

Talbot Green Developments Limited

PLOT 2 (AREA 17), TALBOT GREEN

Coal Mining Risk Assessment Report

14391/LP/24/CMRA

CLIENT: Talbot Green Developments Limited

PROJECT: Plot 2 (Area 17), Talbot Green

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1.0 INTRODUCTION

1.1 GENERAL

Talbot Green Developments Limited are proposing to develop an area of land referred to as Plot 2 (Area 17) in Talbot Green, Llantrisant for commercial end-use. The site location is shown in Figure 1. A site plan is presented in Figure 2.

In order to support the development proposals, Intégral Géotechnique (Wales) Limited have been appointed as the Geotechnical Engineers to undertake a Coal Mining Risk Assessment.

This report presents the findings of desk study and coal mining searches and sets out the Coal Mining Risk Assessment in line with the Coal Authority's guidelines.

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1.2 PROPOSED DEVELOPMENT

At the time of writing, the proposed development layout had not been finalised. However, initial proposals include the construction of a large 125,000 sq. ft commercial unit (to comprise a potential data centre over 2-floors), a security lodge, a sub-station compound, access roads, areas of car parking, lorry unloading areas, areas of landscaping, and a surface water attenuation pond.

It is understood that no development is proposed in the eastern extents of the site (which comprises dense woodland).

An initial concept layout is provided in Holder Mathias Architects drawing number: MEDS-HMA-ZZ-00-D-A-90101 Revision P01, dated 03 December 2024. See Figure 3.

1.3 SCOPE OF WORKS

The objectives of the coal mining risk assessment are to:

1. Present a desk-based review of available information on potential coal mining issues which are relevant to the site.
2. Use the information obtained to identify and assess the risks to the proposed development from coal mining legacy, including cumulative impact issues.
3. Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development.
4. Demonstrate to the Local Planning Authority that the application is or can be made safe and stable to meet the requirements of the Planning Policy Wales and the requirements of the Coal Authority in respect of their determination of planning application consultations.
5. Minimise the risks and effects of land instability on properties, infrastructure, and the public.
6. Help to ensure that various types of development should not be placed in unstable locations without appropriate precautions.
7. Bring unstable land, wherever possible, back into productive use.
8. Assist in safeguarding public and private investment by a proper appreciation of site conditions and necessary precautionary measures.

This report has been prepared in general accordance with the guidance within Section 11 of CIRIA Report C758 - Abandoned Mine Workings Manual and the Mining Risk Assessment Model Report Template and intends to demonstrate to the Local Planning Authority and the Coal Authority that the site is, or can be, made safe and stable, and to meet the requirements of the Planning Policy Wales (PPW).

The desk study comprised a review of:

- Old Ordnance Survey maps covering the site,
- Geological maps of the area provided by the British Geological Survey,
- A Consultants Coal Mining Report and Mine Entry Data Sheet obtained from The Coal Authority,
- Available site investigation data.

1.4 LIMITATIONS

This document is intended to be a working document for further development in discussion with all concerned including the Local Planning Authority and The Coal Authority.

2.0 THE SITE

2.1 SITE LOCATION AND DESCRIPTION

The site is located within Mwyndy approximately 1.3km southeast of the centre of Talbot Green at a National Grid Reference of 305450, 182190, see Figure 1.

The site is irregular in shape and occupies an area of approximately 6 hectares.

The majority of the site area comprises two undeveloped grass covered fields (a northern field and a southern field) separated by a mature hedgerow. The red-line planning application boundary also includes an area of dense woodland in the eastern extents of the site. However, it is understood that this eastern area is outside the proposed development footprint.

A site plan is presented in Figure 2.

The boundaries of the site are defined by a mature hedgerow (with a road beyond) to the west, a mature hedgerow (with an undeveloped field beyond) to the north, wooded land and a stream to the east, and a mature hedgerow (with an existing commercial/retail unit beyond) to the south.

The topography of the northern field site generally falls towards the east and north. The topographic elevation of the northern field ranges from an approximate maximum of 60m AOD in the southwest, to an approximate minimum of 48m AOD in the northeast.

A densely vegetated and wooded area is located within a shallow topographic hollow in the northeast area of the northern field (see Figure 2). This area is understood to be a small historical quarry feature.

The topography of the southern field generally falls towards the east and north. The topographic elevation of the southern field ranges from an approximate maximum of 60m AOD in the southwest, to an approximate minimum of 52m AOD in the northeast.

There is no available topographic survey data applicable to the inaccessible densely wooded eastern extents of the site.

2.2 SITE OPERATIONS

The majority of the site area comprises two undeveloped fields utilised for grazing livestock.

2.3 SURROUNDING LAND USE

The surrounding areas are typically undeveloped but there is an existing commercial/retail unit located on land immediately to the south of the site, and a cemetery beyond the road to the west of the site.

2.4 AVAILABLE SITE INVESTIGATION DATA

A preliminary site investigation comprising 13 No. machine excavated trial pits (referenced TP01 to TP010 and SA01 to SA03), and six windowless sample boreholes (referenced WS01 to WS06) was carried by Intégral Géotechnique (Wales) Limited on behalf of Talbot Green Developments Limited during October 2024.

Reference should be made to Preliminary Site Investigation Report No. 14391/FM/24/SI, dated for December 2024 for full details.

The approximate locations of the exploratory holes are shown in Figure 2. The available exploratory holes logs are presented in Appendix A.

3.0 SITE HISTORY

The recent history of the site has been traced with the aid of the following historical maps which have been presented in Appendix B:

Map Scale	Dates
1:2,500	1874-1877, 1899-1900, 1919-1920, 1940-1941, 1962, 1972, 1973, 1979-1980, 1984-1991, 1990, 1991, 1992, 1993, 1996, 2000 (aerial photo)
1:10,560	1885, 1900, 1921, 1947-1951, 1947-1949, 1953
1:10,000	1964-1965, 1974-1975, 1980-1982, 1993, 1999, 2006, 2024

The earliest reviewed map, dated 1874-1877, indicated the majority of the site comprised two undeveloped fields. The Mwyndy Branch of the Great Western Railway was indicated to run on a north south orientation through the eastern extents of the site (outside the proposed development footprint). Beyond the railway, the site was more vegetated and with a spring indicated. The eastern boundary of the site was formed by a surface water feature which flowed towards Afon Clun to the north of the site. The western site boundary was formed by a road/track. A circular wooded former quarry was located adjacent to the railway within the north-eastern area of the northern field. A 'trial shaft' was also indicated just to the south of the wooded former quarry area. An engine house and a shaft were recorded approximately 150m to the south of the site, Cae-Sais Hematite Works (with an associated shaft) was recorded approximately 100m to the southeast of the site, and Mwyndy Iron Ore Works (with numerous associated drifts and shafts) was recorded approximately 400m to the south of the site.

The 1899-1900 edition of the map indicated the site to have remained relatively unchanged. However, the trial shaft which in the north-eastern area of the northern field was now indicated to be an 'old coal pit'. Mwyndy Iron Ore Works was indicated to be disused by this time, but some of the buildings remained. Cae-Sais Hematite Works was no longer evident.

The 1919-1920 edition of the map indicated no significant changes to the site or the immediate surrounding area. There was no longer any evidence of the trial shaft / old coal pit on site, and a footpath was indicated to cross the southern field on a northeast to southwest orientation. A cemetery was indicated beyond the road to the west of the site. A Brick Works was indicated approximately 250m to the southeast of the site.

3.0 SITE HISTORY (CONTINUED)

The site and the immediate surrounding areas remained relatively unchanged over the subsequent years until the edition of the map dated 1972. By this time, the footpath passing through the southern half of the site had been reorientated. The railway line in the eastern extents of the site was now indicated to have been dismantled. The area of the site in between the former railway line and the eastern site boundary was indicated to be heavily vegetated and wooded. The area directly to the south of the site was now developed as a Coal Depot. The road infrastructure in the surrounding areas had significantly developed by this time including the construction of the A4119 approximately 150m to the west of the site.

The site and the surrounding areas remained relatively unchanged over the subsequent years. The year 2000 aerial photo indicated the site to be grass covered and comprised two fields separated by a hedgerow. The former railway line which ran through the eastern area of the site was heavily vegetated, as was the eastern edge of the site. The circular wooded former quarry was still evident within the northeast area of the northern field. The area to the south of the site was developed with a commercial/retail unit by 1999 and was shown on the aerial photo.

4.0 SITE ENVIRONMENTAL SETTING

4.1 PHYSICAL SETTING

The site is situated on the southeast edge of Talbot Green within a mainly rural area but with an existing commercial/retail premises to the south.

The topography of the northern field site generally falls towards the east and north. The topographic elevation of the northern field ranges from an approximate maximum of 60m AOD in the southwest, to an approximate minimum of 48m AOD in the northeast.

A densely vegetated and wooded area is located within a shallow topographic hollow in the northeast area of the northern field (see Figure 3). This area is understood to be a small historical quarry feature.

The topography of the southern field site generally falls towards the east and north. The topographic elevation of the southern field ranges from an approximate maximum of 60m AOD in the southwest, to an approximate minimum of 52m AOD in the northeast.

There is no available topographic survey data applicable to the inaccessible densely wooded eastern extents of the site.

4.2 GEOLOGY

The 1:50,000 scale geological map (Sheet 261 and 262) and 1:10,560 scale geological map (Glamorgan Sheet XXXVI SW) of the area indicates the site to be underlain by bedrock strata of the Mercia Mudstone Group (Marginal Facies) of the Triassic period. These rocks lie unconformably over the South Wales Middle and Lower Coal Measures strata of the Carboniferous period.

The strata dips in the area are indicated to be approximately 10° to the southeast within the Mercia Mudstone Group (marginal facies), and approximately 30° to the north within the underlying South Wales Middle and Lower Coal Measures strata.

The Mercia Mudstone Group (Marginal Facies) in the area typically comprises Dolomitic Conglomerate. The matrix of these rock generally consists of finer-grained rock fragments or, less commonly, siltstone, sandstone or micritic limestone. The 1:10,560 scale geological map indicates the Dolomitic Conglomerate in the area to be rich in calcite containing galena (an important lead ore). The 1:10,560 scale geological map indicates the presence of 'trial pits for lead' on site. The area has a history of shallow lead mining.

4.2 GEOLOGY (CONTINUED)

It should be noted that the Dolomitic Conglomerate bedrock strata which underlies the site is prone to dissolution weathering and geotechnical hazards associated with solution features such as subsidence sinkholes. The Envirocheck Report indicates the presence of numerous natural cavities (sinkholes) associated within the Dolomitic Conglomerate in the area.

The underlying South Wales Middle and Lower Coal Measures Formation typically comprise grey, productive coal-bearing mudstones/siltstones, with seatearths and minor sandstones. The conjectural outcrops of a number of coal seams including the Two Feet Nine, the Six Feet, the Four feet, the Bute and the Five Feet Gellideg are indicated beneath the northeast and southeast areas of the site and terminating at the interface with geological faults. These coal seams would therefore underlie the site but within the coal measures strata. These coal seams could be at shallow depth depending upon the thickness of the overlying Mercia Mudstone Group (Marginal Facies) / Dolomitic Conglomerate.

The 1:10,560 scale geological map indicates the dolomitic conglomerate bedrock strata in the area to be rich in calcite containing galena (an important lead ore). The 1:10,560 scale geological map indicates the presence of 'trial pits for lead'. The area has a history of shallow lead mining.

The extent of the lead workings is unknown, and shallow pits / workings for lead (with associated areas of disturbed ground) may be present on site.

Superficial deposits comprising Devensian Till of the Quaternary period are indicated to overlie the majority of the site. These deposits are typically variable and poorly sorted, comprising clays, sands and gravel. These deposits are indicated to be absent from beneath the lower lying northern and north-eastern extents of the site.

Superficial deposits of Alluvium of the Quaternary period are indicated to encroach across the densely wooded eastern edge of the site associated with the location of the surface water feature / stream.

The published site geology is shown in Figure 4.

Localised areas of made ground may be present on site, such as in the vicinity of the former quarry and trial shaft in the north-eastern area of the northern field, the former railway that historical passed through the densely wooded eastern extents of the site (outside the proposed development footprint), and/or associated with any potentially uncharted infilled historical lead trial pits.

4.2 GEOLOGY (CONTINUED)

A summary of the anticipated geological succession is given below in Table 1.

Geological unit	Horizon	Description
Recent	Topsoil/subsoil with localised areas of made Ground	Various materials
Quaternary	Devensian Till	Variable and poorly sorted clays, sands and gravel
	Alluvium (eastern edge)	Soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present.
Triassic	Mercia Mudstone Group (Marginal Facies)	Variable conglomerate and/or breccia. The matrix generally consists of finer-grained rock fragments or, less commonly, siltstone, sandstone or micritic limestone
Carboniferous	South Wales Middle Coal Measures Formation	Grey productive coal-bearing mudstones/siltstones, with seatearths and minor sandstones

4.3 MINING

The site is located within a coal mining reporting area and therefore a Consultants Coal Mining Report has been obtained from the Coal Authority and a copy is included in Appendix C.

An appraisal of the mining data and its significance is presented below.

4.3.1 *Past Underground Coal Mining (Recorded Workings)*

The Coal Authority states that there is no past underground mining recorded beneath the site.

The Coal Authority Interactive Map indicates that the nearest recorded workings are located approximately 1km to the northeast of the site.

4.3 MINING (CONTINUED)

4.3.2 Probable Unrecorded Shallow Workings

The Coal Authority state that the probable unrecorded workings is “none”. However, this does not mean that shallow unrecorded workings do not exist, but rather any information to support this has not come into the possession of the Coal Authority.

As discussed previously, the geology map and the Coal Authority indicate the conjectural sub-crops of a number of coal seams including the Two Feet Nine, the Six Feet, the Four Feet, the Bute and the Five Feet Gellideg to be present beneath the northeast and southeast areas of the site. The Coal Authority consider that all of these coal seams are of workable thicknesses. It should be noted that these coal seams would sub-crop within the coal measures bedrock strata which underlie the Mercia Mudstone Group (Marginal Facies) / Dolomitic Conglomerate. The thickness of the Mercia Mudstone (Marginal Facies) / Dolomitic Conglomerate overlying the coal measures strata beneath the site is currently unknown. As such, these coal seams and any potential associated unrecorded underground mine workings could underlie the site at shallow depths.

Based on the information provided by the Coal Authority and a review of the geological maps, there is considered to be a potential risk to the proposed development from shallow unrecorded coal mine workings. The level of this potential risk will depend on the actual positions and depths of the coal seams beneath the site, the presence of any associated unrecorded mine workings, and whether there is sufficient rock cover above any such mine workings (if present) to prevent any associated uncollapsed voids migrating up to and affecting the site’s surface.

4.3.3 Spine Roadways at Shallow Depth

The Coal Authority have indicated that there are no shallow spine roadways recorded beneath the site. However, the presence of potential unrecorded shallow spine roadways should not be ruled out.

4.3.4 Mine Entries

The Coal Authority records the presence of a mine entry, comprising a shaft (ref: 305182-003) located on site, within the northeast area of the northern field.

The historical OS map dated 1874-1877 records this mine entry as a ‘trial shaft’. A subsequent historical OS map dated 1899-1900 recorded this feature as an ‘old coal pit’.

A ‘Mine Entry Data Sheet’ detailing available information on Shaft 305182-003 has been obtained from the Coal Authority, a copy is presented in Appendix D. The Coal Authority listed location of Shaft 305182-003 is: 305469 E, 182259 N.

4.3 MINING (CONTINUED)

A desk-based georeferencing exercise has been undertaken using the historical OS maps to corroborate the Coal Authority's listed location of Shaft 305182-003.

A summary of the published mine entry data, and the results of the georeferencing exercise is presented in Table 2.

Ref:	Shaft/Adit?	CA Primary Source Plan	Depth of Shaft (m)	Assumed Diameter (m)	Assumed CA Easting, Northing (desk based)	Assumed IG Easting, Northing (desk based)	CA Assigned Departure Distance
305182-003	Shaft (trial shaft)	OS Map	Unknown	2.5	305469, 182259	305469, 182259	5m

The findings of the georeferencing exercise corroborate the Coal Authority published location of Shaft 305182-003.

4.3.5 Geological Faults, Fissures and Breaklines

The Coal Authority indicate that there are a number of geological faults crossing the site. These faults are not shown on the geology maps and therefore it is considered likely that they are within the coal measures strata beneath the overlying Mercia Mudstone Group (Marginal Facies) / Dolomitic Conglomerate.

4.3.6 Opencast Mines

The Coal Authority indicates that there are no unlicensed opencast sites located within 500m of the site boundary.

However, it should be noted that the geology and history maps indicate the presence of a small historical quarry feature (for Dolomitic Conglomerate) within the northeast area of the site.

4.3.7 Coal Authority Managed Tips

The Coal Authority states that there are no managed tips recorded within 500m of the site boundary. The latest guidance published by the Welsh Government and its partners include a Mining and Coal Tip Safety document, published on the 14th of November 2023, which assigns an identification number (UID), a category, and the immediate status of each disused coal tip in Wales. This document also confirms that there are no managed tips within an influencing distance of the site.

4.3 MINING (CONTINUED)

4.3.8 Coal Mining Subsidence

The Coal Authority states that *“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”.

There are no recorded instances regarding coal mining related subsidence on site.

4.3.9 Mine Gas

The Coal Authority states that with regards to mine gas, none has been recorded within 500m of the site boundary.

The risk of gas evolution from coal seams and accumulated sources such as abandoned tunnels and workings cannot be discounted due to the potential risk of unrecorded workings. Further assessment would be required, conducted in accordance with CL:AIRE document Good Practice for Risk Assessment for Coal Mine Gas Emissions, dated October 2021.

A mine gas risk assessment should be undertaken to confirm the level of gas risk within the site.

4.3.10 Future Underground Mining and Section 46 Notices

The Coal Authority does not have any current records relating to future underground mining.

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

There are no currently understood issues regarding future workings or subsidence.

5.0 ASSESSMENT OF MINING CONSTRAINTS

5.1 RISKS FROM MINING LEGACY

The desk study search of the various coal mining information and maps identifies the following site-specific coal mining legacy risks, see Table 3.

Table 3: Mining Legacy Risk Table				
Coal Mining Issue	Yes	No	Risk Assessment	
			Rating	Comments
Recorded underground coal mining (recorded at shallow depths)		X	Low risk	None recorded at shallow depth.
Unrecorded underground coal mining (possible at shallow depths)	X		Moderate risk	Unrecorded shallow workings possible beneath the site within multiple seams of coal.
Mine entries (shafts)	X		High risk	One shaft indicated within the northeast area of the site.
Mine entries (adits)		X	Low risk	No adits are located within the site or within an influencing distance.
Coal mining geology (faults and fissures)	X		Low risk	Faults indicated to cross the site. Faults likely to be within the coal measures strata and would not extend to the surface.
Record of past mine gas emissions or potential	X		Moderate risk	All mineworkings pose a potential gas risk which should be considered in any future investigations and development.
Recorded coal mining surface hazard		X	Low risk	None recorded.
Surface mining (opencast workings)		X	Low risk	None recorded.

A summary of the risk posed by these features is summarised after thorough analysis of the information sources. Comment on each specific coal mining issue follows below:

5.2 RISKS FROM ABANDONED MINEWORKINGS

Coal mining at depths shallower than 30m beneath ground level can pose constraints to development in the form of ground stability at the surface. The magnitude of this effect depends upon the exact depth of any workings, the thickness of competent rock cover and the extraction thickness of any coal mine workings.

There are no recorded shallow mine workings beneath the site. However, there is the for potential for shallow unrecorded mine workings to be present beneath the site. .

The level of risk associated with any unrecorded mine workings will depend on their location, depth, and whether there is sufficient overlying rock cover to prevent any associated uncollapsed voids migrating up to and affecting the site surface.

To ensure that development over mine workings is not affected by subsidence associated with past underground mining related voids, a rock cover thickness typically in the order of ten times the maximum void thickness of the workings is generally required, depending on the nature and strength of the overlying rock strata.

Targeted supplemental intrusive ground investigation works, comprising a series of rotary boreholes, will be required in order to further assess the risk from potential shallow unrecorded mine workings beneath the site. Note that the findings of these works may identify evidence of shallow mine workings that require remediation/treatment (such as drilling and grouting ground stabilisation) prior to development.

5.3 RISKS FROM THE ABANDONED MINE ENTRIES - SHAFTS

The Coal Authority records the presence of a mine entry, comprising a shaft (ref: 305182-003) located on site, within the northeast area of the northern field (at 305469 E, 182259 N).

Where mine entries are proven to still be present beneath the site at shallow depths, there will be a potential ground subsidence risk to the proposed development, and appropriate remediation and building exclusion zones will need to be implemented.

Until Shaft 305182-003 has been accurately located and remediated, a preliminary 'worst-case' building exclusion zone has been determined around the georeferenced shaft location.

The preliminary radius of the preliminary worst-case building exclusion zone has been determined at 11.25m. This no-build zone radius should be applied around the georeferenced location of Shaft 305182-003 (i.e., around 305469 E, 182259 N).

5.3 RISKS FROM THE ABANDONED MINE ENTRIES – SHAFTS (CONTINUED)

Figures 2 and 3 show the extent of the preliminary worst-case building no-build zone.

Note that the size of the preliminary worst-case building exclusion zone accounts for an assumed 1.25m shaft radius (in line with data published on the Coal Authority interactive map viewer), the Coal Authority assigned 5m potential lateral departure distance (in line with data published on the Coal Authority interactive map viewer) and a 5m depth to rockhead (based on current site investigation findings at WS02).

In order to further assess the risk posed to the proposed development from Shaft 305182-003, supplemental targeted intrusive site investigation should be carried out in order to locate this feature and determine the scope of recommended treatment/stabilisation works (which is likely to comprise drilling and grouting stabilisation of any shaft infill, followed by the construction of a reinforced concrete shaft cap at rockhead level). This additional information will be used to further assess the size of the building exclusion zone identified in this report. Note that the exclusion zone may be reduced in size if the results of the further investigations support such a reduction.

The initial proposed development layout, as shown in Figure 3, indicates the northeast corner of the proposed building to be situated within the preliminary worst-case building exclusion zone. Until Shaft 305182-003 has been accurately located / surveyed, and an appropriate scheme of treatment designed and approved, it is recommended that no buildings are proposed within the preliminary worst-case building exclusion zone.

The site sits within an historical mining area and therefore there is a residual risk of unrecorded mine entries to be present on site. All site operatives should be made aware of this potential risk and a watching brief should be maintained during site works

5.4 RISKS FROM THE ABANDONED MINE ENTRIES - ADITS

No adits have been recorded on site, or within an influencing distance of the site boundary.

Until recently, adits were rarely treated on abandonment to any significant engineering standard. Whilst it is likely that an adit entrance itself would have been treated, the remainder of an adit roadway may still be intact. They may have been only loosely backfilled or might be partially collapsed. Therefore, if an adit is located within influencing distance of the surface, then treatment may be required. Normal procedure would be to establish a 20m buffer zone drawn parallel to the feature within a development site. The size of buffer or no development zone, will depend on the diameter of the adit, the depth to rockhead and an assessment of the adit condition.

5.4 RISKS FROM THE ABANDONED MINE ENTRIES – ADITS (CONTINUED)

The site sits within an historical mining area and therefore there is a residual risk of unrecorded mine entries to be present on site. All site operatives should be made aware of this potential risk and a watching brief should be maintained during site works.

5.5 COAL MINING GEOLOGY (FAULTS AND FISSURES)

The development site sits upon the bedrock of the Mercia Mudstone (Marginal Facies) underlain by South Wales Middle Coal Measures Formation.

There are faults indicated to extend beneath the site that are indicated by The Coal Authority within the Consultants Coal Mining Report. It is likely that these faults do not extend to the surface but their affect on the coal seams within the coal measures strata beneath the site should be considered prior to development.

5.6 RECORD OF PAST MINE GAS EMISSIONS OR POTENTIAL

Gas evolution from coal seams and accumulated sources such as abandoned tunnels and workings cannot be discounted and will require further assessment conducted in accordance with CL:AIRE document Good Practice for Risk Assessment for Coal Mine Gas Emissions, dated October 2021.

The site is located within a high-risk development area and based on the above guidelines a mine gas risk assessment should be undertaken. The initial desk-based assessment of the site will be utilised in order to develop the level of mine gas risk within the site.

There are many sources of gas in mine workings including desorption of gas from coal and rocks, oxidation of coal, decomposition of old wood (such as pit props) and acidic mine drainage reacting with carbonate in the rocks around the seam or shaft. These gases, if produced within the old workings, would need a viable pathway to the surface such as a shaft or fractured rock above the workings.

Based on the desk-based research, the potential risk from coal mine gas emissions at the development site is considered below:

Figure 13.1 Decision Support Tool for Mine Gas Risk Assessment, included within CL:AIRE document Good Practice for Risk Assessment for Coal Mine Gas Emissions, dated October 2021 includes a flow chart to aid the risk assessment process and decision making.

5.6 RECORD OF PAST MINE GAS EMISSIONS OR POTENTIAL (CONTINUED)

Stage 1 of the flow chart asks if the site is within a Coal Authority defined Coal Mining Reporting Area. Since the site is located within a Coal Authority defined Coal Mining Reporting Area the flow chart then asks if all of the following statements are true:

- Mine entries >50m from site boundary
- Workings >150m depth
- No faults or other potential pathways connecting surface to deeper unflooded workings
- Outside area of past or probable shallow workings on Coal Authority viewer

There is a mine entry indicated to be present on site, however, it would not be located beneath the proposed building as exclusion zones would need to be applied. Following recommended intrusive works to locate the shaft and subsequent treatment, which would involve grouting and the construction of an appropriate shaft cap, the shaft would not be considered as a pathway for mine gas to the proposed building, but this would require investigation and confirmation. There are no recorded workings beneath the site, however, there is potential for shallow unrecorded workings. There are faults which cross the site; however, it is likely that they are within the coal measures strata and would not extend to the surface. A pathway is not considered likely from the faults, particularly if workings are not present, but again would need confirmation.

Due to the lack of site-specific data, intrusive works are recommended to confirm the level of gas risk. If shallow workings are found beneath the proposed development area, a programme of gas monitoring would be recommended. A mine gas risk assessment should be undertaken using the site-specific data in conjunction with the gas monitoring results.

The recommended boreholes would also confirm the thickness of superficial deposits and the underlying Mercia Mudstone (Marginal Facies). The boreholes would also determine the depth to any coal seams and whether or not any unrecorded workings are present, and if they are flooded. All these factors would provide a basis for the mine gas risk assessment.

If no workings are found as part of the intrusive works, the site would be classified as being within a "Negligible Risk Zone" with the mine entry ruled out as a pathway (following treatment), no fault features to form a pathway due to the overlying Mercia Mudstone (Marginal Facies) and with the site located outside the area of past or probable shallow workings.

In order to confirm the mine gas risk intrusive works would be required in order to gain site-specific data.

5.7 RECORDED COAL MINING SURFACE HAZARD

None recorded.

5.8 SURFACE MINING (OPENCAST WORKINGS)

None recorded.

5.9 DEVELOPMENT RISK PLAN

Based on the information provided by the geology maps and the information from the Coal Authority it is considered possible that there could be shallow unrecorded workings beneath the site. The Coal Authority define the high-risk development area beneath the northeast and southeast areas associated with the coal outcrops, but we would extend the high-risk area across the site.

It is considered that there is potential for the risk to be lowered (or removed) by conducting supplemental targeted site investigation works. Intrusive works may discount any potential risk or may highlight a requirement for remedial works prior to development.

The coal mining legacy issues outlined in this report, including the potential for shallow unrecorded workings and unrecorded mine entries to be present within the site, could have implications for the proposed development.

At this stage, the preliminary radius of the preliminary worst-case building exclusion zone has been determined at 11.25m. This no-build zone radius should be applied around the georeferenced location of Shaft 305182-003 (i.e., around 305469 E, 182259 N).

Figure 2 shows the extent of the preliminary worst-case building no-build zone.

Note that the size of the preliminary worst-case building exclusion zone accounts for an assumed 1.25m shaft radius (in line with data published on the Coal Authority interactive map viewer), the Coal Authority assigned 5m potential lateral departure distance (in line with data published on the Coal Authority interactive map viewer) and a 5m depth to rockhead (based on current site investigation findings at WS02).

5.10 DEVELOPMENT PRECAUTIONS

Site Investigation and/or Remediation

Due to the potential for shallow unrecorded mine workings beneath the site supplemental targeted intrusive site investigation in the form of deep rotary boreholes will be required. The rotary boreholes should confirm the thickness of the superficial soils, the underlying Mercia Mudstone (Marginal Facies) / Dolomitic Conglomerate, and the depth/thickness to any coal seams and any associated shallow unrecorded underground mine workings.

If the rotary boreholes should encounter evidence of shallow unrecorded underground mine workings with insufficient overlying rock cover, then treatment/stabilisation works comprising drilling and grouting ground stabilisation, may become required.

The information gained from the rotary boreholes would also inform a mine gas risk assessment for the proposed development. However, it is also recommended that a programme of ground gas monitoring is undertaken (via a series of shallow gas monitoring wells installed within a series of supplementary windowless sample boreholes). The results of the recommended ground gas monitoring will inform any requirement for the incorporation of ground gas (carbon dioxide and methane) protection measures in proposed buildings.

In order to further assess the risk posed to the proposed development from Shaft 305182-003, supplemental targeted intrusive site investigation should be carried out in order to locate this feature and determine the scope of recommended treatment/stabilisation works (which is likely to comprise drilling and grouting stabilisation of any shaft infill, followed by the construction of a reinforced concrete shaft cap at rockhead level). This additional information will be used to further assess the size of the building exclusion zone identified in this report. Note that the exclusion zone may be reduced in size if the results of the further investigations support such a reduction.

The coal mining related site investigation works should be carried out in accordance with the guidance Section 12 of CIRIA Report C758 - Abandoned Mine Workings Manual.

The site investigations will need to be carried out by a competent contractor, considering the findings of this report. The results should be interpreted by a qualified and competent person so that an appropriate remedial strategy can be developed.

The occurrence of unrecorded mine entries across the whole of the site cannot be discounted and consequently in areas of new build development a watching brief should be maintained throughout the site works to identify this risk. As a result, all site operatives should be made aware of this potential risk.

5.10 DEVELOPMENT PRECAUTIONS (CONTINUED)***Coal Authority Permit***

Any intrusive activities, including initial site investigation boreholes and any subsequent treatment of coal mine workings/coal mine entries for ground stability purposes require the prior written permission of the Coal Authority.

APPENDIX A

AVAILABLE EXPLORATORY HOLE LOGS

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391	Trial Pit No.: SA01 Sheet 1 of 1
Location: Talbot Green		Client: Talbot Green Developments Limited		Logged By: FM	Scale: 1:25		
Equipment: JCB-3CX		Coordinates:		Dimensions: 0.70m			
Date Excavated: 29/10/2024		Level:		Depth: 2.55m	2.60m		
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	ES		0.30			(TOPSOIL) Grass over soft brown silty slightly sandy slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular to rounded of siltstone and sandstone.	
			1.40			Soft to firm brown mottled yellowish brown silty sandy gravelly CLAY with a medium cobble content of sub-angular to rounded sandstone and occasional siltstone.	
			2.55			(Loose) reddish brown silty clayey to very clayey gravelly SAND with a medium cobble and low boulder content of sub-angular to sub-rounded sandstone and dolomitic conglomerate. Gravel is fine to coarse sub-angular to rounded of sandstone siltstone dolomitic conglomerate and occasional mudstone.	
						End of Trialpit at 2.55 m	
Remarks: 1. Trial pit terminated at 2.55m bgl at target depth. 2. Soil infiltration test undertaken.		Groundwater: 1. No groundwater encountered.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
		Stability: 1. Overbreak and spalling below 1.40m bgl.					

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391	Trial Pit No.: SA02 Sheet 1 of 1
Location: Talbot Green		Client: Talbot Green Developments Limited		Logged By: FM		Scale: 1:25	
Equipment: JCB-3CX		Coordinates:		Dimensions 0.80m			
Date Excavated: 29/10/2024		Level:		Depth : 2.65m 2.80m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.20	ES		0.20			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.	
			0.75			Soft to firm brown silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.	
			2.25			(Loose) brown silty clayey to very clayey gravelly SAND with a medium cobble content of platy and blocky sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and occasional dolomitic conglomerate.	1
2.25	D		2.25			Soft reddish brown silty gravelly CLAY with a medium cobble content of sub-angular to sub-rounded sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone siltstone and dolomitic conglomerate.	2
			2.65			End of Trialpit at 2.65 m	3
							4
							5
Remarks: 1. Trial pit terminated at 2.65m bgl at target depth. 2. Soil infiltration test undertaken.				Groundwater: 1. No groundwater encountered.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
				Stability: 1. Unstable below 1.0m bgl.			

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391	Trial Pit No.: SA03 Sheet 1 of 1
Location: Talbot Green		Client: Talbot Green Developments Limited		Logged By: FM		Scale: 1:25	
Equipment: JCB-3CX		Coordinates:		Dimensions 0.70m			
Date Excavated: 30/10/2024		Level:		Depth : 2.60m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	ES		0.25			(TOPSOIL) Grass over soft brown silty slightly sandy slightly gravelly organic rich CLAY with frequent roots and rootlets. Gravel is fine to coarse sub-angular of sandstone.	
			0.60			Soft to firm brown silty very sandy gravelly CLAY with a low cobble content of platy and sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.	
1.00	D		1.30			(Loose to medium dense) brown silty clayey gravelly SAND with a low to medium cobble content of platy and sub-angular to sub-rounded sandstone. Gravel is fine to coarse sub-angular of sandstone and rare siltstone.	
			2.60			Firm to stiff reddish brown locally greenish grey silty slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of sandstone dolomitic conglomerate and occasional mudstone.	
						End of Trialpit at 2.60 m	
Remarks: 1. Trial pit terminated at 2.60m bgl at target depth. 2. Soil infiltration test undertaken.				Groundwater: 1. No groundwater encountered.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
				Stability: 1. Trial pit generally stable in the short-term.			

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391	Trial Pit No.: TP01 Sheet 1 of 1	
		Location: Talbot Green		Client: Talbot Green Developments Limited	Logged By: FM	Scale 1:25
Equipment: JCB-3CX		Coordinates:		Dimensions 0.80m		
Date Excavated: 29/10/2024		Level:		Depth : 3.35m	2.90m	
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.20			(TOPSOIL) Grass over soft brown silty slightly gravelly CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.
			1.55			(Loose to medium dense) brown silty clayey to very clayey gravelly SAND with a medium cobble content of platy and sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone with occasional dolomitic conglomerate.
			3.35			Firm reddish brown locally mottled yellowish brown silty gravelly CLAY with a medium cobble content of platy and sub-angular to sub-rounded sandstone and mudstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone siltstone and mudstone.
						End of Trialpit at 3.35 m
Remarks: 1. Trial pit terminated at 3.35m bgl at maximum extent of excavator.			Groundwater: 1. No groundwater encountered.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability: 1. Trial pit generally stable in the short-term.			

	Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name: Plot 2 (Area 17), Talbot Green	Project No.: 14391	Trial Pit No.: TP02 Sheet 1 of 1
	Location: Talbot Green	Client: Talbot Green Developments Limited	Logged By: FM	Scale: 1:25

Equipment: JCB-3CX	Coordinates:	Dimensions: 0.80m
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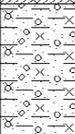
Date Excavated: 29/02/2024	Level:	Depth: 3.45m 2.95m
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Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.
			0.60			Soft brown silty very sandy gravelly CLAY with a low cobble content of platy and sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and rare angular dolomitic conglomerate.
			3.45			(Loose to medium dense) brown silty clayey to very clayey gravelly to very gravelly SAND with a medium cobble and low boulder content of platy and sub-angular sandstone and occasional dolomitic conglomerate. Gravel is fine to coarse angular to sub-rounded of dolomitic conglomerate and sandstone.
						End of Trialpit at 3.45 m

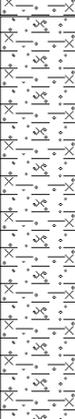
Remarks: 1. Trial pit terminated at 3.45m bgl at maximum extent of excavator.	Groundwater: 1. No groundwater encountered.	Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
	Stability: 1. Trial pit generally stable in the short-term.		

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green			Project No.: 14391	Trial Pit No.: TP03 Sheet 1 of 1
		Location: Talbot Green			Client: Talbot Green Developments Limited	
Equipment: JCB-3CX		Coordinates:			Dimensions 0.75m	
Date Excavated: 29/10/2024		Level:			Depth : 3.35m	
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
2.30	D		0.30			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.
			1.00			Soft to firm brown silty very sandy gravelly CLAY with a low cobble content of platy and sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.
			2.00			(Loose to medium dense) brown silty clayey to very clayey gravelly to very gravelly SAND with a medium cobble and low boulder content of platy and sub-angular to sub-rounded sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and siltstone.
			3.35			Soft to firm reddish brown locally mottled yellowish brown silty gravelly CLAY with a medium cobble content of sub-angular to sub-rounded sandstone and sub-angular mudstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone siltstone and mudstone.
						End of Trialpit at 3.35 m
Remarks: 1. Trial pit terminated at 3.35m bgl at maximum extent of excavator.		Groundwater: 1. No groundwater encountered.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
		Stability: 1. Trial pit generally stable in the short-term.				

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391	Trial Pit No.: TP04 Sheet 1 of 1	
Location: Talbot Green		Client: Talbot Green Developments Limited		Logged By: FM		Scale: 1:25		
Equipment: JCB-3CX		Coordinates:		Dimensions: 2.65m		Depth: 3.40m 0.80m		
Date Excavated: 29/10/2024		Level:						
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
Depth (m)	Type	Results						
1.50	D		0.25		(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.			
					Soft to firm brown silty very sandy gravelly CLAY with a low cobble content of platy and sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.			
				0.90		(Loose to medium dense) brown silty clayey to very clayey gravelly SAND with a medium cobble and low boulder content of platy and sub-angular to sub-rounded sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and occasional dolomitic conglomerate.		1
				1.50		Firm reddish brown silty slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and rare mudstone.		2
			3.40		End of Trialpit at 3.40 m		3	
							4	
							5	
Remarks: 1. Trial pit terminated at 3.40m bgl at maximum extent of excavator.			Groundwater: 1. No groundwater encountered.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample		
			Stability: 1. Trial pit generally stable in the short-term.					

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391	Trial Pit No.: TP05 Sheet 1 of 1
Location: Talbot Green		Client: Talbot Green Developments Limited		Logged By: FM		Scale: 1:25	
Equipment: JCB-3CX		Coordinates:		Dimensions 2.85m			
Date Excavated: 29/10/2024		Level:		Depth : 3.50m 0.90m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
			0.25			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.	
			0.70			Soft to firm brown silty very sandy gravelly CLAY with a low cobble content of platy and sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.	
			2.00			Firm reddish brown mottled greenish grey and yellowish brown silty gravelly to very gravelly CLAY. Gravel is fine to coarse angular to sub-angular of sandstone and mudstone.	
			3.50			Soft reddish brown mottled greenish grey and yellowish brown silty gravelly to very gravelly CLAY. Gravel is fine to coarse angular to sub-angular of sandstone and mudstone.	
						End of Trialpit at 3.50 m	
Remarks: 1. Trial pit terminated at 3.50m bgl at maximum extent of excavator.			Groundwater: 1. Seepage below 2.5m bgl.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability: 1. Trial pit generally stable in the short-term.				

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green			Project No.: 14391	Trial Pit No.: TP06 Sheet 1 of 1	
		Location: Talbot Green			Client: Talbot Green Developments Limited	Logged By: FM	Scale: 1:25
Equipment: JCB-3CX		Coordinates:			Dimensions: 2.75m		
Date Excavated: 29/10/2024		Level:			Depth : 3.35m	0.80m	
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
1.00	D		0.30			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.	
						Soft brown clayey sandy gravelly SILT. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.	
				0.90			(Loose to medium dense) brown silty clayey to very clayey gravelly SAND with a low cobble and boulder content of platy and sub-angular to sub-rounded sandstone and dolomitic conglomerate. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.
				2.00			Firm reddish brown mottled greyish green silty slightly gravelly CLAY. Gravel is fine to coarse angular to sub-angular of sandstone and occasional mudstone.
			3.35			End of Trialpit at 3.35 m	
Remarks: 1. Trial pit terminated at 3.35m bgl at maximum extent of excavator.		Groundwater: 1. No groundwater encountered.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample		
		Stability: 1. Trial pit generally stable in the short-term.					

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391	Trial Pit No.: TP07 Sheet 1 of 1
Location: Talbot Green		Client: Talbot Green Developments Limited		Logged By: FM		Scale: 1:25	
Equipment: JCB-3CX		Coordinates:		Dimensions 2.80m			
Date Excavated: 29/10/2024		Level:		Depth : 3.40m 0.75m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
			0.25			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.	
			0.60			Soft to firm brown silty very sandy gravelly CLAY with a low cobble content of platy sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.	
			1.30			(Loose to medium dense) brown silty clayey gravelly SAND with a low to medium cobble content of platy and sub-angular to sub-rounded sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and rare siltstone.	
			2.00			Firm reddish brown locally mottled greenish grey silty slightly gravelly CLAY. Gravel is fine to coarse sub-rounded of sandstone dolomitic conglomerate and occasional mudstone.	
			3.40			Soft reddish brown locally mottled greenish grey silty slightly gravelly CLAY. Gravel is fine to coarse sub-rounded of sandstone dolomitic conglomerate and occasional mudstone.	
						End of Trialpit at 3.40 m	
Remarks: 1. Trial pit terminated at 3.30m bgl at maximum extent of excavator.			Groundwater: 1. No groundwater encountered.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability: 1. Unstable below 2.0m bgl.				

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green			Project No.: 14391	Trial Pit No.: TP08 Sheet 1 of 1
		Location: Talbot Green			Client: Talbot Green Developments Limited	Logged By: FM
Equipment: JCB-3CX		Coordinates:			Dimensions: 2.70m	
Date Excavated: 30/10/2024		Level:			Depth : 3.45m	0.75m
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.30	D		0.30			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.
			0.80			Soft to firm brown mottled yellowish brown silty sandy gravelly CLAY with a medium cobble content of platy sub-angular sandstone. Gravel is fine to coarse sub-angular to rounded of siltstone and sandstone.
1.10	D		1.10			(Loose to medium dense) brown silty clayey locally very clayey gravelly SAND with a medium cobble content of platy and blocky sub-angular sandstone and low boulder content of sub-angular to sub-rounded sandstone and dolomitic conglomerate. Gravel is fine to coarse sub-angular to rounded of sandstone siltstone and dolomitic conglomerate.
			3.45			Soft reddish brown mottled orangish brown silty slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded of sandstone and rare mudstone.
End of Trialpit at 3.45 m						
Remarks: 1. Trial pit terminated at 3.45m bgl at maximum extent of excavator.		Groundwater: 1. Seepage below 2.5m bgl.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
		Stability: 1. Unstable below 2.0m bgl.				

	Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name: Plot 2 (Area 17), Talbot Green	Project No.: 14391	Trial Pit No.: TP09 Sheet 1 of 1
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Location: Talbot Green	Client: Talbot Green Developments Limited	Logged By: FM	Scale: 1:25
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Equipment: JCB-3CX	Coordinates:	Dimensions 2.80m	
Date Excavated: 30/11/2024	Level:	Depth : 3.50m	0.80m

Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.20			(TOPSOIL) Grass over soft brown silty slightly gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular of sandstone.
			0.60			Soft to firm brown silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.
			3.50			Firm reddish brown silty gravelly CLAY. Gravel is fine to coarse angular of mudstone and sub-angular to sub-rounded of sandstone dolomitic conglomerate and siltstone.
						End of Trialpit at 3.50 m

Remarks: 1. Trail pit terminated at 3.50m bgl at maximum extent of excavator.	Groundwater: 1. No groundwater encountered.	Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
	Stability: 1. Trial pit generally stable in the short-term.		

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391		Trial Pit No.: TP10 Sheet 1 of 1	
		Location: Talbot Green		Client: Talbot Green Developments Limited		Logged By: FM		Scale: 1:25	
Equipment: JCB-3CX		Coordinates:		Dimensions: 4.80m		Depth: 1.90m		0.86m	
Date Excavated: 30/11/2024		Level:							
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
			0.15			(TOPSOIL) Soft brown silty slightly sandy gravelly organic rich CLAY with frequent rootlets. Gravel is fine to coarse sub-angular to sub-rounded of sandstone. Soft to firm brown silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.			
			0.45						
			1.70			(Dense) reddish brown silty clayey sandy GRAVEL with a medium cobble and low boulder content of dolomitic conglomerate. Gravel is fine to coarse sub-angular to sub-rounded of dolomitic conglomerate sandstone and rare quartz. End of Trialpit at 1.90 m			
			1.90						
Remarks: 1. Trial pit terminated at 1.90m bgl due to slow progress of excavation within dolomitic conglomerate.			Groundwater: 1. No groundwater encountered.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample				
			Stability: 1. Trial pit generally stable in the short-term.						

	Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name: Plot 2 (Area 17), Talbot Green	Project No.: 14391	Borehole No.: WS01 Sheet 1 of 1
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Location: Talbot Green	Client: Talbot Green Developments Limited	Coordinates:	Hole Type: WLS
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Equipment: DART 540	Diameter of Casing:	Level:	Scale: 1:25
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Diameter of Boring: 101+86+74+63mm	Depth of Casing:	Dates: 31/10/2024 -	Logged By: FM
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Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
Well		0.25	ES		0.25		(TOPSOIL) Grass over soft brown silty slightly sandy organic rich CLAY with frequent roots and rootlets.		
		1.00	D		1.30	Legend	Soft to firm orange brown slightly gravelly sandy SILT/CLAY with occasional cobbles of sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.	1	
		1.00	S	N=5 (2,3/2,1,1,1)					
						1.75		(Medium dense) brown slightly silty clayey to very clayey gravelly SAND with rare cobbles of blocky sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and rare dolomitic conglomerate.	
			2.00	S	N=4 (2,2/1,1,1,1)			Soft reddish brown silty slightly gravelly CLAY with occasional cobbles of blocky sub-angular sandstone. Gravel is fine to coarse angular to sub-angular of mudstone and sub-rounded to rounded of siltstone and sandstone.	2
			3.00	S	N=6 (1,1/2,2,1,1)				3
					3.60		Locally wet between 3.30m and 3.60m bgl.		
		4.00	S	N=18 (9,5/3,3,4,8)			Stiff becoming very stiff reddish brown gravelly CLAY. Gravel is fine to coarse angular to sub-angular of mudstone and occasional sandstone.	4	
		4.50	S	50 (10,14/50 for 170mm)	4.50		End of Borehole at 4.50 m	5	

Remarks: 1. Windowless sample borehole terminated at 4.50m bgl at refusal within suspected weathered bedrock.	Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)	W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation	
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 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name:	Project No.:	Borehole No.:
	Plot 2 (Area 17), Talbot Green	14391	WS02
Location: Talbot Green	Client: Talbot Green Developments Limited	Coordinates:	Sheet 1 of 1 Hole Type: WLS
Equipment: DART 540	Diameter of Casing:	Level:	Scale 1:25
Diameter of Boring: 101+86+74+63mm	Depth of Casing:	Dates 31/10/2024 -	Logged By: FM

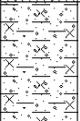
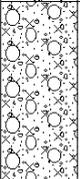
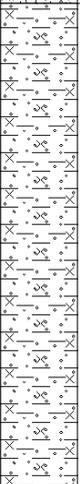
Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.20		(TOPSOIL) Grass over soft brown silty slightly sandy organic rich CLAY with frequent roots and rootlets.		
					0.55		Firm brown silty very sandy gravelly CLAY with rare cobbles of blocky sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and dolomitic conglomerate.		
		1.00	S	N=21 (2,3/5,7,5,4)	1.65		Medium dense brown slightly silty clayey to very clayey gravelly SAND with rare cobbles of blocky sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and rare dolomitic conglomerate.	1	
		2.00	S	N=16 (3,4/6,4,3,3)			Firm reddish brown locally mottled orangish brown and grey silty very sandy gravelly CLAY with occasional cobbles of blocky and platy sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and mudstone.	2	
		3.00	S	N=10 (2,2/3,2,3,2)	3.55		Stiff becoming very stiff reddish brown gravelly CLAY. Gravel is fine to coarse angular to sub-angular of mudstone and occasional sandstone. Grading into extremely weak reddish brown clayey thinly laminated MUDSTONE.	3	
		4.00	S	N=50 (5,6/50 for 255mm)	4.00		End of Borehole at 4.00 m	4	
								5	

Remarks:
1. Windowless sample borehole terminated at 4.00m bgl at refusal within suspected weathered bedrock.

Key:

D - Small disturbed sample	W - Water sample
B - Bulk disturbed sample	U - Undisturbed sample
ES - Environmental soil sample	TCR - Total Core Recovery
SPT - Standard Penetration Test (split spoon)	SCR - Solid Core Recovery
CPT - Standard Penetration Test (solid cone)	RQD - Rock Quality Designation



		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Plot 2 (Area 17), Talbot Green		Project No.: 14391		Borehole No.: WS03 Sheet 1 of 1		
		Location: Talbot Green		Client: Talbot Green Developments Limited		Coordinates:		Hole Type: WLS		
Equipment: DART 540		Diameter of Casing:		Level:		Scale: 1:25				
Diameter of Boring: 101+86+74mm		Depth of Casing:		Dates: 31/10/2024 -		Logged By: FM				
Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.20			(TOPSOIL) Grass over soft brown silty slightly sandy organic rich CLAY with frequent roots and rootlets.		
					0.60			Soft to firm orangish brown silty very sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of sandstone.		
			1.00	S	N=10 (3,2/3,3,2,2)	1.20			Loose to medium dense brown slightly silty clayey to very clayey gravelly SAND with rare cobbles of blocky sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and rare dolomitic conglomerate.	
			1.50	D		2.80			Soft reddish brown silty slightly gravelly CLAY. Gravel is fine to coarse sub-angular of mudstone and sandstone.	
			2.00	S	N=4 (1,1/1,0,1,2)	3.00			Very stiff reddish brown gravelly CLAY. Gravel is fine to coarse angular to sub-angular of mudstone.	
		3.00	S	N=50 (6,9/50 for 245mm)			End of Borehole at 3.00 m			
							Remarks: 1. Windowless sample borehole terminated at 3.00m bgl at refusal within suspected weathered bedrock.			
							Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone) W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation			
										

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name:	Project No.:	Borehole No.:
	Plot 2 (Area 17), Talbot Green	14391	WS04
Location: Talbot Green	Client: Talbot Green Developments Limited	Coordinates:	Sheet 1 of 1 Hole Type: WLS
Equipment: DART 540	Diameter of Casing:	Level:	Scale 1:25
Diameter of Boring: 101+86+74mm	Depth of Casing:	Dates 31/10/2024 -	Logged By: FM

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
2.00 		0.30	ES		0.20	(TOPSOIL) Grass over soft brown silty slightly sandy organic rich CLAY with frequent roots and rootlets.	Very loose dense brown silty clayey to very clayey gravelly SAND., Gravel is fine to coarse sub-angular to sub-rounded of sandstone and rare dolomitic conglomerate.	
		1.00	S	N=2 (1,1/1,0,1,0)	1.50			50% recovery recorded between 1.00m and 2.00m bgl.
		2.00	S	N=1 (1,0/0,1,0,0)	3.00	50% recovery recorded between 2.00m and 3.00m bgl.	Stiff to very stiff reddish brown silty gravelly CLAY. Gravel is fine to coarse sub-angular of mudstone and rare sandstone.	
		3.00	S	50 (4,4/50 for 95mm)	3.20	End of Borehole at 3.20 m		

Remarks: 1. Windowless sample borehole terminated at 3.20m bgl at refusal within suspected weathered bedrock.	Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)	W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation	
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 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name:	Project No.:	Borehole No.:
	Plot 2 (Area 17), Talbot Green	14391	WS05
Location: Talbot Green	Client: Talbot Green Developments Limited	Coordinates:	Sheet 1 of 2 Hole Type: WLS
Equipment: DART 540	Diameter of Casing:	Level:	Scale 1:25
Diameter of Boring: 101+86+74+63mm	Depth of Casing:	Dates 31/10/2024 -	Logged By: FM

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
1.50 					0.15		(TOPSOIL) Grass over soft brown silty slightly sandy organic rich CLAY with frequent roots and rootlets. Soft becoming very soft brown silty sandy gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and dolomitic conglomerate.	
		1.00	S	N=0 (0,0/0,0,0,0)				
		1.10	D					
		2.00	S	N=2 (1,0/1,0,1,0)	1.50		Very loose reddish brown slightly silty clayey to very clayey gravelly to very gravelly SAND. Gravel is fine to coarse sub-angular to sub-rounded of conglomerate sandstone and mudstone.	
		3.00	S	N=3 (1,0/1,0,1,1)	3.20		Very loose brown slightly silty clayey to very clayey gravelly SAND. Gravel is fine to coarse angular to sub-rounded of dolomitic conglomerate and mudstone.	
	4.00	S	N=5 (1,3/1,1,2,1)					
	5.00	S	N=4 (1,2/1,1,1,1)	5.00				

Remarks:
 1. Windowless sample borehole terminated at 5.00m bgl. Continuous CPT carried out from 5.00m to 5.90m bgl.
 2. Weathered bedrock not encountered.

Key:	
D - Small disturbed sample	W - Water sample
B - Bulk disturbed sample	U - Undisturbed sample
ES - Environmental soil sample	TCR - Total Core Recovery
SPT - Standard Penetration Test (split spoon)	SCR - Solid Core Recovery
CPT - Standard Penetration Test (solid cone)	RQD - Rock Quality Designation



	Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name: Plot 2 (Area 17), Talbot Green	Project No.: 14391	Borehole No.: WS05 Sheet 2 of 2
	Location: Talbot Green	Client: Talbot Green Developments Limited	Coordinates:	Hole Type: WLS
Equipment: DART 540	Diameter of Casing:	Level:	Scale: 1:25	
Diameter of Boring: 101+86+74+63mm	Depth of Casing:	Dates: 31/10/2024 -	Logged By: FM	

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.45	C	N=6 (1,2/2,1,2,1)				
		5.90	C	N=14 (5,4/2,3,5,4)				
		----- End of Borehole at 5.90 m -----						

Remarks: 1. Windowless sample borehole terminated at 5.00m bgl. Continuous CPT carried out from 5.00m to 5.90m bgl. 2. Weathered bedrock not encountered.	Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)	W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation	
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 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com	Project Name:	Project No.:	Borehole No.:
	Plot 2 (Area 17), Talbot Green	14391	WS06
Location: Talbot Green	Client: Talbot Green Developments Limited	Coordinates:	Sheet 1 of 1 Hole Type: WLS
Equipment: DART 540	Diameter of Casing:	Level:	Scale 1:25
Diameter of Boring: 101+86+74mm	Depth of Casing:	Dates 31/10/2024 -	Logged By: FM

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.15	ES		0.15		(TOPSOIL) Grass over soft brown silty slightly sandy organic rich CLAY with frequent roots and rootlets. Soft to firm orange brown slightly sandy slightly gravelly SILT/CLAY. Gravel is fine to coarse angular of sandstone.	
		1.00	S	N=17 (2,3/3,6,4,4)	0.80		Firm brown silty sandy to very sandy slightly gravelly CLAY with occasional cobbles of blocky sub-angular sandstone. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and dolomitic conglomerate.	
		2.00	S	N=5 (1,3/2,1,1,1)	1.80		Loose orange and red brown silty gravelly SAND. Gravel is fine to coarse sub-angular to sub-rounded of dolomitic conglomerate and mudstone.	
		2.90	S	50 (8,13/50 for 85mm)	2.90		End of Borehole at 2.90 m	

Remarks:
1. Windowless sample borehole terminated at 2.90m bgl at refusal upon suspected cobble/ boulder.

Key:

D - Small disturbed sample	W - Water sample
B - Bulk disturbed sample	U - Undisturbed sample
ES - Environmental soil sample	TCR - Total Core Recovery
SPT - Standard Penetration Test (split spoon)	SCR - Solid Core Recovery
CPT - Standard Penetration Test (solid cone)	RQD - Rock Quality Designation



APPENDIX B

HISTORY AND GEOLOGY MAPS

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
- Minor Roads
- 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
- Glasshouse
- Direction of Flow of Water
- Shingle
- Sand
- Sloping Masonry
- Pylon
- Electricity Transmission Line
- Pole
- Cutting
- Embankment
- Standard Gauge Multiple Track
- 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
- Ch Church
- CH Club House
- F E Sta Fire Engine Station
- FB Foot Bridge
- Fn Fountain
- GP Guide Post
- MP Mile Post
- MS Mile Stone
- Pol Sta Police Station
- PO Post Office
- PC Public Convenience
- PH Public House
- SB Signal Box
- Spr Spring
- TCB Telephone Call Box
- TCP Telephone Call Post
- W Well

1:10,000 Raster Mapping

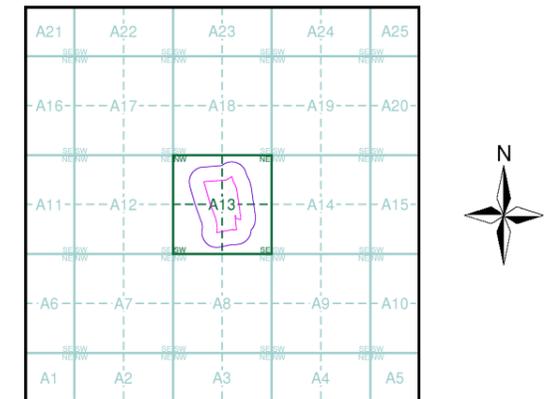
- Gravel Pit
- Rock
- Boulders
- Shingle
- Sand
- Slopes
- General detail
- Overhead detail
- Multi-track railway
- County boundary (England only)
- District, Unitary, Metropolitan, London Borough boundary
- Area of wooded vegetation
- Non-coniferous trees (scattered)
- Coniferous trees (scattered)
-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



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Glamorganshire	1:10,560	1885	2
Glamorganshire	1:10,560	1900	3
Glamorganshire	1:10,560	1921	4
Glamorganshire	1:10,560	1947 - 1951	5
Historical Aerial Photography	1:10,560	1947 - 1949	6
Glamorganshire	1:10,560	1953	7
Ordnance Survey Plan	1:10,000	1964 - 1965	8
Ordnance Survey Plan	1:10,000	1974 - 1975	9
Ordnance Survey Plan	1:10,000	1980 - 1982	10
Ordnance Survey Plan	1:10,000	1993	11
10K Raster Mapping	1:10,000	1999	12
10K Raster Mapping	1:10,000	2006	13
VectorMap Local	1:10,000	2024	14

Historical Map - Slice A



Order Details

Order Number: 361523509_1_1
 Customer Ref: 14391/LP
 National Grid Reference: 305450, 182190
 Slice: A
 Site Area (Ha): 6.23
 Search Buffer (m): 1000

Site Details

Plot 2 Industrial Development Land, Mwyndy, Pontyclun, CF72 8PN



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

Intégral Géotechnique

Glamorganshire

Published 1885

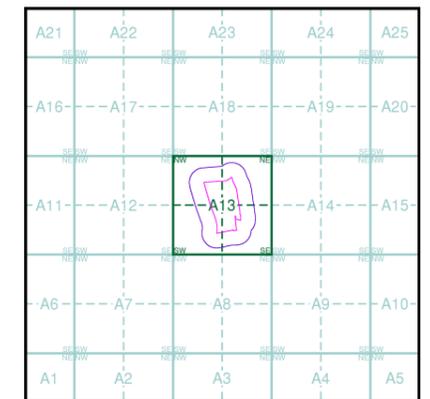
Source map scale - 1:10,560

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)

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04200	1885	1:10,560

Historical Map - Slice A



Order Details

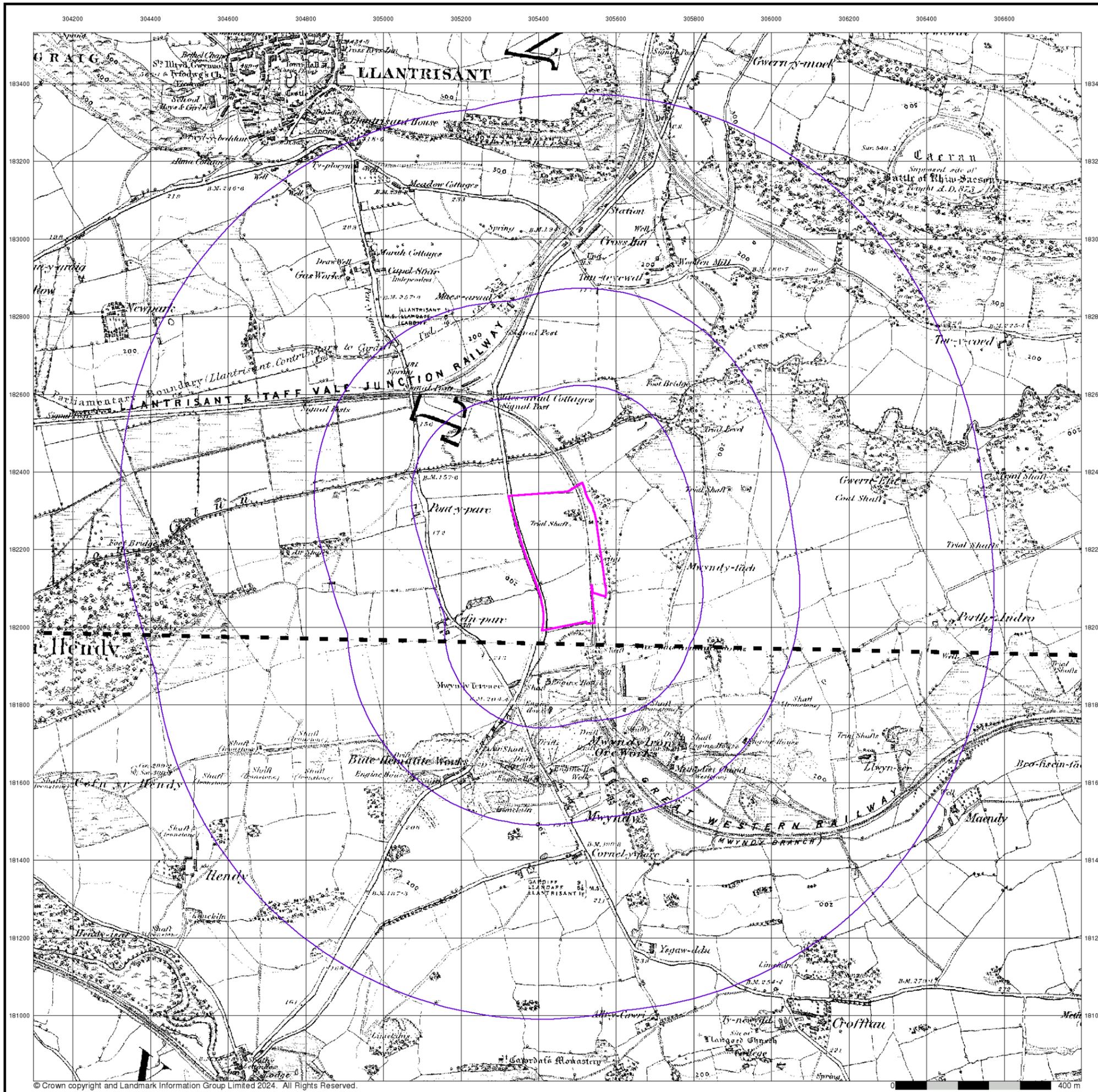
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 National Grid Reference: 305450, 182190
 Slice: A
 Site Area (Ha): 6.23
 Search Buffer (m): 1000

Site Details

Plot 2 Industrial Development Land, Mwyndy, Pontyclun, CF72 8PN

Landmark
 INFORMATION GROUP

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



Intégral Géotechnique

Glamorganshire

Published 1900

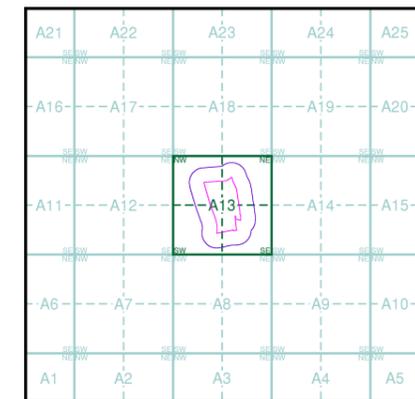
Source map scale - 1:10,560

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)

036SW	1900
1:10,560	
042NW	1900
1:10,560	

Historical Map - Slice A



Order Details

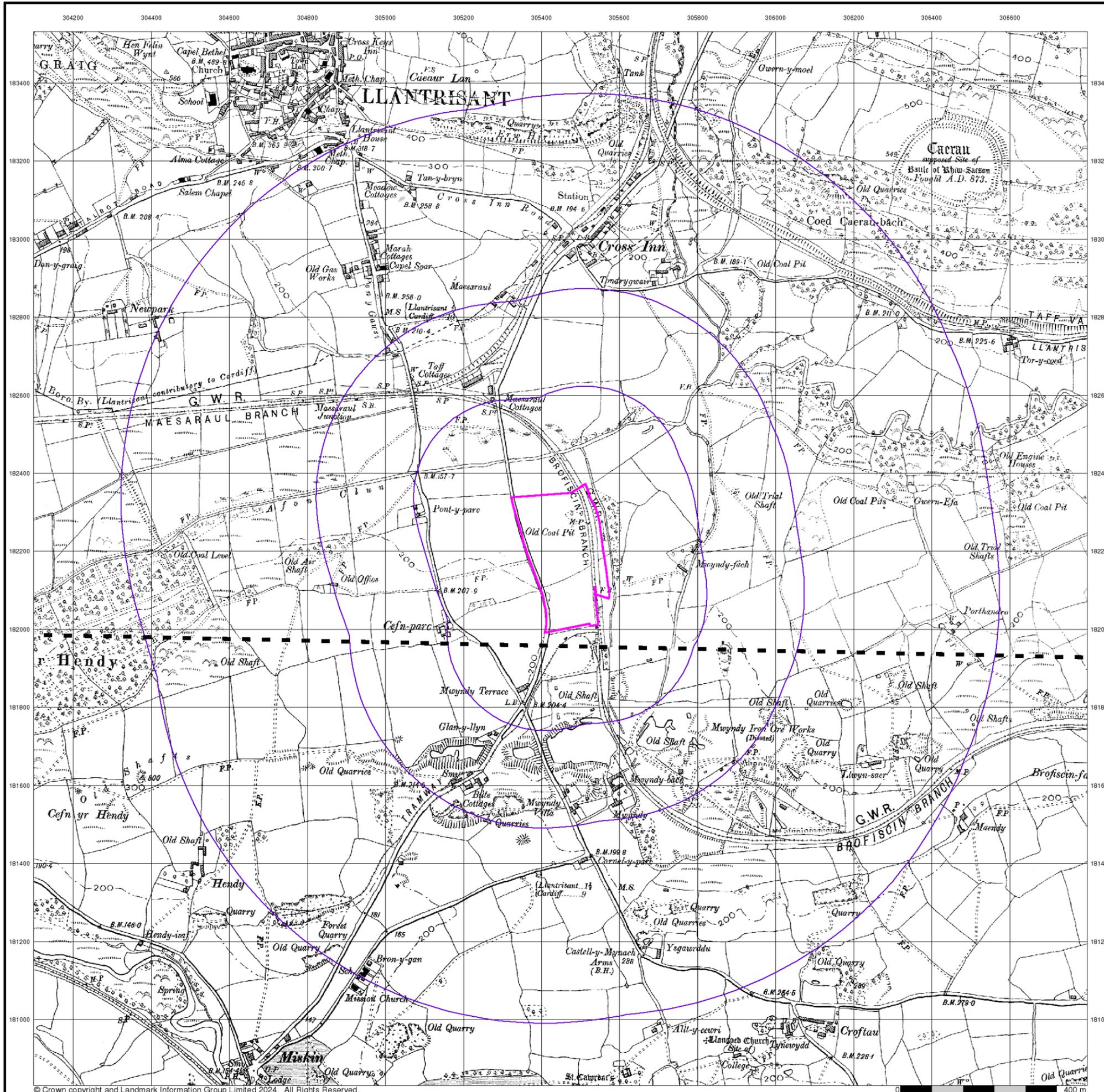
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 Customer Ref: 14391/LP
 National Grid Reference: 305450, 182190
 Slice: A
 Site Area (Ha): 6.23
 Search Buffer (m): 1000

Site Details

Plot 2 Industrial Development Land, Mwyndy, Pontyclun, CF72 8PN

Landmark
 INFORMATION GROUP

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



Intégral Géotechnique

Glamorganshire

Published 1921

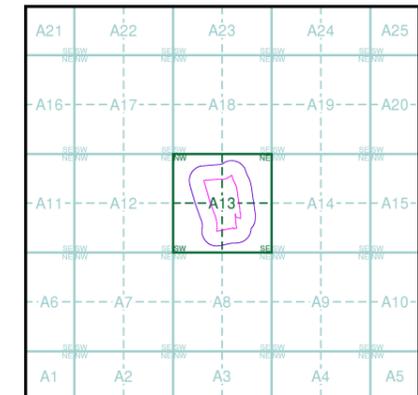
Source map scale - 1:10,560

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)

036SW	1921	1:10,560
042NW	1921	1:10,560

Historical Map - Slice A



Order Details

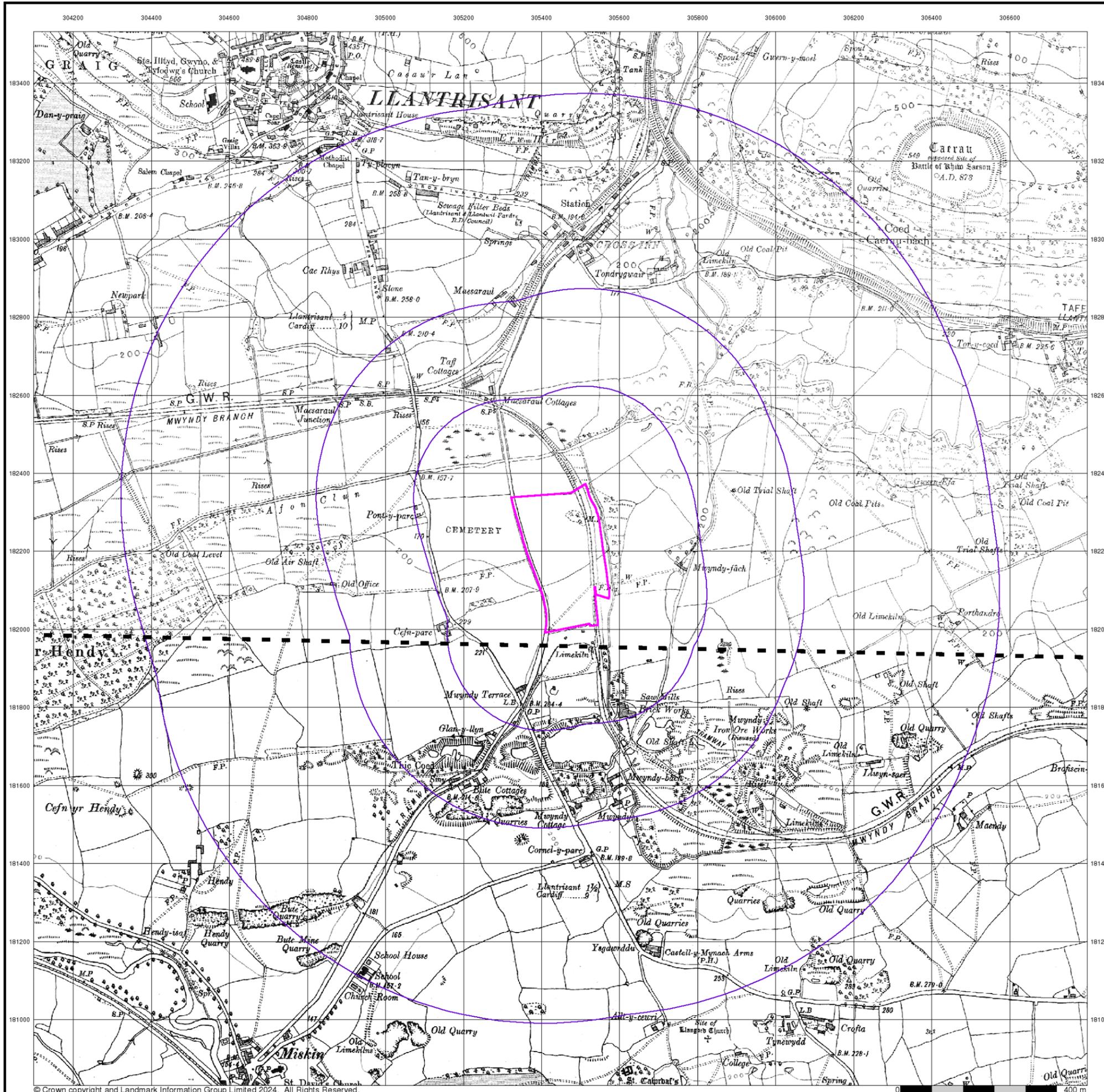
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 National Grid Reference: 305450, 182190
 Slice: A
 Site Area (Ha): 6.23
 Search Buffer (m): 1000

Site Details

Plot 2 Industrial Development Land, Mwyndy, Pontyclun, CF72 8PN

Landmark
 INFORMATION GROUP

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



Intégral Géotechnique

Glamorganshire

Published 1947 - 1951

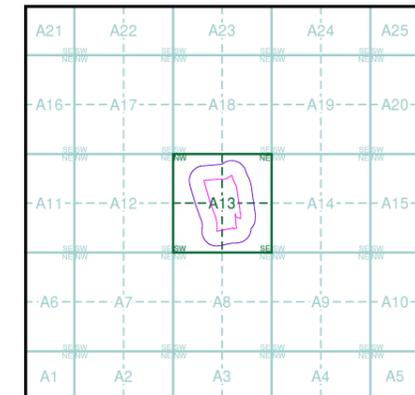
Source map scale - 1:10,560

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)

036SW	1947
1:10,560	
042NW	1951
1:10,560	

Historical Map - Slice A



Order Details

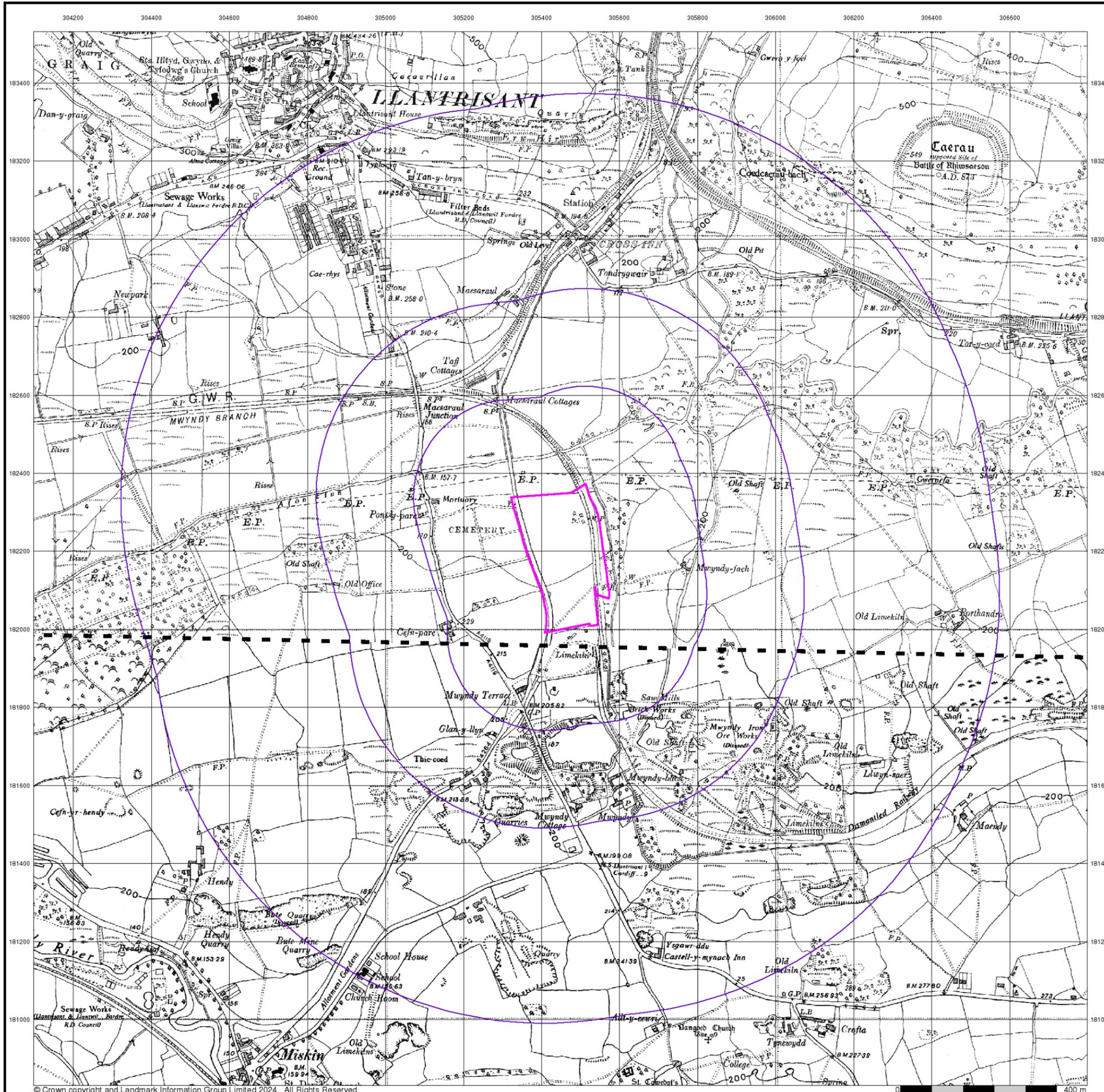
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 National Grid Reference: 305450, 182190
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Historical Aerial Photography

Published 1947 - 1949

Source map scale - 1:10,560

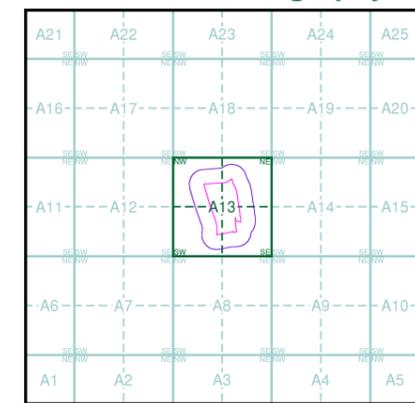
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)

ST08SW 1949 1:10,560	ST08E 1947 1:10,560
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Historical Aerial Photography - Slice A



Order Details

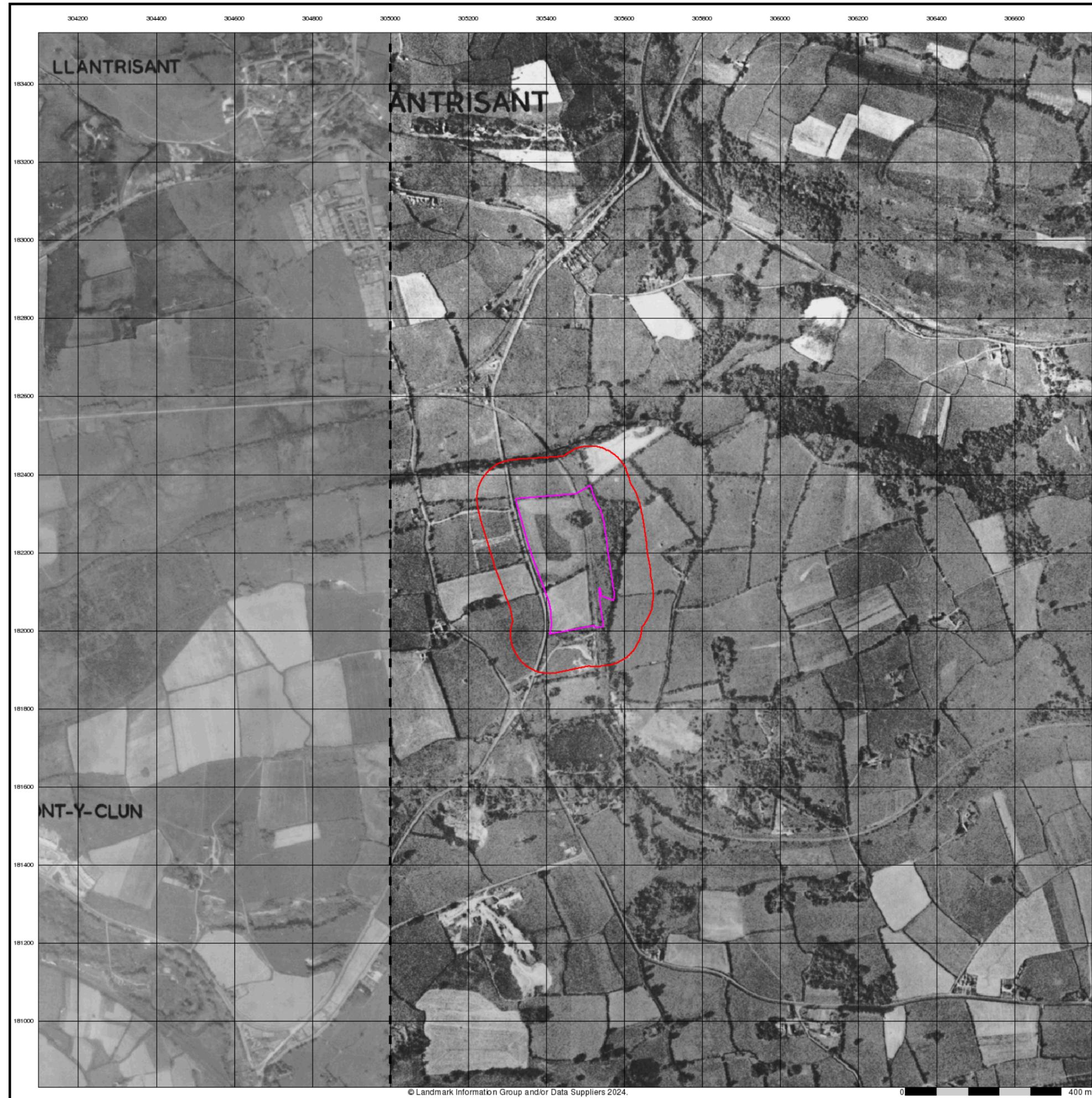
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Intégral Géotechnique

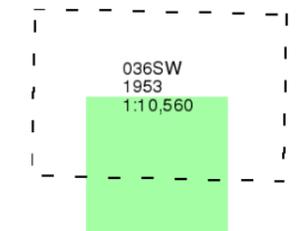
Glamorganshire

Published 1953

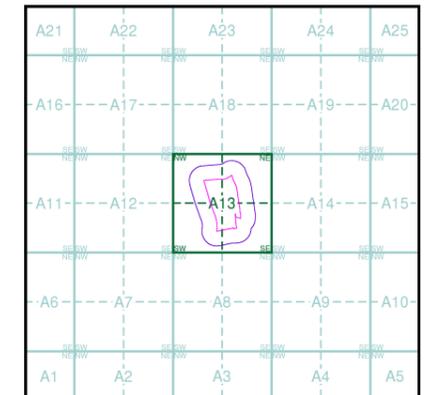
Source map scale - 1:10,560

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)



Historical Map - Slice A



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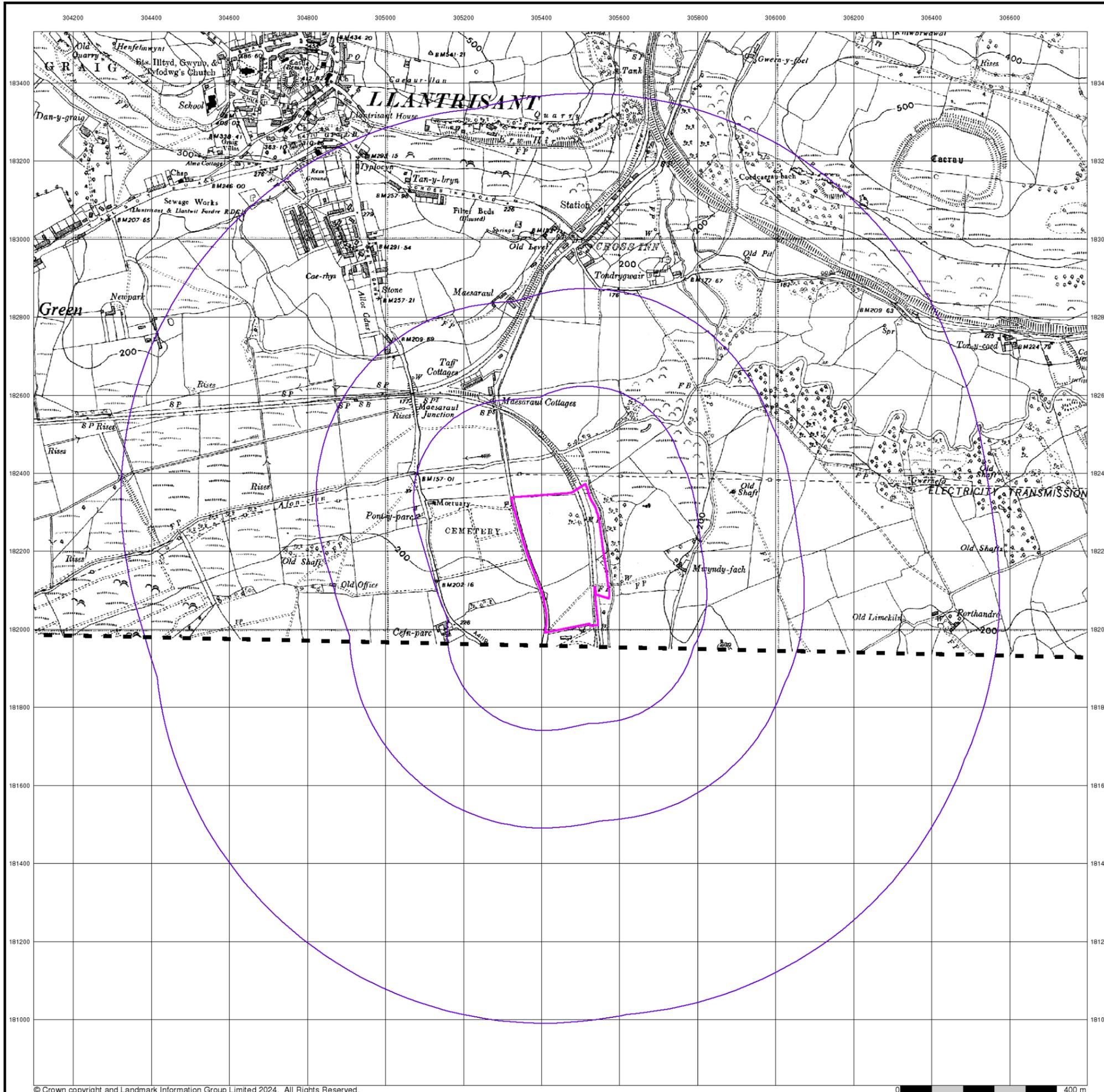
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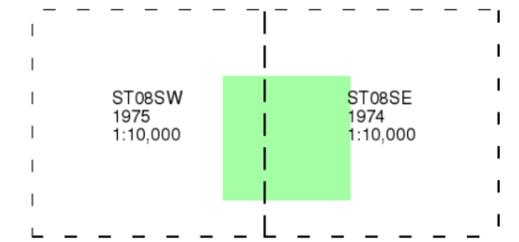
Ordnance Survey Plan

Published 1974 - 1975

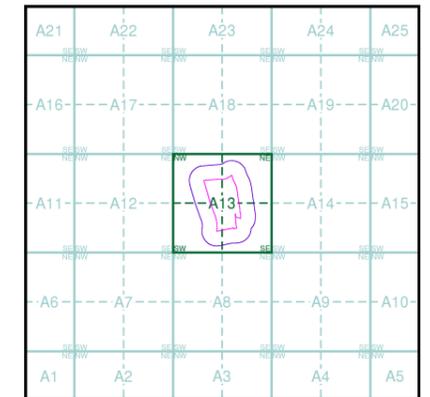
Source map scale - 1:10,000

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)



Historical Map - Slice A



Order Details

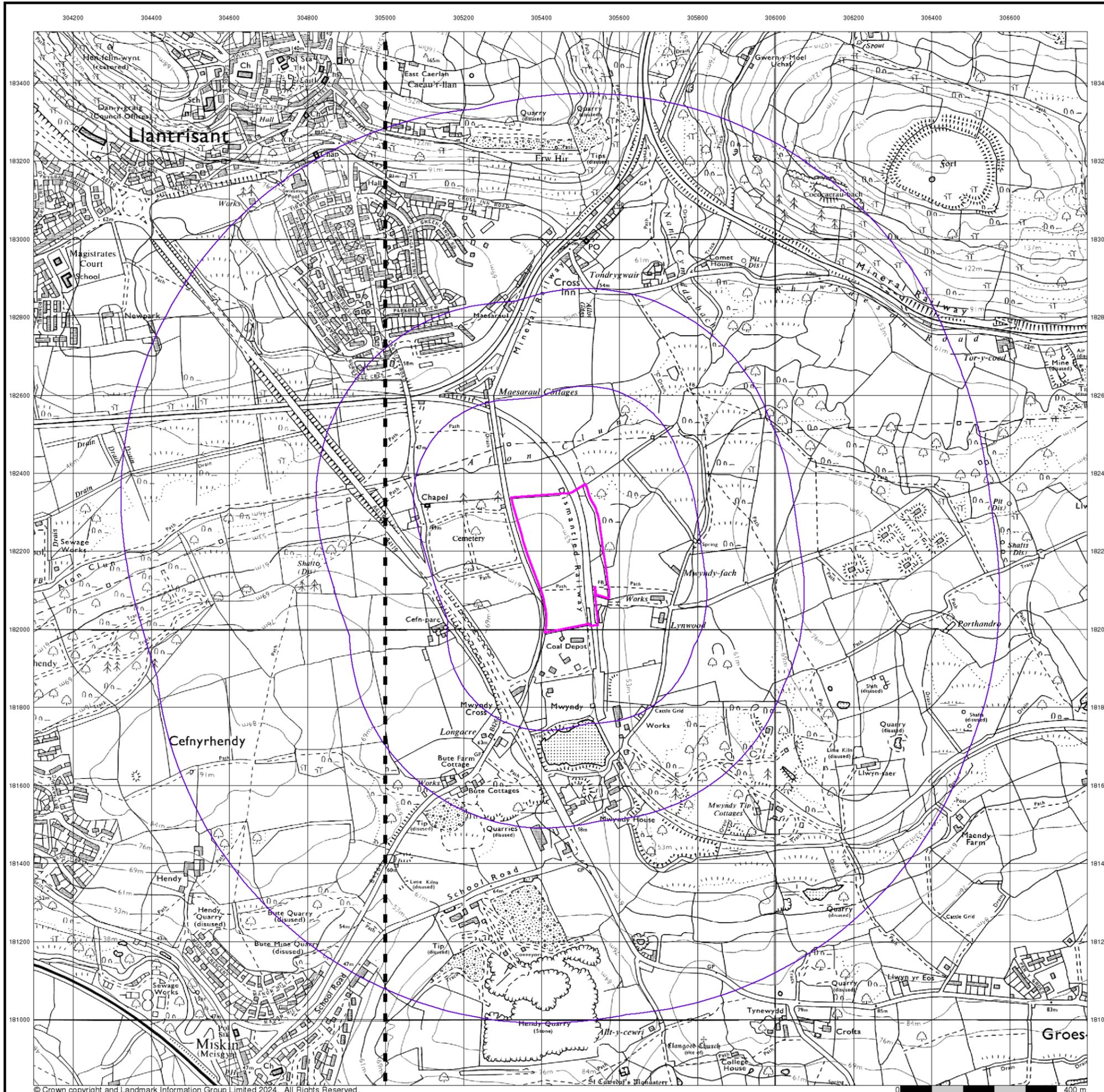
Order Number: 361523509_1_1
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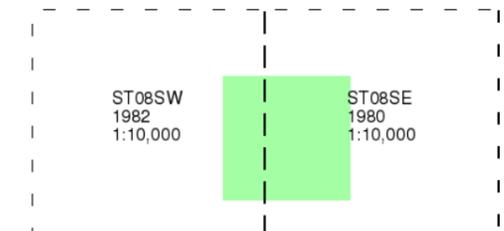
Ordnance Survey Plan

Published 1980 - 1982

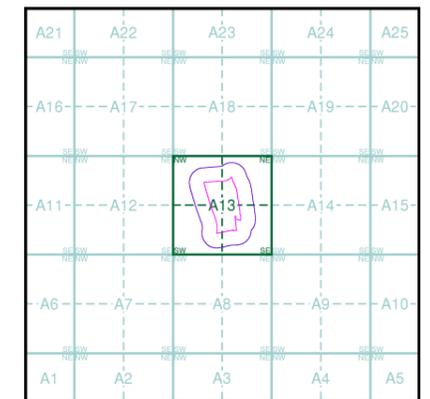
Source map scale - 1:10,000

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)



Historical Map - Slice A



Order Details

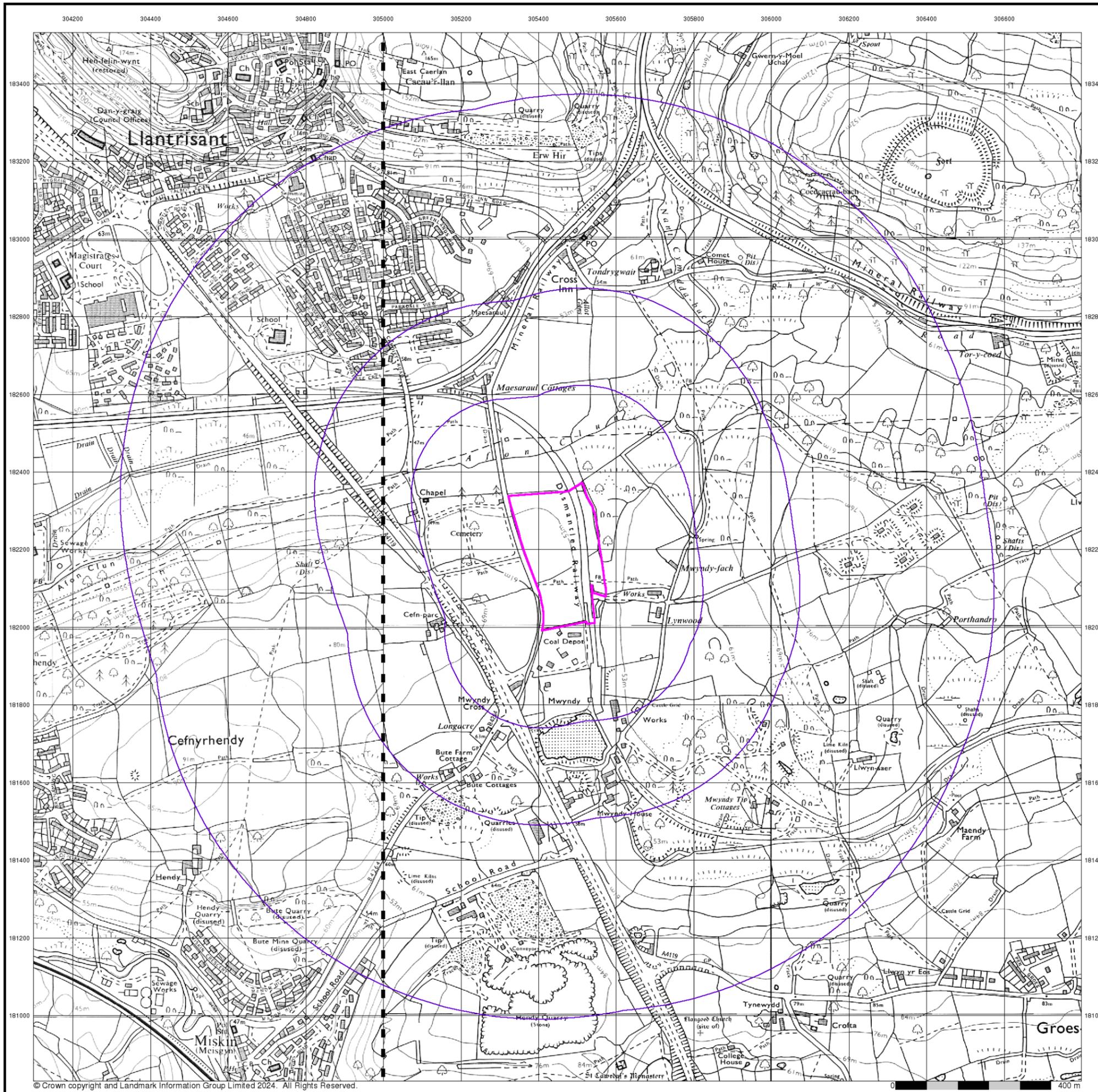
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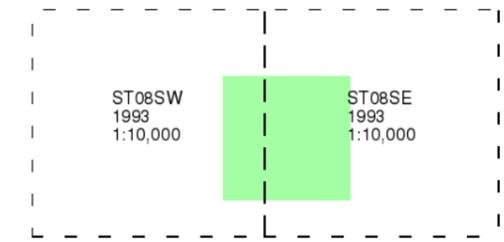
Ordnance Survey Plan

Published 1993

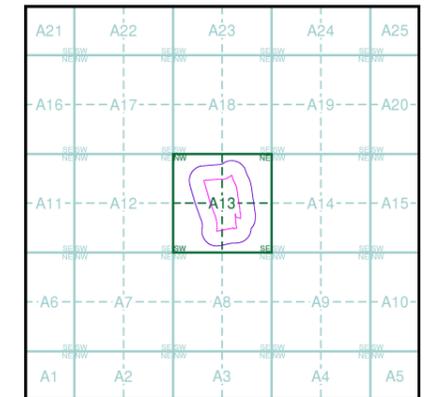
Source map scale - 1:10,000

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