Discovery

Geotechnical & Environmental Engineers

DESK STUDY AND PRELIMINARY RISK ASSESSMENT PLOT C1, LLANTARNAM PARK, CWMBRAN, NP44 3DE

Carried Out For: **OPUS LAND LIMITED**

November 2021 **Report Reference: 21124J-01**

DESK STUDY AND PRELIMINARY RISK ASSESSMENT PLOT C1, LLANTARNAM PARK, CWMBRAN, NP44 3DE

Carried Out For: **Opus Land Limited**

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PLOT C1, LLANTARNAM PARK, CWMBRAN, NP44 3DE**

1 INTRODUCTION

1.1 Engagement of Discovery CE

Discovery CE (DCE) was instructed by Opus Land Limited (the client), to carry out a desk study and preliminary risk assessment on a parcel of land located at Llantarnam Park, Cwmbran as shown within Appendix A Figure 1 (the site). A plan for the site provided by the client is included within Appendix B.

The offer to carry out the work is contained in an email dated 01/11/2021 with the instruction to proceed contained in an email from Opus Land Limited dated 05/11/2021.

1.2 Development Proposal

It is understood that the site will be used for the construction of industrial/commercial buildings to form a warehouse.

1.3 Objectives

The objective of work presented in this report was to collate sufficient data to identify potential geotechnical and environmental hazards, and to allow a preliminary contaminated land risk assessment to be carried out.

More specifically the objectives are:

1. To assess the historical activities at the site through inspection of historical ordnance survey data, data held by statutory authorities or other readily available published data;

2. To assess the current land use through a site walkover survey;

3. To identify potential geotechnical hazards at the site through inspection of geotechnical reports, maps and memoirs and if available previous investigative works;

4. To identify likely contaminants of concern (CoCs) which may be present in the soils or groundwater beneath the site;

5. To identify potential pathways and receptors in the context of the contaminated land regime;

6. To carry out a preliminary risk assessment; and

7. To provide conclusions and recommendations.

The purpose of a preliminary risk assessment is to identify whether or not the potential contaminant sources, pathways and receptors at the site may form viable pollutant linkages in the context of the contaminated land regime.

Recommendations have been based on the collation and review of available information on the condition of the land and will be cross referenced with statutory guidance such that decisions can be made on whether:

1. Ground instability is likely to be a risk;

2. There is a “possibility” that pollutant linkages exist on the land; and

3. There is sufficient information already available to enable the Local Authority to decide on whether the site is classified as contaminated land.

1.4 Study Scope of Work & Study Limitations

The current work comprised a walkover of the site and an assessment of the readily available environmental records and relevant historical Ordnance Survey (OS) maps, all of which are published as part of a GroundSure report and presented in Appendix C and D respectively.

A qualitative assessment of the environmental risks associated with the site was undertaken in terms of a conceptual site model (CSM) in the form of a “Source, Pathway, Receptor” pollutant linkage approach. The preliminary risk assessment is shown in Appendix E.

This desk study covers the below ground risks associated with the ground conditions in the context of the readily available information and its current use.

Reasonable standards of professional judgement were used to assess the available information and to develop and evaluate the CSM.

It is possible that there were deficiencies in the data assessed meaning that the CSM is incomplete. Therefore, not all potential pollutant linkages may have been identified, or conversely the presence of non-existent potential pollutant linkages may have been concluded. As more and better data become available the conceptual site model should be updated and re-evaluated.

2 SOURCES OF INFORMATION

1. GroundSure EnviroInsight, Dated: 05 November 2021, Ref DCE-8316185 (presented in Appendix C);
2. GroundSure MapInsight (Small and Large Scale Historical Maps), Dated: 05 November 2021, Ref DCE-8316184 (presented in Appendix D);
3. British Geological Survey sheet No. 249, Newport, 1:50:000, Solid and Drift Geology, dated 1997; and British Geological Survey Geoindex webpage (http://www.bgs.ac.uk/geoindex);
4. Zetica Unexploded Ordnance Risk Map (Appendix F);
5. Department for Communities and Local Government, June 2019, National Planning Policy Framework;
6. National House Builders Council, 2008, R&D66 VOL 1 Guidance for the Safe Development of Housing on Land Affected by Contamination;
7. CIRIA C552, Contaminated Land Risk Assessment, a Guide to Good Practice; and
8. Environment Agency, October 2020, Land Contamination Risk Management (LCRM), How to assess and manage the risks from land contamination.

The available data has been reviewed and where deemed appropriate included in the Desk Study Review (Section 5 of this report). The following environmental information was provided in the GroundSure Report (Appendix C).

1. Environmental Permits, Incidents And Registers;
2. Landfill and Other Waste Sites;
3. Current land Uses;
4. Geology;
5. Hydrogeology and Hydrology;
6. Flooding;

7. Designated Environmentally Sensitive Sites;
8. Natural Hazards;
9. Ground Workings;
10. Mining, Extraction & Natural Cavities;
11. Natural Ground Subsidence;
12. Borehole Records;
13. Estimated Background Soil Chemistry, and;
14. Ground Gas and Radon.

The GroundSure report also includes historical maps relating to the site at a range of scales (Appendix D). It should be noted that this database is updated periodically and therefore it may not document recent developments or registrations in the site area or activities, which have not been declared.

3 THE SITE

3.1 Site Walkover and Description

The site is located in the south of Cwmbran, adjacent to Dowlais Brook, off Llantarnam Park Way, approximately 5 km north of Newport and is centred at an approximate National Grid Reference (NGR) 329949,193022. The site generally slopes down to the north-east and occupies a parcel of land of approximately 1.4 Hectares (ha) in plan.

The following observations were noted during a site walkover which was undertaken by DCE on 10/11/2021.

The site comprises an area of rough grassland across its western half with a wooded area across its eastern half. The site is bordered by developed commercial/industrial properties to its north and south with Lakeside close along its western boundary and Dowlais Brook to its east.

Access to the site was available by a road junction at the sites western end. The junction from the main road comprised tarmac cover and extended onto the site by approximately 15 m (See Plate 1).

Plate 1 View looking East from the site entrance.

The site slopes downwards, falling in elevation by approximately 2 m from the road side leading onto the site. The remainder of the grassland area is relatively flat. The ground surface across the

grassland area was noted to be waterlogged and uneven. The sites southern boundary was noted to comprise hedgerows and dense tree cover (See Plate 2).

Plate 2 View East across grass covered area of the site

An area of Made Ground was observed extending for approximately 15 m towards the centre of the site from the road. The Made Ground was noted to comprise tarmac, brick and concrete fragments.

The north-eastern end of the site comprises woodland and a slope down to the Dowlais Brook. (See Plate 3).

Plate 3 Woodland in the north-eastern site area

Within the woodland area, at the north-east of the site, two manhole covers were observed indicating underground services are likely to be present across the site (Plate 4), along with a relatively steep slope which was observed leading towards the Dowlais Brook (Plate 5).

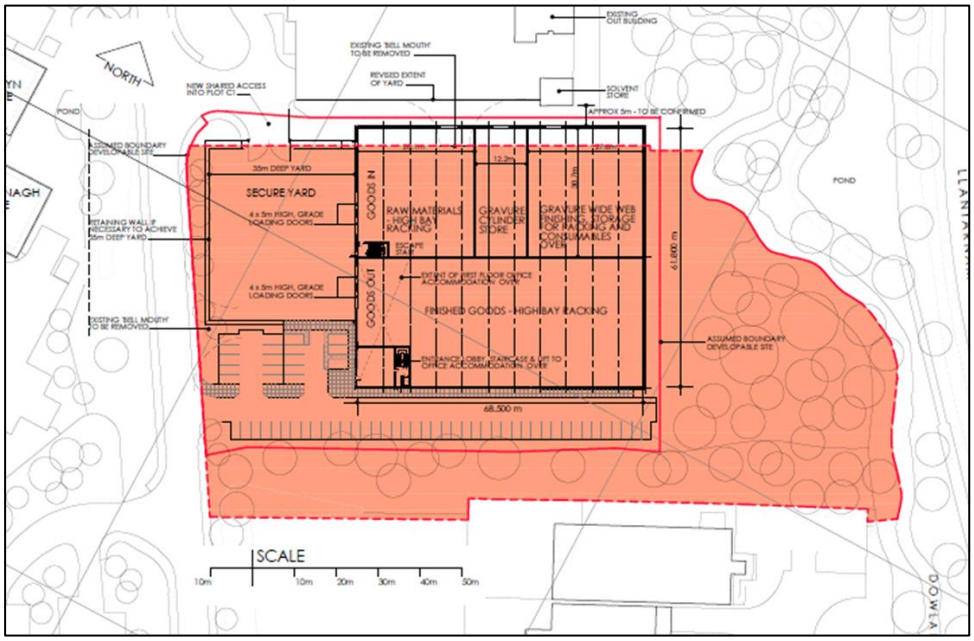
Plate 4 Observed manhole covers within wooded area

Plate 5 Slope towards Dowlais Brook

3.2 Development Proposal

It is understood that the site will be used for the construction of 1 No. commercial buildings inclusive of a warehouse and associated hardstanding yard areas. The proposed development layout is shown in Figure 1 below.

Figure 1 Proposed Development Layout



4 GEOLOGY AND HYDROGEOLOGY

4.1 Geology

The geology at the site is indicated by the British Geological Survey (BGS) online digital mapping database and BGS sheet no 249 (1:50 000, Solid Edition), to comprise superficial deposits formed of alluvium, extending across the sites northern half with no superficial cover indicated to be present across the sites southern half. The solid geology underlying the site is indicated by the BGS to comprise the Raglan Mudstone Formation which is described as interbedded sandstone and mudstone.

The GroundSure report also indicates that no artificial deposits or Made Ground are present at the site. It is however noted that Made Ground was observed during the site walkover to be present across some of the site, primarily to its western side.

There are no records of landslips within 500m of the study site.

4.2 Hydrogeology and Hydrology

The superficial deposits and the bedrock underlying the site have been classified by the Environment Agency (EA), as a secondary A aquifer. These are described as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

No active groundwater, surface water or potable abstraction licences are noted within the GroundSure report to be present within 1 km of the site.

The site is not identified by the GroundSure report to lie within any Source Protection Zones (SPZ).

The GroundSure report indicates that 1 no. watercourse is present within 250 m of the site. This includes;

- The Dowlais Brook which is classified by the Environment Agency to have good chemical rating, moderate ecological rating and moderate overall rating.

The nearest major watercourse to the site is Afon Lwyd which flows from north-west to south-east at approximately 500 m north-east of the site and forms a tributary to the River Usk.

4.3 Flooding

Data provided by the Environment Agency and included as part of the GroundSure report indicate that the site is within an area at High risk of flooding from rivers or sea (refer Appendix C for further details).

The maximum surface water flooding risk on site is at 1 in 30 year risk of greater than 1.0 m. the risk is however shown to affect the eastern site boundary only marginally.

The maximum groundwater flooding risk on-site is Low and is shown to be consistent with the distribution of the superficial alluvial deposits along the northern half of the site.

The GroundSure report indicates no flood defences, or areas used for flood storage within 250m of the site.

5 SITE HISTORY

From inspection of historical Ordnanace Survey maps (Appendix D) from GroundSure report, the history of the development of the site is provided in Table 1 below.

Table 1 Summary of Historical Map Features

Map Sources	Notable on-site features	Notable features around site
1882, 1:2,500, County Series 1881-1882 1:10,560 County Series	The site is shown to comprise an open parcel of land believed to be agricultural. Dowlais Brook is shown to run along the sites north-eastern boundary. A well is shown at approximately 30 m to the west of the site.	A well is shown at approximately 30 m to the west of the site and Grove Farm is shown approximately 100 m south-west of the site and Tycoch Farm is shown at approximately 250 m north-west of the site. The wider surrounding area is shown to include largely open fields with a railway line labelled as GWR Monmouthshire Eastern Valleys Line shown to extend north to south at approximately 350 m west of the site.
1964-1968, 1:2,500, County Series 1970-1971, 1:10,000, County Series 1981-1983, 1:10,000, County Series	The site remains unchanged.	A developed area which includes a tank is now shown at approximately 250 m south-west of the site with access from a new road labelled Tycoch lane which extends north-west to south-east at approximately 180 m south-west of the site. The wider surrounding area is shown to include a densely populated residential area inclusive of houses and schools forming the southern part of Cwmbran extending to approximately 500 m north of the site. By 1970-1971 the GWR is shown as dismantled. Further development by 1981-1983 is shown to include a number of larger industrial type buildings inclusive of a number of 'works' extending from Tycoch to the north-west of the site up to approximately 150 m north of the site.
1984-1985, 1:2,500, County Series. 1987-1990, 1:2,500, County Series	The site remains unchanged.	The surrounding area now includes Llantarnam Industrial Park and associated access roads which are now shown to extend to approximately 120 m north of the site. The industrial site includes structures ladled 'works' in the location of the former Tycoch Farm. A pond/water feature is now shown approximately 50 m north of the site. By 1987 Llantarnam Park Way is shown to run adjacent to the east of the site in its current day position with further structures shown approximately 100 m south of the site.
2003, 1:2,500, County Series 2001, 1:10,000, County Series	The site remains unchanged.	The surrounding area is now shown to include additional structure adjacent to the sites northern and southern boundaries forming the area present day layout. The wider surrounding area is shown to form is present day layout by 2001.

Map Sources	Notable on-site features	Notable features around site
12/10/2009, Google Earth Photo	An unnamed access road is shown to extend onto the site from the unnamed road to the west with an area of unknown material shown to surround the road.	The surrounding area remains unchanged.

The subject site was an open parcel of land believed to be agricultural from 1881 (earliest records). At this time the immediate area surrounding the site comprised of Dowlais Brook which ran along the sites north-eastern boundary.

The wider surrounding area comprised largely open fields with a railway line shown to extend north to south at approximately 350 m west of the site. In addition, Grove Farm is shown approximately 100 m south-west of the site and Tycoch Farm is shown at approximately 250 m north-west of the site.

The site remained unchanged until c. 2009 at which time an unnamed access road was developed to extend onto the site from the unnamed road to the west with an area of unknown material shown to surround the road. The site remained unchanged since 2009 to the present day. Development of the surrounding area has included the expansion of the town of Cwmbran which is shown to include densely populated residential areas inclusive of houses and schools along with the development of a larger industrial area inclusive of a number of ‘works’ extending from Tycoch to the approximately 150 m north-west of the site boundary.

Further development of the industrial area is shown by 2001 to form its current day layout leading up to the site boundaries.

6 ENVIRONMENTAL DATA

6.1 Environmental Permits, Incidents and Registers

The GroundSure report indicates that there are 4 No. licenced discharges to controlled waters within 250 m of the site including;

- One onsite for discharge of an unspecified effluent into Dowlais Brook. Permit number: AN0142801 issued 23/06/1989, revoked 28/09/1994;
- Two at 35 m east of the site for discharge of an unspecified effluent into an unspecified water body. Permit number: AN0181701 issued 01/01/1901-09/04/1990 and 10/04/1990-19/04/1993;
- One at 90 m south-east of the site for discharge of an unspecified effluent into Dowlais Brook. Permit number: AN0142802 issued 23/06/1989-28/09/1994; and
- One at 97 m south-east of the site for discharge of an unspecified effluent into an unspecified waterbody. Permit number: AC0131701, issued 14/07/1981-21/11/1994.

The GroundSure report indicates that there are 3 No. pollution incidents within 250 m of the site, these include;

- One incident at 12 m south-east of the site involving sewage materials with a category 3 impact (minor) on land;
- One incident at 98 m south-east of the site involving contaminated water with a category 2impact (significant) impact on water; and
- One incident at 218 m south-east of the site involving unspecified pollutant and impacts.

There are no other reported environmental permits, incidents or registers noted by the GroundSure report within 500m of the study site.

6.2 Landfill and Other Waste Sites

There is a single recorded historical landfill within 500m of the site as reported by the GroundSure report. This includes;

- Ty Coch Farm Tip, operated by Torfaen Brough Council at 327 m west of the site receiving inert, commercia household waste until 31/12/1983.

The GroundSure report also indicates there to be 7 No. waste exemption within 500 m of the site, these includes;

- 5 No. at 403 m north-west of the site, operated by City Plumbing Supplies Ltd; and
- No. at 474 m north-east of the site operated by Willmott Dixon Construction Ltd.

There are no further current or historical landfills, waste sites or waste exemption noted by the GroundSure report to exist within 500 m of the site.

6.3 Current/historical Industrial Land Uses

The GroundSure report indicates that there are 6 records of historical industrial land uses within 250 m of the site. Of these, 3 No. are located within 100 m of the site and include;

- 3 No. Industrial Parks located onsite since 1992.

The GroundSure report identifies 23 No. recent industrial land use within 250 m of the site, of these 1 No. is within 50 m of the site which includes;

- 43m south-east Analogue Micro Ltd Unit 3, Lakeside Park, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3XS Electrical Components Industrial Products;

A further 3 No. of the 23 No. recent industrial sites are noted to have potential environmental impact implications. These include;

- 68m south-east E S I Unit 2 Lakeside House, Lakeside Park, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3XS Medical Equipment, Supplies and Pharmaceuticals Industrial Products;
- 77m south-east Electricity Sub Station Gwent, NP44 Electrical Features Infrastructure and Facilities;
- 99m south Electricity Sub Station Gwent, NP44 Electrical Features Infrastructure and Facilities; and

None of the listed industrial sites are considered likely to pose a significant threat of contamination or affect ground properties at the site.

6.4 Designated Environmental Sensitive Sites

The GroundSure report notes there to be;

- 1 No. designated ancient woodlands within 250 m of the site;

There are no records of any nitrate vulnerability zones (NVZ), natural reserves, areas of conservation, world heritage sites, or other environmental site within 250m of the site.

6.5 Unexploded Ordnance

A Zetica high level UXO risk assessment identifies the site to contain a Low risk of unexploded ordnance. See stand-alone UXO bomb risk map by Zetica (Appendix F).

6.6 Natural Hazards

The maximum Shrink-Swell hazard rating identified on the study site is classed as Very Low. This suggests that ground conditions area predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays;

The maximum Running Sand hazard rating identified on the study site is Low. Very low potential for running sand problems if water table rises or if sandy strata are exposed to water.

The maximum Compressible Deposits hazard rating identified on the study site is Moderate. Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

The maximum Collapsible Rocks hazard rating identified on the study site is Very Low. Deposits with potential to collapse when loaded and saturated are unlikely to be present;

The maximum Landslide hazard rating identified on the study site is Low. Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides;

The maximum Ground Dissolution and Soluble Rocks hazard rating identified on the study site is Negligible. Soluble rocks are not present in the search area. No special actions required to avoid problems due to soluble rocks;

The information gained from the GroundSure Report in regard to natural hazards is information relating to the bed rock. For this reason, the information under natural hazards does not represent likely hazards for any potential overlying Made Ground.

6.7 Mining, Extraction and Natural Cavities

The GroundSure report indicates that:

1. 2 No. vein mineral extraction activities have been undertaken onsite; and
2. 1 No. Brit Pit is present at 447 m north-west of the site named Tycoch Farm.

There is no further recorded natural cavities, non-coal mining cavities, brine extraction, gypsum extraction, tin mining or clay mining within 1000 m of the site boundary.

6.8 Ground Workings

The GroundSure report indicates there are 2 No. surface ground workings within 1 km of the site including;

1. 1 No. pond at 36 m north of the site; and
2. 1 No. unspecified heap at 169 m north-west.

6.9 Natural Ground Subsidence

The maximum hazard rating of natural subsidence within the study site boundary is classed as moderate.

6.10 Borehole Records

There are 6 reported BGS borehole records within 250 m of the site. The nearest borehole record is reported by the GroundSure report to be a 3.8 m depth borehole at 145 m north-east of the site. The associated borehole log indicates firm to stiff clays formed of Fill to 0.5 m bgl and superficial deposits to 1.5 m bgl Made Ground overlying very stiff clay of the underlying marl bedrock from 1.5 m bgl to >3.8 m bgl which is generally in line with the BGS geological map.

6.11 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within the site boundary taken from the GroundSure report:

1. Arsenic (AS) 15 mg/kg;
2. Cadmium (Cd) 1.8 mg/kg;
3. Chromium (Cr) 60 - 90 mg/kg;
4. Nickel (N) 15 - 30 mg/kg; and
5. Lead (Pb) 100 mg/kg

6.12 Ground Gas & Radon

The site is indicated by the GroundSure report to lie within a radon affected area and is estimated to include between 3% and 5% of homes to be above the action level, hence basic protective measures are necessary in the construction of new dwellings or extensions.

7 PRELIMINARY RISK ASSESSMENT

In accordance with UK guidance set out in the Environment Agency's Land Contamination Risk Management (LCRM) best practice, environmental risks are defined by a pollutant linkage. Hence there needs to be a source of pollution and a receptor on which it can have an adverse effect. In order to complete the linkage there needs to be a route, or pathway, by which the source can affect the receptor as follows:

Source → Pathway → Receptor

The risks have been assessed on the understanding that the proposed end use will be commercial/industrial.

7.1 Conceptual Site Model

The CSM and plausible pollutant linkages are defined below based on the desk study review of publicly available information collated in the previous sections. The CSM forms part of the preliminary risk assessment to identify and assess the potential hazards at the site and estimate then evaluate the risk in line with stage 1 of the LCRM guidance. This assessment is based on the proposed residential end use.

7.2 Sources

A review of the site's history and environmental setting has identified a potential presence of Made Ground with an unknown extent and/or composition. It is therefore considered plausible that contaminants of concern (CoCs) and as such a source of contamination maybe present as summarised below. The list of contaminants has been established through a review of Annexe 3 in the Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008 Volume 2.

Potential CoCs include:

1. Metals - arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc,
2. Polycyclic Aromatic Hydrocarbons (PAH);
3. Total Petroleum Hydrocarbons (TPH); and
4. ground gas (carbon dioxide and methane).

7.3 Pathways

The key pathway for migration of CoCs include the following:

7.3.1 Human Health

1. Ingestion of source soils or groundwaters;
2. Inhalation of source dusts and vapours; and
3. Direct skin exposure (dermal contact) with soils.

7.3.2 Environmental

As the site is situated on a potential Made Ground overlying a Secondary A aquifer, the potential for infiltration, leaching and dissolution of ground source chemicals into underlying groundwater is possible, therefore, the following potential environmental pathways exist:

1. On site vertical leaching of CoCs in soils to shallow groundwater; and
2. Lateral migration of impacted groundwater towards surface water receptors.

7.3.3 Buildings

1. Direct Contact

7.4 Receptors

The key potential receptors identified are:

Human Health

1. Current and future site users; and
2. Site development and maintenance workers.

Environmental

1. Groundwater directly beneath the site

Buildings

2. Proposed structures on site.

7.4.1 Potential Pollutant Linkages

Potential pollutant linkages are listed with their associated risk ratings in Appendix E. The assessment was undertaken in accordance with CIRIA C552, Contaminated Land Risk Assessment, a Guide to Good Practice and R&D66, Guidance for the Safe Development of Housing on Land Affected by Contamination.

7.5 Risk Evaluation - Proposed End Use

The potential pollutant linkages risks have been evaluated. The majority of risks were identified as **LOW**. However, there are a number of **MODERATE-LOW** risks for future site users which warrant investigation, these are summarised in Table 2.

Such investigation should include a suitable number of exploratory hole locations from which samples should be recovered (both soil and water) and analysed for the suite of contaminants listed in Section 7.2. The exploratory holes should be completed with gas and groundwater monitoring wells sufficient to characterise the ground gas regime and groundwater flow direction.

It should be noted that the risks summarised in Table 2 are based on contamination being generally present across the whole site. However, it is anticipated from the findings of the site walkover that the extent of any contamination is likely to be isolated with generally low source concentrations.

Table 2 Pollutant Linkages Rated Greater than LOW

Linkage ID	Source Description	Pathway Description	Receptor Description	Risk Rating	Comments-Mitigation
L13	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	Ingestion	Future site users.	MODERATE-LOW	Organic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L14	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	Inhalation	Future site users.	MODERATE-LOW	Organic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L15	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	Direct skin exposure (dermal contact)	Future site users.	MODERATE-LOW	Organic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L28	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	Vertical leaching of contaminants	Secondary A Aquifer beneath the site.	MODERATE-LOW	Metals and inorganic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L4	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	Ingestion	Future site users.	MODERATE-LOW	Metals and inorganic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L5	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	Inhalation	Future site users.	MODERATE-LOW	Metals and inorganic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L6	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	Direct skin exposure (dermal contact)	Future site users.	MODERATE-LOW	Metals and inorganic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L29	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	Vertical leaching of contaminants	Secondary A Aquifer beneath the site.	MODERATE-LOW	Metals and inorganic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L30	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	Lateral migration of impacted groundwater	Surface water course east of the site (Dowlais Brook)	MODERATE-LOW	Metals and inorganic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.
L31	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	Lateral migration of impacted groundwater	Surface water course east of the site (Dowlais Brook)	MODERATE-LOW	Metals and inorganic contaminants unlikely to be widespread contamination source, however, nominal investigation is recommended targeting the Made Ground areas.

7.6 Risk Evaluation – Current Users

The risk to current users has been assessed as **LOW**.

7.7 Risk Evaluation – Site Development and Maintenance Workers

Several risks greater than **LOW** have been identified with respect to site development and site maintenance workers as detailed in Appendix E. Ground investigation works are recommended to confirm and quantify the risk which is likely to be mitigated through provision of appropriate PPE. During the construction phase the potential risks to workers will be dealt with under the Health and Safety at Work Act (1974) and regulations made under the act. The investigation should include a suitable number of exploratory hole locations from which both soil and water samples can be recovered and analysed for the suite of the contaminants listed.

7.8 Statutory Risks

Under Part 2A of the Environmental Protection Act 1990 (Section 78A(2)) ***Contaminated Land*** is defined as:

> *"any land which appears to the LOCAL AUTHORITY in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –*
>
> *"(a) SIGNIFICANT HARM is being caused or there is a SIGNIFICANT POSSIBILITY of such harm being caused; or*
>
> *"(b) POLLUTION OF CONTROLLED WATERS is being, or is likely to be, caused".*

The significant possibility of significant harm (SPOSH) is difficult to define and at the time of writing DEFRA has begun a consultation and review in order to clarify what SPOSH means. Notwithstanding, SPOSH must be defined and applied by the relevant local authority or by the EA in the case of special sites (typically heavily polluted sites such as large gas works, military sites, etc.). From the preliminary evaluation of risks it is unlikely that the land at the site would be determined by the local authority as Contaminated Land under the Part 2A regime.

The National Planning Policy Framework (NPPF - 2012) puts the onus on local planning authorities to develop their own guidance and processes for dealing with potentially contaminated land under planning. This was revised and updated in 2019.

The key paragraphs from NPPF - 2019 relating to planning and dealing with land contamination are listed below.

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:
- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should,
- f) wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- g) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

178. Planning policies and decisions should ensure that:
- a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);
- b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and
- c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

179. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

183. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

Therefore, early engagement with the local authority and their environmental health/pollution control staff is advised.

8 CONCLUSIONS

A summary of research undertaken within this report includes a site walkover, investigation of historical maps and environmental data and review of British Geological Maps.

The findings from this investigation include;

1. The site has historically comprised undeveloped agricultural land and woodland. Minor development was undertaken around 2009, from which time an unnamed access road was developed to extend onto the site from the unnamed road to the west. The site remained unchanged in its present-day state since 2009.

2. The site walkover suggests the site is an undeveloped area of green space comprising grass and tree cover which is largely disused. There is evidence of minor historical development including the formation of a tarmac covered access junction onto the site.

3. The geology underlying the site includes superficial alluvial deposits which extend across the sites northern half with no superficial cover indicated to be present across the sites southern half. The solid geology underlying the site is indicated to comprise the Raglan Mudstone Formation which is described as interbedded sandstone and mudstone. Made Ground is considered likely to be present ac=ross parts of the site associated with former development.

Potential Contaminants of Concern are based on a broad suite detailed in Section 7.2. This is representative of the potential presence of Made Ground of unknown composition across some of the site and any possibility of contamination within the Made Ground. It is however not considered likely that gross contamination will be present at the site.

Receptors on site will be future site users, including construction and maintenance workers. Environmental receptors have been identified to be the Secondary A aquifer directly beneath the site along with the adjacent Dowlais Brook.

The preliminary risk assessment concluded that majority of the site is **LOW** risk with respect to the proposed residential end use, however localised **LOW-MODERATE** risks are associated with the previously developed areas.

9 RECOMMENDATIONS

Prior to any development it is recommended that an intrusive site investigation is carried out to enable characterisation of the nature, extent and chemistry of any Made Ground and/or contaminated soil.

The aim of a ground investigation would be to delineate any potential contaminant sources and allow for a quantitative risk assessment to be undertaken in accordance with UK guidance set out in the Environment Agency's LCRM. This will facilitate future planning applications for the proposed development in line with planning guidance relating to the development of land potentially affected by contamination, which is detailed in the National Planning Policy Framework (NPPF), June 2019 and constitutes guidance for Local Planning Authorities (LPA).

In addition, investigation will allow identification of any potential geotechnical constraints. Whilst geotechnical issues are not a material planning consideration, geotechnical data will be required to inform the design of the proposed development and mitigate the risks associated with the unknown ground conditions.

The focus of an intrusive site investigation would be to:

1. Determine the nature of the near surface materials across the site;
2. Characterise the geotechnical conditions to provide options for foundations, floor slab, and hardstanding design;
3. Analyse soil and groundwater chemical conditions to determine the degree of any contamination; and
4. Undertake gas and groundwater monitoring to allow gas protection measures to be identified.

For **Discovery CE Limited**

Ben Durant
BSc (Hons) MSc (Hons)
Senior Geo-Environmental Engineer

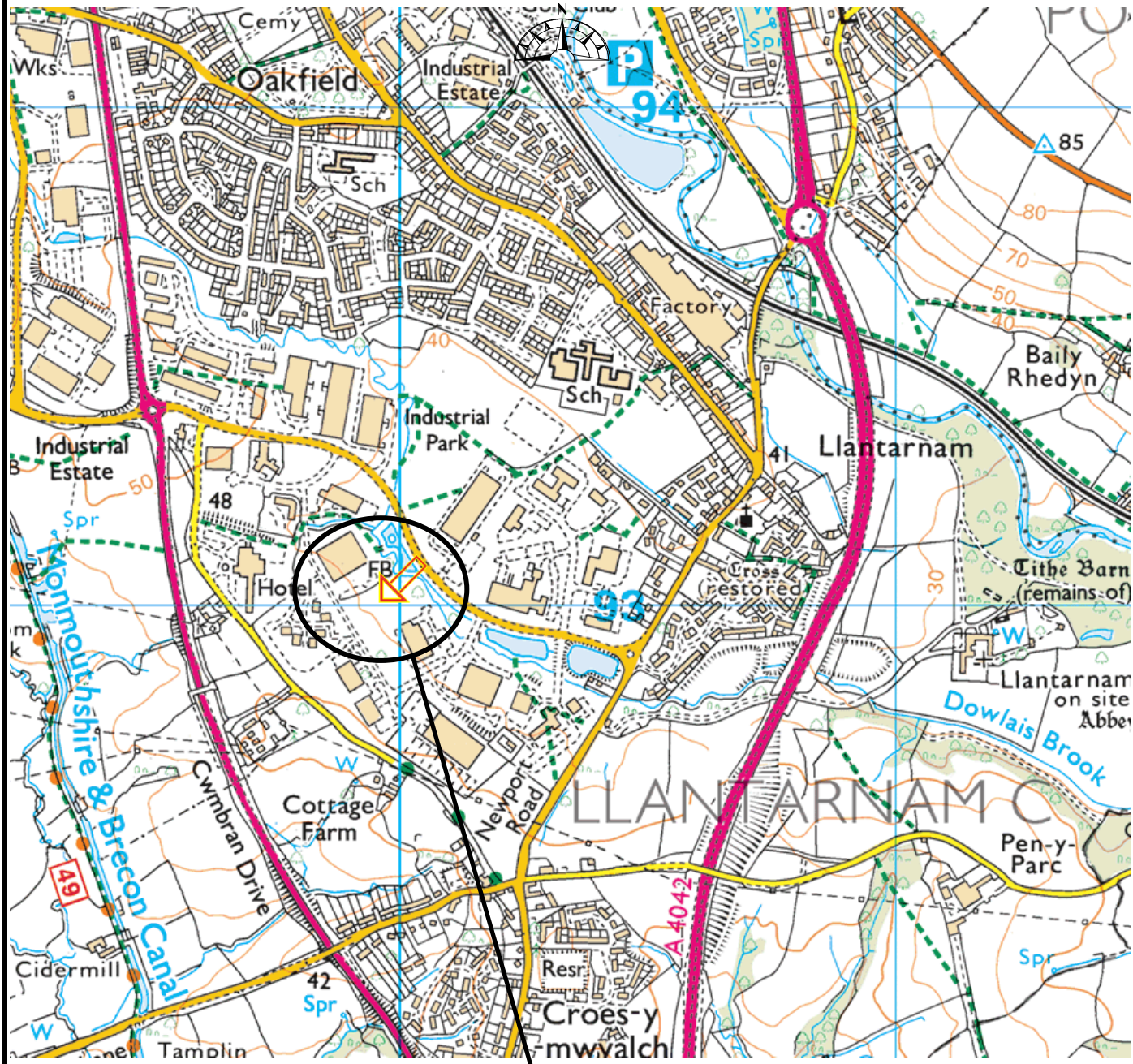
Pete Smith
BSc (Hons), MSc CEng MICE
Director

APPENDIX A - FIGURES

Discovery CE
Geotechnical & Environmental Engineers
The Granary, Broadwell House Farm
Broadwell, Rugby CV238HF
www.dce-services.co.uk

Project	Opus Land Plot C, Llantarnam Cwmbran
Title	KEY PLAN
Client	Opus Land

Project Number	21124
Sheet No	1 of 1
Date	16/11/2021



SITE

Notes

Reproduced from the Ordnance Survey 1:50,000 scale Landranger with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office,

Figure

A1

APPENDIX B - DRAWINGS

PLOT C1
DEVELOPMENT ANALYSIS

SITE AREA - FROM BROCHURE	3.35 ACRES (13,557 SQ M)
DEVELOPABLE SITE AREA	2.19 ACRES (8,856 SQ M)
GROUND FLOOR (GIA)	45,710 SQ FT (4,246.4 SQ M)
FIRST FLOOR (GIA)	3,825 SQ FT (355.5 SQ M)
TOTAL UNIT AREA (GIA)	49,535 SQ FT (4,601.8 SQ M)
COVERAGE	52.0%
CLEAR INTERNAL HEIGHT	14 M
BUILDING AREA (GEA)	51,097 SQ FT (4,746.9 SQ M)
CAR PARKING	60 SPACES (1 TO 79 SQ M GEA)

NORTH

MCC LABELS

DOWLAIS BROOK

POND

FOOT BRIDGE

EXISTING OUT BUILDING

EXISTING 'BELL MOUTH' TO BE REMOVED

REVISED EXTENT OF YARD

NEW SHARED ACCESS INTO PLOT C1

SOLVENT STORE

APPROX 5m - TO BE CONFIRMED

ASSUMED BOUNDARY DEVELOPABLE SITE

35m DEEP YARD

SECURE YARD

4 x 5m HIGH, GRADE LOADING DOORS

RETAINING WALL IF NECESSARY TO ACHIEVE 35m DEEP YARD

GOODS IN

RAW MATERIALS - HIGH BAY RACKING

GRAVURE CYLINDER STORE

GRAVURE WIDE WEB FINISHING, STORAGE FOR PACKING AND CONSUMABLES OVER

ESCAPE STAIR

EXTENT OF FIRST FLOOR OFFICE ACCOMMODATION OVER

4 x 5m HIGH, GRADE LOADING DOORS

GOODS OUT

FINISHED GOODS - HIGH BAY RACKING

EXISTING 'BELL MOUTH' TO BE REMOVED

ENTRANCE LOBBY, STAIRCASE & LIFT TO OFFICE ACCOMMODATION OVER

ASSUMED BOUNDARY DEVELOPABLE SITE

26.1m

12.2m

27.8m

30.7m

61.800 m

68.500 m

LLANTARNAM PARK WAY

DOWLAIS BROOK

BERWYN HOUSE

KAVANAGH HOUSE

THE PAVILIONS

MACHEN HOUSE

PENRHYN HOUSE

USK HOUSE

LAKESIDE HOUSE

SCALE

10m 10m 20m 30m 40m 50m

A - GENERAL REVISIONS TO BUILDING 07102021

client : OPUS LAND

project : POTENTIAL DEVELOPMENT

site : PLOT C1
LLANTARNAM PARK
CWMBRAN, NP44 3DE

content : SITE PLAN SHOWING POSSIBLE DEVELOPMENT - OPTION FOUR

NOVEMBER 2018

1:500 @ A1

ALL DIMENSIONS TO BE CHECKED ON SITE.DO NOT SCALE

GARRETT | McKEE
ARCHITECTS

RILEY HOUSE
RILEY ROAD
MARLOW
BUCKINGHAMSHIRE
SL7 2PH
T 01628 907000

drg.no : 2540/ SK06A

revision :

APPENDIX C – ENVIRONMENTAL DATA

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

329962.3790862677, 193011.9561096507

Order Details

Date: 05/11/2021

Your ref: 21124J

Our Ref: DCE-8316185

Client: Discovery CE Limited

Site Details

Location: 329948 193025

Area: 1.38 ha

Authority: Tor-faen - Torfaen County Borough Council

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

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	3	0	3	17	-
15	1.2	Historical tanks	0	0	2	0	-
16	1.3	Historical energy features	0	0	0	5	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	3	0	4	21	-
20	2.2	Historical tanks	0	0	3	0	-
20	2.3	Historical energy features	0	0	0	14	-
21	2.4	Historical petrol stations	0	0	0	0	-
21	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	1	-
23	3.4	Historical landfill (EA/NRW records)	0	0	0	1	-
23	3.5	Historical waste sites	0	0	0	0	-
24	3.6	Licensed waste sites	0	0	0	0	-
24	3.7	Waste exemptions	0	0	0	7	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
26	4.1	Recent industrial land uses	0	1	23	-	-
28	4.2	Current or recent petrol stations	0	0	0	0	-
28	4.3	Electricity cables	0	0	0	0	-
28	4.4	Gas pipelines	0	0	0	0	-
29	4.5	Sites determined as Contaminated Land	0	0	0	0	-

29	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
29	4.7	Regulated explosive sites	0	0	0	0	-
29	4.8	Hazardous substance storage/usage	0	0	0	0	-
29	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
30	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
30	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	3	1	-
30	4.12	Radioactive Substance Authorisations	0	0	0	0	-
31	**4.13**	**Licensed Discharges to controlled waters**	1	2	2	5	-
32	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
32	4.15	Pollutant release to public sewer	0	0	0	0	-
33	4.16	List 1 Dangerous Substances	0	0	0	0	-
33	4.17	List 2 Dangerous Substances	0	0	0	0	-
33	**4.18**	**Pollution Incidents (EA/NRW)**	0	1	2	1	-
34	4.19	Pollution inventory substances	0	0	0	0	-
34	4.20	Pollution inventory waste transfers	0	0	0	0	-
34	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
35	**5.1**	**Superficial aquifer**	Identified (within 500m)				
37	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
39	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
41	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
41	5.5	Groundwater vulnerability- local information	None (within 0m)				
42	5.6	Groundwater abstractions	0	0	0	0	0
43	**5.7**	**Surface water abstractions**	0	0	0	0	7
44	5.8	Potable abstractions	0	0	0	0	0
45	5.9	Source Protection Zones	0	0	0	0	-
45	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
46	**6.1**	**Water Network (OS MasterMap)**	1	8	5	-	-

48	6.2	Surface water features	1	3	5	-	-
48	6.3	WFD Surface water body catchments	1	-	-	-	-
48	6.4	WFD Surface water bodies	0	1	0	-	-
49	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
50	7.1	Risk of flooding from rivers and the sea	High (within 50m)				
51	7.2	Historical Flood Events	0	1	3	-	-
51	7.3	Flood Defences	0	0	0	-	-
52	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
52	7.5	Flood Storage Areas	0	0	0	-	-
53	7.6	Flood Zone 2	Identified (within 50m)				
54	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
55	8.1	Surface water flooding	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
57	9.1	Groundwater flooding	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
58	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
59	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
59	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
59	10.4	Special Protection Areas (SPA)	0	0	0	0	0
59	10.5	National Nature Reserves (NNR)	0	0	0	0	0
60	10.6	Local Nature Reserves (LNR)	0	0	0	0	1
60	10.7	Designated Ancient Woodland	0	0	1	4	46
62	10.8	Biosphere Reserves	0	0	0	0	0
62	10.9	Forest Parks	0	0	0	0	0
63	10.10	Marine Conservation Zones	0	0	0	0	0
63	10.11	Green Belt	0	0	0	0	0
63	10.12	Proposed Ramsar sites	0	0	0	0	0

63	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
63	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
64	10.15	Nitrate Sensitive Areas	0	0	0	0	0
64	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
65	10.17	SSSI Impact Risk Zones	0	-	-	-	-
65	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
66	11.1	World Heritage Sites	0	0	0	-	-
66	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
66	11.3	National Parks	0	0	0	-	-
66	11.4	Listed Buildings	0	0	0	-	-
67	11.5	Conservation Areas	0	0	0	-	-
67	11.6	Scheduled Ancient Monuments	0	0	0	-	-
67	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
68	**12.1**	**Agricultural Land Classification**	Grade 3b (within 250m)				
69	12.2	Open Access Land	0	0	0	-	-
69	12.3	Tree Felling Licences	0	0	0	-	-
70	12.4	Environmental Stewardship Schemes	0	0	0	-	-
70	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
71	13.1	Priority Habitat Inventory	0	0	0	-	-
71	13.2	Habitat Networks	0	0	0	-	-
71	13.3	Open Mosaic Habitat	0	0	0	-	-
71	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
72	**14.1**	**10k Availability**	Identified (within 500m)				
73	14.2	Artificial and made ground (10k)	0	0	0	0	-
74	**14.3**	**Superficial geology (10k)**	2	0	0	2	-

75	14.4	Landslip (10k)	0	0	0	0	-
76	14.5	Bedrock geology (10k)	2	0	0	0	-
77	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
78	15.1	50k Availability	Identified (within 500m)				
79	15.2	Artificial and made ground (50k)	0	0	0	0	-
79	15.3	Artificial ground permeability (50k)	0	0	-	-	-
80	15.4	Superficial geology (50k)	1	0	0	1	-
81	15.5	Superficial permeability (50k)	Identified (within 50m)				
81	15.6	Landslip (50k)	0	0	0	0	-
81	15.7	Landslip permeability (50k)	None (within 50m)				
82	15.8	Bedrock geology (50k)	1	0	0	0	-
83	15.9	Bedrock permeability (50k)	Identified (within 50m)				
83	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
84	16.1	BGS Boreholes	0	0	6	-	-
Page	Section	Natural ground subsidence					
86	17.1	Shrink swell clays	Very low (within 50m)				
87	17.2	Running sands	Low (within 50m)				
89	17.3	Compressible deposits	Moderate (within 50m)				
91	17.4	Collapsible deposits	Very low (within 50m)				
92	17.5	Landslides	Low (within 50m)				
94	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
96	18.1	Natural cavities	0	0	0	0	-
97	18.2	BritPits	0	0	0	1	-
97	18.3	Surface ground workings	0	1	1	-	-
97	18.4	Underground workings	0	0	0	0	0
98	18.5	Historical Mineral Planning Areas	0	0	0	0	-

98	**18.6**	**Non-coal mining**	2	0	0	0	0
98	18.7	Mining cavities	0	0	0	0	0
99	18.8	JPB mining areas	None (within 0m)				
99	18.9	Coal mining	None (within 0m)				
99	18.10	Brine areas	None (within 0m)				
99	18.11	Gypsum areas	None (within 0m)				
99	18.12	Tin mining	None (within 0m)				
100	18.13	Clay mining	None (within 0m)				

Page	Section	Radon					
101	**19.1**	**Radon**	Between 3% and 5% (within 0m)				

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
103	**20.1**	**BGS Estimated Background Soil Chemistry**	10	0	-	-	-
103	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
104	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

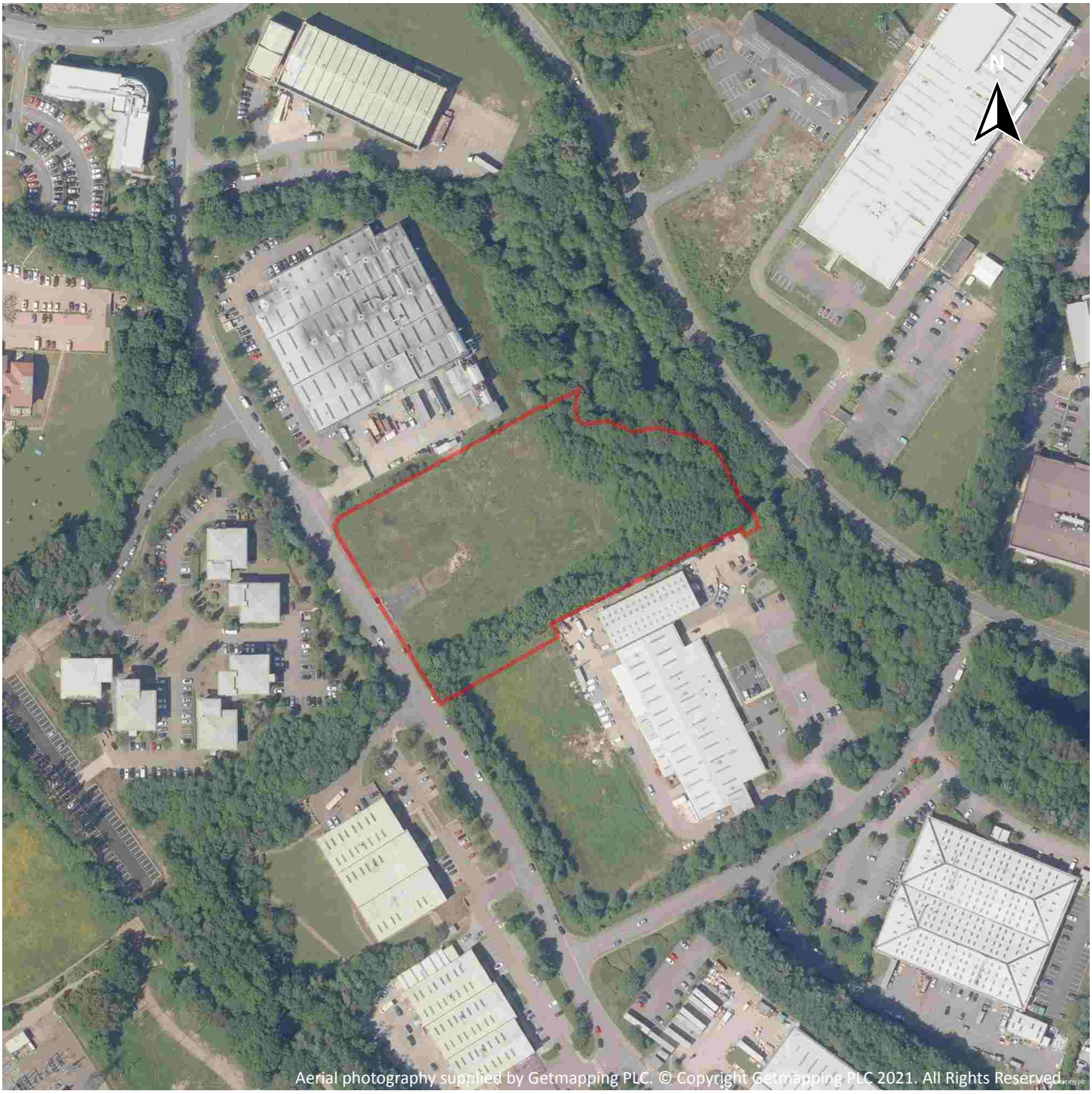
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
105	21.1	Underground railways (London)	0	0	0	-	-
105	21.2	Underground railways (Non-London)	0	0	0	-	-
105	21.3	Railway tunnels	0	0	0	-	-
105	21.4	Historical railway and tunnel features	0	0	0	-	-
105	21.5	Royal Mail tunnels	0	0	0	-	-
106	21.6	Historical railways	0	0	0	-	-
106	21.7	Railways	0	0	0	-	-
106	21.8	Crossrail 1	0	0	0	0	-
106	21.9	Crossrail 2	0	0	0	0	-
106	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 14/04/2020

Site Area: 1.38ha

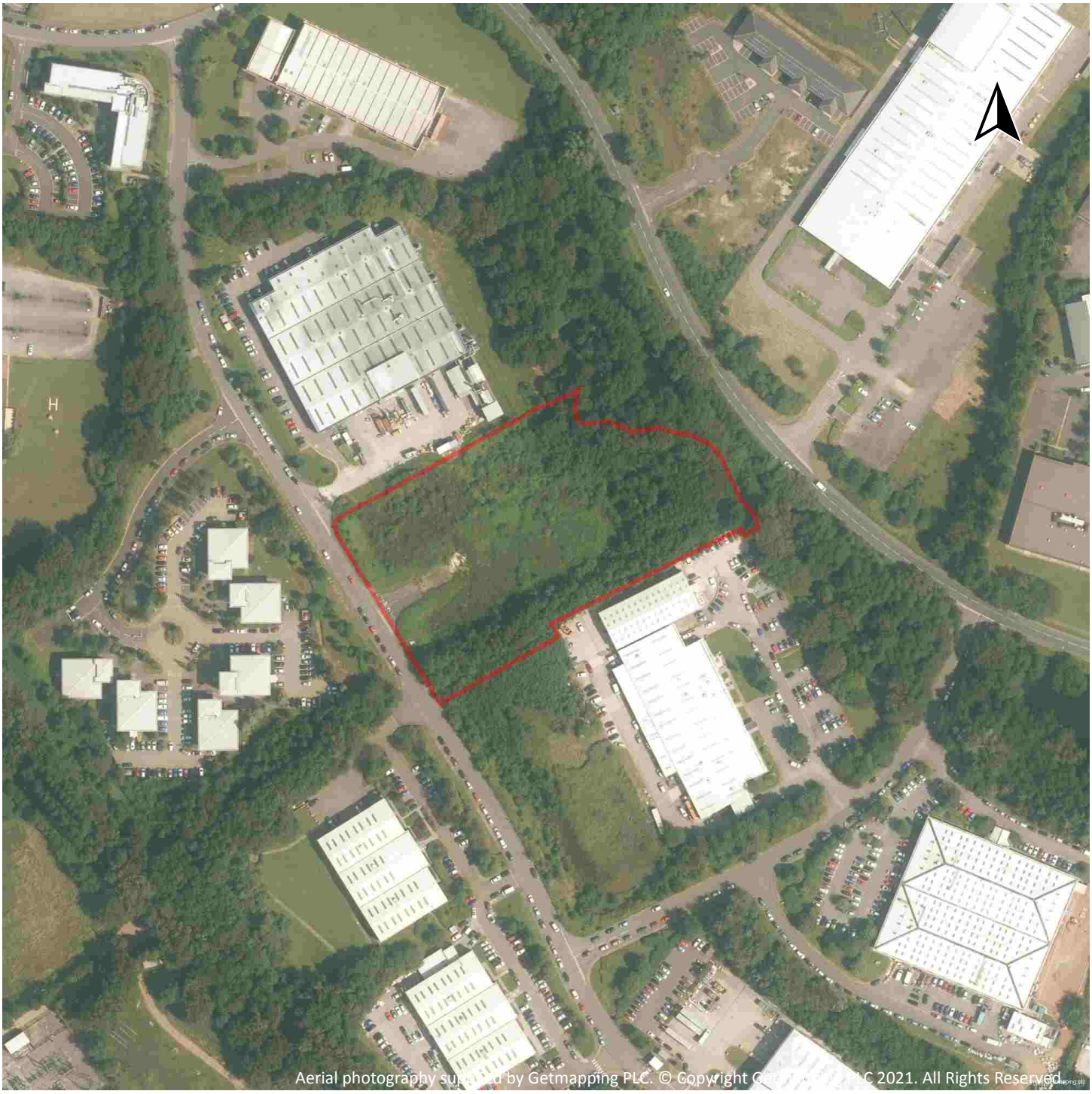
Recent site history - 2017 aerial photograph



Capture Date: 26/05/2017

Site Area: 1.38ha

Recent site history - 2014 aerial photograph



Capture Date: 23/07/2014

Site Area: 1.38ha

Recent site history - 2010 aerial photograph

Capture Date: 23/05/2010

Site Area: 1.38ha

Recent site history - 2000 aerial photograph

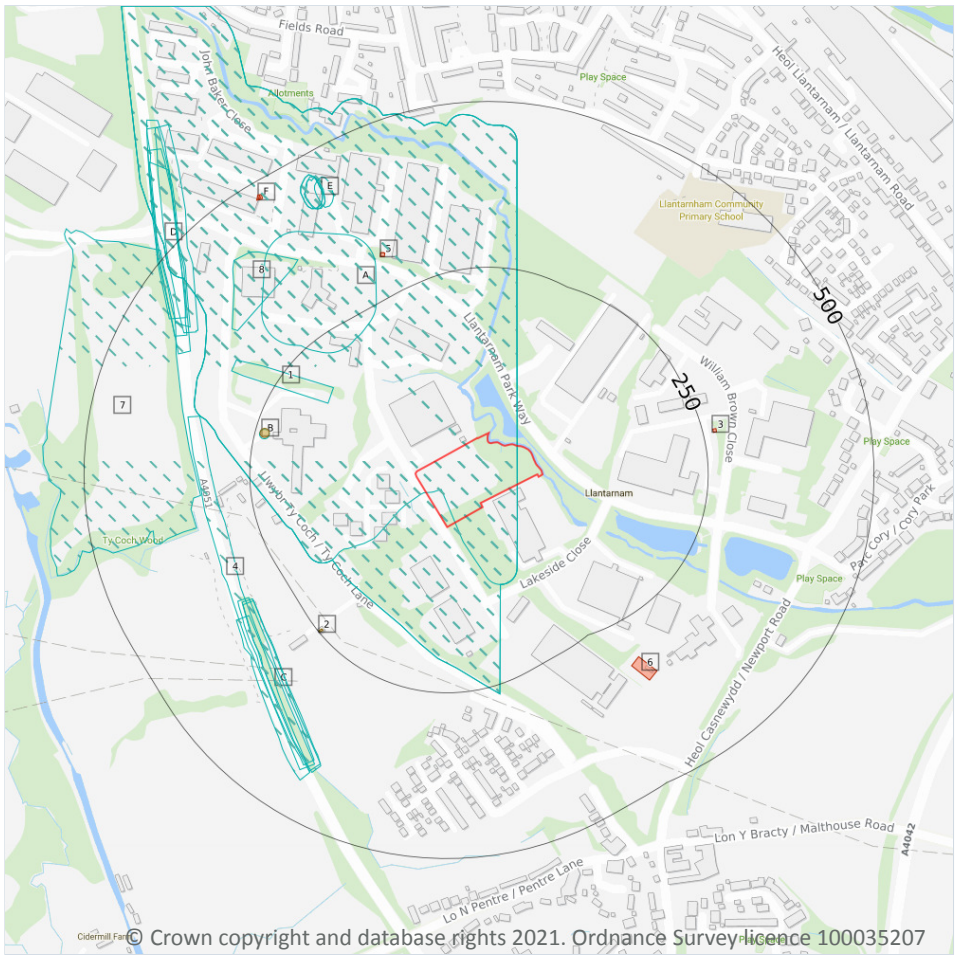
Capture Date: 18/06/2000

Site Area: 1.38ha

OS MasterMap site plan

Site Area: 1.38ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	23

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

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

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Industrial Park**	**1983**	**1190071**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Industrial Park**	**1992**	**1190086**
A	**On site**	**Industrial Park**	**1992**	**1190087**
1	169m NW	Unspecified Heap	1992	1163146
A	215m NW	Unspecified Works	1983 - 1992	1239683
B	228m W	Unspecified Tank	1992	1175830
4	297m W	Cuttings	1882	1230274
C	307m SW	Cuttings	1938 - 1949	1236481
C	307m SW	Cuttings	1922	1246145
C	311m SW	Cuttings	1949	1201648
C	325m SW	Cuttings	1902	1215676
7	326m W	Refuse Heap	1983	1178320
8	343m NW	Unspecified Pit	1992	1185979
D	387m NW	Cuttings	1882	1231586
D	393m NW	Cuttings	1922 - 1949	1248666
D	403m NW	Cuttings	1902	1222598
D	405m NW	Cuttings	1949	1267848
E	414m NW	Unspecified Old Quarry	1938 - 1949	1208673
E	417m NW	Unspecified Pit	1882	1270854
D	418m NW	Cuttings	1971	1215052
E	418m NW	Unspecified Pit	1949	1205409
E	421m NW	Unspecified Old Quarry	1922	1193407
E	421m NW	Unspecified Old Quarry	1902	1222735

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**2**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding

or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

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

ID	Location	Land use	Dates present	Group ID
B	229m W	Unspecified Tank	1995	173089
2	243m SW	Unspecified Tank	1964 - 1985	185044

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**5**

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

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

ID	Location	Land use	Dates present	Group ID
3	266m E	Electricity Substation	1987	106708
5	307m NW	Electricity Substation	1984 - 1995	110655
6	311m SE	Gas Governor	1987 - 1990	112434
F	473m NW	Electricity Substation	1984 - 1995	112858
F	475m NW	Electricity Substation	1986	104882

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

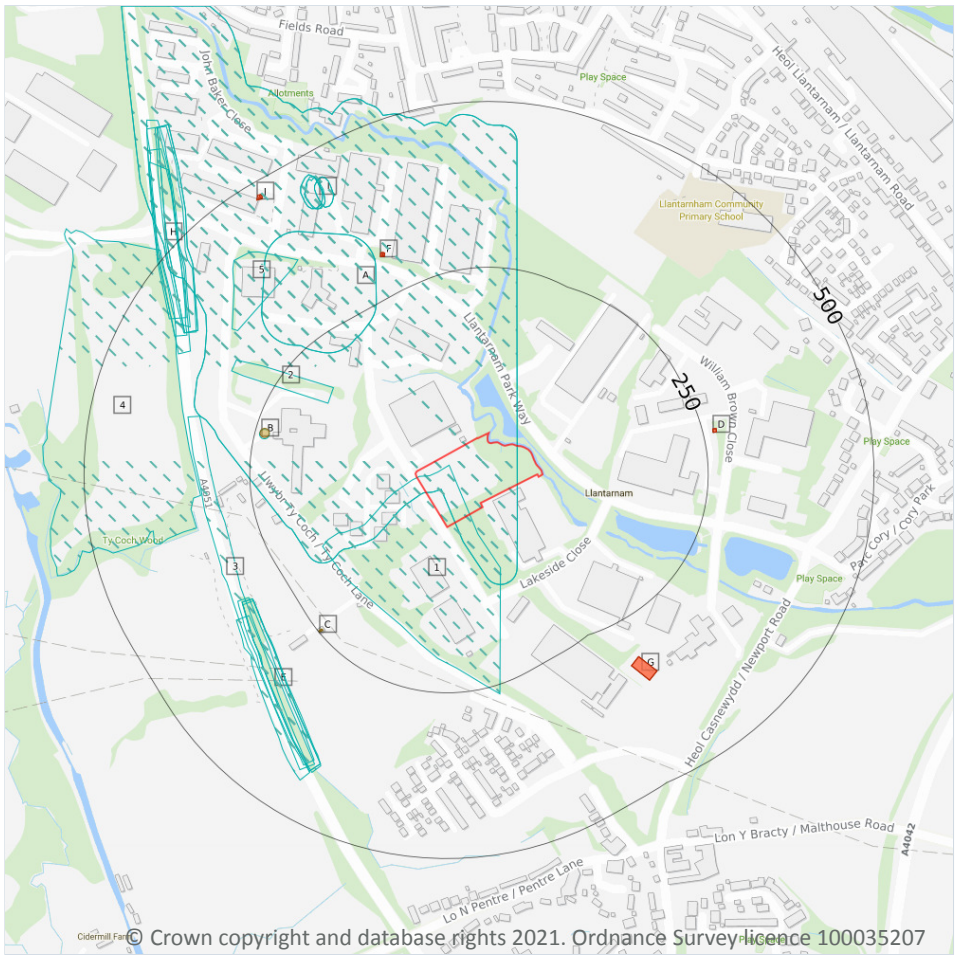
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	28

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Industrial Park**	**1992**	**1190087**
A	**On site**	**Industrial Park**	**1992**	**1190086**
A	**On site**	**Industrial Park**	**1983**	**1190071**

ID	Location	Land Use	Date	Group ID
2	169m NW	Unspecified Heap	1992	1163146
A	215m NW	Unspecified Works	1992	1239683
A	215m NW	Unspecified Works	1983	1239683
B	228m W	Unspecified Tank	1992	1175830
3	297m W	Cuttings	1882	1230274
E	307m SW	Cuttings	1949	1236481
E	307m SW	Cuttings	1938	1236481
E	307m SW	Cuttings	1922	1246145
E	311m SW	Cuttings	1949	1201648
E	325m SW	Cuttings	1902	1215676
4	326m W	Refuse Heap	1983	1178320
5	343m NW	Unspecified Pit	1992	1185979
H	387m NW	Cuttings	1882	1231586
H	393m NW	Cuttings	1949	1248666
H	393m NW	Cuttings	1938	1248666
H	394m NW	Cuttings	1922	1248666
H	403m NW	Cuttings	1902	1222598
H	405m NW	Cuttings	1949	1267848
I	414m NW	Unspecified Old Quarry	1949	1208673
I	414m NW	Unspecified Old Quarry	1938	1208673
I	417m NW	Unspecified Pit	1882	1270854
H	418m NW	Cuttings	1971	1215052
I	418m NW	Unspecified Pit	1949	1205409
I	421m NW	Unspecified Old Quarry	1902	1222735
I	421m NW	Unspecified Old Quarry	1922	1193407

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	3

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
B	229m W	Unspecified Tank	1995	173089
C	243m SW	Unspecified Tank	1985	185044
C	244m SW	Unspecified Tank	1964	185044

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	14

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
D	266m E	Electricity Substation	1987	106708
D	266m E	Electricity Substation	1987	106708
D	266m E	Electricity Substation	1987	106708
F	307m NW	Electricity Substation	1984	110655
F	308m NW	Electricity Substation	1995	110655
F	308m NW	Electricity Substation	1993	110655
F	309m NW	Electricity Substation	1986	110655
G	311m SE	Gas Governor	1987	112434
G	311m SE	Gas Governor	1990	112434
G	311m SE	Gas Governor	1990	112434
J	473m NW	Electricity Substation	1984	112858

ID	Location	Land Use	Date	Group ID
J	474m NW	Electricity Substation	1995	112858
J	474m NW	Electricity Substation	1993	112858
J	475m NW	Electricity Substation	1986	104882

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

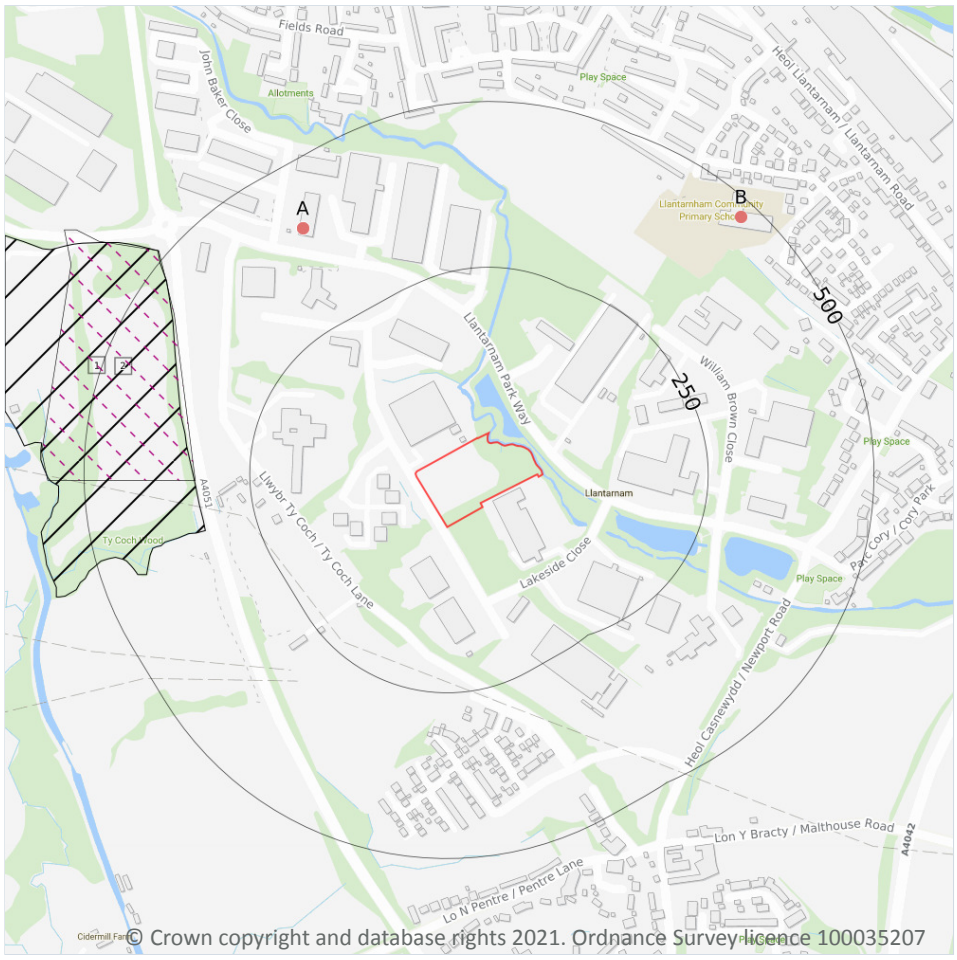
2.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Historical landfill (LA/OS)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	1

Landfill sites identified from Local Authority records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Site address	Source	Data type
2	332m W	Refuse tip	1984 mapping	Polygon

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Details		
1	327m W	Site Address: Ty Coch Farm Tip No.2 Licence Holder Address: -	Waste Licence: Yes Site Reference: - Waste Type: Inert, Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 31/12/1978 Licence Surrender: -	Operator: - Licence Holder: Torfaen Borough Council First Recorded 31/12/1971 Last Recorded: 31/12/1983

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	7

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

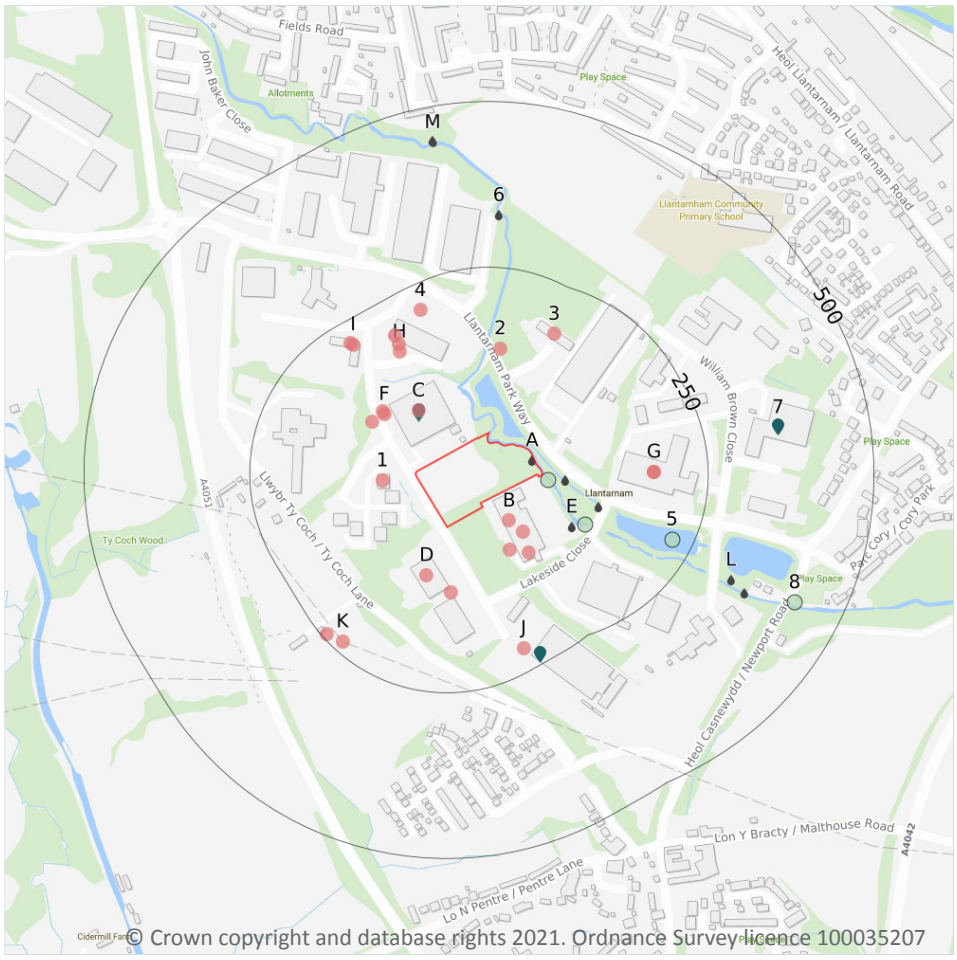
Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	403m NW	City Plumbing Supplies Ltd, CPS, Unit 44, Llantarnam Industrial Park, Cwmbran, Torfaen, NP443AW	NRW-WME009515	Storing waste exemption	Not on a farm	Storage of waste in secure containers
A	403m NW	City Plumbing Supplies Ltd, CPS, Unit 44, Llantarnam Industrial Park, Cwmbran, Torfaen, NP443AW	NRW-WME009515	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	403m NW	City Plumbing Supplies Ltd, CPS, Unit 44, Llantarnam Industrial Park, Cwmbran, Torfaen, NP443AW	NRW-WME009515	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
A	403m NW	City Plumbing Supplies Ltd, CPS, Unit 44, Llantarnam Industrial Park, Cwmbran, Torfaen, NP443AW	NRW-WME009515	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	403m NW	City Plumbing Supplies Ltd, CPS, Unit 44, Llantarnam Industrial Park, Cwmbran, Torfaen, NP443AW	NRW-WME009515	Treating waste exemption	Not on a farm	Manual treatment of waste
B	474m NE	Willmott Dixon Connstruction Ltd, Llantarnam School SIte, Willmott Dixon, Cwmbran, NP443XB	NRW-WME005655	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
B	474m NE	Willmott Dixon Construction ltd, Llantarnham Primary School, Llantarnham Road, Cwmbran, Torfaen, NP443XB	NRW-WME011349	Using waste exemption	Not on a farm	Use of waste in construction

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Licensed pollutant release (Part A(2)/B)

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	24

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Address	Activity	Category
B	43m SE	Analogue Micro Ltd	Unit 3, Lakeside Park, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3XS	Electrical Components	Industrial Products
1	51m W	Hempel UK	Berwyn House The Pavilions, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3FD	Distribution and Haulage	Transport, Storage and Delivery

ID	Location	Company	Address	Activity	Category
B	68m SE	E S I	Unit 2 Lakeside House, Lakeside Park, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3XS	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
B	77m SE	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
D	79m SW	Eaton Lighting Systems	Usk House, Lakeside, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3HD	Lampshades and Lighting	Consumer Products
C	79m NW	Multi-color	Christopher Grey Court, Lakeside, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3SE	Stationery, Stamps, Tags and Labels	Industrial Products
B	98m SE	I Visions Lighting Solutions	Unit 1, Lakeside Park, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3XS	Lampshades and Lighting	Consumer Products
D	99m S	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
F	99m NW	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
F	101m NW	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
F	104m NW	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
2	129m N	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
G	168m E	Oerlikon Metco	Brecon House, William Brown Close, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3AB	Industrial Coatings and Finishings	Industrial Products
G	168m E	S T G Aerospace	Brecon House, William Brown Close, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3AB	Aeroplanes	Industrial Products
H	171m NW	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
3	177m N	Southern Linings Ltd	Lakeside House, Lakeside Court, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3GA	Ovens and Furnaces	Industrial Products
H	182m NW	Gas Governor Station	Gwent, NP44	Gas Features	Infrastructure and Facilities
H	196m NW	Electrospark Ltd	Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3XF	Precision Engineers	Engineering Services

ID	Location	Company	Address	Activity	Category
4	211m NW	Llantarnam Industrial Park	Gwent, NP44	Business Parks and Industrial Estates	Industrial Features
I	214m NW	R P S Telecom Ltd	36 Springboard Innovation Centre, Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3AW	Radar and Telecommunications Equipment	Industrial Products
J	216m SE	Electricity Sub Station	Gwent, NP44	Electrical Features	Infrastructure and Facilities
I	218m NW	Springboard Innovation Business Centre	Llantarnam Industrial Park, Cwmbran, Gwent, NP44 3AW	Business Parks and Industrial Estates	Industrial Features
K	234m SW	Pylon	Gwent, NP44	Electrical Features	Infrastructure and Facilities
K	243m SW	Tank	Gwent, NP44	Tanks (Generic)	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

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

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	4

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Address	Details	
C	75m NW	Spear Europe, Christopher Grey Court, Llantarnam Park, Cwmbran, NP44 3SE	Process: Printing Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
C	77m NW	Multi-Color Cwmbran UK Ltd, Christopher Grey Court, Llantarnam Park, Cwmbran, NP44 3SE	Process: Printing Status: Current Permit Permit Type: Part A2	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
J	235m SE	Zodiac Seats Ltd, Kestrel House, Lakeside, Llantarnam Industrial Estate, Cwbran, NP44 3HQ	Process: Surface Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
7	362m E	Technicolor, Llantarnam Industrial Park, Cwmbran, Torfaen, NP44 3AB	Process: Printing Status: Revoked Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	**10**

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

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Address	Details	
A	**On site**	**LLANTARNAM IND PK OUTFALL 1, LLANTARNAM IND PK OUTFALL 1**	**Effluent Type: UNSPECIFIED Permit Number: AN0142801 Permit Version: 1 Receiving Water: DOWLAIS BROOK**	**Status: CONSENT EXPIRED - TIME LIMIT Issue date: 23/06/1989 Effective Date: 23/06/1989 Revocation Date: 28/09/1994**
A	35m E	Unknown Unknown Unknown Unknown Unk, Unknown Unknown Unknown Unknown, UNKNOWN UNKNOWN UNKNOWN UNKNOWN, UNKNOWN UNKNOWN UNKNOWN, UNKNOWN UNKNOWN, UNKNOWN	Effluent Type: UNSPECIFIED Permit Number: AN0181701 Permit Version: 1 Receiving Water: UNNAMED WATERCOURSE	Status: REVOKED - UNSPECIFIED Issue date: 01/01/1901 Effective Date: 01/01/1901 Revocation Date: 09/04/1990
A	35m E	Unknown Unknown Unknown Unknown Unk, Unknown Unknown Unknown Unknown, UNKNOWN UNKNOWN UNKNOWN UNKNOWN, UNKNOWN UNKNOWN UNKNOWN, UNKNOWN UNKNOWN, UNKNOWN	Effluent Type: UNSPECIFIED Permit Number: AN0181701 Permit Version: 2 Receiving Water: UNNAMED WATERCOURSE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/04/1990 Effective Date: 10/04/1990 Revocation Date: 19/04/1993
E	90m SE	LLANTARNAM IND PK OUTFALL 2, LLANTARNAM IND PK OUTFALL 2	Effluent Type: UNSPECIFIED Permit Number: AN0142802 Permit Version: 1 Receiving Water: DOWLAIS BROOK	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 23/06/1989 Effective Date: 23/06/1989 Revocation Date: 28/09/1994
E	97m SE	LLANTARNUM IND PARK AREA 4, LLANTARNUM IND PARK AREA 4, AREA 4	Effluent Type: UNSPECIFIED Permit Number: AC0131701 Permit Version: 1 Receiving Water: UNSPECIFIED	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 14/07/1981 Effective Date: 14/07/1981 Revocation Date: 21/11/1994
L	325m SE	THE MEADS SSO LLANTARNAM, THE MEADS SSO, LLANTARNAM	Effluent Type: UNSPECIFIED Permit Number: AD0013301 Permit Version: 1 Receiving Water: DOWLAIS BROOK	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 07/03/1974 Effective Date: 07/03/1974 Revocation Date: 31/03/2004

ID	Location	Address	Details	
6	328m N	LLANTARNUM IND PARK NORTH PHASE 2, LLANTARNUM IND PARK NORTH PHASE, NORTH PHASE 2 CWMBRAN, CWMBRAN, CWMBRAN	Effluent Type: UNSPECIFIED Permit Number: AC0129001 Permit Version: 1 Receiving Water: UNSPECIFIED	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 17/02/1981 Effective Date: 17/02/1981 Revocation Date: 21/11/1994
L	352m SE	LLANTARNAM IND PARK AREA 5, LLANTARNAM IND PARK AREA 5	Effluent Type: UNSPECIFIED Permit Number: AC0131801 Permit Version: 1 Receiving Water: UNSPECIFIED	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 14/07/1981 Effective Date: 14/07/1981 Revocation Date: 05/04/1995
M	446m N	THE MEADS CSO REAR OF 91 PLAS CWRT, THE MEADS CSO, REAR OF 91 PLAS CWRT, LLANTARNAM, CWMBRAN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0354101 Permit Version: 1 Receiving Water: THE DOWLIAS BROOK	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY Issue date: 16/01/2004 Effective Date: 31/01/2004 Revocation Date: 16/04/2004
M	448m N	THE MEADS CSO REAR OF 91 PLAS CWRT, THE MEADS CSO, REAR OF 91 PLAS CWRT, LLANTARNAM, CWMBRAN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0354101 Permit Version: 2 Receiving Water: THE DOWLIAS BROOK	Status: Effective Issue date: 16/04/2004 Effective Date: 17/04/2004 Revocation Date: -

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	4

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Details	
A	12m SE	Incident Date: 14/10/2014 Incident Identification: 1286767 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
E	98m SE	Incident Date: 10/10/2006 Incident Identification: 442313 Pollutant: Contaminated Water Pollutant Description: Dairy Washings	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	218m SE	Incident Date: 23/11/2015 Incident Identification: 1389710 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
8	426m SE	Incident Date: 30/06/2008 Incident Identification: 600829 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

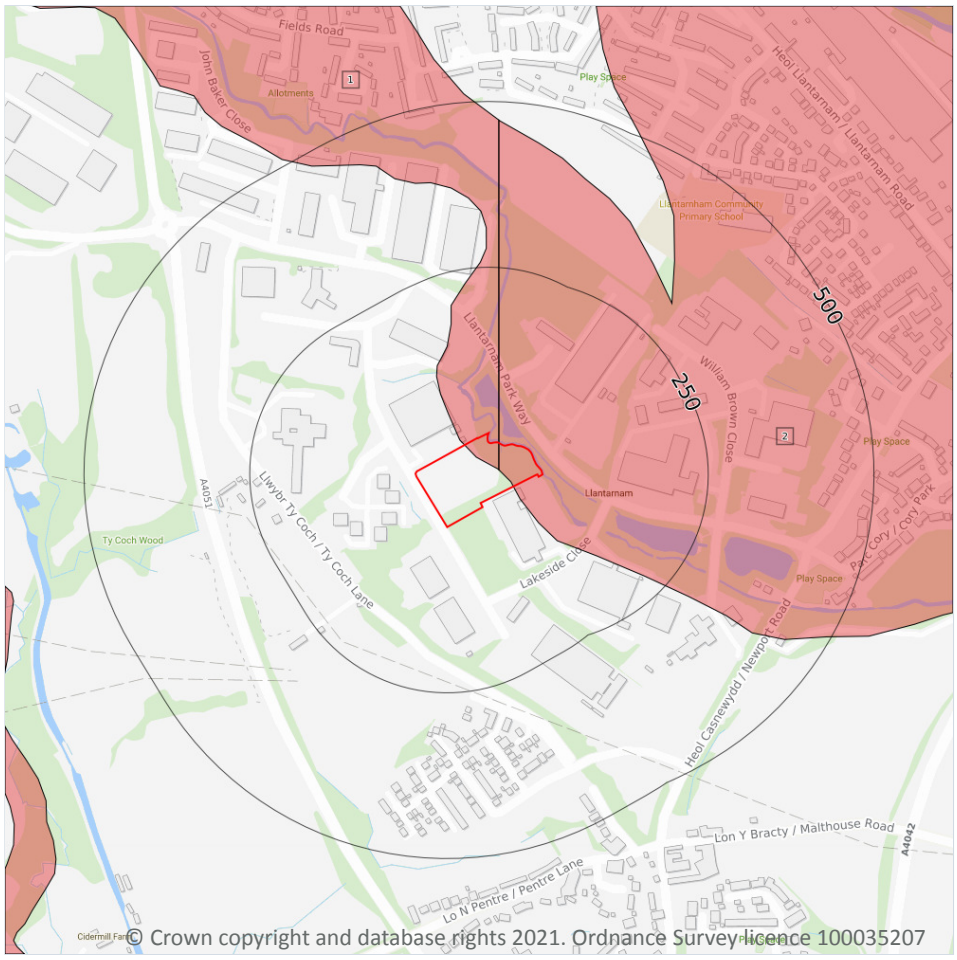
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	2

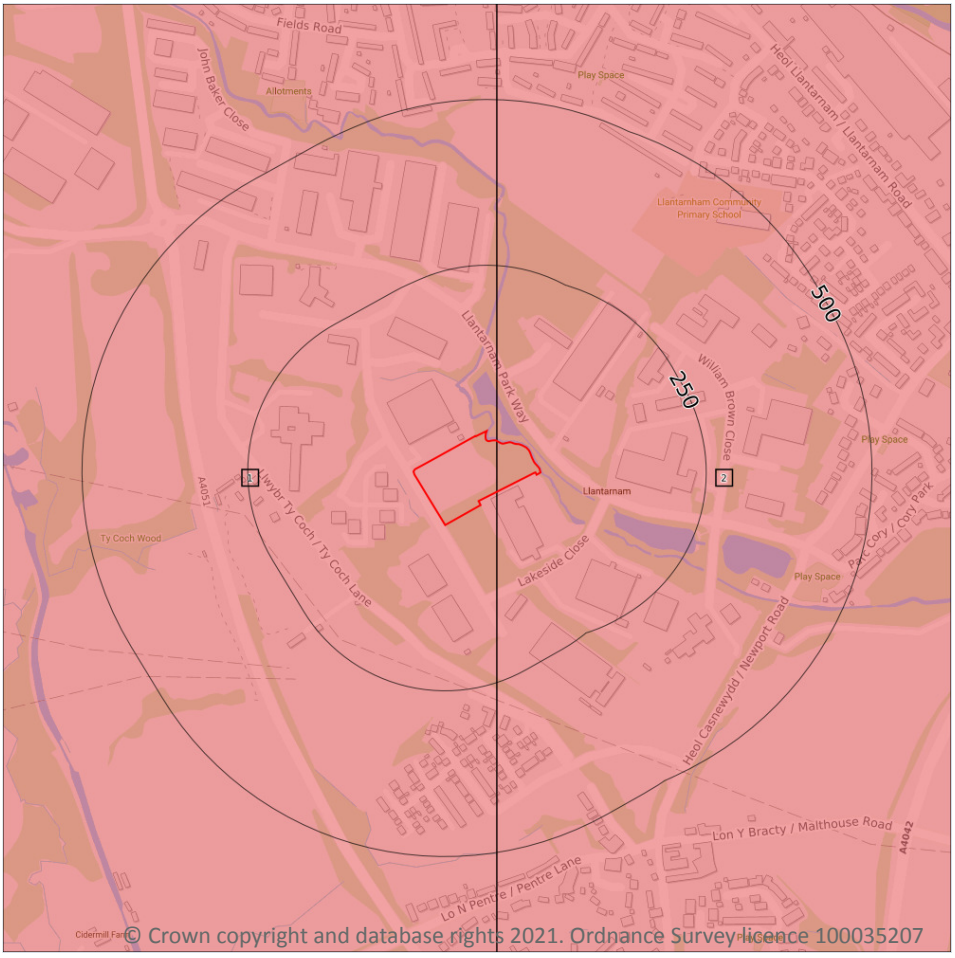
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 35**

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	2

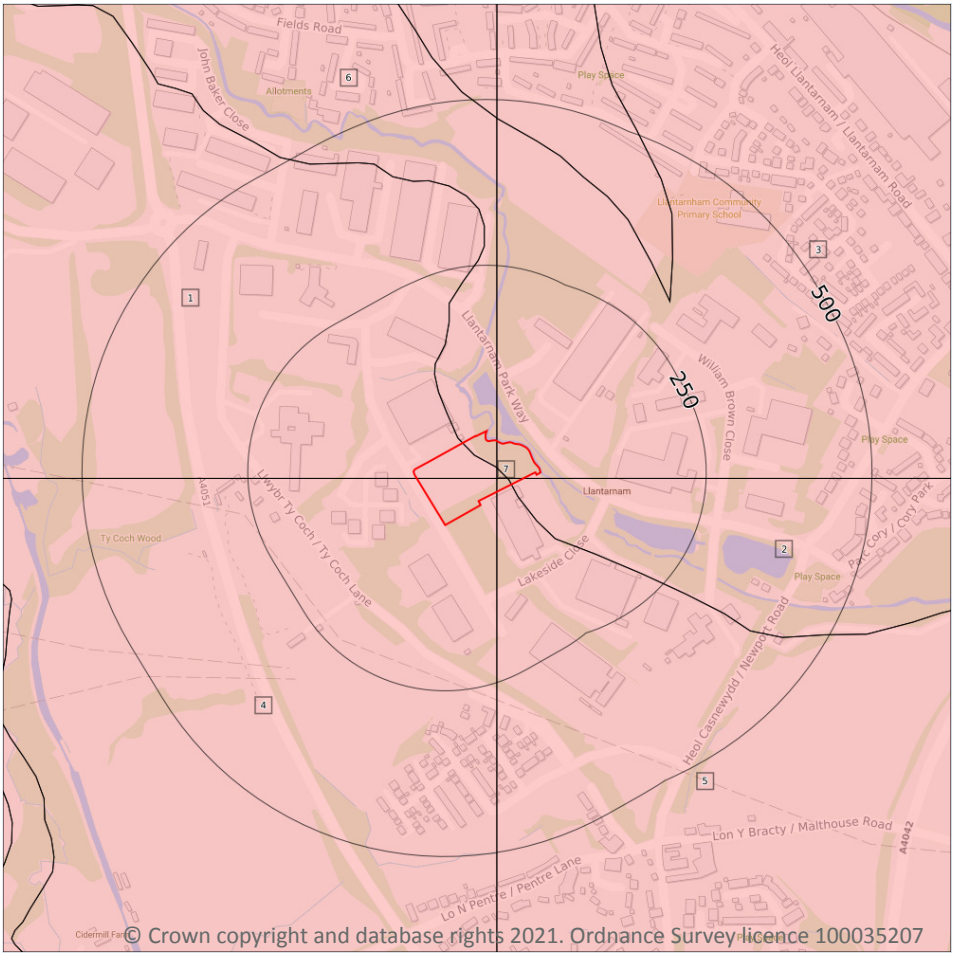
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 37**

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	7

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 39**

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

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

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

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

5.5 Groundwater vulnerability- local information

Records on site	0

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

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

Abstractions and Source Protection Zones

Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	0

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

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

5.7 Surface water abstractions

Records within 2000m	7

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

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

ID	Location	Details	
-	762m W	Status: Active Licence No: 20/56/12/0083 Details: Unknown (Impounding) - Direct Source: - Point: - Data Type: Point Name: - Easting: 329150 Northing: 193250	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 2001-05-01 00:00:00.0000000 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1169m N	Status: Historical Licence No: 20/56/12/0064 Details: Lake & Pond Throughflow Direct Source: EAW Surface Water Point: INTAKE FROM CWMBRAN BROOK TO BOATING LAKE Data Type: Point Name: Torfaen County Borough Council Easting: 330172 Northing: 194226	Annual Volume (m^3): 227300 Max Daily Volume (m^3): 1363.8 Original Application No: - Original Start Date: 11/12/1972 Expiry Date: - Issue No: 100 Version Start Date: 12/03/2008 Version End Date: -
-	1169m N	Status: Active Licence No: 20/56/12/0064 Details: Lake & Pond Throughflow - Very Low Direct Source: - Point: - Data Type: Point Name: - Easting: 330172 Northing: 194226	Annual Volume (m^3): 227,300 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 2008-03-12 00:00:00.0000000 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1654m SW	Status: Historical Licence No: 20/56/11/0003 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: STREAM AT TY GWYN NURSERIES Data Type: Point Name: Jones Easting: 328814 Northing: 191701	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1982 Version End Date: -

ID	Location	Details	
-	1723m SW	Status: Historical Licence No: 20/56/11/0003 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: STREAM AT TY GWYN NURSERIES Data Type: Point Name: Jones Easting: 328559 Northing: 191875	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1982 Version End Date: -
-	1902m E	Status: Historical Licence No: 20/56/12/0060 Details: Effluent/Slurry Dilution Direct Source: EAW Surface Water Point: AFON LWYD (SEWAGE WORKS) Data Type: Point Name: Dwr Cymru Cyfyngedig Easting: 331960 Northing: 192830	Annual Volume (m^3): 237900 Max Daily Volume (m^3): 650 Original Application No: - Original Start Date: 02/11/1970 Expiry Date: - Issue No: 100 Version Start Date: 12/03/2008 Version End Date: -
-	1902m E	Status: Active Licence No: 20/56/12/0060 Details: Effluent / Slurry Dilution - Very Low Direct Source: - Point: - Data Type: Point Name: - Easting: 331960 Northing: 192830	Annual Volume (m^3): 237,900 Max Daily Volume (m^3): 864 Original Application No: - Original Start Date: 2008-03-12 00:00:00.0000000 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0

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

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

5.9 Source Protection Zones

Records within 500m	0

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

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

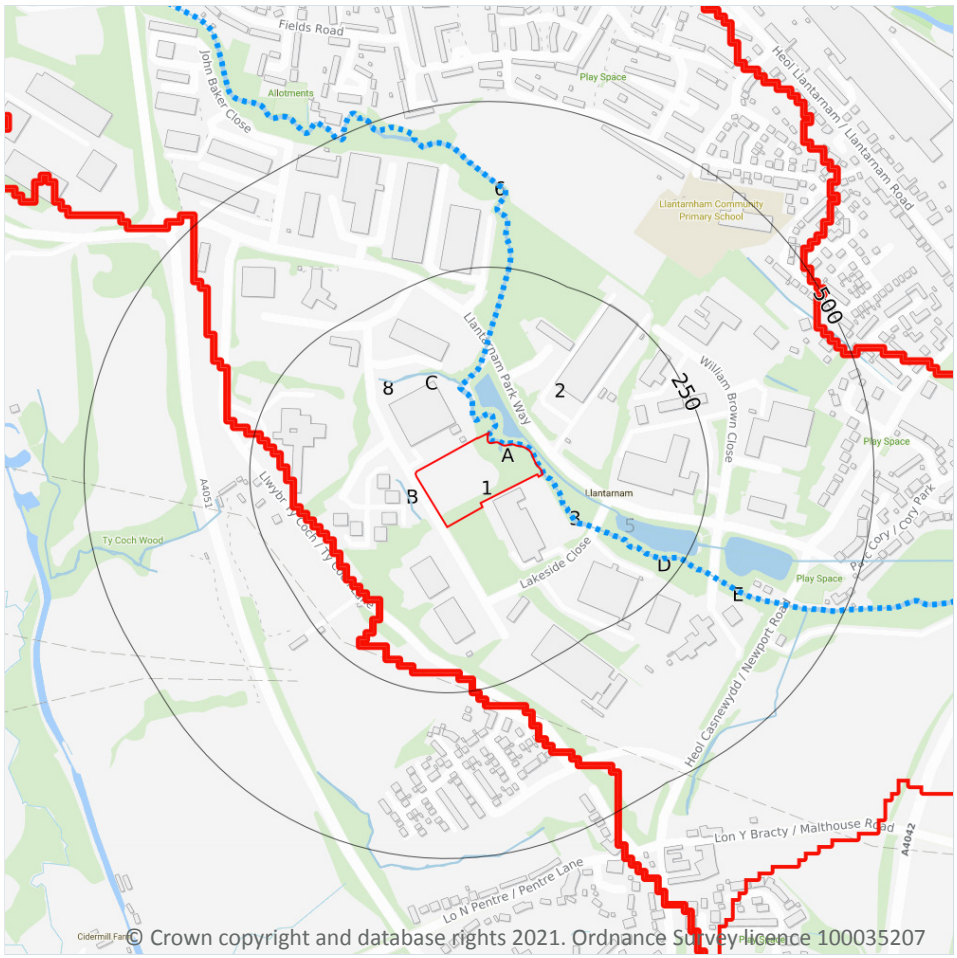
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	14

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

Features are displayed on the Hydrology map on **page 46**

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

ID	Location	Type of water feature	Ground level	Permanence	Name
3	1m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dowlais Brook
A	1m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dowlais Brook
5	7m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	14m N	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	24m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	26m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	26m W	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	26m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	83m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dowlais Brook
C	83m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	146m NW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	207m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Dowlais Brook
E	212m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dowlais Brook

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	9

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

Features are displayed on the Hydrology map on **page 46**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River WB catchment**	**Dowlais Bk - source to conf Afon Lwyd**	**GB109056026790**	**Llwyd**	**Usk**

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

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	2m NE	River	Dowlais Bk - source to conf Afon Lwyd	GB109056026790	Moderate	Good	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	**1**

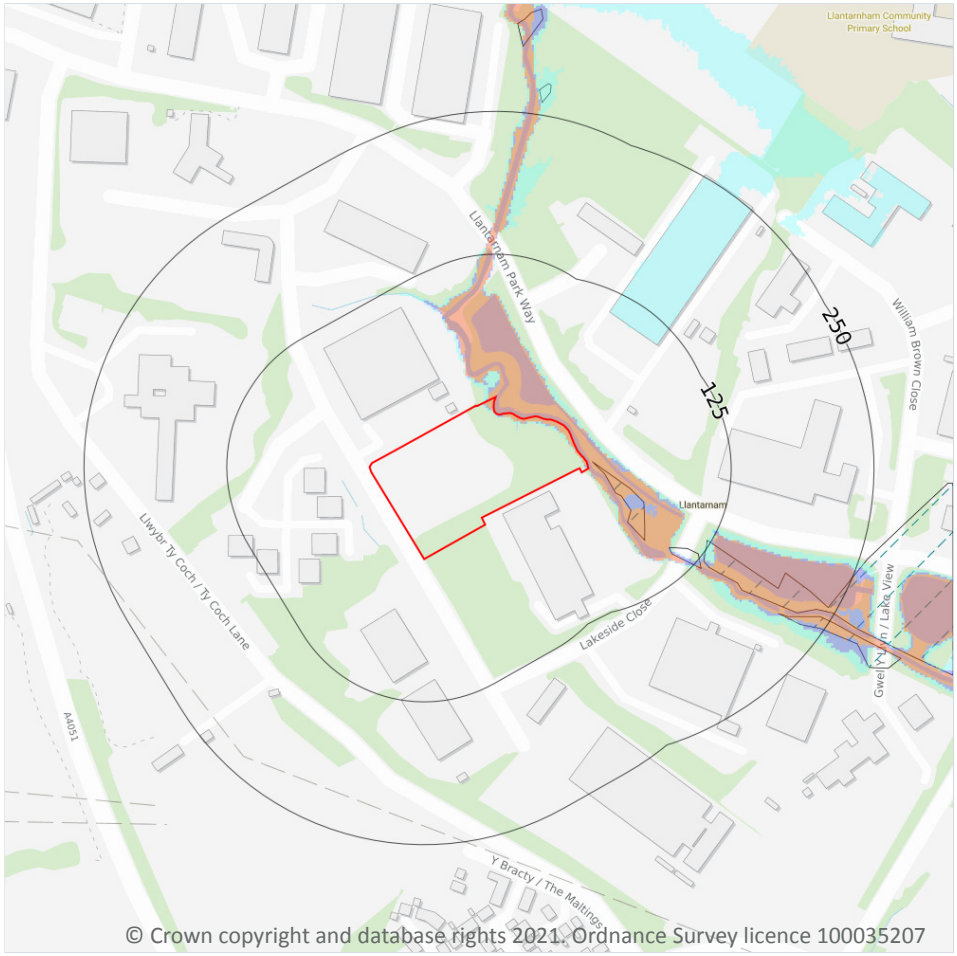
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**SE Valleys Eastern Devonian Old Red Sandstone**	**GB40902G204700**	**Good**	**Good**	**Good**	**2016**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

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

7.1 Risk of flooding from rivers and the sea

Records within 50m	111

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

Features are displayed on the River and coastal flooding map on **page 50**

Distance	Flood risk category
On site	**High**
0 - 50m	High

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

7.2 Historical Flood Events

Records within 250m	**4**

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

Features are displayed on the River and coastal flooding map on **page 50**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
A	5m E	Llantarnam December 1979 04	1979-12-27 1979-12-27	Main river	Channel capacity exceeded (no raised defences)	Fluvial
A	99m SE	Llantarnam December 1979 04	1979-12-27 1979-12-27	Main river	Channel capacity exceeded (no raised defences)	Fluvial
A	122m SE	Llantarnam December 1979 04	1979-12-27 1979-12-27	Main river	Channel capacity exceeded (no raised defences)	Fluvial
A	210m SE	Llantarnam December 1979 04	1979-12-27 1979-12-27	Main river	Channel capacity exceeded (no raised defences)	Fluvial

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

7.3 Flood Defences

Records within 250m	**0**

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 50**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

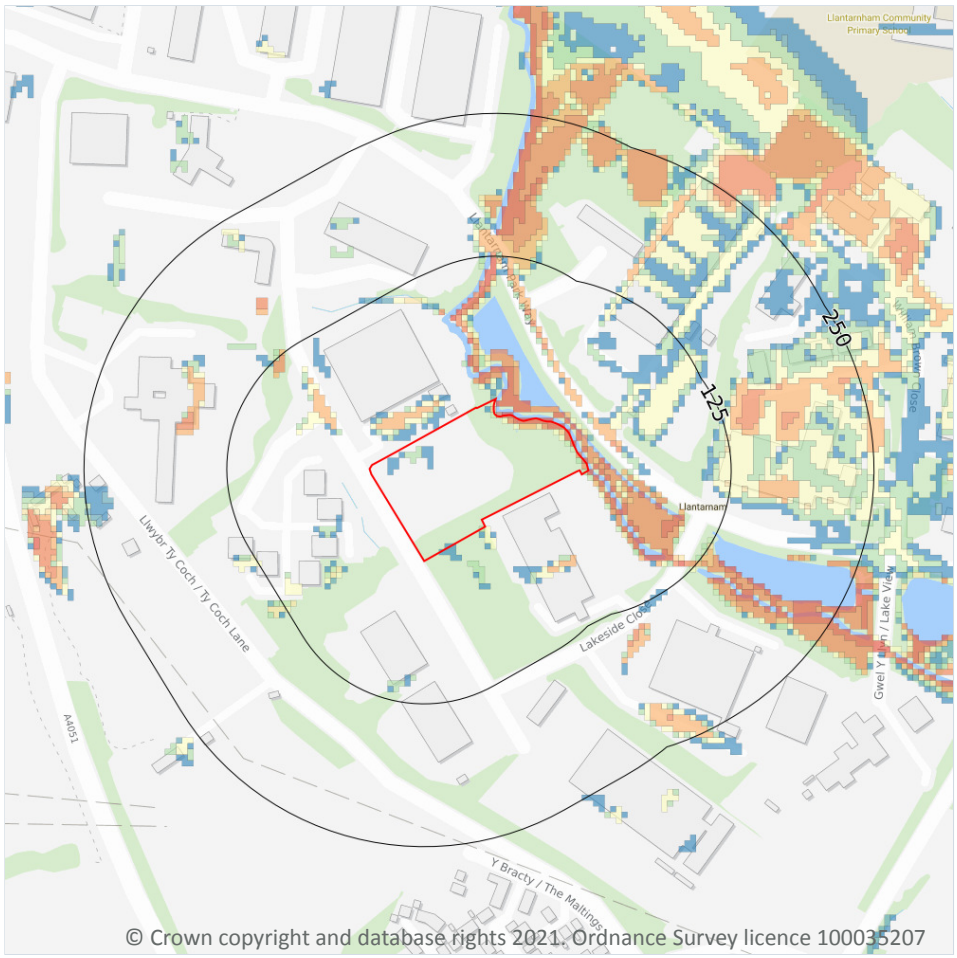
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 50**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

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

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, Greater than 1.0m**
Highest risk within 50m	**1 in 30 year, Greater than 1.0m**

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

Features are displayed on the Surface water flooding map on **page 55**

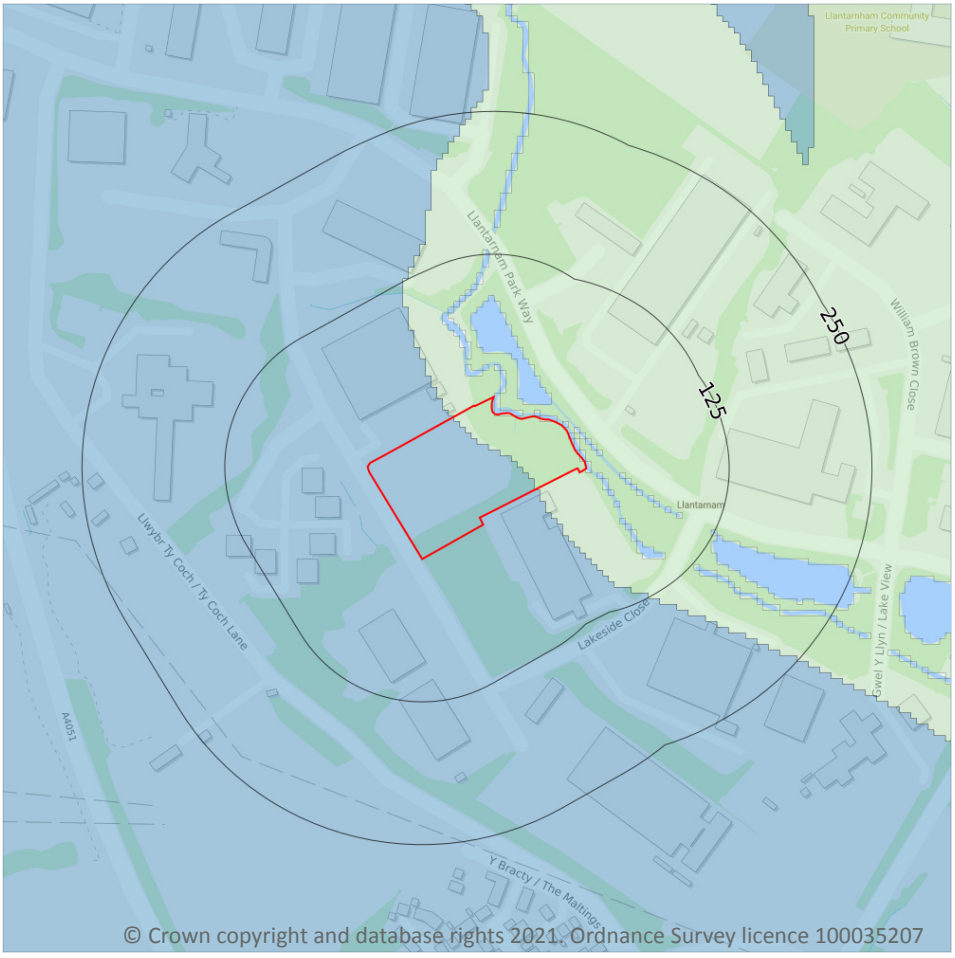
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on

a site. The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Greater than 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

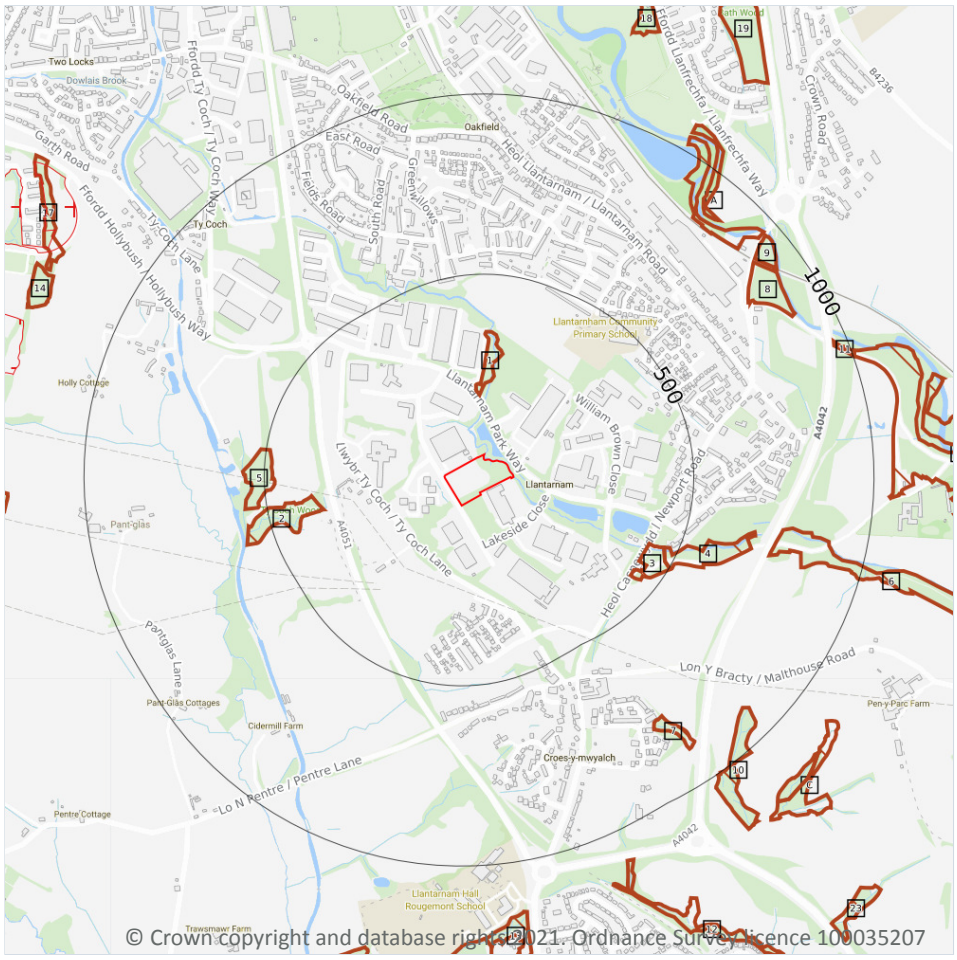
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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

Features are displayed on the Groundwater flooding map on **page 57**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	1

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

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Data source
16	1220m W	LLWYN CELYN	Natural Resources Wales

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

10.7 Designated Ancient Woodland

Records within 2000m	51

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Woodland Type
1	166m N	Unknown	Ancient Semi Natural Woodland
2	347m W	Unknown	Ancient Semi Natural Woodland
3	419m SE	Unknown	Restored Ancient Woodland Site
4	461m SE	Unknown	Ancient Semi Natural Woodland
5	471m W	Unknown	Ancient Semi Natural Woodland
6	742m E	Unknown	Ancient Semi Natural Woodland
7	780m SE	Unknown	Ancient Semi Natural Woodland
8	807m NE	Unknown	Restored Ancient Woodland Site
A	854m NE	Unknown	Ancient Semi Natural Woodland
A	886m NE	Unknown	Ancient Semi Natural Woodland
9	894m NE	Unknown	Restored Ancient Woodland Site

ID	Location	Name	Woodland Type
10	902m SE	Unknown	Ancient Semi Natural Woodland
11	960m E	Unknown	Ancient Woodland Site of Unknown Category
B	1002m E	Unknown	Restored Ancient Woodland Site
12	1087m SE	Unknown	Ancient Semi Natural Woodland
C	1101m SE	Unknown	Ancient Semi Natural Woodland
C	1136m SE	Unknown	Ancient Semi Natural Woodland
13	1139m S	Unknown	Restored Ancient Woodland Site
B	1143m E	Unknown	Restored Ancient Woodland Site
14	1203m NW	Unknown	Ancient Semi Natural Woodland
D	1203m S	Unknown	Restored Ancient Woodland Site
15	1212m W	Unknown	Ancient Semi Natural Woodland
-	1225m W	Unknown	Ancient Semi Natural Woodland
17	1225m NW	Unknown	Ancient Semi Natural Woodland
18	1242m N	Unknown	Ancient Semi Natural Woodland
19	1248m NE	Unknown	Ancient Semi Natural Woodland
20	1254m S	Unknown	Ancient Semi Natural Woodland
-	1277m W	Unknown	Ancient Semi Natural Woodland
-	1310m S	Unknown	Ancient Semi Natural Woodland
-	1346m S	Unknown	Restored Ancient Woodland Site
-	1413m E	Unknown	Restored Ancient Woodland Site
-	1456m E	Unknown	Restored Ancient Woodland Site
-	1484m E	Unknown	Ancient Semi Natural Woodland
23	1492m SE	Unknown	Ancient Semi Natural Woodland
-	1513m NE	Unknown	Ancient Semi Natural Woodland
-	1594m NE	Unknown	Ancient Semi Natural Woodland
-	1643m S	Unknown	Ancient Semi Natural Woodland
-	1645m SW	Unknown	Ancient Semi Natural Woodland
-	1653m W	Unknown	Ancient Semi Natural Woodland

ID	Location	Name	Woodland Type
-	1682m N	Unknown	Ancient Semi Natural Woodland
-	1700m W	Unknown	Ancient Semi Natural Woodland
-	1724m NW	Unknown	Ancient Semi Natural Woodland
-	1740m N	Unknown	Ancient Semi Natural Woodland
-	1800m E	Unknown	Ancient Semi Natural Woodland
-	1820m N	Unknown	Ancient Semi Natural Woodland
-	1861m SE	Unknown	Ancient Semi Natural Woodland
-	1870m SE	Unknown	Ancient Semi Natural Woodland
-	1897m N	Unknown	Ancient Semi Natural Woodland
-	1908m NE	Unknown	Restored Ancient Woodland Site
-	1968m E	Unknown	Restored Ancient Woodland Site
-	1971m NE	Unknown	Restored Ancient Woodland Site

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0

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

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

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

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

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

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

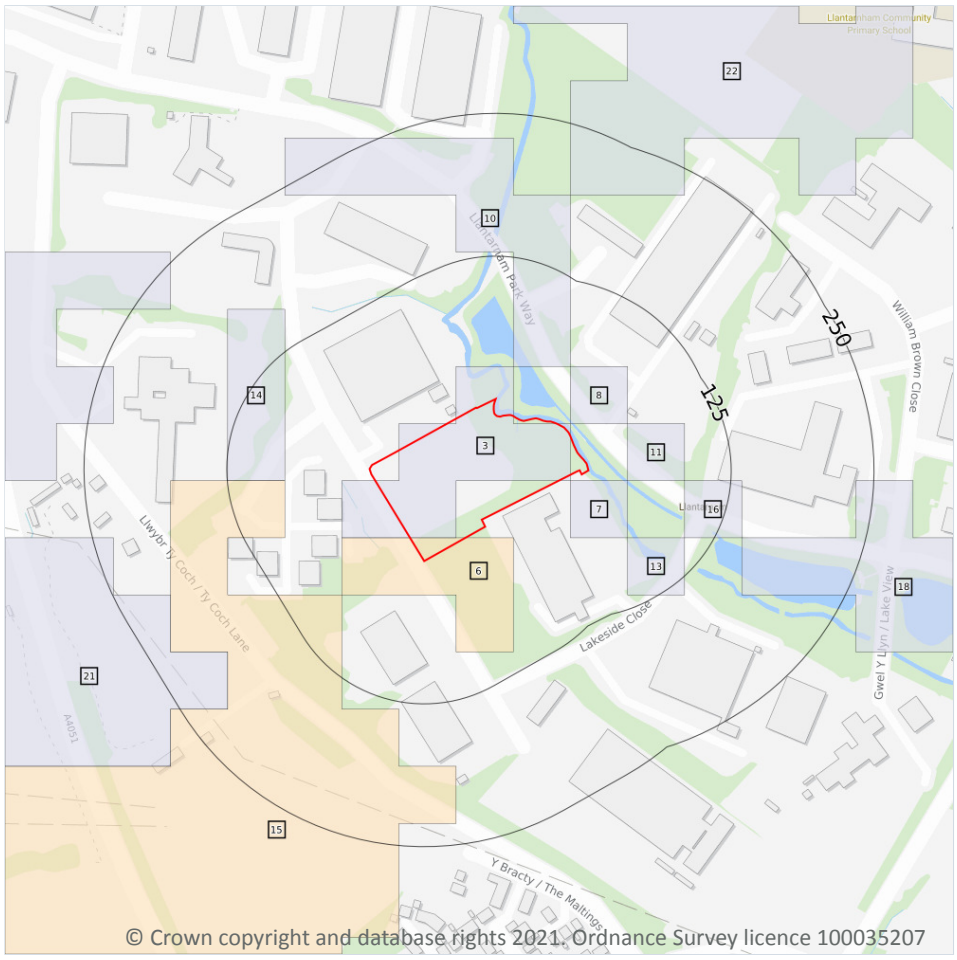
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

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

12.1 Agricultural Land Classification

Records within 250m	13

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

Features are displayed on the Agricultural designations map on **page 68**

ID	Location	Classification	Description
3	**On site**	**Grade 3b**	**Moderate quality agricultural land**
6	**On site**	**Grade 3a**	**Good to moderate quality agricultural land**
7	5m SE	Grade 3b	Moderate quality agricultural land

ID	Location	Classification	Description
8	7m NE	Grade 3b	Moderate quality agricultural land
10	32m NE	Grade 3b	Moderate quality agricultural land
11	34m E	Grade 3b	Moderate quality agricultural land
13	68m SE	Grade 3b	Moderate quality agricultural land
14	74m W	Grade 3b	Moderate quality agricultural land
15	75m W	Grade 3a	Good to moderate quality agricultural land
16	85m E	Grade 3b	Moderate quality agricultural land
18	147m SE	Grade 3b	Moderate quality agricultural land
21	188m SW	Grade 3b	Moderate quality agricultural land
22	190m N	Grade 3b	Moderate quality agricultural land

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

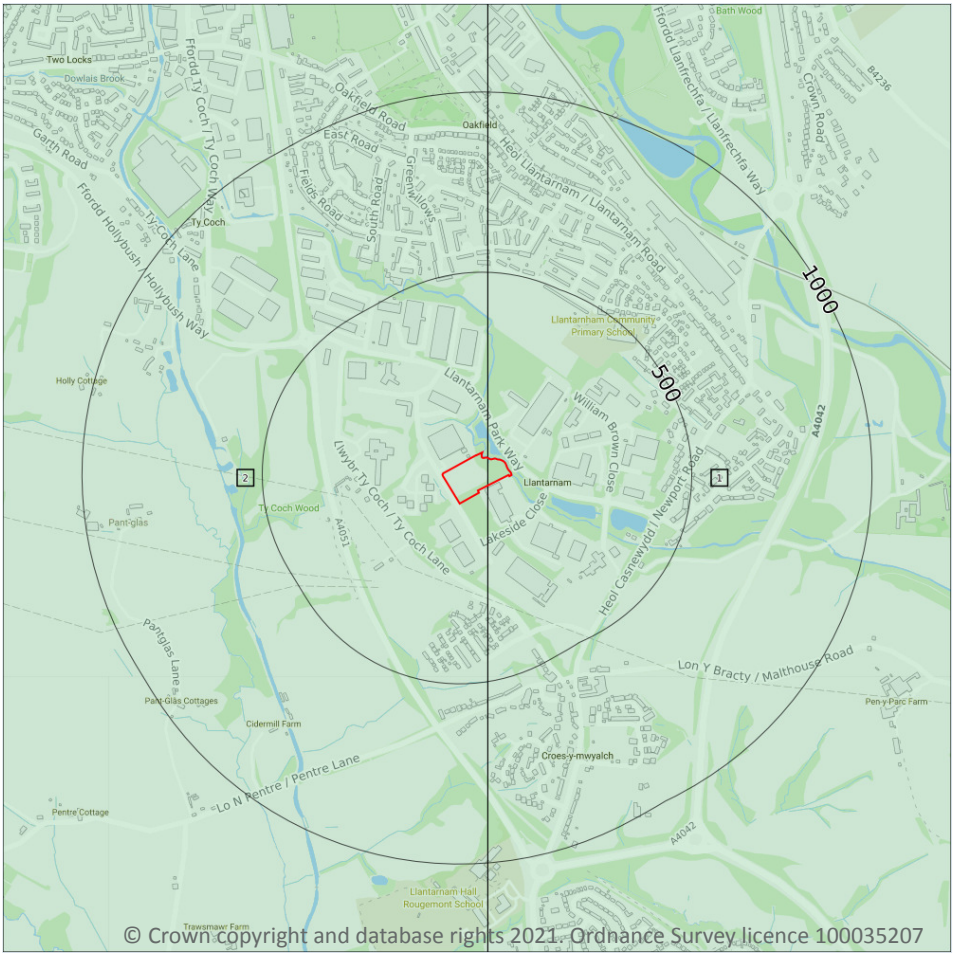
13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m	2

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 72**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**ST39SW**
2	**On site**	**No coverage**	**Full**	**Full**	**Full**	**ST29SE**

This data is sourced from the British Geological Survey.

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

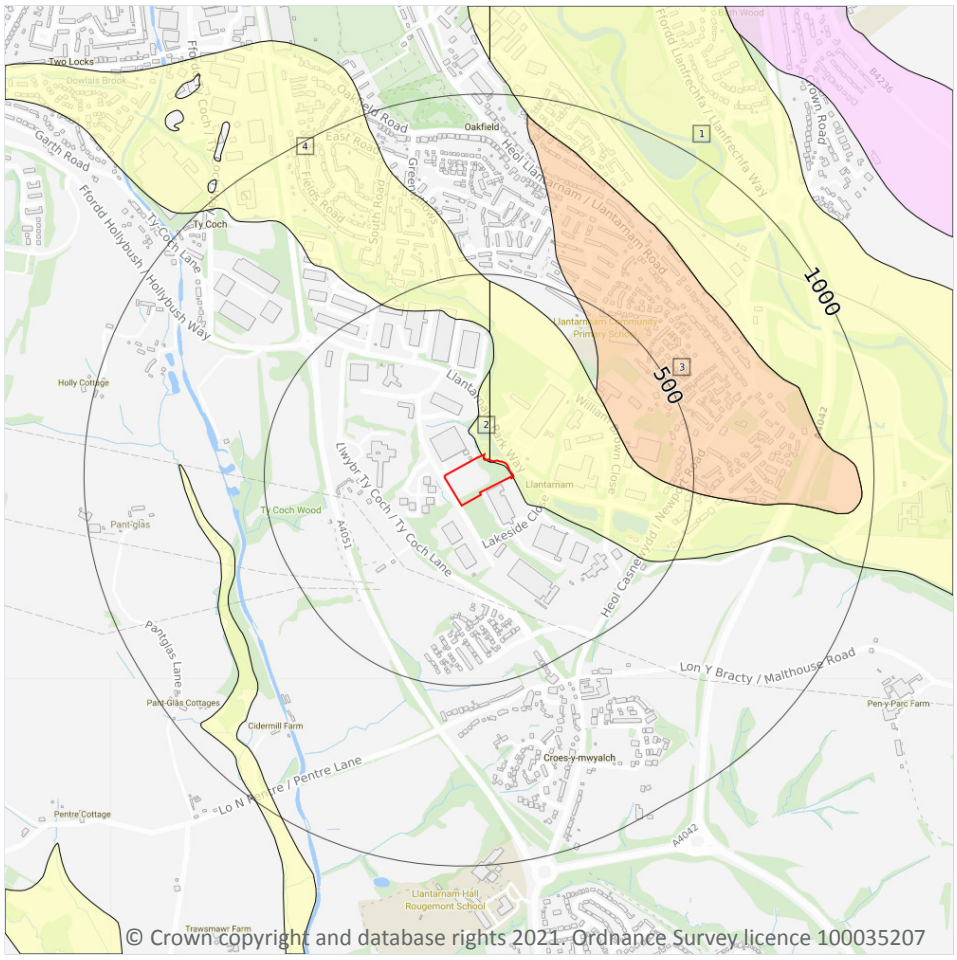
14.2 Artificial and made ground (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m	4

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 74**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSV**	**Alluvium - Clay, Silt, Sand And Gravel**	**Clay, Silt, Sand And Gravel**
2	**On site**	**ALV-XCZSV**	**Alluvium - Clay, Silt, Sand And Gravel**	**Clay, Silt, Sand And Gravel**
3	312m NE	RTDU-XSV	River Terrace Deposits (undifferentiated) - Sand And Gravel	Sand And Gravel
4	338m N	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

This data is sourced from the British Geological Survey.

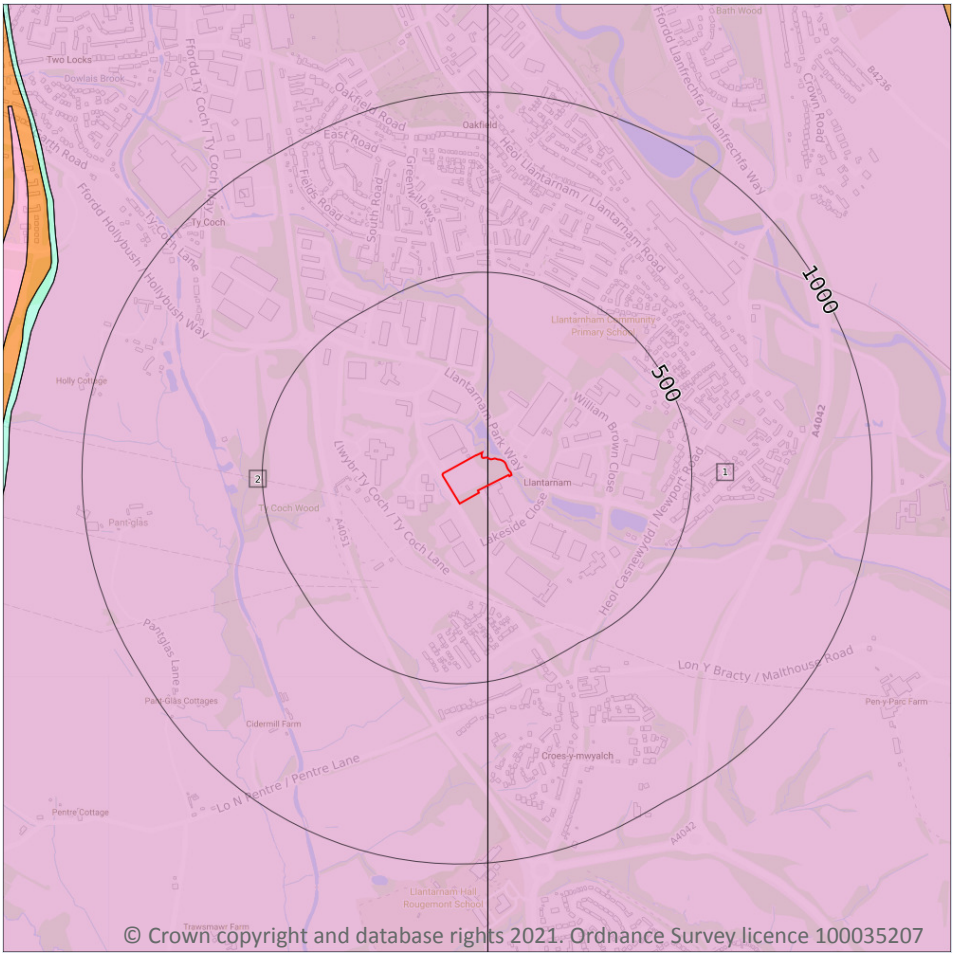
14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	2

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 76**

ID	Location	LEX Code	Description	Rock age
1	On site	RG-MDSA	Raglan Mudstone Formation - Interbedded Mudstone And Sandstone	Pridoli Epoch
2	On site	RG-MDSA	Raglan Mudstone Formation - Interbedded Mudstone And Sandstone	Pridoli Epoch

This data is sourced from the British Geological Survey.

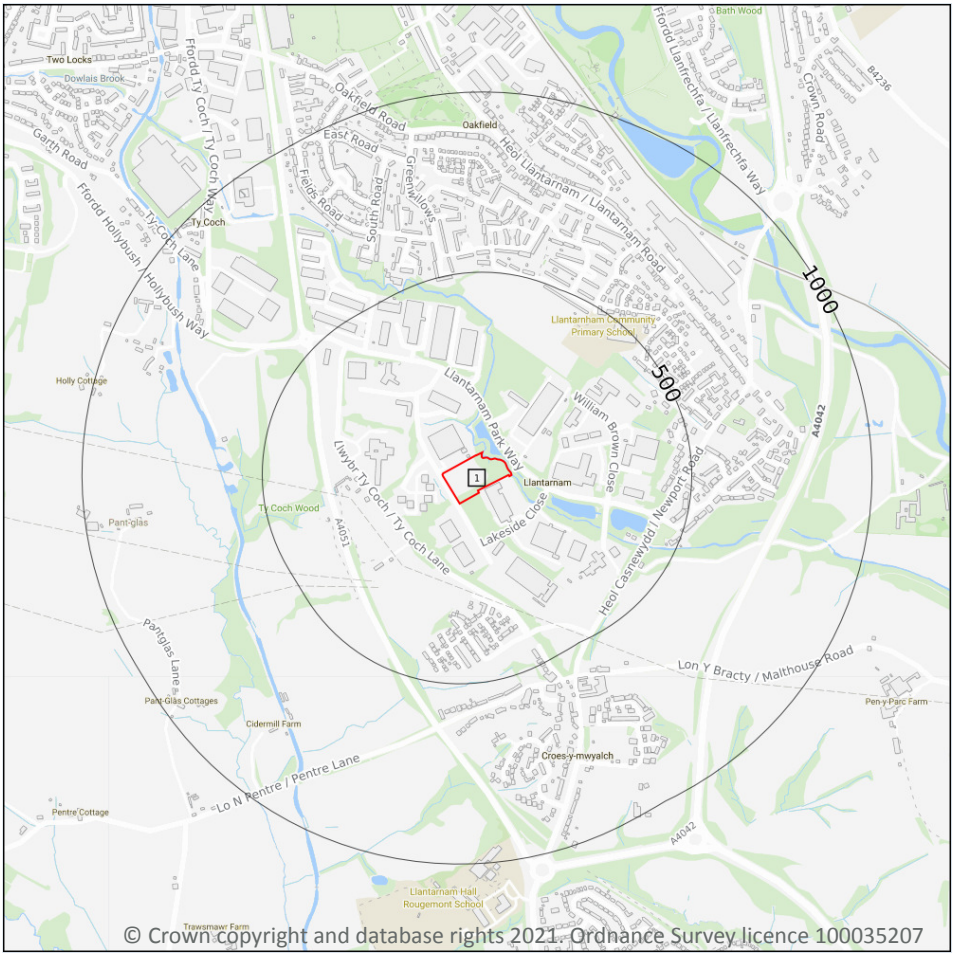
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 78**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW249_newport_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

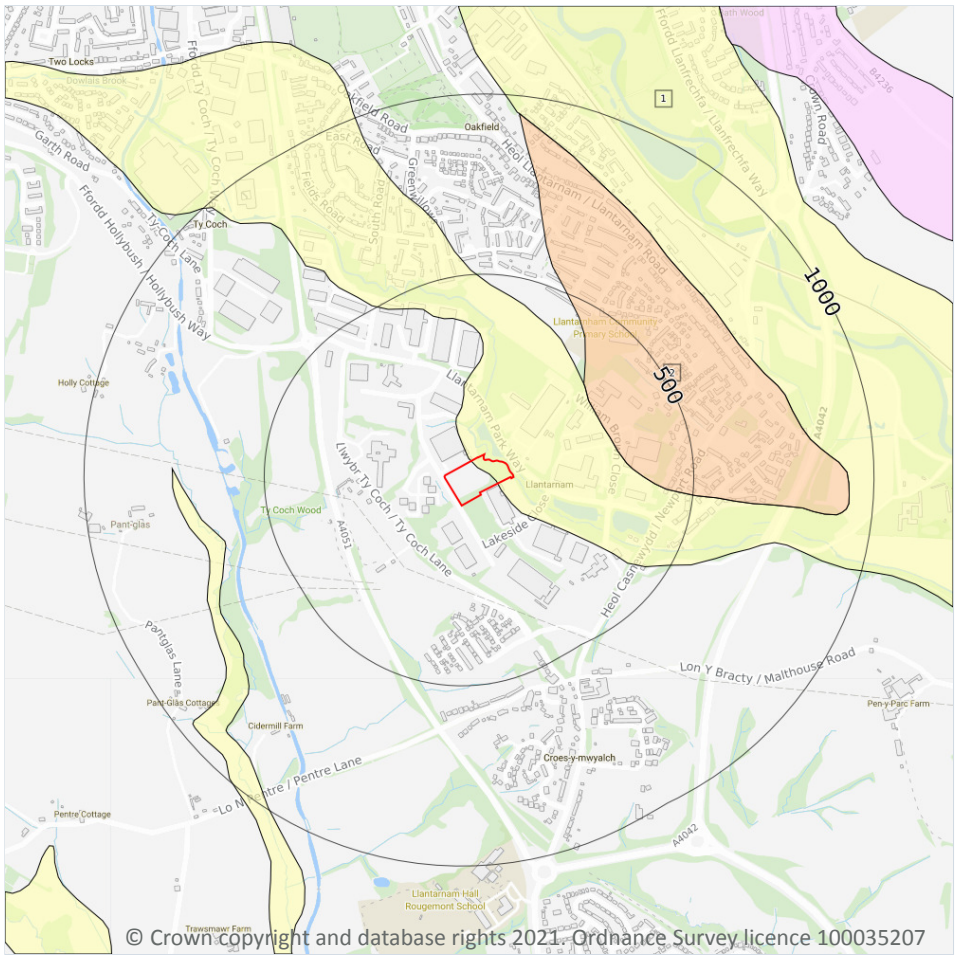
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m	2

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 80**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSV**	**ALLUVIUM**	**CLAY, SILT, SAND AND GRAVEL**
2	284m NE	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	2

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**High**	**Very Low**
On site	**Intergranular**	**High**	**Very Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

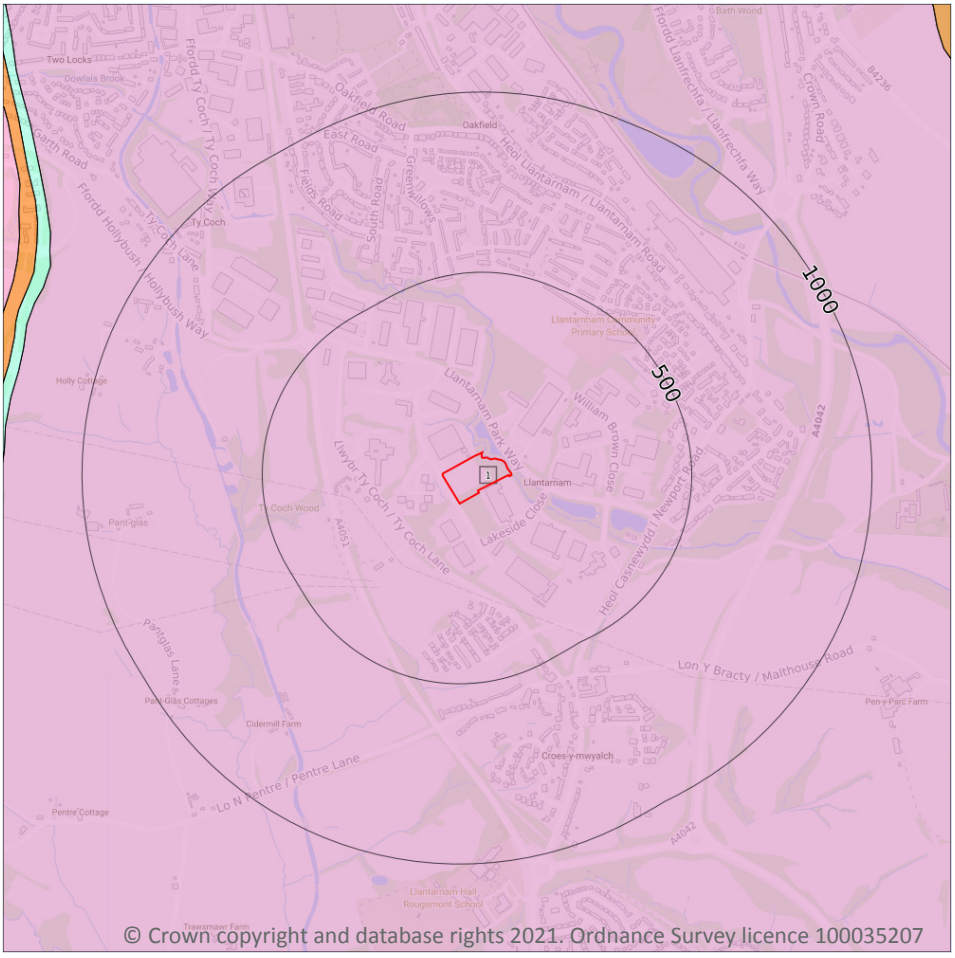
15.7 Landslip permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m	1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 82**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**RG-MDSA**	**RAGLAN MUDSTONE FORMATION - MUDSTONE AND SANDSTONE, INTERBEDDED**	**-**

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**
On site	**Fracture**	**Moderate**	**Low**

This data is sourced from the British Geological Survey.

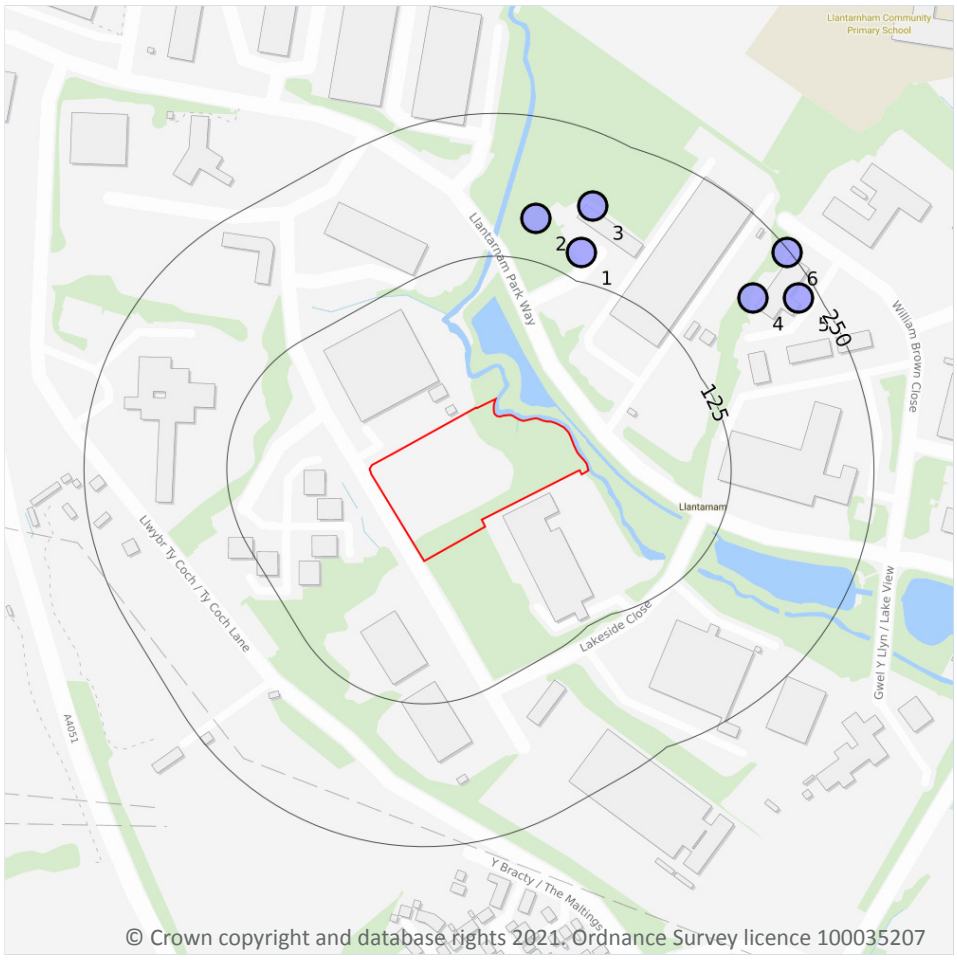
15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m **6**

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

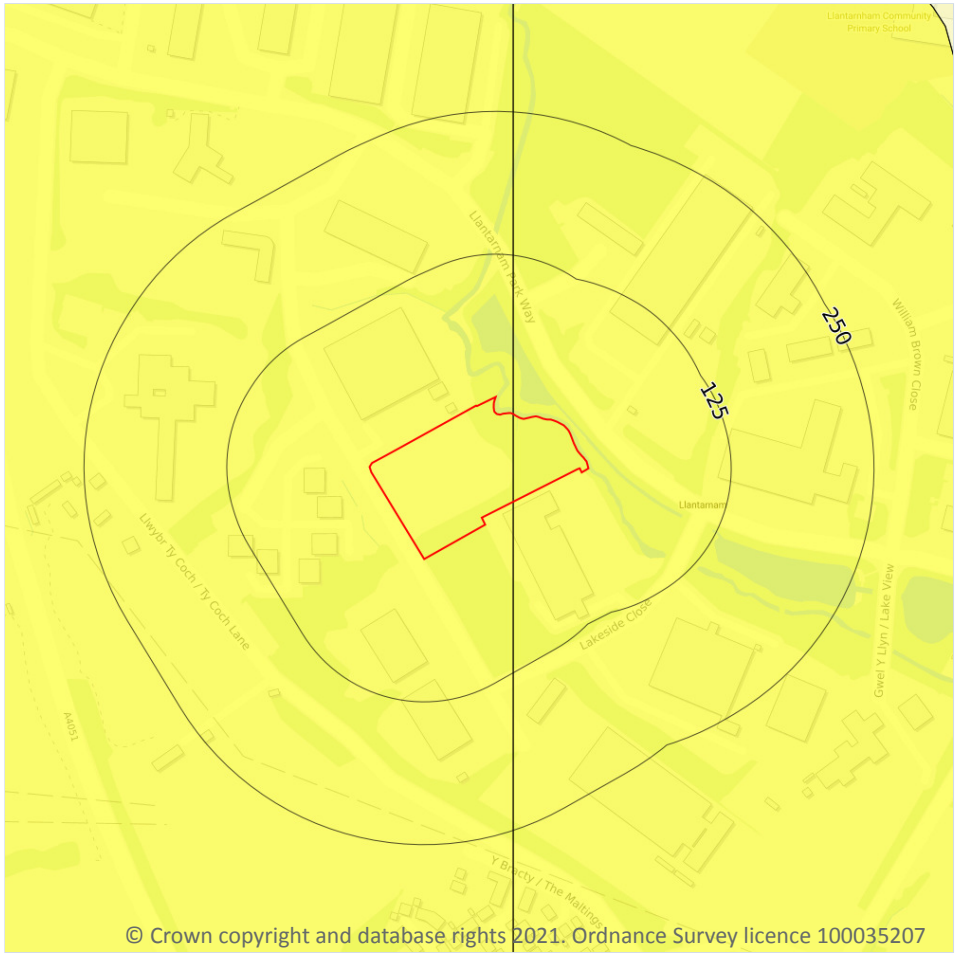
Features are displayed on the Boreholes map on **page 84**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	149m NE	330060 193200	LLANTARNAM 2	3.8	N	17702560
2	162m N	330020 193230	LLANTARNAM 1	4.0	N	17702558

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	189m NE	330070 193240	LLANTARNAM 3	4.6	N	17702561
4	200m NE	330210 193160	LLANTARNAM PARK HIGH TEC 3 TP 8A	2.5	N	17701985
5	234m NE	330250 193160	LLANTARNAM PARK HIGH TEC 3 TP 10A	2.8	N	17701989
6	248m NE	330240 193200	LLANTARNAM PARK HIGH TEC 3 TP 9A	2.8	N	17701987

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

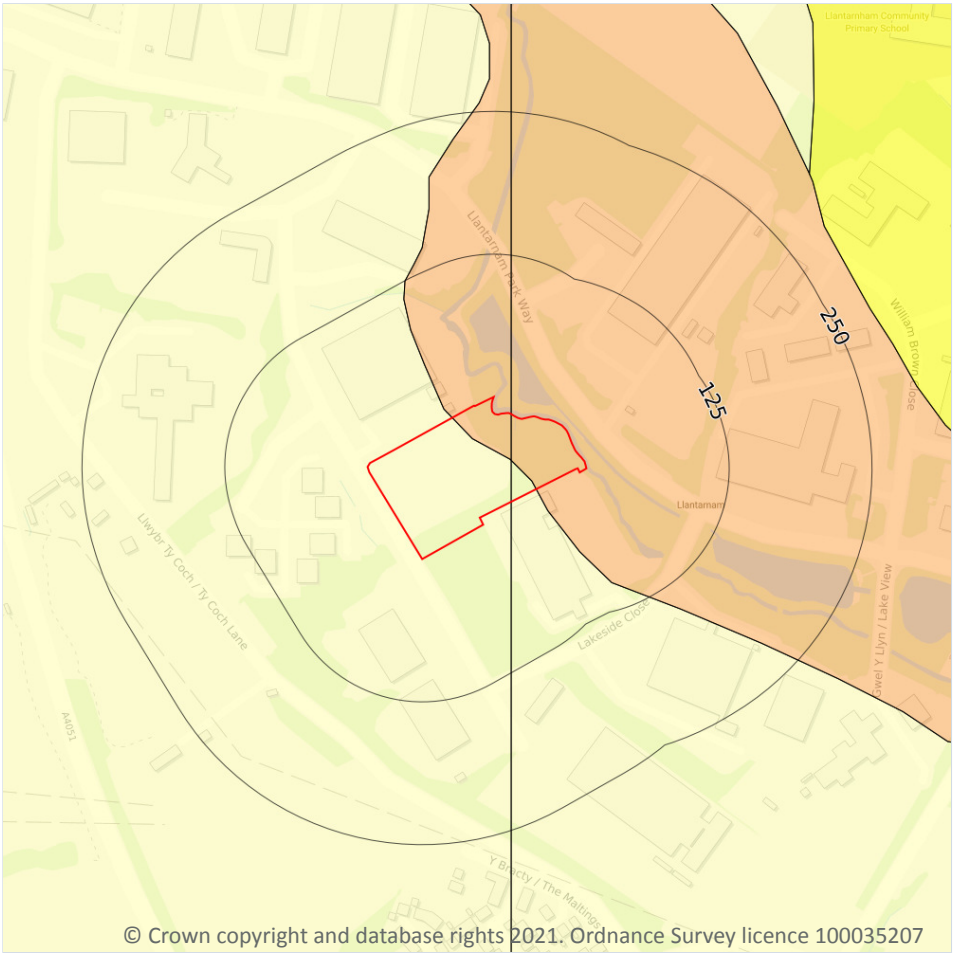
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 86**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



17.2 Running sands

Records within 50m	2

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

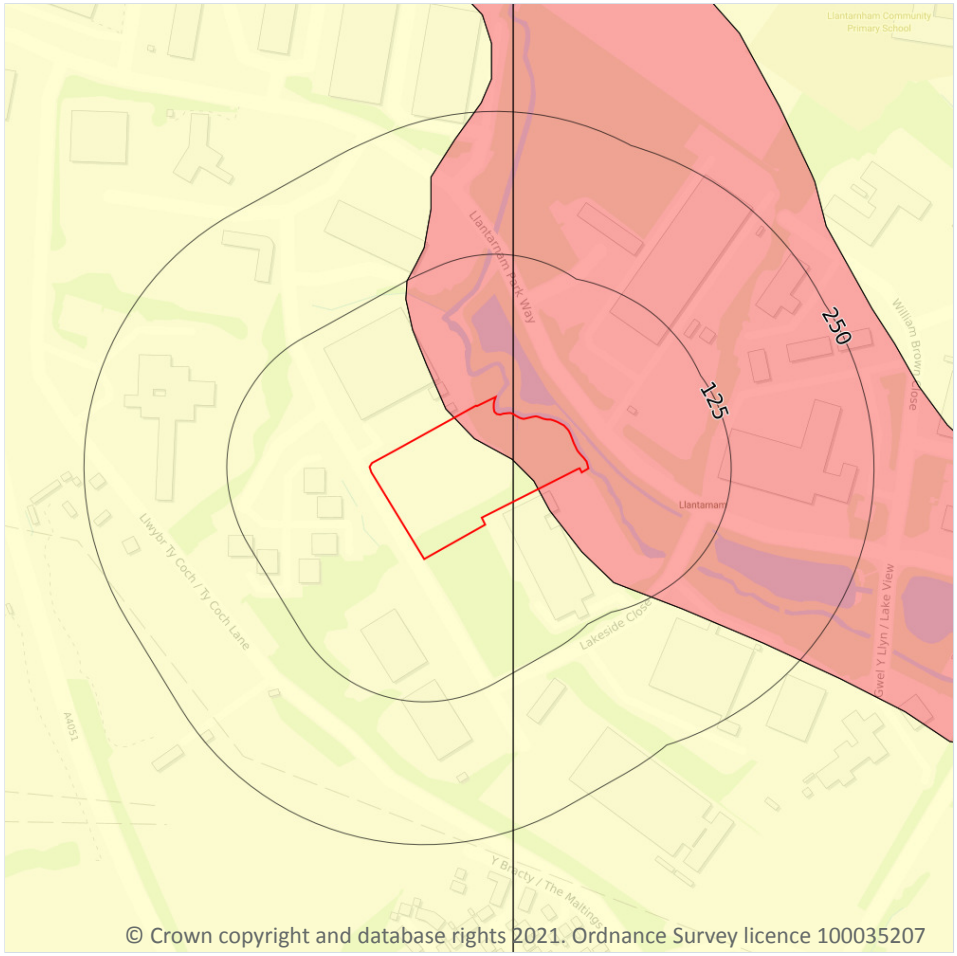
Features are displayed on the Natural ground subsidence - Running sands map on **page 87**

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

Location	Hazard rating	Details
On site	**Low**	**Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	2

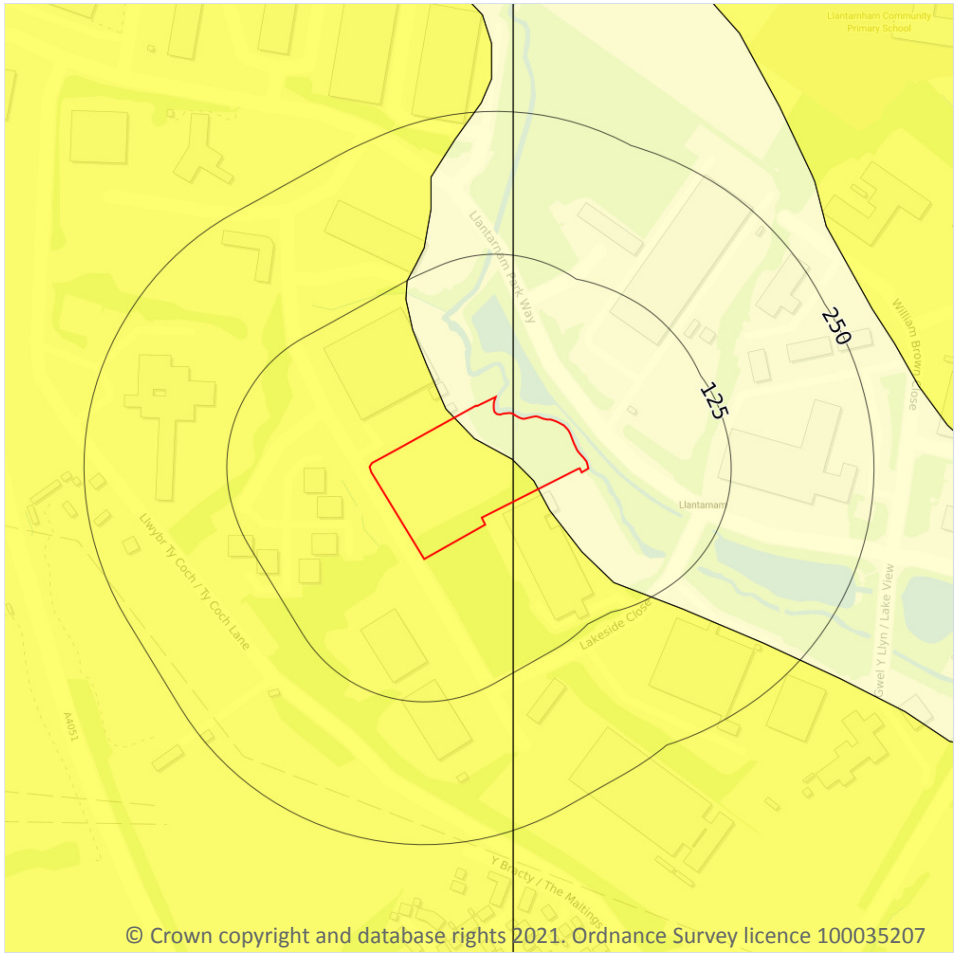
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 89**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	2

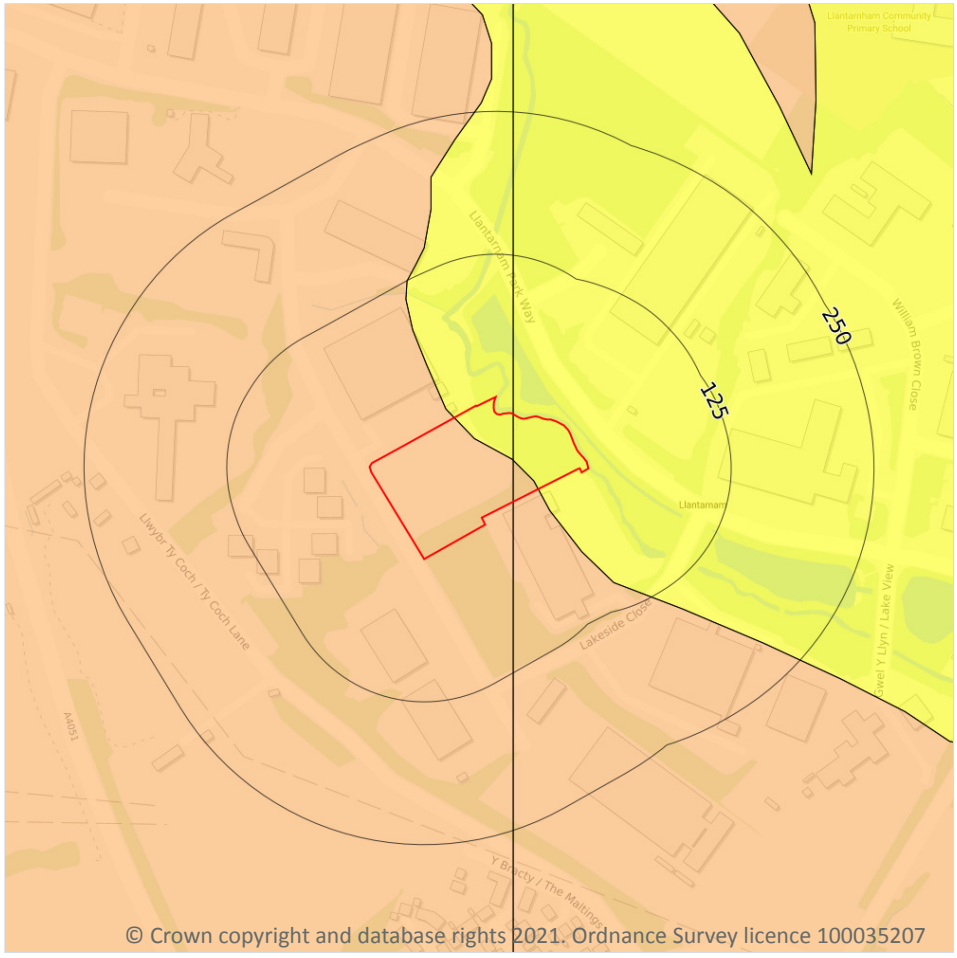
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 91**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	2

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 92**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks

Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

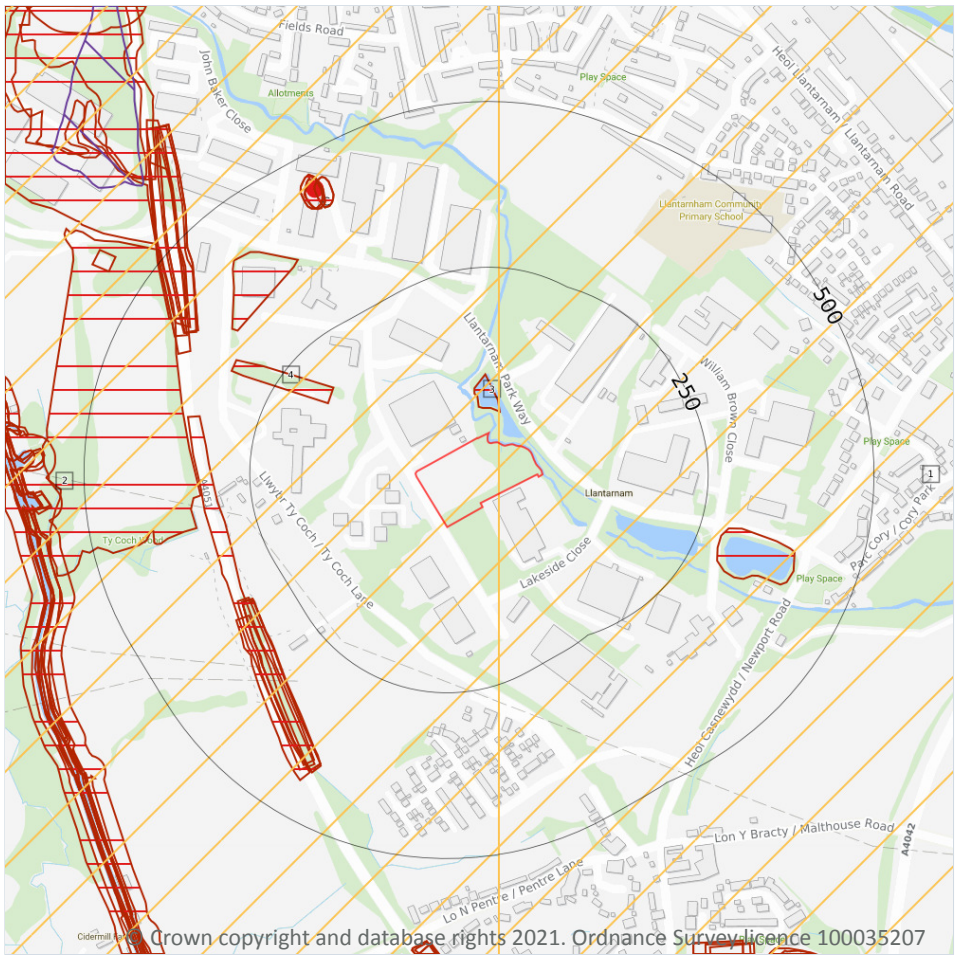
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 94**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on **page 96**

ID	Location	Details	Description
C	447m NW	Name: Ty-coch Farm Address: CWMBRAN, Gwent Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	2

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 96**

ID	Location	Land Use	Year of mapping	Mapping scale
3	36m N	Pond	1992	1:10000
4	169m NW	Unspecified Heap	1992	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	2

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining, ground workings and natural cavities map on **page 96**

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

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

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

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

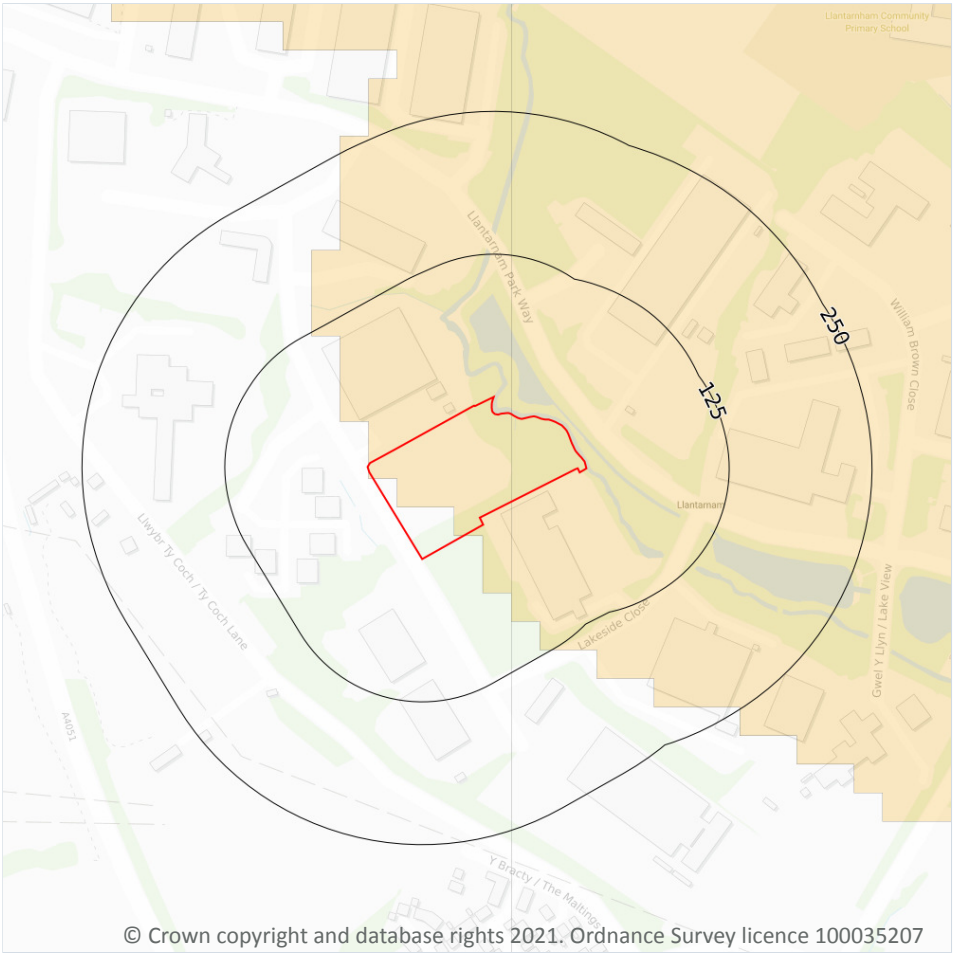
18.13 Clay mining

Records on site	0

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

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

19 Radon



Site Outline

Search buffers in metres (m)

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

19.1 Radon

Records on site	2

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 101**

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

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	**10**

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

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

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	**0**

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

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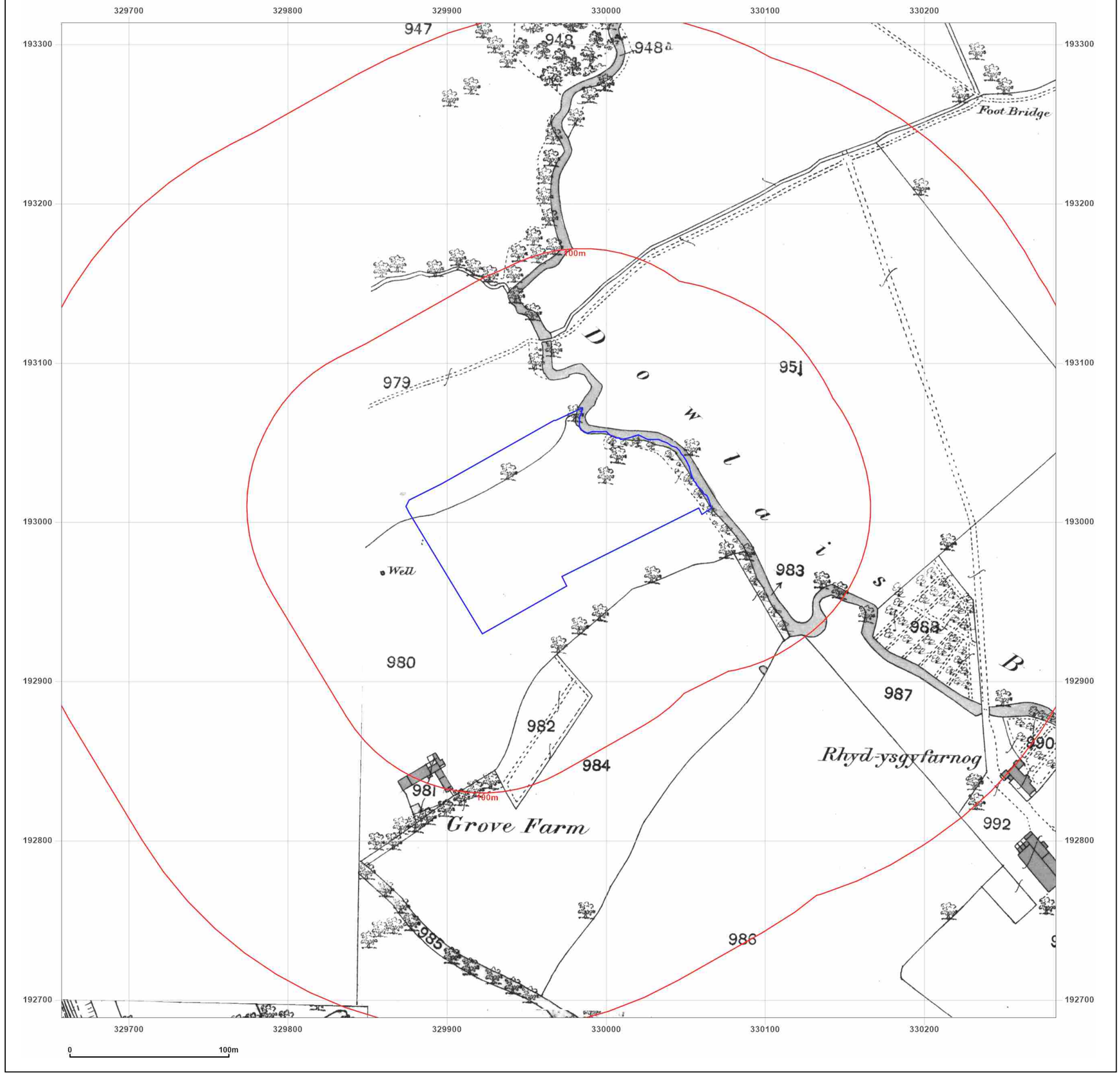
APPENDIX D – HISTORICAL DRAWINGS



Discovery
Geotechnical & Environmental Engineers

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193011.9561096507

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Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series
Map date: **1882**
Scale: 1:2,500
Printed at: 1:2,500

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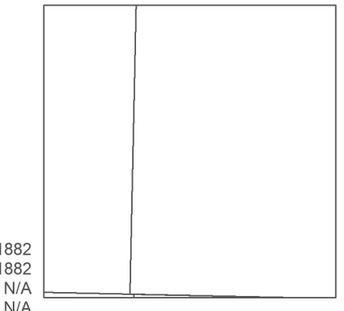
Surveyed 1882
Revised 1882
Edition N/A
Copyright N/A
Levelled N/A



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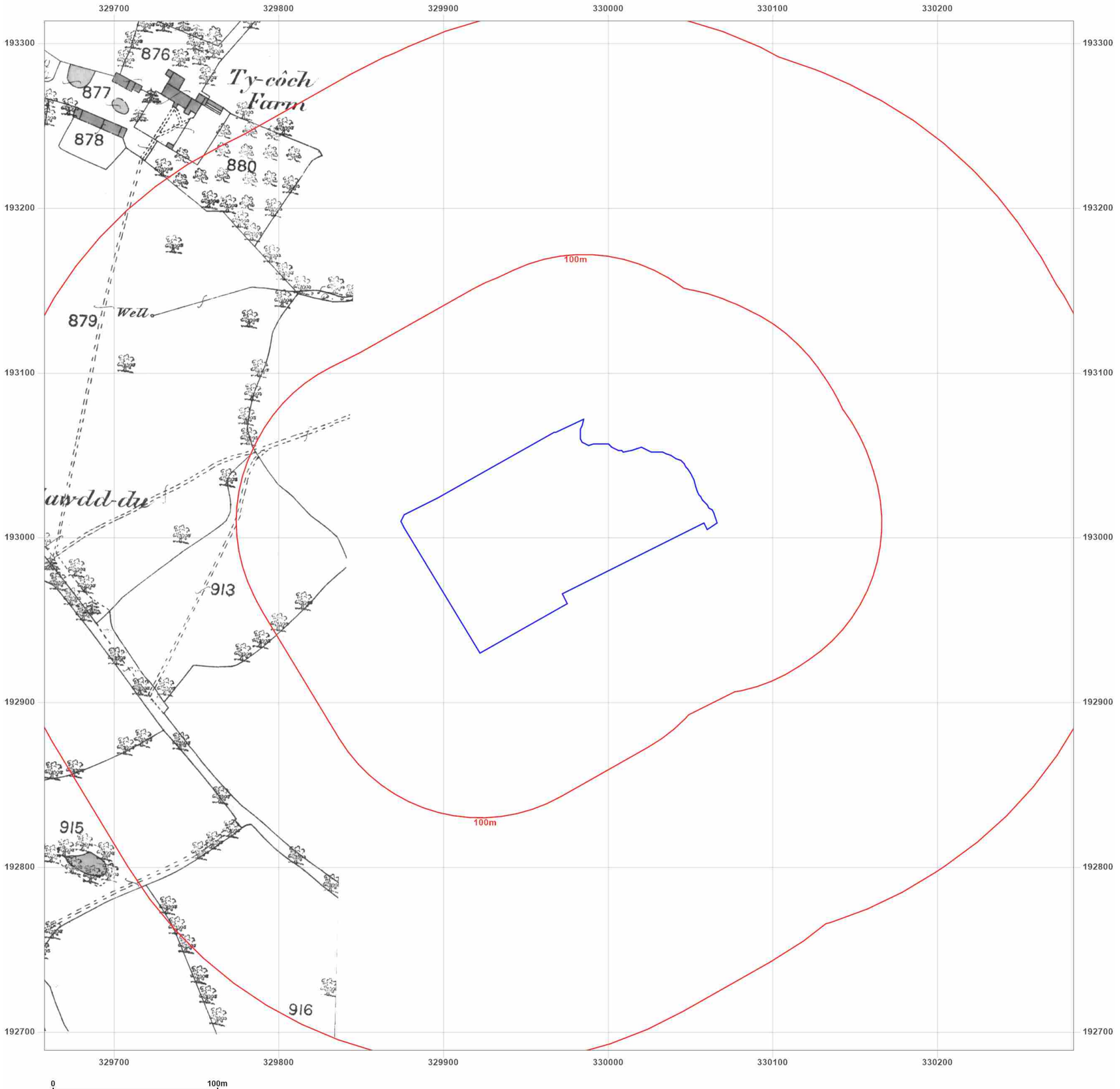

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Map date: **1882**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1882
Revised 1882
Edition N/A
Copyright N/A
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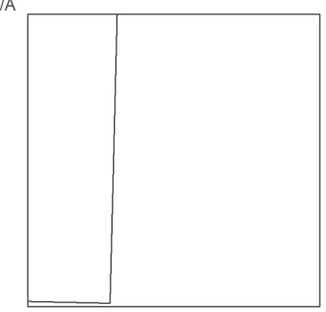

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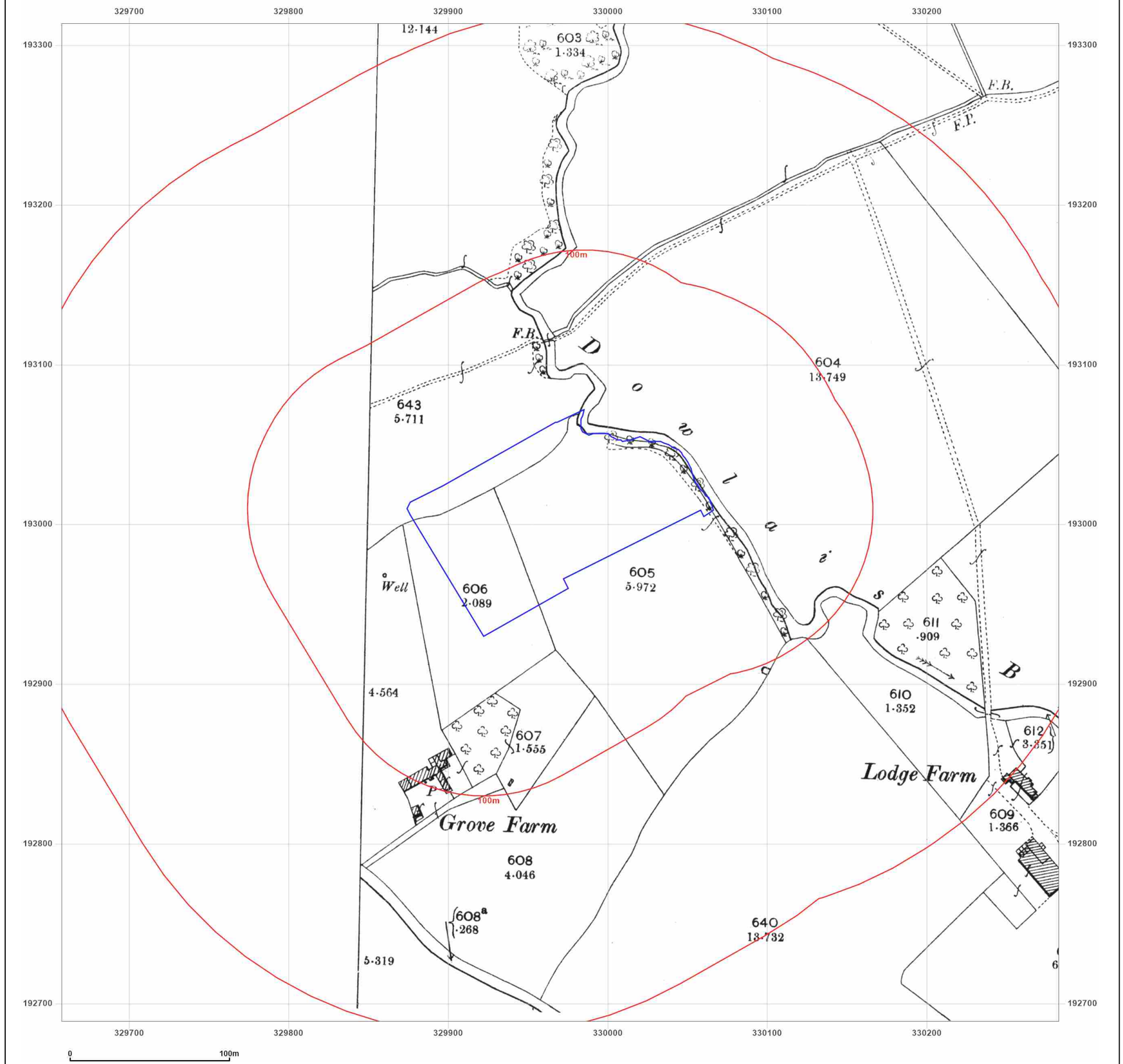

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Grid Ref: 329970, 193001

Map Name: County Series

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Printed at: 1:2,500

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Surveyed 1901
Revised 1901
Edition N/A
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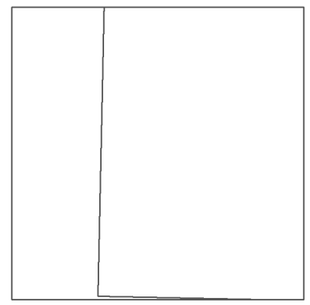

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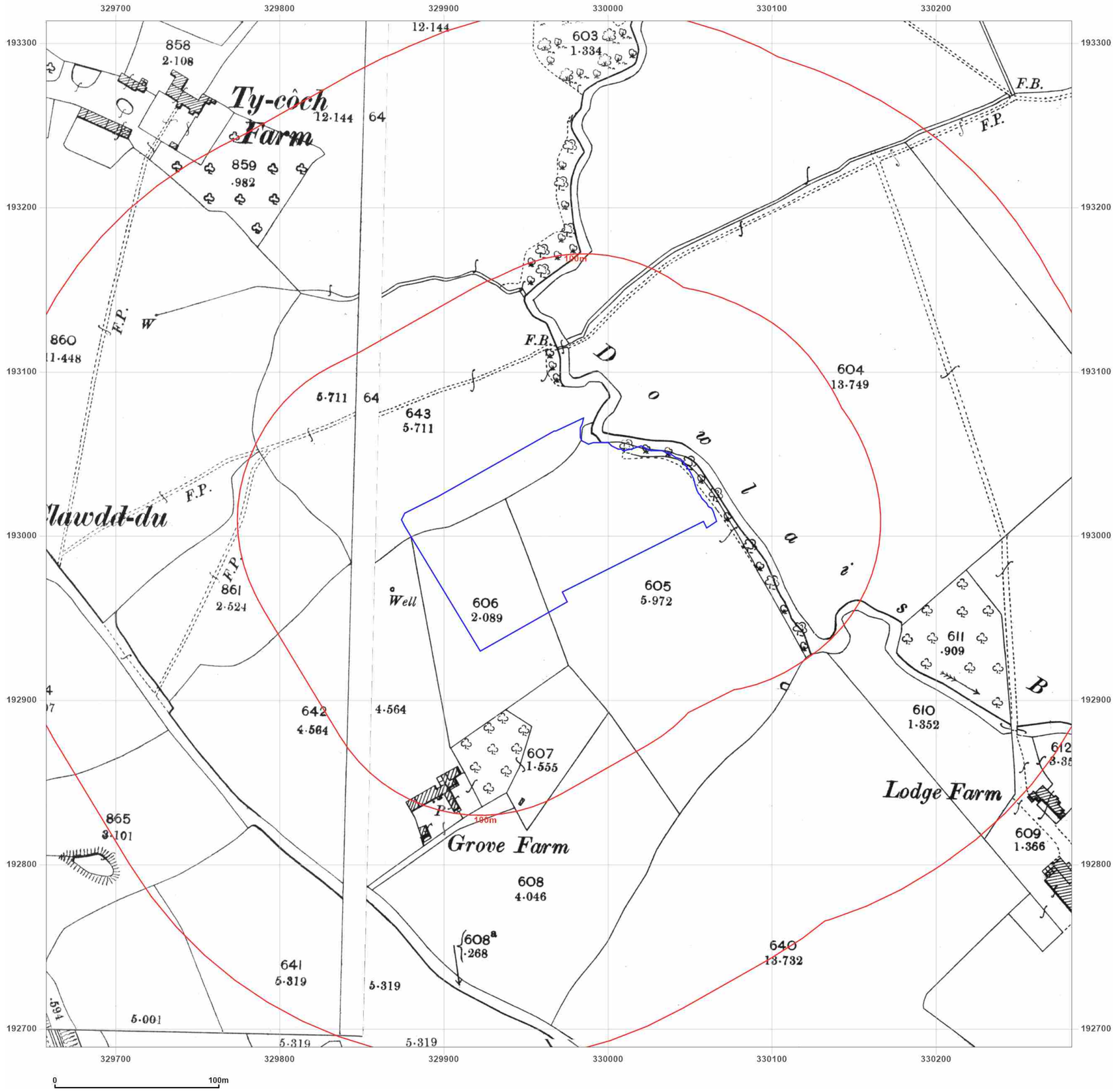

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Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1900-1902**

Scale: 1:2,500

Printed at: 1:2,500

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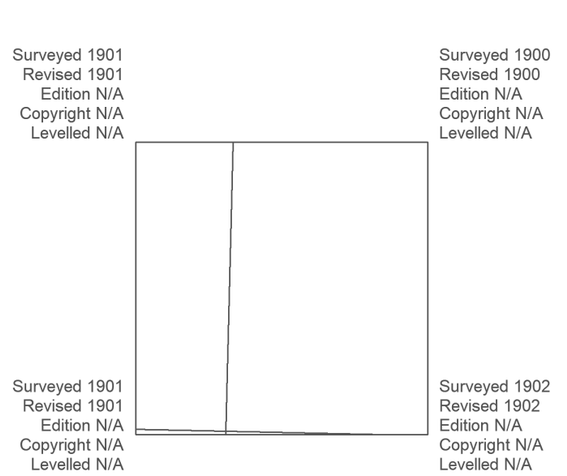

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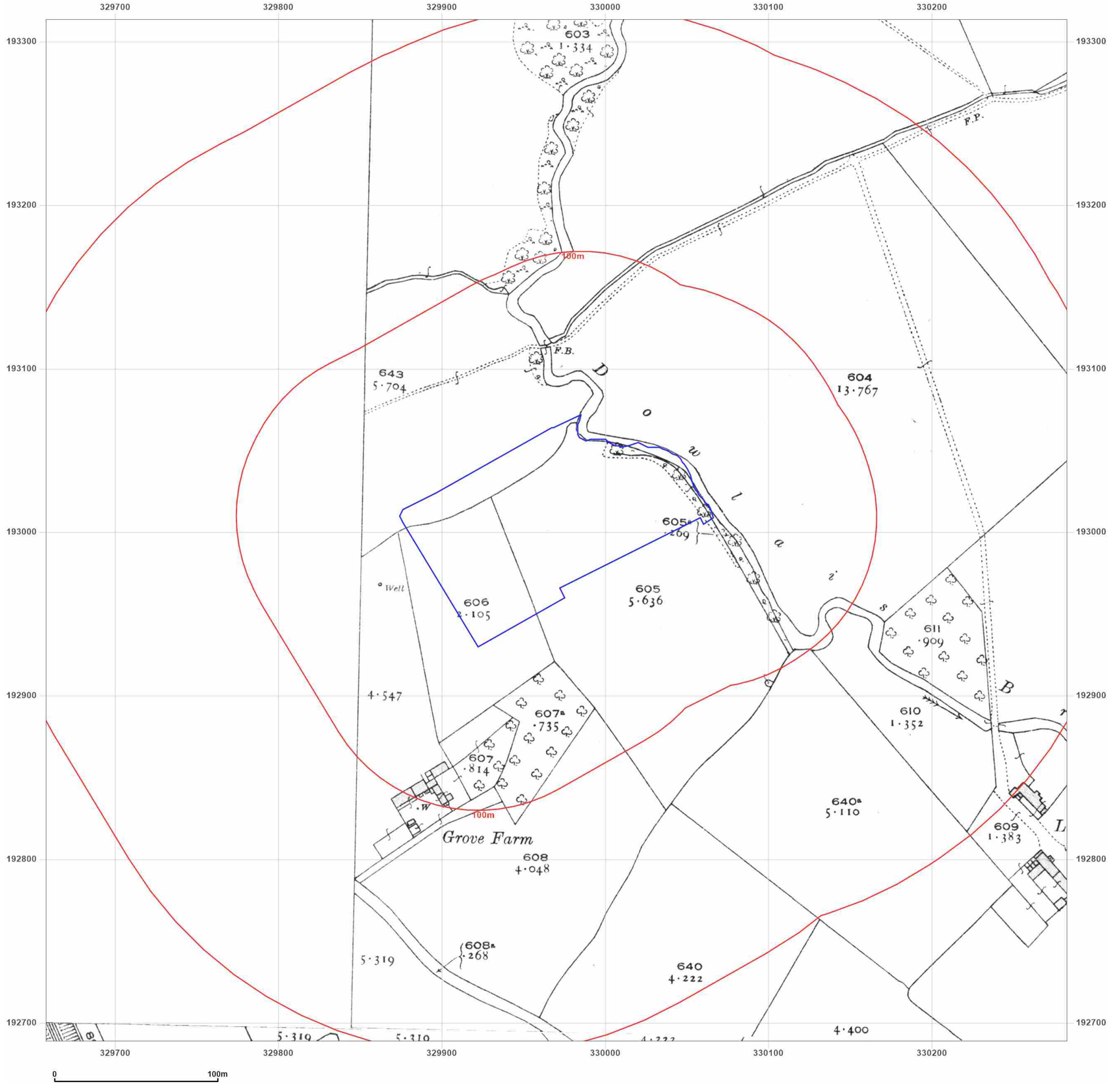

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193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1920**

Scale: 1:2,500

Printed at: 1:2,500

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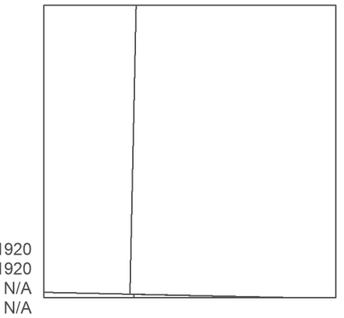
Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



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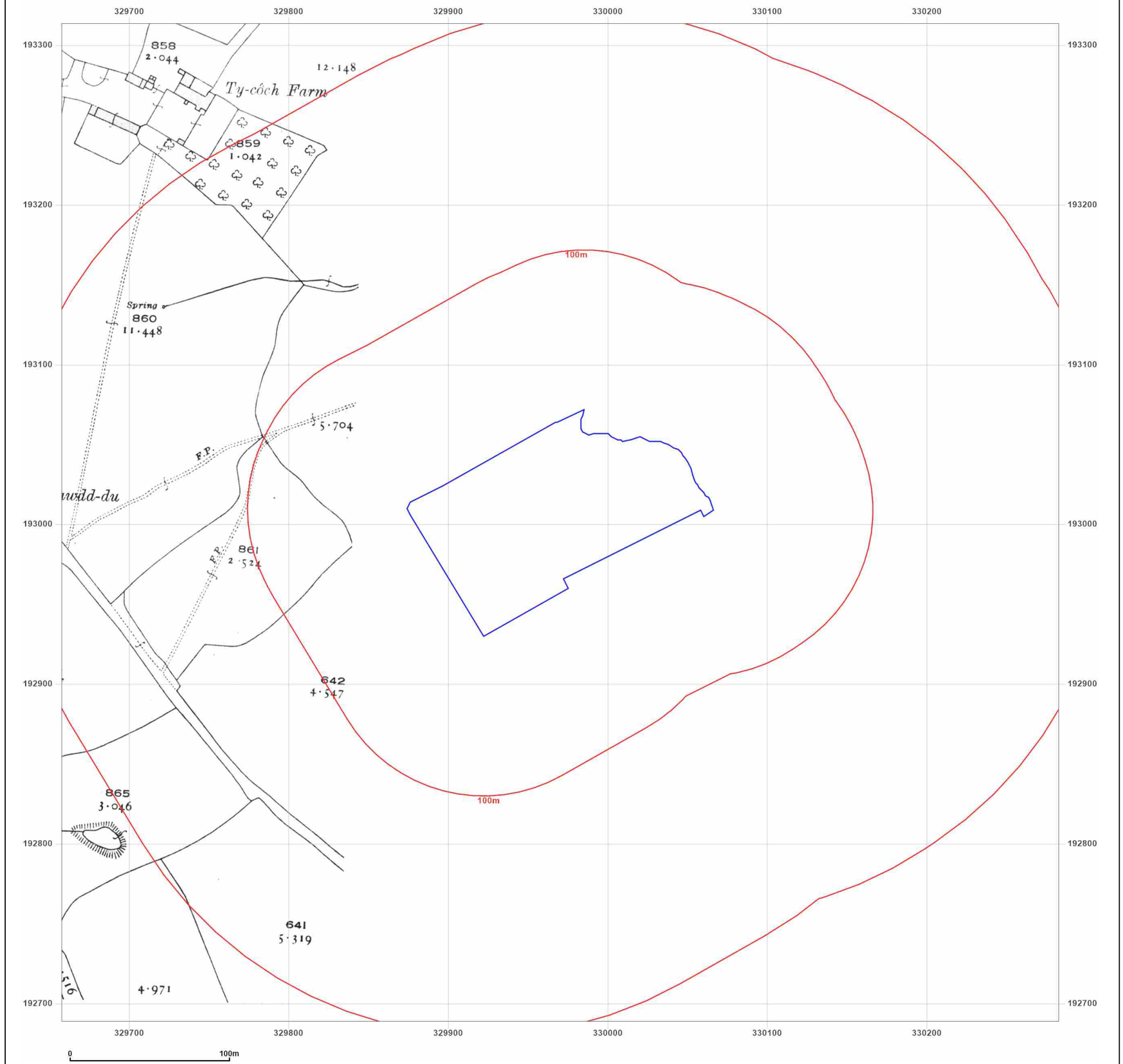

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Grid Ref: 329970, 193001

Map Name: County Series

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Scale: 1:2,500

Printed at: 1:2,500

N
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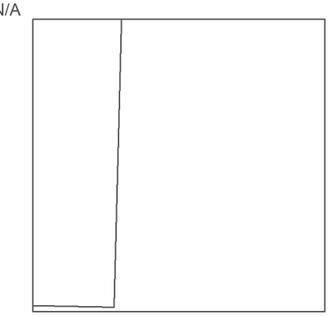
Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



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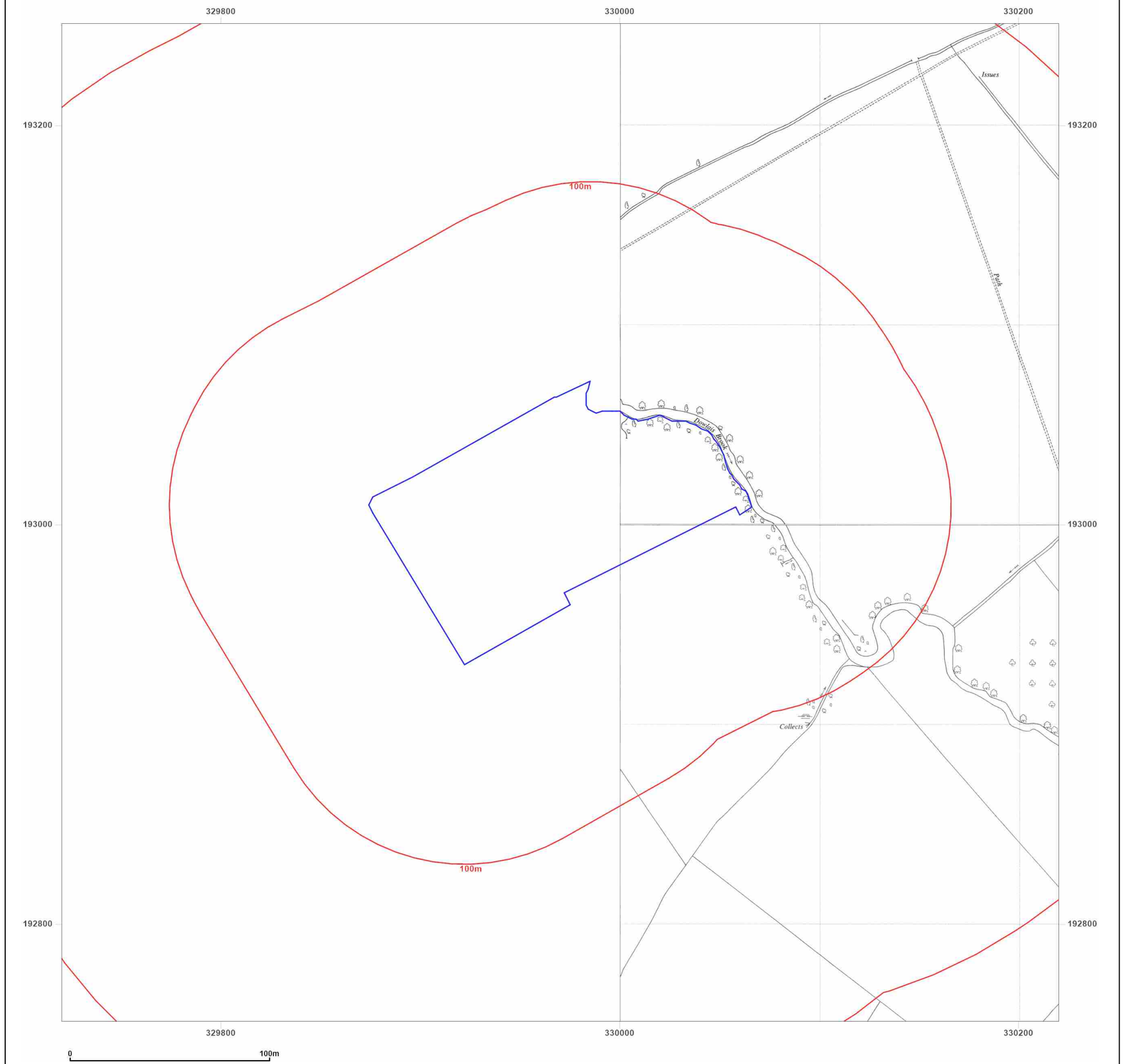

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1963-1964**

Scale: 1:1,250

Printed at: 1:2,000

N
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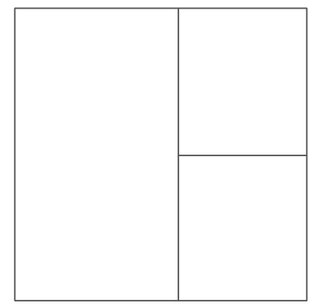

Surveyed 1963
Revised 1963
Edition N/A
Copyright 1964
Levelled 1958

Surveyed 1963
Revised 1963
Edition N/A
Copyright 1964
Levelled 1958

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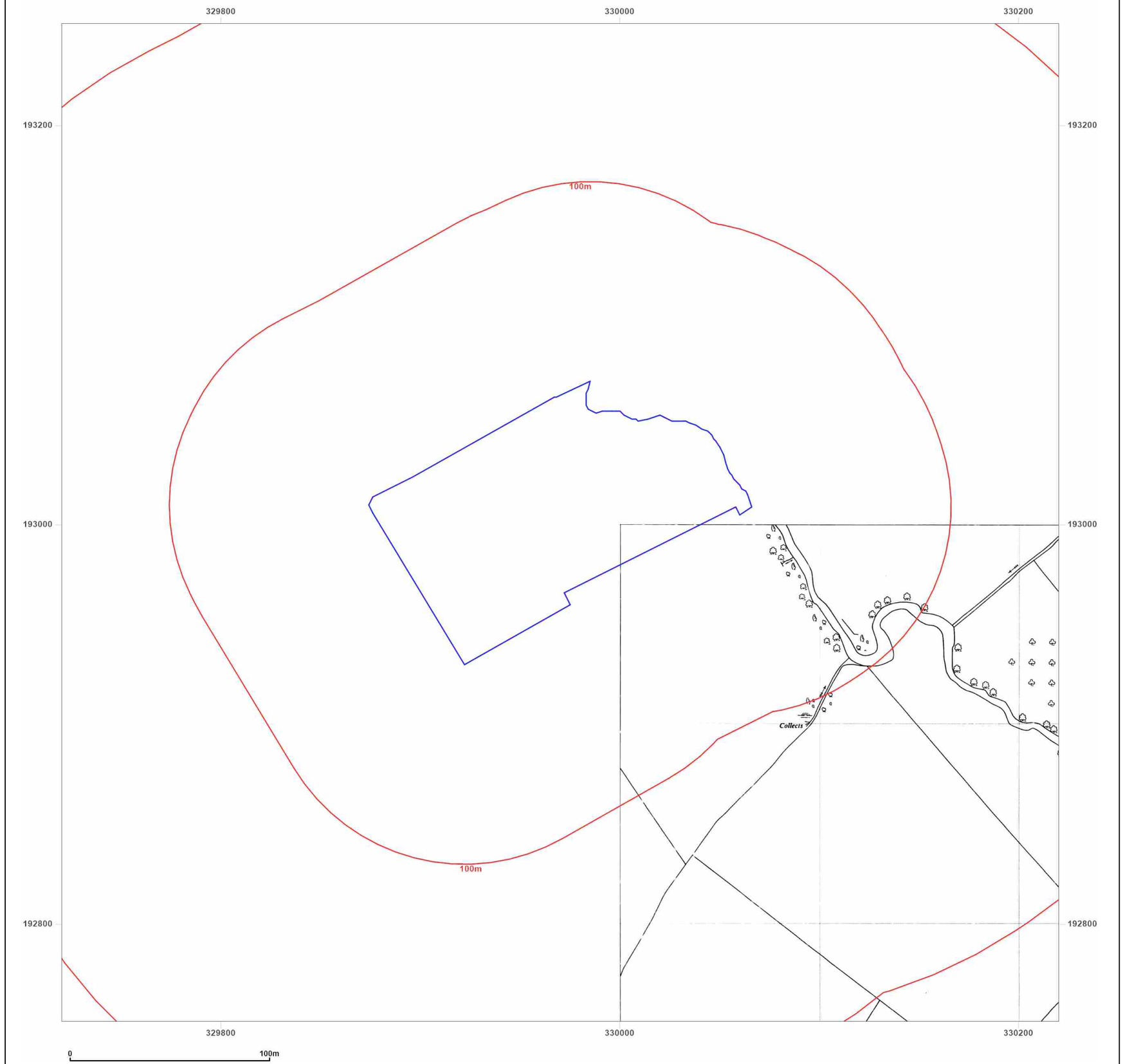

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid
Map date: **1964**
Scale: 1:1,250
Printed at: 1:2,000

N
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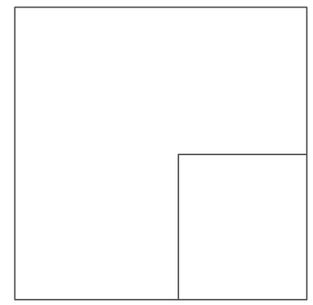

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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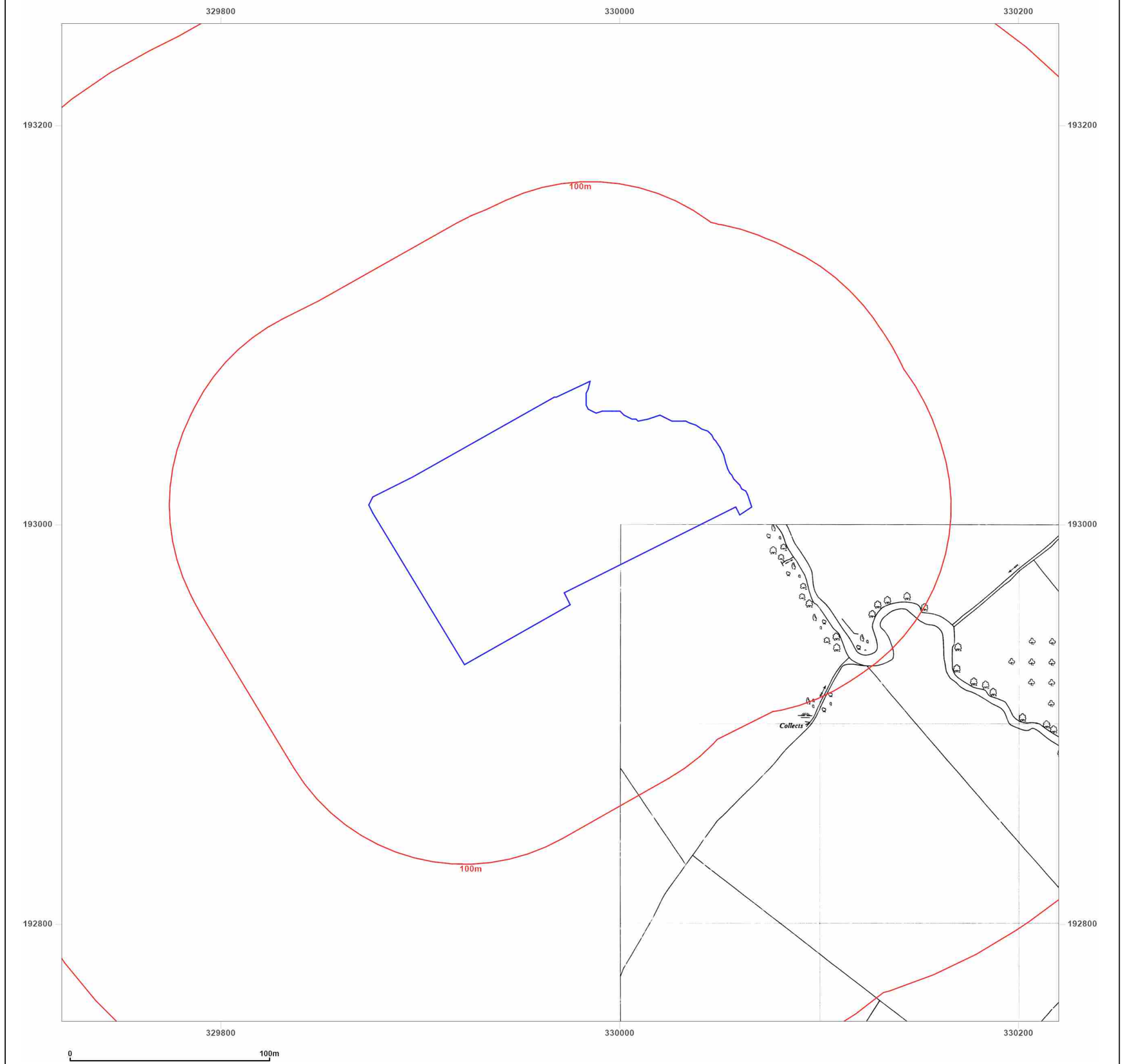

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid
Map date: **1964**
Scale: 1:1,250
Printed at: 1:2,000

N
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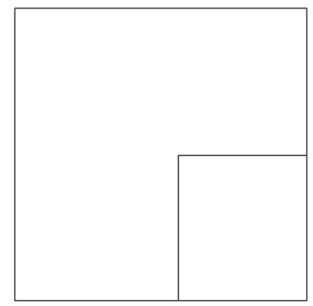

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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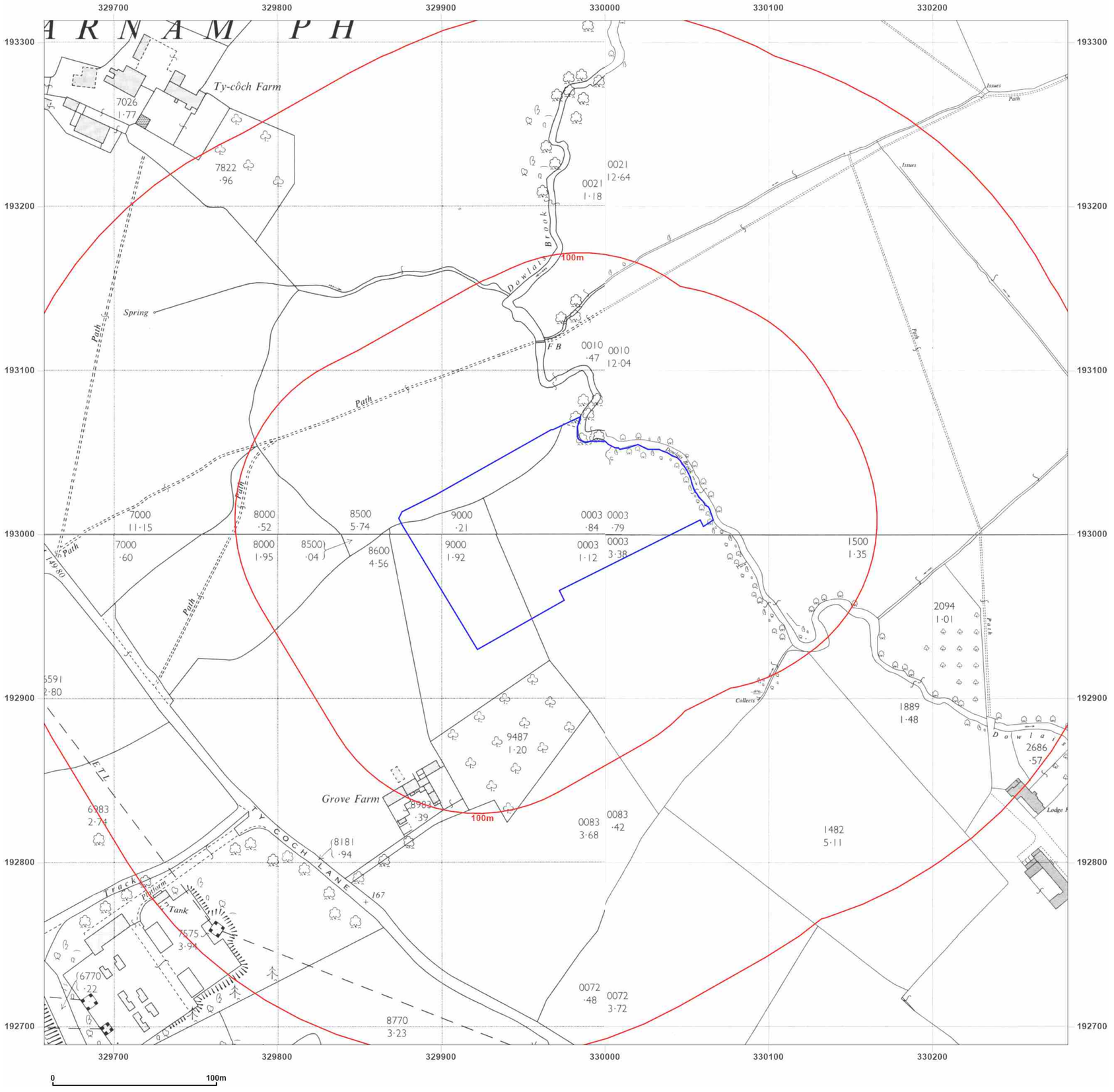

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1964-1968**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1964	Surveyed 1968
Revised 1964	Revised 1968
Edition 1965	Edition N/A
Copyright 1965	Copyright 1969
Levelled 1958	Levelled 1958
Surveyed 1964	Surveyed 1968
Revised 1964	Revised 1968
Edition N/A	Edition N/A
Copyright 1965	Copyright 1969
Levelled 1958	Levelled 1958

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Production date: 05 November 2021

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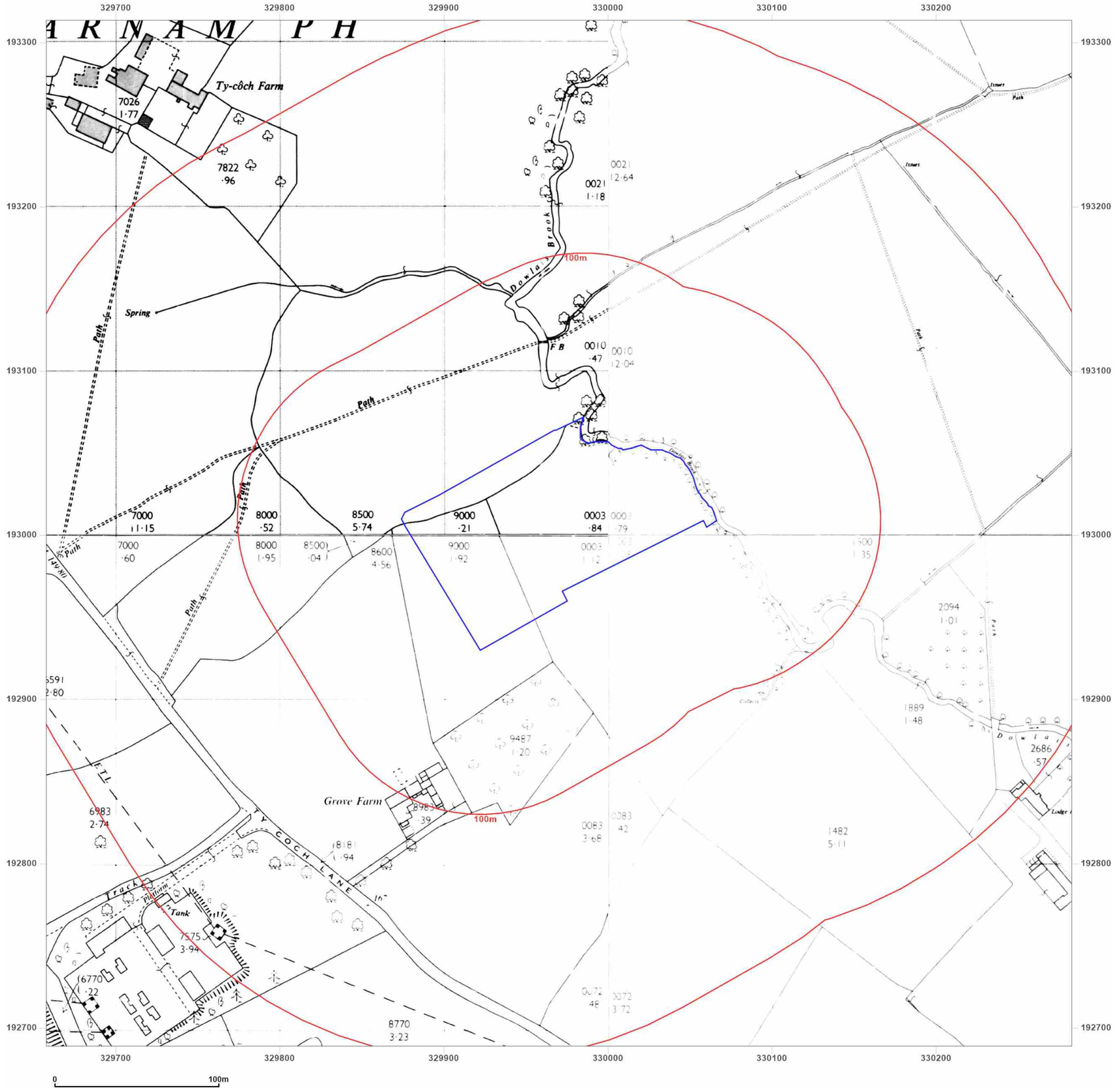

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid
Map date: **1965-1969**
Scale: 1:2,500
Printed at: 1:2,500

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

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

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

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

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Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1984-1985**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1969
Revised 1984
Edition N/A
Copyright 1986
Levelled 1965

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

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Discovery

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Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1985-1986**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1958
Revised 1985
Edition N/A
Copyright 1985
Levelled 1958

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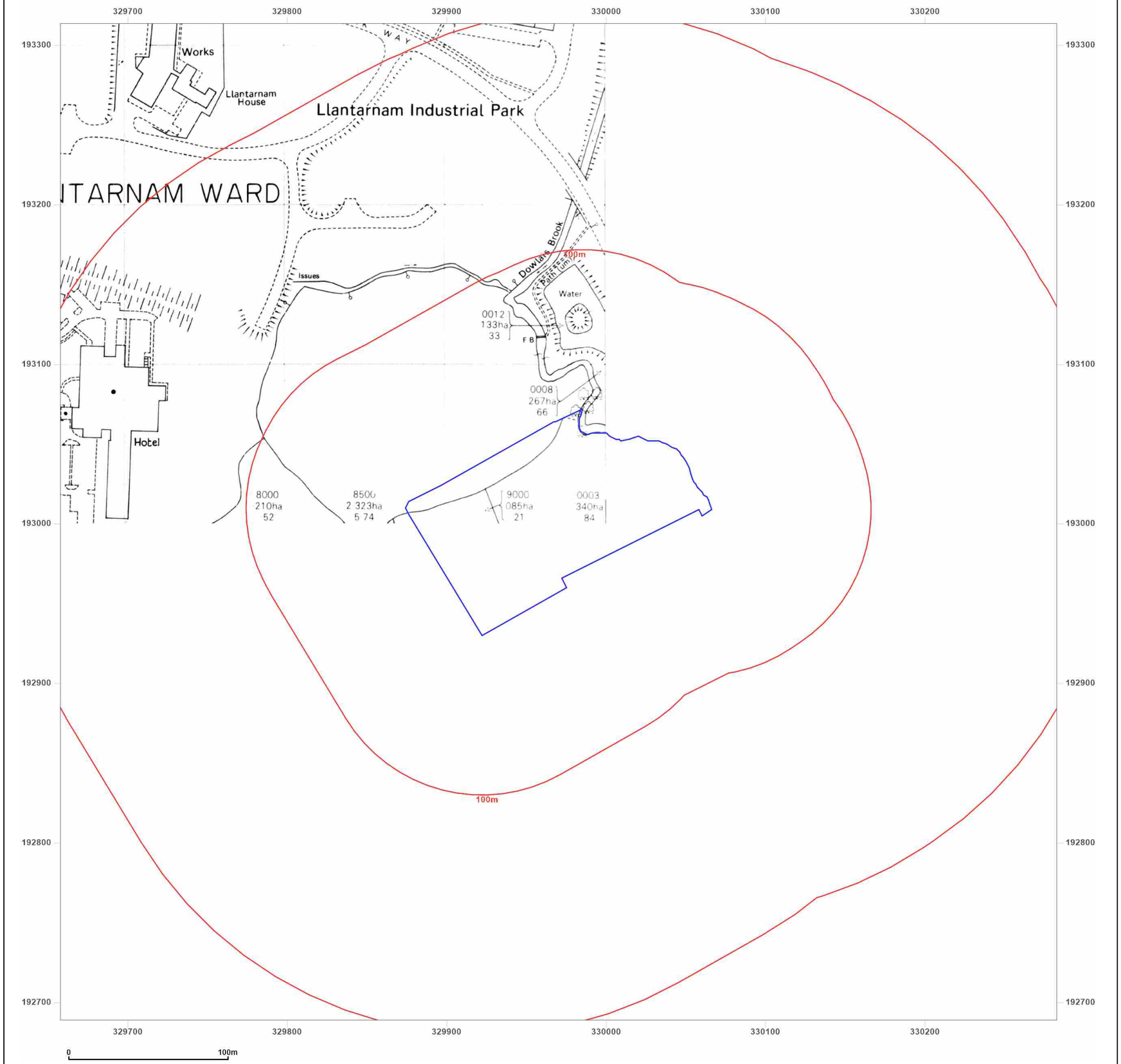

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1986**

Scale: 1:2,500

Printed at: 1:2,500

N
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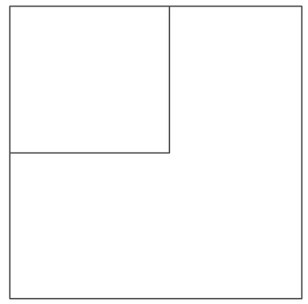
Surveyed 1986
Revised 1986
Edition N/A
Copyright 1986
Levelled N/A



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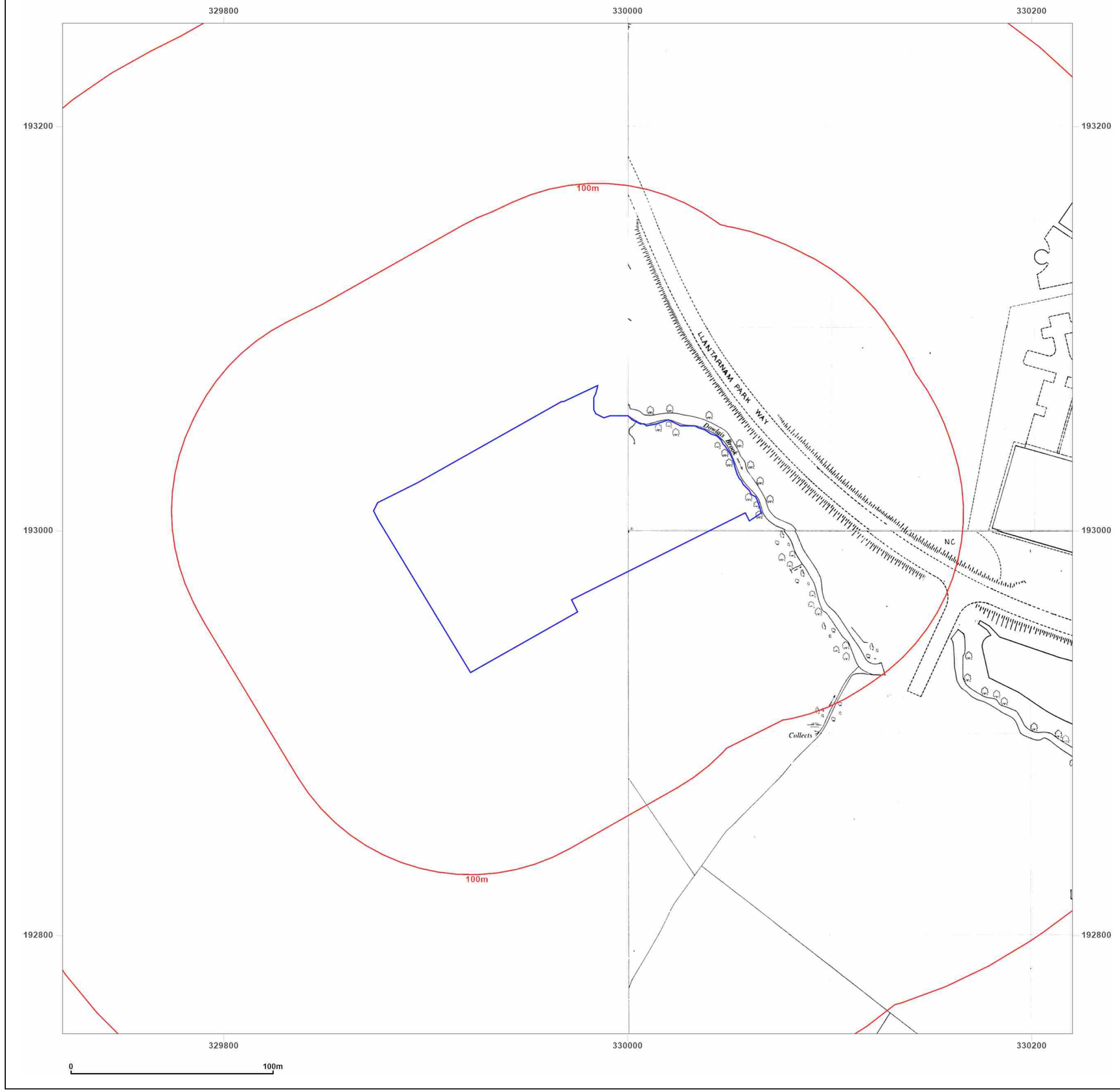

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid
Map date: **1987**
Scale: 1:1,250
Printed at: 1:2,000

N
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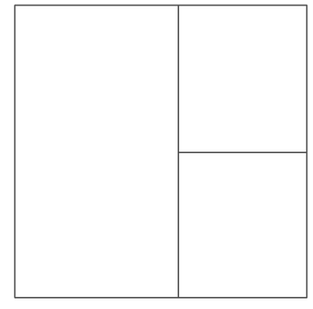

Surveyed 1987
Revised 1987
Edition N/A
Copyright 1987
Levelled N/A

Surveyed 1958
Revised 1987
Edition N/A
Copyright 1987
Levelled 1958

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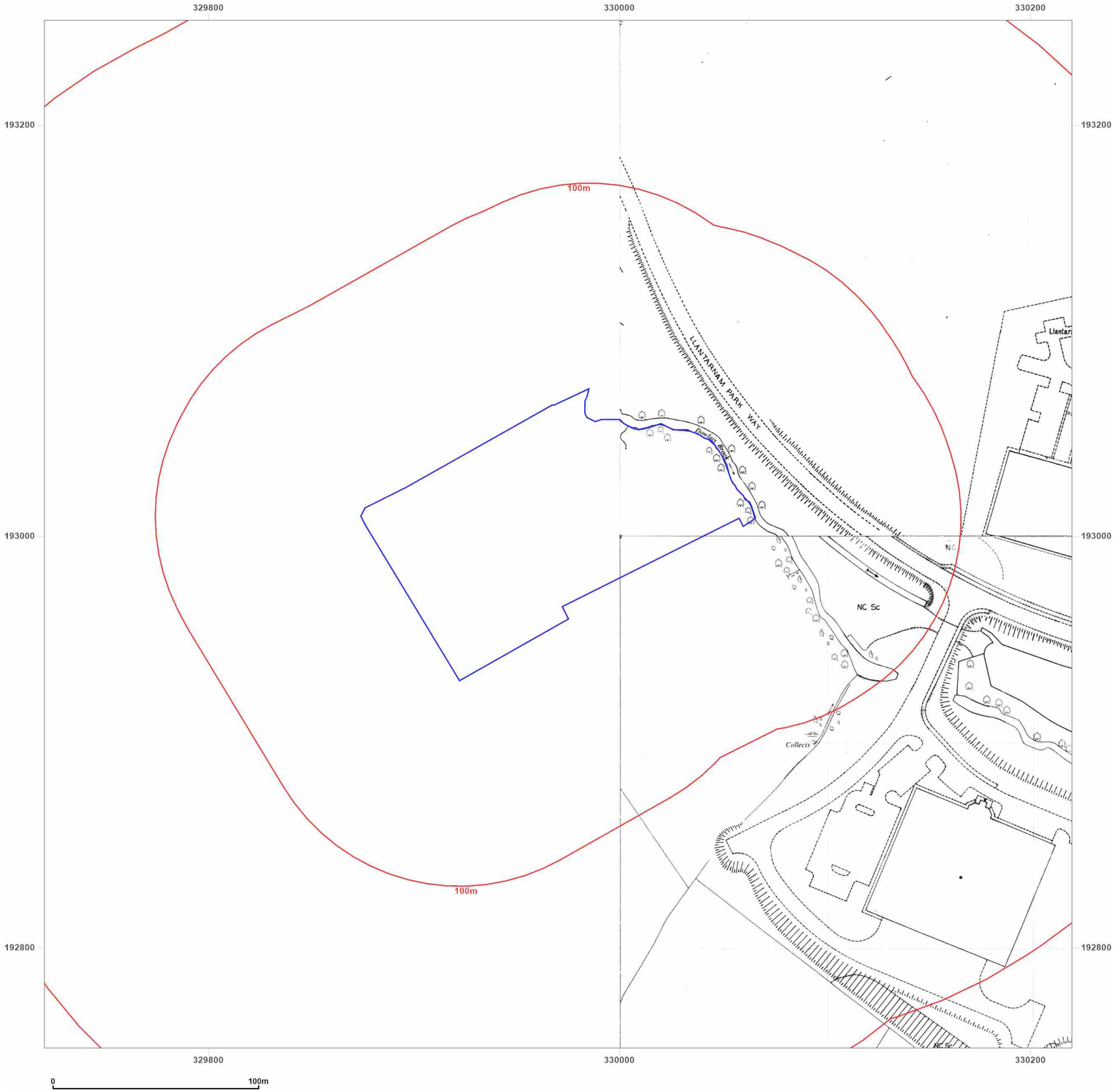

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid
Map date: **1987-1990**
Scale: 1:1,250
Printed at: 1:2,000

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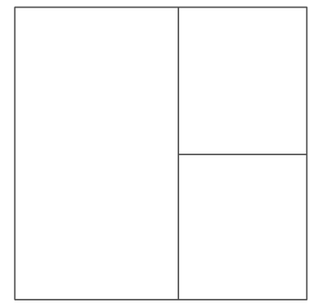

Surveyed 1987
Revised 1987
Edition N/A
Copyright 1987
Levelled N/A

Surveyed 1958
Revised 1990
Edition N/A
Copyright 1990
Levelled 1958

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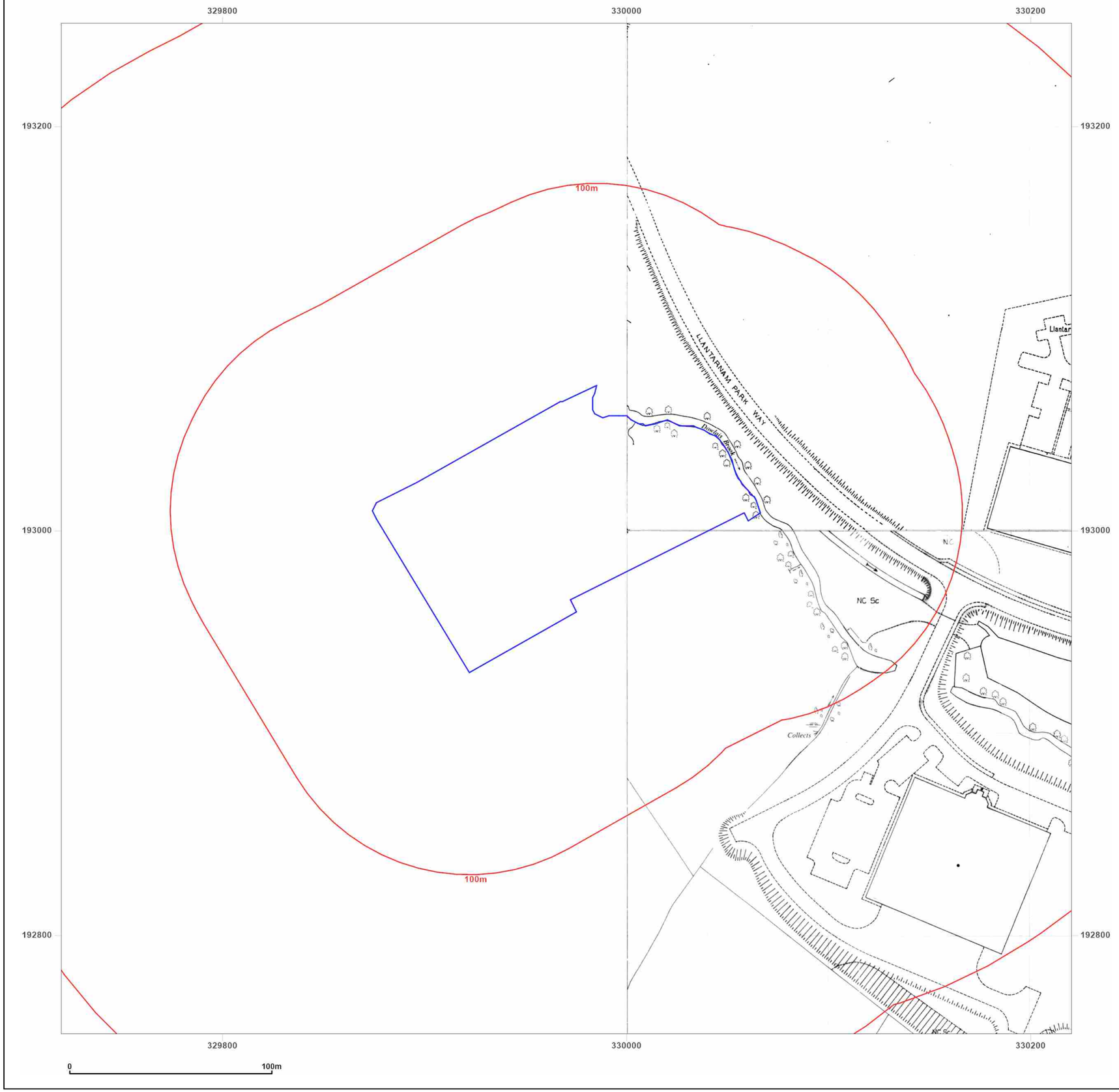

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid
Map date: **1987-1990**
Scale: 1:1,250
Printed at: 1:2,000

N
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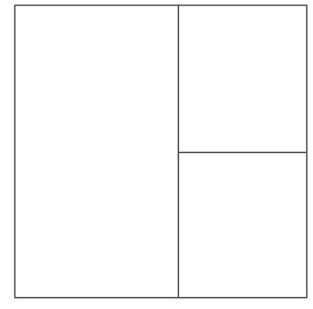

Surveyed 1987
Revised 1987
Edition N/A
Copyright 1987
Levelled N/A

Surveyed 1958
Revised 1990
Edition N/A
Copyright 1990
Levelled 1958

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Discovery
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Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid
Map date: **1991-1993**
Scale: 1:1,250
Printed at: 1:2,000

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

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

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

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

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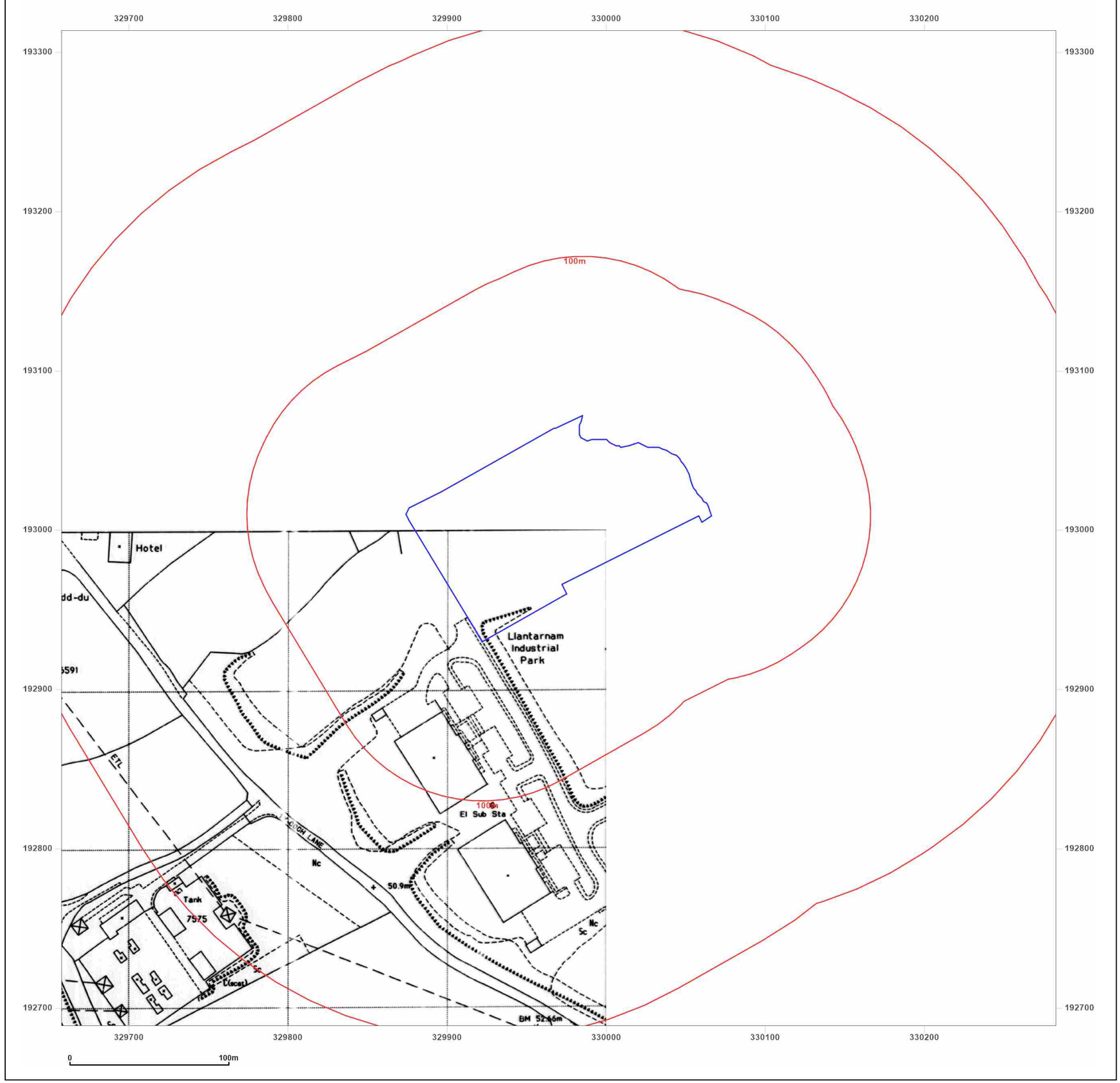

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

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

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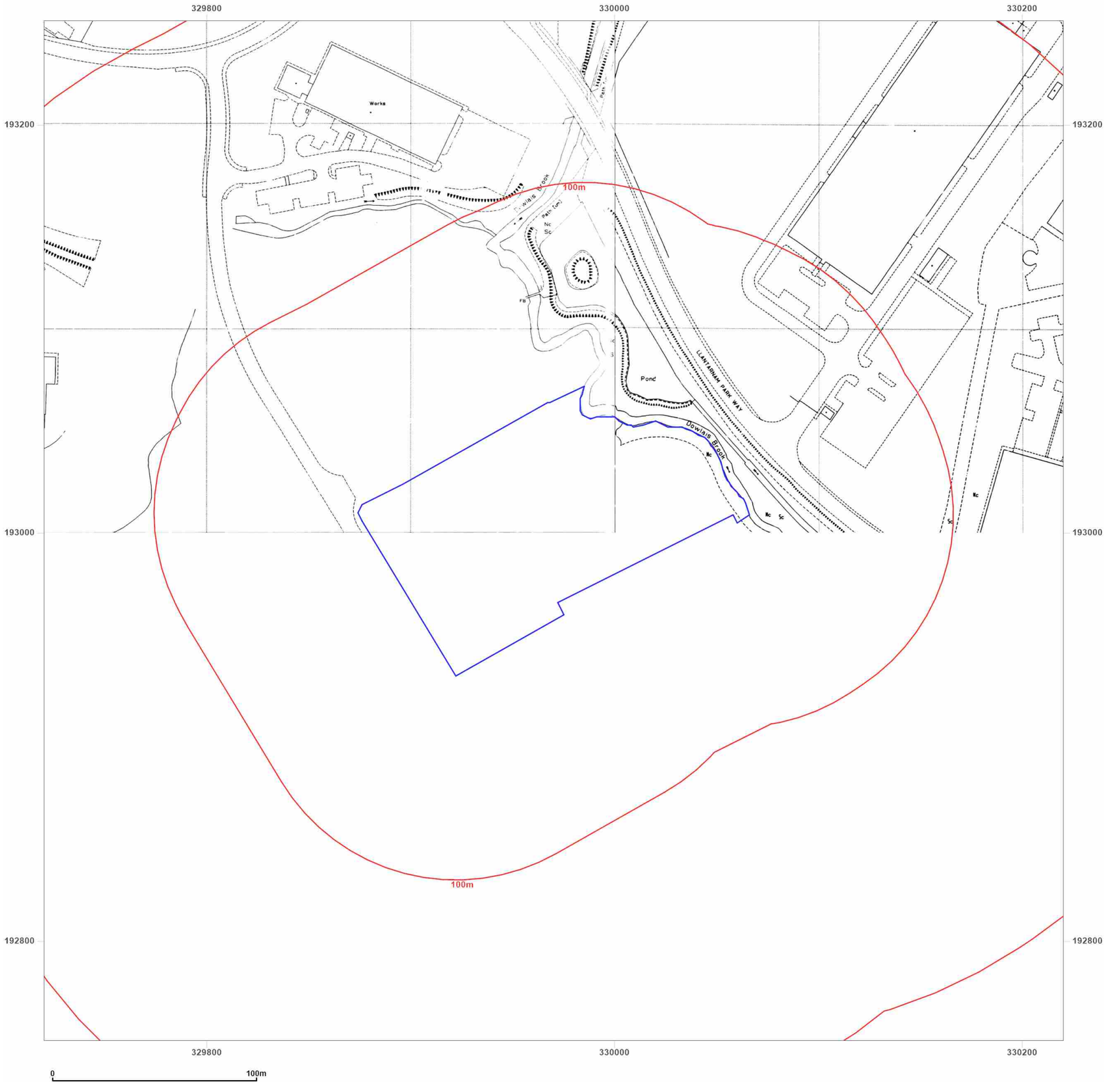

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1993-1995**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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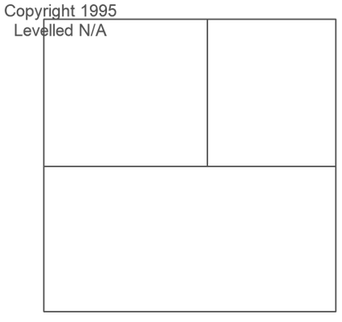
Surveyed N/A
Revised N/A
Edition N/A
Copyright 1995
Levelled N/A

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



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Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

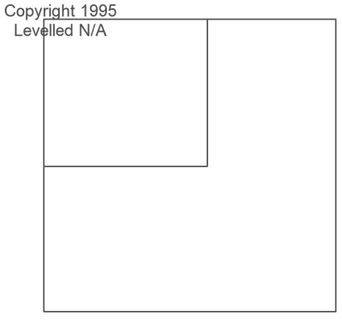
Map date: **1995**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



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Production date: 05 November 2021

Map legend available at:
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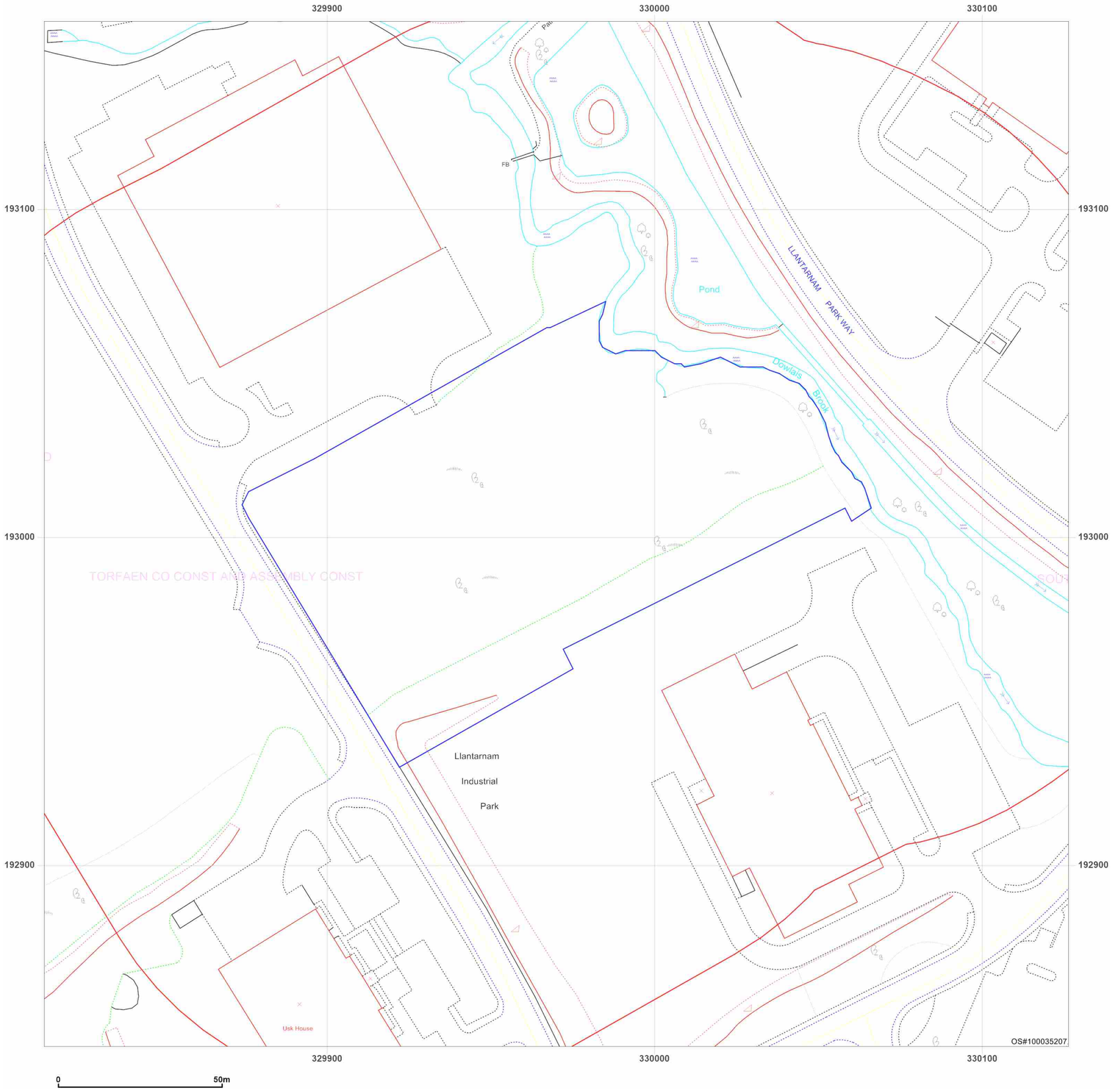

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

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

N
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2003

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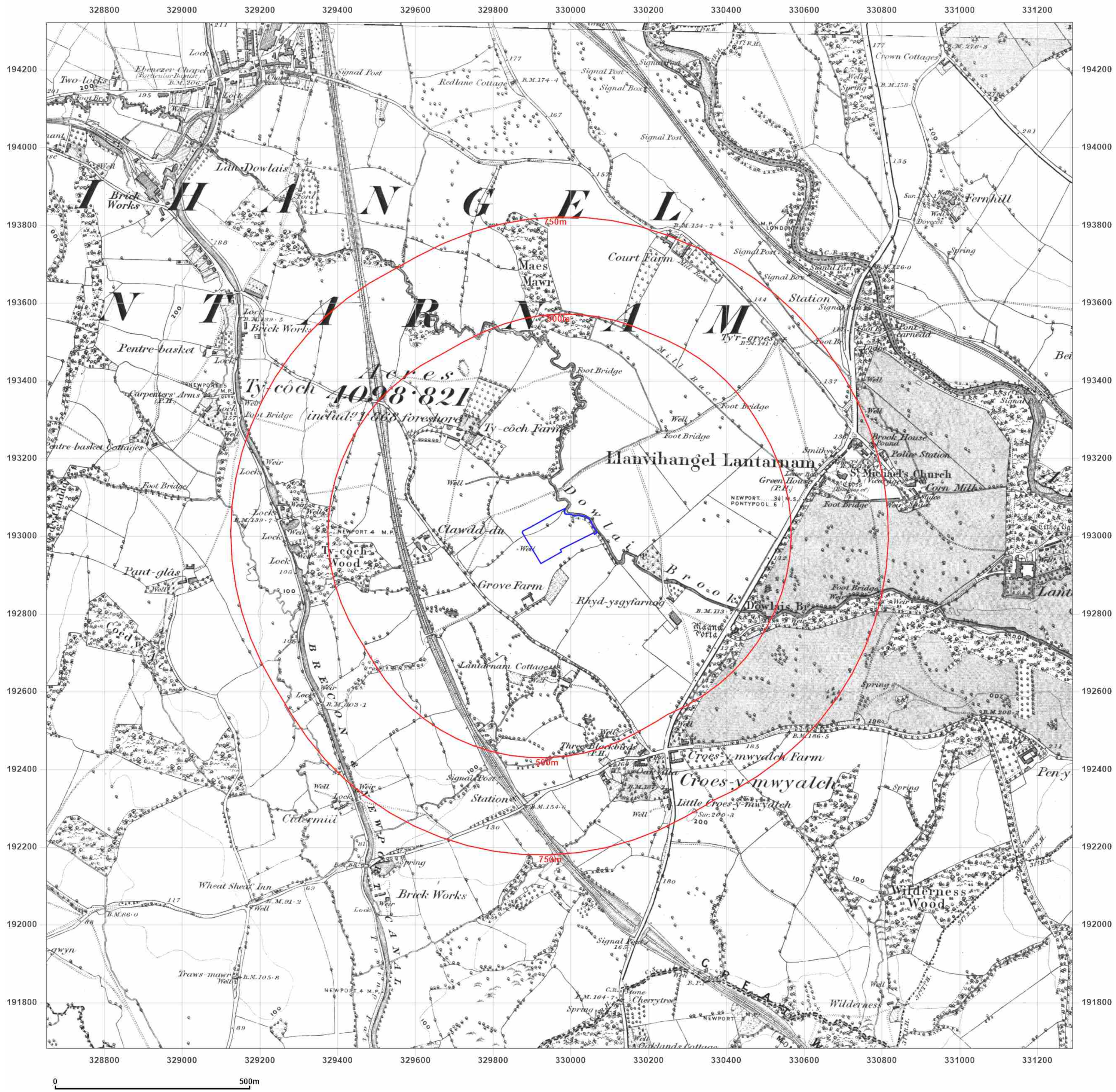

Discovery CE

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1881-1882**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1881
Revised 1881
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1882
Revised 1882
Edition N/A
Copyright N/A
Levelled N/A

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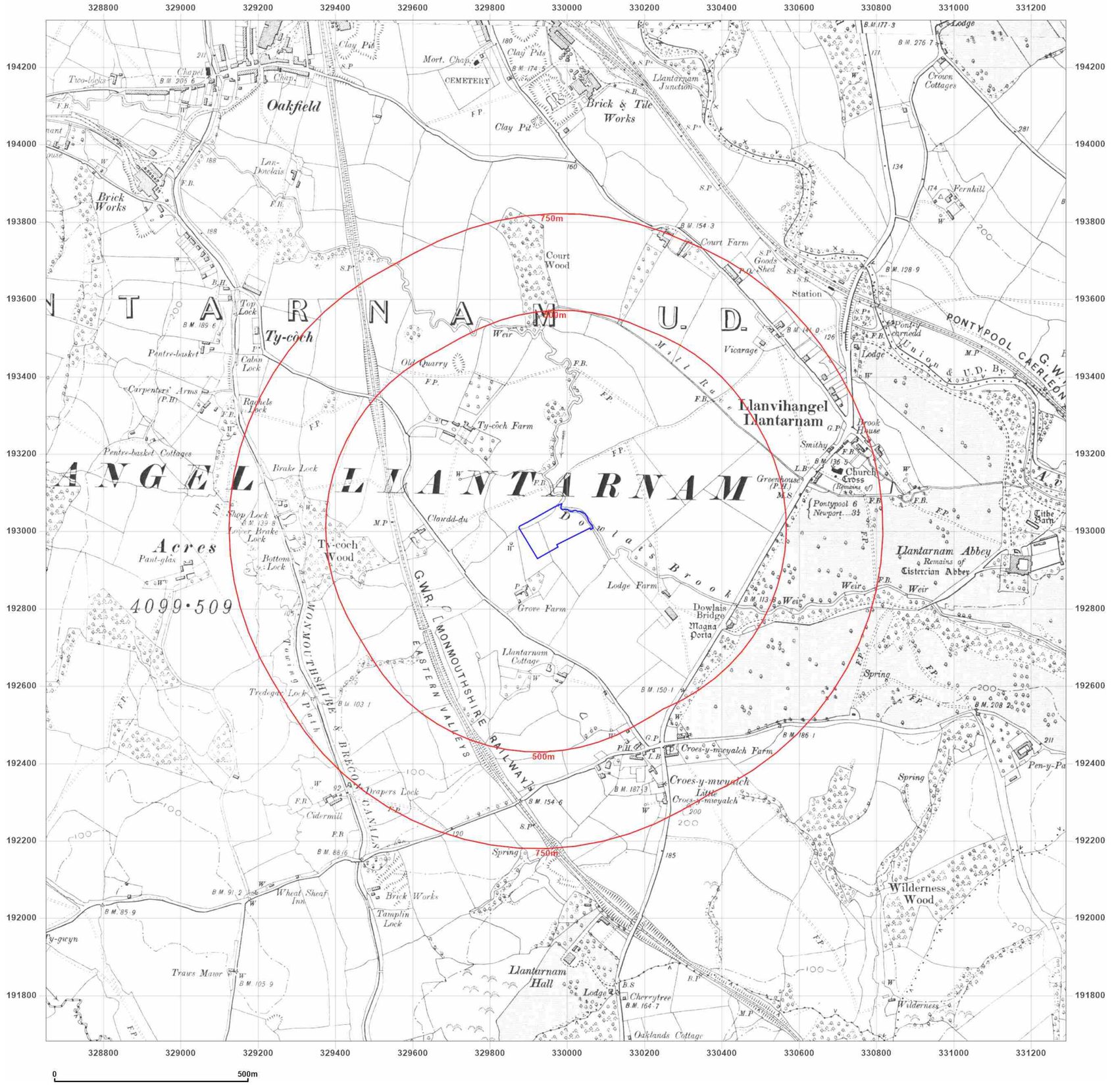

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1899-1902**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1881
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1881
Revised 1902
Edition N/A
Copyright N/A
Levelled N/A

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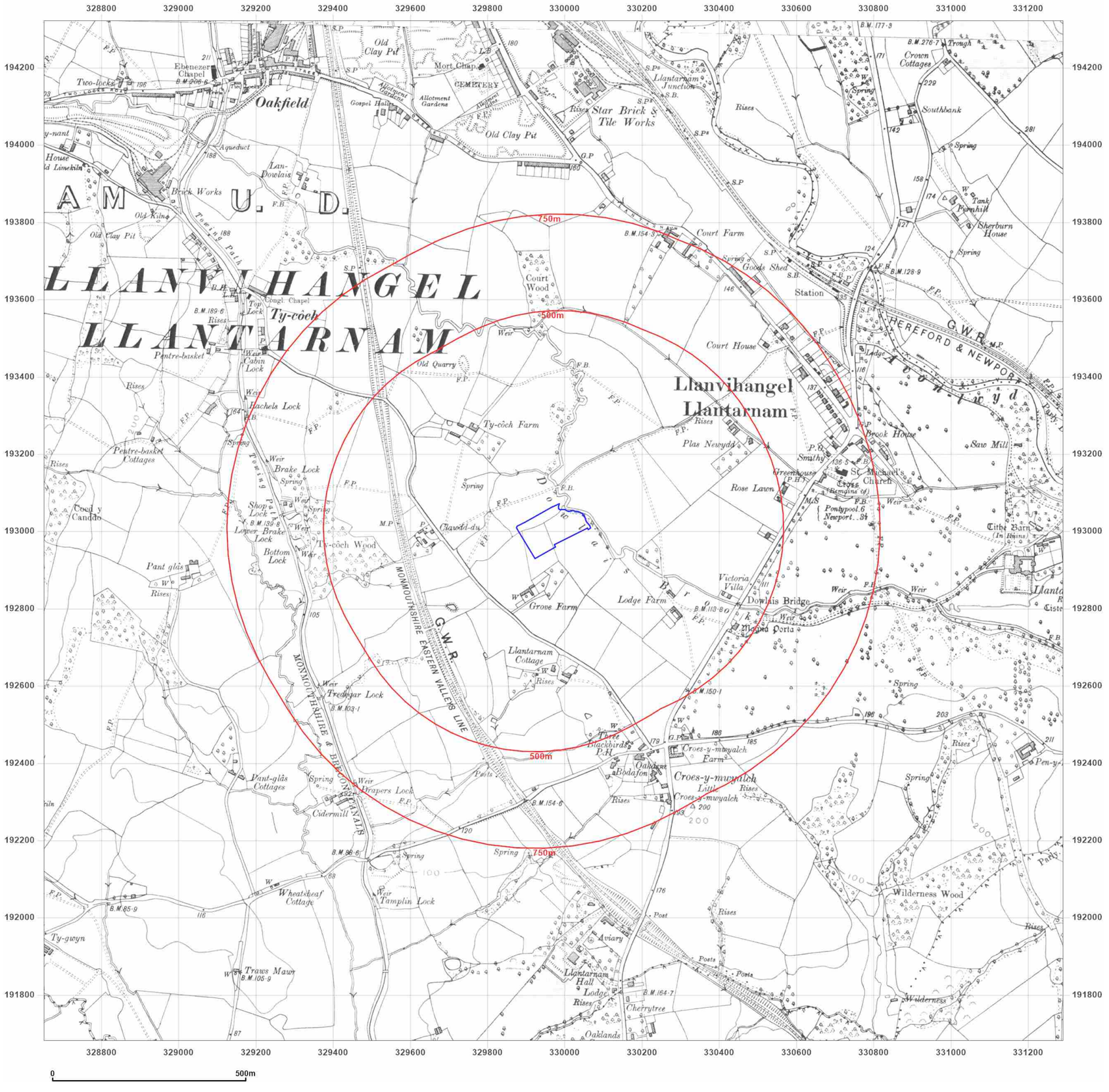

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1917-1922**

Scale: 1:10,560

Printed at: 1:10,560

N
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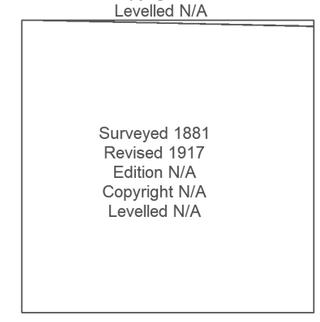
Surveyed 1881
Revised 1922
Edition N/A
Copyright N/A
Levelled N/A



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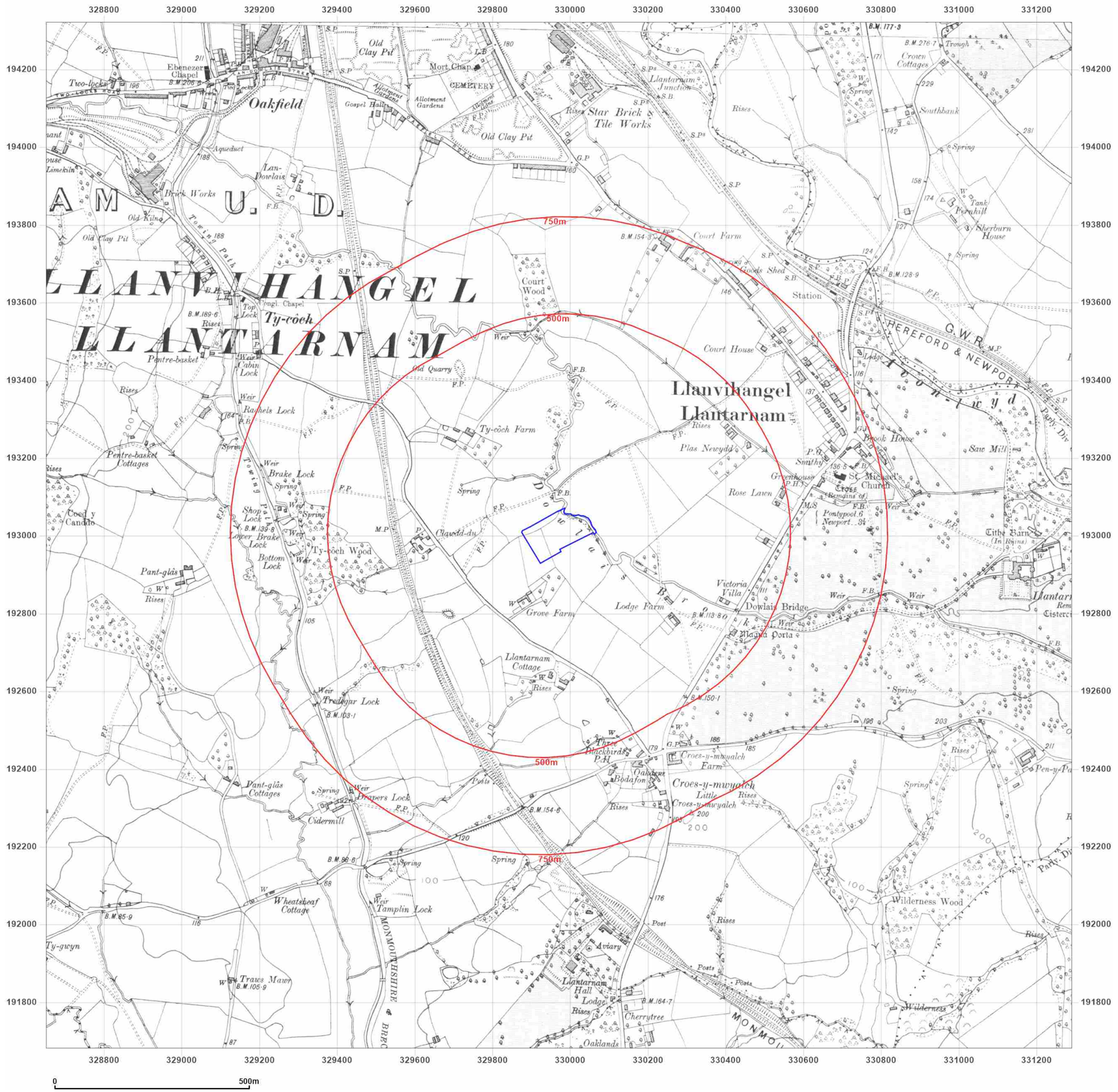

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1922**

Scale: 1:10,560

Printed at: 1:10,560

N
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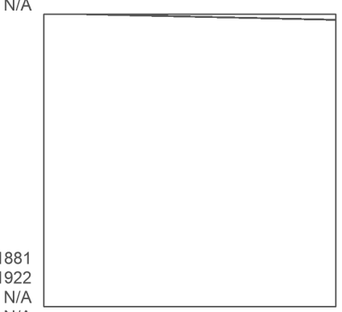
Surveyed 1881
Revised 1922
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1881
Revised 1922
Edition N/A
Copyright N/A
Levelled N/A

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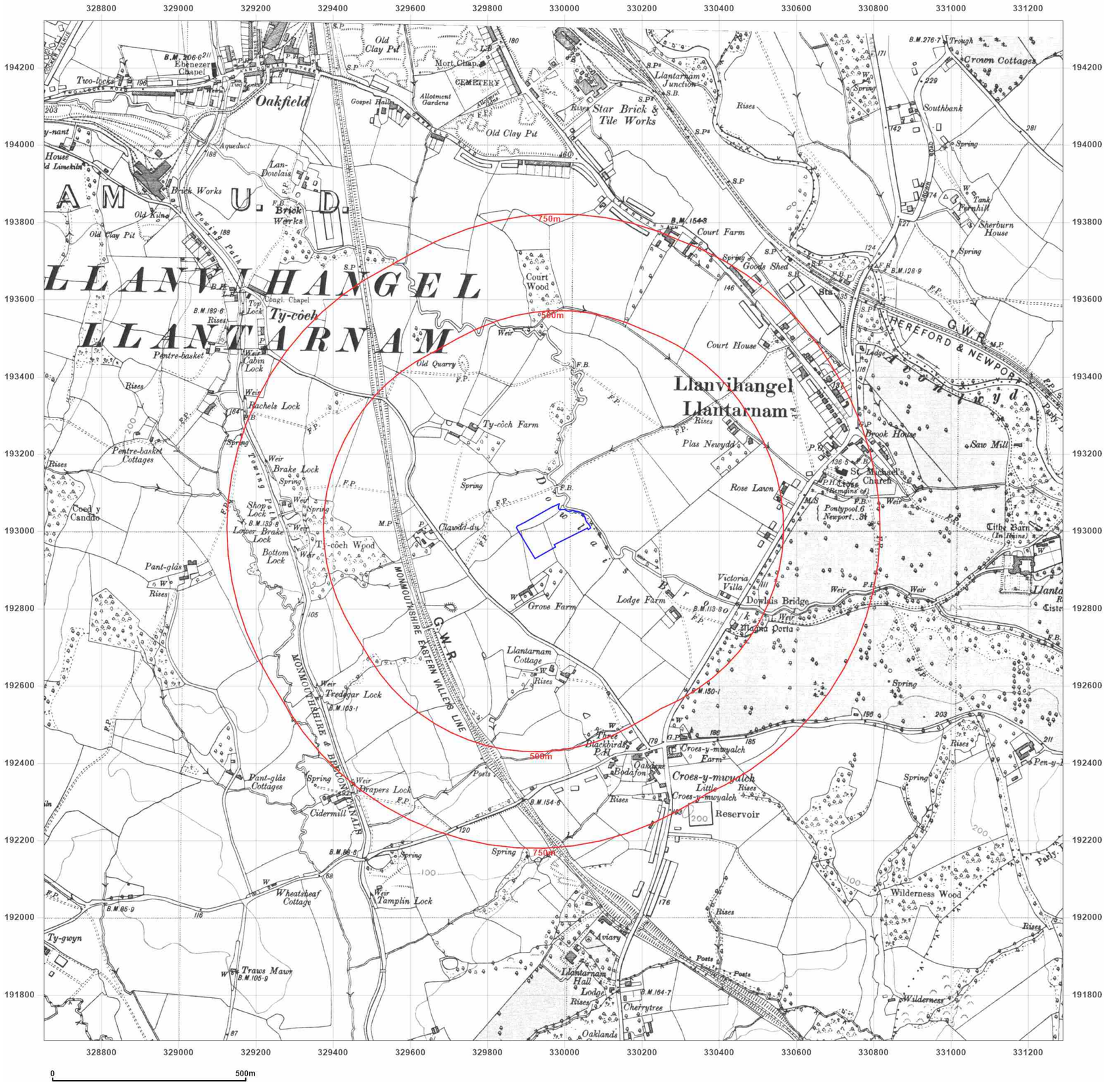

Discovery CE

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1881
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

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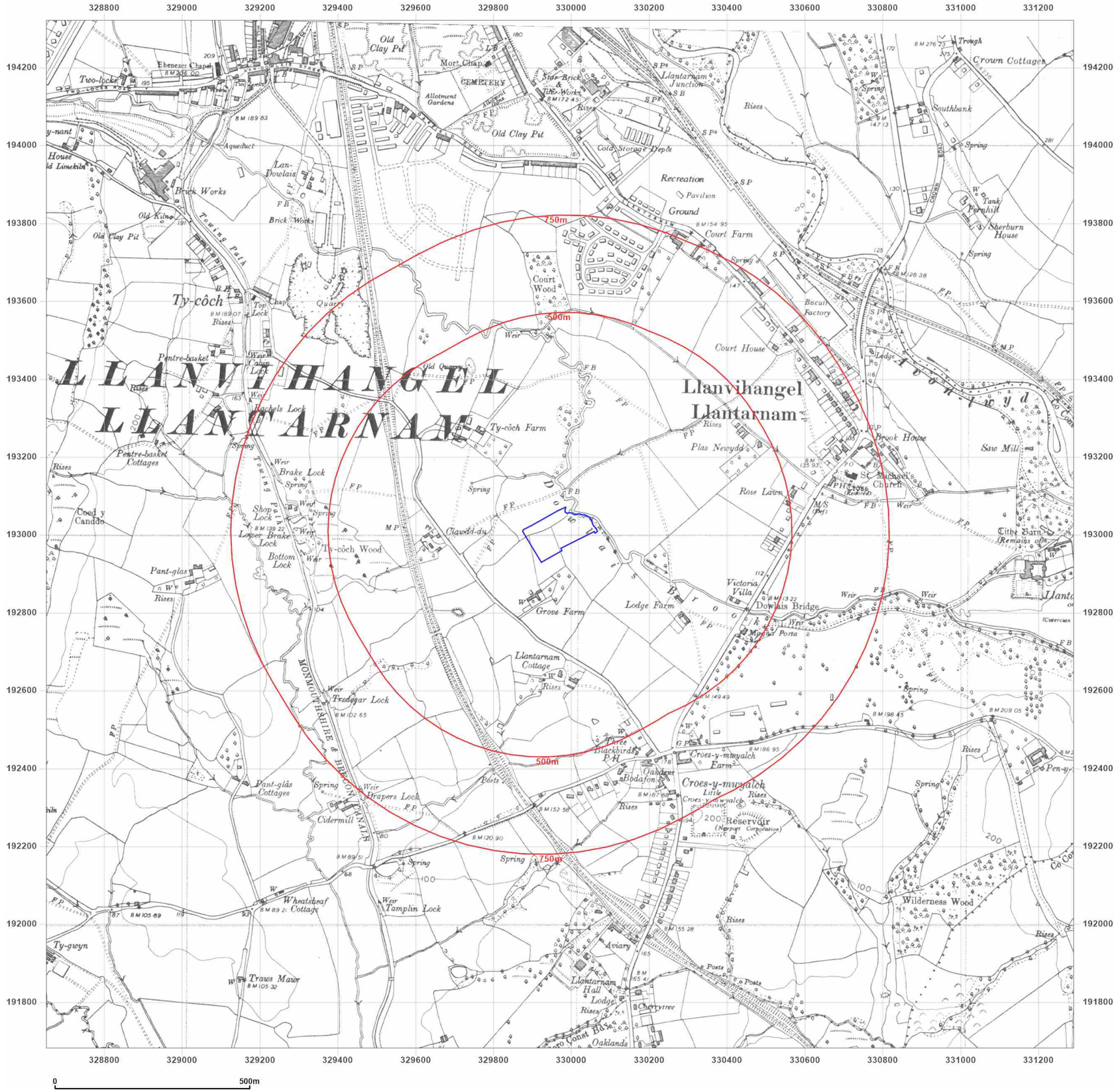

Discovery
Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: County Series

Map date: **1949**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1881
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

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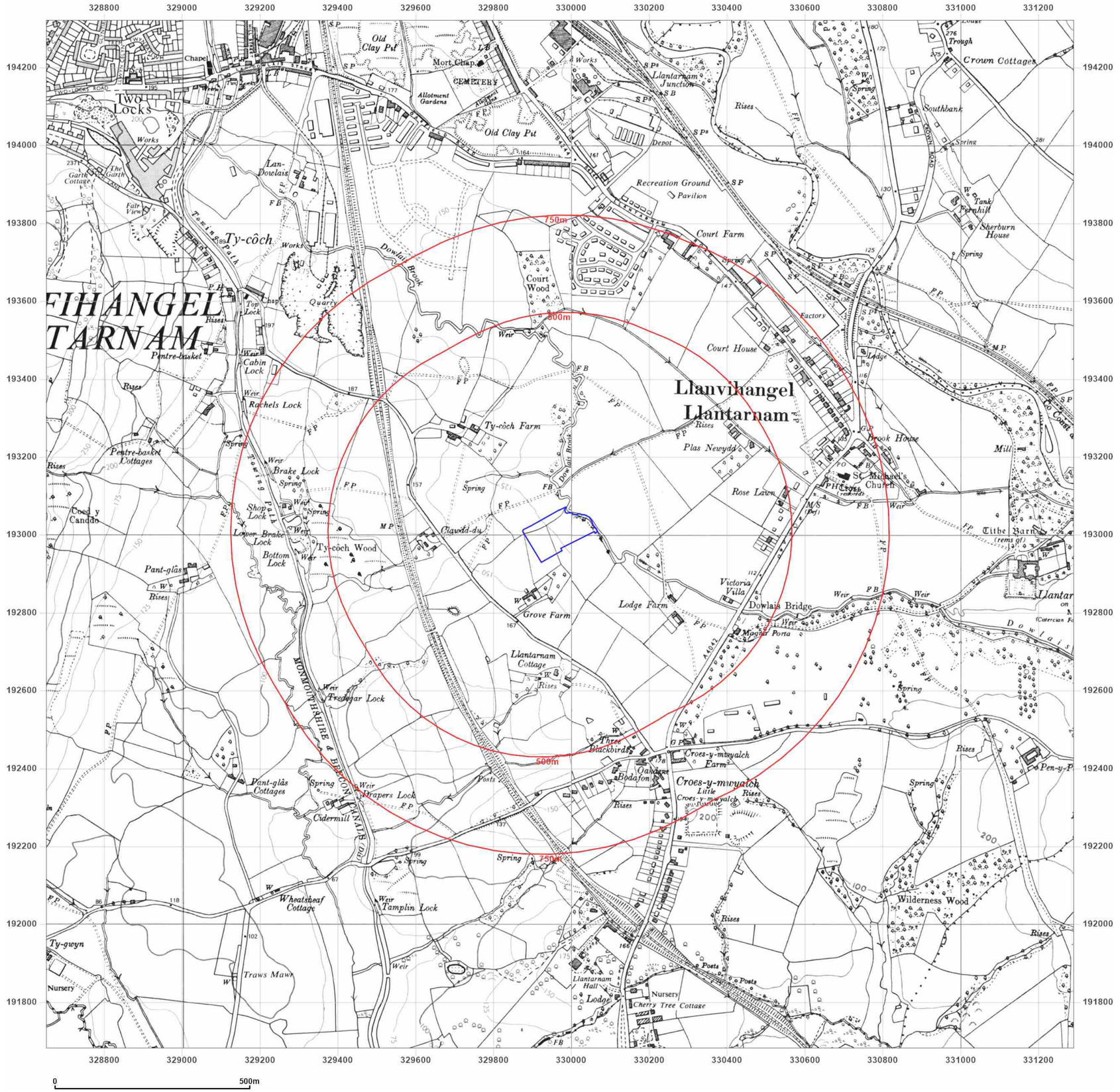

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: Provisional

Map date: **1964**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1949 Revised 1963 Edition N/A Copyright 1964 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1964 Levelled N/A

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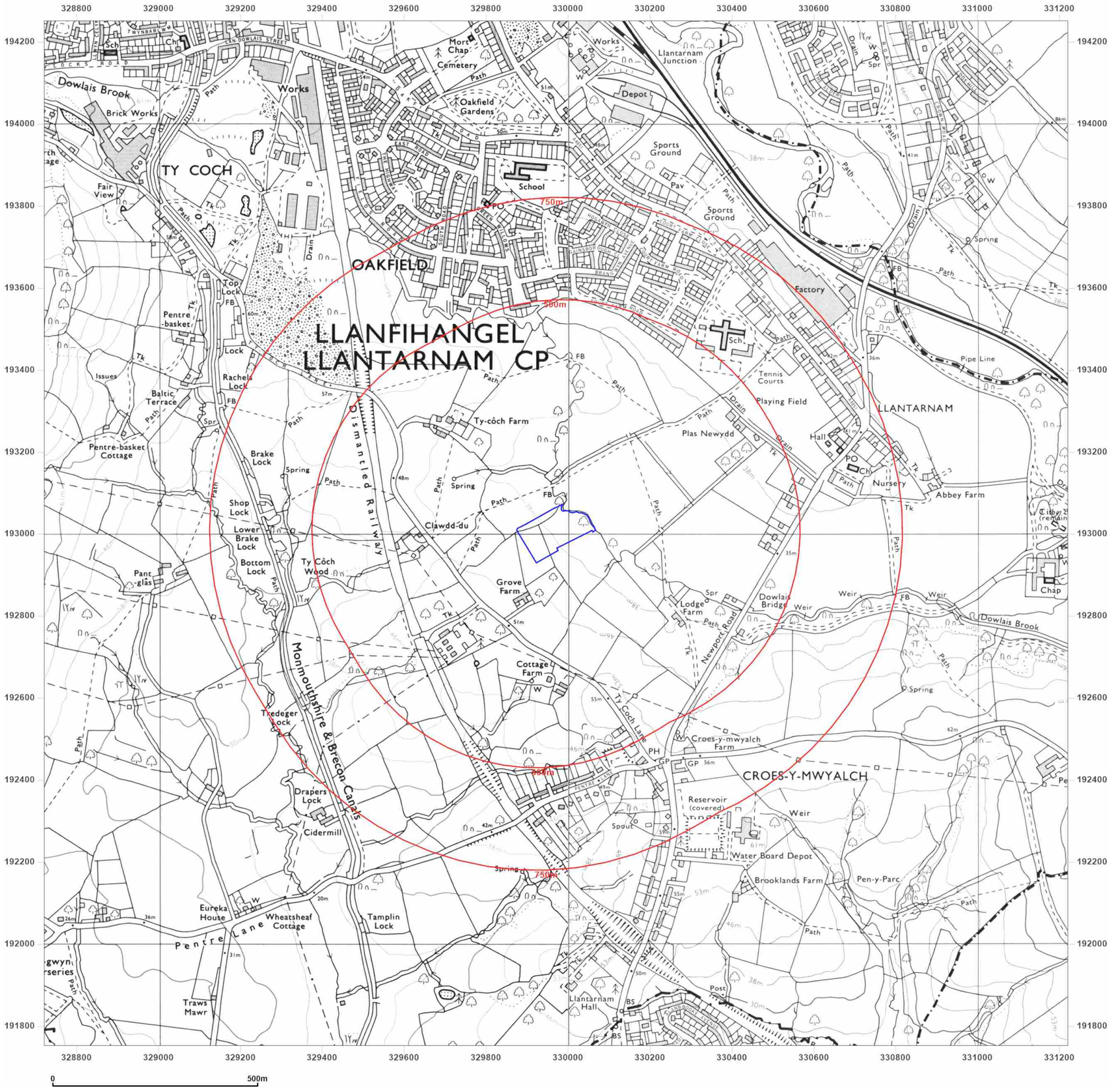

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1970-1971**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1971
Revised 1971
Edition N/A
Copyright N/A
Levelled N/A

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

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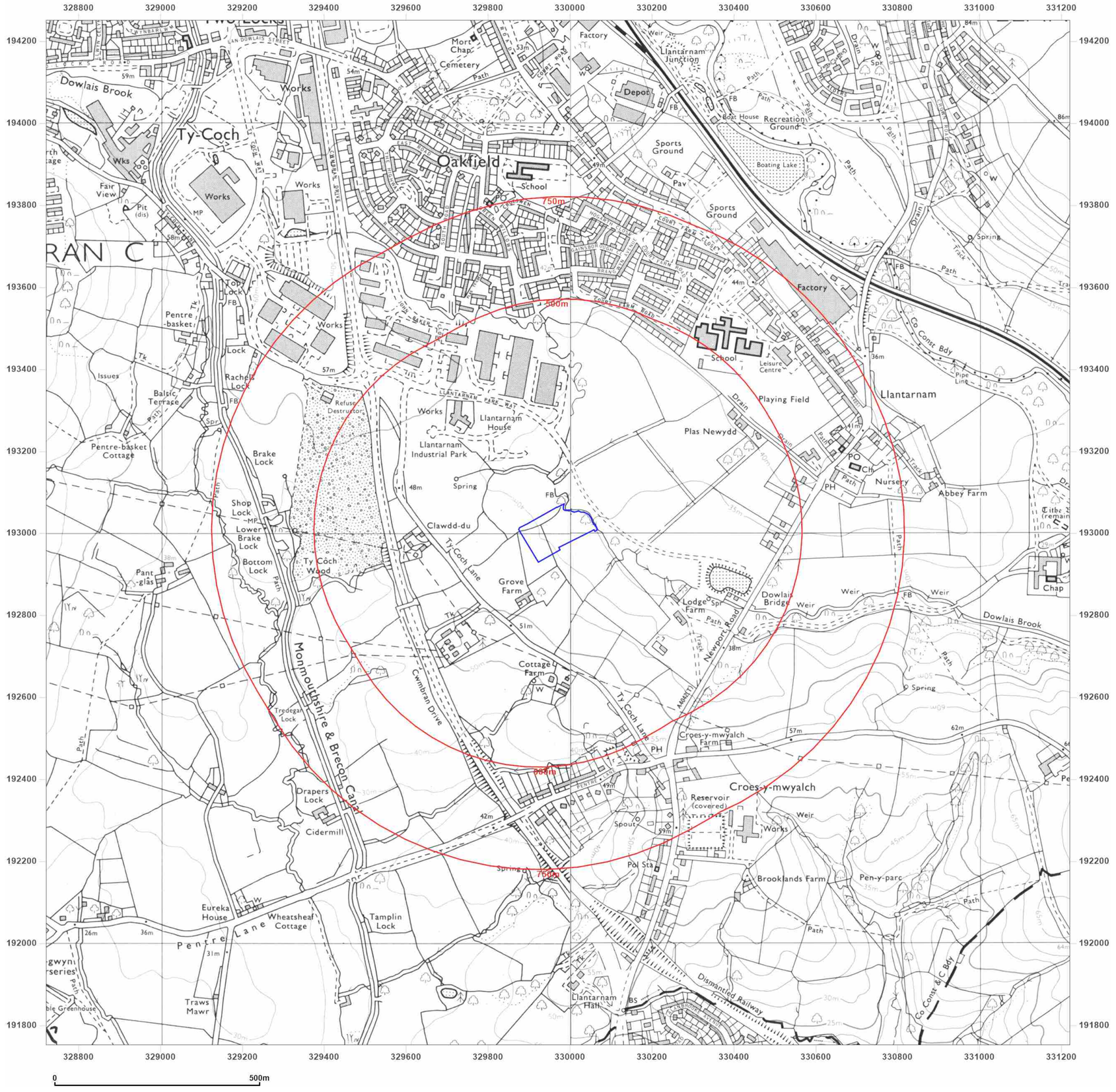

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1981-1983**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1983
Revised 1983
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Surveyed 1980
Revised 1981
Edition N/A
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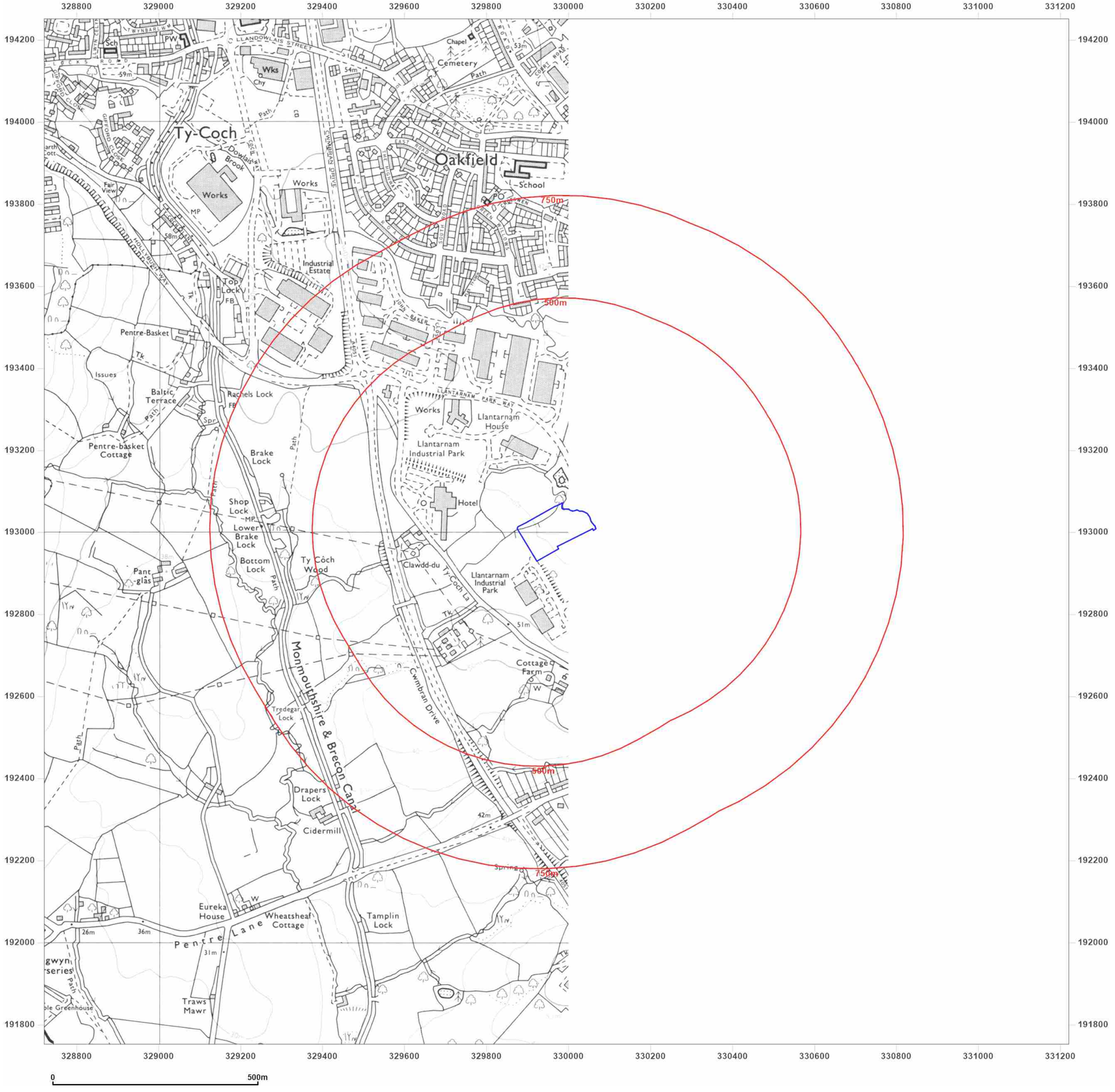

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **1992**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1991
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Edition N/A
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Production date: 05 November 2021

Map legend available at:
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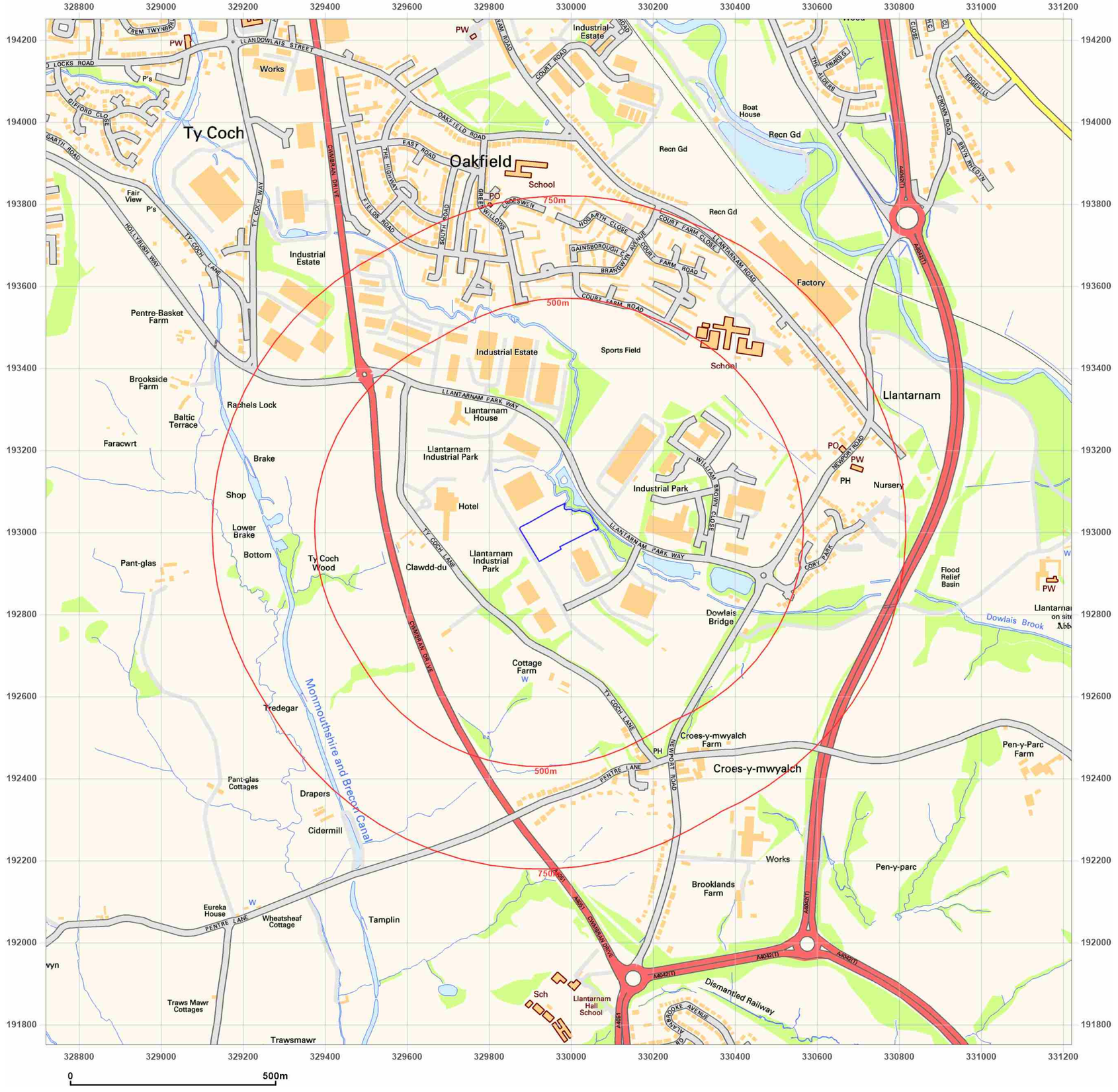

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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2001

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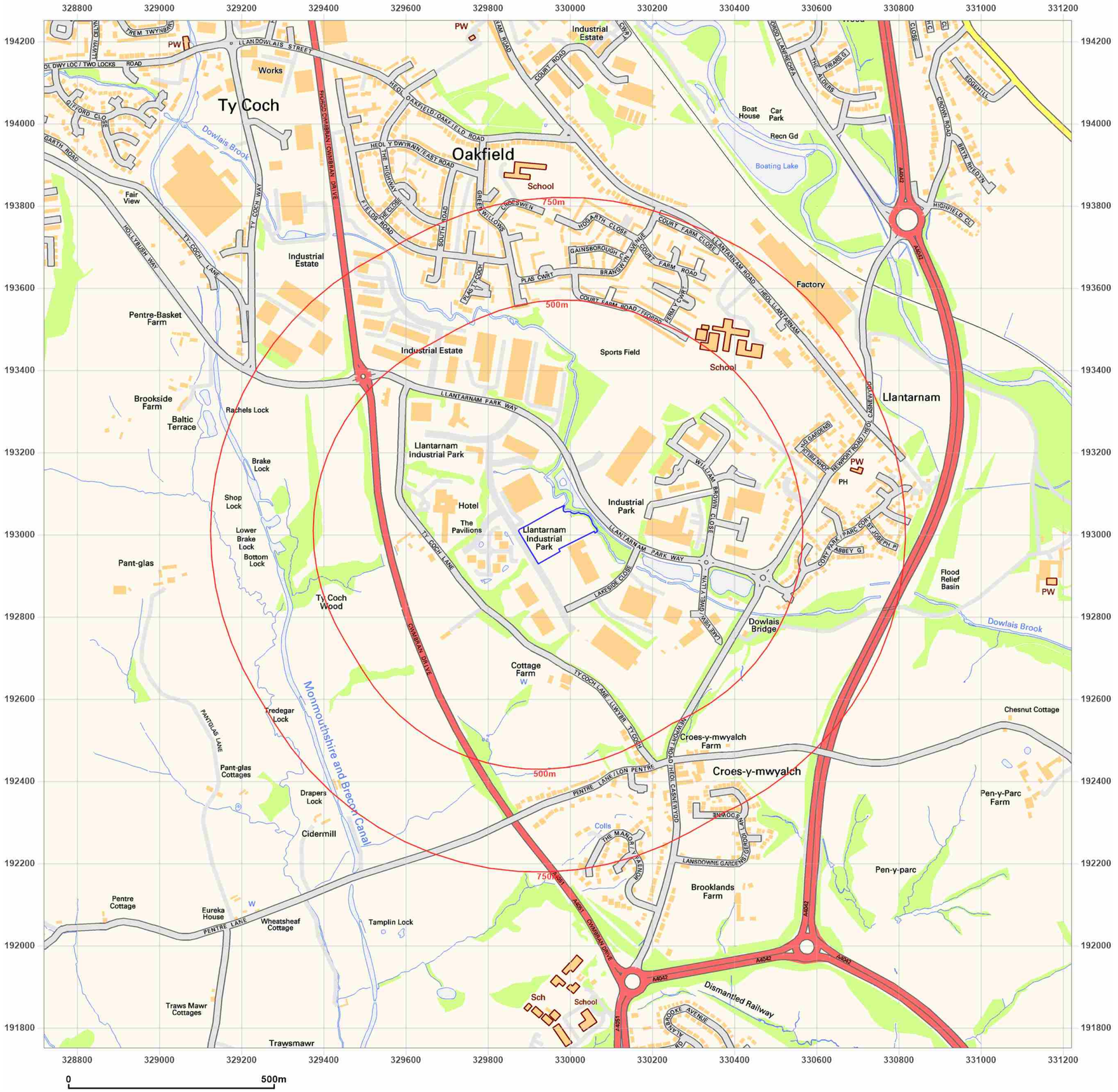

Discovery

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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2010

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Production date: 05 November 2021

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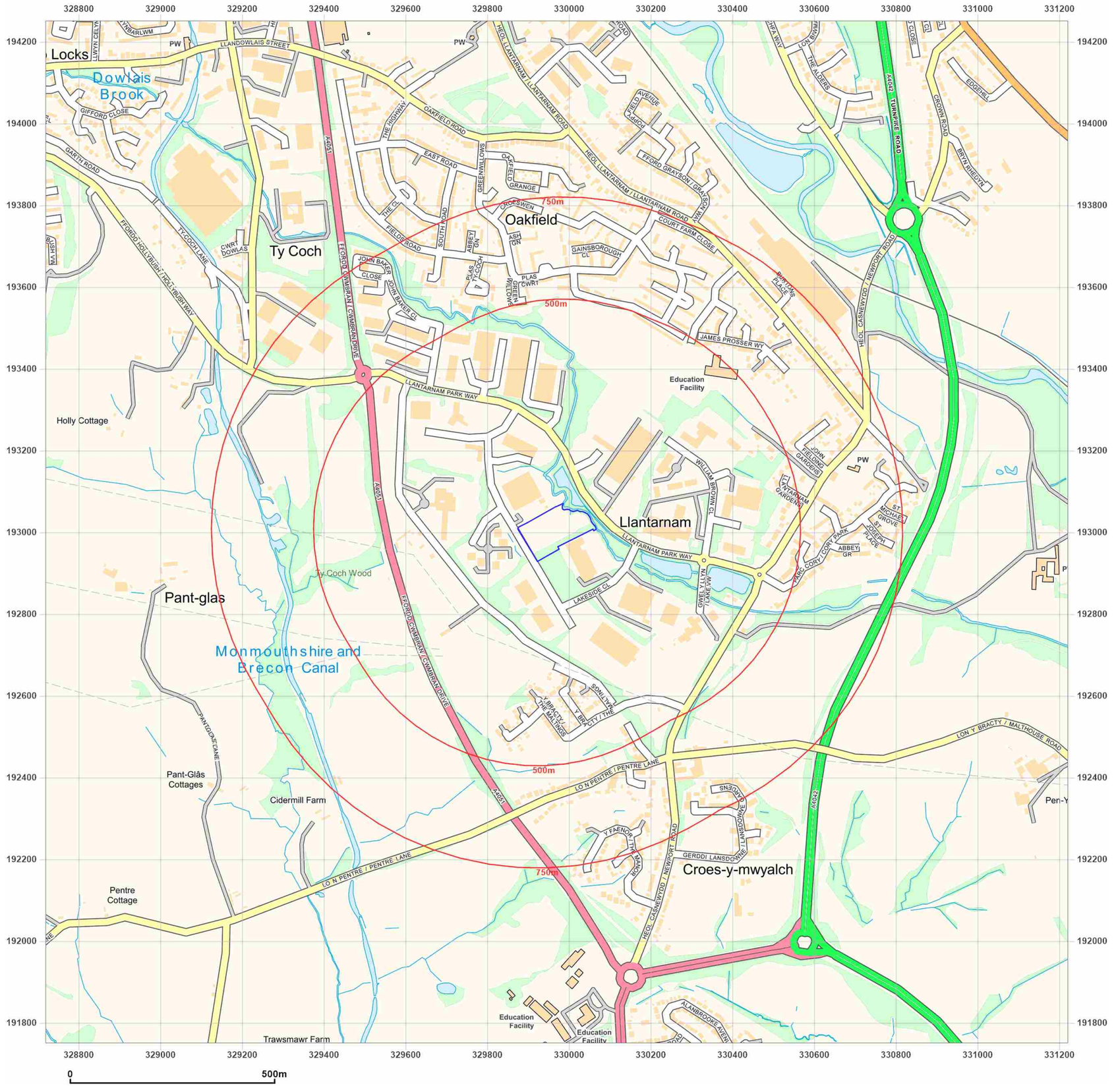

Discovery CE

Geotechnical & Environmental Engineers

Site Details:

329962.3790862677,
193011.9561096507

Client Ref: 21124J
Report Ref: DCE-8316184
Grid Ref: 329970, 193001

Map Name: National Grid

Map date: **2021**

Scale: 1:10,000

Printed at: 1:10,000

N
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2021

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Production date: 05 November 2021

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

APPENDIX E – PRELIMINARY QUALITATIVE RISK ASSESSMENT

Project Name :	Opus Land Plot C1		
Project Number :	21124J		
Client Name :	Opus Land Limited		
Drafted by:	BD	**Date:**	24/11/2021
Reviewed by:	PS	**Date:**	24/11/2021

Discovery CE
Geotechnical & Environmental Engineers
THE GRANARY
BROADWELL HOUSE FARM
BROADWELL
WARWICKSHIRE
CV21 8HF
TEL: 01926 813909
FAX: 01926 814909

LINKAGE	SOURCE		PATHWAY		RECEPTOR		CURRENT RISK ESTIMATE		CURRENT	Comments/ Recommendations
ID	ID	Description	ID	Description	ID	Description	Consequence	Likelihood	RISK ESTIMATE	
L13	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P01	Ingestion	R02	Future site users.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L14	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P02	Inhalation	R02	Future site users.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L15	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P03	Direct skin exposure (dermal contact)	R02	Future site users.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L22	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P01	Ingestion	R03	Site development & maintenance workers	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L23	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P02	Inhalation	R03	Site development & maintenance workers	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L24	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P03	Direct skin exposure (dermal contact)	R03	Site development & maintenance workers	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L25	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P01	Ingestion	R03	Site development & maintenance workers	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L26	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P02	Inhalation	R03	Site development & maintenance workers	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L27	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P03	Direct skin exposure (dermal contact)	R03	Site development & maintenance workers	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L28	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P04	Vertical leaching of contaminants	R06	Secondary A Aquifer beneath the site.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L29	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P04	Vertical leaching of contaminants	R06	Secondary A Aquifer beneath the site.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L30	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P05	Lateral migration of impacted groundwater	R05	Surface water course east of the site (Dowlais Brook)	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L31	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P05	Lateral migration of impacted groundwater	R05	Surface water course east of the site (Dowlais Brook)	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L4	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P01	Ingestion	R02	Future site users.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L5	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P02	Inhalation	R02	Future site users.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L6	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P03	Direct skin exposure (dermal contact)	R02	Future site users.	Medium	Low Likelihood	MODERATE-LOW	A ground investigation is recommended across the site to establish if the source is present on site.
L1	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P01	Ingestion	R01	Current site users.	Medium	Unlikely	LOW	Current users are mainly security staff and occasional vehicles. Contamination is expected to be at low concentrations and localised. Exposure is tantamount to negligible.
L10	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P01	Ingestion	R01	Current site users.	Medium	Unlikely	LOW	Contamination is expected to be at low concentrations and localised. Exposure is tantamount to negligible. The proposed development will be a large slabbed building and associated hardstanding.
L11	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P02	Inhalation	R01	Current site users.	Medium	Unlikely	LOW	Contamination is expected to be at low concentrations and localised. Exposure is tantamount to negligible. The proposed development will be a large slabbed building and associated hardstanding.
L12	S04	Contaminants of Concern in soil (organic contaminants) localised within areas of historical development	P03	Direct skin exposure (dermal contact)	R01	Current site users.	Medium	Unlikely	LOW	Contamination is expected to be at low concentrations and localised. Exposure is tantamount to negligible. The proposed development will be a large slabbed building and associated hardstanding.
L19	S08	Sulphates and low pH in soils.	P01	Ingestion	R07	Proposed buildings on site	Medium	Unlikely	LOW	Contamination is expected to be at low concentrations and localised. Suitable PPE will be used along with appropriate construction risk assessments - this will render the risk to **LOW** or **VERY LOW**.
L2	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P02	Inhalation	R01	Current site users.	Medium	Unlikely	LOW	Current users are mainly security staff and occasional vehicles. Contamination is expected to be at low concentrations and localised. Exposure is tantamount to negligible.
L20	S08	Sulphates and low pH in soils.	P02	Inhalation	R07	Proposed buildings on site	Medium	Unlikely	LOW	Contamination is expected to be at low concentrations and localised. Suitable PPE will be used along with appropriate construction risk assessments - this will render the risk to **LOW** or **VERY LOW**.
L3	S03	Contaminants of Concern in soil (metals and inorganic contaminants) localised within areas of historical development	P03	Direct skin exposure (dermal contact)	R01	Current site users.	Medium	Unlikely	LOW	Current users are mainly security staff and occasional vehicles. Contamination is expected to be at low concentrations and localised. Exposure is tantamount to negligible.
L21	S08	Sulphates and low pH in soils.	P03	Direct skin exposure (dermal contact)	R07	Proposed buildings on site	Mild	Unlikely	VERY LOW	Contamination is expected to be at low concentrations and localised. Suitable PPE will be used along with appropriate construction risk assessments - this will render the risk to **LOW** or **VERY LOW**.

APPENDIX F – UXO RISK ASSESSMENT

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Location: NP44 3XF,
Map Centre: 329843,193219

LEGEND

High: Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.

Moderate: Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.

Low: Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**

transport | **dock** | **Luftwaffe targets**

utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.