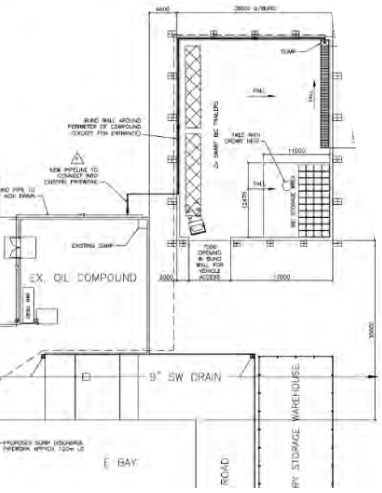

EARTH ENVIRONMENTAL & GEOTECHNICAL

GEO-ENVIRONMENTAL SITE INVESTIGATION REPORT

TIMET

SWANSEA

SOUTH WALES

REPORT REF: R0624/22

January 2022

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COMBINED PHASE I & PHASE II GEO-ENVIRONMENTAL SITE INVESTIGATION

TIMET

WAUNARLWYDD

SWANSEA

SOUTH WALES

SA5 4BT

Report Ref: R0624/22

JANUARY 2022

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COMBINED PHASE I & PHASE II GEO-ENVIRONMENTAL SITE INVESTIGATION
Timet, Waunarlwydd, Swansea, South Wales, SA5 4BT

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1.0 EXECUTIVE SUMMARY

Appointment	A combined phase I and phase II geo-environmental site investigation has been commissioned by Sol Environment, to examine ground conditions and retrieve soil samples for chemical testing to help inform on environmental conditions present, for a proposed development at Timet, Swansea.
The Site	• Timet, Waunarlwydd, Swansea, South Wales, SA5 4BT • National Grid Reference SS604963 (E: 260448, N:196337) • BGS indicates the following strata will be present: o Made Ground o Superficial Deposits – Alluvium o Bedrock – Grovesend Formation
Environmental Considerations	On Site: Made Ground (site is located within the Timet Titanium Manufacturing compound) Within 250m of Site: Main consideration is the activities associated with Timet Titanium Manufacturing. Other sources include an abandoned railway and a local Travelling Crane company.
Site History	The site was originally part of a field/forest until approximately 2017 when it was concreted over for use as a storage area within the Timet compound.
The Investigation	The investigation comprised 3 window sample boreholes to depths of between 2.0-3.0mbgl. One round of gas and groundwater monitoring was also completed and 6nr soil samples and 3nr groundwater samples were taken for contamination testing.
Ground Conditions Encountered	Made ground (proven to a maximum depth of 1.20mbgl) overlying Alluvium: clay and sand (proven to a maximum depth of 3.0mbgl).
Soil Contamination Risk Assessment	From the revised conceptual site model, it can be said that there is a low potential risk from soil contamination to current site users, workers during construction, and future site users. Remediation of soils is not expected to be required.
Land Gas Risk Assessment	Radon and Land Gas protection measures are not expected to be required on site.
This sheet is intended to provide a summary only of the report. It does not provide a definitive engineering analysis for the purposes of costing or construction and is subject to the limitation of the agreed brief.	

2.0 INTRODUCTION

2.1 Background

A Combined Phase I and Phase II Geo-Environmental Site Investigation has been commissioned by Sol Environment Ltd (the Client), to examine ground conditions and retrieve soil samples for chemical testing, to help inform on environmental conditions present, for an Environmental Permit in relation to a proposed development at Timet UK Ltd, Titanium Road (off Ystrad Road), Fforest-fach, Waunarlwydd, Swansea, SA5 4BT.

2.2 Terms of Reference

Earth Environmental and Geotechnical (Southern) Ltd (EEGSL) was commissioned by the Client to undertake a Combined Phase I and Phase II Geo-Environmental Investigation of the assessment site in accordance with a proposal R0624 dated 24/09/21.

The objectives of this investigation are as follows:

- *Provide a Phase I Desk Study Report for the assessment site*
- *Undertake ground investigation works, to provide baseline information and assess the presence and likely extent of any potential environmental hazards associated within the areas of the site investigated, for an Environmental Permit.*
- *Complete one round of Ground Gas and Groundwater monitoring.*
- *Provide a Factual Ground Investigation Report.*

2.3 Report Scope

This report presents full factual records of the site work carried out, the ground conditions encountered in the exploratory holes, the in situ and laboratory test results and results of any monitoring. All information collected has been used to provide an interpretation of the ground conditions, with recommendations on potential ground contamination risks for the proposed development.

2.4 Limitations of the Study

The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEGSL reserve the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use by the client and is confidential to them.

Recommendations within this report are also based on exploratory records and examination of samples and, where applicable, laboratory tests. No liability can be accepted for conditions not revealed by the boreholes and trial pits, particularly at intervening locations. Whilst every effort is made to ensure accuracy of data supplied, all opinions expressed as to the spatial distribution of strata between sampling locations is for guidance only and no responsibility is accepted as to its accuracy.

3.0 THE SITE

3.1 Site Location & Description

The site is located within the northeast corner of an industrial estate at Timet UK Ltd (Titanium Manufacturer) in Waunarlwydd, Swansea SA5 4BT. The site is centred on National Grid Reference SS604963 (E: 260448, N:196337) with the nearest postcode being SA5 4BT.

The site is roughly square in shape and is approximately 0.12ha in size. It is situated towards the northeast corner of an industrial complex and consists of an open area used for storage of materials.

To the north a wooded area is present, with large open fields beyond; to the east a large open field with a substation is present; to the south and west large industrial buildings with associated storage areas for the nearby factory are present, with large open fields beyond to the west.

An aerial photograph showing the location of the site is provided in Figure 1 and general site photographs are presented in Figures 2 and 3.

Figure 1: Aerial Image Showing Site Location

Figure 2: General Site Photograph (Looking West)

SITE: Timet, Waunarlwydd, Swansea, South Wales, SA5 4BT	SCALE: NTS	Project NO: R0624	EARTH ENVIRONMENTAL & GEOTECHNICAL
FIGURE TITLE: General Site Photo W-SE	REV: 01	FIGURE NO: 02	

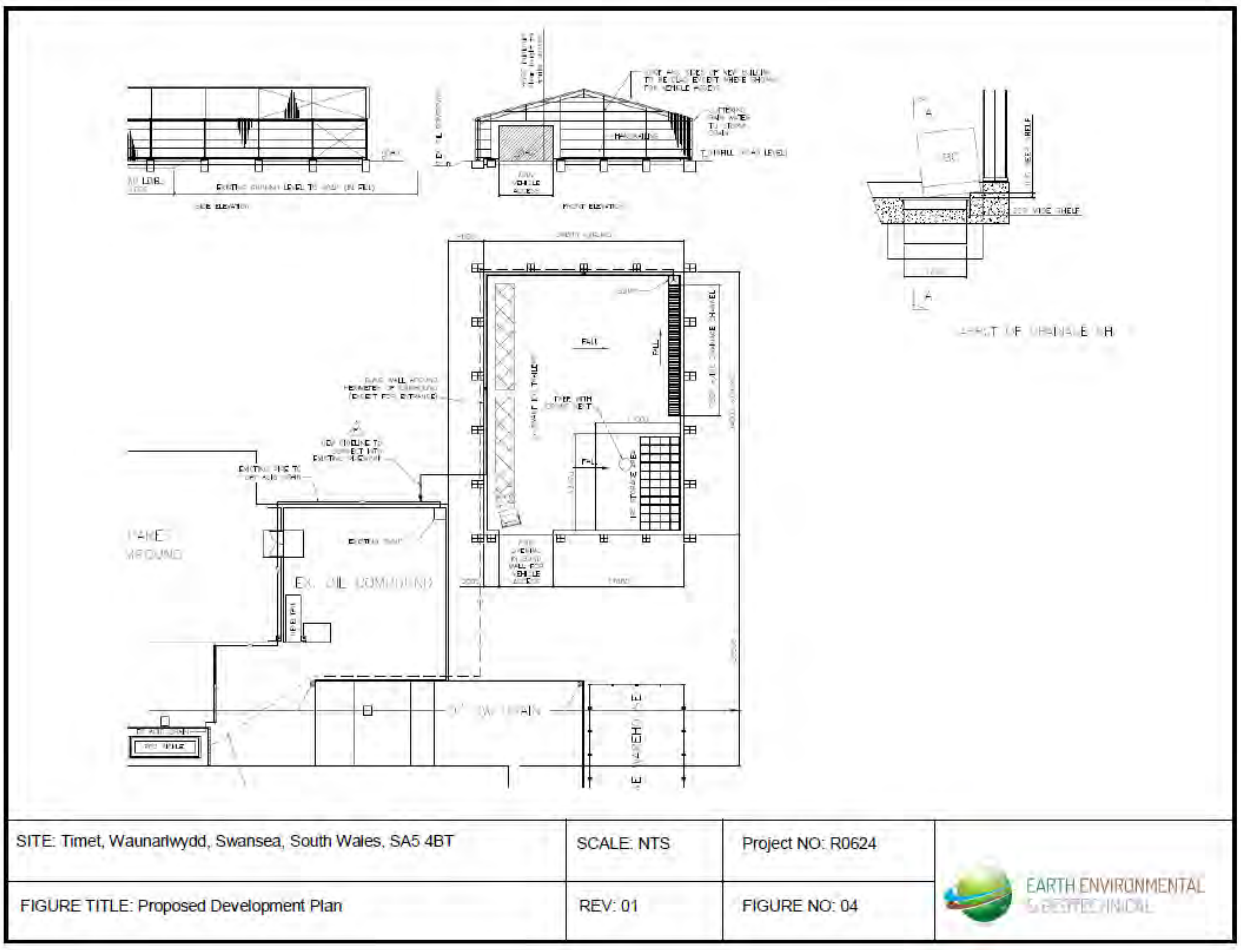
Figure 3: General Site Photograph (Looking South)

SITE: Timet, Waunarlwydd, Swansea, South Wales, SA5 4BT	SCALE: NTS	Project NO: R0624	EARTH ENVIRONMENTAL & GEOTECHNICAL
FIGURE TITLE: General Site Photo S-N	REV: 01	FIGURE NO: 03	

3.2 Proposed Development

It is proposed to construct a swarf IBC draining compound with associated cover structure and hardstanding area as well as an access road at the assessment site. The current proposed development plans are shown in Figure 4.

Figure 4: Proposed Development Plan



SITE: Timet, Waunarlwydd, Swansea, South Wales, SA5 4BT	SCALE: NTS	Project NO: R0624	EARTH ENVIRONMENTAL & GEOTECHNICAL
FIGURE TITLE: Proposed Development Plan	REV: 01	FIGURE NO: 04	

4.0 GEOLOGICAL SETTING

The geology of the site is covered by British Geological Survey (BGS) online data and the site-specific Groundsure Insight Report (Appendix 1).

The following sections are generally limited to locations within 250m of the site boundary unless it is considered that installation or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

4.1 Geology

The British Geological Survey (BGS) states that the assessment site is underlain by landscaped ground (Made Ground) and superficial deposits of Alluvium (Clay, Silt, Sand and Gravel) which formed during the Quaternary Period. Underlying the Superficial Deposits is bedrock geology of the Grovesend Formation (Mudstone, Siltstone and Sandstone) which formed during the Carboniferous Period.

The Alluvium is comprised of clay, silt, sand and gravel and generally consist of unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta.

The Grovesend Formation can be described as predominantly argillaceous, comprising mudstones and siltstones, with well-developed coals; minor lithic ("Pennant") sandstones and locally developed red mudstones.

There are three geological faults located within 250m of site. The nearest being 141m south of site and is an axial plane trace of a major syncline.

The site is in an area where the hazard rating for collapsible deposits and ground dissolution of rocks is negligible. A very low hazard rating exists for landslides and shrink swell clays and a low hazard rating exists for running sands. A moderate rating has been assigned for compressible deposits.

There are no historical borehole records within 250m of the site.

4.2 Radon Potential

The property is not in a Radon Affected Area as less than 1% of properties are above the Action Level. Radon protection measures are therefore not required.

4.3 Soil Chemistry

There is one estimated background soil chemistry record on site, recording levels of arsenic = 25-35mg/kg, cadmium = 1.8mg/kg, chromium = 90-120mg/kg, nickel = 15-30mg/kg and lead = 100mg/kg.

4.4 Mining, Ground Workings & Natural Cavities

There are 9 records of surface ground workings within 250m of site. The nearest is 112m NW at a gravel pit dated 1968. There are no underground workings, mining cavities, natural cavities, brine areas, gypsum areas, within 250m of site.

5.0 ENVIRONMENTAL SETTING

Environmental conditions are covered by Environment Agency (EA) and British Geological Survey (BGS) online data, and the site-specific Groundsure Insight report (Appendix 1).

The following sections are generally limited to locations within 250m of the site boundary unless it is considered that installations or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

5.1 Industrial Land Use Information

Historical and current industrial land usage on-site and within 250m of the site is summarised in Table 1 below:

Table 1: Summary of Industrial Land Use

Description	Records within 250m of site	Details
Historical Industrial Land Uses	16	On Site – Unspecified commercial/industrial (1994).
Historical Tanks	21	Nearest – 88m SW: unspecified tank (1990)
Historical Energy Features	6	Nearest – 168m S: electricity substation
Historical Petrol Station	0	-
Historical Garage	0	-
Historical Military Land	0	-
Historical Railway Features	3	Nearest – 221m N: abandoned railway
Recent Industrial Land Use	15	Nearest – 49m S: Travelling Crane at West Glamorgan SA5.
Current/Recent Petrol Stations	0	-
Electricity Cables	0	-
Gas Pipelines	0	-
Current Railway Features	0	-

5.2 Waste and Landfill Sites

There are 3 active or recent landfill sites within 250m of site. The nearest being 69m NW at Timet UK Ltd with landfill type A7 industrial waste (factory curtilage), closed status.

There are 2 historical landfill (EA/NRW) records within 250m of site, the nearest being 65m NW at IMI Titanium and Alcoa No 1.

There are two licensed waste sites within 250m of site, the nearest is 134m E at Timet Lagoon (IMI Titanium Ltd), issued 1977.

There are 4 records of waste exemptions within 250m of site. The closest record is 230m SW at Fiberight Limited with reference to the use of waste to manufacture finished goods.

5.3 Environmental Permits, Incidents and Registers

The Groundsure report includes records of environmental permits, incidents and registers within 250m of the site, the details of which are summarised in Table 2.

Table 2: Environmental Permits, Incidents and Registers Within 250m of the Site

Sites Determined as Contaminated Land under Part 2A EPA1990	None	-
Dangerous or Hazardous (COMAH and NIHHS) Sites	None	-
Regulated Explosive Sites	None	-
Hazardous Substance Storage/Usage	None	-
Historical Licensed Industrial Activities (IPC)	1	233m W – Timet UK (export) Ltd. Acid processes.
Licensed Industrial Activities Part A (1)	10	Nearest: 101m W – Timet UK Ltd. Surface treating metals and plastics; electrolytic/chemical.
Licensed Pollutant Release Part A (2) and Part B	None	-
Radioactive Substance Authorisations	None	-
Licensed Discharge to Controlled Waters	1	248m SW – Waunarlwydd Works Swansea. Effluent type: trade discharges unspecified. Revoked 2009.
Pollutant Release to surface waters (Red List)	None	-
Pollutant Release to Public Sewer	None	-
List 1 Dangerous Substances	None	-
List 2 Dangerous Substances	2	Nearest 103m W – Timet Waunarlwydd. Status: not active. Receiving water: Loughor estuary. Authorised substances: chromium, copper, nickel, zinc
Pollution Incidents (EA/NRW)	1	183m S – incident dated 05/04/2013. Pollutant: smoke. Land impact: category 4 no impact and air impact category 3 minor.
Pollution Inventory Substances / Waste Transfers/ Radioactive Waste	0	-

5.4 Hydrogeology and Hydrology

The superficial deposits and bedrock are both classed as Secondary A Aquifers by the Environment Agency. The EA definition for a Secondary A aquifer is given below:

> *"Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers"*

The nearest surface water feature is a river approximately 120m south of the assessment site.

According to the Groundsure Report, the soils beneath site are classified as having a high leaching potential.

The site is not located within a source protection zone.

There is a historical surface water abstraction license at 191m NW of site.

There are 14 recorded groundwater abstraction or potable water licenses within 250m of the site.

5.5 Environmentally Sensitive Sites

There are no environmentally sensitive sites with the exception of a designated ancient woodland 214m northeast of site.

5.6 Visual and Cultural Designations

There are no recorded world heritage sites, national parks, listed buildings or Scheduled Ancient Monuments within 250m of the site.

6.0 SITE HISTORY

The historical development of the assessment site has been determined by reference to historical maps and plans and Google Earth imagery. The reviewed historical maps and plans comprise only readily available records and may be limited; however, the information available to date indicates that additional searches are unlikely to add to our understanding of the site. The earliest available historical mapping covering the site dates back to 1878. The site history is summarised in Table 3

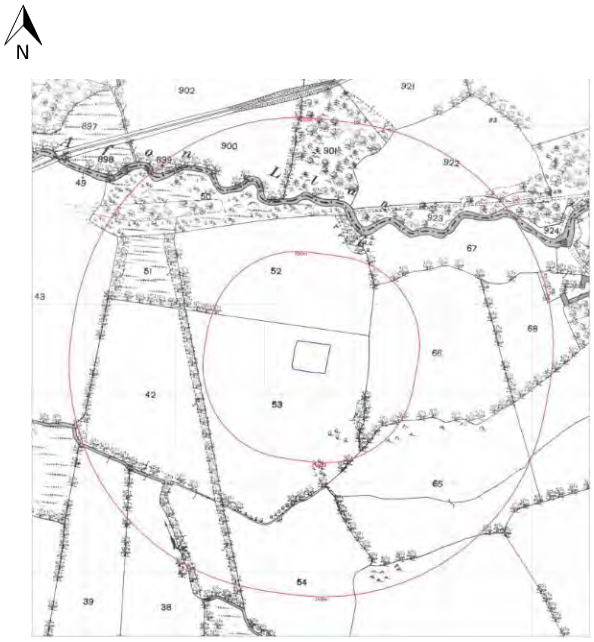
Table 3: Summary of Site History

Date	Site	Surrounding Land Use (Within 250m of Site)
1878-1879	Site is an open field.	Site is mostly surrounded by fields, trees and the Afon Llaa river towards the north.
1897-1898	No significant change.	A Mineral railway is located approximately 250m north of site (orientated east west).
1916	No significant change.	No significant change.
1936	No significant change.	No significant change.
1959	No significant change.	Works are located 100m southwest of site. Several land drains are marked on the map approximately between 120m to 250m southeast of site. A reservoir is also located about 235m towards the northwest.
1972	No significant change.	The Works (Titanium factory) has been expanded towards the southwest. There are various tanks labelled between 230m to 250m southwest of site.
1986	No significant change.	Various substations are located approximately 200m south and 240m northeast of site.
1990	No significant change.	A number of buildings associated with the Works have been constructed along the western boundary of the site.
1993	No significant change.	An additional tank is located 100m south of site.
2000	Aerial photography indicates site is covered entirely with trees.	Continued development of the Titanium Factory.
2003	No significant change.	Continued development of the Titanium Factory.
2009	No significant change.	Continued development of the Titanium Factory.
2017	Aerial photography indicates that trees have been cleared; crushed aggregate has been laid across site. Site is being used for materials storage.	Continued development of the Titanium Factory.
2021	No significant change.	Continued development of the Titanium Factory.

Selected extracts from historical maps and aerial photography are presented in Figures 6 and Figure 7.

Figure 5: Historical Map Extracts

1879



1959

1993

2003

Figure 6: Aerial Photography	
2009	2017
	

7.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

7.1 Introduction

The following sections outline a Preliminary Risk Assessment (PRA) for the assessment site based on the above desk study information as defined by DEFRA and the EA Model Procedures for the Management of Land Contamination, CLR11(2004).

Table 6 provides a Preliminary Conceptual Model (PCM) which considers the source-pathway-receptor linkages present alongside the likelihood, severity and risk level as defined within Table 4 and Table 5. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and CLR11.

Table 6 considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

The PCM/PRA is based on a commercial end use.

Table 4: Consequence, Probability and Risk

Probability	Consequence,	Risk
High Likelihood- There is a pollution linkage and an event either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution	Very High – acute risk to the human health likely to result in significant harm. Risk of severe or irreversible effect on ground/surface water quality. Catastrophic damage to buildings / property.	Very High – there is a high potential that the source-pathway-receptor scenarios may give rise to harm to human health or the environment and remedial action is likely to be required.
Likely – there is a pollution linkage and all the elements are present, which means that it is probable an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	High – Severe or irreversible effect on human health. Temporary severe or irreversible effect on ground/surface water quality. Reduction of water quality rendering groundwater or surface water unfit to drink and/or substantial adverse impact on groundwater dependant environmental receptors.	High – it is likely that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, which may require remediation and/or control measures to mitigate risks
Low likelihood– there is a pollutant linkage and circumstances are possible for an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term	Moderate – Long term or short term moderate effect on human health. Moderate effect on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – it is possible that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, however it is either relatively unlikely that such would be severe, or if any harm were to occur it is more likely that harm would be mild.
Unlikely – there is a pollution linkage, but circumstances are such that it is doubtful that an event would occur even in the very long term.	Low – Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.) Slight effect on ground/surface water quality, reversible with time. Marginal reduced reliability of a supply at a groundwater or surface water abstraction source.	Low – it is possible that harm could arise at the source, however it is likely that they would at worst be mild.
		Very Low – it is unlikely that the source-pathway-receptor scenarios will give rise to an impact on human health or the environment.

Table 5: Estimation of Level of Risk by Comparison of Consequence and Probability

		Consequence			
		High	Moderate	Low	Very low
Probability	High Likelihood	Very High	High risk	Moderate risk	Moderate to low risk
	Likely	High risk	Moderate risk	Moderate to low risk	Low risk
	Low Likelihood	Moderate risk	Moderate to low risk	Low risk	Very low risk
	Unlikely	Moderate to low risk	Low risk	Very low risk	Very low risk

7.2 Potential Sources

The following potential sources have been considered for the assessment site.

On Site:

- Made Ground / landscaped ground present on site.

Off Site:

- The site is located within the Timet UK Ltd compound which processes Titanium on a large scale. The wider site is considered a potentially significant source of contamination, with numerous tanks, oil stores, chemical stores and other point sources of contamination present. The major types of contaminants thought to be potentially present include: hydrocarbons (including TPHs, PAHs, SVOC and VOCs), sulphates, toxic metals and asbestos.

7.3 Potential Receptors

The following receptors have been considered as part of this assessment.

- Current land users.
- Adjacent land users.
- Future land users.
- Construction workers during site development works.

7.4 Potential Pathways

The following pathways have been considered as part of this assessment.

- Direct / dermal contact, ingestion, inhalation pathways of potentially contaminated soils.
- Vertical or lateral migration of contamination (including ground gas) on and off site.

Table 6: Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Contamination of the ground beneath site due to current and historical use	*Dermal contact, ingestion and inhalation of soils dust*	Current Site Users	Low likelihood	Moderate	Low to Moderate Risk	The risk to current site users from potential contamination associated with the sites current and historical use is deemed as LOW TO MODERATE. There is the potential for contamination to be present within shallow soils due to the storage of materials associated with the larger industrial site. Given the lack of current hard standing, current site users may come into direct contact with the underlying soils and potential contamination.
		Future Site users	Unlikely	Moderate	Low to Moderate Risk	The risk to future land users from potential contamination associated with the sites current and historical use is deemed as LOW given that end use is an IBC drainage compound (limited exposure) with extensive hard cover.
		Construction Workers	Low likelihood	Moderate	Low to Moderate Risk	The potential risk to construction workers to be exposed to contaminated materials present beneath site is deemed as LOW TO MODERATE. Given the industrial nature of the site there is a potential for some contamination to be present, however, exposure duration is expected to be short-term only, and assuming appropriate health and safety measures are adopted (in line with CDM and other relevant health and safety guidance) risk to construction works should be mitigated.
	Vertical or lateral migration of contamination (including ground gas) on and off site.	Current Site Users	Low Likelihood to Likely	Moderate	Low to Moderate Risk	The potential risk to current site users from migrating contamination (either contaminated groundwater or ground gases and vapours) is deemed as LOW TO MODERATE. Given the scale and industrial nature of the offsite sources, contamination may be present beneath site due to migration either as ground gasses or in contaminated groundwater. The site currently has no hardstanding, therefore there is the potential for current site users to come into direct contact with contamination in the shallow soils below. However, no significant risk is deemed to be present from ground gasses due to the lack of buildings or areas of confined space in which gasses could accumulate.
		Future Site Users	Low Likelihood	Moderate	Low to Moderate Risk	The risk to future site users from migrating contamination (ground gases / vapours and contaminated groundwater) is deemed as LOW given the proposed end use (IBC drainage compound with limited

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
						exposure potential and considerable hard cover)
		Construction Workers	Low likelihood	Moderate	Low to Moderate Risk	The risk to construction workers from migrating contamination (ground gases / vapours and groundwater) is deemed as LOW TO MODERATE. Given the industrial nature of the site there is a potential for some contamination to be present, however, exposure duration is expected to be short-term only, and assuming appropriate health and safety measures are adopted (in line with CDM and other relevant health and safety guidance) risk to construction works should be mitigated.

7.5 Preliminary Risk Assessment

From review of historical and current day information, it has been confirmed that the has been associated closely to a Titanium Factory since 1959 and now provides storage space for part of the industrial compound.

Based on the above information, a review of the potential sources of contamination and the likely receptors, it is recommended that a LOW to MODERATE risk is present.

Based on the assessment above, a limited ground investigation has been completed to allow assessment of the shallow soils and groundwater present at the assessment site. The following sections of this report detail the works completed and provide a generic risk assessment for continued commercial use.

8.0 SITE INVESTIGATION

8.1 Exploratory Fieldwork

The fieldwork was carried out by EEGSL on 9th December 2021 and comprised:

- 3 no. window sample boreholes (designated WS01 to WS03) were sunk to a maximum depth of up to 3.0m below existing ground level. Window sampler boring is carried out with a small, track-mounted rig, which uses a chain-driven trip hammer to drive sampling tubes or penetrometers into the ground. These tools are coupled to the anvil of the hammer by solid drill rods. Sampling tubes comprise “windowless samplers”, which are plain sampler tubes in which a continuous disturbed sample is recovered within a semi-rigid plastic liner. In order to reduce friction within the borehole, sampling tubes of progressively smaller diameter are used as the borehole depth increases. Sampler diameters generally range from between approximately 90mm to 50mm. Groundwater observations were noted where possible. These observations relate to the time of the investigation only, and do not necessarily reflect seasonal fluctuations. Exploratory Hole Log sheets are included in Appendix 2.

- 3 no. 50mm diameter standpipes piezometers were installed (one in each borehole) at depths of between 1.5m and 3m below ground level. Installation and backfill details are presented on the borehole logs in Appendix 2.

- EEGSL carried out one round of groundwater/gas monitoring approximately one week after installation of the boreholes. The results of the monitoring are presented in Appendix 3.

The fieldwork was carried out generally in accordance with BS 5930:2015+A1:2020 Code of Practice for Site Investigations unless otherwise stated. The exploratory hole locations were determined on site by EEGSL and considered site restrictions present at the time. The investigation locations completed are shown approximately on the Exploratory Hole Location Plan (Figure 7).

Figure 7: Exploratory Hole Location Plan

Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary. On completion, all samples recovered from the site were taken to a specialist laboratory for testing.

All site investigation work was supervised full time by a representative of EEGSL. The logging of soils has been carried out in accordance with BS5930(2015+A!:2020) except where superseded by the soil and rock description methodology in BS EN14688-1(2002), BS EN 14688-2(2004) and BS EN 14689-1(2003).

A summary of exploratory holes undertaken in presented in Table 7.

Table 7: Summary of Exploratory Holes Undertaken

Hole	Type*	Depth (m)	Date Started	Date Finished	Location			Backfill Details**
					Easting (m)	Northing (m)	Level (mAOD)	
WS01	WS	3.00	09/12/21	09/12/21	260443	196331	18	SP
WS02	WS	3.00	09/12/21	09/12/21	260441	196344	18	SP
WS03	WS	2.00	09/12/21	09/12/21	260459	196343	18	SP
*WS = Window Sample ** SP = Standpipe								

8.2 Laboratory Testing Programme

8.2.1 Soils Analysis

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples collected during ground investigation works, scheduled by EEGSL and carried out by Eurofins Chemtest.

Chemical analyses were carried out on 6 soil samples submitted for the following suite of determinants:

- *Asbestos Screen, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Sulphate (SO_4), Sulphide, pH, Soil Organic Matter, Phenol, speciated Total Petroleum Hydrocarbons (TPH) and speciated Polyaromatic Hydrocarbons (PAH).*

The results of the laboratory chemical tests are included in Appendix 4.

The range of potentially hazardous contaminants present on the site can be wide and varied, and the suite has been chosen to reflect both commonly found contaminants and others indicated by research to have a significant risk of being present. It is, however, possible that others may exist for which analyses have not been carried out. It is also possible that contaminants exist on the site but were not present at any of the exploratory hole locations.

8.2.2 Groundwater Analysis

The environmental chemistry of the shallow groundwater was investigated by specialist chemical analysis of selected groundwater samples collected during the monitoring round, scheduled by EEGSL and carried out by Eurofins Chemtest.

Chemical analyses were carried out on 3 groundwater samples submitted for the following suite of determinants:

- *Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Sulphate (SO_4), Sulphide, pH, Phenol, speciated Total Petroleum Hydrocarbons (TPH) speciated Polyaromatic Hydrocarbons (PAH), SVOCs and VOCs.*

The results of the laboratory chemical tests are included in Appendix 4.

The range of potentially hazardous contaminants present on the site can be wide and varied, and the suite has been chosen to reflect both commonly found contaminants and others indicated by research to have a significant risk of being present. It is, however, possible that others may exist for which analyses have not been carried out. It is also possible that contaminants exist on the site but were not present at any of the exploratory hole locations.

9.0 GROUND CONDITIONS ENCOUNTERED

9.1 Soil Profile Encountered

The general ground conditions encountered at the assessment site are summarised below, full details of the depths at which each stratum was encountered are provided within the borehole logs presented within Appendix 2.

The sequence of strata encountered beneath the site was as follows:

WS01

Variable Made Ground is present to 1.20mbgl, overlying silty SAND to 1.30mbgl, overlying slightly sandy slightly silty CLAY to 1.80mbgl, overlying slightly clayey slightly gravelly SAND to 3.00mbgl.

WS02

Variable Made Ground is present to 1.00mbgl, overlying slightly sandy slightly silty CLAY to 1.40mbgl, overlying slightly clayey slightly gravelly SAND to 2.00mbgl, overlying slightly clayey slightly gravelly silty SAND to 3.00mbgl.

WS03

Variable Made Ground is present to 0.70mbgl, overlying silty SAND to 2.00mbgl.

The depths of the various materials encountered in each of the exploratory holes are summarised in Table 8 below.

Table 8: Summary of Ground Conditions Encountered

Hole	Depth to Stratum (m)							GROUND-WATER
	MADE GROUND			Alluvium				
	Cobbly sandy gravel	Gravelly sandy silty clay	Sandy gravel	Silty SAND	Sandy silty CLAY	Clayey gravelly SAND	Clayey gravelly silty SAND	
WS01	GL-1.05	1.05-1.20		1.20-1.30	1.30-1.80	1.80-3.00		0.80,2.80
WS02	GL-1.00				1.00-1.40	1.40-2.00	2.00-3.00	1.80
WS03			GL-0.70	0.70-2.00				1.80

9.2 Obstructions

No underground man-made obstructions were encountered during the investigation works.

9.3 Groundwater

During the drilling of boreholes, groundwater was encountered within WS01 at 0.80mbgl and 2.80mbgl, at 1.80mbgl in WS02, and at 1.80mbgl within WS03.

Subsequent monitoring of groundwater at the three locations encountered groundwater within WS01 at 1.30mbgl, WS02 at 1.55mbgl, and WS03 at 1.55mbgl.

9.4 Ground Gas

One round of ground gas monitoring was undertaken on the 17th December 2021. Detailed results from the round are provided within Appendix 3. During monitoring the atmospheric pressure was recorded as between 1037-1038mb and the following ranges of gas concentrations were identified: Oxygen (O_2) levels ranging from 16.4-20.4% by volume, and Carbon Dioxide (CO_2) levels ranging from 0.0-2.9% by volume. Concentrations of methane (CH_4), hydrogen sulphide (H_2S) and Carbon Monoxide (CO) were not detected. Gas flows and borehole pressures were also recorded during the monitoring rounds. A maximum stabilised flow of 0.0 l/hr was recorded alongside a differential borehole pressure of -0.09 pa.

It should be noted that the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore be representative of the conditions only at the time of sampling.

9.5 Visual / Olfactory Evidence of Contamination

Made ground was observed in all boreholes but was thickest within WS01, this is consistent with the Desk Study research that the southern side of the assessment site has undergone greater development.

During the ground investigation works a moderate hydrocarbon odour was noted in WS01 between 1.05-1.20mbgl, and a strong hydrogen sulphide odour was noted within WS03 between 0.0-0.70mbgl.

10.0 SOIL CONTAMINATION RISK ASSESSMENT

10.1 General

The following sections provide a Generic Human Health Risk Assessment based on the chemical results obtained by EEGSL.

10.2 Proposed Development

It is proposed to develop the site for commercial purpose, with the construction of a swarf IBC draining compound, with associated cover structure and hardstanding area as well as an access road.

10.3 Ground Conditions Encountered

From the boreholes undertaken at the assessment site the ground conditions encountered are: MADE GROUND ranging in depths from GL to a maximum depth of 1.20m bgl, overlying varying SAND and CLAY material of Alluvium Deposits (described as clay, silt, sand and gravel), which ranges in depth from 0.70m bgl to a maximum proven depth of 3.00m bgl.

10.4 Tier I Human Health Soil Risk Assessment – Future Site Users

As part of the contamination assessment, the chemical results obtained by EEGSL have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values (March 2014), where available; and
- Tier 1 assessment values - based on LQM/CIEH Suitable 4 Use Levels$^{(2015)}$ (S4ULs).

As a preliminary screening assessment, all results have been compared to commercial/industrial end use criteria.

The comparison of results is summarised in the Tables 9 and 10.

Table 9: Soil Results Comparison with Defra C4SL HCV/LLTC Values

Determinant	C4SL (mg/kg)* Commercial	Min. (mg/kg)	Max. (mg/kg)	No. of Samples with Exceedances
Arsenic	640	11	200	0
Benzo(a)pyrene	76	<0.10	2.30	0
Cadmium	410	0.12	0.68	0
Chromium VI	9.1	<0.50	<0.50	0
Lead	2300	14	500	0

The comparison within Table 9 has shown no instances of elevated levels of contamination present in excess of the C4SLs for commercial end use.

The following contaminants were not assessed with respect to risks posed to Human Health as they are not generally considered to represent a significant risk to Human Health (CLR 8);

- Sulphate and sulphide.

For contaminants not covered by the Defra C4SLs, reference is made to the Suitable for Use Levels (S4ULs) derived by The Land Quality Management Ltd & Chartered Institute of Environmental Health(2015) and summarised in Table 10. The S4ULs are based on 1% Soil Organic Matter (SOM).

Table 10: Soil Results Comparison with LQM/CIEH S4UL

Determinant	Suitable 4 Use Levels (mg/kg)*	Min. (mg/kg)	Max. (mg/kg)	No of Exceedances
	Commercial			
Metals				
Beryllium	12	<1.0	2.9	0
Boron	240000	<0.4	1.8	0
Chromium	8600	15.0	42.0	0
Copper	68000	18.0	390.0	0
Mercury	58	<0.1	1.7	0
Nickel	980	16.0	30.0	0
Selenium	12000	<0.2	2.4	0
Vanadium	9000	12.0	50.0	0
Zinc	730000	64.0	2800.0	0
Polycyclic Aromatic Hydrocarbons				
Naphthalene	190	<0.1	0.33	0
Acenaphthylene	83000	<0.1	0.51	0
Acenaphthene	84000	<0.1	0.29	0
Fluorene	63000	<0.1	0.25	0
Phenanthrene	22000	<0.1	2.5	0
Anthracene	520000	<0.1	0.57	0
Fluoranthene	23000	<0.1	4.1	0
Pyrene	54000	<0.1	3.5	0
Benz(a)anthracene	170	<0.1	2.5	0
Chrysene	350	<0.1	2.5	0
Benzo(b)fluoranthene	44	<0.1	3.6	0
Benzo(k)fluoranthene	1200	<0.1	1.4	0
Indeno(1,2,3-cd)pyrene	500	<0.1	1.8	0
Dibenz(a,h)anthracene	3.5	<0.1	0.33	0
Benzo(ghi)perylene	3900	<0.1	1.5	0
Phenols				
Phenol	760	<0.1	<0.1	0
Speciated TPH				
Aliphatic >C5 - C6	3200	<1.0	<1.0	0
Aliphatic >C6 - C8	7800	<1.0	<1.0	0
Aliphatic >C8 - C10	2000	<1.0	<1.0	0
Aliphatic >C10 - C12	9700	<1.0	<1.0	0
Aliphatic >C12 - C16	59000	<1.0	<1.0	0
Aliphatic >C16 – C21	260000	<1.0	<1.0	0
Aromatic >C5 - C7	26000	<1.0	<1.0	0
Aromatic >C7 - C8	56000	<1.0	<1.0	0
Aromatic >C8 - C10	3500	<1.0	<1.0	0
Aromatic >C10 - C12	16000	<1.0	<1.0	0
Aromatic >C12 - C16	36000	<1.0	<1.0	0
Aromatic >C16 - C21	28000	<1.0	<1.0	0
Aromatic >C21 - C35	28000	<1.0	690	0
BTEX				
Benzene	27	<0.001	<0.001	0

Toluene	56000	<0.001	<0.001	0
Ethylbenzene	5700	<0.001	<0.001	0
m & p-xylene	6600	<0.001	<0.001	0
o-Xylene	6200	<0.001	<0.001	0

The comparison within Table 10 has shown no elevated levels of Toxic Metals, TPH, PAH and BTEX in excess of the S4ULs for commercial end use.

10.5 Asbestos

Asbestos was not encountered in any of the samples analysed as part of this investigation.

11.0 GROUNDWATER RISK ASSESSMENT

Assessment of potential impacts to surface water and groundwater quality involves the screening of observed water quality data with appropriate water quality Assessment Criteria (AC). The selection of appropriate AC depends on the nature and sensitivity of the controlled water for which active contamination linkages are considered likely to exist. There are two core sources of water quality AC commonly used for controlled waters screening assessments in the UK.

- Environmental Quality Standards (EQS) defined for the protection of the ecology of surface water environments. And

- Drinking Water Standards (DWS) defined on the basis of health for water intended for human consumption.

The nearest surface watercourse is a inland river, located approximately 120m to the south of the assessment site. For the purposes of this report, it is considered the most appropriate EQS data for the watercourse are those established for freshwater.

A large number of the EQS values lie just above the method detection limit for particular parameters and as such, are extremely conservative. In the absence of EQS values, Drinking Water Standards have been used for comparison of results. Again, DWS standards are highly conservative, especially in this site context.

Ground Water: Groundwater seepages were encountered in within WS01 at 0.80mbgl and 2.80mbgl, WS02 at 1.80mbgl, and WS03 at 1.80mbgl. Subsequent monitoring of groundwater in standpipes encountered groundwater within WS01 at 1.30mbgl, WS02 at 1.55mbgl, and WS03 at 1.55mbgl.

A direct comparison was made between the groundwater analyses results and the EQS and Drinking Water Standards, and the results are summarised in the following table:

Table 11: Groundwater Results Comparison

Determinand	(1) EQS value (µg/l unless otherwise stated)	(2) Drinking Water Quality Value (µg/l unless otherwise stated)	No. of Samples	Min. (µg/l)	Max. (µg/l)	No. of Exceedences
Arsenic	50	10	3	0.59	14	1 x (2)
Cadmium	5.0	5.0	3	0.15	0.20	0
Chromium	150-250**	50	3	0.78	10	0
Copper	10	2000	3	2.7	23	1 x (1)
Lead	50-250**	25	3	<0.50	15	0
Mercury	1.0	1.0	3	<0.05	<0.05	0
Selenium	-	10	3	0.68	11	0
Nickel	50-200**	20	3	6.1	10	0
Zinc	75-500**	-	3	4.6	72	0
Cyanide (Total)	-	50	3	<50	70	1 x (2)
Phenol	30	-	3	<0.50	<0.50	0
Sulphate	400000	-	3	100000	430000	1 x (1)
pH	6 – 9	-	3	7.8	8.1	0
Naphthalene	10	-	3	<0.010	<0.010	0
Benzo(a)pyrene	0.03	-	3	<0.010	<0.010	0
Fluoranthene	0.02	-	3	<0.010	<0.010	0
Total PAH*	-	0.10	3	<0.010	<0.010	0

*total PAH taken as the sum of benzo(b)fluoranthene + benzo(k)fluoranthene + benzo(ghi)perylene+ indeno(123-cd)pyrene
**dependent on alkalinity

In general, chemical laboratory analyses of water samples identified slightly elevated levels of contamination above the EQS and Drinking Water Standards, for the following contaminants:

- Elevated levels of **Arsenic** (14µg/l) were encountered in water taken from WS01 which is above the recommended Drinking Water Quality Value of 10µg/l.

- Elevated levels of **Copper** (23µg/l) were encountered in water taken from WS01 which is above the recommended EQS value of 10µg/l.

- Elevated levels of **Cyanide (Total)** (70µg/l) were encountered in water taken from WS02 which is above the recommended Drinking Water Quality Value of 50µg/l.

- Elevated levels of **Sulphate** (430,000µg/l) were encountered in water taken from WS02 which is above the recommended EQS Value of 400,000µg/l.

12.0 GROUND GAS CONTAMINATION RISK ASSESSMENT

A preliminary gas risk assessment has been completed for the assessment site based on monitoring data collected from the two installations constructed as part of the recent ground investigation works. The two installations have slotted sections screened across the underlying made ground and superficial geology present beneath the assessment site.

One round of ground gas monitoring of WS01, WS02 and WS03 was undertaken on the 17th December 2021. Detailed results from the round are provided within Appendix 4. During monitoring the atmospheric pressure was recorded as between 1037-1038mb. During the monitoring visit the following ranges of gas concentrations were identified: Oxygen (O_2) levels ranging from 16.4-20.4% by volume, and Carbon Dioxide (CO_2) levels ranging from 0.0-2.9% by volume. Concentrations of methane (CH_4), hydrogen sulphide (H_2S) and Carbon Monoxide (CO) were not detected. Gas flows and borehole pressures were also recorded during the monitoring rounds. A maximum stabilised flow of 0.0 l/hr was recorded alongside a differential borehole pressure of -0.09 pa.

The potential risk associated with ground gases (whether from natural or man-made sources) is dependent on the concentration of gas and its flow rate to the surface. These factors are assessed by the monitoring of borehole installations over varying atmospheric conditions. The variable nature of gas generation and the effect of barometric pressure on gas flow, means that the volume of gas potentially reaching the ground surface can vary over time.

For the assessment of sites, in terms of the potential for ground gas to present a hazard, the risk-based methodology detailed in the CIRIA C665(2007) is used. This is a risk-based approach that is designed to allow the quick and easy design of gas protection for development by comparing the measured gas emission rates to Characteristic Situations, based on risk-based Gas Screening Values (GSVs). The GSVs equate to the borehole gas volume flow rate as defined by Wilson and Card (1999) and are calculated as the borehole flow rate multiplied by the concentration in the air stream of the particular gas being considered.

For the purposes of this evaluation, the calculations will be carried out for carbon dioxide. A peak flow rate of 0.1l/hr will be used as this represents the detection limited of the equipment used during the recent monitoring works.

- Carbon dioxide: maximum flow rate = 0.1l/hr, max concentration = 2.9%

Based on the above figures, the GSVs are calculated as:

- Carbon dioxide: GSV = 0.1 x 0.029 = 0.0029 l/hr

The above results would suggest the site can be given a Characteristic Situation of (1), i.e. ‘Very Low Risk, in accordance with the Table 12.

Table 12: Modified Wilson & Card Classification (CIRIA Report 665)

Characteristic Situation (CIRIA Report 149)	*Risk Classification*	*GSV (CH_4 or CO_2) (l/hr)*	*Additional Factors*	*Typical Source of Generation*
1	Very Low Risk	<0.07	Typically methane ≤1%v/v and/or carbon dioxide ≤5% v/v. Otherwise consider increase to Situation 2.	Natural Soils with low organic content. "Typical" Made Ground.
2	Low Risk	<0.7	Borehole flow rate not to exceed 70l/hr. Otherwise increase to Situation 3.	Natural soil, high peat/organic content. "Typical" Made Ground.
3	Moderate Risk	<3.5		Old landfill, inert waste, mineworking flooded.
4	Moderate to High Risk	<15	Quantitative risk assessment required to evaluate scope of measures required.	Mineworking susceptible to flooding, completed landfill (WMP 26B criteria)
5	High Risk	<70		Mineworking unflooded inactive with shallow workings near surface.
6	Very High Risk	>70		Recent landfill site.

Therefore, according to Table 8.6 of CIRIA Report 665, no special precautions will be required in terms of ground gas mitigation measures.

12.1 Radon Gas

Based on information included in the Groundsure report, no special protection against the ingress of radon gas into the new building is required. Appropriate construction techniques are detailed in the BRE document *Radon: guidance on protective measures for new dwellings*(2015).

13.0 REVIEW OF PRELIMINARY CONTAMINATION RISK ASSESSMENT

The following section reviews the preliminary conceptual model based on the findings of the intrusive investigation.

Table 13 below provides a Revised Conceptual Model which supersedes the preliminary conceptual model created during the desk-based research for this assessment site.

The Revised Conceptual Model considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available.

Table 13: Revised Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Contamination of the ground beneath site due to current and historical use	*Dermal contact, ingestion and inhalation of soils dust*	Current Site Users	Unlikely	Moderate	Low Risk	The risk to current site users from potential contamination associated with the sites current and historical use is deemed as LOW. It has been identified that made ground is present across the assessment site proven to a maximum depth of up to 1.20m bgl. No elevated levels of contamination have been identified in excess of a commercial end use criterion for soils.
		Future Site users	Unlikely	Moderate	Low Risk	The risk to future site users from potential contamination associated with the sites current and historical use is deemed as LOW. It has been identified that made ground is present across the assessment site proven to a maximum depth of up to 1.20m bgl, however no elevated levels of contamination have been identified in shallow soils in excess of a commercial end use criterion.
		Construction Workers	Unlikely	Moderate	Low Risk	The risk to construction workers to be exposed to contaminated materials present beneath site is deemed as LOW.
	Vertical or lateral migration of contamination (including ground gas) on and off site.	Current Site Users	Unlikely	Moderate	Low Risk	The risk to current site users from migrating contamination (ground gases / vapours and contaminated groundwater) is deemed as LOW. Despite the presence of made ground, a lack of significant gas and vapour concentration have been identified and only minor contamination of the underlying groundwater has been proven. Based on these results and the commercial nature of the site, the risk to current site users is deemed as LOW.
		Future Site Users	Unlikely	Moderate	Low Risk	The risk to future site users from migrating contamination (ground gases / vapours and contaminated groundwater) is deemed as LOW. Despite the presence of

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
						made ground, a lack of significant gas and vapour concentration have been identified and only minor contamination of the underlying groundwater has been proven. Based on these results and the commercial nature of the site, the risk to future site users is deemed as LOW
		Construction Workers	Unlikely	Moderate	Low Risk	The risk to construction workers from migrating contamination is deemed as LOW.

14.0 CONCLUSIONS AND RECOMMENDATIONS

The following section provides a summary of the conclusions and recommendations based on the findings of the Site Investigation, Laboratory soil analysis and ground gas and groundwater level monitoring.

14.1 Soil Contamination

As highlight within Section 10 of this report, the analysis of soil samples representative of shallow soil material beneath the assessment site have shown no elevated levels of contaminants above the relevant commercial end use screening criterion.

14.2 Ground Gas

As mentioned in Section 9.4 and discussed in Section 12 of this report, one preliminary round of ground gas monitoring was undertaken as part of this investigation. The current data shows an absence of ground gases at the assessment site. From an initial gas risk assessment, the site has been classed as a Characteristic Situation of (1) i.e. Very Low Risk. It is therefore recommended that no special precautions related to ground gas mitigation are required in this instance.

14.3 Groundwater

During excavation groundwater was present within WS01 at 0.80mbgl and 2.80mbgl, WS02 at 1.80mbgl, and WS03 at 1.80mbgl. Subsequent monitoring of groundwater in standpipes encountered groundwater within WS01 at 1.30mbgl, WS02 at 1.55mbgl, and WS03 at 1.55mbgl.

Based on the above results, it is considered that there is a semi-continuous groundwater body present beneath the site at a depth of between 0.80m-2.80m bgl within the superficial deposits of Alluvium.

Water samples from WS01, WS02 and WS03 were collected and sent for chemical testing and results were compared to Environmental Quality Standards (EQS) and UK Drinking Water standards(2000) . The comparison identified slightly elevated levels of Arsenic and Copper in water from WS01, and Cyanide and Sulphate in water taken from WS02, all other contaminants were below the screening values.

14.4 Site Personnel

As with all construction sites, personnel working on the site during the construction period should be encouraged to maintain a high standard of personal hygiene and on-site washing facilities should be available.

14.5 Other Matters

Due diligence is required during the construction period, and should any evidence of unknown contamination be found appropriate investigation and / or action should be taken. The significance of any contamination not discovered by this investigation is outside the scope of this report.

APPENDIX 1

GROUNDSURE REPORT

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Order Details

Date: 07/12/2021

Your ref: R0624

Our Ref: GS-8384600

Client: Earth Environmental & Geotechnical Ltd

Site Details

Location: 260453 196344

Area: 0.12 ha

Authority: Abertawe - Swansea City and Borough Council

Summary of findings p. 2

OS MasterMap site plan p.13

Aerial image p. 8

groundsure.com/insightuserguide

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	1	1	14	43	-
17	1.2	Historical tanks	0	0	20	15	-
18	1.3	Historical energy features	0	0	6	10	-
19	1.4	Historical petrol stations	0	0	0	0	-
20	1.5	Historical garages	0	0	0	0	-
20	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
21	2.1	Historical industrial land uses	1	1	15	63	-
24	2.2	Historical tanks	0	0	34	26	-
27	2.3	Historical energy features	0	0	10	14	-
28	2.4	Historical petrol stations	0	0	0	0	-
28	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
29	3.1	Active or recent landfill	0	0	3	0	-
30	3.2	Historical landfill (BGS records)	0	0	0	0	-
30	3.3	Historical landfill (LA/mapping records)	0	0	0	2	-
31	3.4	Historical landfill (EA/NRW records)	0	0	2	1	-
31	3.5	Historical waste sites	0	0	0	2	-
32	3.6	Licensed waste sites	0	0	2	14	-
37	3.7	Waste exemptions	0	0	4	6	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
39	4.1	Recent industrial land uses	0	1	14	-	-
40	4.2	Current or recent petrol stations	0	0	0	0	-
40	4.3	Electricity cables	0	0	0	0	-
41	4.4	Gas pipelines	0	0	0	0	-
41	4.5	Sites determined as Contaminated Land	0	0	0	0	-

41	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
41	4.7	Regulated explosive sites	0	0	0	0	-
41	**4.8**	**Hazardous substance storage/usage**	0	0	0	1	-
42	**4.9**	**Historical licensed industrial activities (IPC)**	0	0	1	16	-
44	**4.10**	**Licensed industrial activities (Part A(1))**	0	0	10	19	-
49	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
49	4.12	Radioactive Substance Authorisations	0	0	0	0	-
49	**4.13**	**Licensed Discharges to controlled waters**	0	0	1	3	-
50	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
50	4.15	Pollutant release to public sewer	0	0	0	0	-
50	4.16	List 1 Dangerous Substances	0	0	0	0	-
50	**4.17**	**List 2 Dangerous Substances**	0	0	2	3	-
51	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	1	7	-
52	4.19	Pollution inventory substances	0	0	0	0	-
52	4.20	Pollution inventory waste transfers	0	0	0	0	-
52	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
53	**5.1**	**Superficial aquifer**	Identified (within 500m)				
55	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
57	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
58	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
58	5.5	Groundwater vulnerability- local information	None (within 0m)				
59	5.6	Groundwater abstractions	0	0	0	0	0
60	**5.7**	**Surface water abstractions**	0	0	1	0	2
60	5.8	Potable abstractions	0	0	0	0	0
61	5.9	Source Protection Zones	0	0	0	0	-
61	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
62	**6.1**	**Water Network (OS MasterMap)**	0	0	14	-	-

64	6.2	Surface water features	0	0	6	-	-
64	6.3	WFD Surface water body catchments	1	-	-	-	-
64	6.4	WFD Surface water bodies	0	0	1	-	-
65	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
66	7.1	Risk of flooding from rivers and the sea	High (within 50m)				
67	7.2	Historical Flood Events	0	0	0	-	-
67	7.3	Flood Defences	0	0	0	-	-
67	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
67	7.5	Flood Storage Areas	0	0	0	-	-
68	7.6	Flood Zone 2	None (within 50m)				
68	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
69	8.1	Surface water flooding	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
71	9.1	Groundwater flooding	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
72	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
73	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
73	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
73	10.4	Special Protection Areas (SPA)	0	0	0	0	0
73	10.5	National Nature Reserves (NNR)	0	0	0	0	0
74	10.6	Local Nature Reserves (LNR)	0	0	0	0	1
74	10.7	Designated Ancient Woodland	0	0	1	5	26
75	10.8	Biosphere Reserves	0	0	0	0	0
76	10.9	Forest Parks	0	0	0	0	0
76	10.10	Marine Conservation Zones	0	0	0	0	0
76	10.11	Green Belt	0	0	0	0	0
76	10.12	Proposed Ramsar sites	0	0	0	0	0

76	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
77	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
77	10.15	Nitrate Sensitive Areas	0	0	0	0	0
77	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
78	10.17	SSSI Impact Risk Zones	0	-	-	-	-
78	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
79	11.1	World Heritage Sites	0	0	0	-	-
79	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
79	11.3	National Parks	0	0	0	-	-
79	11.4	Listed Buildings	0	0	0	-	-
80	11.5	Conservation Areas	0	0	0	-	-
80	11.6	Scheduled Ancient Monuments	0	0	0	-	-
80	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
81	**12.1**	**Agricultural Land Classification**	Grade 3b (within 250m)				
82	12.2	Open Access Land	0	0	0	-	-
82	12.3	Tree Felling Licences	0	0	0	-	-
82	12.4	Environmental Stewardship Schemes	0	0	0	-	-
82	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
83	13.1	Priority Habitat Inventory	0	0	0	-	-
83	13.2	Habitat Networks	0	0	0	-	-
83	13.3	Open Mosaic Habitat	0	0	0	-	-
83	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
84	**14.1**	**10k Availability**	Identified (within 500m)				
85	**14.2**	**Artificial and made ground (10k)**	1	0	0	10	-
87	**14.3**	**Superficial geology (10k)**	1	0	2	2	-

88	14.4	Landslip (10k)	0	0	0	0	-
89	14.5	Bedrock geology (10k)	1	0	2	7	-
90	14.6	Bedrock faults and other linear features (10k)	0	0	3	5	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
91	15.1	50k Availability	Identified (within 500m)				
92	15.2	Artificial and made ground (50k)	1	0	0	1	-
93	15.3	Artificial ground permeability (50k)	1	0	-	-	-
94	15.4	Superficial geology (50k)	1	0	1	0	-
95	15.5	Superficial permeability (50k)	Identified (within 50m)				
95	15.6	Landslip (50k)	0	0	0	0	-
95	15.7	Landslip permeability (50k)	None (within 50m)				
96	15.8	Bedrock geology (50k)	1	0	2	3	-
97	15.9	Bedrock permeability (50k)	Identified (within 50m)				
97	15.10	Bedrock faults and other linear features (50k)	0	0	3	4	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
99	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
100	17.1	Shrink swell clays	Very low (within 50m)				
101	17.2	Running sands	Low (within 50m)				
103	17.3	Compressible deposits	Moderate (within 50m)				
105	17.4	Collapsible deposits	Negligible (within 50m)				
106	17.5	Landslides	Very low (within 50m)				
107	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
109	18.1	Natural cavities	0	0	0	0	-
110	18.2	BritPits	0	0	0	3	-
110	18.3	Surface ground workings	0	0	9	-	-
111	18.4	Underground workings	0	0	0	8	22
112	18.5	Historical Mineral Planning Areas	0	0	0	0	-

113	18.6	Non-coal mining	0	0	0	0	0
113	18.7	Mining cavities	0	0	0	0	0
113	18.8	JPB mining areas	None (within 0m)				
113	**18.9**	**Coal mining**	Identified (within 0m)				
114	18.10	Brine areas	None (within 0m)				
114	18.11	Gypsum areas	None (within 0m)				
114	18.12	Tin mining	None (within 0m)				
114	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
115	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
116	**20.1**	**BGS Estimated Background Soil Chemistry**	1	1	-	-	-
116	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
116	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
117	21.1	Underground railways (London)	0	0	0	-	-
117	21.2	Underground railways (Non-London)	0	0	0	-	-
118	21.3	Railway tunnels	0	0	0	-	-
118	**21.4**	**Historical railway and tunnel features**	0	0	2	-	-
118	21.5	Royal Mail tunnels	0	0	0	-	-
118	**21.6**	**Historical railways**	0	0	1	-	-
119	21.7	Railways	0	0	0	-	-
119	21.8	Crossrail 1	0	0	0	0	-
119	21.9	Crossrail 2	0	0	0	0	-
119	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 14/04/2020

Site Area: 0.12ha

Recent site history - 2017 aerial photograph

Capture Date: 25/05/2017

Site Area: 0.12ha

Recent site history - 2009 aerial photograph

Capture Date: 12/10/2009

Site Area: 0.12ha

Recent site history - 2008 aerial photograph

Capture Date: 12/05/2008

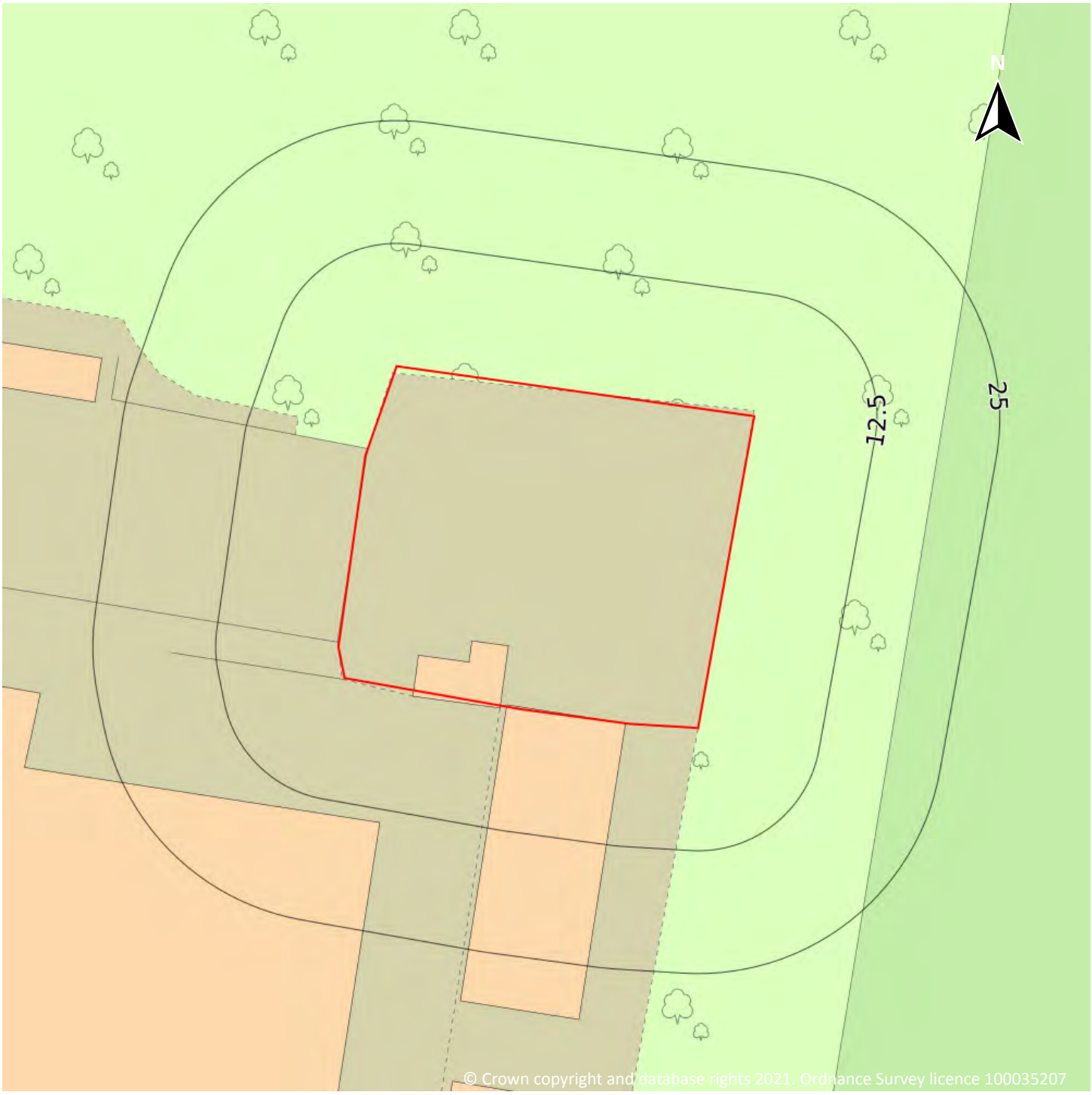
Site Area: 0.12ha

Recent site history - 2000 aerial photograph

Capture Date: 24/08/2000

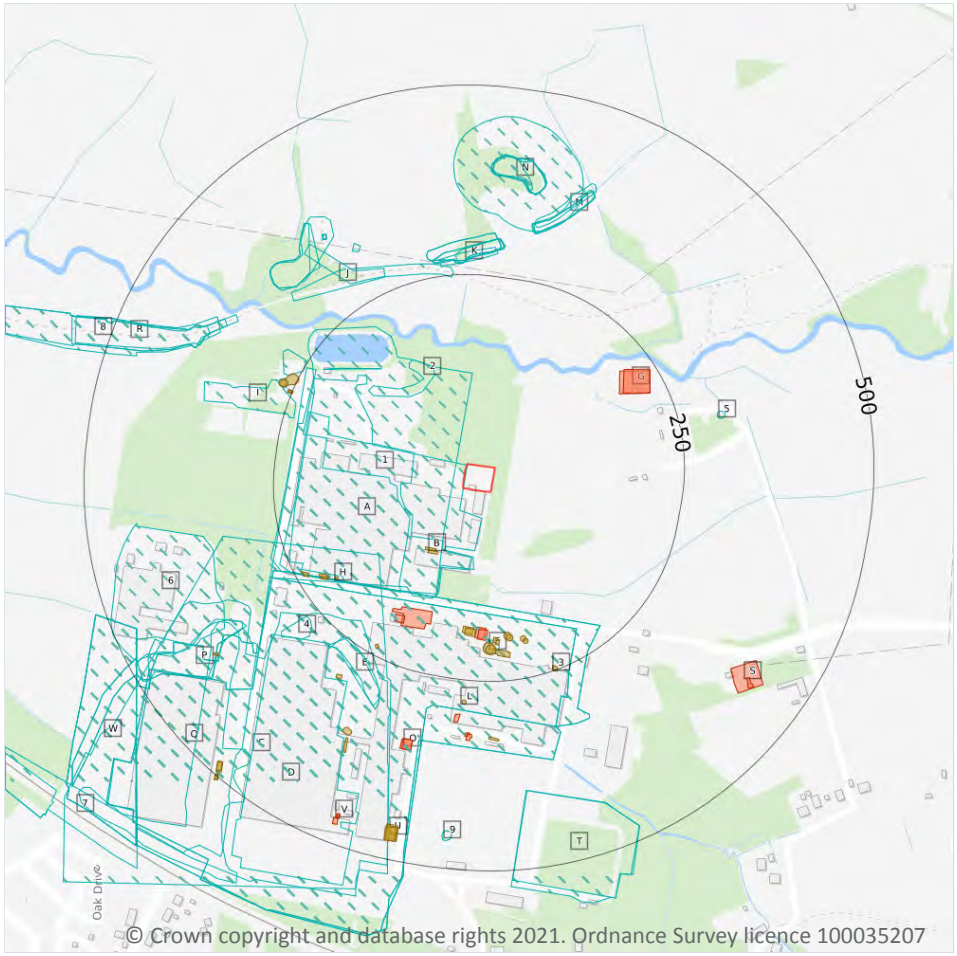
Site Area: 0.12ha

OS MasterMap site plan



Site Area: 0.12ha

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	59

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**	**Unspecified Commercial/Industrial**	**1994**	**331129**

ID	Location	Land use	Dates present	Group ID
1	13m W	Unspecified Works	1968	362328
A	69m W	Unspecified Factory	1980	320633
A	81m SW	Unspecified Works	1964	378118
2	112m NW	Gravel Pit	1968	328651
C	142m SW	Metal Works	1947	318672
D	148m S	Unspecified Works	1980	339373
D	148m S	Unspecified Works	1988	339374
D	158m S	Unspecified Works	1994	339316
D	158m S	Unspecified Works	1992	339317
F	196m S	Unspecified Tank	1980 - 1994	372495
C	221m SW	Unspecified Works	1964 - 1967	368204
I	236m W	Sludge Beds	1980 - 1994	360261
J	247m N	Railway Sidings	1938 - 1947	353553
E	248m SW	Refuse Heap	1964	338751
I	249m NW	Refuse Heap	1980	338759
E	252m SW	Gravel Pit	1968	328650
I	259m NW	Unspecified Tank	1964 - 1968	379478
K	262m N	Cuttings	1878	336891
K	264m N	Unspecified Ground Workings	1947	376461
K	265m N	Unspecified Heap	1936	370751
K	265m N	Unspecified Heap	1938	376081
4	267m SW	Unspecified Pit	1964	335482
K	268m N	Unspecified Ground Workings	1897	354634
K	268m N	Unspecified Heap	1913	375066
J	270m NW	Mineral Railway Sidings	1913	332670
D	271m SW	Unspecified Works	1968	369787
5	301m E	Unspecified Tank	1964	319910
M	313m N	Old Coal Pit	1913	321371

ID	Location	Land use	Dates present	Group ID
M	313m N	Unspecified Pits	1936	356939
M	314m N	Unspecified Pits	1938	342286
J	315m NW	Unspecified Disused Drift	1980 - 1994	364829
N	316m N	Unspecified Old Shaft	1913	337696
M	322m N	Unspecified Pit	1897	335487
J	323m NW	Unspecified Disused Drift	1964 - 1968	369531
J	324m NW	Unspecified Heap	1936 - 1947	348503
J	325m NW	Unspecified Heap	1980 - 1994	351035
P	339m SW	Refuse Heap	1964	363508
6	340m W	Refuse Heap	1992 - 1994	367553
P	341m SW	Gravel Pit	1968	328652
Q	341m SW	Unspecified Works	1968	357417
J	350m NW	Unspecified Old Drift	1938 - 1947	366702
J	350m NW	Unspecified Old Drift	1936	360887
Q	352m SW	Railway Sidings	1947	378009
R	356m NW	Railway Sidings	1936	337507
N	364m N	Unspecified Heap	1936	364088
N	364m N	Unspecified Heap	1947 - 1964	366385
N	365m N	Unspecified Heap	1938	349329
N	365m N	Unspecified Heap	1938	352466
R	366m NW	Mineral Railway Sidings	1938 - 1947	347038
N	369m N	Unspecified Heap	1968 - 1994	367228
7	369m NW	Mineral Railway Sidings	1938 - 1964	352030
8	380m NW	Mineral Railway Sidings	1913	355057
T	396m S	Unspecified Works	1964 - 1968	349241
T	397m S	Unspecified Commercial/Industrial	1980	331138
9	450m S	Old Coal Pit	1897	321356
W	469m SW	Unspecified Works	1974	372920

ID	Location	Land use	Dates present	Group ID
W	486m SW	Refuse Heap	1988	344288
W	486m SW	Refuse Heap	1974	373502

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**35**

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	88m SW	Unspecified Tank	1990	37761
B	90m S	Unspecified Tank	1993	37760
F	180m S	Unspecified Tank	1986 - 1990	42826
F	182m S	Unspecified Tank	1993	42553
F	186m S	Unspecified Tank	1986 - 1990	42443
F	190m S	Unspecified Tank	1993	40858
F	192m S	Unspecified Tank	1986 - 1993	41624
F	195m S	Unspecified Tank	1986 - 1990	42736
F	199m S	Unspecified Tank	1993	41194
F	199m S	Unspecified Tank	1986 - 1990	41573
F	202m S	Unspecified Tank	1993	41930
H	203m SW	Unspecified Tank	1971	37759
F	208m S	Tanks	1986 - 1993	41618
H	213m SW	Tanks	1993	40530
H	213m SW	Tanks	1971 - 1990	43608
H	233m SW	Tanks	1971 - 1993	44263

ID	Location	Land use	Dates present	Group ID
E	235m SW	Tanks	1971	39423
3	244m S	Unspecified Tank	1990 - 1993	40762
I	248m NW	Tanks	1993	39434
I	249m W	Unspecified Tank	1986 - 1993	44525
I	250m W	Unspecified Tank	1958 - 1971	43522
I	261m NW	Unspecified Tank	1958 - 1990	40651
L	276m S	Unspecified Tank	1986	37764
E	294m SW	Unspecified Tank	1971 - 1986	41844
L	323m S	Tanks	1994	39425
D	351m SW	Unspecified Tank	1990 - 1993	42746
D	363m SW	Tanks	1971	39424
P	390m SW	Unspecified Tank	1990 - 1993	42404
U	454m S	Tanks	1994	42940
U	454m S	Tanks	1982	40451
U	457m S	Tanks	1986	42206
Q	481m SW	Tanks	1971 - 1982	42914
Q	482m SW	Tanks	1986	42199
Q	497m SW	Tanks	1971 - 1982	40893
Q	498m SW	Tanks	1986	44289

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	16

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
E	168m S	Electricity Substation	1986 - 1990	20380
F	179m S	Electricity Substation	1986 - 1990	21027
F	182m S	Electricity Substation	1993	21828
E	186m SW	Electricity Substation	1993	22295
G	191m NE	Electricity Substation	1993	21174
G	196m NE	Electricity Substation	1971 - 1990	21507
L	295m S	Electricity Substation	1986	19163
L	319m S	Electricity Substation	1990	22776
L	320m S	Electricity Substation	1993 - 1994	21645
O	339m S	Electricity Substation	1986 - 1994	22938
O	339m S	Electricity Substation	1982	23620
S	393m SE	Electricity Substation	1986 - 1990	22426
S	418m SE	Electricity Substation	1993	21894
V	459m S	Electricity Substation	1994	20508
V	461m S	Electricity Substation	1971 - 1986	23084
V	466m S	Electricity Substation	1982	21031

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.

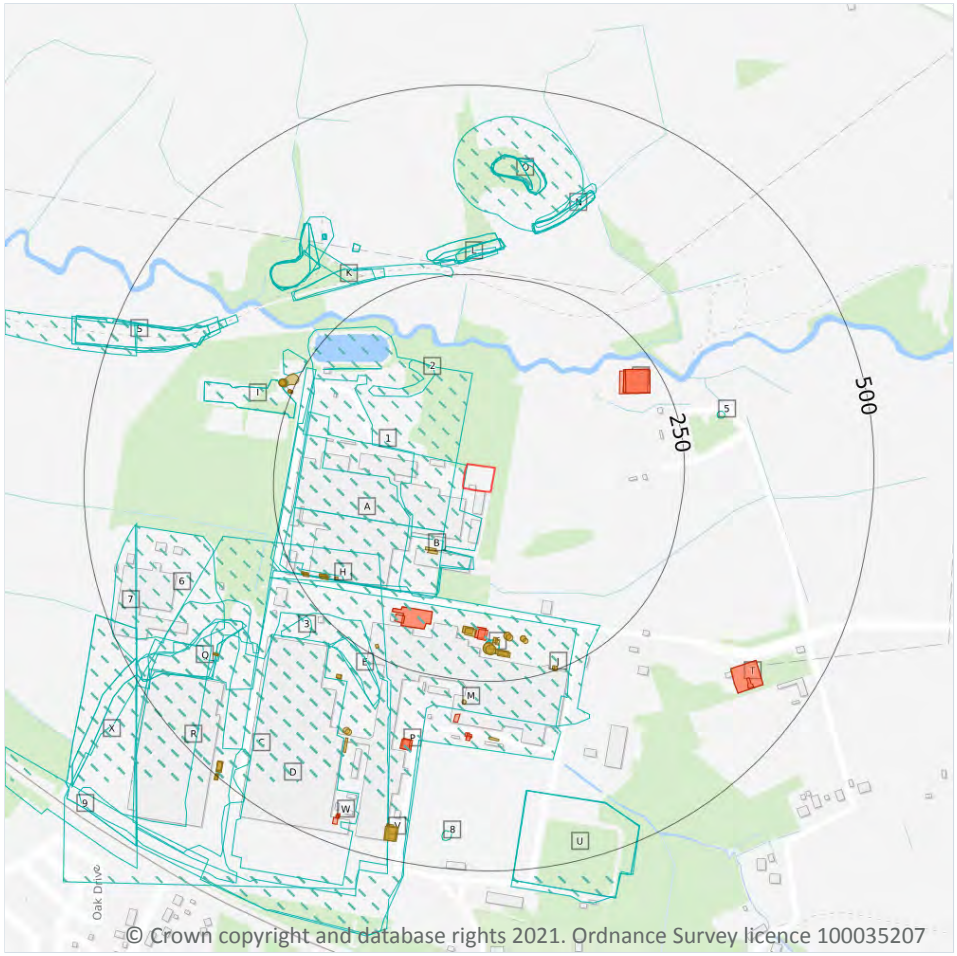
1.6 Historical military land

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	80

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 21**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Unspecified Commercial/Industrial**	**1994**	**331129**
1	13m W	Unspecified Works	1968	362328
A	63m SW	Unspecified Works	1968	362328

ID	Location	Land Use	Date	Group ID
A	69m W	Unspecified Factory	1980	320633
A	81m SW	Unspecified Works	1964	378118
2	112m NW	Gravel Pit	1968	328651
C	142m SW	Metal Works	1947	318672
D	148m S	Unspecified Works	1980	339373
D	158m S	Unspecified Works	1994	339316
F	196m S	Unspecified Tank	1994	372495
F	196m S	Unspecified Tank	1980	372495
C	221m SW	Unspecified Works	1964	368204
I	236m W	Sludge Beds	1994	360261
I	236m W	Sludge Beds	1980	360261
K	247m N	Railway Sidings	1947	353553
E	248m SW	Refuse Heap	1964	338751
I	249m NW	Refuse Heap	1980	338759
E	252m SW	Gravel Pit	1968	328650
I	259m NW	Unspecified Tank	1968	379478
I	262m NW	Unspecified Tank	1964	379478
L	262m N	Cuttings	1878	336891
L	264m N	Unspecified Ground Workings	1947	376461
L	265m N	Unspecified Heap	1936	370751
L	265m N	Unspecified Heap	1938	376081
L	265m N	Unspecified Heap	1938	376081
3	267m SW	Unspecified Pit	1964	335482
L	268m N	Unspecified Ground Workings	1897	354634
L	268m N	Unspecified Heap	1913	375066
K	270m NW	Mineral Railway Sidings	1913	332670
4	271m SW	Unspecified Works	1968	369787
K	272m NW	Railway Sidings	1938	353553

ID	Location	Land Use	Date	Group ID
5	301m E	Unspecified Tank	1964	319910
N	313m N	Old Coal Pit	1913	321371
N	313m N	Unspecified Pits	1936	356939
N	314m N	Unspecified Pits	1938	342286
N	314m N	Unspecified Pits	1938	342286
K	315m NW	Unspecified Disused Drift	1994	364829
K	315m NW	Unspecified Disused Drift	1980	364829
O	316m N	Unspecified Old Shaft	1913	337696
N	322m N	Unspecified Pit	1897	335487
K	323m NW	Unspecified Disused Drift	1964	369531
K	324m NW	Unspecified Heap	1936	348503
K	324m NW	Unspecified Heap	1947	348503
K	325m NW	Unspecified Heap	1938	348503
K	325m NW	Unspecified Heap	1938	348503
K	325m NW	Unspecified Heap	1994	351035
K	325m NW	Unspecified Heap	1980	351035
K	325m NW	Unspecified Disused Drift	1968	369531
Q	339m SW	Refuse Heap	1964	363508
6	340m W	Refuse Heap	1994	367553
Q	341m SW	Gravel Pit	1968	328652
R	341m SW	Unspecified Works	1968	357417
K	350m NW	Unspecified Old Drift	1938	366702
K	350m NW	Unspecified Old Drift	1938	366702
K	350m NW	Unspecified Old Drift	1947	366702
K	350m NW	Unspecified Old Drift	1936	360887
R	352m SW	Railway Sidings	1947	378009
S	356m NW	Railway Sidings	1936	337507
O	364m N	Unspecified Heap	1936	364088

ID	Location	Land Use	Date	Group ID
O	364m N	Unspecified Heap	1947	366385
O	365m N	Unspecified Heap	1938	349329
O	365m N	Unspecified Heap	1938	352466
S	366m NW	Mineral Railway Sidings	1938	347038
O	367m N	Unspecified Heap	1964	366385
O	369m N	Unspecified Heap	1994	367228
O	369m N	Unspecified Heap	1980	367228
O	369m N	Unspecified Heap	1968	367228
S	369m NW	Mineral Railway Sidings	1964	352030
S	380m NW	Mineral Railway Sidings	1913	355057
S	380m NW	Mineral Railway Sidings	1947	347038
U	396m S	Unspecified Works	1964	349241
U	397m S	Unspecified Commercial/Industrial	1980	331138
U	397m S	Unspecified Works	1968	349241
7	433m W	Refuse Heap	1992	367553
8	450m S	Old Coal Pit	1897	321356
9	459m W	Mineral Railway Sidings	1964	352030
X	469m SW	Unspecified Works	1988	339374
X	469m SW	Unspecified Works	1974	372920
X	486m SW	Refuse Heap	1988	344288
X	486m SW	Refuse Heap	1974	373502

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**60**

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 21**

ID	Location	Land Use	Date	Group ID
B	88m SW	Unspecified Tank	1990	37761
B	90m S	Unspecified Tank	1993	37760
F	180m S	Unspecified Tank	1986	42826
F	180m S	Unspecified Tank	1990	42826
F	182m S	Unspecified Tank	1993	42553
F	186m S	Unspecified Tank	1986	42443
F	186m S	Unspecified Tank	1990	42443
F	190m S	Unspecified Tank	1993	40858
F	192m S	Unspecified Tank	1986	41624
F	192m S	Unspecified Tank	1990	41624
F	194m S	Unspecified Tank	1993	41624
F	195m S	Unspecified Tank	1986	42736
F	195m S	Unspecified Tank	1990	42736
F	199m S	Unspecified Tank	1993	41194
F	199m S	Unspecified Tank	1986	41573
F	199m S	Unspecified Tank	1990	41573
F	202m S	Unspecified Tank	1993	41930
H	203m SW	Unspecified Tank	1971	37759
F	208m S	Tanks	1986	41618
F	208m S	Tanks	1990	41618
F	210m S	Tanks	1993	41618
H	213m SW	Tanks	1993	40530
H	213m SW	Tanks	1971	43608
H	213m SW	Tanks	1986	43608
H	213m SW	Tanks	1990	43608
H	233m SW	Tanks	1971	44263
H	234m SW	Tanks	1986	44263
H	234m SW	Tanks	1990	44263

ID	Location	Land Use	Date	Group ID
H	234m SW	Tanks	1993	44263
E	235m SW	Tanks	1971	39423
J	244m S	Unspecified Tank	1990	40762
J	245m S	Unspecified Tank	1993	40762
I	248m NW	Tanks	1993	39434
I	249m W	Unspecified Tank	1993	44525
I	250m W	Unspecified Tank	1971	43522
I	250m W	Unspecified Tank	1958	43522
I	251m W	Unspecified Tank	1986	44525
I	251m W	Unspecified Tank	1990	44525
I	261m NW	Unspecified Tank	1971	40651
I	261m NW	Unspecified Tank	1958	40651
I	262m NW	Unspecified Tank	1986	40651
I	262m NW	Unspecified Tank	1990	40651
M	276m S	Unspecified Tank	1986	37764
E	294m SW	Unspecified Tank	1971	41844
E	295m SW	Unspecified Tank	1986	41844
M	323m S	Tanks	1994	39425
D	351m SW	Unspecified Tank	1990	42746
D	352m SW	Unspecified Tank	1993	42746
D	363m SW	Tanks	1971	39424
Q	390m SW	Unspecified Tank	1993	42404
Q	391m SW	Unspecified Tank	1990	42404
V	454m S	Tanks	1994	42940
V	454m S	Tanks	1982	40451
V	457m S	Tanks	1986	42206
R	481m SW	Tanks	1982	42914
R	481m SW	Tanks	1971	42914

ID	Location	Land Use	Date	Group ID
R	482m SW	Tanks	1986	42199
R	497m SW	Tanks	1982	40893
R	497m SW	Tanks	1971	40893
R	498m SW	Tanks	1986	44289

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**24**

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 21**

ID	Location	Land Use	Date	Group ID
E	168m S	Electricity Substation	1986	20380
E	168m S	Electricity Substation	1990	20380
F	179m S	Electricity Substation	1986	21027
F	179m S	Electricity Substation	1990	21027
F	182m S	Electricity Substation	1993	21828
E	186m SW	Electricity Substation	1993	22295
G	191m NE	Electricity Substation	1993	21174
G	196m NE	Electricity Substation	1986	21507
G	196m NE	Electricity Substation	1990	21507
G	199m NE	Electricity Substation	1971	21507
M	295m S	Electricity Substation	1986	19163
M	319m S	Electricity Substation	1990	22776
M	320m S	Electricity Substation	1993	21645
M	323m S	Electricity Substation	1994	21645
P	339m S	Electricity Substation	1994	22938
P	339m S	Electricity Substation	1982	23620

ID	Location	Land Use	Date	Group ID
P	340m S	Electricity Substation	1986	22938
T	393m SE	Electricity Substation	1986	22426
T	393m SE	Electricity Substation	1990	22426
T	418m SE	Electricity Substation	1993	21894
W	459m S	Electricity Substation	1994	20508
W	461m S	Electricity Substation	1971	23084
W	462m S	Electricity Substation	1986	23084
W	466m S	Electricity Substation	1982	21031

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)

Active or recent landfill

Historical landfill (EA/NRW)

Historical landfill (LA/OS)

Historical waste sites

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	3

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

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Details	
A	69m NW	Operator: Timet U K Ltd Site Address: Titanium Plant, Waunarlwydd, SA1 1XD	WML Number: 34005 EPR Reference: IMP003 Landfill type: A7 : Industrial Waste Landfill (Factory curtilage) Status: Closure IPPC Reference: - EPR Number: EAEPR\EA/EPR/YP3895FY/A001

ID	Location	Details	
B	142m W	Operator: Timet U K Ltd Site Address: Titanium Plant, Waunarlwydd, SA1 1XD	WML Number: 34005 EPR Reference: IMP003 Landfill type: A7 : Industrial Waste Landfill (Factory curtilage) Status: Closure IPPC Reference: - EPR Number: EAEPR\EA/EPR/YP3895FY/A001
2	245m W	Operator: Timet U K Ltd Site Address: Titanium Plant, Waunarlwydd, SA1 1XD	WML Number: 34005 EPR Reference: IMP003 Landfill type: A7 : Industrial Waste Landfill (Factory curtilage) Status: Closure IPPC Reference: - EPR Number: EAEPR\EA/EPR/YP3895FY/A001

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	**2**

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

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Site address	Source	Data type
4	474m SW	Refuse Tip	1971 mapping	Polygon
5	488m SW	Refuse Tip	1965 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	**3**

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 29**

ID	Location	Details		
A	65m NW	Site Address: IMI Titanium And Alcoa No.1 Licence Holder Address: Titanium Plant, Waunarlwydd, Swansea	Waste Licence: Yes Site Reference: L1/4, SWW 6L SW, W/24/L Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 22/03/1977 Licence Surrender: -	Operator: - Licence Holder: Imperial Metal Industries Limited First Recorded 31/12/1957 Last Recorded: -
B	138m W	Site Address: IMI Titanium And Alcoa No.1 Licence Holder Address: Titanium Plant, Waunarlwydd, Swansea	Waste Licence: Yes Site Reference: L1/4, SWW 6L SW, W/24/L Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 22/03/1977 Licence Surrender: -	Operator: - Licence Holder: Imperial Metal Industries Limited First Recorded 31/12/1957 Last Recorded: -
3	323m W	Site Address: Alcoa Manuafacturing G B Limited Licence Holder Address: Waunarlwydd Works, PO Box 68, Waunarlwydd, Swansea	Waste Licence: Yes Site Reference: EC7/77, L1/7, 6855/0048 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: WV1/L/ALC001 Licence Issue: 07/09/1977 Licence Surrender: 23/11/2001	Operator: - Licence Holder: Alcoa Manufacturing GB Limited First Recorded - Last Recorded: -

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

3.5 Historical waste sites

Records within 500m	**2**

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

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Address	Further Details	Date
F	484m SW	Site Address: Alcoa, Waunarlwydd, SWANSEA, West Glamorgan, SA5 4SF	Type of Site: Waste Transfer Station Planning application reference: 2006/2503 Description: Scheme comprises proposed use of former industrial building (Class B2) for the composting of green waste and collected source seperated food wastes (meat) and for the recovery of recyclable materials and their preparation (including packing and baling) f or transfer to other off site facilities for reuse, recovery or recycling. An application (ref: 2006/2503) for detailed planning permission was granted by Swansea C.C. Planning decision obtained Data source: Historic Planning Application Data Type: Point	-
F	484m SW	Site Address: Waunarlwydd Works, Waunarlwydd, SWANSEA, West Glamorgan, SA5 4SF	Type of Site: Aluminium Recycling Plant Planning application reference: 97/0572 Description: Scheme provides the construction of an aluminium recycling plant with a furnace building of 2713 sqm with silos and cooling towers, and an office/facilities building of 567 sqm comprising workshop of 264 sqm, offices totalling 287 sqm and laboratory of 6 0 sqm. Scheme also includes six roller shutter doors. Construction - concrete/profiled steel cladding walls; profiled steel sheeting roof; six roller shutter doors; steel frame frame. An application (ref: 97/0572) for Detailed Planning permission was gr anted by Swansea C.C. on 30th July 1997. Data source: Historic Planning Application Data Type: Point	01/12/1997

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

3.6 Licensed waste sites

Records within 500m	**16**

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

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Details		
1	134m E	Site Name: Timet Lagoon (formerly I M I Titanium Ltd) Site Address: - Correspondence Address: Po Box 704, Witton, Birmingham, B6 7UR	Type of Site: Lagoon Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: IMP002 EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 34004 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Closure
D	249m W	Site Name: Timet Lagoon Site Address: - Correspondence Address: -	Type of Site: Lagoon Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: IMP002 EPR reference: YP3595FE/A001 Operator: Timet U K Ltd Waste Management licence No: 34004 Annual Tonnage: 800	Issue Date: 08/08/1977 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Closure
D	251m W	Site Name: - Site Address: - Correspondence Address: -	Type of Site: Lagoon Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: YP3595FE EPR reference: - Operator: - Waste Management licence No: 34004 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective
D	251m W	Site Name: - Site Address: Timet Lagoon, Waunarlwydd, Swansea, SA1 1XD Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: YP3595FE EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 0 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
D	251m W	Site Name: - Site Address: Timet Lagoon, Waunarlwydd, SA1 1XD Correspondence Address: -	Type of Site: Lagoon Size: - Environmental Permitting Regulations (Waste) Licence Number: YP3595FE EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 34004 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective
D	251m W	Site Name: - Site Address: Timet Lagoon, Waunarlwydd, Swansea, SA1 1XD Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: YP3595FE EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 34004 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective
D	251m W	Site Name: - Site Address: Timet Lagoon, Waunarlwydd, SA1 1XD Correspondence Address: -	Type of Site: Lagoon Size: - Environmental Permitting Regulations (Waste) Licence Number: YP3595FE EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 34004 Annual Tonnage: -	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective
D	253m W	Site Name: Timet Landfill Site Address: - Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: IMP003 EPR reference: YP3895FY/A001 Operator: Timet U K Ltd Waste Management licence No: 34005 Annual Tonnage: 368	Issue Date: 08/08/1977 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Closure

ID	Location	Details		
D	254m W	Site Name: - Site Address: - Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: YP3895FY EPR reference: - Operator: - Waste Management licence No: 34005 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective
D	254m W	Site Name: - Site Address: Timet Landfill, Waunarlwydd, Swansea, SA1 1XD Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: YP3895FY EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 0 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	254m W	Site Name: - Site Address: Timet Landfill, Waunarlwydd, SA1 1XD Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: - Environmental Permitting Regulations (Waste) Licence Number: YP3895FY EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 34005 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective
D	254m W	Site Name: - Site Address: Timet Landfill, Waunarlwydd, Swansea, SA1 1XD Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: YP3895FY EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 34005 Annual Tonnage: 0	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective

ID	Location	Details		
D	254m W	Site Name: - Site Address: Timet Landfill, Waunarlwydd, SA1 1XD Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: - Environmental Permitting Regulations (Waste) Licence Number: YP3895FY EPR reference: - Operator: Timet U K Ltd Waste Management licence No: 34005 Annual Tonnage: -	Issue Date: 08/08/1977 Effective Date: 08/08/1977 Modified: - Surrendered Date: - Expiry Date: 21/05/2002 Cancelled Date: - Status: Effective
D	264m SW	Site Name: Alcoa Manuafacturing G B Ltd Site Address: P O Box 68, Waunarlwydd, Swansea, SA1 1XH Correspondence Address: P O Box 68, Waunarlwydd, Swansea, SA1 1XH	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ALC001 EPR reference: - Operator: Alcoa Manufacturing G B Ltd Waste Management licence No: 34021 Annual Tonnage: 0	Issue Date: 30/11/1988 Effective Date: - Modified: - Surrendered Date: 23/11/2001 Expiry Date: - Cancelled Date: - Status: Surrendered
D	264m SW	Site Name: Alcoa Manuafacturing G B Ltd Site Address: P O Box 68, Waunarlwydd, Swansea, SA1 1XH Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ALC001 EPR reference: JP3795FM/S002 Operator: Alcoa Manufacturing G B Ltd Waste Management licence No: 34021 Annual Tonnage: 75000	Issue Date: 30/11/1988 Effective Date: - Modified: - Surrendered Date: 2.00111e+016 Expiry Date: 0 Cancelled Date: 0 Status: Surrendered
D	264m SW	Site Name: Alcoa Manuafacturing G B Ltd Site Address: P O Box 68, Waunarlwydd, Swansea, SA1 1XH Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ALC001 EPR reference: EA/EPR/JP3795FM/S002 Operator: Alcoa Manufacturing G B Ltd Waste Management licence No: 34021 Annual Tonnage: 75000	Issue Date: 30/11/1988 Effective Date: - Modified: - Surrendered Date: 23/11/2001 Expiry Date: - Cancelled Date: - Status: Surrendered

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

3.7 Waste exemptions

Records within 500m	10

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.

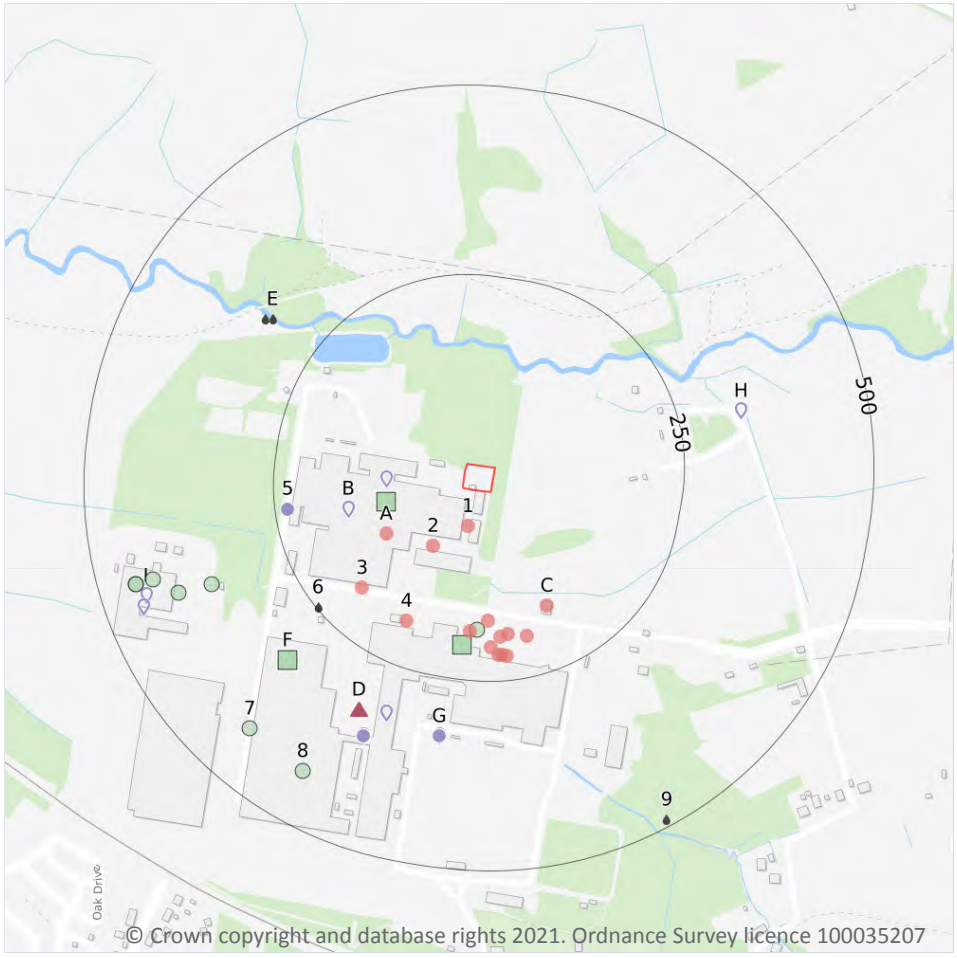
Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Site	Reference	Category	Sub-Category	Description
C	230m SW	Fiberight Limited, Unit 1, Westfield Industrial Park, Waunarlwydd, Swansea, Abertawe, SA5 4SF	NRW-WME063605	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
C	230m SW	Fiberight Limited, Unit 1, Westfield Industrial Park, Waunarlwydd, Swansea, Abertawe, SA5 4SF	NRW-WME063605	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	230m SW	Fiberight Limited, Unit 1, Westfield Industrial Park, Waunarlwydd, Swansea, Abertawe, SA5 4SF	NRW-WME063605	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
C	230m SW	Fiberight Limited, Unit 1, Westfield Industrial Park, Waunarlwydd, Swansea, Abertawe, SA5 4SF	NRW-WME063605	Treating waste exemption	Not on a farm	Cleaning, washing, spraying or coating relevant waste
E	274m SE	Eg power ltd, eg power, Westfield Industrial Park, Waunarlwydd, Swansea, Abertawe, SA5 4SF	NRW-WME051087	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
E	274m SE	Eg power ltd, eg power, Westfield Industrial Park, Waunarlwydd, Swansea, Abertawe, SA5 4SF	NRW-WME051088	Using waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Burning of waste as a fuel in a small appliance
E	274m SE	THE TREAMENT HUB LTD, BUILDING 2, WESTFIELD IND PARK, SWANSEA, SWANSEA, SWANSEA, SA5 4SF	NRW-WME043843	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	274m SE	THE TREAMENT HUB LTD, BUILDING 2, WESTFIELD IND PARK, SWANSEA, SWANSEA, SWANSEA, SA5 4SF	NRW-WME043843	Storing waste exemption	Not on a farm	Storage of waste in secure containers

ID	Location	Site	Reference	Category	Sub-Category	Description
E	274m SE	THE TREAMENT HUB LTD, BUILDING 2, WESTFIELD IND PARK, SWANSEA, SWANSEA, SWANSEA, SA5 4SF	NRW-WME043843	Using waste exemption	Not on a farm	Use of waste in construction
E	274m SE	Hill Group, Hill Insulation Ltd, Unit 7, Westfield Industrial Park, Waunarlwydd, Swansea, Abertawe, SA54SF	NRW-WME035392	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance

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

Hazardous substance storage/usage

Historical licensed industrial activities

Part A(1) industrial activities

Licensed Discharges to controlled waters

List 2 Dangerous Substances

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	**15**

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 39**

ID	Location	Company	Address	Activity	Category
1	49m S	Travelling Crane	West Glamorgan, SA5	Travelling Cranes and Gantries	Industrial Features
2	86m SW	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
A	118m SW	Timet	Ystrad Road, Fforestfach, Swansea, West Glamorgan, SA5 4BT	Aeroplanes	Industrial Products

ID	Location	Company	Address	Activity	Category
C	168m SE	Electricity Sub Station	West Glamorgan, SA5	Electrical Features	Infrastructure and Facilities
C	170m S	Cymru Coaches Ltd	Office 319, Westfield Industrial Park, Waunarlwydd, Swansea, West Glamorgan, SA5 4SF	Vehicle Hire and Rental	Hire Services
C	185m S	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
3	188m SW	Electricity Sub Station	West Glamorgan, SA5	Electrical Features	Infrastructure and Facilities
C	189m S	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
4	191m SW	Electricity Sub Station	West Glamorgan, SA5	Electrical Features	Infrastructure and Facilities
C	192m S	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
C	195m S	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
C	205m S	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
C	215m S	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
C	215m S	Tank	West Glamorgan, SA5	Tanks (Generic)	Industrial Features
C	217m S	Tank	West Glamorgan, SA5	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	1

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.

Features are displayed on the Current industrial land use map on **page 39**

ID	Location	Details	
D	323m SW	Application reference number: No Details Application status: Historical Consent Application date: No Details Address: Timet UK Ltd, PO Box 57, Waunarlwydd, Swansea, SA1 1XD	Details: No Details Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	**17**

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.

Features are displayed on the Current industrial land use map on **page 39**

ID	Location	Details	
5	233m W	Operator: Timet UK (export) Ltd Address: PO Box 57, Waunarlwydd, Swansea, West Glamorgan, SA1 1XD Process: Acid Processes Permit Number: AL8355	Original Permit Number: IPCAPP Date Approved: 18-5-1994 Effective Date: 31-5-1994 Status: Referred To La
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: BG4577	Original Permit Number: IPCMINVAR Date Approved: - Effective Date: - Status: Refused
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Combustion Processes Permit Number: AF8882	Original Permit Number: IPCAIRAPP Date Approved: 21-4-1993 Effective Date: 21-4-1993 Status: Revoked
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: AS6845	Original Permit Number: IPCAIRAPP Date Approved: 21-2-1996 Effective Date: 25-2-1996 Status: Superseded By Variation
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: BD2314	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation

ID	Location	Details	
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: BF4644	Original Permit Number: IPCMINVAR Date Approved: 15-3-1999 Effective Date: 22-3-1999 Status: Superseded By Variation
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: BF4652	Original Permit Number: IPCMINVAR Date Approved: 14-6-1999 Effective Date: 21-6-1999 Status: Superseded By Variation
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: BF9638	Original Permit Number: IPCMINVAR Date Approved: 29-4-1999 Effective Date: 29-4-1999 Status: Superseded By Variation
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: BI0670	Original Permit Number: IPCMINVAR Date Approved: 18-4-2000 Effective Date: 21-4-2000 Status: Superseded By Variation
G	328m S	Operator: Alcoa Europe Flat Rolled Products Ltd Address: PO Box 68, Waunarlwydd Works, Swansea, West Glamorgan, SA1 1XH Process: Non-ferrous Metals Permit Number: BU6832	Original Permit Number: IPCMINVAR Date Approved: 19-5-2003 Effective Date: 22-5-2003 Status: Revoked - Now Ippc
D	352m S	Operator: Aleris Recycling (swansea) Ltd Address: Waunarwydd Works, Waunarlwydd, Swansea, SA5 4SF Process: Non-ferrous Metals Permit Number: AX6168	Original Permit Number: IPCAPP Date Approved: 11-6-1997 Effective Date: 17-6-1997 Status: Superseded By Variation
D	352m S	Operator: Aleris Recycling (swansea) Ltd Address: Waunarwydd Works, Waunarlwydd, Swansea, SA5 4SF Process: Non-ferrous Metals Permit Number: AZ6037	Original Permit Number: IPCMAJVAR Date Approved: 4-12-1997 Effective Date: 7-12-1997 Status: Superseded By Variation
D	352m S	Operator: Aleris Recycling (swansea) Ltd Address: Waunarwydd Works, Waunarlwydd, Swansea, SA5 4SF Process: Non-ferrous Metals Permit Number: BE1011	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
D	352m S	Operator: Aleris Recycling (swansea) Ltd Address: Waunarwydd Works, Waunarlwydd, Swansea, SA5 4SF Process: Non-ferrous Metals Permit Number: BH8888	Original Permit Number: IPCMINVAR Date Approved: 18-4-2000 Effective Date: 12-5-2000 Status: Superseded By Variation

ID	Location	Details	
D	352m S	Operator: Aleris Recycling (swansea) Ltd Address: Waunarwydd Works, Waunarlwydd, Swansea, SA5 4SF Process: Non-ferrous Metals Permit Number: BK9601	Original Permit Number: IPCMINVAR Date Approved: 25-6-2001 Effective Date: 28-6-2001 Status: Superseded By Variation
D	352m S	Operator: Aleris Recycling (swansea) Ltd Address: Waunarwydd Works, Waunarlwydd, Swansea, SA5 4SF Process: Non-ferrous Metals Permit Number: BQ4467	Original Permit Number: IPCMINVAR Date Approved: 21-5-2002 Effective Date: 28-5-2002 Status: Superseded By Variation
D	352m S	Operator: Aleris Recycling (swansea) Ltd Address: Waunarwydd Works, Waunarlwydd, Swansea, SA5 4SF Process: Non-ferrous Metals Permit Number: BU6077	Original Permit Number: IPCMINVAR Date Approved: 7-5-2003 Effective Date: 9-5-2003 Status: Revoked - Now Ippc

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m **29**

Records of Part A(1) 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 39**

ID	Location	Details	
A	101m W	Operator: TIMET UK LTD Installation Name: TIMET WAUNARLWYDD Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: BX9846ID Original Permit Number: BX9846ID	EPR Reference: - Issue Date: 10/01/2005 Effective Date: 10/01/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	154m W	Operator: TIMET UK LTD Installation Name: TIMET WAUNARLWYDD Process: ASSOCIATED PROCESS Permit Number: GP3836FQ Original Permit Number: BX9846ID	EPR Reference: - Issue Date: 16/07/2012 Effective Date: 16/07/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	154m W	Operator: TIMET UK LTD Installation Name: TIMET WAUNARLWYDD Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: GP3836FQ Original Permit Number: BX9846ID	EPR Reference: - Issue Date: 16/07/2012 Effective Date: 16/07/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
B	154m W	Operator: TIMET UK LTD Installation Name: WAUNARLWYDD EPR/BX9846ID Process: ASSOCIATED PROCESS Permit Number: XP3730WR Original Permit Number: BX9846ID	EPR Reference: - Issue Date: 20/01/2015 Effective Date: 20/01/2015 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
B	154m W	Operator: TIMET UK LTD Installation Name: WAUNARLWYDD EPR/BX9846ID Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: XP3730WR Original Permit Number: BX9846ID	EPR Reference: - Issue Date: 20/01/2015 Effective Date: 20/01/2015 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
B	154m W	Operator: TIMET UK LTD Installation Name: WAUNARLWYDD EPR/BX9846ID Process: - Permit Number: BX9846ID Original Permit Number: XP3730WR	EPR Reference: - Issue Date: 20/01/2015 Effective Date: 20/01/2015 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
B	154m W	Operator: TIMET UK LTD Installation Name: WAUNARLWYDD EPR/BX9846ID Process: UNLESS FALLING WITHIN PART A2 OF THIS SECTION, SURFACE TREATING METALS AND PLAST... Permit Number: BX9846ID Original Permit Number: XP3730WR	EPR Reference: - Issue Date: 20/01/2015 Effective Date: 20/01/2015 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
B	154m W	Operator: TIMET UK LTD Installation Name: WAUNARLWYDD EPR/BX9846ID Process: UNLESS FALLING WITHIN PART A2 OF THIS SECTION, SURFACE TREATING METALS AND PLAST... Permit Number: BX9846ID Original Permit Number: XP3730WR	EPR Reference: - Issue Date: 20/01/2015 Effective Date: 20/01/2015 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
B	154m W	Operator: TIMET UK LTD Installation Name: WAUNARLWYDD EPR/BX9846ID Process: - Permit Number: BX9846ID Original Permit Number: XP3730WR	EPR Reference: - Issue Date: 20/01/2015 Effective Date: 20/01/2015 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
B	154m W	Operator: TIMET UK LTD Installation Name: WAUNARLWYDD EPR/BX9846ID Process: UNLESS FALLING WITHIN PART A(2) OF THIS SECTION, SURFACE TREATING METALS AND PLASTIC MATERIALS USING AN ELECTROLYTIC OR CHEMICAL PROCESS WHERE THE AGGREGATED VOLUME OF THE TREATMENT VATS IS MORE THAN 30M3 Permit Number: BX9846ID Original Permit Number: XP3730WR	EPR Reference: - Issue Date: 20/01/2015 Effective Date: 20/01/2015 Last date noted as effective: 01/07/2021 Status: EFFECTIVE

ID	Location	Details	
D	314m S	Operator: THE TREATMENT HUB LIMITED Installation Name: THE TRAETMENT HUB SWANSEA EPR/ZP3933NJ Process: RECOVERY OF WASTE; HAZARDOUS WASTE >10T/D BY RECYCLING INORGANICS (NOT METALS) Permit Number: ZP3933NJ Original Permit Number: ZP3933NJ	EPR Reference: - Issue Date: 30/09/2013 Effective Date: 30/09/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
D	314m S	Operator: THE TREATMENT HUB LIMITED Installation Name: BUILDING 2 Process: - Permit Number: ZP3933NJ Original Permit Number: ZP3933NJ	EPR Reference: - Issue Date: 30/09/2013 Effective Date: 30/09/2013 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
D	314m S	Operator: THE TREATMENT HUB LIMITED Installation Name: BUILDING 2 Process: - Permit Number: ZP3933NJ Original Permit Number: ZP3933NJ	EPR Reference: - Issue Date: 30/09/2013 Effective Date: 30/09/2013 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
D	314m S	Operator: THE TREATMENT HUB LIMITED Installation Name: BUILDING 2 Process: - Permit Number: ZP3933NJ Original Permit Number: ZP3933NJ	EPR Reference: - Issue Date: 30/09/2013 Effective Date: 30/09/2013 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
G	328m S	Operator: ALCOA EUROPE FLAT ROLLED PRODUCTS LTD Installation Name: - Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: BX1713 Original Permit Number: BM1377	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS
G	328m S	Operator: ALCOA EUROPE FLAT ROLLED PRODUCTS LTD Installation Name: - Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: BM1377 Original Permit Number: BM1377	EPR Reference: - Issue Date: 12/08/2003 Effective Date: 12/08/2003 Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS
G	328m S	Operator: ALCOA MANUFACTURING (G.B.) LIMITED Installation Name: WAUNARLWYDD NON FERROUS METALS Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: BX4658IV Original Permit Number: BM1377IT	EPR Reference: - Issue Date: 27/02/2004 Effective Date: 01/03/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
H	332m E	Operator: VIRIDIS 178 LTD Installation Name: VIRIDIS 178 SWANSEA POWER PLANT Process: BURNING ANY FUEL IN AN APPLIANCE Permit Number: AB3393CP Original Permit Number: CP3630AJ	EPR Reference: - Issue Date: 10/01/2017 Effective Date: 10/01/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
H	332m E	Operator: VIRIDIS 178 LTD Installation Name: VIRIDIS 178 SWANSEA POWER PLANT Process: - Permit Number: AB3393CP Original Permit Number: -	EPR Reference: - Issue Date: 10/01/2017 Effective Date: 10/01/2017 Last date noted as effective: 01/04/2017 Status: ISSUED
H	332m E	Operator: VIRIDIS 178 LTD Installation Name: VIRIDIS 178 SWANSEA POWER PLANT Process: BURNING ANY FUEL IN AN APPLIANCE WITH A RATED THERMAL INPUT OF 50 OR MORE MEGAWATTS Permit Number: AB3393CP Original Permit Number: CP3630AJ	EPR Reference: - Issue Date: 26/02/2021 Effective Date: 26/02/2021 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
D	352m S	Operator: ALCOA MANUFACTURING (G.B.) LIMITED Installation Name: WAUNARLWYDD NON FERROUS METALS EA/EPR/BM1377IT/S009 Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: BM1377IT Original Permit Number: BM1377IT	EPR Reference: - Issue Date: 12/08/2003 Effective Date: 12/08/2003 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
D	352m S	Operator: ALCOA MANUFACTURING (G.B.) LIMITED Installation Name: WAUNARLWYDD NON FERROUS METALS Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: BP3739LM Original Permit Number: BM1377IT	EPR Reference: - Issue Date: 09/01/2006 Effective Date: 10/01/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
D	352m S	Operator: ALCOA MANUFACTURING (G.B.) LIMITED Installation Name: WAUNARLWYDD NON FERROUS METALS Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: BX1713IB Original Permit Number: BM1377IT	EPR Reference: - Issue Date: 24/12/2003 Effective Date: 29/12/2003 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
D	352m S	Operator: ALCOA MANUFACTURING (G.B.) LIMITED Installation Name: WAUNARLWYDD NON FERROUS METALS Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: BX6928IY Original Permit Number: BM1377IT	EPR Reference: - Issue Date: 07/04/2004 Effective Date: 09/04/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
D	352m S	Operator: ALCOA MANUFACTURING (G.B.) LIMITED Installation Name: WAUNARLWYDD NON FERROUS METALS Process: NON-FERROUS METALS; MELTING WITH CAPACITY >4T/D LEAD/CADMIUM OR 20T/D OTHERS Permit Number: EP3337PQ Original Permit Number: BM1377IT	EPR Reference: - Issue Date: 11/08/2004 Effective Date: 13/08/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	442m W	Operator: REAL ALLOY UK LIMITED Installation Name: REAL ALLOY UK LTD Process: - Permit Number: EP3935UC Original Permit Number: -	EPR Reference: - Issue Date: 31/01/2018 Effective Date: 31/01/2018 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
I	442m W	Operator: REAL ALLOY UK LIMITED Installation Name: REAL ALLOY UK LTD Process: MELTING, INCLUDING MAKING ALLOYS OF, NON-FERROUS METALS, INCLUDING RECOVERED PRODUCTS AND THE OPERATION OF NON-FERROUS METAL FOUNDRIES WHERE THE PLANT HAS A MELTING CAPACITY OF MORE THAN 4 TONNES PER DAY FOR LEAD OR CADMIUM OR 20 TONNES PER DAY FOR ALL OTHER METALS Permit Number: EP3935UC Original Permit Number: -	EPR Reference: - Issue Date: 27/01/2020 Effective Date: 27/01/2020 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
I	450m W	Operator: TIMET UK LTD Installation Name: TIMET WAUNARLWYDD Process: ASSOCIATED PROCESS Permit Number: TP3637MW Original Permit Number: BX9846ID	EPR Reference: - Issue Date: 27/07/2007 Effective Date: 27/07/2007 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	450m W	Operator: TIMET UK LTD Installation Name: TIMET WAUNARLWYDD Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: TP3637MW Original Permit Number: BX9846ID	EPR Reference: - Issue Date: 27/07/2007 Effective Date: 27/07/2007 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

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

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

Records within 500m	0

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.

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	4

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 39**

ID	Location	Address	Details	
6	248m SW	WAUNARLWYDD WORKS SWANSEA, WAUNARLWYDD WORKS SWANSEA, SWANSEA, SWANSEA, SWANSEA	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: BC0012101 Permit Version: 2 Receiving Water: UNNAMED TRIBUTARY OF THE GORS	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 24/04/1997 Effective Date: 25/04/1997 Revocation Date: 02/04/2009
E	320m NW	WAUNARLWYDD WORKS SWANSEA, WAUNARLWYDD WORKS SWANSEA, SWANSEA, SWANSEA, SWANSEA	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: BC0012101 Permit Version: 1 Receiving Water: UNNAMED TRIBUTARY OF THE GORS	Status: REVOKED - UNSPECIFIED Issue date: 28/07/1970 Effective Date: 28/07/1970 Revocation Date: 24/04/1997
E	328m NW	WAUNARLWYDD WORKS SWANSEA, WAUNARLWYDD WORKS SWANSEA, SWANSEA, SWANSEA, SWANSEA	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: BP0227801 Permit Version: 1 Receiving Water: AFON LLAN	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 21/04/1993 Effective Date: 21/04/1993 Revocation Date: 06/02/2007

ID	Location	Address	Details	
9	490m SE	ALCOA WAUNARLLWYDD (POINT 42) SWAN, ALCOA WAUNARLLWYDD (POINT 42) S, (POINT 42) SWANSEA, SWANSEA, SWANSEA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: BP0243101 Permit Version: 1 Receiving Water: AFON LLAN	Status: Effective Issue date: 21/07/1994 Effective Date: 21/07/1994 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	**5**

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.

Features are displayed on the Current industrial land use map on **page 39**

ID	Location	Name	Status	Receiving Water	Authorised Substances
A	103m W	Timet Waunarlydd, Swansea	Not Active	Loughor Estuary	Chromium, Copper, Nickel, Zinc

ID	Location	Name	Status	Receiving Water	Authorised Substances
C	205m S	Alcoa Manufacturing Waunarlwydd, Swansea	Not Active	Loughor Estuary	Chromium, Copper, Lead, Nickel, Zinc, Total metals (non-ferrous)
F	325m SW	Alcoa Gb Ltd, Cooling Tower 810c, Waunarwydd Wrks, Swansea	Not Active	Loughor Estuary	Chromium, Copper, Lead, Nickel, Zinc
F	325m SW	Alcoa Gb Ltd, Cooling Tower 814g, Waunarwydd Wrks, Swansea	Not Active	Loughor Estuary	Chromium, Copper, Lead, Nickel, Zinc
F	325m SW	Alcoa Gb Ltd, Cooling Tower 818b, Waunarwydd Wrks, Swansea	Not Active	Loughor Estuary	Chromium, Copper, Lead, Nickel, Zinc

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	**8**

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 39**

ID	Location	Details	
C	183m S	Incident Date: 05/04/2013 Incident Identification: 1099781 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
I	355m W	Incident Date: 14/06/2001 Incident Identification: 9260 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
I	400m W	Incident Date: 28/07/2014 Incident Identification: 1261680 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Dust	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	424m SW	Incident Date: 15/10/2002 Incident Identification: 123733 Pollutant: Inorganic Chemicals/Products Pollutant Description: Alkalis	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
I	427m W	Incident Date: 22/11/2013 Incident Identification: 1177998 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Chemical Odour	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Location	Details	
8	429m SW	Incident Date: 14/01/2015 Incident Identification: 1306549 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
I	450m W	Incident Date: 20/07/2001 Incident Identification: 23032 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
I	450m W	Incident Date: 20/07/2001 Incident Identification: 23026 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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.

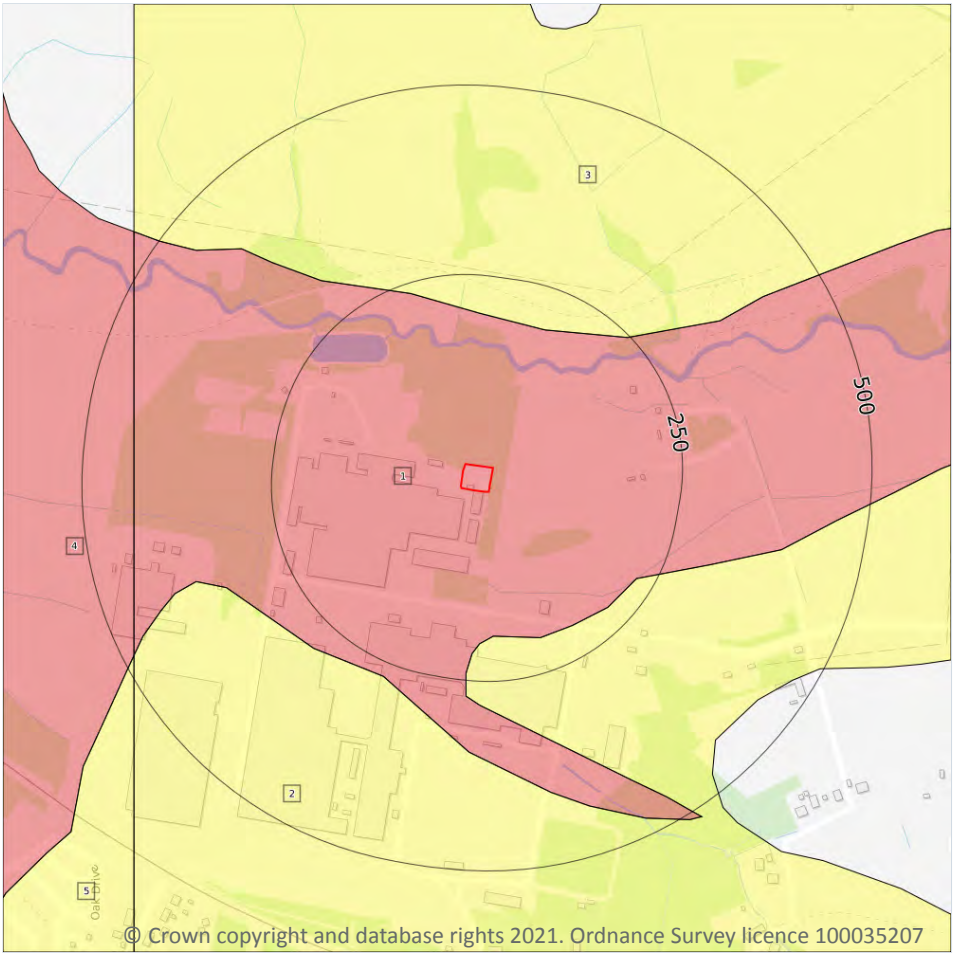
4.21 Pollution inventory radioactive waste

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	5

Aquifer status of groundwater held within superficial geology.

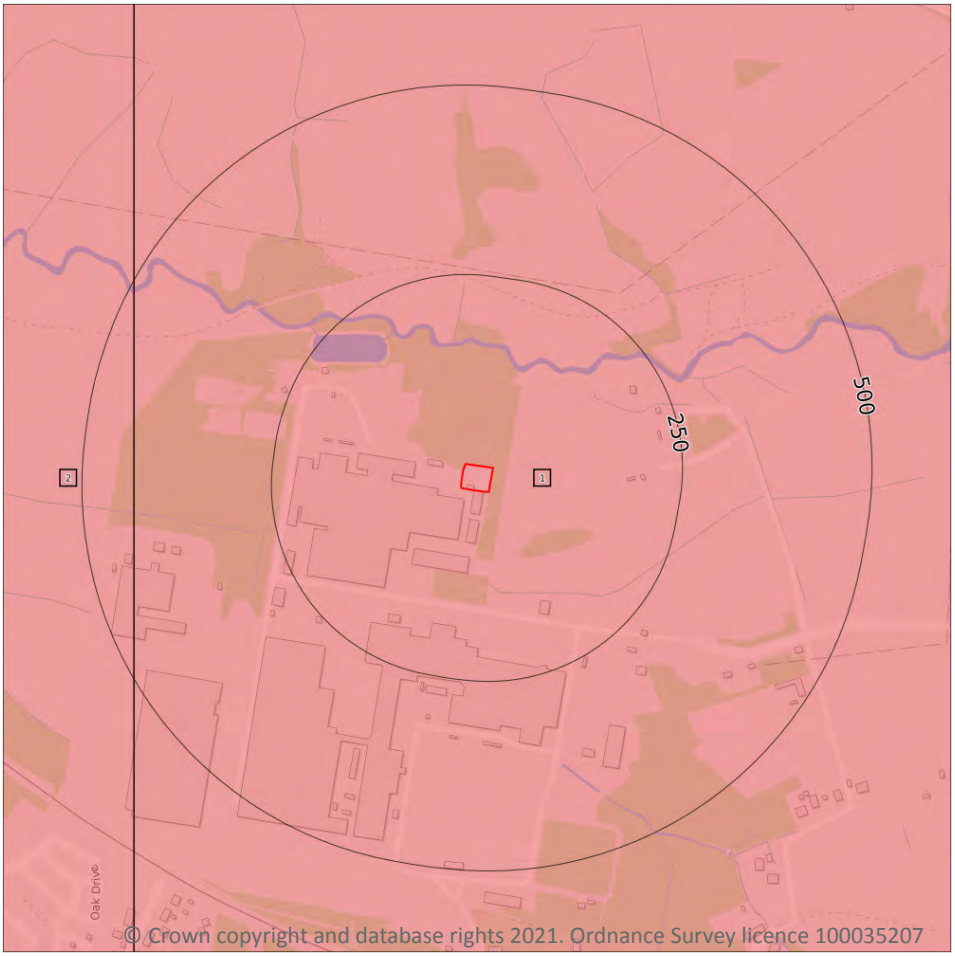
Features are displayed on the Hydrogeology map on **page 53**

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	190m S	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

ID	Location	Designation	Description
3	193m N	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	431m W	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
5	485m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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**

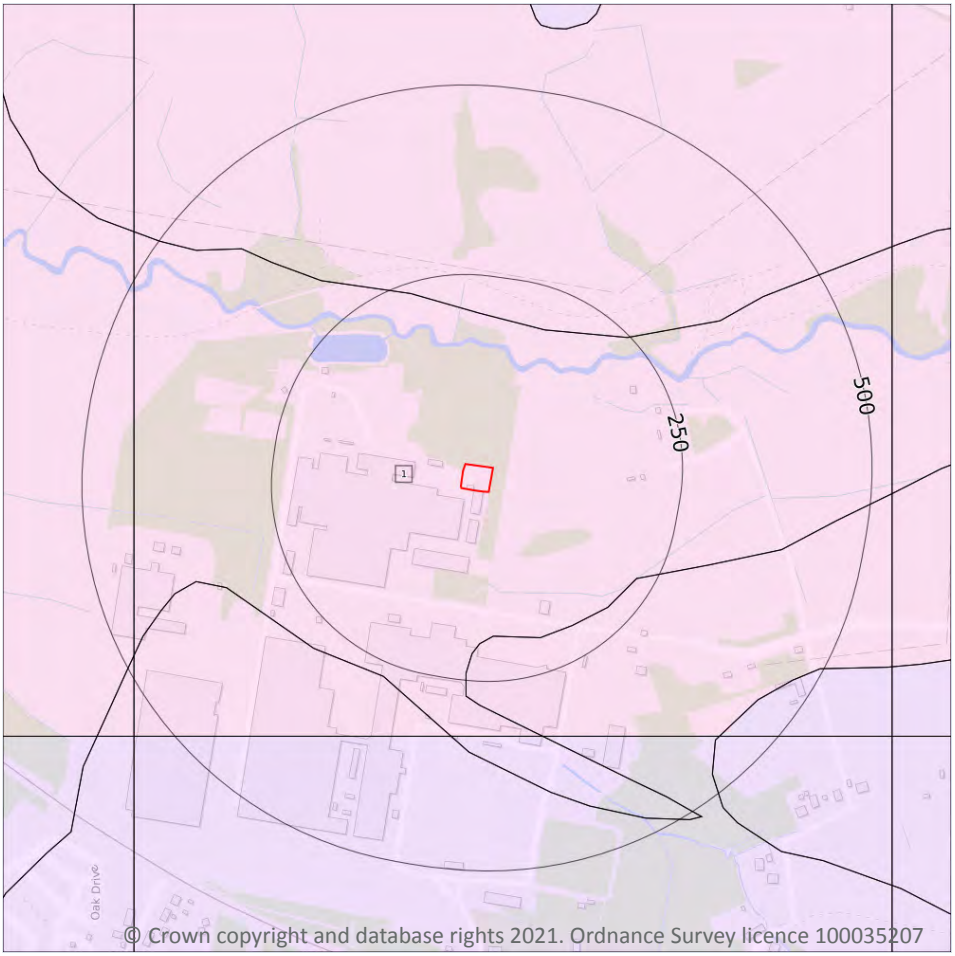
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 55**

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	431m W	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	1

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 57**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: 40-70% Dilution value: >550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: Medium**	**Vulnerability: Medium 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.

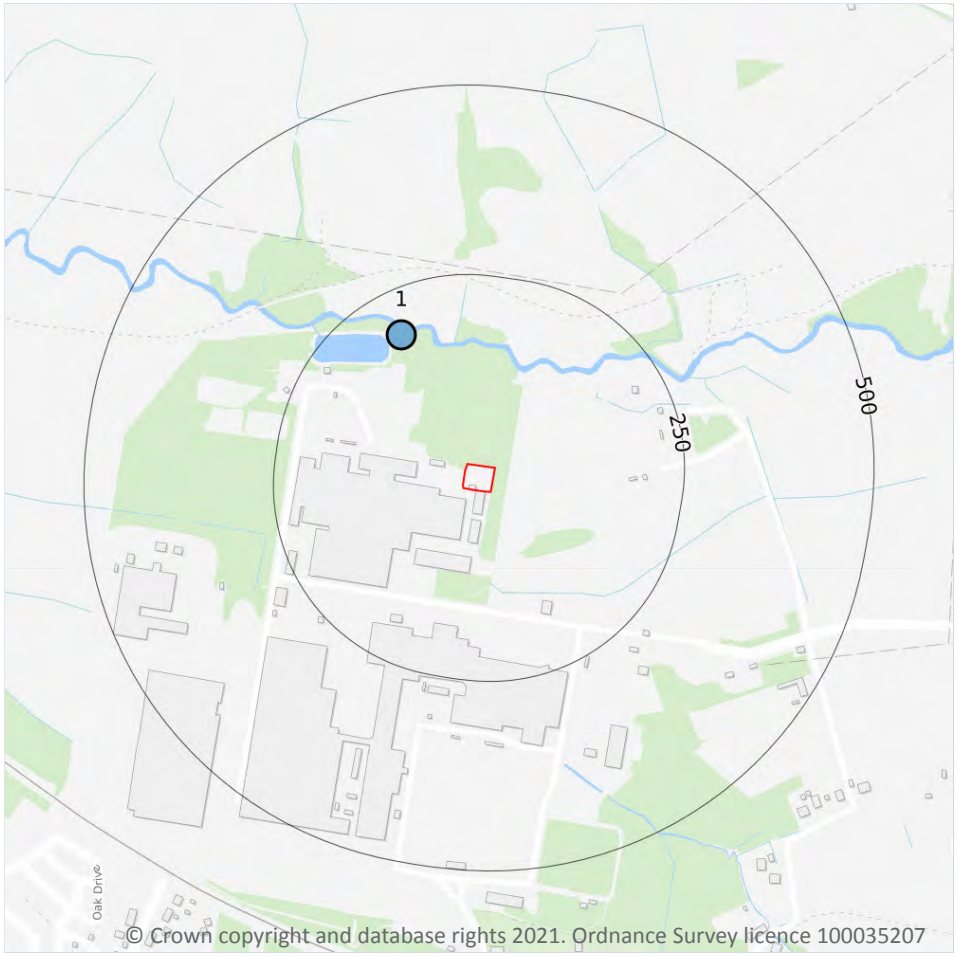
5.5 Groundwater vulnerability- local information

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	**3**

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 59**

ID	Location	Details	
1	191m NW	Status: Historical Licence No: 22/59/4/0029 Details: Non-Evaporative Cooling Direct Source: EAW Surface Water Point: AFON LLAN NEAR WAUNARLWYDD Data Type: Point Name: Alcoa Manufacturing (GB) Ltd Easting: 260350 Northing: 196530	Annual Volume (m^3): 763728 Max Daily Volume (m^3): 2182.08 Original Application No: - Original Start Date: 28/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/02/1966 Version End Date: -
-	1731m W	Status: Historical Licence No: 22/59/4/0085 Details: Make-Up Or Top Up Water Direct Source: EAW Surface Water Point: AFON LLAN AT LLWCHWR Data Type: Point Name: Bromham Leisure Ltd Easting: 258810 Northing: 196950	Annual Volume (m^3): 22730 Max Daily Volume (m^3): 170.5 Original Application No: - Original Start Date: 23/10/1997 Expiry Date: - Issue No: 101 Version Start Date: 04/09/2008 Version End Date: -
-	1731m W	Status: Active Licence No: 22/59/4/0085 Details: Make-up or Top-up Water - High Direct Source: - Point: - Data Type: Point Name: - Easting: 258810 Northing: 196950	Annual Volume (m^3): 22,730 Max Daily Volume (m^3): 340.80 Original Application No: - Original Start Date: 2008-09-04 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.

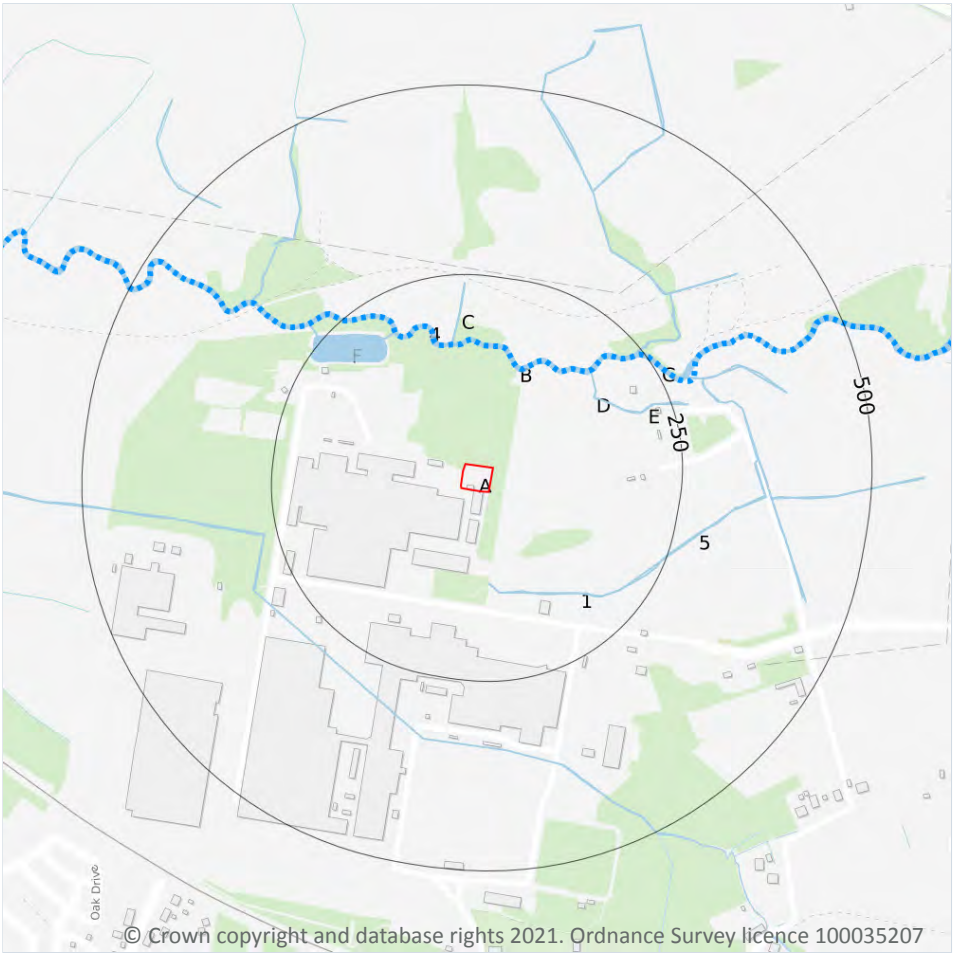
5.10 Source Protection Zones (confined aquifer)

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 62**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	120m S	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
B	135m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Llan
4	158m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Llan
C	158m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	162m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	168m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
D	168m NE	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
E	172m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	181m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Llan
F	196m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	196m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Llan
G	239m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Llan
G	239m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	245m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	6

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 62**

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 62**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River WB catchment**	**Llan - headwaters to tidal limit**	**GB110059032070**	**Loughor**	**Carmarthen Bay and the Gower**

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 62**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
3	136m N	River	Llan - headwaters to tidal limit	GB110059032070	Good	Good	Good	2016

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

6.5 WFD Groundwater bodies

Records on site	1

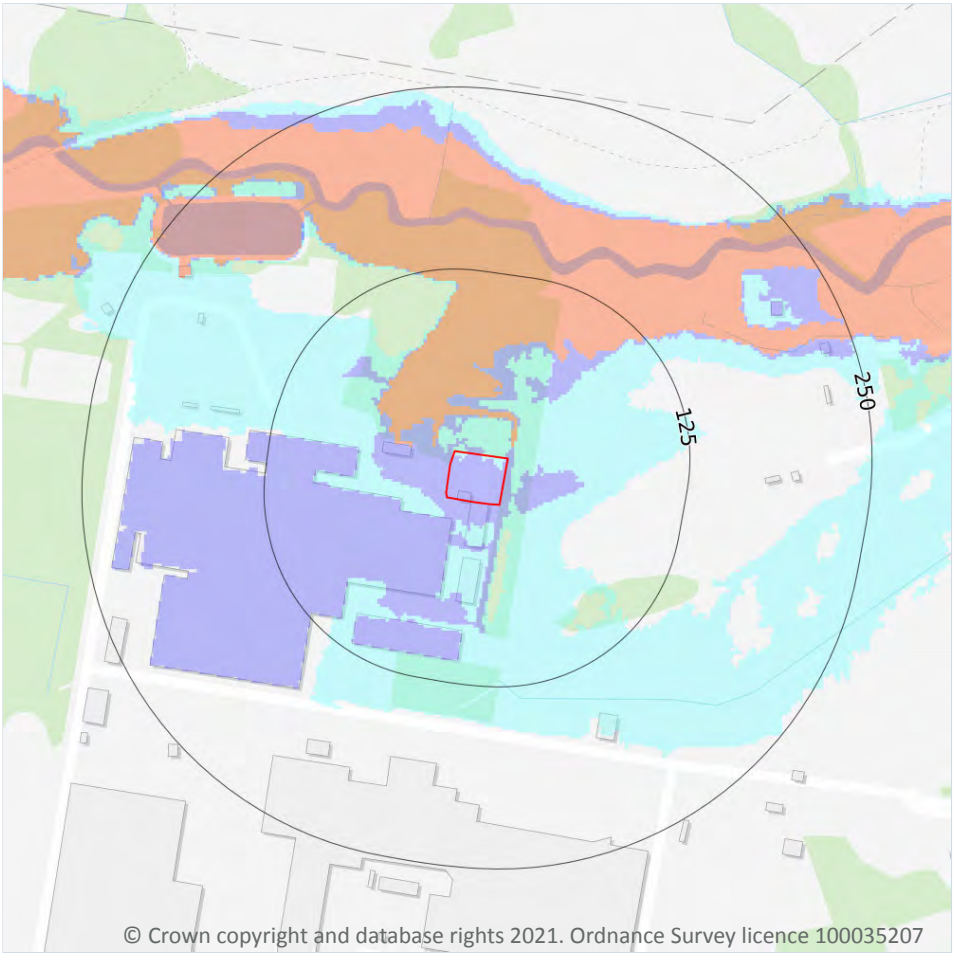
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Carmarthen Carboniferous Coal Measures**	**GB41002G200600**	**Poor**	**Poor**	**Good**	**2017**

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	26

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 66**

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

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

7.2 Historical Flood Events

Records within 250m	**0**

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.

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

7.6 Flood Zone 2

Records within 50m	0

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.

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

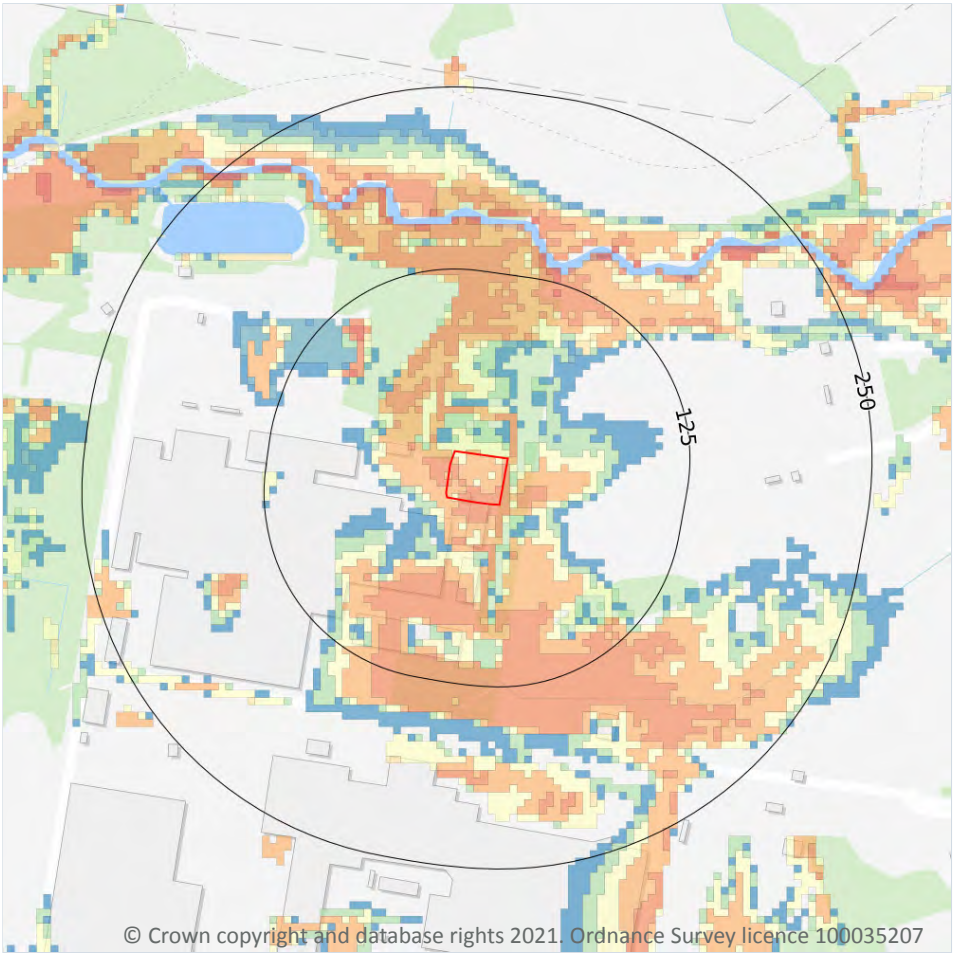
7.7 Flood Zone 3

Records within 50m	0

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.

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, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 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 69**

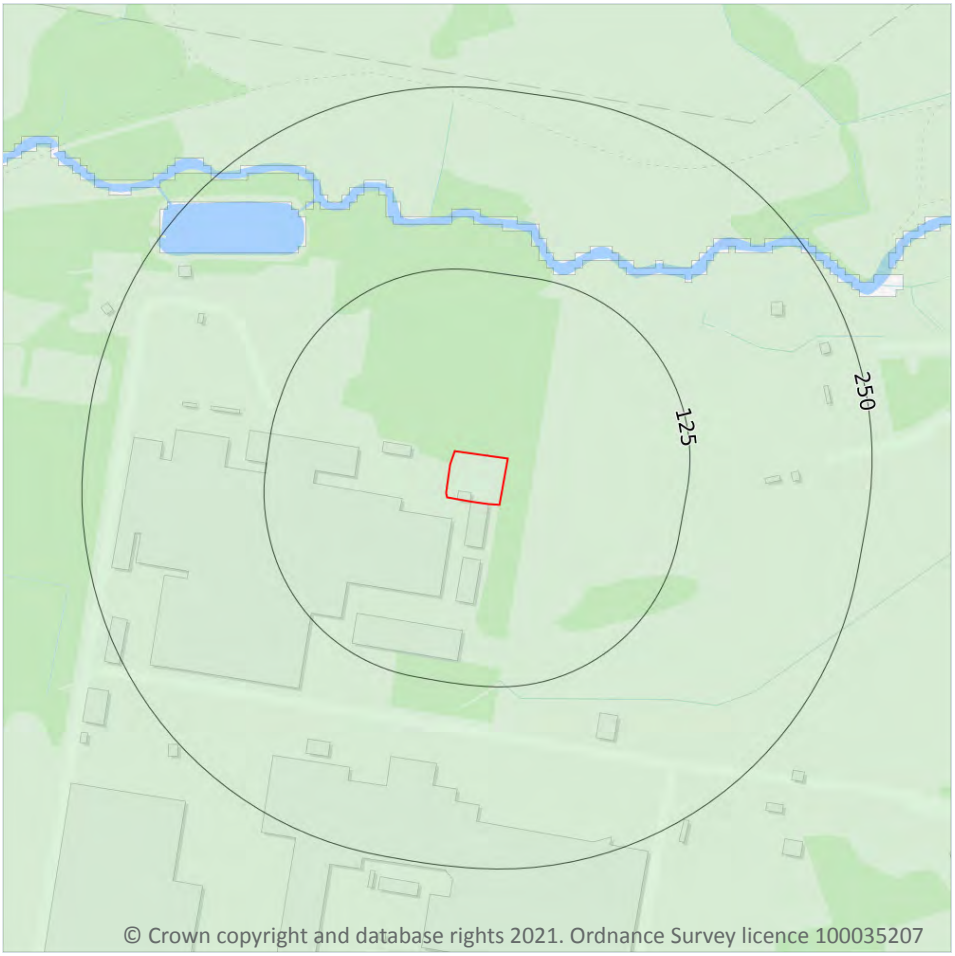
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 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

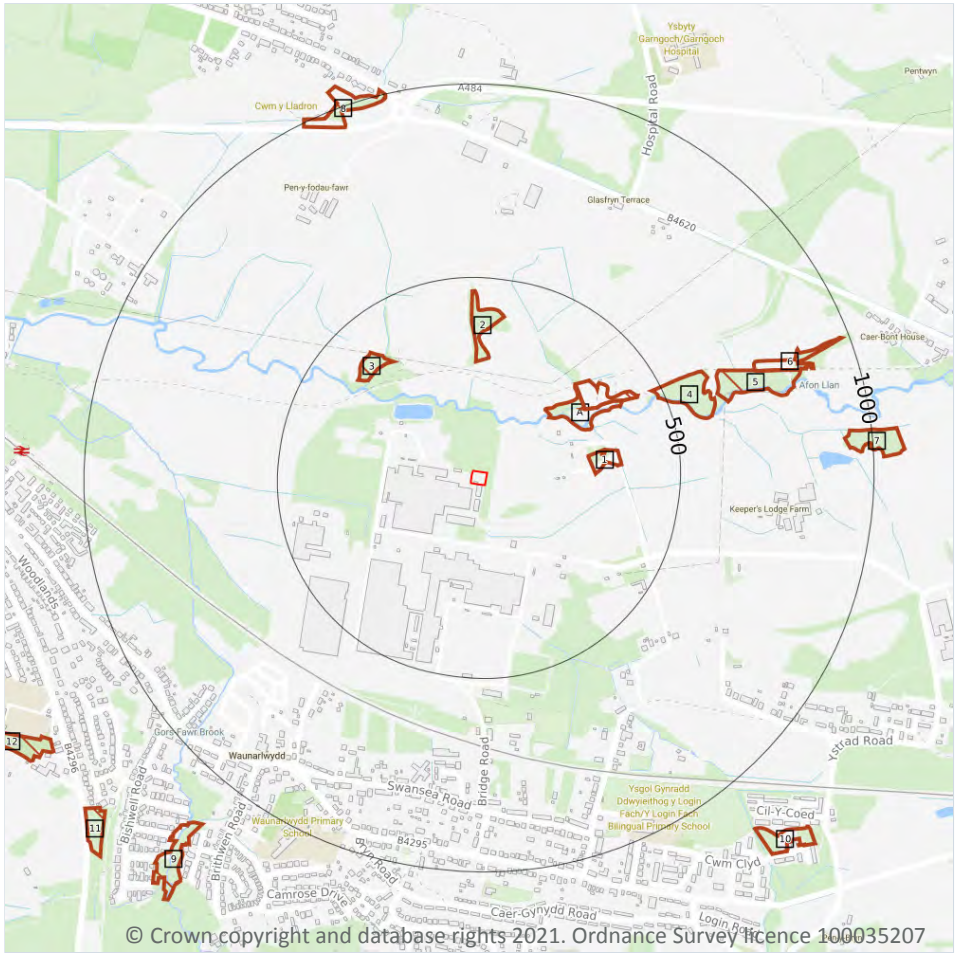
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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 71**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Local Nature Reserves (LNR)

Designated Ancient Woodland

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 72**

ID	Location	Name	Data source
-	1574m S	CWMLLWYD WOOD	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	32

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 72**

ID	Location	Name	Woodland Type
A	214m NE	Unknown	Ancient Semi Natural Woodland
1	264m E	Unknown	Ancient Semi Natural Woodland
2	282m N	Unknown	Restored Ancient Woodland Site
A	299m NE	Unknown	Restored Ancient Woodland Site
3	349m NW	Unknown	Ancient Semi Natural Woodland
4	475m NE	Unknown	Restored Ancient Woodland Site
5	629m E	Unknown	Restored Ancient Woodland Site
6	739m E	Unknown	Ancient Semi Natural Woodland
7	929m E	Unknown	Restored Ancient Woodland Site
8	947m N	Unknown	Ancient Semi Natural Woodland
9	1122m SW	Unknown	Ancient Semi Natural Woodland
10	1129m SE	Unknown	Ancient Semi Natural Woodland

ID	Location	Name	Woodland Type
11	1270m SW	Unknown	Ancient Semi Natural Woodland
12	1273m SW	Unknown	Ancient Semi Natural Woodland
-	1350m S	Unknown	Ancient Semi Natural Woodland
-	1353m E	Unknown	Ancient Semi Natural Woodland
-	1461m SW	Unknown	Ancient Semi Natural Woodland
-	1577m E	Unknown	Ancient Semi Natural Woodland
-	1589m S	Unknown	Ancient Semi Natural Woodland
-	1621m SW	Unknown	Ancient Semi Natural Woodland
-	1635m NE	Unknown	Restored Ancient Woodland Site
-	1671m S	Unknown	Ancient Semi Natural Woodland
-	1679m SE	Unknown	Ancient Semi Natural Woodland
-	1700m SE	Unknown	Ancient Semi Natural Woodland
-	1782m N	Unknown	Ancient Semi Natural Woodland
-	1788m W	Unknown	Ancient Semi Natural Woodland
-	1793m SE	Unknown	Ancient Semi Natural Woodland
-	1851m SE	Unknown	Ancient Semi Natural Woodland
-	1915m W	Unknown	Ancient Semi Natural Woodland
-	1936m NE	Unknown	Ancient Semi Natural Woodland
-	1991m SW	Unknown	Ancient Semi Natural Woodland
-	1992m W	Unknown	Ancient Semi Natural Woodland

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	4

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 81**

ID	Location	Classification	Description
3	26m E	Grade 3b	Moderate quality agricultural land
5	166m NW	Grade 3b	Moderate quality agricultural land
6	191m N	Grade 5	Very poor quality agricultural land

ID	Location	Classification	Description
9	232m W	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.

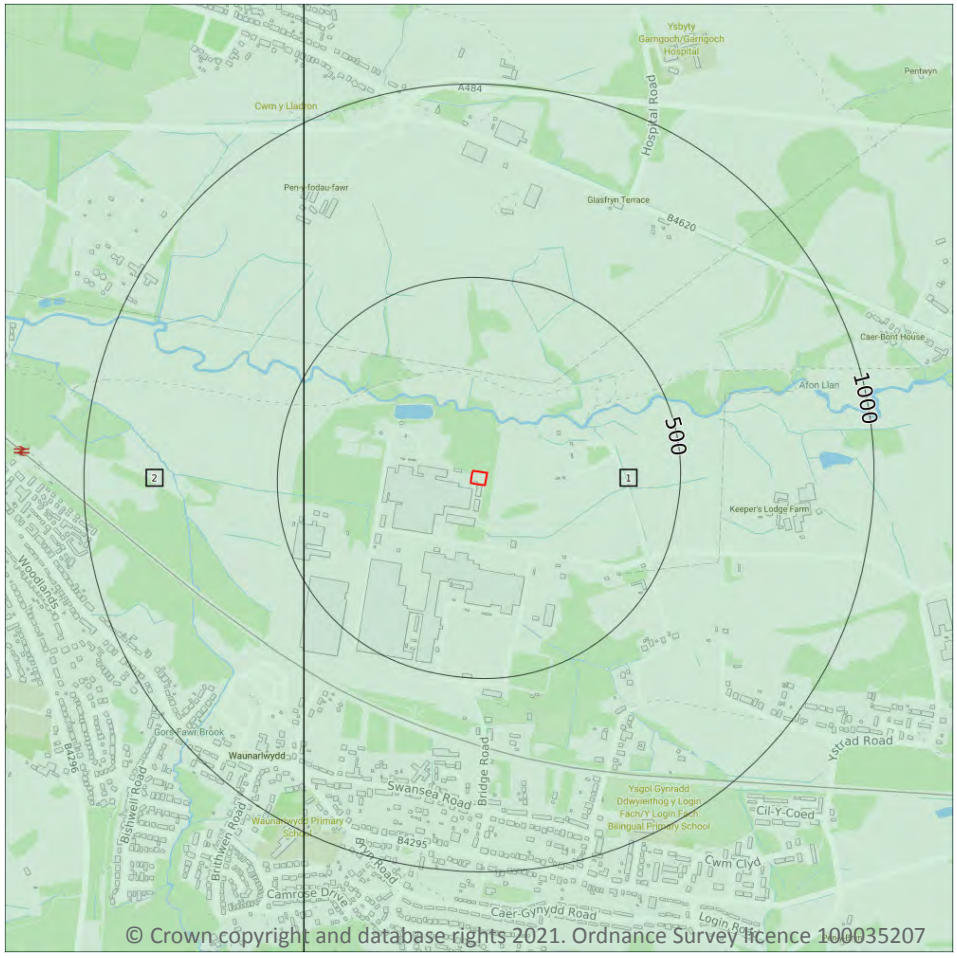
13.4 Limestone Pavement Orders

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

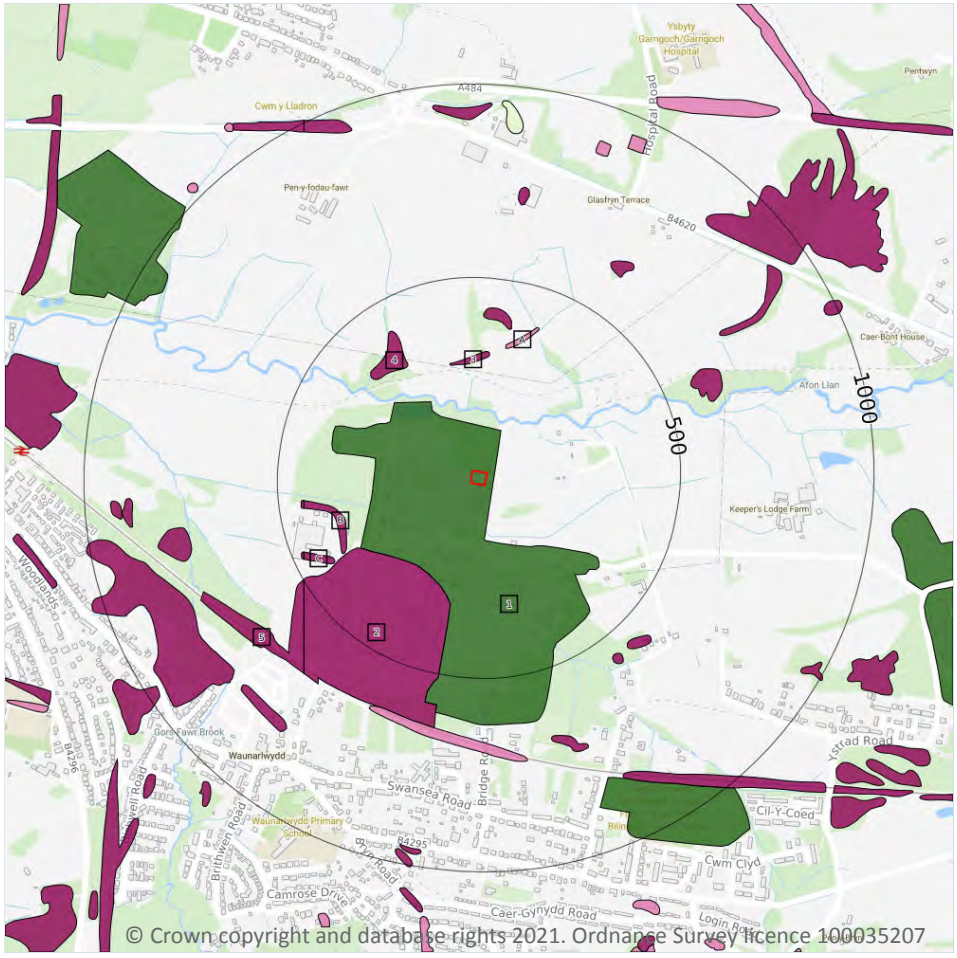
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 84**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SS69NW**
2	431m W	Full	Full	Full	No coverage	SS59NE

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	11

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.

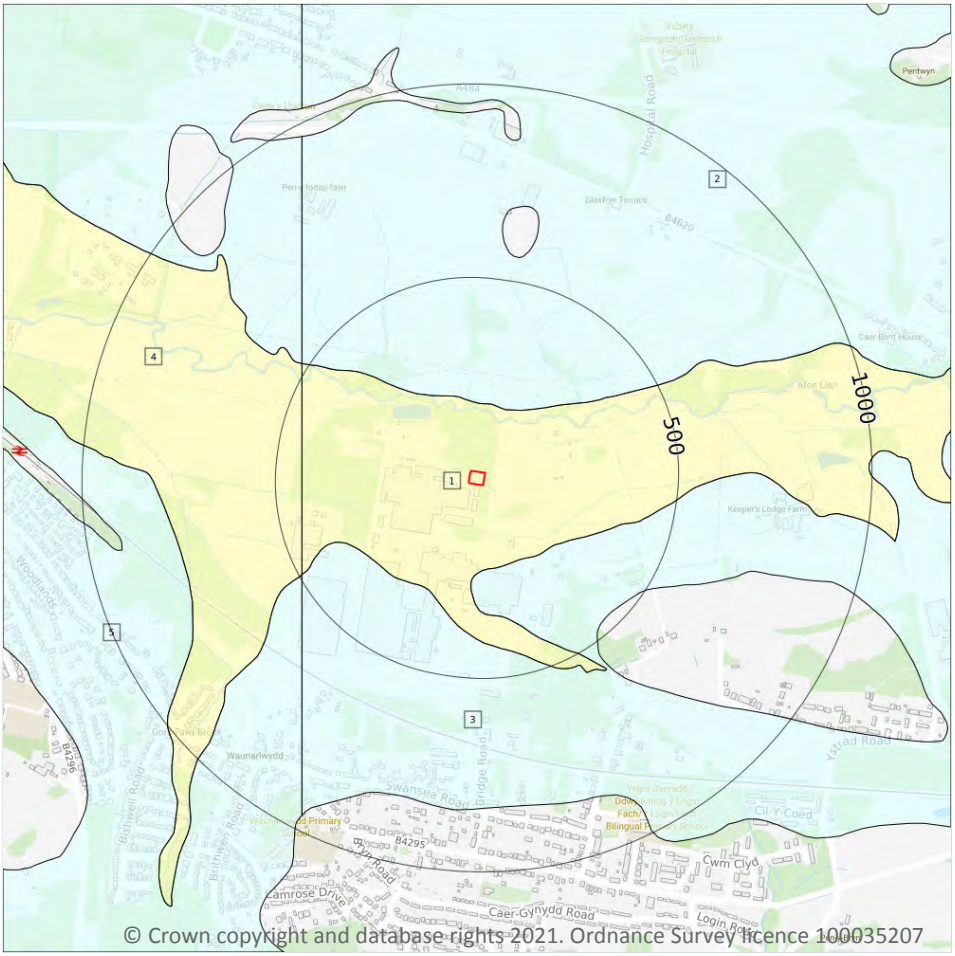
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 85**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**LSGR-UKNOWN**	**Landscaped Ground (Undivided)**	**Unknown/unclassified Entry**
2	254m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	276m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	318m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
A	326m N	WGR-VOID	Worked Ground (Undivided)	Void
B	339m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	375m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
C	405m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
B	434m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
C	467m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	499m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

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 **5**

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 87**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSV**	**Alluvium - Clay, Silt, Sand And Gravel**	**Clay, Silt, Sand And Gravel**
2	172m N	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
3	214m S	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
4	431m W	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

ID	Location	LEX Code	Description	Rock description
5	492m SW	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

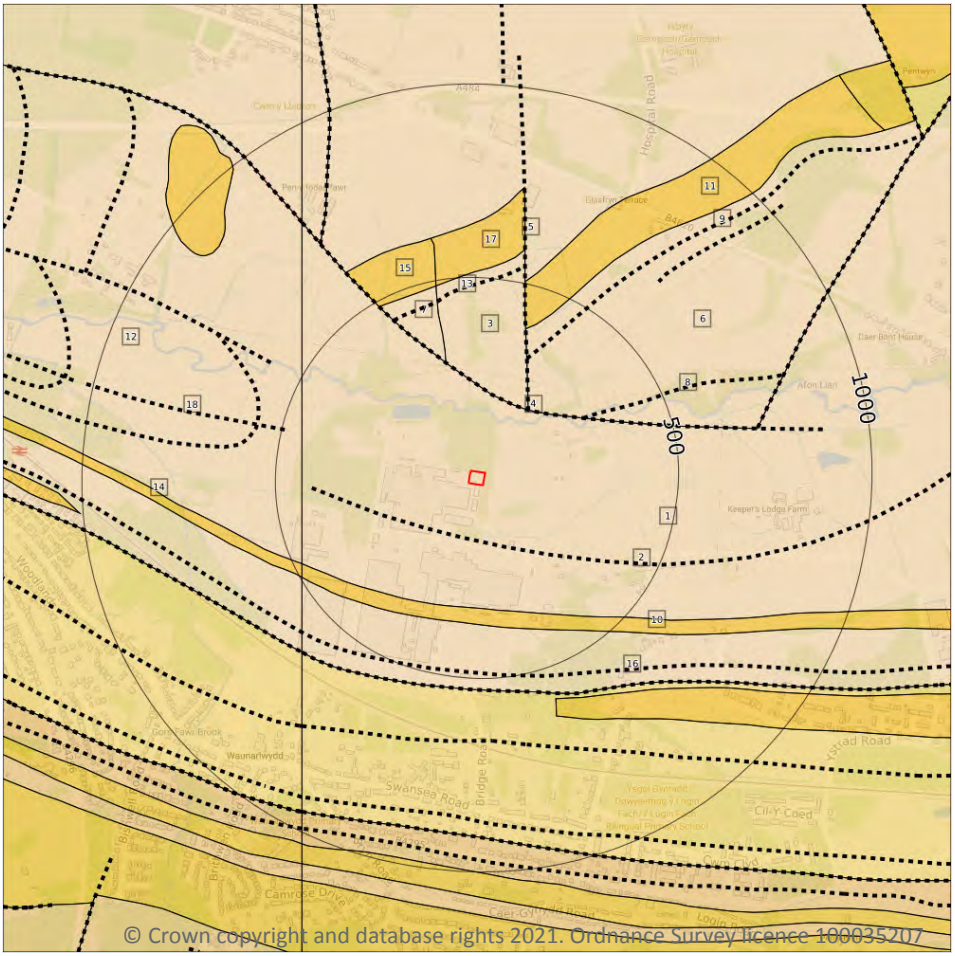
14.4 Landslip (10k)

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	10

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 89**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**GDB-MDSS**	**Grovesend Formation - Mudstone, Siltstone And Sandstone**	**Westphalian D Sub-age**
3	190m N	GDB-MDSS	Grovesend Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
6	197m NE	GDB-MDSS	Grovesend Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age

ID	Location	LEX Code	Description	Rock age
7	287m N	GDB-MDSS	Grovesend Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
10	318m S	GDB-SDST	Grovesend Formation - Sandstone	Westphalian D Sub-age
11	387m N	GDB-SDST	Grovesend Formation - Sandstone	Westphalian D Sub-age
12	431m W	GDB-MDSS	Grovesend Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age
14	480m SW	GDB-SDST	Grovesend Formation - Sandstone	Westphalian D Sub-age
15	480m N	GDB-SDST	Grovesend Formation - Sandstone	Westphalian D Sub-age
17	487m N	GDB-SDST	Grovesend Formation - Sandstone	Westphalian D Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m **8**

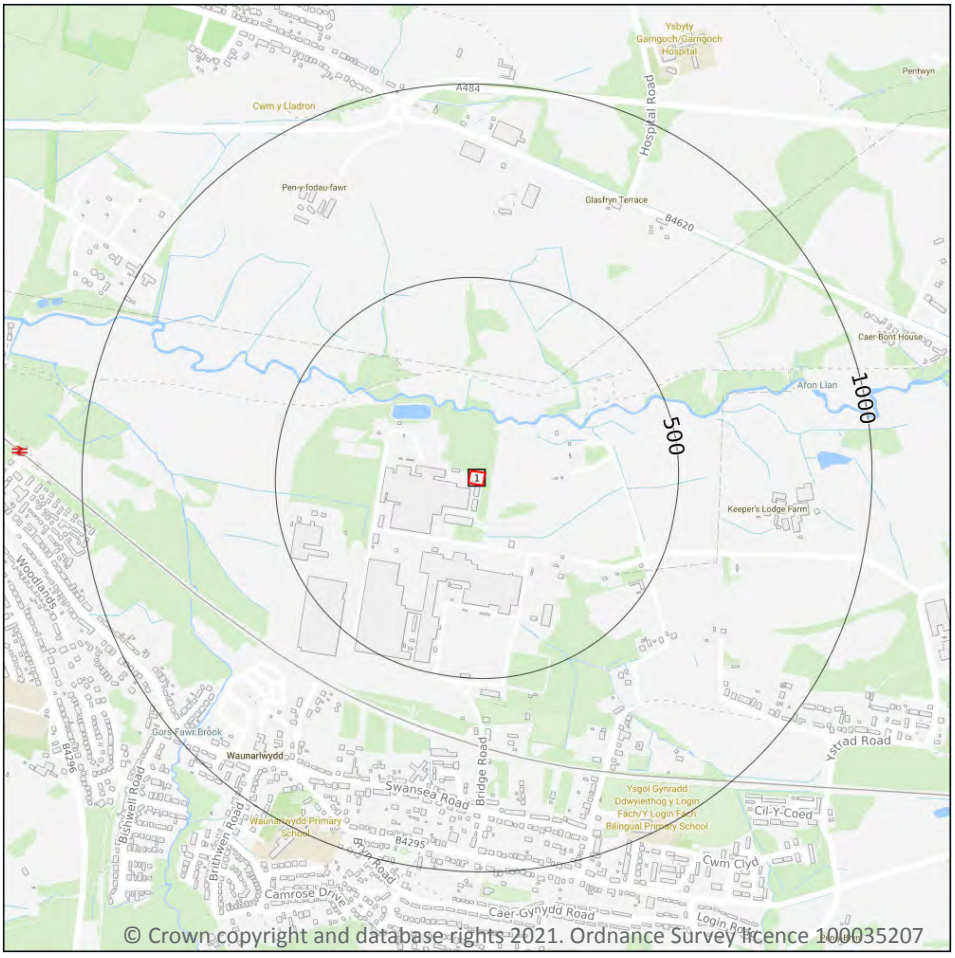
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 89**

ID	Location	Category	Description
2	141m S	FOLD_AXIS	Axial plane trace of major syncline
4	190m N	FAULT	Normal fault, inferred
5	197m NE	FAULT	Normal fault, inferred
8	290m NE	ROCK	Coal seam, inferred (SW 4 FT)
9	314m N	ROCK	Coal seam, inferred (PEN)
13	437m NW	ROCK	Coal seam, inferred (PEN)
16	484m S	ROCK	Coal seam, inferred (PEN)
18	492m W	FOLD_AXIS	Axial plane trace of major syncline

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

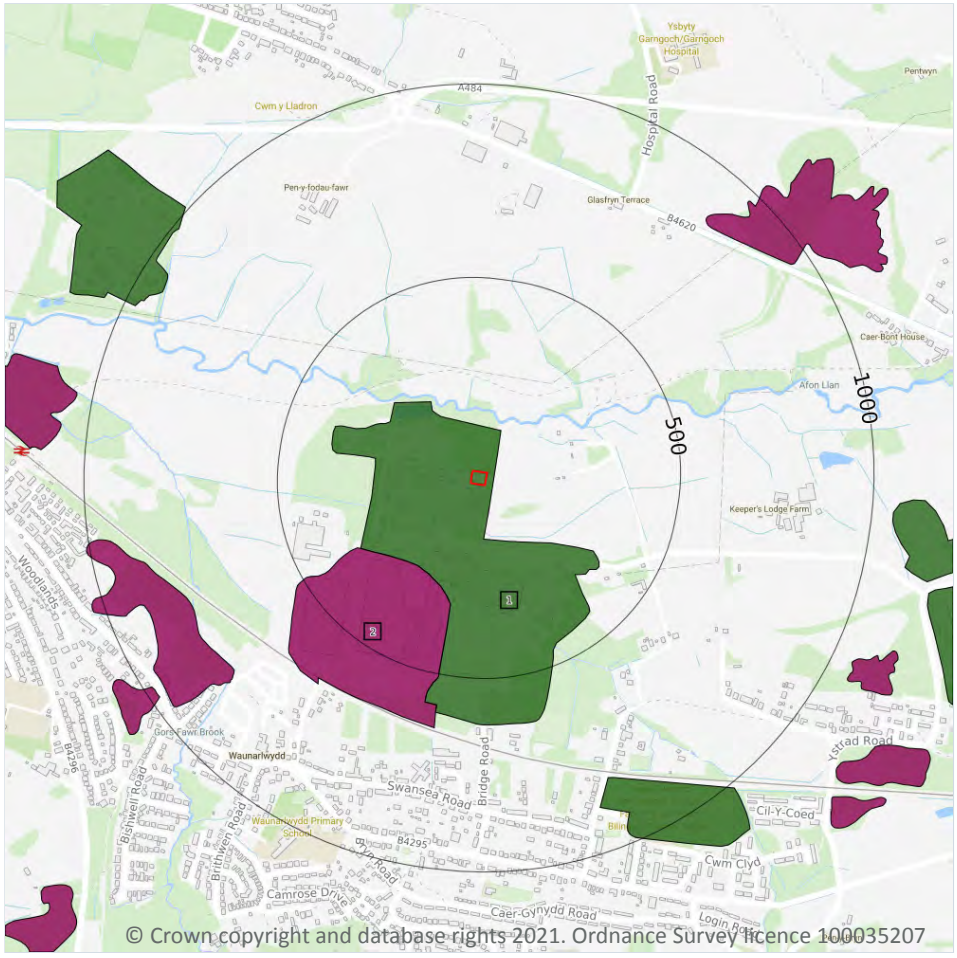
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 91**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW247_swansea_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	2

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.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 92**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**LSGR-ARTGR**	**LANDSCAPED GROUND (UNDIVIDED)**	**ARTIFICIALLY MODIFIED GROUND**
2	254m SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

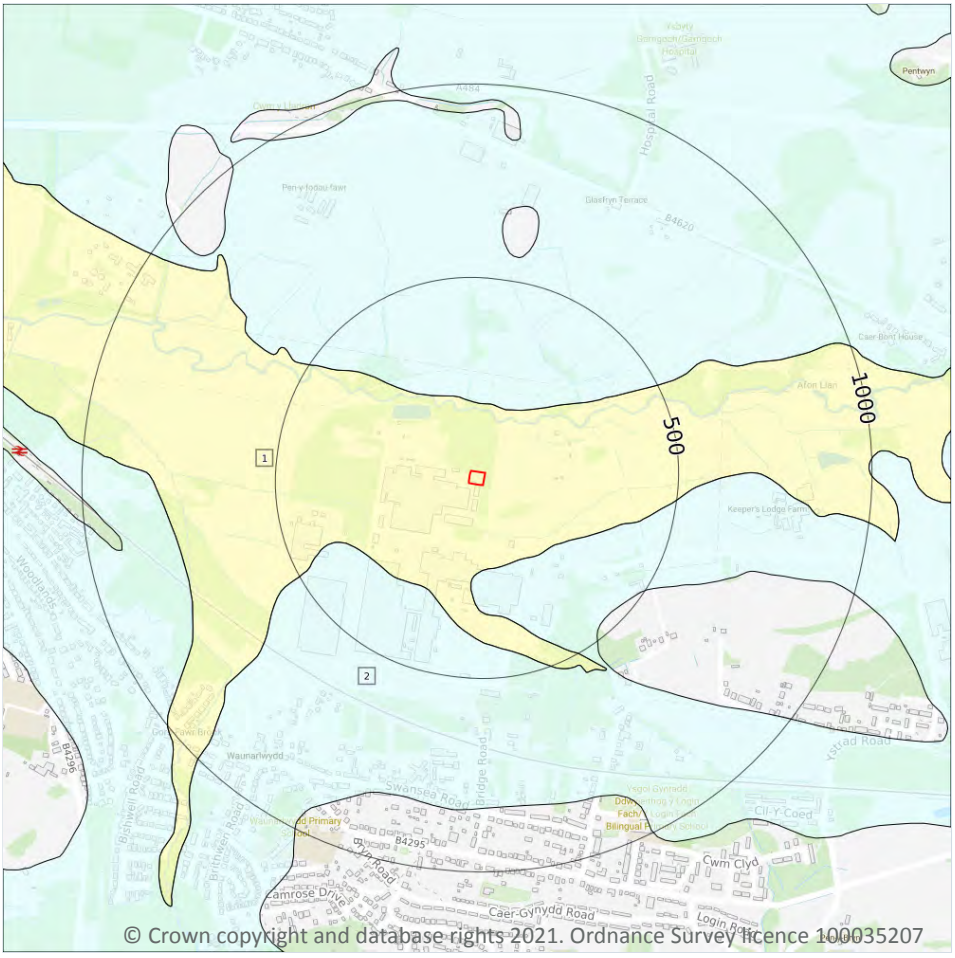
Records within 50m	1

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).

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

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 94**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSV**	**ALLUVIUM**	**CLAY, SILT, SAND AND GRAVEL**
2	172m N	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

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**

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.

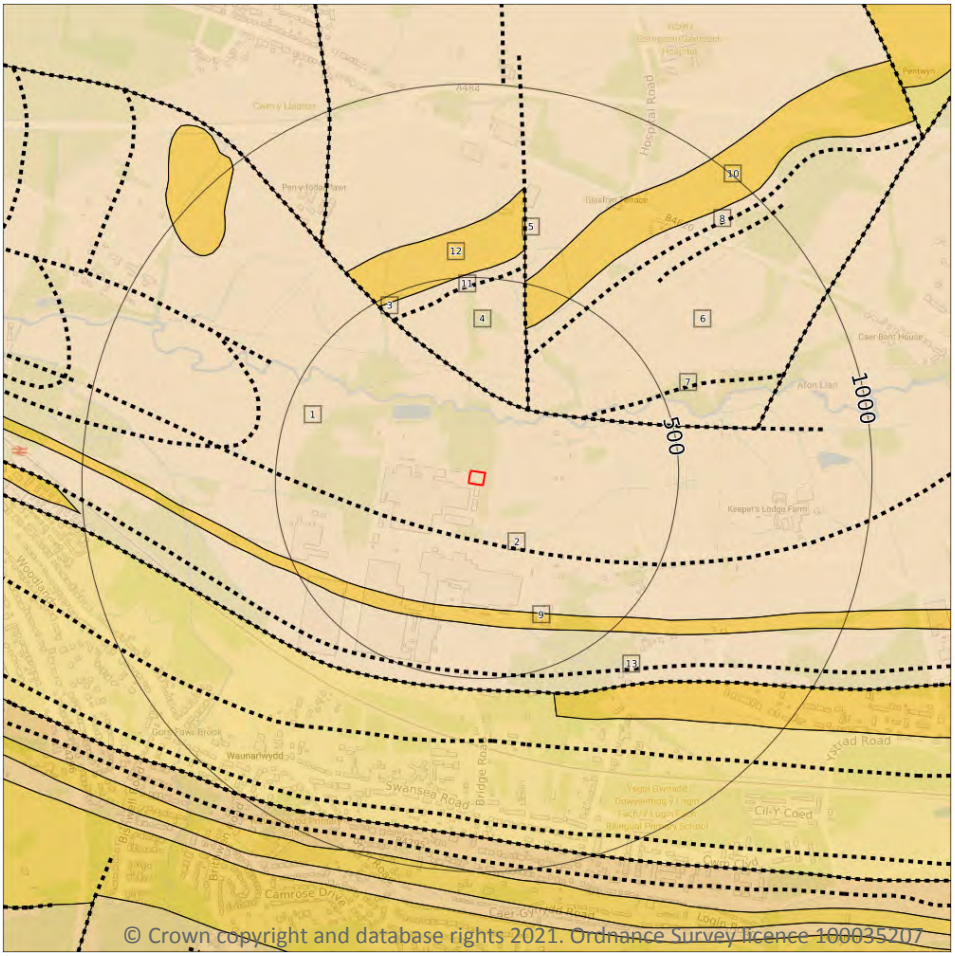
15.7 Landslip permeability (50k)

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 **6**

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 96**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**GDB-MDSS**	**GROVESEND FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
4	190m N	GDB-MDSS	GROVESEND FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
6	197m NE	GDB-MDSS	GROVESEND FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	318m S	GDB-SDST	GROVESEND FORMATION - SANDSTONE	WESTPHALIAN
10	387m N	GDB-SDST	GROVESEND FORMATION - SANDSTONE	WESTPHALIAN
12	480m N	GDB-SDST	GROVESEND FORMATION - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m **1**

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**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m **7**

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.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 96**

ID	Location	Category	Description
2	141m S	FOLD_AXIS	Axial plane trace of major syncline
3	190m N	FAULT	Fault, inferred, displacement unknown
5	197m NE	FAULT	Fault, inferred, displacement unknown
7	290m NE	ROCK	Coal seam, inferred
8	314m N	ROCK	Coal seam, inferred
11	437m NW	ROCK	Coal seam, inferred
13	484m S	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

16 Boreholes

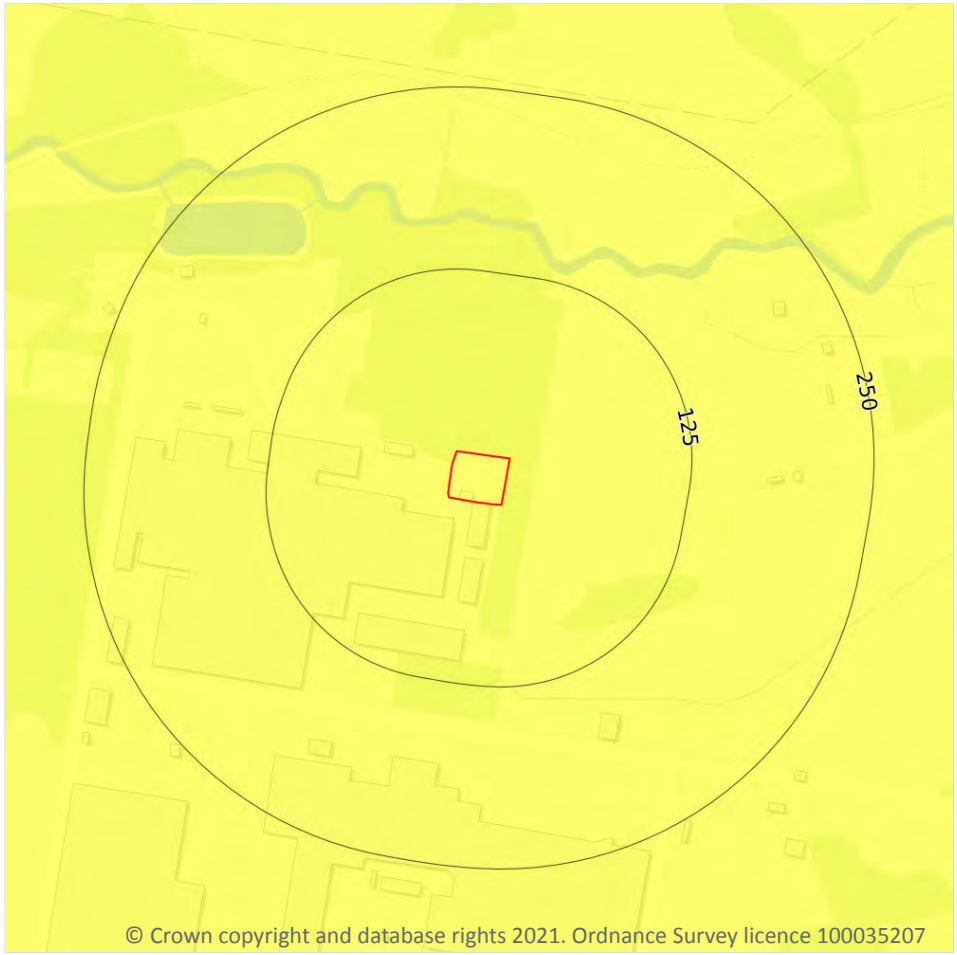
16.1 BGS Boreholes

Records within 250m	0

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.

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

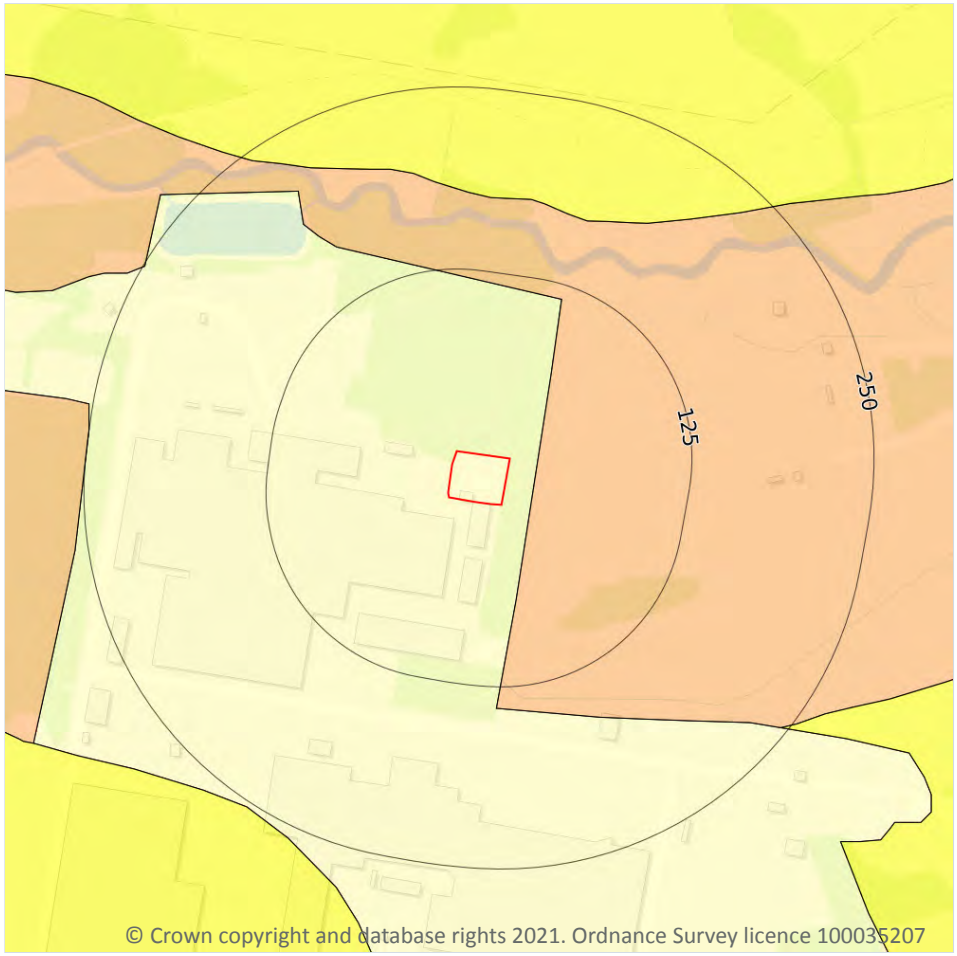
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 100**

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



Site Outline

Search buffers in metres (m)

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

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.

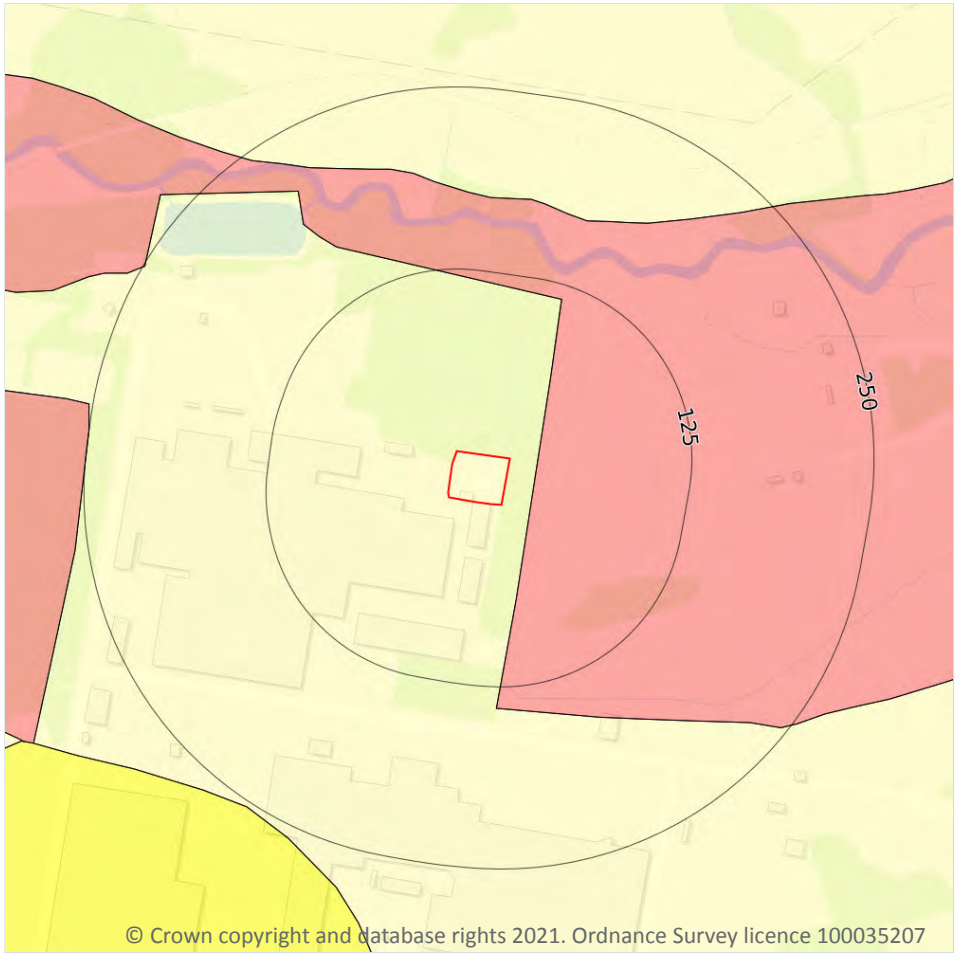
Features are displayed on the Natural ground subsidence - Running sands map on **page 101**

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
19m E	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

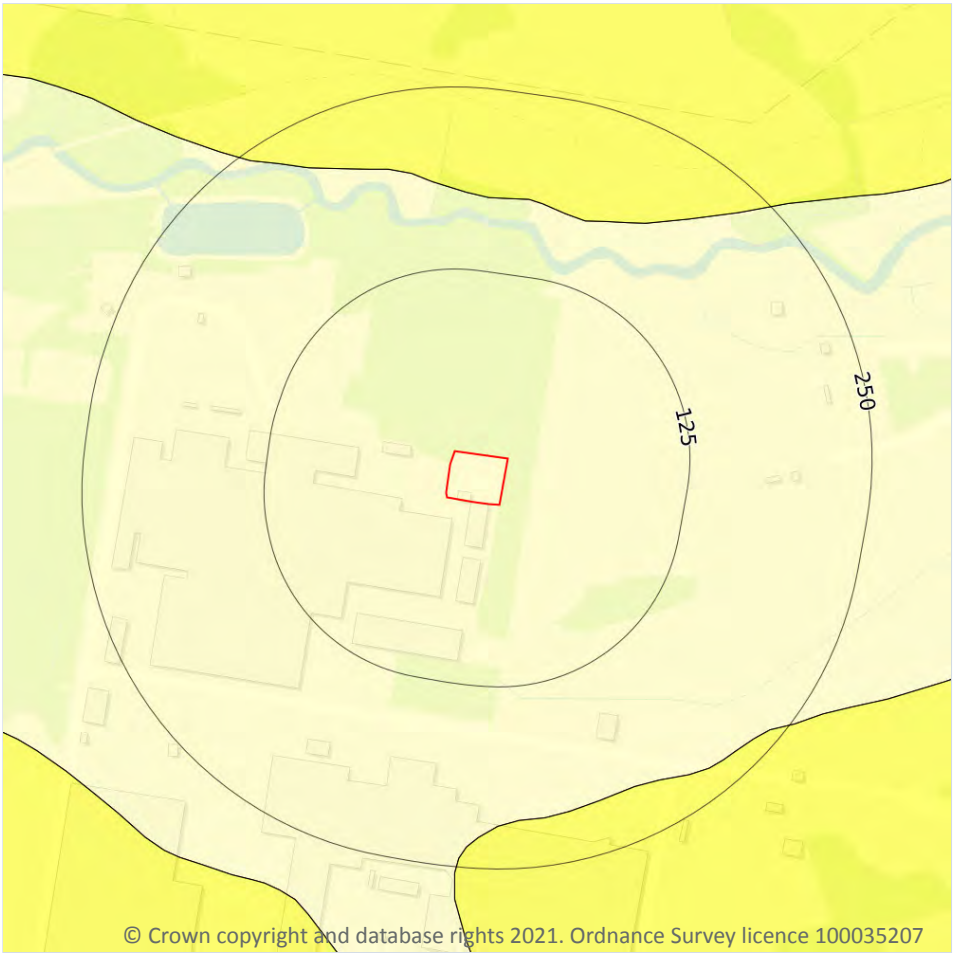
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 103**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
19m E	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	1

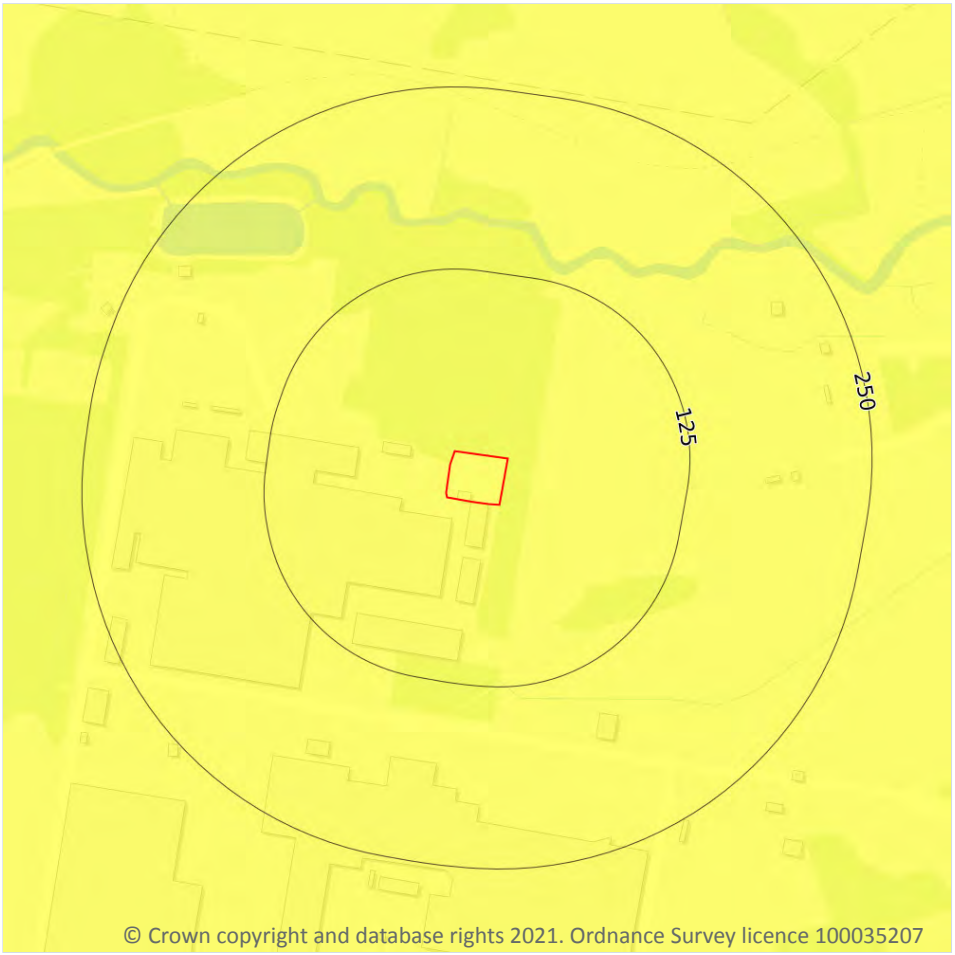
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 105**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not 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	1

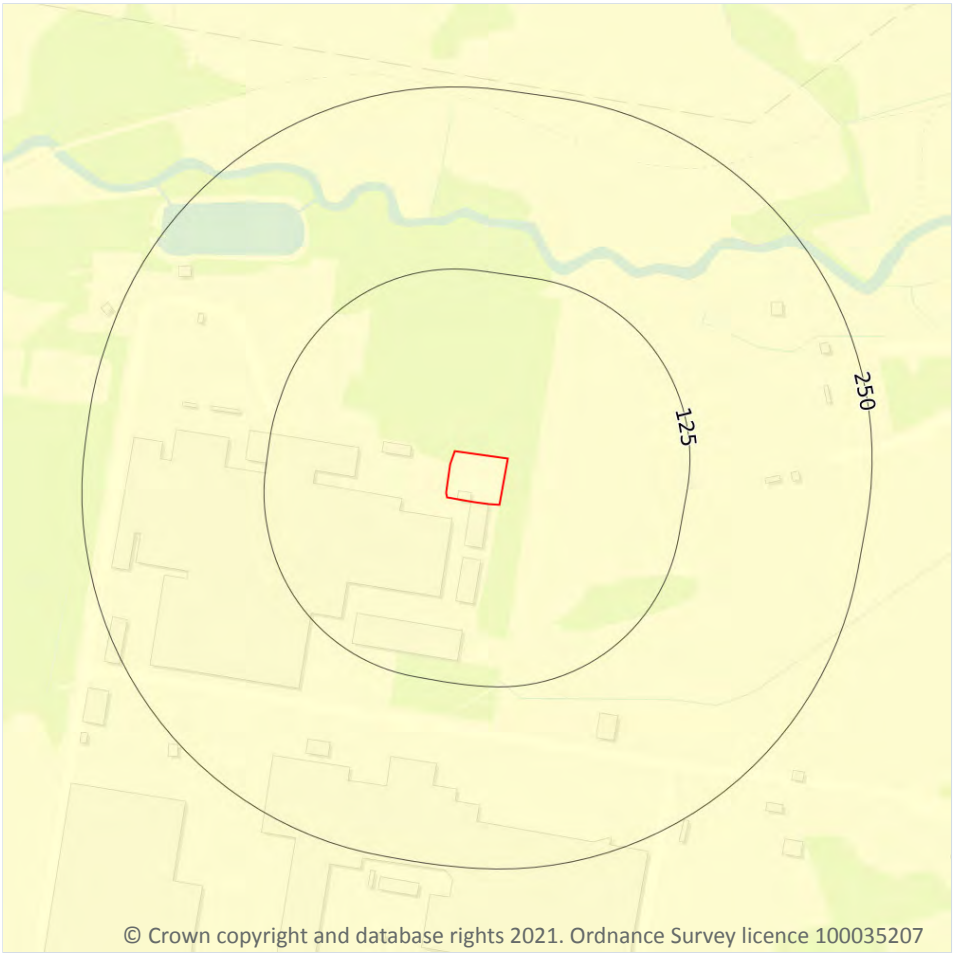
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 106**

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.**

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 107**

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	3

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 109**

ID	Location	Details	Description
E	347m N	Name: Cape Colliery Address: Gorseinon, SWANSEA, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) 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
H	398m N	Name: Cape Colliery Address: Gorseinon, SWANSEA, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) 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
I	459m S	Name: Ystrad-isaf Address: Gorseinon, SWANSEA, West Glamorgan Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) 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	9

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 109**

ID	Location	Land Use	Year of mapping	Mapping scale
1	112m NW	Gravel Pit	1968	1:10560
A	167m NW	Pond	1968	1:10560
A	176m NW	Reservoir	1980	1:10000
A	176m NW	Reservoir	1994	1:10000
A	176m NW	Pond	1964	1:10560
B	236m W	Sludge Beds	1980	1:10000
B	236m W	Sludge Beds	1994	1:10000
C	248m SW	Refuse Heap	1964	1:10560
2	249m NW	Refuse Heap	1980	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	**30**

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 109**

ID	Location	Land Use	Year of mapping	Mapping scale
E	313m N	Old Coal Pit	1913	1:10560
F	315m NW	Unspecified Disused Drift	1994	1:10000
F	315m NW	Unspecified Disused Drift	1980	1:10000
F	323m NW	Unspecified Disused Drift	1964	1:10560
F	325m NW	Unspecified Disused Drift	1968	1:10560
F	350m NW	Unspecified Old Drift	1947	1:10560
F	350m NW	Unspecified Old Drift	1936	1:10560
I	450m S	Old Coal Pit	1897	1:10560
M	544m S	Disused Colliery	1914	1:10560
M	544m S	Disused Colliery	1897	1:10560
M	546m S	Disused Colliery	1921	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
P	561m E	Disused Colliery	1878	1:10560
6	620m SW	Colliery	1878	1:10560
Q	646m NE	Unspecified Shaft	1878	1:10560
Q	664m NE	Coal Pit	1878	1:10560
-	679m N	Air Shaft	1897	1:10560
-	683m N	Coal Pit	1897	1:10560
V	699m SW	Disused Colliery	1905	1:10560
V	705m SW	Disused Colliery	1913	1:10560
-	740m W	Colliery	1913	1:10560
-	776m SW	Colliery	1878	1:10560
V	776m SW	Disused Colliery	1900	1:10560
9	778m SE	Coal Pit	1878	1:10560
-	815m N	Colliery	1913	1:10560
-	847m E	Old Coal Pit	1913	1:10560
12	849m NE	Colliery	1936	1:10560
-	858m NE	Colliery	1897	1:10560
-	897m NE	Unspecified Disused Mine	1964	1:10560
-	936m NE	Unspecified Shaft	1878	1:10560
-	949m NE	Colliery	1913	1:10560

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	0

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).

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	1

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

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

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.

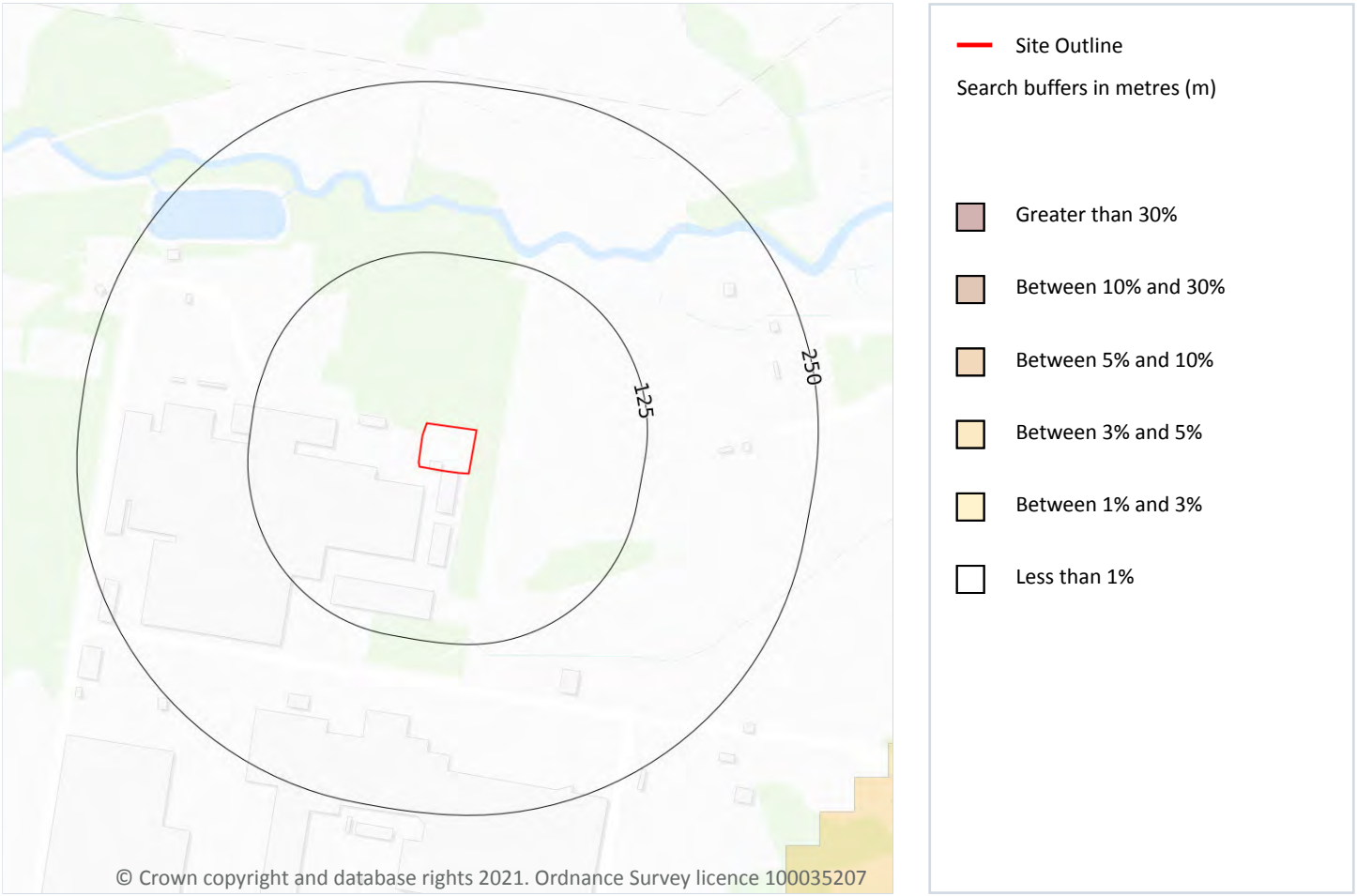
18.13 Clay mining

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



19.1 Radon

Records on site	1

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 115**

Location	Estimated properties affected	Radon Protection Measures required
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	2

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	**25 - 35 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
26m E	25 - 35 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.

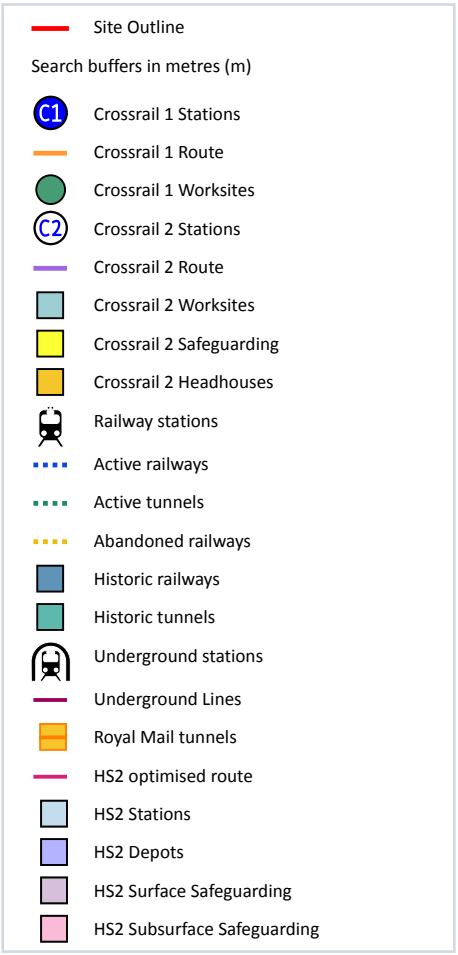
20.3 BGS Measured Urban Soil Chemistry

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	2

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.

Features are displayed on the Railway infrastructure and projects map on **page 117**

Location	Land Use	Year of mapping	Mapping scale
243m N	Mineral Railway Sidings	1936	2500
247m N	Railway Sidings	1947	10560

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	1

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

Features are displayed on the Railway infrastructure and projects map on **page 117**

Location	Description
221m N	Abandoned

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.

Terms and conditions

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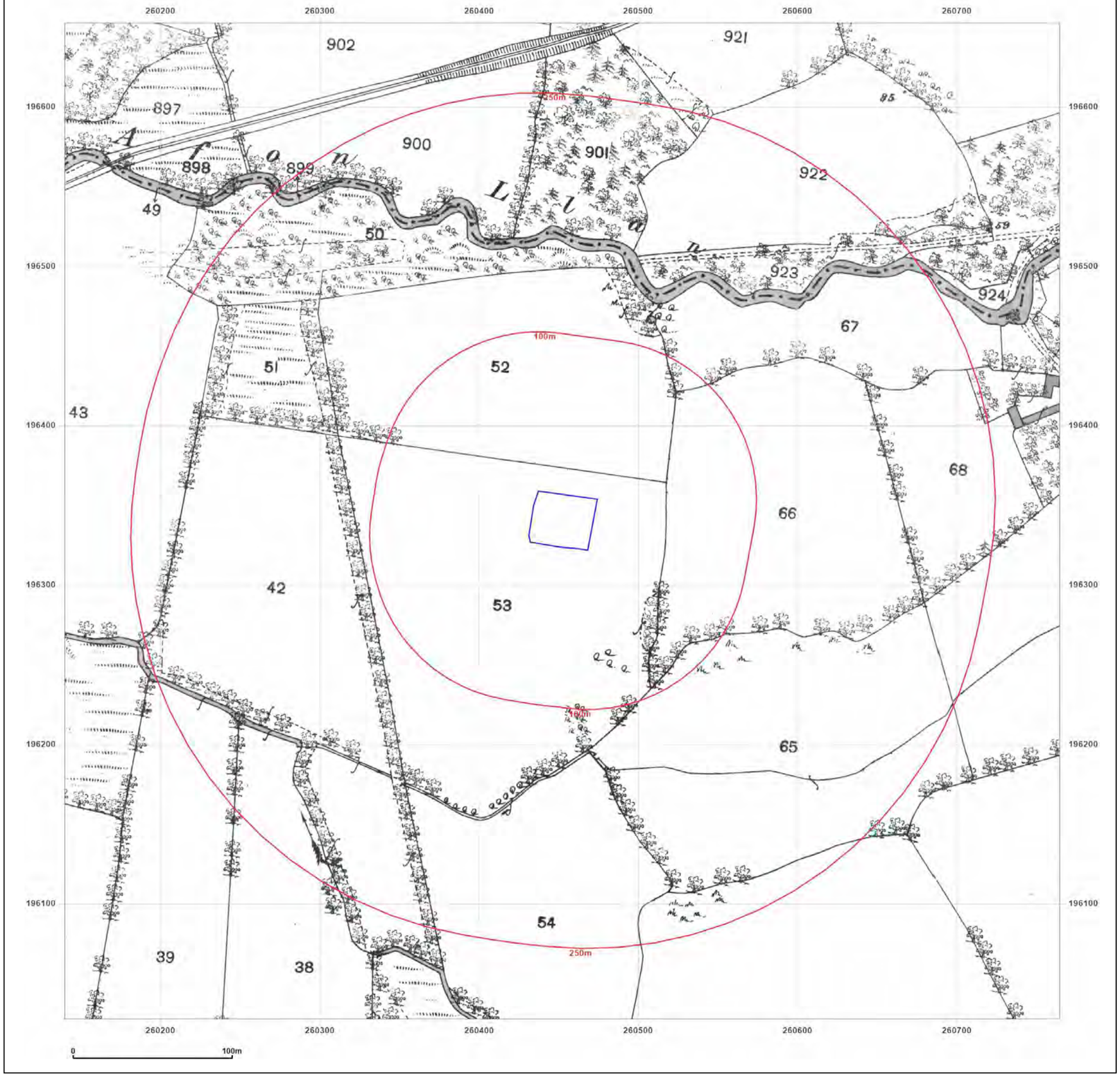

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Site Details:

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Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1879**

Scale: 1:2,500

Printed at: 1:2,500

N
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Revised 1879
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Levelled N/A

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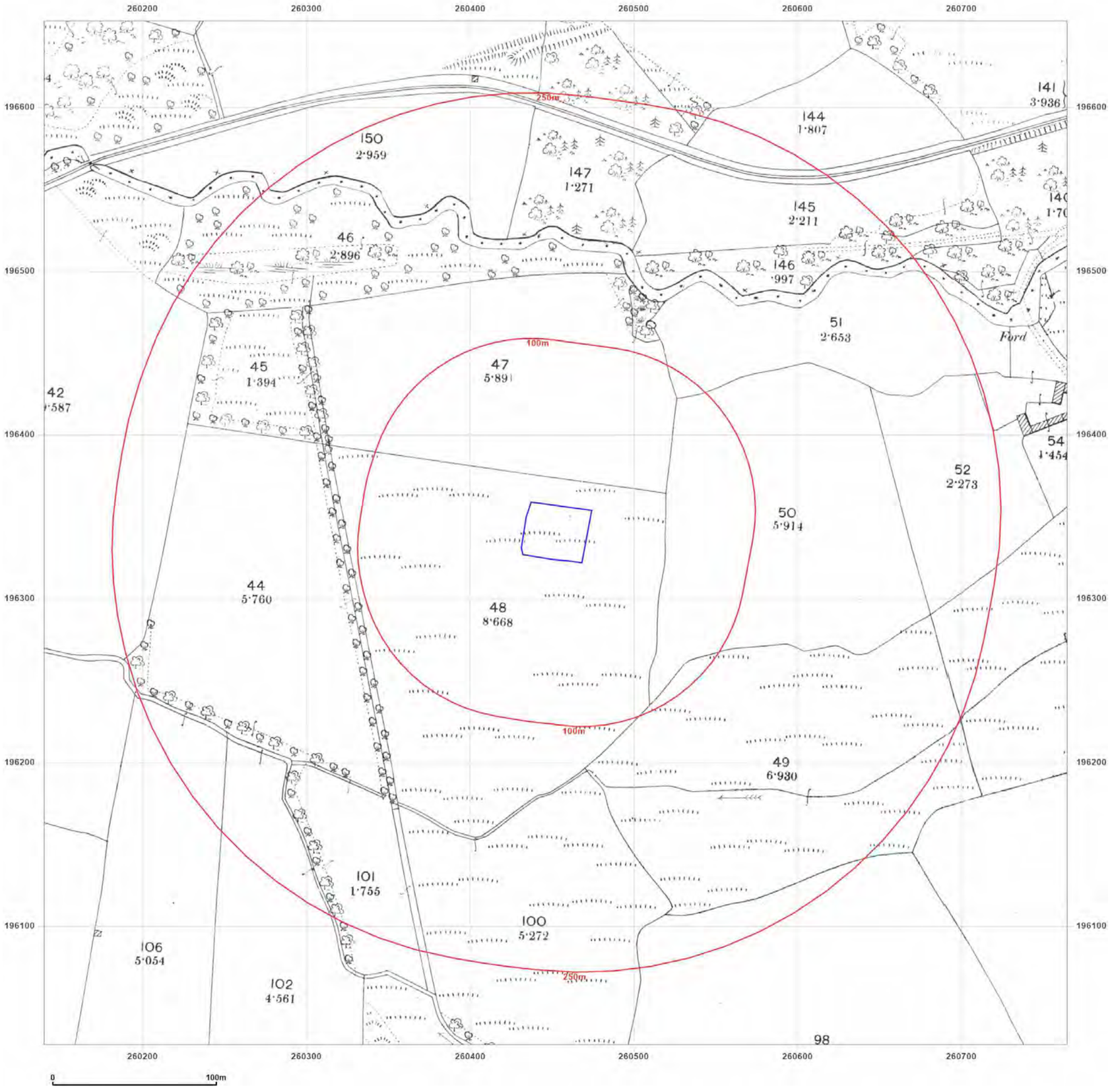

Groundsure INSIGHTS

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Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1898**

Scale: 1:2,500

Printed at: 1:2,500

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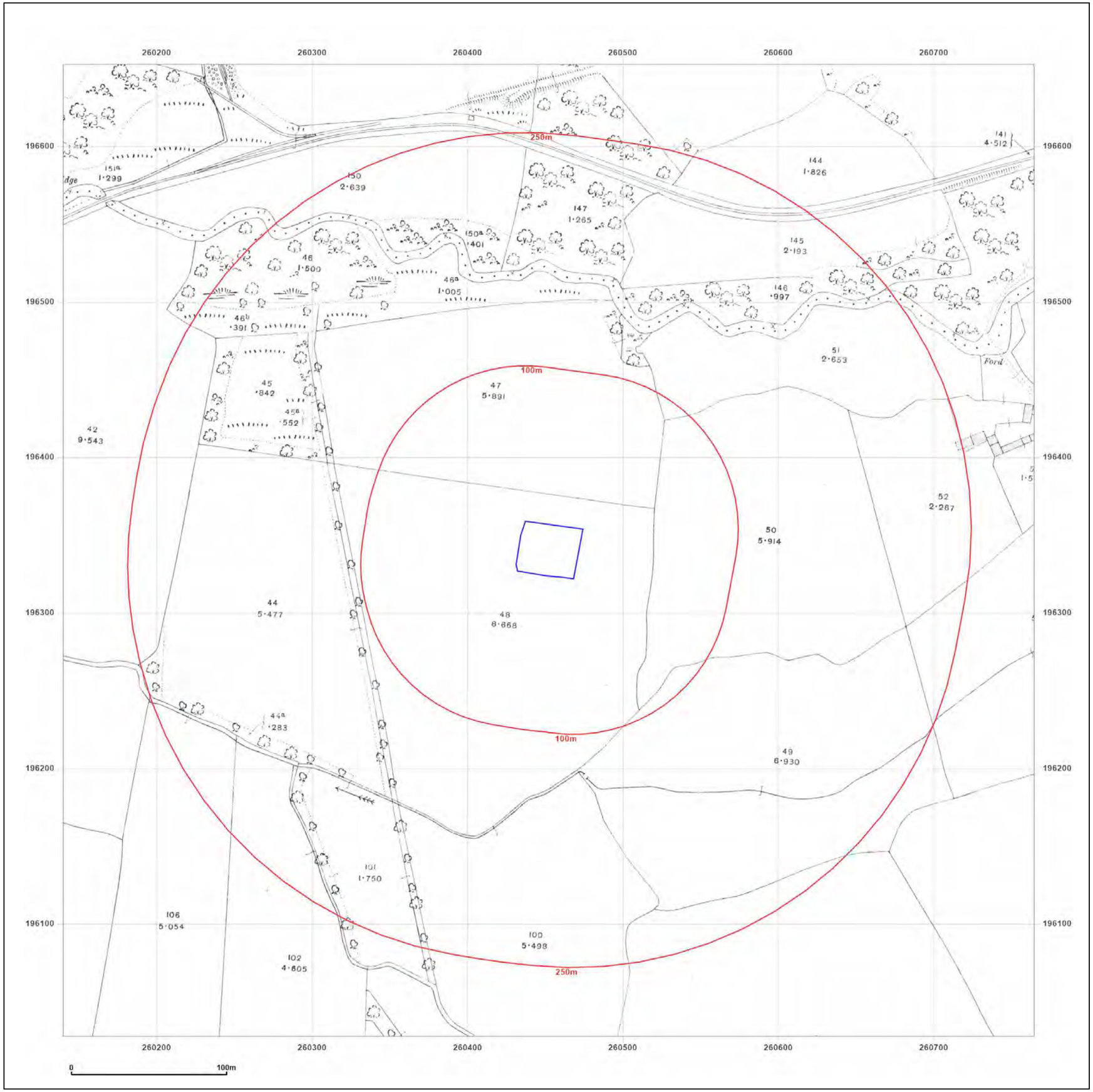

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Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1916**

Scale: 1:2,500

Printed at: 1:2,500

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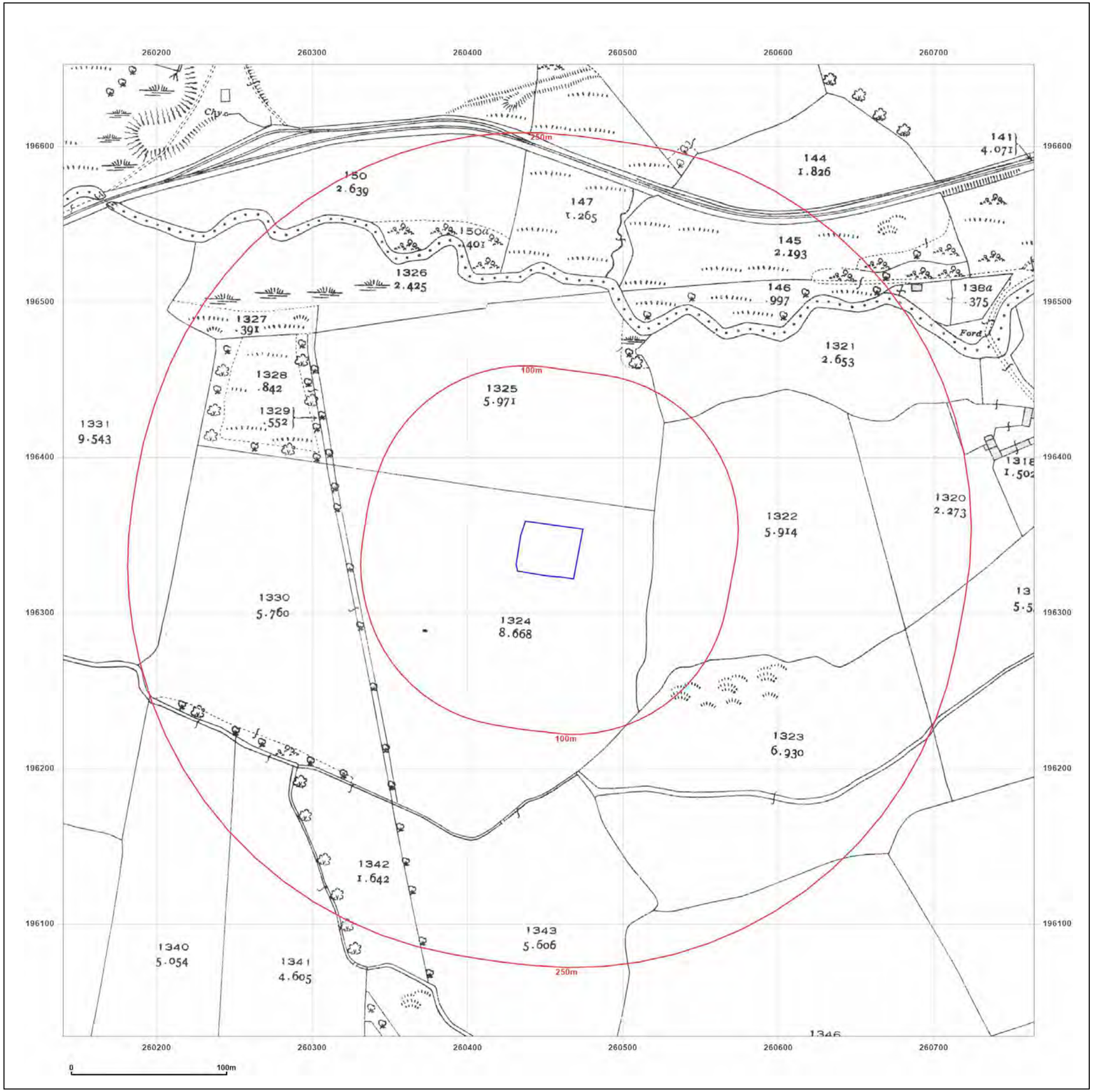

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Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1936**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1936
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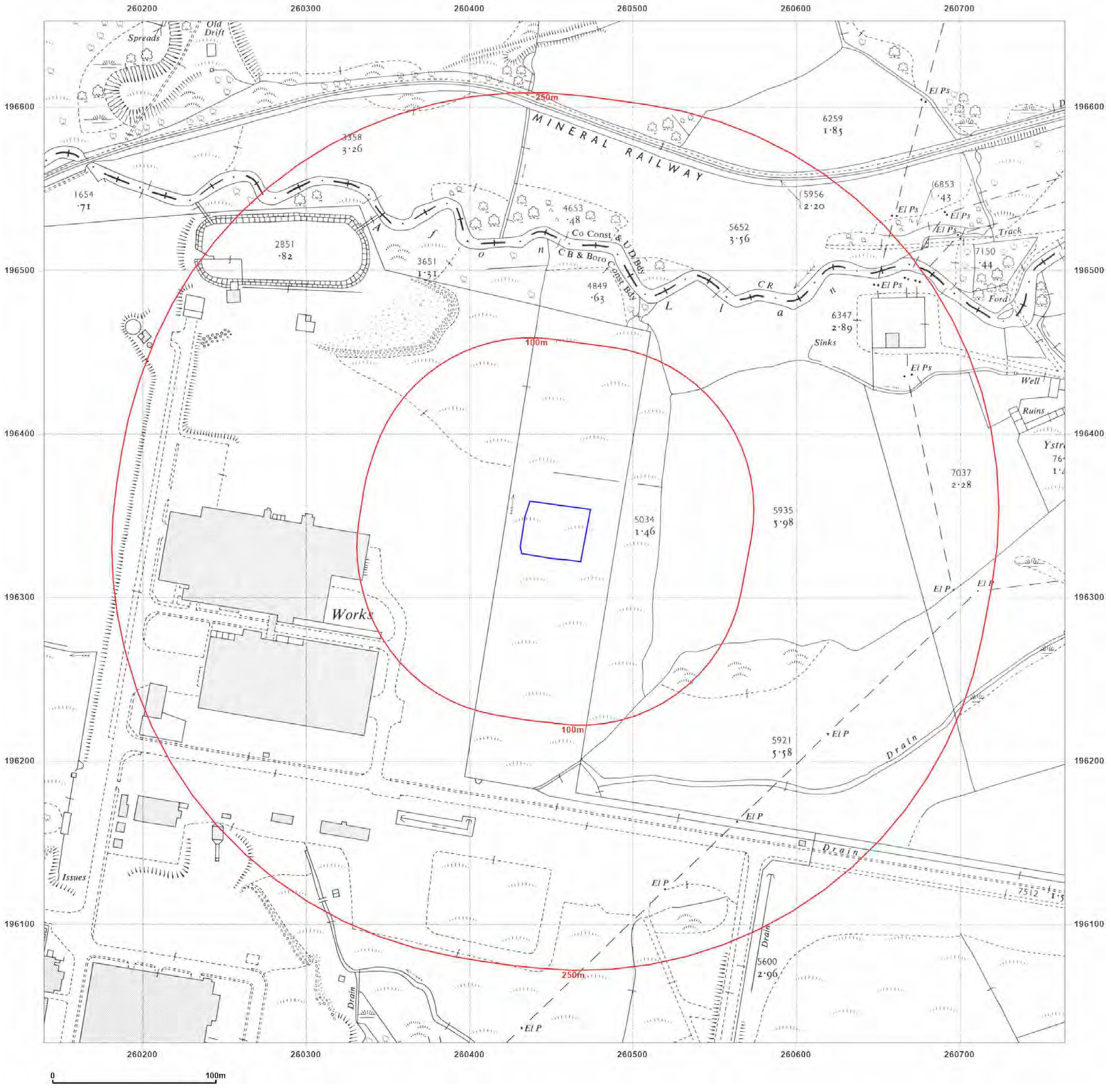

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Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1958
Edition N/A
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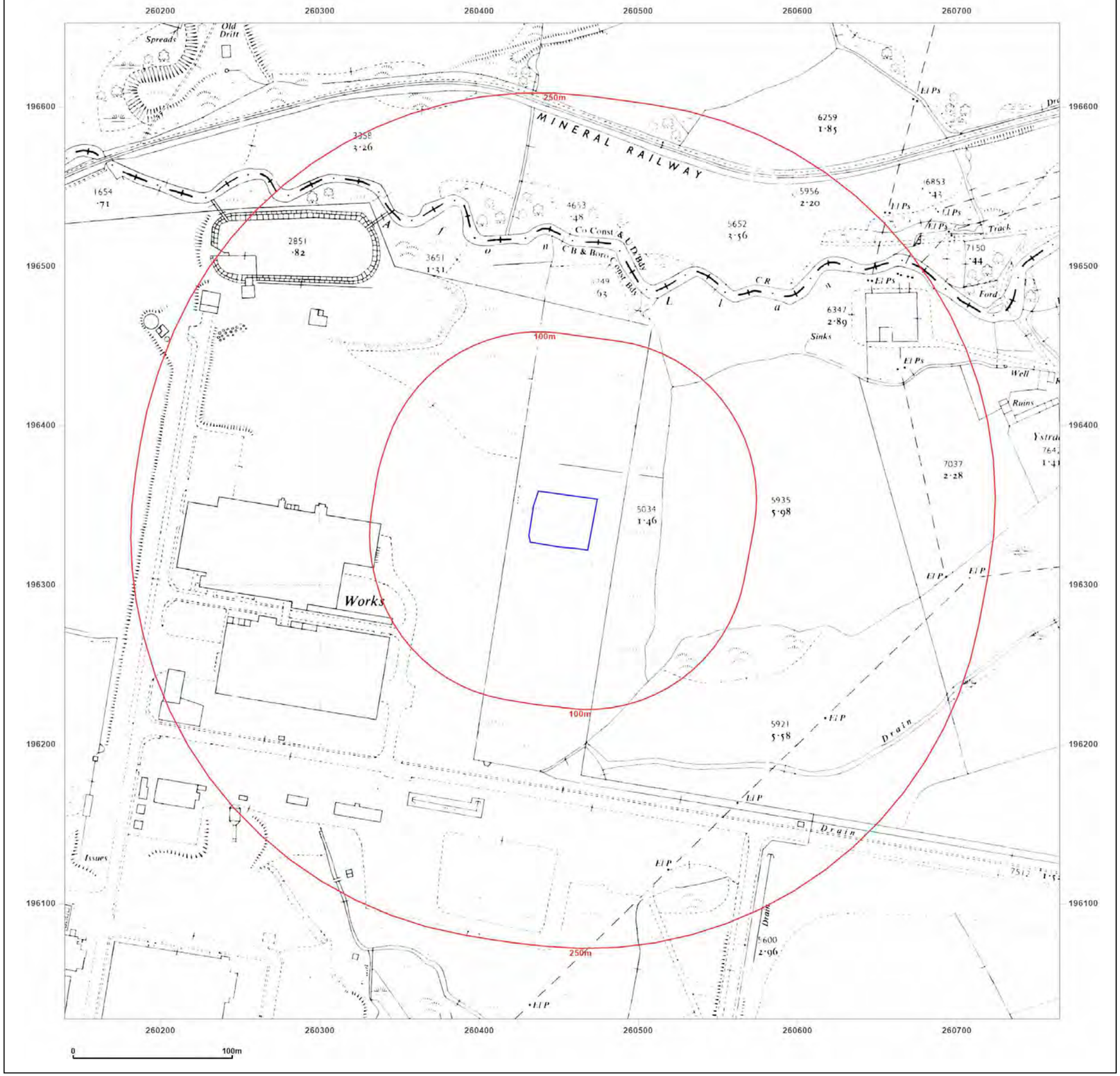

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Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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Revised N/A
Edition N/A
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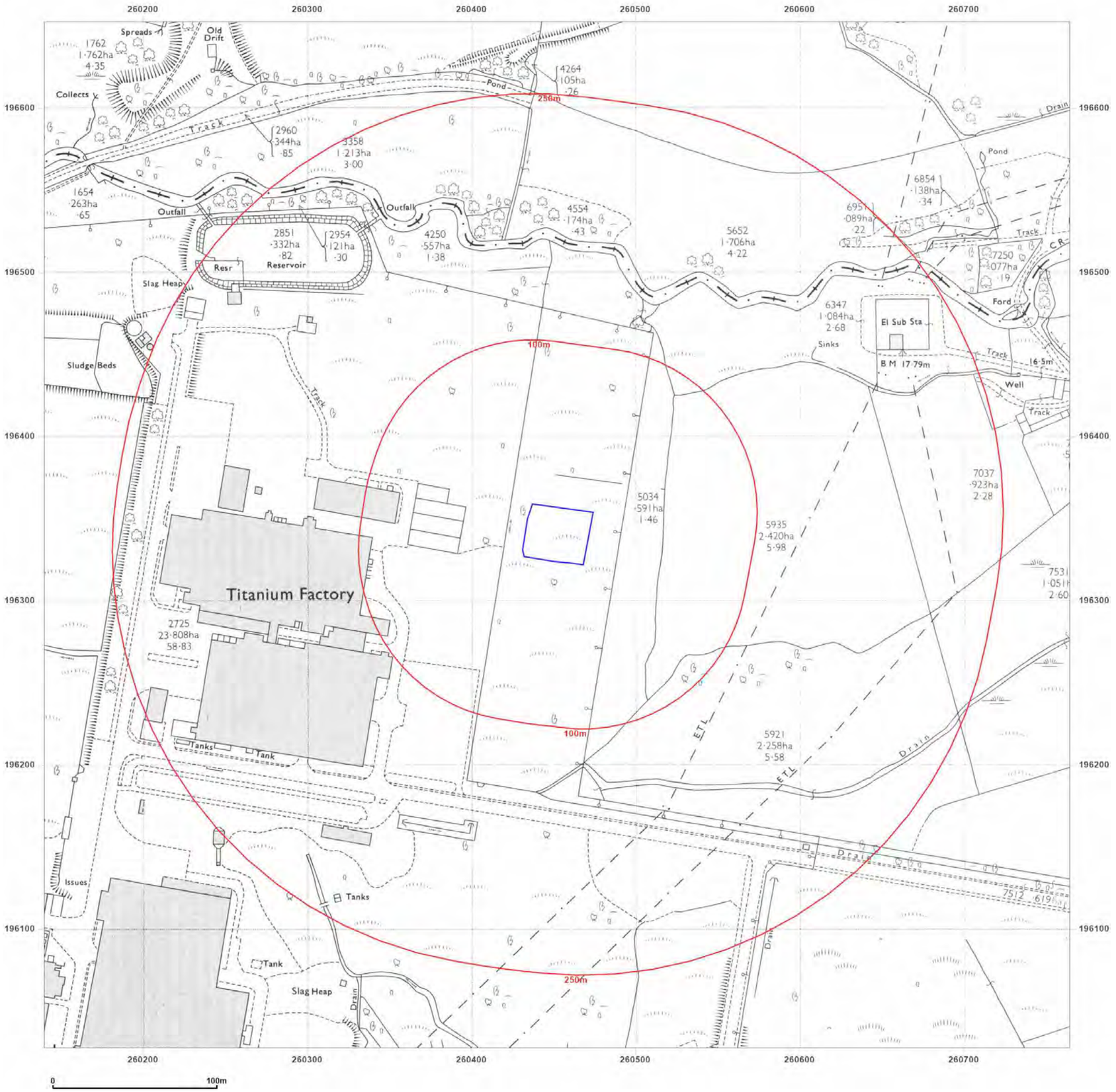

Groundsure INSIGHTS

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Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1972**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1971
Edition N/A
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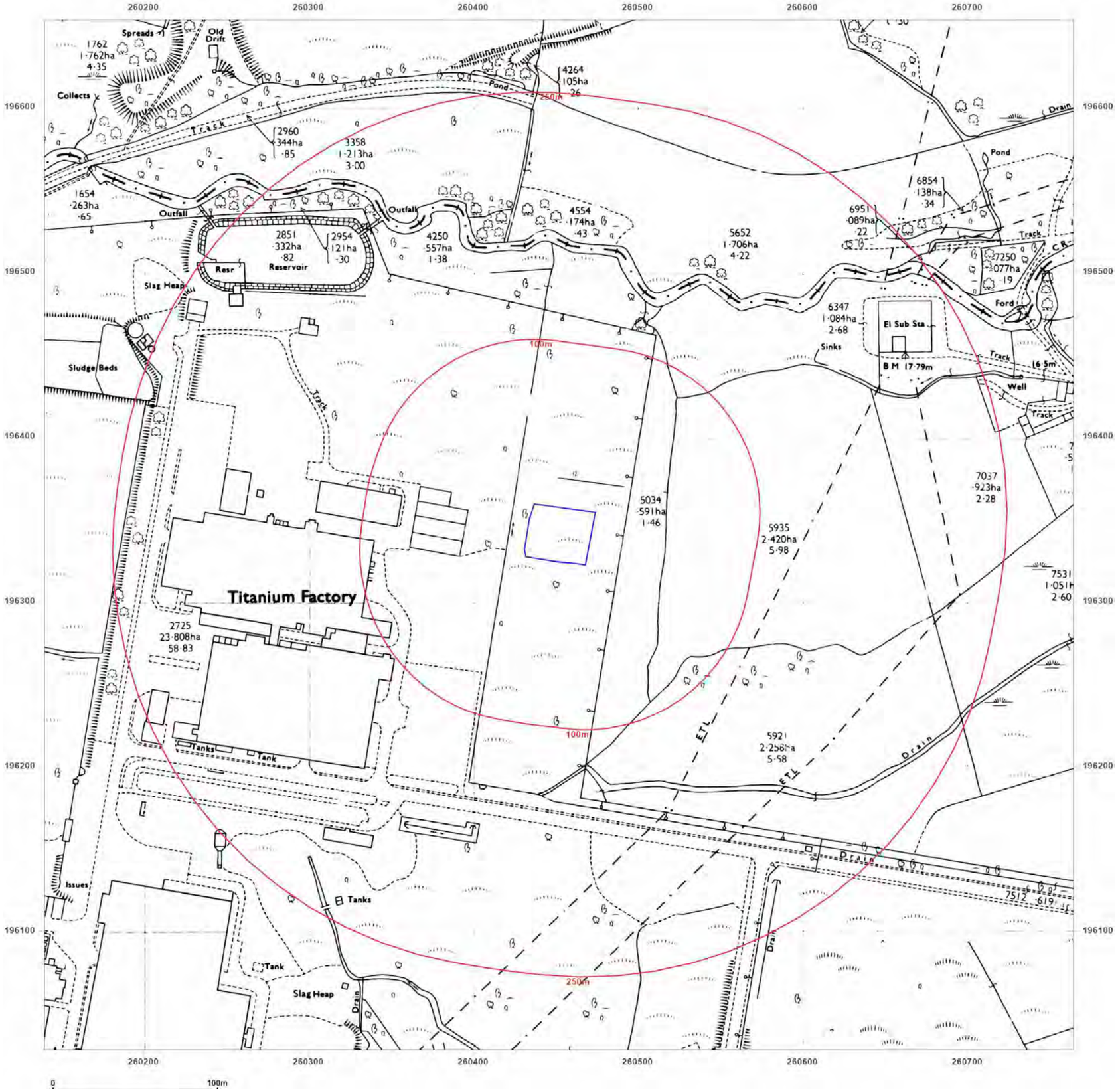

Groundsure INSIGHTS

Site Details:

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Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1972**

Scale: 1:2,500

Printed at: 1:2,500

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Revised N/A
Edition N/A
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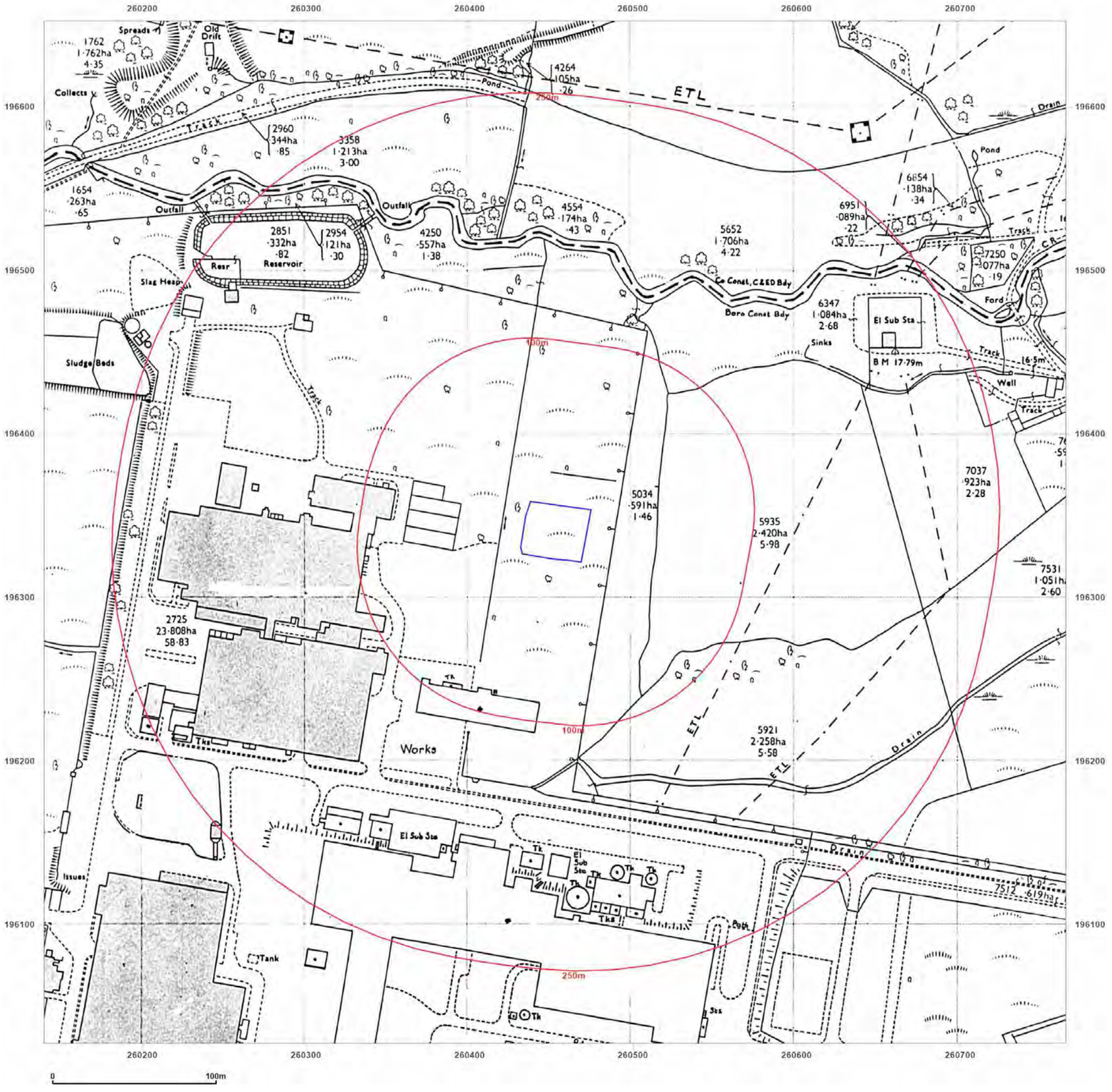

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1986**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1962
Revised 1986
Edition N/A
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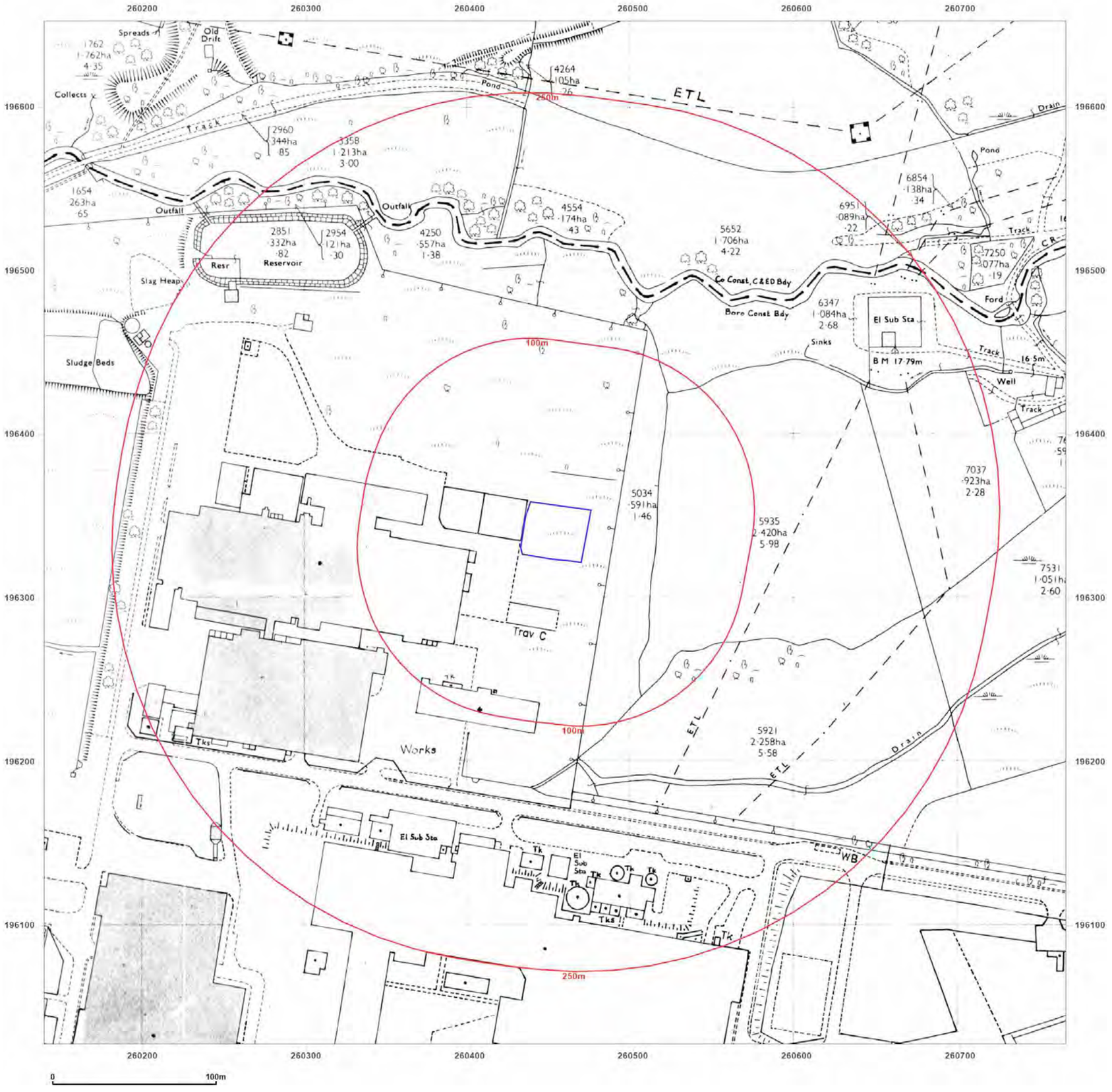

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1990
Revised 1990
Edition N/A
Copyright 1990
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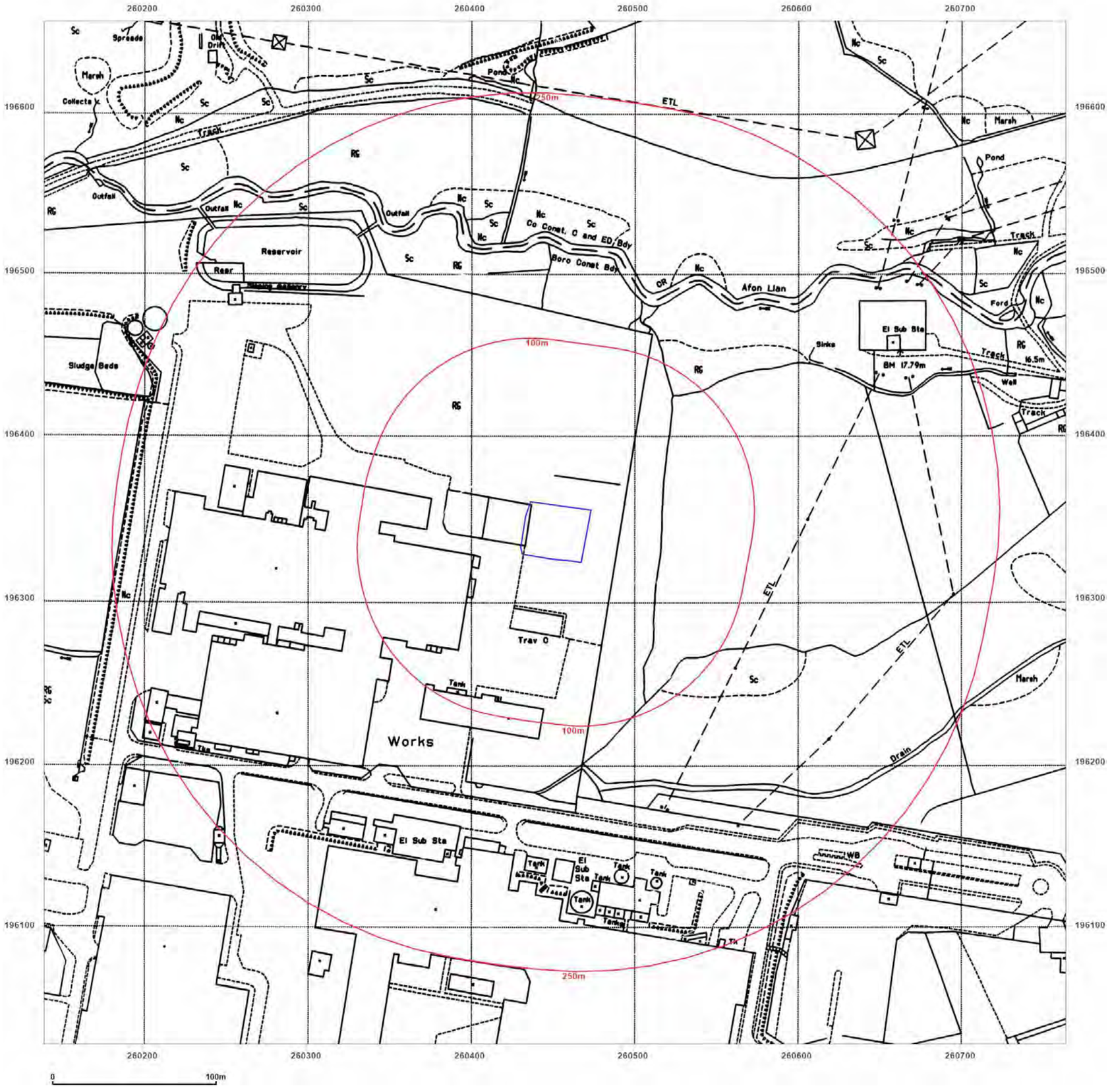

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

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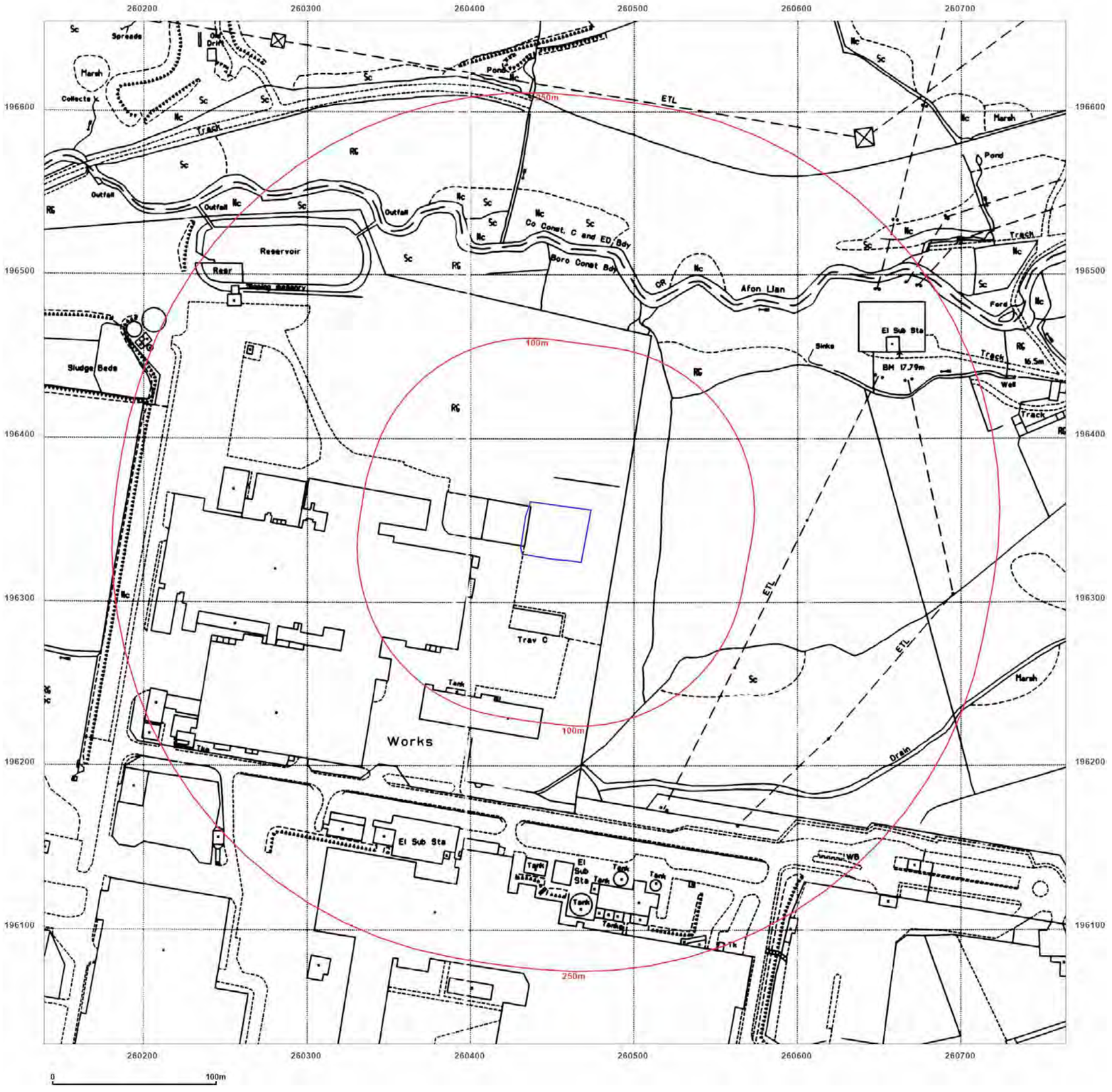

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

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

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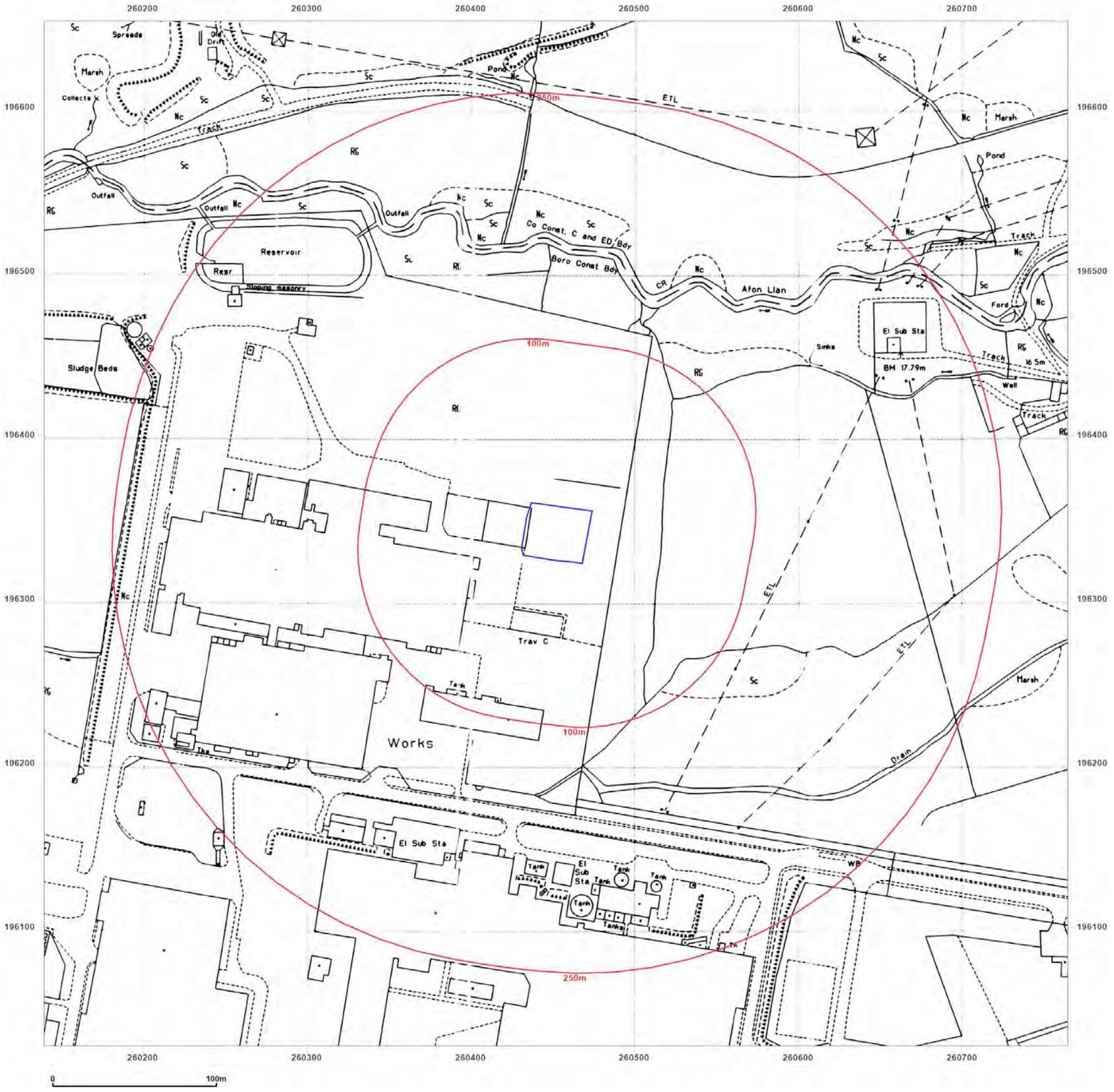

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

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

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Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

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

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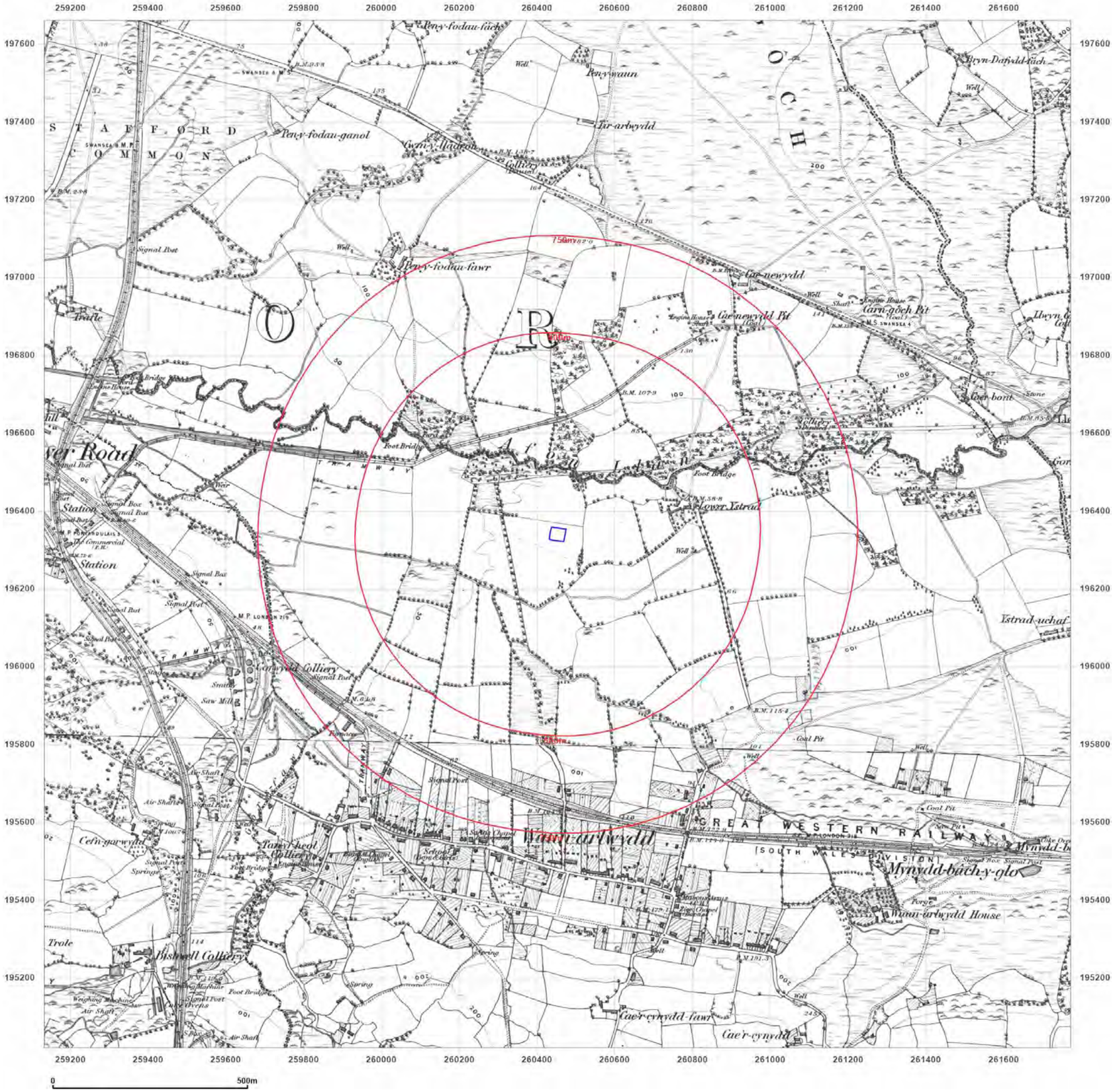

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1878**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1878
Revised 1878
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1878
Revised 1878
Edition N/A
Copyright N/A
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Production date: 07 December 2021

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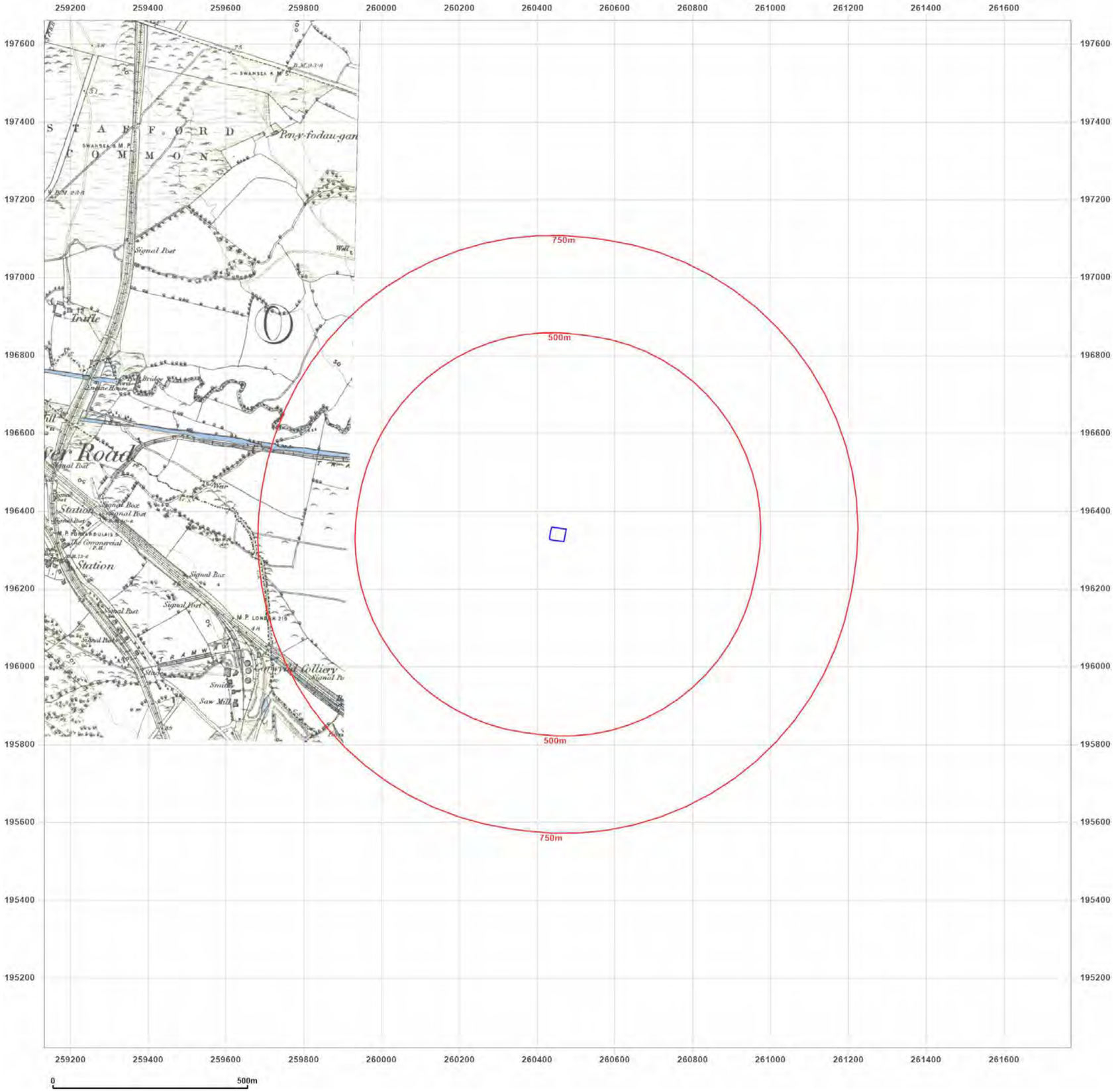

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series
Map date: **1878**
Scale: 1:10,560
Printed at: 1:10,560

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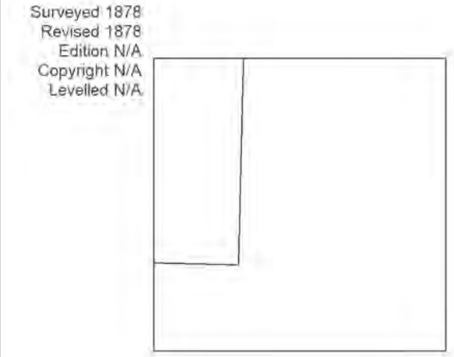

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Production date: 07 December 2021

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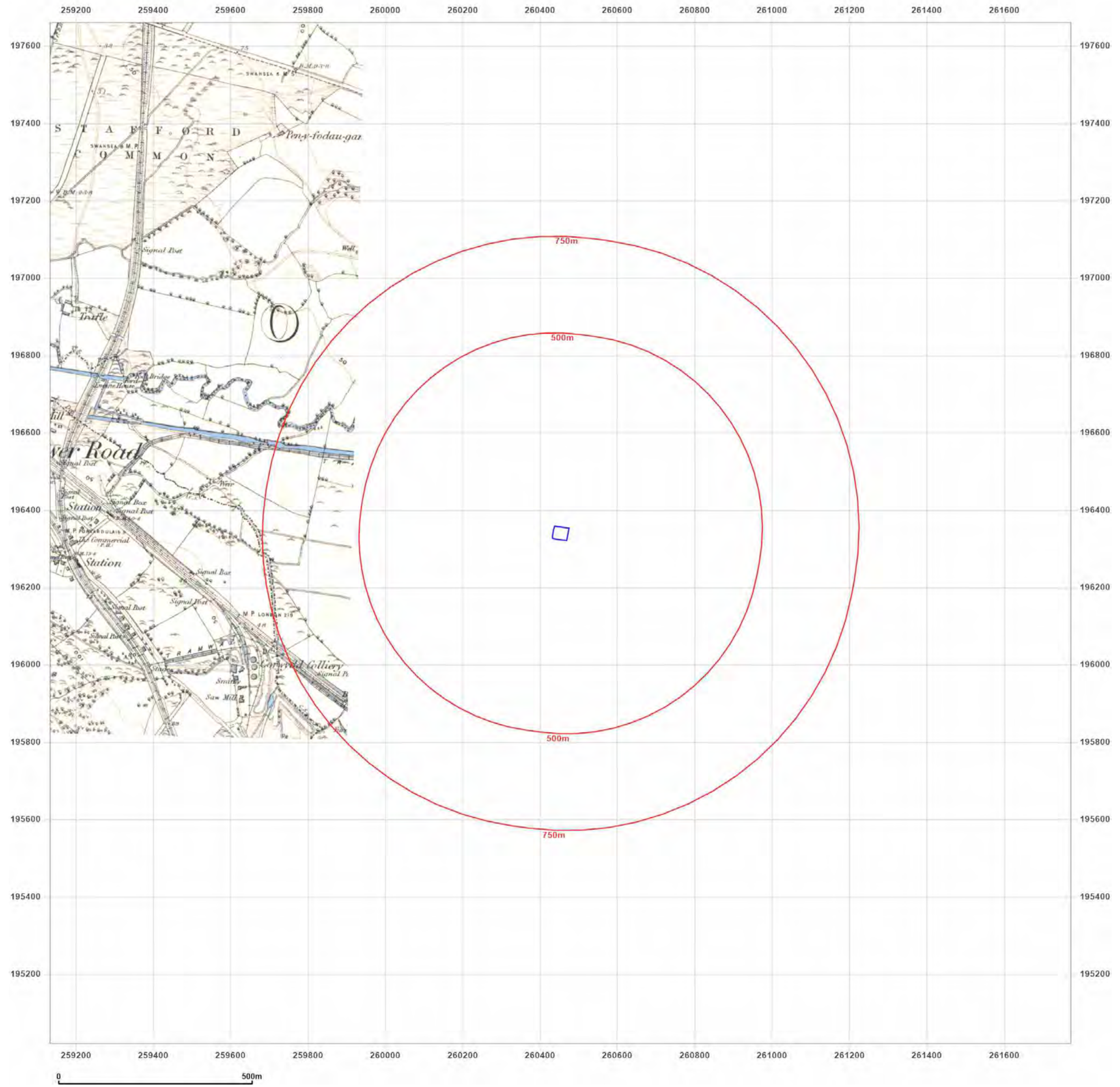

![Groundsure Insights]

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1889**

Scale: 1:10,560

Printed at: 1:10,560

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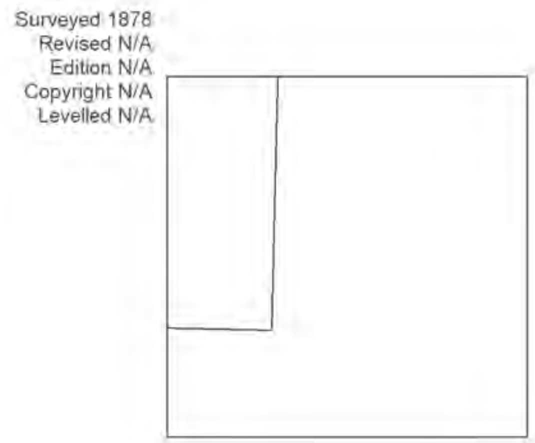

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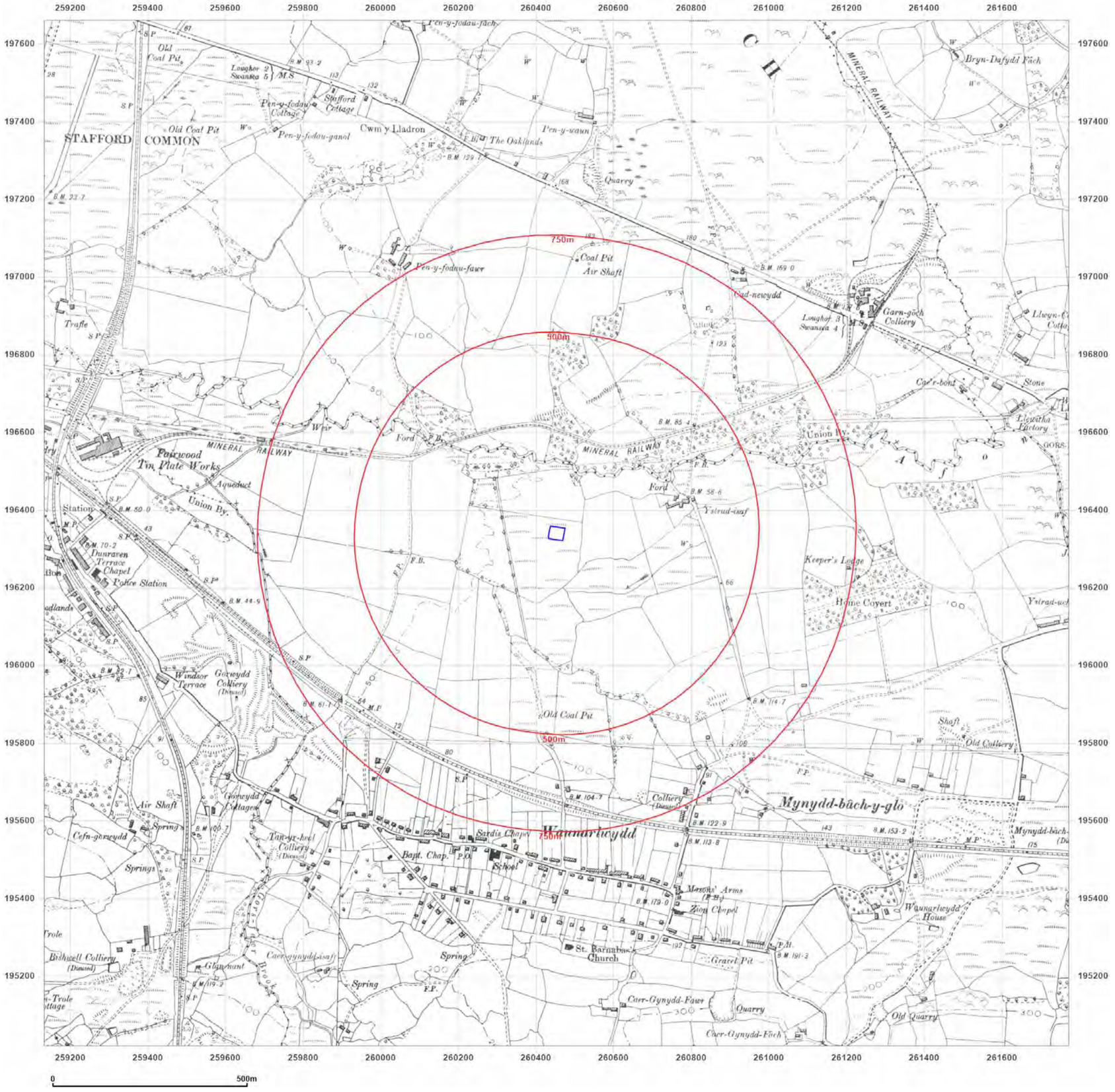

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series
Map date: **1897-1900**
Scale: 1:10,560
Printed at: 1:10,560

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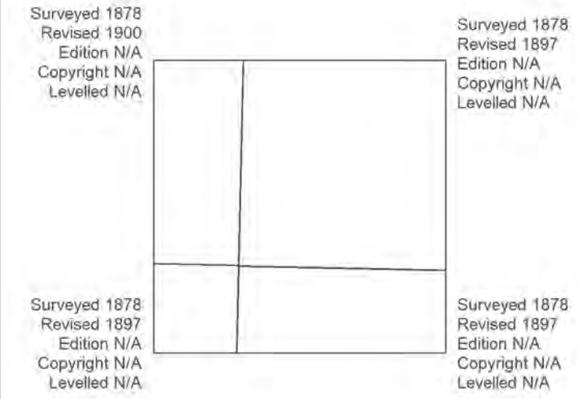

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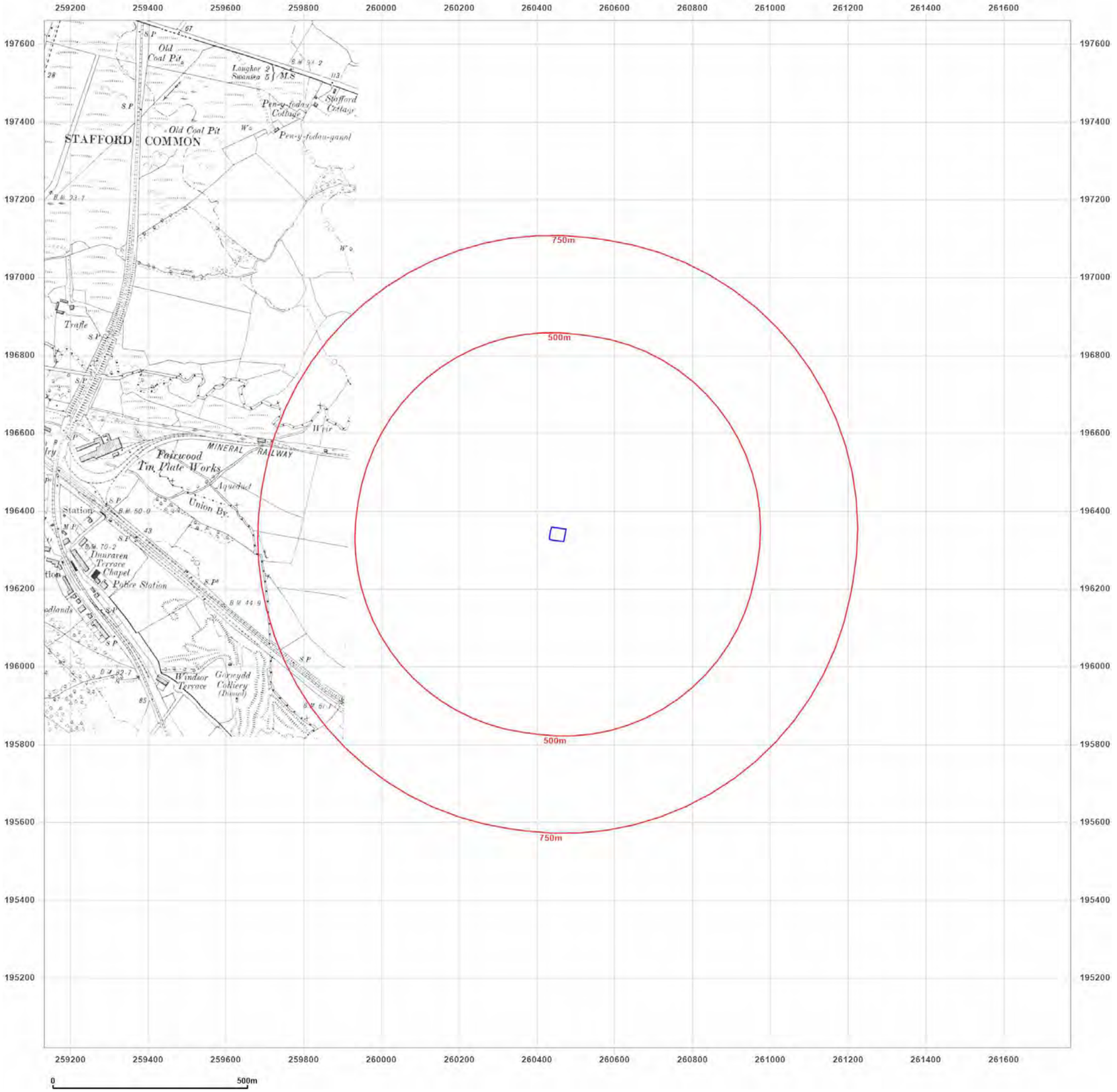

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1905**

Scale: 1:10,560

Printed at: 1:10,560

N
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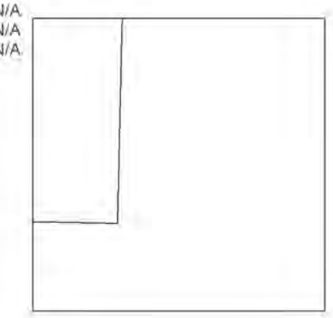
Surveyed 1877
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A



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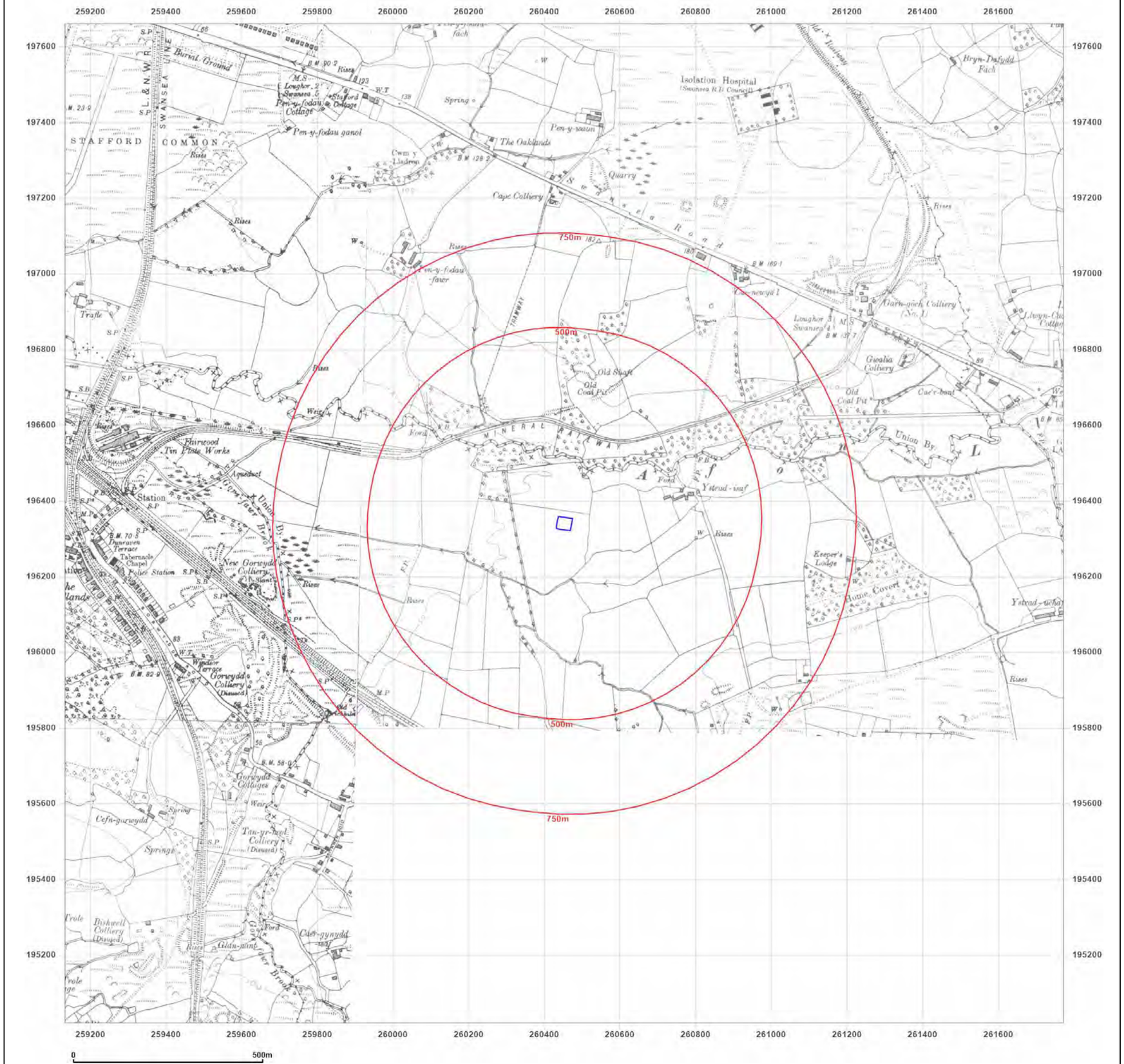

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1913**

Scale: 1:10,560

Printed at: 1:10,560

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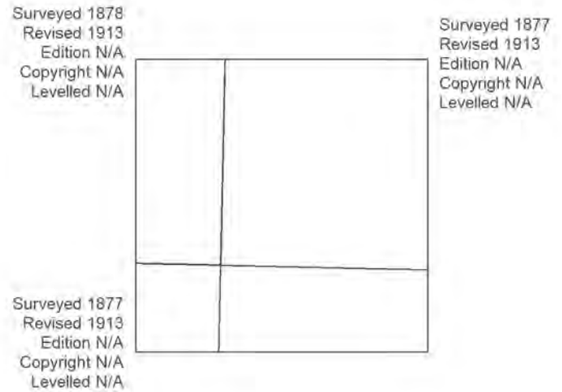

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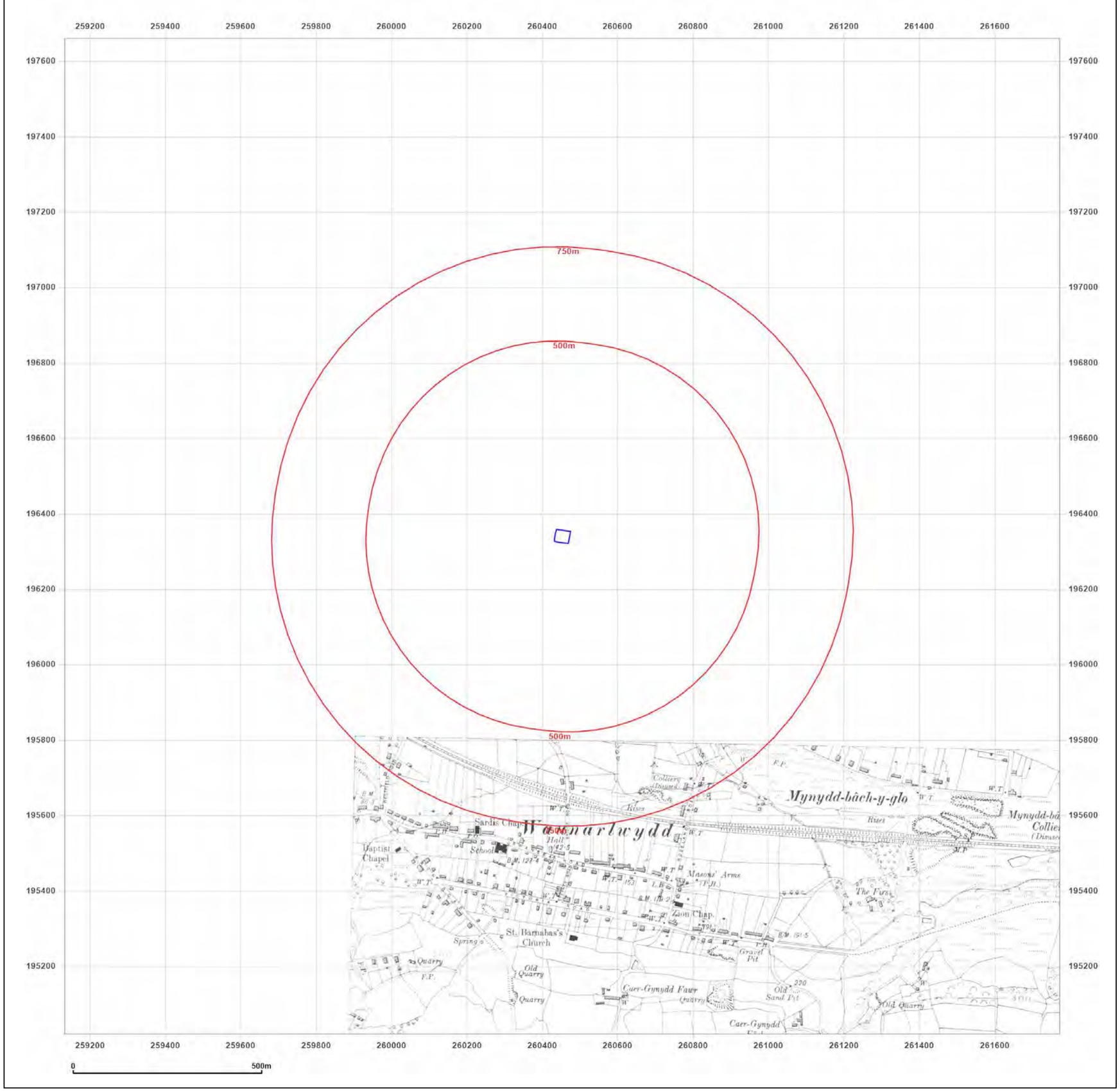

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series
Map date: **1914**
Scale: 1:10,560
Printed at: 1:10,560

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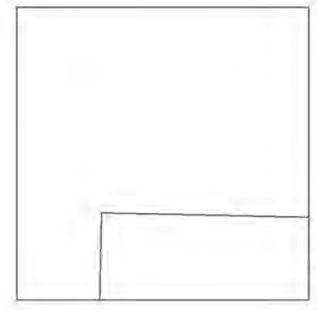

Surveyed 1877
Revised 1914
Edition N/A
Copyright N/A
Levelled N/A

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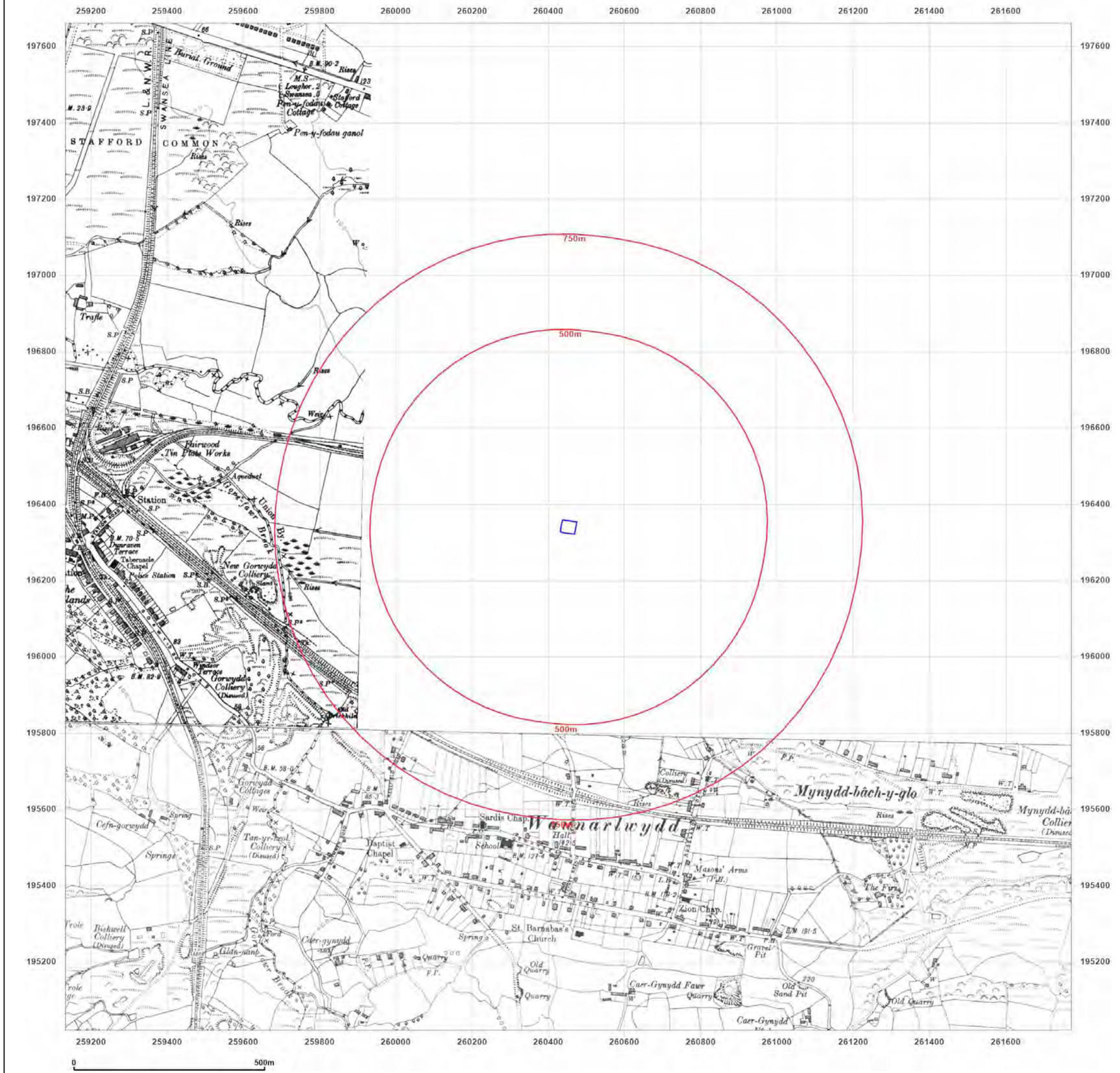

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1921**

Scale: 1:10,560

Printed at: 1:10,560

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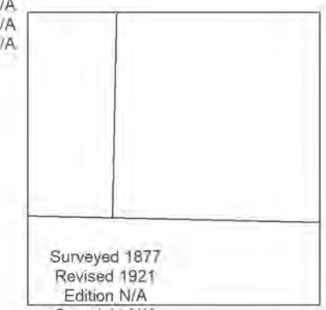
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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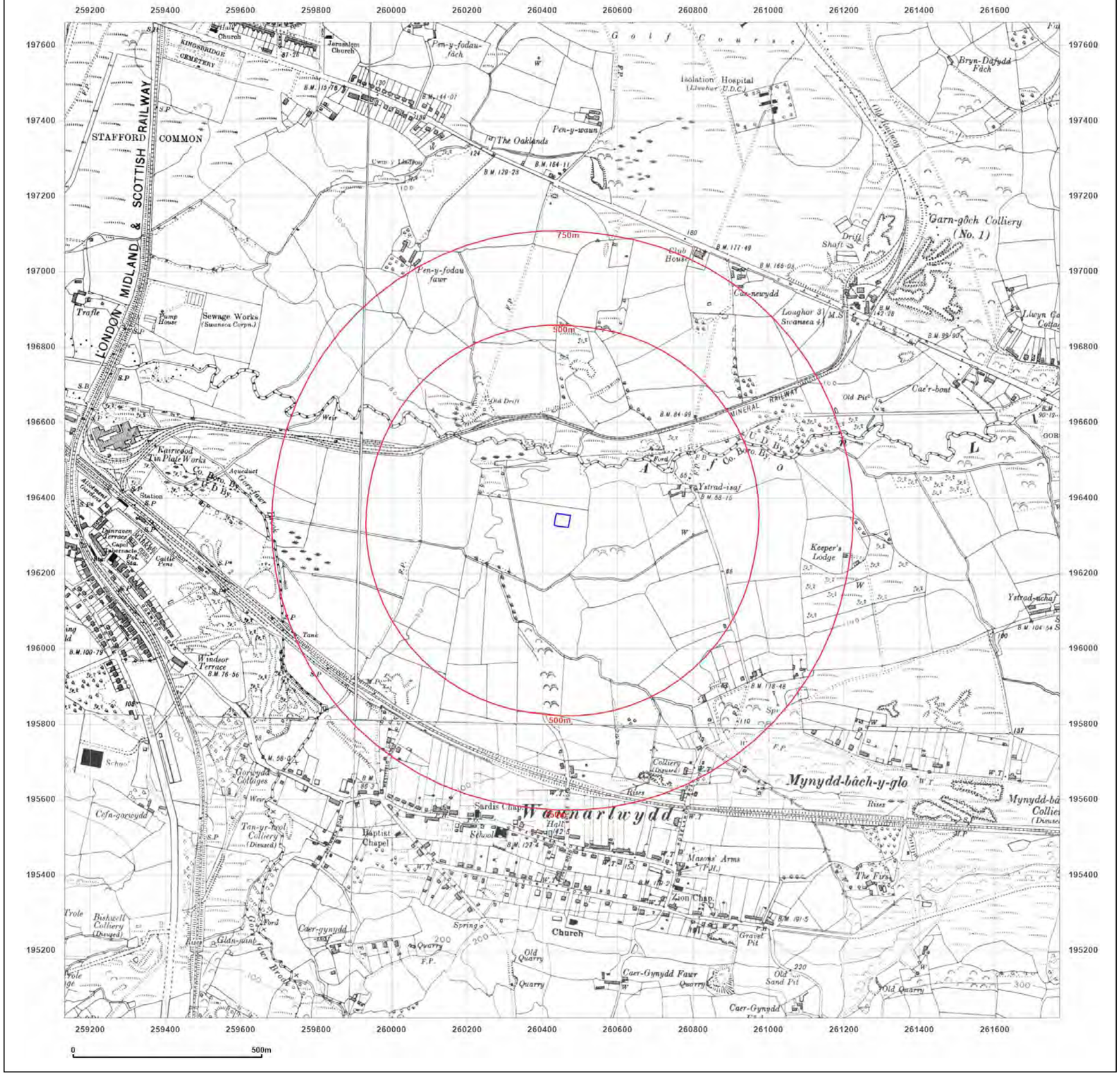

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1936-1938**

Scale: 1:10,560

Printed at: 1:10,560

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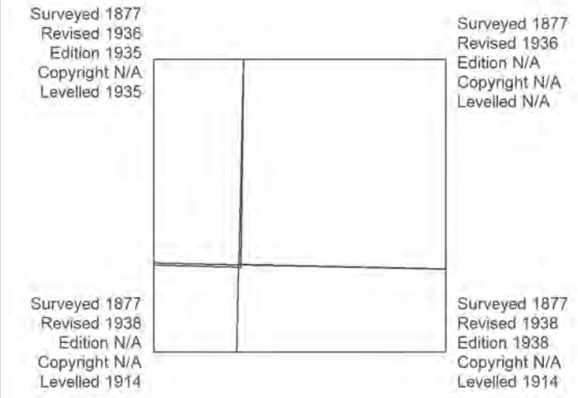

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Production date: 07 December 2021

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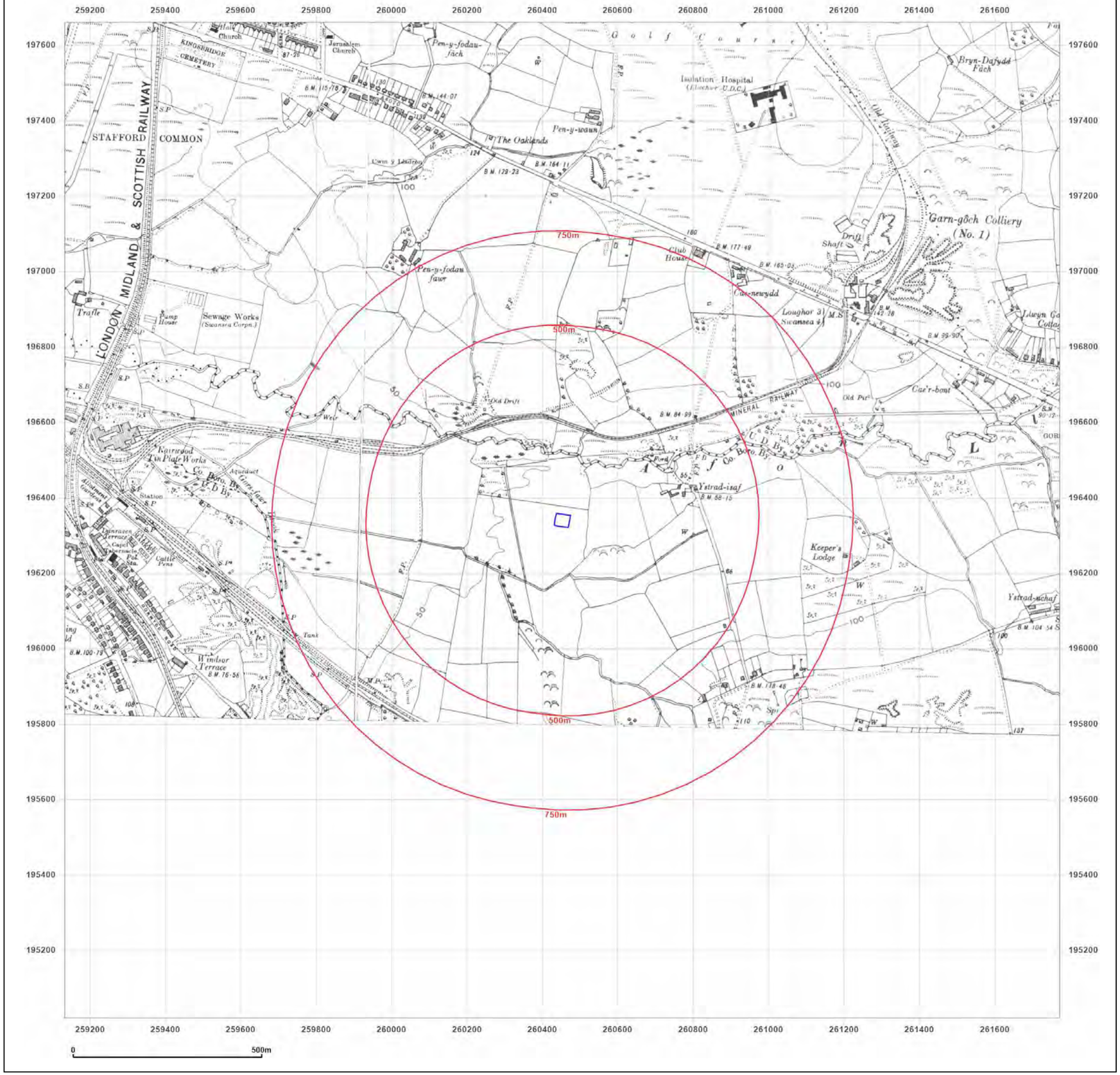

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1936-1938**

Scale: 1:10,560

Printed at: 1:10,560

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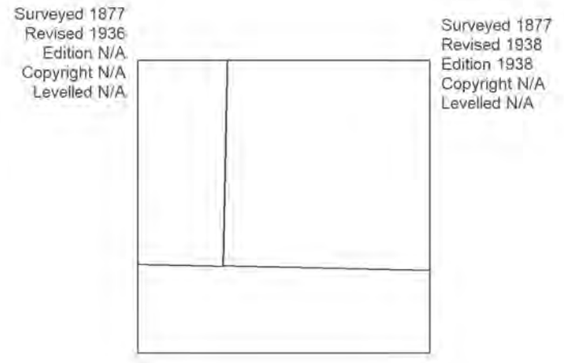

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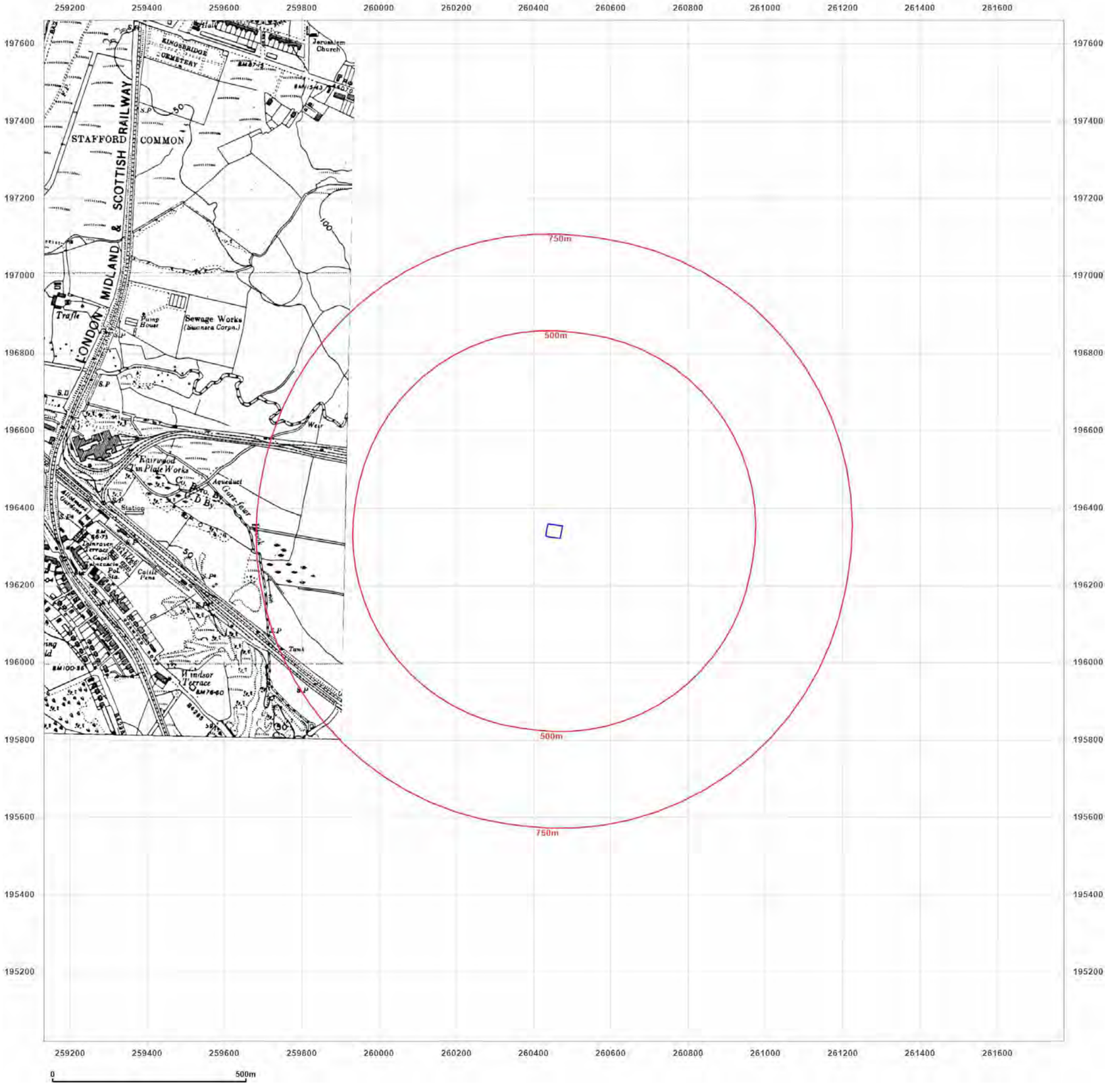

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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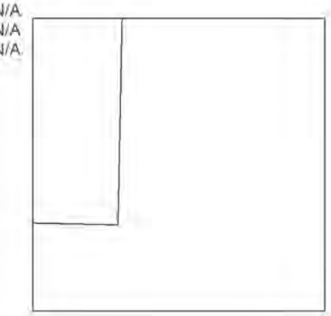
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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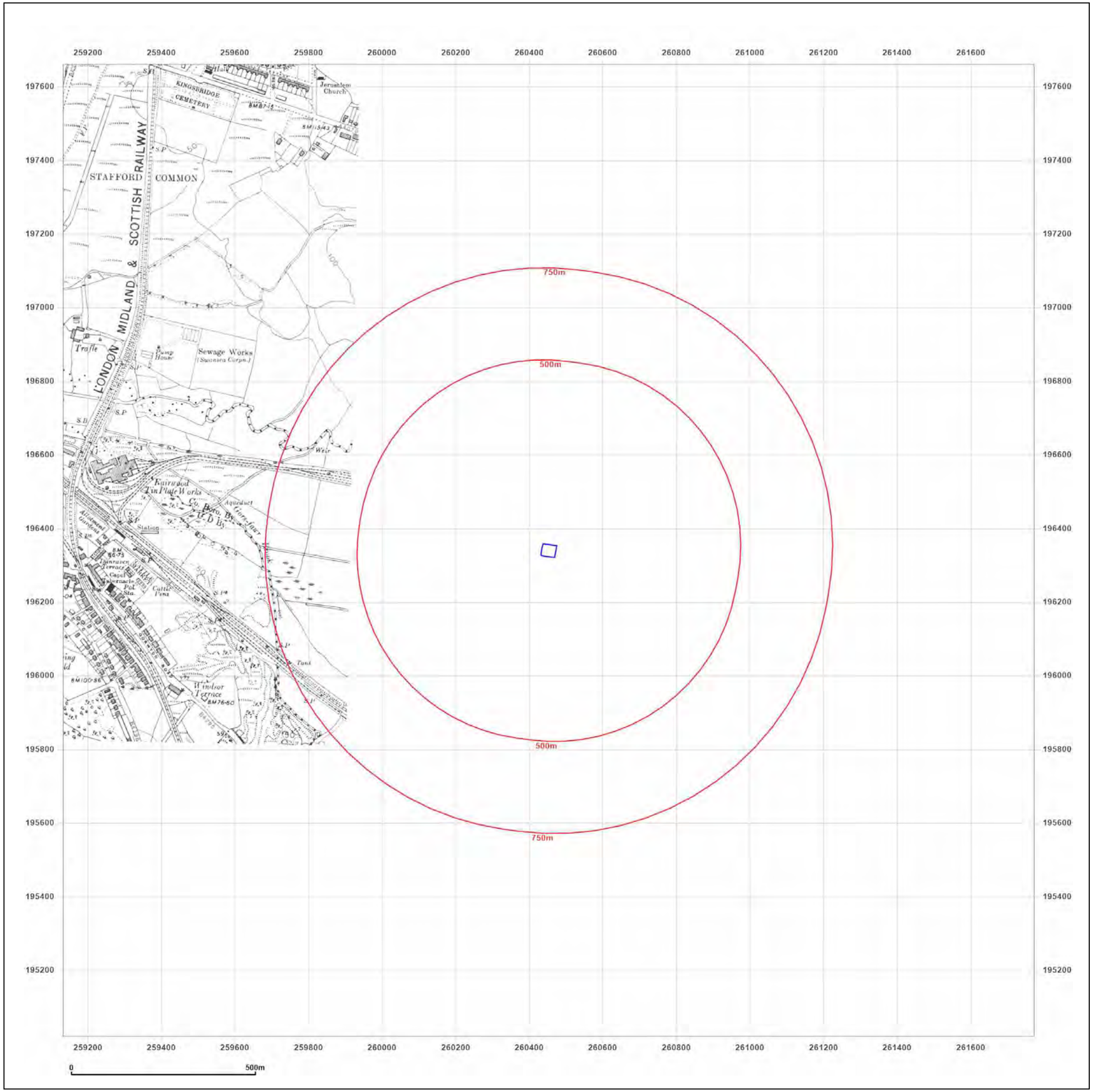

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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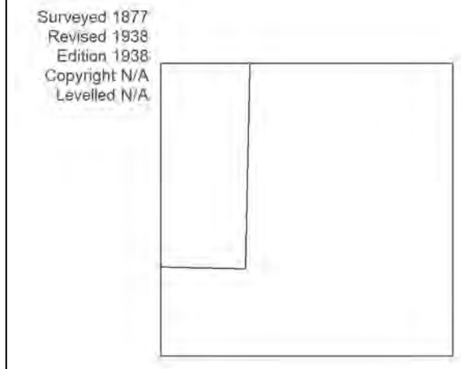

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Production date: 07 December 2021

Map legend available at:
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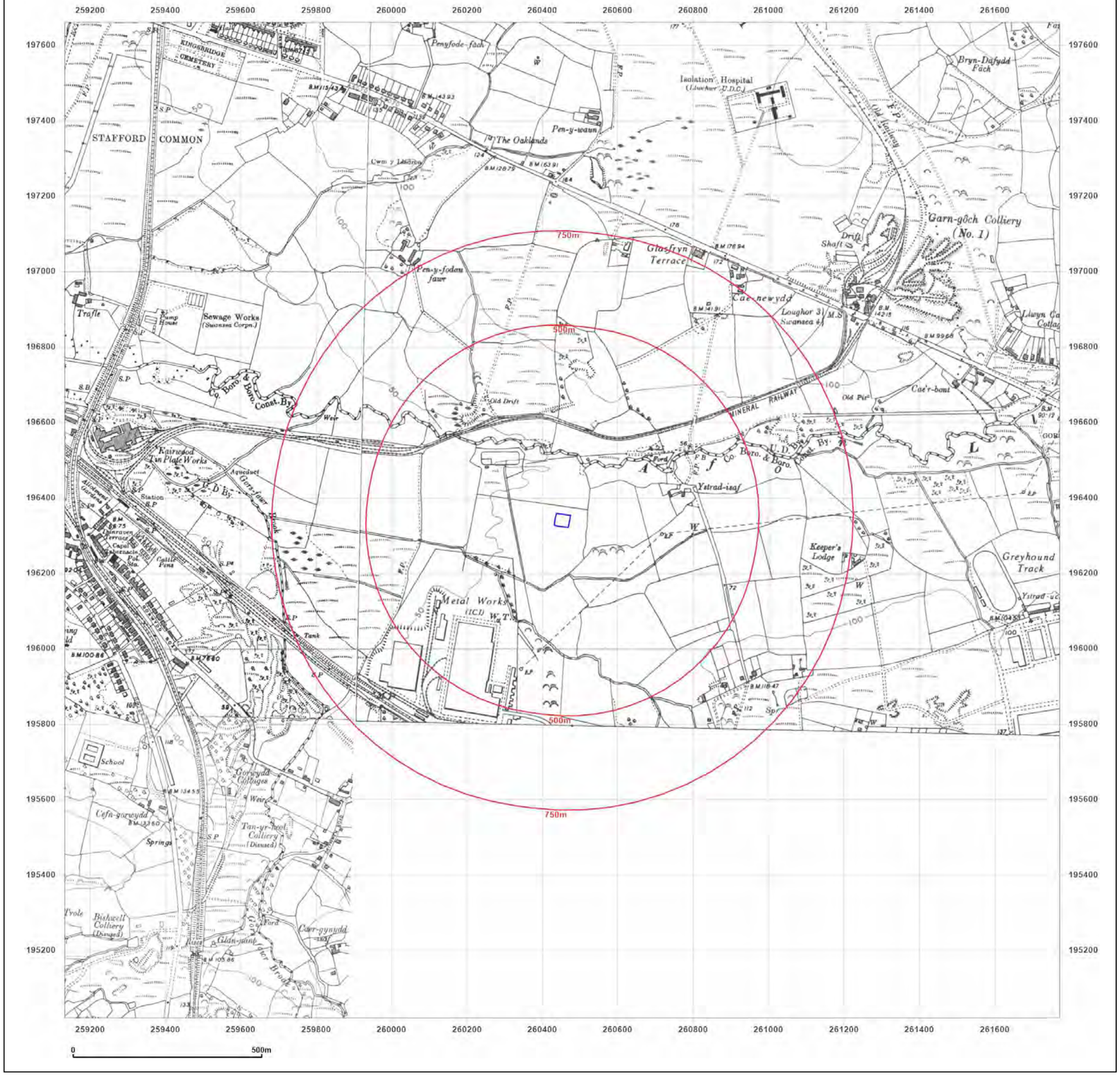

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series

Map date: **1947-1948**

Scale: 1:10,560

Printed at: 1:10,560

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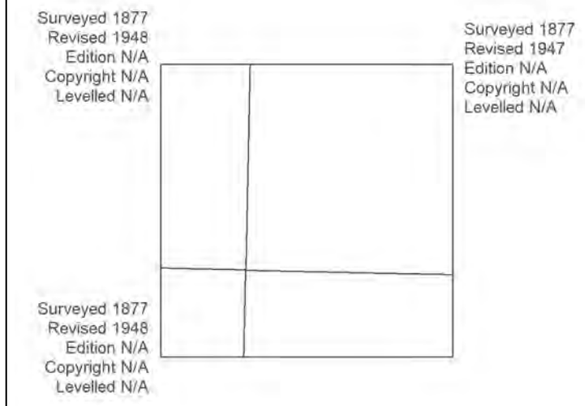

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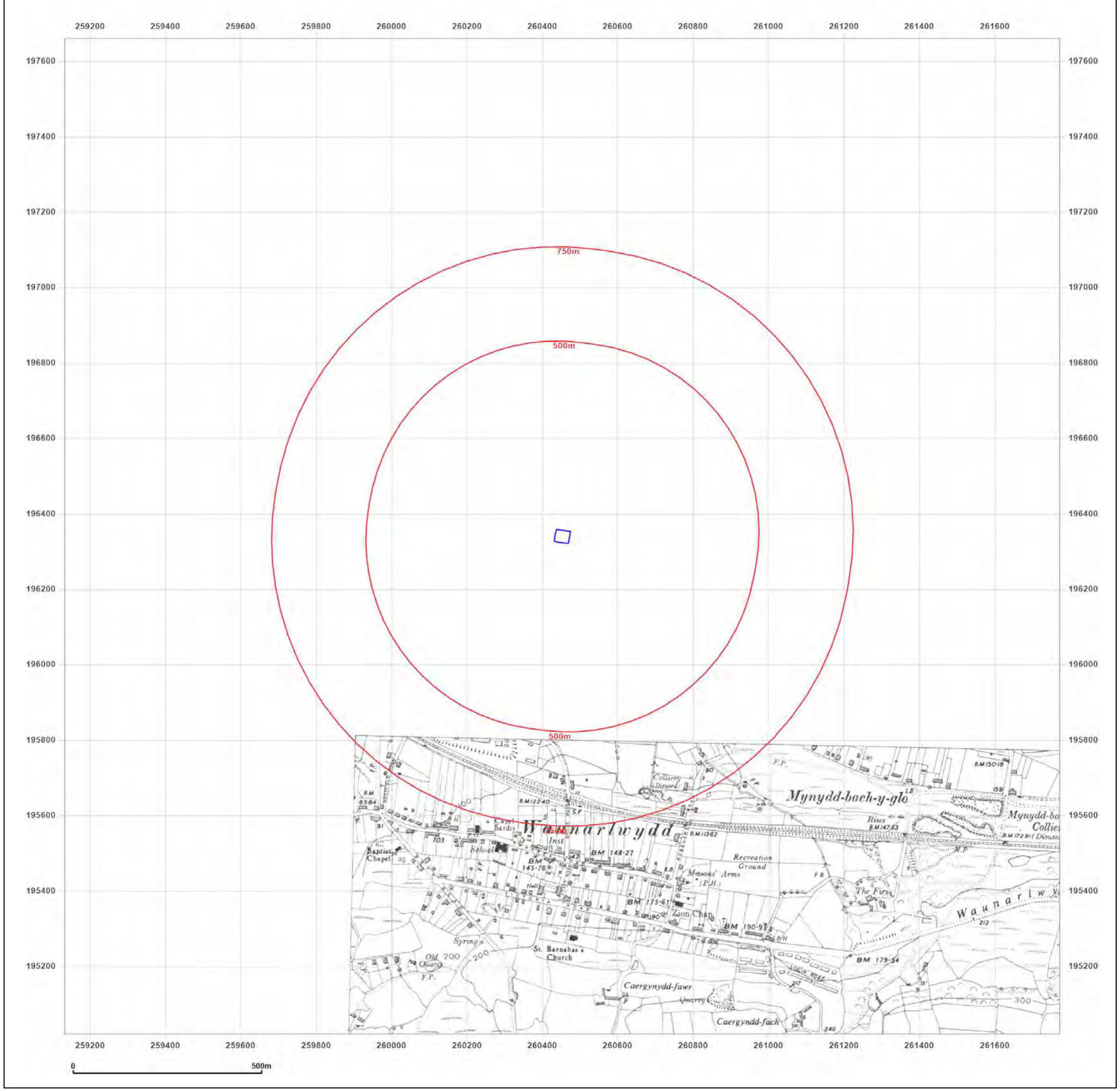

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: County Series
Map date: **1948**
Scale: 1:10,560
Printed at: 1:10,560

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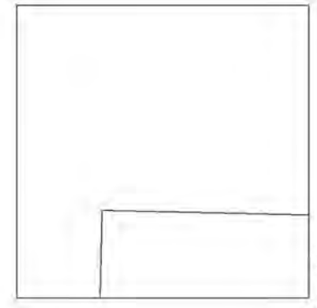

Surveyed 1877
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

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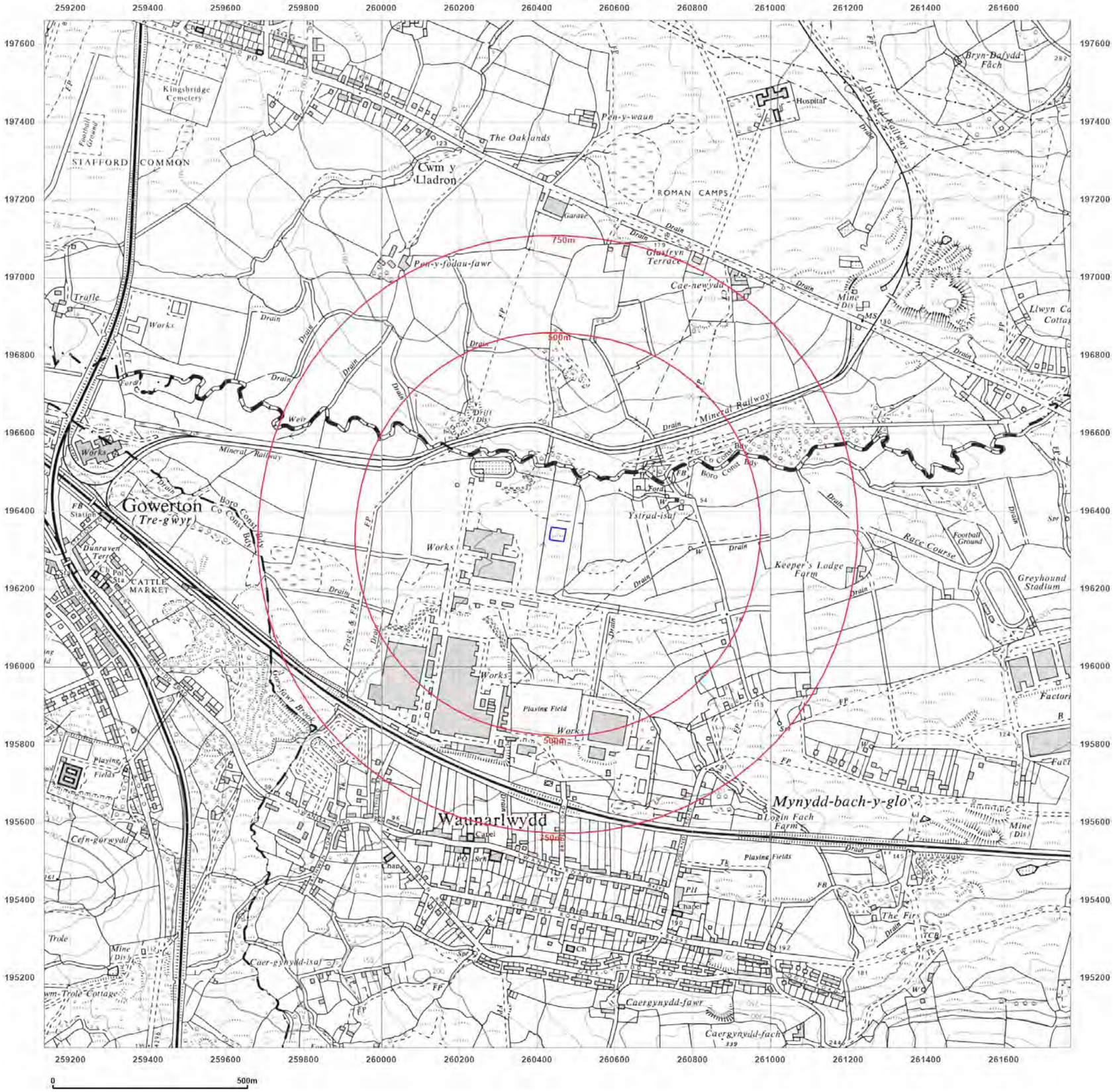

Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: Provisional
Map date: **1964**
Scale: 1:10,560
Printed at: 1:10,560

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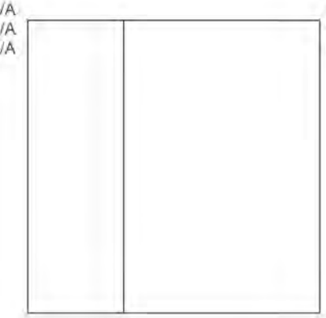
Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

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



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T: 08444 159000
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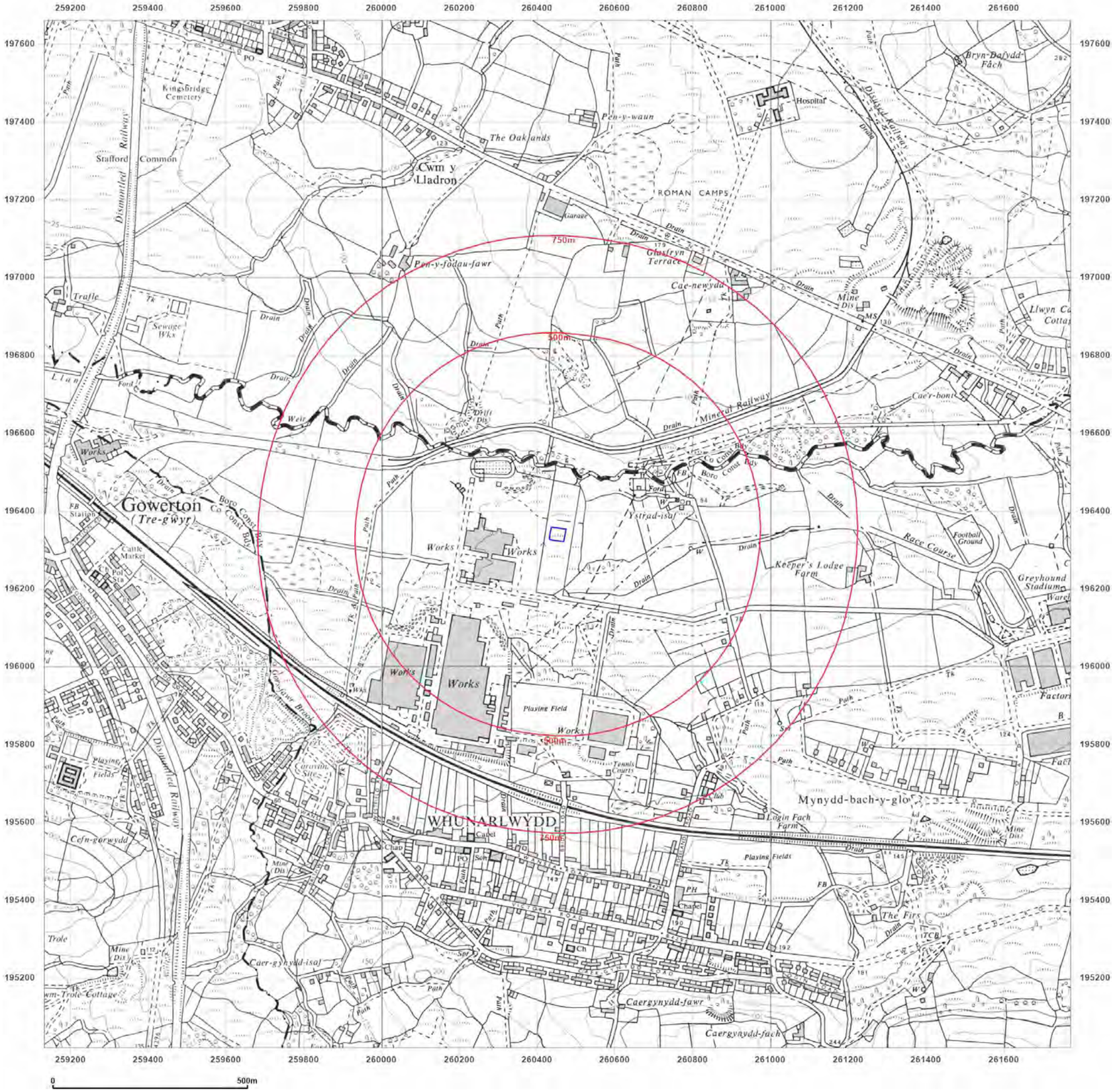
Production date: 07 December 2021

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



Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: Provisional
Map date: **1967-1968**
Scale: 1:10,560
Printed at: 1:10,560

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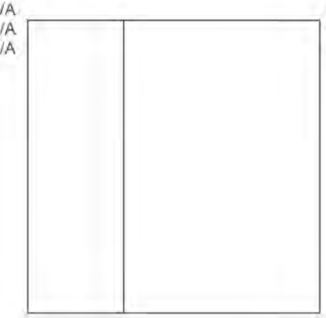
Surveyed 1967
Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1968
Revised 1968
Edition N/A
Copyright N/A
Levelled N/A



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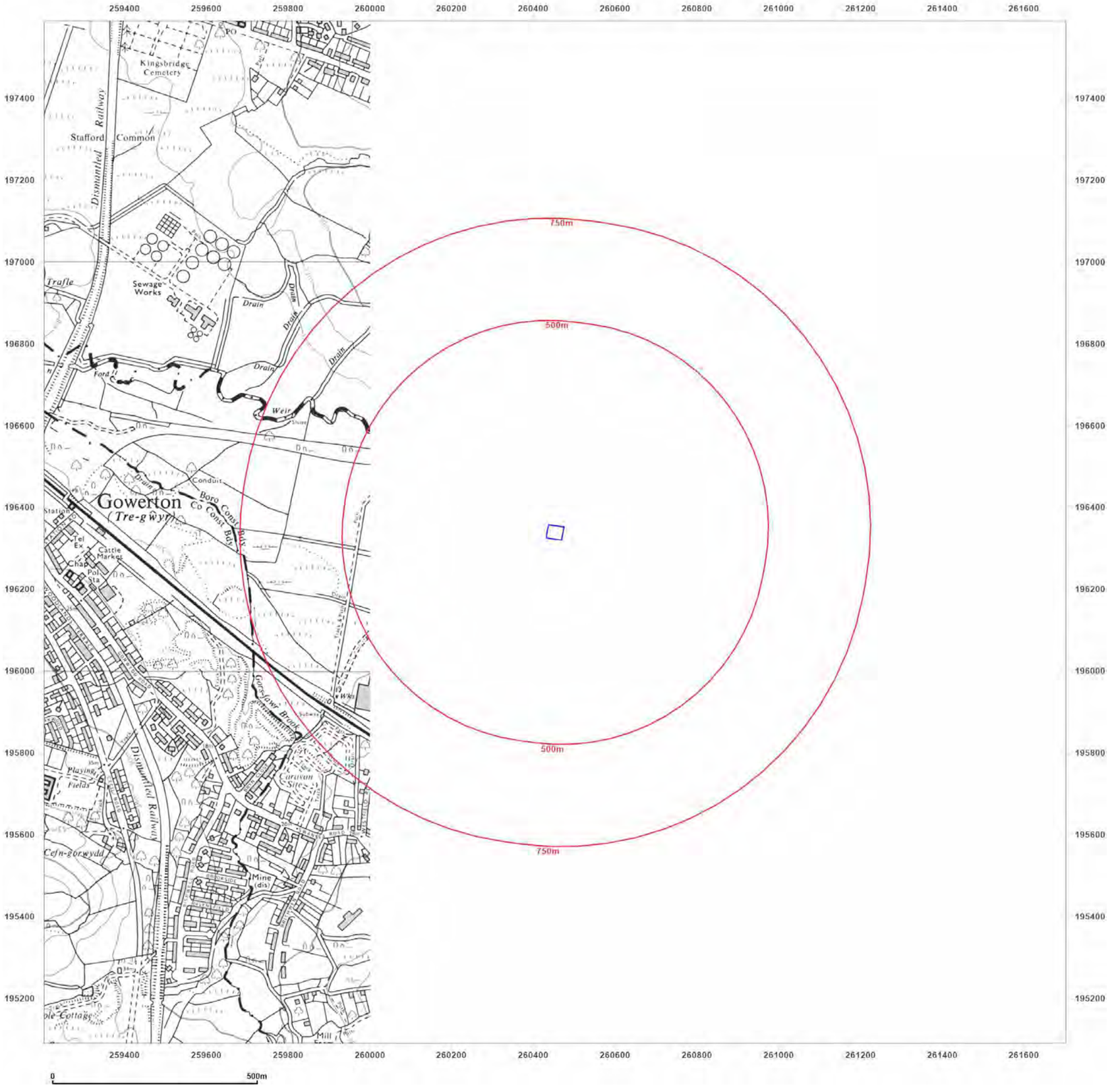
Production date: 07 December 2021

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



Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1974**

Scale: 1:10,000

Printed at: 1:10,000

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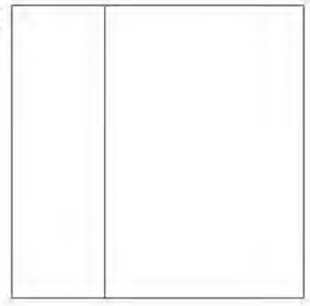
Surveyed 1973
Revised 1974
Edition N/A
Copyright 1974
Levelled 1964



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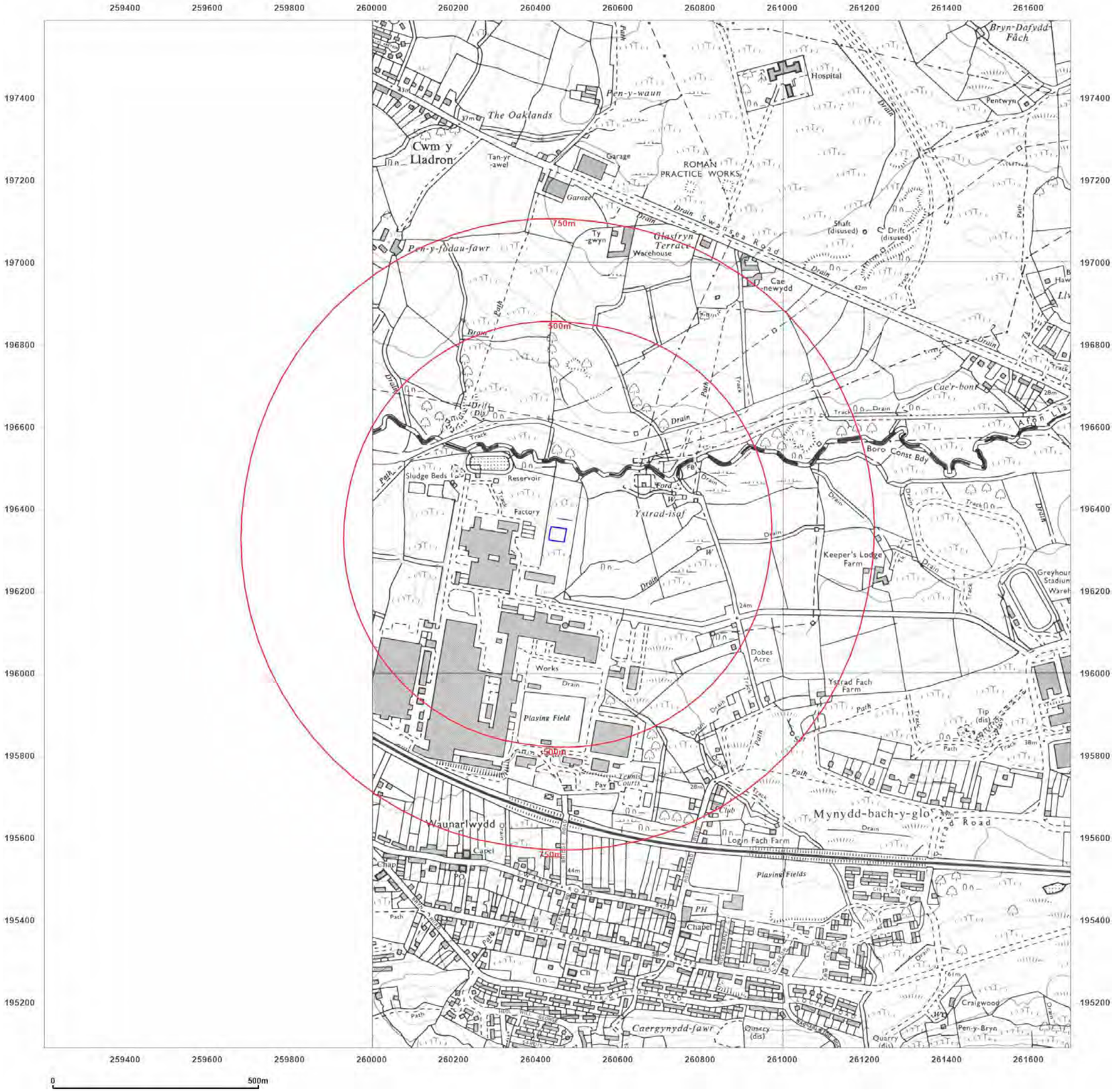
W: www.groundsure.com

Production date: 07 December 2021

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



Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1980**

Scale: 1:10,000

Printed at: 1:10,000

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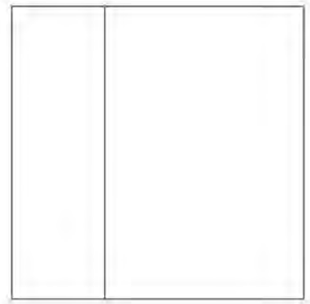
Surveyed 1977
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A



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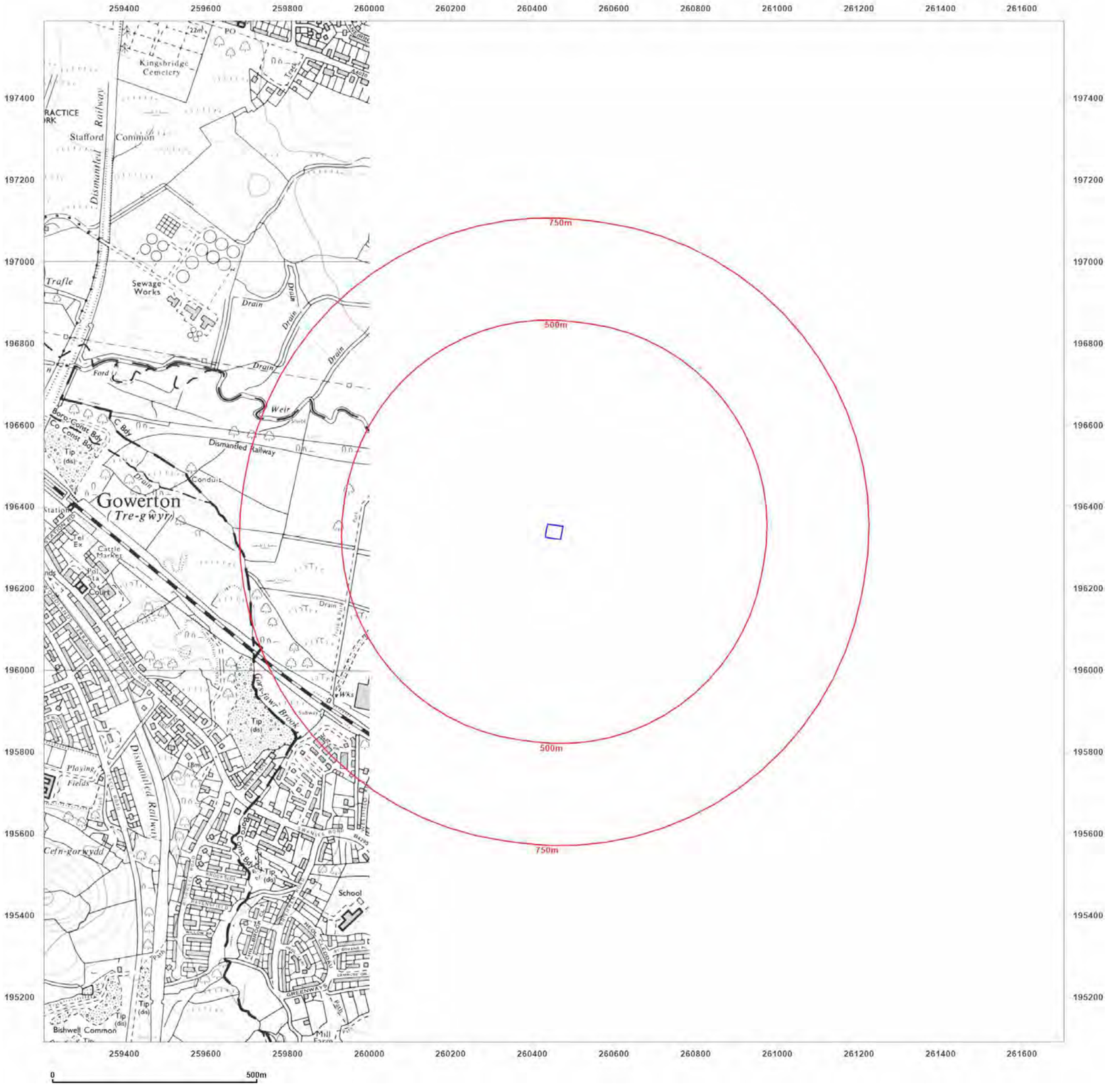
Production date: 07 December 2021

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



Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid
Map date: **1988**
Scale: 1:10,000
Printed at: 1:10,000

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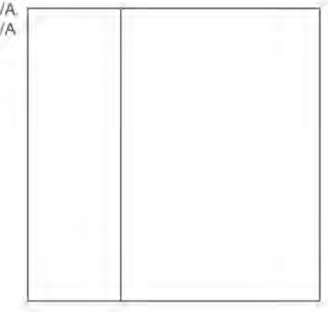
Surveyed 1986
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A



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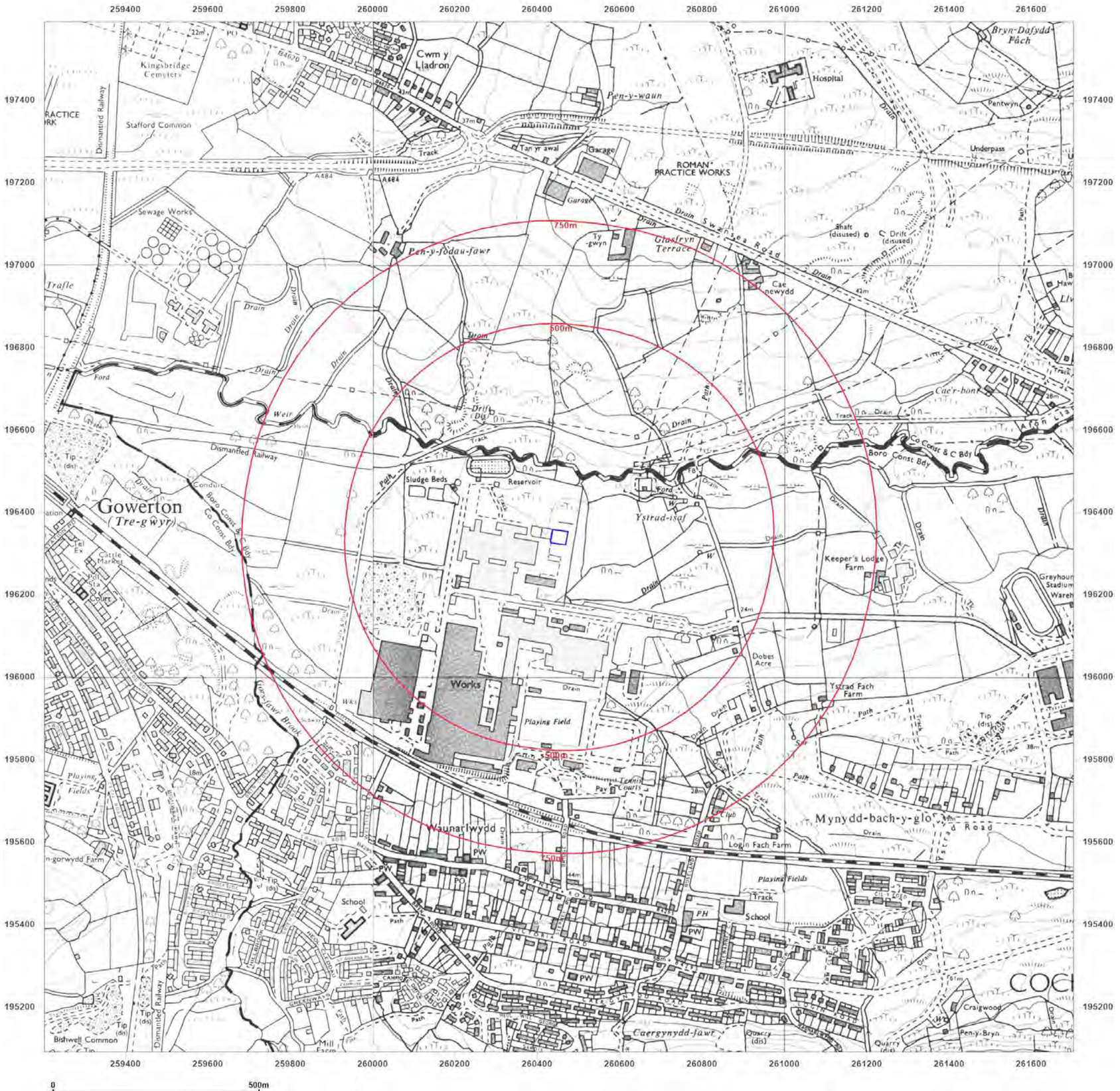
W: www.groundsure.com

Production date: 07 December 2021

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



Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid

Map date: **1992-1994**

Scale: 1:10,000

Printed at: 1:10,000

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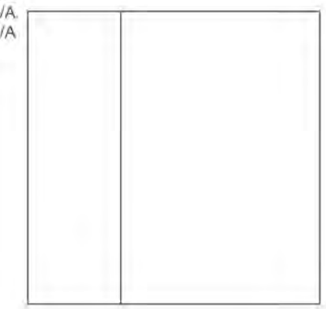
Surveyed 1986
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1977
Revised 1994
Edition N/A
Copyright N/A
Levelled N/A



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Produced by
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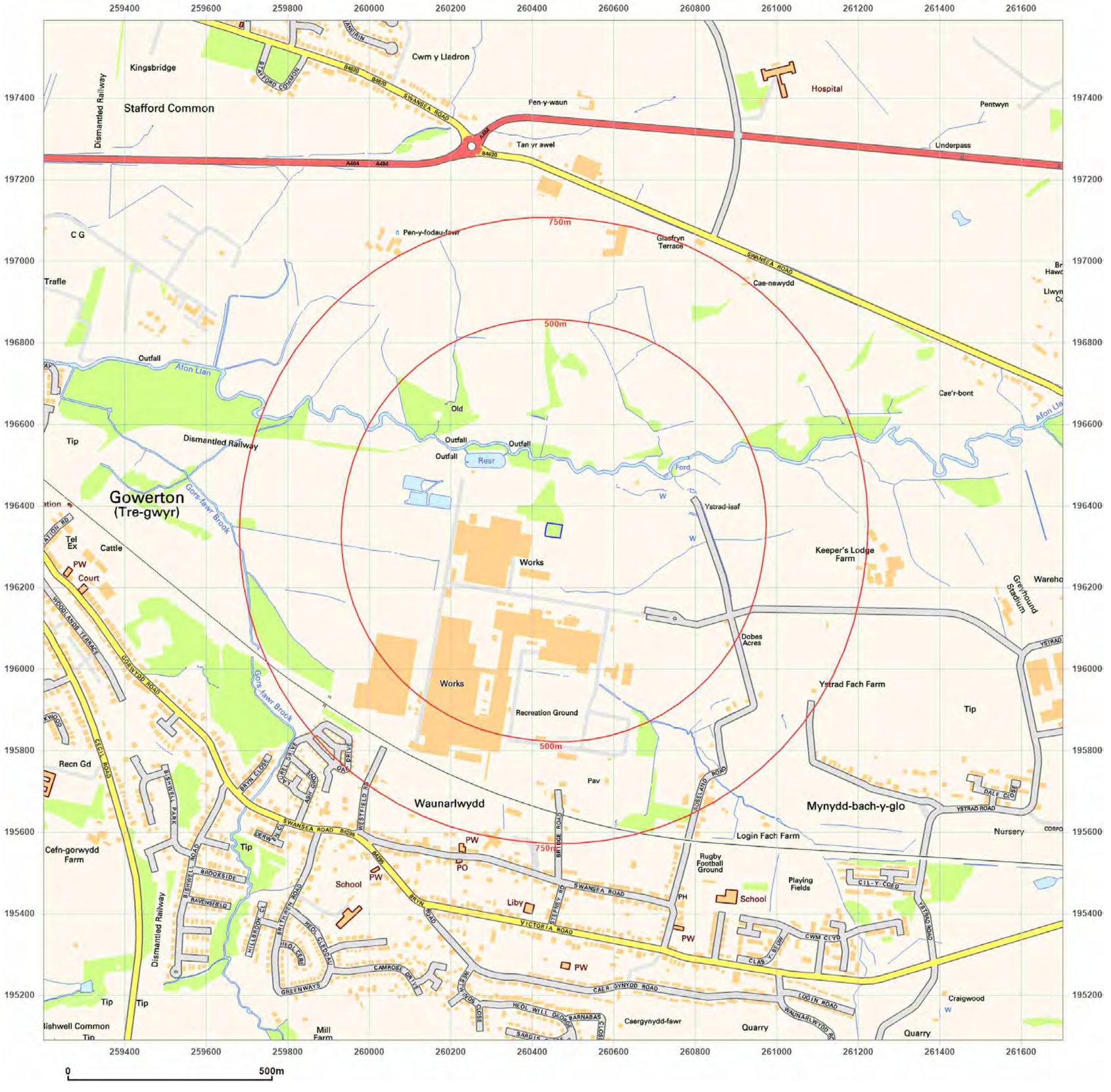
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 07 December 2021

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



Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

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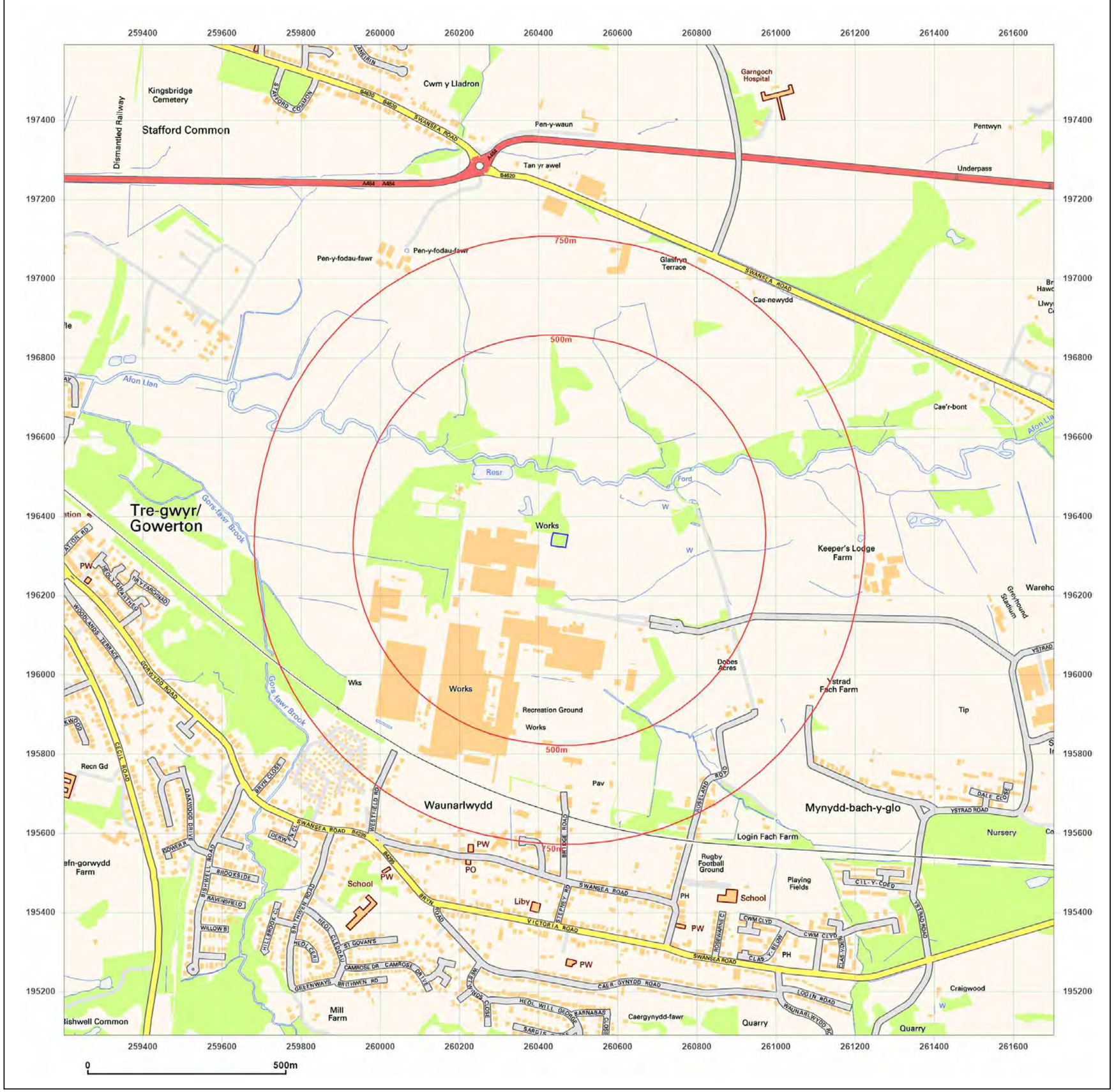
W: www.groundsure.com

Production date: 07 December 2021

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



Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

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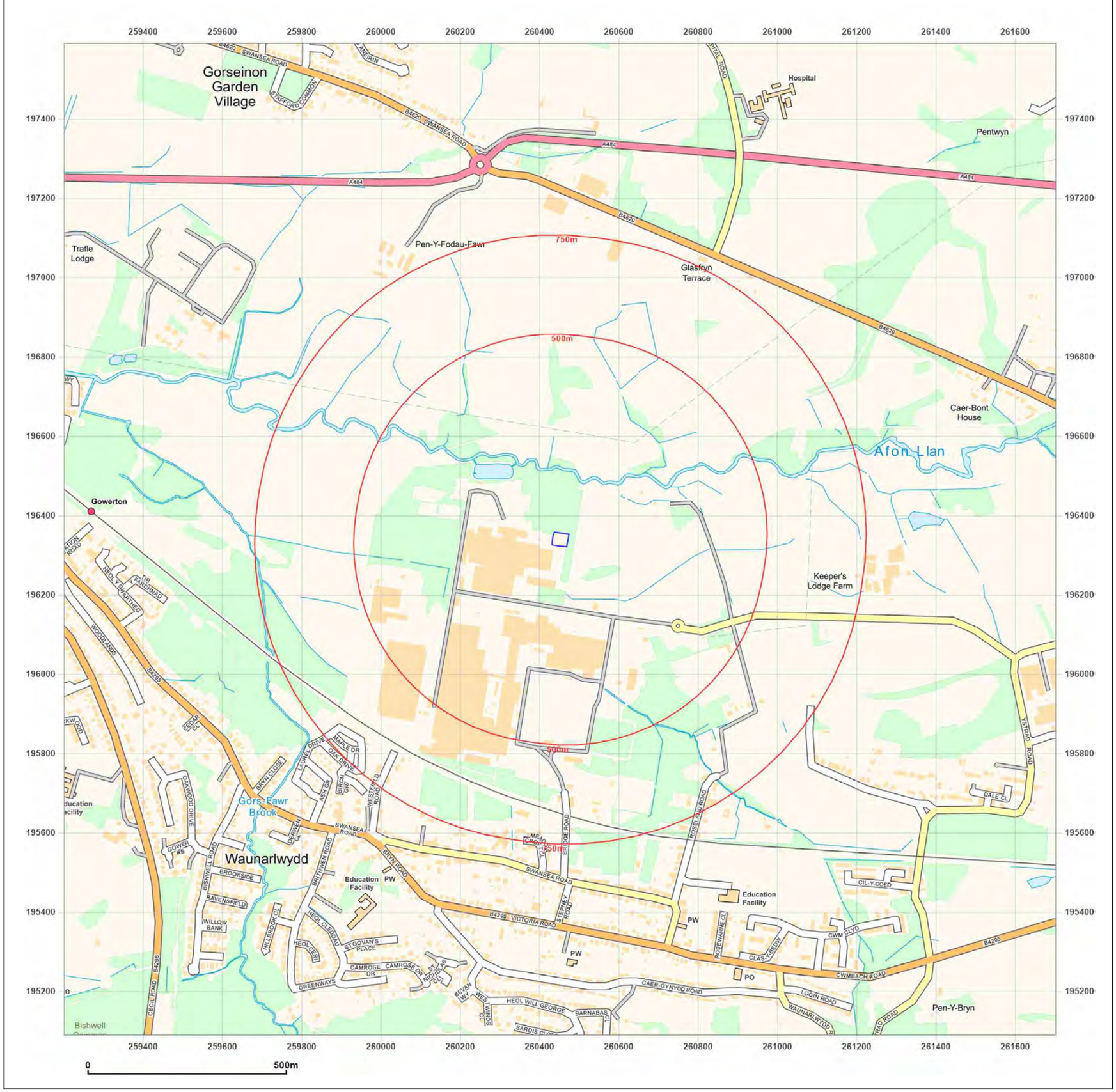
W: www.groundsure.com

Production date: 07 December 2021

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



Groundsure INSIGHTS

Site Details:

TIMET, TIMET, TITANIUM ROAD, WAUNARLWYDD, SWANSEA, SA5 4BT

Client Ref: R0624
Report Ref: GS-8384599
Grid Ref: 260452, 196340

Map Name: National Grid
Map date: 2021
Scale: 1:10,000
Printed at: 1:10,000

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Production date: 07 December 2021

Map legend available at:
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APPENDIX 2

EXPLORATORY HOLE LOGS

Percussion Drilling Log

Project Name: Timet	Client: Sol Environment Ltd	Date: 09/12/2021
Location: South Wales	Contractor: Dynamic Sampling Ltd	Co-ords: E260443.00 N196331.00
Project No. : R0624	Crew Name: MP + LW	Drilling Equipment: Premier 120

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS01	WS	18.00m AoD	GF	1:15	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.50	ES					MADE GROUND: Brown slightly cobbly sandy subangular to subrounded fine to coarse GRAVEL of brick, concrete and slag with a strong hydrogen sulphide odour. Sand is fine to coarse. Cobbles are 100mm, 170mm and 210mm of concrete and brick.
	▼							*…becoming dark grey at 0.7m.*
		1.10	ES		1.05	16.95		MADE GROUND: Soft black slightly gravelly slightly sandy silty CLAY with a moderate hydrocarbon odour. Sand is fine to coarse. Gravel is subrounded fine to medium of slag and wood.
					1.20	16.80		Brown silty fine to medium SAND with a slight organic odour.
					1.30	16.70		Soft to firm yellow brown and grey brown slightly sandy slightly silty CLAY.
					1.80	16.20		Multicoloured slightly clayey slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of sandstone.
	▼	2.90	ES					
					3.00	15.00		End of Borehole at 3.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
2.00 3.00	87 76	2.00	101								

Remarks

Hand dug inspection pit to 0.8m. Groundwater encountered at 0.8m and 2.8m. Standpipe installed to 1.5m (GL-0.5m plain, 0.5-1.5m slotted).

Percussion Drilling Log

Project Name: Timet	Client: Sol Environment Ltd	Date: 09/12/2021
Location: South Wales	Contractor: Dynamic Sampling Ltd	Co-ords: E260441.00 N196344.00
Project No. : R0624	Crew Name: MP + LW	Drilling Equipment: Premier 120

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS02	WS	18.00m AoD	GF	1:15	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES					MADE GROUND: Brown slightly cobbly sandy subangular to subrounded fine to coarse GRAVEL of brick, concrete and slag. Sand is fine to coarse. Cobbles are 100mm, 170mm and 210mm of concrete and brick.	
					1.00	17.00		Soft to firm yellow brown and grey brown slightly sandy slightly silty CLAY.	1
		1.50	ES		1.40	16.60		Multicoloured slightly clayey slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of sandstone.	
					2.00	16.00		Multicoloured slightly clayey slightly gravelly silty fine to coarse SAND. Gravel is subangular to subrounded fine to medium of sandstone.	2
		2.50	ES						
					3.00	15.00		End of Borehole at 3.000m	3

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	87	1.00	101								
2.00	76										
3.00	56										

Remarks

Groundwater encountered at 1.8m. Standpipe installed (GL-1.0m plain, 1.0-3.0m slotted).

Percussion Drilling Log

Project Name: Timet	Client: Sol Environment Ltd	Date: 09/12/2021
Location: South Wales	Contractor: Dynamic Sampling Ltd	Co-ords: E260459.00 N196343.00
Project No. : R0624	Crew Name: MP + LW	Drilling Equipment: Premier 120

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS03	WS	18.00m AoD	GF	1:15	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES					MADE GROUND: Brown sandy subangular to subrounded fine to coarse GRAVEL of brick, concrete and slag with a strong hydrogen sulphide odour. Sand is fine to coarse.
		0.75	ES		0.70	17.30		Brown silty fine to medium SAND with a slight organic odour.
								…becoming orange brown at 0.9m.
								…becoming grey mottled orange brown at 1.0m.
	▼	1.80	ES					*…becoming gravelly sand at 1.6m. Gravel is subangular fine to coarse of sandstone and quartz.*
					2.00	16.00		End of Borehole at 2.000m

1 2 3

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.00	87	1.00	101								
2.00	76										

Remarks

Hand dug inspection pit to 0.4m. Groundwater encountered at 1.8m. Standpipe installed (GL-1.0m plain, 1.0-2.0m slotted).

APPENDIX 3

GROUND GAS & GROUNDWATER MONITORING

Gas Monitoring Record

Project Number:	R0624
Project Name:	Timet, South Wales
Date:	17/12/2021
Logger	GF

Weather:	

*mbgl - Meters below Ground Level

			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 secs	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID	WS01	**CH4 (%)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	1.4	Groundwater sample taken.
Flow Rate (l/hr)	-1.5	**CO2 (%)**	0.6	0.2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Atmospheric Pressure (mbar)	1038	**H2S (ppm)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Borehole Pressure (Pa)	-8	**O2 (%)**	19.4	19.9	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.3	20.3	20.3			
Time		**LEL (%)**	<	<	<	<	<	<	0	0	0	0	0	0	0	0	0	0	<	<			
Peak VOC	0	**CO (ppm)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 secs	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID	WS02	**CH4 (%)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.55	2.55	Groudnwater sample taken.
Flow Rate (l/hr)	-1.5	**CO2 (%)**	0.1	1.4	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1			
Atmospheric Pressure (mbar)	1037	**H2S (ppm)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Borehole Pressure (Pa)	-9	**O2 (%)**	19.7	18.4	17.1	16.7	16.7	16.5	16.5	16.5	16.5	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4			
Time		**LEL (%)**	<	<	<	0	<	<	<	<	<	<	<	<	<	<	<	<	<	<			
Peak VOC	0	**CO (ppm)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 secs	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID	WS03	**CH4 (%)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.55	2	Groundwater sample taken.
Flow Rate (l/hr)	-1.6	**CO2 (%)**	2	2.6	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.7	2.7	2.8	2.6	2.6	2.5	2.4	2.1			
Atmospheric Pressure (mbar)	1037	**H2S (ppm)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Borehole Pressure (Pa)	-9	**O2 (%)**	17.6	17.6	18.1	18.1	18.2	18.2	18.2	18.2	18.2	18.2	18.3	18.3	18.3	18.3	18.3	18.4	18.5	18.7			
Time		**LEL (%)**	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<			
Peak VOC	251.3	**CO (ppm)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 secs	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID		**CH4 (%)**																					
Flow Rate (l/hr)		**CO2 (%)**																					
Atmospheric Pressure (mbar)		**H2S (ppm)**																					
Borehole Pressure (Pa)		**O2 (%)**																					
Time		**LEL (%)**																					
Peak VOC		**CO (ppm)**																					

APPENDIX 4

CHEMICAL LABORATORY TEST RESULTS

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

Final Report

Report No.:	21-43865-1
Initial Date of Issue:	21-Dec-2021
Client	Earth Environmental & Geotechnical Southern
Client Address:	Studio 3 Tollbridge Studios Toll Bridge Road Bath BA1 7DE
Contact(s):	John Grace
Project	R0624 Timet

Quotation No.:		**Date Received:**	13-Dec-2021
Order No.:	R0624	**Date Instructed:**	13-Dec-2021
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	17-Dec-2021
Date Approved:	21-Dec-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: R0624 Timet

Client: Earth Environmental & Geotechnical Southern		**Chemtest Job No.:**			21-43865	21-43865	21-43865	21-43865	21-43865	21-43865
Quotation No.:		**Chemtest Sample ID.:**			1338536	1338538	1338539	1338540	1338542	1338544
		Sample Location:			WS01	WS01	WS02	WS02	WS03	WS03
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.5	2.9	0.5	1.5	0.3	1.8
		Date Sampled:			09-Dec-2021	09-Dec-2021	09-Dec-2021	09-Dec-2021	09-Dec-2021	09-Dec-2021
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	12	7.7	9.8	21	9.9	9.0
Soil Colour	N	2040		N/A	Brown	Brown	Grey	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones, Roots and Wood	Stones and Roots	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Clay	Sand	Sand
pH	M	2010		4.0	10.4	8.7	11.1	8.6	10.0	7.6
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.8	< 0.40	0.84	0.61	1.0	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.73	< 0.010	0.55	0.070	0.35	0.041
Cyanide (Complex)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.0
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.2
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	220	13	130	11	88	26
Sulphate (Total)	U	2430	%	0.010	0.64	0.017	0.49	0.039	0.50	0.036
Arsenic	M	2450	mg/kg	1.0	58	8.8	110	14	200	11
Barium	M	2450	mg/kg	10	430	48	230	22	260	51
Beryllium	U	2450	mg/kg	1.0	2.9	< 1.0	1.2	< 1.0	1.3	< 1.0
Cadmium	M	2450	mg/kg	0.10	0.47	0.18	0.54	0.12	0.68	0.12
Chromium	M	2450	mg/kg	1.0	20	15	29	20	42	16
Copper	M	2450	mg/kg	0.50	98	20	180	18	390	19
Mercury	M	2450	mg/kg	0.10	0.48	< 0.10	0.73	< 0.10	1.7	< 0.10
Nickel	M	2450	mg/kg	0.50	16	30	21	20	25	27
Lead	M	2450	mg/kg	0.50	210	14	260	18	500	14
Selenium	M	2450	mg/kg	0.20	0.82	< 0.20	0.85	0.57	2.4	< 0.20
Vanadium	U	2450	mg/kg	5.0	30	12	28	20	50	15
Zinc	M	2450	mg/kg	0.50	670	64	640	74	2800	81
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	4.0	1.4	2.1	1.4	4.8	0.86
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	27	57	15	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R0624 Timet

Client: Earth Environmental & Geotechnical Southern		**Chemtest Job No.:**			21-43865	21-43865	21-43865	21-43865	21-43865	21-43865
Quotation No.:		**Chemtest Sample ID.:**			1338536	1338538	1338539	1338540	1338542	1338544
		Sample Location:			WS01	WS01	WS02	WS02	WS03	WS03
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.5	2.9	0.5	1.5	0.3	1.8
		Date Sampled:			09-Dec-2021	09-Dec-2021	09-Dec-2021	09-Dec-2021	09-Dec-2021	09-Dec-2021
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	27	57	15	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	690	230	160	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	690	230	160	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	720	290	170	< 10	< 10	< 10
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.33	0.23
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.51	0.13
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.17	0.29
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.25	0.25
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.5	1.9
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.57	0.52
Fluoranthene	M	2800	mg/kg	0.10	0.23	0.62	0.25	< 0.10	4.1	4.0
Pyrene	M	2800	mg/kg	0.10	0.21	0.55	0.18	< 0.10	3.5	3.4
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.18	0.39	0.14	< 0.10	2.5	1.8
Chrysene	M	2800	mg/kg	0.10	0.14	0.33	0.15	< 0.10	2.5	1.9
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.27	0.71	0.27	< 0.10	3.6	3.2
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.10	0.21	< 0.10	< 0.10	1.4	1.1
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.15	0.40	0.16	< 0.10	2.3	2.2
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.19	0.36	< 0.10	< 0.10	1.8	1.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.11	< 0.10	< 0.10	0.33	0.30
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.19	0.39	< 0.10	< 0.10	1.5	1.5
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	4.1	< 2.0	< 2.0	28	25
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

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

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

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

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

2183

Final Report

Report No.:	21-44939-1		
Initial Date of Issue:	04-Jan-2022		
Client	Earth Environmental & Geotechnical Southern		
Client Address:	Studio 3 Tollbridge Studios Toll Bridge Road Bath BA1 7DE		
Contact(s):	John Grace		
Project	R0624		
Quotation No.:		**Date Received:**	20-Dec-2021
Order No.:	R0624 Timet	**Date Instructed:**	20-Dec-2021
No. of Samples:	3		
Turnaround (Wkdays):	11	**Results Due:**	05-Jan-2022
Date Approved:	04-Jan-2022		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Water

Project: R0624

Client: Earth Environmental & Geotechnical Southern		**Chemtest Job No.:**			21-44939	21-44939	21-44939
Quotation No.:		**Chemtest Sample ID.:**			1343732	1343733	1343734
		Sample Location:			WS01	WS02	WS03
		Sample Type:			WATER	WATER	WATER
		Date Sampled:			17-Dec-2021	17-Dec-2021	17-Dec-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
pH	U	1010		N/A	8.1	7.8	7.9
Sulphate	U	1220	mg/l	1.0	100	430	110
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050	0.070	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050
Cyanide (Complex)	U	1300	mg/l	0.050	< 0.050	0.070	< 0.050
Sulphide	U	1325	mg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Arsenic (Dissolved)	U	1455	µg/l	0.20	14	0.98	0.59
Barium (Dissolved)	U	1455	µg/l	5.00	240	170	54
Beryllium (Dissolved)	U	1455	µg/l	1.00	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1455	µg/l	0.11	0.15	0.20	0.19
Chromium (Dissolved)	U	1455	µg/l	0.50	10	1.8	0.78
Copper (Dissolved)	U	1455	µg/l	0.50	23	4.8	2.7
Mercury (Dissolved)	U	1455	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	µg/l	0.50	10	6.3	6.1
Lead (Dissolved)	U	1455	µg/l	0.50	15	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	µg/l	0.50	11	3.4	0.68
Vanadium (Dissolved)	U	1455	µg/l	0.50	3.9	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	µg/l	2.5	72	11	4.6
Chromium (Hexavalent)	U	1490	µg/l	20	< 20	< 20	< 20
Total Organic Carbon	U	1610	mg/l	2.0	55	60	56
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10	< 10
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0

Results - Water

Project: R0624

Client: Earth Environmental & Geotechnical Southern		Chemtest Job No.:			21-44939	21-44939	21-44939
Quotation No.:		Chemtest Sample ID.:			1343732	1343733	1343734
		Sample Location:			WS01	WS02	WS03
		Sample Type:			WATER	WATER	WATER
		Date Sampled:			17-Dec-2021	17-Dec-2021	17-Dec-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5	< 5	< 5	< 5
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5	< 5	< 5	< 5
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	6.7
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	1.1
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5	< 5	< 5	< 5
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10	< 10
1,2-Dibromoethane	U	1760	µg/l	5	< 5	< 5	< 5
Chlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0

Results - Water

Project: R0624

Client: Earth Environmental & Geotechnical Southern		**Chemtest Job No.:**			21-44939	21-44939	21-44939
Quotation No.:		**Chemtest Sample ID.:**			1343732	1343733	1343734
				Sample Location:	WS01	WS02	WS03
				Sample Type:	WATER	WATER	WATER
				Date Sampled:	17-Dec-2021	17-Dec-2021	17-Dec-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
N-Nitrosodimethylamine	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,4-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachloroethane	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Isophorone	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: R0624

Client: Earth Environmental & Geotechnical Southern		**Chemtest Job No.:**			21-44939	21-44939	21-44939
Quotation No.:		**Chemtest Sample ID.:**			1343732	1343733	1343734
			Sample Location:		WS01	WS02	WS03
			Sample Type:		WATER	WATER	WATER
			Date Sampled:		17-Dec-2021	17-Dec-2021	17-Dec-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
2,4,6-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthylene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dimethylphthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenylphenylether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluorene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Diethyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Azobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Pentachlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenanthrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Carbazole	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Butylbenzyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[a]anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Chrysene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[k]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[a]pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenz(a,h)Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010

Results - Water

Project: R0624

Client: Earth Environmental & Geotechnical Southern		**Chemtest Job No.:**			21-44939	21-44939	21-44939
Quotation No.:		**Chemtest Sample ID.:**			1343732	1343733	1343734
			Sample Location:		WS01	WS02	WS03
			Sample Type:		WATER	WATER	WATER
			Date Sampled:		17-Dec-2021	17-Dec-2021	17-Dec-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Acenaphthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	µg/l	0.20	< 0.20	< 0.20	< 0.20
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1343732			WS01	17-Dec-2021	B	Coloured Winchester 1000ml
1343732			WS01	17-Dec-2021	B	EPA Vial 40ml
1343733			WS02	17-Dec-2021	B	Coloured Winchester 1000ml
1343733			WS02	17-Dec-2021	B	EPA Vial 40ml
1343733			WS02	17-Dec-2021	B	Plastic Bottle 1000ml
1343734			WS03	17-Dec-2021	B	Coloured Winchester 1000ml
1343734			WS03	17-Dec-2021	B	EPA Vial 40ml
1343734			WS03	17-Dec-2021	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

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

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

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

APPENDIX 5

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2022 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth

Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.