

**Geotechnical & Geo-environmental
Desk Study and Geotechnical Site
Investigation Report:**

Proposed Residential Development,
Land Adjacent Number 1, Bedlinog
Terrace, Bedlinog, Treharris

PREPARED FOR:

Mr Ben Prictor

February 2020

Job No: 15886

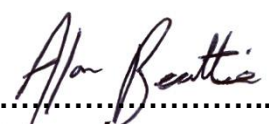


REPORT TITLE : **Geotechnical and Geoenvironmental Desk Study and Geotechnical Site Investigation Report:** Proposed Residential Development, Land Adjacent Number 1, Bedlinog Terrace, Bedlinog, Treharris

REPORT STATUS : **Final**

JOB NUMBER : **15886**

DATE : **February 2020**

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Executive Summary	
Proposed Development and Site Location	Mr Ben Prictor is proposing a residential development comprising a single three-bedroom detached house with associated car parking area, hard and soft landscaping and garden areas. The land is located to the north of Bedlinog Terrace adjacent to Number 1.
Site History	The earliest edition shows the site to fall in an area of woodland. The site remains unoccupied but undergoes two phases where the topography is modified. The first occurs in the 1900s with the second taking place by the 1961 edition. The surrounding area is established by the 1900 edition with many residential houses constructed.
Ground Conditions	• MADE GROUND: Soft, brown, gravelly CLAY. Contains plastic litter and occasional brick and timber. • (Medium dense), brown, very clayey GRAVEL and COBBLES with common boulders / (Loose to medium dense), brown, clayey GRAVEL with common cobbles and boulders. • Soft to firm and firm, orange brown, sandy very gravelly CLAY with occasional to common cobbles and boulders.
Radon	No radon protection is required for the proposed buildings.
Soil Plasticity	Laboratory geotechnical testing of soils for plasticity has found that they have a very low volume change potential.
Concrete Classification	When compared to Table C2 (Brownfield Locations) of BRE Special Digest 1 the concrete on site should conform to Design Sulphate Class DS-1 and to Aggressive Chemical Environment for Concrete Class AC-1. However further steps are required to determine if there is the potential for the presence of pyrite.
Foundation Solution	Due to the size of the machine provided for trial pitting in was not possible to investigate the ground condition past a depth of 1.60m. It would therefore be prudent to confirm the deeper ground conditions when a larger machine is available on site. It is recommended that a reinforced concrete strip and trench foundation is utilised. This should be founded within the underlying firm, orange brown, sandy very gravelly CLAY encountered at between 0.60m and 0.80m depth. The foundations should penetrate at least 200mm into the founding horizon. An allowable bearing pressure of 75kN/m² may be used for design purposes. For the given foundation solution and bearing pressure, maximum total settlements of 30mm should result with differential movements of the superstructure not exceeding 1:750. The soils on site should be assumed to have a very low volume change potential and the foundations will need to penetrate a minimum of 750mm below ground level. This will also account for any effects from frost heave for which the foundations should extend to a minimum depth of 450mm. The floor slabs should be designed and constructed as suspended.

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SECTION 1 Introduction and Proposed Development

1.1 Introduction

Mr Ben Pictor is proposing a residential development comprising a single three-bedroom detached house with associated car parking area, hard and soft landscaping and garden areas. The land is located to the north of Bedlinog Terrace adjacent to Number 1. The proposed development can be found in **Drawing 01**.

Terra Firma (Wales) Limited have been commissioned to undertake a geotechnical and geo-environmental desk-based assessment and geotechnical investigation of the site.

The main objectives of the geo-environmental assessment programme were to:

- Identify the potential environmental liabilities at the site associated with any soil contamination
- Provide a summary of the environmental conditions at the site

The main objectives of the geotechnical site investigation were to:

- Determine the type, strength and bearing characteristics of the shallow superficial and underlying solid geology
- Provide engineering foundation and floor slab recommendations for the development
- Provide recommendations regarding any other geotechnical aspects pertaining to the development

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

1.2 Limitations and Exceptions of Investigation

Mr Ben Pictor has requested that a Geoenvironmental Site Assessment (GSA) and Geotechnical Investigation (GI) be performed in order to determine if contamination is present beneath the site and to determine an appropriate foundation and floor slab solution for the proposed development.

The GSA and GI were conducted, and this report has been prepared for the sole internal reliance of Mr Ben Pictor and his design and construction team. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Terra Firma (Wales) Limited. 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 geo-environmental and geotechnical consultants. Terra Firma (Wales) Limited 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. The site investigation was limited by:

- Underground and overhead services
- Areas with a steep topography

SECTION 2 Review of Existing Data

2.1 Physical Setting and Current Site Use

The site is roughly rectangular in shape and centres on a National Grid Reference of 309340 201470 occupying a plan area of approximately 0.05 Hectares / 500m². The site is currently unoccupied. The site has previously seen some earthworks undertaken with the bank cut to form a level plateau at the front of the site. The site is currently covered by rough vegetation with a small area of asphalt in the south eastern area. The site location is shown on **Figure 2.1**.

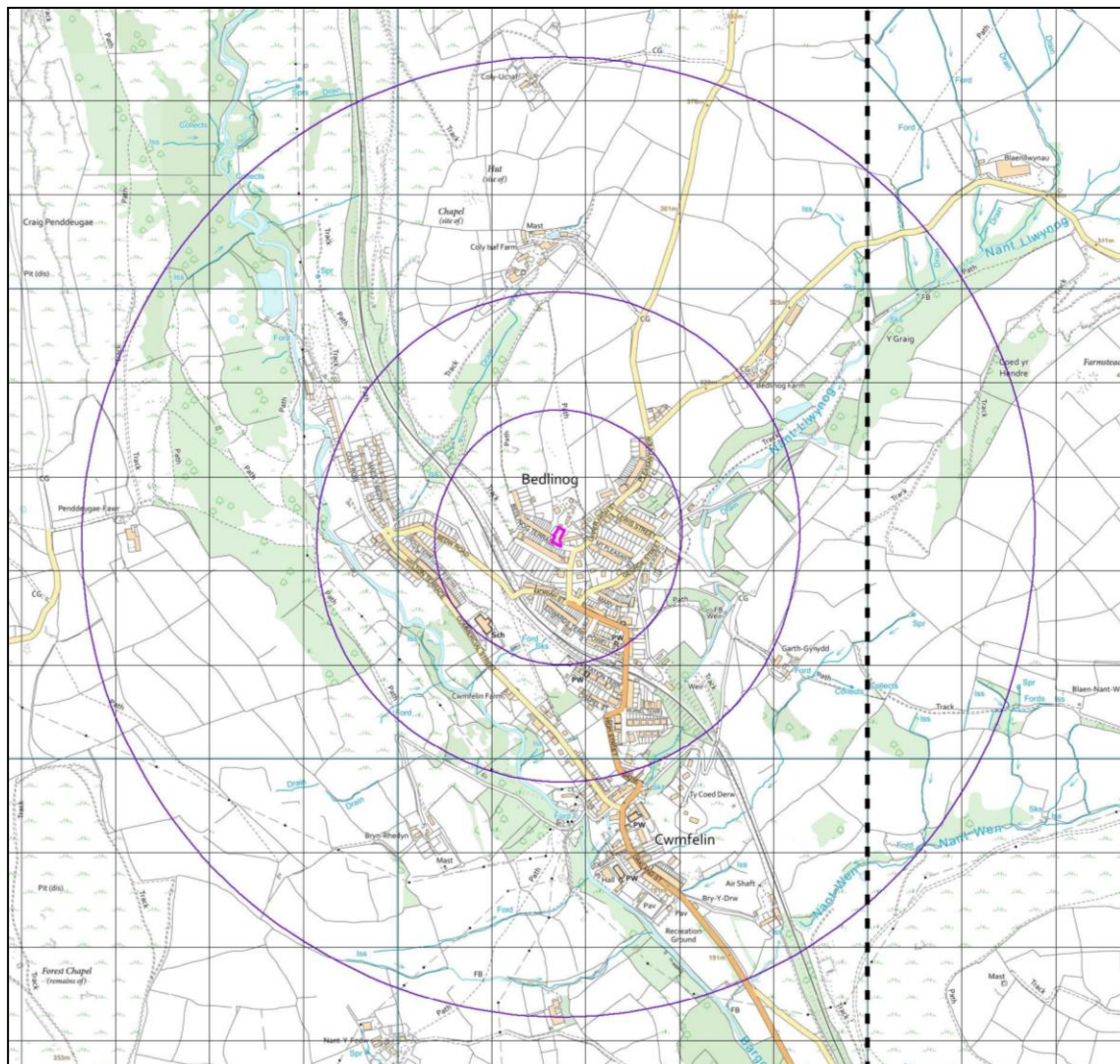


Figure 2.1 Site Location

The northern boundary falls across an area of rough vegetation. The eastern and western boundaries are marked by residential properties. The southern boundary is marked by Bedlinog Terrace.

The topography of the site falls to the south from an elevation of 289m AOD to 283m AOD. A program of cutting has been undertaken at the front of the site and a level plateau has been formed.

A proposed site layout is presented at the rear of the report in **Drawing 01**.

2.2 Site History

Historical maps of the site have been obtained in an Envirocheck History Report, provided by Landmark Information Group. The history plans are supplied in **Annex A** of this report, and the most relevant editions are summarised below in **Table 2.1**. Distances are approximate, and any changes occurring completely between map editions may not be recorded.

Table 2.1 Summary of Historical Map Information		
Map Date and Scale	Key Features on Site	Key Features off Site
1875 (1:2,500)	The site falls in a small area of woodland.	The surrounding area is dominated by field land with areas of woodland. A small row of terrace houses locates east of the site. A small quarry also locates 20m to the east of the site. A north west to south east trending rail line is present to the west of the site at 140m. Located 230m to the south of the site is a Coal Level which enters the hillside in a north easterly direction (approximate bearing 055°). A coal level also located 360m to the north east of the site. The Coly Brook locates 280m north west and the Nant Llwynog 310m south east.
1900 (1:2,500)	The topography of the site has now been modified and a downward slope is present in the northern end of the site.	The area has seen a large amount of residential development with terrace houses now constructed along Bedlinog Terrace to the west of the site. This also forms the southern boundary of the site. The residential development has primarily taken place to the south of the site. The quarry to the west of the site has been extended and is now present to the north of the site as well. The rail infrastructure in the area has also been expanded and a siding is present to the east. Bedlinog Colliery is present in the surrounding area to the north east. The Coal Level to the south of the site is now identified as old.
1919 (1:2,500)	No significant changes.	Further residential development has been undertaken to the east and west of the site. A large area of spoil has been deposited to the east associated with Bedlinog Terrace.
1945 (1:10,560) <i>Historical Aerial Photo</i>	No significant changes.	No significant changes.
1961 (1:2,500)	The topography of the site has been modified again. A second slope is indicated in the southern half of the site and along the western boundary.	The quarry to the north of the site has now been developed and numerous small buildings are present in this area. The rail sidings to the east of the site have been dismantled.
1989 (1:2,500)	No significant changes.	No significant changes.
1993 (1:1,250)	No significant changes.	No significant changes.
2000 <i>Historical Aerial Photography</i>	The site is seen to be covered by rough vegetation	No significant changes.
1999, 2006 and 2020 (1:10,000)	No significant changes.	No significant changes.

2.3 Geological Setting

2.3.1 Geology

The 1:10,560 scale geological maps of the area (Sheet SO 00 SE and Envirocheck map) were consulted for geology underlying the site. The site is shown to be underlain by a Sandstone Member of the Brithdir Beds which are part of the South Wales Upper Coal Measures Formation, which are Carboniferous in age. The BGS Lexicon of Named Rock Unit describes this formation as “Grey, (productive) coal-bearing mudstones/siltstones, with seatearths and minor grey, quartz-rich sandstones, coals and ironstones”.

In the area of the site the dip of the bedrock is seen to be 6° south west.

No superficial deposits are recorded on the site however immediately to the south and possible underlying the site are deposits of Till (formerly boulder clay). This is likely to comprise clay and silt with varying quantities of sand, gravel, cobbles and boulders.

The historic maps have shown that the site was re-profiled on at least two occasions. Made ground comprising reworked natural material may be present on the site.

The underlying geology is not prone to dissolution and the risk of **natural** cavities in the bedrock is considered negligible.

The Envirocheck geological map can be found in **Annex B**.

2.3.2 Mining

Terra Firma (Wales) Limited obtained a Coal Authority Mining report for the site. The property is in a surface area that could be affected by underground mining in 4 seams of coal at 60m to 560m depth, and last worked in 1919. The report also states that ‘any movement in the ground due to coal mining activity associated with these workings should have stopped by now’.

The report also adds that there are no known coal mine entries known to the Coal Authority within, or within 20m, of the boundary of the property.

There is no record of a mine gas emission requiring action.

It is therefore considered that there is a low risk from past underground mining. The Coal Authority Mining report can be found in **Annex C**.

2.3.3 Radon

The Envirocheck datasheet (**Annex B**) details that the site is in a lower probability radon area as less than 1% of homes are estimated to be at or above the action level.

NO radon protection measures are required for new development on the site.

2.3.4 Landslides

The Envirocheck datasheet indicates that there is a moderate landslide hazard for the site.

The South Wales Coalfield Landslip Survey report number EG80/4 shows no recorded landslips within influencing distance of the site.

2.4 Environmental Setting

The following sections have been compiled using the Envirocheck datasheet and maps which can be found in **Annex B**.

2.4.1 Hydrogeology and Hydrology

The Envirocheck data shows the nearest surface water feature 176m to the south of the site this corresponds with a small drain. The Coly Brook locates 280m north west and the Nant Llwynog 310m south east. These are larger streams and flow in a south westerly direction towards the bottom of the valley and converge with the Bargoed Taf. This flows in a south easterly direction.

The site falls on a south west facing slope and the site and the surrounding area fall in this direction. Shallow groundwater is anticipated to flow in this direction also. Given the semi-urban nature of the site and surrounding area surface water is likely to be collected by surface water drainage systems with a smaller portion infiltrating / running off open land.

Deep groundwater flow within the underlying bedrock will be controlled by the strata dip and any fractures or bedding planes within the rock units. The underground coal mining in the area will also be conduits for groundwater.

The hydraulic gradient will be at its steepest during periods of heavy rainfall and aquifer recharge.

The bedrock beneath the site has an aquifer designation of 'Secondary A'. These are "permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers".

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

2.4.2 Groundwater

There are no groundwater source protection zones within 1km of the site.

There are no groundwater abstraction points within 1km of the site. A surface water abstraction locates 819m north west and is identified as a surface water impounding at Bedlinog Angling Association.

2.4.3 Flooding

The maps show that the site does not fall in an area at risk of flooding from rivers or the sea.

There is no risk of surface water flooding at the site.

The site falls in an area where there is limited potential for groundwater flooding to occur at the surface.

2.4.4 Landfills

There are no recorded landfill sites (historic or current) within a 250m radius of the site.

2.4.5 Recorded Mineral Sites

The nearest BGS Recorded Mineral Site locates 45m to the north of the site and is identified as Bedlinog Colliery. The colliery was exploiting sandstone from the Brithdir Member by opencast methods. The operations have ceased.

2.4.6 Pollution

There are no entries on the contaminated land register within 250m of the site.

There have been no recorded pollution incidents to controlled waters within a 250m radius of the site.

There are no records on the substantiated pollution incident register within 250m of the site.

2.4.7 BGS Estimated Soil Chemistry

The BGS have published anticipated soil concentrations for several common contaminants, i.e. arsenic, cadmium, chromium, lead and nickel. The estimated concentrations of the contaminants for the site are listed as below:

Arsenic:	15-25 mg/kg
Cadmium	<1.8 mg/kg
Chromium	60 – 90 mg/kg
Lead	<100 mg/kg
Nickel	15 – 30 mg/kg

The estimated concentrations are below the residential guidelines with plant uptake.

2.4.8 Sensitive Land Use

There are 17 areas of ancient woodland located within 1km of the site. The closest occurrence locates 260m to the south west of the site.

2.5 Japanese Knotweed

No evidence of Japanese Knotweed was identified on the site however the site was visited outside of the active growing season.

Further information on Japanese Knotweed can be found in the Environment Agency's document Managing Japanese Knotweed on Development Sites (The Knotweed Code of Practice).

Please note that Terra Firma (Wales) Limited are not specialists in this field and the advice of experts will be required.

SECTION 3 Field Investigation

3.1 Site Works

A geotechnical site investigation comprising three machine excavated trial pits was undertaken on 3rd February 2020. The trial pits were excavated with a 1.5 tonne tracked excavator.

The proposed locations of the exploratory holes were determined by Terra Firma (Wales) Limited with reference to the building set out on site by the client's contractors. The fieldworks were also supervised by Terra Firma (Wales) Limited, who logged the exploratory holes to the requirements of BS5930:2015.

The exploratory hole logs are presented in **Annex D** and their locations are shown on **Drawing 01** and **Drawing 02**.

3.2 Ground Conditions

The ground conditions encountered by the exploratory holes can in general be summarised as shown in **Table 3.1**. The detailed trial pit logs should also be consulted.

Table 3.1 Summary of Ground Conditions				
Depth (m)			Thickness (m)	Stratum
GL	-	0.20/0.30	0.20/0.30	MADE GROUND: Soft, brown, gravelly CLAY . Contains plastic litter and occasional brick and timber.
0.20/0.30	-	0.60/0.80	0.40/0.50	(Medium dense), brown, very clayey GRAVEL and COBBLES with common boulders / (Loose to medium dense), brown, clayey GRAVEL with common cobbles and boulders.
0.60/0.80	-	>1.40/1.60	-	Soft to firm and firm, orange brown, sandy very gravelly CLAY with occasional to common cobbles and boulders.

3.3 Water Strikes

No groundwater was encountered in the trial pits.

3.4 Stability and Obstructions

The trial pit walls were stable for the short duration the pits were open

Manmade obstructions were not encountered in the trial pits however large boulders were present and made excavation difficult.

3.5 Soil Property Testing

3.5.1 Soil Plasticity Testing

During the fieldworks two small disturbed soil samples of the in-situ materials were taken and despatched to the laboratories of Apex Testing Solutions Limited in Pyle for plasticity testing.

The tests were undertaken to the appropriate British standards.

The test results are presented in **Annex E** and discussed in detail in **Section 4.2** of this report.

3.5.2 Concrete Classification

During the site investigation two samples were collected and submitted to the laboratories of Chemtest for analysis. The samples were tested for a BRE Special Digest One Suite of determinants to allow an appropriate classification of concrete to be recommended.

The test results are presented in **Annex F** and discussed in **Section 4.5**.

SECTION 4 Engineering Recommendations

4.1 Preparation of Site

All existing hard standings, topsoil, scrub vegetation including all roots including buried organic material should be stripped and removed from beneath the proposed buildings and areas of hard standing.

Contingencies should be made for the protection/diversion any underground/overhead services present beneath the site brought about as a result of the proposed works.

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

Allowances should also be made for the temporary or permanent support of existing structures.

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

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

4.2 Foundation and Floor Slab Solution

Due to the size of the machine provided for trial pitting in was not possible to investigate the ground condition past a depth of 1.60m. It would therefore be prudent to confirm the deeper ground conditions when a larger machine is available on site.

It is recommended that a reinforced concrete strip and trench foundation is utilised. This should be founded within the underlying firm, orange brown, sandy very gravelly CLAY encountered at between 0.60m and 0.80m depth.

The foundations should penetrate at least 200mm into the founding horizon.

An allowable bearing pressure of 75kN/m² may be used for design purposes. For the given foundation solution and bearing pressure, maximum total settlements of 30mm should result with differential movements of the superstructure not exceeding 1:750.

The floor slabs should be designed and constructed as suspended.

To maintain stability a 45° line struck from the outermost edge of the foundation, for any structure, should not impinge on the face of an existing slope. Additionally, the same should apply to new retaining walls unless it has been specifically designed to withstand the additional loads.

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

4.2 Foundation and Floor Slab Solution (Continued)

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 samples of the in-situ clay was taken and submitted for plasticity testing (**Annex E**). In line with the NHBC (Chapter 4.2), the modified plasticity index for the sample was calculated.

Table 4.1 Plasticity Test Results						
Sample	Depth (m)	Soil Type	Plasticity Index (%)	Passing 425µm Sieve (%)	Modified Plasticity Index (%)	Volume Change Potential
TP01	1.60	Brownish grey gravelly CLAY	11	52	5.72	Very Low
TP03	1.30	Brownish grey gravelly CLAY	9	50	4.50	Very Low

Based on the above the soils on site should be assumed to have a very low volume change potential and the foundations will need to penetrate a minimum of 750mm below ground level. This will also account for any effects from frost heave for which the foundations should extend to a minimum depth of 450mm.

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

4.3 Excavations and Formations

Excavations will be possible with normal soil excavating machinery however when dealing with large boulders and areas of hard standing a breaker attachment may be required.

Any water inflows together with rainwater infiltration should be dealt with by conventional pumping techniques. It should be noted that during times of heavy rainfall a higher water table will be encountered.

Short term instabilities were not seen in the trial however the sides of any excavations deeper than 1.0m, 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. Once again this does not apply to areas of bedrock.

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

4.4 Retaining Walls

Due to the tiered nature of the site retaining walls will be required.

The effective angles of shearing resistance of the materials likely to be encountered have been determined based upon experience of the materials and are presented in **Table 4.2**:

Table 4.2 Effective Shear Stress Parameters			
Stratum Description	Bulk Unit Weight (γ) kN/m³	Effective Cohesion (c') kN/m²	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	30
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 design and construction of the retaining walls and cut and fill should be in accordance with BS 6031: 1981 Code of Practise for Earthworks and other relevant guidance.

A 45° line taken from the outermost edge of the proposed foundation should not impinge on the face of the retaining walls unless they have been specifically designed to withstand these forces.

It is recommended that the construction of retaining walls be carried out in small sections. The cut face should be inspected by a suitably qualified engineer during the works to determine if any additional precautions are required.

Groundwater was not encountered in the trial pits and appropriate drainage measures should be constructed behind the walls to prevent the build-up of hydrostatic pressure.

If any wall is to be incorporated as part of the proposed building, then suitable 'tanking' should be incorporated in its construction.

Allowances should also be made for the removal of soft spots and their replacement with imported suitable selected inert granular materials or suitable inert site won materials.

It is recommended that the temporary cut face is covered with polythene sheeting to protect the face from weathering and to prevent any minor debris falls impacting upon the site operatives.

The general condition of the temporary cut face should also be inspected on a regular basis. In addition, the boundary walls and vicinity behind should be inspected for tension cracks indicative of movement of the temporary cut face.

4.5 Protection of Buried Concrete

Laboratory chemical testing has been undertaken with 2 samples submitted for testing in accordance with BRE Special Digest 1:2005. The chemical test results can be found in **Annex F**.

Levels of acid soluble sulphate (AS) within the in-situ materials was less than 100mg/kg and water soluble sulphate (WS) was between less than 100mg/l and 140mg/l. The pH has been recorded as between 7.4 and 7.9.

When initially compared to Table C2 (Brownfield Locations) of BRE Special Digest 1 the concrete on site should conform to Design Sulphate Class DS-1 and to Aggressive Chemical Environment for Concrete Class AC-1. However further steps are required to determine if there is the potential for the presence of pyrite.

The following stoichiometric equation was employed for the soils to determine if the pyrite is present:

Total Potential Sulphate (TPS % as SO_4) = $3.0 \times \text{Total Sulphur (TS \% as S)}$

TPS = $3.0 \times 0.020\%$

TPS = 0.060%

The amount of Oxidisable Sulphides (OS as % SO_4) is conservatively calculated by the following equation;

OS = TPS - AS

OS = 0.060% - 0.010%

OS = 0.050%

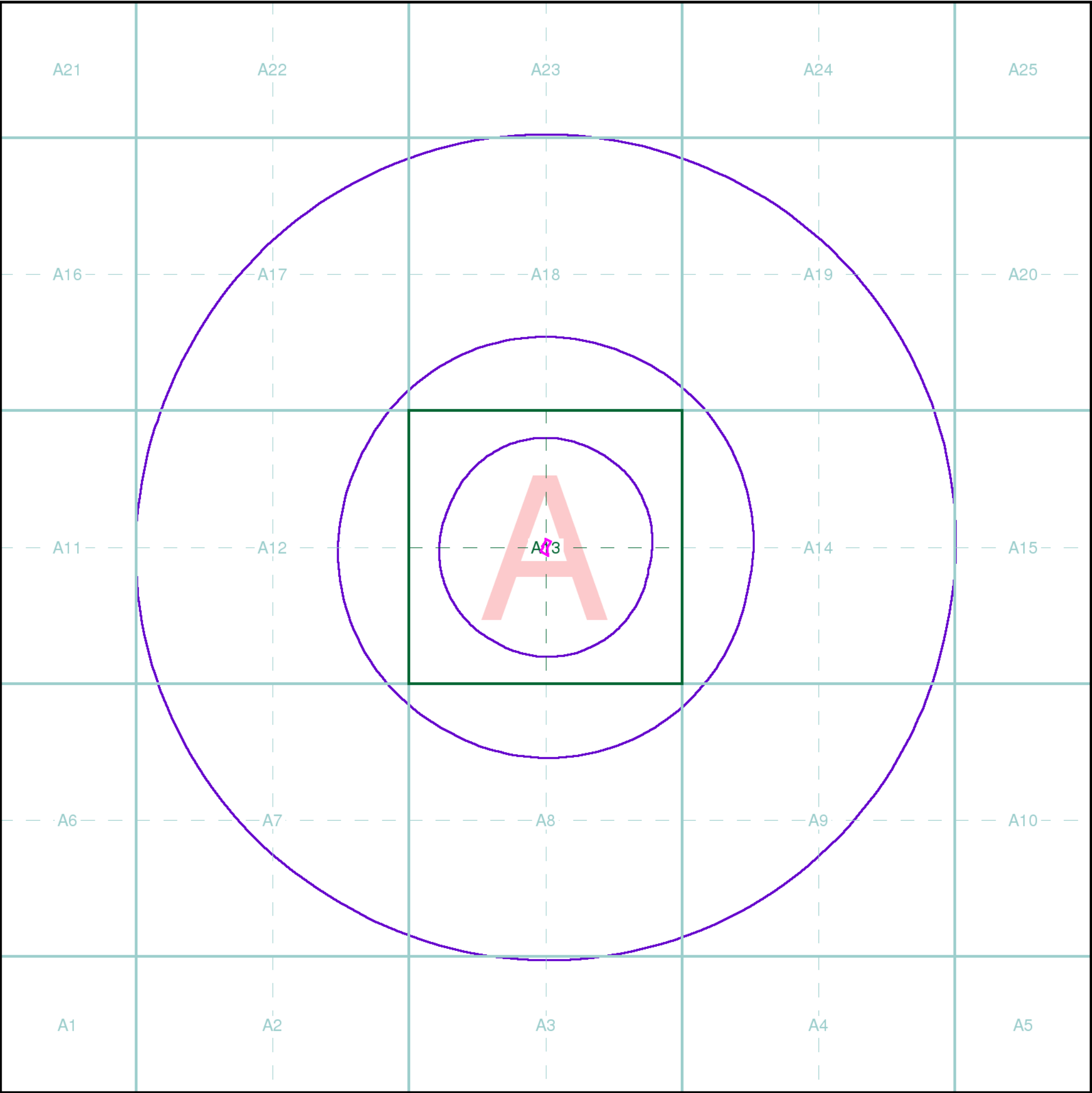
Since OS is below 0.30% pyrite is not considered to be present and the initial classification of DS-1 and AC-1 may be used.

4.6 Car Parking Areas

For car parking areas, formations within the soft shallow in-situ soils / made ground a CBR value of 1% may be used for design purposes.

Allowances should be made for the removal of any 'soft spots/areas' and their replacement with well-compacted granular materials as previously described.

ANNEX A
Envirocheck History Report



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:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr A Beattie, Terra Firma (Wales) Ltd, 5 Deryn Court, Wharfdale Road, Pentwyn, Cardiff, CF23 7HB

Order Details

Order Number: 233104494_1_1
Customer Ref: 15886 - Bedlinog Terrace
National Grid Reference: 309340, 201470
Site Area (Ha): 0.05
Search Buffer (m): 1000

Site Details

Land Adjacent 1, Bedlinog Terrace, Bedlinog, TREHARRIS, CF46 6SB

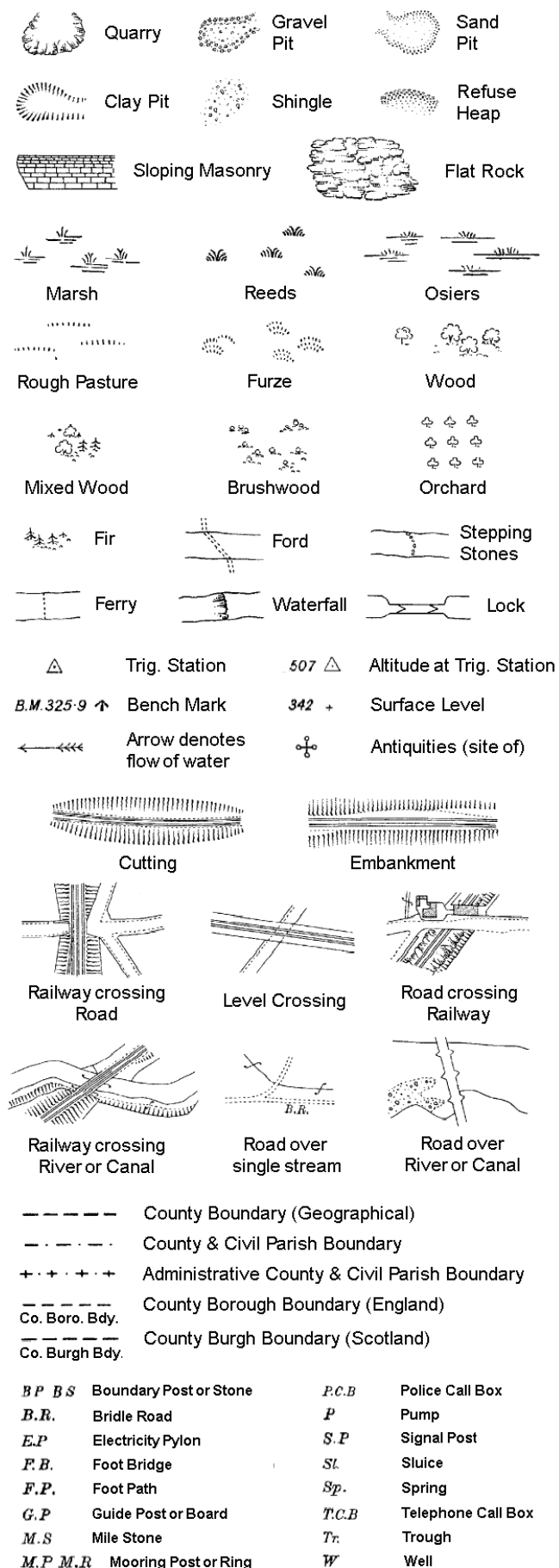
Full Terms and Conditions can be found on the following link:
<http://www.landmarkinfo.co.uk/Terms/Show/515>



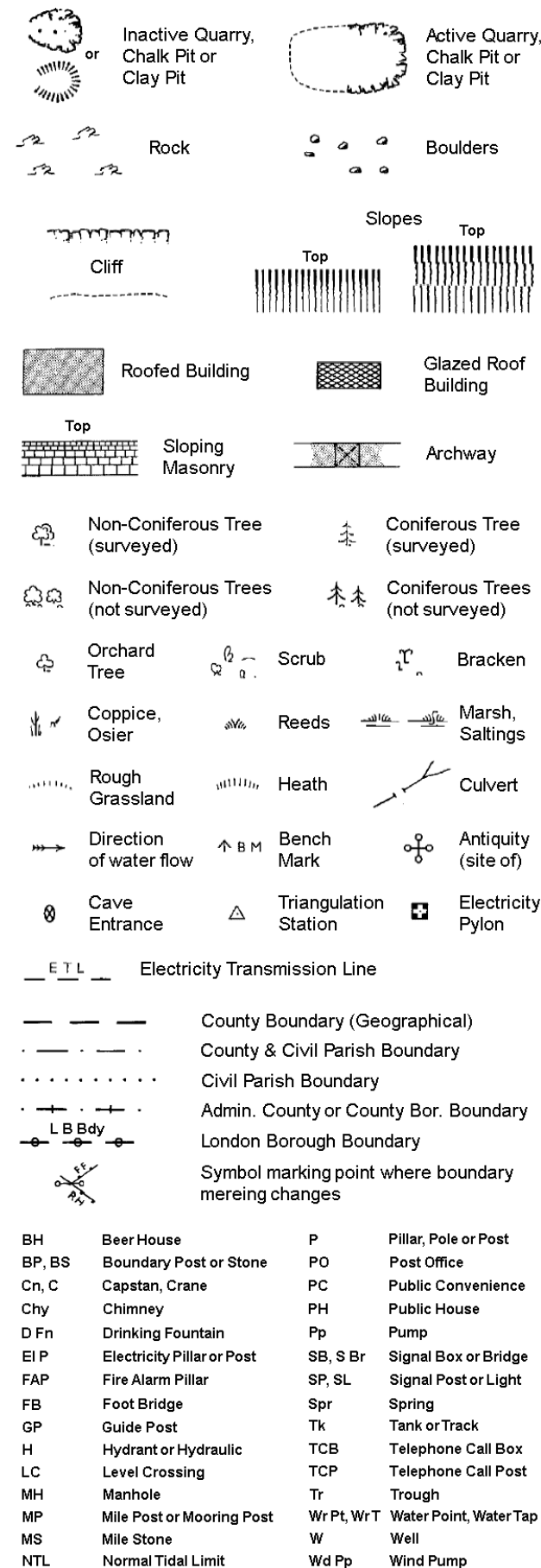
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Historical Mapping Legends

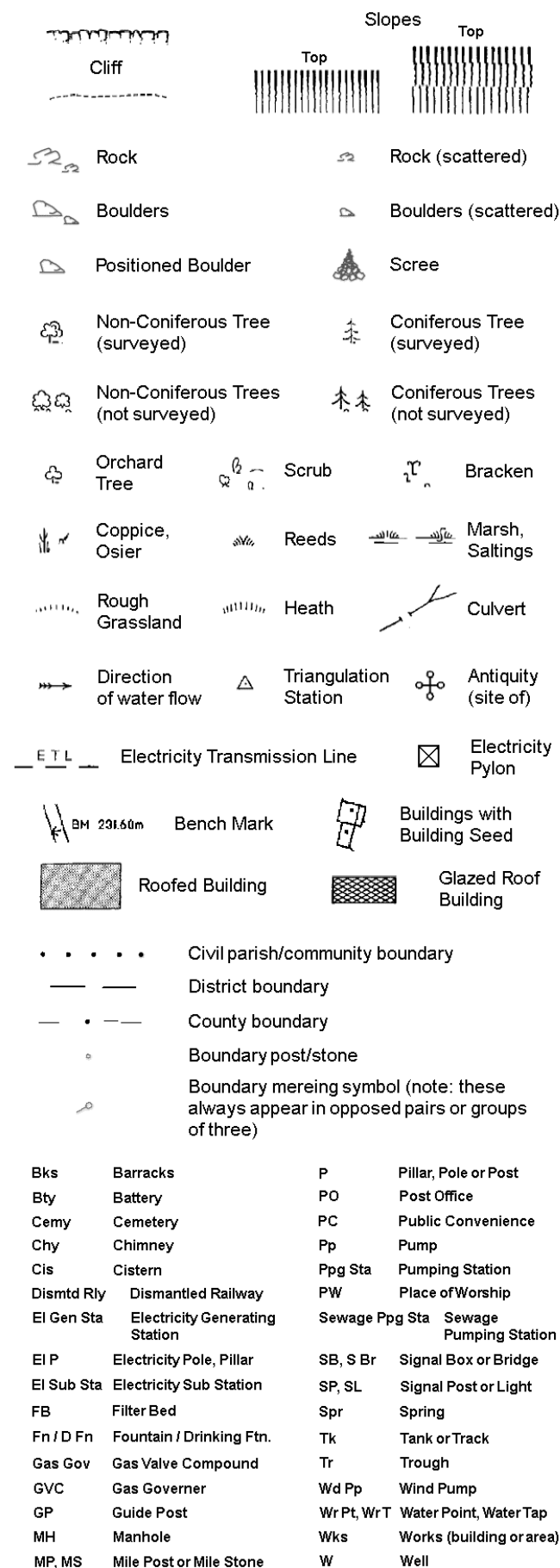
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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



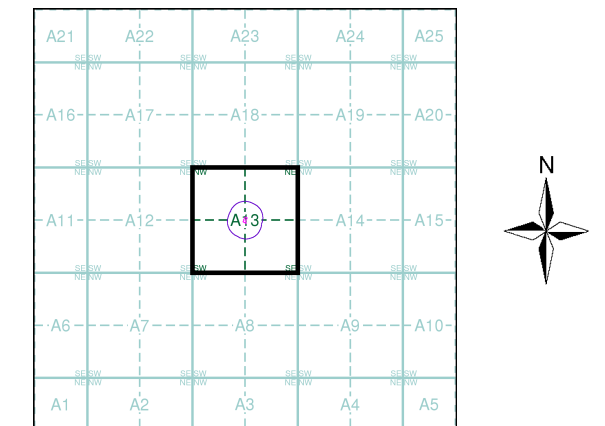
Large-Scale National Grid Data 1:2,500 and 1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Glamorganshire	1:2,500	1875	2
Glamorganshire	1:2,500	1900	3
Glamorganshire	1:2,500	1919	4
Ordnance Survey Plan	1:2,500	1961	5
Additional SIMs	1:2,500	1961	6
Additional SIMs	1:2,500	1989	7
Large-Scale National Grid Data	1:2,500	1993	8
Large-Scale National Grid Data	1:2,500	1993	9
Historical Aerial Photography	1:2,500	2000	10

Historical Map - Segment A13



Order Details

Order Number: 233104494_1_1
Customer Ref: 15886 - Bedlinog Terrace
National Grid Reference: 309340, 201470
Slice: A
Site Area (Ha): 0.05
Search Buffer (m): 100

Site Details

Land Adjacent 1, Bedlinog Terrace, Bedlinog, TREHARRIS, CF46 6SB



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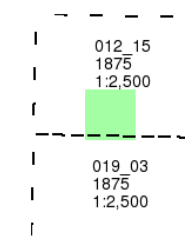
Glamorganshire

Published 1875

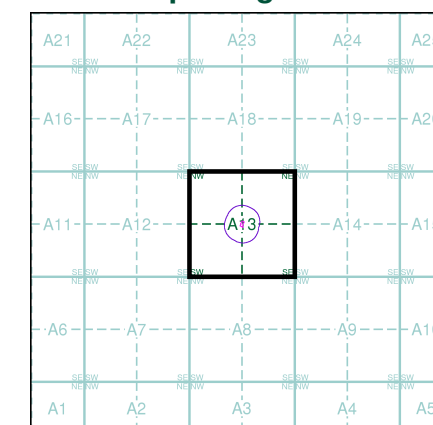
Source map scale - 1:2,500

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

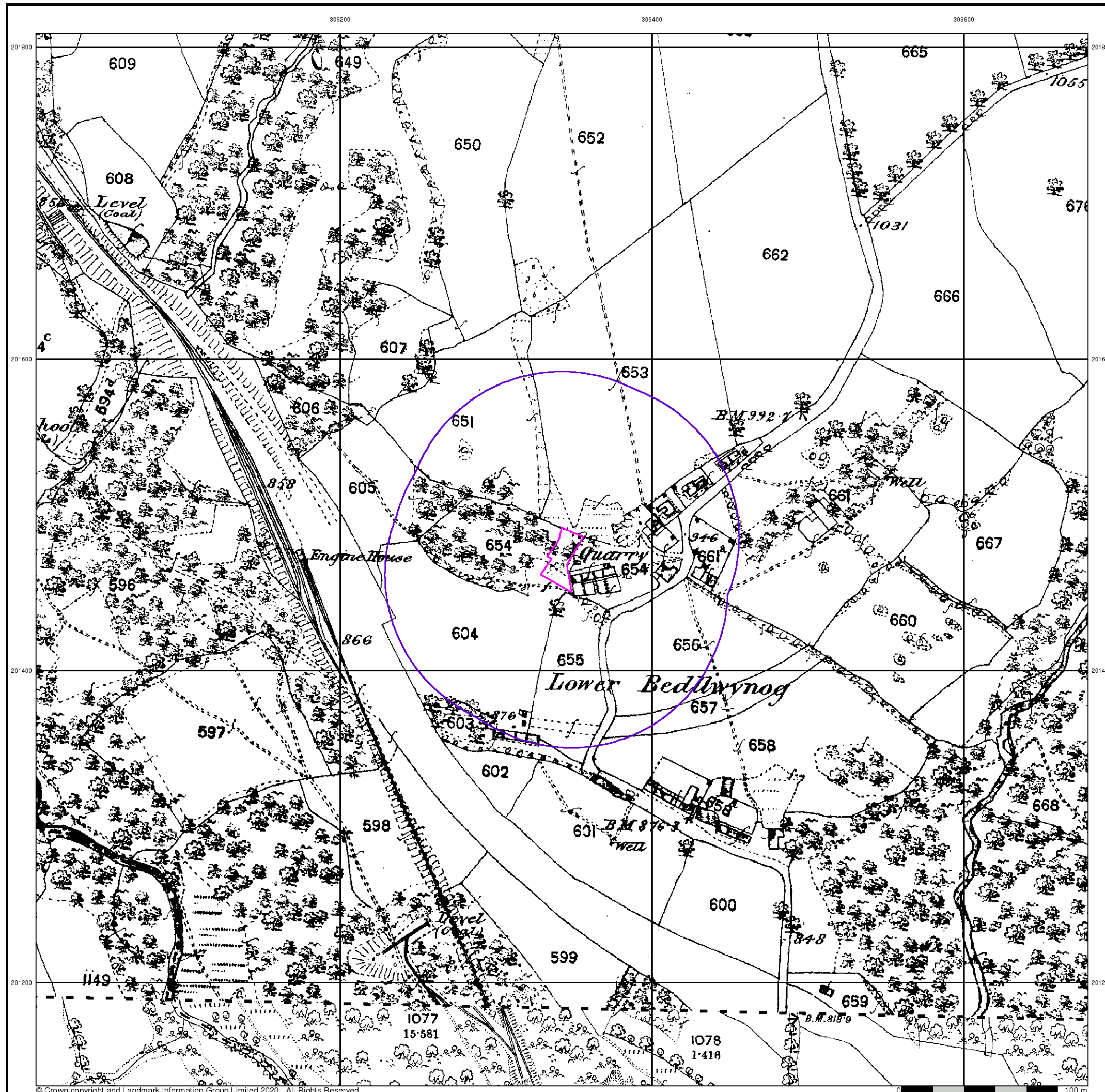
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INFORMATION GROUP

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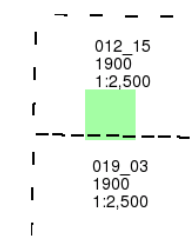
Glamorganshire

Published 1900

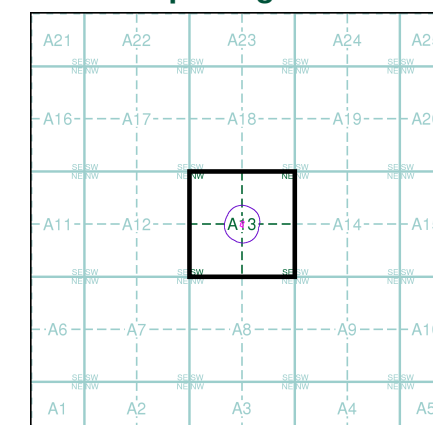
Source map scale - 1:2,500

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)



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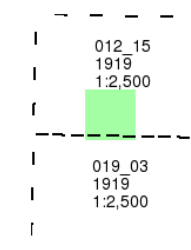
Glamorganshire

Published 1919

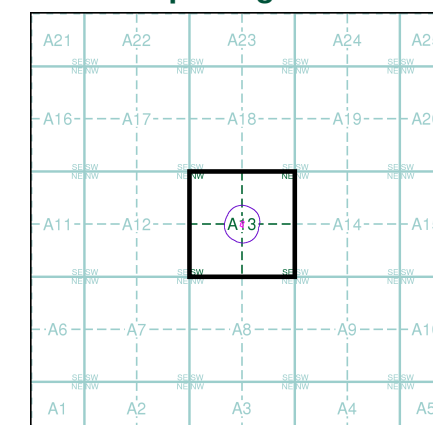
Source map scale - 1:2,500

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Historical Map - Segment A13



Order Details

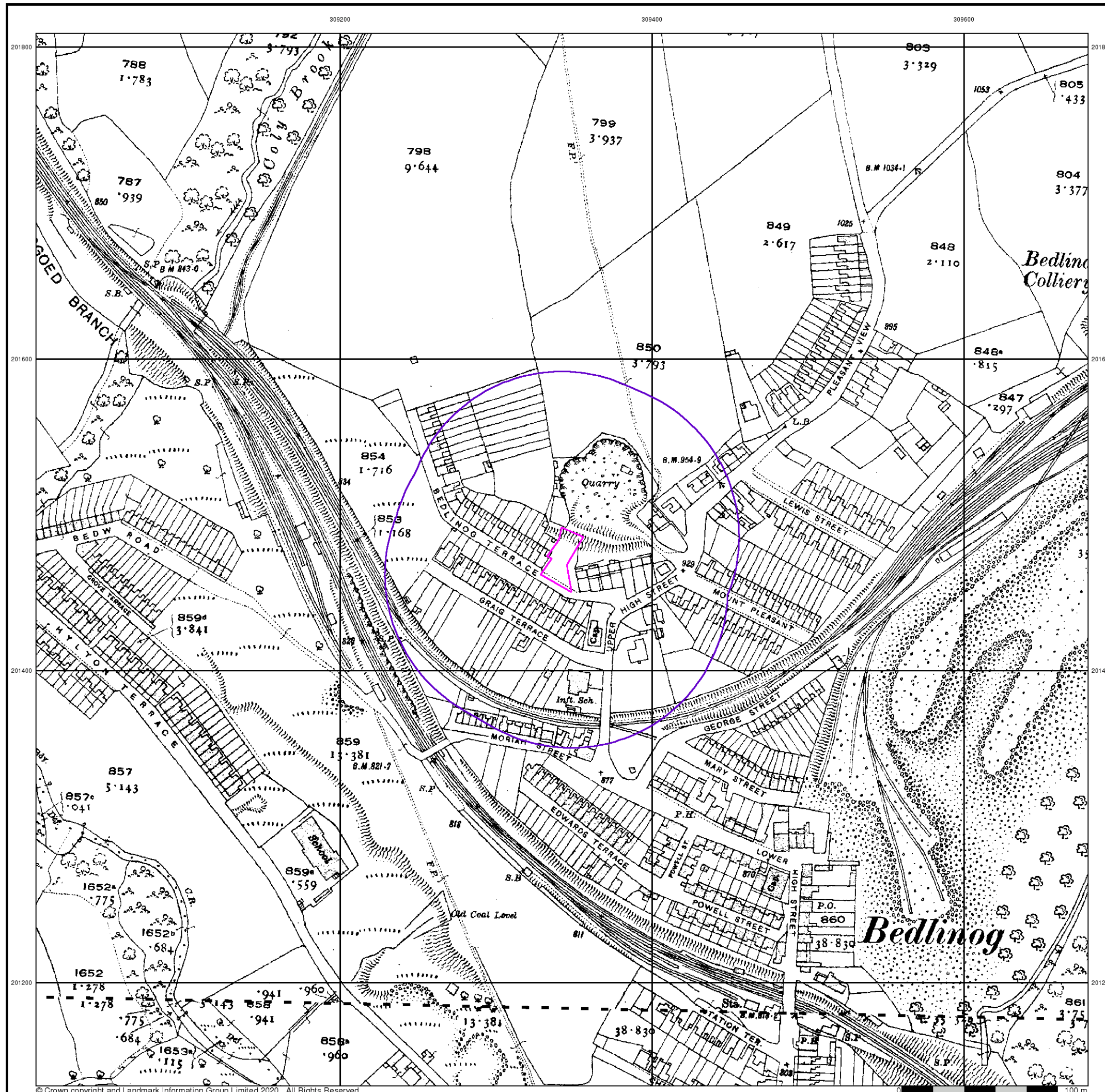
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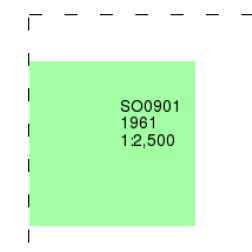
Ordnance Survey Plan

Published 1961

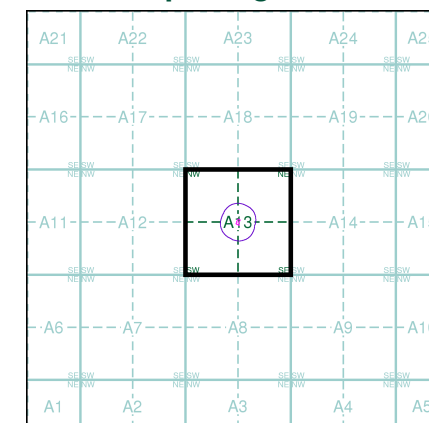
Source map scale - 1:2,500

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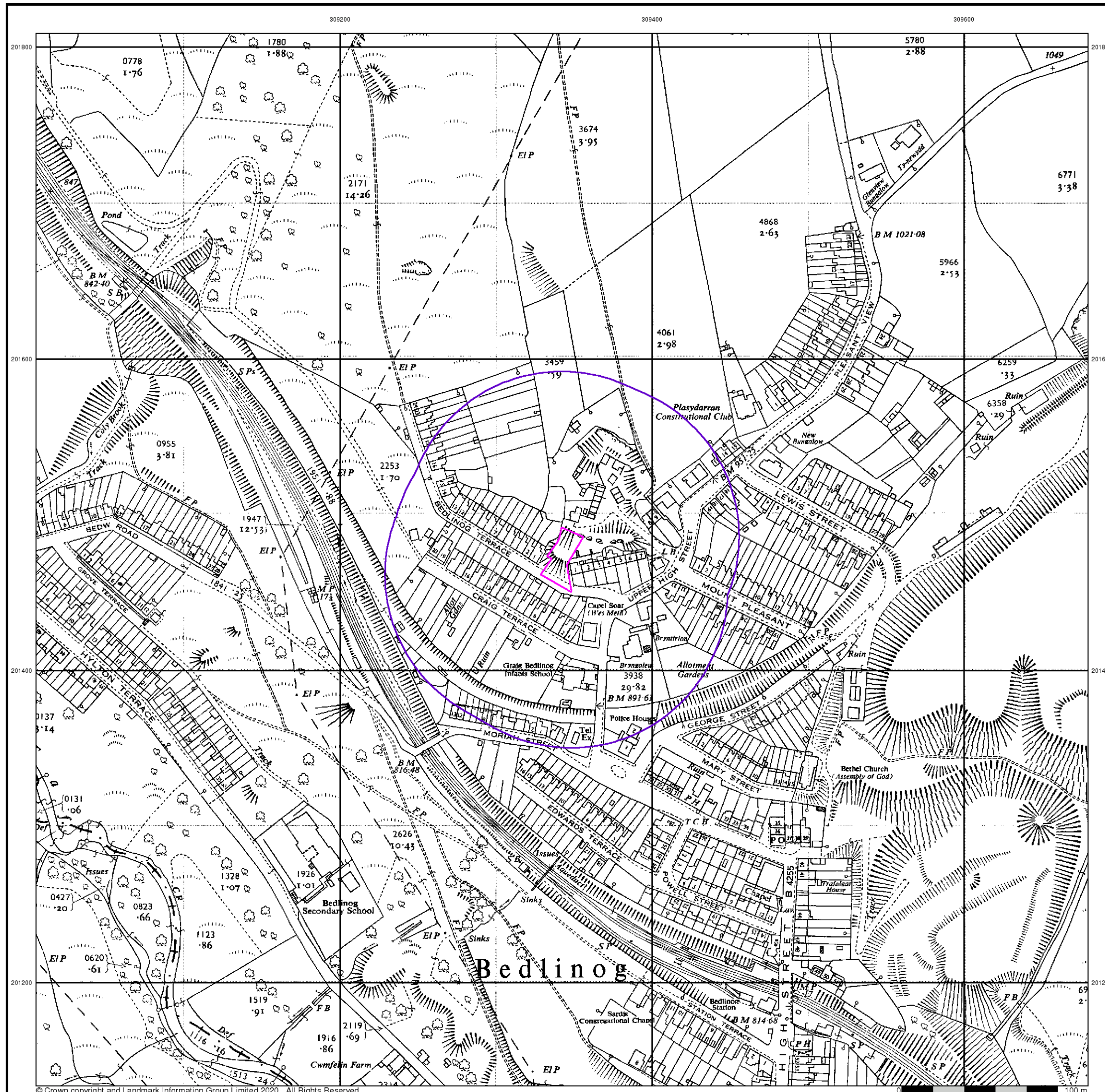
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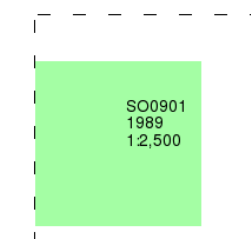
Additional SIMs

Published 1989

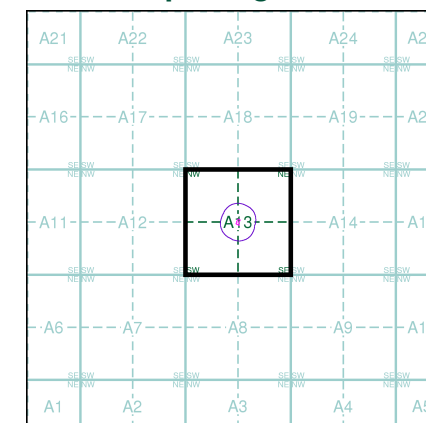
Source map scale - 1:2,500

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

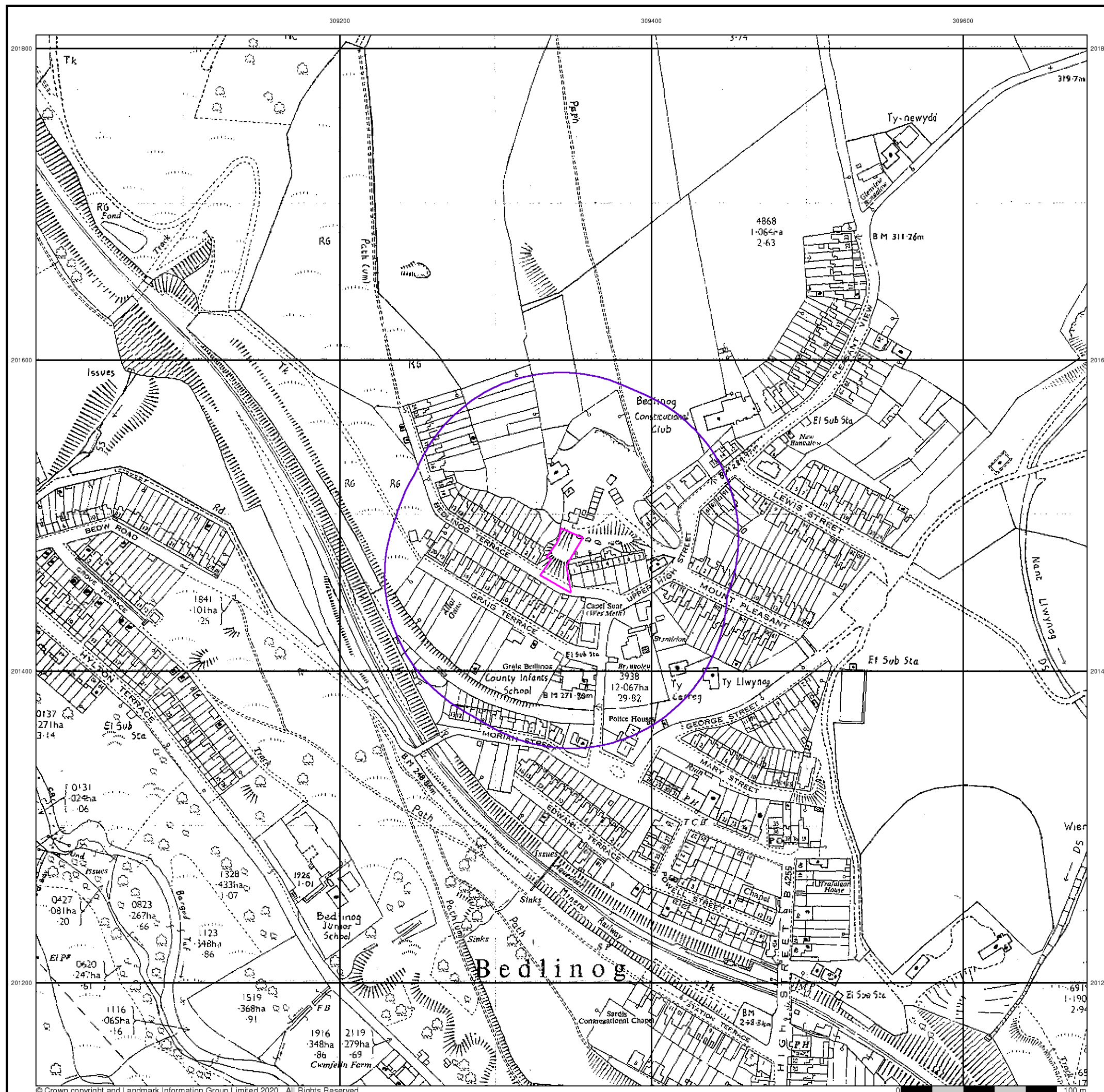
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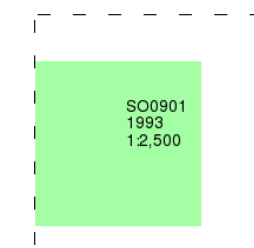
Large-Scale National Grid Data

Published 1993

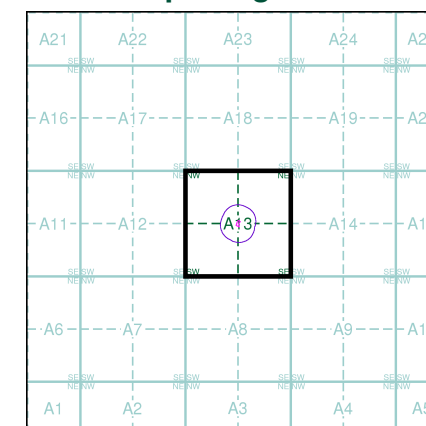
Source map scale - 1:2,500

'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)



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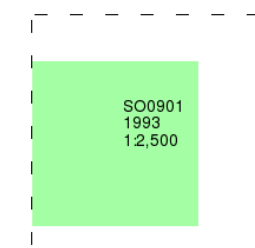
Large-Scale National Grid Data

Published 1993

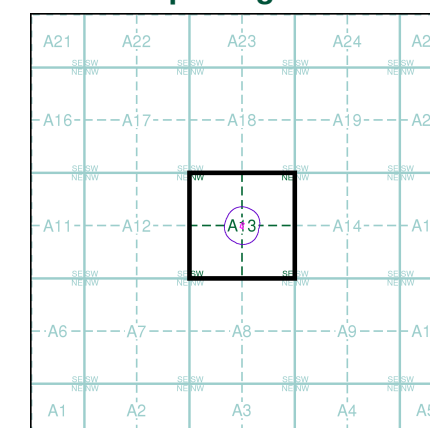
Source map scale - 1:2,500

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