Tier 2 Geotechnical and Geoenvironmental Assessment

Site: Haulfryn, Llanarth

Prepared For: Wales and West Housing Limited

Issue Date: June 2025

Job No: TF-25-045-CA

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Executive Summary

Site Location and Proposed Development	*Wales and West Housing Limited (the Client) is proposing the construction of a new residential development at Haulfryn, Llanarth. The proposed development will consist of 22 residential dwellings and associated infrastructure including access road, car parking, soft landscaping and gardens.* *The development site is rectangular in shape and locates off an unnamed road, Haulfryn, Llanarth. The site centres on an approximate National Grid Reference of 242170, 257680, occupying a plan area of approximately 0.84 Hectares.*
Site History	*The site forms part of two grassed agricultural field. There is a stream running from a pond to the north through the centre of the site before turning to the west. By 1975 the stream on site has been infilled. An aerial photograph from 2000 shows two small building have been built in the north of the site with an access road running along the eastern boundary. There are field boundaries in the north of the site. By 2006 the buildings have been removed.*
Geology	*The site is shown to be underlain by sandstone rock of the Mynydd Bach Formation. No superficial deposits are recorded at the site however residual soils from the weathering of the bedrock are anticipated to be present.* *Made ground is anticipated in the north of the site associated with historic site use.*
Radon	***No** radon protective measures are required for new developments constructed at ground level on the investigation site.*
Ground Conditions	

Depth (m)			Stratum
0.00	-	*0.10 - 0.70*	*Soft dark brown slightly sandy **CLAY**.*
0.00	-	*0.17 - 0.40*	***MADE GROUND**: Soft dark brown slightly sandy slightly gravelly **CLAY**.*
0.10	-	*0.30 - 0.70*	***MADE GROUND**: Loose dark grey **GRAVEL**.*
0.40	-	*0.64*	*Firm grey slightly sandy slightly gravelly **CLAY**.*
0.10 - 0.70	-	*1.30 - 2.30*	*Stiff light grey mottled brown slightly sandy slightly gravelly **CLAY** with low to medium cobble content.*
1.30 - 1.50	-	*>2.40*	*Very stiff grey mottled brown slightly sandy slightly gravelly **CLAY** with low cobbled content.*

Contamination of Concern	*Contaminants of concern identified as part of the investigation are Arsenic and Dibenz(ah)anthracene.*
Ground Gas Risk Assessment	*When monitoring results are compared with BS8576:2013, the site is classified as 'gas characteristic situation 1' (CS1). However, as the peak carbon dioxide has risen above the 5% screening threshold level, it is recommended that consideration be given to elevating the gas characteristic situation to CS2.* *Sites classified as CS2 require ground gas protection measures to be incorporated within the construction.*
Foundation Solution	*It is recommended that a combination of mass concrete strip or trench fill foundations be used; founded within the stiff light grey mottled brown slightly sandy slightly gravelly CLAY at an approximate depth of 0.10-0.70m below the existing ground level. An allowable bearing pressure of 100kN/m^2 may be used for strips up to 900mm wide.* *Floor slabs should be designed as supended.*

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Drawing 01 Proposed Site Layout

SECTION 1 Introduction & Proposed Development

1.1 Background

Wales and West Housing Limited (the Client) is proposing the construction of a new residential development at Haulfryn, Llanarth. The proposed development will consist of 22 residential dwellings and associated infrastructure including access road, car parking, soft landscaping and gardens. The proposed layout can be seen in **Figure 1.1**.

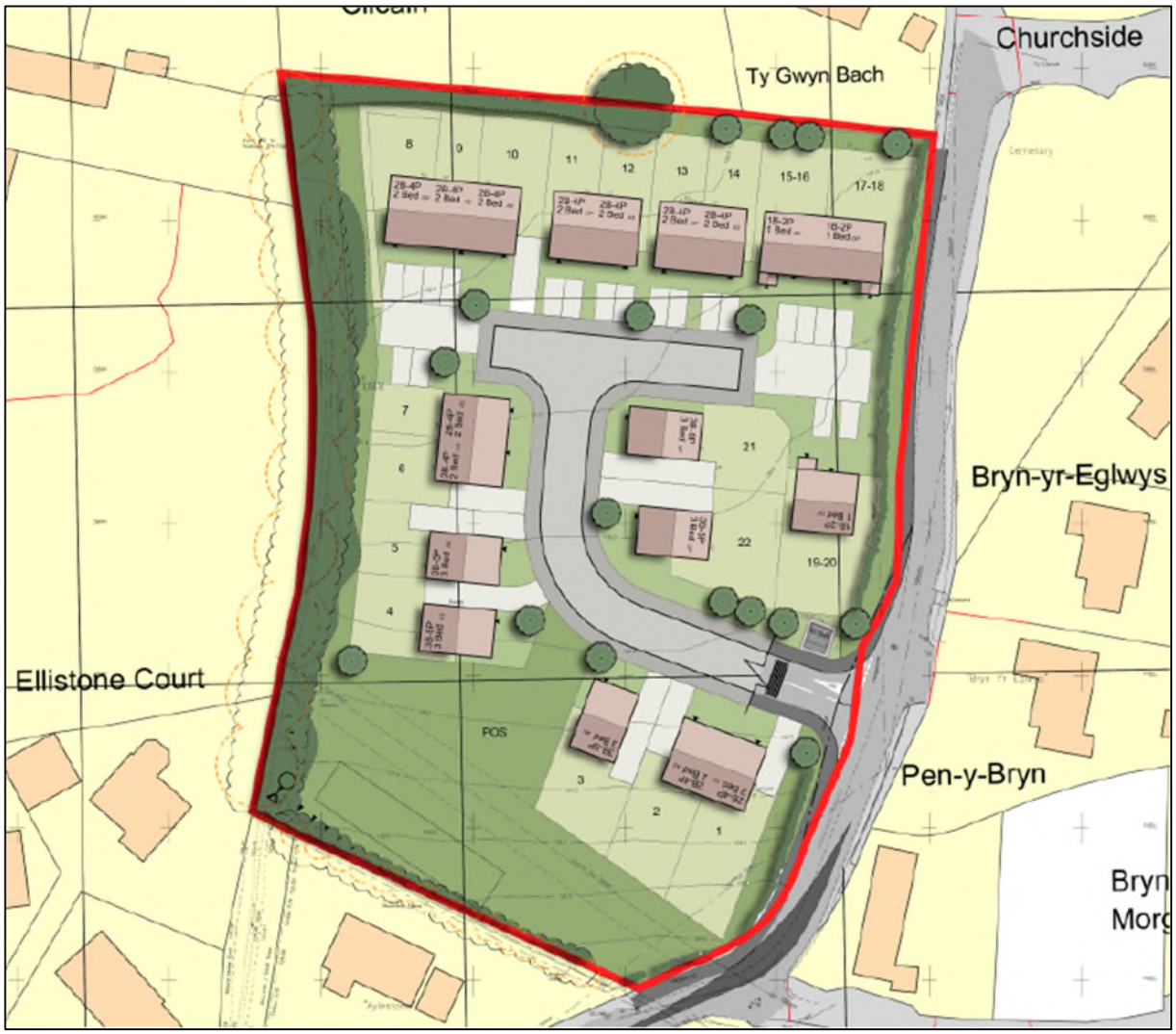

Figure 1.1 Proposed Site Layout

CB3 Consult Limited are the Consulting Civil and Structural Engineer for the project.

TFW Group Ltd (Terra Firma) have been commissioned by the Client to undertake a Geotechnical and Geoenvironmental Report

A Tier 1 (Desk Study) including a Preliminary Geoenvironmental, Geotechnical Assessment was completed by Terra Firma. The findings of the Tier 1 Assessment are summarised in Section 2 of this report.

This report contains a Tier 2 assessment (Site Investigation) including a Generic Quantitative Geoenvironmental Risk Assessment and Geotechnical Ground Investigation.

1.2 Objectives

Land Contamination Risk Management (LCRM) guidance provided by the Environment Agency advocates using a tiered approach. This comprises Tier 1; the Preliminary Risk Assessment, Tier 2; the Generic Quantitative Risk Assessment and Tier 3; the Detailed Quantitative Risk Assessment. As each tier is completed a decision is made whether it is necessary to advance to the next tier.

In addition to LCRM, geotechnical aspects of the development also need to be considered and are approached in a similar manner, with the risks identified in the preliminary assessment, and then investigated through subsequent phase of investigation.

1.2.1 Tier 2

The main objectives of the Tier 2 Generic Quantitative Geoenvironmental Risk Assessment programme are:

- investigate the potential human health and environmental liabilities at the site associated with any contamination; and
- provide a summary of the human health and environmental conditions at the site, together with any necessary further intrusive works and / or remediation works to render the site fit for its intended use.

The main objectives of the Geotechnical Site Investigation are:

- investigate the type, strength and bearing characteristics of the shallow superficial and underlying solid geology;
- investigate the risk, if any, from historical shallow underground mining features;
- provide engineering foundation and floor slab recommendations for the proposed development;
- provide infiltration rates and stormwater drainage viability; and
- provide recommendations regarding any other geotechnical aspects pertaining to the development.

In order to achieve the above objectives, Terra Firma carried out an assessment programme a review of existing data, followed by a field investigation to collect geotechnical and geoenvironmental data from selected locations.

The scope of the works including the schedule for in-situ and laboratory testing was determined by Terra Firma.

1.3 Geotechnical Category

In accordance with BS EN 1997-1:2004+A1:2013, the proposed development comprises the following geotechnical category:

Geotechnical Category 2: conventional types of structures and foundation with no exceptional risk of difficult soil or loading conditions (e.g., spread, raft & pile foundations; retaining structures; excavations; earthworks and ground anchors).

1.4 Information Sources

The following sources of information have been referenced in support of this assessment:

- Client provided information, proposed layout (**Figure 1.1**); and
- Tier 1 Assessment (TF-25-045-CA)

1.5 Roles & Responsibilities

Table 1.1 Roles and Responsibilities

Role	Organisation
Client/Developer	Wales and West Housing Limited
Geotechnical/Geoenvironmental Consultant	TFW Group Limited
Architect/Engineer	CB3 Consult Limited
Local Authority	Ceredigion County Council

1.6 Limitations & Exceptions of Investigation

The Client has requested that a Tier 2 Geoenvironmental and Geotechnical Report (GGR) be undertaken to enable the outlined main objectives.

The GGR was conducted, and this report has been prepared for the sole internal reliance of the Client and their design and construction team. This report shall not be relied upon or transferred to any other parties without the express written authorisation of TFW Group Ltd. If an unauthorised third party comes into possession of this report, they rely on it at their peril and the authors owe them no duty of care and skill. The report represents the findings and opinions of experienced geoenvironmental and geotechnical consultants. TFW Group Ltd does not provide legal advice and the advice of lawyers may be required.

The subsurface geological profiles, any contamination and other plots are generalised by necessity and have been based on the information found at the locations of the exploratory holes and depths sampled and tested.

Human health and environmental risk assessment outcomes may not take into account the potential for the creation of new contaminant linkages as a result of variation to the proposed development and recommended engineering solutions. It is therefore imperative that the Client engages a geoenvironmental consultant to re-visit the conceptual site model and potential risks upon completion of final designs, prior to development.

Whilst this report assesses the suitability of soils in respect to human health and the environment, it is beyond the scope of this report to determine the legal status of imported and re-used soils/aggregates. It is the responsibility of the Client to confirm imported and re-used soils/aggregates have reached ‘Non-Waste’ status.

The investigation was limited by the following site constraints:

- the presence of underground services and utilities;

1.7 Quality Assurance

The quality, health, safety and environmental aspects of the assessment comply with Terra Firma business management system which is UKAS accredited and complies with the requirements of BS EN ISO 9001:2015, BS EN ISO 14001:2015 and BS EN ISO 45001:2018 standards.

SECTION 2 Tier 1 Assessment

The site has been the subject of a previous Tier1 Geoenvironmental Desk Study:

- *Terra Firma, Tier 1 Geoenvironmental & Geotechnical Report T1-15.06.25-TF-25-045-CA dated June 2025.*

The salient points of the Tier 1 Assessment are summarised in **Section 2.1**.

2.1 Summary of Tier 1 Assessment

The findings of the Tier 1 Assessment are summarised in **Table 2.1**.

Table 2.1 Summary of Tier 1 Assessment

Site History	*The site forms part of two grassed agricultural field. There is a stream running from a pond to the north through the centre of the site before turning to the west. By 1975 the stream on site has been infilled. An aerial photograph from 2000 shows two small building have been built in the north of the site with an access road running along the eastern boundary. There are field boundaries in the north of the site. By 2006 the buildings have been removed.*
Geology	*The site is shown to be underlain by sandstone rock of the Mynydd Bach Formation.* *No superficial deposits are recorded at the site however residual soils from the weathering of the bedrock are anticipated to be present.* *Made ground is anticipated in the north of the site associated with historic site use.*
Radon	*The Envirocheck report (Annex A) details that no radon protective measures are required for new developments constructed at ground level on the investigation site.*
Potential Sources of Contamination	*Possible made ground beneath the site associated with historic land use is a potential contamination source.* *Infilled land on site and located within influencing distance are potential sources of ground gas.*

SECTION 3 Field Investigation

3.1 Site Works

A geotechnical and geoenvironmental site investigation comprising five window sample boreholes, ten trial pits and four soakaways was undertaken between the 12th and 13th May 2025.

The fieldwork was supervised by Terra Firma, who logged the exploratory holes to the requirements of BS 5930:2015+A1:2020. The proposed locations of the exploratory holes were determined by Terra Firma in general accordance with BS 10175:2011+A2:2017 in order to assess the findings of the preliminary conceptual site model. The proposed location of the exploratory holes was determined by Terra Firma.

TRIAL PITS

Trial pits referenced TP01 to TP10, were formed using a tracked excavator with a 1.00m wide bucket.

Representative disturbed samples were taken and retained in airtight containers for environmental and geotechnical testing.

On completion all trial pits were backfilled with materials arisings compacted in layers using the excavator bucket. The ground surface was reinstated and left proud to accommodate future settlement of backfilled materials.

The trial pit logs are presented in **Annex C.**

SOAKAWAYS

Soakaway tests were carried out in trial pits TP01 to TP04 in general accordance with BRE DG 365:2016. The excavation sides were squared using the excavator bucket and dimensions recorded within the test section. The trial pit was partially filled with clean water using a dedicated bowser with a 75mm diameter outlet and the fall in level recorded against time.

The results are presented in **Annex D.**

WINDOW SAMPLING

The boreholes referenced WS01 to WS05, were formed using a Terrier 2000 rig. Dynamic sampling techniques were employed from surface to produce a continuous disturbed sample.

Standard penetration tests (SPT) were carried out at regular intervals in general accordance with BS1377: Part 9:1990:3.3. SPT results summarised as N-values are presented on the borehole logs.

Boreholes were monitored for groundwater ingress as drilling proceeded.

Representative disturbed samples were taken and retained in airtight containers for environmental and geotechnical testing.

The borehole logs are presented in **Annex E.**

BOREHOLE BACKFILL/ INSTALL

On completion WS01 and WS04 were backfilled with materials arising/ bentonite pellets/ gravel/ cementitious grout and the surface reinstated.

On completion, boreholes WS02, WS03 and WS05 were installed with standpipes consisting of a 50mm ID HDPE slotted tube set in a granular filer zone and sealed above with a bentonite seal. Installations were protected at surface with an upstanding cover. Full installation details are recorded on the relevant logs.

Exploratory hole locations are shown on **Drawing 01**.

3.2 Ground Conditions

The ground conditions encountered by the exploratory holes can in general be summarised as shown in **Table 3.1**.

Table 3.1 Summary of Typical Ground Conditions

Depth (m)			Thickness (m)	Stratum
0.00	-	0.10 - 0.70	0.10 - 0.70	Soft dark brown slightly sandy **CLAY**.
0.00	-	0.17 - 0.40	0.17 - 0.40	**MADE GROUND**: Soft dark brown slightly sandy slightly gravelly **CLAY**.
0.10	-	0.30 - 0.70	0.20 - 0.60	**MADE GROUND**: Loose dark grey **GRAVEL**.
0.40	-	0.64	0.24	Firm grey slightly sandy slightly gravelly **CLAY**.
0.10 - 0.70	-	1.30 – 2.30	0.85 - >1.95	Stiff light grey mottled brown slightly sandy slightly gravelly **CLAY** with low to medium cobble content.
1.30 - 1.50	-	>2.40	-	Very stiff grey mottled brown slightly sandy slightly gravelly **CLAY** with low cobbled content.

3.2.1 Miscellaneous Ground Conditions

In the north of the site a there is a 3.00m by 3.00m concrete pad. There is also a gravel road under a thin layer of clay, running from the concrete pad along the eastern boundary to the site entrance.

3.3 Groundwater

Groundwater was not encountered in the exploratory holes.

3.4 Stability & Obstructions

Trial pits remained stable and vertical during excavation.

Advancement of trial pits was obstructed at 2.00-2.40m due to very stiff ground conditions.

3.5 Installation Well Construction

Gas well locations were selected on a non-targeted basis to characterise the gas contamination status of the site. A regular triangular pattern was adopted.

Gas installation well construction details are summarised in **Table 3.2**.

Table 3.2 Installation Well Summary

Location	Response Zone		Stratum
	From (m)	To (m)	
WS02	0.80	1.80	Natural ground
WS03	0.50	1.00	Natural ground
WS05	0.50	1.00	Natural ground

3.6 Laboratory Chemical Testing

3.6.1 Sampling Strategy

Soil sampling locations were selected on a targeted basis to investigate suspected/known sources of contamination or potential contamination migration pathways.

Sample locations, depths and suspected/known contamination source targets are summarised in **Table 3.3**:

Table 3.3 Sample Locations and Targets

Location	Depth (m)	Contamination Targets	Testing Suites
WS01	0.3	S1	SF1
WS02	0.6	S1	SF1
WS03	0.1	S1	SF1
WS04	0.4	S1	SF1
WS05	0.3	S1	SF1
TP10	0.5	S1	SF1
WS01	0.6	S1	BRE SD1
WS03	0.5	S1	BRE SD1
WS05	0.7	S1	BRE SD1

The laboratory test results certificates may be found in **Annex F**.

3.7 Soil Property Testing

3.7.1 In-situ Permeability Testing (Soakaways)

Soakaway test results are summarised in **Table 3.4**.

Table 3.4 Summary of Soakaway Results

Trial Pit	Depth Range of Test (m)	Geology Description	Infiltration Rate (ms^{-1})
TP01	1.30 – 1.80	Slightly sandy, slightly gravelly CLAY	To little water outflow to calculate infiltration rate
TP02	1.45 – 2.00	Slightly sandy, slightly gravelly CLAY	To little water outflow to calculate infiltration rate
TP03	1.28 – 2.00	Slightly sandy, slightly gravelly CLAY	To little water outflow to calculate infiltration rate
TP04	0.70 – 1.20	Slightly sandy, slightly gravelly CLAY	To little water outflow to calculate infiltration rate

The test results and calculation sheets may be found in **Annex D**.

3.7.2 Laboratory Geotechnical Testing

A schedule of laboratory tests was prepared by Terra Firma and samples were despatched to the accredited laboratories of Apex Testing Solutions. A summary of the testing carried out is presented in **Table 3.5**.

Table 3.5 Summary of Geotechnical Testing

Geotechnical Test	No. Samples Tested
Moisture Content	3
4 Point Liquid and Plastic Limit	3
BRE SD1 (Concrete classification)	3

The geotechnical test results are presented in **Annex G** and the BRE SD1 results can be found in **Annex F**.

SECTION 4 Evaluation of Geoenvironmental Analytical Results

4.1 Assessment Methodology

4.1.1 Soils

An assessment of the analytical results has been made with comparison with the following generic assessment criteria with preference in most onerous order:

- Land Quality Management (LQM) and the Chartered Institute of Environmental Health (CIEH) Suitable 4 Use Levels (S4UL) (Nathanail, CP *et al.*:2015);
- Category 4 Screening Levels (C4SL) provided by the Department for Environment, Food and Rural Affairs (DEFRA:2014);
- Soil Guideline Values (SGV) by the Environment Agency (2009);
- Generic Assessment Criteria (GAC) provided by EIC/AGS/CL:AIRE (2010);

In the absence of generic assessment criteria, the laboratory limit of detection has been used for comparison, in order to establish the presence/absence of determinands and for initial screening purposes.

4.2 Soil Test Results

A summary of the chemical test results which include the regulatory soil guideline values used in a **residential setting with plant uptake** are given in the following tables. The complete results can be found in **Annex F**.

4.2.1 Inorganics

Six samples were tested for a standard suite of inorganics, pH and organic matter. The summarised results are in **Table 4.1**.

Table 4.1 Summary of Soil Chemical Test Results – Inorganics

Determinand	Threshold Value (mg/kg)	Source	Measured Concentrations (mg/kg)		Number of Exceedances
			Minimum	Maximum	
Arsenic	37	LQM/CIEH	13	59	1
Cadmium	11	LQM/CIEH	<0.10	0.22	0
Chromium III	910	LQM/CIEH	26	44	0
Chromium VI	6	LQM/CIEH	<0.50	<0.50	0
Copper	2400	LQM/CIEH	24	51	0
Lead	200	C4SL	24	110	0
Mercury (inorganic)	40	LQM/CIEH	<0.05	0.13	0
Nickel	180	LQM/CIEH	22	52	0
Selenium	250	LQM/CIEH	0.61	1.0	0
Zinc	3700	LQM/CIEH	88	170	0
Cyanide (Free)	-	-	<0.50	0.70	-
Boron	290	LQM/CIEH	<0.40	0.73	0
Organic Matter (%)	-	-	0.80	5.4	-
pH	-	-	5.8	7.4	-

Notes:
- No available guideline

4.2.2 Organics

Six samples were tested for speciated polycyclic aromatic hydrocarbons (PAH). The summarised results are in **Table 4.2**.

Table 4.2 Summary of Soil Chemical Test Results – Speciated PAH & Phenol

Determinand	Threshold Value (mg/kg)	Source	Measured Concentrations (mg/kg)		Number of Exceedances
			Minimum	Maximum	
Naphthalene	2.3	LQM/CIEH	<0.10	0.20	0
Acenaphthylene	170	LQM/CIEH	<0.10	0.34	0
Acenaphthene	210	LQM/CIEH	<0.10	0.60	0
Fluorene	170	LQM/CIEH	<0.10	0.26	0
Phenanthrene	95	LQM/CIEH	<0.10	0.99	0
Anthracene	2400	LQM/CIEH	<0.10	0.19	0
Fluoranthene	280	LQM/CIEH	<0.10	0.64	0
Pyrene	620	LQM/CIEH	<0.10	0.90	0
Benzo(a)anthracene	7.2	LQM/CIEH	<0.10	1.8	0
Chrysene	15	LQM/CIEH	<0.10	1.5	0
Benzo(b)fluoranthene	2.6	LQM/CIEH	<0.10	0.31	0
Benzo(k)fluoranthene	77	LQM/CIEH	<0.10	1.4	0
Benzo(a)pyrene	2.2	LQM/CIEH	<0.10	0.24	0
Indeno(123cd)pyrene	27	LQM/CIEH	<0.10	0.14	0
Dibenzo(ah)anthracene	0.24	LQM/CIEH	<0.10	0.65	1
Benzo(ghi)perylene	320	LQM/CIEH	<0.10	1.4	0
Total PAH	-	-	<2.0	11	-
Phenols	120	LQM/CIEH	<0.10	0.33	0

Notes:
Thresholds based on 1.0% soil organic matter
- No available guidelines

Six samples were tested for petroleum hydrocarbon. The summarised results are shown in **Table 4.3**.

Table 4.3 Summary of Soil Chemical Test Results – Petroleum Hydrocarbons

Substance	Threshold Value (mg/kg)	Source	Measured Concentrations (mg/kg)		Number of Exceedances
			Minimum	Maximum	
Aliphatic					
VPH C5 – C6 Ali	42	LQM/CIEH	<0.05	<0.05	0
VPH C6 – C7 Ali	100^	LQM/CIEH	<0.05	<0.05	0
VPH C7 – C8 Ali	100^	LQM/CIEH	<0.05	<0.05	0
VPH C8 – C10 Ali	27	LQM/CIEH	<0.05	<0.05	0
EPH C10 – C12 Ali	130	LQM/CIEH	<2.0	10	0
EPH C12 – C16 Ali	1100	LQM/CIEH	<1.0	24	0
EPH C16 – C21 Ali	65000*	LQM/CIEH	<2.0	4.4	0
EPH C21 – C35 Ali	65000*	LQM/CIEH	6.1	48	0
EPH C35 – C40 Ali	65000	LQM/CIEH	<10	10	0
Aromatic					
VPH C5 – C7 Arom	70	LQM/CIEH	<0.05	<0.05	0
VPH C7 – C8 Arom	130	LQM/CIEH	<0.05	<0.05	0
VPH C8 – C10 Arom	34	LQM/CIEH	<0.05	<0.05	0
EPH C10 – C12 Arom	74	LQM/CIEH	<1.0	<1.0	0
EPH C12 – C16 Arom	140	LQM/CIEH	<1.0	3.5	0
EPH C16 – C21 Arom	260	LQM/CIEH	2.4	22	0
EPH C21 – C35 Arom	1100	LQM/CIEH	3.3	81	0
EPH C35 – C40 Arom	1100	LQM/CIEH	8.7	28	0

Notes:
VPH – Volatile Petroleum Hydrocarbon
EPH – Extractable Petroleum Hydrocarbons
Ali – Aliphatic
Arom – Aromatic
Thresholds based on 1.0% soil organic matter
^ - Ali C6-C7 and C7-C8 based on criteria for Ali EC>C6-C8
* – Ali C16-21 and C21-C35 based on criteria for Ali EC >16-35

4.2.3 Asbestos Testing

All soil samples were scheduled for asbestos screening.

Asbestos was not detected.

SECTION 5 Ground Gas Risk Assessment

The following detailed ground gas risk assessment is prepared with reference to information sources identified during the Tier 1 assessment, as well as encountered ground conditions and quantitative data obtained during subsequent phases of site investigation. Where possible, consideration has also been given to the proposed development and its potential influence on ground gas risk.

5.1 Gas Screening Value

Three ground gas monitoring wells were installed in WS02, WS03 and WS05. Installation details are shown on the relevant log.

One round of gas monitoring has been carried out to date. The installations were tested for carbon dioxide, methane, oxygen, carbon monoxide and hydrogen sulphide using a Gas Analyser GA5000.

Recorded gas concentrations are summarised in **Table 5.1**.

Table 5.1 Measured Gas Concentration Summary

Gas	Minimum (% V/V)	Maximum (% V/V)
Methane	0.0	0.0
Carbon Dioxide	0.8	10.5
Oxygen	12.9	20.4

Methane levels peaked at 0.0% V/V. Carbon dioxide levels varied between 0.8% and 10.5% V/V. Oxygen concentrations varied between 12.9% and 20.4% V/V.

The gas flow rate from the boreholes was also assessed, a maximum flow rate of 0.5l/hr was recorded.

Based on a flow rate of 0.5l/hr and the highest recorded carbon dioxide concentration of 10.5%, a gas screening value of 0.525l/hr is calculated, as follows:

(10.5/100) x 0.5 = 0.525l/hr

When monitoring results are compared with BS8576:2013, the site is classified as ‘gas characteristic situation 1’ (CS1). However, as the peak carbon dioxide has risen above the 5% screening threshold level, it is recommended that consideration be given to elevating the gas characteristic situation to CS2.

Sites classified as CS2 require gas protection measures to be incorporated within the construction.

The monitoring results to date along with the gas analyser calibration certificate are presented in **Annex H**.

On completion of the full schedule of gas monitoring the above recommendations will be reassessed and amended if necessary.

SECTION 6 Generic Quantitative Risk Assessment

6.1 Contaminants of Concern

Contaminants of concern identified as part of the investigation are summarised in **Table 6.1**, along with an interpretation of the likely contamination source. Where applicable, the contaminant, source relationship is based on the inferences made in the preliminary conceptual site model.

Table 6.1 Contaminants of Concern

Location	Depth	Contaminant	Source
TP10	0.50	Arsenic	Natural soils
WS03	0.10	Dibenzo(ah)anthracene	Made ground

6.2 Contaminant Linkages

Based on the findings of the intrusive site investigation and identified contaminants, the preliminary conceptual site model has been revised. Remaining contaminant linkages are tabulated in the refined conceptual site model **Table 6.2**. Identified contaminant linkages may require further investigation, detailed risk assessment and appropriate mitigation or remedial measures.

Table 6.2 Refined Conceptual Site Model

Source	Pathway	Receptor
Soils S1	Direct soil and dust ingestion P1 Dermal contact P3 Inhalation of dust and vapours P4	Construction and maintenance workers R1
		Future site users R2
	Plant uptake & consumption of home grown produce P2	Future site users R2
Ground Gas (Carbon Dioxide) S2	Horizontal and vertical migration of ground gasses and vapours P9	Future site users R2

6.3 Mitigation & Remedial Measures

The following sections outline the likely mitigation and remedial measures suitable for the identified contamination and proposed development. Detailed methodology to achieve the measures must be prescribed in a Remediation Strategy Report and the results presented in a Validation Report upon their completion.

6.3.1 Human Health

Elevated arsenic was found above its trigger level in one of six samples tested, it is recommended that further samples are taken and tested for Arsenic to allow statistical analysis to be undertaken and potentially identify the exceedance as an anomaly. It would also be prudent to undertaken bioavailability testing on the arsenic to potentially derive a more conservative guideline. However as the location of the Arsenic exceedance was in the vicinity of the concrete pad, which will be removed, it is also an option to treat the exceedance as a hotspot and to protect future site users the area of the hotspot must be excavated and removed.

Dibenzo(ah)anthracene was found above its trigger level in one of six samples tested, the contamination can be treated as a hotspot and to protect future site users the area of the hotspot must be excavated and removed. The contamination has been found in a layer of made ground in the immediate vicinity of the concrete pad in the north of the site, it is therefore recommended that, along with the concrete pad, this layer is excavated and removed from

site. The impacted layer is identified as MADE GROUND: soft dark brown slightly sandy slightly gravelly CLAY.

Once excavated and prior to disposal the soils must be stored in a controlled manner to prevent the spread of contamination to other areas of the site.

The excavation walls and base will require sampling to confirm that all the impacted material have been removed. If contaminated material remains the excavation must be extended and retested with the process repeated until the hotspot has been completely removed.

Once the impacted soils have been removed the excavation can be backfilled and the area reinstated.

To prevent delays the hotspot removal should be undertaken as early as possible in the construction program. For validation to be possible the excavation process must be over seen by a qualified engineering geologist who can document the works for including in a validation report.

Alternatively to protect future site users from the identified contamination a cover system will be required in the plots in the vicinity of the exceedance. The area of capping can be seen below on **Figure 6.1**.

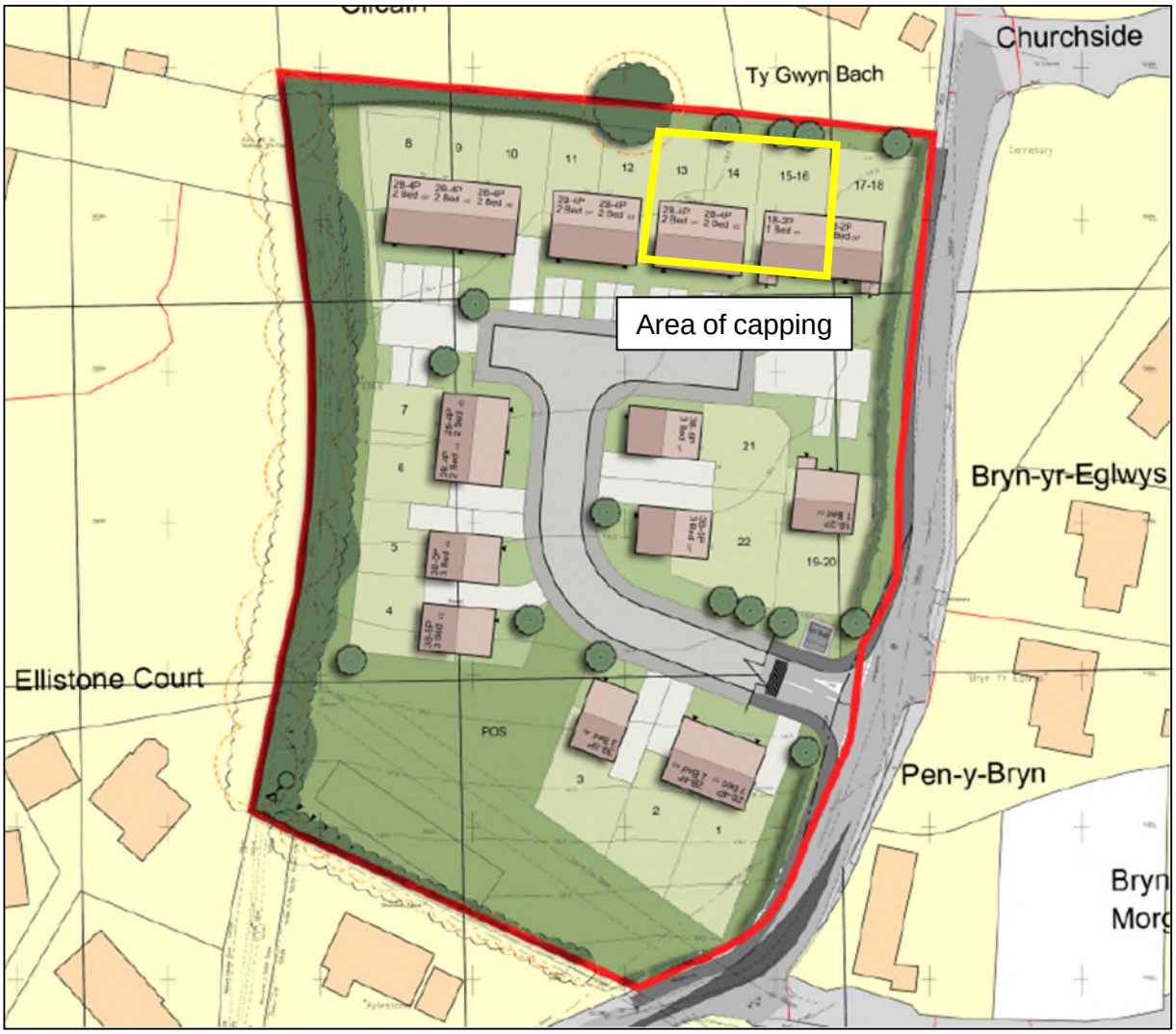

Figure 6.1 Area of proposed capping (Yellow Boundary)

The cover system must consist of the proposed buildings and hard standings. In garden and soft landscaped areas, the system must consist of 600mm of a combination of chemically suitable topsoil, and subsoil. The imported soils must also be physically suitable as defined in BS8332:2015 (Ref) and BS8601:2013 (Ref), the specifications for topsoil and subsoil respectively. The soils must contain no 'sharps' and be free of construction debris.

Typically between 100mm and 300mm of topsoil is utilised with the remaining thickness provided by the subsoil for a total thickness of 600mm. The cover system must be designed to account for factors which could impact its effectiveness and may need to include capillary break or drainage layers. This must be detailed in the remediation strategy.

The imported soils will require chemical analysis to determine they are suitable for their intended use. The thickness of capping soil will require validation once placed in gardens/soft landscaped areas. Sufficient time should be allowed in the construction program to prevent delays.

As good practice, construction workers must adhere to good site management, COSHH, good standards of hygiene and appropriate health & safety on site, with personal protection equipment (PPE) and dust suppression where appropriate.

All imported soils must be validated as clean and suitable for use in accordance with 'Requirements for the Chemical Testing of Imported Soils for Various End Uses and Validation Cover Systems'.

For the specification of proposed new supply water pipes, the UK Water Industry Research publication 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, must be consulted.

In accordance with EC Regulation 1272/2008 and Environment Agency Guidance WM3 soils destined for off-site disposal must be classified on the basis of their hazard phrases prior to disposal. Soils are classified as a mirror entry waste and must be classified on the basis of their specific chemical properties.

If during earthworks ground conditions are encountered that are markedly different to those found during the investigation, then the ground must be subject to additional sampling and testing and any necessary remedial measures designed and implemented before continuing with the works.

6.3.1.1 Ground Gas/Radon

The Envirocheck report (Annex A) details that no radon protective measures are required for new developments constructed at ground level on the investigation site.

To protect the future site users from identified ground gas, proposed structures will need to incorporate within their construction a suitable ground gas protection system. The ground gas protection system must be designed, specified and verified in accordance with the British Standard 8485:2015+A1:2019 and other relevant guidance, such as CIRIA C735:2014 and NHBC Foundation NF94:2023.

It is important to note that warranty providers may require more or less stringent design, specification and verification to that expected by Local Authority Environmental Health/ Contaminated Land Officers.

It is therefore essential that a specialist consultant, that is competent and suitably indemnified, is retained to prepare a ground gas protection system Design Report and Verification Plan for the proposed development. The Design Report will need to provide justification for the

specified ventilation, structural barrier and gas membrane protection elements to be incorporated within the detailed designs. Whereas the Verification Plan is based on the perceived risk associated with the complexity of design, experience of the installer, size of the site and gas risk, and is required to provide a detailed methodology to allow for the successful completion of in-situ verification of the installed protection.

Terra Firma offer a comprehensive in-house ground gas protection system design, specification and verification service. For further details on how we may assist your project needs, please get in touch.

Verification of installed ground gas protection systems by a competent, qualified, accredited, independent third party, will be required upon completion of the protection elements installation. Final verification will only be achieved if evidence gathering processes prescribed in the Verification Plan are fully undertaken.

6.3.2 Aquatic Environment

Dibenz(ah)anthracene was found above its trigger level in WS03 at 0.10m. The PAH determinands in exceedance are considered to have a very low potential mobility ranking. This means that they have a propensity to bind to soils and are relatively immobile.

Arsenic was found above its trigger level in TP10 at 0.50m, Arsenic is leachable but the exceedance was found within a clay which, proven by the soakaway tests, is impermeable and greatly reduces the ability of the arsenic leaching.

It is therefore considered that site specific mitigation and remedial measures are not required with respect to the aquatic environment

During the construction period, there is a risk to the environment/adjacent sites from de-watering, digging foundations, moving contaminated soil, drainage misconnections, discharges to local surface waters or the ground, runoff from construction materials and/or exposed ground, wheel washings and oil or chemical spills.

The risk is considered to be negligible as any adverse effects will be easily preventable by due diligence to good construction practise and housekeeping in preventing surface runoff and the spillage of materials.

The basic measures that must be taken are as follows:

- Prepare a drainage plan and mark the manholes to prevent pollutants accidently reaching the surface water sewers;
- Carry out any activities that could cause pollution in a designated, bunded area, away from rivers or boreholes. Where possible it should drain to the foul sewer;
- Use settlement ponds to remove silty water;
- Store all oils and chemicals in a fully bunded area to prevent leaks or spills;
- Get advice on whether you need an environmental permit and apply in good time.

SECTION 8 Laboratory Geotechnical Testing Results Analysis

Laboratory geotechnical testing results are summarised in the following sections and presented in their entirety in **Annex G,** unless otherwise stated.

8.1 Soil Testing

8.1.1 Plasticity & Moisture Content Testing

During the investigation three samples of the shallow cohesive material was obtained and submitted for plasticity and moisture content testing. The test results are summarised in **Table 8.1**.

Table 8.1 Plasticity & Moisture Content Test Results

Location	Depth (m)	Geological Description	Moisture Content (%)	Plasticity Index (%)	Passing 425µm Sieve (%)	Modified Plasticity Index (%)	Volume Change Potential
WS01	0.70	Clay	16.8	22	79	17.38	Low
WS03	0.90	Clay	10.8	16	51	8.16	Low
WS05	1.00	Clay	13.8	19	72	13.68	Low

In line with the NHBC:2024 (Chapter 4.2), the modified plasticity index for each sample was calculated.

For design purposes the shallow soils on site must be considered to have a low volume change potential.

8.1.2 Concrete Classification Testing

Three samples were subject to testing for concrete classification in accordance with BRE SD1:2015. The results are summarised in **Table 8.2**.

Table 8.2 BRE SD1 Testing Summary

Location	Depth (m)	2:1 Water/Soil Extract		Total Sulphur (%)	pH	Total Potential Sulphate (%)	Oxidisable Sulphides (%)
		SO_4 (mg/l)	Mg (mg/l)				
WS01	0.60	<10	<20	0.027	7.5	0.081	0.036
WS03	0.50	14	<20	0.033	7.0	0.099	0.048
WS05	0.70	11	<20	0.017	7.2	0.051	-0.003

Notes:
The following stoichiometric equation was employed to determine the Total Potential Sulphate (TPS). TPS (% as SO4) = 3.0 x Total Sulphur (TS % as S).
The amount of Oxidisable Sulphides (OS as %SO4) has been conservatively calculated by the following equation. OS = TPS – Acid Soluble Sulphate (AS).

Based on results obtained, the characteristic values are provided below.

Sulphate (2:1 Water Soluble) as SO4:	14mg/l
pH:	7.0
Total Potential Sulphate (TPS):	0.099%

The initial classification for the site based on sulphate (2:1 Water Soluble) as SO4 is Design Sulphate (DS) Class DS-1. The Aggressive Chemical Environment for Concrete (ACEC) Class for the site based on sulphate (2:1 Water Soluble) as SO4, mobile water and pH is AC-1.

As the water soluble sulphate/groundwater sulphate concentration is below 3000mg/l an additional consideration for the level of magnesium is not required.

Based on the above assessment the DS Class for the site is determined as DS-1, and the ACEC Class is AC-1.

The test results can be found in **Annex F**.

SECTION 9 Engineering Recommendations

9.1 Preparation of Site

The concrete pad in the north, including any foundations and granular sub-base materials must be stripped and removed from beneath the proposed development area.

Allowances should be made for any temporary/permanent support works to any existing adjacent structures necessary as a result of the proposed works.

Contingencies should be made for the protection of any overhead services present along the southern boundary the site brought about as a result of the proposed works.

Any reduced levels should be brought up to the required levels with suitable inert mainly granular materials. Department for Transport (DfT) type 2 sub-base or similar should be used and compacted in layers to the requirements of the Specification for Highway Works.

Allowances must also be made for the excavation of any soft spots/areas and their replacement with well compacted imported granular materials.

In accordance with EC Regulation 1272/2008 and Environment Agency Guidance WM3 soils and other materials destined for off-site disposal must be classified on the basis of their hazard phrases prior to disposal. Soils are classified as a mirror entry waste and must be classified on the basis of their specific chemical properties. Terra Firma offer this service if required.

9.2 Foundation & Floor Slab Solution

9.2.1 Recommended Foundation Solution

The proposed development is likely to comprise the construction of 22 No traditional two storey residential dwellings of masonry/timber construction.

The ground investigation confirmed the ground conditions beneath the site to comprise stiff clay at 0.10m and 0.70m depth below existing ground level.

It is recommended that a combination of mass concrete strip or trench fill foundations be used; founded within the stiff light grey mottled brown slightly sandy slightly gravelly CLAY at an approximate depth of 0.10-0.70m below the existing ground level. An allowable bearing pressure of 100kN/m^2 may be used for strips up to 900mm wide.

Foundations should be taken down to a minimum depth of 750mm below finished levels when founding in low volume change potential soils.

Foundations must sit at least 200mm within the founding horizon.

For the given foundation solutions and bearing pressure, maximum total settlements of >25mm should result with differential movements of the superstructure not exceeding 1:750.

If trees are to be incorporated within the proposed development, foundations will need to be taken deeper within influencing distance of the tree root systems. The National House Building Council (NHBC) Chapter 4.2 gives guidelines as to the appropriate type of floor slab and void based on the type of tree, distance of the foundation from the tree and the plasticity index of the in-situ materials.

During the investigation 3 samples of the in-situ clay were taken and submitted for plasticity testing. In line with the NHBC (Chapter 4.2), the modified plasticity index for each sample was

calculated. For design purposes the superficial cohesive deposits should be assumed to have a low volume change potential.

Allowances should be made for the removal of any 'soft spots' and their replacement with well-compacted granular materials. Department for Transport (DfT) Type 2 materials or similar could be used and should be compacted in layers to the specification for Highway Works.

All foundation formations should be inspected by a suitably qualified Geotechnical Engineer before being concreted.

Floor slabs may be designed as suspended.

9.3 Excavations & Formations

Most of the shallow excavations will be possible with normal soil excavating machinery. Allowances for the use of a breaker attachment should be made when dealing with areas of concrete.

Shallow perched water and groundwater flows were not encountered during the investigation. Any water inflows together with rainwater infiltration should be dealt with by conventional pumping techniques. However, it should be noted that during times of heavy rainfall a higher water table will be encountered.

The sides of any excavations deeper than 1.20m, or shallower if unstable, should be supported by planking and strutting or other proprietary means.

The sub-formations/formations are likely to be susceptible to loosening, softening and deterioration by exposure to weather (rain, frost and drying conditions), the action of water (flood water or removal of groundwater) and site traffic.

Formations should never be left unprotected and continuously exposed to rain causing degradation, or left exposed/uncovered overnight, unless permitted by a qualified engineer.

Construction plant and other vehicular traffic should not be operated on unprotected formations.

As a minimum the formation/excavation surfaces must be protected by blinding concrete immediately after exposure.

Allowances should be made for the removal of soft spots/areas and their replacement with well compacted granular materials.

Allowances should also be made for special precautions to prevent formation deterioration in addition to the above.

9.4 Protection of Buried Concrete

When the results are compared with Table C1 of BRE Digest 1:2005, it indicates that buried concrete should generally conform to Class AC-1.

9.5 Storm Water Drainage

During the site investigation four soakaway tests were undertaken in general accordance with BRE DG 365:2016. The soakaway tests were carried out in trial pits TP01 to TP04 within natural materials.

The soakaway test recorded insufficient infiltration and was subsequently terminated early.

It is considered that soakaway storm water draining is unsuitable at the site.

9.6 Retaining Walls

Due to the sloping nature of the site, retaining walls may be required. The existing steepness of any embankments should not be increased. Any cuts should be undertaken in small sections and in such a way so as not to induce any instability to the ground.

Effective shear parameters for retaining wall design are presented in **Table 9.1**.

Table 10.1 Effective Shear Stress Parameters

Stratum Description	Bulk Unit Weight (γ) kN/m^3	Effective Cohesion (c′) kN/m^2	Effective Angle of Shearing Resistance (ϕ') degrees
Soft to firm cohesive soils	18	0	20 – 25
Firm to stiff cohesive soils	18	0	30
Loose granular soils	18	0	22
Medium dense granular soils	18	0	28
Well compacted, granular materials, compacted as per Specification for Highway Works and other relevant guidance such as British Standards (BS) 6031: 1981. Code of Practise for Earthworks.	19 – 20	0	30 - 35
Fresh/slightly weathered mudstone/siltstone bedrock	19-24	5	35 - 40
Moderately / highly weathered Mudstone/siltstone bedrock	19-24	0	30 – 35

The parameters are based on experience in similar ground conditions.

The materials to be in-filled behind the retaining wall should be placed at or close to its optimum moisture content/maximum dry density and compacted in layers as per the requirements of the Specification for Highway Works. During the earthworks suitable in-situ testing should be carried out to ensure that the compaction process is achieving the required maximum dry density to achieve at least 95% compaction.

The acceptability of the filling works should be verified by appropriate on site testing. A certification report should also be prepared on the earthworks by a suitably qualified Geotechnical Engineer.

Appropriate drainage should be incorporated in the design to prevent the build-up of hydrostatic pressure.

Appropriate cutting and benching of the existing slope should be conducted prior to the replacement of any imported fill to minimise the risk of any slip surfaces forming on the interface between the existing imported materials.

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Envirocheck® Report:

Datasheet

Order Details:

Order Number:
375077681_1_1

Customer Reference:
25-045

National Grid Reference:
242170, 257680

Slice:
A

Site Area (Ha):
0.84

Search Buffer (m):
1000

Site Details:

Site at 242170, 257680

Client Details:

Mr M Lake
TFW Group Ltd
5 Deryn Court
Wharfdale Road
Pentwyn
Cardiff
CF23 7HB

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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1		Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 3		7	4	5
Prosecutions					
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 7		2		
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 7		Yes		
Pollution Incidents to Controlled Waters	pg 7		2	4	5
Historical Prosecutions	pg 9		1		1
Registered Radioactive Substances					
Substantiated Pollution Incident Register	pg 9		1	2	
Water Abstractions	pg 10				2
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 10	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 10	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 10		Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 10		Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 11		1	10	32
Water Framework Directive - Catchment	pg 15	Yes			Yes
Water Framework Directive - Groundwater	pg 16	Yes			
Water Framework Directive - Surface Waters					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 17	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 18	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 18	Yes			
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 18	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 18	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 18	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 18		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 19		Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 20		7	1	2
Fuel Station Entries	pg 20		1		
Points of Interest - Commercial Services	pg 20		5		
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 21		1		2
Points of Interest - Public Infrastructure	pg 21		5	2	4
Points of Interest - Recreational and Environmental	pg 22				1
Underground Electrical Cables					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 23		2	3	5
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	10	1	242165 257600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	21	1	242200 257600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	62	1	242250 257600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	107	1	242300 257600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	111	1	242050 257550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	112	1	242150 257500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	127	1	242000 257600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (S)	130	1	242100 257500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (E)	143	1	242350 257650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	148	1	242000 257550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	174	1	241950 257676
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	175	1	242100 257450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	199	1	242350 257500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	211	1	242150 257400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (S)	222	1	242100 257400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	223	1	241900 257676
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	228	1	241900 257700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	237	1	242450 257676
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	239	1	242450 257750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	241	1	242400 257500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	243	1	242450 257650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SW (SW)	252	1	241950 257450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	260	1	242165 257350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (S)	261	1	242150 257350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	261	1	242200 257350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	279	1	241850 257750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (E)	287	1	242500 257676
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	287	1	241850 257800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	298	1	242500 257800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	299	1	242500 257600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	311	1	242200 257300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	313	1	242500 257550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	337	1	242550 257676
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	346	1	242550 257800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (NW)	349	1	241800 257850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SE)	353	1	242500 257450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	361	1	242550 257850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	361	1	242200 257250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	368	1	242250 257250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	371	1	241800 257450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (W)	373	1	241750 257650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	408	1	242600 257850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	411	1	241950 258100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NW (NE)	426	1	242600 257900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	429	1	242300 257200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	457	1	242650 257550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	461	1	241700 257450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (SE)	468	1	242400 257200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	483	1	241650 257800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	487	1	242000 258200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (SE)	488	1	242650 257450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NW (NE)	493	1	242650 257950
1	**Discharge Consents** Operator: Burford D A Property Type: Undefined Or Other Location: Plot Os 2976 Llanarth Authority: Natural Resources Wales Catchment Area: Afon Llethi Reference: Bp0148001 Permit Version: 1 Effective Date: 28th September 1989 Issued Date: 28th September 1989 Revocation Date: 21st August 1995 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Afon Llethi **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	169	2	242380 257690
1	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Llanarth Bridge Cso Llanarth Cere'N, Off A487, Llanarth, Ceredigion, Sa47 0nq Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Bp0319201 Permit Version: Not Supplied Effective Date: 14th October 2019 Issued Date: 14th October 2019 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Afon Llethi **Status: Effective** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	178	2	242391 257710
1	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Llanarth Bridge Cso Llanarth Cere'N, Llanarth, Newquay, Ceredigion Authority: Natural Resources Wales Catchment Area: GIDO - HEADWATERS TO TIDAL LIMIT Reference: Bp0319201 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 21st March 2007 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Afon Llethi **Status: Effective** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	178	2	242391 257710

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Llanarth Bridge Cso Llanarth Cere'N, Llanarth, Newquay, Ceredigion Authority: Natural Resources Wales Catchment Area: GIDO - HEADWATERS TO TIDAL LIMIT Reference: Bp0319201 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 21st March 2007 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Afon Llethi **Status: Effective** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	178	2	242391 257710
1	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Llanarth Bridge Cso Ceredigion Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Bp0319201 Permit Version: 1 Effective Date: 7th March 2005 Issued Date: 7th March 2005 Revocation Date: 20th March 2007 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Afon Llethi **Status: Consent without application (Water Resources Act 1991, Schedule 10)** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	179	2	242385 257646
2	**Discharge Consents** Operator: Ian Abell E A M & E Property Type: Undefined Or Other Location: New Bung.Adj.Filling Station Llania, Llania Arms Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Bn0260901 Permit Version: 1 Effective Date: 30th September 1982 Issued Date: 30th September 1982 Revocation Date: 29th July 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Underground Strata **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	222	2	242100 257400
3	**Discharge Consents** Operator: Lloyd T E Property Type: Undefined Or Other Location: Tegfan Farm Llanarth Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Bl0119701 Permit Version: 1 Effective Date: 27th November 1974 Issued Date: 27th November 1974 Revocation Date: 17th November 1992 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Lagoon Wall Nr. Afon Lleithi **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A13NW (W)	230	2	241900 257700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Discharge Consents** Operator: Evans J D Property Type: Undefined Or Other Location: Penparc Llanarth Dyfed Authority: Natural Resources Wales Catchment Area: Afon Llethi Reference: Bp0080401 Permit Version: 1 Effective Date: 8th March 1988 Issued Date: 8th March 1988 Revocation Date: 21st November 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: To Land **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	260	2	241900 257500
5	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Undefined Or Other Location: Llanarth Stw Authority: Natural Resources Wales Catchment Area: Afon Llethi Reference: Bj0080201 Permit Version: 1 Effective Date: 22nd August 1968 Issued Date: 22nd August 1968 Revocation Date: 23rd October 1992 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Afon Llethi **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A13NE (E)	298	2	242500 257800
6	**Discharge Consents** Operator: Colin Dahill Property Type: HOLIDAY ACCOM/CAMP SITE/CARAVAN SITE/HOTEL/HOSTEL Location: Llanina Caravan Park, Llanarth, Near Newquary, Sa47 0np Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Cb3696fw Permit Version: Not Supplied Effective Date: 13th September 2022 Issued Date: 13th September 2022 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Groundwater Via Infiltration System **Status: Effective** Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	372	2	241936 257312
6	**Discharge Consents** Operator: Sandra Ralphson Property Type: Recreational & Cultural Location: Llanina Touring Caravan Site Llanar, Llanarth Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: BN0262501 Permit Version: Not Supplied Effective Date: 11th October 1982 Issued Date: 11th October 1982 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Groundwater Via Infiltration System **Status: Effective** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	401	2	241900 257300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**Discharge Consents** Operator: Bryan P W Property Type: Undefined Or Other Location: Bungalow At Llanarth Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Bn0028901 Permit Version: 1 Effective Date: 13th February 1970 Issued Date: 13th February 1970 Revocation Date: 22nd April 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: To Land Nr. Llethri. **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	637	2	241500 257500
8	**Discharge Consents** Operator: James Thomas Voller Stacey Property Type: Undefined Or Other Location: Tyr-Lon Llanarth Dyfed. Authority: Natural Resources Wales Catchment Area: Afon Llethi Reference: Bp0009601 Permit Version: 1 Effective Date: 8th January 1986 Issued Date: 8th January 1986 Revocation Date: 2nd August 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: To Land **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A12SW (W)	727	2	241400 257550
9	**Discharge Consents** Operator: Mr & Mrs O P Ager Property Type: Undefined Or Other Location: Tudor Holiday Park New Quay Hwest, New Quay, Haverfordwest Authority: Natural Resources Wales Catchment Area: Afon Llethi Reference: Bn0173701 Permit Version: 1 Effective Date: 11th July 1977 Issued Date: 11th July 1977 Revocation Date: 6th November 1992 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Afon Llethi **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	881	2	241700 258500
10	**Discharge Consents** Operator: The Occupier Property Type: Undefined Or Other Location: Dwell.Os.3442 Cwm Cadno Llanarth Dy, Llanarth Dyfed. Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Bn0174601 Permit Version: 1 Effective Date: 12th July 1977 Issued Date: 12th July 1977 Revocation Date: 19th July 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: To Land Nr. Afon Gido **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A12SW (W)	905	2	241220 257570

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Discharge Consents** Operator: Kasteel R K Property Type: Domestic Property (Single) Location: Bungalow At Gilfachrheda New Quay, Haverfordwest Authority: Natural Resources Wales Catchment Area: Not Given Reference: Bh0054401 Permit Version: 1 Effective Date: 7th October 1965 Issued Date: 7th October 1965 Revocation Date: 31st October 1996 Discharge Type: Unspecified Discharge Environment: Freshwater Stream/River Receiving Water: Afon Gido **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	999	2	241200 258100
12	**Local Authority Pollution Prevention and Controls** Name: Jd Evans (Water Services) Ltd Location: Penparc, Llanarth, Sa47 0nr Authority: Ceredigion Council, Environmental Health Department Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/16 Mobile screening and crushing processes **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	159	3	241993 257541
13	**Local Authority Pollution Prevention and Controls** Name: Llanina Service Station Location: Llanarth, Ceredigion, SA47 0NP Authority: Ceredigion Council, Environmental Health Department Permit Reference: LAEPR/1.4/12 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13SW (S)	205	3	242089 257422
	Nearest Surface Water Feature	A13NW (W)	132	-	241996 257733
14	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Left Bank, Down Stream A487 Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: Accident Incident Date: 21st January 1997 Incident Reference: 31008 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Spillage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	89	4	242300 257700
15	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: LLANARTH Authority: Environment Agency, Welsh Region Pollutant: Algae Note: Not Supplied Incident Date: 26th July 1995 Incident Reference: 25858 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	188	4	242400 257700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewerage Location: Near Post Office Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Blocked Sewer Incident Date: 25th March 1996 Incident Reference: 27689 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	288	4	242500 257700
16	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Overflow Near Post Office Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Blocked Sewer Incident Date: 25th March 1996 Incident Reference: 27689 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	288	4	242500 257695
17	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage (Non-PLC): Other Location: Llanwrth By, Caravan Site Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: Poor Operational Practise Incident Date: 7th July 1991 Incident Reference: 436 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Effluent Discharge Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	405	4	241900 257295
18	**Pollution Incidents to Controlled Waters** Property Type: Cattle Beef Farming: Slurry Store/Waste Tank Location: Plas Y Wern, NEW QUAY Authority: Environment Agency, Welsh Region Pollutant: Farm Land Run-Off Note: Poor Operational Practise Incident Date: 21st March 1995 Incident Reference: 23009 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	487	4	241900 257200
19	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Llanarth Old Sewage Treatment Works Authority: Environment Agency, Welsh Region Pollutant: Sewage - Treated Effluent Note: Blockage Incident Date: 21st January 1997 Incident Reference: 31011 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (NE)	561	4	242700 258000
20	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: At Rivers Edge, LLANARTH Authority: Environment Agency, Welsh Region Pollutant: Farm Effluent/Slurry Note: Poor Management; Llethi Incident Date: 8th June 1998 Incident Reference: 35898 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	756	4	242850 257250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**Pollution Incidents to Controlled Waters** Property Type: Cattle Beef Farming: Yards Location: Euphrates Authority: Environment Agency, Welsh Region Pollutant: Agricultural: Silage Liquor Note: Not Supplied Incident Date: 26th October 1995 Incident Reference: 26500 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	934	4	241600 258500
22	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Plasywern Riding School, LLANARTH Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Unknown; Llethi; Nat Euphrates Incident Date: 19th June 1998 Incident Reference: 36083 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	990	4	241500 258495
22	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Plasywern Riding School, LLANARTH Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Unknown; Llethi Incident Date: 19th June 1998 Incident Reference: 36251 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	994	4	241500 258500
23	**Historical Prosecutions** Location: River Llethi, Llanarth, New Quay Prosecution Text: Discharging sewage effluent into a nearby watercourse Prosecution Act: Wra91 S85(3) Hearing Date: 8th March 2005 Verdict: Guilty Fine: 1500 Costs: 1195 Positional Accuracy: Manually positioned within the geographical locality	A13SE (E)	192	-	242395 257624
24	**Historical Prosecutions** Location: Land at Fronwen Isaf, LLANARTH, Dyfed, SA47 0QH Prosecution Text: EA Welsh Data 11/08/1999 (Legal Dept Ref: W1.99 & W8.99 : Waste Dept Ref: 10/98(SW)), Knowingly permitting controlled waste to be desposited on the 31st August 1996. Given Prosecution Act: EPA90 s33(1c) Hearing Date: 27th April 1999 Verdict: Guilty Fine: Not Supplied Costs: 450 Positional Accuracy: Manually positioned within the geographical locality	A9NE (SE)	793	-	242906 257277
25	**Substantiated Pollution Incident Register** Authority: Natural Resources Wales Incident Date: 3rd June 2004 Incident Reference: 241564 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 100m Pollutant: Crude Sewage	A13NE (NE)	203	2	242400 257800
26	**Substantiated Pollution Incident Register** Authority: Natural Resources Wales Incident Date: 25th May 2010 Incident Reference: 783353 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Inert : Construction / Demolition Material	A13SW (SW)	292	2	241853 257521

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	**Substantiated Pollution Incident Register** Authority: Natural Resources Wales Incident Date: 16th July 2004 Incident Reference: 251498 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 100m Pollutant: Other Pollutant	A13SE (SE)	331	2	242500 257500
28	**Water Abstractions** Operator: N Pheysey Licence Number: 22/63/6/0014 Permit Version: Not Supplied Location: Not Supplied Authority: Natural Resources Wales Abstraction: Sports Grounds/Facilities: Lake And Pond Throughflow Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): 0 Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SE (W)	573	2	241550 257650
29	**Water Abstractions** Operator: N Pheysey Licence Number: 22/63/6/0012 Permit Version: Not Supplied Location: Not Supplied Authority: Natural Resources Wales Abstraction: Impounding Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): 0 Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NE (W)	596	2	241530 257700
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A13NW (NW)	0	2	242165 257676
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NW (NW)	0	2	242165 257676
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	158	2	242355 257605
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	160	2	242355 257600
	Areas Benefiting from Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Water Storage Areas None				
	Flood Defences None				
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1042.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A13SE (E)	168	5	242376 257663
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1085.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Euphrates Catchment Name: Aeron, Gido and Drywi Primacy: 1	A13SW (SW)	278	5	241888 257483
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: Underground Permanent: True Watercourse Name: Euphrates Catchment Name: Aeron, Gido and Drywi Primacy: 1	A13SW (SW)	297	5	241955 257389
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 216.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Euphrates Catchment Name: Aeron, Gido and Drywi Primacy: 1	A13SW (SW)	298	5	241957 257386
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 76.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8NW (S)	411	5	242037 257221
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 255.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8NW (S)	415	5	242021 257223
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8NW (S)	418	5	242098 257198
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 345.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8NW (S)	418	5	242098 257198

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 292.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A18SE (N)	439	5	242205 258162
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 134.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A19SW (NE)	470	5	242584 258009
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 316.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A19SW (NE)	470	5	242584 258009
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 248.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A18SW (N)	516	5	241972 258222
42	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 52.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A12SE (W)	525	5	241598 257633
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A12NE (W)	541	5	241584 257682
44	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 69.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A12SE (W)	587	5	241537 257664
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1039.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A9NW (SE)	597	5	242566 257155
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 281.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A9NW (SE)	597	5	242566 257155

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8NW (S)	631	5	242014 256999
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: Underground Permanent: True Watercourse Name: Euphrates Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17SE (NW)	636	5	241621 258114
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 261.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Euphrates Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17SE (NW)	639	5	241619 258116
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 501.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A18SE (N)	639	5	242362 258342
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8SW (S)	639	5	242013 256991
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 235.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A18NW (N)	686	5	242134 258416
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 56.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A19SW (NE)	735	5	242677 258291
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 211.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A19SW (NE)	735	5	242677 258291
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8SW (S)	738	5	241999 256893

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A18NW (N)	741	5	241954 258450
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 345.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A8SW (S)	742	5	242002 256888
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 2	A18NW (N)	750	5	241932 258454
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A18NW (N)	751	5	241934 258455
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 76.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A19SW (NE)	754	5	242648 258337
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 429.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A18NW (N)	766	5	241943 258473
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 112.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A9NW (SE)	815	5	242823 257105
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 26.1 Watercourse Level: Underground Permanent: True Watercourse Name: Euphrates Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17NE (NW)	818	5	241591 258346
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 239.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Euphrates Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17NE (NW)	830	5	241600 258371

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A19SE (NE)	883	5	242884 258296
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A19SE (NE)	892	5	242895 258295
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17NE (NW)	958	5	241657 258564
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17NE (NW)	958	5	241657 258564
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17NE (NW)	965	5	241658 258572
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 533.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17NE (NW)	966	5	241658 258573
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1400.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Mot Catchment Name: Aeron, Gido and Drywi Primacy: 1	A11SE (W)	990	5	241136 257557
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 878.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Llethi Catchment Name: Aeron, Gido and Drywi Primacy: 1	A17NE (NW)	991	5	241597 258567
	Water Framework Directive - Catchment Class Code: River Catchment WaterBody Name: Gido - headwaters to tidal limit WaterBody ID: GB110063041400 Operational Catchment: Coastal streams - Cardigan to Aberaeron Management Catchment: Teifi and Ceredigion North Catchment Name: Not Supplied	A13NW (NW)	0	2	242165 257676

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Framework Directive - Catchment Class Code: River Catchment WaterBody Name: Drywi - headwaters to tidal limit WaterBody ID: GB110063041420 Operational Catchment: Coastal streams - Cardigan to Aberaeron Management Catchment: Teifi and Ceredigion North Catchment Name: Not Supplied	A14NE (E)	906	2	243110 257850
	Water Framework Directive - Groundwater Waterbody Name: Teifi and Coastal Ceredigion Waterbody ID: GB41002G203300 URL Address: Not Available Overall Rating: Poor Chemical Rating: Poor Quantitative Measure: Good Year: 2023	A13NW (NW)	0	2	242165 257676

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Ceredigion Council - Has supplied landfill data		0	3	242165 257676

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Llandovery Rocks (Undifferentiated)	A13NW (NW)	0	1	242165 257676
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (NW)	0	1	242165 257676
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	32	1	242195 257585
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	127	1	242004 257587
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	128	1	242323 257603
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	167	1	241957 257649
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	191	1	242398 257659
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	209	1	242350 257484
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	31	1	242195 257585
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	117	1	242194 257495

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	31	1	242195 257585
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	117	1	242194 257495
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	242165 257676

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	**Contemporary Trade Directory Entries** Name: Llanina Filling Station Location: Llanarth, Dyfed, SA47 0NP Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	67	-	242175 257543
74	**Contemporary Trade Directory Entries** Name: International Auto Spares Location: Aurora, Llanarth, Dyfed, SA47 0NN Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (SE)	129	-	242301 257551
75	**Contemporary Trade Directory Entries** Name: J D Evans Water Services Ltd Location: Penparc, Llanarth, Dyfed, SA47 0NR Classification: Car Customisation & Conversion Specialists **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	159	-	241993 257541
76	**Contemporary Trade Directory Entries** Name: Llanina Garage Location: Llanarth, Dyfed, SA47 0NP Classification: Mot Testing Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (S)	169	-	242139 257444
76	**Contemporary Trade Directory Entries** Name: Texaco Filling Station Location: Llainina Bungalow, Llanarth, SA47 0NP Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (S)	187	-	242109 257434
77	**Contemporary Trade Directory Entries** Name: Texaco Location: Llanarth, Dyfed, SA47 0NP Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (S)	206	-	242089 257422
78	**Contemporary Trade Directory Entries** Name: D J Thomas & Sons Location: Aura, Llanarth, Dyfed, SA47 0NF Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SE (SE)	214	-	242331 257458
79	**Contemporary Trade Directory Entries** Name: G W Tyres Location: Pencwm, Llanarth, SA47 0PT Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	438	-	242634 257841
80	**Contemporary Trade Directory Entries** Name: W Y N Davies & Sons Location: Fronwen Uchaf, Llanarth, Dyfed, SA47 0QH Classification: Concrete Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	758	-	242883 257311
81	**Contemporary Trade Directory Entries** Name: G Williams Location: Pantcefn Bach, Llanarth, Dyfed, SA47 0RH Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SE (E)	964	-	243172 257621
82	**Fuel Station Entries** Name: Thomas And Sons Llanina Service Station Location: A487 , , Llanarth, Ceredigion, SA47 0NP Brand: Texaco Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A13SW (S)	206	-	242089 257421
83	**Points of Interest - Commercial Services** Name: International Auto Spares Location: Old Haulage Yard, Llanarth, Dyfed, SA47 0NN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SE (SE)	125	6	242298 257555

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
84	**Points of Interest - Commercial Services** Name: Llanina Garage Location: Llanarth, SA47 0NP Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (S)	170	6	242139 257443
84	**Points of Interest - Commercial Services** Name: Thomas and Sons Llanina Service Station Location: Llanarth, SA47 0NP Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A13SW (S)	206	6	242089 257421
84	**Points of Interest - Commercial Services** Name: Car Wash Location: A487 Llanarth, Ceredigion, SA47 0NP Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A13SW (S)	206	6	242089 257421
84	**Points of Interest - Commercial Services** Name: Llanina MOT & Service Station Location: Tyr Ysgol, Llanarth, SA47 0NP Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (S)	217	6	242144 257394
85	**Points of Interest - Manufacturing and Production** Name: Solar Panels Location: SA47 Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	104	6	242075 257819
86	**Points of Interest - Manufacturing and Production** Name: Tank Location: SA47 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	516	6	241793 257236
87	**Points of Interest - Manufacturing and Production** Name: A M Jones Location: Fronwen Isaf, Llanarth, SA47 0QH Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A9NE (SE)	800	6	242886 257224
88	**Points of Interest - Public Infrastructure** Name: Texaco Filling Station Location: Llainina Bungalow, Llanarth, SA47 0NP Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13SW (S)	187	6	242109 257434
88	**Points of Interest - Public Infrastructure** Name: Llanina Filling Station Location: Llanarth, Dyfed, SA47 0NP Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13SW (S)	206	6	242089 257421
88	**Points of Interest - Public Infrastructure** Name: Llanina Service Station Location: A487 Llanina, Llanarth, Dyfed, SA47 0NP Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13SW (S)	206	6	242088 257422
88	**Points of Interest - Public Infrastructure** Name: Thomas and Sons Llanina Service Station Location: A487 Llanarth, Ceredigion, SA47 0NP Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13SW (S)	206	6	242089 257421
88	**Points of Interest - Public Infrastructure** Name: Texaco Location: Llanarth, SA47 0NP Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13SW (S)	207	6	242088 257421

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
89	**Points of Interest - Public Infrastructure** Name: Weir Location: SA47 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A14SW (SE)	476	6	242573 257336
89	**Points of Interest - Public Infrastructure** Name: Weir Location: SA47 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A14SW (SE)	479	6	242576 257335
90	**Points of Interest - Public Infrastructure** Name: Slurry Bed Location: SA47 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	535	6	241791 257214
91	**Points of Interest - Public Infrastructure** Name: Slurry Bed Location: SA47 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A9NW (SE)	756	6	242835 257223
92	**Points of Interest - Public Infrastructure** Name: Sluice Location: SA47 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A9NE (SE)	903	6	242950 257130
92	**Points of Interest - Public Infrastructure** Name: Sluice Location: SA47 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A9NE (SE)	911	6	242959 257129
93	**Points of Interest - Recreational and Environmental** Name: Play Area Location: SA47 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	506	6	242714 257648

Sensitive Land Use

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
94	**Ancient Woodland** Name: Not Supplied Reference: 2440 Area(m²): 3265 Type: Ancient and Semi-Natural Woodland	A13NE (NE)	135	2	242337 257775
95	**Ancient Woodland** Name: Not Supplied Reference: 2439 Area(m²): 8930.01 Type: Ancient and Semi-Natural Woodland	A13NE (E)	161	2	242374 257715
96	**Ancient Woodland** Name: Not Supplied Reference: 38322 Area(m²): 23003.38 Type: Plantation on Ancient Woodland	A13NE (NE)	279	2	242467 257837
97	**Ancient Woodland** Name: Not Supplied Reference: 2439 Area(m²): 28.67 Type: Ancient and Semi-Natural Woodland	A13NE (NE)	336	2	242474 257932
98	**Ancient Woodland** Name: Not Supplied Reference: 2439 Area(m²): 112637.45 Type: Ancient and Semi-Natural Woodland	A19SW (NE)	469	2	242582 258011
99	**Ancient Woodland** Name: Not Supplied Reference: 2438 Area(m²): 41965.66 Type: Restored Ancient Woodland Site	A18SE (N)	545	2	242373 258242
100	**Ancient Woodland** Name: Not Supplied Reference: 5485 Area(m²): 16368.92 Type: Ancient and Semi-Natural Woodland	A18NW (N)	797	2	241944 258506
101	**Ancient Woodland** Name: Not Supplied Reference: 5476 Area(m²): 8032.46 Type: Restored Ancient Woodland Site	A8SE (S)	800	2	242450 256860
102	**Ancient Woodland** Name: Not Supplied Reference: 5480 Area(m²): 3090.82 Type: Ancient and Semi-Natural Woodland	A17NE (N)	895	2	241811 258567
103	**Ancient Woodland** Name: Not Supplied Reference: 5479 Area(m²): 21768.3 Type: Restored Ancient Woodland Site	A9SW (SE)	942	2	242593 256766

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Ceredigion Council - Environmental Health Department	March 2014	Annual Rolling Update
Natural Resources Wales	November 2023	Annually
Discharge Consents		
Environment Agency - Welsh Region	August 2014	Quarterly
Natural Resources Wales	January 2025	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Welsh Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Welsh Region	January 2009	
Integrated Pollution Prevention And Control		
Natural Resources Wales	January 2025	Quarterly
Environment Agency - Welsh Region	July 2024	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Ceredigion Council - Environmental Health Department	February 2015	Variable
Local Authority Pollution Prevention and Controls		
Ceredigion Council - Environmental Health Department	February 2015	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Ceredigion Council - Environmental Health Department	February 2015	Variable
Nearest Surface Water Feature		
Ordnance Survey	February 2025	
Pollution Incidents to Controlled Waters		
Environment Agency - Welsh Region	December 1998	
Historical Prosecutions		
Environment Agency, Welsh Region	March 2013	Not Applicable
Natural Resources Wales	March 2013	Not Applicable
Registered Radioactive Substances		
Natural Resources Wales	January 2015	
Environment Agency - Welsh Region	June 2016	
Substantiated Pollution Incident Register		
Natural Resources Wales	December 2024	Quarterly
Environment Agency Wales - South West Area	January 2021	Quarterly
Water Abstractions		
Natural Resources Wales	February 2025	Quarterly
Environment Agency - Welsh Region	October 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - Welsh Region	October 2017	
Natural Resources Wales	October 2022	
Groundwater Vulnerability Map		
Natural Resources Wales	June 2018	As notified
Bedrock Aquifer Designations		
Natural Resources Wales	January 2018	As notified
Superficial Aquifer Designations		
Natural Resources Wales	January 2018	As notified
Source Protection Zones		
Natural Resources Wales	July 2022	Annual Rolling Update
Extreme Flooding from Rivers or Sea without Defences		
Natural Resources Wales	September 2020	
Flooding from Rivers or Sea without Defences		
Natural Resources Wales	September 2020	

Agency & Hydrological	Version	Update Cycle
Areas Benefiting from Flood Defences Natural Resources Wales	November 2019	Quarterly
Flood Water Storage Areas Natural Resources Wales	August 2019	Quarterly
Flood Defences Natural Resources Wales	November 2019	
OS Water Network Lines Ordnance Survey	January 2025	Quarterly
Surface Water 1 in 30 year Flood Extent Natural Resources Wales	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Natural Resources Wales	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Natural Resources Wales	May 2018	Annually
Surface Water Suitability Natural Resources Wales	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified
Water Framework Directive - Catchment Natural Resources Wales	July 2024	Annually
Water Framework Directive - Groundwater Natural Resources Wales	July 2024	Annually
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites Natural Resources Wales	March 2023	As notified
Integrated Pollution Control Registered Waste Sites Environment Agency - Welsh Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Natural Resources Wales Environment Agency Wales - South West Area	August 2024 January 2023	Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Natural Resources Wales Environment Agency Wales - South West Area	January 2025 July 2024	Quarterly Quarterly
Local Authority Landfill Coverage Ceredigion Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites Ceredigion Council - Environmental Health Department	October 2018	
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	
Registered Landfill Sites Environment Agency Wales - South West Area	March 2006	Not Applicable
Registered Waste Transfer Sites Environment Agency Wales - South West Area	April 2018	
Registered Waste Treatment or Disposal Sites Environment Agency Wales - South West Area	June 2015	

Data Currency

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	September 2024	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements Ceredigion Council - Planning Department	February 2016	Variable
Planning Hazardous Substance Consents Ceredigion Council - Planning Department	February 2016	Variable
Geological	**Version**	**Update Cycle**
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2025	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	November 2024	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	November 2024	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	March 2025	Quarterly
Fuel Station Entries Green Street Advisor (UK) Ltd	December 2024	Quarterly
Points of Interest - Commercial Services PointX	March 2025	Quarterly
Points of Interest - Education and Health PointX	March 2025	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2025	Quarterly
Points of Interest - Public Infrastructure PointX	March 2025	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2025	Quarterly
Underground Electrical Cables National Grid	January 2024	
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland Natural Resources Wales	April 2025	Bi-Annually
Areas of Adopted Green Belt Ceredigion Council	July 2024	Quarterly
Areas of Unadopted Green Belt Ceredigion Council	July 2024	Quarterly
Areas of Outstanding Natural Beauty Natural Resources Wales	November 2024	Bi-Annually
Environmentally Sensitive Areas The National Assembly for Wales - GI Services (Department of Planning & Countryside)	January 2017	
Forest Parks Forestry Commission	May 2023	Not Applicable
Local Nature Reserves Ceredigion Council	February 2025	Bi-Annually
Marine Nature Reserves Natural Resources Wales	February 2025	Bi-Annually
National Nature Reserves Natural Resources Wales	January 2025	Bi-Annually
National Parks Natural Resources Wales	September 2024	Annually
Nitrate Vulnerable Zones The National Assembly for Wales - GI Services (Department of Planning & Countryside) Natural Resources Wales	April 2016 November 2024	Annually
Ramsar Sites Natural Resources Wales	February 2025	Bi-Annually
Sites of Special Scientific Interest Natural Resources Wales	November 2024	Bi-Annually
Special Areas of Conservation Natural Resources Wales	February 2025	Bi-Annually
Special Protection Areas Natural Resources Wales	November 2024	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

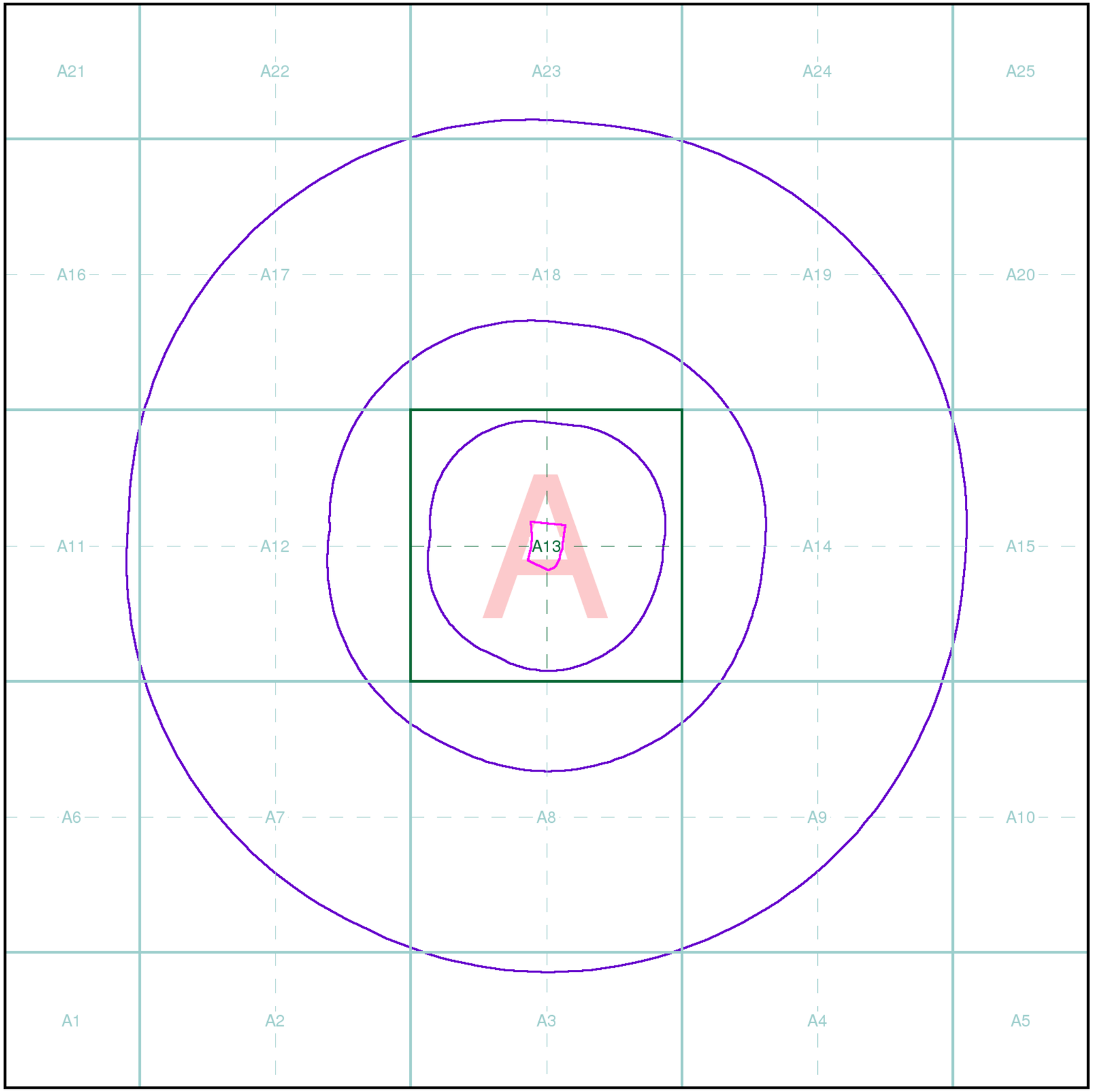
Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Natural Resources Wales** Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
3	**Ceredigion Council - Environmental Health Department** Penmorfa, Aberaeron, Ceredigion, Dyfed, SA46 0PA	Telephone: 01545 570881 Fax: 01545 572009 Website: www.ceredigion.gov.uk
4	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
5	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.co.uk
6	**PointX** 5-6 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Landmark Information Group, Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0330 036 6618 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

ANNEX A
Envirocheck Report



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Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Map data

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Cyfoeth Naturiol Cymru
Natural Resources Wales

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr M Lake, TFW Group Ltd, 5 Deryn Court, Wharfdale Road, Pentwyn, Cardiff, CF23 7HB

Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257670
Site Area (Ha):	0.84
Search Buffer (m):	1000

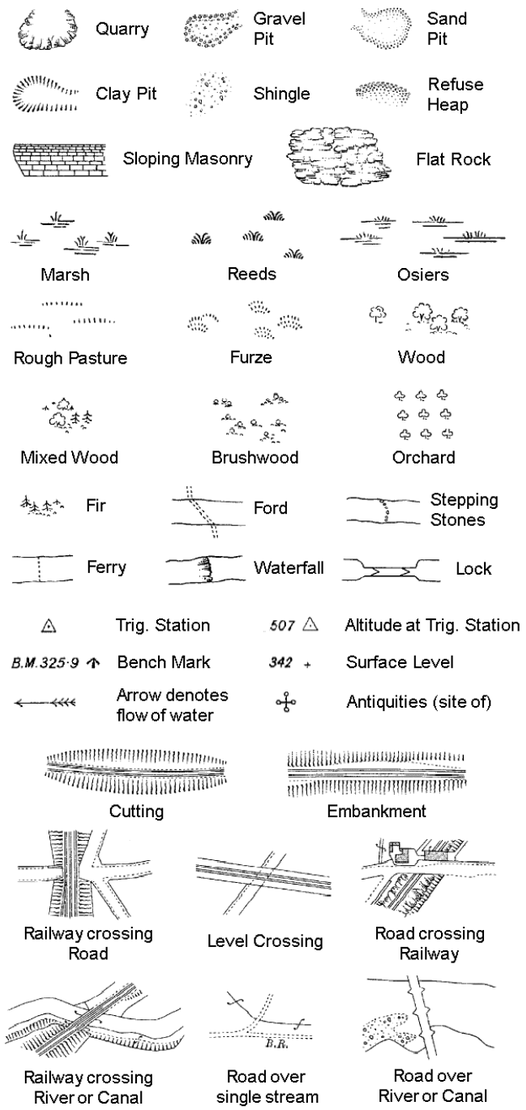
Site Details

Site at 242170, 257680

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/515

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

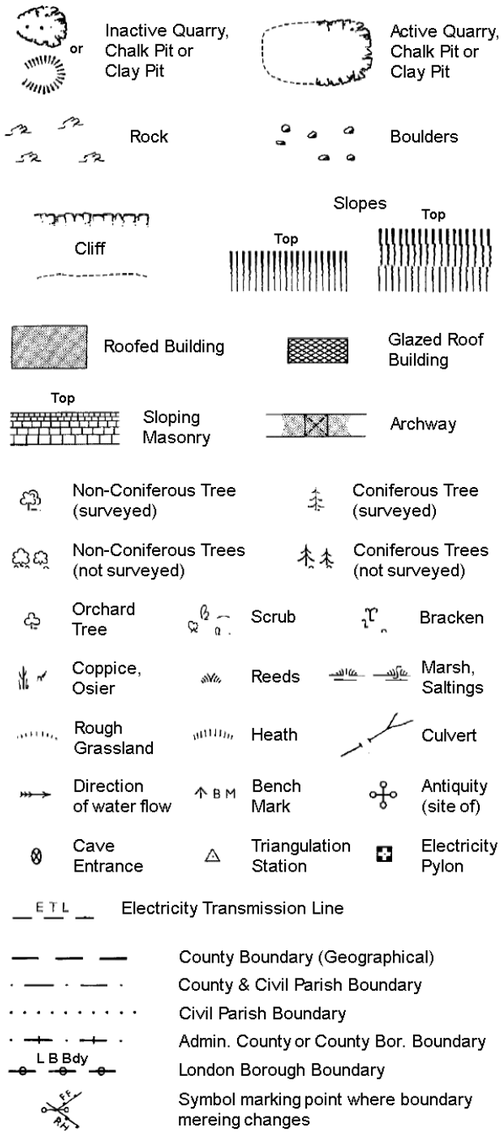
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

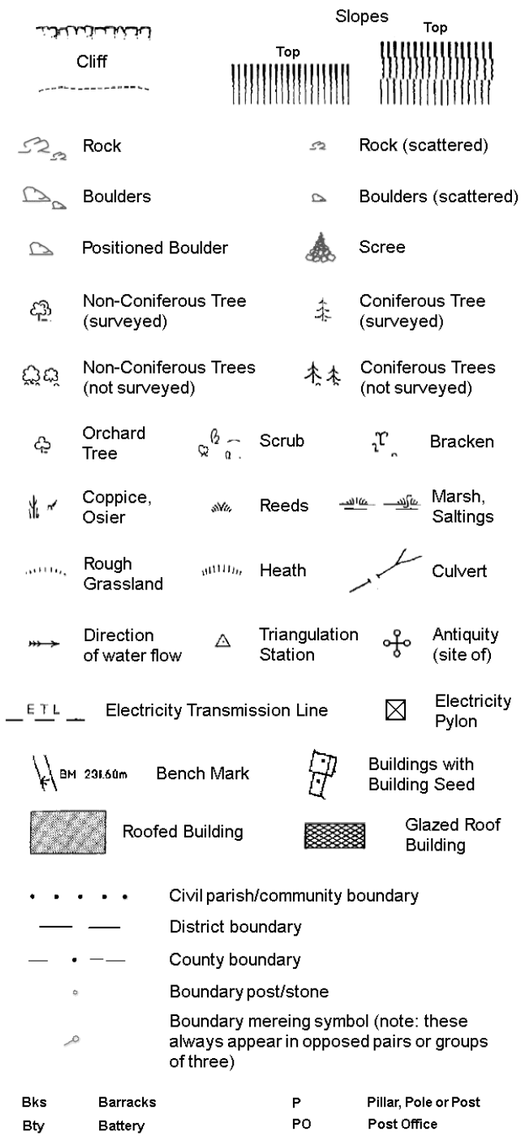
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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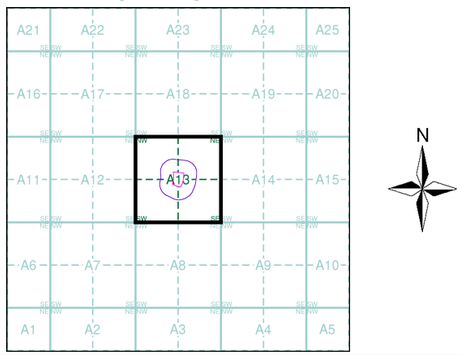
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Cardiganshire	1:2,500	1889 - 1890	2
Cardiganshire	1:2,500	1905	3
Ordnance Survey Plan	1:2,500	1975	4
Additional SIMs	1:2,500	1988	5
Large-Scale National Grid Data	1:2,500	1995	6
Historical Aerial Photography	1:2,500	2000	7

Historical Map - Segment A13



Order Details

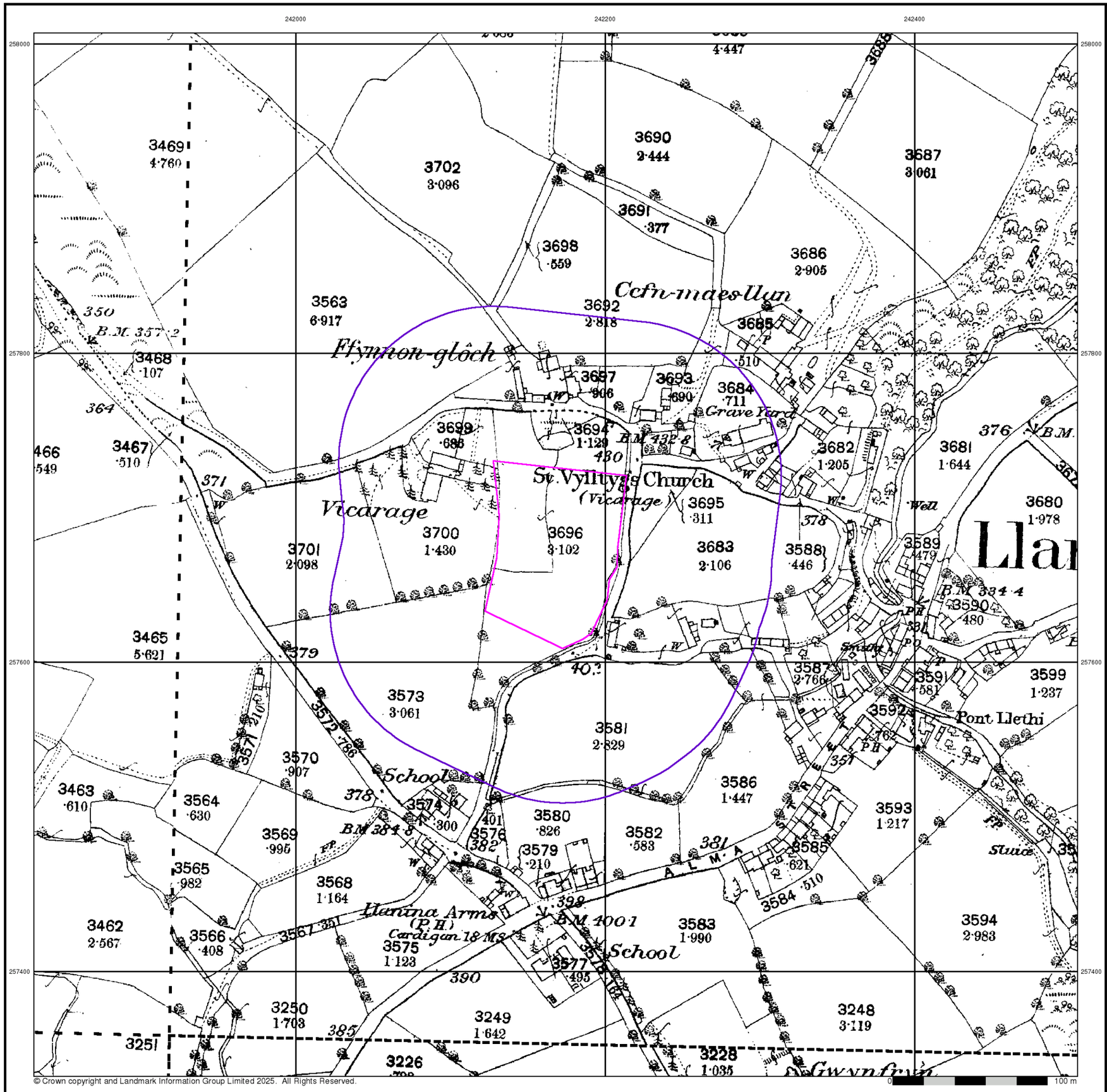
Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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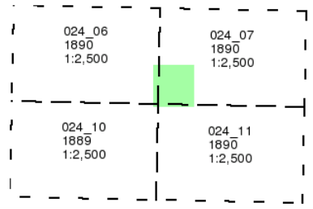
Cardiganshire

Published 1889 - 1890

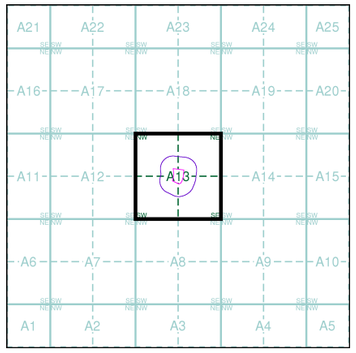
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	375077681_1_1
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Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

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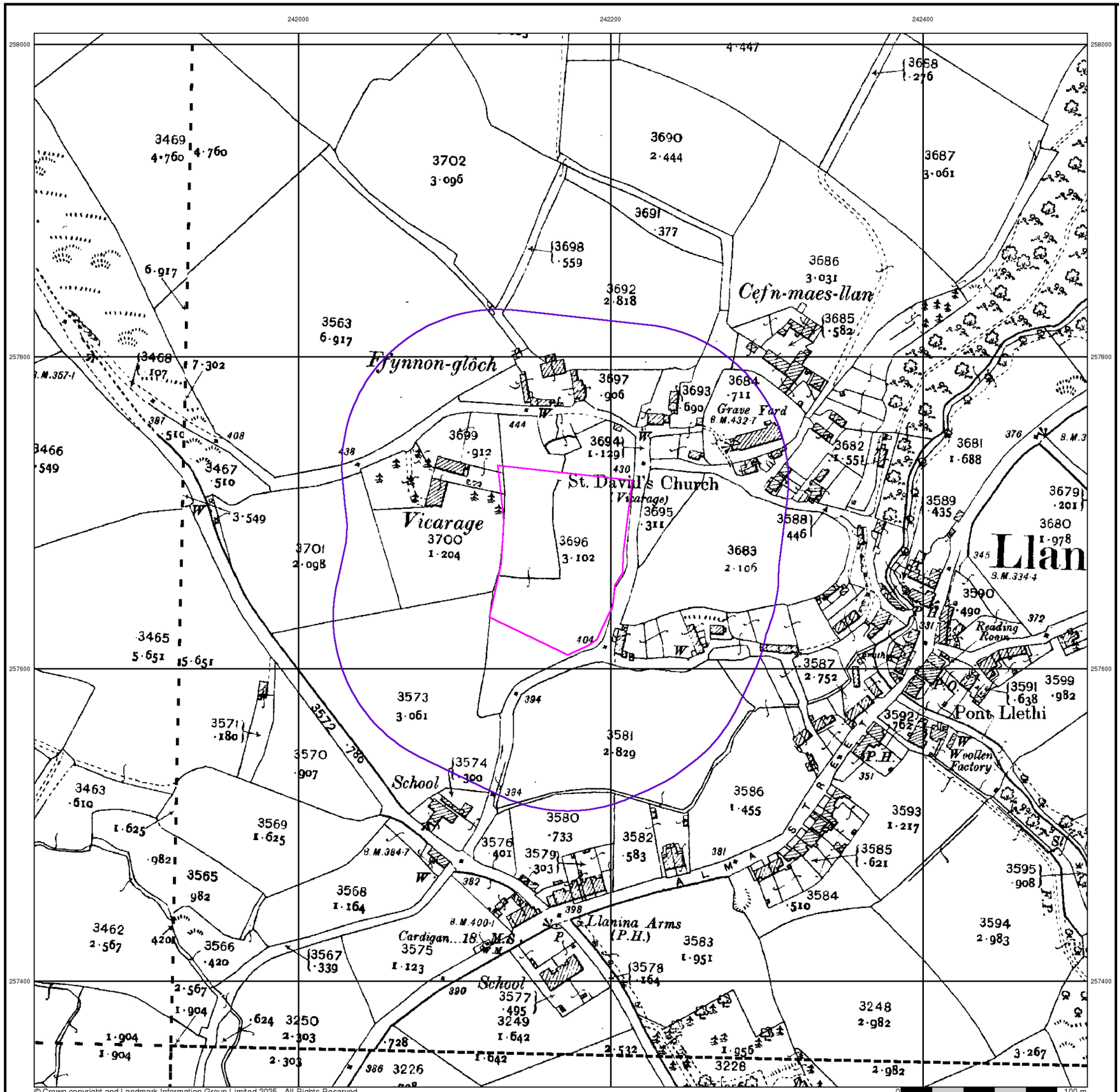
Web: www.envirocheck.co.uk



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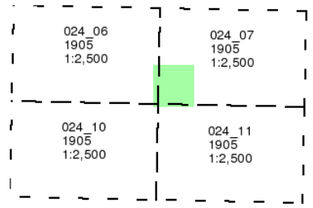
Cardiganshire

Published 1905

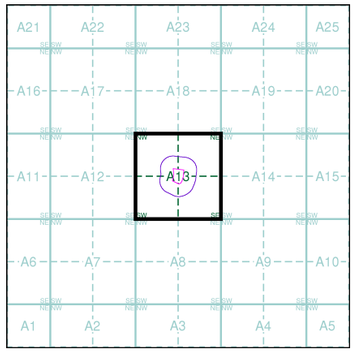
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

Site at 242170, 257680

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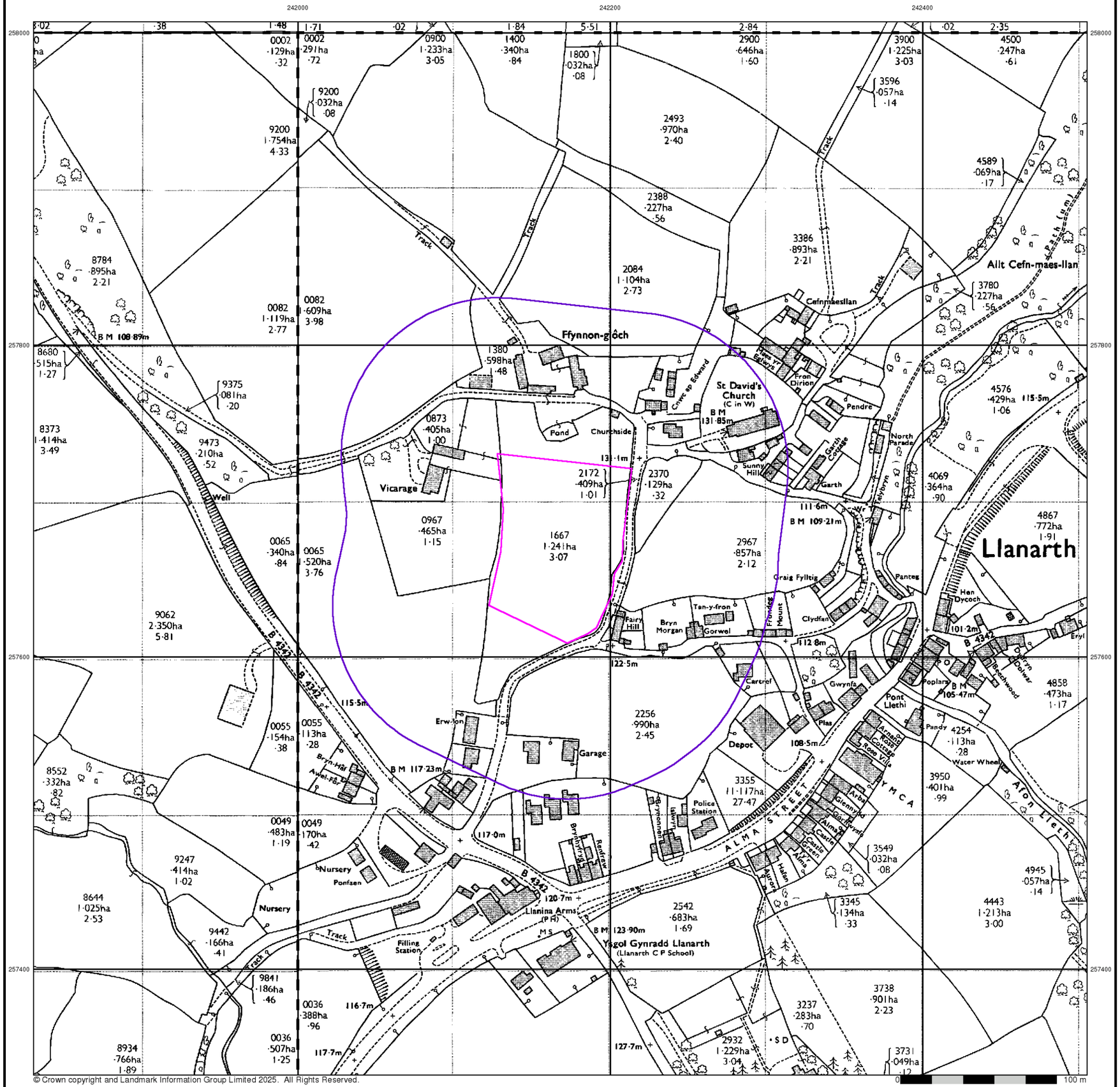
Web: www.envirocheck.co.uk



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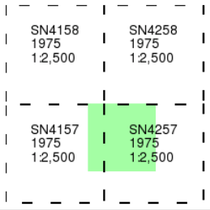
Ordnance Survey Plan

Published 1975

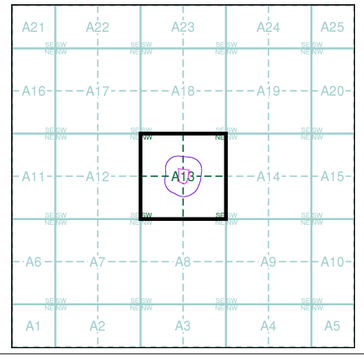
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



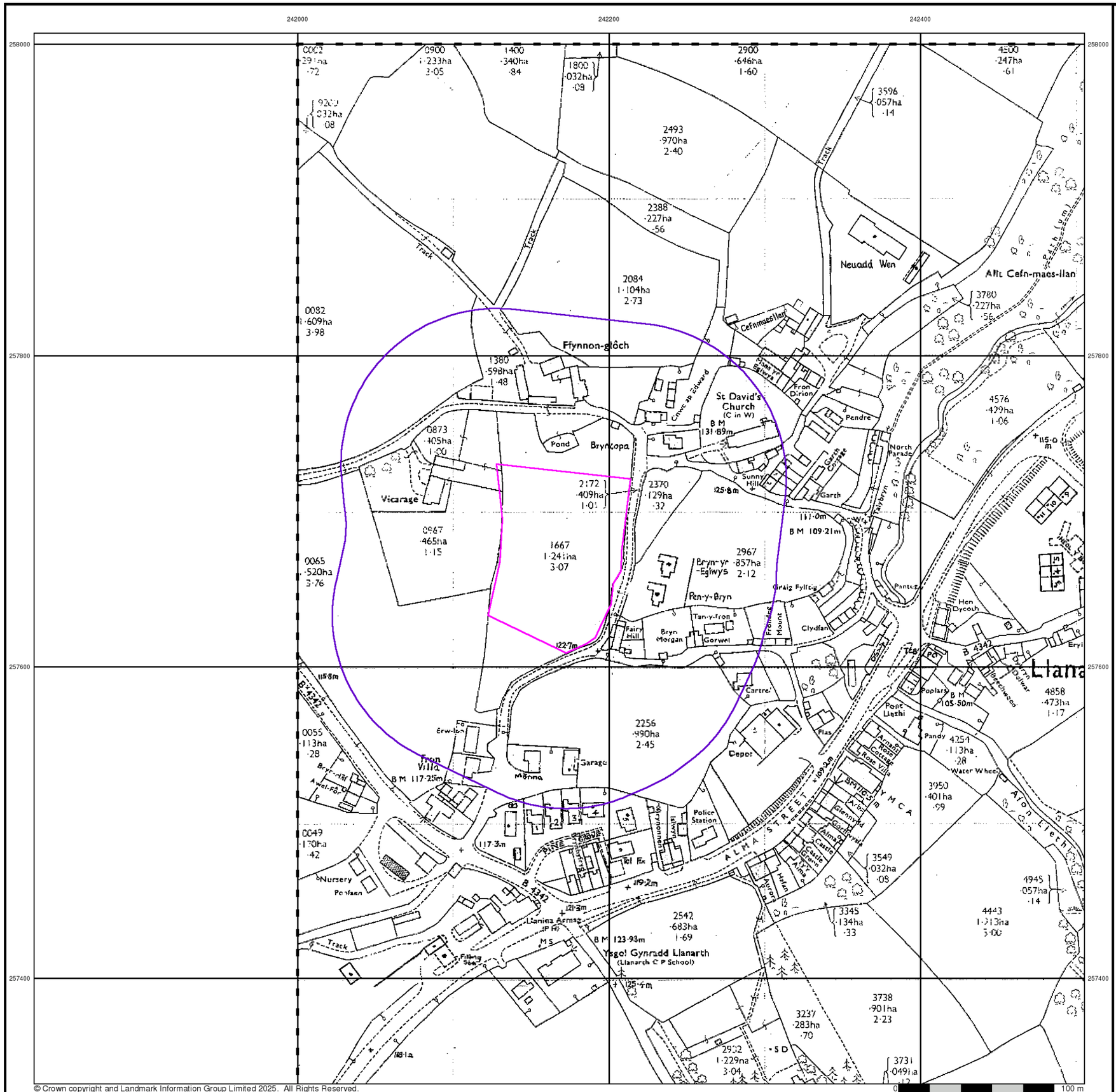
Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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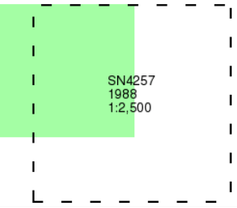
Additional SIMs

Published 1988

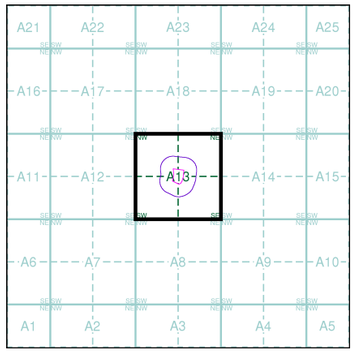
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



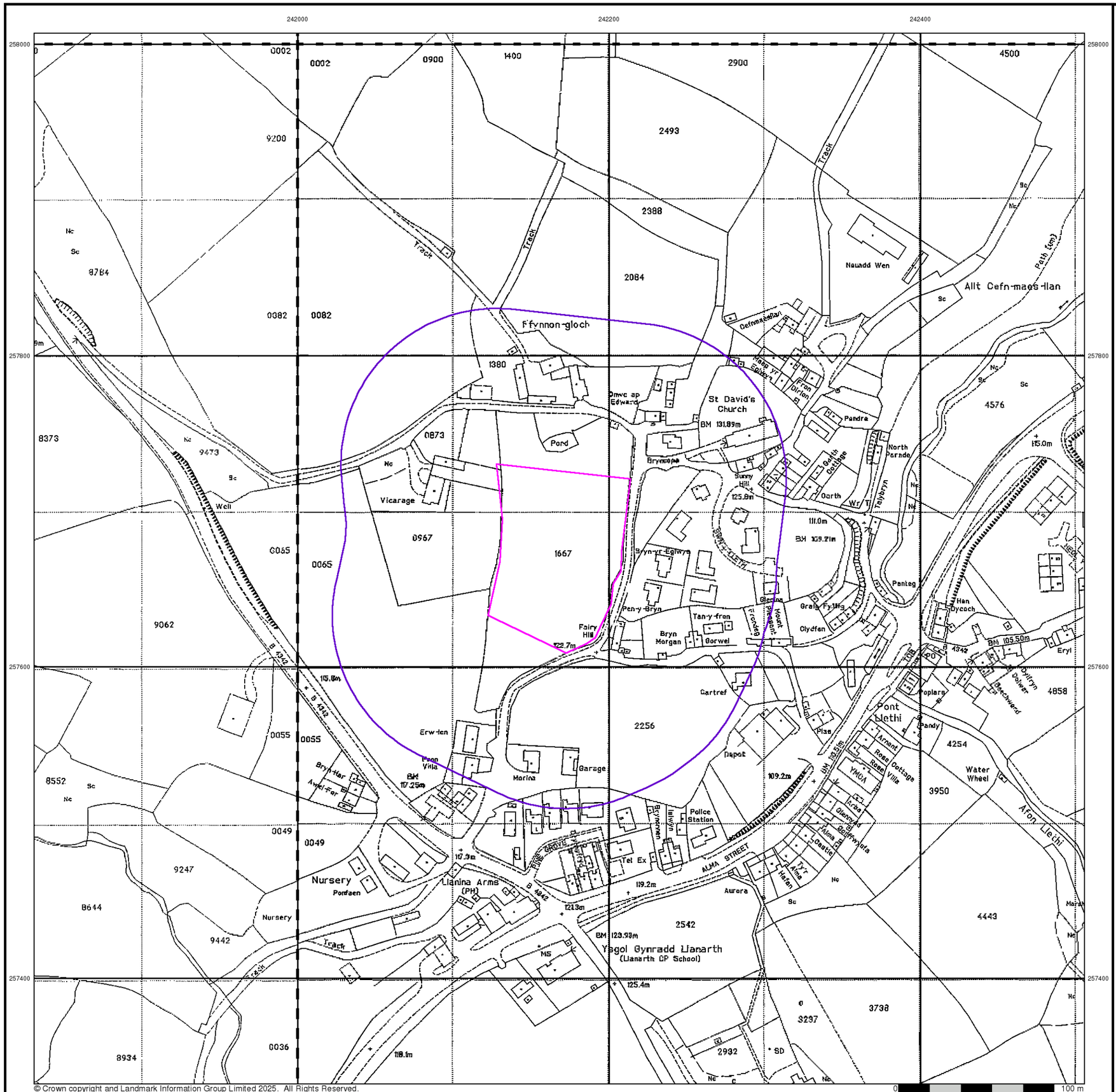
Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Large-Scale National Grid Data

Published 1995

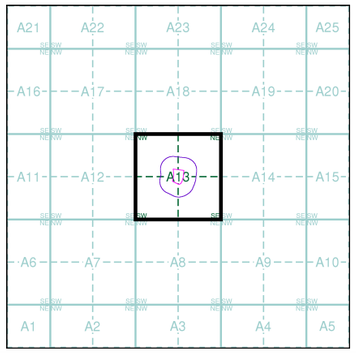
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SN4158 1995 1:2,500	SN4258 1995 1:2,500
SN4157 1995 1:2,500	SN4257 1995 1:2,500

Historical Map - Segment A13



Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

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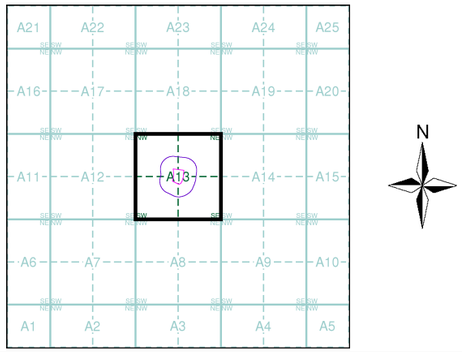
Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

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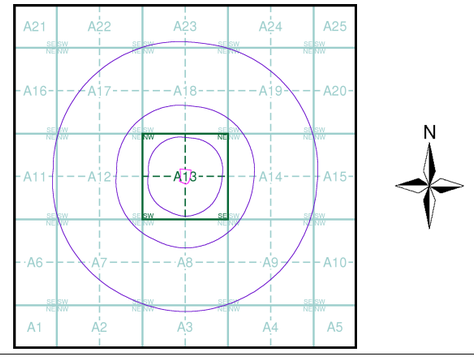
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Cardiganshire	1:10,560	1889	2
Cardiganshire	1:10,560	1906	3
Cardiganshire	1:10,560	1938 - 1953	4
Cardiganshire	1:10,560	1953	5
Ordnance Survey Plan	1:10,000	1964	6
Ordnance Survey Plan	1:10,000	1984	7
10K Raster Mapping	1:10,000	2000	8
10K Raster Mapping	1:10,000	2006	9
VectorMap Local	1:10,000	2024	10

Historical Map - Slice A



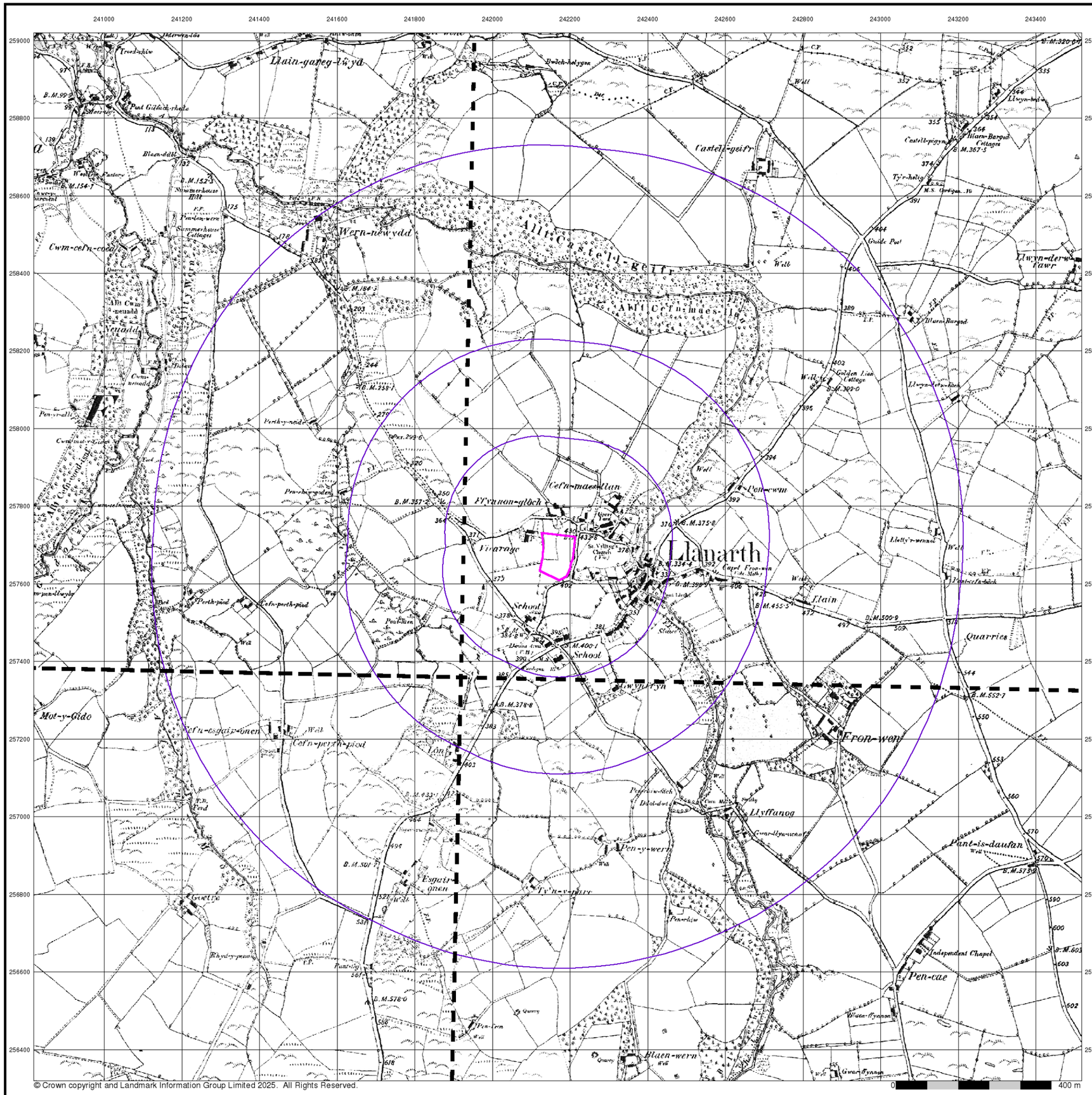
Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Cardiganshire

Published 1889

Source map scale - 1:10,560

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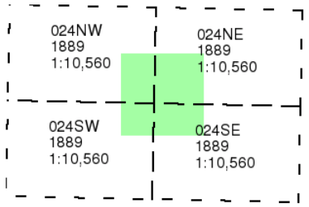
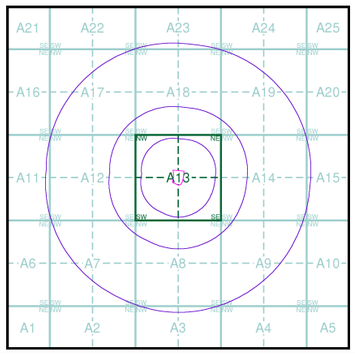
Map Name(s) and Date(s)



Historical Map - Slice A



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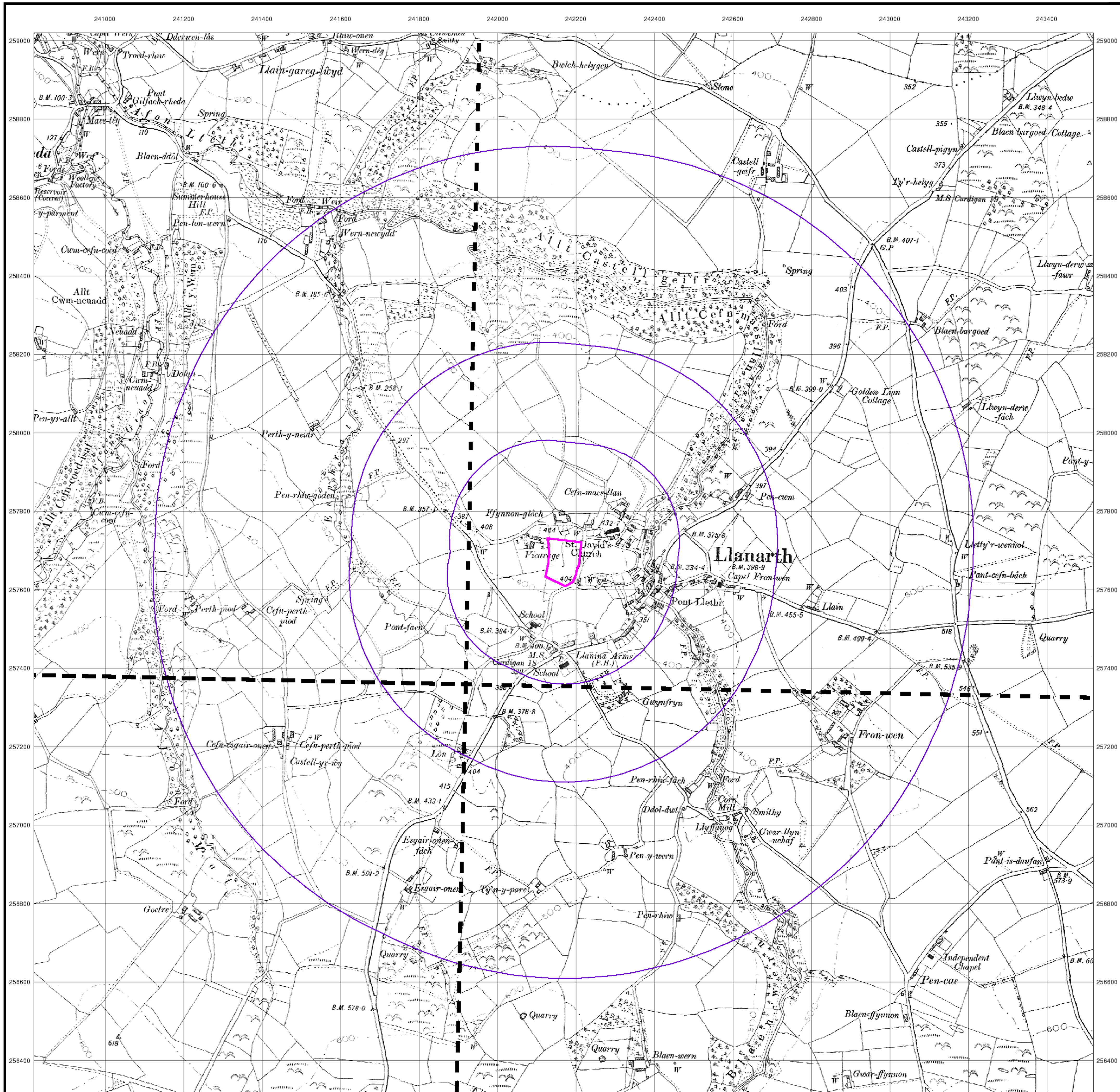

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Cardiganshire

Published 1906

Source map scale - 1:10,560

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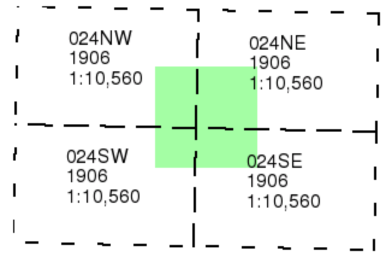
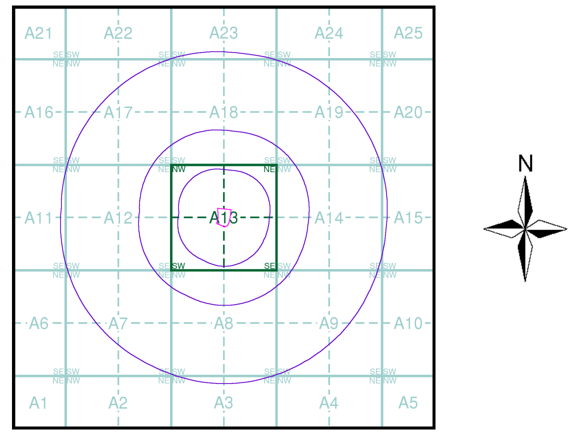
Map Name(s) and Date(s)



Historical Map - Slice A



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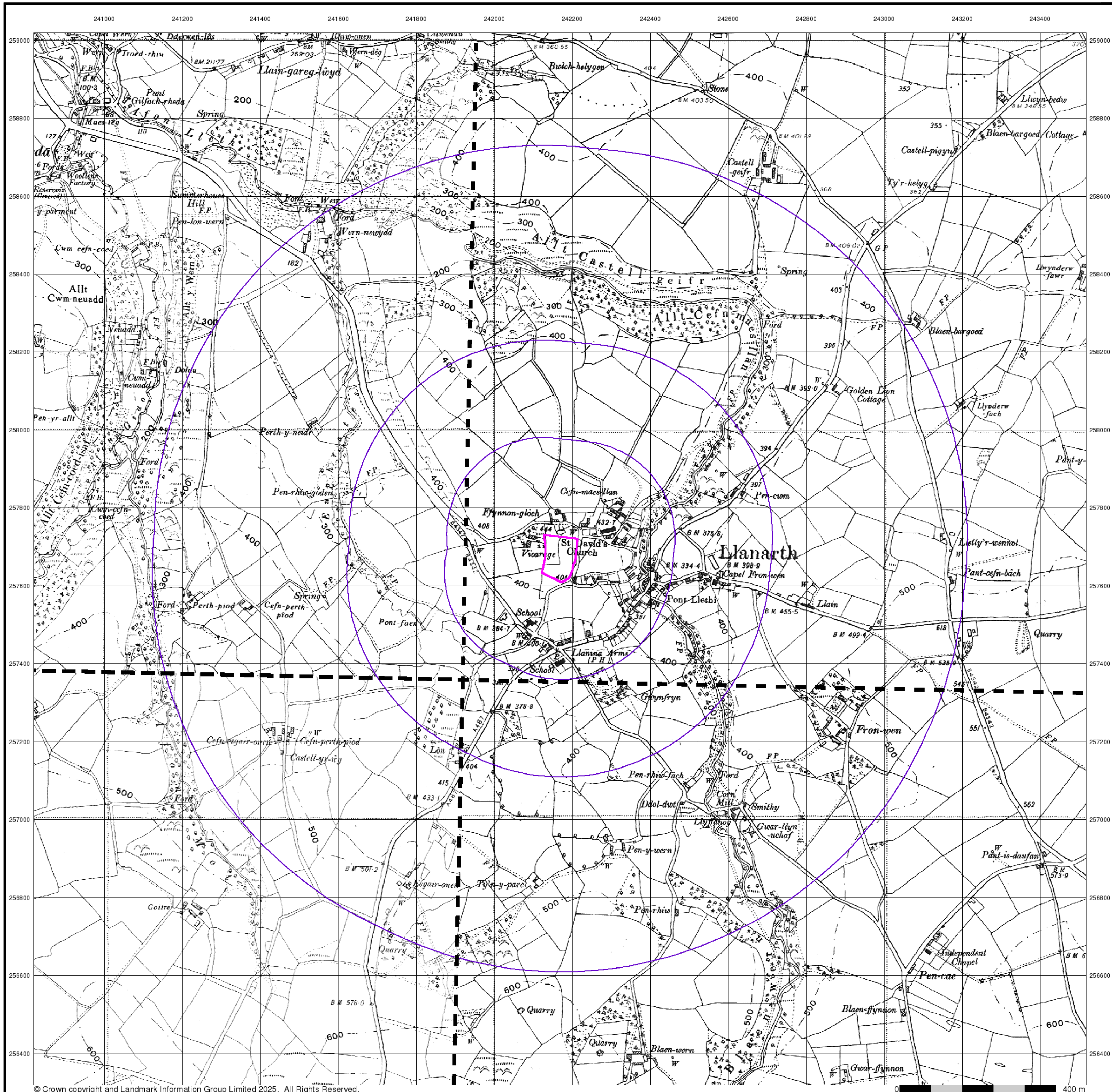

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Cardiganshire

Published 1938 - 1953

Source map scale - 1:10,560

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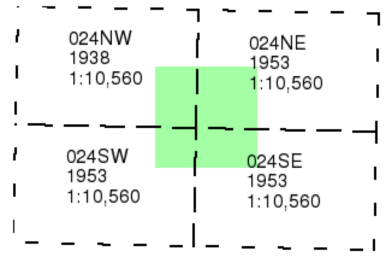
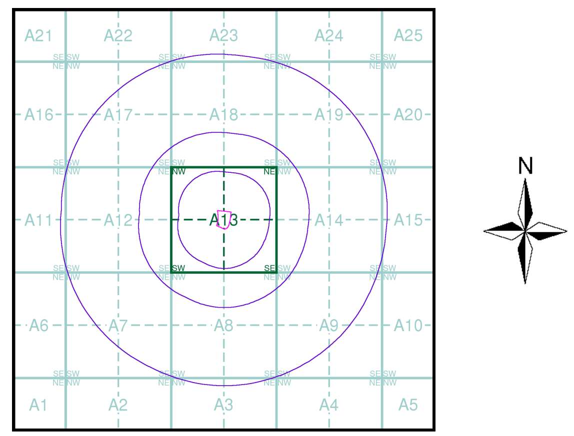


Historical Map - Slice A



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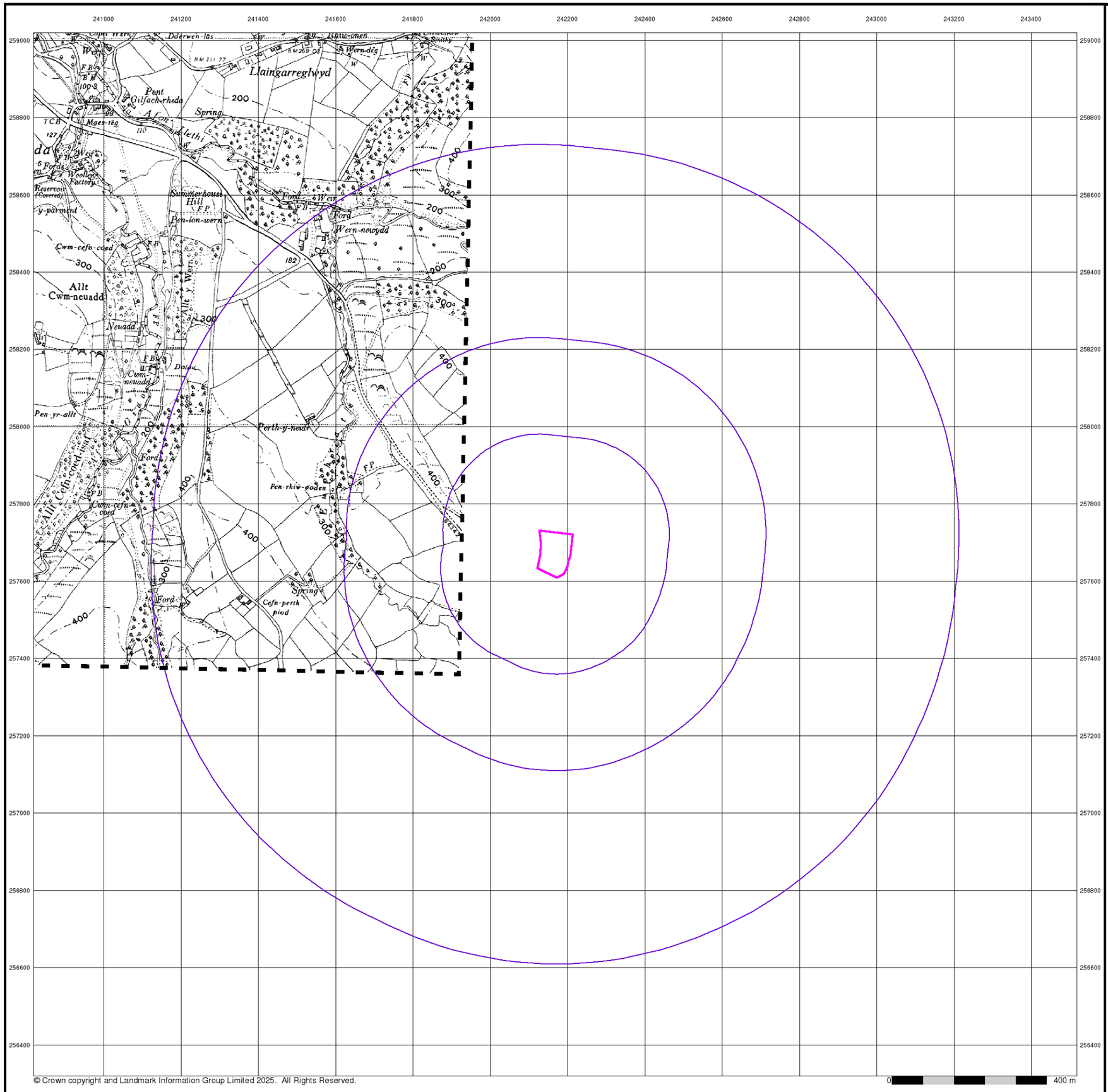

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Cardiganshire

Published 1953

Source map scale - 1:10,560

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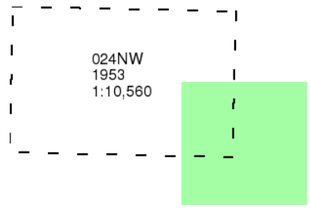
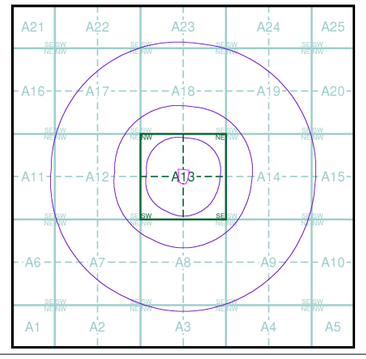
Map Name(s) and Date(s)



Historical Map - Slice A



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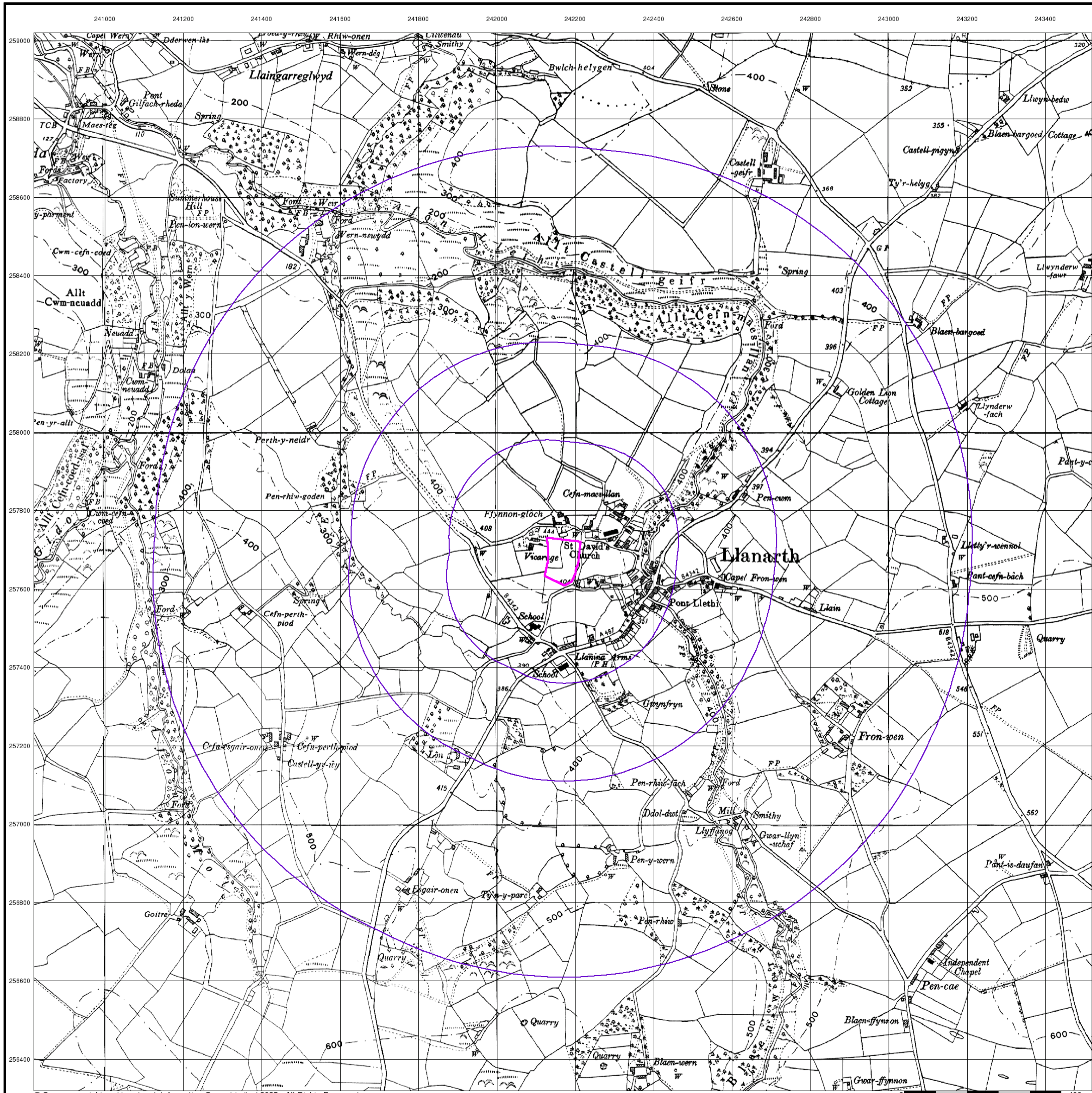

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Ordnance Survey Plan

Published 1964

Source map scale - 1:10,000

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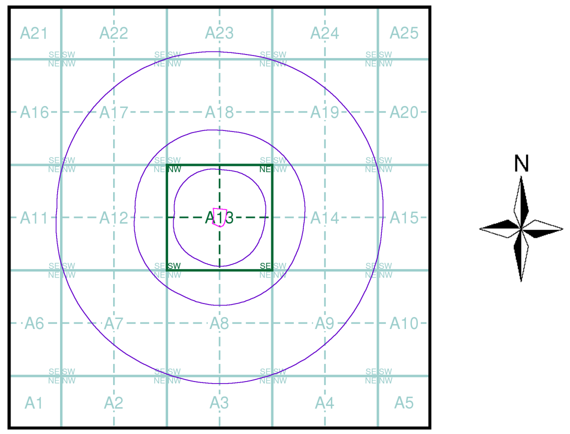
Map Name(s) and Date(s)

SN45NW
1964
1:10,560

Historical Map - Slice A



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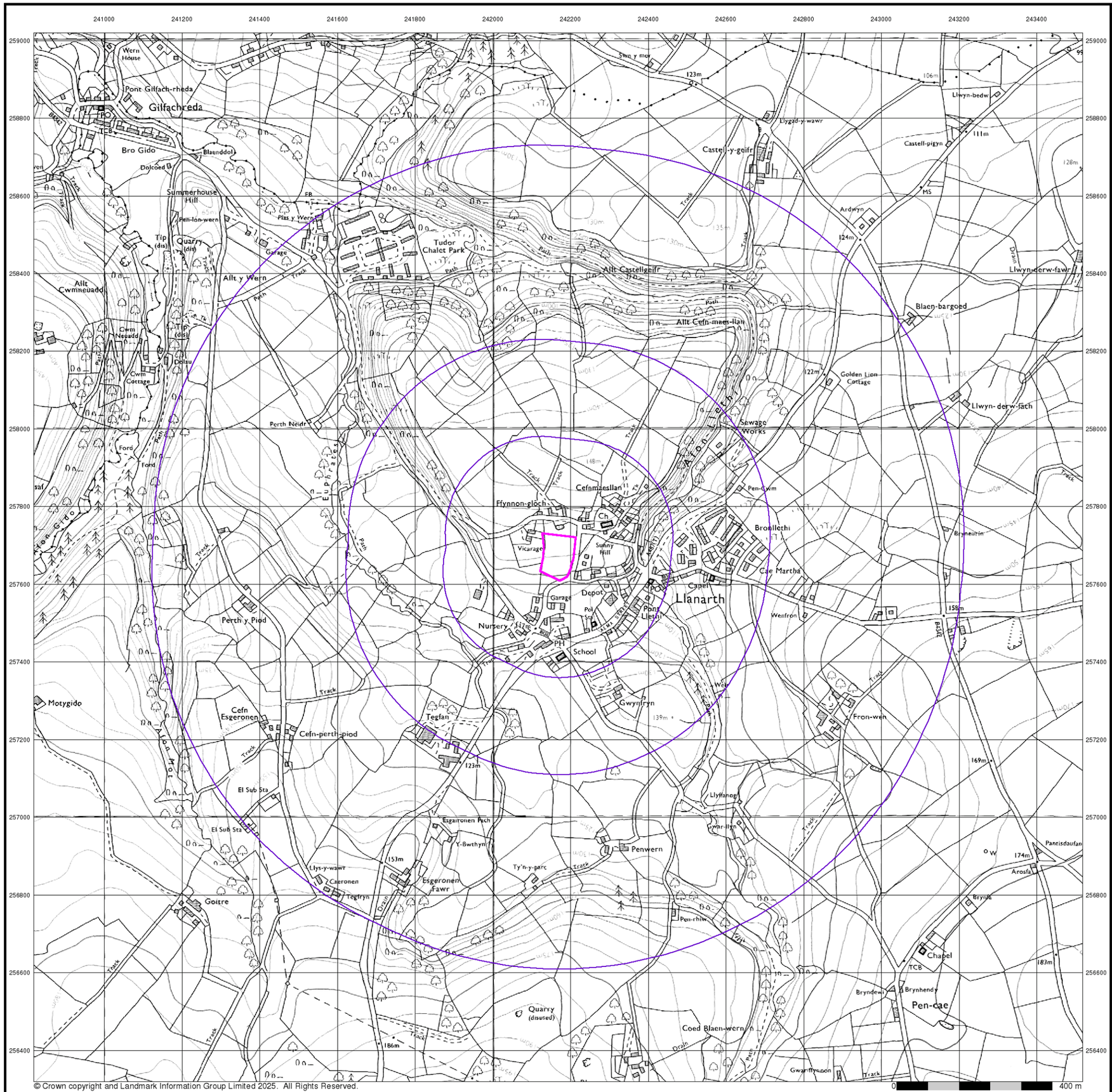

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Ordnance Survey Plan

Published 1984

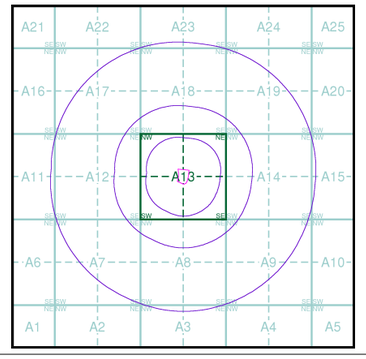
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SN45NW
1984
1:10,000

Historical Map - Slice A



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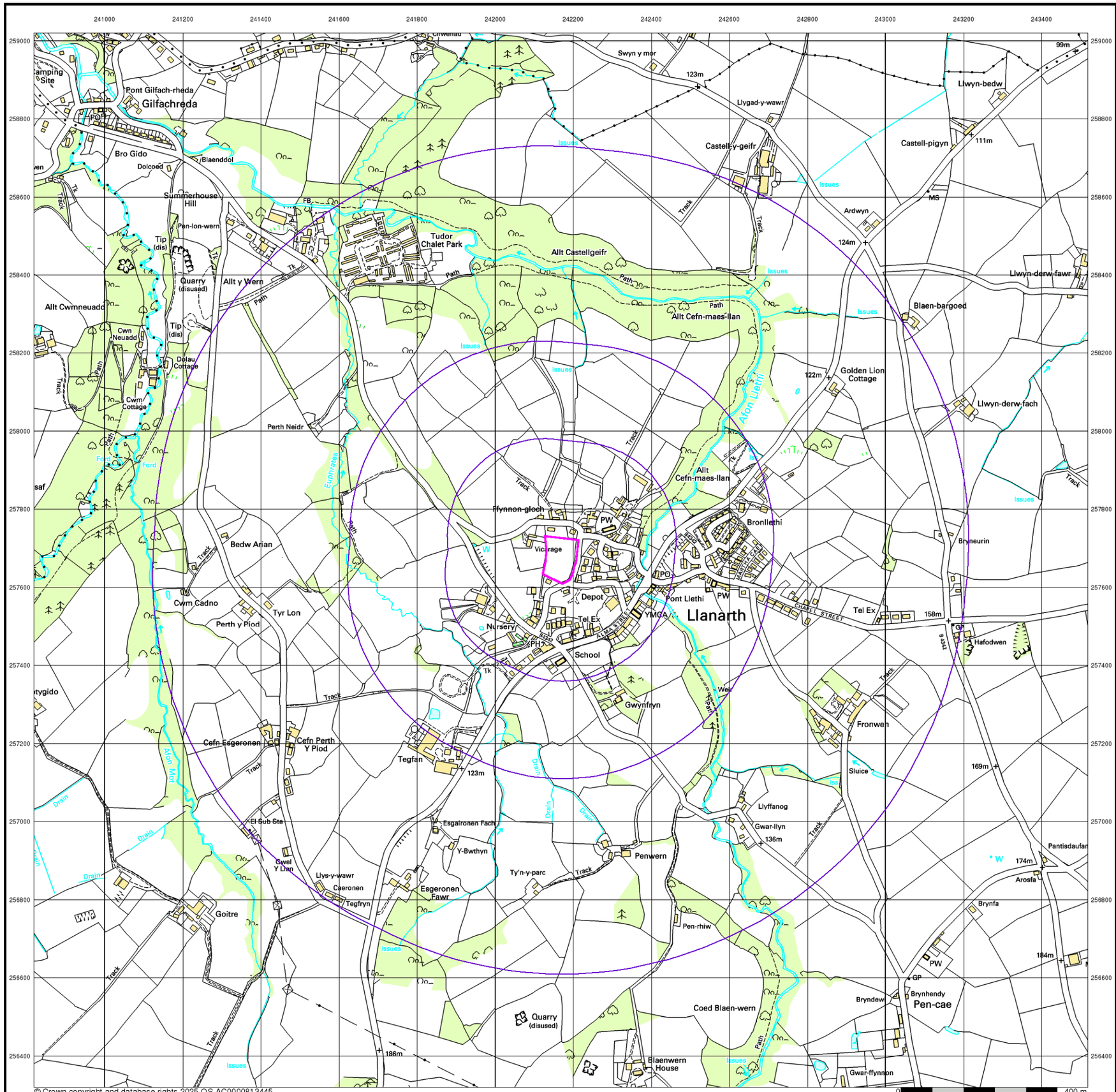
Site at 242170, 257680



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10k Raster Mapping

Published 2000

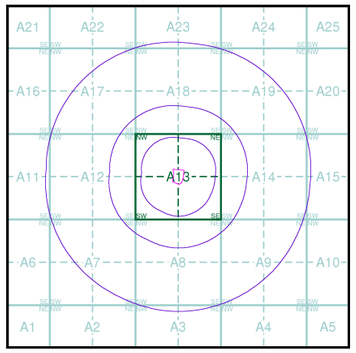
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SN45NW
2000
1:10,000

Historical Map - Slice A



Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
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Site Details

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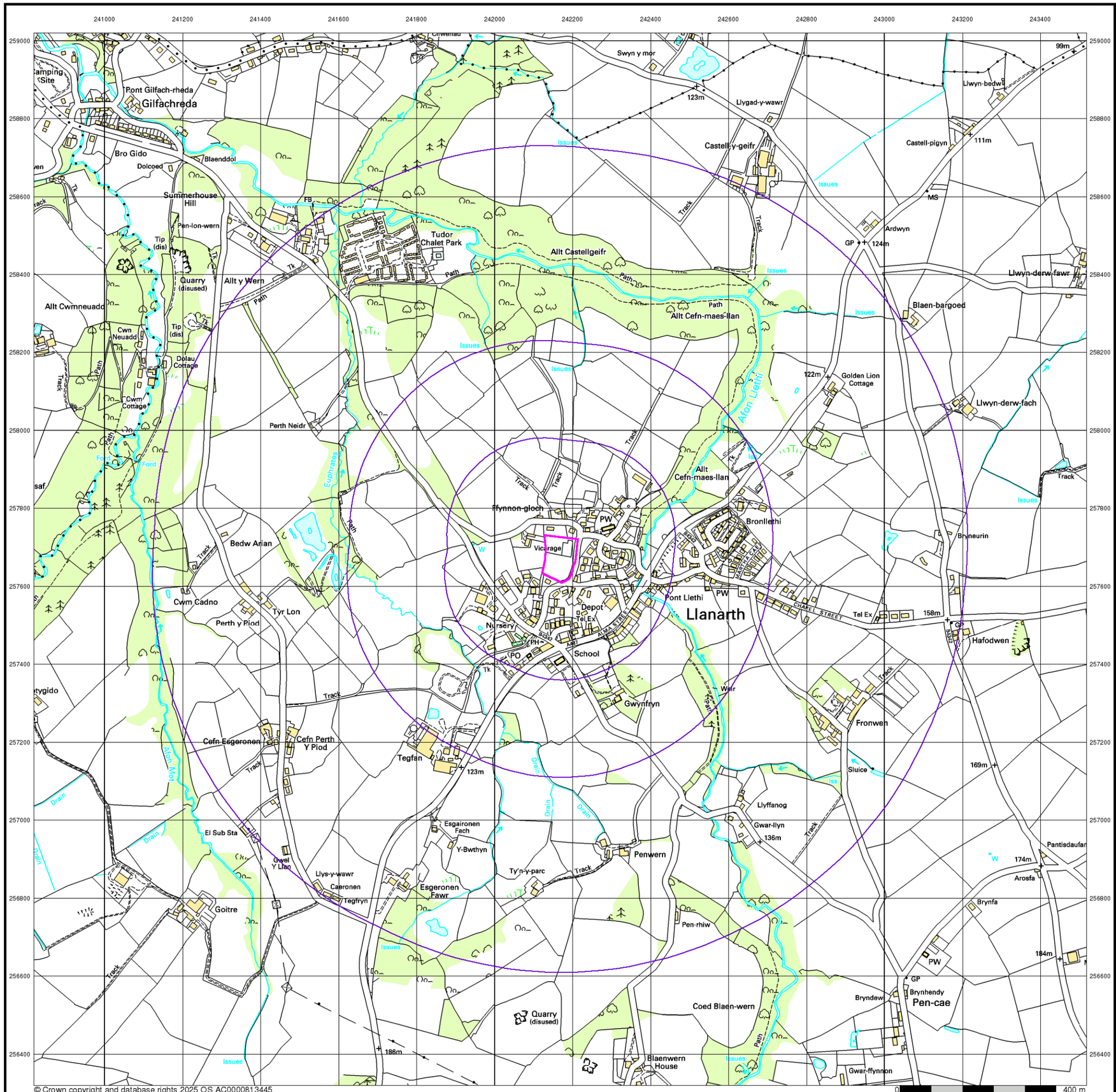

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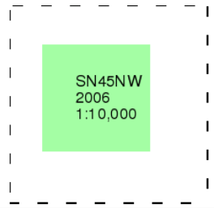
10k Raster Mapping

Published 2006

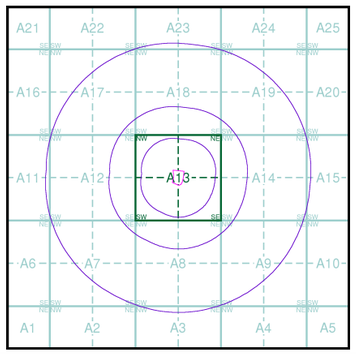
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



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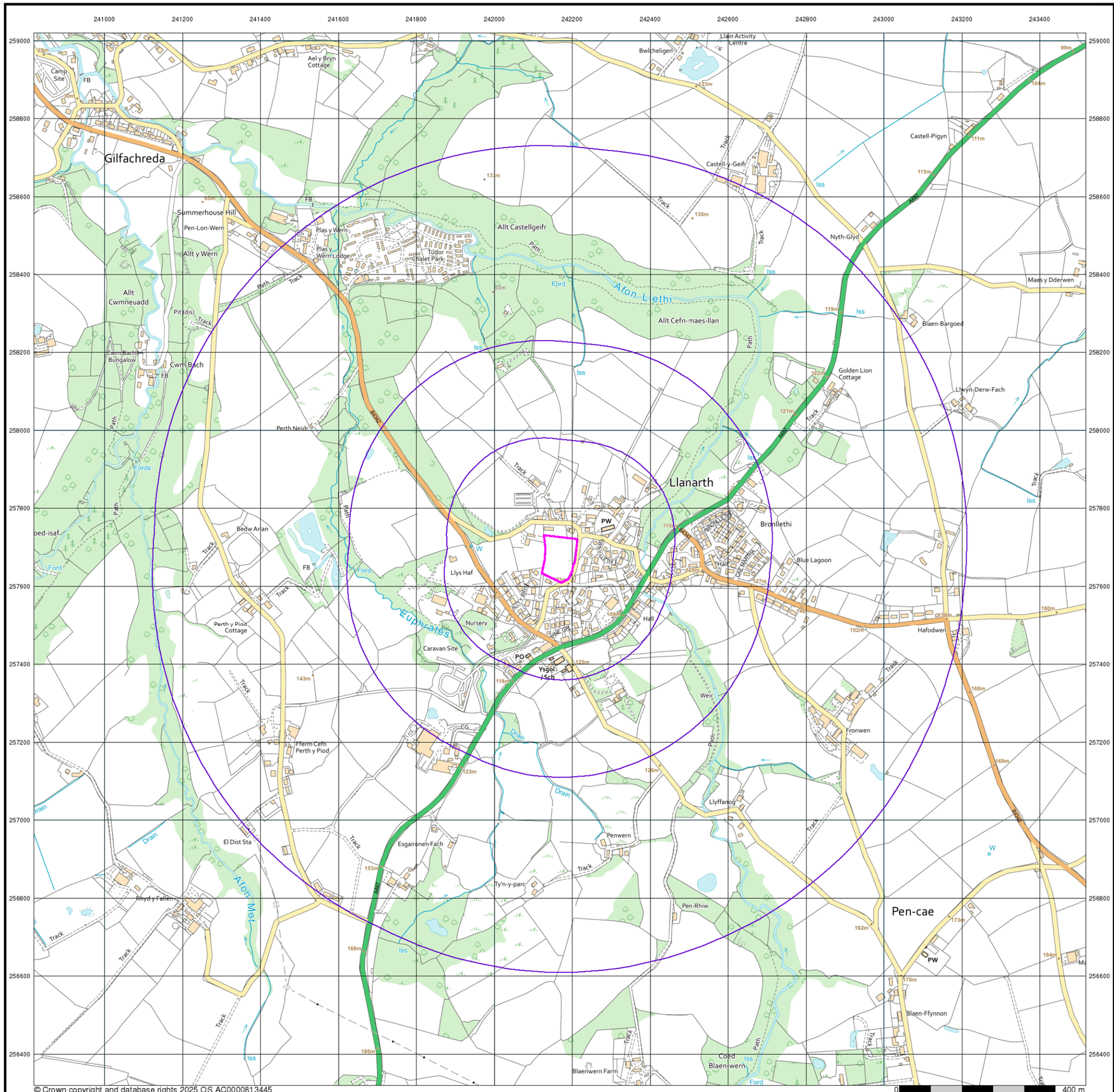

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VectorMap Local

Published 2024

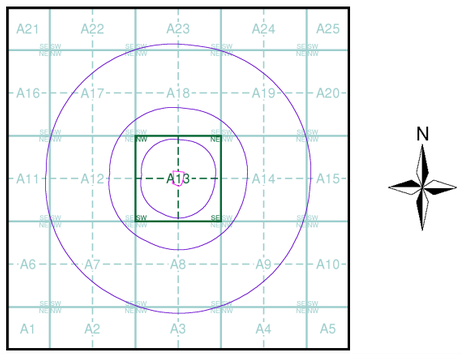
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

SN45NW
2024
Variable

Historical Map - Slice A



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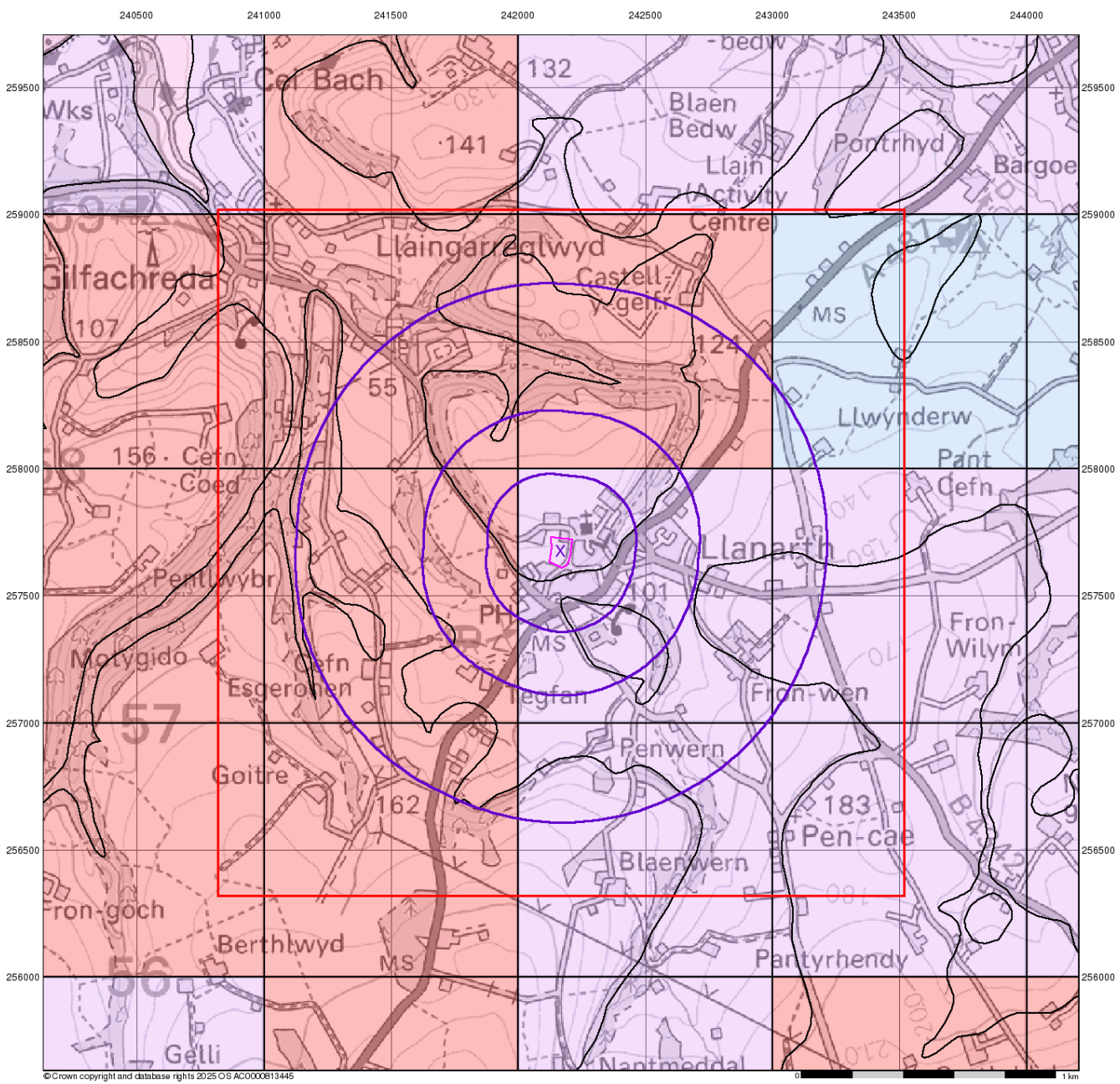

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Groundwater Vulnerability

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

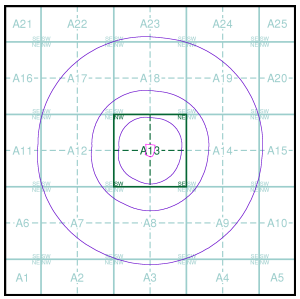
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



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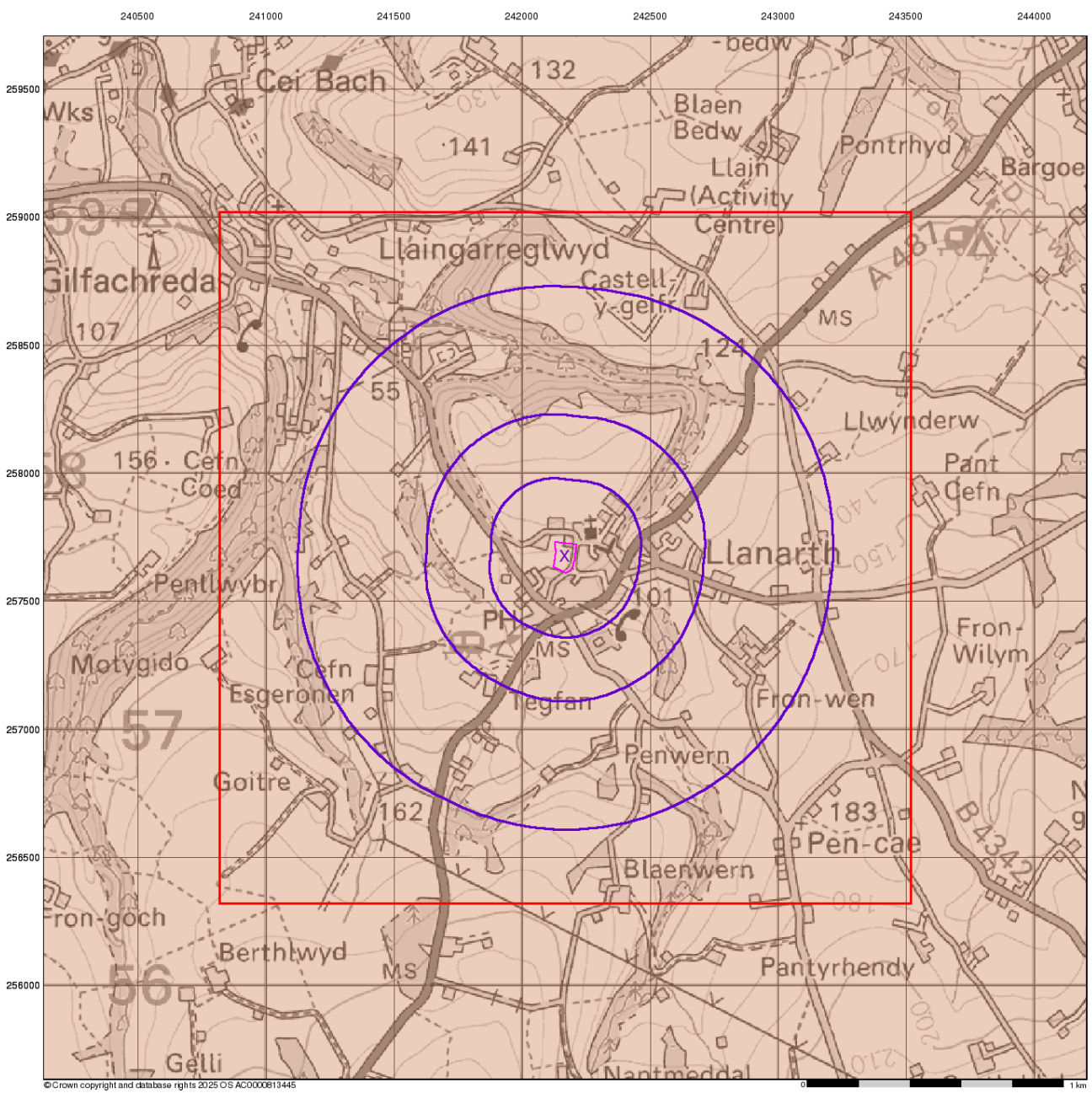

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Bedrock Aquifer Designation

General

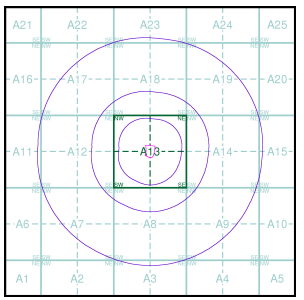
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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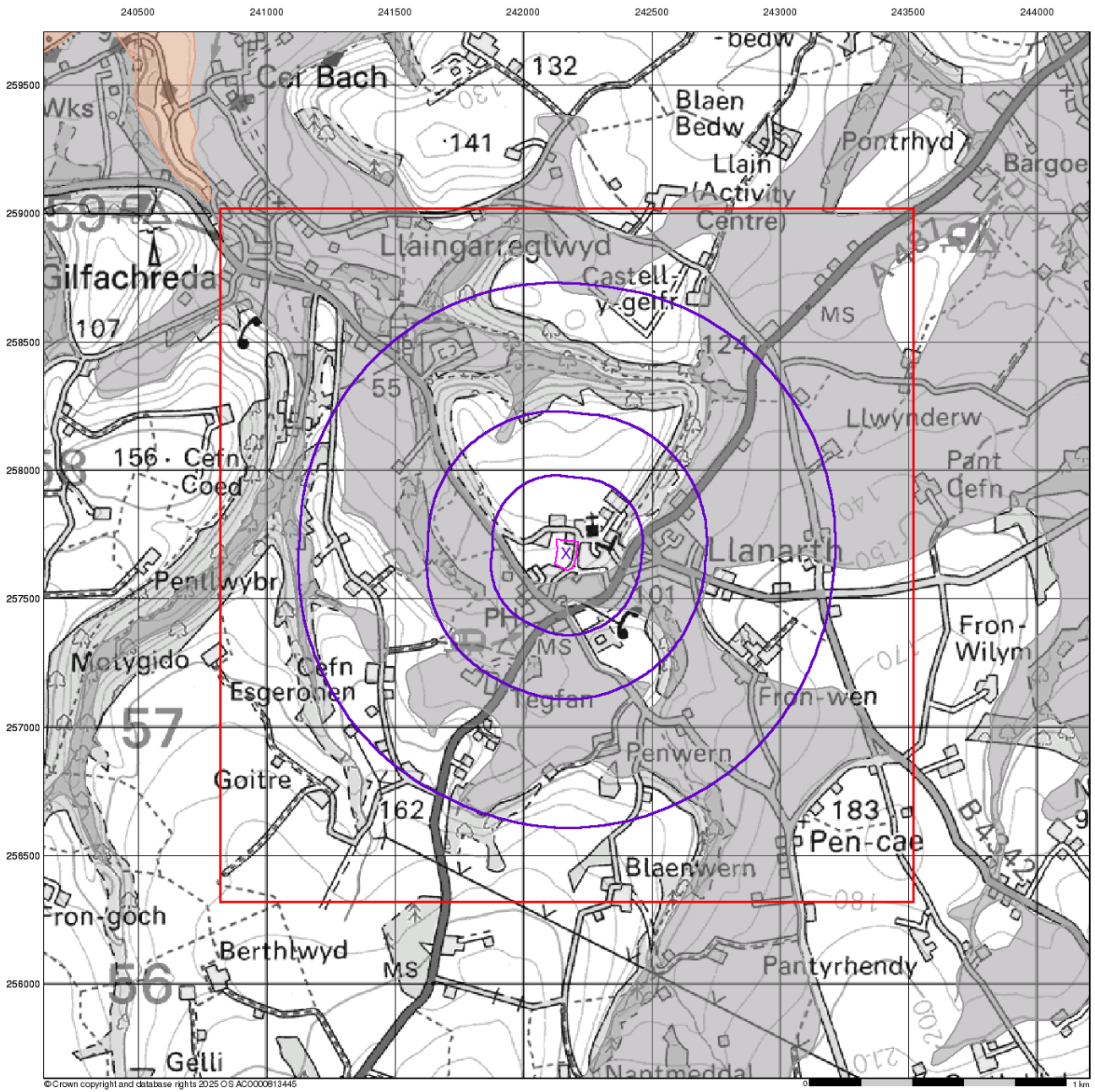

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Superficial Aquifer Designation

General

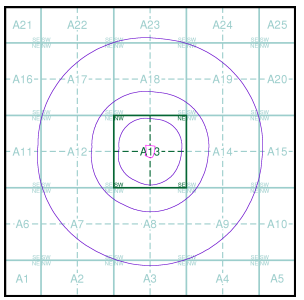
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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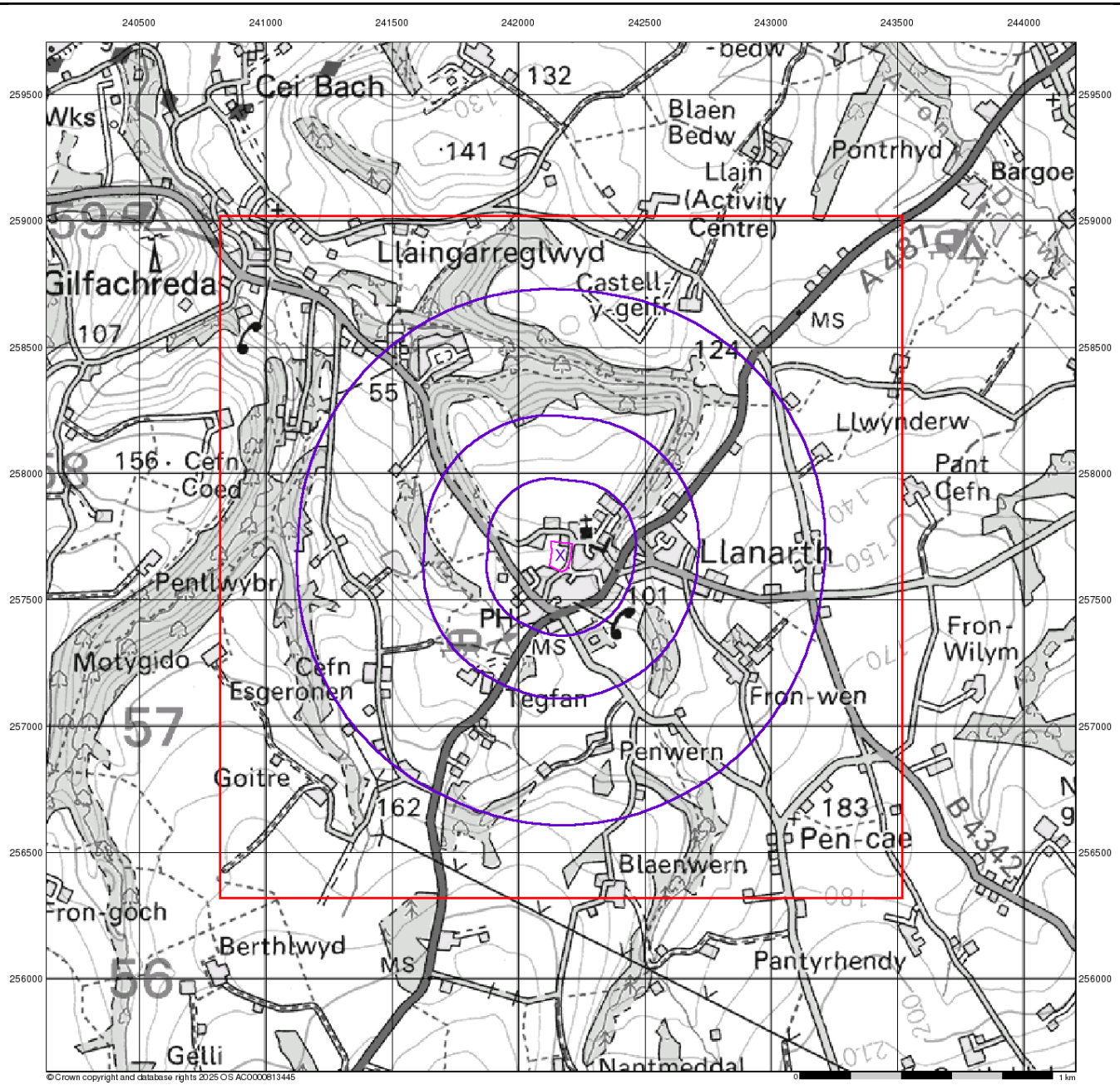

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Source Protection Zones

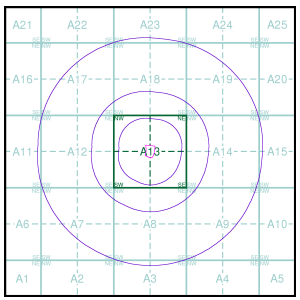
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



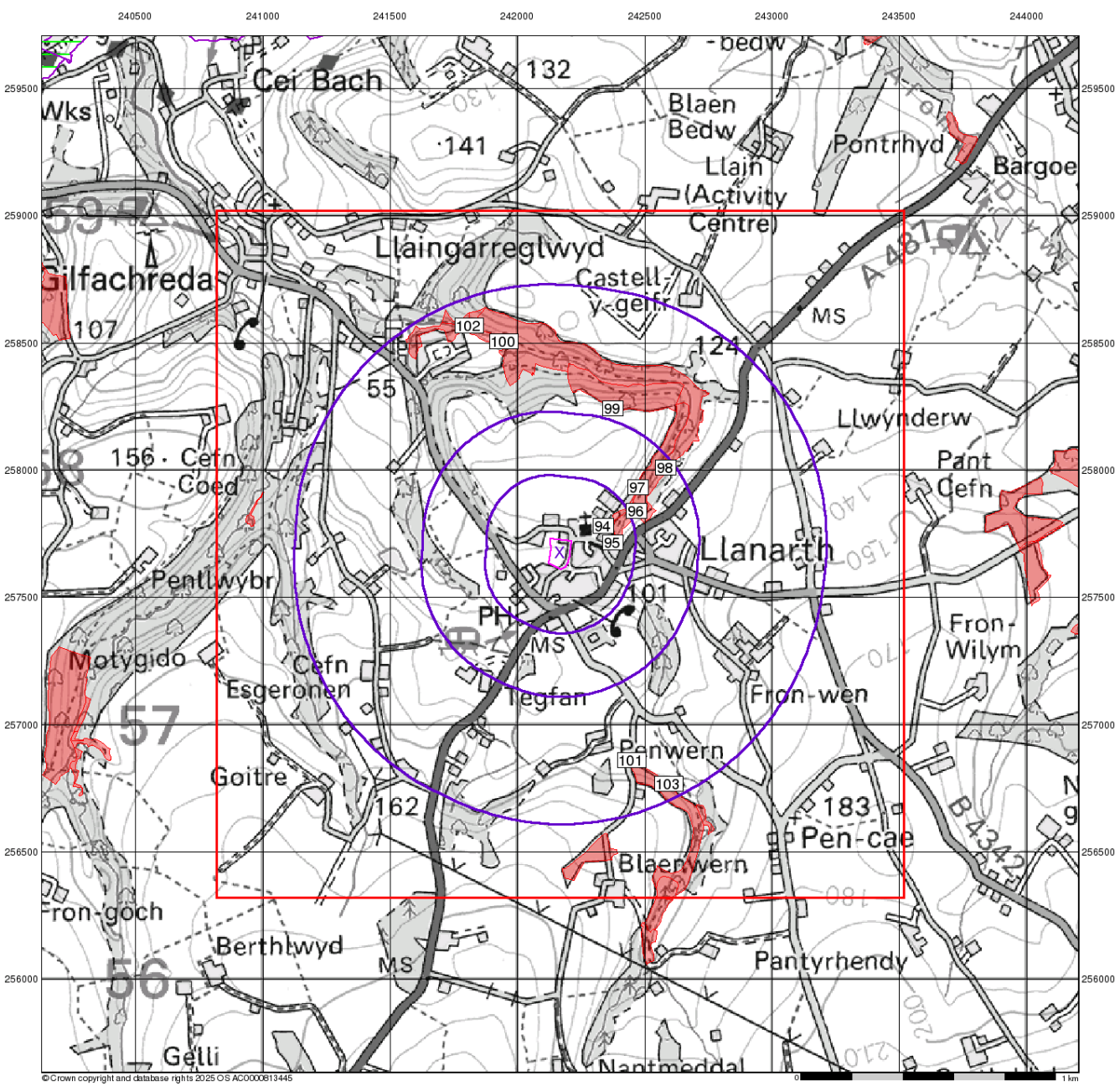
Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Sensitive Land Uses

General

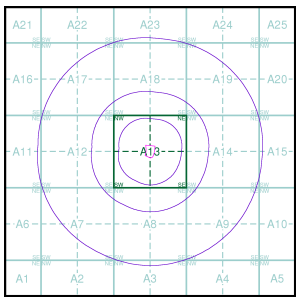
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	375077681_1_1
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National Grid Reference:	242170, 257680
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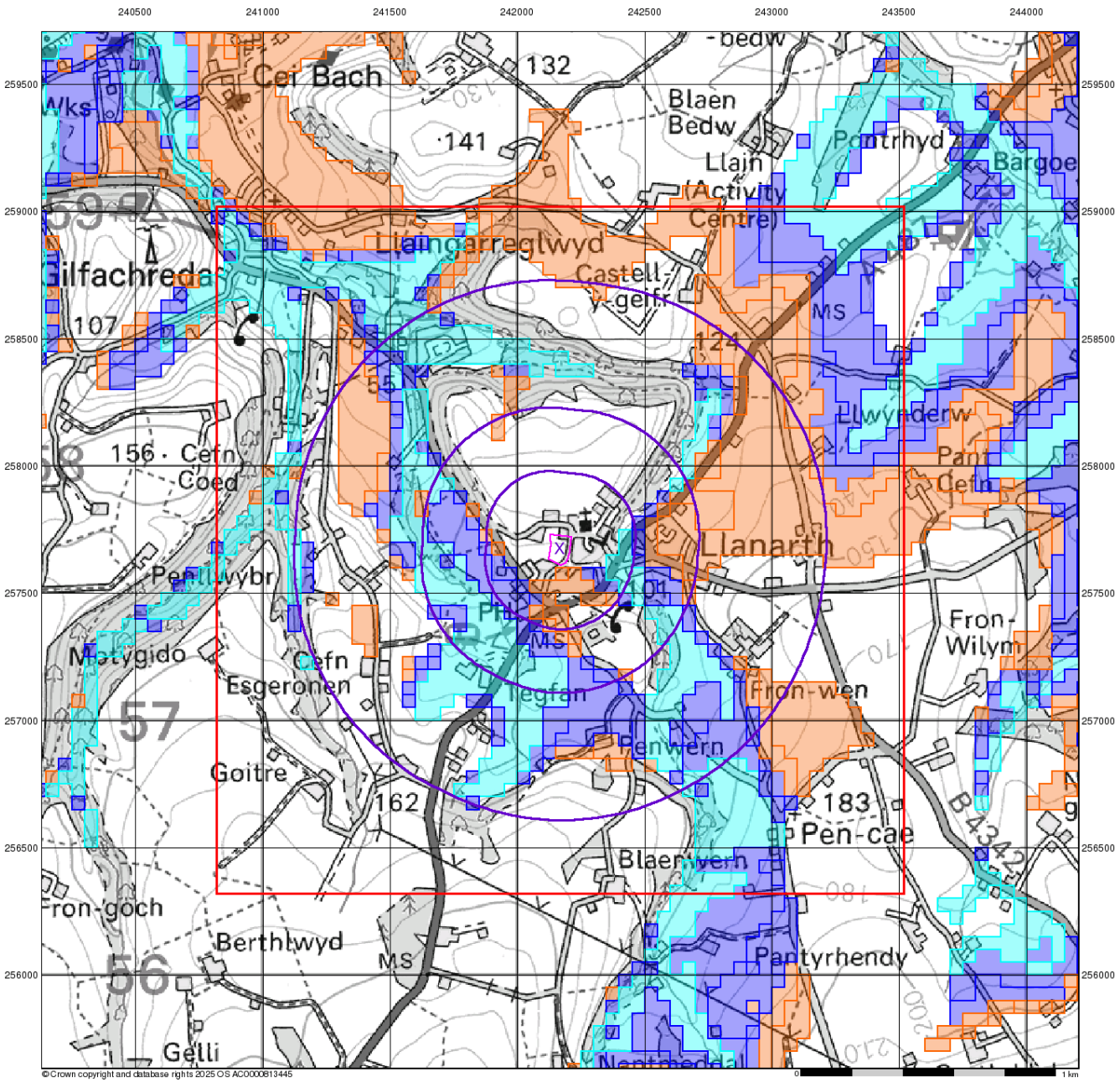

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BGS Flood GFS Data

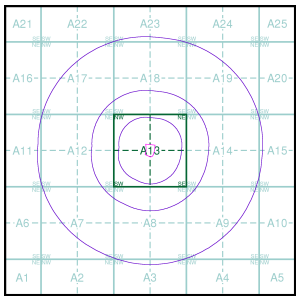
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Not Supplied - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	TILDI	Till, Devensian (Irish Sea Ice)	Diamicton	Not Supplied - Devensian
	GFDUI	Glaciofluvial Deposits (Irish Sea Ice)	Sand and Gravel	Not Supplied - Quaternary
	MBD	Marine Beach Deposits	Sand and Gravel	Not Supplied - Quaternary
	ALF	Alluvial Fan Deposits	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MYBA	Mynydd Bach Formation	Sandstone and Mudstone	Not Supplied - Llandovery
		Faults		

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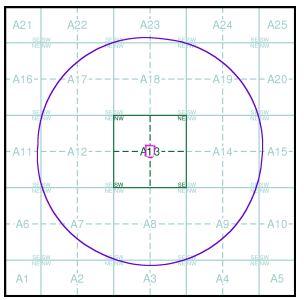
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**194**
Map Name:	**Llangranog**
Map Date:	**2006**
Bedrock Geology:	**Available**
Superficial Geology:	**Available**
Artificial Geology:	**Available**
Faults:	**Not Supplied**
Landslip:	**Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



Order Details:

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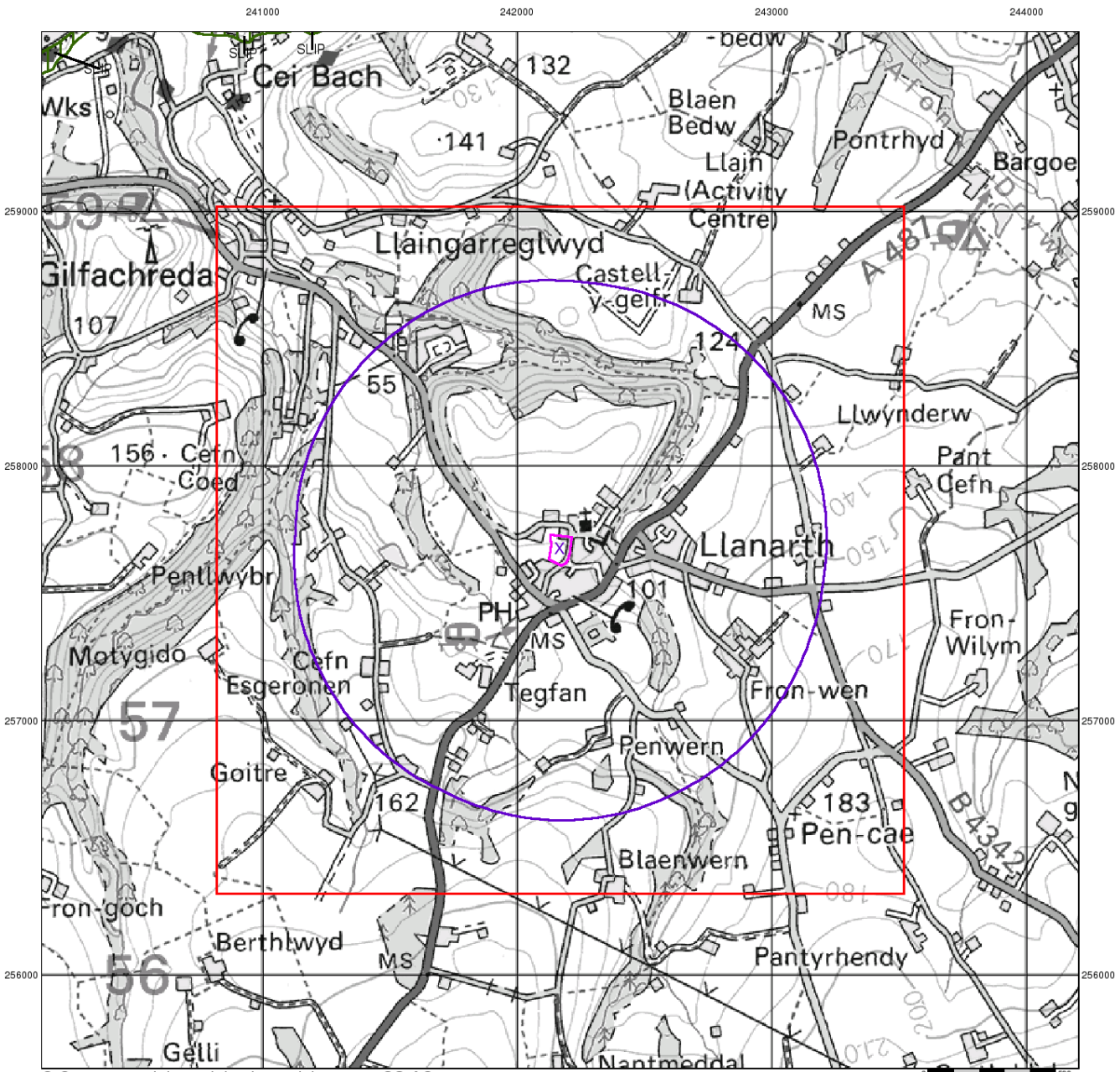
Customer Reference:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details:

Site at 242170, 257680



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Artificial Ground and Landslip

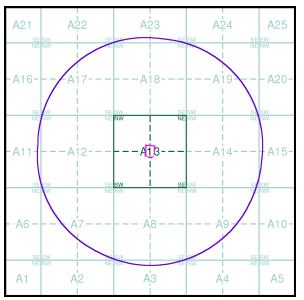
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

Order Number:	375077681_1_1
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National Grid Reference:	242170, 257680
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Site Area (Ha):	0.84
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Site Details:

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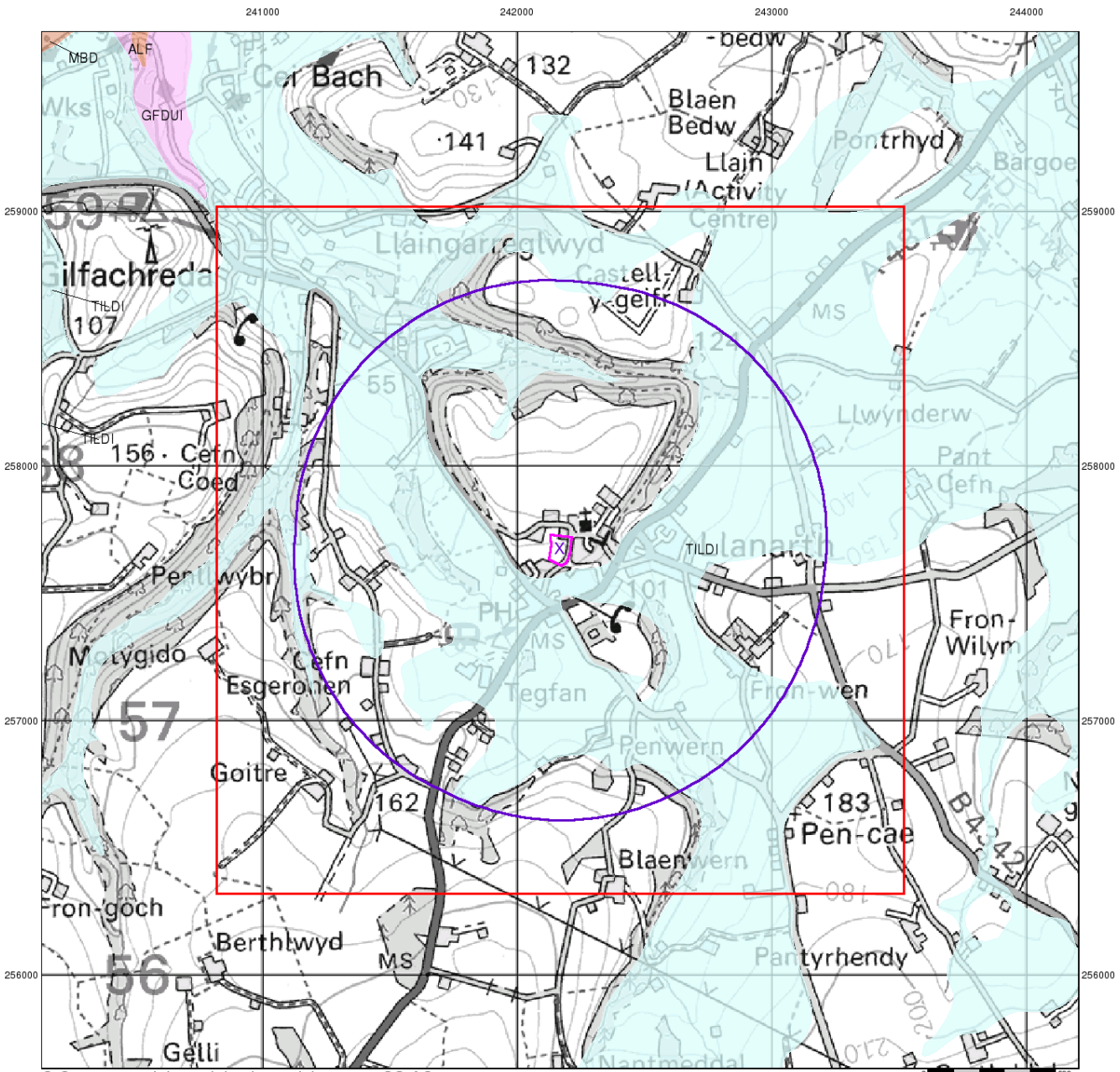

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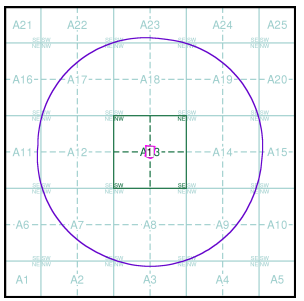
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

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Customer Reference:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details:

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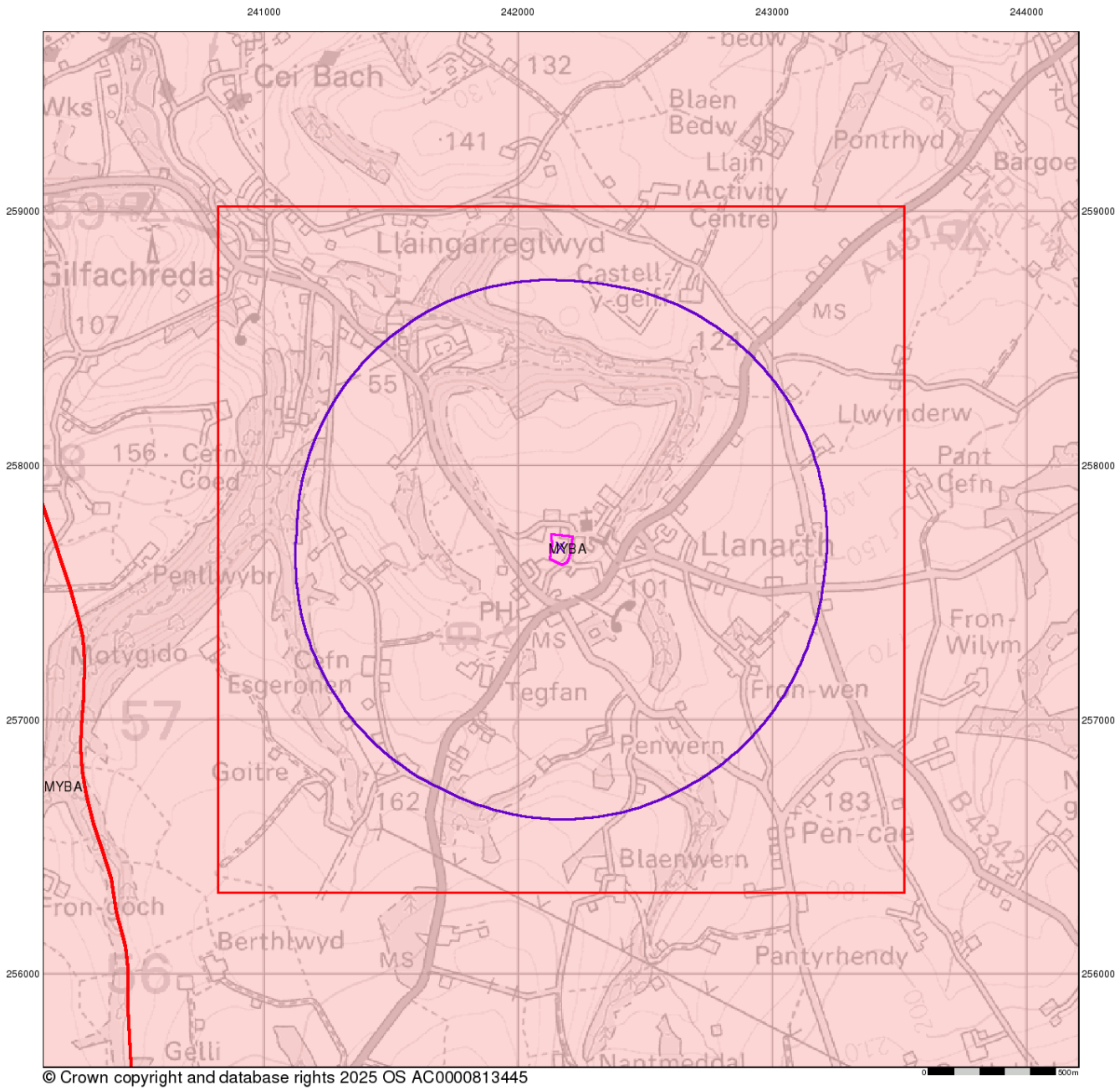
Web: www.envirocheck.co.uk



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Bedrock and Faults

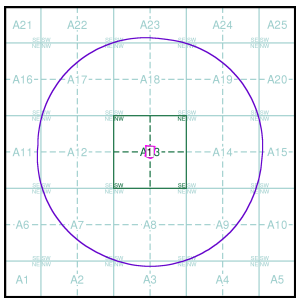
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

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National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details:

Site at 242170, 257680

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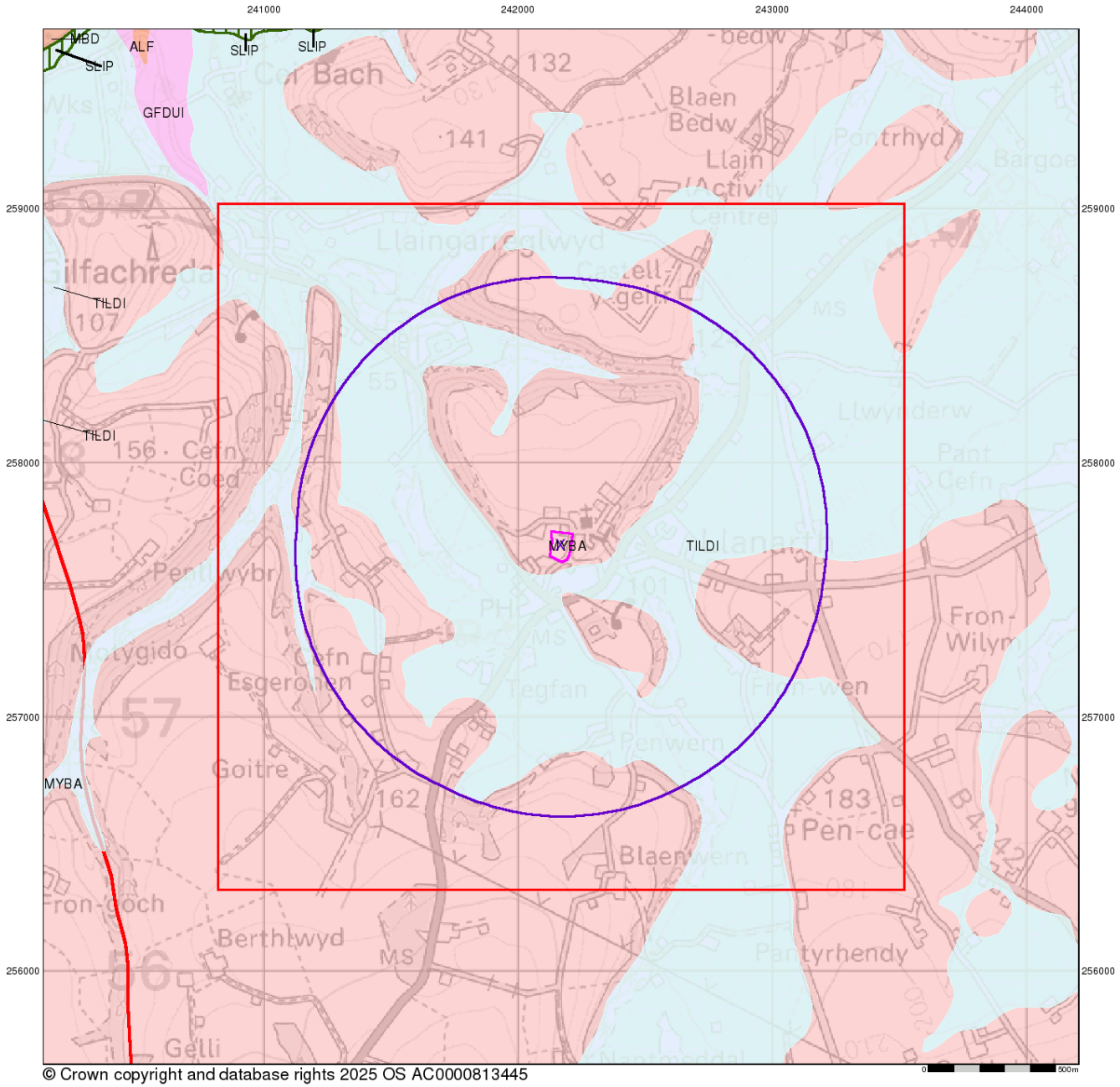

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

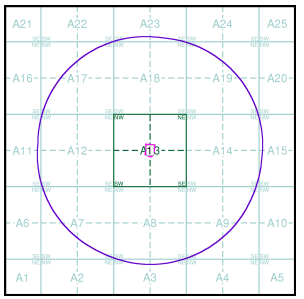
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A

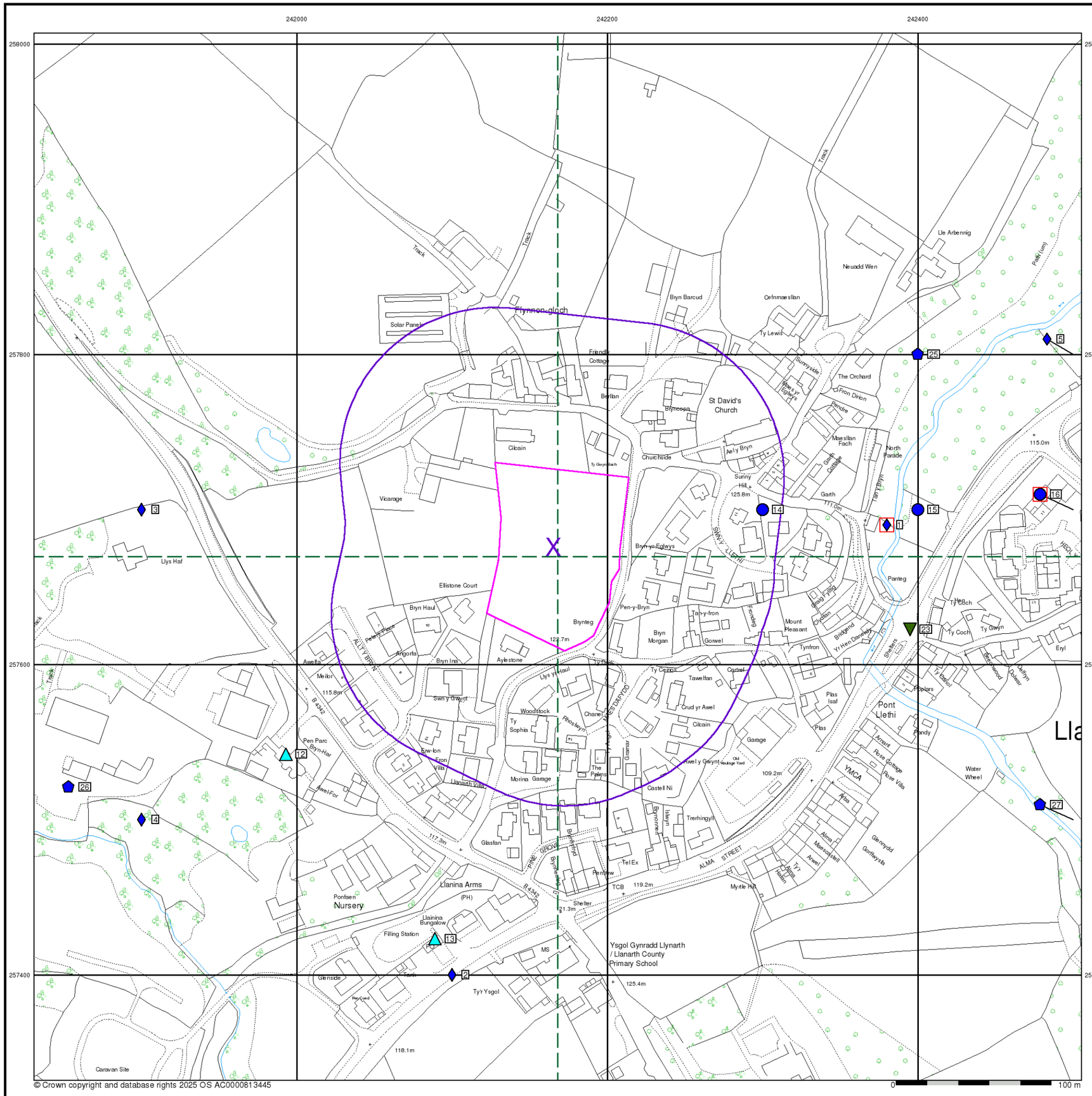


Order Details:

Order Number:	375077681_1_1
Customer Reference:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details:

Site at 242170, 257680



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Geotechnical & Geoenvironmental Specialists

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Historical Prosecutions
- Prosecutions
- Registered Radioactive Substance
- River Network or Water Feature
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

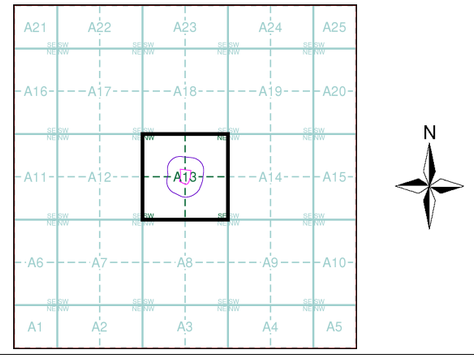
Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Recorded Mineral Site

Site Sensitivity Map - Segment A13



Order Details

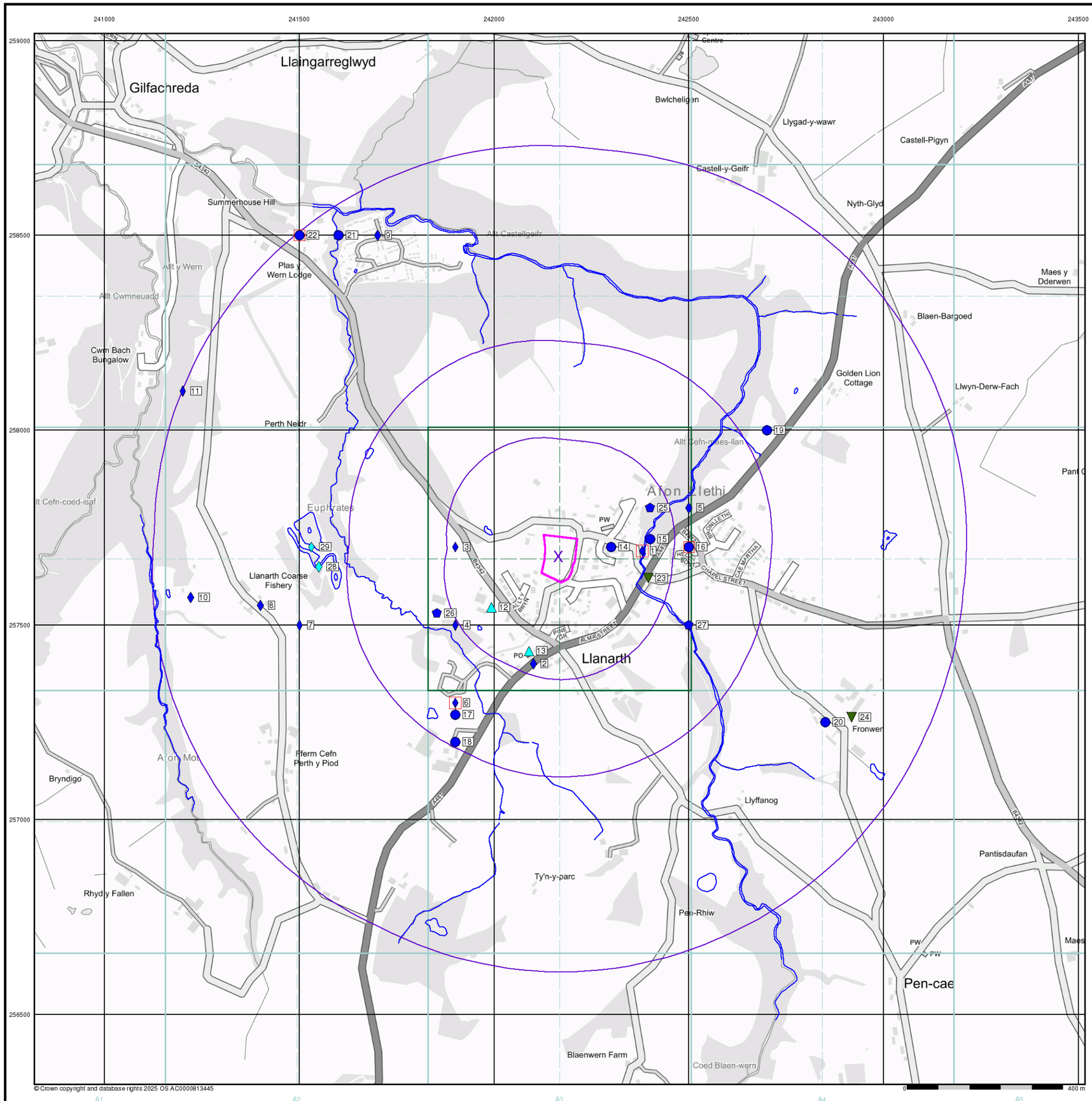
Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Plot Buffer (m):	100

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Historical Prosecutions
- Prosecutions
- Registered Radioactive Substance
- River Network or Water Feature
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
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- EA Historic Landfill (Buffered Point)
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- Licensed Waste Management Facility (Landfill Boundary)
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- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

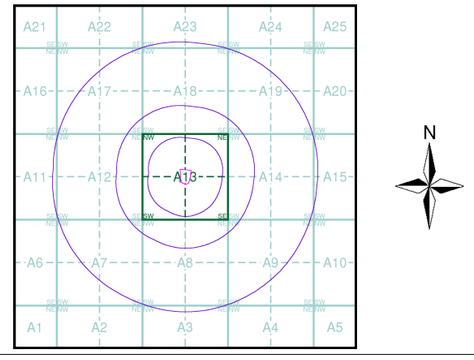
Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Recorded Mineral Site

Site Sensitivity Map - Slice A



Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Site at 242170, 257680

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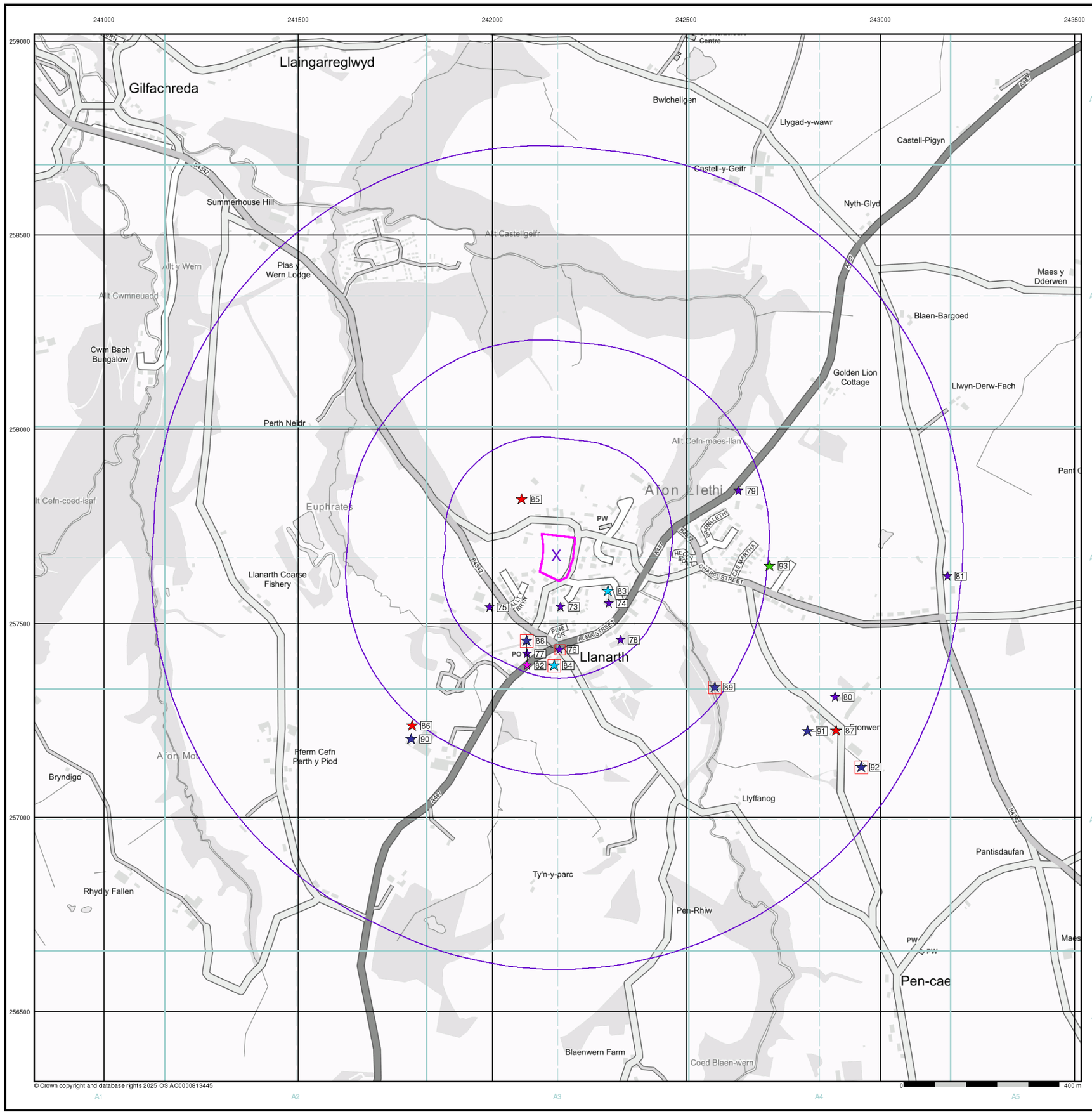

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Industrial Land Use Map

General

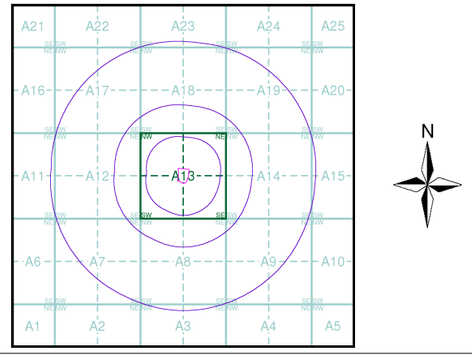
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



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Site Area (Ha):	0.84
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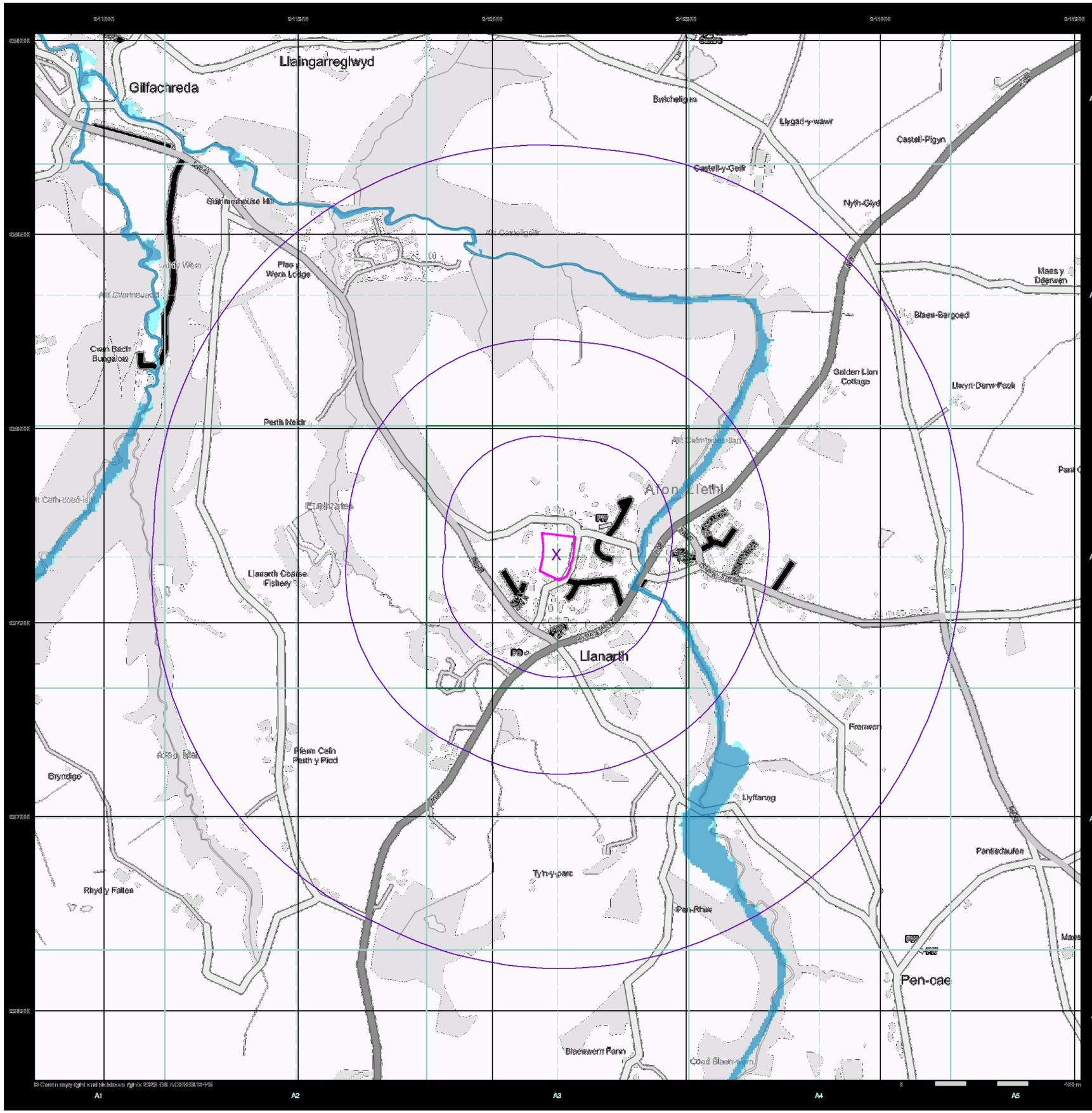

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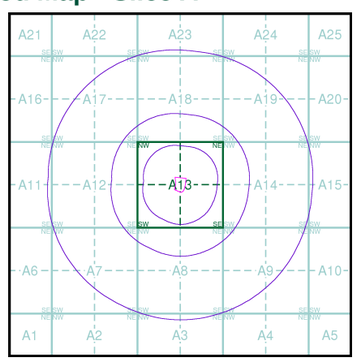
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



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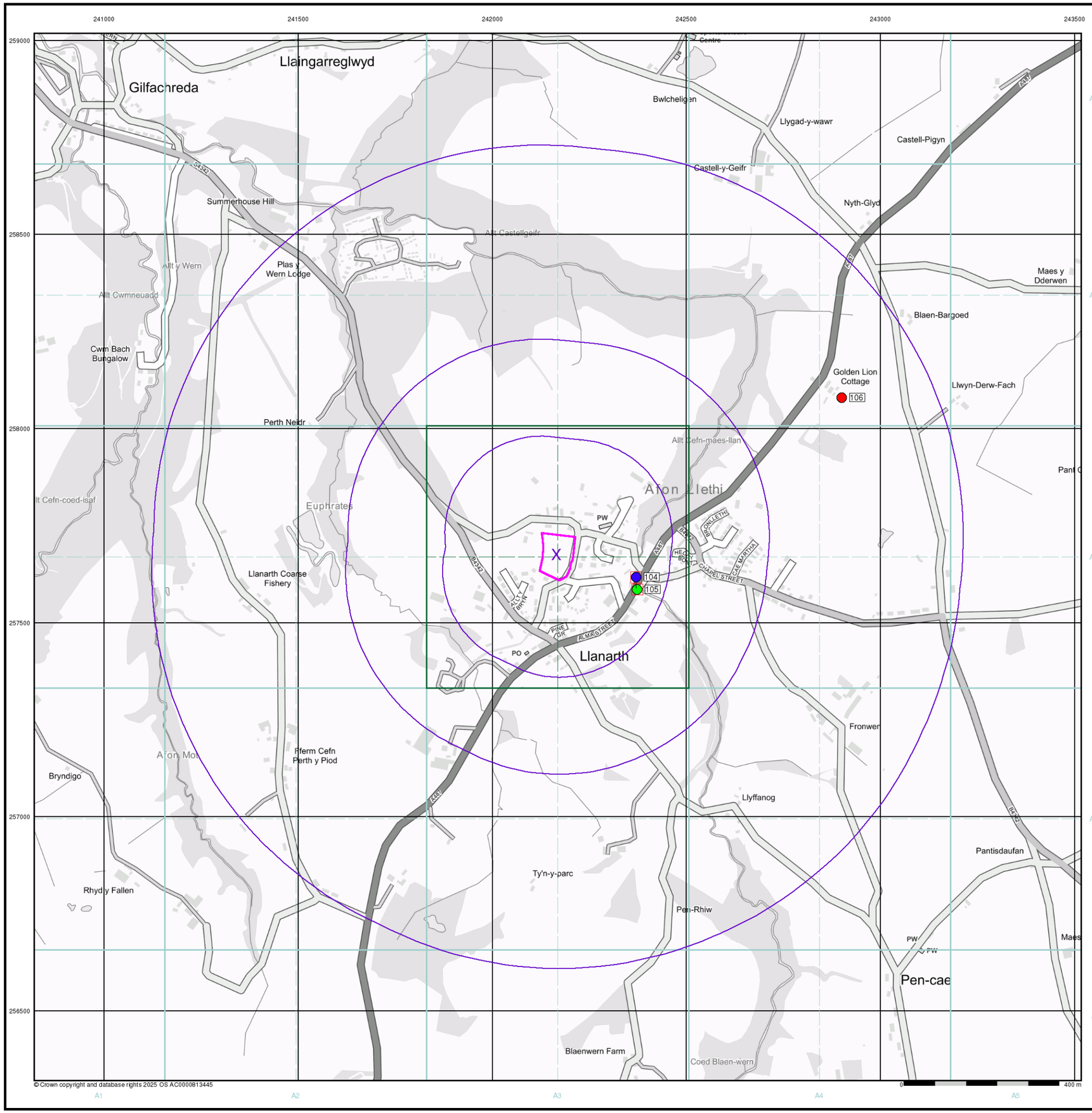
Site at 242170, 257680



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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

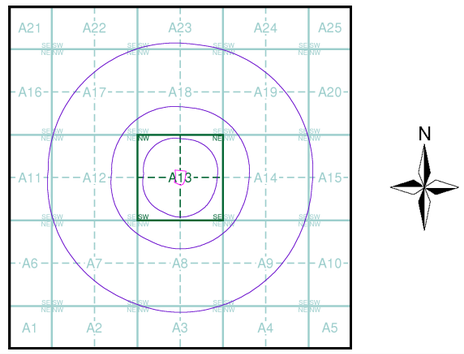
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



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Slice:	A
Site Area (Ha):	0.84
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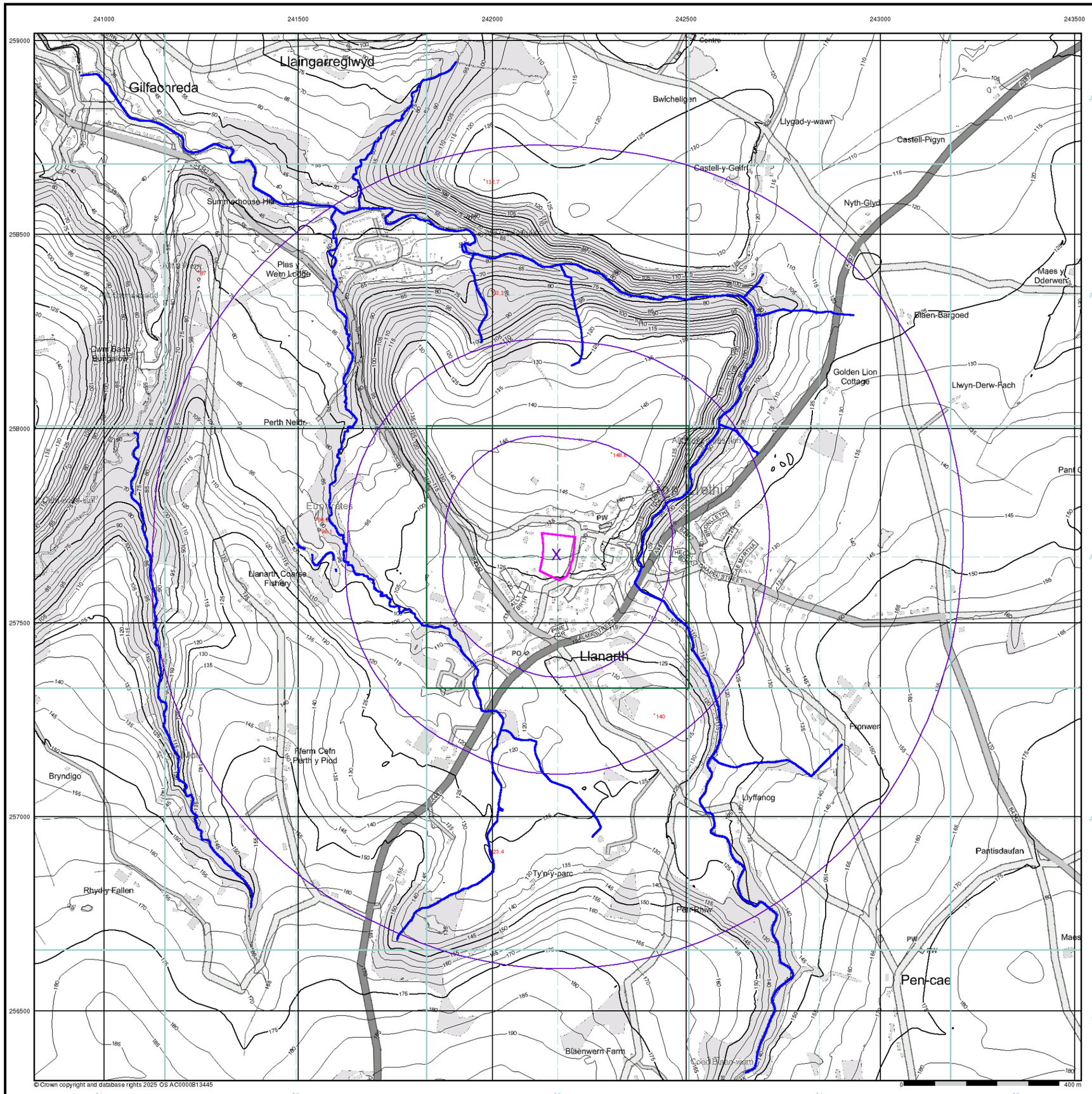

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Geotechnical & Geoenvironmental Specialists

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

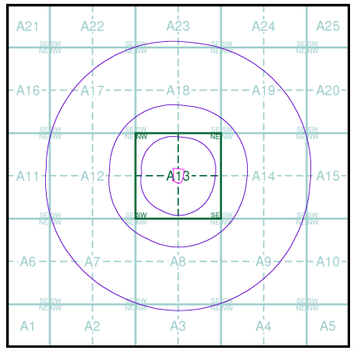
- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

Standard Contour 105 100 95
Master Contour
Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



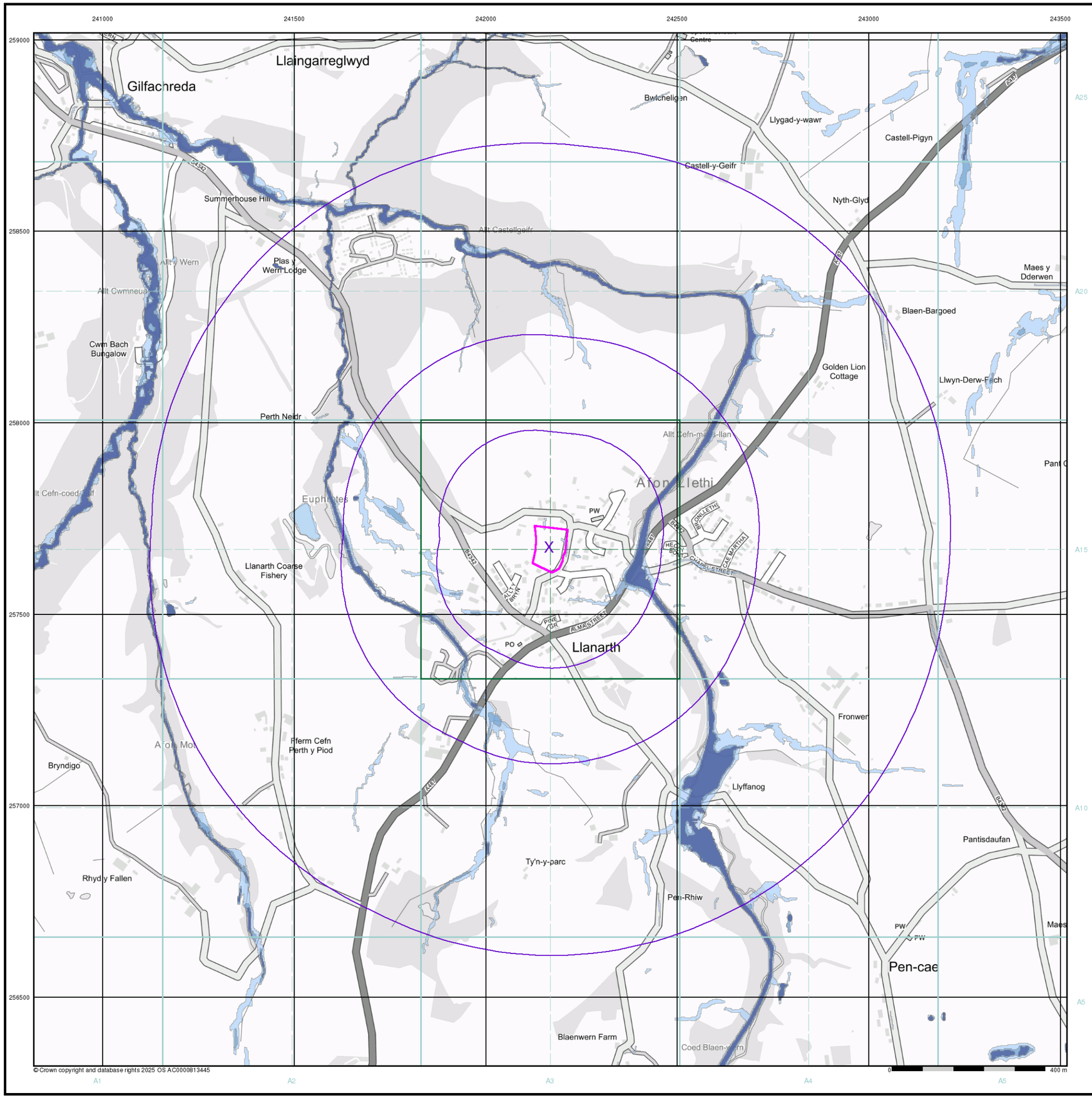
Order Details

Order Number:	375077681_1_1
Customer Ref:	25-045
National Grid Reference:	242170, 257680
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Site at 242170, 257680

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Risk of Flooding from Surface Water

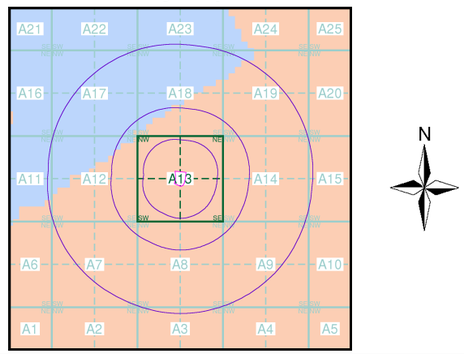
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

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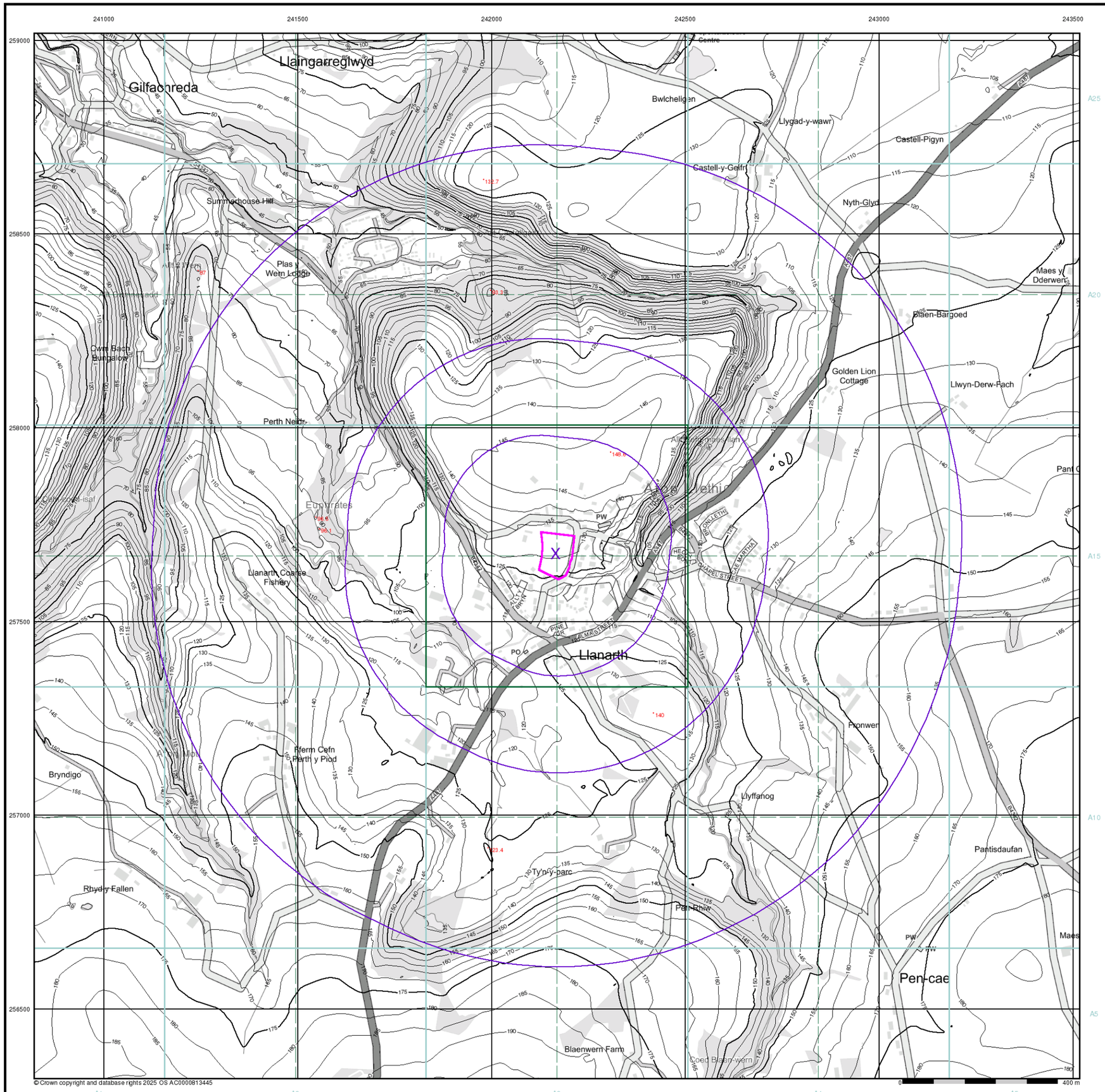

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WFD Surface Waters Map

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Water Framework Directive - Surface Water Quality

- High
- Good
- Moderate
- Poor
- Bad

Contours (height in meters)

Standard Contour 105

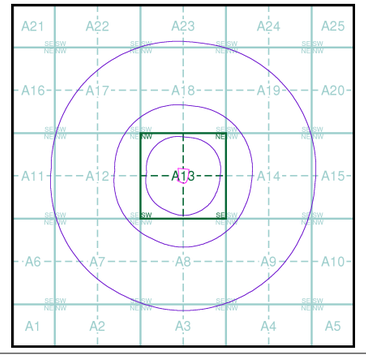
Master Contour 100 95

Spot Height * 167.3

MLW Mean Low Water

MHW Mean High Water

WFD Surface Waters Map - Slice A



Order Details

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Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

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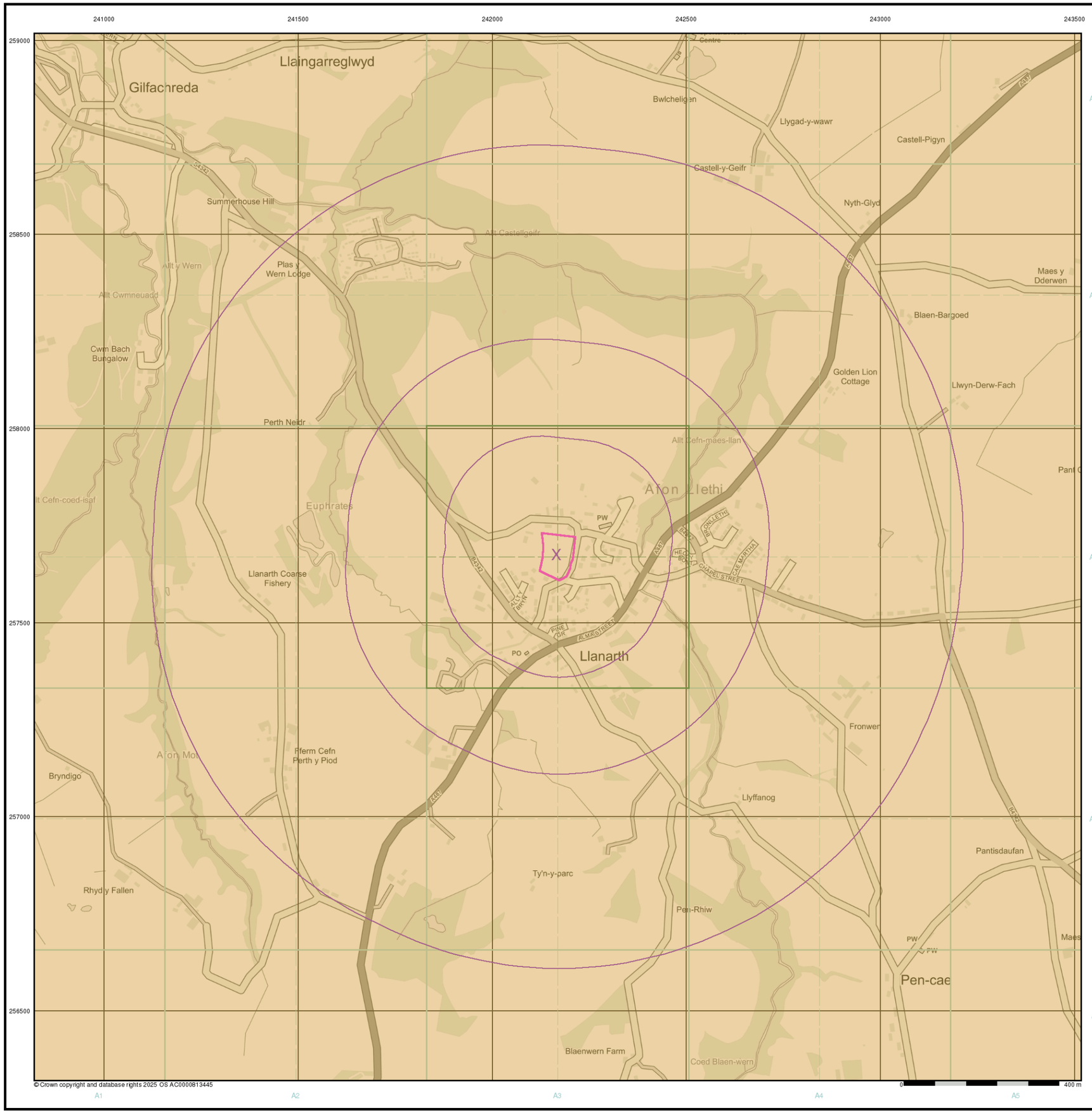

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General

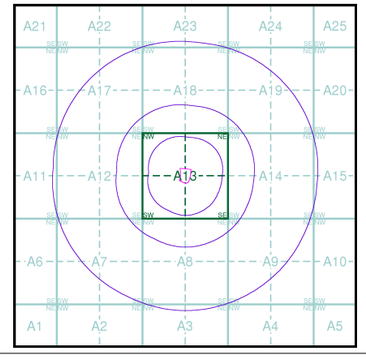
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg

- < 15
- 15 - 25
- 25 - 35
- 35 - 45
- 45 - 60
- 60 - 120
- > 120

Estimated Soil Chemistry Arsenic - Slice A



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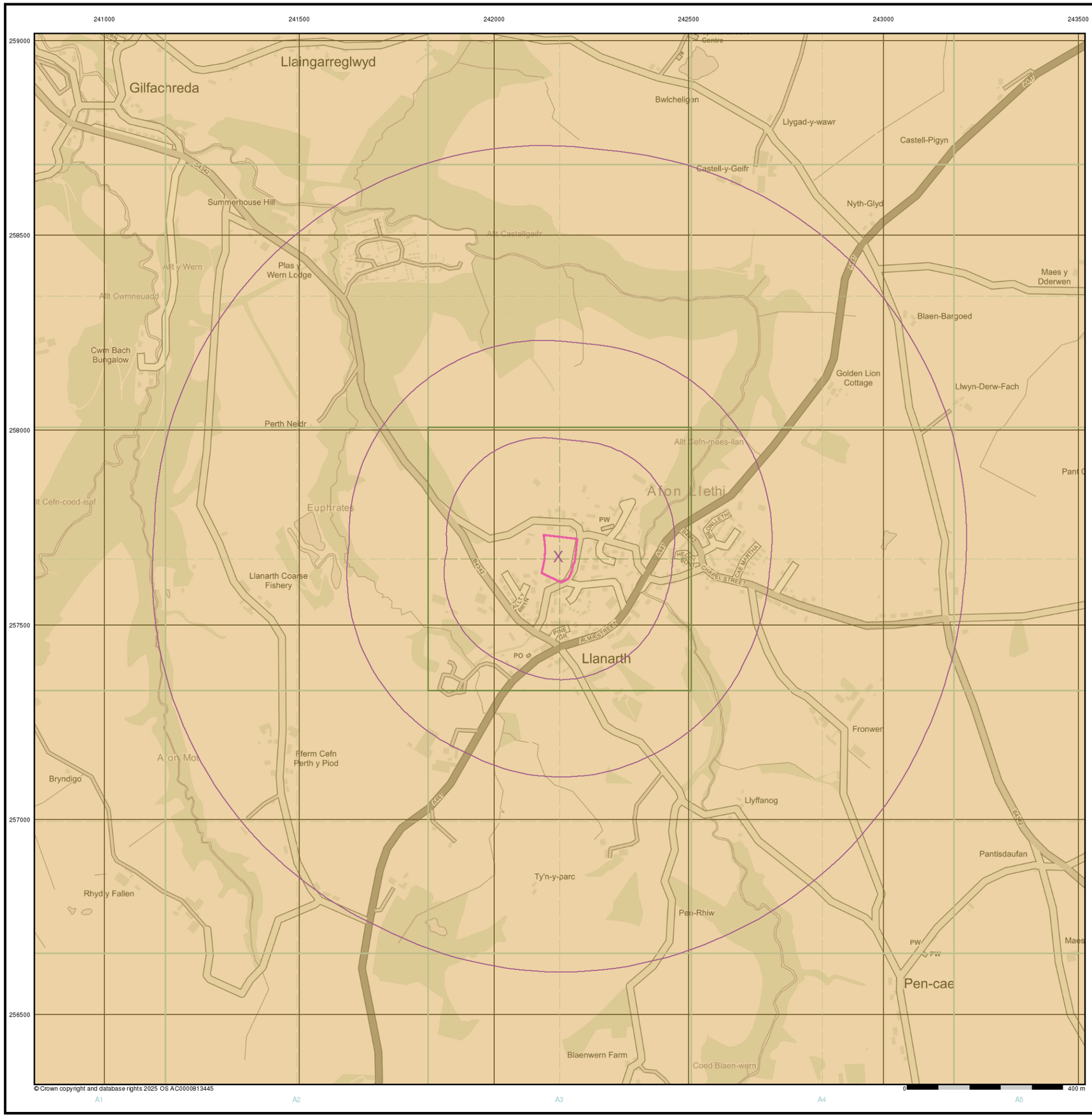

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General

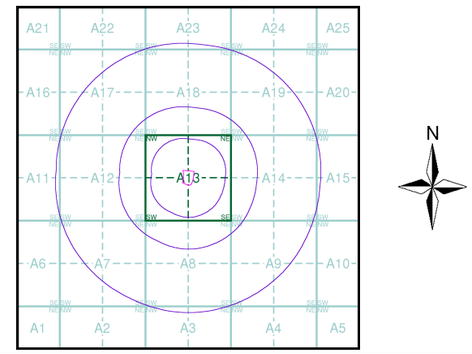
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg

- < 1.8
- 1.8 - 2.2
- 2.2 - 3.0
- > 3.0

Estimated Soil Chemistry Cadmium - Slice A



Order Details

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Site Area (Ha):	0.84
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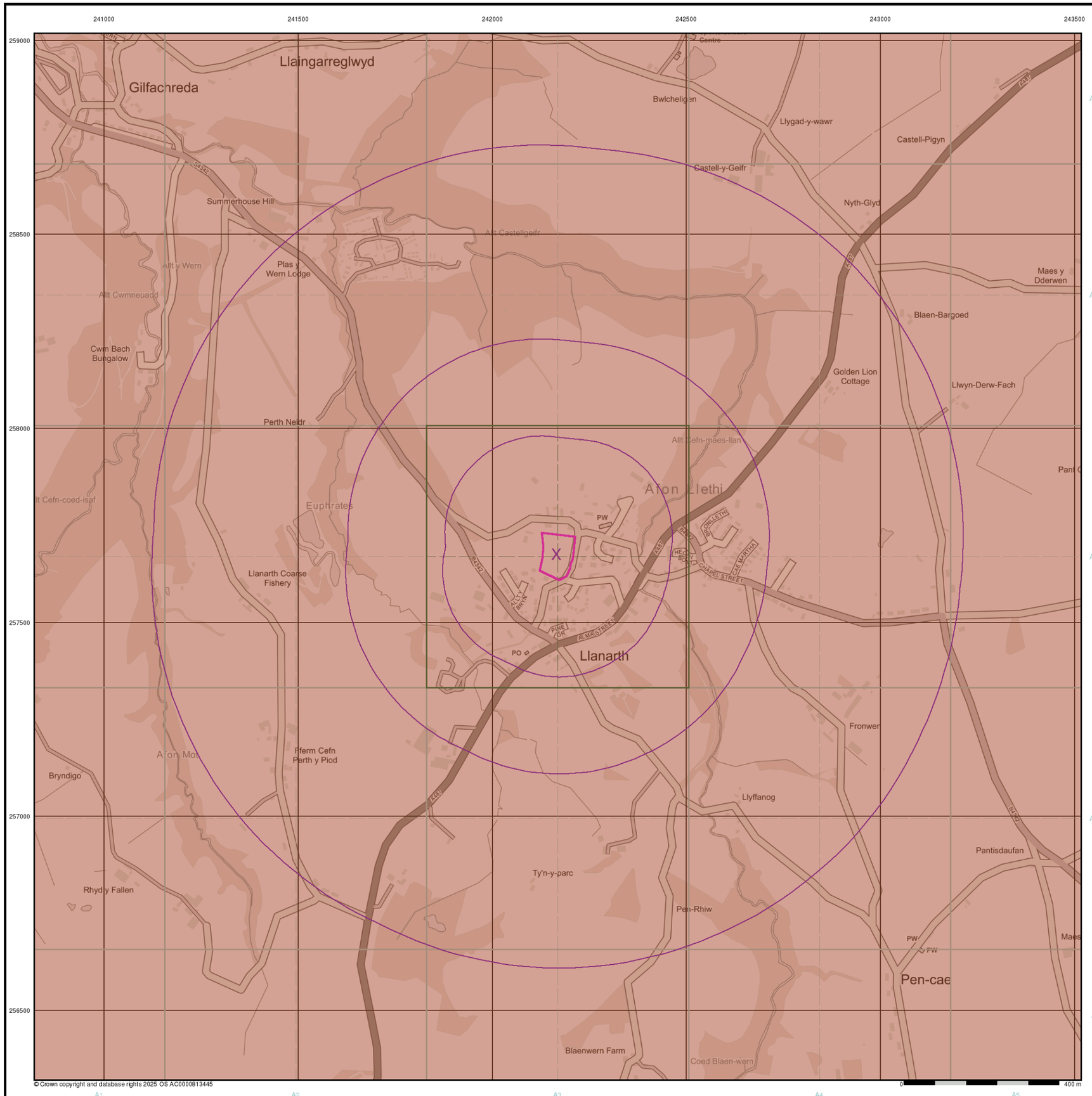

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General

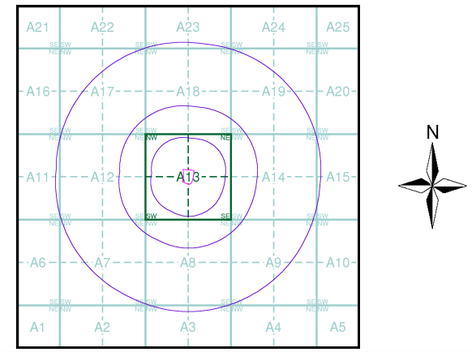
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg

- < 20
- 20 - 40
- 40 - 60
- 60 - 90
- 90 - 120
- 120 - 180
- > 180

Estimated Soil Chemistry Chromium - Slice A



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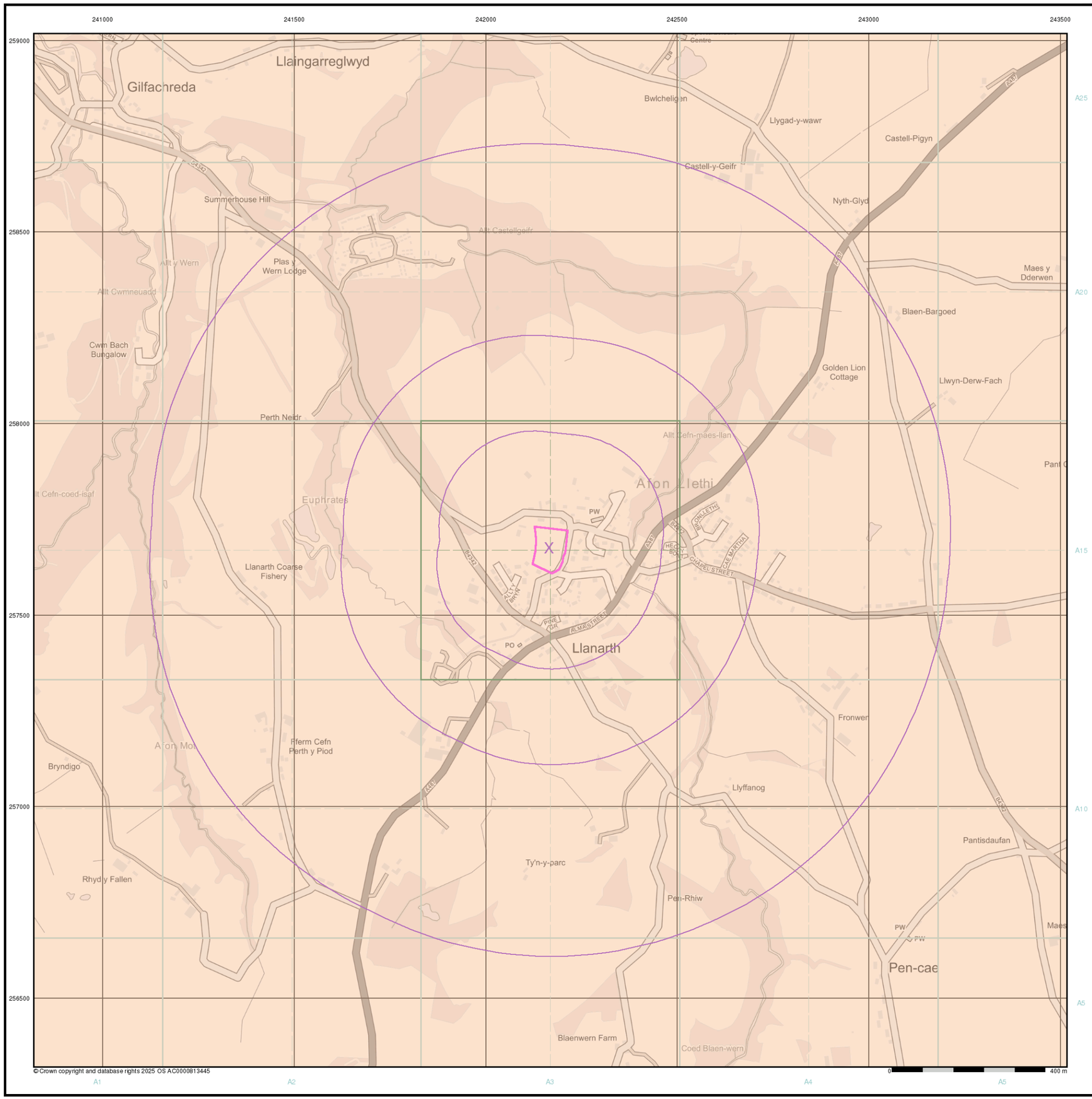

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General

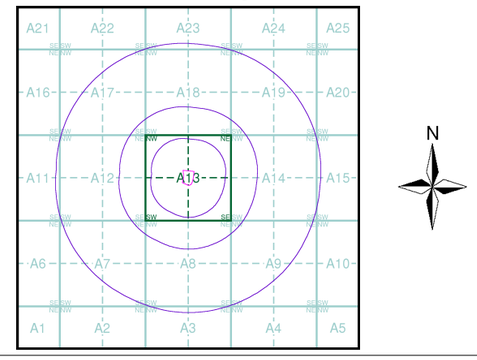
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- <100 mg/kg
- 100 - 200
- 200 - 300
- 300 - 600
- 600 - 1200
- >1200

Estimated Soil Chemistry Lead - Slice A



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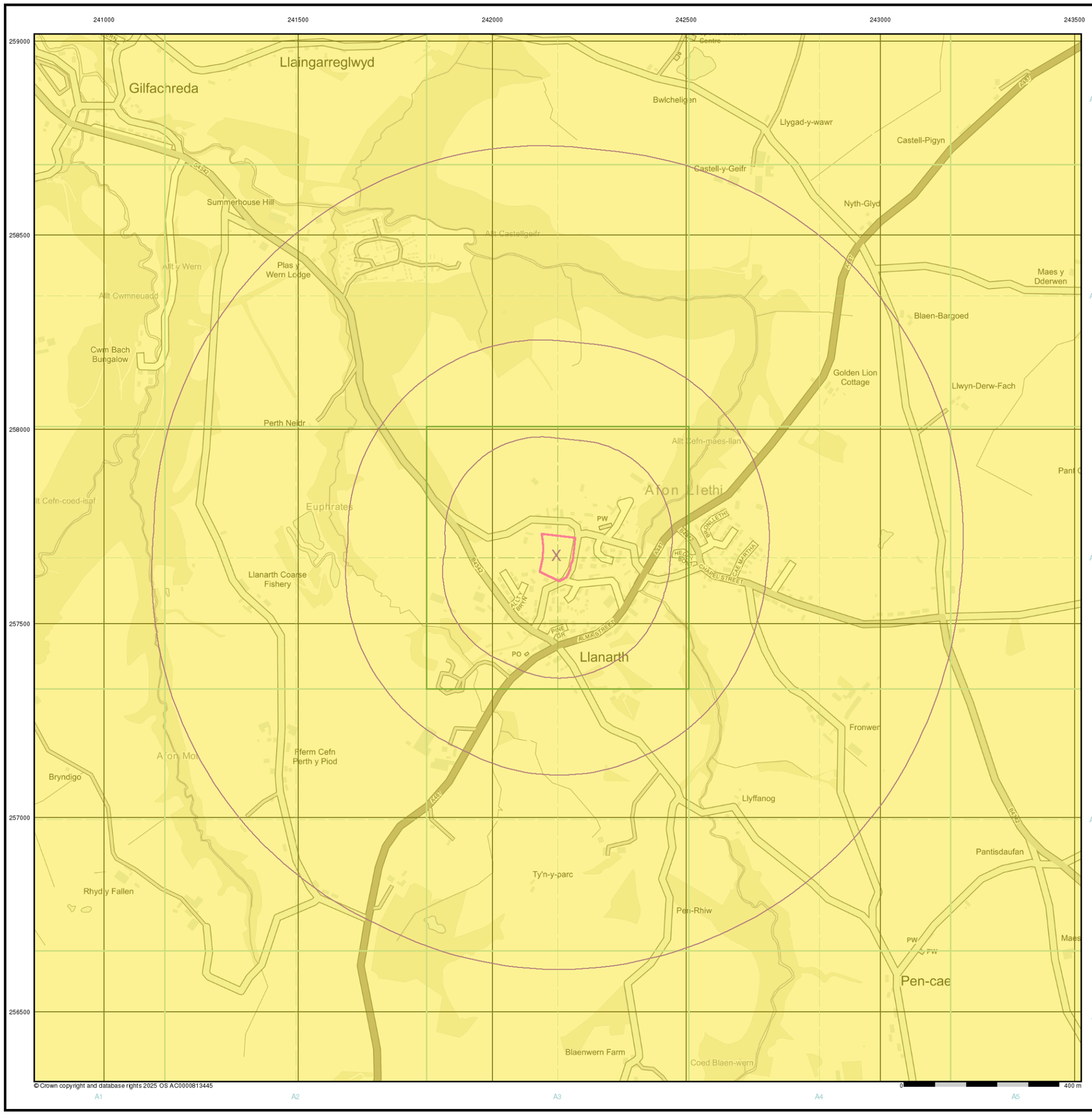

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General

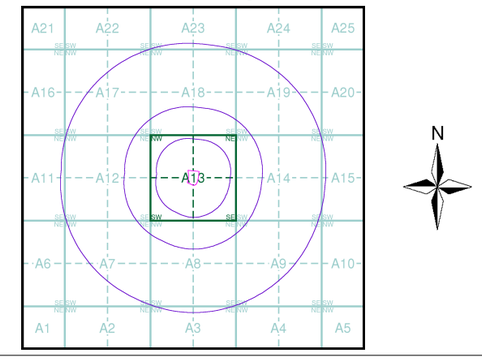
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg

- < 15
- 15 - 30
- 30 - 45
- 45 - 60
- 60 - 80
- 80 - 100
- > 100

Estimated Soil Chemistry Nickel - Slice A



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Site Details

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ANNEX B
Risk Assessment Definitions

Risk Assessment Definitions

The contaminated land regime is set out in Part 2A of the Environmental Protection Act (EPA) 1990 and was introduced on the 1st April 2000 in England and 1st July 2001 in Wales. A similar regime was introduced in Scotland on 14th July 2000.

Part 2A was introduced to achieve three overreaching objectives:

(a) To identify and remove unacceptable risks to human health and the environment.
(b) To seek to ensure that contaminated land is made suitable for its current use.
(c) To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development.

Under Part 2A the statutory definition of 'contaminated land' is:

> "any land which appears to the local authority in whose area it is situated, to be in such a condition, by reason of substances in, on, or under the land, that:
>
> (a) Significant harm is being caused or there is a significant possibility of such harm being caused; or
> (b) Pollution of controlled waters is being, or is likely to be, caused."

Under Part 2A, for land to be classified as 'Contaminated Land' there must be one or more contaminant, pathway, receptor linkages, known as the '**Contaminant Linkage**'. A contaminant linkage requires three essential elements:

(a) A **CONTAMINANT** (SOURCE) – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.
(b) A **RECEPTOR** – something which could be adversely affected by a contaminant.
(c) A **PATHWAY** – a route by which a receptor is or might be exposed to or affected by a contaminant.

Guidance provided by the Environment Agency to aid in managing risks from land contamination (Land Contamination Risk Management - LCRM), defines a 'Hazard' as:

> 'Hazard – *a property or situation that in particular circumstances could lead to harm'*

The term 'Risk' is widely used in different contexts and situations, but a prescriptive definition is also given in LCRM guidance:

> *'Risk – a combination of the probability, or frequency of occurrence of a defined hazard and the magnitude of the consequences of the occurrence'.*

A framework for qualitative risk assessment is provided in CIRIA publication C552 Contaminated Land Risk Assessment – A Guide to Good Practice (2001). The method requires an assessment of the magnitude of the probability of the risk occurring and the magnitude of the potential consequence. Classifications of consequences and probability, levels and descriptions of risk have been devised from the above publication and are defined in the following sections.

Classification of Consequence

Table A Classification of Consequence	
Classification	**Definition**
Severe	• Short term (acute) risk to human health likely to result in significant harm. • Short term risk to controlled waters. • Catastrophic damage to buildings/structures. • Short term risk to an ecosystem or organism within the particular ecosystem.
Medium	• Chronic damage to human health (long term risk). • Pollution of a sensitive water resource. • A significant change in an ecosystem or organism within the ecosystem.
Mild	• Pollution of non-sensitive water resources. • Significant damage to buildings/structures. • Damage to sensitive buildings/structure/services or the environment.
Negligible	• Harm (not necessarily significant) which may result in financial loss. • Non-permanent health effects to humans (easily prevented by PPE for example). • Easily repairable effects of structural (building) damage.

Classification of Probability

Table B Classification of Probability	
Classification	**Definition**
High Likelihood	• There is a complete contaminant linkage and an event appears very likely to occur in the short term and is inevitable in the long term. • Evidence of harm to the receptor.
Likely	• There is a complete contaminant linkage which means that is it probable that an event will occur. • The event is not inevitable but possible in short term and likely in the long term.
Low Likelihood	• There is a complete contaminant linkage and circumstances are possible under which an event could occur. • It is not certain that an event will occur in the long term, and it is less likely to occur in the short term.
Unlikely	• There is a complete contaminant linkage but circumstances are such that it is improbable that an event would occur even in the long term.

Risk Assessment Matrix

By comparing the consequences of a risk and the probability of the risk of a contaminant linkage, the likely risk category can be determined as shown in **Table C** below.

Table C Risk Assessment Matrix

Increasing acceptability →		Consequence			
		Severe	**Medium**	**Mild**	**Negligible**
Probability	**High Likelihood**	High risk	High risk	Medium risk	Low risk
	Likely	High risk	Medium risk	Low risk	Near zero risk
	Low Likelihood	Medium risk	Low risk	Low risk	Near zero risk
	Unlikely	Low risk	Near zero risk	Near zero risk	Near zero risk

Description of Risks and Likely Actions

High Risk
There is a high probability that severe harm could arise to a receptor, or there is evidence that a receptor is currently being severely harmed. The risk if realised is likely to result in liability, and urgent investigation or remediation will be required.

Medium Risk
It is probable that harm will arise to a receptor. However, it is relatively unlikely that such harm would be severe, or if harm does occur the harm is likely to be relatively mild. Investigation will be required to determine the liability, and some remedial works may be required in the long term.

Low Risk
It is possible that harm may arise to a receptor, but it is likely that the harm would be mild.

Near Zero Risk
There is a very low risk of harm to the receptor. In the event of harm being realised the harm is not likely to be severe.

ANNEX C
Trial Pit Logs

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Trial Pit Log

Trial Pit No: TP01
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: Depth 1.80 (1.50 × 1.00)	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Grass over soft dark brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to medium of sandstone.
				0.55			Stiff becoming very stiff light grey mottled brown slightly sandy slightly gravelly CLAY with medium cobble content. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone. Cobbles are subangular to subrounded of sandstone and mudstone.
				1.50			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
				1.80			End of Pit at 1.800m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated at test depth. 3. Soakaway test undertaken at 1.80m. 4. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP02
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: 1.20 x 1.00, Depth 2.00	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Grass over soft dark brown slightly sandy CLAY.
				0.40			Stiff light grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone. Cobbles are subangular to subrounded of sandstone and mudstone.
				1.30			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
				2.00			End of Pit at 2.000m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated at test depth. 3. Soakaway test undertaken at 2.00m. 4. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP03
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: Depth 2.00 (1.60 × 1.00)	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.00			Grass over soft dark brown slightly sandy CLAY.
				0.45			Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
				1.30			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
				2.00			End of Pit at 2.000m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated at test depth. 3. Soakaway test undertaken at 2.00m. 4. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP04
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: Depth 1.20 (1.50 × 1.00)	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Grass over soft dark brown slightly sandy CLAY.
							Stiff light grey mottled brown slightly sandy slightly gravelly CLAY with medium cobble content. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone. Cobbles are subangular to subrounded of sandstone and mudstone.
				1.20			End of Pit at 1.200m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated at test depth. 3. Soakaway test undertaken at 1.20m. 4. Trial pit backfilled with arisings.

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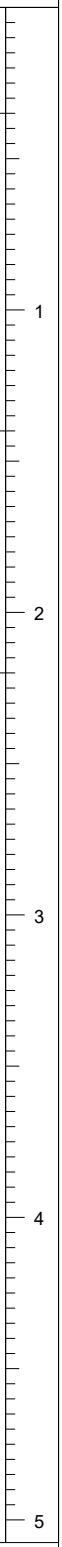
Trial Pit Log

Trial Pit No: TP05
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: 3.00 x 1.00, Depth 2.20	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Grass over soft dark brown slightly sandy CLAY.
				0.35			Stiff light grey mottled brown slightly sandy slightly gravelly CLAY with medium cobble content. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone. Cobbles are subangular to subrounded of sandstone and mudstone.
				1.40			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
				2.20			End of Pit at 2.200m



Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated on very stiff ground. 3. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP06
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: 2.00 x 1.00, Depth 2.30	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35			Grass over soft dark brown slightly sandy CLAY.
				2.30			Stiff light grey mottled brown slightly sandy slightly gravelly CLAY with medium cobble content. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone. Cobbles are subangular to subrounded of sandstone and mudstone.
							End of Pit at 2.300m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated on very stiff ground. 3. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP07
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: Depth 2.40 (2.10 × 1.00)	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.37			Grass over soft dark brown slightly sandy CLAY.
				1.60			Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
				2.40			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
							End of Pit at 2.400m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated on very stiff ground. 3. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP08
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: 3.20 × 1.00, Depth 2.40	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Grass over soft dark brown slightly sandy CLAY.
				1.30			Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
				2.40			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
							End of Pit at 2.400m

1 2 3 4 5

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated on very stiff ground. 3. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP09
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: 1.80 x 1.00, Depth 2.00	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND: Grass over soft dark brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of sandstone and mudstone. MADE GROUND: Loose dark grey angular fine to coarse shale GRAVEL.
				0.70			Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
				1.40			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
				2.00			End of Pit at 2.000m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated on very stiff ground. 3. Trial pit backfilled with arisings.

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Trial Pit Log

Trial Pit No: TP10
Sheet 1 of 1

Project Name: Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords: -	Date: 13/05/2025
Location: Haulfryn, Llanarth		Dimensions: 1.90 x 1.00, Depth 2.00	Scale: 1:25
Client: Wales and West Housing Association			Logged: JA

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND: Grass over soft dark brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of sandstone and mudstone.
				0.30			MADE GROUND: Loose grey GRAVEL (Type 1).
							Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
				1.30			Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
				2.00			End of Pit at 2.000m

Stability: Stable

Remarks: 1. No groundwater encountered. 2. Trial pit terminated on very stiff ground. 3. Trial pit backfilled with arisings.

ANNEX D
Soakaway Results

SOAKAWAY TEST

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Geotechnical & Geoenvironmental Specialists

Site Name: Llanrth
Project Number: TF-25-045-CA
Date: 13/05/2025
Engineer: Jamie Alderman

Trial Pit: **TP01**

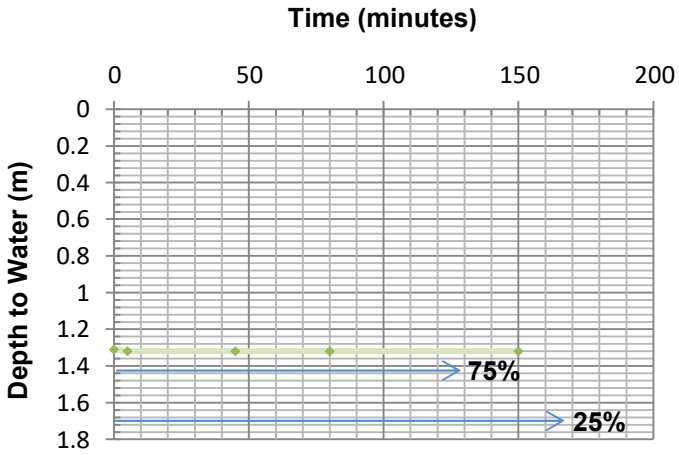
TEST 1

Length	1.50	m
Bredth	1.00	m
Depth	1.80	m
Fill Level	1.31	m

V_{p75-25}	0.368	m^3
a_{p50}	2.725	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

Too little water take to calculate infiltration rate

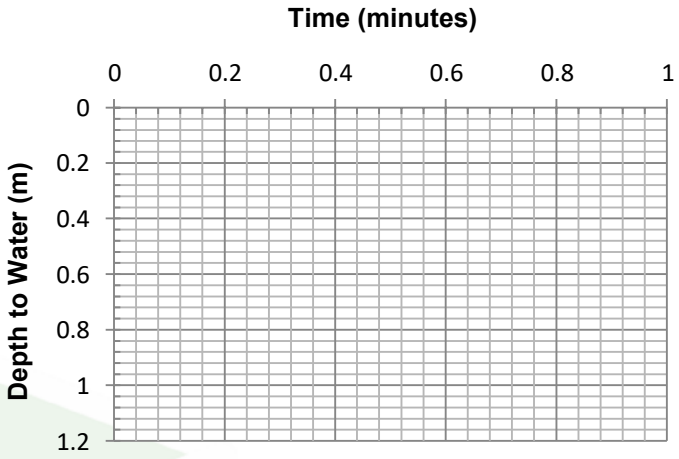


TEST 2

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

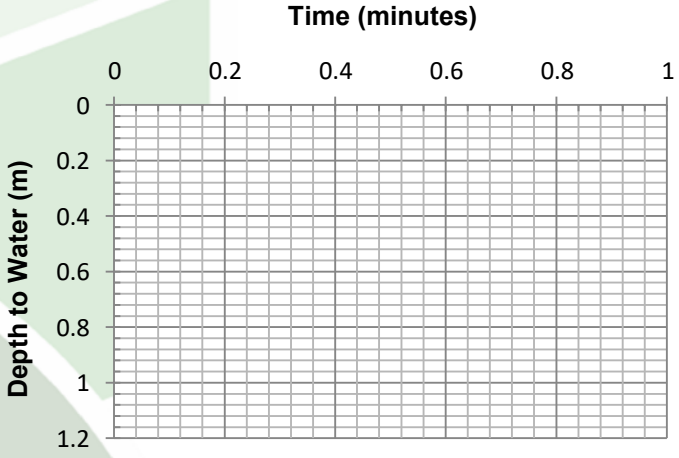


TEST 3

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}



REMARKS:
Test carried out in genral accordance with BRE DIGEST 365 (2016)

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SOAKAWAY TEST

Time (mins)	Depth to Water (m)
0	1.31
5	1.32
45	1.32
80	1.32
150	1.32

Effective Depth (m)	0.49
Height to 0.75H	1.4325
Height to 0.25H	1.6775
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

SOAKAWAY TEST

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Site Name: Llanrth
Project Number: TF-25-045-CA
Date: 13/05/2025
Engineer: Jamie Alderman

Trial Pit: **TP02**

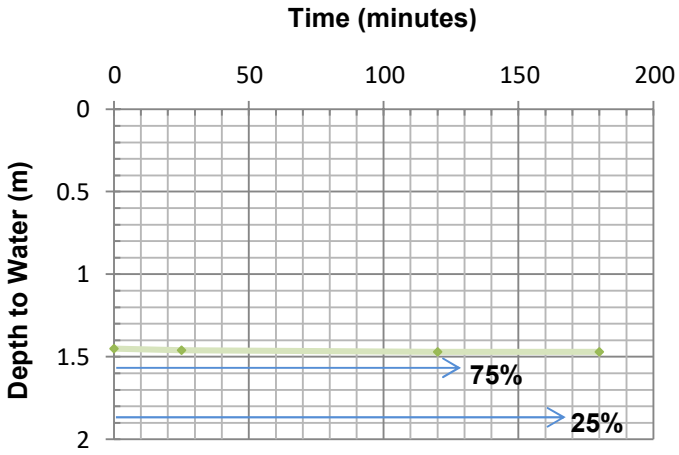
TEST 1

Length	1.20	m
Bredth	1.00	m
Depth	2.00	m
Fill Level	1.45	m

V_{p75-25}	0.33	m^3
a_{p50}	2.41	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

Too little water take to calculate infiltration rate

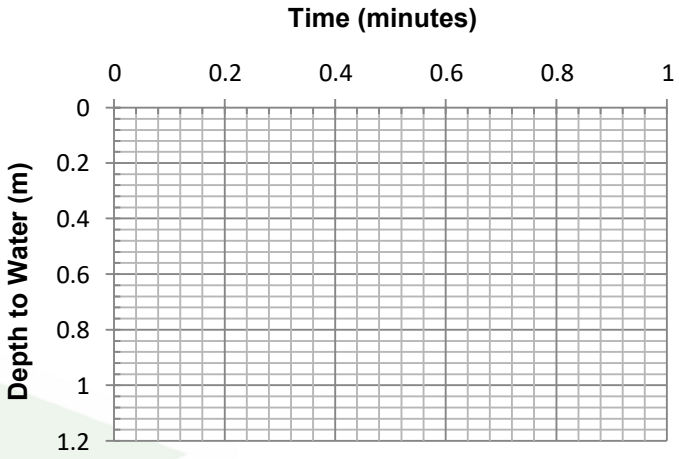


TEST 2

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

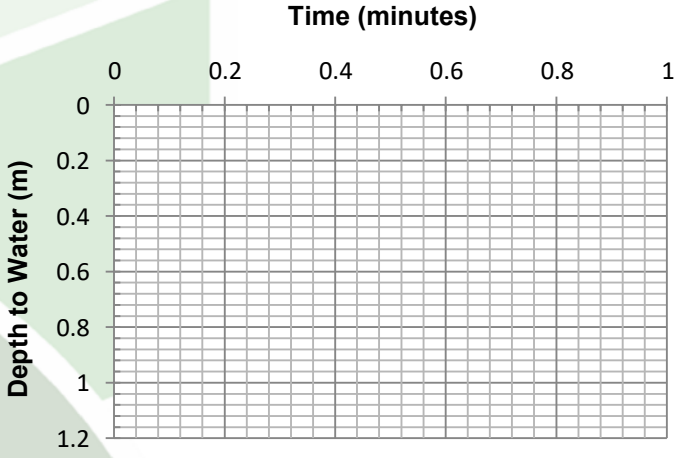


TEST 3

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}



REMARKS:
Test carried out in genral accordance with BRE DIGEST 365 (2016)

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SOAKAWAY TEST

Time (mins)	Depth to Water (m)
0	1.45
25	1.46
120	1.47
180	1.47

Effective Depth (m)	0.55
Height to 0.75H	1.5875
Height to 0.25H	1.8625
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

SOAKAWAY TEST

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Site Name: Llanrth
Project Number: TF-25-045-CA
Date: 13/05/2025
Engineer: Jamie Alderman

Trial Pit: **TP03**

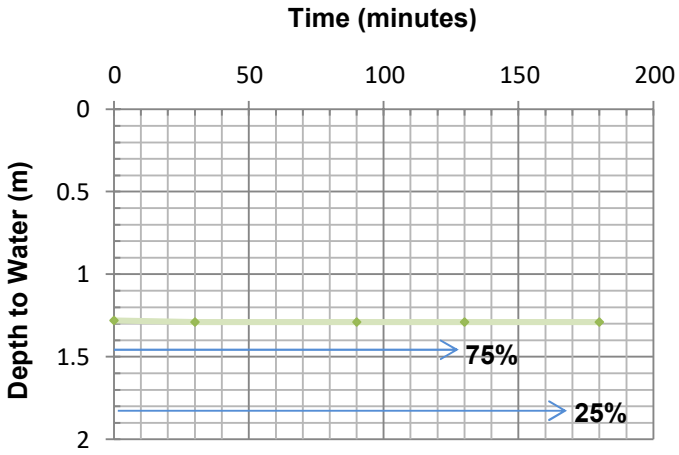
TEST 1

Length	1.60	m
Bredth	1.00	m
Depth	2.00	m
Fill Level	1.28	m

V_{p75-25}	0.576	m^3
a_{p50}	3.472	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

Too little water take to calculate infiltration rate

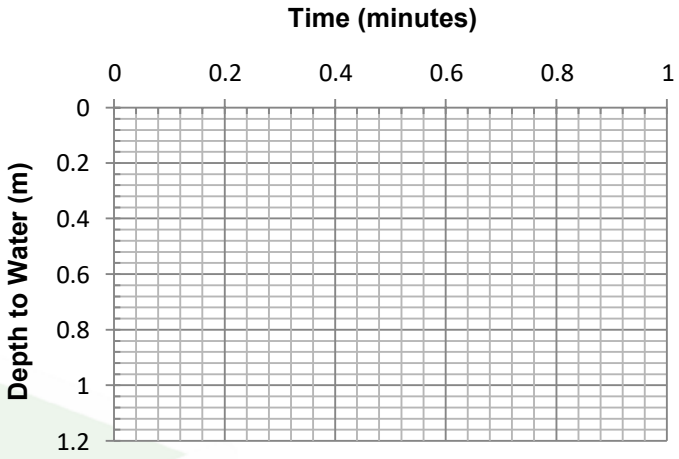


TEST 2

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

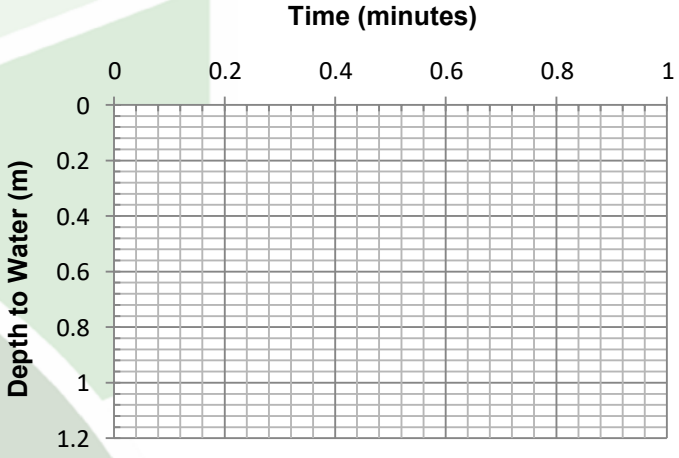


TEST 3

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}



REMARKS:
Test carried out in genral accordance with BRE DIGEST 365 (2016)

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SOAKAWAY TEST

Time (mins)	Depth to Water (m)
0	1.28
30	1.29
90	1.29
130	1.29
180	1.29

Effective Depth (m)	0.72
Height to 0.75H	1.46
Height to 0.25H	1.82
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

SOAKAWAY TEST

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Site Name: Llanrth
Project Number: TF-25-045-CA
Date: 13/05/2025
Engineer: Jamie Alderman

Trial Pit: **TP04**

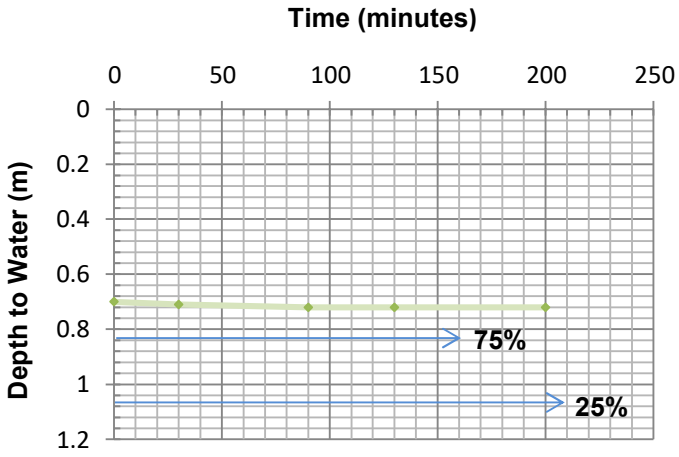
TEST 1

Length	1.50	m
Bredth	1.00	m
Depth	1.20	m
Fill Level	0.70	m

V_{p75-25}	0.375	m^3
a_{p50}	2.75	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

Too little water take to calculate infiltration rate

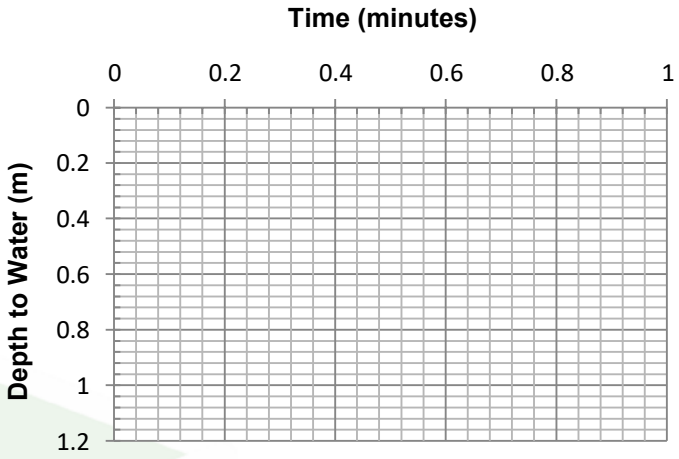


TEST 2

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}

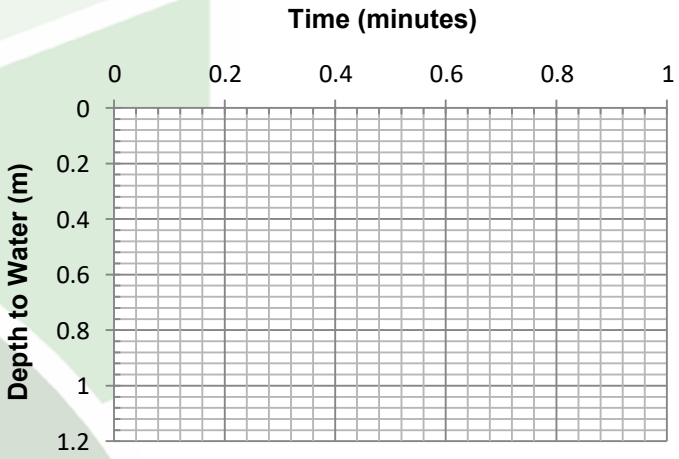


TEST 3

Length		m
Bredth		m
Depth		m
Fill Level		m

V_{p75-25}	0	m^3
a_{p50}	0	m^2
t_{p75-25}	0	minutes

Soil Infiltration Rate, f - ms^{-1}



REMARKS:
Test carried out in genral accordance with BRE DIGEST 365 (2016)

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SOAKAWAY TEST

Time (mins)	Depth to Water (m)
0	0.7
30	0.71
90	0.72
130	0.72
200	0.72

Effective Depth (m)	0.50
Height to 0.75H	0.825
Height to 0.25H	1.075
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

Time (mins)	Depth to Water (m)
0	

Effective Depth (m)	0.00
Height to 0.75H	0
Height to 0.25H	0
tp75	
tp25	

ANNEX E
Borehole Logs

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www.terrafirmawales.co.uk

Borehole Log

Borehole No.
WS01
Sheet 1 of 1

Project Name:	Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords:	Hole Type WS
Location:	Haulfryn, Llanarth		Level:	Scale 1:50
Client:	Wales and West Housing Association		Dates: 12/05/2025 - 12/05/2025	Logged By JA

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Well	Legend	Stratum Description
	Depth (m)	Type	Results					
				0.40				MADE GROUND: Grass over soft dark brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of sandstone, mudstone and pottery.
				0.64				Firm grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and mudstone.
	0.90	SPT	50 (8,9/50 for 275mm)	0.90				Stiff light grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
								End of Borehole at 0.900m

1 2 3 4 5 6 7 8 9 10

Remarks: 1. No groundwater encountered. 2. Borehole terminated at SPT refusal. 3. Borehole backfilled with arisings.

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Borehole Log

Borehole No.
WS02
Sheet 1 of 1

Project Name:	Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords:
Location:	Haulfryn, Llanarth		Level:
Client:	Wales and West Housing Association		Dates: 12/05/2025 - 12/05/2025

Hole Type: WS
Scale: 1:50
Logged By: JA

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Well	Legend	Stratum Description
	Depth (m)	Type	Results					
				0.10				Grass over soft dark brown slightly sandy CLAY.
	1.00	SPT	N=16 (5,5/3,4,4,5)					Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
				1.40				Very stiff grey mottled brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone and mudstone. Cobbles are subangular of sandstone.
	1.80	SPT	50 (25 for 10mm/50 for 10mm)	1.80				End of Borehole at 1.800m

Remarks: 1. No groundwater encountered. 2. Borehole terminated at SPT refusal. 3. Gas monitoring point installed at location.

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info@terrafirmawales.co.uk
www.terrafirmawales.co.uk

Borehole Log

Borehole No.
WS03
Sheet 1 of 1

Project Name:	Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords:
Location:	Haulfryn, Llanarth		Level:
Client:	Wales and West Housing Association		Dates: 12/05/2025 - 12/05/2025

Hole Type: WS
Scale: 1:50
Logged By: JA

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Well	Legend	Stratum Description
	Depth (m)	Type	Results					
				0.17				MADE GROUND: Grass over soft dark brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of sandstone, mudstone and brick.
	1.00	SPT	50 (6,9/50 for 245mm)	1.00				Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
								End of Borehole at 1.000m

Remarks: 1. No groundwater encountered. 2. Borehole terminated at SPT refusal. 3. Gas monitoring point installed at location.

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www.terrafirmawales.co.uk

Borehole Log

Borehole No.
WS04
Sheet 1 of 1

Project Name:	Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords:	Hole Type WS
Location:	Haulfryn, Llanarth		Level:	Scale 1:50
Client:	Wales and West Housing Association		Dates: 12/05/2025 - 12/05/2025	Logged By JA

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Well	Legend	Stratum Description
	Depth (m)	Type	Results					
				0.30				Grass over soft dark brown slightly sandy CLAY.
								Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone. *Strata is firm and has no gravel.*
	1.00	SPT	50 (6,9/50 for 245mm)	1.00				End of Borehole at 1.000m

Remarks: 1. No groundwater encountered. 2. Borehole terminated at SPT refusal. 3. Borehole backfilled with arisings.

terra firma
Geotechnical & Geoenvironmental Specialists
Tel: 02920 735354
info@terrafirmawales.co.uk
www.terrafirmawales.co.uk

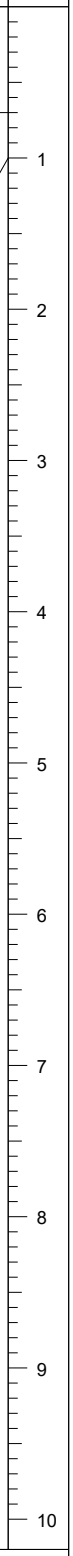
Borehole Log

Borehole No.
WS05
Sheet 1 of 1

Project Name:	Haulfryn, Llanarth	Project No: TF-25-045-CA	Co-ords:
Location:	Haulfryn, Llanarth		Level:
Client:	Wales and West Housing Association		Dates: 12/05/2025 - 12/05/2025

Hole Type: WS
Scale: 1:50
Logged By: JA

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Well	Legend	Stratum Description
	Depth (m)	Type	Results					
				0.70				Grass over soft dark brown and grey slightly sandy CLAY.
	1.00	SPT	50 (5,7/50 for 180mm)	1.00				Stiff light grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone, quartz and mudstone.
								End of Borehole at 1.000m



Remarks: 1. No groundwater encountered. 2. Borehole terminated at SPT refusal. 3. Gas monitoring point installed at location.

ANNEX F
Laboratory Soil Chemical Test Results

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	25-16389-1
Initial Date of Issue:	29-May-2025
Re-Issue Details:	
Client	*Terra Firma*
Client Address:	*5 Deryn Court* *Wharfedale Road* *Pentwyn* *Cardiff* *CF23 7HA*
Contact(s):	*Jamie Alderman*
Project	*Llanarth*
Quotation No.:	*Q25-37003*
Order No.:	TF-25-036-CA
No. of Samples:	*9*
Turnaround (Wkdays):	5
Date Approved:	29-May-2025
Approved By:	
Details:	David Smith, Technical Director

Date Received:	19-May-2025
Date Instructed:	19-May-2025
Results Due:	23-May-2025

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: Llanarth

Client: Terra Firma				**Chemtest Job No.:**		25-16389	25-16389	25-16389	25-16389	25-16389	25-16389	25-16389
Quotation No.: Q25-37003				**Chemtest Sample ID.:**		1974460	1974461	1974462	1974463	1974464	1974465	1974466
				Client Reference:		*WS01*	*WS02*	*WS03*	*WS04*	*WS05*	*TP10*	*WS01*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.30*	*0.60*	*0.10*	*0.40*	*0.30*	*0.50*	*0.60*
				Date Sampled:		*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		N	2192		N/A	-	-	-	-	-	-	
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
Moisture		N	2030	%	0.020	14	13	45	22	28	6.4	18
Soil Colour		N	2030		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones and Roots	Stones	Roots	Stones and Roots	Stones and Roots	Stones and Roots	None
Soil Texture		N	2030		N/A	Loam	Clay	Clay	Clay	Clay	Sand	Clay
pH at 20C		M	2010		4.0	7.4	7.0	6.2	6.1	5.8	6.0	
pH (2.5:1) at 20C		N	2010		4.0							7.5
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	< 0.40	< 0.40	0.73	< 0.40	0.63	< 0.40	
Magnesium (Water Soluble)		M	2120	mg/kg	20							< 20
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010							< 0.010
Total Sulphur		U	2175	%	0.010							0.027
Chloride (Water Soluble)		M	2220	g/l	0.010							< 0.010
Nitrate (Water Soluble)		N	2220	g/l	0.010							< 0.010
Cyanide (Complex)		M	2300	mg/kg	0.50	0.90	< 0.50	< 0.50	< 0.50	0.60	< 0.50	
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50	< 0.50	0.70	< 0.50	< 0.50	< 0.50	
Cyanide (Total)		M	2300	mg/kg	0.50	0.90	< 0.50	0.70	< 0.50	0.60	< 0.50	
Ammonium (Extractable)		M	2425	mg/kg	0.50							2.6
Sulphate (Total)		U	2430	%	0.010							0.081
Sulphate (Acid Soluble)		U	2430	%	0.010	0.055	0.028	0.13	0.019	0.14	0.13	0.045
Arsenic		M	2455	mg/kg	0.5	23	22	13	18	18	59	
Beryllium		U	2455	mg/kg	0.5	1.0	1.0	0.7	0.8	0.9	0.6	
Cadmium		M	2455	mg/kg	0.10	0.22	0.21	0.17	< 0.10	0.13	< 0.10	
Chromium		M	2455	mg/kg	0.5	39	44	27	40	28	26	
Mercury Low Level		N	2450	mg/kg	0.05	0.08	0.07	0.09	< 0.05	0.09	0.13	
Manganese		M	2455	mg/kg	1.0	800	820	540	350	450	360	
Molybdenum		M	2455	mg/kg	0.5	2.2	0.9	0.8	0.7	0.6	5.6	
Antimony		N	2455	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	4.2	
Copper		M	2455	mg/kg	0.50	46	50	24	24	31	51	
Nickel		M	2455	mg/kg	0.50	42	52	24	41	23	22	
Lead		M	2455	mg/kg	0.50	86	48	40	24	90	110	
Selenium		M	2455	mg/kg	0.25	0.87	0.83	0.74	0.61	0.78	1.0	
Zinc		M	2455	mg/kg	0.50	130	170	88	93	92	90	
Chromium (Trivalent)		N	2490	mg/kg	1.0	39	44	27	40	28	26	
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

Results - Soil

Project: Llanarth

Client: Terra Firma				**Chemtest Job No.:**		25-16389	25-16389	25-16389	25-16389	25-16389	25-16389	25-16389
Quotation No.: Q25-37003				**Chemtest Sample ID.:**		1974460	1974461	1974462	1974463	1974464	1974465	1974466
				Client Reference:		*WS01*	*WS02*	*WS03*	*WS04*	*WS05*	*TP10*	*WS01*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.30*	*0.60*	*0.10*	*0.40*	*0.30*	*0.50*	*0.60*
				Date Sampled:		*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0	2.9	< 2.0	< 2.0	10	
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	24	
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0	3.6	< 2.0	< 2.0	4.4	
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	32	6.4	48	22	42	6.1	
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	< 10	< 10	10	< 10	< 10	< 10	
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	35	8.3	54	25	46	44	
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	35	< 10	64	25	46	44	
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.5	
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	6.9	2.4	22	7.6	10	2.7	
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	44	3.3	79	41	81	4.6	
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	15	8.7	28	17	25	9.6	
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	50	5.7	100	48	91	12	
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	66	14	130	65	120	21	
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	85	14	160	74	140	56	
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	100	23	190	91	160	65	
Naphthalene		M	2700	mg/kg	0.10	0.18	< 0.10	0.13	< 0.10	0.20	< 0.10	
Acenaphthylene		M	2700	mg/kg	0.10	0.34	< 0.10	0.26	< 0.10	0.28	< 0.10	
Acenaphthene		M	2700	mg/kg	0.10	0.57	< 0.10	0.60	< 0.10	0.42	< 0.10	
Fluorene		M	2700	mg/kg	0.10	0.26	< 0.10	0.24	< 0.10	0.22	< 0.10	
Phenanthrene		M	2700	mg/kg	0.10	0.69	< 0.10	0.99	< 0.10	0.59	< 0.10	
Anthracene		M	2700	mg/kg	0.10	0.11	< 0.10	0.19	< 0.10	0.11	< 0.10	
Fluoranthene		M	2700	mg/kg	0.10	0.58	< 0.10	0.64	< 0.10	0.43	< 0.10	
Pyrene		M	2700	mg/kg	0.10	0.90	< 0.10	0.88	< 0.10	0.75	< 0.10	
Benzo[a]anthracene		M	2700	mg/kg	0.10	0.73	< 0.10	1.8	< 0.10	1.6	< 0.10	
Chrysene		M	2700	mg/kg	0.10	0.57	< 0.10	1.5	< 0.10	0.98	< 0.10	
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	0.24	< 0.10	0.31	< 0.10	0.29	< 0.10	
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	0.40	< 0.10	1.4	< 0.10	1.0	< 0.10	
Benzo[a]pyrene		M	2700	mg/kg	0.10	0.24	< 0.10	0.12	< 0.10	0.11	< 0.10	
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	0.14	< 0.10	< 0.10	< 0.10	0.11	< 0.10	

Results - Soil

Project: Llanarth

Client: Terra Firma				**Chemtest Job No.:**		25-16389	25-16389	25-16389	25-16389	25-16389	25-16389	25-16389
Quotation No.: Q25-37003				**Chemtest Sample ID.:**		1974460	1974461	1974462	1974463	1974464	1974465	1974466
				Client Reference:		*WS01*	*WS02*	*WS03*	*WS04*	*WS05*	*TP10*	*WS01*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.30*	*0.60*	*0.10*	*0.40*	*0.30*	*0.50*	*0.60*
				Date Sampled:		*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*	*13-May-2025*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	0.13	< 0.10	0.65	< 0.10	0.23	< 0.10	
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	0.59	< 0.10	1.4	< 0.10	0.60	< 0.10	
Total Of 16 PAH's		M	2700	mg/kg	2.0	6.7	< 2.0	11	< 2.0	7.9	< 2.0	
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	0.33	< 0.10	< 0.10	< 0.10	
Organic Matter BS1377		N	2930	%	0.10	5.3	0.80	5.4	1.2	5.1	1.0	

Results - Soil

Project: Llanarth

Client: Terra Firma				**Chemtest Job No.:**		25-16389	25-16389
Quotation No.: Q25-37003				**Chemtest Sample ID.:**		1974467	1974468
				Client Reference:		*WS03*	*WS05*
				Sample Type:		*SOIL*	*SOIL*
				Top Depth (m):		*0.50*	*0.70*
				Date Sampled:		*13-May-2025*	*13-May-2025*
				Asbestos Lab:			
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type		N	2192		N/A		
Asbestos Identification		U	2192		N/A		
Moisture		N	2030	%	0.020	9.3	12
Soil Colour		N	2030		N/A	Brown	Brown
Other Material		N	2030		N/A	Stones	Stones
Soil Texture		N	2030		N/A	Clay	Clay
pH at 20C		M	2010		4.0		
pH (2.5:1) at 20C		N	2010		4.0	7.0	7.2
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40		
Magnesium (Water Soluble)		M	2120	mg/kg	20	< 20	< 20
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.014	0.011
Total Sulphur		U	2175	%	0.010	0.033	0.017
Chloride (Water Soluble)		M	2220	g/l	0.010	< 0.010	0.012
Nitrate (Water Soluble)		N	2220	g/l	0.010	< 0.010	< 0.010
Cyanide (Complex)		M	2300	mg/kg	0.50		
Cyanide (Free)		M	2300	mg/kg	0.50		
Cyanide (Total)		M	2300	mg/kg	0.50		
Ammonium (Extractable)		M	2425	mg/kg	0.50	3.2	2.8
Sulphate (Total)		U	2430	%	0.010	0.14	0.043
Sulphate (Acid Soluble)		U	2430	%	0.010	0.051	0.054
Arsenic		M	2455	mg/kg	0.5		
Beryllium		U	2455	mg/kg	0.5		
Cadmium		M	2455	mg/kg	0.10		
Chromium		M	2455	mg/kg	0.5		
Mercury Low Level		N	2450	mg/kg	0.05		
Manganese		M	2455	mg/kg	1.0		
Molybdenum		M	2455	mg/kg	0.5		
Antimony		N	2455	mg/kg	2.0		
Copper		M	2455	mg/kg	0.50		
Nickel		M	2455	mg/kg	0.50		
Lead		M	2455	mg/kg	0.50		
Selenium		M	2455	mg/kg	0.25		
Zinc		M	2455	mg/kg	0.50		
Chromium (Trivalent)		N	2490	mg/kg	1.0		
Chromium (Hexavalent)		N	2490	mg/kg	0.50		
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05		
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05		

Results - Soil

Project: Llanarth

Client: Terra Firma				**Chemtest Job No.:**		25-16389	25-16389
Quotation No.: Q25-37003				**Chemtest Sample ID.:**		1974467	1974468
				Client Reference:		*WS03*	*WS05*
				Sample Type:		*SOIL*	*SOIL*
				Top Depth (m):		*0.50*	*0.70*
				Date Sampled:		*13-May-2025*	*13-May-2025*
				Asbestos Lab:			
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**		
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05		
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10		
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05		
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25		
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00		
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00		
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00		
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00		
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00		
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00		
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00		
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05		
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05		
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05		
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25		
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00		
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00		
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00		
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00		
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00		
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00		
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00		
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50		
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00		
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00		
Naphthalene		M	2700	mg/kg	0.10		
Acenaphthylene		M	2700	mg/kg	0.10		
Acenaphthene		M	2700	mg/kg	0.10		
Fluorene		M	2700	mg/kg	0.10		
Phenanthrene		M	2700	mg/kg	0.10		
Anthracene		M	2700	mg/kg	0.10		
Fluoranthene		M	2700	mg/kg	0.10		
Pyrene		M	2700	mg/kg	0.10		
Benzo[a]anthracene		M	2700	mg/kg	0.10		
Chrysene		M	2700	mg/kg	0.10		
Benzo[b]fluoranthene		M	2700	mg/kg	0.10		
Benzo[k]fluoranthene		M	2700	mg/kg	0.10		
Benzo[a]pyrene		M	2700	mg/kg	0.10		
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10		

Results - Soil

Project: Llanarth

Client: Terra Firma				**Chemtest Job No.:**		25-16389	25-16389
Quotation No.: Q25-37003				**Chemtest Sample ID.:**		1974467	1974468
				Client Reference:		*WS03*	*WS05*
				Sample Type:		*SOIL*	*SOIL*
				Top Depth (m):		*0.50*	*0.70*
				Date Sampled:		*13-May-2025*	*13-May-2025*
				Asbestos Lab:			
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**		
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10		
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10		
Total Of 16 PAH's		M	2700	mg/kg	2.0		
Total Phenols		M	2920	mg/kg	0.10		
Organic Matter BS1377		N	2930	%	0.10		

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2425	Extractable Ammonium in soils	Ammonium	Extraction with potassium chloride solution / analysis by 'Aquakem 600' Discrete Analyser using sodium salicylate and sodium dichloroisocyanurate.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	
2930	Organic Matter	Organic Matter	Acid Dichromate digestion/Titration	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection
Text example	All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

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

For all other tests the samples were dried at ≤ 30°C prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

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

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

ANNEX G
Laboratory Soil Geotechnical Test Results

Results Summary

Apex Testing Solutions Limited
Sturmi Way
Village Farm Industrial Estate
Pyle
Bridgend
CF33 6BZ

Telephone: 01656 746762
E-mail: andrew.grogan@apex-drilling.com
laura.davis@apex-drilling.com

Reporting Details		**Key Information**	
Company Name:	TFW Group Ltd	**Site Name:**	Llanarth
Address:	5 Deryn Court		
	Wharfdale Road	**Job Number:**	D25158
	Cardiff	**Date Received:**	19/05/2025
	CF23 7HA	**Job Coordinator:**	L. Davis
Contact Name:	**Jamie**		
Contact Number:			

Item No.	Tests Undertaken	Number of Tests
1	Water Content - ISO 17892 2014	3
2	Atterburg Limits (4 point) - BS1377-2: 1990	3

Results Issued: 02/06/2025

Comments

Results herein relate only to samples received in the laboratory and where not sampled by Apex Testing Solutions personnel relate to the samples as received.
Where tests are UKAS accredited any Opinion and/or Interpretation expressed herein are outside the scope of the UKAS Accreditation. The reports shall not be reproduced in full without the written approval of the laboratory.

Please contact the job coordinator should any further information be required.

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014 +A1:2022

Project No:	D25158	**Client:**	TFW Group Ltd
Project Name:	25-045-CA Llanarth	**Address:**	5 Deryn Court Wharfdale Road Cardiff
ATS Sample No:	41425		CF23 7HA

Site Ref / Hole ID:	WS05	**Depth (m):**	1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light greyish brown gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 May 2025	**Date Tested:**	02 June 2025

Test Results

Water Content (%)	13.8

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 +A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	02/06/2025	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

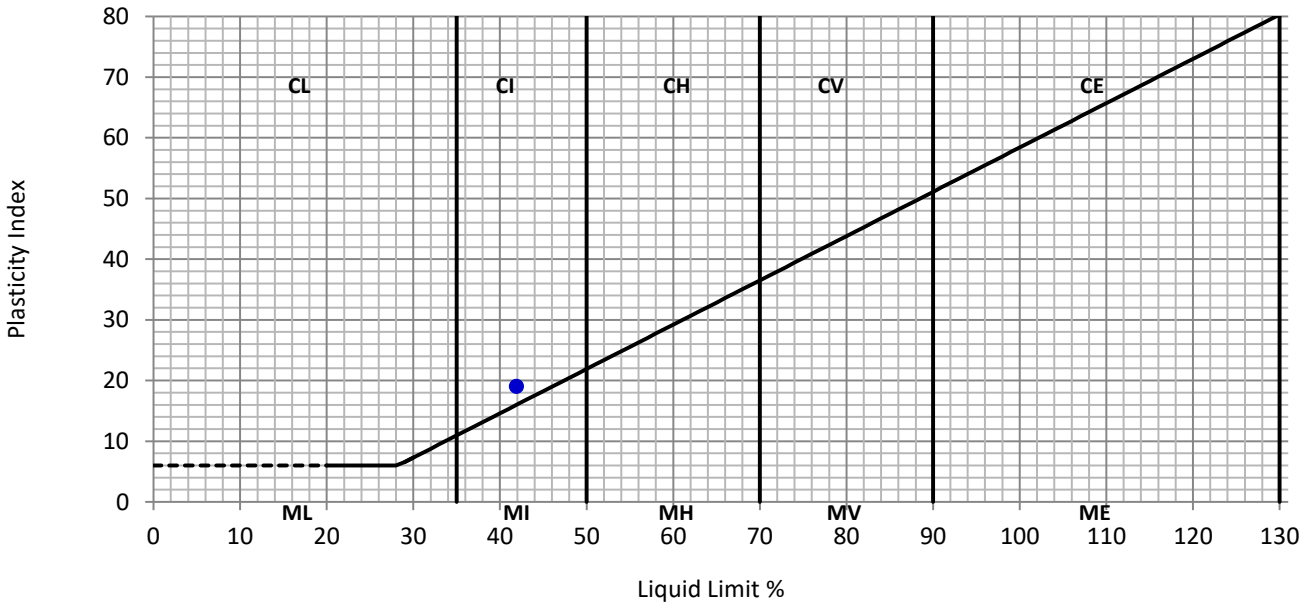
Project No:	D25158	**Client:**	TFW Group Ltd
Project Name:	25-045-CA Llanarth	**Address:**	5 Deryn Court Wharfdale Road Cardiff CF23 7HA
ATS Sample No:	41425		

Site Ref / Hole ID:	WS05	**Depth (m):**	1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light greyish brown gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 May 2025	**Date Tested:**	30 May 2025

Test Results

Liquid Limit	42	%
Plastic Limit	23	%
Plasticity Index	19	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	28	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	UKAS TESTING 7771	Approver: *A Grogan* A Grogan, Laboratory Manager	Date: 02/06/2025	Fig. **ATT**

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014 +A1:2022

Project No:	D25158	**Client:**	TFW Group Ltd
Project Name:	25-045-CA Llanarth	**Address:**	5 Deryn Court Wharfdale Road Cardiff
ATS Sample No:	41423		CF23 7HA

Site Ref / Hole ID:	WS01	**Depth (m):**	0.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light greyish brown gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 May 2025	**Date Tested:**	02 June 2025

Test Results

Water Content (%)	16.8

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 +A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	02/06/2025	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

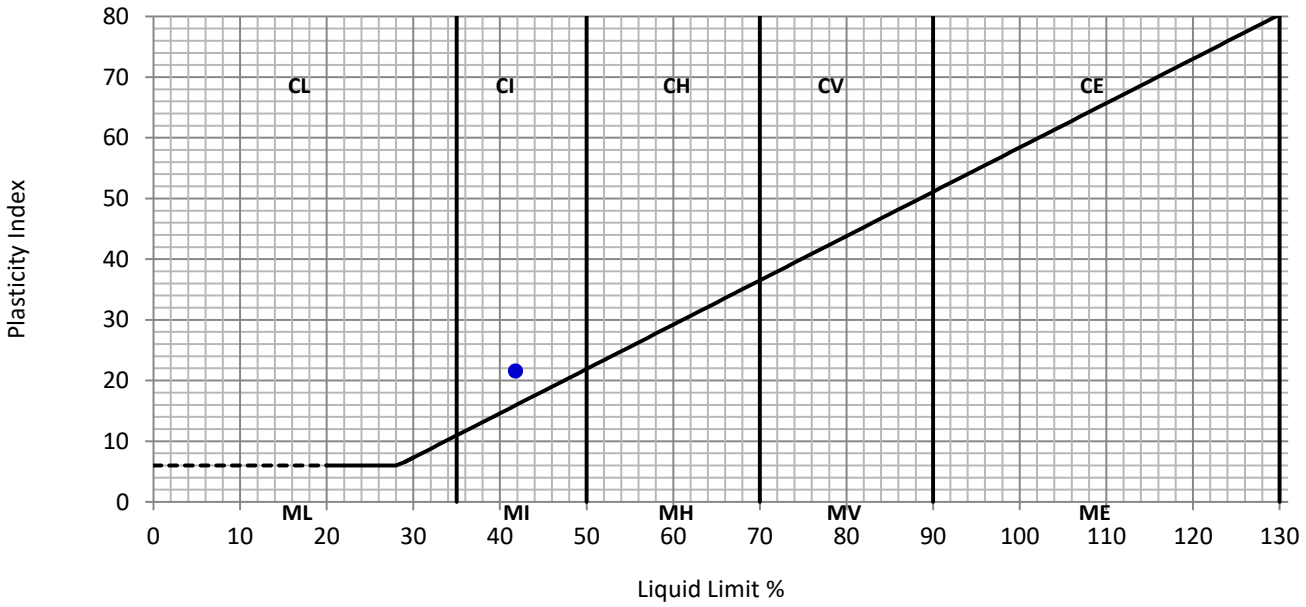
Project No:	D25158	**Client:**	TFW Group Ltd
Project Name:	25-045-CA Llanarth	**Address:**	5 Deryn Court Wharfdale Road Cardiff CF23 7HA
ATS Sample No:	41423		

Site Ref / Hole ID:	WS01	**Depth (m):**	0.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light greyish brown gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 May 2025	**Date Tested:**	30 May 2025

Test Results

Liquid Limit	42	%
Plastic Limit	20	%
Plasticity Index	22	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	21	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	UKAS TESTING 7771	Approver: *A Grogan* A Grogan, Laboratory Manager	Date: 02/06/2025	Fig. **ATT**

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014 +A1:2022

Project No:	D25158	**Client:**	TFW Group Ltd
Project Name:	25-045-CA Llanarth	**Address:**	5 Deryn Court Wharfdale Road Cardiff CF23 7HA
ATS Sample No:	41424		

Site Ref / Hole ID:	WS03	**Depth (m):**	0.90
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey very gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 May 2025	**Date Tested:**	21 May 2025

Test Results

Water Content (%)	10.8

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 +A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	28/05/2025	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

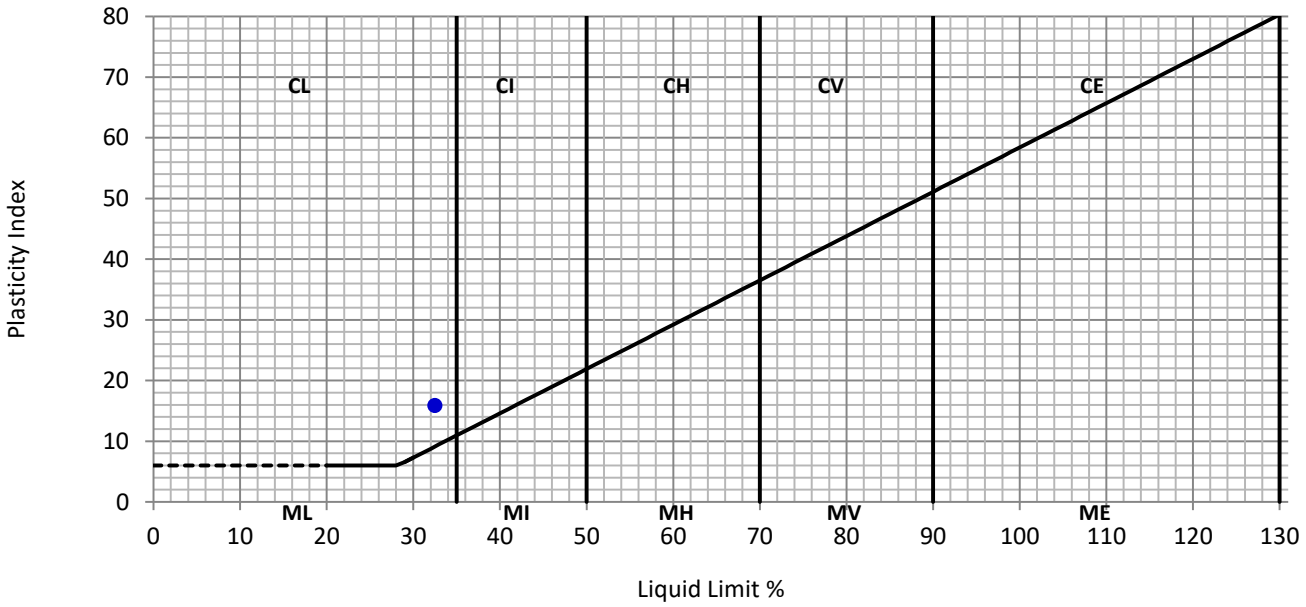
Project No:	D25158	**Client:**	TFW Group Ltd
Project Name:	25-045-CA Llanarth	**Address:**	5 Deryn Court Wharfdale Road Cardiff CF23 7HA
ATS Sample No:	41424		

Site Ref / Hole ID:	WS03	**Depth (m):**	0.90
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light grey very gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 May 2025	**Date Tested:**	23 May 2025

Test Results

Liquid Limit	33	%
Plastic Limit	17	%
Plasticity Index	16	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	49	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	UKAS TESTING 7771	Approver: *A Grogan* A Grogan, Laboratory Manager	Date: 28/05/2025	Fig. **ATT**

ANNEX H
Ground Gas Monitoring Results

In-Situ Gas Monitoring Results

Job Number TF-25-045-CA
Job Name Llanarth

Round 1

Date: 21.07.2021
Barometric Pressure: 1017mb
Weather: Overcast

Gas Monitoring Well Number	Methane (CH_4)	Oxygen (O_2)	Carbon Dioxide (CO_2)	Flow	Water Level
	(%)	(%)	(%)	(l/hr)	(m)
WS02	0.0	20.4	0.8	0.3	Dry
WS03	0.0	17.8	4.5	0.5	Dry
WS05	0.0	12.9	10.3	0.5	Dry

Round 2

Date:
Barometric Pressure:
Weather:

Gas Monitoring Well Number	Methane (CH_4)	Oxygen (O_2)	Carbon Dioxide (CO_2)	Flow	Water Level
	(%)	(%)	(%)	(l/hr)	(m)

Round 3

Date:
Barometric Pressure:
Weather:

Gas Monitoring Well Number	Methane (CH_4)	Oxygen (O_2)	Carbon Dioxide (CO_2)	Flow	Water Level
	(%)	(%)	(%)	(l/hr)	(m)

Notes:

Gas Measuring Instrument
GA 2000

N/D - Not Detected

In-Situ Gas Monitoring Results

Job Number 17188
Job Name Weston Paintworx

Round 4

Date:
Barometric Pressure:
Weather:

Gas Monitoring Well Number	Methane (CH_4) (%)	Oxygen (O_2) (%)	Carbon Dioxide (CO_2) (%)	Flow (l/hr)	Water Level (m)

Round 5

Date:
Barometric Pressure:
Weather:

Gas Monitoring Well Number	Methane (CH_4) (%)	Oxygen (O_2) (%)	Carbon Dioxide (CO_2) (%)	Flow (l/hr)	Water Level (m)

Round 6

Date:
Barometric Pressure:
Weather:

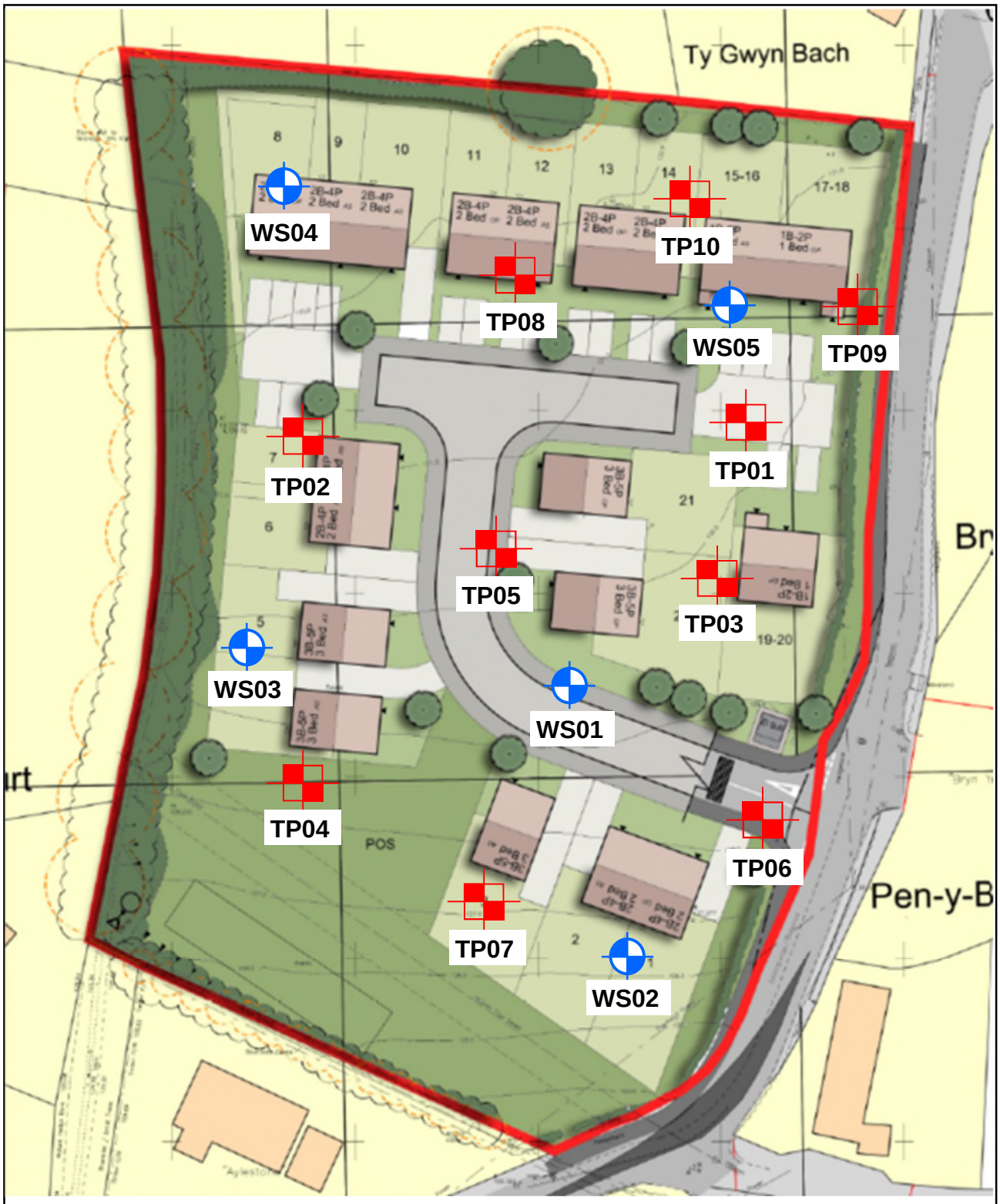
Gas Monitoring Well Number	Methane (CH_4) (%)	Oxygen (O_2) (%)	Carbon Dioxide (CO_2) (%)	Flow (l/hr)	Water Level (m)

Notes:

Gas Measuring Instrument
GA 2000

N/D - Not Detected

DRAWINGS



Site Name:	Llanarth
Project Number:	TF-25-045-CA
Drawing Title:	Exploratory Hole Layout
Drawing Number:	01
Scale:	Not to scale

KEY

- Window Samples
- Trail Pits

terra firma

Geotechnical & Geoenvironmental Specialists

TFW Group Ltd, 5 Deryn Court, Wharfedale Road, Pentwyn, Cardiff. CF23 7HA

Tel: 033 022 36380 **Email**: hello@tfwgroup.co.uk **www.tfwgroup.co.uk**