

Earth Science Partnership

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**Land adjacent to 100 Neath Road
Resolven, Neath Port Talbot
Proposed Residential Development
Phase One Coal Mining Risk Assessment**

Report Reference: ESP.7168e.3163

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Land adjacent to 100 Neath Road Resolven, Neath Port Talbot Proposed Residential Development Phase One Coal Mining Risk Assessment

Prepared for:
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Report Reference: **ESP.7168e.3163**

Revision	Status	Date	Written by	Checked and Approved by
0	Draft	March 2019	Hywel Davies MESci FGS	Matthew Eynon BSc (Hons) MSc CGeol EurGeol FGS RoGEP Specialist
Signature:				
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General Notes

1 Introduction

1.1 Background

Mr Philip Hopkins (hereafter known as the Client) is proposing to redevelop the subject site for residential purposes. In areas with a historical mining legacy such as this, the Coal Authority commonly require a Coal Mining Risk Assessment to be submitted with the planning application. Therefore, the Earth Science Partnership Ltd (ESP), Consulting Engineers, Geologists and Environmental Scientists, have been instructed by the Client to undertake a desk study based coal mining risk assessment to evaluate the potential risks to the development from past abandoned mine workings. The site location is shown in Insert 2 in Section 2.1.

A proposed development plan provided by the client indicates it will comprise 5no. detached residential dwellings with gardens, access roads and landscaping (see Insert 2). Such a development would be classified as being from Geotechnical Category 2 (BS5930:2015), i.e. conventional structures, with no exceptional risk.



Insert 2: Proposed Development Plan provided by the client. The red line is the site boundary. Not to Scale.

1.2 Objective and Scope of Works

The scope of works of this preliminary risk assessment is in general accordance with the published Coal Authority guidance on a risk based approach to development (Coal Authority, 2014). Specifically:

- to obtain and review relevant desk study data on the site relating to past coal mining; and
- to identify and evaluate the risks (individually and cumulatively) to the proposed development (based on desk study data on at this stage).

The precise scope of works was mutually developed and agreed with the Client by ESP within an agreed budget and comprised a desk study review of available historical Ordnance Survey maps, geological maps, memoirs, and a Coal Authority mining report obtained for the site by ESP, assessment and reporting. No intrusive investigation has been undertaken at this stage.

The contract was awarded on the basis of a competitive tender quotation. The terms of reference for the assessment are as laid down in the Earth Science Partnership proposal of 5th March 2019. The assessment was undertaken in March 2019.

1.3 Limitations of Report

This report represents the findings of an assessment of risks associated with possible past shallow coal mining and mine entries on the site, relating to the proposed development of the site for a proposed residential use. The brief did not require an assessment of the implications for any other end use, nor of other geotechnical or geo-environmental hazards (e.g. contamination, slope stability and landfill/ alluvial gas risks). These hazards may require further assessment prior to development.

It should also be appreciated that no intrusive investigation has been completed at this stage. The report is not a comprehensive site characterisation and should not be construed as such.

Where preventative, ameliorative or remediation works are required, professional judgement will be used to make recommendations that satisfy the site-specific requirements in accordance with good practice guidance.

Consultation with regulatory authorities will be required with respect to proposed works as there may be overriding regional or policy requirements which demand additional work to be undertaken. It should be noted that both regulations and their interpretation by statutory authorities are continually changing.

This report represents the findings and opinions of experienced geotechnical specialists. Earth Science Partnership does not provide legal advice and the advice of lawyers may also be required.

1.4 Digital Copy of Report

This report is issued as a digital version only.

2 Desk Study and Field Reconnaissance Visit

The information presented in this section was obtained from desk-based research of sources detailed in the text, including historical maps (Appendix A), and a mining report obtained from the Coal Authority (Appendix B). The site description is based on a topographic survey and available digital photography.

2.1 Site Location and Description

The site is located on the north side of Neath Road, New Road on the south west margins of the village of Resolven in Neath Port Talbot. The National Grid Reference of the centre of the site is (SN) 282328E, 202101N, and the postcode is SA11 4AN. A Site Location Plan is presented as Insert 1 below.



Insert 2: Site Location Plan. Extract from 1:25,000 scale Ordnance Survey map.
(Reproduced with permission, OS License No.: AL100015788).

The site comprises a rectangular shaped parcel of land around 50m in length (north-east to south-west) and around 25m in width (north-west to south-east), and occupying an area of around 0.16ha. It is bounded by:

- To the north: by a cemetery followed by a railway line approximately 75m to the north;
- To the east: residential properties along Neath Road;
- To the west: residential properties along Neath Road; and
- To the south: Neath Road and residential properties on the adjacent site followed by agricultural land.

It currently comprises undeveloped land, which is generally grassed, with coniferous trees on/adjacent to the north boundary. The boundary with Neath Road is open, with fences/walls on the other boundaries.

The site is located near the base of the north facing side of the valley, and the topography in the general area slope to the north towards the River Neath at the base of the valley (approximately 380m to the north). A topographic survey undertaken to a local datum (provided by the client) indicates there is a fall between 2 and 4m from the south to the north boundary across the site. The elevation on the south east boundary is around 31.4m AOD based on spot heights on Neath Road.

2.2 Previous Investigations and Assessments

We have not been provided with any information on previous geotechnical or mining investigations or assessments at the site – see also Section 2.4.2.

2.3 Site History

2.3.1 Published Historical Maps

The site history in terms of the mining legacy only has been assessed from a review of available historical Ordnance Survey County Series and National Grid maps obtained as part of this assessment. Extracts from the historical maps are presented in Appendix A and the salient features since the First Edition of the County Series maps with regards to the mining hazard are summarised in Table 1 below.

Table 1: Review of Historical Maps

Date	On-Site	In Vicinity of Site
1877	The site comprised open ground in a semi-rural setting. A surface water feature crossed the south east corner, likely flowing north.	A drift is indicated approximately 230m to the south east, with an associated railway line extending from its mouth which links with the Great Western Railway. The mine entry is associated with the Lower Resolven Colliery. Coal drifts are indicated in the wider area (over 500m from the site).
1899	No significant changes.	The drift is no longer named and the railway line extending from its mouth is no longer present. The coal drifts in the wider area are indicated as 'old', however some active mining is still noted.
1918 - 1921	No significant changes.	A slant is now indicated in the former location of the drift and once again railway lines extend to its mouth. The colliery is now named the Glyn Merthyr Colliery with the New Gored Merthyr Colliery indicated close to it. Tips associated with the mining activities are indicated. A quarry is indicated approximately 360m to the south west with further active and 'old' quarries indicated further afield.
1948-1950	No significant changes.	The Glyn Merthyr Colliery is no longer indicated and the railway lines associated with the mine entry have once again been dismantled. New Gored Merthyr Colliery remains active.
1962 – Present Day	No significant changes.	The collieries present in the vicinity are no longer indicated and refuse tips are present in their former locations. Mining features in the wider area are indicated as 'disused' or 'old'.
Notes to Table 1: 1. The above assessment of historical features around the site concentrates on the mining legacy only. Other features, relating to other potential geotechnical and geo-environmental hazards have not been considered. 2. Extracts of maps presented in Appendix A.		

2.3.2 Other Historical Sources

No further relevant information on the site history has been identified as part of this assessment.

The Neath Disturbance is indicated approximately 300m to the north extending in a general south west to north east direction. An associated perpendicular fault is indicated approximately 150m to the east.

2.4.2 Available BGS Borehole Records

Reference to the website of the British Geological Survey (BGS, 2019) indicates no available records of boreholes on the site. Records are available approximately 250m to the south west, associated with the Glyn Merthyr Colliery. The records are dated from 1929 and indicate they are boreholes progressed from below the No.1 Rhondda Coal seam to locate the No.2 Rhondda seam. Whilst they do not provide any information with regards to the thickness of the Rhondda No.1 they do confirm that no other significant coal seams are located below it, with the next thin coal seams encountered around 75m below.

BGS boreholes within the Glaciofluvial Deposits to the east did not prove their base at around 6m.

2.5 Coal Authority Records

2.5.1 Coal Authority Website

Reference to the Coal Authority website (CA, 2019) provides the following salient information:

- A coal seam is indicated to outcrop on the site. This seam is likely to be the No. 1 Rhondda coal seam based on geological records.
- There are no recorded mine entries in the immediate vicinity of the site. Mine entries are indicated to the west associated with the Glyn Merthyr Colliery which worked the No.1 Rhondda Coal seam.
- The site is not underlain by recorded past or probable shallow mine workings; and
- The site is shown to lie within a zone of 'Development High Risk' relating to shallow mine workings.

On the detailed data viewer, extensive mine workings are recorded to extend to the south within the No.1 Rhondda coal seam from the Glyn Merthyr Colliery and New Gored Merthyr Colliery mine entries. Further workings within the No. 1 Rhondda are recorded in the Resolven area.

2.5.2 Coal Authority Mining Report

A 'consultants' coal mining report has been obtained for the site from the Coal Authority and is presented in Appendix B. This indicates that, based on the available Coal Authority records:

- The property is not underlain by past underground mining and there are no probable unrecorded mine workings.
- The No.1 Rhondda Coal seam is conjectured to outcrop on the north site boundary and is indicated to be 'workable'.
- No spine roadways are recorded at shallow depth.
- No mine entries are recorded within 100m of the site boundary.
- The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31st October 1994. There is no current Stop Notice delaying the start of remedial works or repairs to the property. The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.
- No notices have been given under Section 46 of the Coal Mining Subsidence Act of 1991 stating that the land is at risk of subsidence.
- The Coal Authority has no record of a mine gas emission within 500m of the site.
- No future mining is recorded.

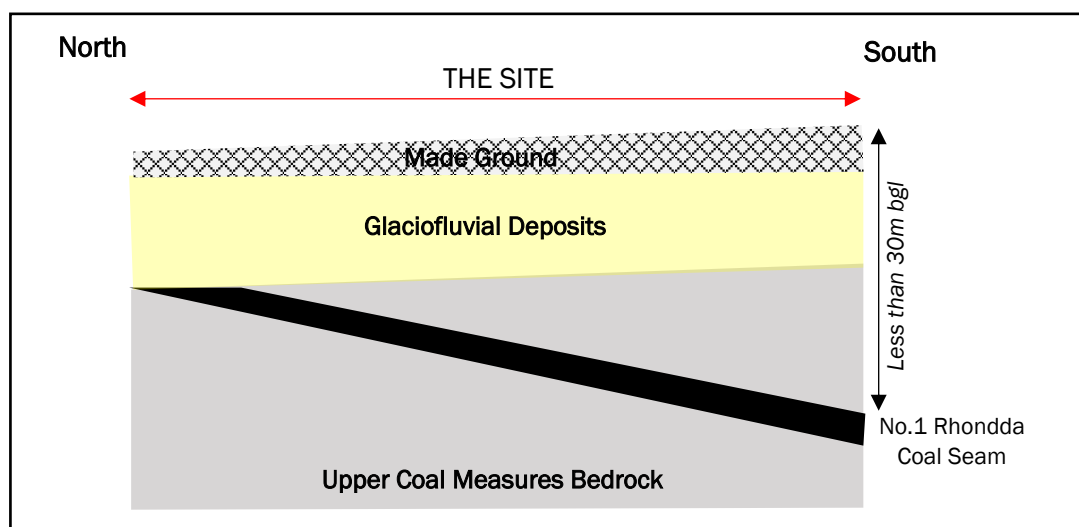
2.6 Mining Information from Other Sources

No further information on possible shallow mine workings beneath the site has been identified from other sources.

3 Identification and Assessment of Site-Specific Coal Mining Risks

3.1 Preliminary Conceptual Ground Model

From the information available at this stage, the ground conditions beneath the site are anticipated to comprise a possible covering of Made Ground followed by potentially thick coarse grained Glaciofluvial Deposits (greater than 6m). Due to the valley topography the superficial deposits may thin to the south. Underlying the superficial deposits is the Upper Coal Measures bedrock which will likely consist of Sandstone above the No. 1 Rhondda coal seam. The No.1 Rhondda Coal Seam is anticipated to outcrop beneath the superficial deposits on/adjacent to the north boundary and dip shallowly beneath the remainder of the site in a south easterly direction. Based on the boreholes at the nearby Glyn Merthyr Colliery, no further significant coal seams are anticipated beneath the No.1 Rhondda Coal seam for at least 70m depth. A conceptual ground model is presented as Insert 4.



Insert 4: Conceptual Ground Model (Not to Scale).

Groundwater is likely within the coarse grained Glaciofluvial Deposits near its interface with the underlying Coal Measures bedrock with deeper groundwater within the Coal Measures bedrock.

3.2 Identified Coal Mining Risks

The potential coal mining risks identified at the site are summarised in Table 3 below:

Table 3: Identified Coal Mining Risks

Coal Mining Issue	Identified Hazard	Risk Assessment
Underground Coal Mining (recorded at shallow depth ¹)	No	See Section 3.2.
Underground Coal Mining (unrecorded shallow ¹)	Possible	See Section 3.2.
Recorded Mine entries (shafts and adits)	No	See Section 3.3.
Unrecorded Mine entries (shafts and adits)	Possible	See Section 3.3.
Recorded Coal Mining Geology (fissures)	No	None identified.
Recorded Past Mine Gas Emissions or Potential	No	None identified.
Recorded Surface Coal Mining Hazard	No	None identified.
Recorded Surface Mining (opencast workings)	No	None identified.
Notes to Table 3: 1. The Coal Authority defines shallow depth as within 30m of the ground surface. 2. Identified risks are discussed further in the following sections.		

3.3 Abandoned Shallow Mine Workings

The No.1 Rhondda Coal Seam is indicated to outcrop beneath the Glaciofluvial Deposits on/adjacent to the north boundary and it is around 0.75m to 1.4m thick in the area.

The Coal Authority do not have any records of workings within this seam beneath the site, however, given its workable thickness (as confirmed by the Coal Authority) and the fact it has been extensively worked in the Resolven area (online abandonment plan data and numerous mine entries into the seam including the Glyn Merthyr and New Gored Merthyr Colliery to the south west), we cannot discount that it may have been worked beneath the site at some time in the past. If the seam is worked, there is unlikely to be sufficient bedrock cover above the workings to mitigate the subsidence risk.

Coal workings from the early and mid-19th Century often remain unrecorded as it did not become a mandatory requirement for mine owners to lodge plans of their workings with the Mines Inspectorate (whose records the Coal Authority hold) until the Coal Mines Regulation Act of 1872. Therefore, any workings prior to this date are commonly unrecorded. The Coal Authority advise that the recorded workings in the area date from the early C20th, but we cannot discount that older workings may be present. Given the above, we cannot discount unrecorded shallow workings at depth of less than 30m beneath the site.

3.4 Mine Entries

No evidence has been identified of any recorded mine entries on the site or in the close vicinity. However, in any mining area such as this, the possibility of past unrecorded mine entries cannot never be totally discounted.

Significant thicknesses of superficial deposits and groundwater can sometimes reduce the likelihood of old mine entries due to the practicalities of their construction. However, considering the drift/slant associated with the Glyn Merthyr Colliery is located in a similar depositional location on the valley side, unrecorded mine entries at outcrop (bell pits or adits) accessing the No. 1 Rhondda coal seam are likely feasible.

Appropriate precautions should be taken during any future development, and any anomalous features reported for further inspection and investigation by a geotechnical specialist.

3.5 Mine Gas Mitigation

As discussed in Section 2.5.2, the Coal Authority has no record of a mine gas emission requiring action in the vicinity of the site.

3.6 Recommended Further Mining Investigation Works

Based on the above assessment, we consider that further investigation is required at the site to further define the conceptual ground model and provide further information on the potential for the shallow No. 1 Rhondda coal seam having been worked in the past and, hence, the subsidence risk.

We recommend a series of rotary drillholes to a depth of 30m to satisfy the above. We recommend that a minimum of three further boreholes would be required to prove the general ground model.

We consider that the above should be sufficient to provide an indication of the general extents of the likely hazard zones across the site. However, if the coal seam/workings/anomalous conditions are identified, further plot specific proof drilling or stabilisation by drilling and grouting is likely to be required.

As part of the further works, Coal Authority abandonment plans for mine workings within the No.1 Rhondda coal seam beneath the area should be obtained.

4 Conclusions

The site is located within an area with a historical mining legacy. Geological and Coal Authority records indicate the conjectural sub-crop of the No.1 Rhondda Coal seam on/adjacent to the north boundary of the site. Considering the shallow regional dip to the south east, the seam would be present at shallow depth (less than 30m beneath the whole site) becoming deeper to the south east.

The Coal Authority have no records of this seam having been worked beneath the site however, given its reported thickness (around 0.75m to 1.4m) and the fact it has been extensively worked in the area, we cannot discount that it has been worked at some time in the past. If unrecorded workings are present, the subsidence risk at the surface associated with these workings is likely to be unacceptable due to the limited competent rock cover above the seam.

We recommend a series of rotary drillholes are constructed across the site to confirm the conceptual ground model and assess further likelihood of past unrecorded workings within the No.1 Rhondda coal seam. 3no. boreholes should be sufficient to preliminary assess this, however we cannot discount the requirement for further investigation and potentially remedial stabilisation.

No mine entries are reported within the site boundaries. However, consider the shallow depth of the coal seam we cannot discount that unrecorded entries are present, and a careful watch should be maintained during future investigation and development, and any anomalous features subject to further investigation.

5 References

BRITISH GEOLOGICAL SURVEY (BGS). 2019. Website accessed March 2019.

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COAL AUTHORITY (CA). 2014. Risk Based Approach to Development Management. Guidance for Developers.

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HEALY P.R. AND HEAD J.M. 1984. Construction over Abandoned Mine Workings. CIRIA Special Publication SP32/PSA Civil Engineering Technical Guide 34.

Appendix A Historical Maps

App. A.1 Large Scale

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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: County Series

Map date: 1877

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1877
Revised 1877
Edition N/A
Copyright N/A
Levelled N/A



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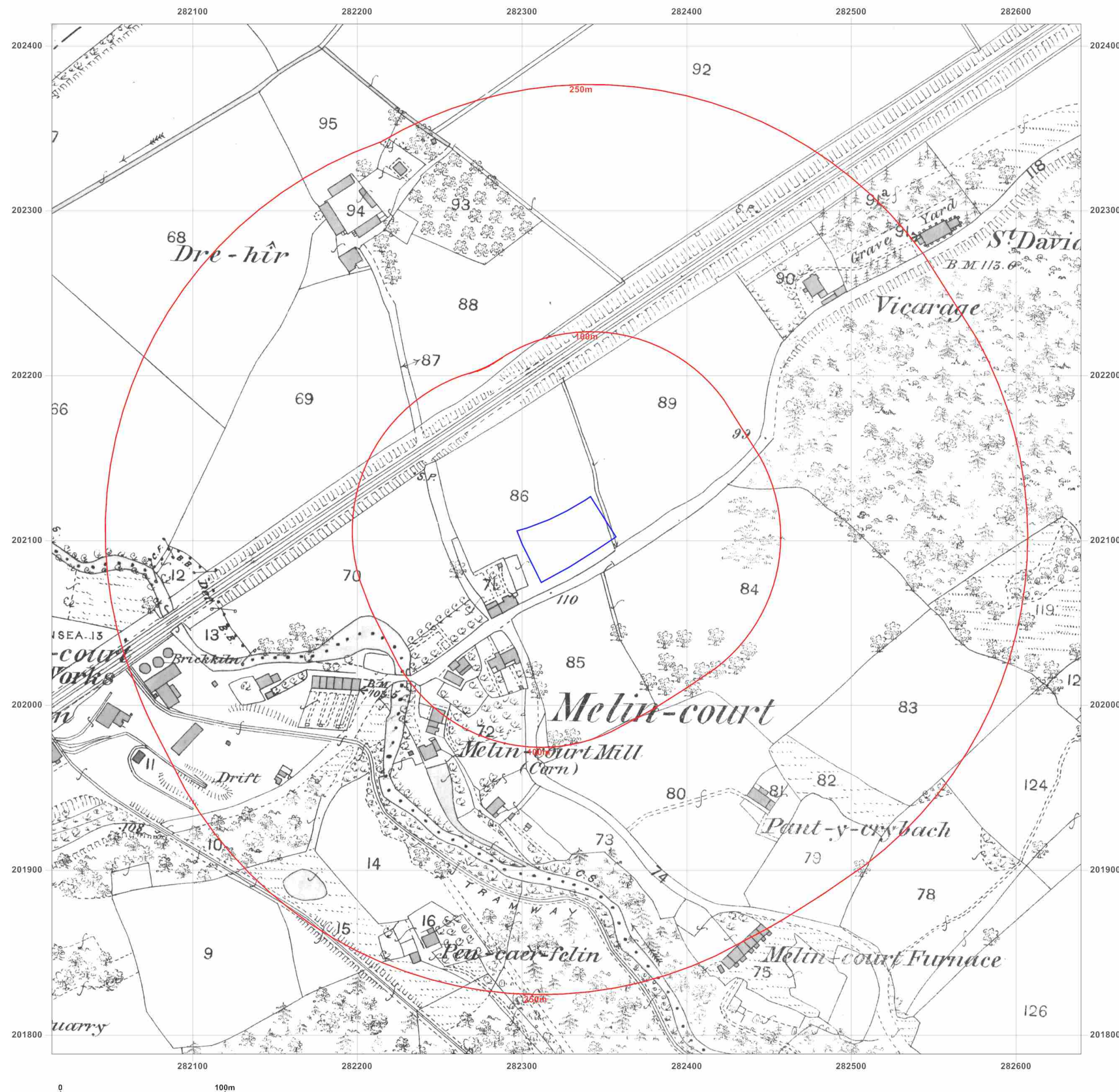


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: County Series

Map date: 1899

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
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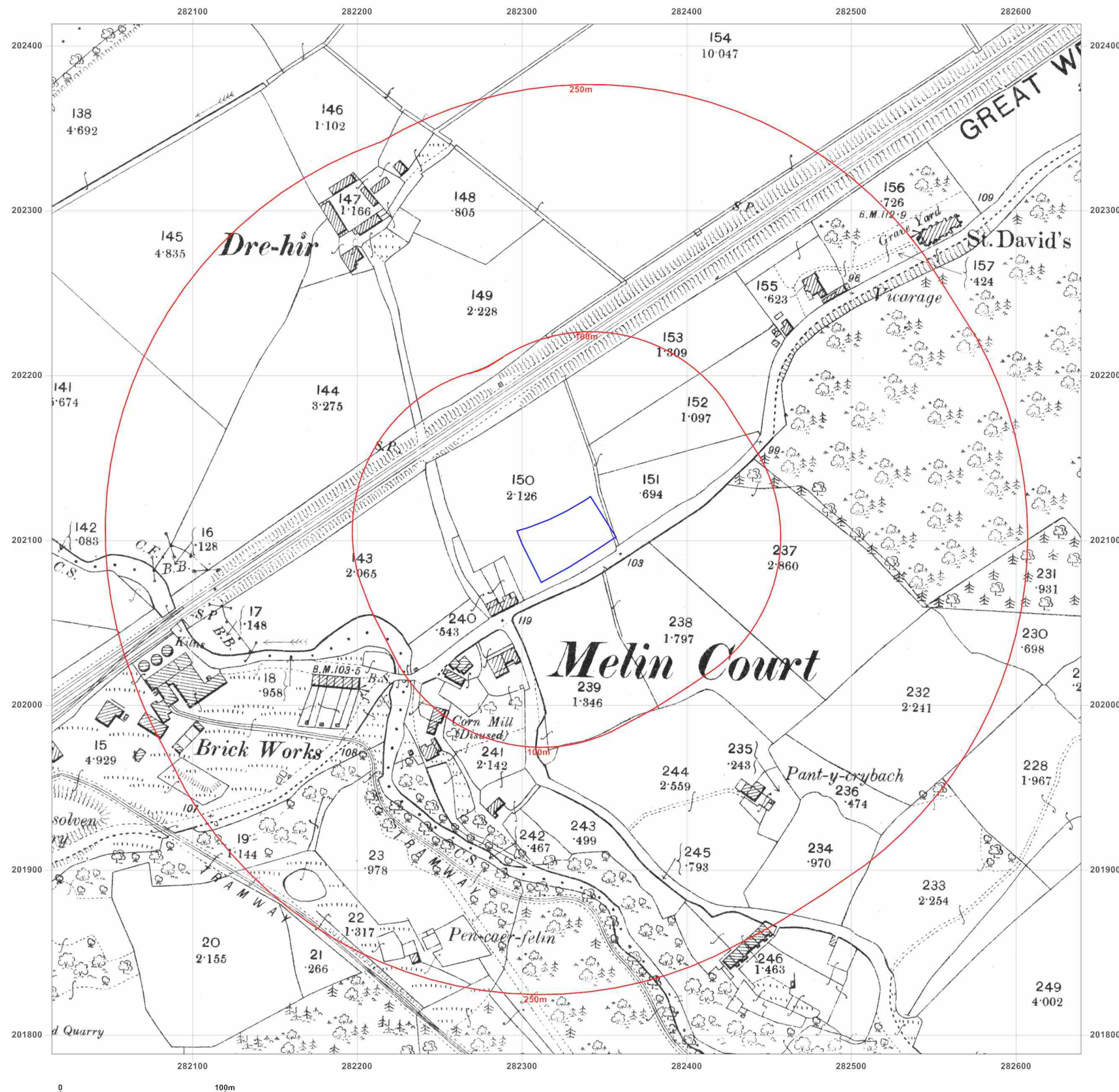


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: County Series

Map date: 1918

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1918
Revised 1918
Edition N/A
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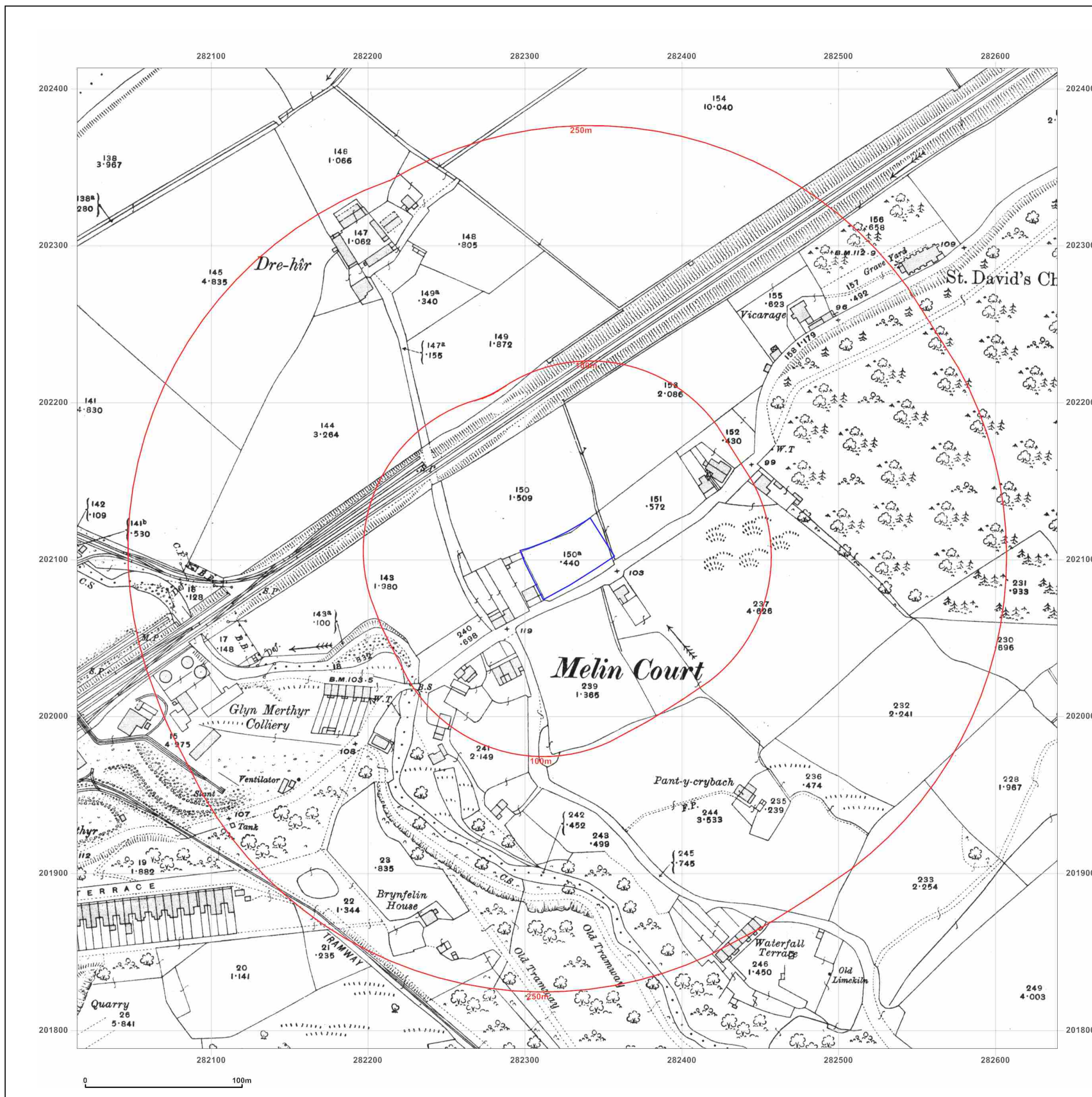


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1962

Scale: 1:2,500

Printed at: 1:2,500



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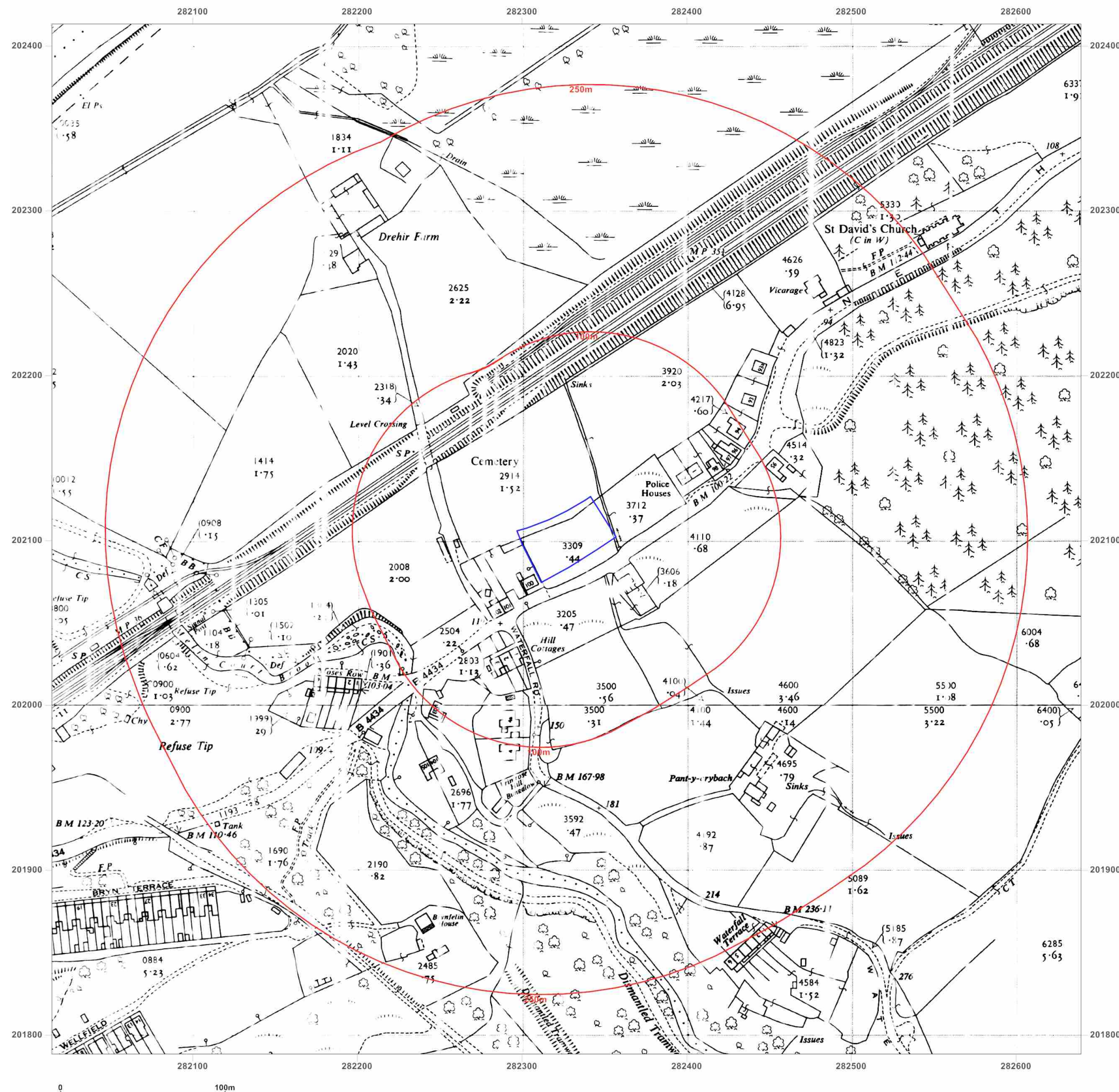


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1962

Scale: 1:2,500

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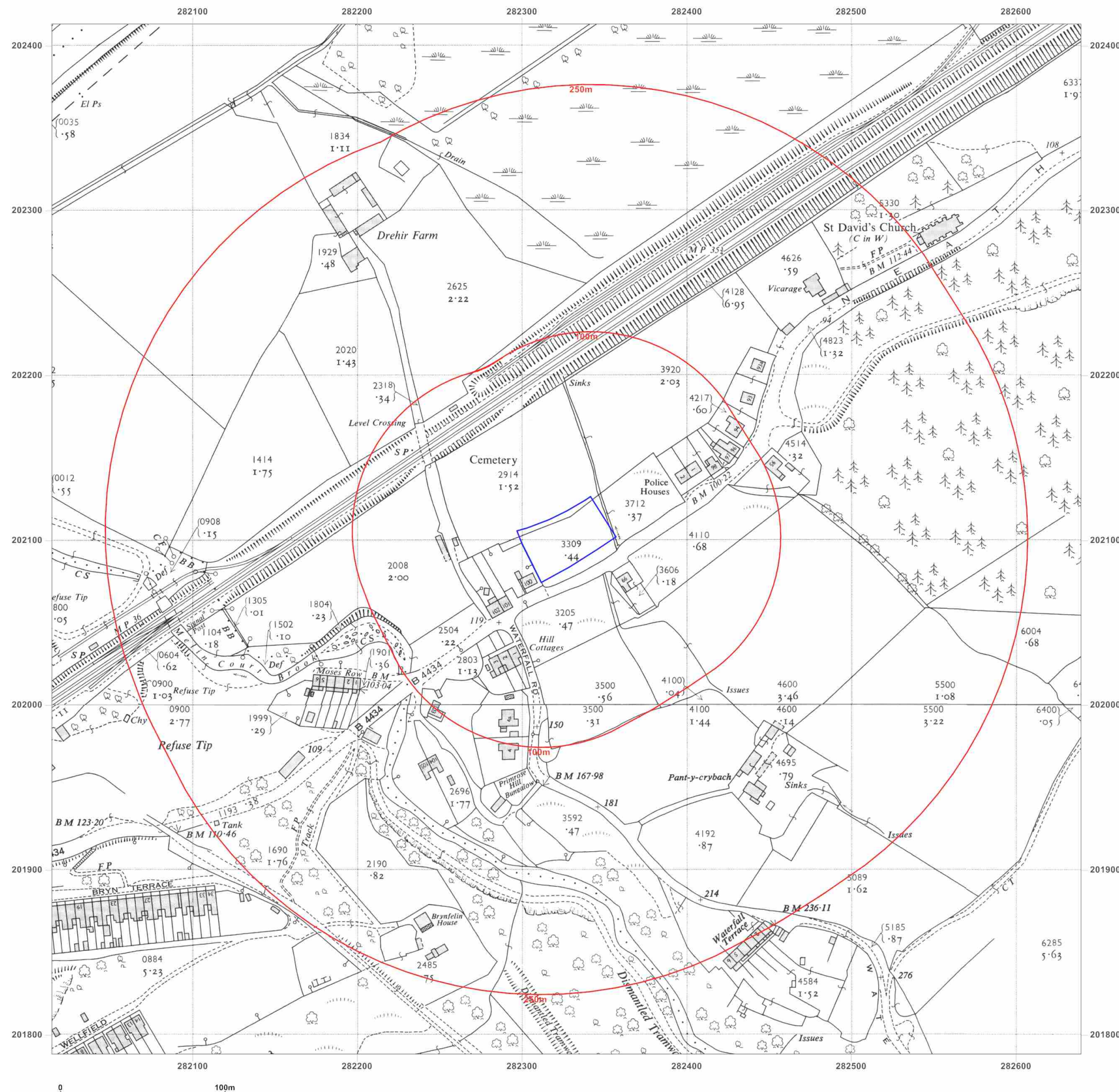


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1982

Scale: 1:2,500

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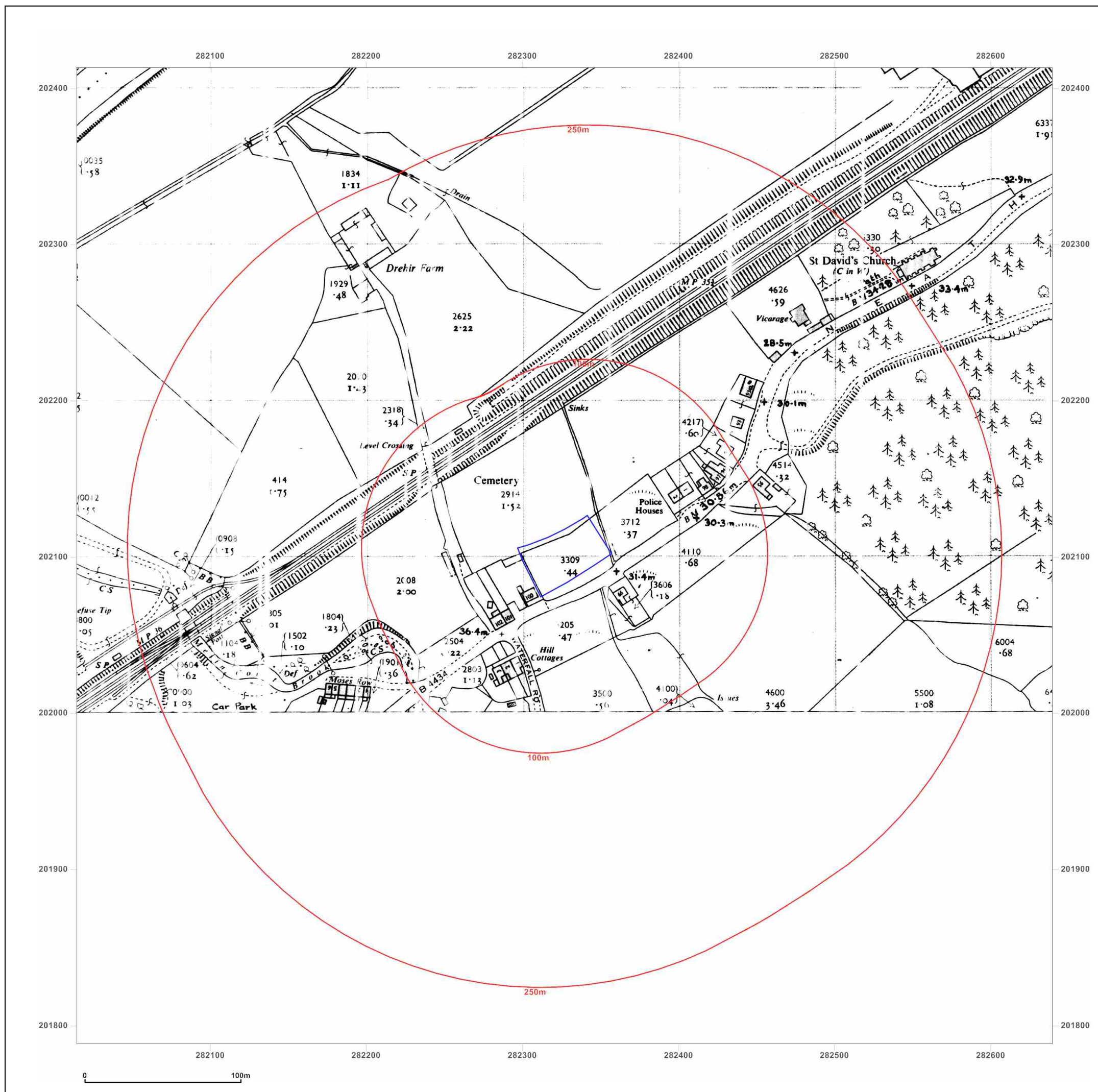


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1982

Scale: 1:2,500

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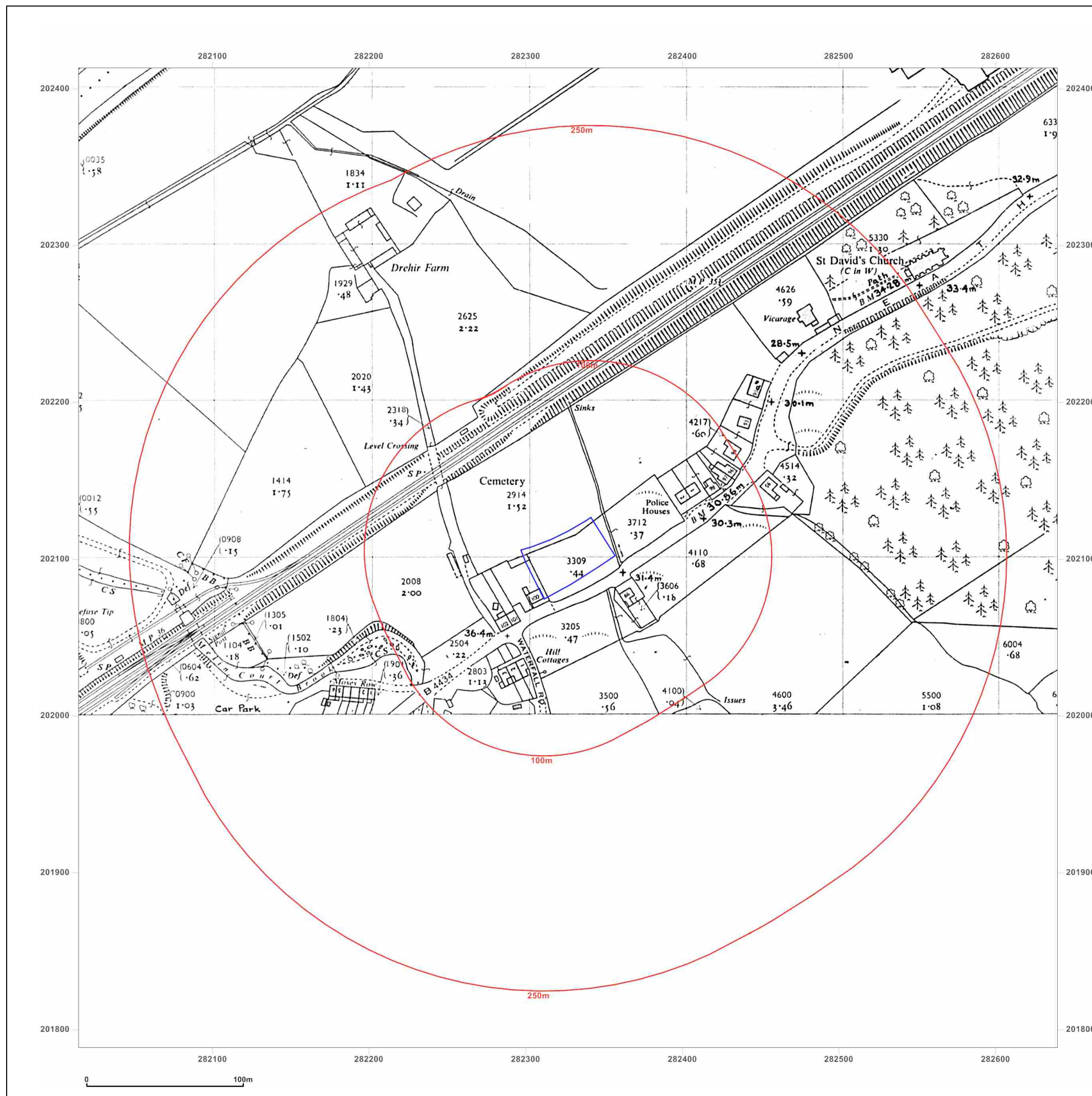


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1989-1993

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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Levelled 1964

Surveyed 1993
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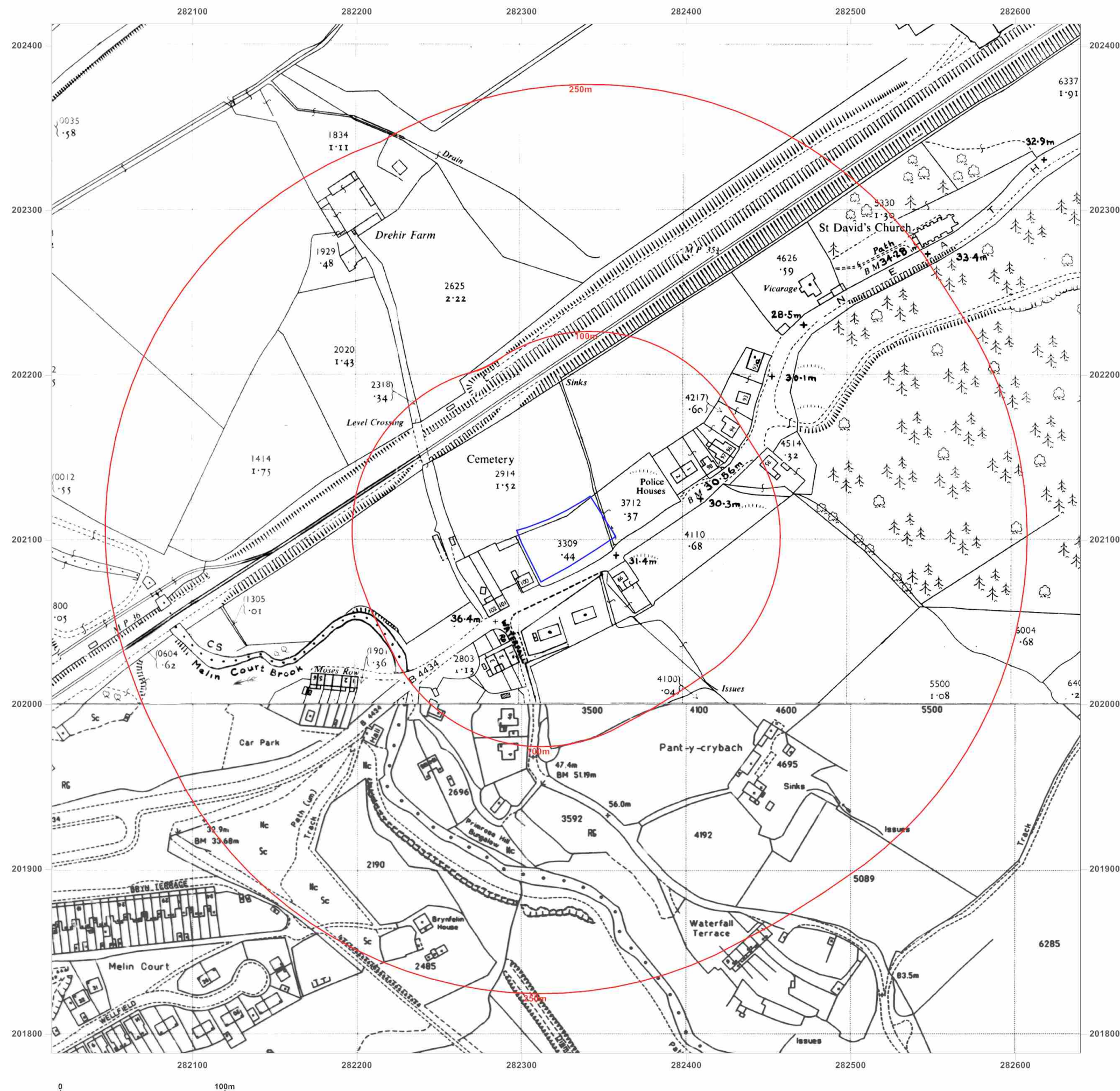


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Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

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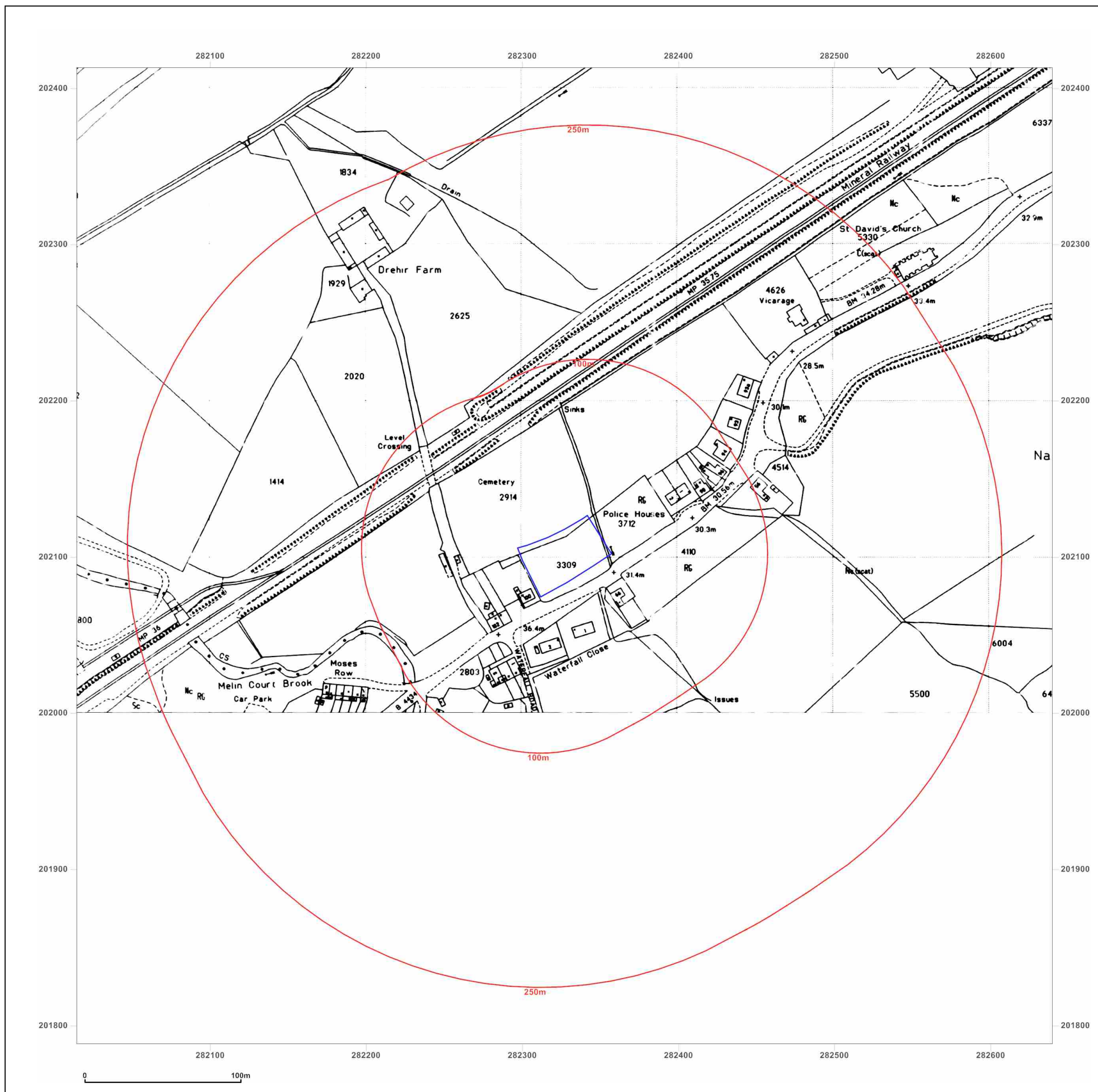


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App. A.2 Small Scale

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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: County Series

Map date: 1877

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1877
Revised 1877
Edition N/A
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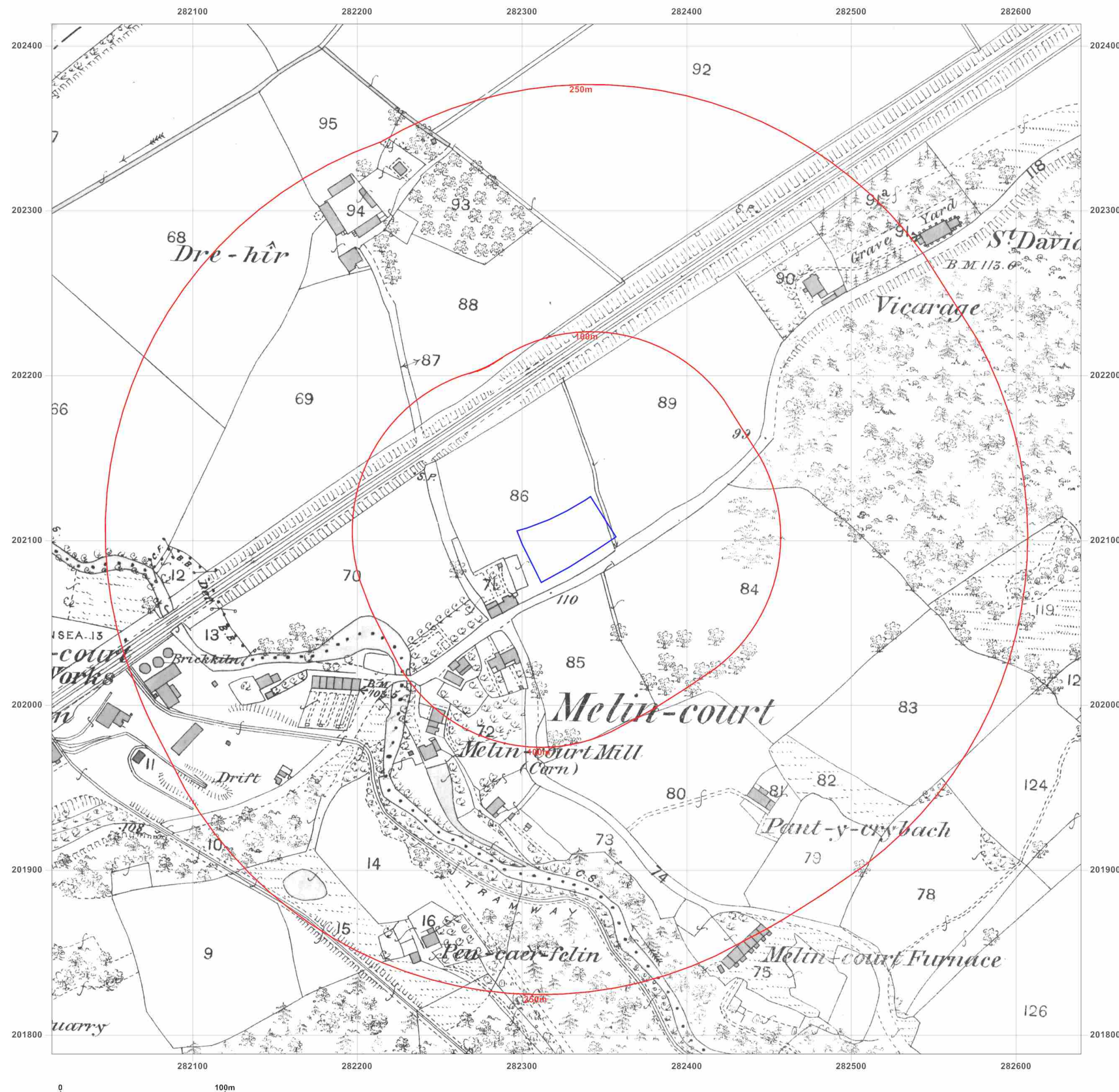


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Production date: 22 March 2019

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SCIENTISTS

Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: County Series

Map date: 1899

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
Revised 1899
Edition N/A
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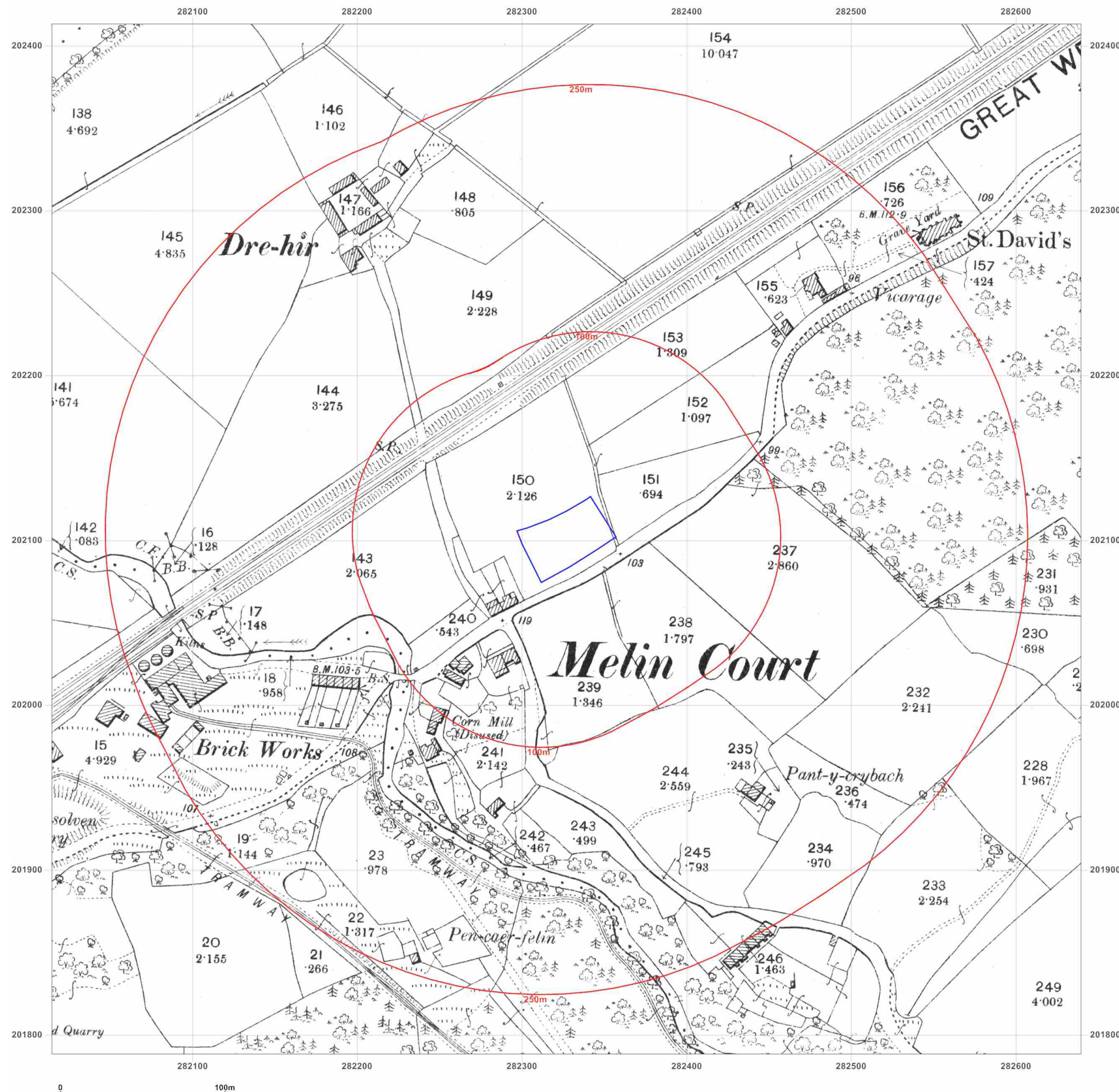


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: County Series

Map date: 1918

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1918
Revised 1918
Edition N/A
Copyright N/A
Levelled N/A



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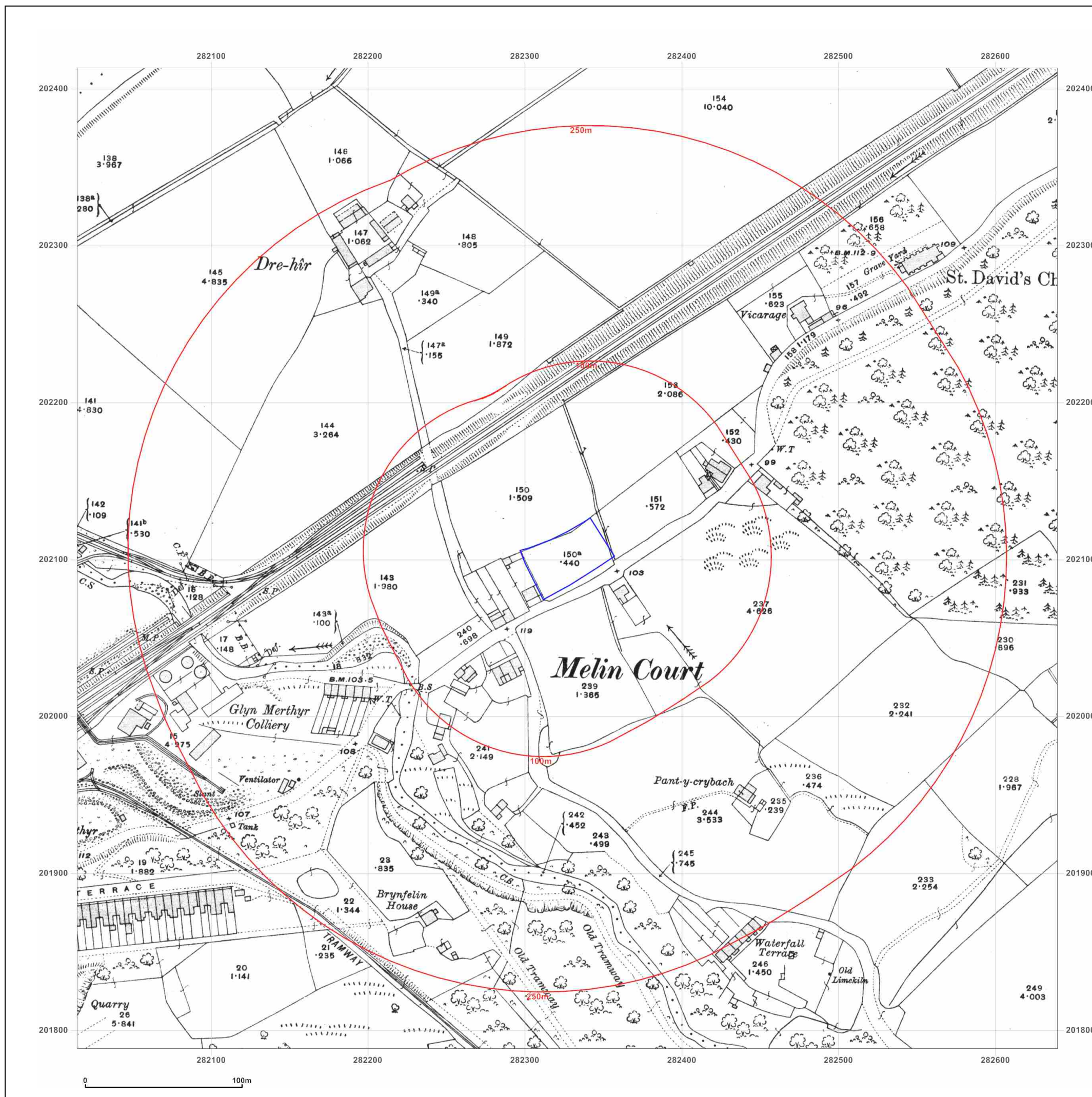


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Production date: 22 March 2019

Map legend available at:
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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1962

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
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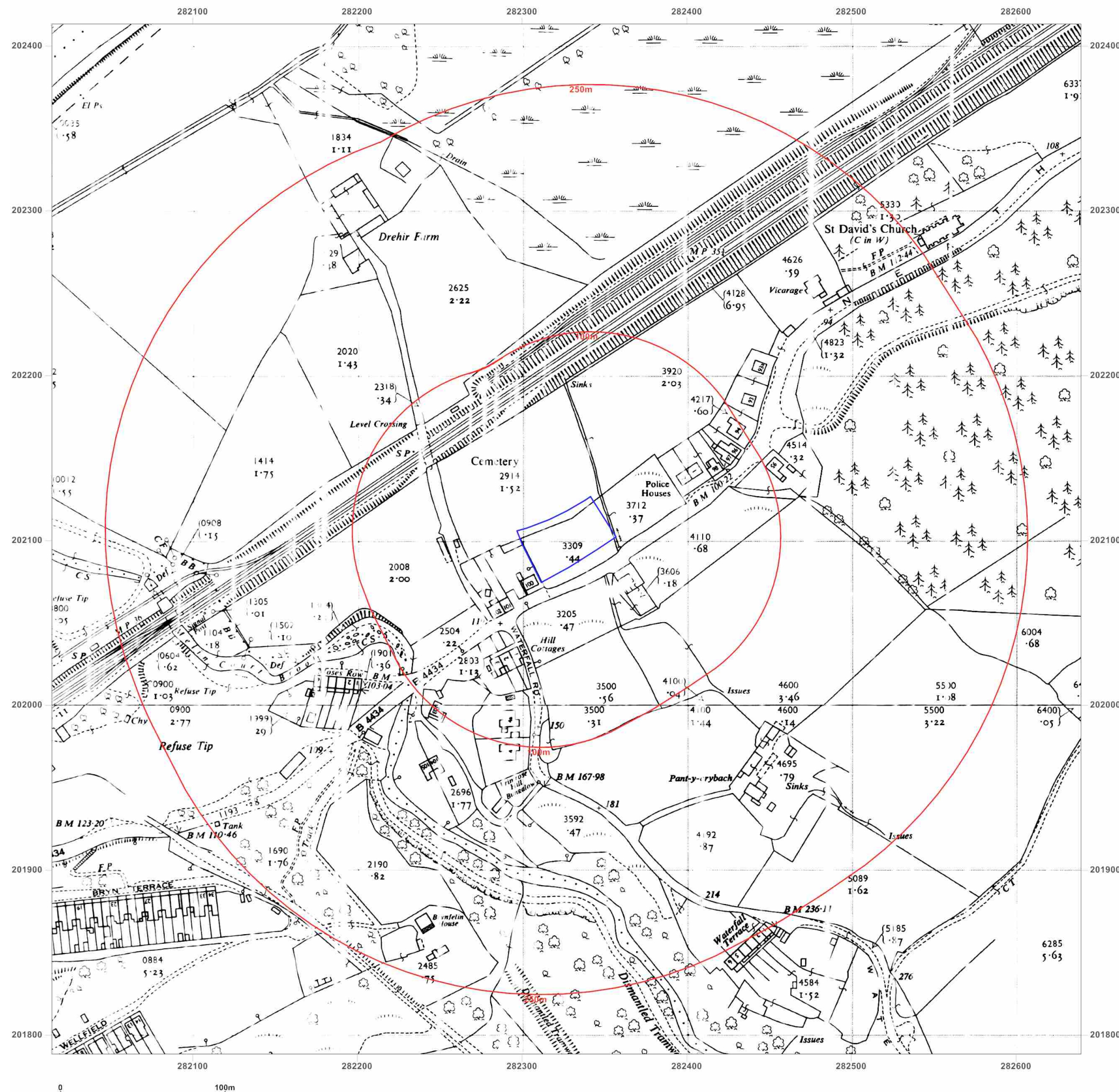


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1962

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1962
Revised 1962
Edition N/A
Copyright 1962
Levelled 1956

Surveyed 1962
Revised 1962
Edition N/A
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Levelled 1956



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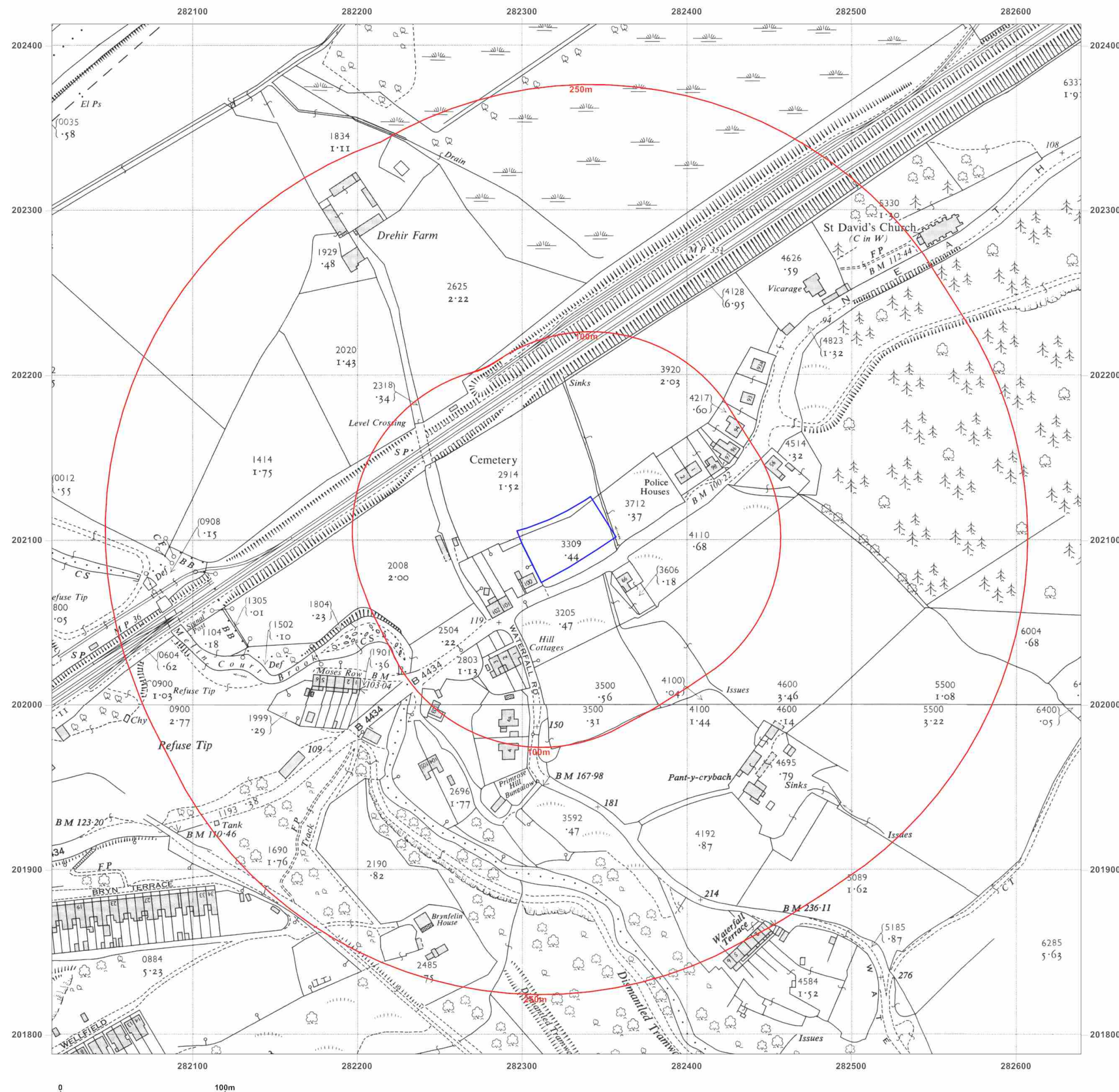


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1982

Scale: 1:2,500

Printed at: 1:2,500



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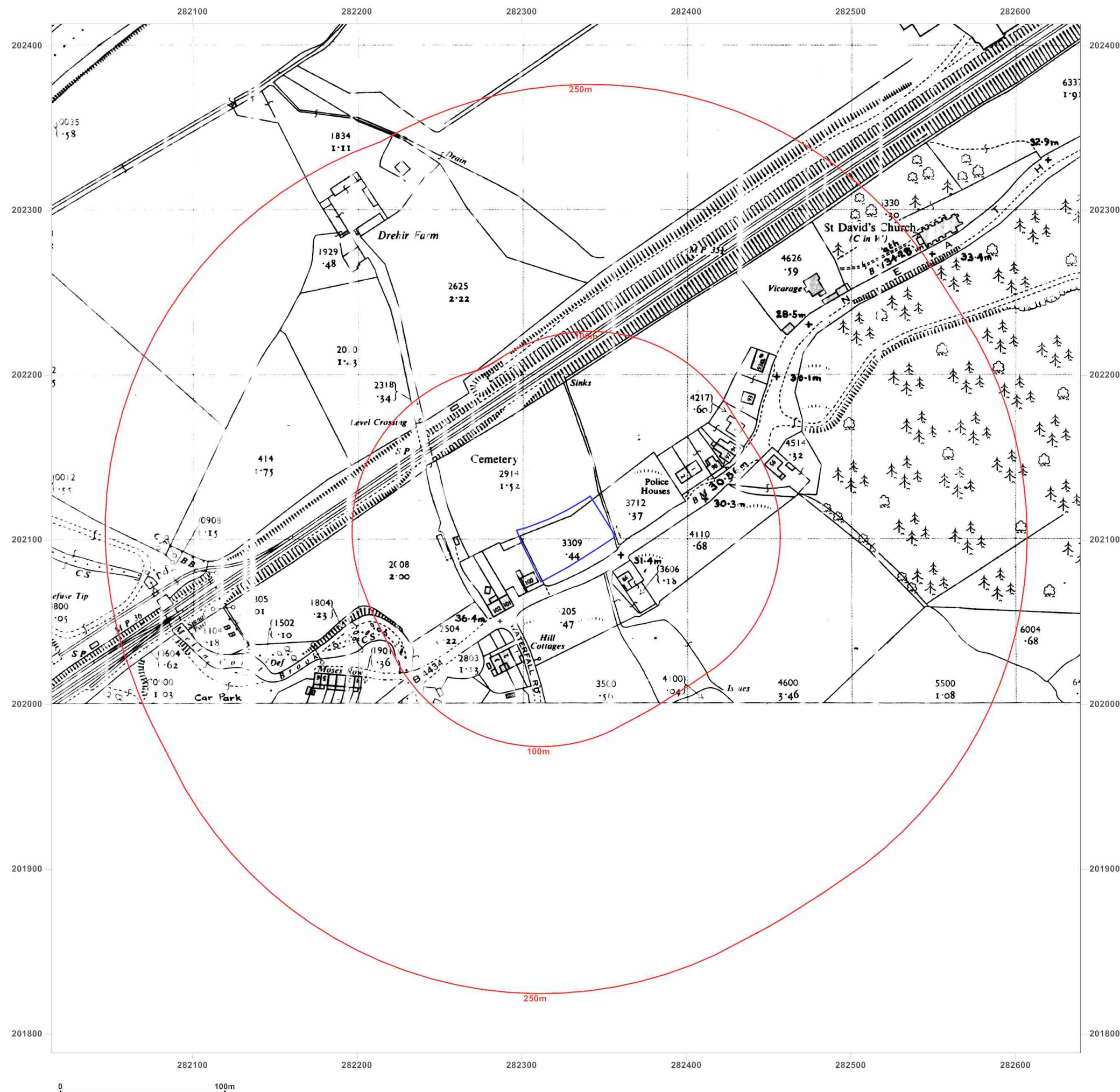


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1982

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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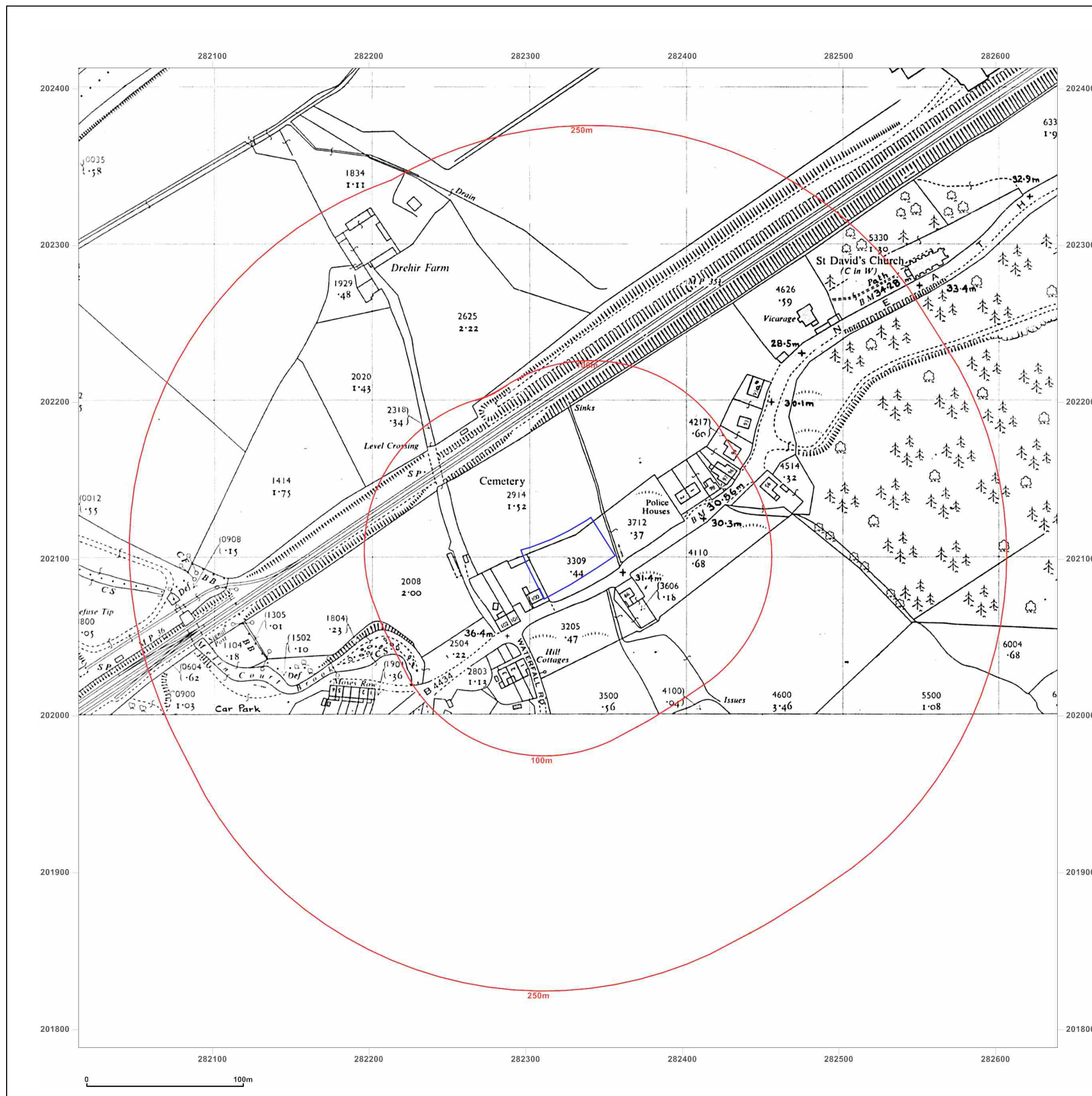


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1989-1993

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
Revised 1989
Edition N/A
Copyright 1989
Levelled 1964

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



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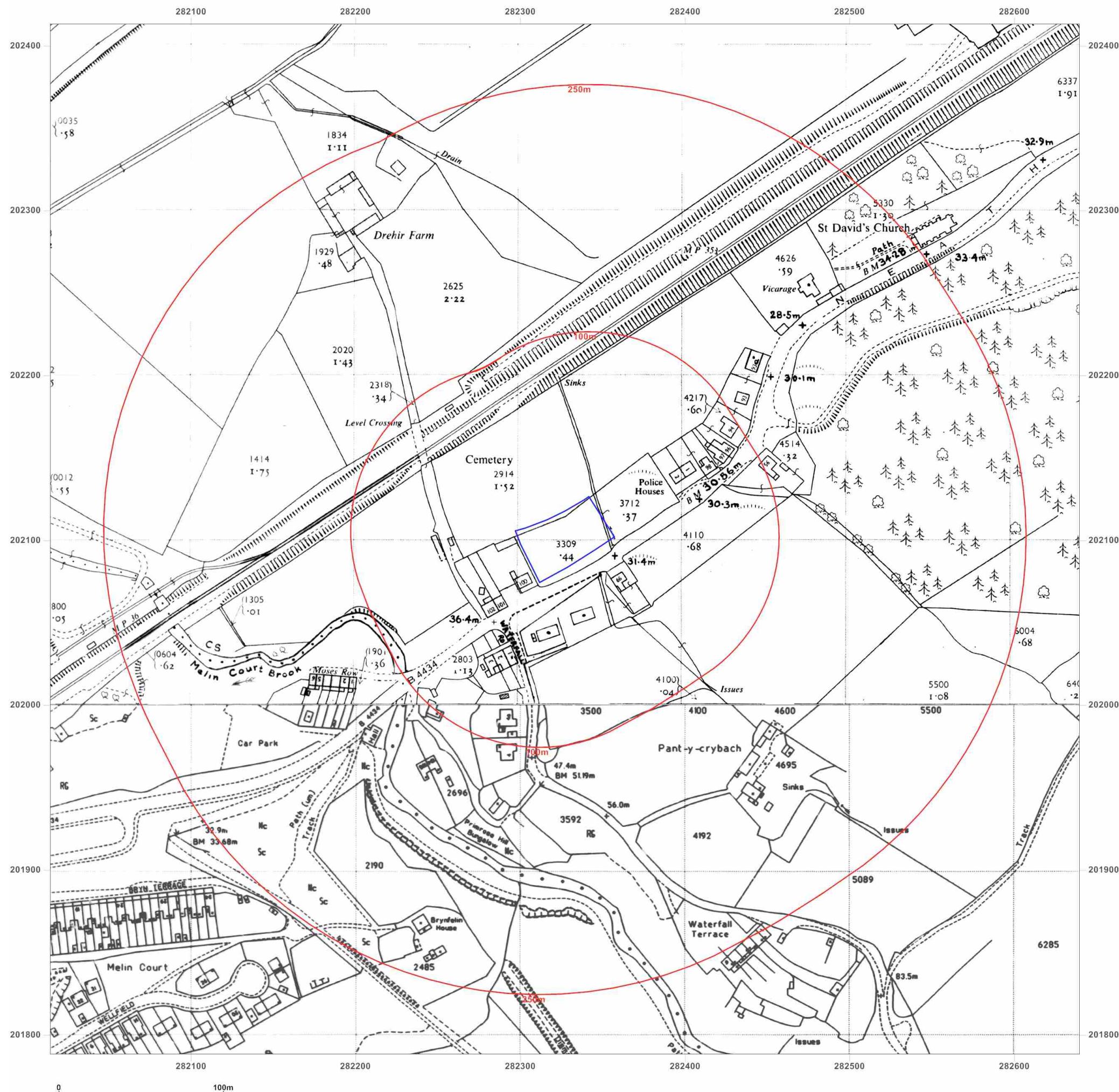


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Site Details:

Land off 100 Neath Road,
Resolven

Client Ref: 7168ePO7891
Report Ref: ESP-5897932
Grid Ref: 282327, 202101

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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



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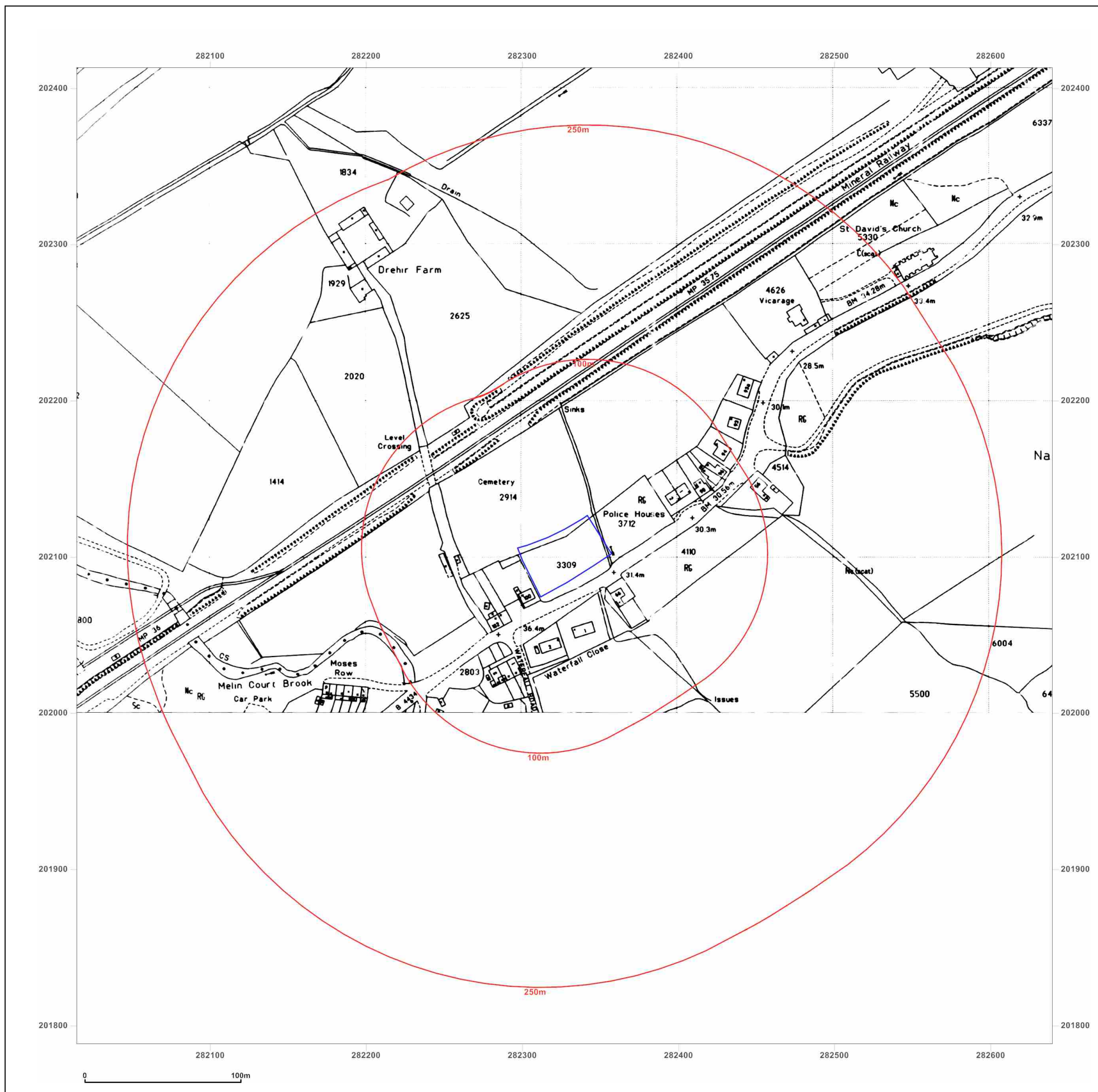


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Appendix B Coal Authority Mining Report



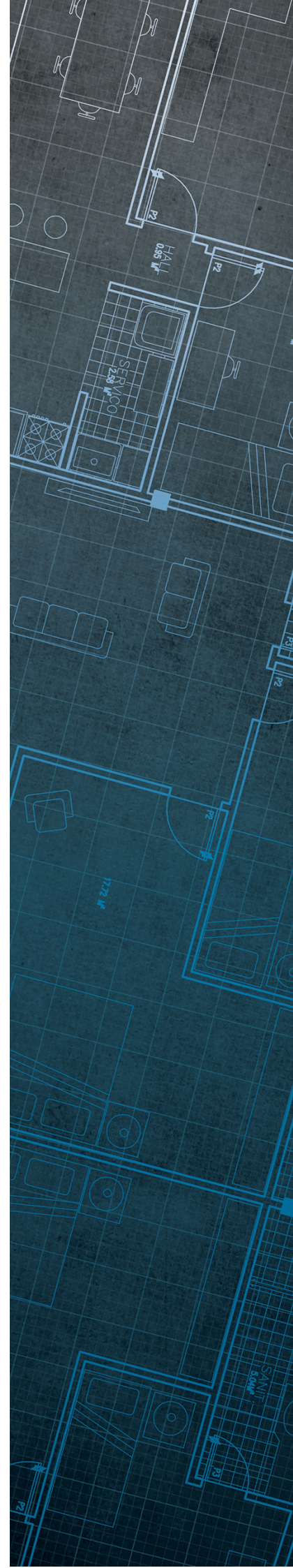
The Coal
Authority

Consultants Coal Mining Report

Land Adjacent To 100 Neath Road
Resolven
Neath Port Talbot
SA11 4AN

Date of enquiry:	22 March 2019
Date enquiry received:	22 March 2019
Issue date:	22 March 2019

Our reference:	51002050111001
Your reference:	7168ePO7892



Consultants

Coal Mining Report

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

Client name

Earth Science Partnership

Enquiry address

Land Adjacent To 100 Neath Road
Resolven
Neath Port Talbot
SA11 4AN

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

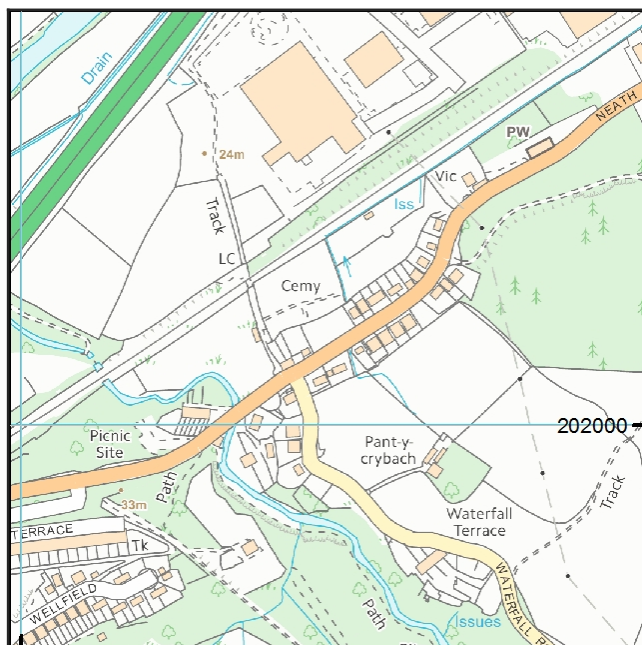
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

2117	PO0	8637
10172		

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

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
NO.1 RHONDDA	Coal	Yes	Within	N/A	237

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

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

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

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

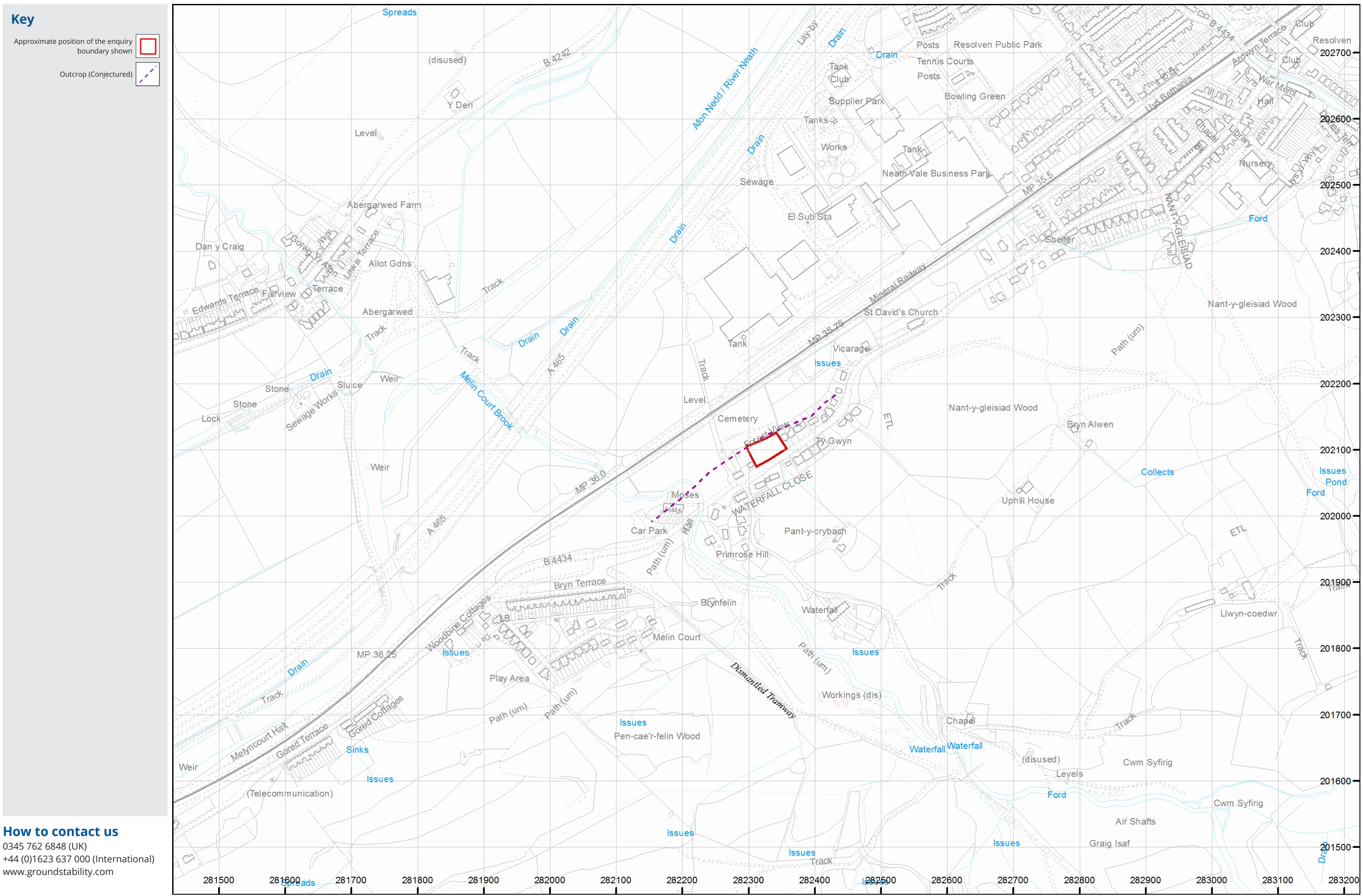
Withdrawal of support notices

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

Payment to owners of former copyhold land

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

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



Appendix C Borehole Records Available from the British Geological Survey (BGS, 2019)

Name and Number of Shaft or Bore given by Geological Survey:

County 3 GLAM

Geological Survey of India, B. H. French No 1, Rounda
Seam Co. Java No 2, Rounda Seam, 1925

Season 5 - Loc. N° 2 - Roundtable Season. 1929

GEOLOGICAL CLASSIFICATION	DESCRIPTION	THICKNESS		5	DEPTH	
		Fe.	Ins.		Fe.	Ins.
	Fireclay with nodules	14	9		14	9
	Fireclay + strong, cliffs	26	3		41	-
	Broken Permanent Rock	26	-		69	-
	Permanent	22	-		91	-
	Black rock		6		91	6
	Broken Permanent	4	6		96	-
	Permanent	12	-		108	-
	" , Broken	3	6		111	6
	Permanent	3	-		114	6
	" w. thin dark partings	12	6		127	-
	Permanent, Broken at bottom	4	6		131	6
	Fireclay		6		132	-
	Permanent	28	-		160	-
	" Broken	3	-		163	-
	Permanent	1	-		164	-
	" w. coaly streaks, Broken	15	-		179	-
	Permanent, very Broken	26	-		207	-
	Permanent, Hard + Broken	8	-		215	-
	Permanent w. streaks of coal + shale	22	6		237	6
	" w. coal	6	-		243	6
	COAL		2		247	8
	Permanent, very Broken	2	4		250	-
	COAL		2		250	2
	Permanent	6	10		257	-
	Coaly shale		6		257	6
	Permanent, v. Hard + Broken, w. spar in breaks	2	6		260	-
	Permanent, v. Hard	5	-		265	-
	Permanent	9	-		274	-
	Material like conglomerate composed of coarse Permanent w. quartz + shale pebbles	4	6		278	6
	Cliffs	2	6		281	-
	Permanent, Hard + Broken	1	6		282	6
	Conglomerate w. thin pebbles	5	-		287	6
	V. Hard, fine, dark sandstone	9	6		297	-
	Light sandstone, Hard	12	-		309	-
	Broken sandstone	8	6		317	6
	Shale + coal		11		318	5
	COAL		11		319	4
	Parting		1		319	5
	COAL		7		320	-
	Soft fireclay		9		320	9
	Hard "	3	9		324	6
	Sandy sand (except 6' and 1' 1")	14	9		344	-
	1' 1"				344	-
	1' 1" + 1' 1"				344	-
	Cliffs	3	9		352	9
	COAL		10		363	7
	Fireclay	3	11		357	6

UPPER COAL MEASURES

RHONDA BEDS

Class. by Ken Taylor 12 Nov 78

P.T.O.

2H. post down by Francois Comte 11 June 1961
 Information from " " "

UPPER COAL MEASURES

RHONDA
BEDS

Classified by
Ken Taylor
12 Nov 76

* P.T.O

2.H. part drawn by François Camille G.
Informations from " "

June, 1941

British Geological Survey

Gwynn Mynydd Goch is situated in the Nant Valley
about 3½ m. N.E. of Nant Goch.

SN80SW/114
8211.0195

British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

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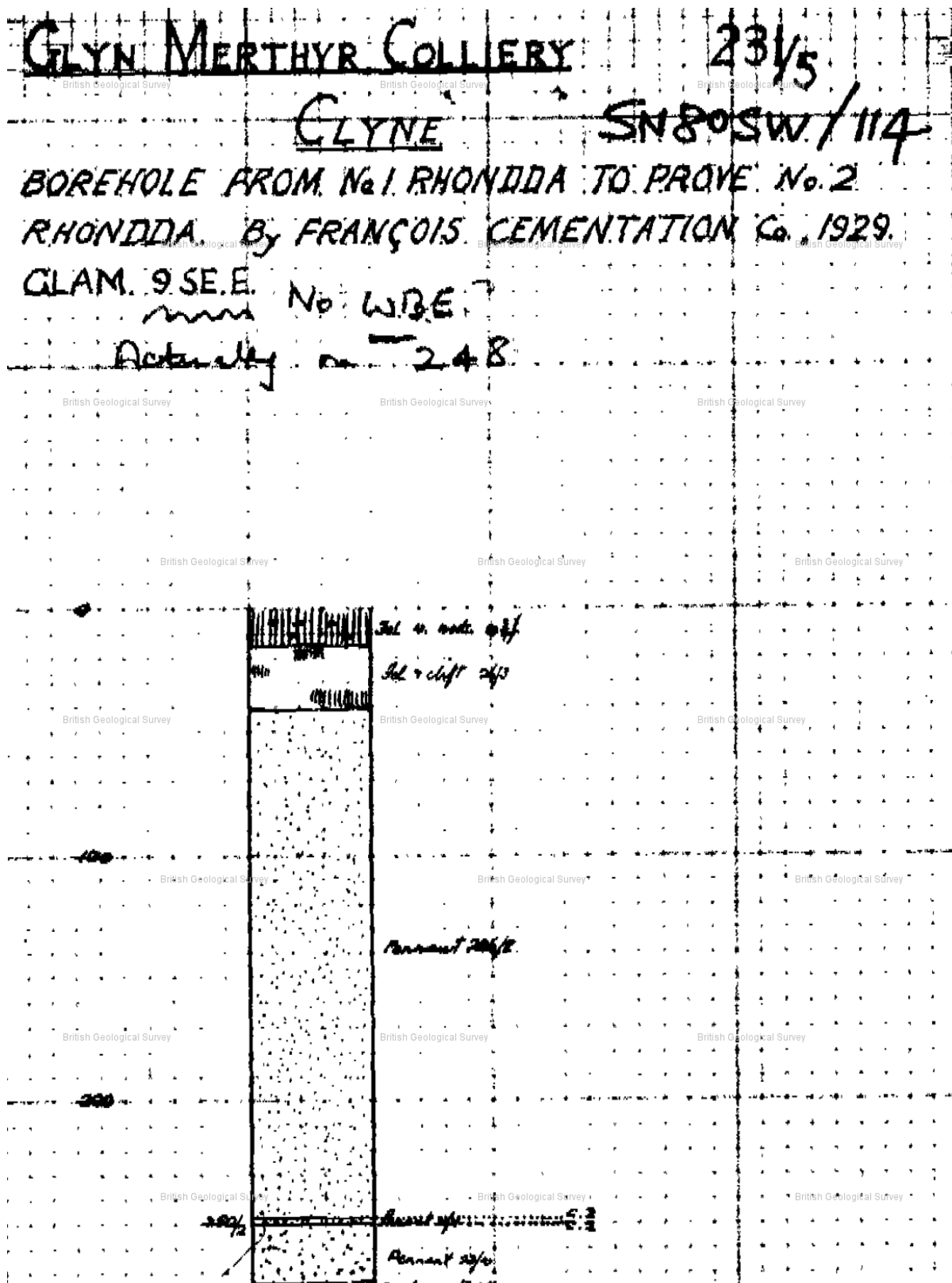
British Geological Survey

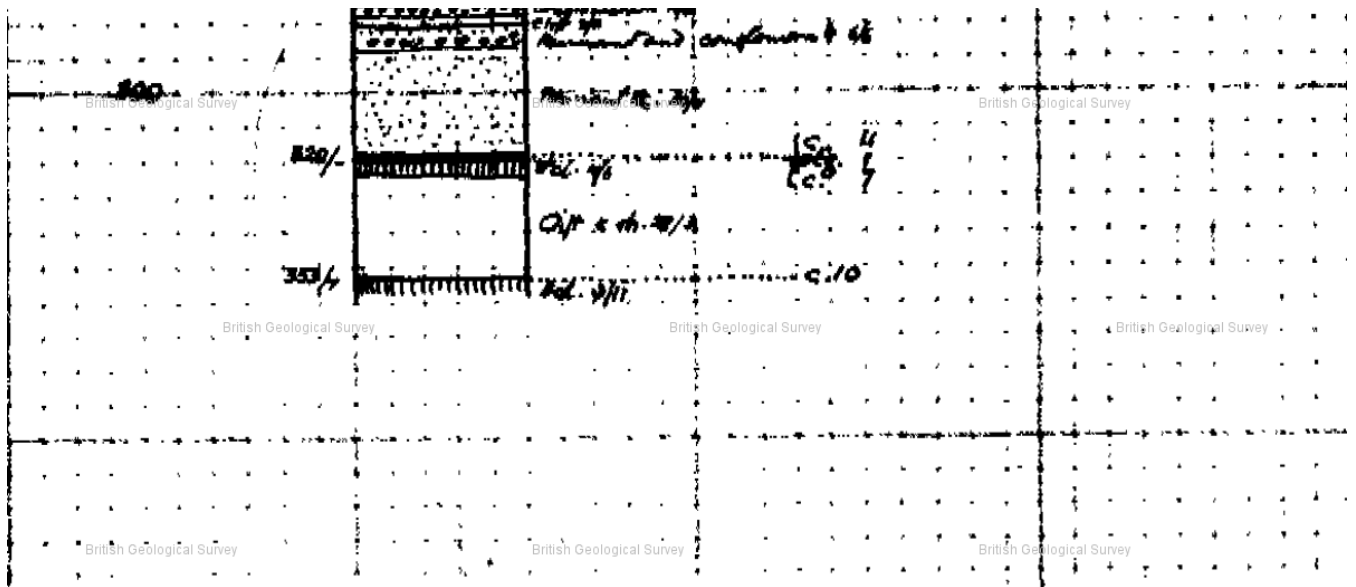
British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey





GENERAL NOTES

1. Earth Science Partnership (ESP) believes that providing information about limitations is essential to help clients identify and therefore manage their risks. These risks can be mitigated through further investigation or research, but they cannot be eliminated. This report may not be used for any purpose other than that for which it was commissioned.
2. This report includes available factual data for the site as obtained only from the sources described in the text. The data are related to the site on the basis of the site location and boundary information provided by the client. The findings and opinions conveyed in this assessment are based on the information obtained from a variety of sources as detailed in the report, which ESP believe are reliable. Nevertheless, ESP cannot and does not guarantee the authenticity or reliability of the information it has relied on. It is possible that the assessment failed to indicate the existence of further sources of information on the site. Assuming such sources do exist, their information could not have been considered in the formulation of the opinions and findings in this report. It should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
3. In preparing this report it has been assumed that all past and present occupants of the site have provided all relevant and other information, especially relating to known or potential hazards. This report is not required to identify insufficiencies or mistakes in the information provided by the user/owner or from any other source, but has sought to compensate for these where obvious in the light of other information.
4. Reports are normally prepared and written in the context of a stated purpose, and should not, therefore be used in a different context. Furthermore, new information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission.
5. The opinions presented in this report are based on the findings derived from a site inspection, investigations and a review of historical and other records. The report details any indicators that may suggest that hazardous substances exist at the site at levels likely to warrant mitigation. Not finding such indicators does not mean that hazardous substances do not exist at the site. The most recent site inspection was undertaken as detailed within the report. Circumstances on sites are subject to change and certain indicators of the presence of hazardous substances that may have been latent at the time of this inspection may subsequently have become observable.
6. The work carried out for the assessment can only investigate a small portion of the subsurface conditions. Certain indicators or evidence of hazardous substances may have been outside the limited portion of the subsurface investigated, latent at the time of the work or only partially intercepted by the works, and thus their full significance could not be appreciated. In this regard, groundwater levels are particularly susceptible to variation and it should be noted that groundwater levels are subject to diurnal, seasonal, and climatic changes and are solely dependent on the time the ground investigation was carried out and the weather before and during the investigation.
7. Accordingly, it is possible that the assessment failed to indicate the presence or significance of hazardous substances. Assuming such substances exist, their presence could not have been considered in the formulation of the report's findings and opinions. The conclusions resulting from this study and contained in this report are not necessarily indicative of future conditions or operating practices at or adjacent to the site. Where differing ground conditions or suspect materials are encountered during future site works, additional specialist advice should be sought to assess whether the new information will materially affect the recommendations currently provided herein and whether further consideration is required. Any limiting factors should be assessed by an appropriately qualified specialist.
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