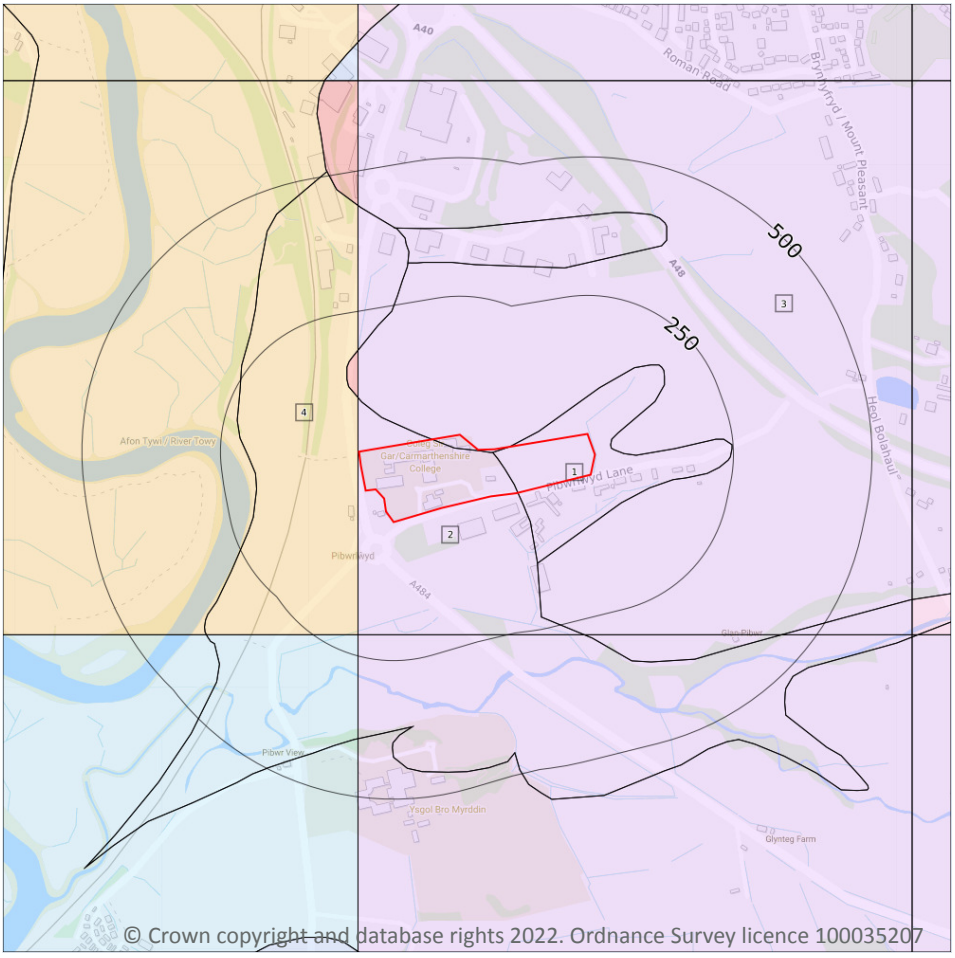
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 38**

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

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

Groundwater vulnerability



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	4

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 39**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	**On site**	**Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures**
3	**On site**	**Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures**
4	1m W	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: >550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: High	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

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

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

5.5 Groundwater vulnerability- local information

Records on site	0

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

email on enquiries@environment-agency.gov.uk.

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

Abstractions and Source Protection Zones

Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	16

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 42**

ID	Location	Details	
-	1106m SW	Status: Historical Licence No: 22/60/3/0011 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: SPRING IN ENCLOSURE 189 AT TYRMABLY Data Type: Point Name: Messrs J H Gibbon & Sons Easting: 240520 Northing: 217240	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 30/12/1965 Version End Date: -
-	1281m NW	Status: Historical Licence No: 22/60/3/0022 Details: Effluent/Slurry Dilution Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN Data Type: Point Name: Mekatek Ltd Easting: 240120 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: 23/06/1997 Expiry Date: - Issue No: 100 Version Start Date: 01/01/2007 Version End Date: -
-	1281m NW	Status: Historical Licence No: 22/60/3/0022 Details: Water Bottling Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN Data Type: Point Name: Mekatek Ltd Easting: 240120 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: 23/06/1997 Expiry Date: - Issue No: 100 Version Start Date: 01/01/2007 Version End Date: -
-	1281m NW	Status: Active Licence No: 22/60/3/0022 Details: Effluent / Slurry Dilution - Very Low Direct Source: - Point: - Data Type: Point Name: - Easting: 240120 Northing: 219260	Annual Volume (m^3): 318,226 Max Daily Volume (m^3): - Original Application No: - Original Start Date: Jan 1 2007 12:00AM Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1281m NW	Status: Active Licence No: 22/60/3/0022 Details: Water Bottling - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 240120 Northing: 219260	Annual Volume (m^3): 318,226 Max Daily Volume (m^3): - Original Application No: - Original Start Date: Jan 1 2007 12:00AM Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

ID	Location	Details	
-	1283m S	Status: Active Licence No: 22/60/3/0051 Details: Unknown (Impounding) - Direct Source: - Point: - Data Type: Point Name: - Easting: 241070 Northing: 216920	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: Oct 5 1989 12:00AM Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1323m NW	Status: Historical Licence No: 22/60/3/0022 Details: Effluent/Slurry Dilution Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN Data Type: Point Name: Mekatek Ltd Easting: 240060 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/06/1997 Version End Date: -
-	1323m NW	Status: Historical Licence No: 22/60/3/0022 Details: Effluent/Slurry Dilution Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN USED FOR BOTTLING Data Type: Point Name: Mekatek Ltd Easting: 240060 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/06/1997 Version End Date: -
-	1323m NW	Status: Historical Licence No: 22/60/3/0022 Details: Water Bottling Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN Data Type: Point Name: Mekatek Ltd Easting: 240060 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/06/1997 Version End Date: -
-	1323m NW	Status: Historical Licence No: 22/60/3/0022 Details: Effluent/Slurry Dilution Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN USED FOR BOTTLING Data Type: Point Name: Mekatek Ltd Easting: 240060 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: 23/06/1997 Expiry Date: - Issue No: 100 Version Start Date: 01/01/2007 Version End Date: -

ID	Location	Details	
-	1323m NW	Status: Historical Licence No: 22/60/3/0022 Details: Water Bottling Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN USED FOR BOTTLING Data Type: Point Name: Mekatek Ltd Easting: 240060 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: 23/06/1997 Expiry Date: - Issue No: 100 Version Start Date: 01/01/2007 Version End Date: -
-	1409m S	Status: Historical Licence No: 22/60/03/0007 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: SPRING B AT MOELFRE UCHA Data Type: Point Name: Lewis Easting: 241420 Northing: 216840	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 30/12/1965 Version End Date: -
-	1409m S	Status: Historical Licence No: 22/60/3/0007 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: SPRING B AT MOELFRE UCHA Data Type: Point Name: Lewis Easting: 241420 Northing: 216840	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 01/04/2001 Version End Date: -
-	1412m S	Status: Historical Licence No: 22/60/03/0007 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL A AT MOELFRE UCHA Data Type: Point Name: Lewis Easting: 241470 Northing: 216850	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 30/12/1965 Version End Date: -
-	1412m S	Status: Historical Licence No: 22/60/3/0007 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL A AT MOELFRE UCHA Data Type: Point Name: Lewis Easting: 241470 Northing: 216850	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 01/04/2001 Version End Date: -

ID	Location	Details	
-	1734m SW	Status: Historical Licence No: 22/60/3/0003 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL IN ENCLOSURE 228 AT TYRNEST Data Type: Point Name: Jones Easting: 240200 Northing: 216700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 30/12/1965 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**3**

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 42**

ID	Location	Details	
-	1458m NW	Status: Historical Licence No: 22/60/3/0021 Details: Effluent/Slurry Dilution Direct Source: EAW Surface Water Point: TAWELAN BROOK Data Type: Point Name: Mekatek Ltd Easting: 240130 Northing: 219500	Annual Volume (m^3): 340956 Max Daily Volume (m^3): 1491.09 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/06/1997 Version End Date: -
-	1458m NW	Status: Historical Licence No: 22/60/3/0021 Details: Effluent/Slurry Dilution Direct Source: EAW Surface Water Point: TAWELAN BROOK Data Type: Point Name: Mekatek Ltd Easting: 240130 Northing: 219500	Annual Volume (m^3): 340956 Max Daily Volume (m^3): 1491.09 Original Application No: - Original Start Date: 23/06/1997 Expiry Date: - Issue No: 100 Version Start Date: 01/01/2007 Version End Date: -

ID	Location	Details	
-	1458m NW	Status: Active Licence No: 22/60/3/0021 Details: Effluent / Slurry Dilution - Very Low Direct Source: - Point: - Data Type: Point Name: - Easting: 240130 Northing: 219500	Annual Volume (m^3): 340,956 Max Daily Volume (m^3): - Original Application No: - Original Start Date: Jan 1 2007 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	**4**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 42**

ID	Location	Details	
-	1281m NW	Status: Historical Licence No: 22/60/3/0022 Details: Water Bottling Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN Data Type: Point Name: Mekatek Ltd Easting: 240120 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: 23/06/1997 Expiry Date: - Issue No: 100 Version Start Date: 01/01/2007 Version End Date: -
-	1281m NW	Status: Active Licence No: 22/60/3/0022 Details: Water Bottling - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 240120 Northing: 219260	Annual Volume (m^3): 318,226 Max Daily Volume (m^3): - Original Application No: - Original Start Date: Jan 1 2007 12:00AM Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

ID	Location	Details	
-	1323m NW	Status: Historical Licence No: 22/60/3/0022 Details: Water Bottling Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN Data Type: Point Name: Mekatek Ltd Easting: 240060 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/06/1997 Version End Date: -
-	1323m NW	Status: Historical Licence No: 22/60/3/0022 Details: Water Bottling Direct Source: EAW Groundwater Point: WELL IN THE COMMUNITY OF JOHNSTOWN USED FOR BOTTLING Data Type: Point Name: Mekatek Ltd Easting: 240060 Northing: 219260	Annual Volume (m^3): 318226 Max Daily Volume (m^3): 1391.1 Original Application No: - Original Start Date: 23/06/1997 Expiry Date: - Issue No: 100 Version Start Date: 01/01/2007 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	**0**

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

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

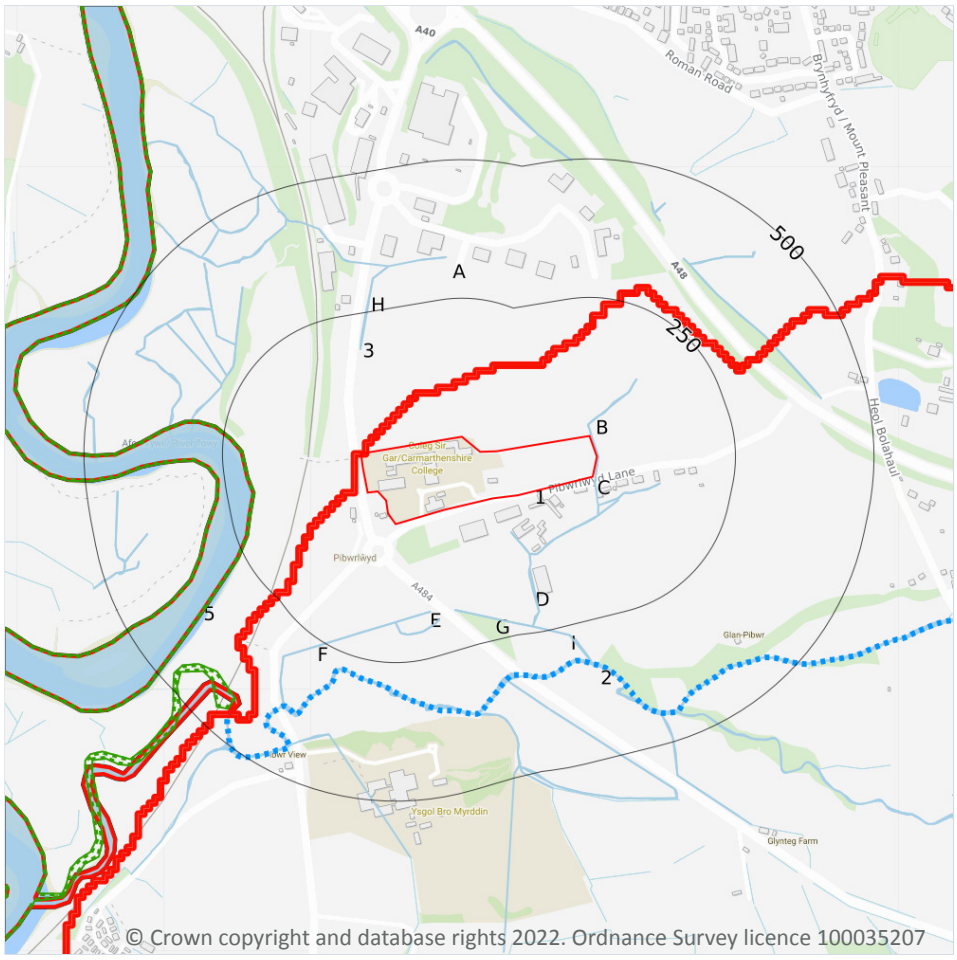
5.10 Source Protection Zones (confined aquifer)

Records within 500m	**0**

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	27

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

Features are displayed on the Hydrology map on **page 49**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	2m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
C	4m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	11m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	27m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	42m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	52m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	52m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	52m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	52m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	61m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	63m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	63m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	69m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	70m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
D	108m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	169m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	169m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
E	169m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	177m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	177m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	178m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	185m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	187m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	192m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
H	211m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	229m W	Tidal river or stream.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Tywi
I	238m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	17

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

Features are displayed on the Hydrology map on **page 49**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	2

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 49**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River WB catchment**	**Nant Pibwr - headwaters to tidal limit**	**GB110060029260**	**Tywi**	**Carmarthen Bay and the Gower**
A	**On site**	**Coastal catchment**	**Not part of a river WB catchment**	**162**	**Tywi**	**Carmarthen Bay and the Gower**

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

6.4 WFD Surface water bodies

Records identified	2

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 49**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	199m W	Transitional	TYWI & TAF & GWENDRAETH - THREE RIVERS ESTUARY	GB531006013400	Moderate	Good	Moderate	2019
7	279m S	River	Nant Pibwr - headwaters to tidal limit	GB110060029260	Poor	Good	Poor	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 49**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Tywi, Taf and Gwendraeths**	**GB41002G200500**	**Poor**	**Poor**	**Good**	**2017**

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

7 River and coastal flooding

Site Outline

Search buffers in metres (m)

River and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	1

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.

Features are displayed on the River and coastal flooding map on **page 54**

ID	Location	Update
1	97m W	27/05/2022

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding

8.1 Surface water flooding

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

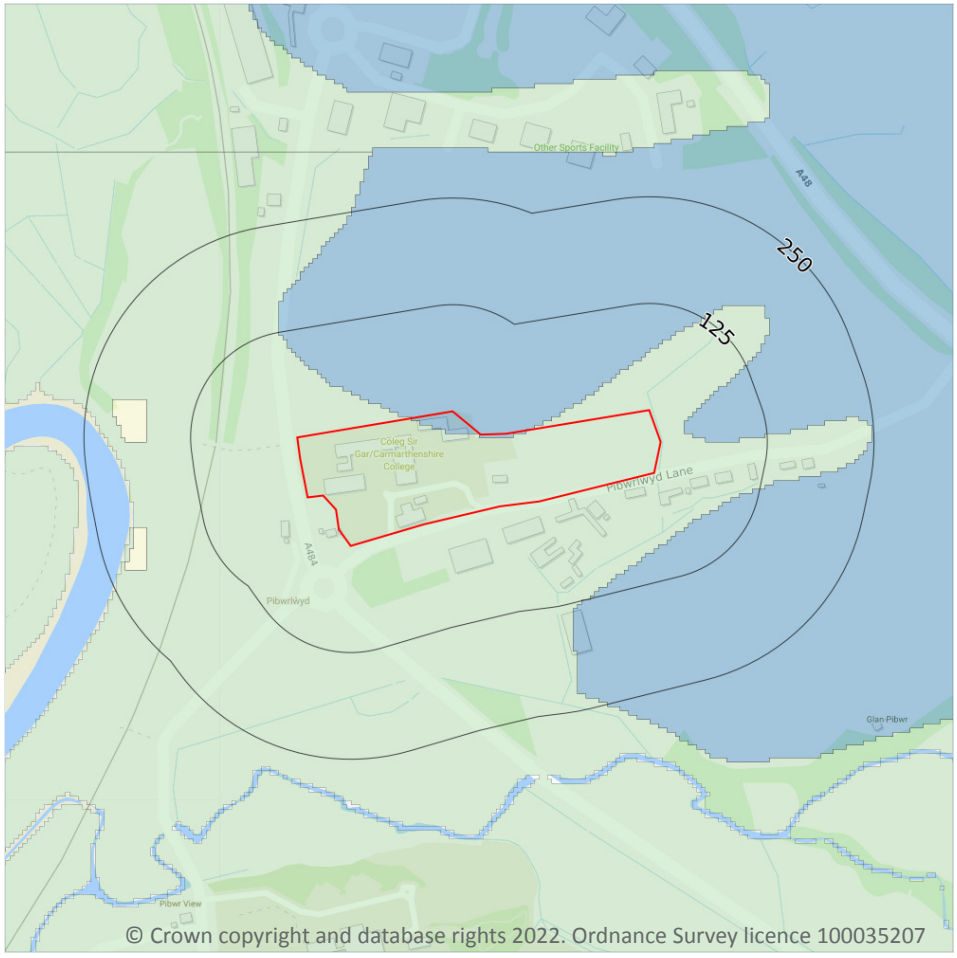
Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year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

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

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

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

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

9.1 Groundwater flooding

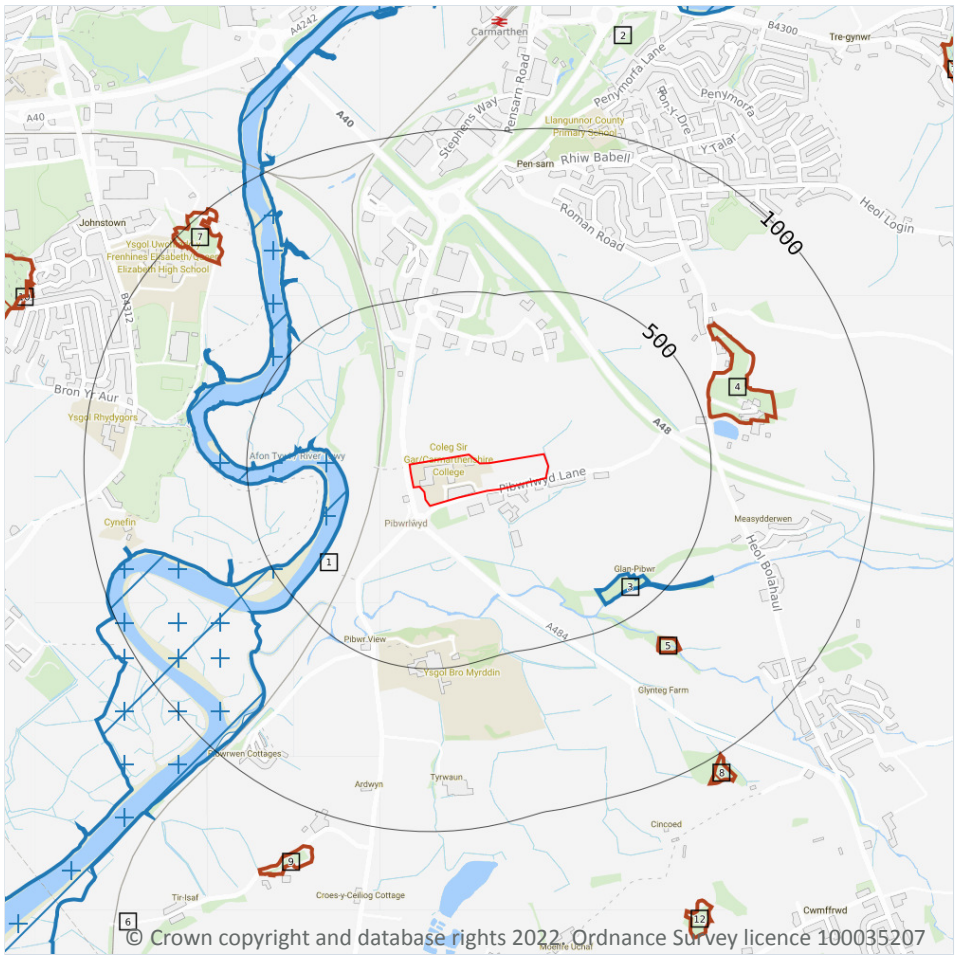
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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

Features are displayed on the Groundwater flooding map on **page 58**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Special Areas of Conservation (SAC)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	2

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

Features are displayed on the Environmental designations map on **page 59**

ID	Location	Name	Data source
1	202m W	AFON TYWI	Natural Resources Wales

ID	Location	Name	Data source
3	375m SE	GLAN PIBWR STREAM SECTION	Natural Resources Wales

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	**0**

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	**2**

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

Features are displayed on the Environmental designations map on **page 59**

ID	Location	Name	Features of interest	Habitat description	Data source
2	202m W	Afon Tywi / River Tywi	Rivers with floating vegetation often dominated by water-crowfoot; Sea lamprey; Brook lamprey; River lamprey; Allis shad; Twaite shad; Atlantic salmon; Bullhead; Freshwater pearl mussel; Otter.	Bogs, Marshes, Water fringed vegetation, Fens; Broad-leaved deciduous woodland; Salt marshes, Salt pastures, Salt steppes; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Improved grassland; Shingle, Sea cliffs, Islets; Inland water bodies (Standing water, Running water); Heath, Scrub, Maquis and Garrigue, Phygrana	Natural Resources Wales

ID	Location	Name	Features of interest	Habitat description	Data source
6	605m W	Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd	Subtidal sandbanks; Estuaries; Intertidal mudflats and sandflats; Lagoons; Shallow inlets and bays; Glasswort and other annuals colonising mud and sand; Cord-grass swards; Atlantic salt meadows; Dunes with sea-buckthorn; Sea caves; Sea lamprey; River lamprey; Allis shad; Twaite shad; Lesser horseshoe bat; Greater horseshoe bat; Otter; Grey seal.	Shingle, Sea cliffs, Islets; Marine areas, Sea inlets; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Salt marshes, Salt pastures, Salt steppes	Natural Resources Wales

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	20

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 59**

ID	Location	Name	Woodland Type
4	520m E	Unknown	Restored Ancient Woodland Site
5	602m SE	Unknown	Ancient Semi Natural Woodland
7	850m NW	Unknown	Ancient Semi Natural Woodland
8	1005m SE	Unknown	Ancient Semi Natural Woodland
9	1110m S	Unknown	Restored Ancient Woodland Site
10	1267m NW	Unknown	Restored Ancient Woodland Site
11	1285m NW	Unknown	Restored Ancient Woodland Site
12	1381m S	Unknown	Ancient Semi Natural Woodland
-	1396m W	Unknown	Plantation on Ancient Woodland Site
-	1508m NW	Unknown	Restored Ancient Woodland Site
-	1548m NW	Unknown	Plantation on Ancient Woodland Site
-	1687m W	Unknown	Restored Ancient Woodland Site
-	1694m E	Unknown	Restored Ancient Woodland Site
16	1696m NE	Unknown	Ancient Semi Natural Woodland
-	1816m SE	Unknown	Restored Ancient Woodland Site
-	1870m S	Unknown	Restored Ancient Woodland Site
-	1873m E	Unknown	Restored Ancient Woodland Site
-	1910m NW	Unknown	Restored Ancient Woodland Site
-	1919m SE	Unknown	Restored Ancient Woodland Site
-	1993m SW	Unknown	Ancient Semi Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0

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

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations

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	1

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 66**

ID	Location	Name	Grade	Reference Number	Listed date
1	68m S	Pibwr Lwyd Farmhouse, On the S side of the Carmarthenshire Collage Pibwr Lwyd campus, reached by minor road on the E side of the A484.	II*	9733	20/12/1983

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

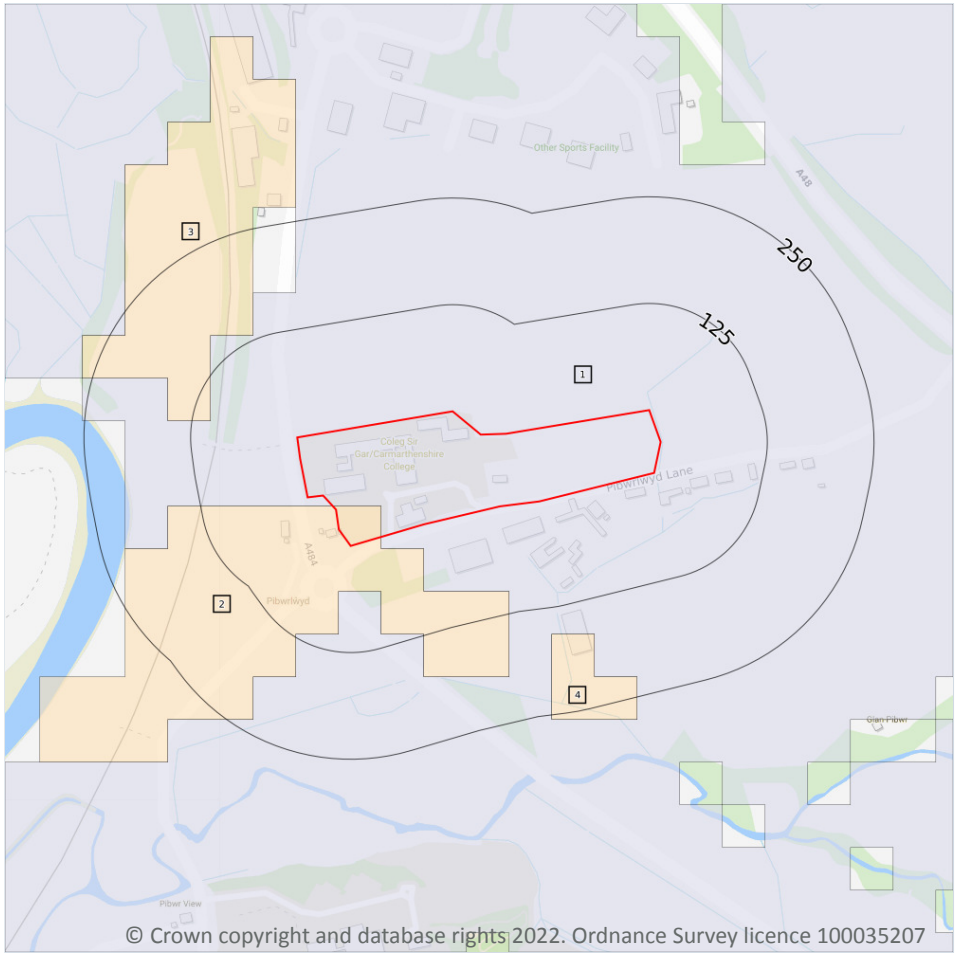
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

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

12.1 Agricultural Land Classification

Records within 250m	4

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

Features are displayed on the Agricultural designations map on **page 69**

ID	Location	Classification	Description
1	**On site**	**Grade 3b**	**Moderate quality agricultural land**
2	**On site**	**Grade 3a**	**Good to moderate quality agricultural land**
3	104m W	Grade 3a	Good to moderate quality agricultural land

ID	Location	Classification	Description
4	156m S	Grade 3a	Good to moderate quality agricultural land

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability

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 72**

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

This data is sourced from the British Geological Survey.

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

14.2 Artificial and made ground (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

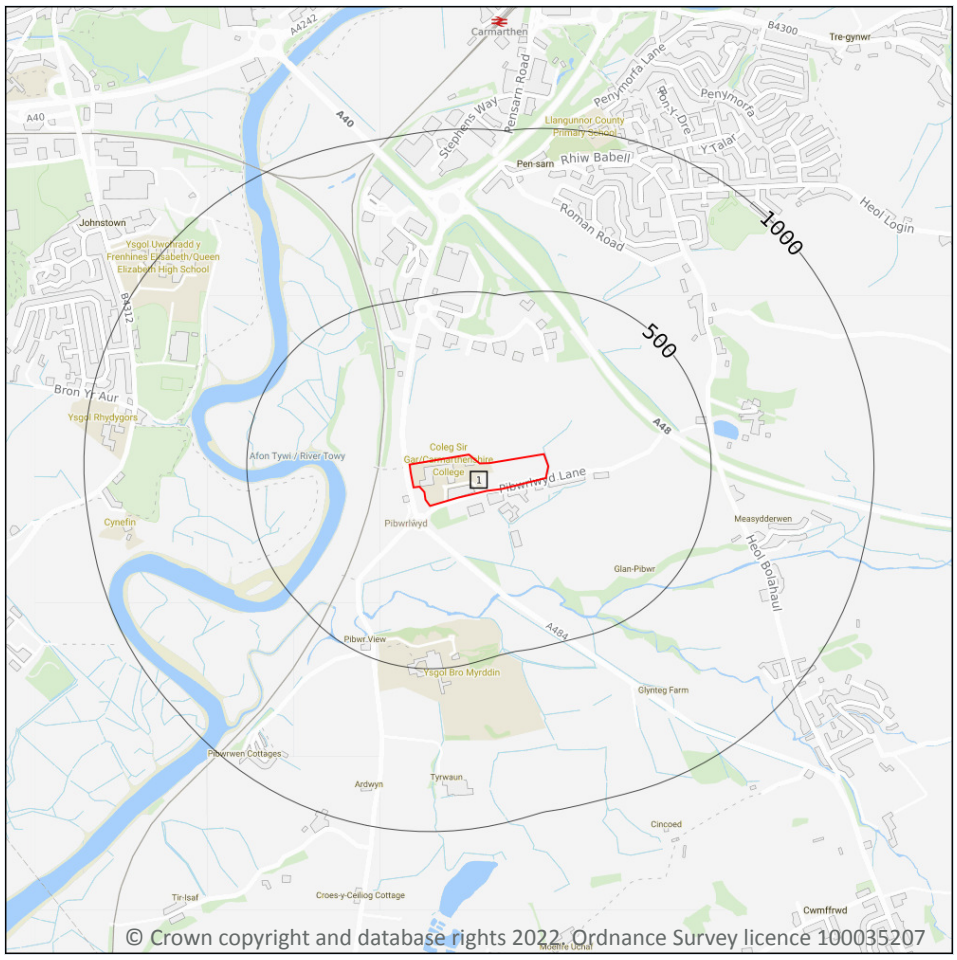
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



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 76**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW229_carmarthen_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

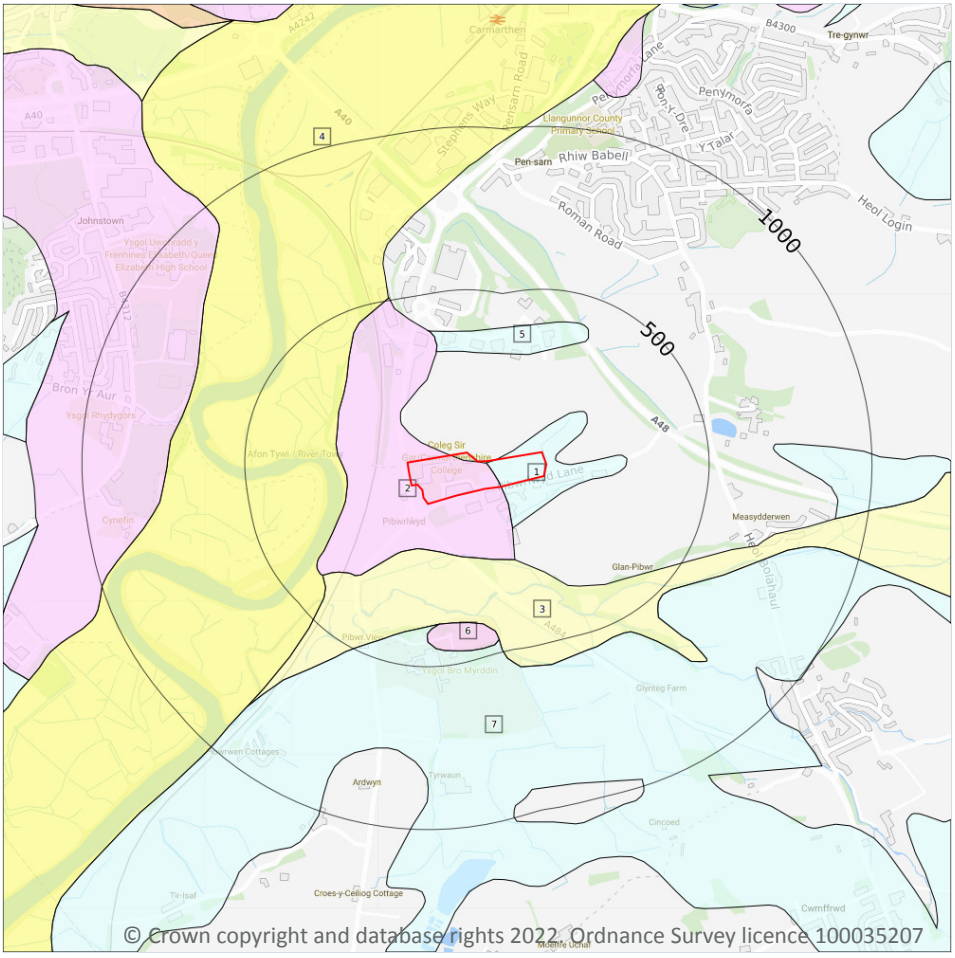
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **7**

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 78**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	**On site**	**GFDUD-XSV**	**GLACIOFLUVIAL DEPOSITS, DEVENSIAN**	**SAND AND GRAVEL**
3	140m S	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
4	190m W	TFD-XSZC	TIDAL FLAT DEPOSITS	SAND, SILT AND CLAY
5	302m N	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
6	371m S	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
7	371m S	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**2**

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

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

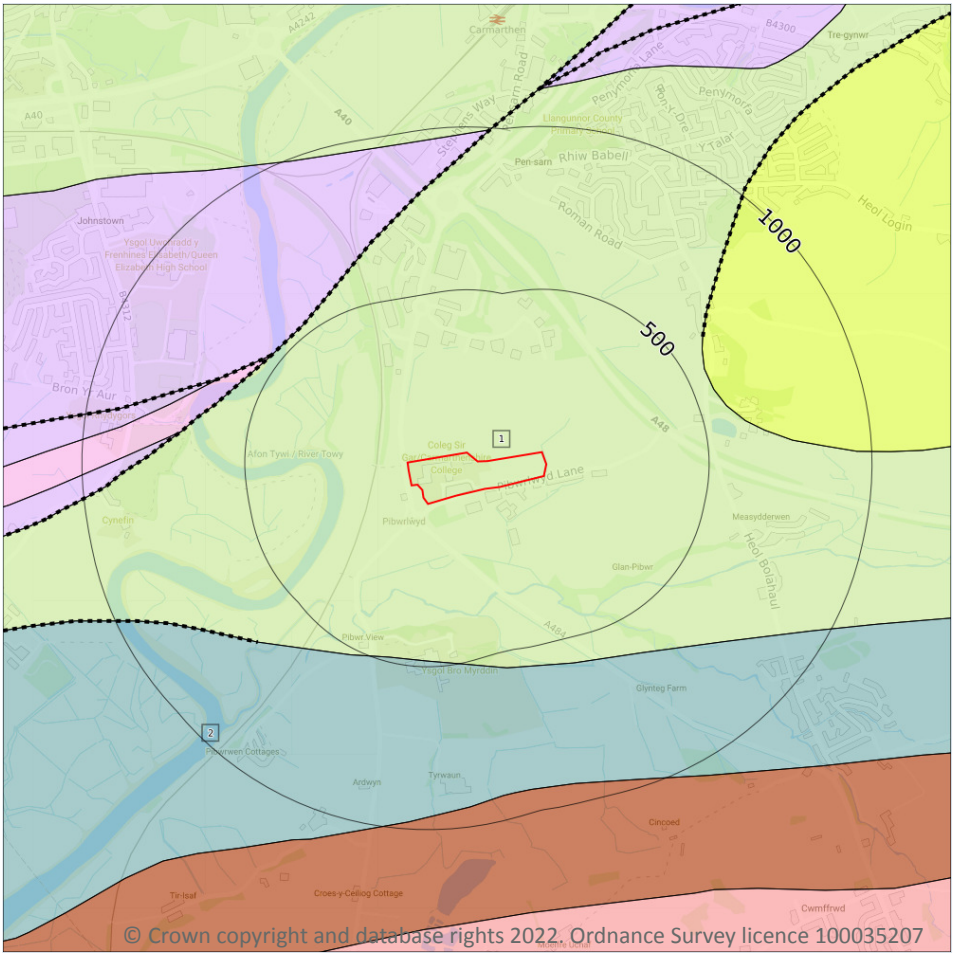
15.7 Landslip permeability (50k)

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	2

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 80**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**TTRA-MDST**	**TETRAGRAPTUS BEDS - MUDSTONE**	**-**
2	480m S	PELP-MDSD	PELTURA PUNCTATA BEDS - MUDSTONE AND SANDSTONE	-

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	0

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

This data is sourced from the British Geological Survey.

16 Boreholes

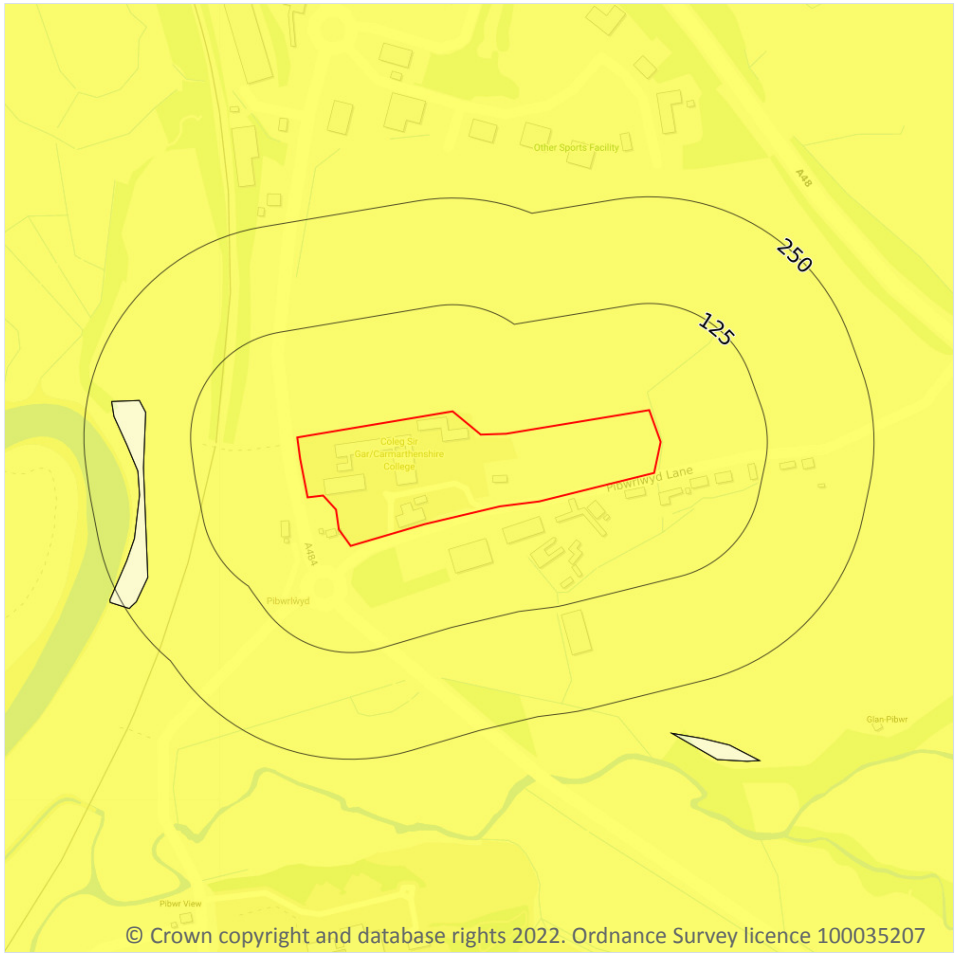
16.1 BGS Boreholes

Records within 250m	0

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

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

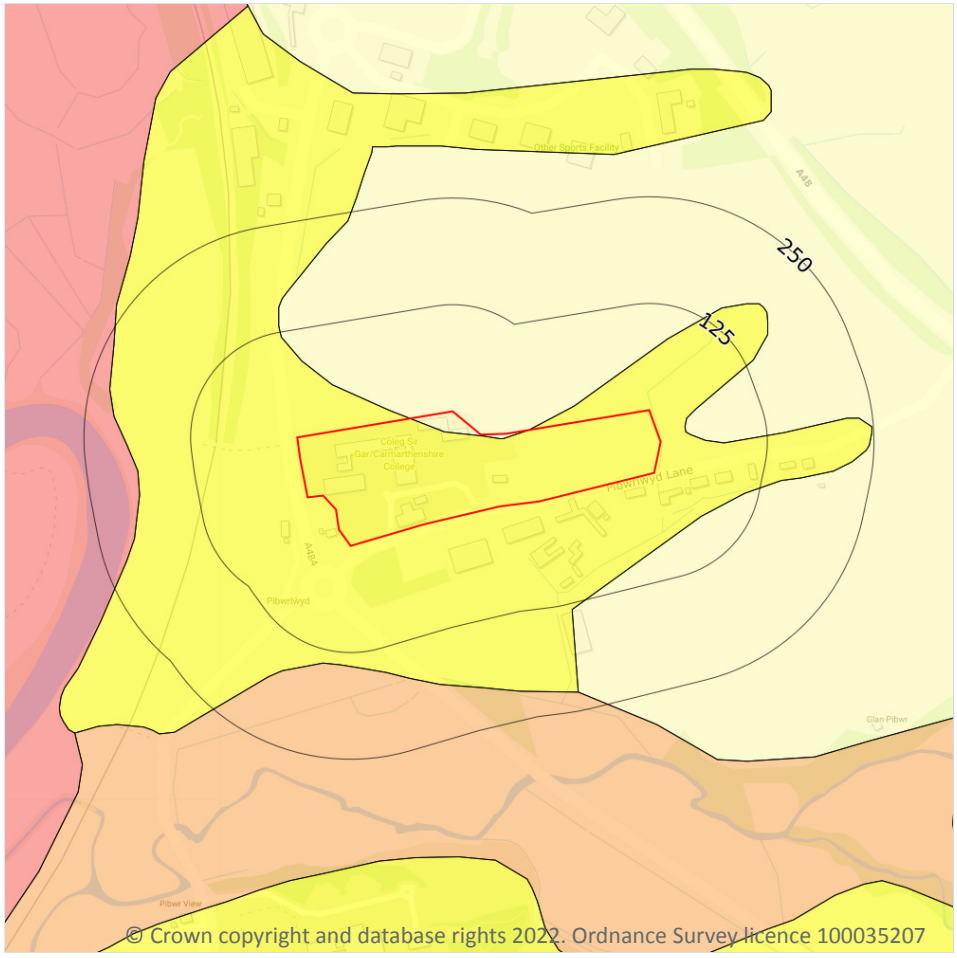
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 83**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	2

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

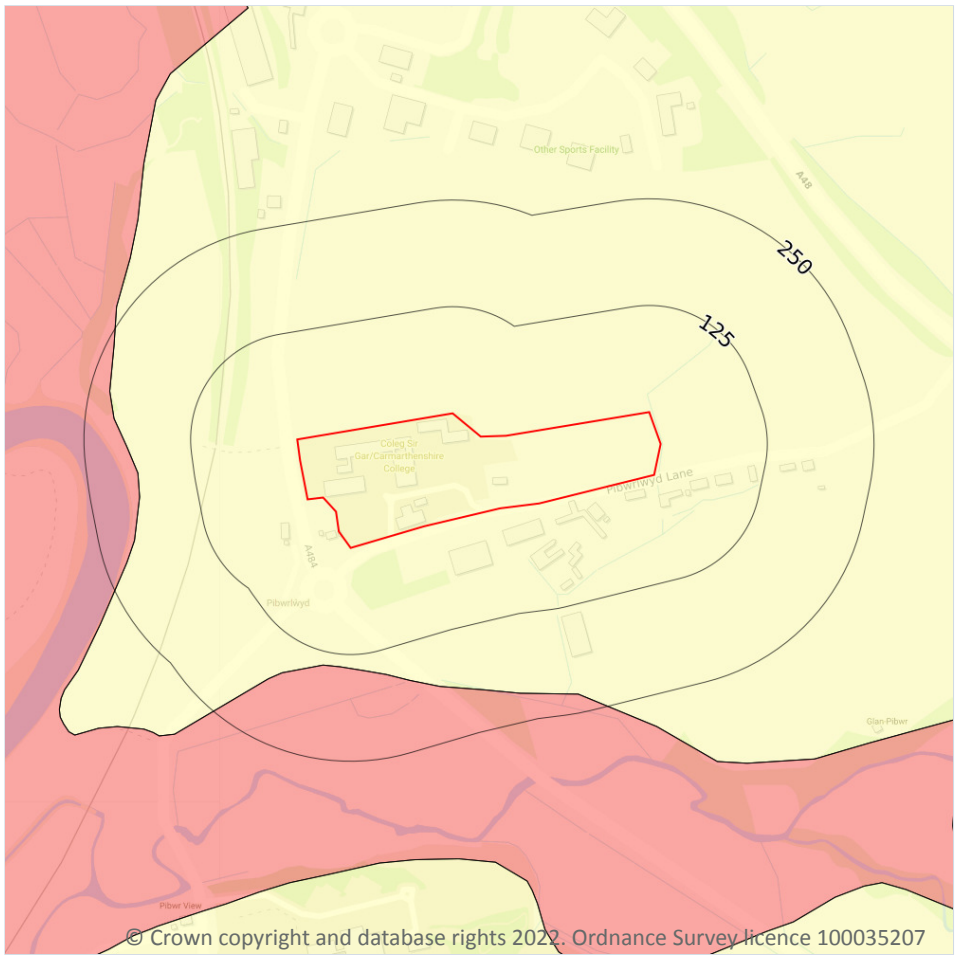
Features are displayed on the Natural ground subsidence - Running sands map on **page 84**

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

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

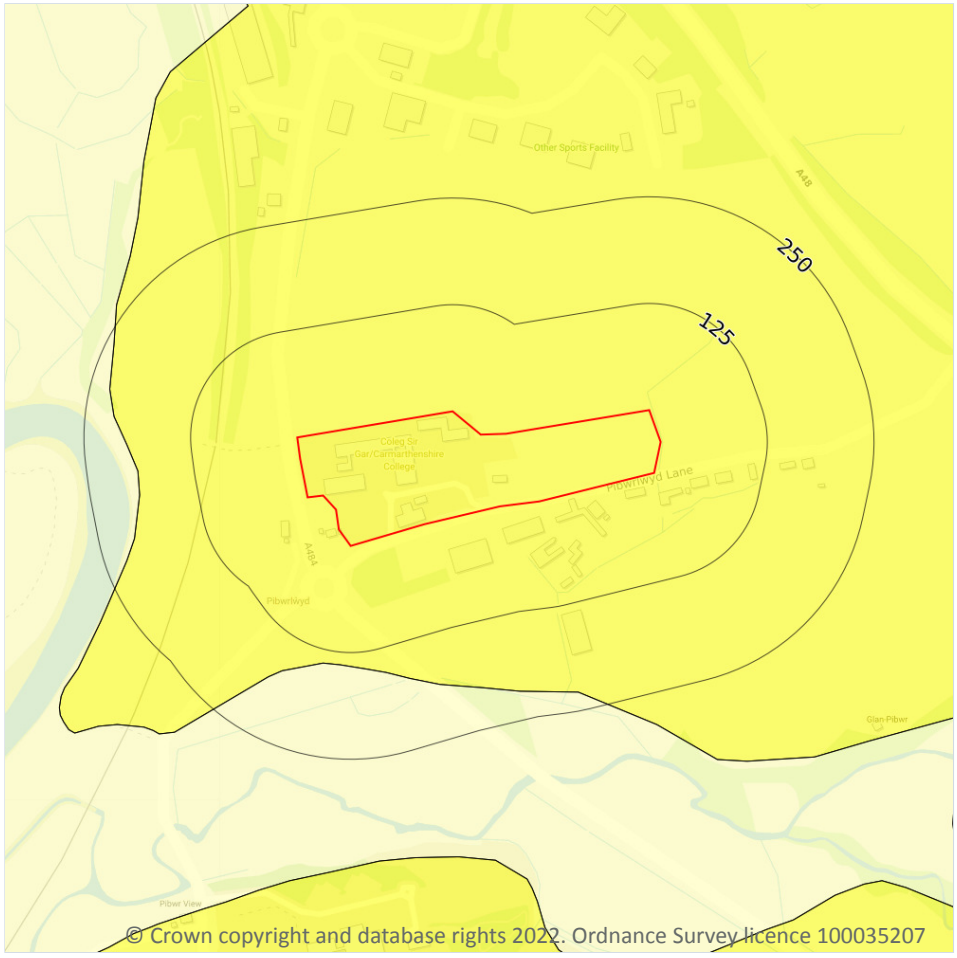
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 86**

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

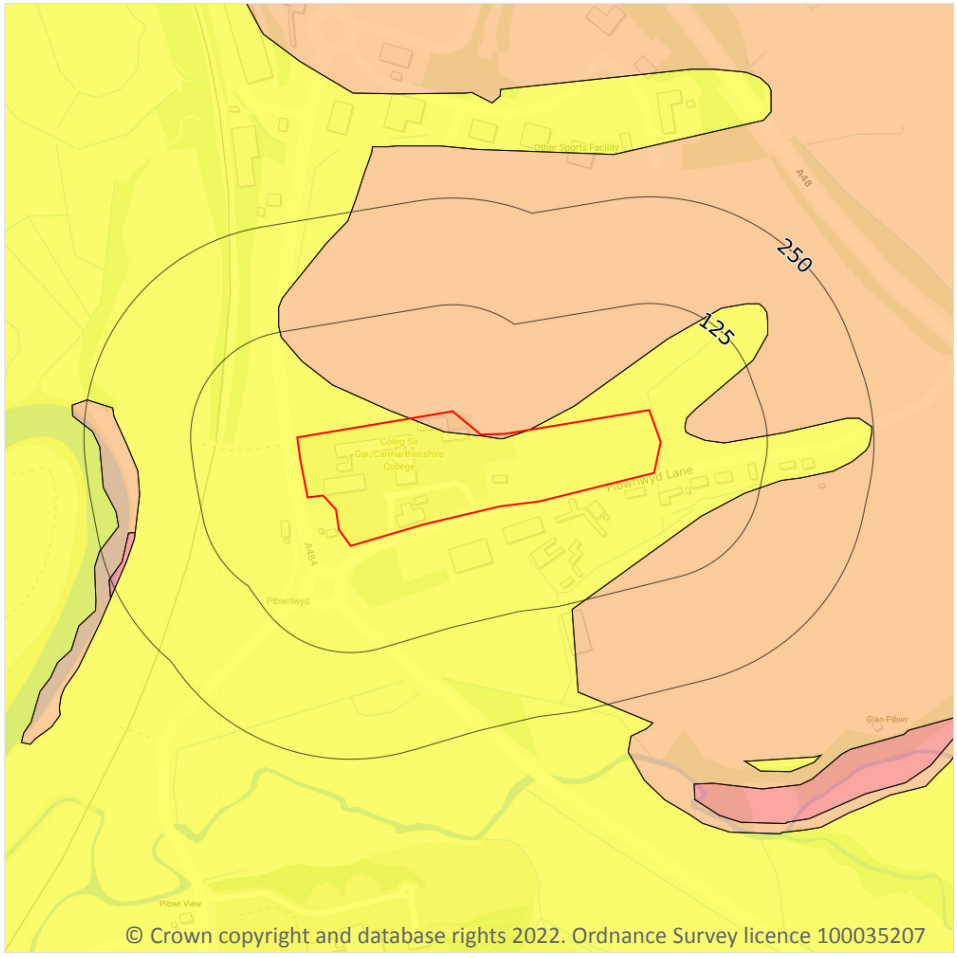
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 87**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	2

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 88**

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.**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks

Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

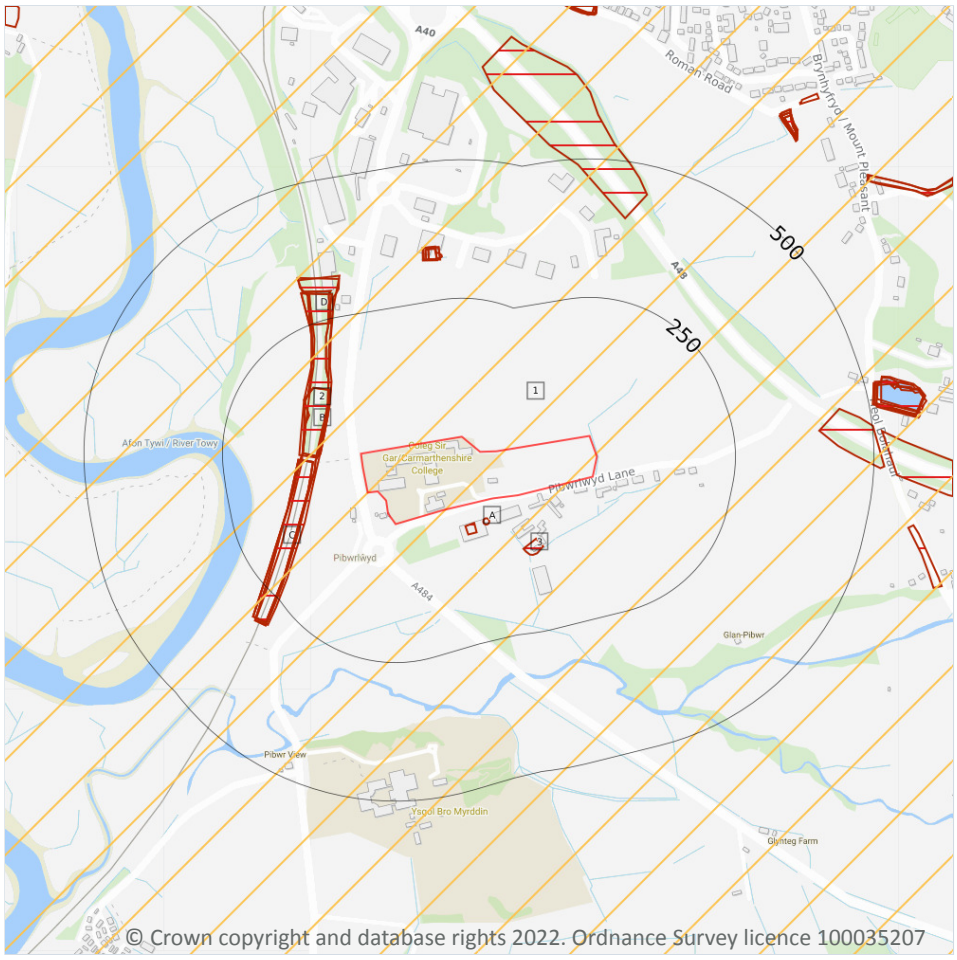
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 90**

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	14

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 92**

ID	Location	Land Use	Year of mapping	Mapping scale
A	32m S	Filter Beds	1971	1:10000
A	35m S	Filter Beds	1989	1:10000
B	72m W	Cuttings	1971	1:10000
B	72m W	Cuttings	1989	1:10000
B	72m W	Cuttings	1907	1:10560
B	75m W	Cuttings	1948	1:10560
B	75m W	Cuttings	1887	1:10560
2	78m W	Cuttings	1963	1:10560
3	84m S	Pond	1887	1:10560
C	88m W	Cuttings	1971	1:10000
C	88m W	Cuttings	1963	1:10560
C	88m W	Cuttings	1989	1:10000
D	242m N	Cuttings	1971	1:10000
D	242m N	Cuttings	1989	1:10000

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	1

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 92**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Vein Mineral**	**B**	**Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered**

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

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

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

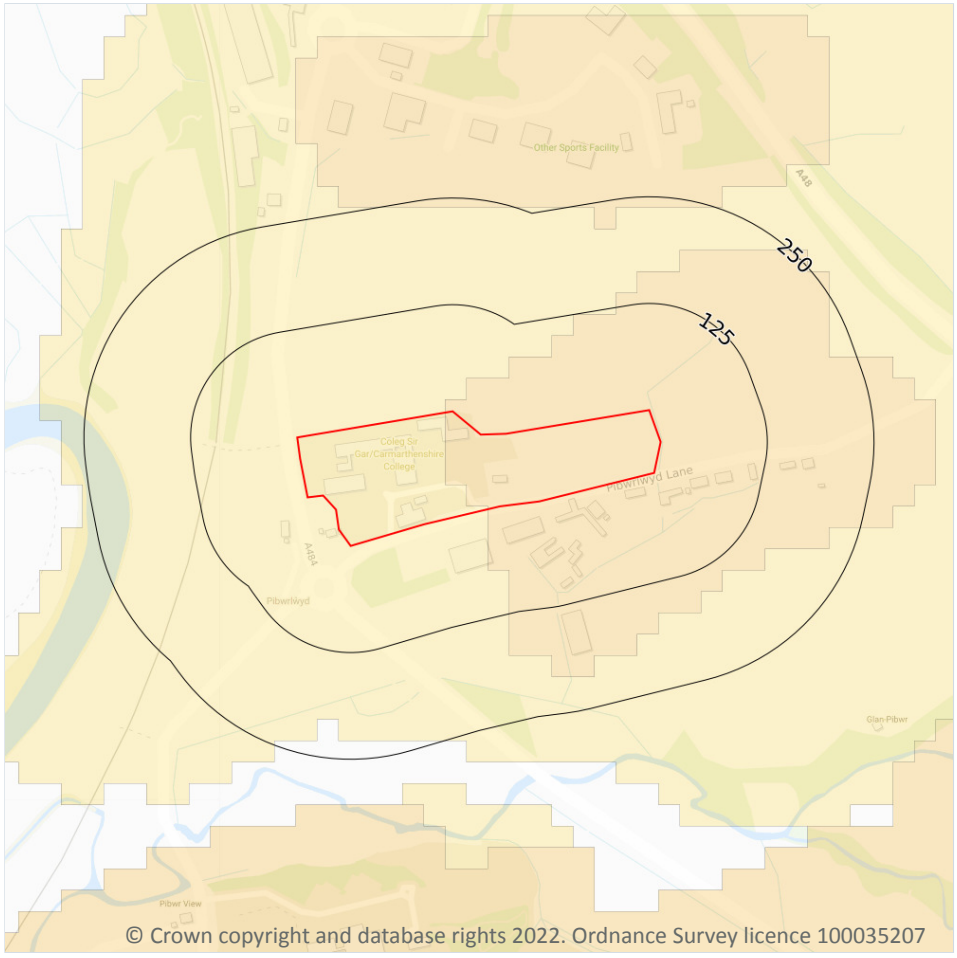
18.13 Clay mining

Records on site	0

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

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

19 Radon



Site Outline

Search buffers in metres (m)

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

19.1 Radon

Records on site	2

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 97**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 3% and 5%**	**Basic**
On site	**Between 1% and 3%**	**None**

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	6

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
2m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
2m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
32m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

Site Outline

Search buffers in metres (m)

- Crossrail 1 Stations
- Crossrail 1 Route
- 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	8

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 101**

Location	Land Use	Year of mapping	Mapping scale
103m NW	Railway Sidings	1963	10560
122m NW	Railway Sidings	1907	10560
132m NW	Railway Sidings	1948	10560
185m NW	Railway Sidings	1985	2500
187m N	Railway Sidings	1889	2500
187m N	Railway Sidings	1906	2500
226m N	Railway Sidings	1971	10000
226m N	Railway Sidings	1989	10000

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	5

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 101**

Location	Name	Type
89m W	South Wales Main Line	rail
92m W	South Wales Main Line	rail
94m W	Not given	Multi Track
97m W	Not given	Multi Track
243m SW	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.

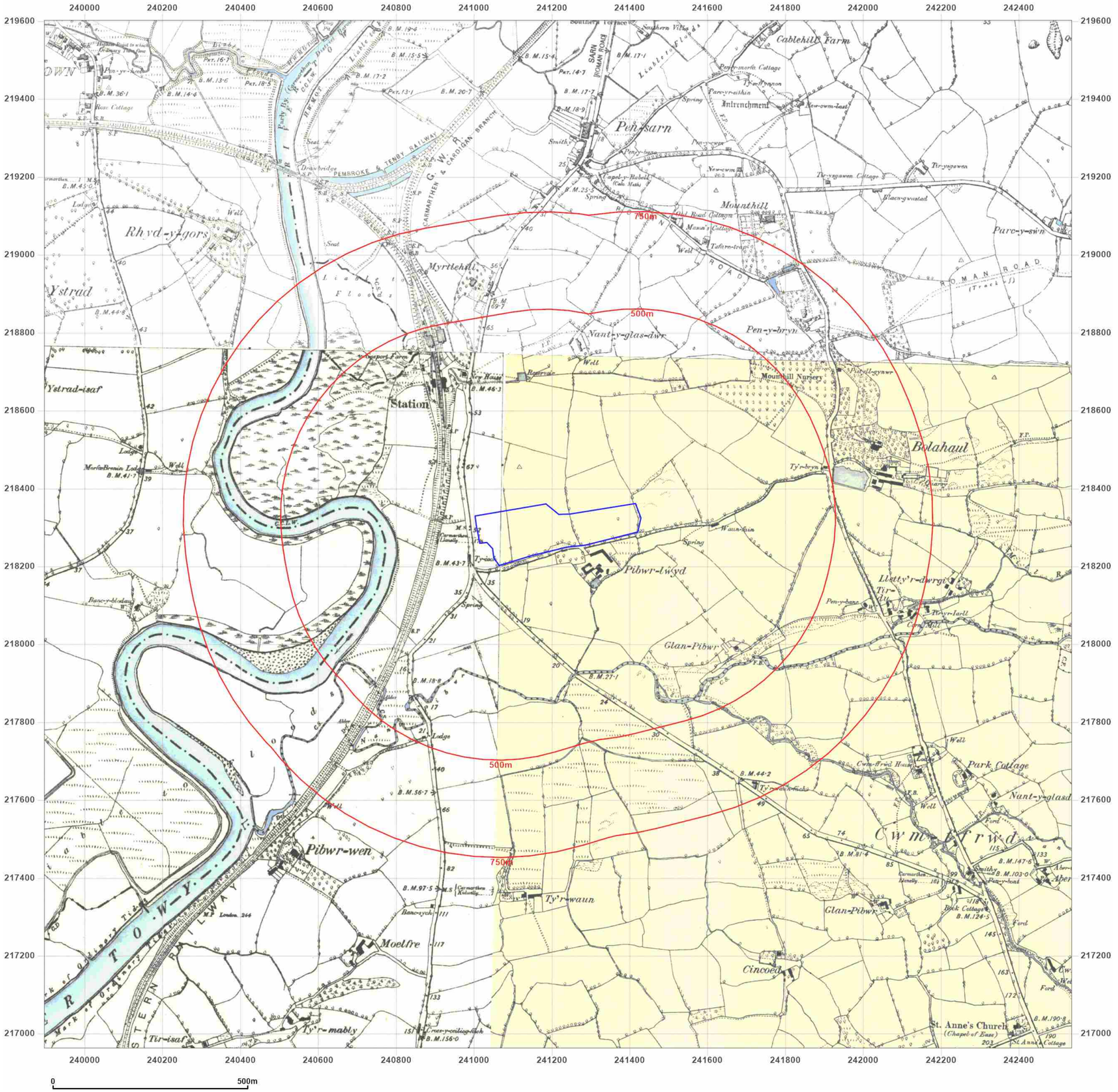
Data providers

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/.

Appendix III



Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: County Series

Map date: **1886-1887**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

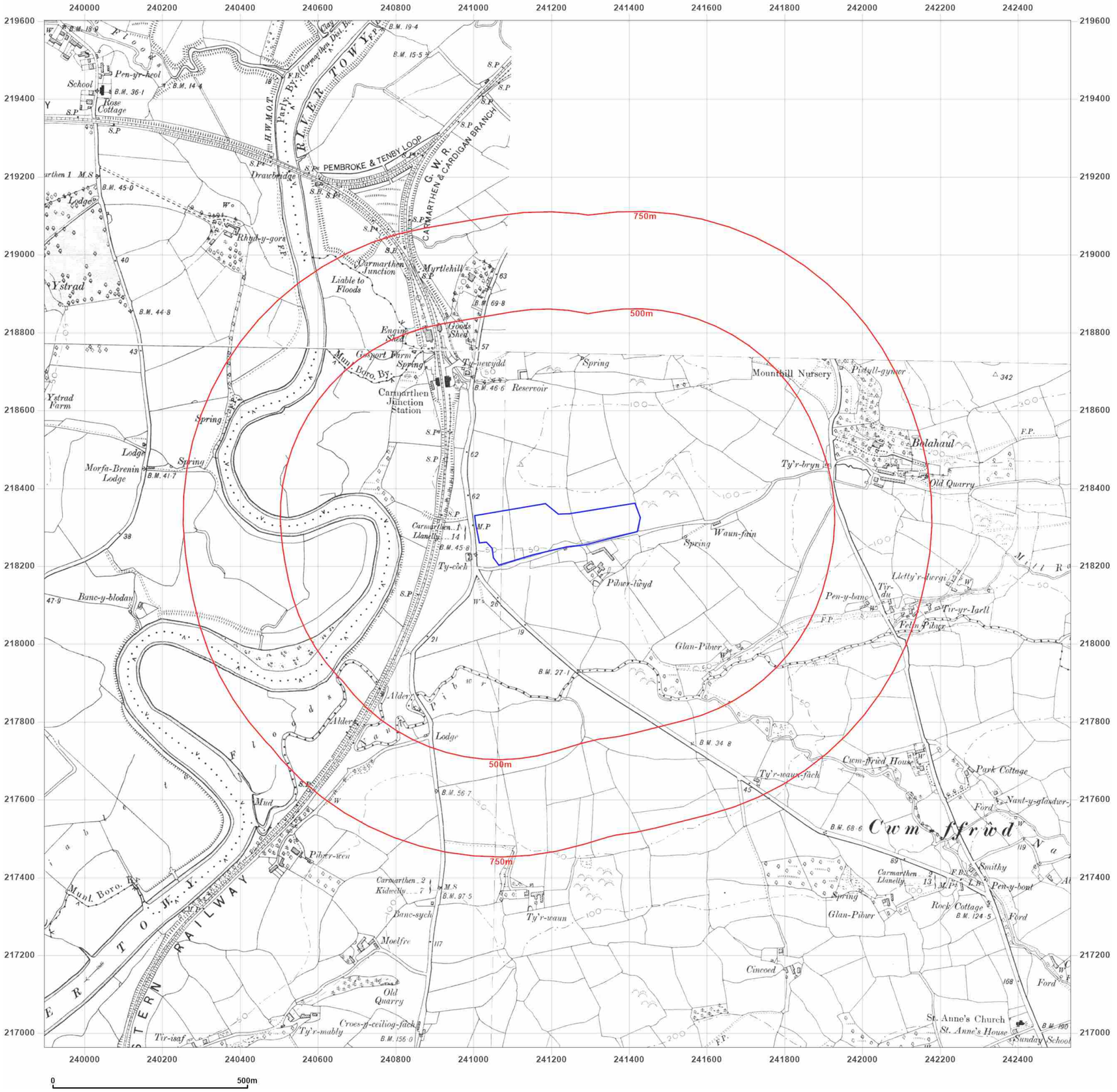
Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

Produced by
Groundsure Insights
www.groundsure.com

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: County Series

Map date: **1905-1907**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1886
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1907
Edition 1907
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1907
Edition 1907
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

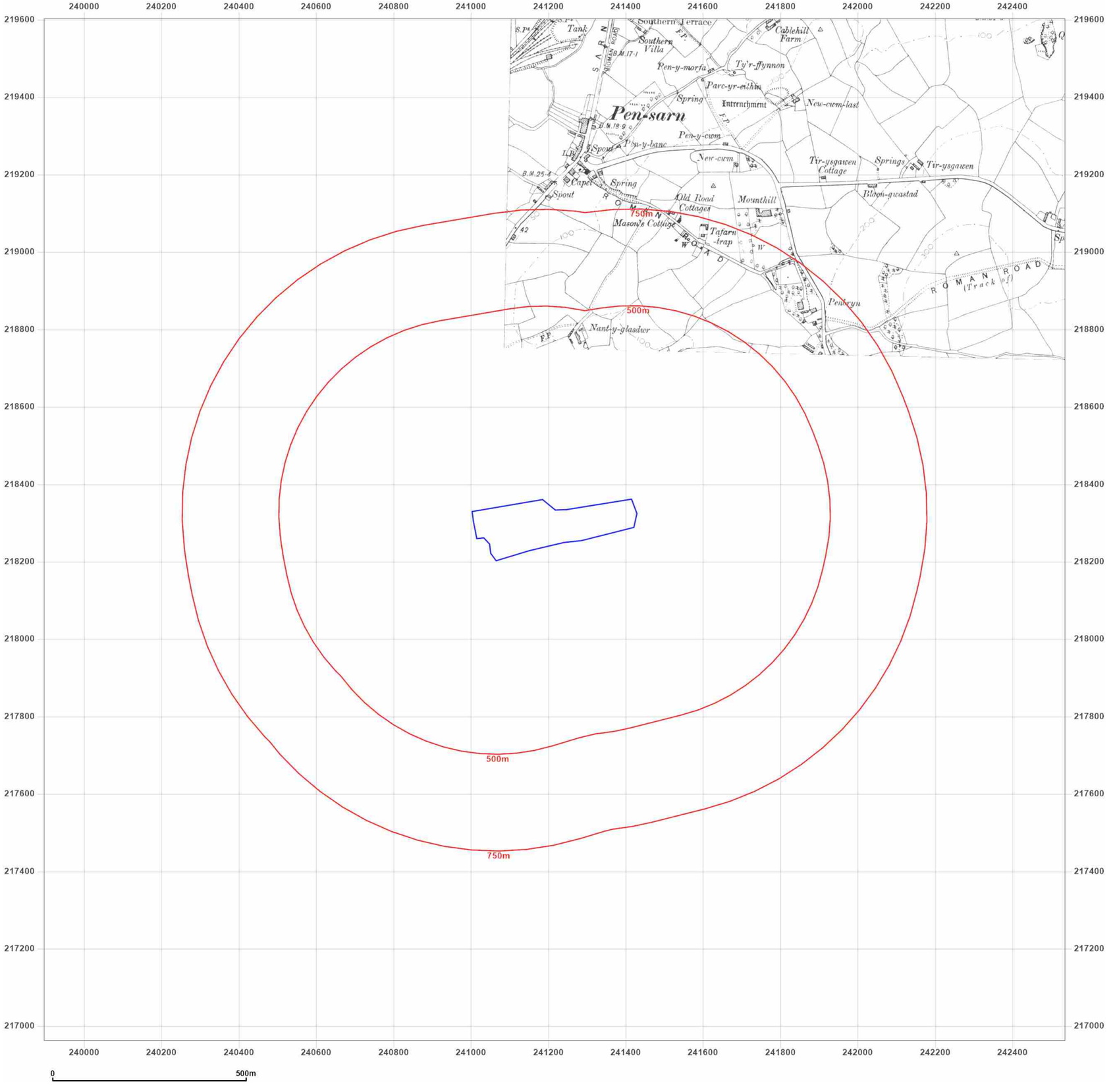
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: County Series

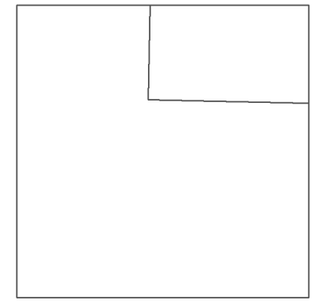
Map date: **1907**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1886
Revised 1907
Edition 1907
Copyright N/A
Levelled N/A



Groundsure INSIGHTS

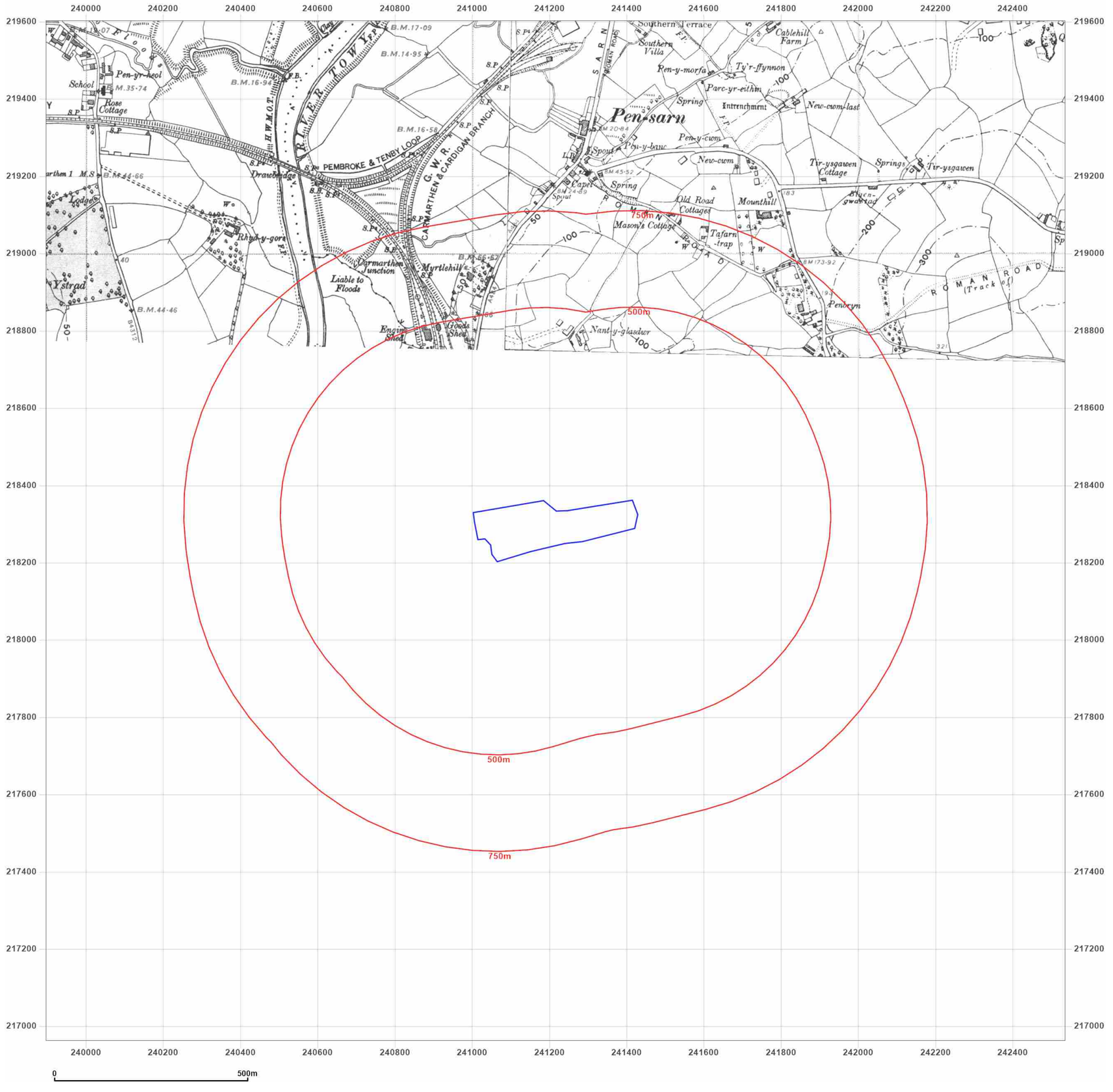
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

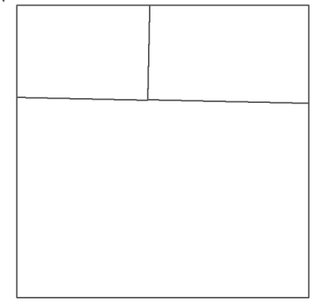
Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: County Series
Map date: **1938**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1886
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

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



Groundsure INSIGHTS

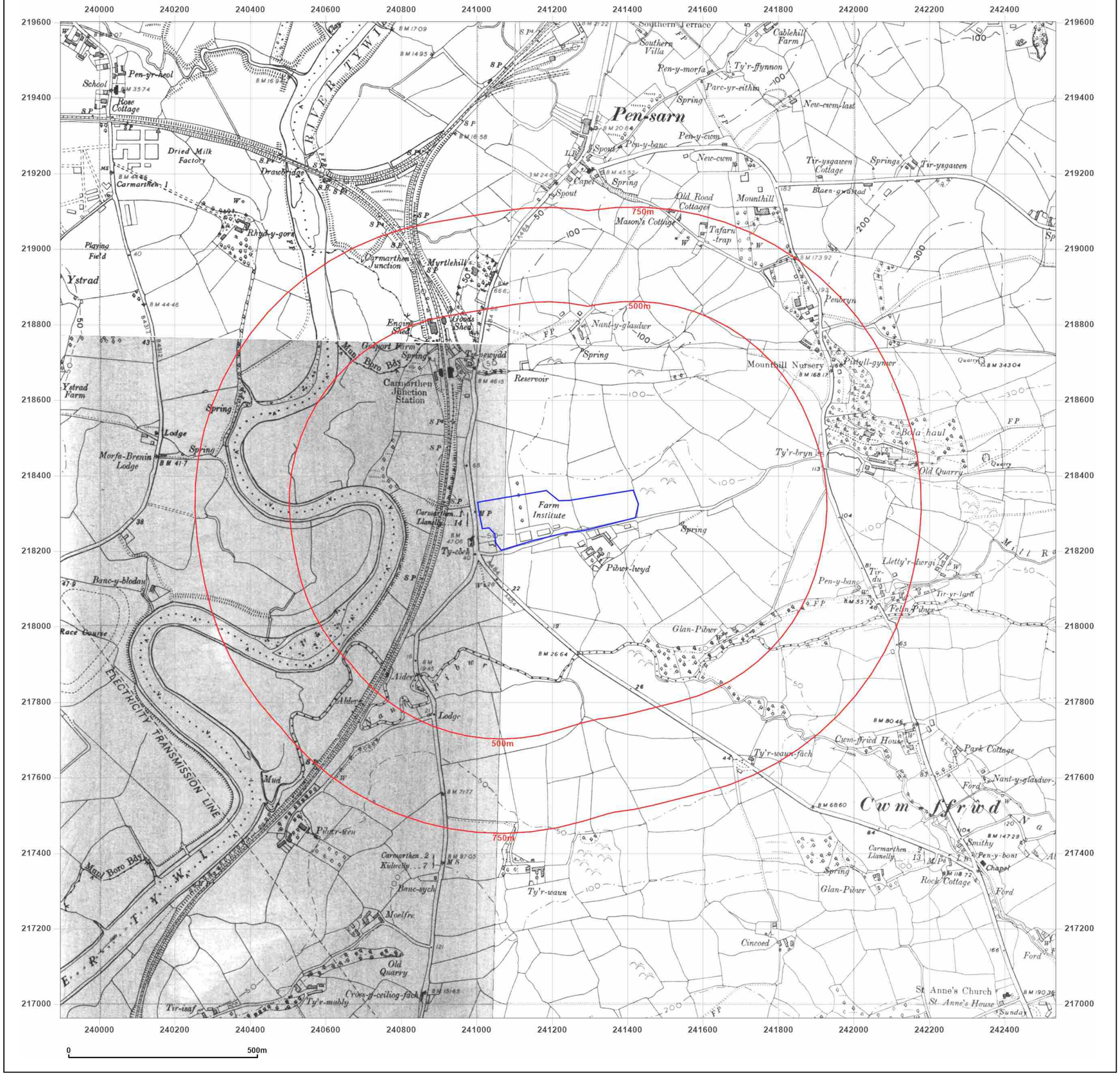
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: County Series
Map date: **1948**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1866
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

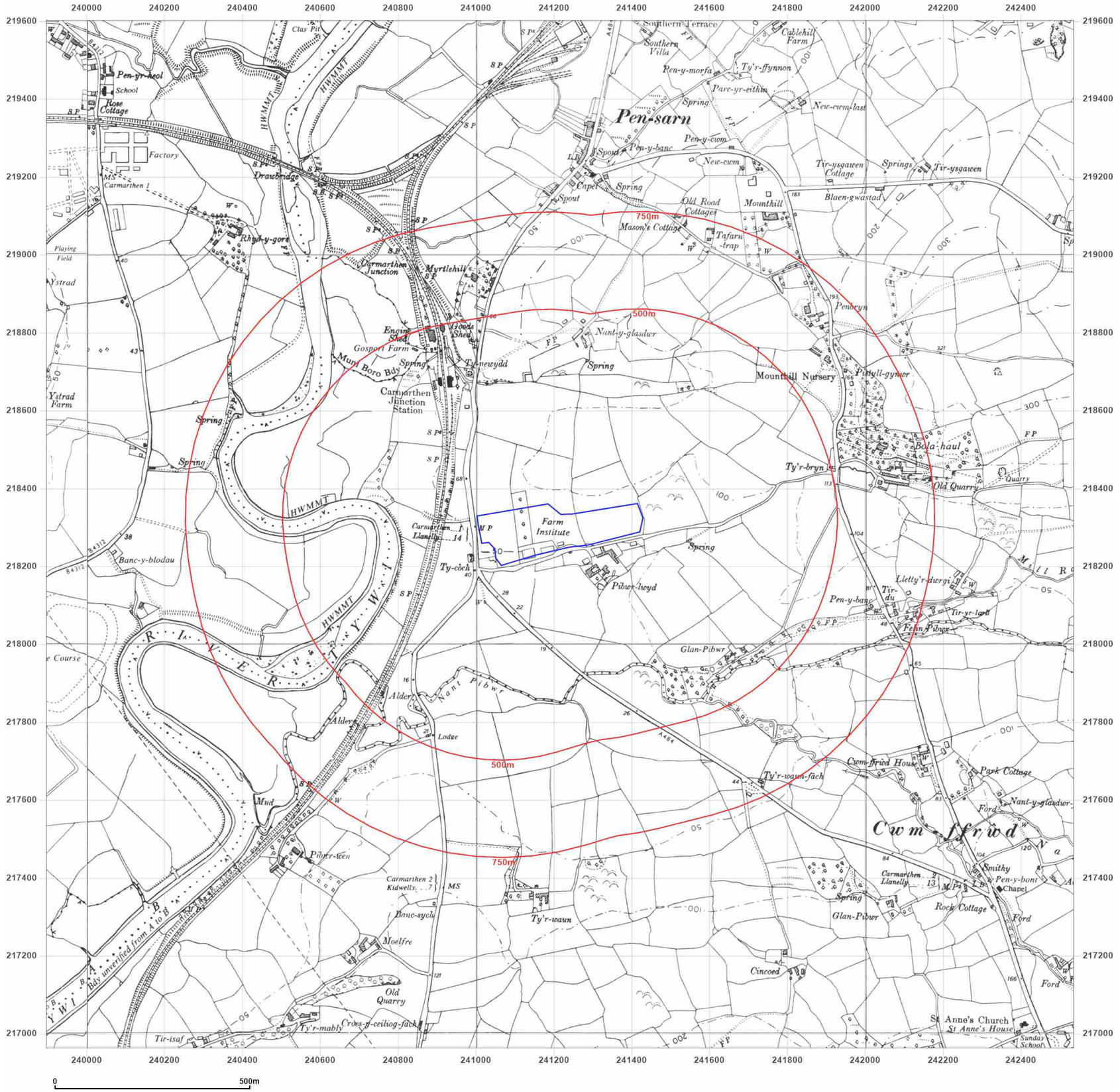
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: Provisional

Map date: **1963**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed N/A
Revised 1963
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised 1963
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

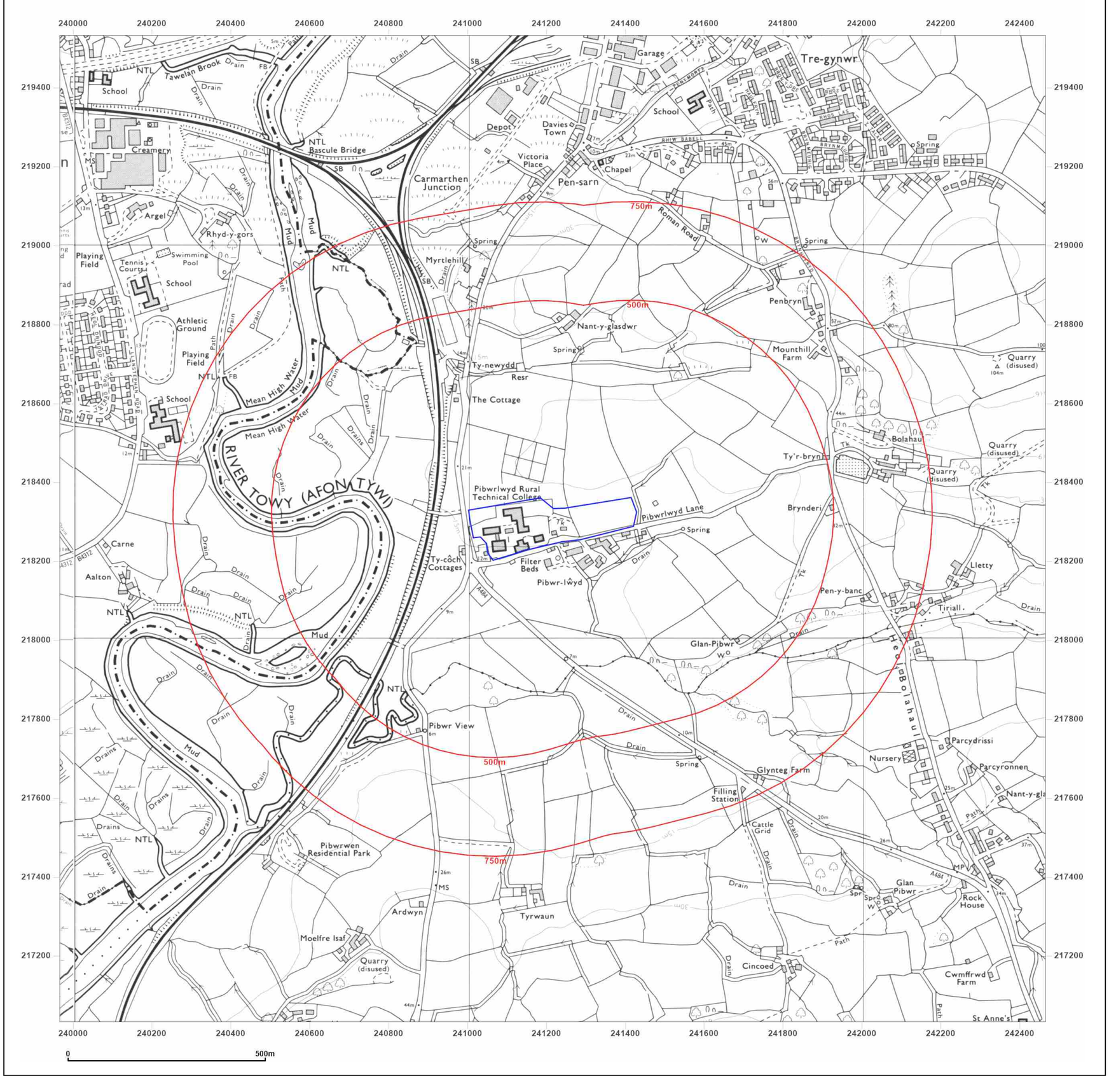
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: National Grid

Map date: **1973-1975**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1970
Revised 1975
Edition N/A
Copyright 1975
Levelled 1972

Surveyed 1971
Revised 1972
Edition N/A
Copyright 1973
Levelled N/A

Groundsure INSIGHTS

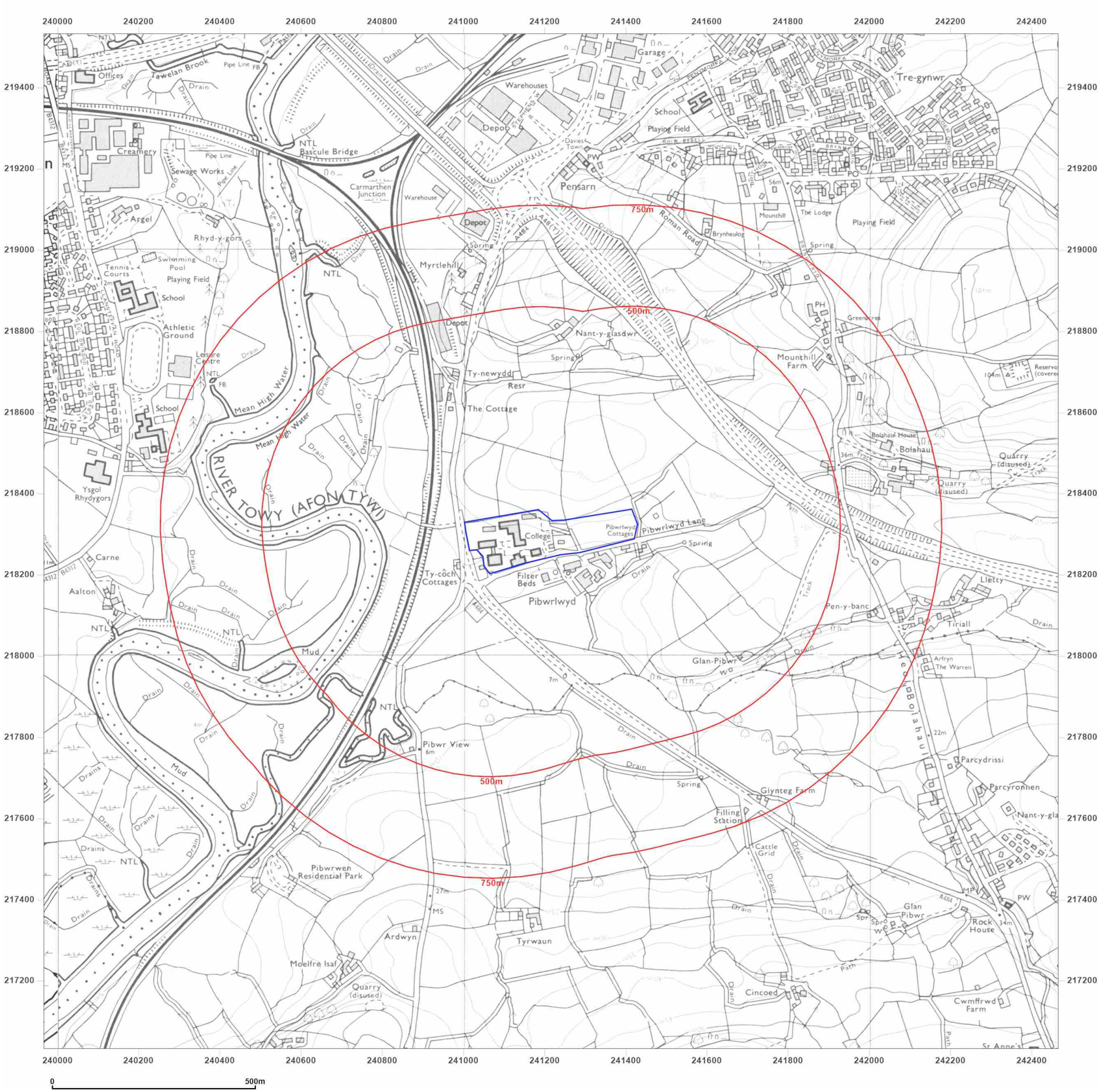
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: National Grid

Map date: **1989-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1970
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1983
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

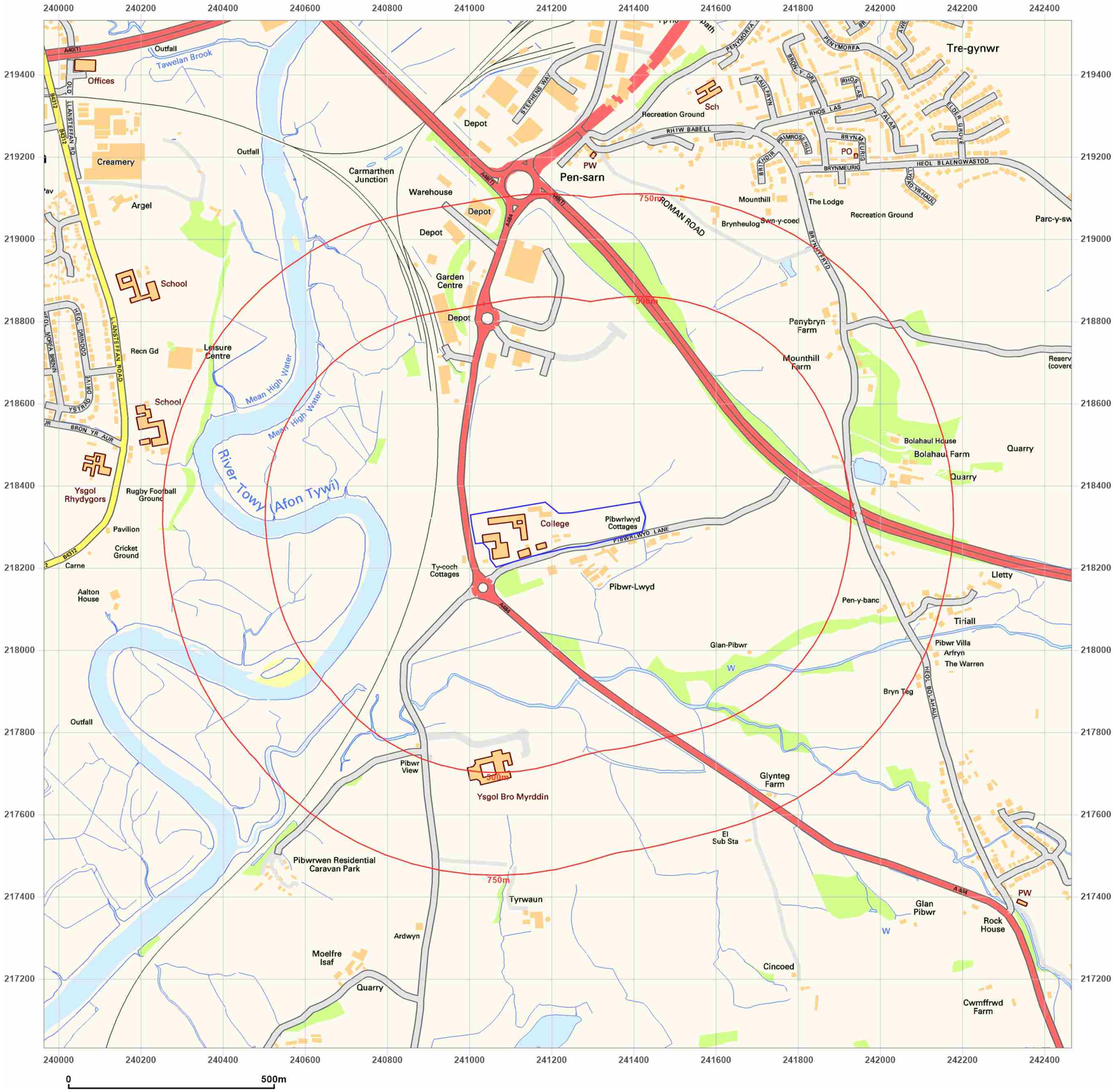
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2001

Groundsure INSIGHTS

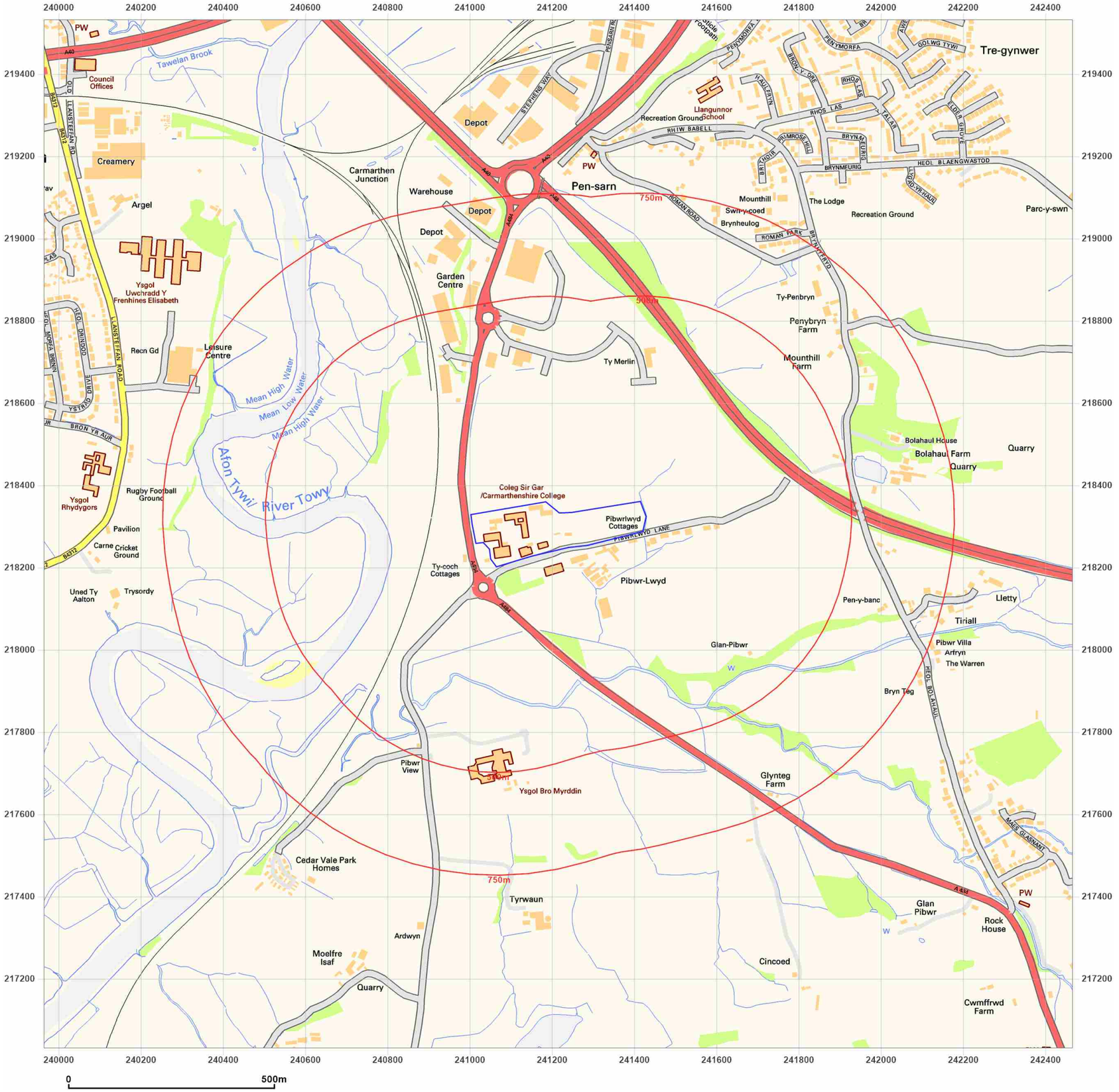
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

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

N
W E
S

2010

Groundsure INSIGHTS

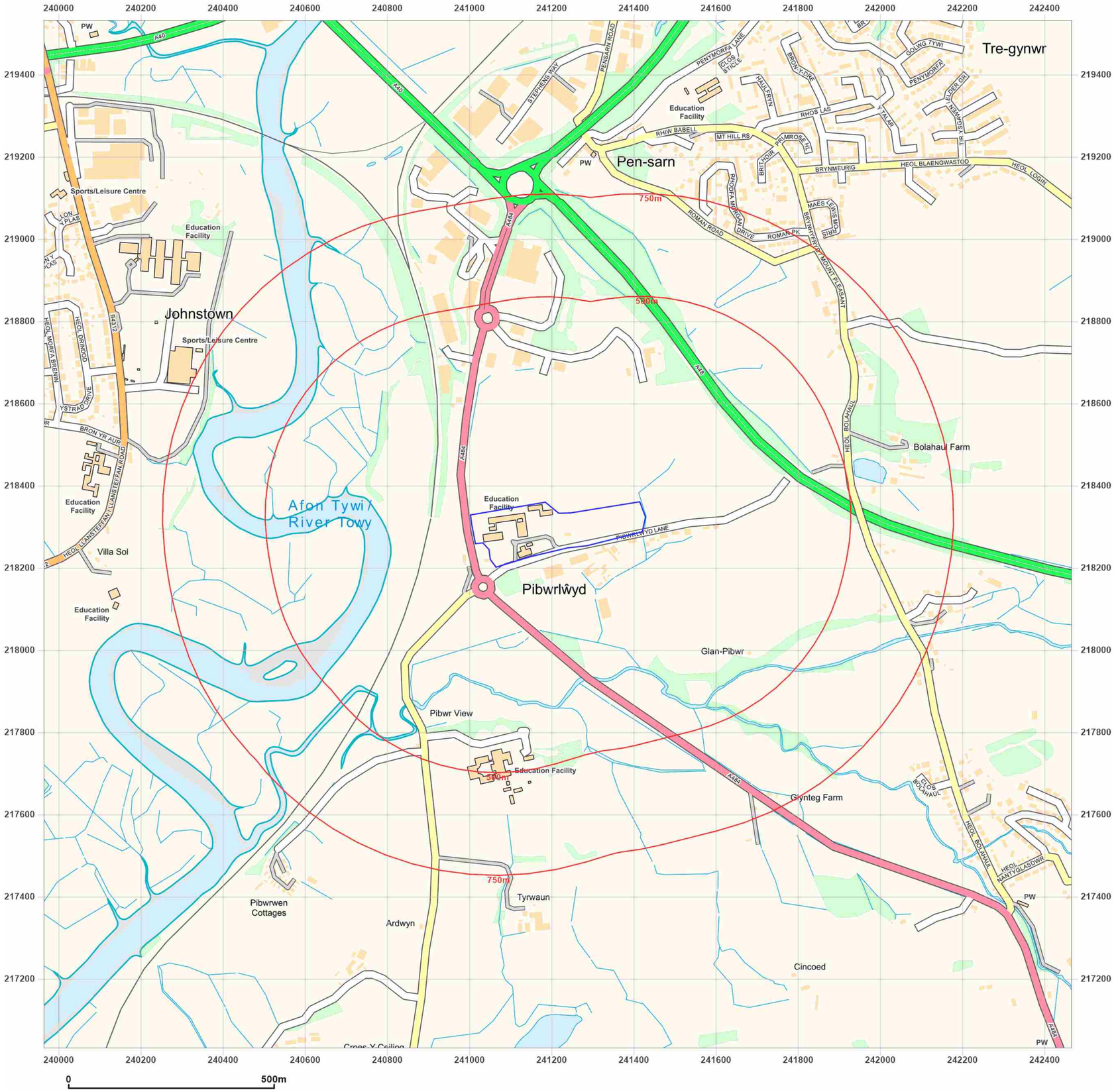
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200
Grid Ref: 241215, 218282

Map Name: National Grid
Map date: **2022**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
S

2022

Groundsure INSIGHTS

Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

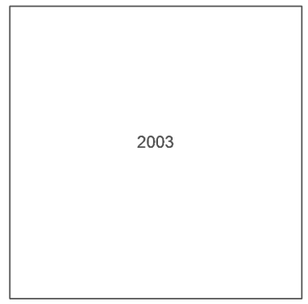
emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_Landline_2_1
Grid Ref: 241365, 218282

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

N
W E
S



Groundsure INSIGHTS

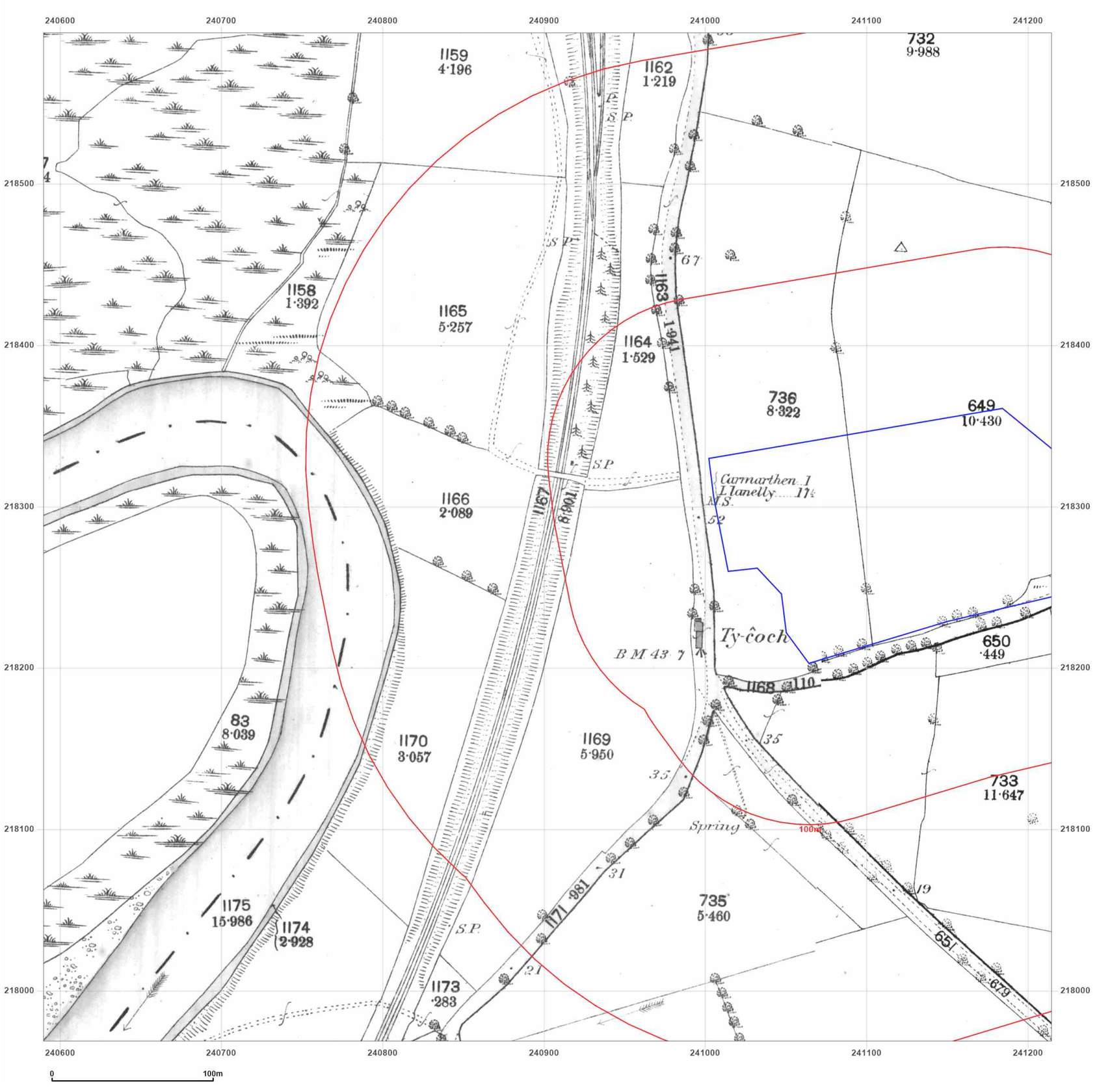
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



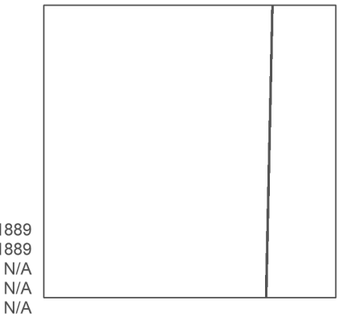
emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

Map Name: County Series
Map date: **1888-1889**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



Surveyed 1889
Revised 1889
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

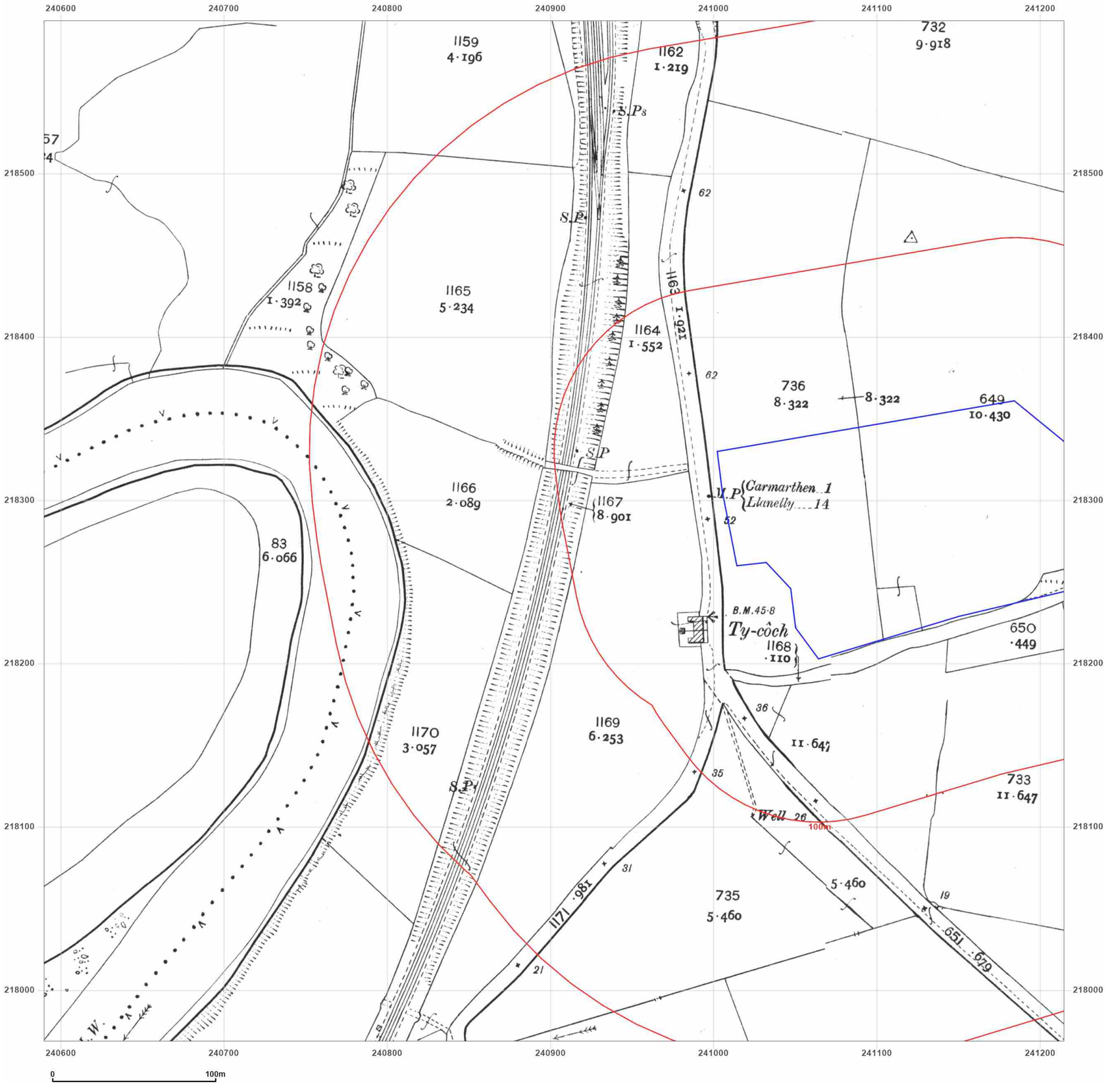
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

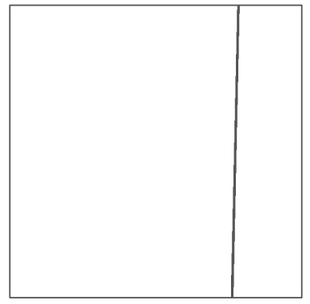


Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

Map Name: County Series
Map date: **1906**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



Surveyed 1906
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

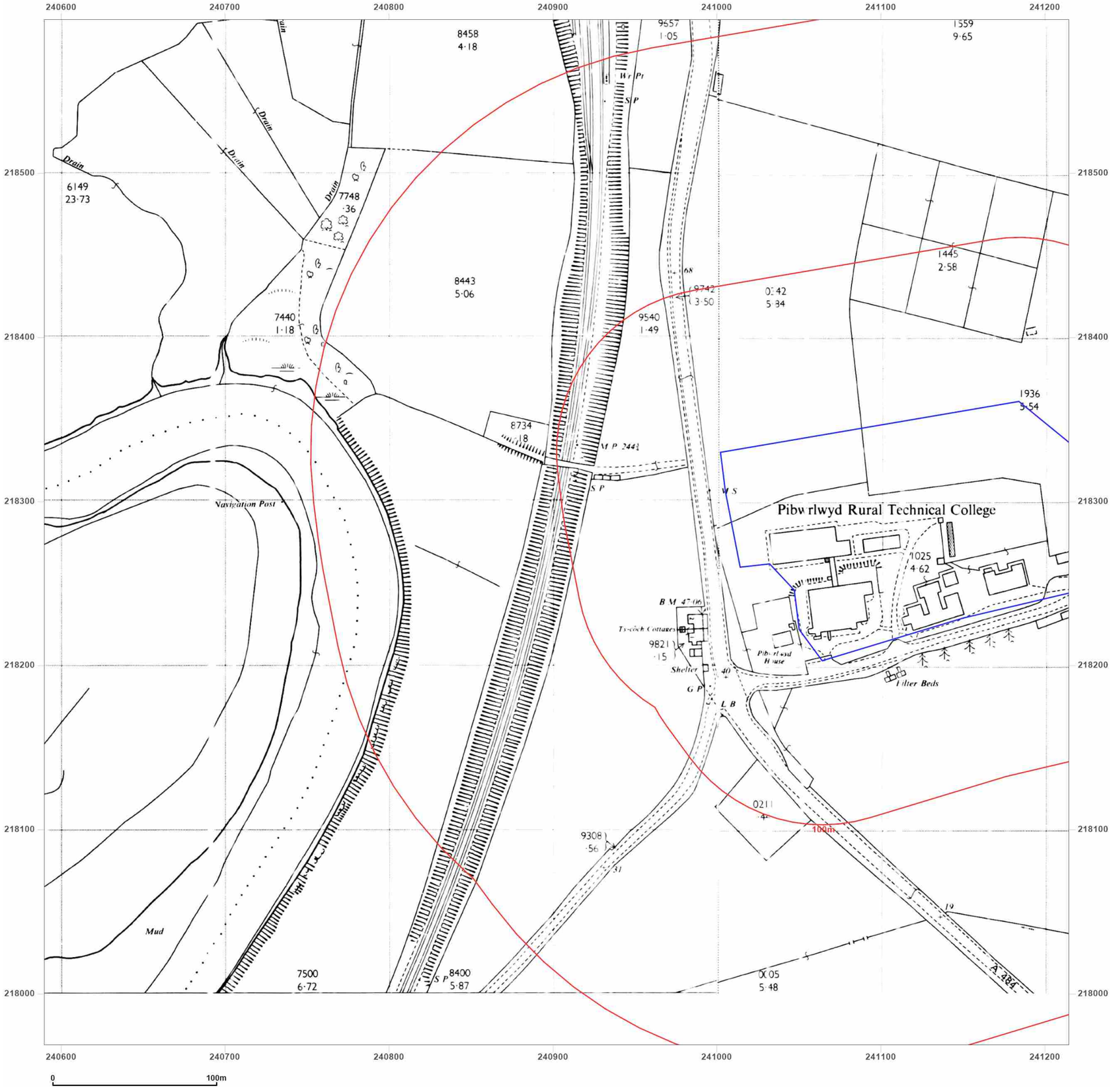
Surveyed 1906
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

Produced by
Groundsure Insights
www.groundsure.com

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

Groundsure INSIGHTS

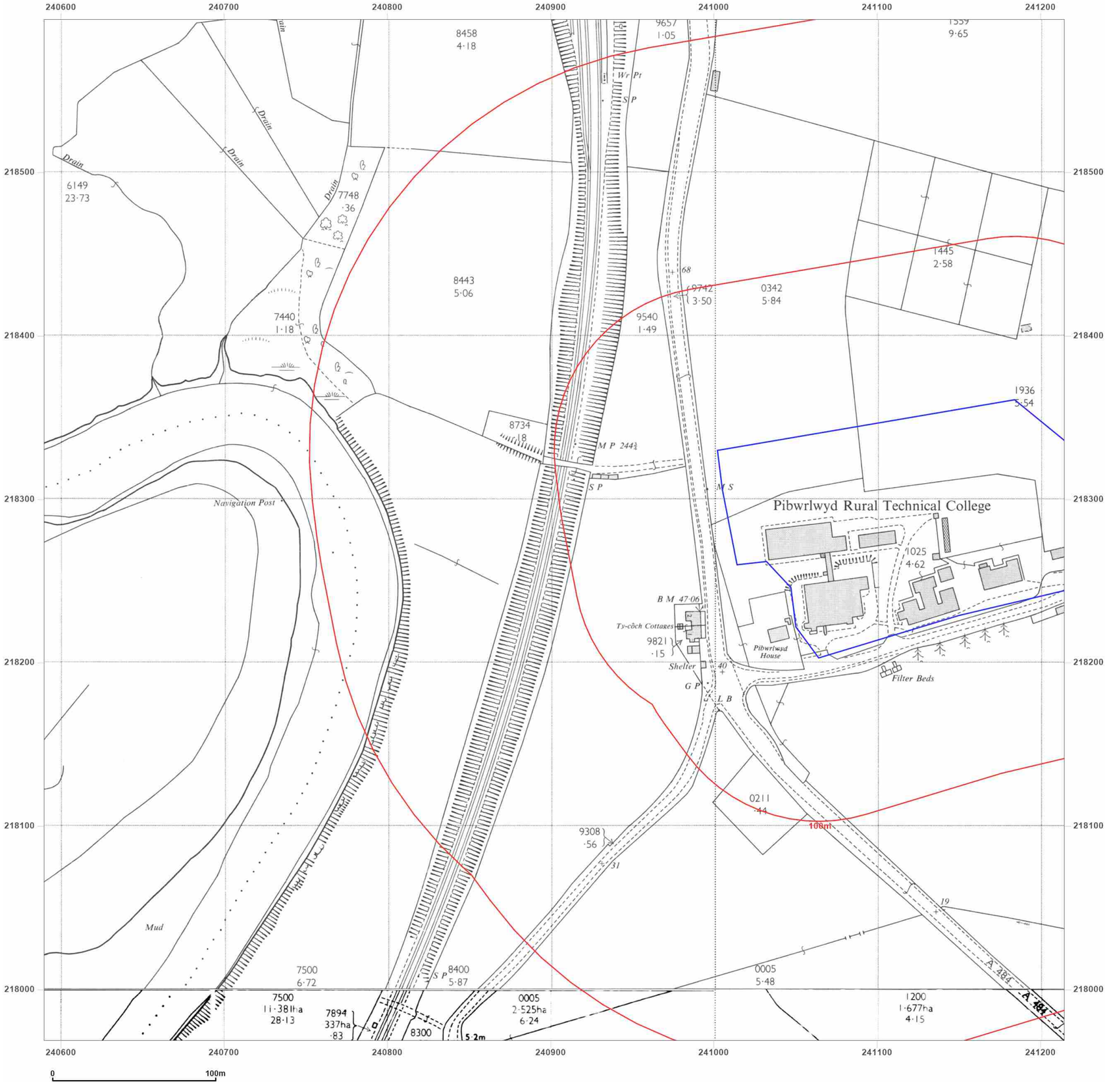
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

Map Name: National Grid

Map date: **1969-1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
Levelled 1953

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

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

Groundsure INSIGHTS

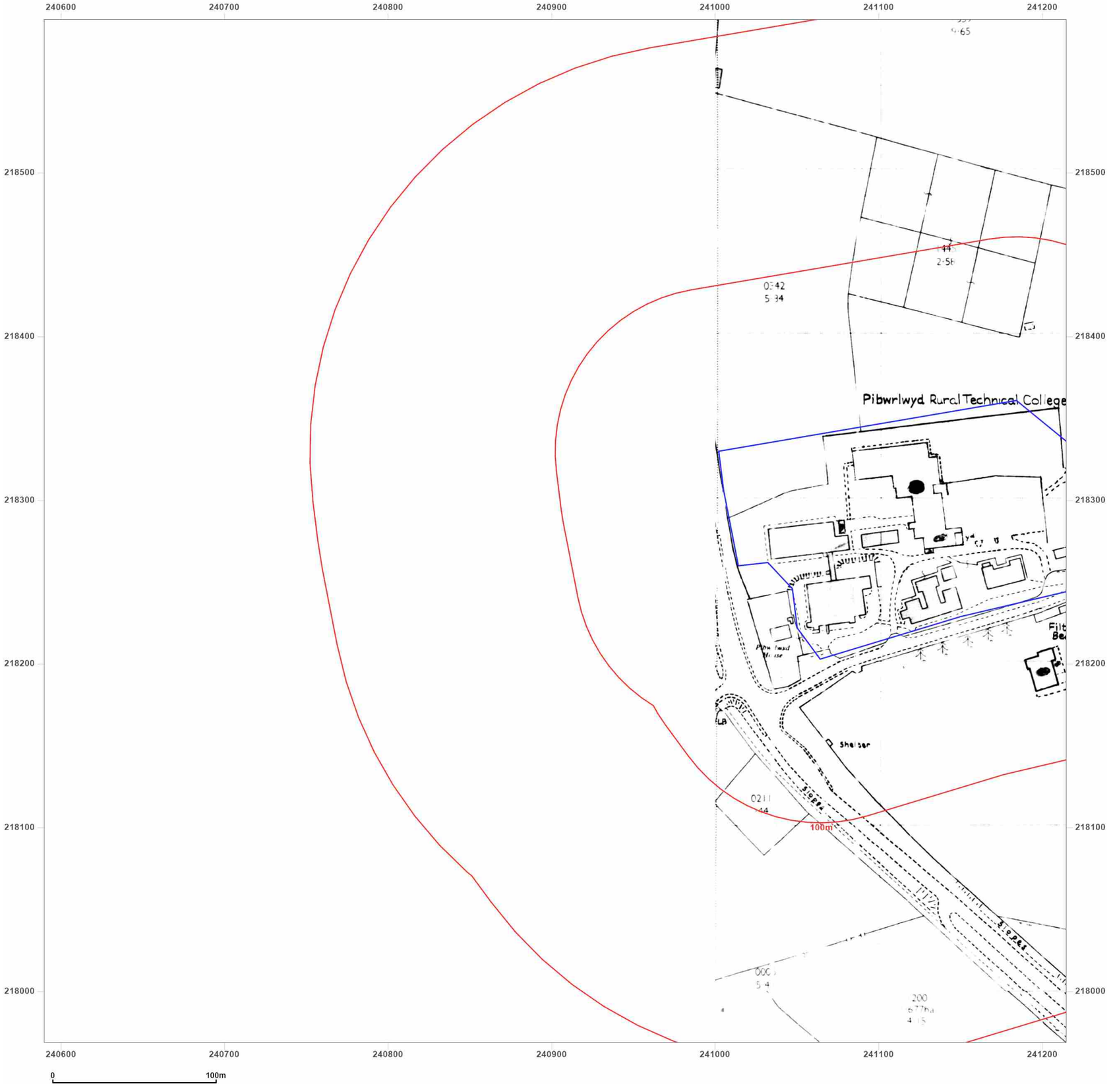
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

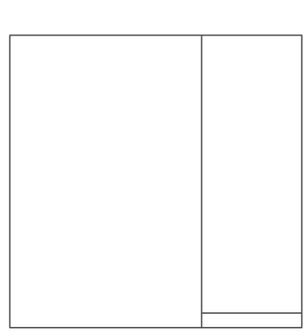
Map Name: National Grid

Map date: **1978**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1978
Levelled N/A

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

Groundsure INSIGHTS

Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

Map Name: National Grid

Map date: **1985-1987**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1972
Revised 1985
Edition N/A
Copyright 1985
Levelled 1972

Surveyed 1974
Revised 1987
Edition N/A
Copyright 1987
Levelled 1974

Groundsure INSIGHTS

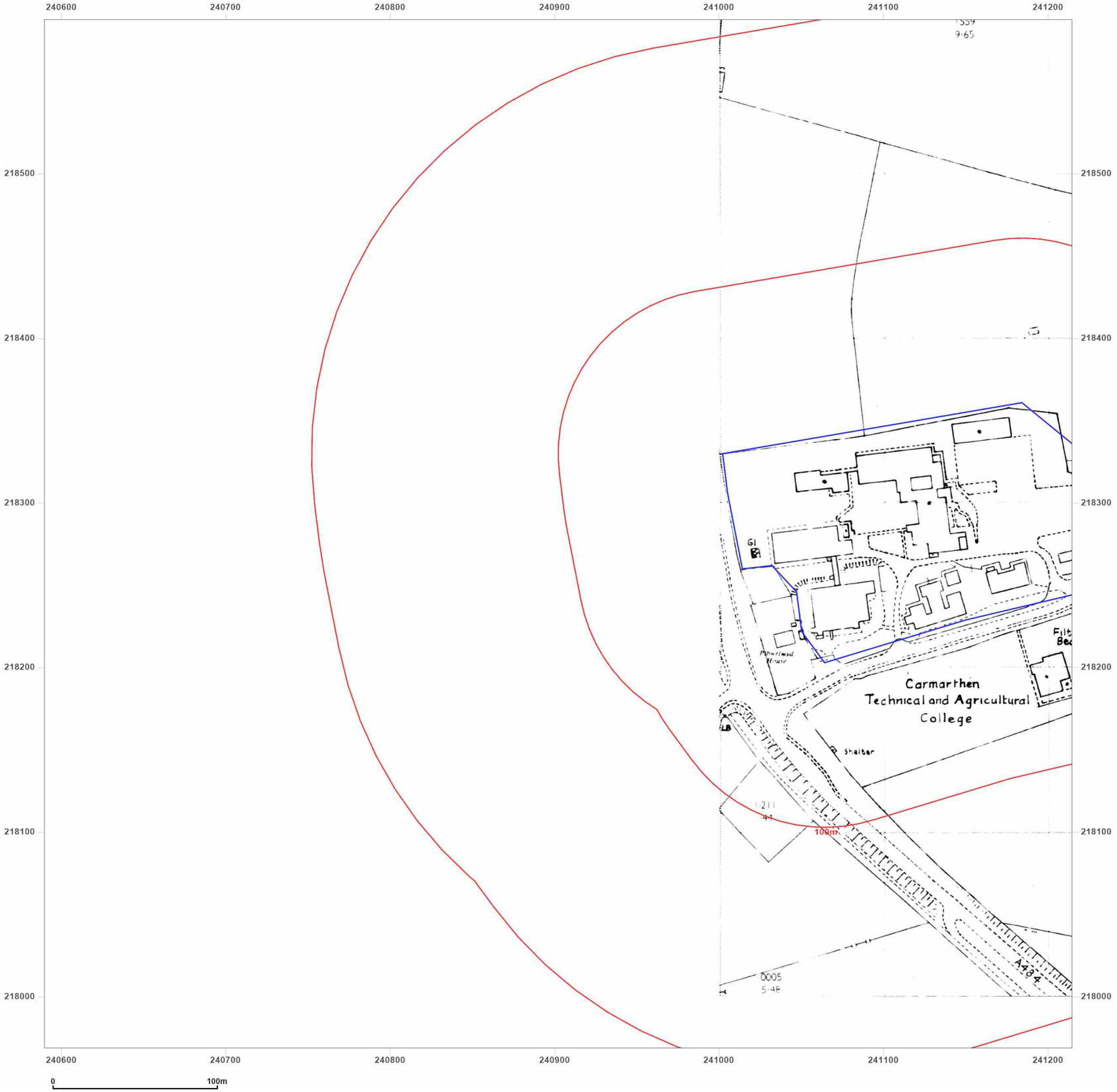
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



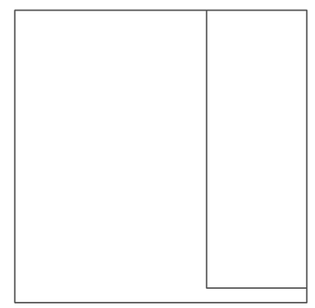
emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

Map Name: National Grid
Map date: **1987**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



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

Groundsure INSIGHTS

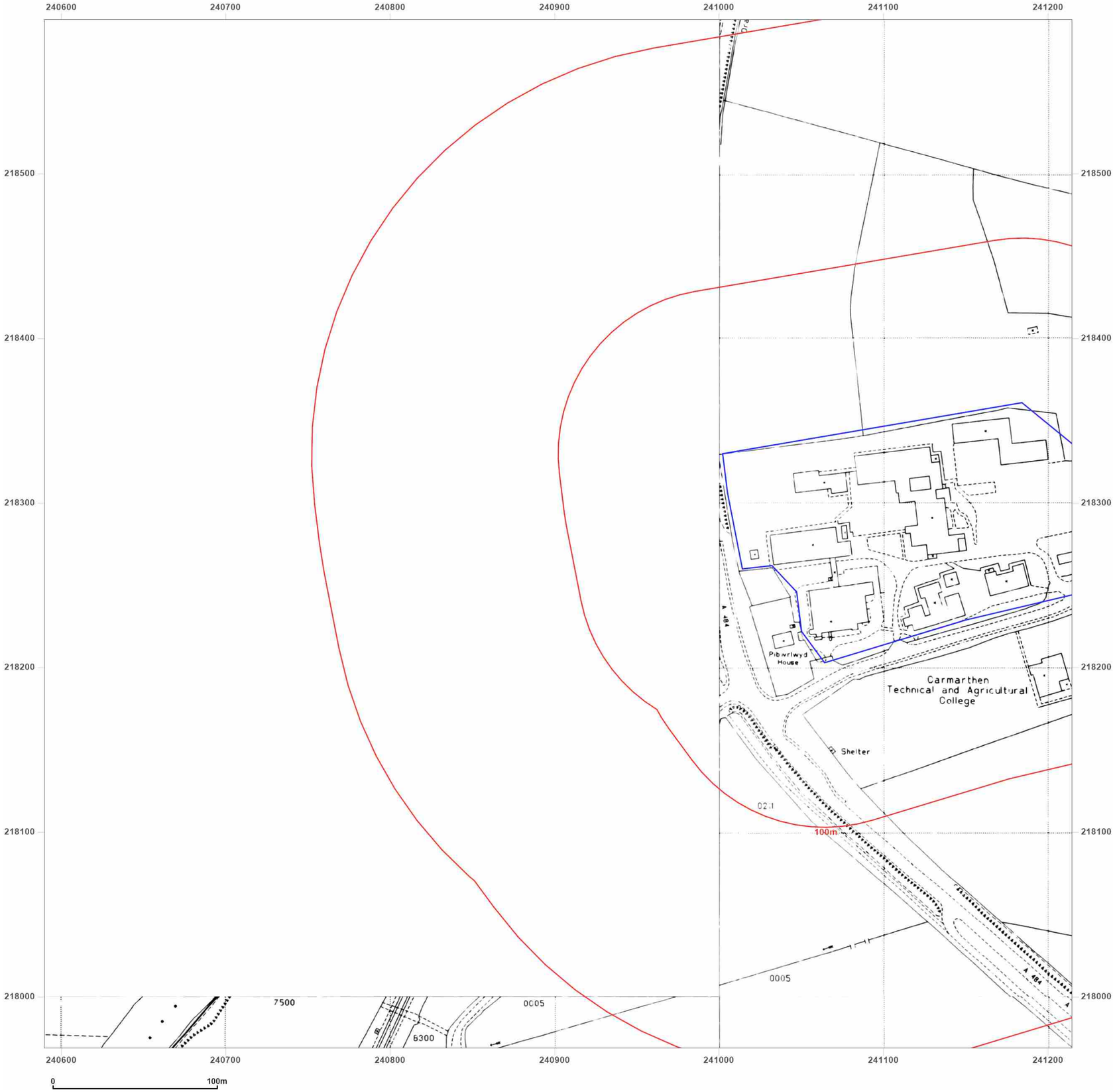
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



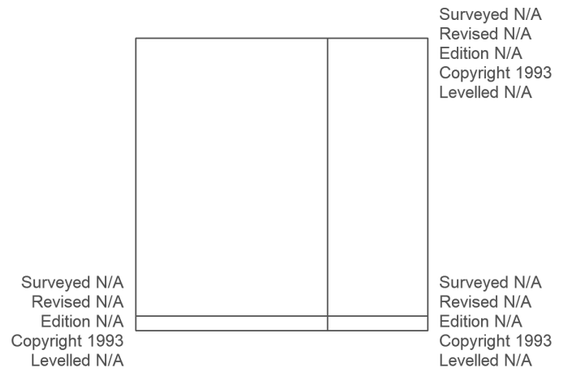
emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_1_1
Grid Ref: 240902, 218281

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

N
W E
S



Groundsure INSIGHTS

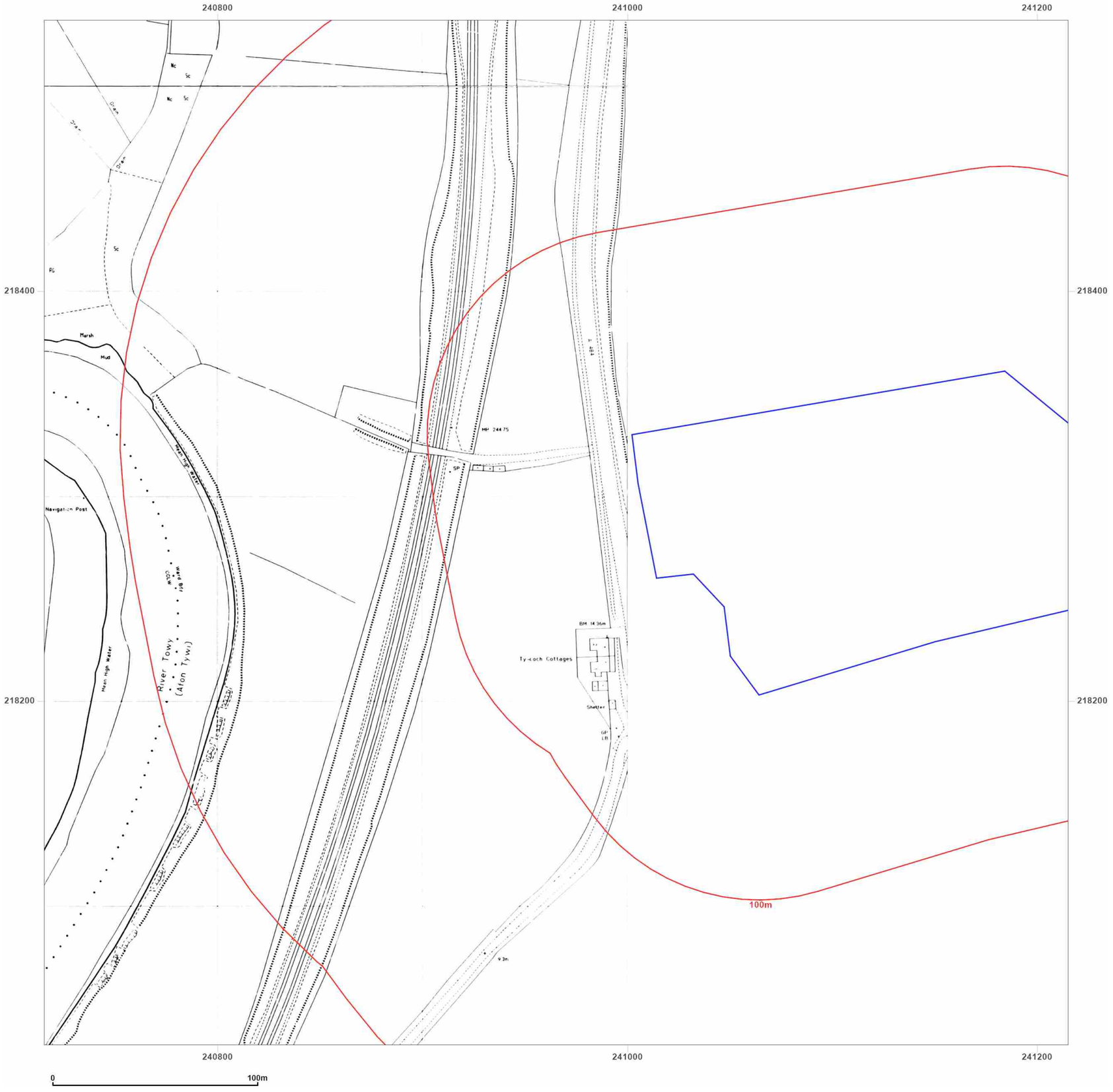
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_1250_1_1
Grid Ref: 240965, 218282

Map Name: National Grid

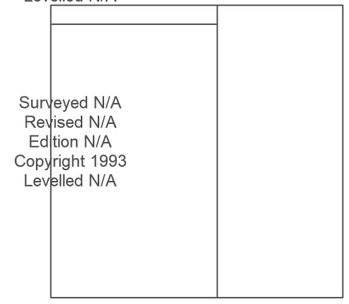
Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Groundsure INSIGHTS

Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

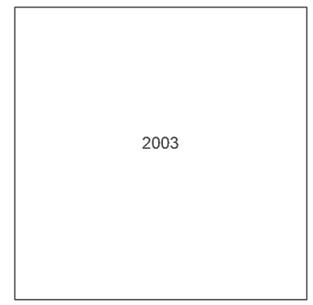
emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_Landline_1_1
Grid Ref: 241065, 218282

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

N
W E
S



Groundsure INSIGHTS

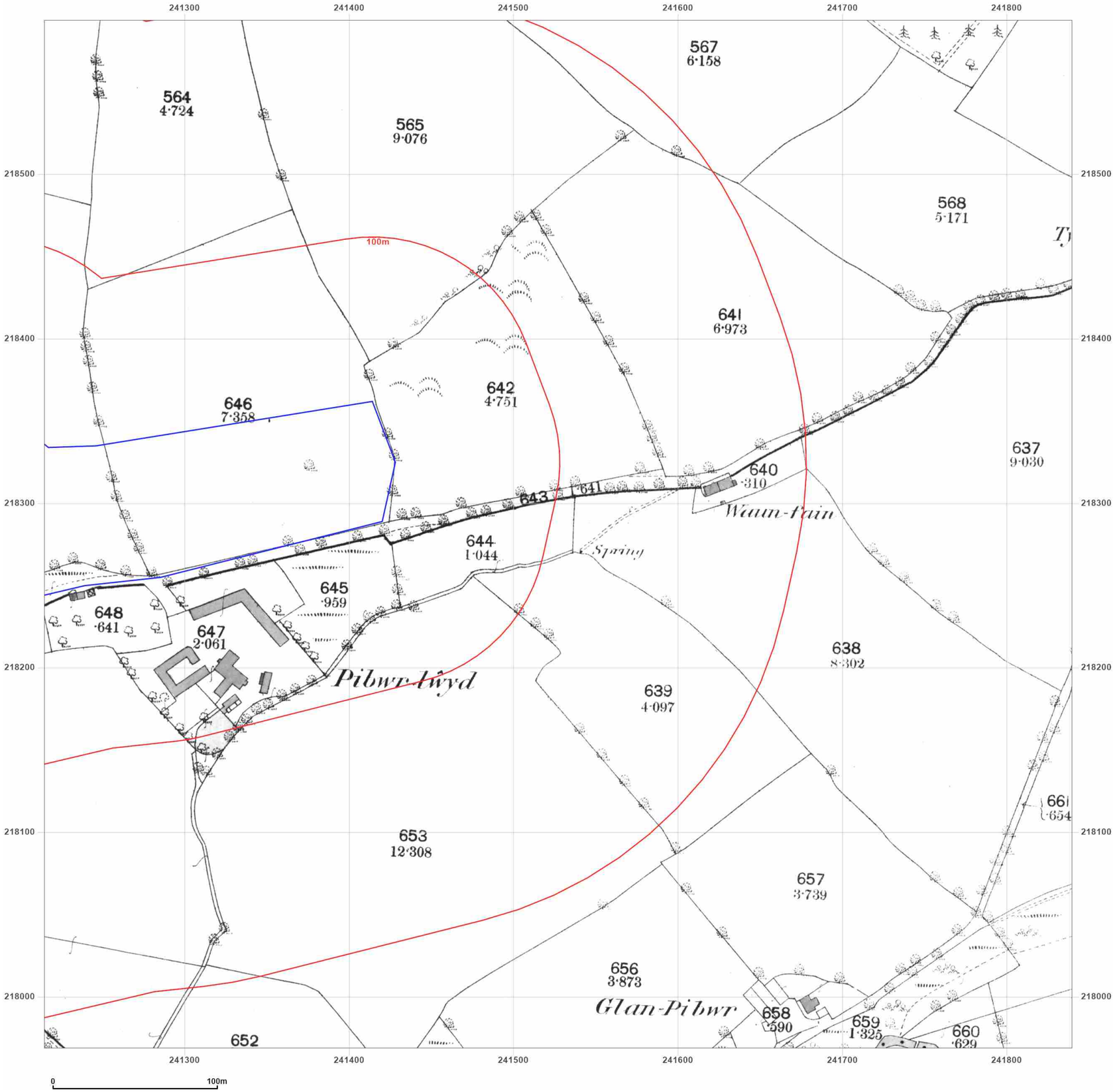
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

Map Name: County Series

Map date: **1888**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

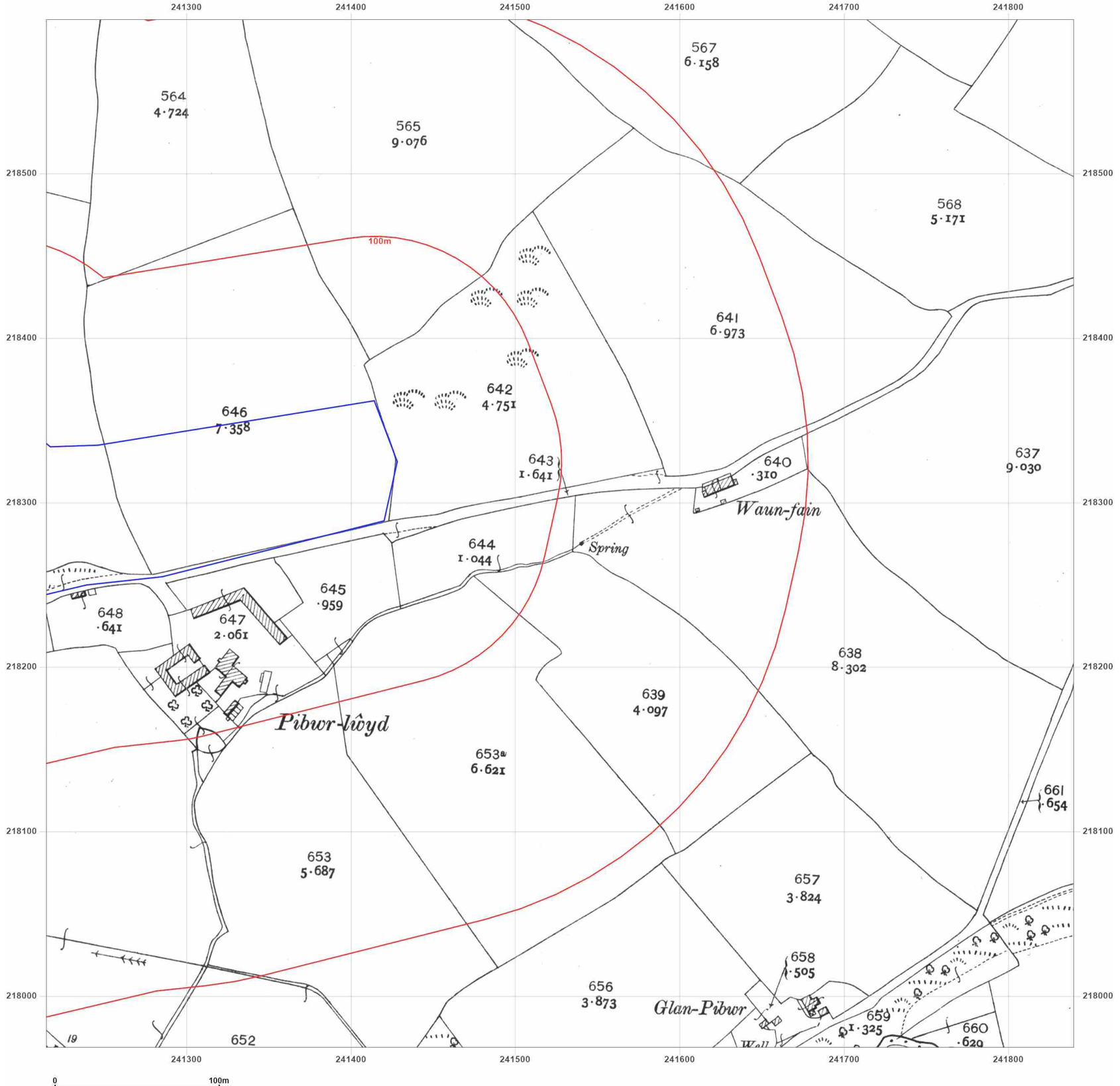
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

Map Name: County Series
Map date: **1906**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1906
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

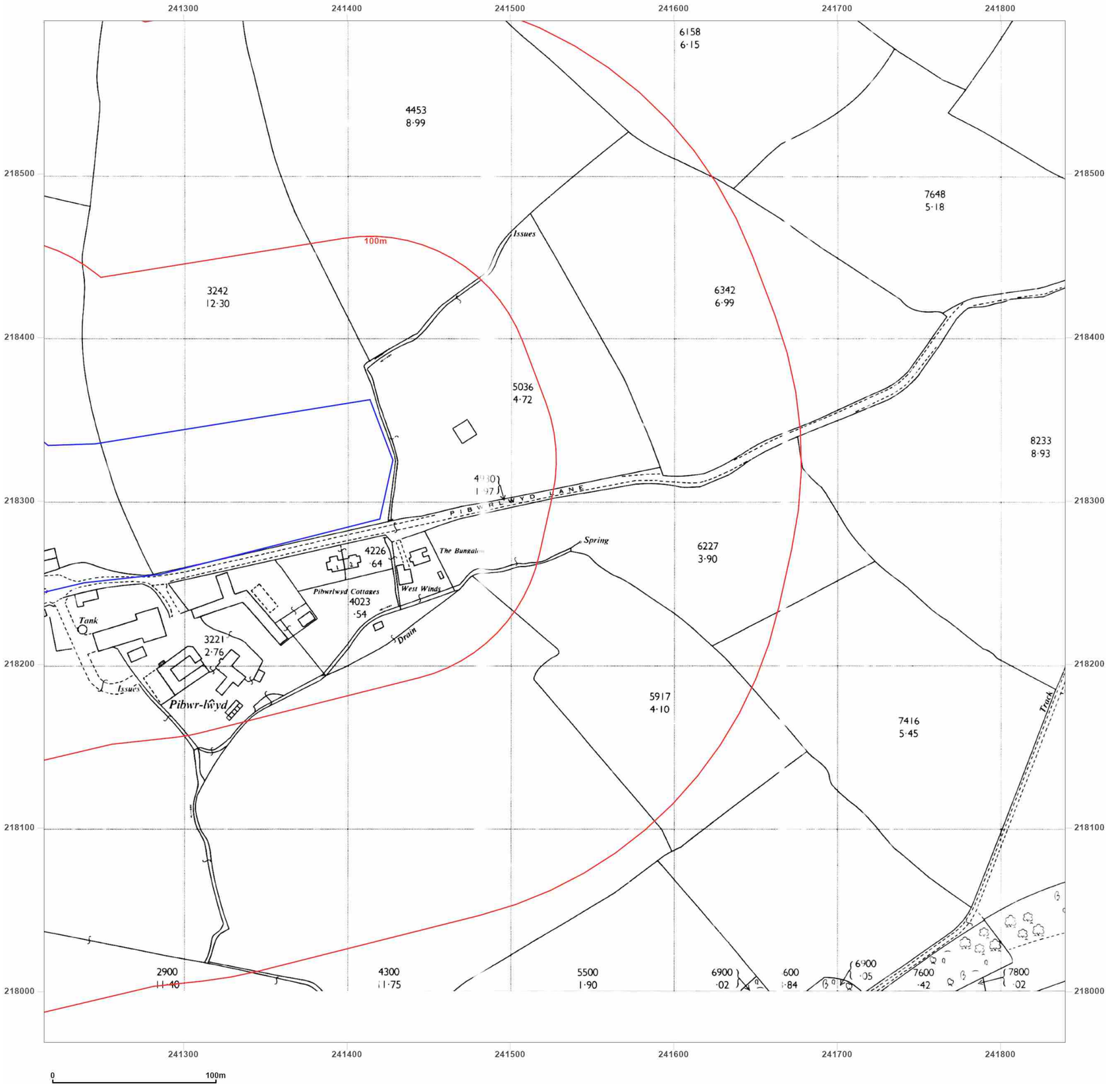
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

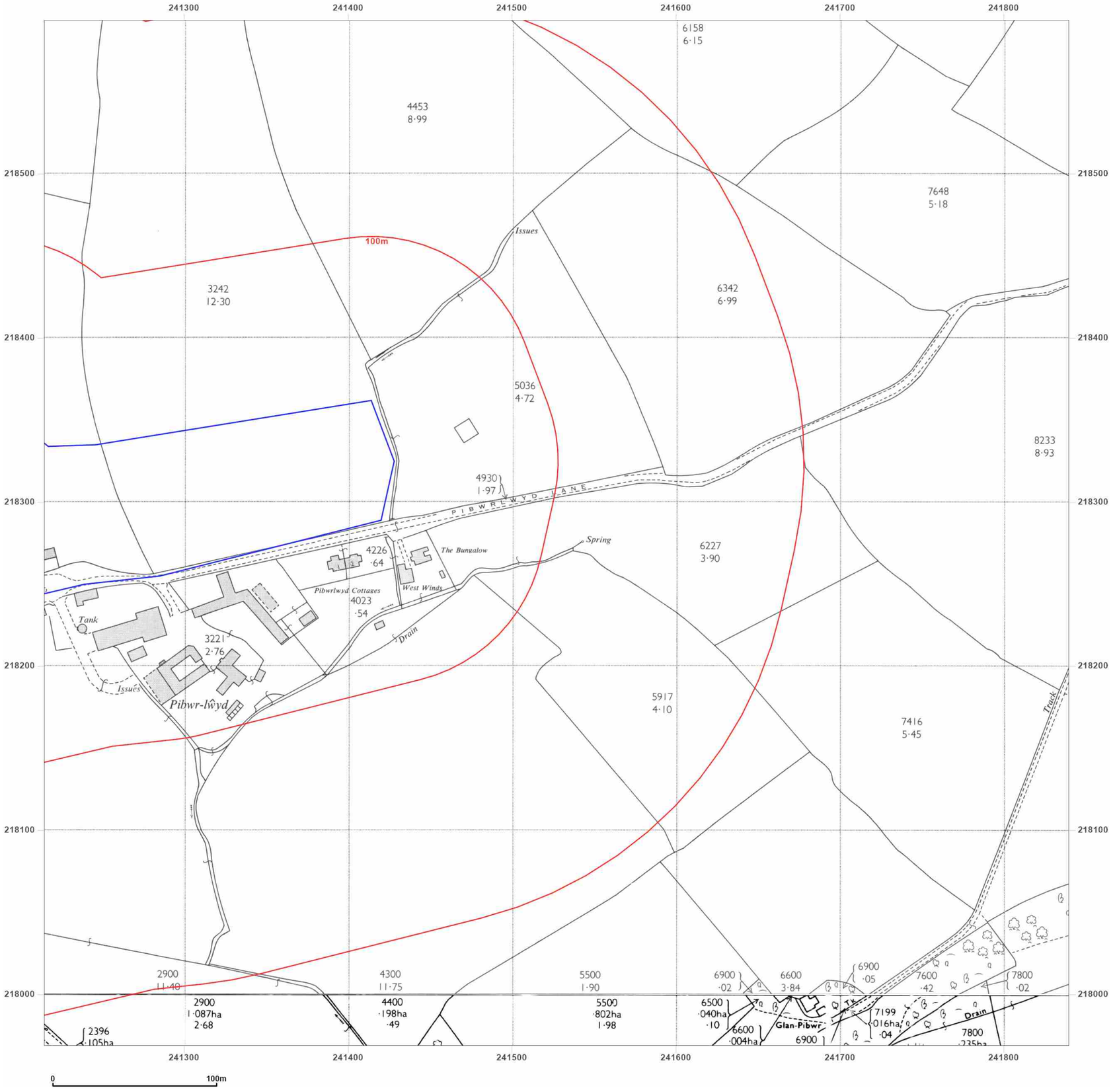
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Produced by
Groundsure Insights
www.groundsure.com

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

Map Name: National Grid

Map date: **1969-1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
Levelled 1953

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

Groundsure INSIGHTS

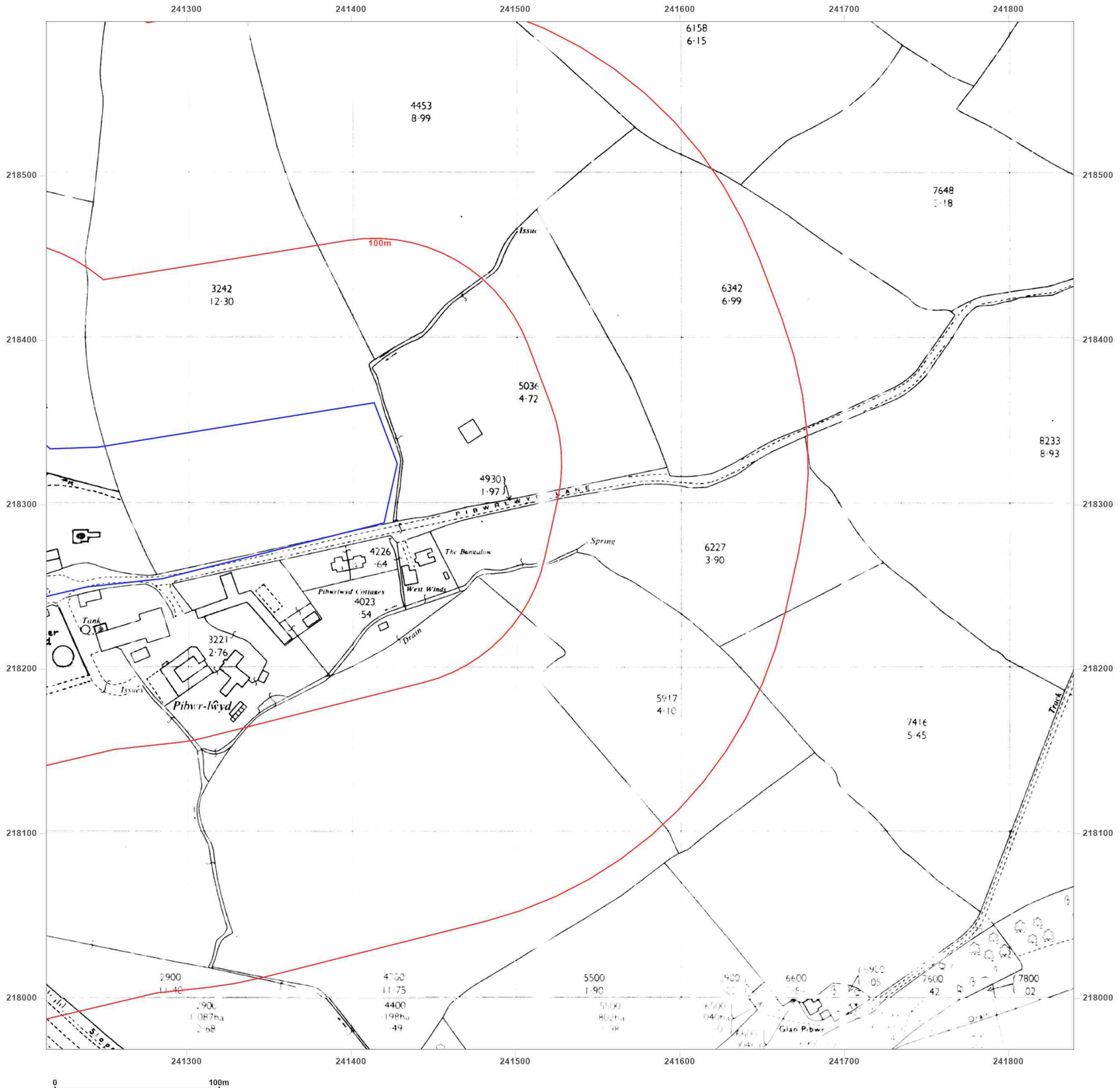
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

Map Name: National Grid
Map date: **1978**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1978
Levelled N/A

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

Groundsure INSIGHTS

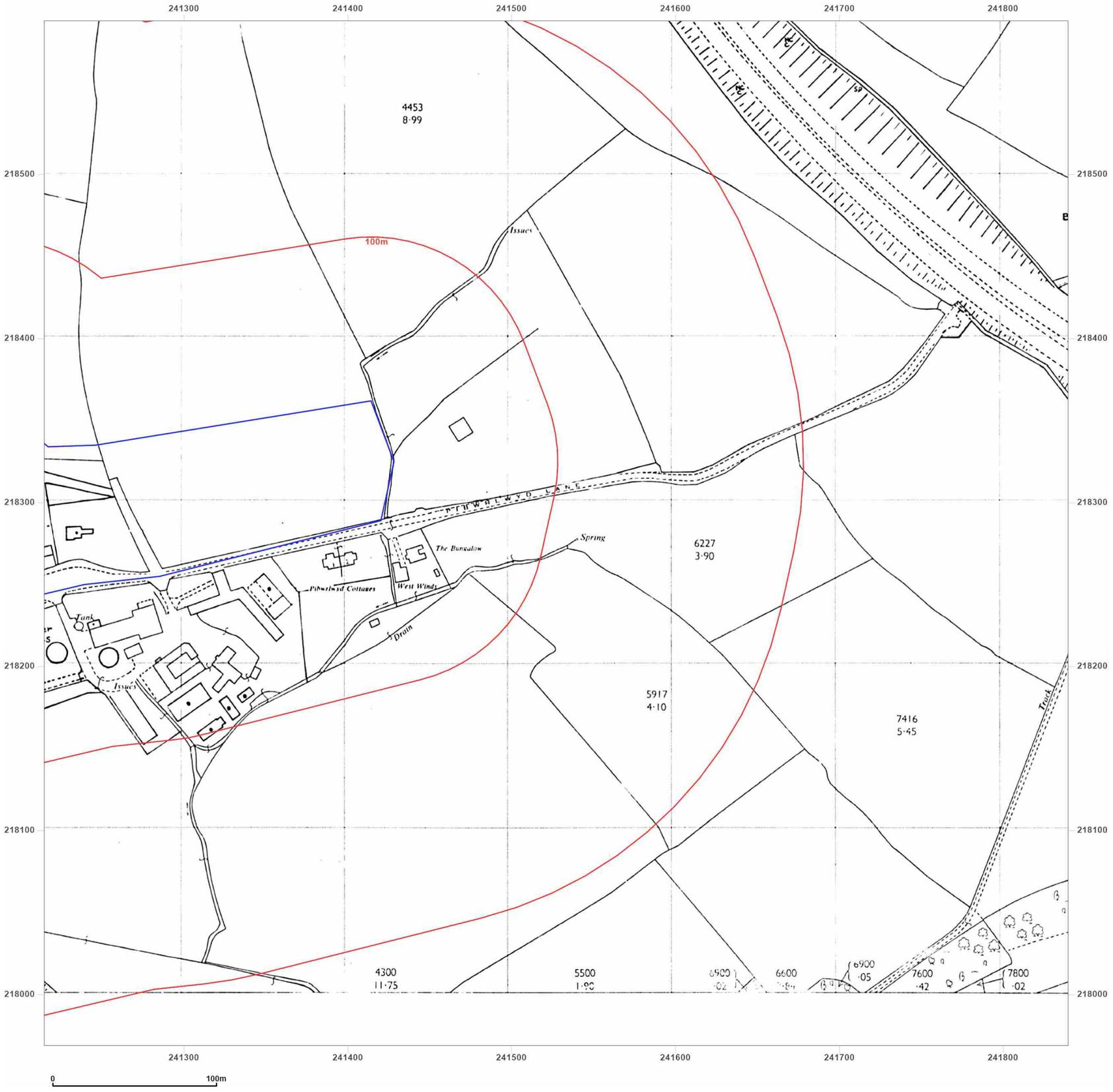
Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

Map Name: National Grid

Map date: **1987**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1974
Revised 1987
Edition N/A
Copyright 1987
Levelled 1974

Groundsure INSIGHTS

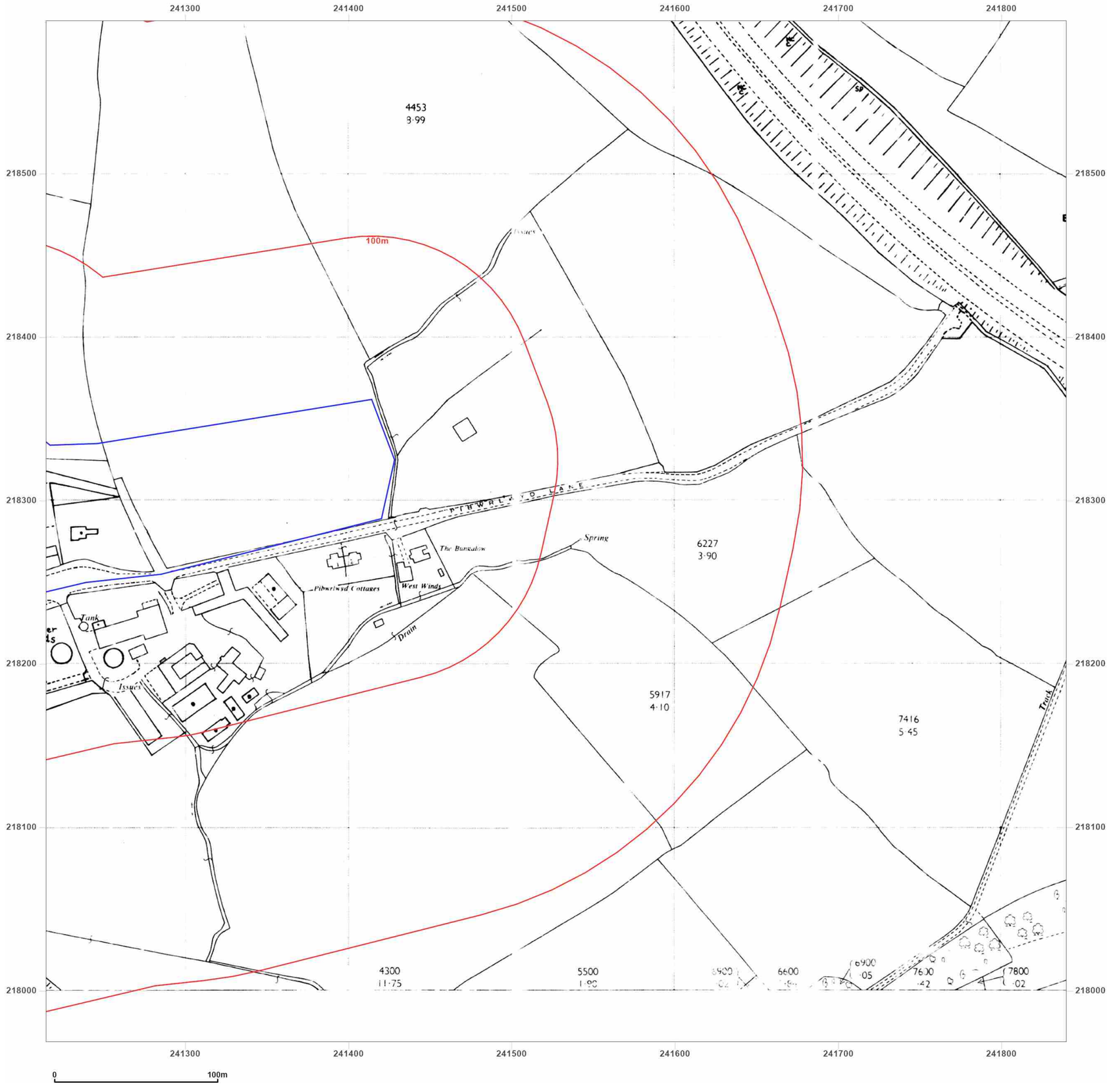
Produced by
Groundsure Insights
www.groundsure.com

Powered by OS

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

Map Name: National Grid
Map date: **1987**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

Groundsure INSIGHTS

Produced by
Groundsure Insights
www.groundsure.com

Powered by

Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

emapsite™

Site Details:

Client Ref: EMS_812432_1005425
Report Ref: EMS-812432_1045200_LS_2_1
Grid Ref: 241527, 218281

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

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Groundsure INSIGHTS

Produced by
Groundsure Insights
www.groundsure.com

Powered by

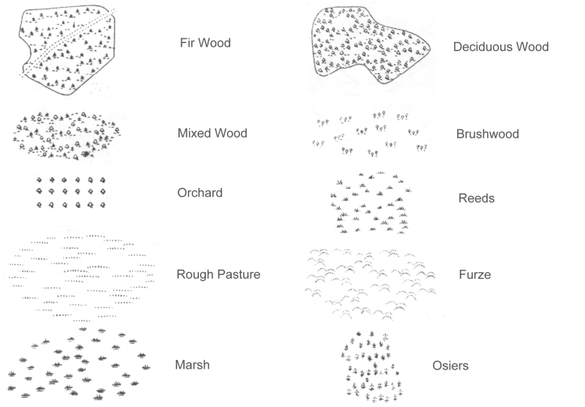
Supplied by:
www.emapsite.com
sales@emapsite.com

Production date: 23 September 2022

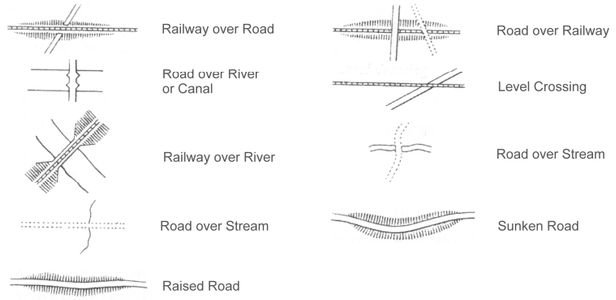
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

County Series 1:10,560 scale

VEGETATION

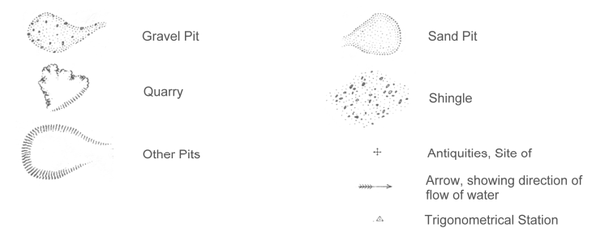


ROADS



RAILWAYS

GENERAL FEATURES



BOUNDARIES

National Grid 1:10,000 scale

HEIGHTS (METRES)

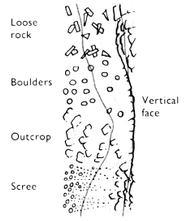
Values are given in metres above mean sea level at Newlyn.

Surface heights determined by: ground survey ▪ 163m; air survey ▪

Bench marks and their values are shown on large scale maps, and bench mark lists containing fuller and possibly later levelling information are obtainable from the Director General, Ordnance Survey.

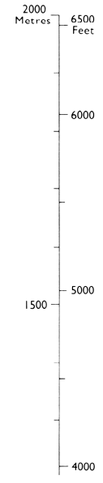
Contours are at 5 metres vertical interval.

ROCK FEATURES



CONVERSION SCALE

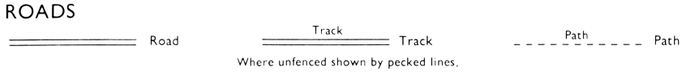
Metres - Feet



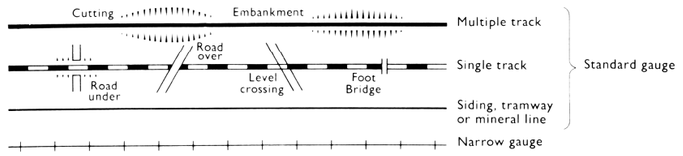
ABBREVIATIONS

BP,BS	Boundary Post or Stone	PO	Post Office
Ch	Church	PC	Public Convenience
CH	Club House	PH	Public House
F Sta	Fire Station	S	Stone
FB	Foot Bridge	Spr	Spring
Fn	Fountain	TCB	Telephone Call Box
GP	Guide Post	TCP	Telephone Call Post
MP,MS	Mile Post or Stone	TH	Town Hall
P	Pole or Post	W	Well
Pol Sta	Police Station	Y	Youth hostel

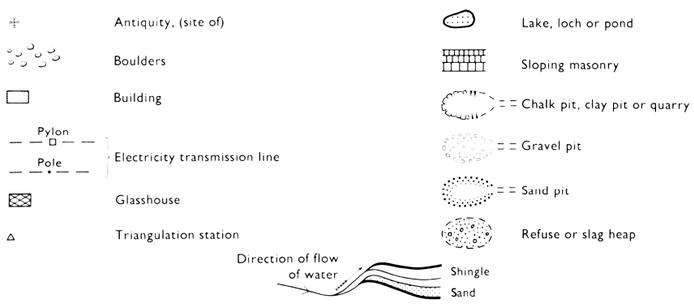
ROADS



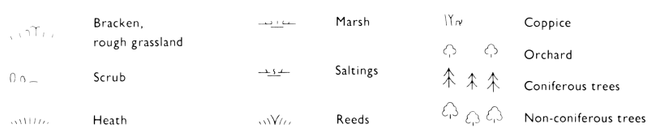
RAILWAYS



GENERAL FEATURES



VEGETATION



In some areas bracken ( ) and rough grassland ( ) are shown separately.

GroundSure

Historical Map Pack Legend

County Series & National Grid

1:10,560 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

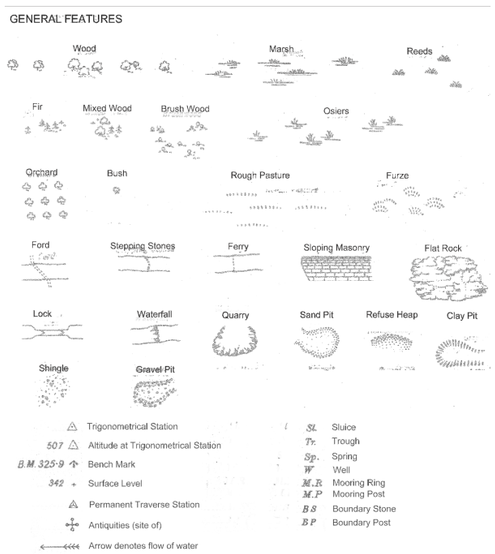
If you have a query regarding any of the maps provided please contact GroundSure's technical helpline. We will endeavour to answer any queries you may have.

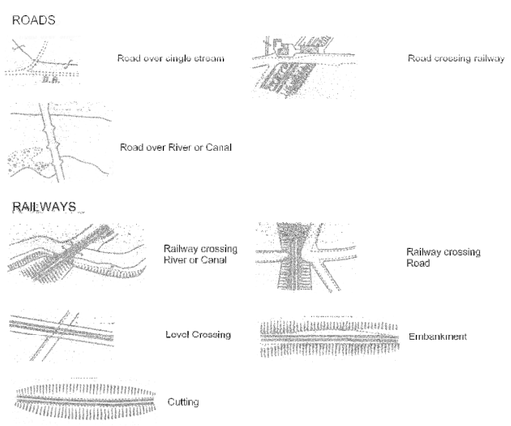
Technical Helpline

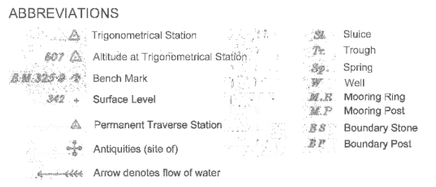
Tel 08444159000

groundsureinsight@groundsure.com
www.groundsure.com

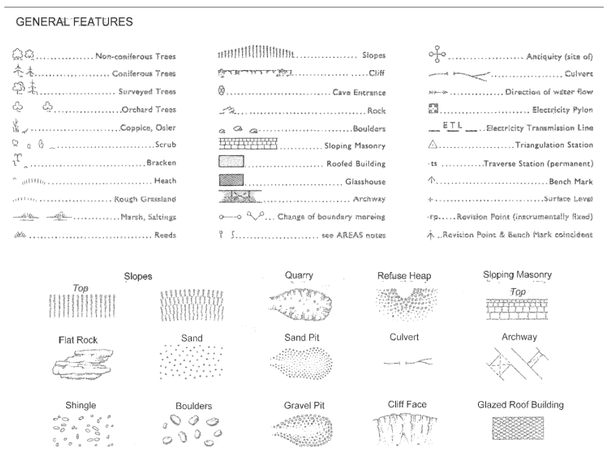
County Series 1:2,500 scale

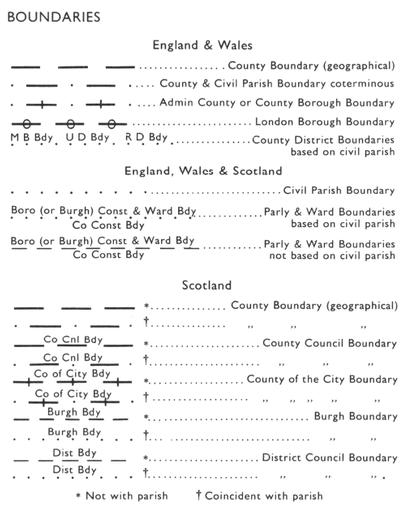


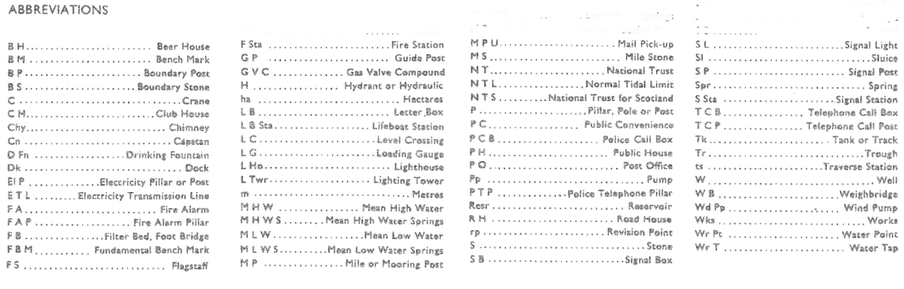




National Grid 1:2,500 / 1:1,250 scale







GroundSure

Historical Map Pack Legend

County Series

1:1,250 scale

~

County Series & National Grid

1:2,500 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

If you have a query regarding any of the maps provided within this map pack, please contact GroundSure's technical helpline. We will endeavour to answer any queries you may have.

Technical Helpline:

Tel 08444159000

groundsureinsight@groundsure.com
www.groundsure.com

Appendix IV

Appendix IV
Basis for Contaminated Land Qualitative Risk Assessment

The following Contaminated Land Risk Assessment methodology is based on CIRIA C552 (2001) *Contaminated Land Risk Assessment – A Guide to Good Practice*, in order to quantify potential risk via **risk estimation** and **risk evaluation**, which can be adopted at the Phase I (Desk Study) stage. This will then determine an overall risk category which can be used to identify potential investigation or remedial actions. This methodology uses qualitative descriptors and therefore is a qualitative approach based on desk information. The risk assessment should be refined following receipt of ground investigation data.

The methodology requires the classification of:

- the magnitude of the **consequence** (severity) of a risk occurring, and
- the magnitude of the **probability** (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at this Site are classified in accordance with Table IV-1 below, which is adapted from the CIRIA guidance.

Table IV-1: Classification of Consequence

Classification	Definition of Consequence
Severe	Short-term (acute) risks to human health likely to result in "significant harm" as defined by the Environmental Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such an ecosystem.
Medium	Chronic damage to Human Health (significant harm as defined in DEFRA, 2012). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such an ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ("significant harm" as defined in the DEFRA, 2012). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, though not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.). Easily repairable effects of damage to buildings, structures and services.

Source: CIRIA C552

The probability of contamination risks occurring at this Site will be classified in accordance with Table IV-2 below from the CIRIA guidance. Note that for each category, it is assumed that a pollution linkage exists. Where a pollution linkage does not exist, the likelihood is zero, as is the risk.

Table IV-2: Classification of Probability

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

For each possible pollution linkage (source-pathway-receptor) identified, the potential risk can be evaluated based upon the following probability x consequence matrix shown in Table IV-3.

Table IV-3: Overall Contamination Risk Matrix

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

Based upon this, CIRIA C552 present definitions of the risk categories, together with the investigatory and remedial actions that are likely to be necessary in each case, as in Table IV-4. These risk categories apply to each pollutant linkage, not simply to each hazard or receptor.

Table IV-4: Definition of Risk Categories and Likely Actions Required

Risk Category	Definition and likely actions required
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, if [it] is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised would at worst be relatively mild.
Very Low	There is a low possibility that harm could rise to a receptor. In the event of such harm being realised it is not likely to be severe.

Appendix V

Client: Gleeds Management Services Ltd
Date: 23/09/2022

Project: C4103

Site: Coleg Sir Gar – Pibwrlwyd Campus

Photo No: 01

Comments: Vehicle entrance leading to Coleg Sir Gar from Pibwrlwyd lane. A college building is visible. Image is orientated in the north.

Client: Gleeds Management Services Ltd
Date: 23/09/2022

Project: C4103

Site: Coleg Sir Gar – Pibwrlwyd Campus

Photo No: 02

Comments: A road on campus separating the western building and the central building. Image is orientated in the north.

Client: Gleeds Management Services Ltd
Date: 23/09/2022

Project: C4103

Site: Coleg Sir Gar – Pibwrlwyd Campus

Photo No: 03

Comments: Temporary toilets present in the northern car park. Image is orientated in the northeast.

Client: Gleeds Management Services Ltd
Date: 23/09/2022

Project: C4103

Site: Coleg Sir Gar – Pibwrlwyd Campus

Photo No: 04

Comments: Main campus car park. The car park is sloped towards the south. Image is orientated in the southwest.

Client: Gleeds Management Services Ltd
Date: 23/09/2022

Project: C4103

Site: Coleg Sir Gar – Pibwrlwyd Campus

Photo No: 05

Comments: Trackway separating the developed area and agricultural field. Image is orientated in the southeast.

hsp consulting

CIVIL | STRUCTURAL | GEOTECHNICAL & ENVIRONMENTAL | TRAFFIC AND TRANSPORT

Lawrence House | 6 Meadowbank Way | Nottingham | NG16 3SB

01773 535555 | design@hspconsulting.com | www.hspconsulting.com