

**YGG RHOSAFAN PRIMARY SCHOOL,
SANDFIELDS**

DESK STUDY AND SITE RECONNAISSANCE

Report No H9091-19

December 2019

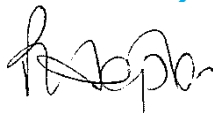
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SA13 1PJ



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ISSUE No DATE	STATUS	PREPARED BY	CHECKED BY	APPROVED BY
1 December 2019	Draft report	NAME and QUALIFICATIONS Adam Putt BSc (Hons) CSci CGeol FGS MEnvSc	NAME and QUALIFICATIONS Peter Hepton BSc PhD	NAME and QUALIFICATIONS Maria Tsamaki BSc(Hons) MSc FGS MEnvSc
		SIGNATURE 	SIGNATURE 	SIGNATURE 
	Final report	NAME and QUALIFICATIONS	NAME and QUALIFICATIONS	NAME and QUALIFICATIONS
		SIGNATURE	SIGNATURE	SIGNATURE

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1 INTRODUCTION

SOCOTEC UK Limited was commissioned in November 2019 by Neath Port Talbot County Borough Council (NPT) to carry out a Desk Study and Site Reconnaissance at Ysgol Gynradd Gymraeg (YGG) Rosafan Primary School, Sandfields, Port Talbot in South Wales. This was required to obtain geotechnical and geoenvironmental information for a proposed extension to the primary school. The proposed extension is shown on NPT drawing number A1184-06 which is included within Appendix A and specification was provided within an email from NPT dated 20 November 2019.

This desk study has been prepared in accordance with British Standards BS 5930 (2015) and BS 10175:2011+A2 (2017) and all normative references, including Environment Agency guidance report CLR 11, *Model Procedures for the Management of Land Contamination*.

The desk study which incorporates a site reconnaissance (walkover survey), see Appendix E, presents and discusses the available data obtained for the site and surrounding area regarding its physical, historical and environmental setting. It identifies the potential issues at the site, develops an initial conceptual site model (CSM) for geoenvironmental considerations and provides an assessment of geotechnical aspects and other pertinent ground hazards that could affect the development.

The principal objective of this investigation and the context of the CSM developed within this report is to provide an assessment of potential significant risks in order to:

- assess the potential requirements for further mitigation or investigation of land contamination risks to ensure that the proposed development will be 'suitable for use'.
- give an account of the anticipated ground conditions at the site based upon published geological and hydrogeological information.
- provide an account of any past/historic mining activities on or near the site which may pose a geotechnical risk to the proposed development.
- provide information for detailed scoping of intrusive investigations if required.



2 SOURCES OF INFORMATION

- The following sources of information have been used in the preparation of this report:
- Extracts of available historical Ordnance Survey (OS) maps covering the period from 1880 to 2019 which are presented in Appendix B.
- A Groundsure Enviro Insight report reference GS-6477200 for an area up to 1 km from the centre of the site which is included in Appendix C. The Enviro Insight report is compiled from the database of information maintained by various statutory bodies listed within Appendix C.
- A Groundsure Geo Insight report reference GS- 6477201 for an area up to 1 km from the centre of the site which is included in Appendix D. The Geo Insight report is compiled from the database of information maintained by various statutory bodies listed within Appendix D. It includes a series of maps showing the approximate position of the listed data together with details on geology, ground workings, mining and extraction, borehole records and estimated background soil chemistry.
- The British Geological Survey (BGS) website as viewed during November 2019.
- A Coal Authority Coal Mining Report (ref 51002190793001, November 2019) included in Appendix F.
- A Site Reconnaissance/Walkover Survey undertaken on 27 November 2019.

3 SITE LOCATION AND DESCRIPTION

3.1 Site Location

YGG Rhosfan Primary School is located in the Sandfields area of Port Talbot, some 2.5 km west of the town centre, at National Grid reference SS 739 904, see Site Location Plan in Appendix A. The school address is Marine Drive, Sandfields, Port Talbot, SA12 7NN. The Swansea Bay shoreline lies approximately 500 m to the west.

The area of proposed development is situated on the western end of one of the school building wings, adjacent to the playing field area, see Site Plan in Appendix A.



3.2 Site Description and Reconnaissance

The notes made during the site walkover undertaken on 27 November 2019 together with photographs taken are presented in Appendix E.

The development site is an approximately rectangular area, 20 m by 25 m in plan, comprising a flat, level, grassed play area (see Plates 1 to 4). The site is bisected by a palisade fence which enters the site from the north west and trends in a northwest southeast direction to the middle of the site. The fence then turns 90 degrees and trends in a northeast-southwest direction. The fencing terminates at the northeastern site boundary and is attached to the current school building. (Plate 1 and 3).

The site is bounded to the northeast by the current school buildings, and in all other directions by the grassed school playing fields.

During discussion with the school caretaker, it was indicated the boiler house is located away from the site on the other side of the school and that no services other than rainwater drainage were known to be present beneath the site. In addition, it was suggested by the caretaker that the site area was filled to raise levels prior to development of the existing school, using material derived from the nearby steel works known locally as 'Margam Slag'. This is a locally produced material and comprises the waste material from the blast furnaces used in the steel making process, however it is unknown how the material was transport to and laid on site and there are no formal records available to confirm how or what the fill material comprises.

4 PROPOSED DEVELOPMENT

According to information provided by NPT it is understood that the proposed development will comprise a single storey extension to the current primary school buildings, including four new classrooms, two toilet blocks and plant room, with a corridor connecting to the existing school building. The proposed development is shown on NPT drawing number A1184-06 included within Appendix A. At this stage no details of the structural loadings have been provided, nor any particular foundation performance requirements.

5 PHYSICAL AND HISTORICAL SETTING

5.1 Historical Land Usage

The development of the site and surrounding area has been reviewed by reference to the historical maps and is summarised in Table 1 below.

TABLE 1 : SUMMARY OF SITE HISTORY

DATE AND MAP SCALE	ON SITE DEVELOPMENT	NEARBY DEVELOPMENT
1880 – 1957	The site is shown to comprise marshland.	The area surrounding the site is shown to comprise marshland. A beach is located 250 m south west of the site, beyond which is Swansea Bay. From 1921 the beach is labelled as Aberavon Sands and the area surrounding the site is labelled Aberavon Burrows. The Rhondda and Swansea Bay Railway has been present approximately 775 m to the north east of the site between 1914 and 1962, when a road appears to have been construction along the former railway line route. A brick works has been present approximately 1 km to the south east of the site at least between 1914 and 1921.
1957 - 2019	The site has been developed and forms part of the Tirmorfa Primary School site.	The area immediately surrounding the site has been developed with the school buildings and associated grounds of Tirmorfa Primary School. Four carparks have also been constructed immediately to the south / south west of the school's grounds. The wider area has been substantially developed with an area of mixed use which is predominantly residential and has been named 'Sandfields'.

In addition, the Geo insight report lists historic “unspecified ground workings” 228 m to the south west of the site (also listed as infilled land), eight historic tanks within 500 m of the site, the closest located 381 m to the south of the site and nine electrical substation / transformer within 500 m of the site, the closest located 222 m to the north east of the site.



5.2 Published Geology

The published geological map for the area, BGS Sheet 247 (2011), and the BGS GeoIndex Onshore online viewer (2019), show the site located on Blown Sand of Quaternary age. This is indicated to be underlain by Older Coastal Zone deposits also of Quaternary age which are indicated to comprise clay, silt, sand and peat.

The underlying bedrock is shown as the South Wales Middle Coal Measures of Carboniferous age. These are indicated to comprise mudstones with coal seams, seathearts and thin sandstone beds. A fault, trending northwest-southeast and downthrown to the east, is located approximately 475 m east of the site.

Anecdotal evidence (see Section 3.2) suggests the presence of anthropogenic ground (commonly referred to as 'made ground') placed as 'fill' during construction of the school buildings. It is not known whether this extends across the area of the playing fields, nor what degree of engineering control (if any) was involved in the selection and placement of the material.

5.3 Geological Hazards

Information on various geological hazards is contained within the Groundsure Geo Insight report, and the risks categorised between *Negligible* and *High* (or shown as no data being supplied) as follows.

TABLE 2 : SUMMARY OF POTENTIAL GEOLOGICAL HAZARDS

HAZARD	RISK CATEGOR Y	REMARKS
Shrink Swell Clay	Negligible	
Landslides	Very Low	
Ground Dissolution of Soluble Rocks	Negligible	
Compressible Deposits	Negligible	
Collapsible Deposits	Negligible	
Running Sand	Negligible	
Ground Workings – on site	No	



Mining, Extraction and Natural Cavities – on site	Yes	Site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority
Artificial Ground	Yes	Site is shown to be located in an area of Landscaped Ground, consistent with other information (see Section 5.3).

5.4 Ground Workings

The Geo Insight report indicates no historical surface ground working features on site.

5.5 Mining, Extraction and Natural Cavities

The available data indicates that there has been mining and/or quarrying within 1 km of the site. According to the Coal Authority report the site:

- Is not within a surface area that could be affected by any past or present recorded underground coal mining
- Is in an area where reserves of coal exist which could be worked at some time in the future, however no application has been made or license granted to work the coal reserves at the time of writing this report.

5.6 Hydrogeology and Groundwater Abstraction

The hydrogeological characteristics of the site are summarised below:

TABLE 3 : SUMMARY OF HYDROGEOLOGICAL CHARACTERISTICS

HAZARD	REMARKS
Aquifer Classification within Superficial Geology	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.
Aquifer Classification within Bedrock	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.
Groundwater/ Potable Water Licence Abstraction	No groundwater or potable water abstraction licenses are located within 2000 m of the site.

Source Protection Zones	The site does not lie within 500 m of a source protection zone.
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5.7 Hydrology, Flooding and Surface Water Abstraction

Information on the hydrological characteristics of the site are summarised below:

TABLE 4 : SUMMARY OF HYDROGEOLOGICAL CHARACTERISTICS

HAZARD	REMARKS
Surface Water Features / River Network	The nearest surface water feature is 243 m to the south west of the site (Swansea Bay)
River Quality (Biological and Chemical)	No data within 1500 m of the site
Surface Water Abstractions	No data within 2000 m of the site
Flood Plain Risk	The site is not shown to be an area which is at risk of flooding; however a Zone 3 floodplain is located 197 m south west of the site. This is an area susceptible to a river flood 1 in 100 (or greater chance) or a sea flood 1 in 200 (or greater chance) in any year. The Risk of Flooding from Rivers and Sea (RoFRaS) flood rating is very low.
Flood Defences / Groundwater Flooding / Susceptibility and Confidence Areas	The site is not in an area protected by flood defences. The site is located within an area where superficial deposits may flood below the surface. The potential for this is indicated to be high.

5.8 Ground Gas

5.8.1 Radon

According to the Geo Insight report the estimated proportion of homes near the site that are above the radon action level is between 1 and 3 %. However, it indicates that new properties and extensions to existing properties do not require radon protection measures.

5.8.2 Coal Measures

Coal Measures bedrock strata are known to underlie the site at a significant depth beyond which the migration of gas is considered likely to possibly have an effect on the development.



5.8.3 Made Ground

There is potential for Made Ground to be located on the site (see Sections 5.2 and 5.3). Historical Made Ground has the potential to produce ground gas. These gases could either be formed under the site, or migrate to the site from the surrounding area, posing a potential risk to the proposed development.

5.8.4 Landfill Gas

The site is not located within 1 km of any recorded landfill sites.

5.9 Archaeology / Ecology

No archaeological or ecological consultation has been undertaken for this study.

5.10 Unexploded Ordnance (UXO)

The Zetica UXO bomb risk maps indicate the site is located in an area of low UXO risk. It is therefore not considered that further mitigation measures in relation to UXO are required.

5.11 Utilities

No information has been provided with respect to services at the time of writing this desk study, however given the nature of the site having been previously developed with a primary school, it is likely that services are located on or in the vicinity of the site. It is considered most likely that services would be located to the front of the school building and connect to the main road northeast of the site. However, the possibility of services crossing the school playing fields and entering the school building under the site should not be ruled out although no anecdotal evidence suggests this is the case.

6 ENVIRONMENTAL SETTING

6.1 Designated Environmentally Sensitive Sites

In the context of this report sensitive land usage covered by the Enviro Insight report includes the following:

- Sites of Special Scientific Interest (SSSI) and Ramsar.
- Local and National Nature Reserves (LNR, NNR,).
- Special Protection Areas (SPA) and Special Areas of Conservation (SAC).
- World Heritage Sites and Ancient Woodlands.
- Areas of Outstanding Natural Beauty (AONB) and Environmentally Sensitive Areas (ESA).
- Forest and National Parks.
- Nitrate Sensitive Areas and Nitrate Vulnerable Zones (NSA, NVZ).

The proposed development site does not lie within or close to any sensitive land uses as defined by the Enviro Insight report.

6.1.1 Environmental Permits, Incidents and Registers

From the information provided in the Enviro Insight report, there are no Integrated Pollution Prevention and Control (IPPC) sites, no water industry referrals (potentially harmful discharges to the sewer) and no records of Licenced Discharge Consents within 250m of the site.

According to the Enviro Insight report there are no dangerous or hazardous sites (including COMAH and NIHHS sites) within 1 km of the site or any sites determined as Contaminated Land under Part 2A EPA 1990. The Enviro Insight report lists one pollution incident on the National Incidents Recording System (NIRS) within 250 m of the site. The incident was recorded on 25 March 2003 and involved the discharge of dust to "Land and Air", 145 m to the north of the proposed site (Category 3 (Minor) incident).



6.2 Landfill and Other Waste Sites

6.2.1 Landfill Sites

According to the information provided in the Enviro Insight report there are no known landfills within 1 km of the site. A “refuse tip” is located 1128 m to the east of the site.

6.2.2 Other Waste Sites

The Enviro Insight report indicates that there are no known licensed waste management facilities and registered waste transfer sites within 1 km of the site. The closest waste treatment, transfer or disposal site is located 1407 m to north east of the site (operated by Tyregenics Ltd).

6.3 Current Land Uses

- The Enviro Insight report covers other potential contamination sources close to the site including:
- Current Industrial Data
- Petrol and Fuel Stations
- Underground High Pressure Oil and Gas Pipelines

According to the Enviro Insight report is located within 250 m of three number electricity substations and one number industrial printers.

7 INITIAL CONCEPTUAL SITE MODEL

7.1 General

In line with existing legislation and the current good practice guidance for the management of contaminated land, assessments are undertaken using a risk based approach. It is necessary to define a Conceptual Site Model (CSM) for the site which identifies the potential sources of contamination, the receptors and the pathways that can connect them. In order for there to be a risk from contamination, one or more relevant pollutant linkages must exist, connecting a contamination



source, a receptor (an entity which might be affected by the contamination) and a pathway (or mechanism) by which the receptor can be exposed to the contaminant.

A discussion of potential sources, pathways and receptors and a tabulated summary of the CSM indicating potential pollutant linkages follows. The criteria used for assessing the relevance of identified potential pollutant linkages are based on the objectives stated above. It is understood that the purpose of this desk study and walkover is a means to determine and record the current site conditions and to identify and assess the extent of any potential contamination sources within the site prior to its redevelopment for use as a school.

7.2 Potential Sources of Contamination

Potential sources of contamination are usually associated with current and former industrial activities, where the processing, storage, use, transportation and disposal of raw materials, products and wastes often leads to the contamination of underlying ground and groundwater. In addition, natural processes can also give rise to contamination such as hazardous gases.

Based on the information presented above, potential sources of contamination from current and historical site uses and from potentially significant off site sources have been assessed. Potential sources of contamination and contaminants at and within the site boundary are summarised in the table below. These are based in the desk study data obtained and published guidance. Many of the potential current and historical off sites sources identified in previous sections have been discounted on the basis of their distance and direction (e.g. down inferred topographic and groundwater flow gradient) from the site.

TABLE 5 : POTENTIAL SOURCES OF CONTAMINATION

SITE USE / ACTIVITY AND AREA	SOURCES	CONTAMINANTS
Historical onsite fill	Imported slag used as fill material from nearby steel works	Heavy metals, cyanide, sulphide, extremes of pH, asbestos, phenol, oil / fuel hydrocarbons, aromatic hydrocarbons, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) Ground gases including methane and carbon dioxide.
Current and historic features (within 250 m of the site)	Boiler house within school grounds Electrical Substations Tanks (unspecified) Infilled land Printing works Car parks	Range of organic and inorganic contaminants, including heavy metals and metalloids, cyanide, fuels oils, hydrocarbons, phenol, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), Volatile Organic Compounds (VOCs), asbestos

7.3 Potential Migration Pathways

To develop further an understanding of the potential risks posed by the contaminants to human and environmental receptors, the pathways through which contaminants may impact receptors need to be identified. The potential migration pathways and / or exposure routes considered to be present at the site are:

- Direct soil, soil dust and/or water ingestion.
- Inhalation of soil dust, soil vapour and/or water vapour.
- Dermal contact with contaminated soil, soil dust and/or water.



- Gas generation followed by lateral and vertical migration of gases and/or vapours through permeable strata.
- Permeable ground conditions/rainfall infiltration.
- Leaching of contaminants from soils into soil pore water and shallow groundwater.
- Downward migration of soil pore water and shallow groundwater.
- Lateral groundwater flow.
- Preferential pathways including existing and proposed new services trenches and foundations.
- Surface water runoff into drains.
- Permeation of organic contaminants through water supply pipes and into the water supply for the site.

7.4 Potential Receptors

Potential receptors have been identified and categorised as follows:

7.4.1 Human Health

- Construction workers
- Current and future site users (school children and staff)
- Neighbouring site occupants
- Maintenance workers
- Controlled Waters
- Bedrock and superficial aquifers are Secondary A aquifers
- Swansea Bay, located 250 m southwest

7.4.2 Environmental Receptors

No known environmental receptors are located within 500 m of the site.

7.4.3 Property, Buildings, Structures and Services

New school buildings and associated services.

7.5 Summary

The relevant pollutant linkages based on the potential sources, pathways and receptors outlined above are tabulated below:

TABLE 6 : INITIAL CONCEPTUAL SITE MODEL

SOURCE	PATHWAY	RECEPTOR
Sources and contaminants as identified in Table 5 above.	Ingestion, direct contact, inhalation of dust Ingestion of soils and / or groundwater. Dermal contact with soil, soil/dust and / or groundwater. Inhalation of asbestos fibres. Permeation / corrosion of water supply pipes. Ingress of ground gases and vapour into buildings, accumulation and asphyxiation or explosion.	Construction site workers Current and future site users Neighbouring site occupants Maintenance workers
	Leaching, infiltration and downward migration	Secondary A Aquifers (Superficial Deposits and Bedrock)
	Lateral groundwater migration Migration via man made preferential pathways (services, service trench backfill)	Swansea Bay
	Surface water runoff Migration via man made preferential pathways (services, service trench backfill)	Drainage systems
	Direct contact	Existing and proposed services and foundations

There are currently a series of uncertainties and assumptions in the CSM presented above as this is based on desk study information only:

- Ground conditions have been conceptualised based on BGS geological maps and other primarily desk based information.

- The thickness and extent of any Made Ground and superficial soils at the site is currently unknown.
- The presence and extent of any suspected contamination is unknown in the absence of site investigation data.
- The presence and depth of any groundwater bodies at the site is currently unknown.
- The ground gas regime at the site has not been characterised.

8 PRELIMINARY RISK ASSESSMENT

8.1 Assessment of Environmental Risks Methodology

The identification of potential pollutant linkages is a key aspect of the evaluation of potentially contaminated land. An approach based on CIRIA report C552 has been adopted. For each of the pollutant linkages, an estimate is made of:

- The potential severity of the risk; and
- The likelihood of the risk occurring.

These are then used for an overall qualitative evaluation of the level of risk, as defined below in the tables taken from CIRIA report C552.

Table 7 below presents the classification of the severity of the risk:

TABLE 7 : SEVERITY OF RISK

RISK FACTOR	TYPICAL EXAMPLES
Severe	Acute risks to human health; Major pollution of controlled waters
Medium	Chronic (long-term) risk to human health; Pollution of controlled waters
Minor	Damage to non-sensitive species or ecosystems, buildings or services



The probability of the risk occurring is classified according to the criteria provided in Table 8 below:

TABLE 8 : PROBABILITY OF RISK OCCURRING

PROBABILITY RATING	DESCRIPTION
High Likelihood	Pollutant linkage may be present, and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term.
Low Likelihood	Pollutant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Unlikely	Pollutant linkage may be present but the circumstances under which harm would occur are improbable.

An overall qualitative evaluation of the level of risk is gained from a comparison of the severity and probability as presented in Table 9 below:

TABLE 9 : RISK RATING EVALUATION

		SEVERITY		
		SEVERE	MEDIUM	MINOR
PROBABILITY	HIGH LIKELIHOOD	Very high risk	High Risk	Moderate / low risk
	LIKELY	High risk	Moderate risk	Low risk
	LOW LIKELIHOOD	Moderate risk	Moderate/ low risk	Very low risk
	UNLIKELY	Moderate / low risk	Low risk	Very low risk



8.2 Preliminary Risk Assessment

Table 10 below details the potential risks associated with the various potential pollutant linkages identified through the assessment of the data collated in this report. The risk category should be reviewed if further information is made available or the environmental setting of the site changes, for example through a proposed change in the development layout or end use.

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TABLE 10 : PRELIMINARY RISK ASSESSMENT

SOURCE	PATHWAY	RECEPTOR	SEVERITY	PROBABILITY	RISK RATING	COMMENTS
Sources and Contaminants as identified in Table 5	Ingestion, direct contact, inhalation of dust Ingestion of soils and / or groundwater. Dermal contact with soil, soil/dust and / or groundwater. Inhalation of asbestos fibres. Permeation / corrosion of water supply pipes. Ingress of ground gases and vapour into buildings, accumulation and asphyxiation or explosion.	Construction site workers Current and future site users Neighbouring site occupants Maintenance workers	Medium	Likely	Moderate	Soils will be disturbed during construction. Minimal capping assumed onsite. Contaminants are potentially present based on the historic and current uses of the site. This should be investigated by further intrusive works and the risks to be reassessed following receipt of laboratory data. The ground gas regime at the site should be established during an appropriate monitoring programme
	Leaching, infiltration and downward migration	Secondary A Aquifers (Superficial Deposits and Bedrock)	Medium	Likely	Moderate	No impermeable capping onsite. Should contamination be present within the site's Made Ground, and especially in



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					areas of soft ground, the risk to underlying aquifers will be moderate, otherwise the risk is considered to be low.
Lateral groundwater migration Surface water runoff Migration via man made preferential pathways (services, service trench backfill)	Swansea Bay Drainage systems	Medium	Likely	Moderate	Anecdotal evidence indicates drainage onsite comprises soakaways. Should contamination be present within the site's Made Ground, the risk to relevant controlled water receptors will be moderate, otherwise the risk is considered to be low.
Direct Contact	Existing and proposed services and foundations	Medium	Likely	Moderate	Foundations and services to be constructed within existing ground

9 GEOTECHNICAL ASPECTS

9.1 Anticipated Ground Model and Potential Hazards

The anticipated ground conditions are expected to comprise:

- Made Ground (possibly derived from Margam Slag), underlain by
- Blown Sand deposits - probably comprising 'coarse' (granular) soils
- Older Coastal Zone deposits comprising clay, silt, sand and peat
- bedrock of the South Wales Middle Coal Measures

The groundwater table is expected to be located within the superficial deposits at relatively shallow depth.

Possible geotechnical hazards for design and construction of the new school building include:

- performance of foundations (bearing capacity and settlement) where Made Ground and/or lower strength/more compressible materials are present
- stability of temporary excavations for foundations and services, and control of any groundwater present
- influence of ground loadings from the new building on the adjoining existing building, and relative movements between them

9.2 Possible Foundation Options

The proposed development is understood to comprise a lightly loaded single storey structure. The presence of Made Ground would normally caution against the use of shallow foundations due to the unpredictable performance of the material arising from its inherent variability and lack of engineering control during placement. However, if it can be demonstrated that the Made Ground is an engineered fill designed to accommodate the loadings and settlement criteria envisaged, then shallow foundations may still be suitable. In the absence of such assurance then it may be necessary to consider foundation solutions taking the loads down to natural strata with a better bearing capacity, or using some form of ground improvement to better the Made Ground properties.



10 CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

10.1.1 Preliminary Geoenvironmental Risk Assessment

Following completion of the Desk Study and the development of the initial CSM and Preliminary Risk Assessment, risks posed by land contamination at the site are anticipated to be low to moderate, primarily due to the historic and current industrial activities on in the immediate surrounding area and the use of imported fill on site.

Any contamination present on site could potentially pose a risk to construction workers and future end users by, for example, direct ingestion or inhalation of soils, dust and groundwater. Underlying groundwater or water bodies could be affected by any potential contamination and ground gases could affect future site users and the building envelope. Therefore, further site investigation is proposed in order to refine the conceptual site model and gather geoenvironmental information in order to assess any potential risks with respect to future site users, construction workers and controlled waters pertinent to the site.

It should be appreciated that a Desk Study can only give a preliminary indication of the likely geoenvironmental conditions at the site. The actual presence of contamination in, on, or under the ground can only be confirmed by an intrusive site investigation. Based on the findings of the above it is recommended to carry out further site intrusive work, especially as it is proposed to redevelop the site as a school.

10.1.2 Geotechnical Risk Assessment

It is anticipated the site will be underlain by a layer of Made Ground comprising Margam Slag, overlying Blown Sand deposits, which in turn overlie Older Coastal Zone deposits.

A ground investigation should be carried out to determine the ground conditions and groundwater levels at the proposed development location to provide information for the assessment of geotechnical parameters to be used for preliminary design of foundations, along with an assessment of potential contamination on site.



10.2 Recommendations

It should be appreciated that the desk study can only give an indication of the likely geotechnical and geoenvironmental conditions and, consequently, an intrusive investigation is recommended to confirm or otherwise the desk study findings.

The following proposed ground investigation scope has been developed from the above information:

- Three cable percussive boreholes sampler boreholes with standard penetration testing (SPT) to prove the location of rockhead
- Hand excavated inspection pits adjacent to the current school building foundation arrangements
- Installation of combined gas and groundwater monitoring standpipes in order to assess the potential for ground gases to be produced and also obtain information on groundwater levels
- Four post fieldwork monitoring visits in order to obtain gas and groundwater measurements and obtain groundwater samples
- Geotechnical laboratory testing including classification tests (plasticity index / grading), shear strength testing and consolidation testing for foundation design and tests to determine the potential aggressive nature of the ground affecting concrete durability (ie sulphates and pH).
- Geoenvironmental laboratory testing should be undertaken. Based on the CSM the chemical analysis suite should include as a minimum Heavy metals, cyanide, sulphide, extremes of pH, asbestos, phenol, oil / fuel hydrocarbons, aromatic hydrocarbons, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs). In addition leachate and groundwater testing should be undertaken in order to assess the risk to the aquifers below the site.
- A factual report to present the findings of the fieldwork and laboratory testing phases of the investigation.
- An interpretative report to provide recommendations for dealing with any geoenvironmental and geotechnical hazards encountered, and guidance on suitable foundations for the project development.

It should be appreciated that variations to this scope during the course of the investigation may become appropriate depending on the actual conditions encountered.



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**APPENDIX A
FIGURES AND DRAWINGS**

Site Location Plan
Proposed Development Layout

A1
A1184-06

DRAFT

Site Location Plan

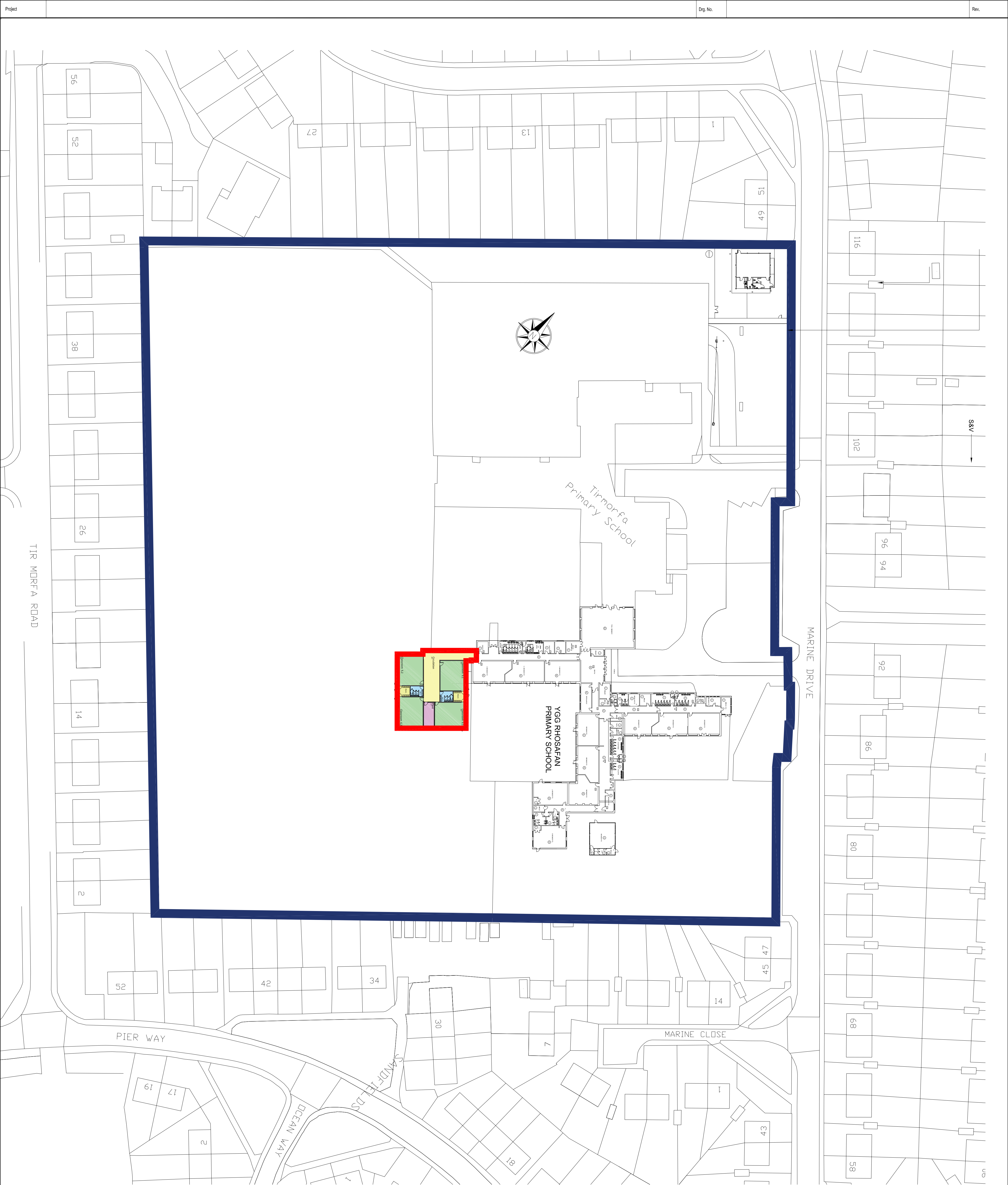


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Notes: Scale 1:50 000	Project YGG Rhosafan Primary School Project No. H9091-19 Carried out for Neath Port Talbot County Borough Council	Figure A1
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NOTES

1. All dimensions in millimetres unless otherwise stated.



Rev				Dr				Ch	Apr	Date
Details										
Project										
YGG Rhosafan Primary School										
Drawing Title										
SITE LAYOUT / LOCATION PLAN										
File No.		Property Ref. No.								
Drawn	WGH	Checked		Approved						
Date	NOV 2019	Date		Date						
Scales	1:500									
Drawing No.		A1184 - 06								

 Neath Port Talbot Caerli-neidd Port Talbot County Borough Council Cynor Bwrdeistref Sirol		<i>Making a difference</i> <i>Gwahaniaeth er gwell</i>	
PROPERTY & REGENERATION Gareth Nutt B.Sc(Hons), M.Sc., DMS, FRICS CORPORATE DIRECTOR OF ENVIRONMENT THE QUAYS, BRUNEL WAY BAGLAN ENERGY PARK SA41 2GG www.npt.gov.uk			



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Castell-nedd Port Talbot
County Borough Council Cynghor Swyddfa'r Bwrdeistref

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CORPORATE DIRECTOR OF ENVIRONMENT
THE QUAYS, BRUNEL WAY
BAGLAN ENERGY PARK SA11 2GG
www.npt.gov.uk



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APPENDIX B
HISTORICAL ORDNANCE SURVEY MAP EXTRACTS

1880 to 2003
1884 to 1965
1980 to 2010

1: 2,500 and 1:1,250
1 : 10,560
1 : 10,000

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Site Details:

YSGOL RHOSAFAN,
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SCHOOL, MARINE DRIVE,
SANDFIELDS, SA12 7NN

Client Ref: H9092-19
Report Ref: GS-6477202
Grid Ref: 273940, 190443

Map Name: County Series

Map date: 1880

Scale: 1:2,500

Printed at: 1:2,500



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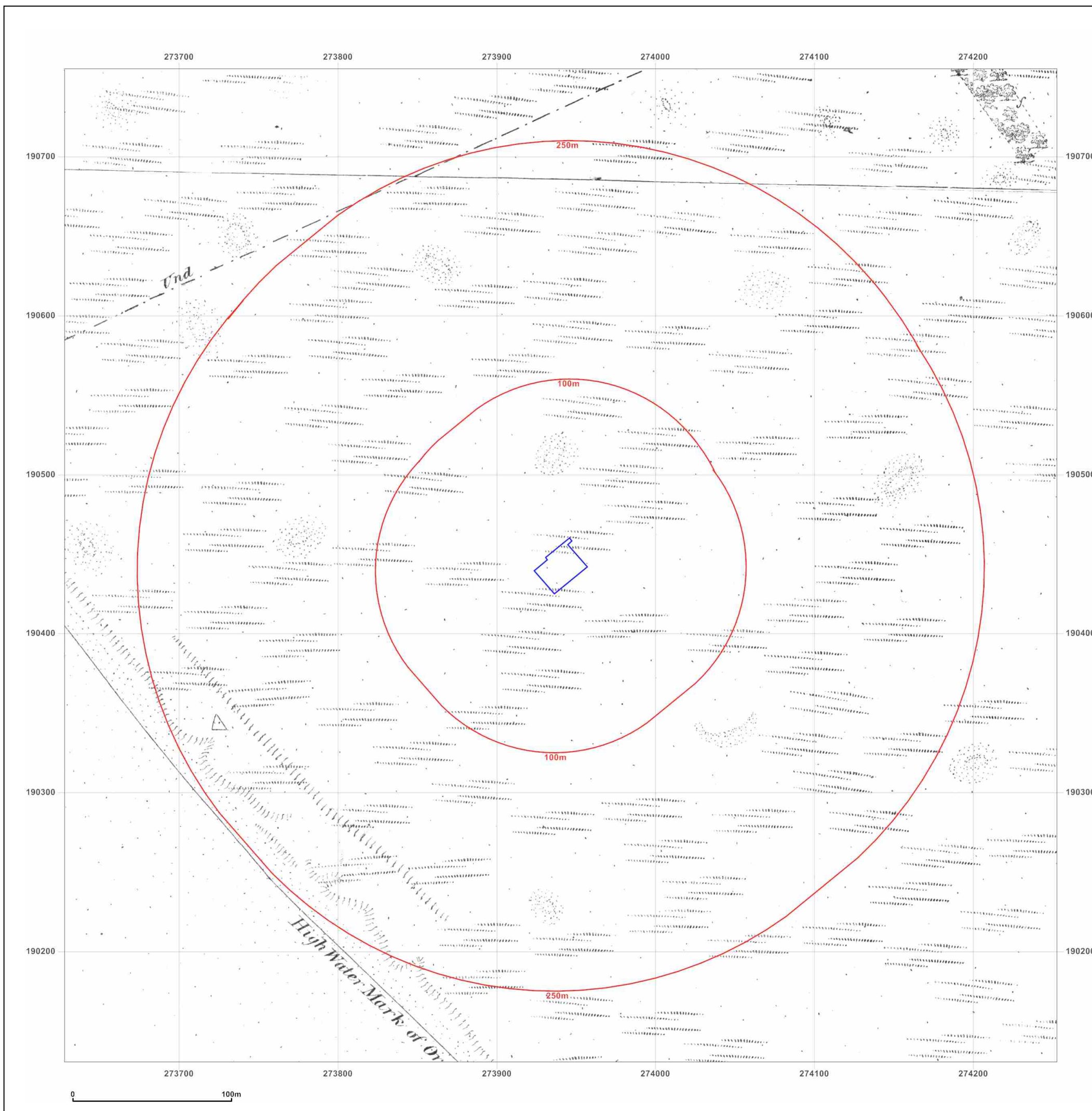


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Site Details:

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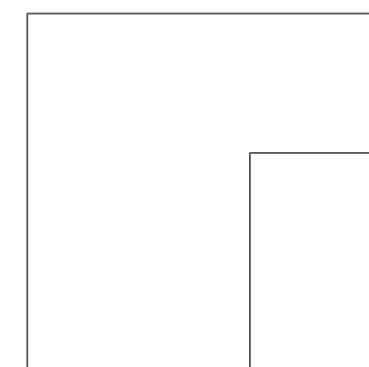
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Map date: 1956

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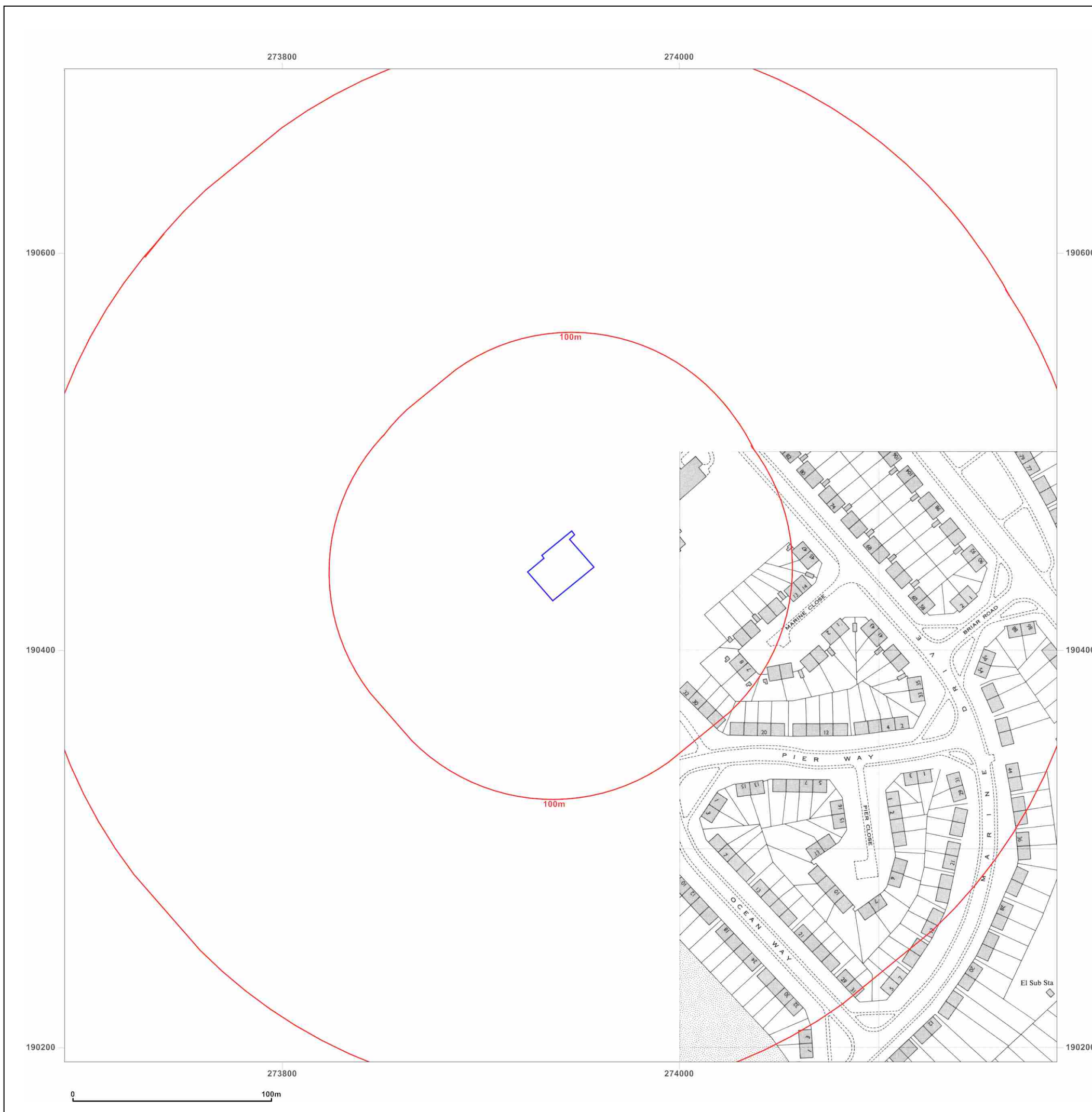


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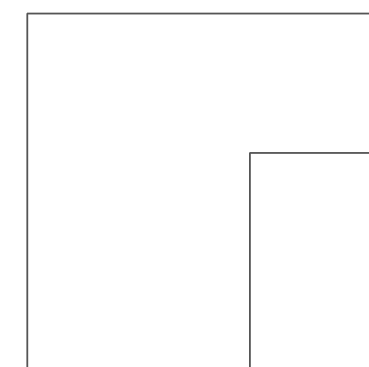
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Map Name: National Grid

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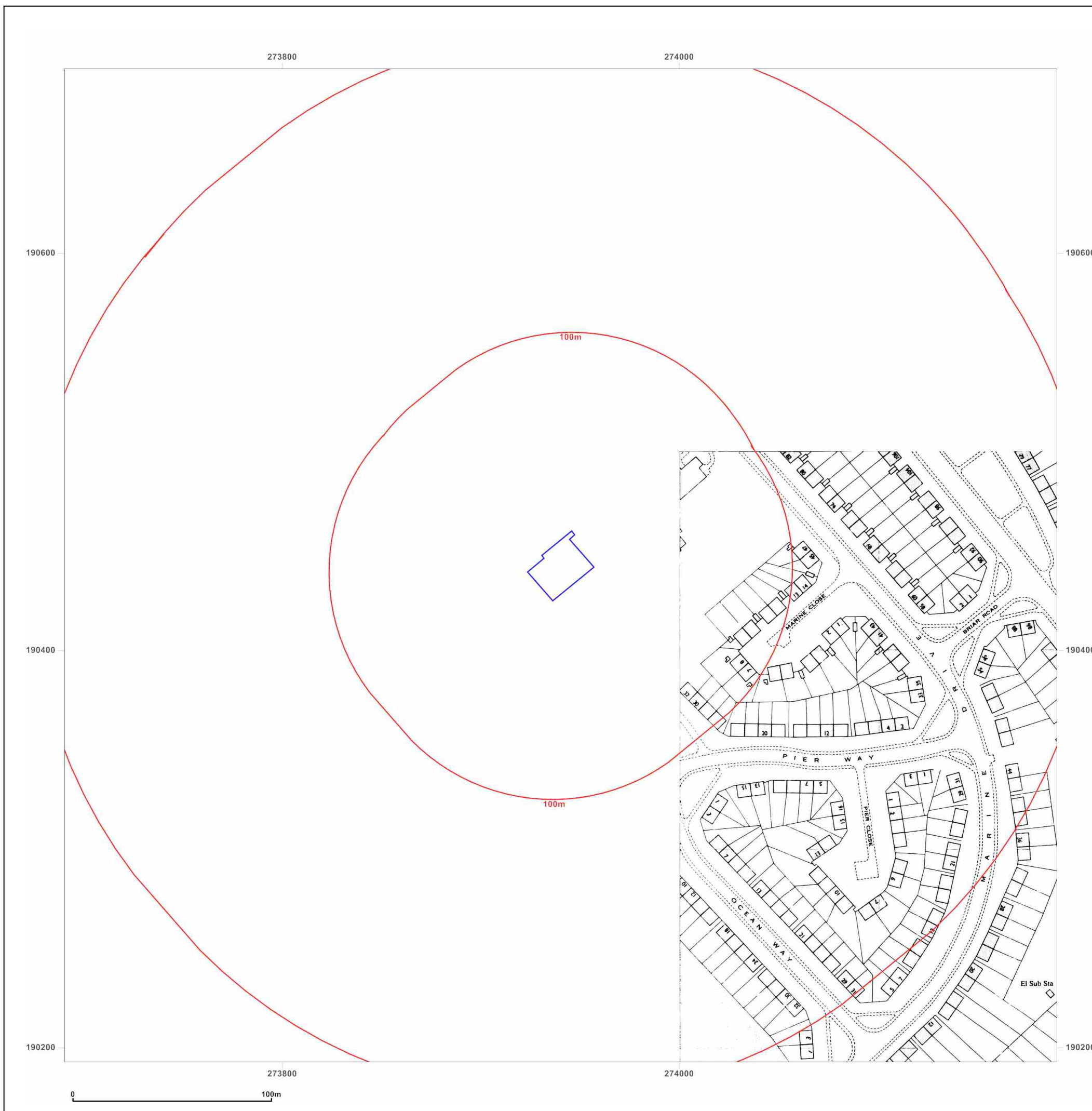


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Map Name: National Grid

Map date: 1963-1965

Scale: 1:1,250

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Edition N/A
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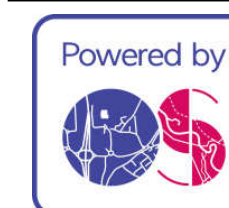
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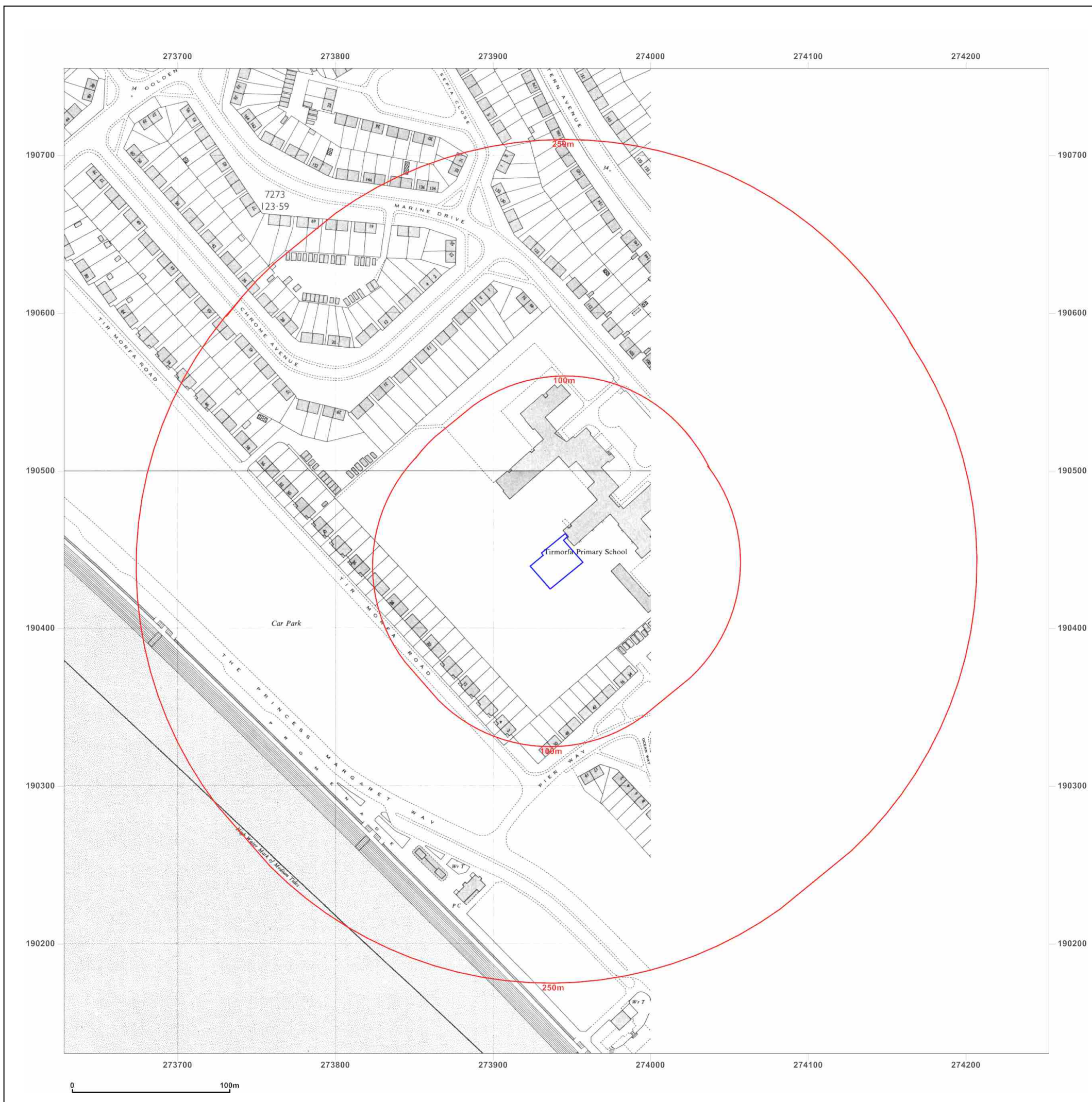


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Map Name: National Grid

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Surveyed N/A
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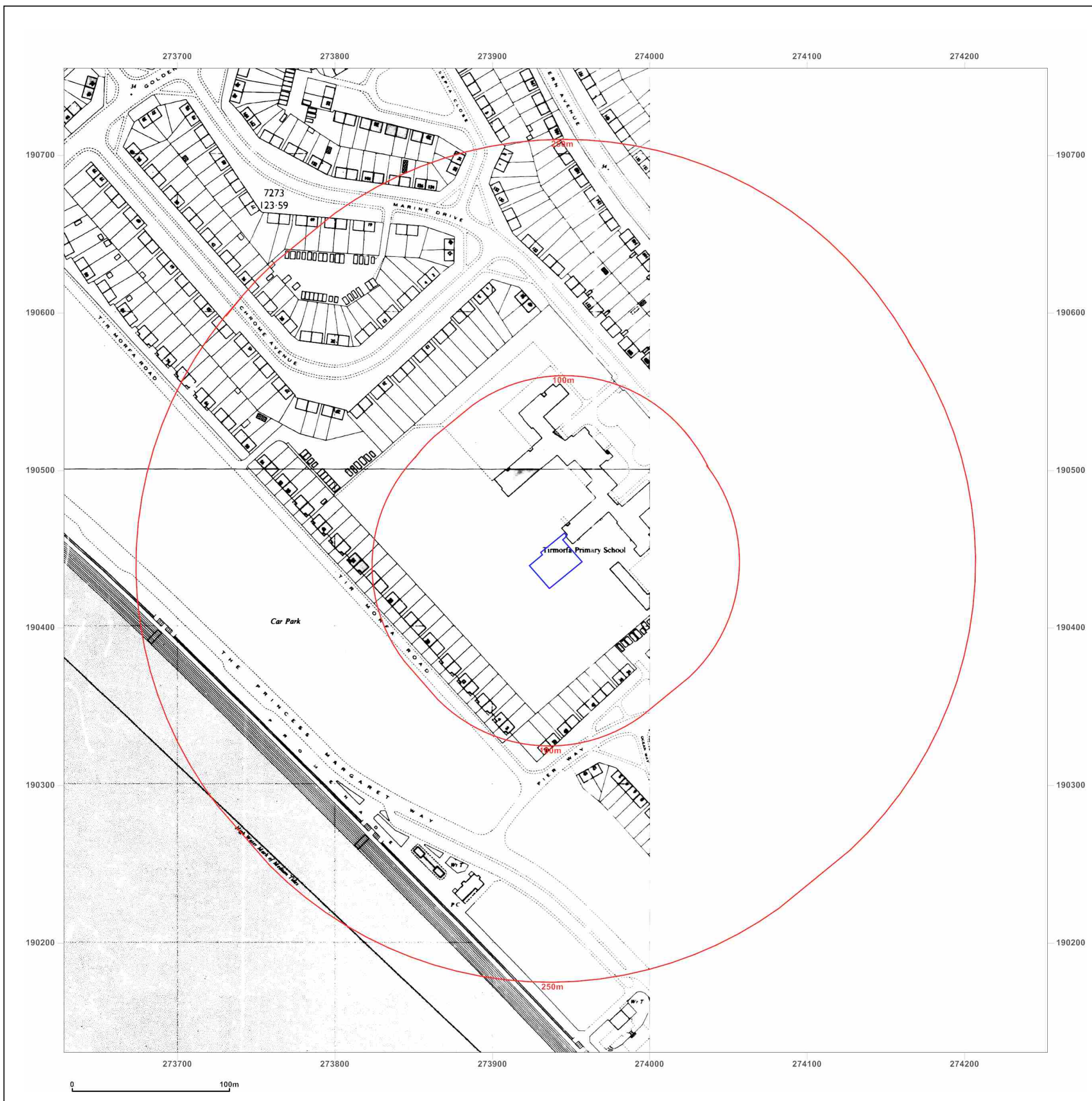


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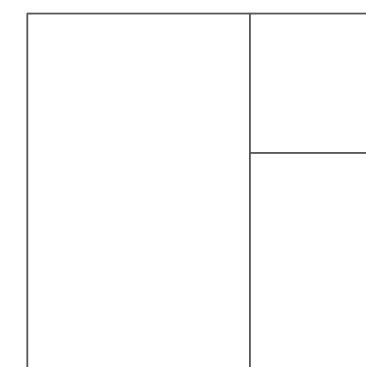
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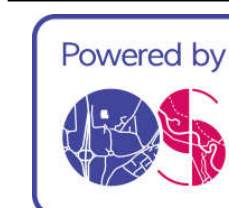
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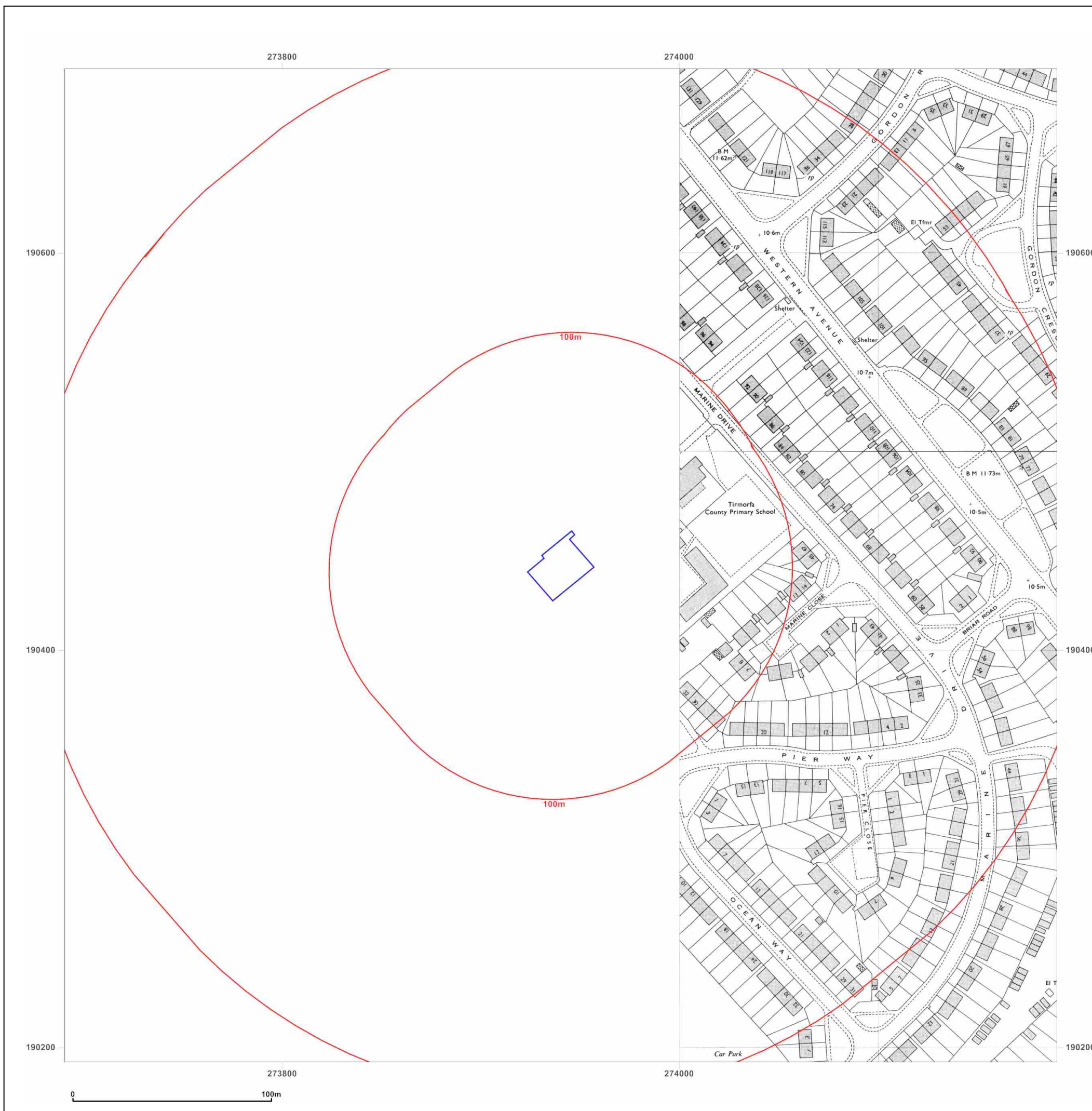


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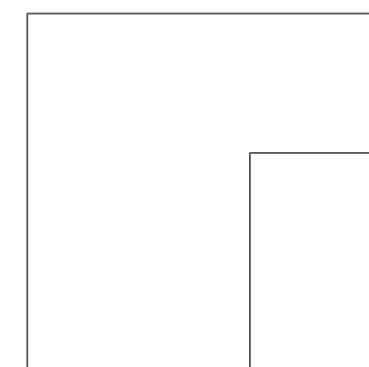
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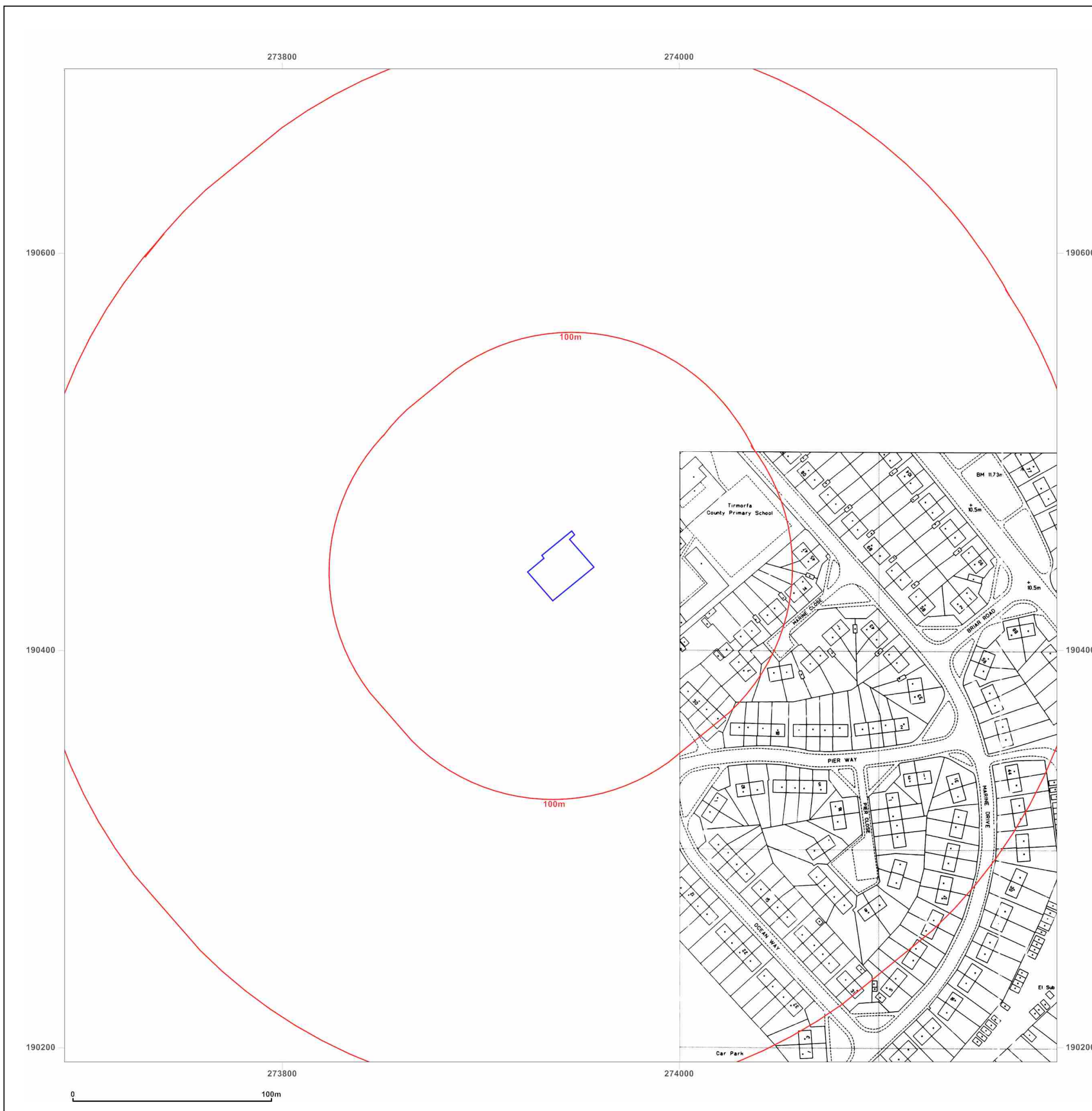


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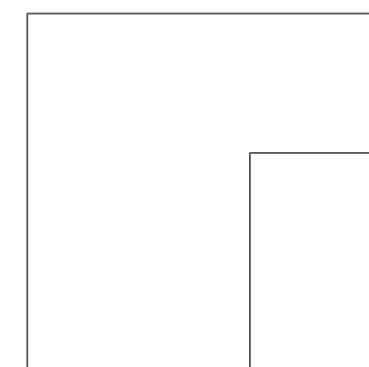
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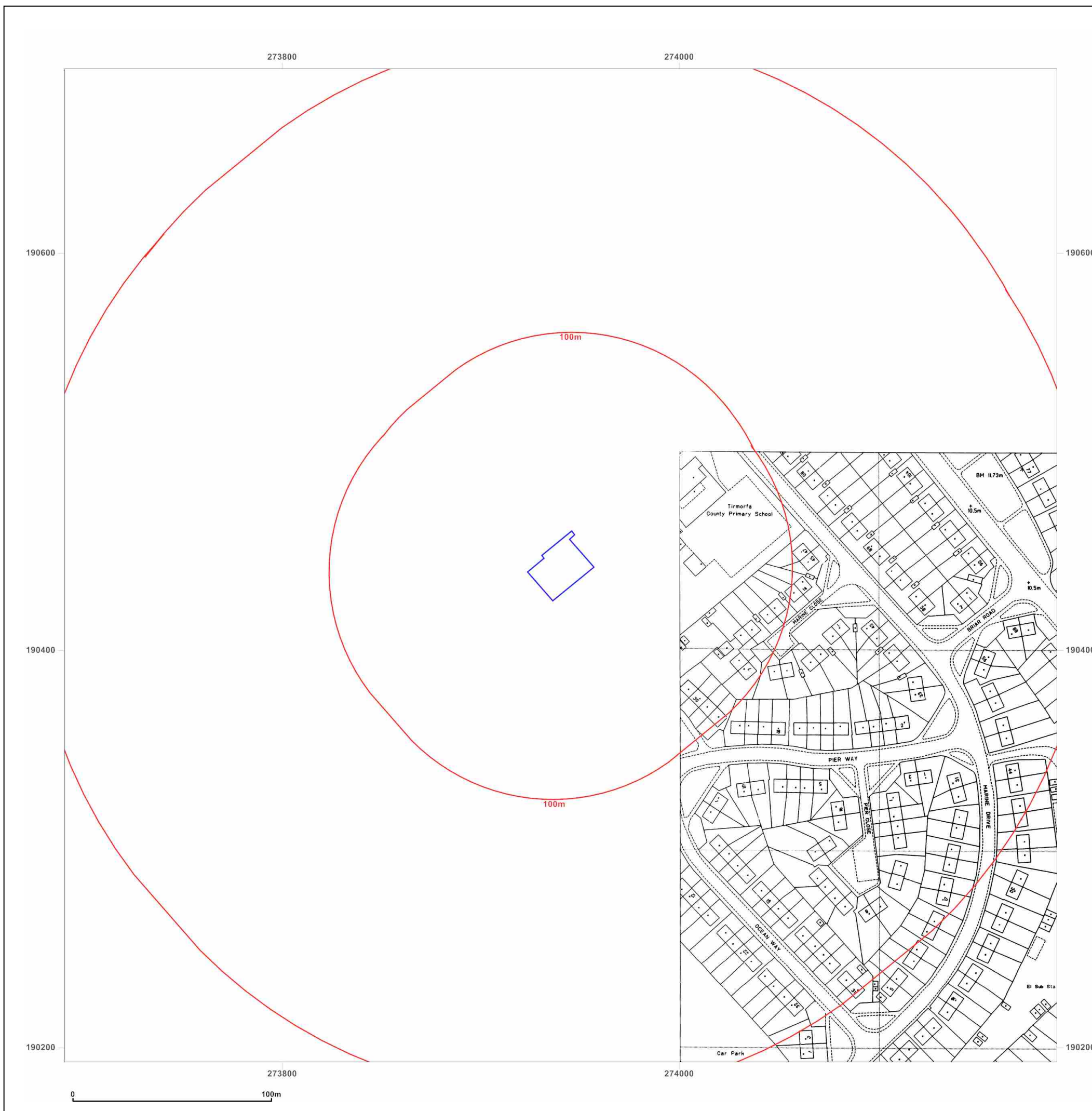


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2003

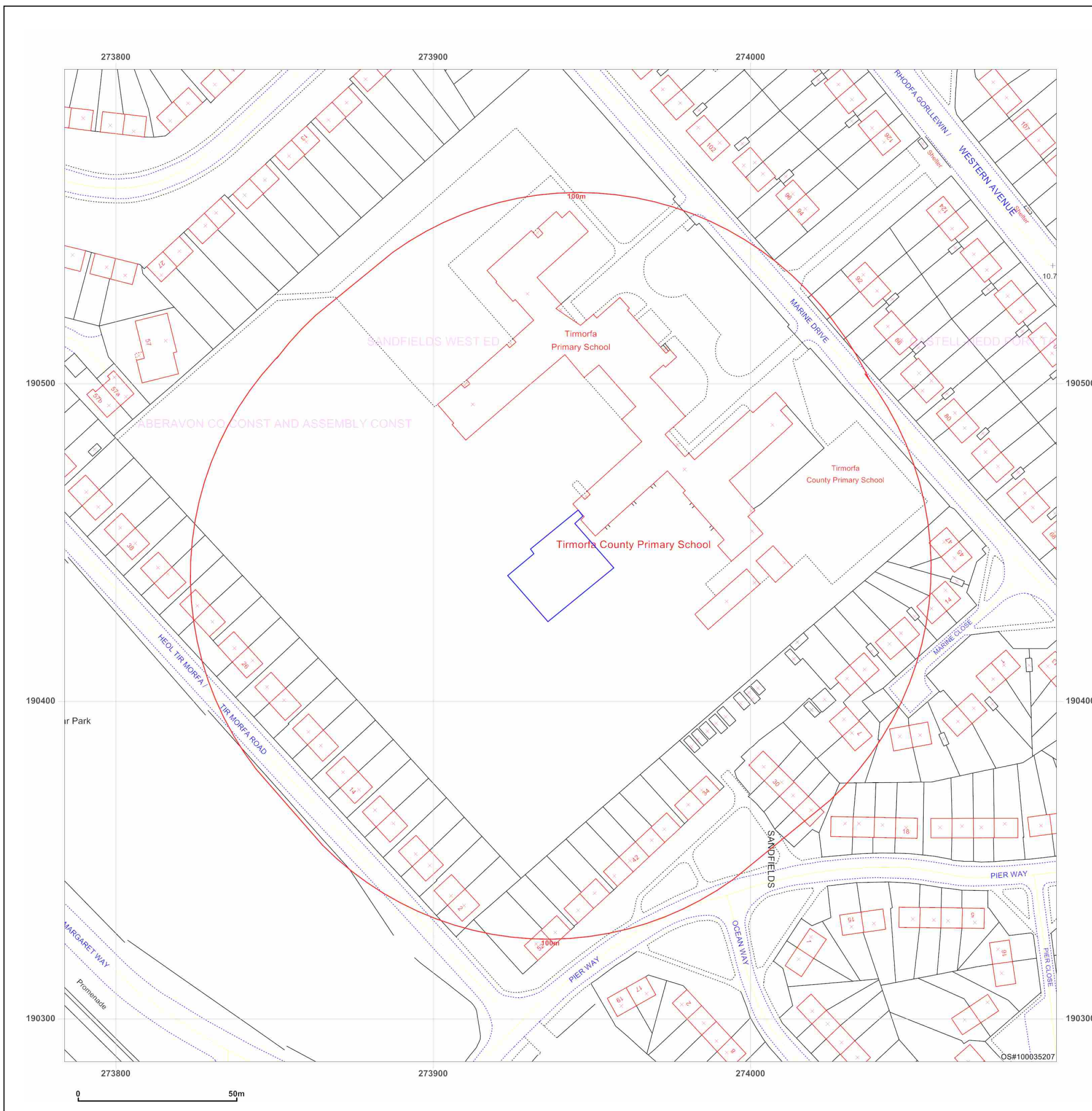


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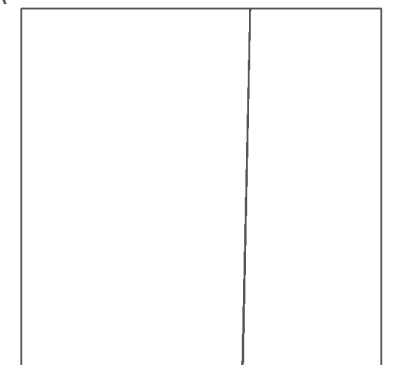
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Revised N/A
Edition 1884
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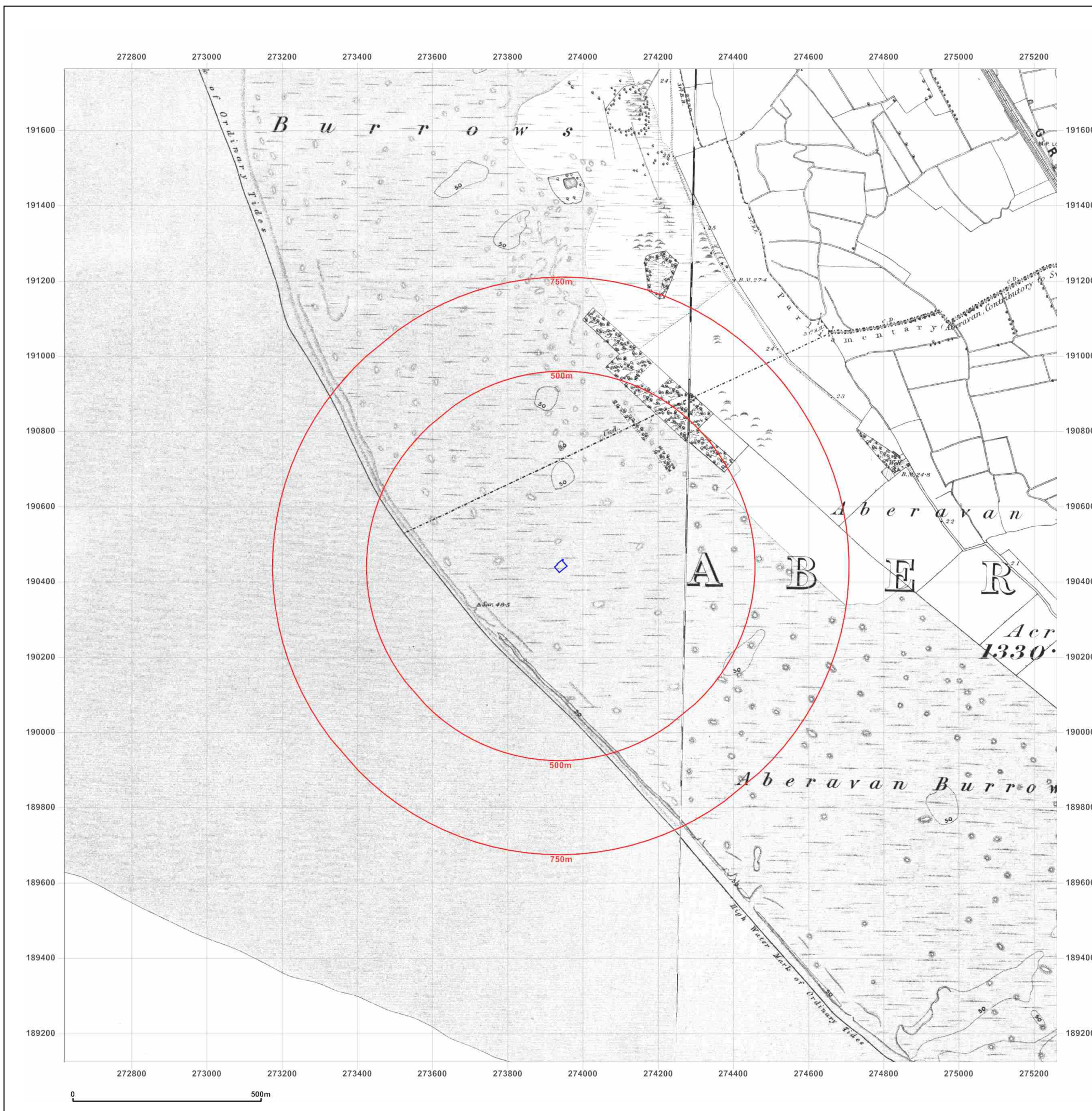


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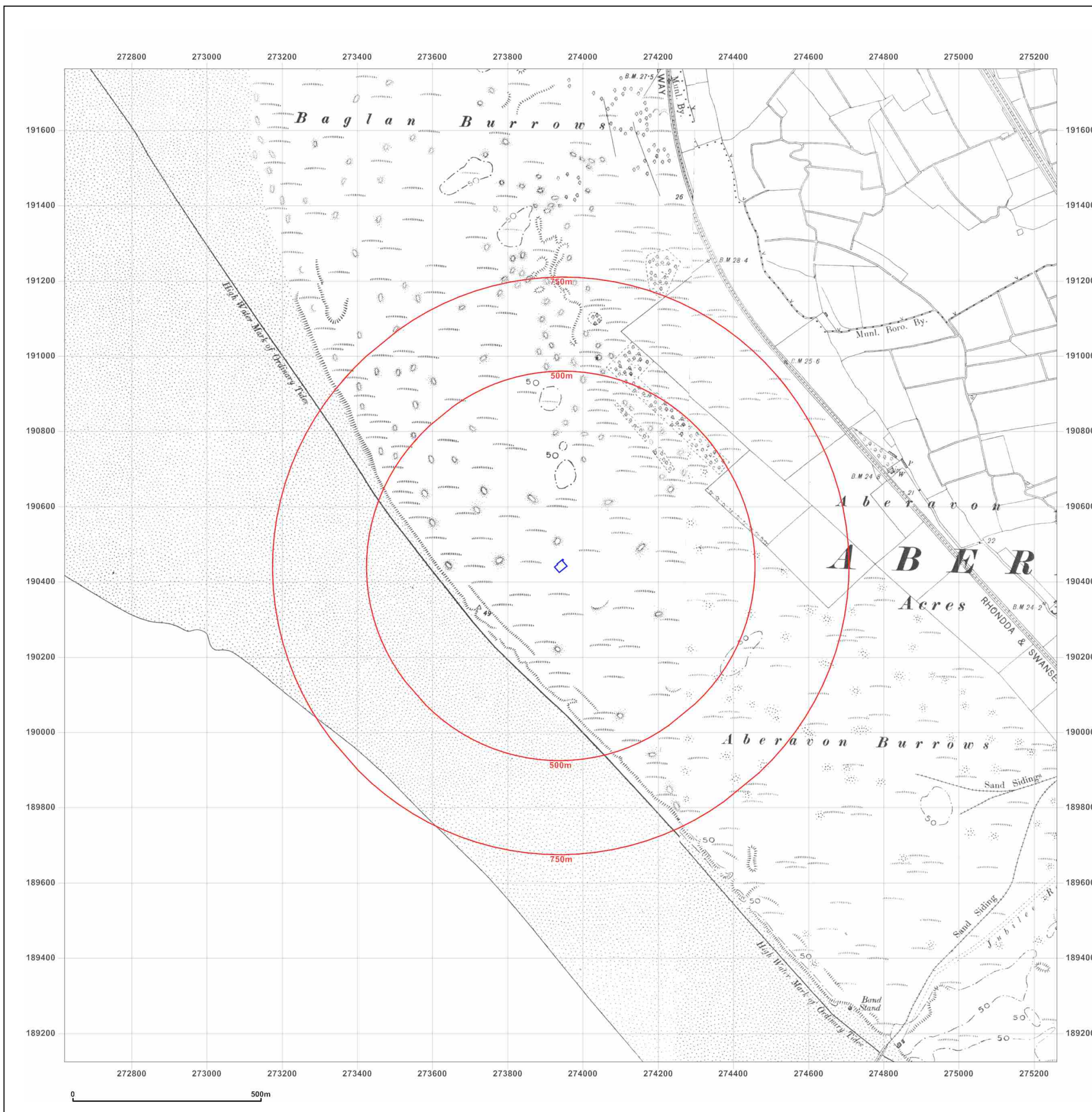


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Map Name: County Series

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Printed at: 1:10,560



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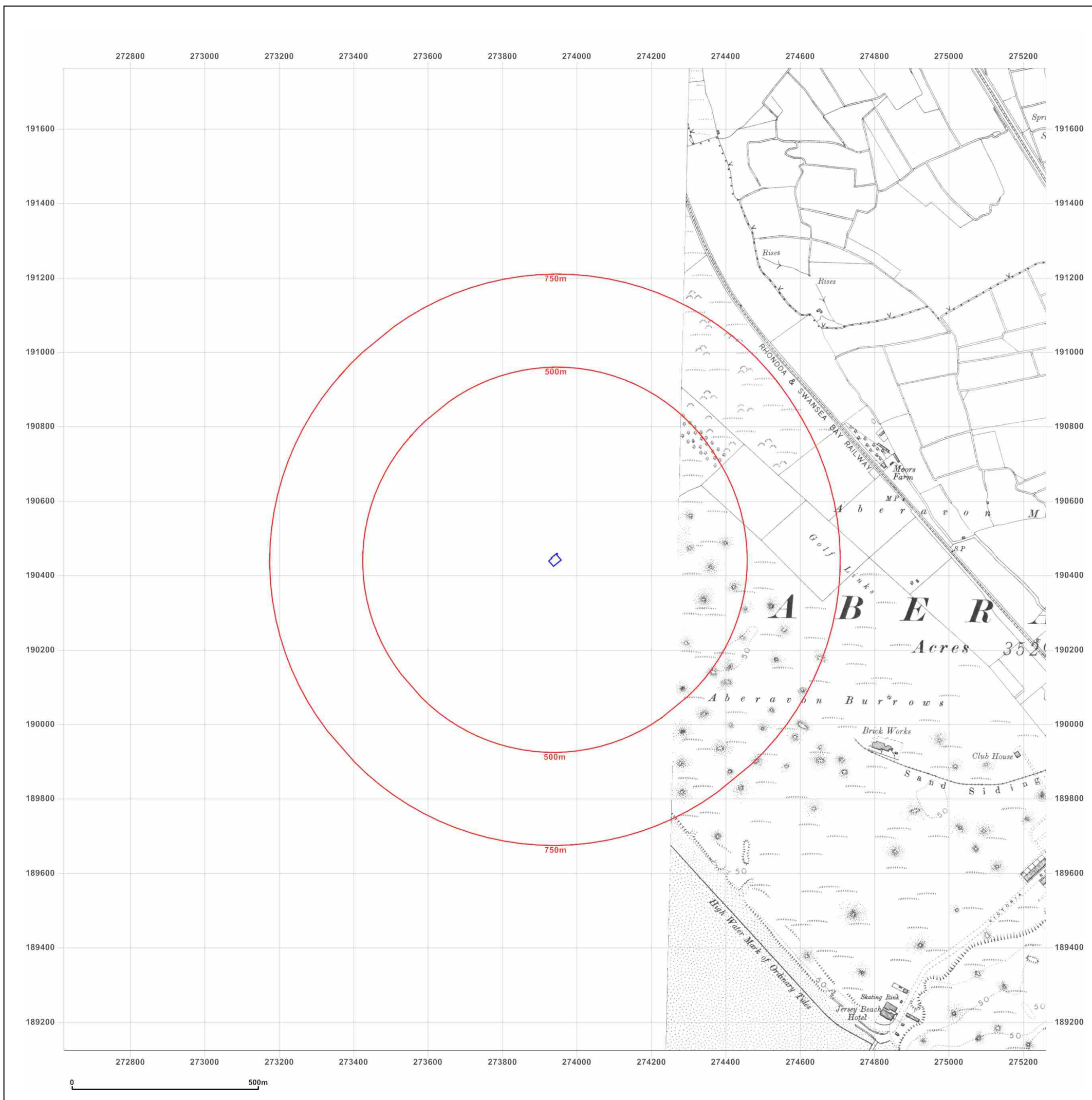


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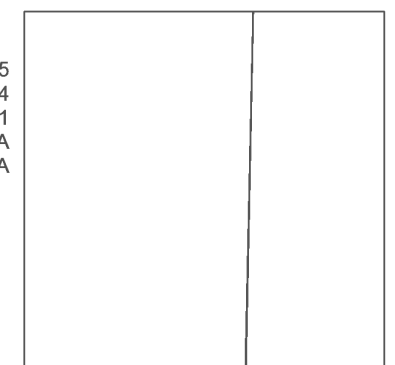
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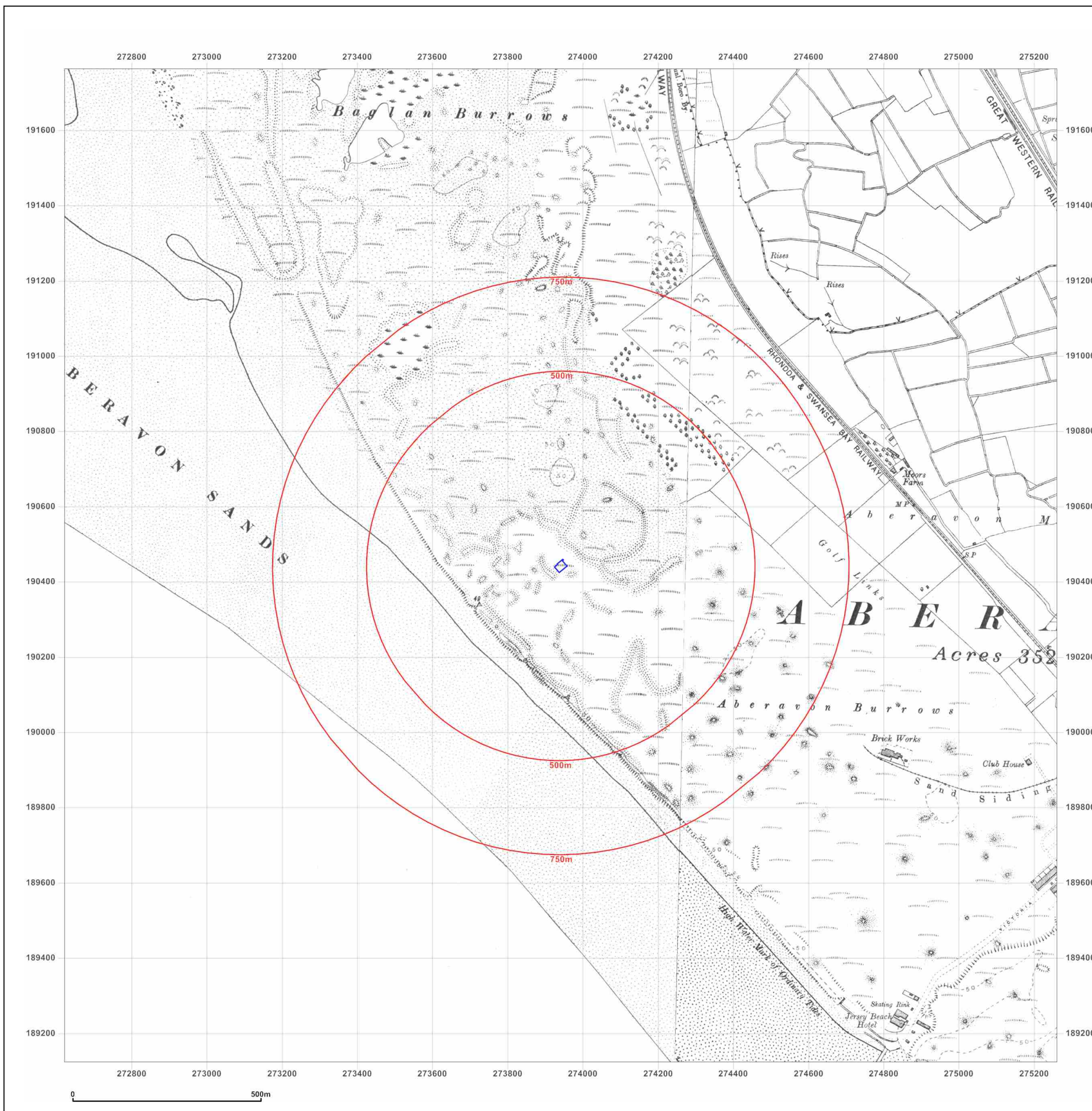


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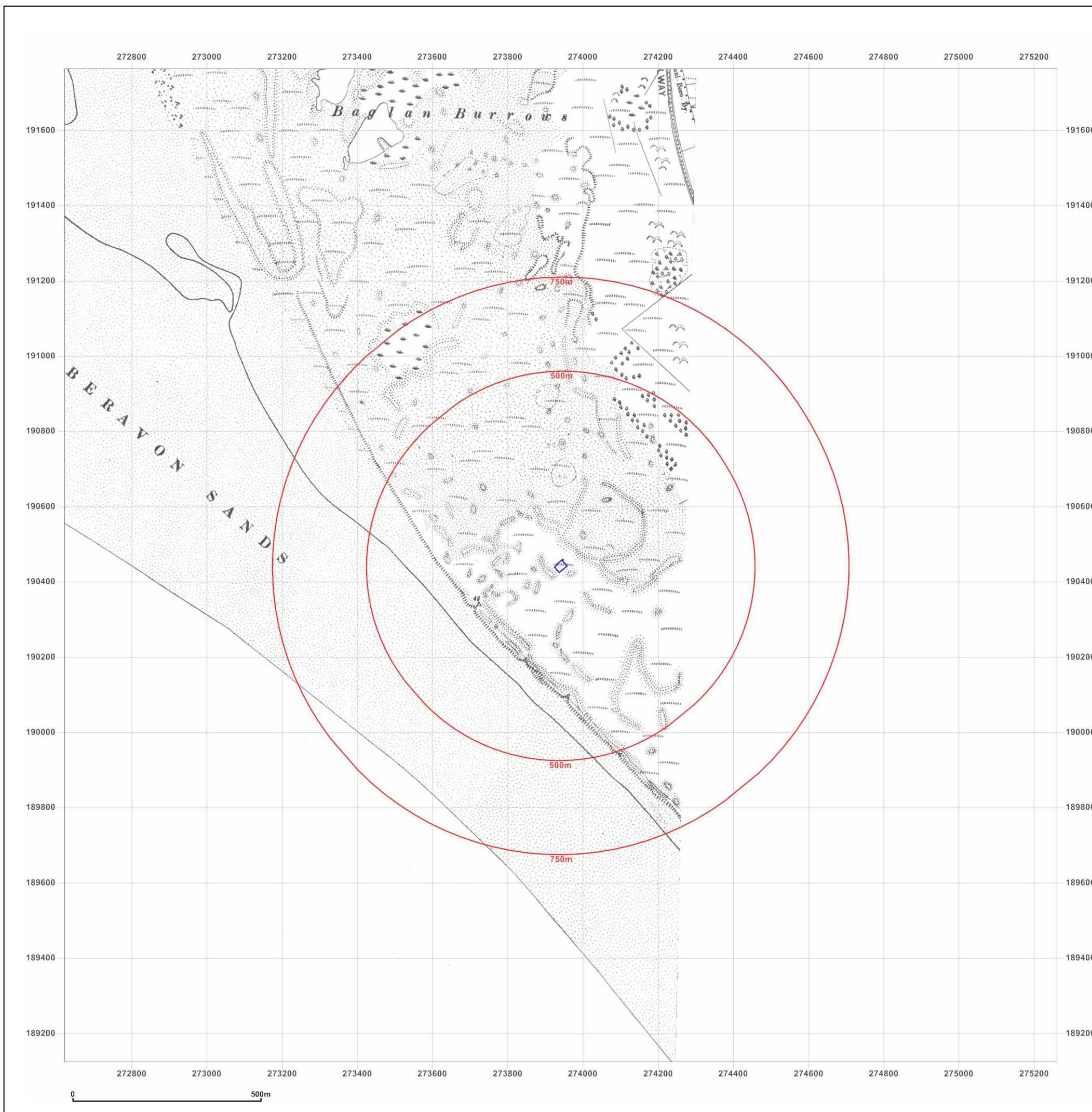


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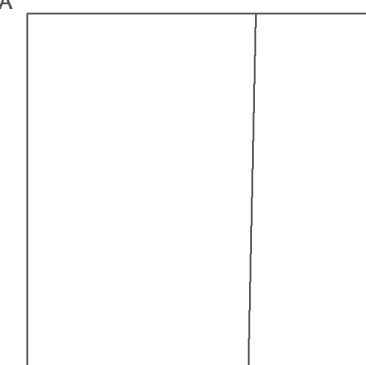
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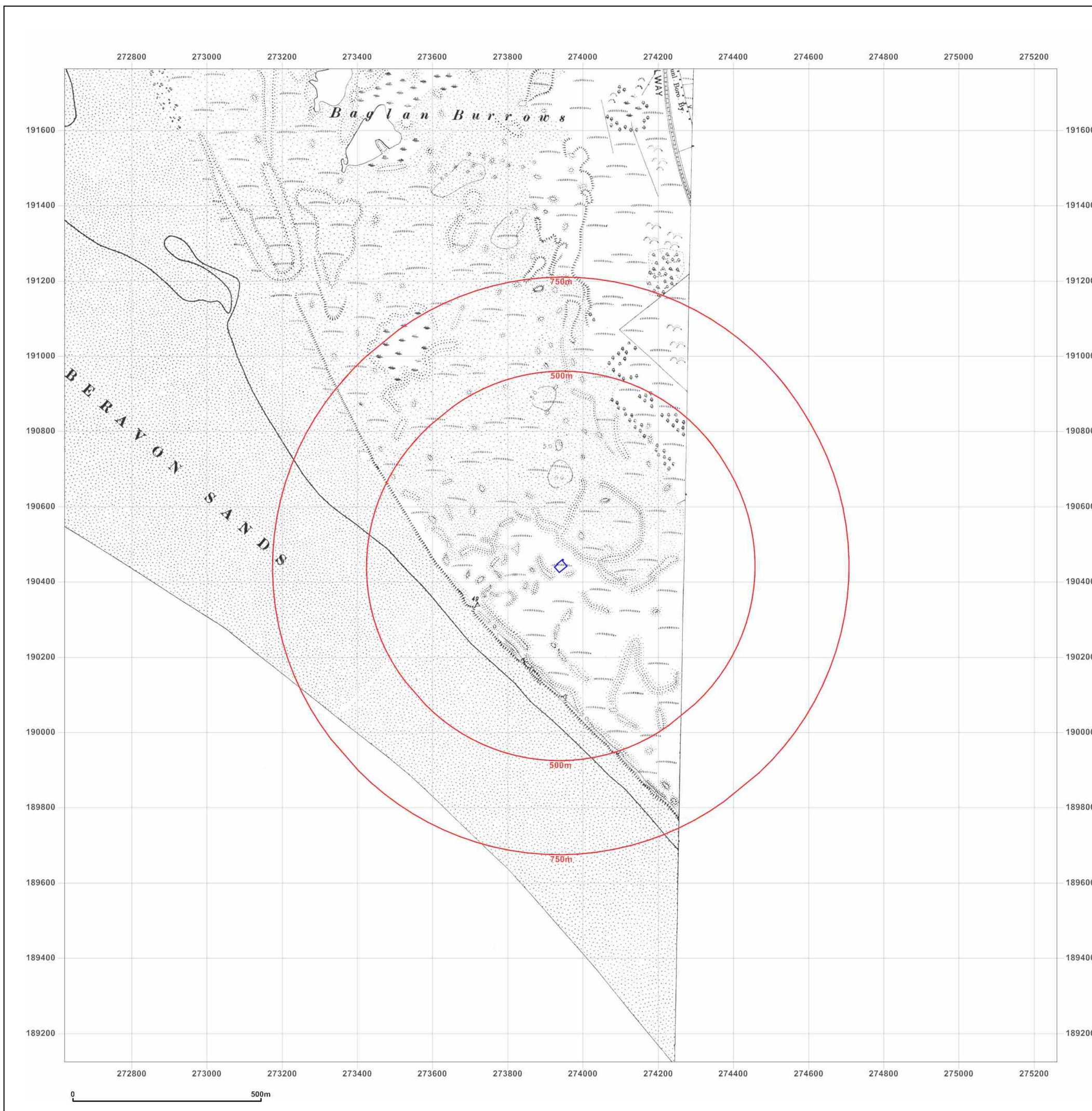


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Printed at: 1:10,560



Surveyed 1875
Revised 1947
Edition N/A
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Surveyed 1875
Revised 1947
Edition N/A
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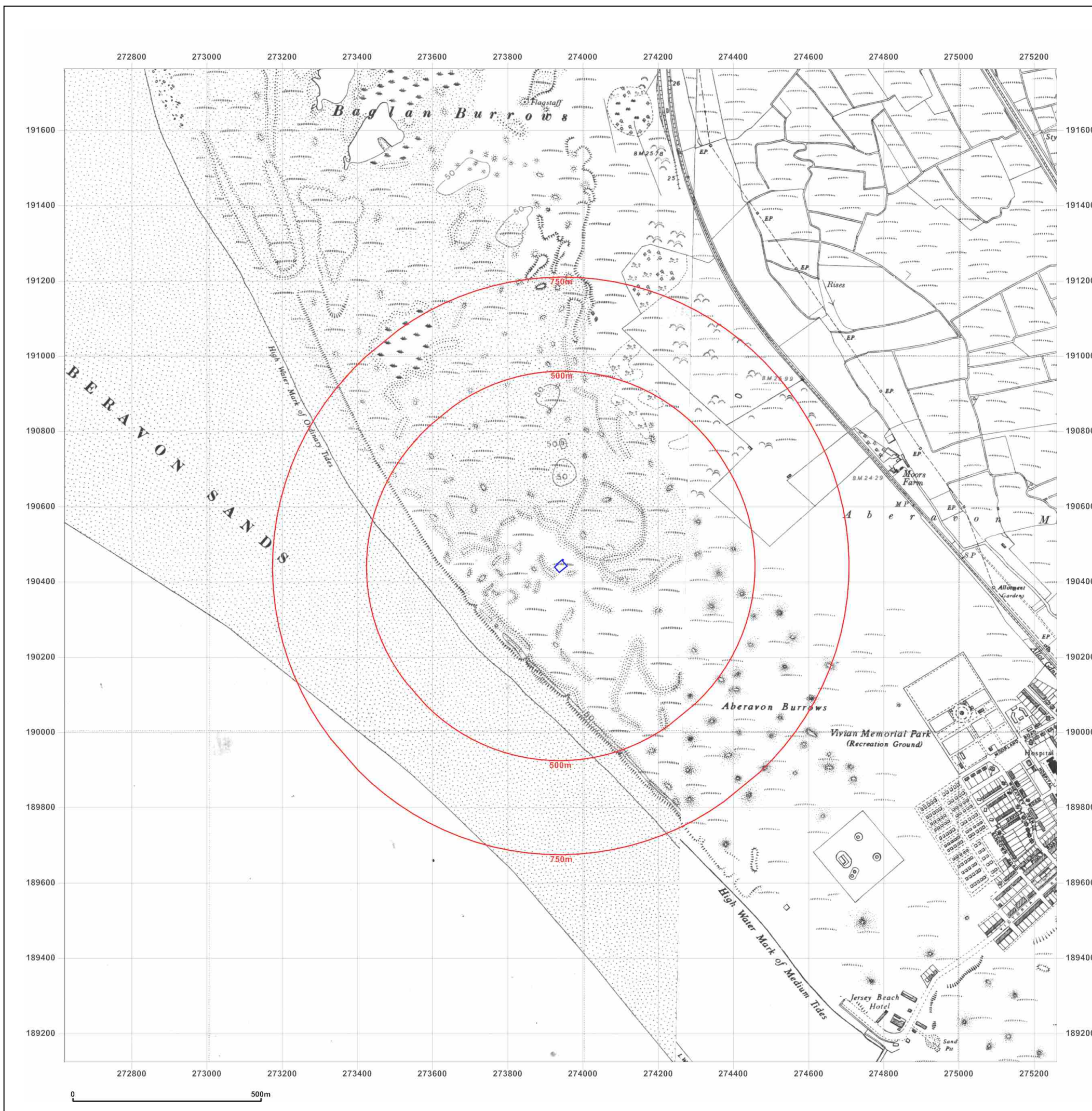


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Site Details:

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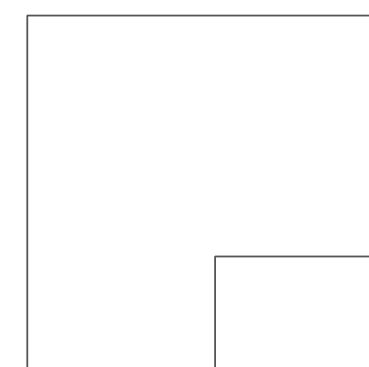
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Report Ref: GS-6477202
Grid Ref: 273940, 190443

Map Name: Provisional

Map date: 1965

Scale: 1:10,560

Printed at: 1:10,560



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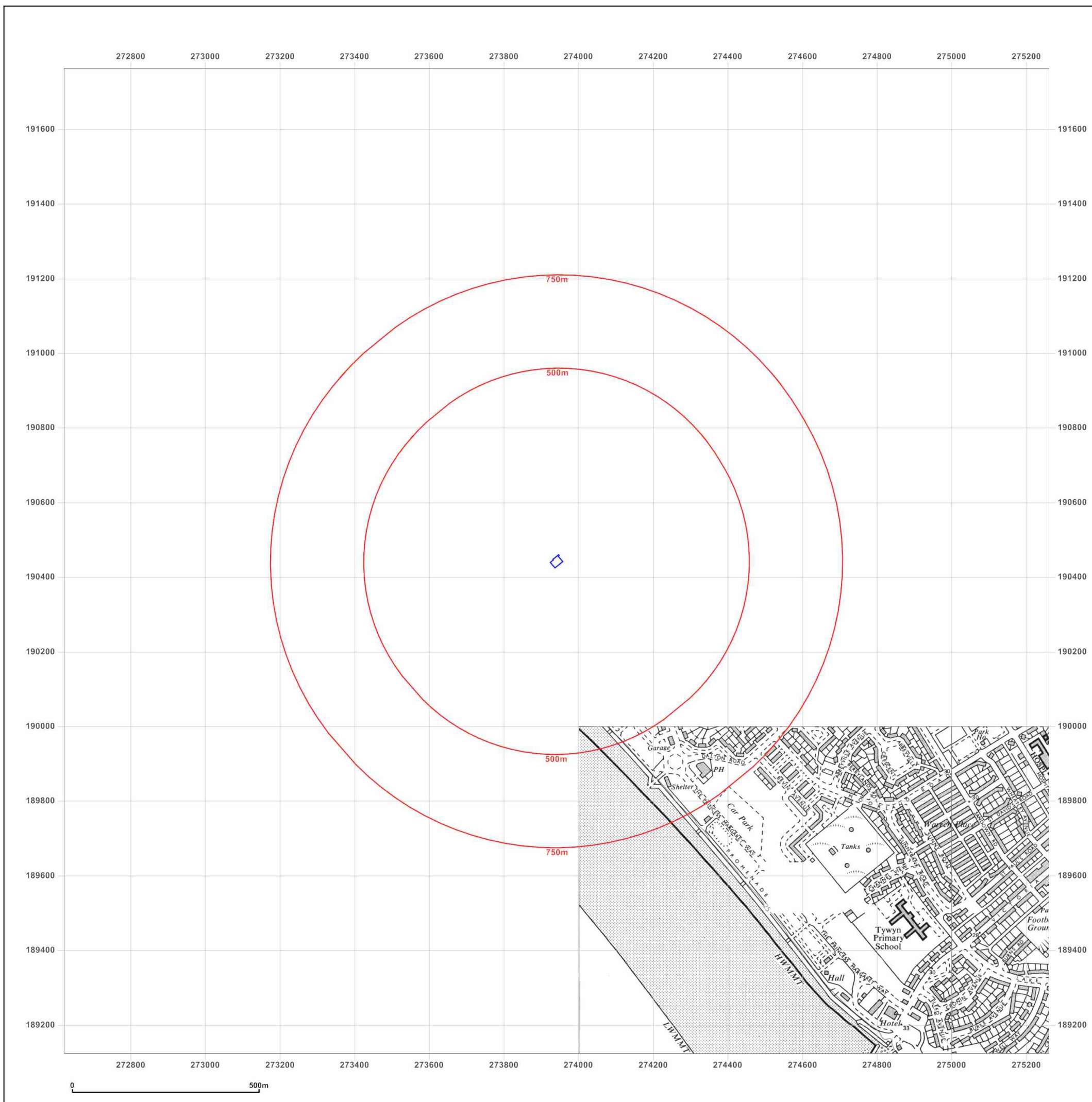


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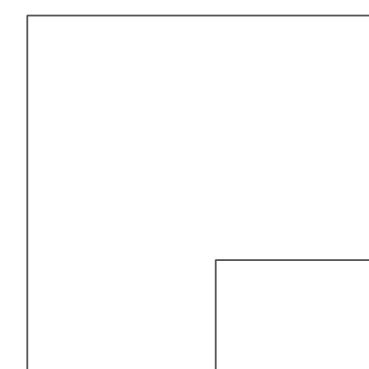
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Grid Ref: 273940, 190443

Map Name: National Grid

Map date: 1982

Scale: 1:10,000

Printed at: 1:10,000



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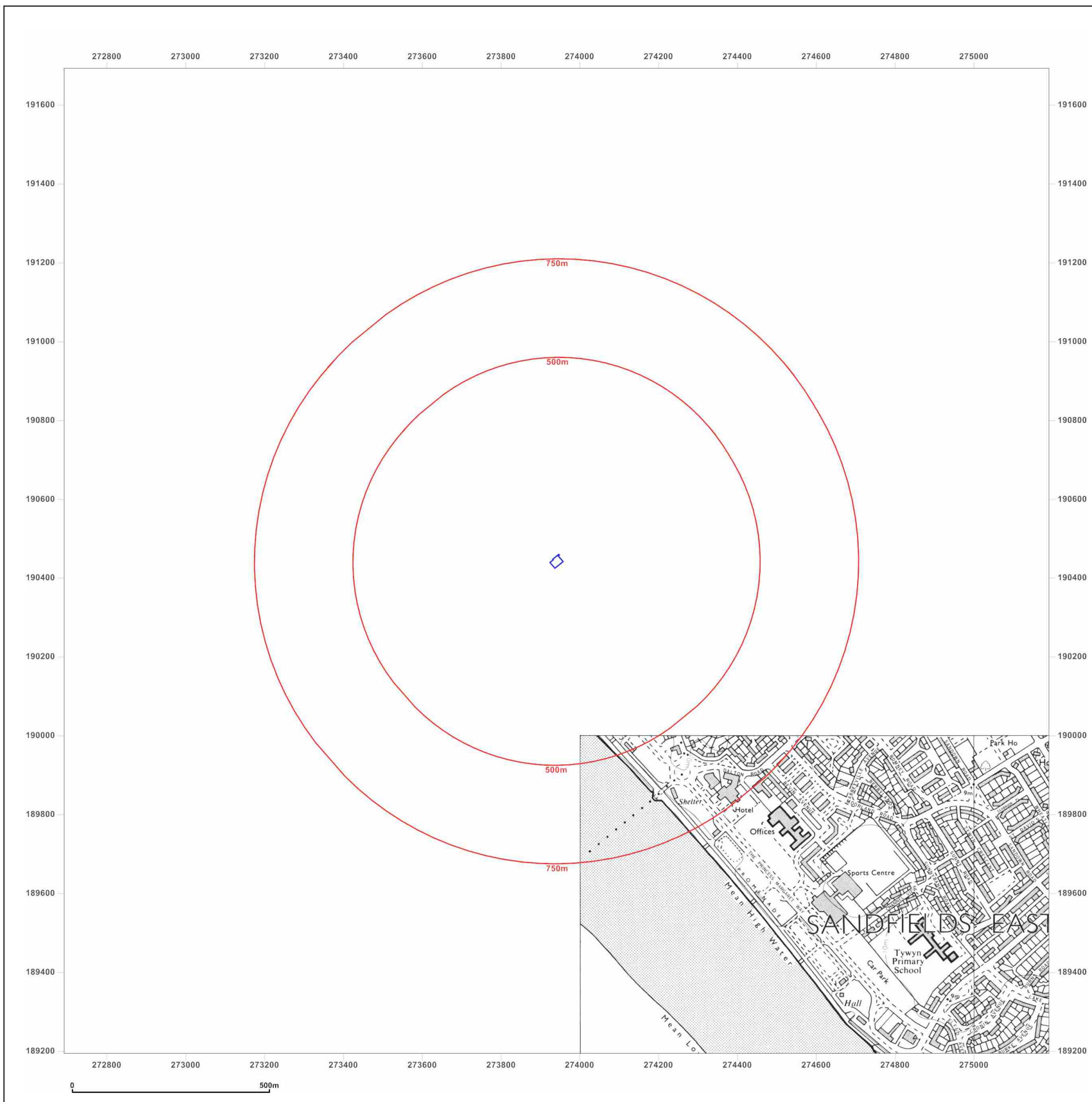


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Site Details:

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SCHOOL, MARINE DRIVE,
SANDFIELDS, SA12 7NN

Client Ref: H9092-19
Report Ref: GS-6477202
Grid Ref: 273940, 190443

Map Name: National Grid

Map date: 1993-1995

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1977
Revised 1995
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1991
Revised 1991
Edition N/A
Copyright 1993
Levelled N/A

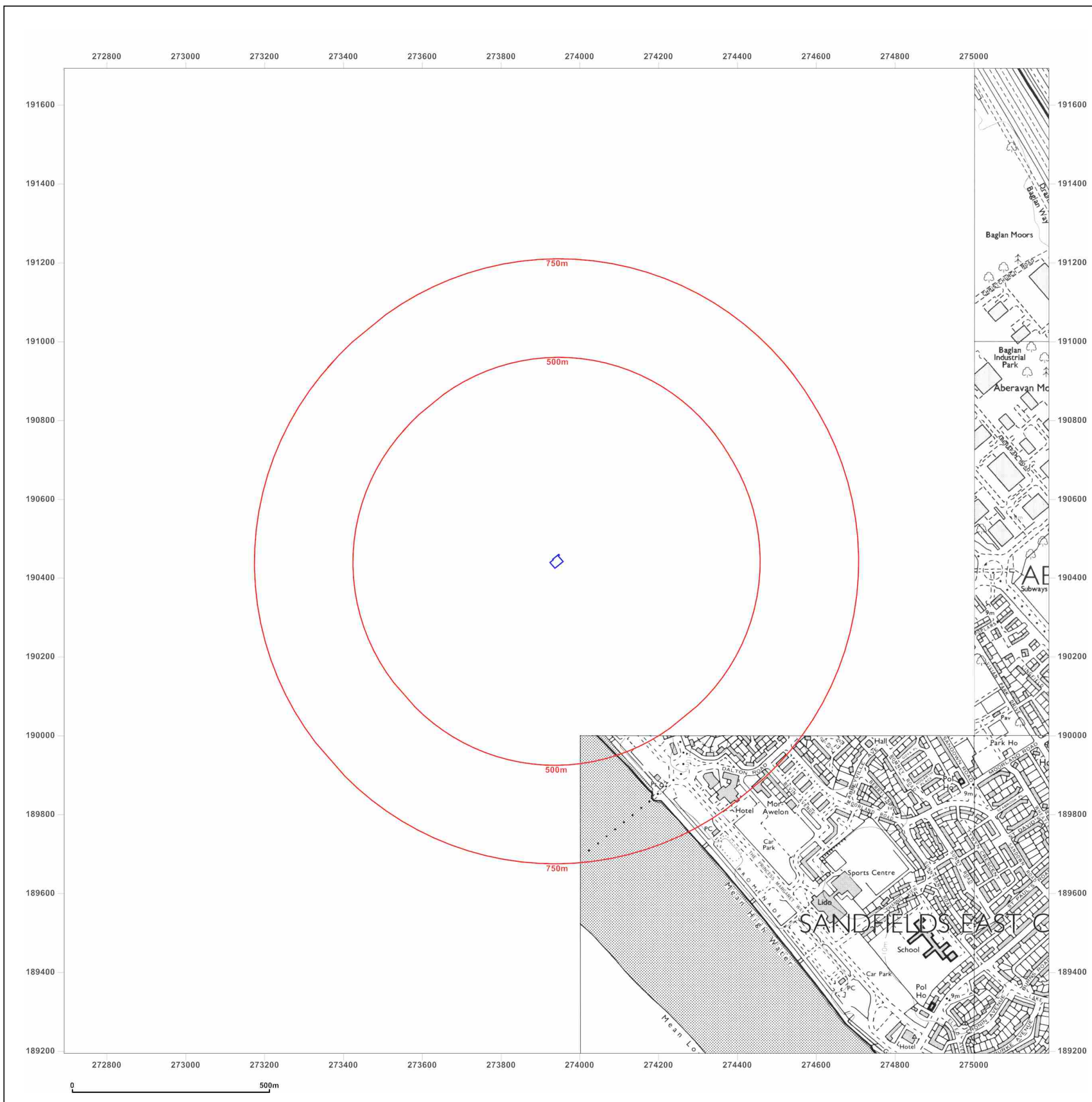


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Site Details:

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SCHOOL, MARINE DRIVE,
SANDFIELDS, SA12 7NN

Client Ref: H9092-19
Report Ref: GS-6477202
Grid Ref: 273940, 190443

Map Name: National Grid

Map date: 2019

Scale: 1:10,000

Printed at: 1:10,000



2019

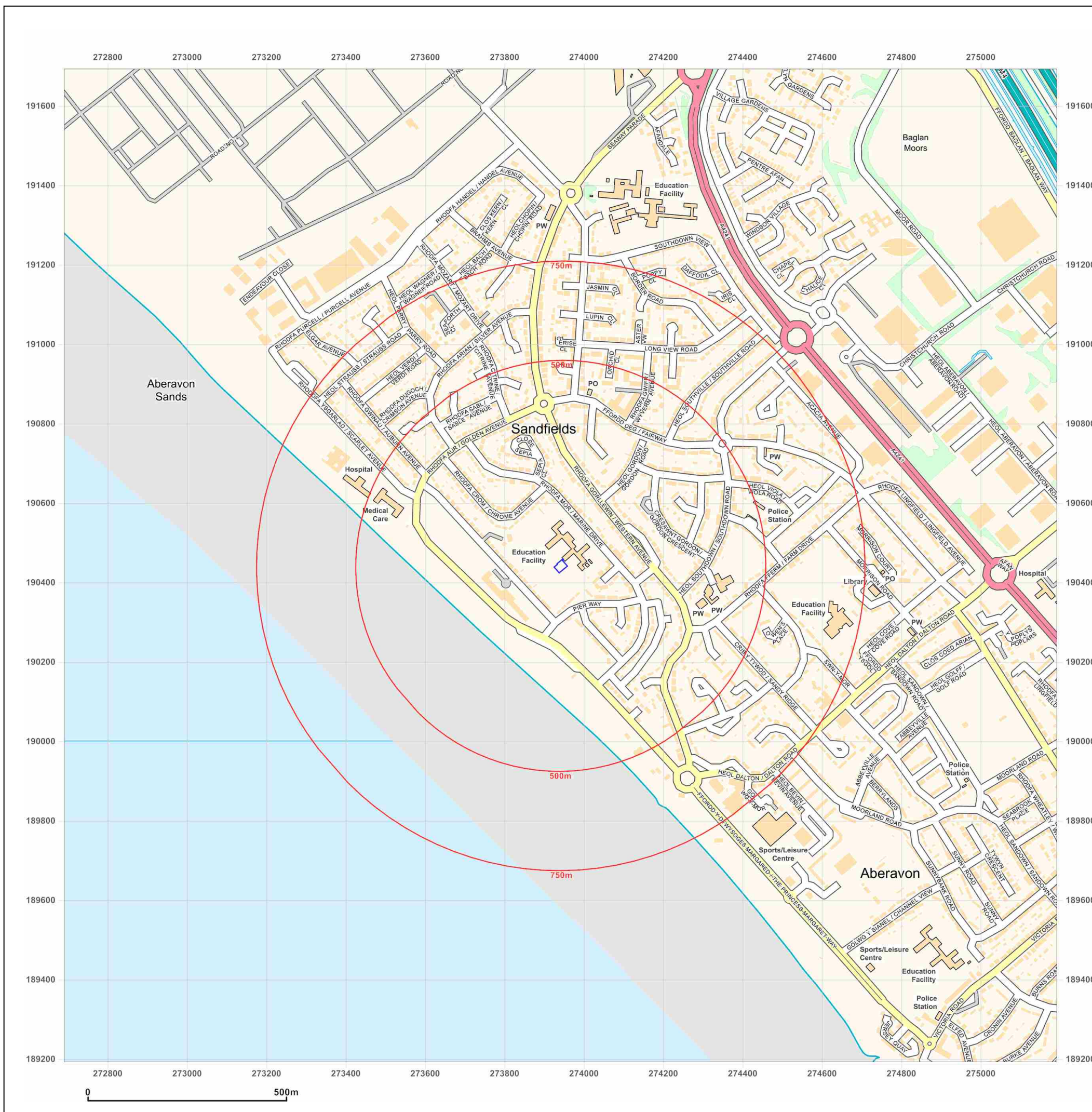


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SOCOTEC

APPENDIX C
GROUNDsure ENVIRO INSIGHT

Groundsure Enviro Insight Report

GS-6477200

DRAFT



SOCOTEC UK Limited

ASKERN ROAD, CARCROFT,
DONCASTER, DN6 8DG

Groundsure
Reference:

GS-6477200

Your Reference: H9092-19

Report Date

21 Nov 2019

Report Delivery Method: Email - pdf

Enviro Insight

Address: YSGOL RHOSAFAN, RHOSAFAN WELSH PRIMARY SCHOOL, MARINE DRIVE, SANDFIELDS,
SA12 7NN

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Address: YSGOL RHOSAFAN, RHOSAFAN WELSH PRIMARY SCHOOL, MARINE DRIVE,
SANDFIELDS, SA12 7NN

Date: 21 Nov 2019

Reference: GS-6477200

Client: SOCOTEC UK Limited

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 26-May-2017

Grid Reference: 273941,190441

Site Size: 0.0556ha

Report Reference: GS-6477200

Client Reference: H9092-19

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	2	2
1.2 Additional Information – Historical Tank Database	N/A	N/A	N/A	N/A
1.3 Additional Information – Historical Energy Features Database	N/A	N/A	N/A	N/A
1.4 Additional Information – Historical Petrol and Fuel Site Database	N/A	N/A	N/A	N/A
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	N/A	N/A	N/A	N/A
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	2	1
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	1	5
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	1
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	7

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	4	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	Identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology				0-500m		
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site				Identified		
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site				Identified		
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	0	0	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Environment Agency Zone 2 floodplains within 250m of the study site	Identified					
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified					
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low					
7.4 Flood Defences within 250m of the study site	None identified					
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified					
7.6 Areas used for Flood Storage within 250m of the study site	None identified					
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential below Surface					
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	High					

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards		
9.1 Maximum risk of natural ground subsidence		Negligible
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site		Negligible
9.1.2 Maximum Landslides hazard rating identified on the study site		Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site		Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site		Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site		Negligible
9.1.6 Maximum Running Sand hazard rating identified on the study site		Negligible
9.2 Radon		
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.	
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.	

Section 10: Mining	
10.1 Coal mining areas within 75m of the study site	Identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

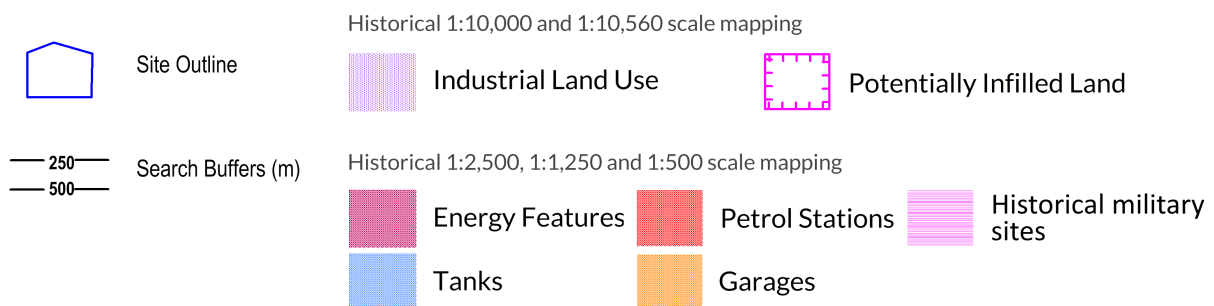
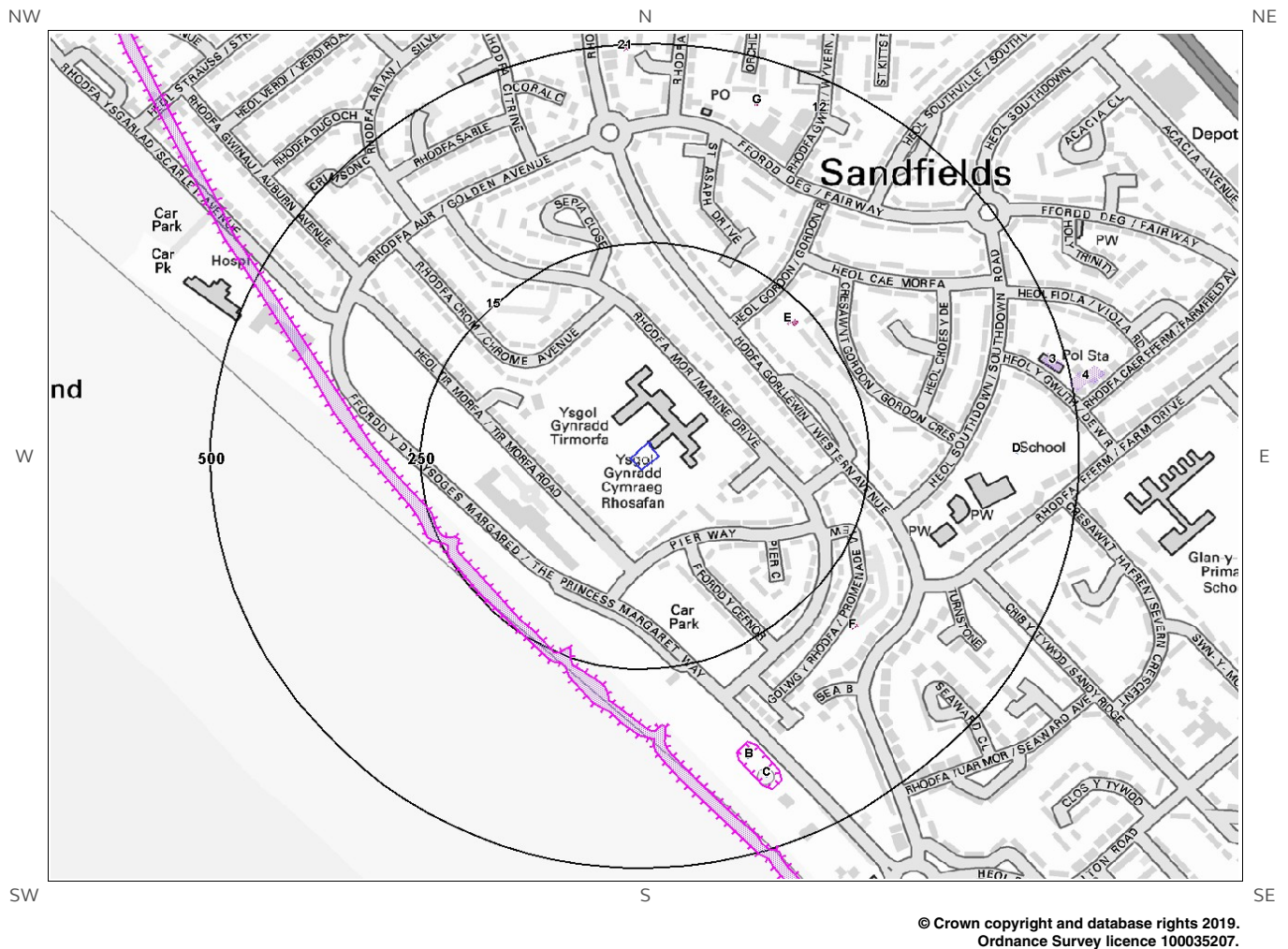
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 4

ID	Distance [m]	Direction	Use	Date
1A	228	SW	Unspecified Ground Workings	1914
2A	228	SW	Unspecified Ground Workings	1947
3	471	E	Police Station	1978
4	496	E	Police Station	1962

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

No data available in this area.

ID	Distance (m)	Direction	Use	Date
5B	381	S	Unspecified Tank	1976
6B	381	S	Unspecified Tank	1963
7C	410	S	Unspecified Tank	1976
8C	410	S	Unspecified Tank	1963
9D	425	E	Unspecified Tank	1976
10D	425	E	Unspecified Tank	1993
11D	425	E	Unspecified Tank	1963
12	461	NE	Unspecified Tank	1976

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

No data available in this area.

ID	Distance (m)	Direction	Use	Date
13E	222	NE	Electricity Substation	1993
14E	226	NE	Electricity Transformer	1976
15	247	NW	Electricity Substation	1993

16F	312	SE	Electricity Transformer	1976
17F	312	SE	Electricity Substation	1956
18F	316	SE	Electricity Substation	1993
19G	441	N	Electricity Transformer	1976
20G	441	N	Electricity Substation	1993
21	493	N	Electricity Substation	1993

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

No data available in this area.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

No data available in this area.

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

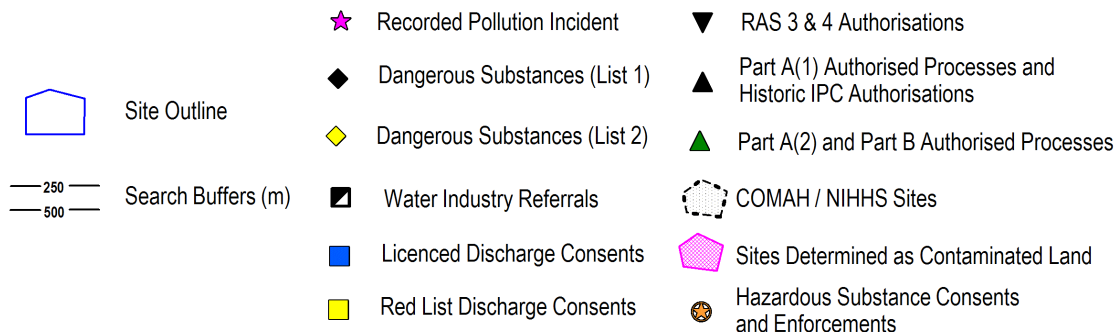
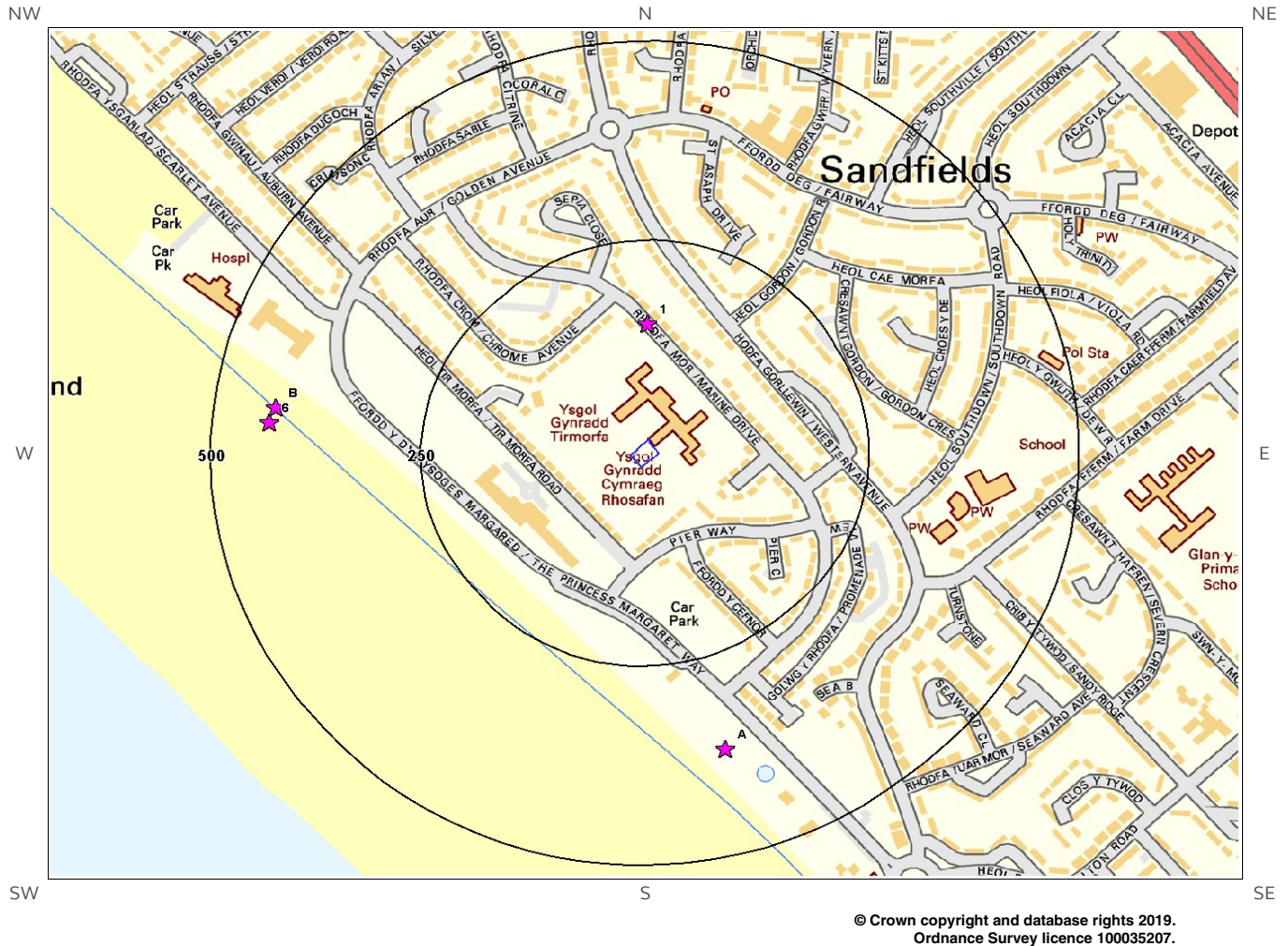
1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 3

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
22A	228	SW	Unspecified Ground Workings	1947
23A	228	SW	Unspecified Ground Workings	1914
24B	364	S	Pond	1962

2. Environmental Permits, Incidents and Registers Map



2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

0

Database searched and no data found.

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

6

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	145	N	273942.0 190605.0	Incident Date: 25-Mar-2003 Incident Identification: 145783.0 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Dust Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
2A	368	S	274035.0 190071.0	Incident Date: 30-May-2016 Incident Identification: 1602866.0 Pollutant: Pollutant Description: Water Impact: Category 4 (No Impact) Land Impact: Other Air Impact: Other
3A	368	S	274035.0 190071.0	Incident Date: 30-May-2016 Incident Identification: 1602866.0 Pollutant: General Biodegradable Materials and Waste Pollutant Description: Algae Water Impact: Category 4 (No Impact) Land Impact: Other Air Impact: Other
4B	428	W	273500.0 190500.0	Incident Date: 08-Jul-2002 Incident Identification: 90057.0 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5B	428	W	273500.0 190500.0	Incident Date: 08-Jul-2002 Incident Identification: 90057.0 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6	432	W	273493.0 190481.0	Incident Date: 14-Feb-2016 Incident Identification: 1411112.0 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Other Atmospheric Pollutant or Effect Water Impact: Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

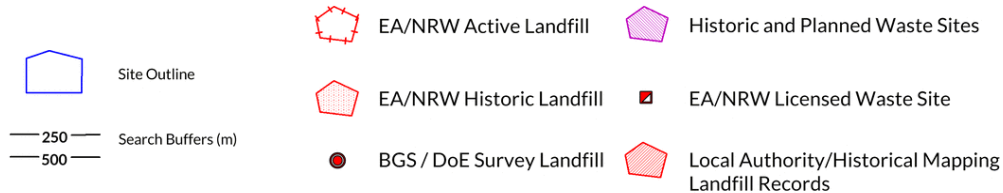
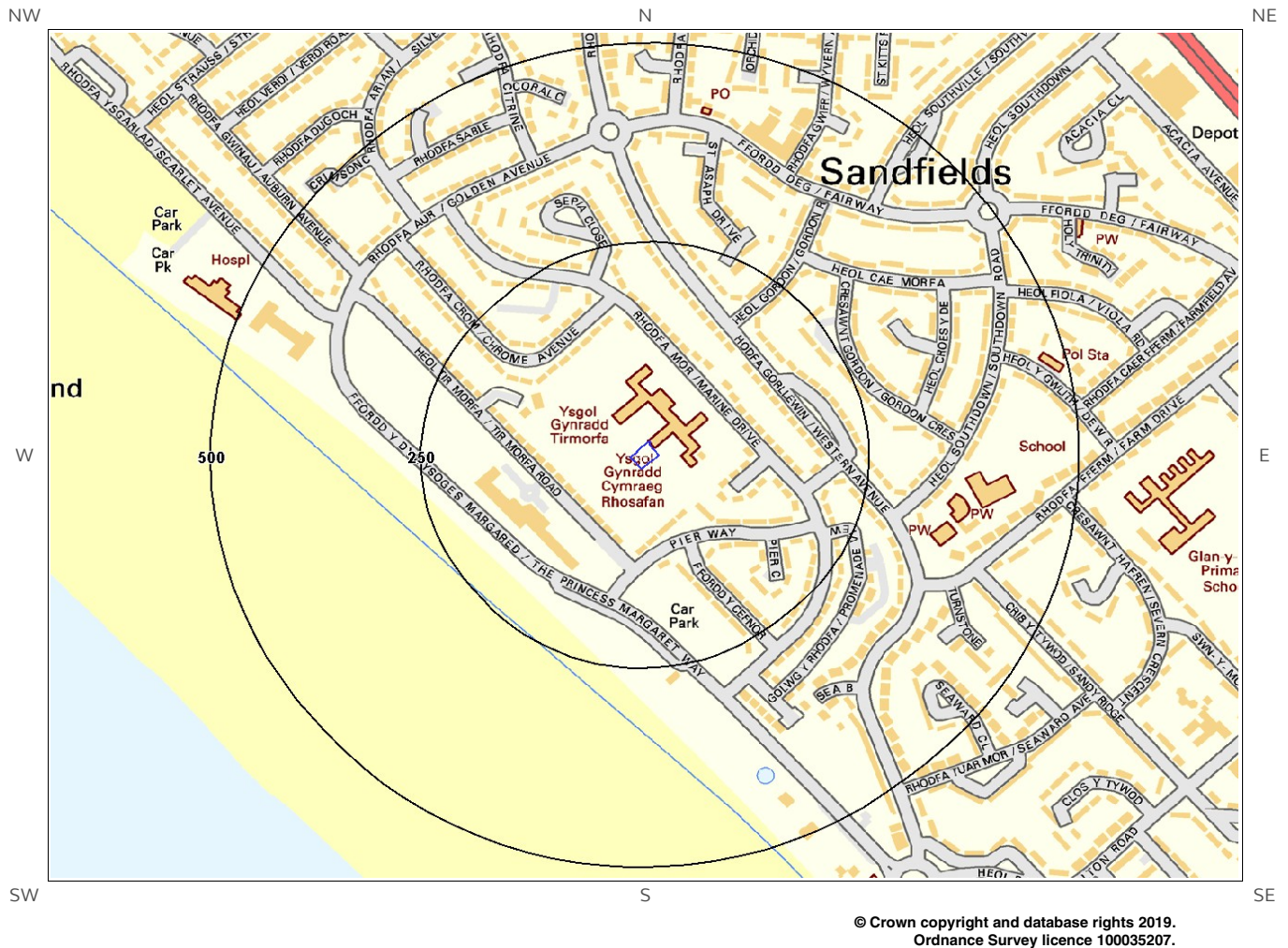
Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

1

The following landfill records are represented as points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1128	E	275244 190387	Refuse Tip	1963 mapping	Polygon

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

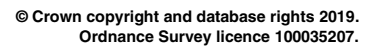
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

7

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	1407	NE	275200 191100	Site Address: Unit 16 Baglan Industrial Estate, Port Talbot, Neath Port Talbot, SA12 7DJ Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SP3898ED EPR reference: - Operator: Tyregenics Ltd Waste Management licence No: 0 Annual Tonnage: 40000.0 Issue Date: 30/06/2008 Effective Date: 30/06/2008 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: - Correspondence Address: -
Not shown	1407	NE	275200 191100	Site Address: Unit 16, Baglan Way, Port Talbot, N P T, SA12 7DJ Type: Physico-Chemical Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TYR007 EPR reference: EA/EPR/SP3898ED/A001 Operator: Tyregenics Ltd Waste Management licence No: 100252 Annual Tonnage: 40000.0 Issue Date: 30/06/2008 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Unit 16 Baglan Industrial Estate Correspondence Address: -
Not shown	1407	NE	275200 191100	Site Address: Unit 16 Baglan Industrial Estate, Port Talbot, N P T, SA12 7DJ Type: Physico-Chemical Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SP3898ED EPR reference: - Operator: - Waste Management licence No: 100252 Annual Tonnage: 40000.0 Issue Date: 30/06/2008 Effective Date: 30/06/2008 Modified: - Surrendered Date: - Expiry Date: 02/03/2010 Cancelled Date: - Status: Expired Site Name: - Correspondence Address: -
Not shown	1407	NE	275200 191100	Site Address: Unit 16 Baglan Industrial Estate, N P T, Port Talbot, Neath Port Talbot, SA12 7DJ Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SP3898ED EPR reference: - Operator: Tyregenics Ltd Waste Management licence No: 100252 Annual Tonnage: 40000.0 Issue Date: 30/06/2008 Effective Date: 30/06/2008 Modified: - Surrendered Date: - Expiry Date: 02/03/2010 Cancelled Date: - Status: Expired Site Name: - Correspondence Address: -
Not	1407	NE	275200	Site Address: Unit 16 Baglan Industrial Issue Date: 30/06/2008

ID	Distance (m)	Direction	NGR	Details	
shown			191100	Estate, , , Port Talbot, N P T, SA12 7DJ Type: Physico-Chemical Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: SP3898ED EPR reference: - Operator: Tyregenics Ltd Waste Management licence No: 100252 Annual Tonnage: 40000.0	Effective Date: 30/06/2008 Modified: - Surrendered Date: - Expiry Date: 02/03/2010 Cancelled Date: - Status: Expired Site Name: - Correspondence Address: -
Not shown	1407	NE	275200 191100	Site Address: Unit 16 Baglan Industrial Estate, , , Port Talbot, N P T, SA12 7DJ Type: Physico-Chemical Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: SP3898ED EPR reference: - Operator: Tyregenics Ltd Waste Management licence No: 100252 Annual Tonnage: 40000.0	Issue Date: 30/06/2008 Effective Date: 30/06/2008 Modified: - Surrendered Date: - Expiry Date: 02/03/2010 Cancelled Date: - Status: Expired Site Name: - Correspondence Address: -
Not shown	1413	NE	275205 191105	Site Address: Unit 16, Baglan Way, Port Talbot, N P T, SA12 7DJ Type: Physico-Chemical Treatment Facility Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TYR007 EPR reference: SP3898ED/A001 Operator: Tyregenics Ltd Waste Management licence No: 100252 Annual Tonnage: 40000.0	Issue Date: 30/06/2008 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Expired Site Name: Unit 16 Baglan Industrial Estate Correspondence Address: -



4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

4

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	153	W	Electricity Sub Station	273770 190437	West Glamorgan, SA12	Electrical Features	Infrastructure and Facilities
2	189	NW	P L T Printing Ltd	273872 190634	53, Marine Drive, Port Talbot, West Glamorgan, SA12 7NW	Published Goods	Industrial Products
3	234	NE	Electricity Sub Station	274120 190616	West Glamorgan, SA12	Electrical Features	Infrastructure and Facilities
4	247	NW	Electricity Sub Station	273763 190629	West Glamorgan, SA12	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LSGR-ARTGR	LANDSCAPED GROUND (UNDIVIDED)	ARTIFICIALLY MODIFIED GROUND

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
BSA-S	BLOWN SAND	SAND

5.3 Bedrock and Solid Geology

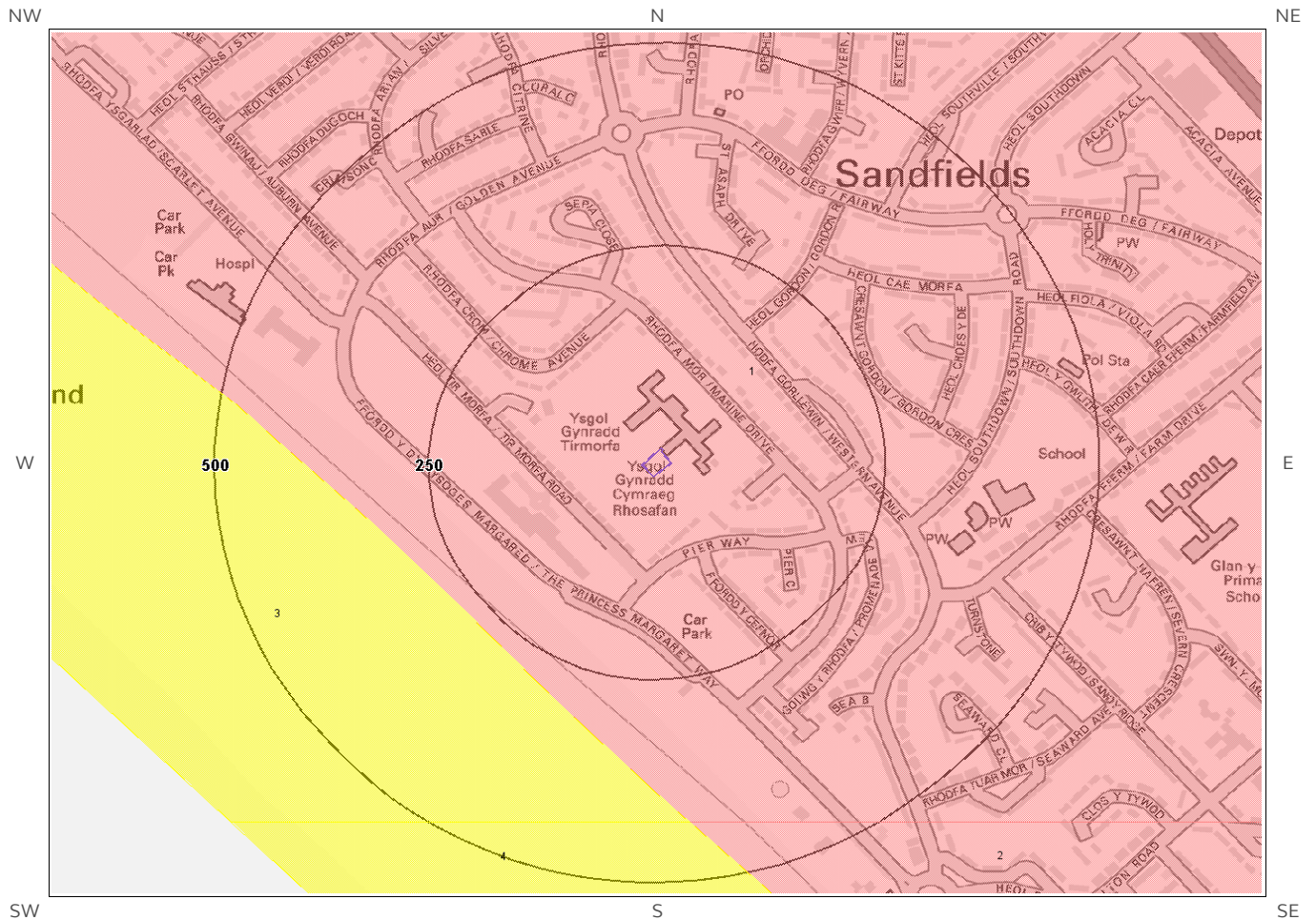
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
SWMCM-MDSS	SOUTH WALES MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

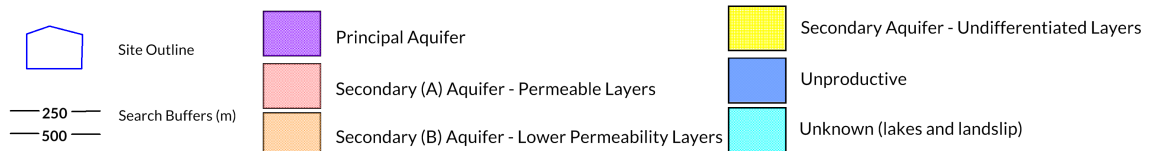
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

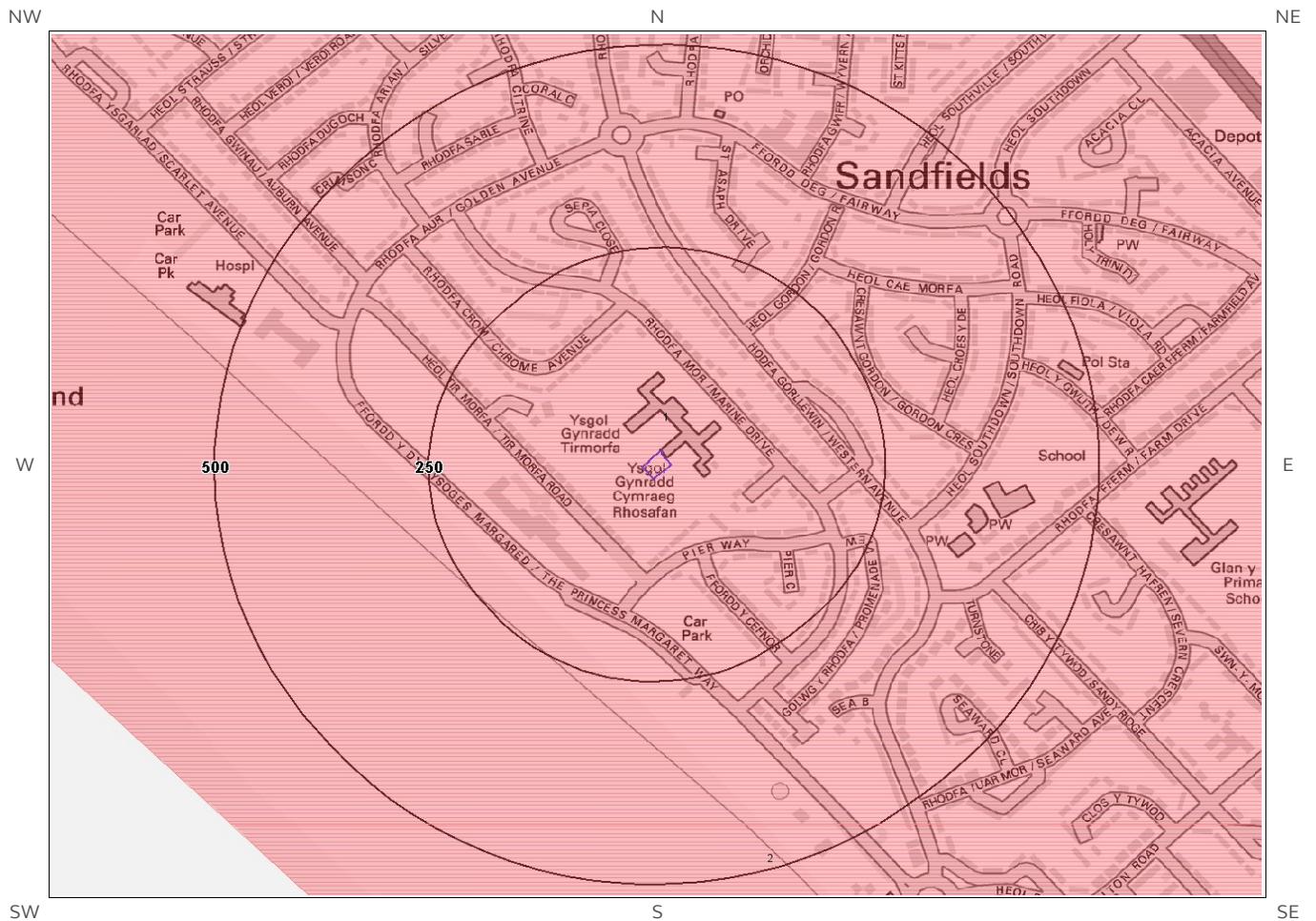
6a. Aquifer Within Superficial Geology



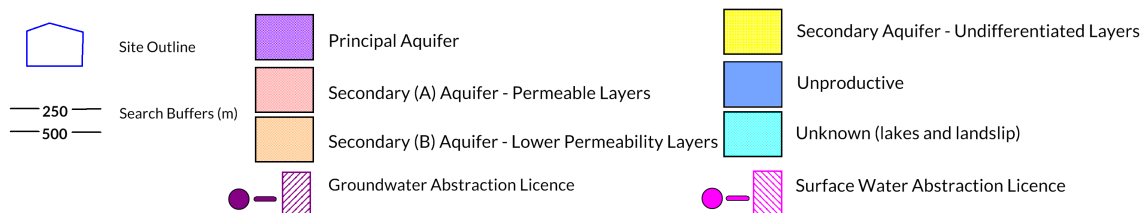
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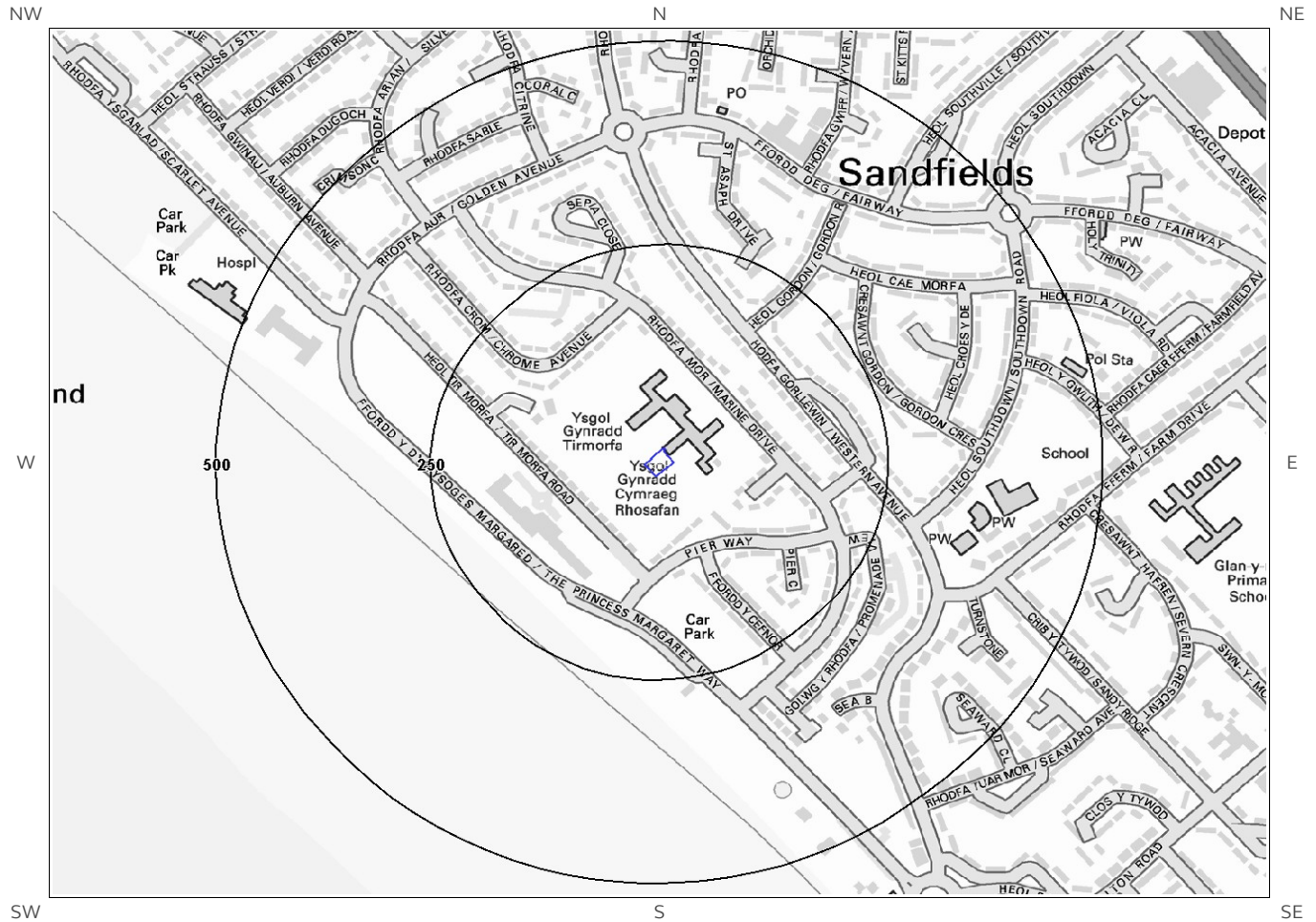
6b. Aquifer Within Bedrock Geology and Abstraction Licences



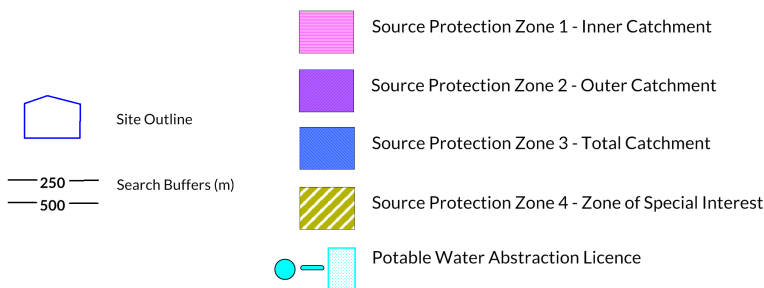
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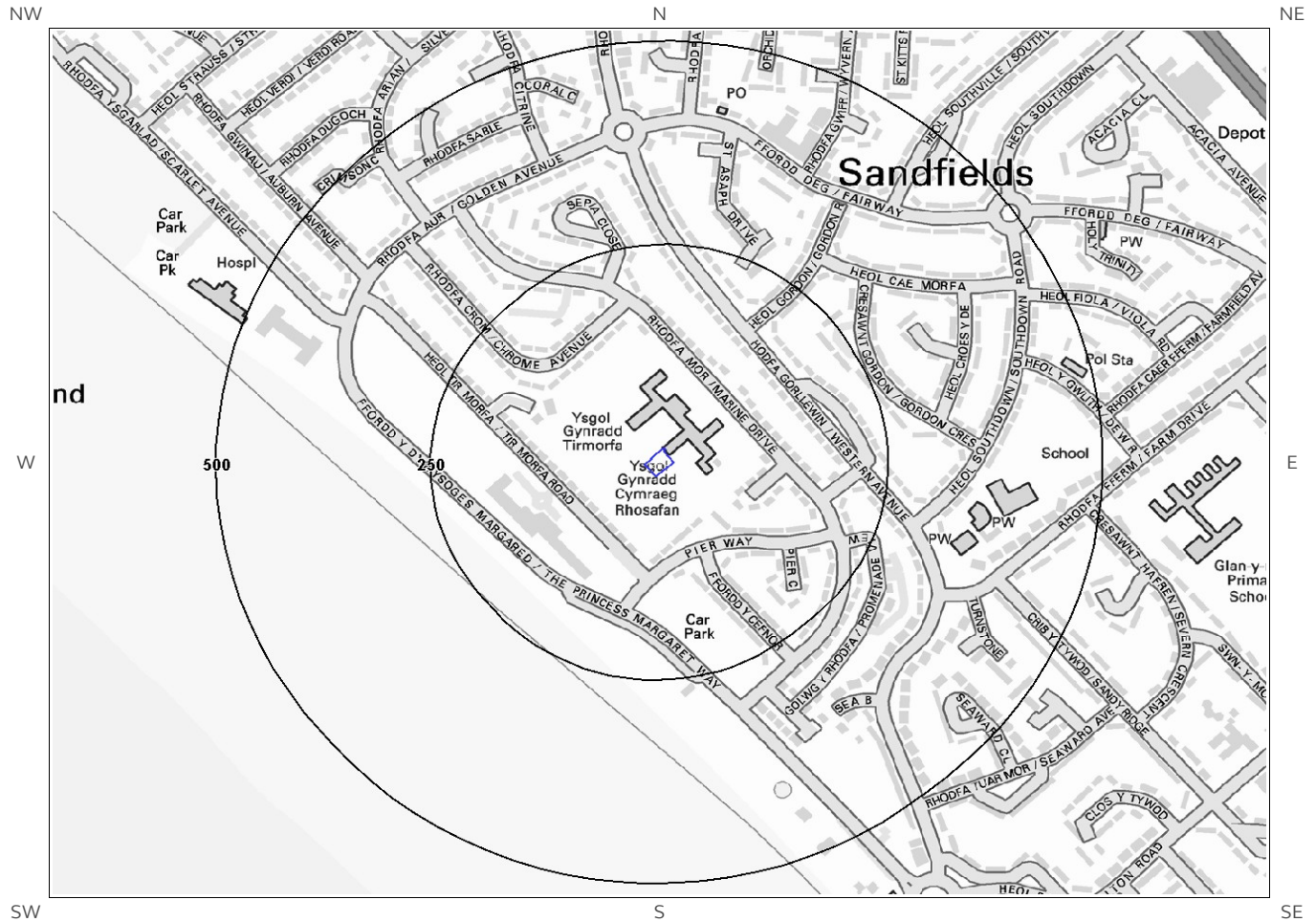
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



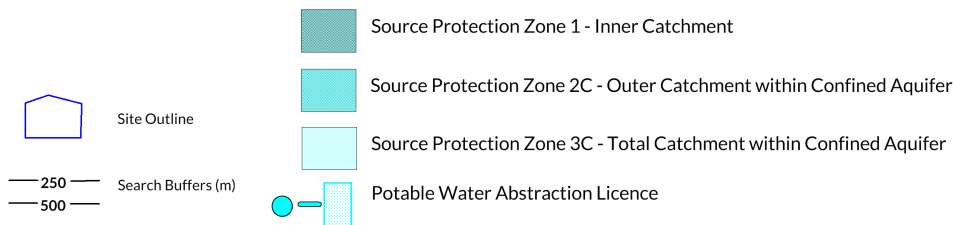
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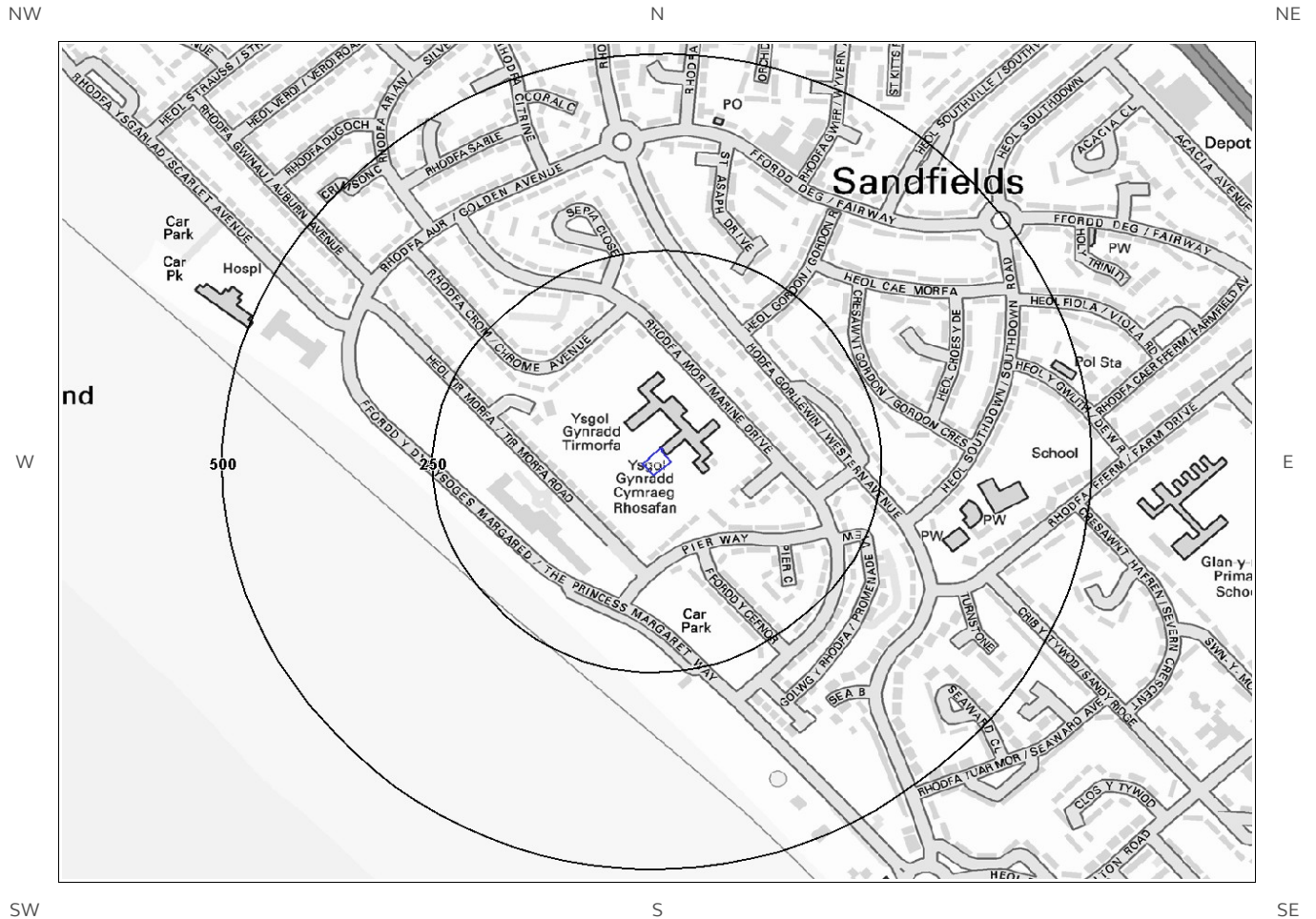
6d. Hydrogeology – Source Protection Zones within confined aquifer



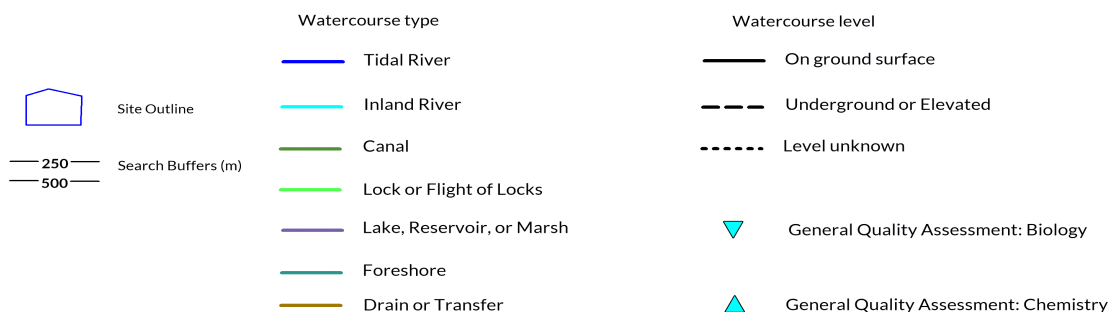
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6e. Hydrology – Watercourse Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	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
3	273	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
4	425	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
2	427	S	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

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	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	425	S	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

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site None identified

Database searched and no data found.

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
437	S	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site None identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

Database searched and no data found.

6.11 Surface Water Features

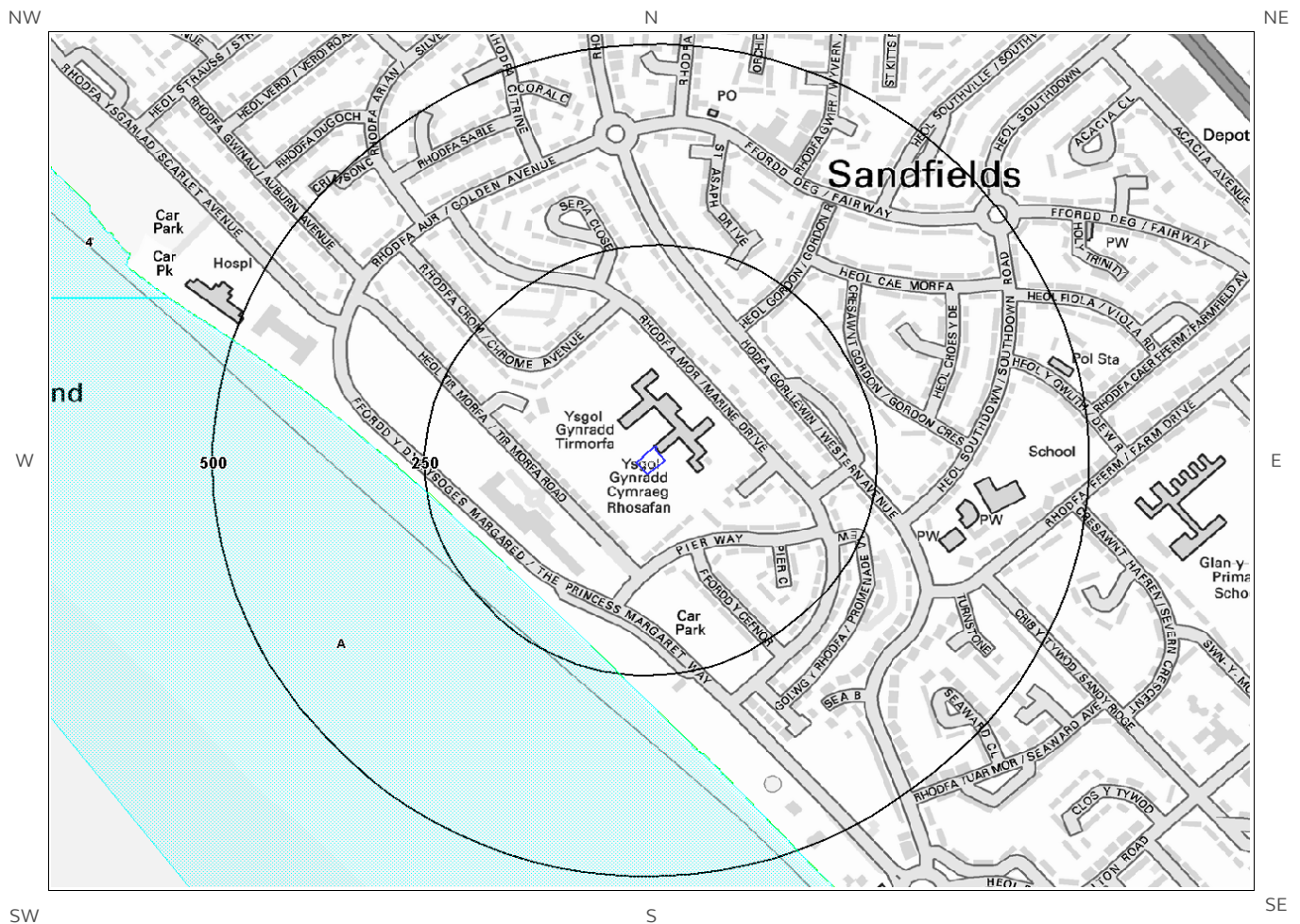
Surface water features within 250m of the study site

Identified

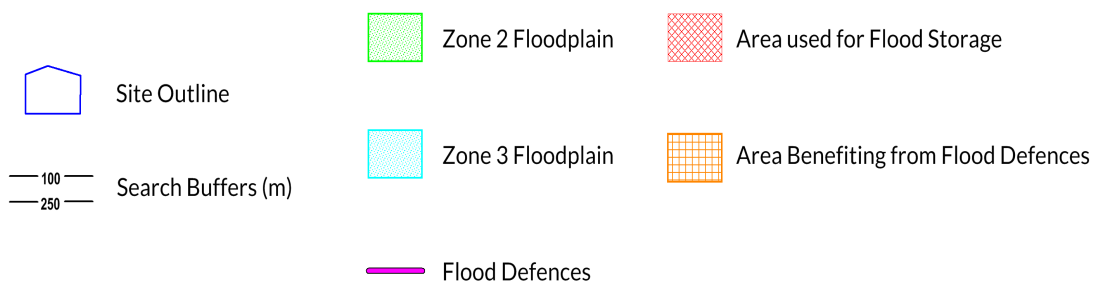
The following surface water records are not represented on mapping:

Distance (m)	Direction
243	SW

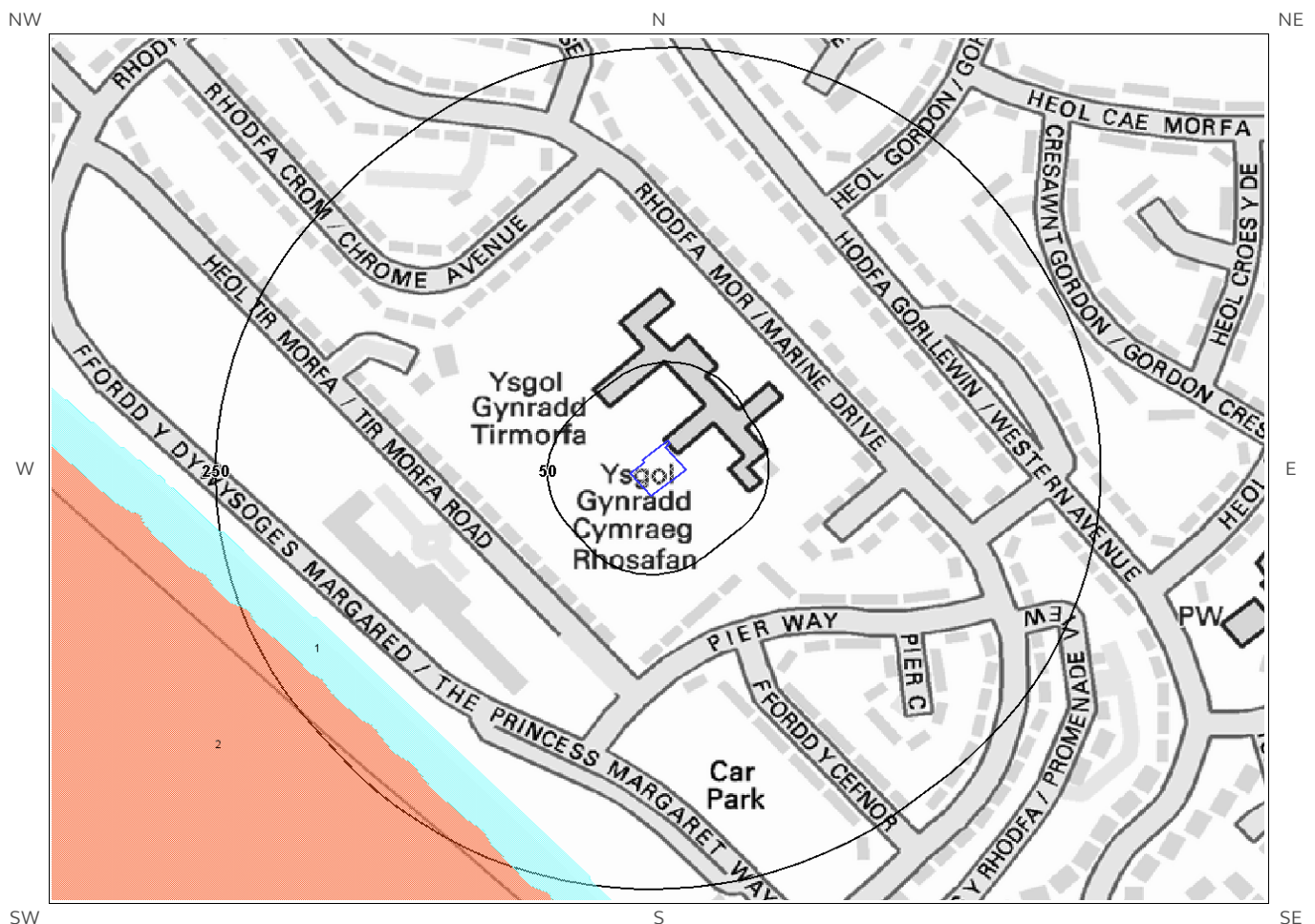
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



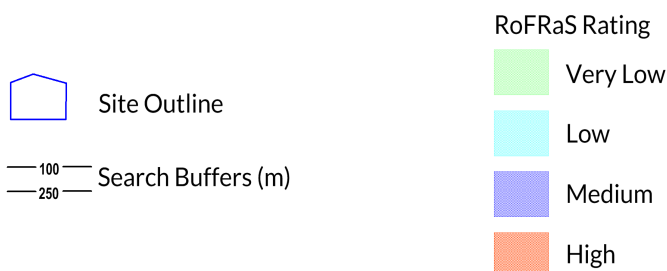
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m

Identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1A	197	SW	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m

Identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1A	197	SW	19-Nov-2019	Zone 3 - (Fluvial Models)

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite

Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site None identified
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site Identified

Clearwater Flooding or Superficial Deposits Flooding Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential below Surface

Where potential for groundwater flooding of property situated below ground level is indicated, this means that given the geological conditions there may be a groundwater flooding hazard to basements and other below surface infrastructure. Unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area you need take no further action in relation to groundwater flooding hazard. If there are records of previous incidences of groundwater flooding, then is recommended that other information e.g. rainfall history, property type, and land drainage information in addition to previous records of flooding be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result High

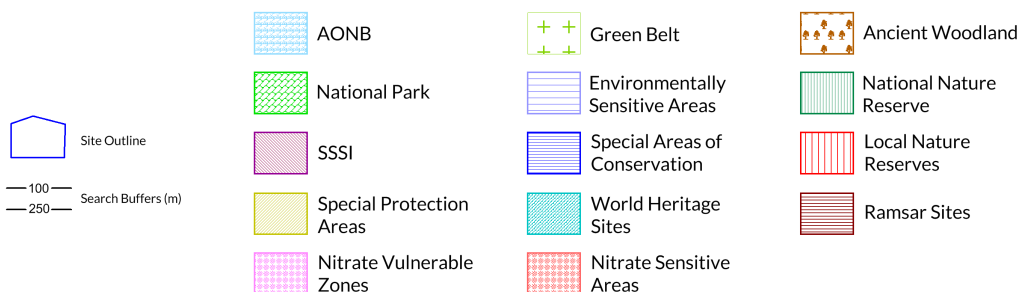
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site

None identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

0

Database searched and no data found.

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure Geo Insight**, available from our **website**. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell** hazard rating identified on the study site Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site

Identified

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0	On Site	The site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:

Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Natural Resources Wales

Ty Cambria
29 Newport Road
Cardiff
CF24 0TP
Tel: 0300 065 3000
Email: enquiries@naturalresourceswales.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority

Authority: Castell-nedd Port Talbot - Neath Port Talbot Co
Phone: 01639 68 68 68
Web: <http://www.neath-porttalbot.gov.uk>
Address: Port Talbot Civic Centre, Port Talbot, SA13 1PJ



Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.

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Standard Terms and Conditions

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<https://www.groundsure.com/terms-and-conditions-feb11-2019>



SOCOTEC

APPENDIX D
GROUNDsure GEO INSIGHT

Groundsure Geo Insight

GS-6477201

DRAFT

SOCOTEC UK Limited

ASKERN ROAD, CARCROFT,
DONCASTER, DN6 8DG

Groundsure
Reference:

GS-6477201

Your Reference: H9092-19

Report Date 21 Nov 2019

Report Delivery Method: Email - pdf

Geo Insight

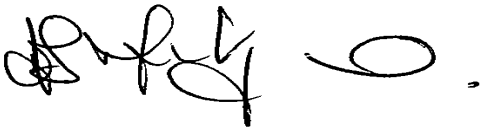
Address: YSGOL RHOSAFAN, RHOSAFAN WELSH PRIMARY SCHOOL, MARINE DRIVE, SANDFIELDS,
SA12 7NN

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Address: YSGOL RHOSAFAN, RHOSAFAN WELSH PRIMARY SCHOOL,
MARINE DRIVE, SANDFIELDS, SA12 7NN

Date: 21 Nov 2019

Reference: GS-6477201

Client: SOCOTEC UK Limited

NW N NE



SW S SE

Aerial Photograph Capture date: 26-May-2017
Grid Reference: 273941,190441
Site Size: 0.0556ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	Yes
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslide within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	Yes

Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	Yes
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	Yes
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslide within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

Yes

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	2	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

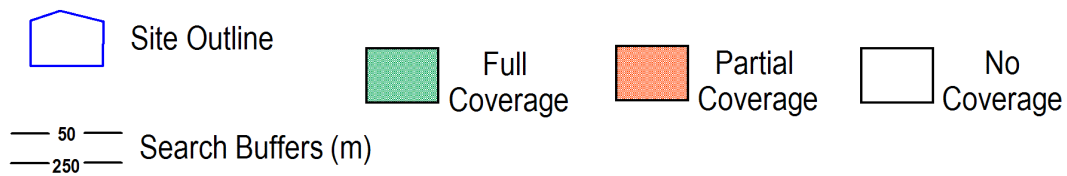
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Negligible				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Negligible				
6.5 Running Sand	Negligible				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	0	0		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	1	2	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

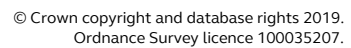
The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	425.0	Some deposits are mapped	Full	Full	No coverage
3	1043.0	Some deposits are mapped	Full	Full	Some deposits are mapped
4	1133.0	Some deposits are mapped	Full	Full	Some deposits are mapped

Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage



1. Geology 1:10,000 scale

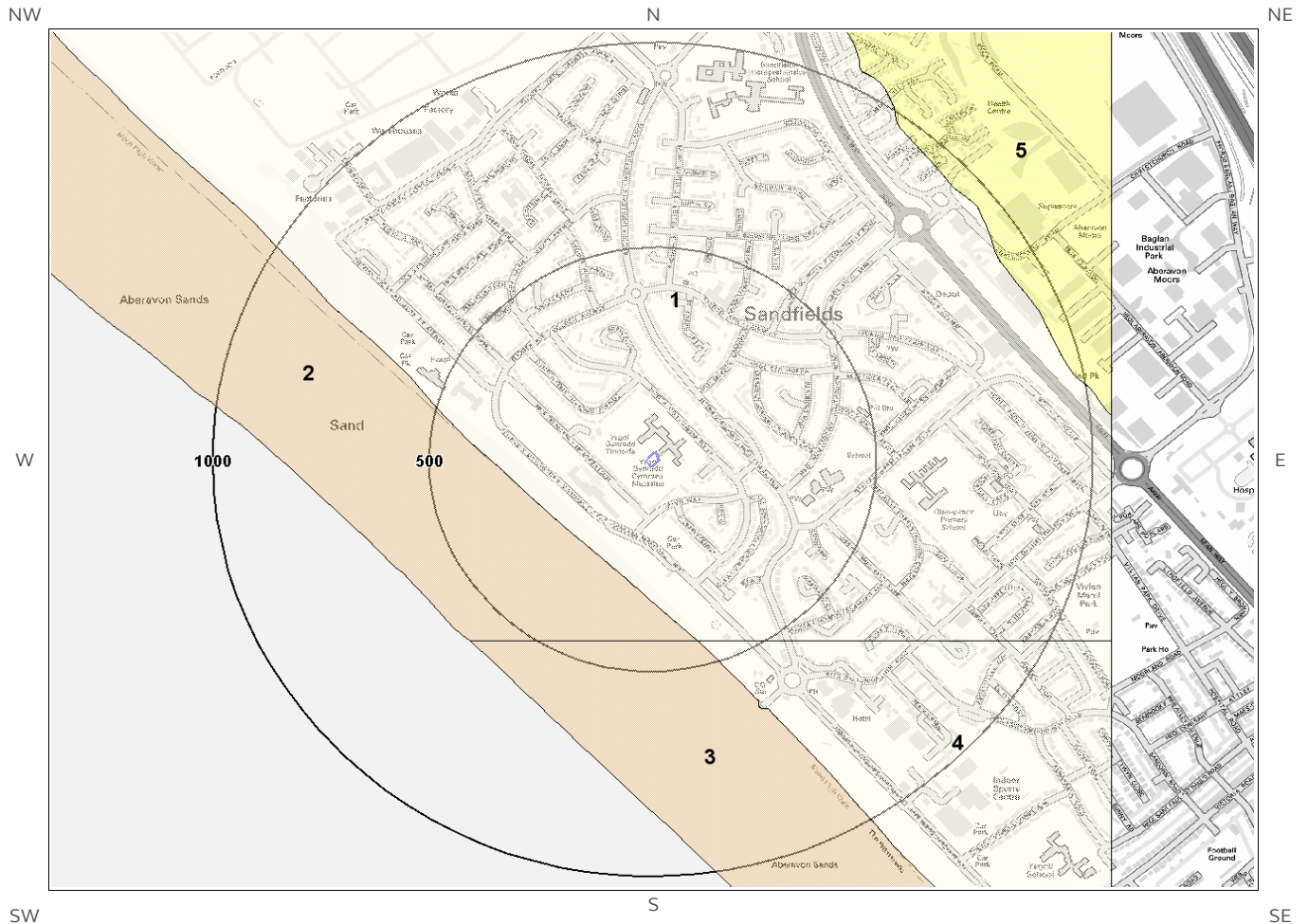
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

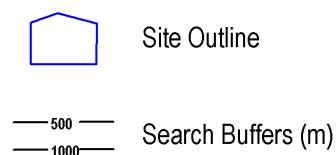
ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	LSGR- UNKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry
2	444.0	S	LSGR- UNKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	BSA-S	Blown Sand - Sand	Sand
2	242.0	SW	BCHD-XSV	Beach Deposits - Sand And Gravel	Sand And Gravel
3	425.0	S	BCHD-XSV	Beach Deposits - Sand And Gravel	Sand And Gravel
4	438.0	S	BSA-S	Blown Sand - Sand	Sand

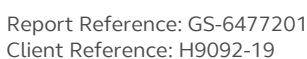
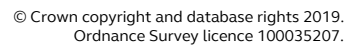
1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.



1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	SWMCM-MDSS	South Wales Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
2	425.0	S	SWMCM-MDSS	South Wales Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
3	426.0	E	SWMCM-MDSS	South Wales Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? Yes

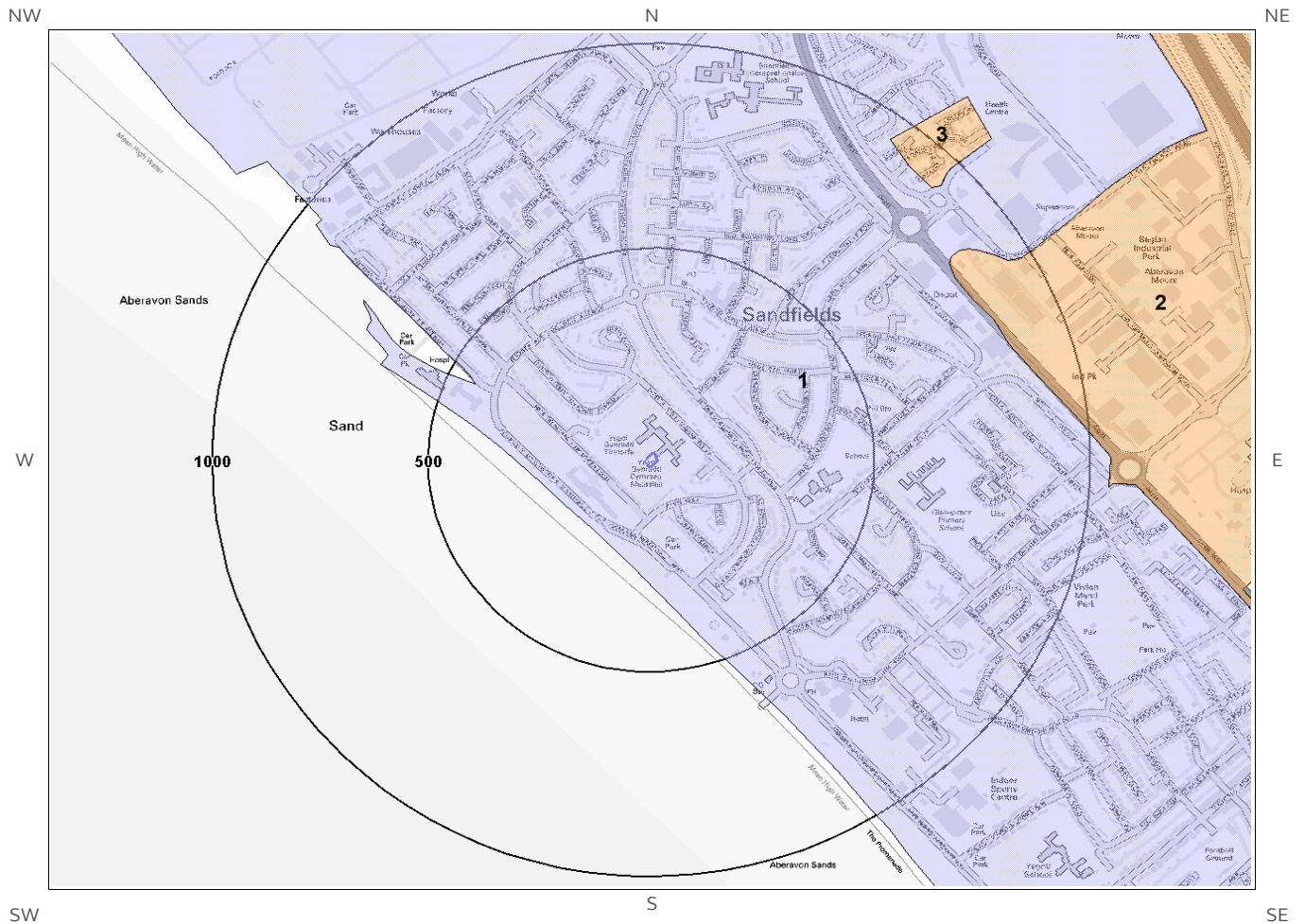
ID	Distance (m)	Direction	Category Description	Feature Description
5	426.0	E	FAULT	Normal fault, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

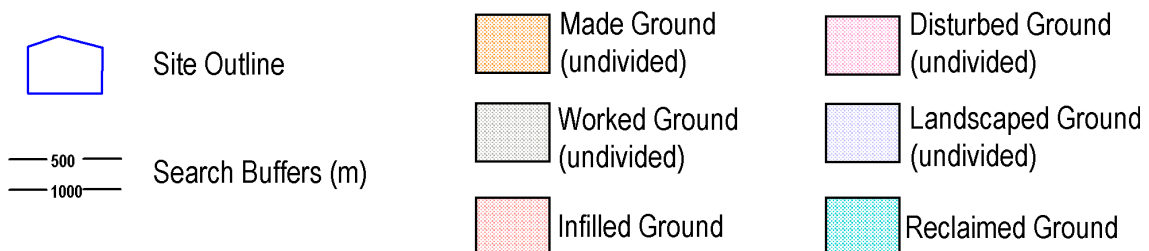
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 247

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

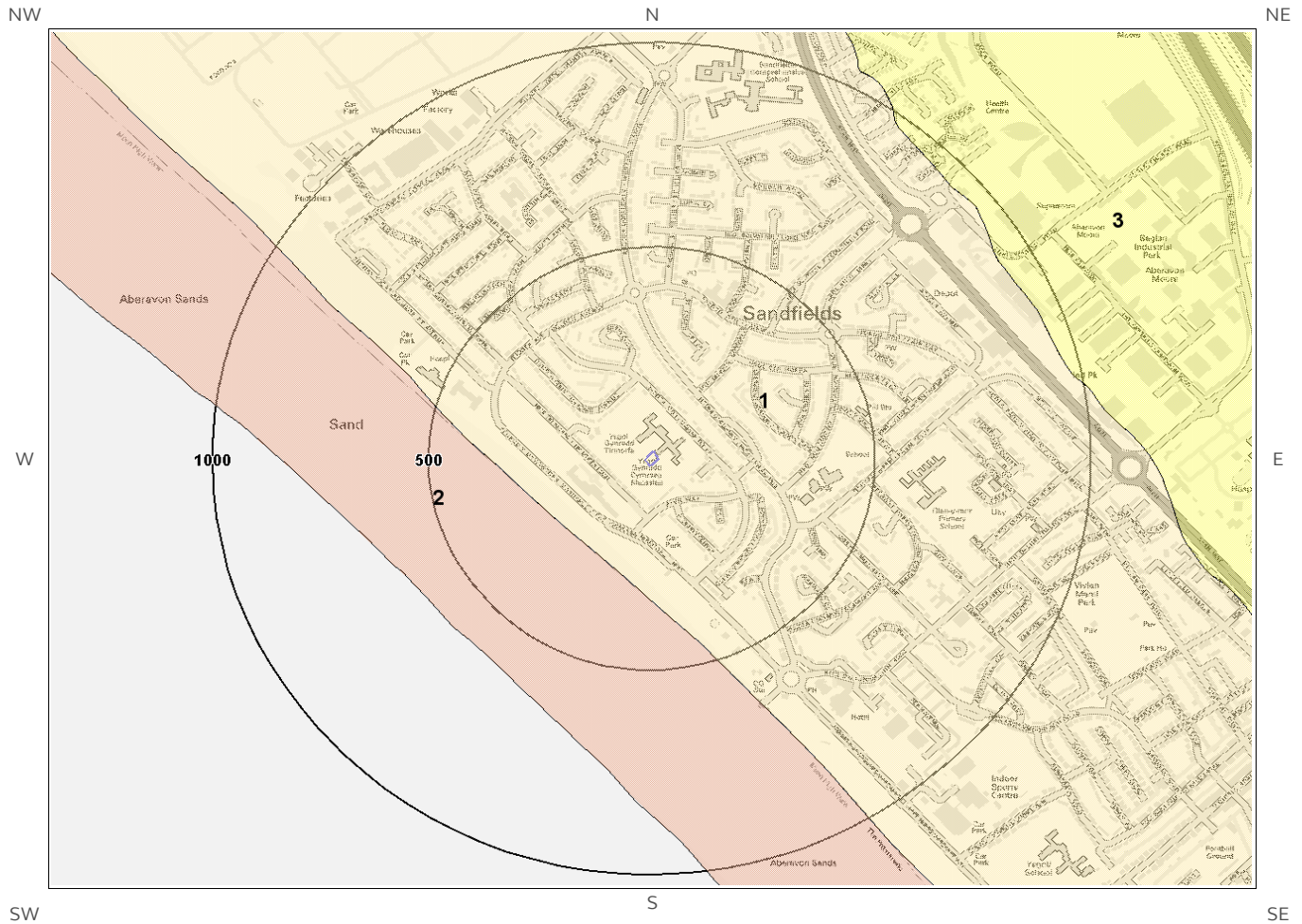
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	LSGR-ARTGR	LANDSCAPED GROUND (UNDIVIDED)	ARTIFICIALLY MODIFIED GROUND

2.1.2 Permeability of Artificial Ground

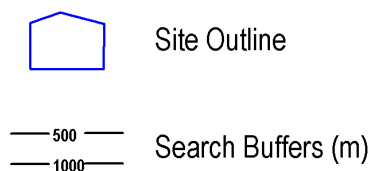
Are there any records relating to permeability of artificial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Very High	Low

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	BSA-S	BLOWN SAND	SAND
2	242.0	SW	MBD-S	MARINE BEACH DEPOSITS	SAND

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	High

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

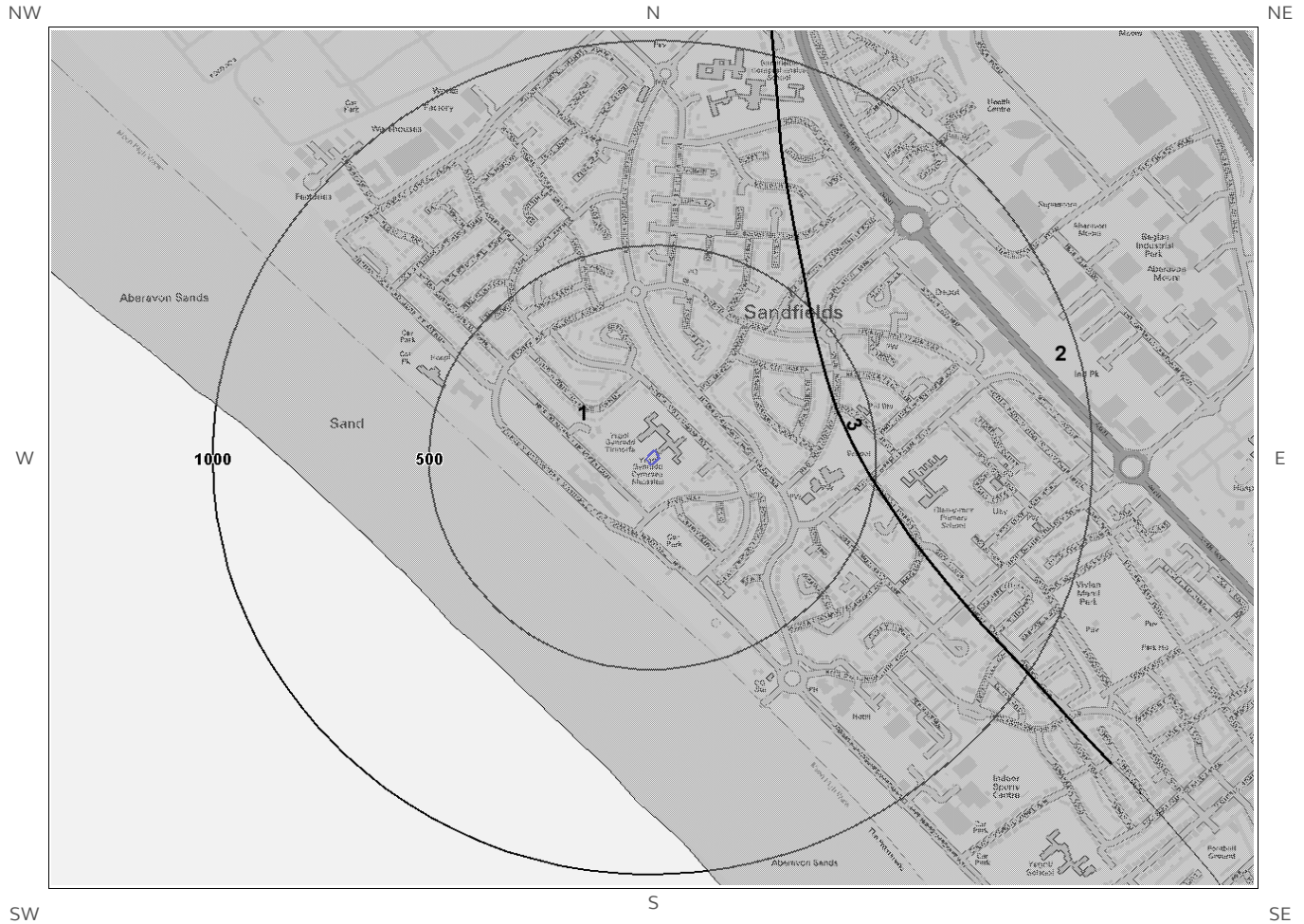
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

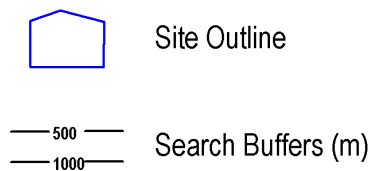
Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 247

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	SWMCM-MDSS	SOUTH WALES MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	426.0	E	SWMCM-MDSS	SOUTH WALES MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
3	426.0	E	FAULT	Fault, inferred, displacement unknown

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

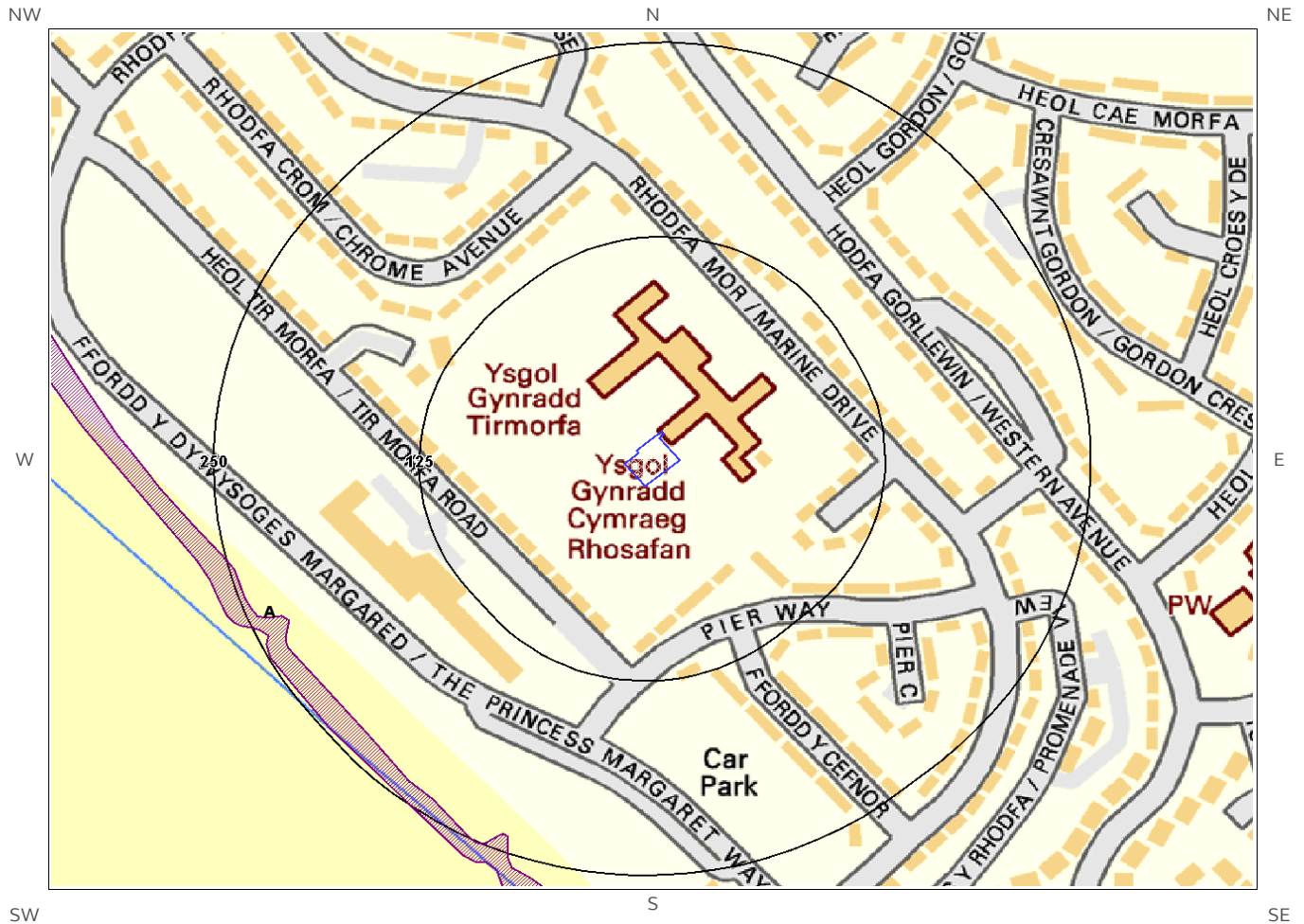
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

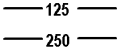
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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- | | | | |
|---|--------------------|---|----------------------------------|
|  | Site Outline |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | Historic Underground Workings |
| | |  | Current Ground Workings |

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1A	228.0	SW	273600 190467	Unspecified Ground Workings	1947
2A	228.0	SW	273600 190467	Unspecified Ground Workings	1914

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

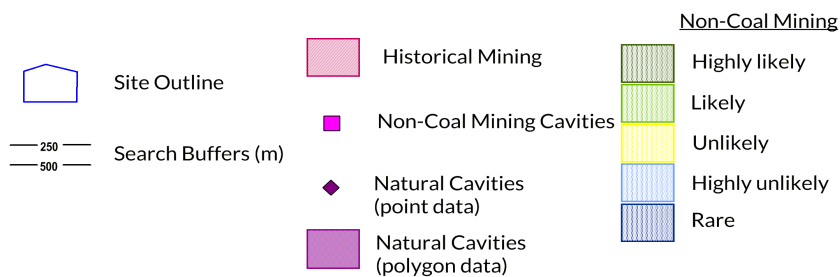
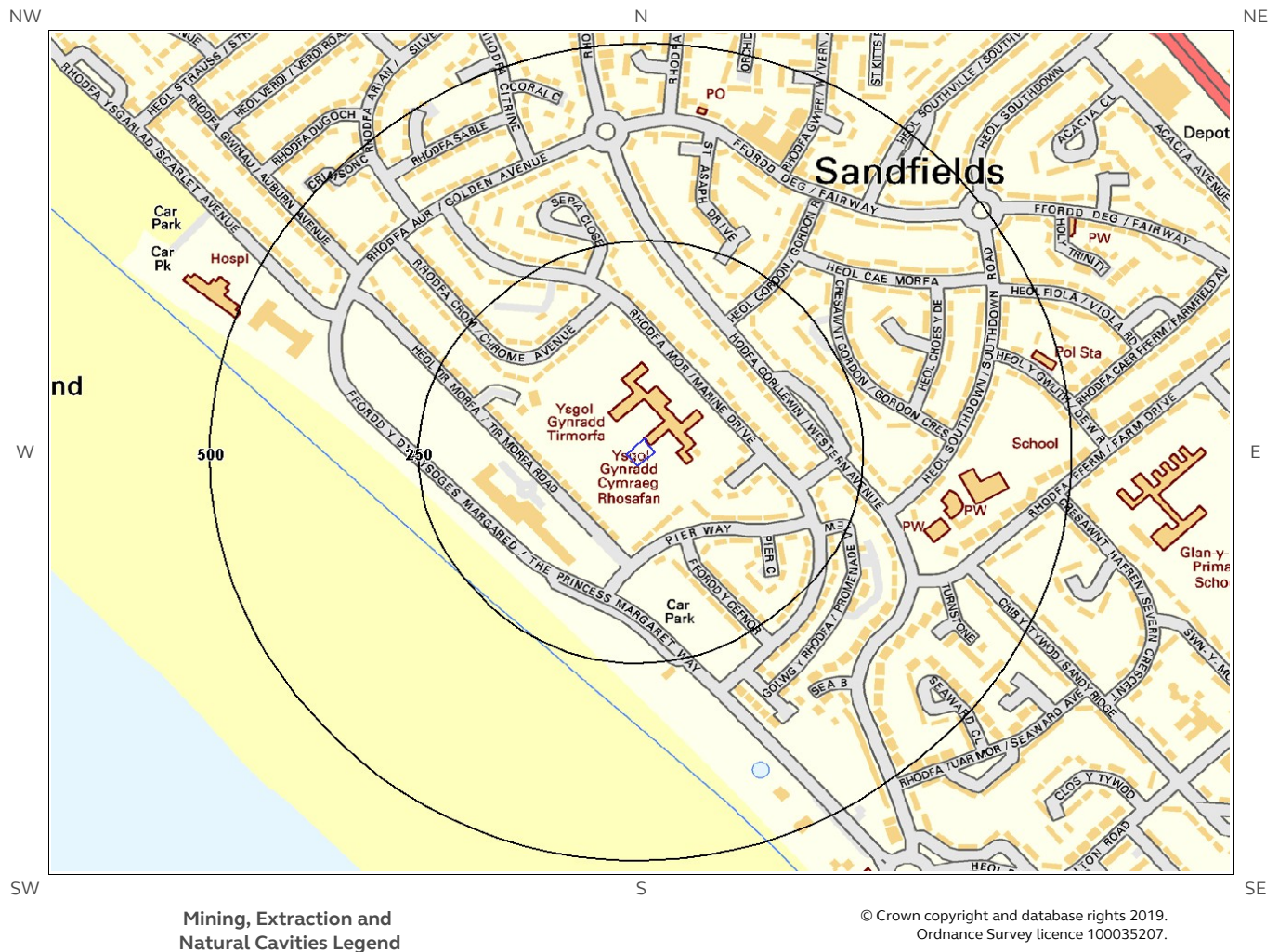
4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? No

Database searched and no data found.

5 Mining, Extraction & Natural Cavities map



5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

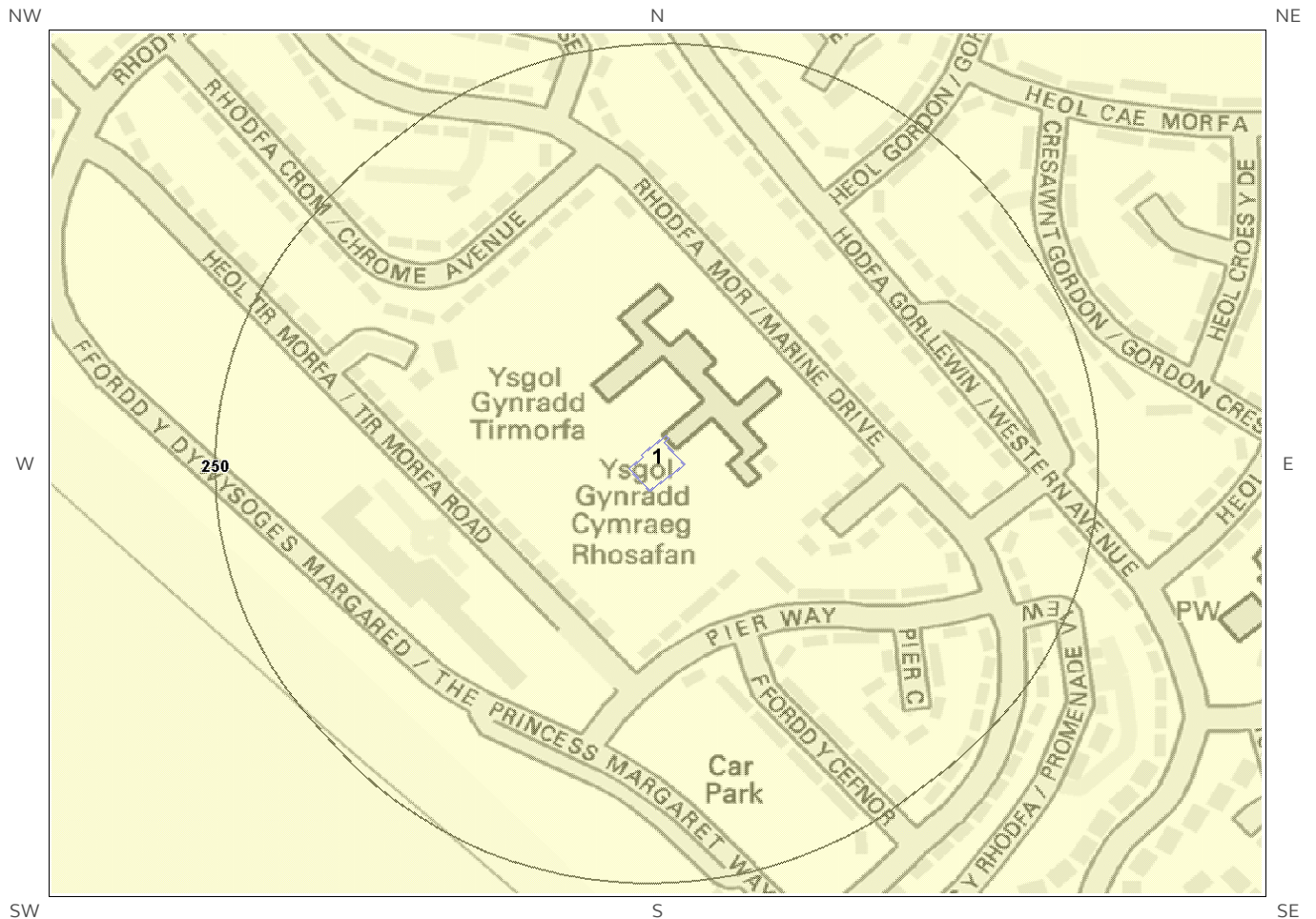
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

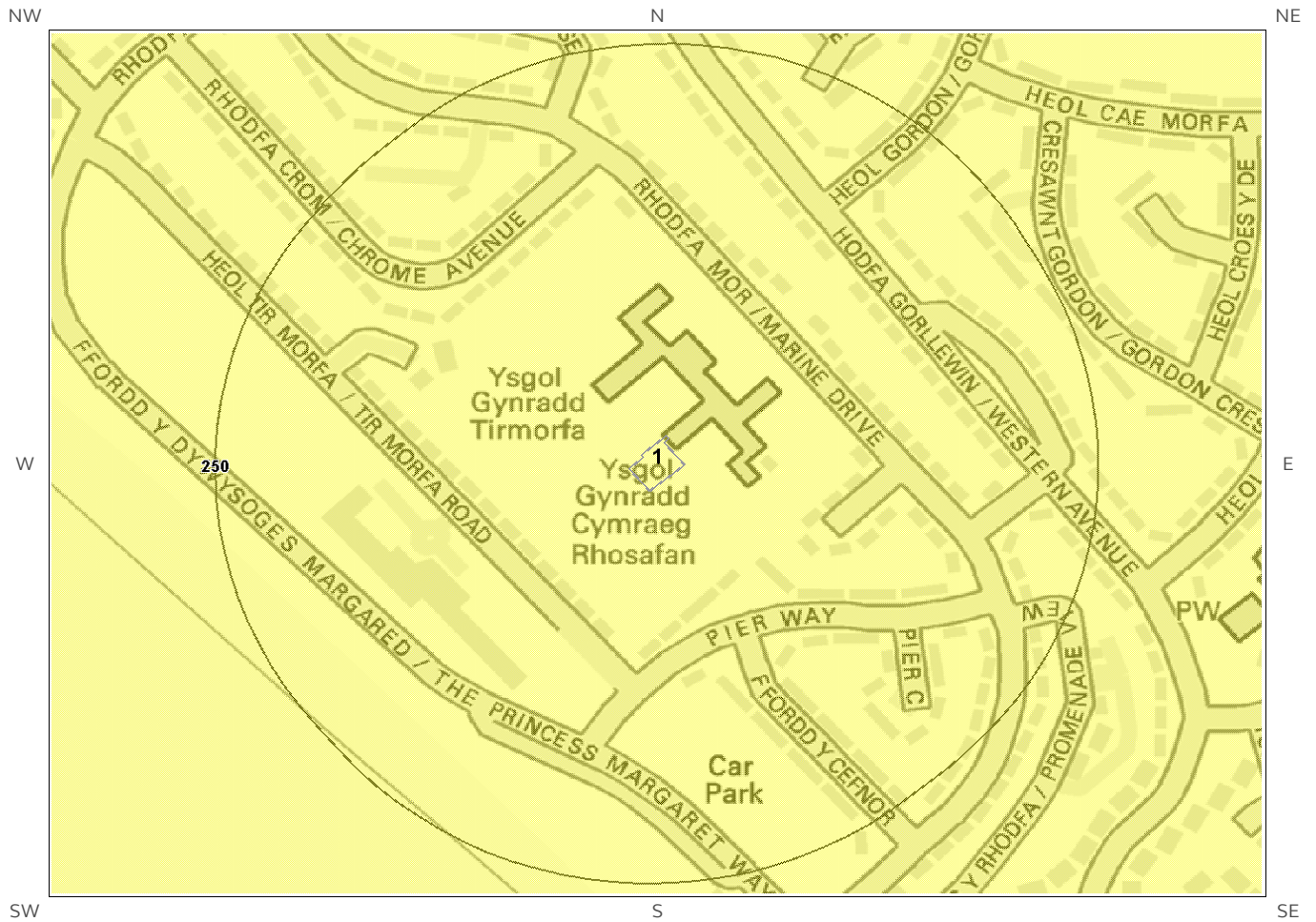


Shrink Swell Clay Legend

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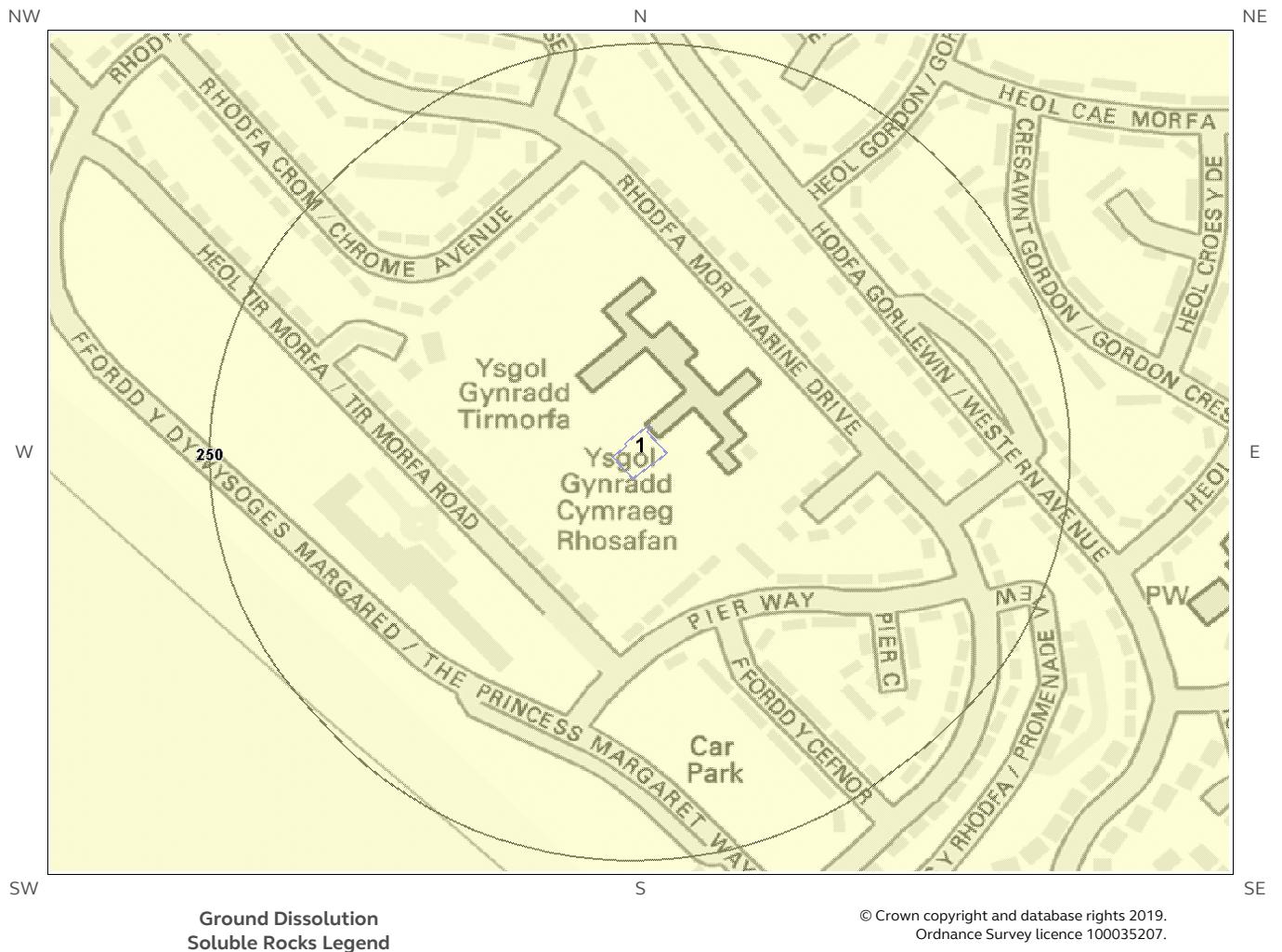
6.2 Landslides map

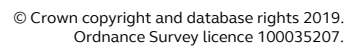


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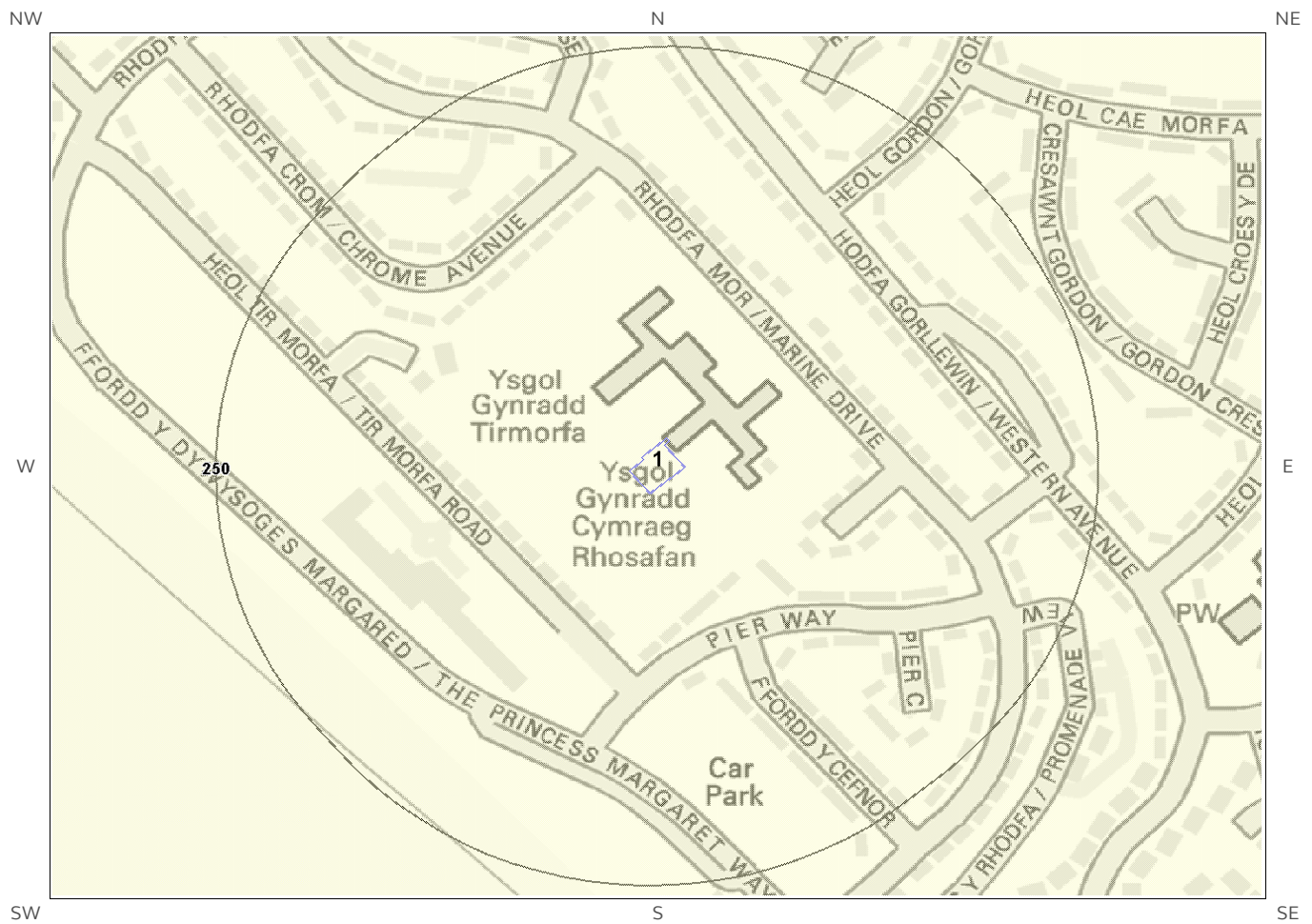


6.3 Ground Dissolution of Soluble Rocks map





6.5 Collapsible Deposits map

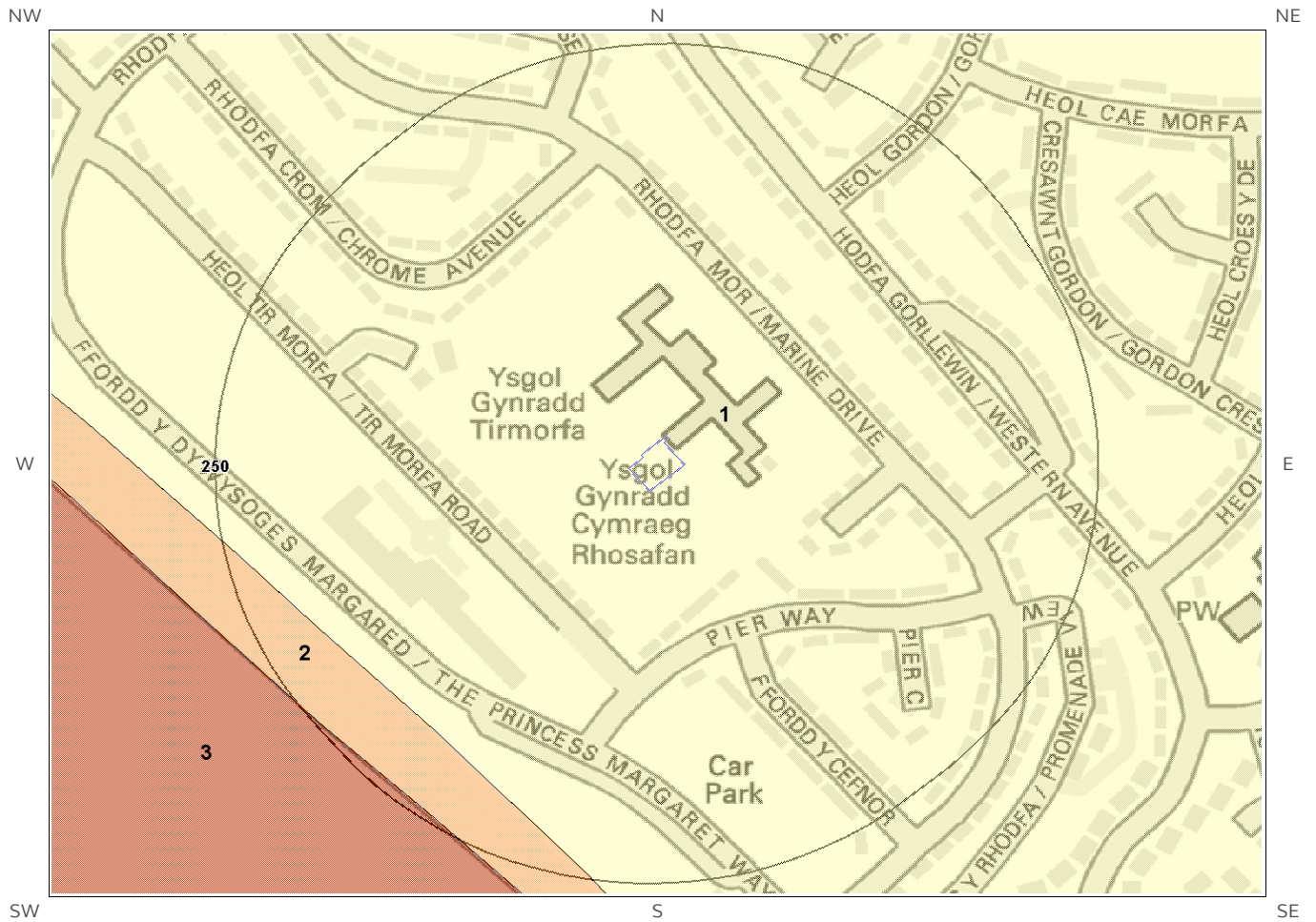


Collapsible Deposits Legend

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6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? Very Low

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This includes an automatically generated 50m buffer zone around the site

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

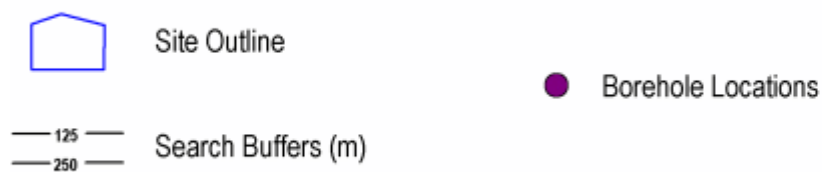
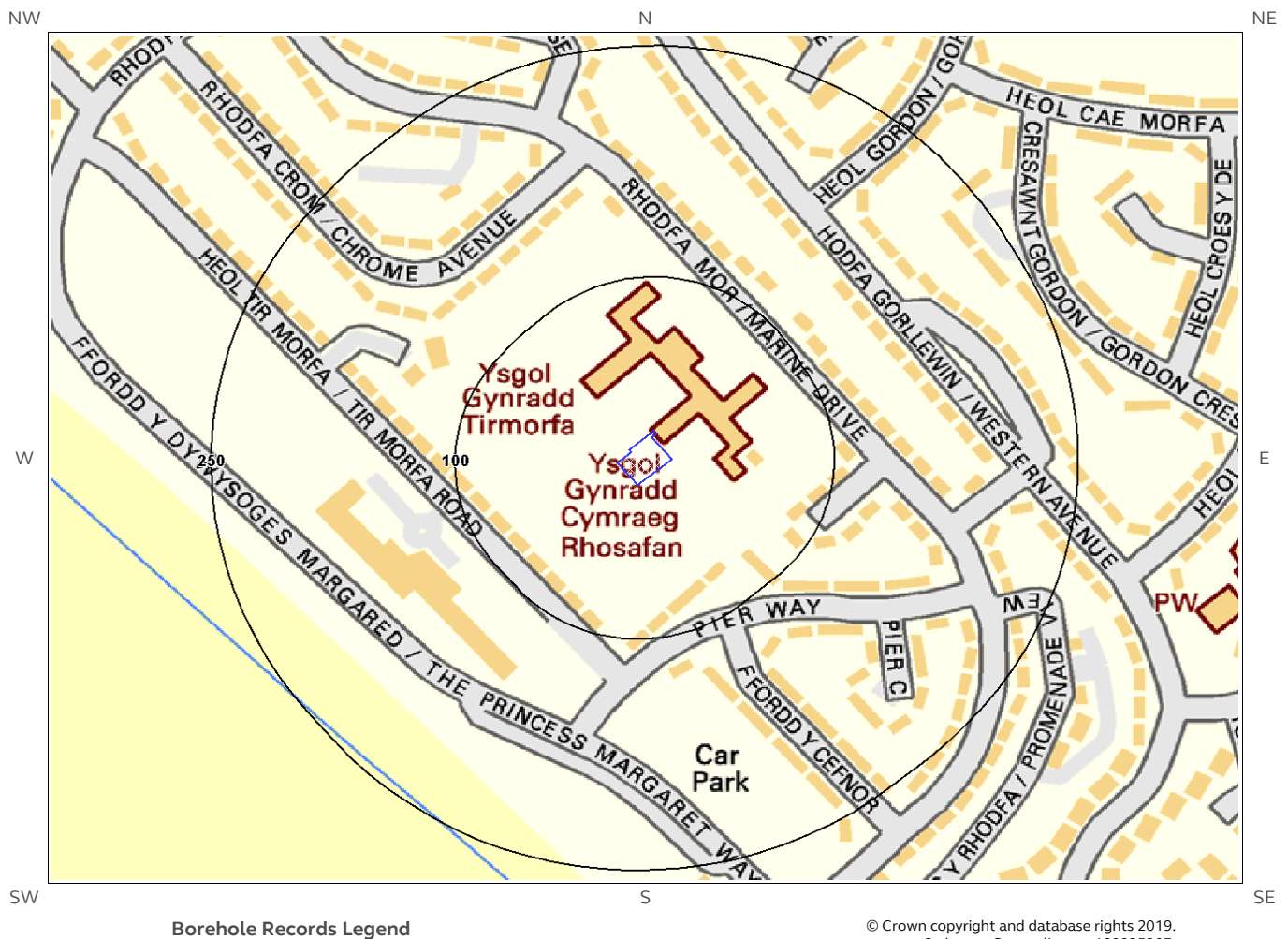
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

0

Database searched and no data found.

8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

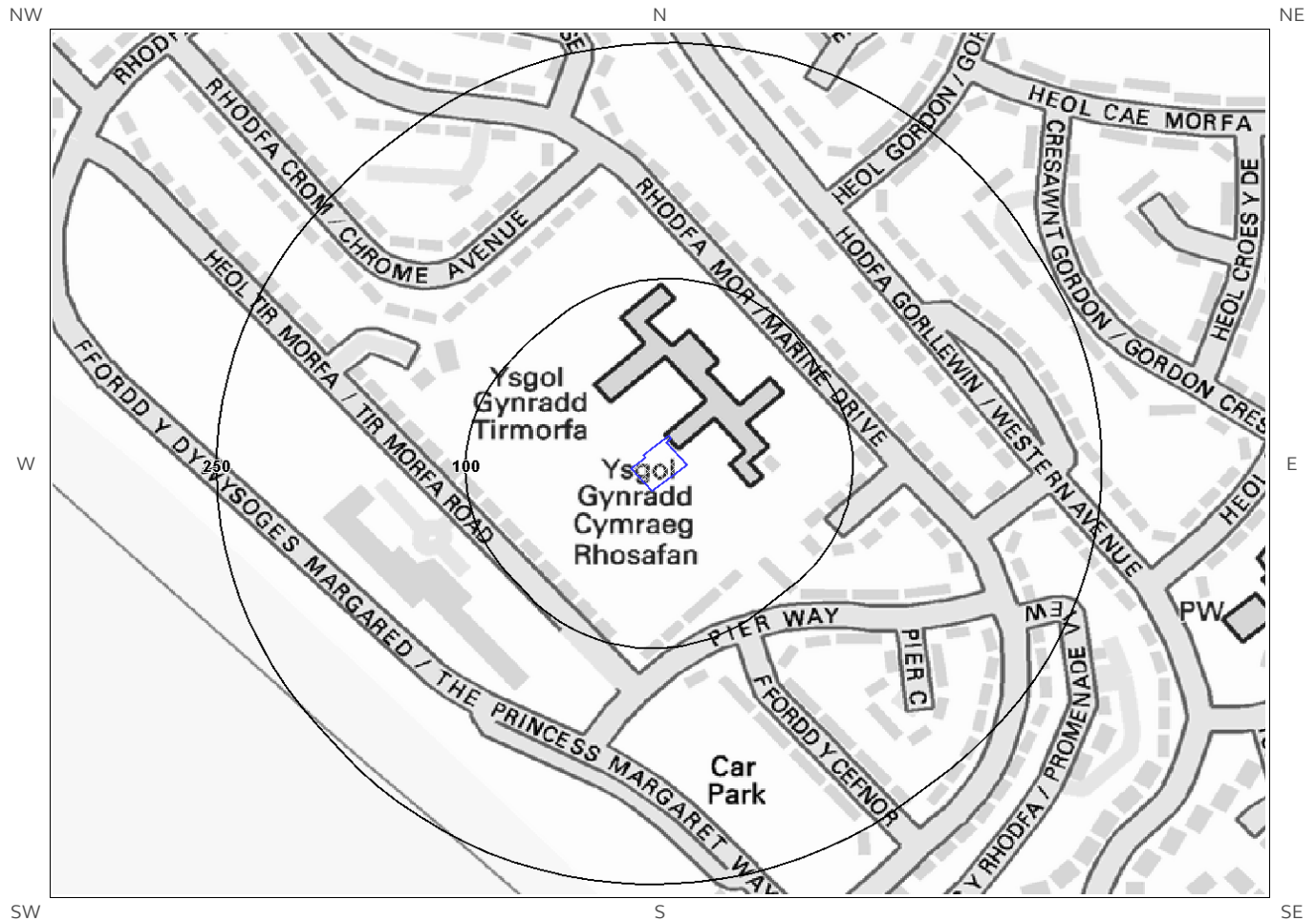
3

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
40.0	N	Sediment	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
43.0	E	Sediment	35 - 45 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com



British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettell Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email: enquiries.gs@jpb.co.uk
Website: www.jpb.co.uk



Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505
Website: <http://www.ordnancesurvey.co.uk/>



Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website: <http://www1.getmapping.com/>



Peter Brett Associates
Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail: reading@pba.co.uk
Website: <http://www.peterbrett.com/home>



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<https://www.groundsure.com/terms-and-conditions-feb11-2019>



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APPENDIX E
WALKOVER SURVEY AND PHOTOGRAPHS

Site Walkover Checklist
Site Reconnaissance Photographs

Plate 1 to 4

DRAFT

Site Walkover Checklist

REFERENCES	
Project No.	H9091-19
Site Address	Rhosafan Primary School
Date of visit	27/11/19
Prepared by	Adam Putt
SITE – GENERAL	
Plan of site	annotate site plan or provide sketch
Site size (area) : % building, % hardstanding, % open space / other	100% open space (playing field)
Current use (occupants and operations)	Grassed playing field bisected by palisade fenceline
SITE – BUILDINGS	
Age of building(s)	NA
Building appearance: no. of storeys, basement, roofing type, chimneys / stacks?, car park, service areas	NA
Tanks: location (internal / external : above or below ground), age / condition, size / capacity, type, bunding (condition), refuelling point, evidence of stains / spills	NA
Heating : electric/gas/oil	NA
Chemical storage : drums, other chemical stores	NA
Gas control measures (e.g. vents, cowls, monitoring / alarms)	NA
Other evidence of industrial activity	NA
Asbestos / deleterious materials – any asbestos surveys?, removal programmes?	NA
Electrical equipment / Transformers – check for PCBs? Backup power supplies (generators)	NA

Site Walkover Checklist

SITE – EXTERNAL	
Site surfacing : type (asphalt/concrete etc.), staining, weathering, subsidence, repairs. Landscaped areas.	Grass
Drainage : interceptors, disposal of storm water / waste water, mains water supply?	Rainwater drainage runs along the northeastern boundary to a soakaway.
Site topography – flat / sloping?, level compared to surroundings, evidence of filling or raising, earthworks?	Flat
Vehicle maintenance : washdown areas, workshops, refuelling points	NA
Waste : skips / compounds, any hazardous waste? Burning grounds or incinerators	NA
Sub-stations : age, condition, transformers, operator, servicing?	NA
Trees – effects on buildings, condition, species and height	NA
Sloping ground – any indication of instability (cracks in ground, bulges, leaning trees, walls or poles), rotational slip scars.	NA
Ecological features of note – Burrows, bats, nest sites, designated preservation areas	NA
Other features of note within site	Palisade fence bisects the site

Site Walkover Checklist

SURROUNDING LAND USES	
General site context – industrial, commercial, urban, agricultural etc.	School buildings immediately north and west. Wider area is predominantly residential.
Land use – north (give distances)	Immediate – playing fields, beyond which lies school buildings
Land use – south (give distances)	Immediate - Playing fields
Land use – east (give distances)	Immediate – school buildings
Land use – west (give distances)	Immediate - Playing fields
Nearby (<500m) sources of pollution – landfills, filling stations, industrial activity.	None observed
Nearby river / surface water features – culverted, banks, flood plain. If visible, condition of watercourse	Swansea bay is located approximately 250 m south west
Adjacent geotechnical features of note – cuttings, quarries, embankments, slopes (particularly if failed), major excavations, deep basements, sources of vibrations (railway or heavy machinery)	None
Other features of note adjacent to site	

Site Reconisance Photographs



Plate 1 : Facing East



Plate 2: Facing South West

Notes:	Project	Rhosafan Primary School	Figure 1 to 2
	Project No.	H9091-19	
	Carried out for	Neath Port Talbot County Borough Council	

Site Reconisance Photographs



Plate 3 : Facing South



Plate 4 : Facing North West

Notes:	<table><tr><td>Project</td><td>Rhosafan Primary School</td></tr><tr><td>Project No.</td><td>H9091-19</td></tr><tr><td>Carried out for</td><td>Neath Port Talbot County Borough Council</td></tr></table>	Project	Rhosafan Primary School	Project No.	H9091-19	Carried out for	Neath Port Talbot County Borough Council	<table><tr><td>Figure</td><td>3 to 4</td></tr></table>	Figure	3 to 4
Project	Rhosafan Primary School									
Project No.	H9091-19									
Carried out for	Neath Port Talbot County Borough Council									
Figure	3 to 4									



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**APPENDIX F
COAL AUTHORITY REPORT**

CON29M Coal Mining Report

GS-6477203

DRAFT



The Coal
Authority

CON29M

coal mining report

YSGOL RHOSAFAN, RHOSAFAN WELSH PRIMARY SCHOOL, MARINE DRIVE,
SANDFIELDS, SA12 7NN, NEATH PORT TALBOT



Known or potential coal mining risks

Future underground coal mining

Page 3



Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit
www.groundstability.com



Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. It is unlikely that these features will impact on the stability of the enquiry boundary.

Your reference: **GS-6477203**
Our reference: **51002190793001**
Date: **21 November 2019**

Client name:
GROUNDSURE LIMITED

If you require any further assistance please
contact our experts on:
0345 762 6848
groundstability@coal.gov.uk



The Law
Society

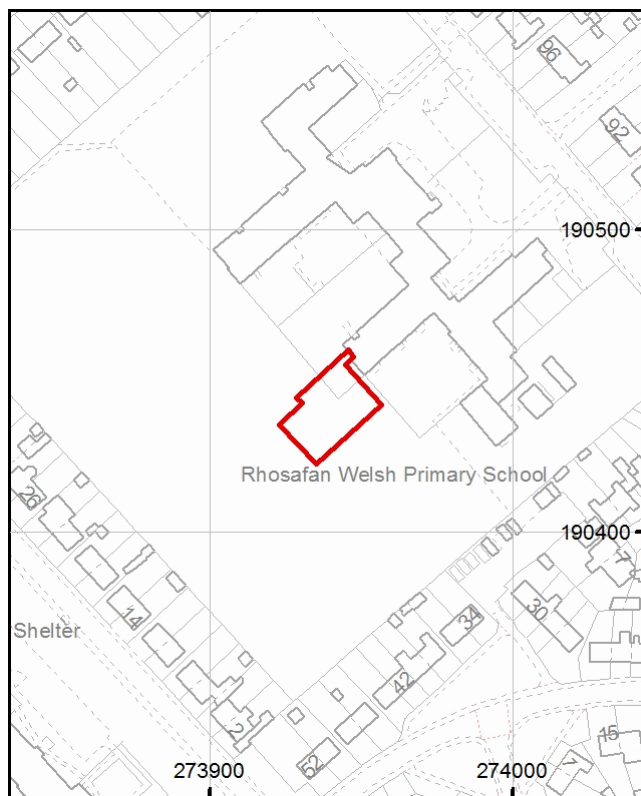
Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is
on the coalfield



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This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.



Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

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1 Past underground coal mining

The property is not within a surface area that could be affected by any past recorded underground coal mining.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

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

4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 Coal mining subsidence

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

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

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

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

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

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

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 Payments to owners of former copyhold land

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

Statutory cover



Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.

www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form



Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call **01623 646 333**. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary



Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings