



**BROWNFIELD
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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

UNITED LIVING

Whiston, Prescot

Phase I Geo-Environmental Assessment Report

JL/C5980/13829

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PROJECT QUALITY CONTROL DATA SHEET

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DRAWINGS

Drawing Number	Rev	Title
23076/255	-	Proposed Development Layout Plan
C5980/01	-	Site Location Plan
C5980/02	-	Site Features Plan

APPENDICES

Appendix	Title
Photographs	Site Walkover Photographs
Appendix A	BSL Methodology and Guidance
Appendix B	Historical Maps
Appendix C	Geo-Environmental Data Report
Appendix D	BGS Exploratory Hole Records
Appendix E	Mining Search Report
Appendix F	UXO Screening Map

1.0 INTRODUCTION

1.1 Context

This report describes a desk-based Phase I Geo-Environmental Assessment Report carried out by Brownfield Solutions Limited (BSL) for United Living on a site off Main Drive, Whiston and has been completed in general accordance with the following guidance:

-
- Environment Agency guidance - Land Contamination: Risk Management (LCRM).
 - BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites.
 - BS5930: 2015+A1:2020 Code of Practice for Ground Investigations.
 - BS EN 1997-1:2004+A1:2013 Eurocode 7. Geotechnical design. General rules plus UK National Annex.
 - BS EN 1997-2:2007 Eurocode 7 Geotechnical design. Ground investigation and testing plus UK National Annex.
 - NHBC Standards. Chapter 4.1: Land Quality - Managing Ground Conditions.
-

Definitions of terms and acronyms used within this report is presented in Section 7.0.

1.2 Proposed Development

The proposed development is for a residential end use comprising 235 residential houses, containing a mix of two storey semi-detached and detached dwellings along with 2.5 storey townhouses and mews, with associated private gardens, highways, public open space (POS) areas and infrastructure as shown on the proposed development plan, drawing No. 23076/255 provided to BSL by the client.

1.3 Objectives and Scope

The objectives of this assessment were to determine the environmental setting and ground conditions of the site, highlighting potential areas of concern that may govern the redevelopment.

The scope of works comprises a Phase I Assessment and site walk-over, with a review of the site, surroundings, historical uses and environmental setting in order to develop a preliminary Conceptual Site Model (CSM).

This report is intended to meet the requirements of a Preliminary Investigation as defined in BS10175:2011+A2:2017 and has been produced in general accordance with the recommendations for a Tier 1 Preliminary Risk Assessment as described in LCRM guidance.

1.4 Limitations

This Phase 1 Geo-Environmental Assessment Report has been prepared in accordance with the relevant legislative framework, guidance and risk assessment methodology as outlined in Appendix A.

The findings and opinions conveyed via this assessment are based on information obtained from a number of sources as detailed within this report, BSL have assumed this information is correct and reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

BSL have used reasonable skill, care and diligence in the production of this report. There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by this assessment and therefore have not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

This report has been prepared for the sole use and reliance of the Client, United Living. No other third party may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL); a charge may be levied against such approval. If any unauthorised third party comes into possession of this report, then they rely on it at their own risk and BSL do not owe them any Duty of Care. This report may not be relied upon by the client or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full.

Any recommendations made in this report should be confirmed with the Regulatory Authorities prior to implementation to ensure compliance.

This assessment has been based on the proposed planning layouts provided. Any subsequent change to the planning layout may have an impact on the validity of recommendations made within this report. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

The site plans enclosed in this report should not be scaled off. Any site boundary line depicted on plans does not imply legal ownership of land.

Notwithstanding site observations concerning the presence or otherwise of archaeological issues, asbestos-containing materials (ACM) or invasive weeds (e.g. Japanese knotweed), this report does not constitute a formal survey of these potential issues and specialist advice should be sought.

2.0 THE SITE

2.1 Location

The site is located off Main drive, Whiston, Prescot, L35 3PW, centred on National Grid Reference 347199 390255 as shown on the Site Location Plan, Drawing No. C5980/01.

2.2 Site Description

A site reconnaissance survey was carried out at the site on 14th January 2025. The main site features and potential issues identified during this survey are detailed below and are shown on the Site Features Plan, Drawing No. C5980/02. A selection of photographs from the site walkover are presented to the rear of this report.

Feature	Description
Site Area	6.15 hectares.
Site Access	Access to the site is gained off Main Drive to the south of the site. Access is open with no boundary separating the site from the public road.
Site Overview Imagery	 Orientated North Update from Google: All images: Imagery Google©2023, Imagery ©2023 Airbus, CNES / Airbus, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, The Geoinformation Group, Map data ©2023.
Current Land Use and Site Features	The site is predominantly occupied by open fields with areas of thick vegetation. There is a shallow pond approximately 10 meters in diameter, located within the north-west of the site. Evidence of underground services onsite includes two water chambers/ above ground manholes present in the western area of the site and spray paint indicating the potential presence of underground services was seen to be running along the southern border of the site, parallel to the road. A suspected mineshaft was noted toward the south-east of the site, evidenced by a slight depression in the field in the approximate location of a recorded mineshaft. A number of gas monitoring wells were noted toward the west of the site.
Potential Sources of Gross Contamination	No potential sources of gross contamination were identified.
Vegetation / Ecology	The site is generally covered with grass. There are semi-mature and mature trees throughout the north-west of the site and sporadically along the sites north, south and eastern boundaries. In addition, there are patches of dense brambles in the north-west and along the sites southern border.
Topography	The site generally slopes from the south-west to the north-east with a gentle gradient. While the north-west section of the site is mostly flat, access to this area is only possible from the southern portion of the site. The southern area includes a steep slope running from the south-east to the north-west, near to the existing pond.

Feature	Description
Site Boundaries	The north the site is bound by wooden fencing separating the site from residential gardens, and heras fencing, separating the site from a construction site on the other side. To the east and west the site is bound by a mix of dense vegetation, chicken wire fencing, and heras fencing. The south of the site is bordered by Main Drive.
Surrounding Area	The site is set within a residential area. A construction site is present to the north and east, appearing to be a developing residential housing estate. Residential homes are present to the south and playing fields present to the west, with homes beyond these.

3.0 GEO-ENVIRONMENTAL SETTING

3.1 Historical Setting

A review of the available historical Ordnance Survey Maps and satellite imagery has been conducted, with the pertinent issues that may have affected the site, or its environs, summarised below. The Historical Maps are presented in Appendix B. A review of the historical industrial data within the geo-environmental data report has also been undertaken below, the report is presented in Appendix C.

Notable features on site, and potentially contaminative or geotechnically relevant features within 100m of the site boundary have been presented. Any features that have potentially been infilled will be considered up to 250m from the site boundary.

Feature	Distance (m) & Direction	Years Present	Description
Prince's House Buildings	On-Site	1850 - 1956	A number of buildings labelled Prince's House are shown to be present within and abutting the sites western boundary from the earliest map of 1850. The buildings that are present within the site associated with Prince's House are last shown on the map of 1956, no longer shown on the subsequent map of 1966. The buildings abutting the western boundary remain present on the most recent map of 2025.
	Abutting western boundary	1850 – Present	
Pond	On-site	1891 – 2010	Pond is first indicated to be present on the 1891 map, within the north west of the site and remains present until the 2010 map, no longer shown on the latest 2025 map. During site walkover it was noted that this pond is still present.
	40m SW	1891 - Present	Pond is first indicated to be present on the 1891 map 40m south west of the site. Still present on most recent map dated 2025.
	50m W	1850 - Present	Pond is indicated to be present on the earliest map in 1850, 50m west of the site. Still present on most recent map dated 2025.
	80m S	1850 - 1955	Pond is indicated to be present on the earliest map in 1850, 80m south east of the site until the map of 1955, no longer shown on the consequent map of 1959. A caravan park has since been constructed in its place.
	85m SE	1850 - 2010	Pond is indicated to be present on the earliest map in 1850, 85m south east of the site. Still present on the 2010 map, but not on the latest 2025 map. Believed to be infilled during this time.
	90m W	1850 - Present	Pond is indicated to be present on the earliest map in 1850, 90m west of the site. Still present on most recent map dated 2025.
Pump house	5m S	1985 - 2010	A pump house is indicated to be present 5m south of the site, first appearing on the 1985 map, and remaining present until the map of 2010 no longer shown on the map of 2025.
Tank	25m W	1927 - 1959	A tank is indicated 25m west of the site, first appearing on the 1927 map, and lastly appearing on the 1959 map. In the next available map dated 1985 the tank is no longer present, presumed to have been removed circa 1959 - 1985.
	30m W	1937 – 1959	A tank is indicated 30m west of the site, first appearing on the 1937 map, and lastly appearing on the 1959 map. In the next available map dated 1985 the tank is no longer present, presumed to have been removed circa 1959 - 1985.
Coal pit	50m W	1850	A coal pit is indicated to be present on the earliest mapping dated 1850, however is no longer present on the next available map dated 1891, being replaced by an area of vegetation, and is presumed to have been infilled between 1850-1891.
Electrical substation	95m N	1959 – Present	An building associated with new residential development is seen to be present 95m N of the site on the map of 1959, this building is labelled as an electrical substation on the maps of 1973 and 1995, this remains as an electrical substation on present day mapping.

Feature	Distance (m) & Direction	Years Present	Description
Sandstone quarry	250m N	1850	A sandstone quarry, labelled stone quarry is first shown on the earliest map dated 1850, circa 250m north of the site, however on the next available map dated 1891 it is shown as an area of vegetation labelled old quarry, implying the quarry to have been infilled potentially prior to 1850, definitely prior to 1891.

In summary, the map evidence indicates that the site has remained as open fields from 1850 up until the present day. A pond is present towards the north west of the site. A building was present toward the western boundary of the site but has since been demolished.

Potential historic offsite sources of contamination include the two tanks 30m west of the site, alongside the coal pit located 70m west of the site, and the historic quarries 250m to the north.

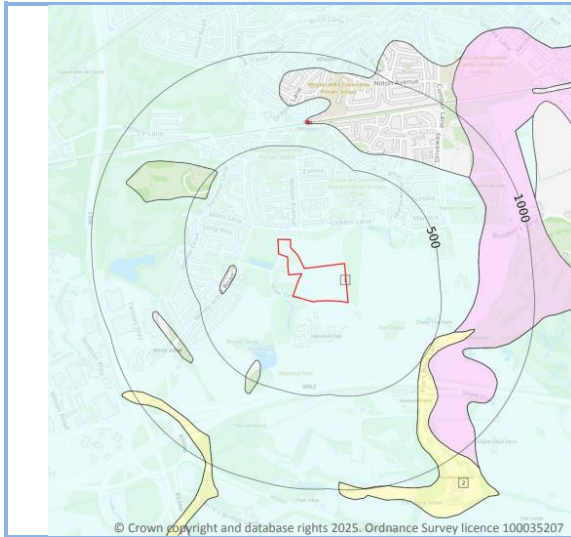
3.2 Published Geology

The following publications of the British Geological Survey (BGS) were examined in respect of the geology underlying the site:

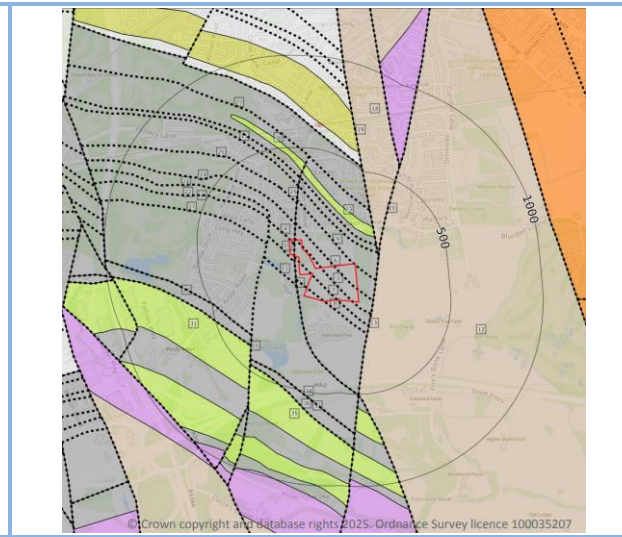
- British Geological Survey (BGS) 1:50,000 Scale Geological Map Sheet 97 Runcorn. Solid and Drift Edition.
- BGS Geology of Britain Map Viewer.
- BGS GeoIndex Onshore.
- BGS 1:10,000 Scale Geological Map SJ48NE.
- Mining Remediation Authority Interactive Map.
- Geo-Environmental Data Report.

Extracts of the 1:50,000 geological mapping from the Geo-Environmental Data Report are presented below for reference:

BGS 1:50 000 Superficial Geology



BGS 1:50 000 Solid Geology



Made Ground

BGS mapping does not display any significant made ground deposits on site, and based on the historical mapping and the lack of previous development that has taken place, only small amounts and thicknesses of made ground deposits on the western border may be present.

Superficial Deposits

The site is indicated to be underlain by glacial Till (Diamicton). This stratum typically comprises a mixture of clay, silt, sand, and gravel, suspended in an unconsolidated matrix.

Solid Geology

The deeper solid geology is indicated to be part of the Pennine Middle Coal Measures Formation, which typically comprises interbedded mudstone, siltstone, and sandstone with coal seams.

A fault is shown to traverse the north western corner of the site in a north to south direction. However, any movements associated with this fault should now have stopped.

The site is also in an area where coal seams are abundant, traversing the site in a north west to south east direction. A Coal Mining Risk Assessment (CMRA) would be required to assess seam locations, depths, thickness and associated potential risks in detail.

3.3 BGS Exploratory Hole Records

There are no BGS exploratory hole records within a relevant distance of the site (assumed as an approximate 50m radius).

3.4 Mining and Mineral Extraction

Coal Mining

The online Coal Authority Interactive Map layers have been reviewed and the details are summarised in the table below:

Relevant Interactive Map Data	Issue at Subject Site?
Coal Authority Reporting Area	Yes
High Risk Development Area	Yes

As the site lies within the Coal Authority Reporting Area, a mining search has been undertaken as the site could be affected by past or current coal mining.

The mining searches are presented in Appendix E, the main findings of which are presented below.

Highlighted Evidence	Issue	Details
Past Underground Mining	Yes	The property is in a surface area that could be affected by underground mining in 4 seams of coal at 146m to 391m depth, last worked in 1903. Any movement in the ground due to coal mining activity should have stopped. The property is in an area where the Authority believe there is coal at or close to the surface and may have been worked at some time in the past.
Present Underground Mining	No	
Future Underground Mining	No	
Mine Entries	Yes	There are 2 known coal mine entries on or within 20 metres of the boundary of the property. There may also be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.
Past, present and future opencast coal mining	No	There is a historic opencast mining area registered approximately 180m west of the site.
Coal mining subsidence	No	
Mine gas	No	
Withdrawal of support	No	
Information from the Cheshire Brine Subsidence Compensation Board	No	

Non-Coal Mining

A historical mineral planning area was present approximately 180m west of the site. Groundsure reports the planning status for clay, shale, and brick surface mineral working existed from 1947 – 1952, this feature aligns with the historic opencast mining area reported on the Consultant's report.

3.5 Hydrogeology

Based on the inferred geology, a summary of the Environment Agency aquifer designations is presented in the table below:

Stratum	Coverage	Aquifer Designation
Superficial Till (Diamicton)	Full Site	Secondary Aquifer (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
Pennine Middle Coal Measures Formation	Full Site	Secondary (A) Aquifer. 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

A summary of the pertinent hydrogeological features within the Geo-Environmental Data Report are provided below:

Feature	Distance (m) & Direction	Details
Nearest Active Groundwater Abstraction	1192m E	Licence No: 2569028021 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Annual Volume (m3): 21966.87 Original Start Date: 06/09/1994
Nearest Active Potable Groundwater Abstraction	1192m E	Licence No: 2569028021 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Annual Volume (m3): 21966.87 Original Start Date: 06/09/1994
Source Protection Zones	78m SE	Type 3 Total catchment

3.6 Hydrology

A summary of the pertinent hydrological aspects within the Geo-Environmental Data Report are provided below:

Feature	Distance (m) & Direction	Details
Nearest Watercourse	35m SW	Unnamed inland river, watercourse contains water year round.
Nearest Surface Water Abstraction	1161m SW	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: "Surface, Non-Tidal - North West Region" Point: "OCHRE & DOG CLOG BRKS, TARBOCK HALL FARM, TARBOCK, PRESCOT" Annual Volume (m3): - Original Start Date: 13/05/1976
Closest Active Licenced Discharge Consent	-	None within 500m.

Information obtained from the Environment Agency (EA) Risk of Flooding from Rivers and the Sea (RoFRaS) database indicates that the risk of flooding across the site is negligible.

The British Geological Survey indicate there is a potential for groundwater flooding at the subject site, with a low risk rating.

No further consideration of flood risk is undertaken in this report. Specialist flood risk advice should be sought with regards to drainage and flooding.

3.7 Landfill and Waste Management Sites

There are no active landfill sites recorded within 500m.

There are four historic landfills within 500m recorded by Environment Agency and Natural Resources Wales, the closest being located 410m north west at Tushingham's Quarry, Coalgate Lane, Paradise Lane, Stadt-Moers Park, Whiston, Merseyside, Knowsley, registered to W F Doyle and Company Limited. First recorded in 1967 and last recorded in 1979. Stated to accept commercial waste.

There are no current waste management sites recorded within 250m of the site.

BSL recommends contacting the Local Authority for further information about LA tips.

3.8 Environmental Regulatory Data

A summary of the relevant environmental aspects, both on site and within 250m of the site contained in the Geo-Environmental Data Report, are presented in the table below:

Entry	On-site	0 – 50m	50 – 250m	Details
Recent Industrial Land Uses	-	1	4	The closest record is a pump house located 8m south of the site.
Current or Recent Fuel Stations	-	-	-	None within 250m .
Licensed Industrial Activities (Part A(1))	-	-	-	None within 250m.
Licensed Pollutant Release (Part A(2)/B)	-	-	-	None within 250m.
Radioactive Substances	-	-	-	None within 250m.
Pollution Incidents (EA/NRW)	-	-	2	The closest record was in 2002, and was 123m west of the site, pollutant was not identified, this was recorded as a category 3 (minor) impact to water. The other incident was in 2002, 238m west of the site, and was recorded as household waste, this was recorded as a category 3 (minor) impact to land.

In regard to the entries identified above, only recent industrial land uses are considered to be of significant relevance to be carried forward to the preliminary CSM. No other entries require further consideration.

3.9 Radon

Information from the environmental database report indicates the property is in an area where <1% of properties are above the Action Level for radon, and therefore radon protective measures are not required in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings'.

3.10 UXO Risk

In accordance with CIRIA Report C681, BSL have reviewed non-specialist UXO data for the site using the online Zetica Bomb Risk Mapping data.

There is no indication of former military use from the Phase I Assessment. The map indicates the site to be in an area where the bomb risk is low. A copy of the map is presented in Appendix F.

3.11 Other Potential Development Constraints

If asbestos is present in soils, these will need to be dealt with in accordance with the Control of Asbestos Regulations (CAR) 2012 and CARSOILS™.

There are known underground services on site, these may need to be disconnected prior to any construction activities.

4.0 PHASE 1 SUMMARY AND RISK ASSESSMENT

4.1 Introduction

The risk posed by any contaminants in soil or groundwater will depend on the nature and level of the source, the probability of exposure occurring, the potential pollution pathway and the likely effects on the receptors.

A contaminant is defined as a substance that has the potential to cause harm, a risk is considered to exist if such a substance is present at sufficient concentrations to cause harm and if a pathway is present through which a receptor could be exposed to the contaminant.

The following sections discuss the identified potential on-site and off-site sources, and any pollution that could impact receptors via the pathways associated with the proposed development. Pollution linkages are assessed which may represent a risk to human health and/or controlled water receptors from the information gained from the Phase I Assessment searches. The assessment has been carried out on a qualitative basis and aims to produce a complete and comprehensive Preliminary Conceptual Site Model.

Three potential impacts exist for any given site and all three need to be considered in the qualitative risk assessment, these are:

-
- On-site impacts.
 - The site impacting its surroundings.
 - Off-site sources impacting the subject site.
-

4.2 Potential Contaminative Sources

On-Site

From the information obtained, the following sources have been identified which may affect the redevelopment of the site for residential end use:

-
- Made ground associated with previous developments.
 - Solid geology - Coal Measures.
 - Mine shafts.
-

One pond was recorded on-site, however, it was still present at the time of the walkover and as such is not considered a risk for a potential contaminative source due to infilling, and can be discounted.

Off-Site

The following off-site sources have been identified which may affect the redevelopment of the site:

-
- Pump house (5m S).
 - Tanks (closest 25m W).
 - Coal Pit (50m W).
 - Infilled pond (80m S).
 - Electrical substation (95m N).
 - Opencast mine (180m W).
 - Infilled quarries (closest 250m N).
-

Three of the recorded off-site ponds were still present at the time of the walkover and as such are not considered a risk for a potential contaminative source due to infilling, and can be discounted

The closest pollution incident recorded in 2002, was 123m west of the site, pollutant was not identified. This has been discounted due to its proximity from site, and its low measured impact, being recorded as a category 3 (minor) impact to water, with no impact to ground or air. The other incident in 2002 was 238m west of the site, and was recorded as household waste. This has been discounted due to its proximity to site and its low measured impact, being recorded as a category 3 (minor) impact to land, with no impact to water or air.

Associated Contaminants

The contaminants commonly associated with the potential sources of contamination identified are tabulated below:

Contaminative Sources	Department of the Environment Industry Profile or Other Source	Commonly Associated Contaminants
On Site		
Made Ground	AGS Guides, CIRIA C665	Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, ground gases (carbon dioxide and methane).
Solid geology – Coal Measures	CIRIA C665	Carbon dioxide, methane, carbon monoxide and hydrogen sulphide
Old mine shafts	BS8485 and BS8576	Heavy metals, PAHs, mine gases (carbon dioxide and methane, carbon monoxide, hydrogen sulphide)
Off Site		
Pump house		Localised oils, hydrocarbons
Tank	Road vehicle fuelling, service and repair	Petroleum hydrocarbons, BTEX, MTBE, VOCs
Infilled ponds	AGS Guides, CIRIA C665, BS8485 and BS8576	Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, ground gases (carbon dioxide and methane)
Coal pit		PAHs, petroleum hydrocarbons, carbonised wastes
Electrical substation	Electrical works	PCBs, oils, BEFORE 1968
Opencast mine	BS8485 and BS8576	Mine gases (carbon dioxide, methane, carbon monoxide, hydrogen sulphide)
Infilled Stone quarries	AGS Guides BS8485 and BS8576	Heavy metals, PAHs, asbestos, ground gases (carbon dioxide and methane)

4.3 Pathways

A pathway is defined as a medium by which a contaminant comes into contact with, or otherwise impacts a receptor.

At this stage the potential contaminants identified above are considered to present potential risks to site end users and controlled waters through the following pathways:

Potential Pathways	
Pathways in respect to Human Health	• Ingestion of contaminated soils. • Dermal contact with contamination. • Inhalation of dusts. • Inhalation of gases or vapours in both indoor and outdoor air.
Pathways in respect to Controlled Waters – Surface water	• Surface run-off /over land flow. • Drainage discharge. • Base flow from groundwater.
Pathways in respect to Controlled Waters – Groundwater	• Leaching of mobile contamination into groundwater via the unsaturated zone. • Migration of perched groundwater in any permeable soils or along existing or proposed service runs. • Migration into the saturated zone and flow through the aquifers underlying the site.
Pathways in respect to Property/structures/water pipes	• Direct contact with substances deleterious to building materials and potable water supply pipelines. • Migration of ground gases (methane) into confined spaces (explosion and damage to property).

4.4 Receptors

The identified receptors are listed below:

-
- Residential end users (human health).
 - Structures/Property/Potable water supply pipes.
 - Nearest watercourse. Unnamed inland River 35m SW (Controlled waters).
 - Superficial Aquifer. Till (Diamicton) - Secondary (Undifferentiated) Aquifer (Controlled waters).
 - Bedrock Aquifer. Pennine Middle Coal Measures Formation - Secondary (A) Aquifer (Controlled waters).
-

Under current UK health and safety legislation, employers are required to carry out their own appropriate site-specific risk assessments and mitigation to protect employees. It has been assumed that any future construction works onsite will be undertaken in compliance with these requirements. Therefore, construction workers have not been specifically considered as part of this assessment.

4.5 Preliminary Conceptual Site Model (CSM)

The information obtained in the previous sections has been used to compile a Preliminary CSM. The identified potential contaminants and receptors have been assessed in the table below as to whether a plausible source-pathway-receptor pollutant linkage for the proposed end use of the site exists. The risk classification has been estimated in accordance with information in the BSL Guidance and Methodology in Appendix A.

The Preliminary CSM's are presented in the tables overleaf, any assessed risk above moderate will possibly require further action:

Human Health						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
On site Made Ground Metals, PAHs, asbestos	Root uptake, ingestion, direct contact, inhalation of dusts	End-users	Low Likelihood	Medium	Moderate/ Low	The site has been subject to limited development throughout its history. The presence of made ground is considered likely in the west of the site. Generally, made ground deposits are not anticipated to be substantial in thickness, nor have any significant contaminative processes been identified on site. However, highly localised deep deposits may be present in the location of the former mine shafts. The risk is therefore considered to be moderate/ low. Further investigation and assessment will be required to confirm the risk.
On site Made Ground Metals and organic contamination	Migration into/chemical attack of water supply pipelines	Water Pipelines / End users	Unlikely	Medium	Low	Contaminants within the soil/groundwater could potentially attack the clean potable water supply pipe, contaminants should be assessed to determine the correct pipe material and level of precautions required.
On site Made Ground/Natural Geology - Coal measures Ground Gas (carbon dioxide and methane)	Migration into confined spaces, inhalation and asphyxiation/ explosion	End-users / Property	Unlikely	Severe	Moderate/ low	As discussed above, significant thickness' of made ground deposits are not likely to be present on site and the gas generation potential of these materials is likely to be very low. The Pennine Middle Coal Measures that underly the site exhibit low-permeability coal seams and mudstones, which typically restrict gas migration, this is supported by the Coal Authority showing no risk considered by mine gas to the site. Therefore, the risk posed by made ground and coal measures is currently assessed as moderate/ low with further investigation including gas monitoring and assessment required to confirm the risk.
On site Mine shaft Ground gas (carbon dioxide and methane)	Migration into confined spaces, inhalation and asphyxiation/ explosion	End-users / Property	Unlikely	Severe	Moderate/ Low	The onsite shaft is considered possible to accommodate significant thicknesses of made ground and is likely to act as a vector for ground gas or mine gas, however due to its highly localised and small area, this likelihood is assessed as unlikely. Assessed as moderate to low risk. Further investigation to determine made ground thickness within the shaft, including targeted ground gas monitoring, will be required to confirm the level of risk.
Off-site Pump House and ASTs (localised oils, hydrocarbons, PAHs)	Ingestion, direct contact, inhalation of vapours	End-users	Unlikely	Medium	Low	A pump house was indicated to be present 5m south of the site and tanks 25-30m west of the site, likely associated with residential use based on historical mapping evidence. Any oils, lubricants or fuels etc would likely have been used in very small quantities any spillages are likely to be small to negligible and it is unlikely for them to have migrated onto the site given the presence of low permeability cohesive soils that underly the site. The risk is therefore considered to be low.

Human Health						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
Off site Electricity Substation PCBs	Ingestion, direct contact, inhalation of dusts	End-users	Unlikely	Medium	Low	The substation has been present since at least 1973, which pre-dates the ban on PCBs implemented in 1986, presenting a potential source of PCBs. However, these compounds were typically used in very low volumes with regular maintenance regimes carried out which would identify any significant leaks or spillages of this contaminant. In addition, PCBs are relatively immobile and are unlikely to have migrated away from the substation, especially as the substation appears to have been seated on a hard standing base which is likely to have contained any contaminants. The majority of the site will be occupied by the residential development with soft landscaping and given the residential nature of the proposed development, there is a low likelihood of exposure, and intrusive investigation is required to confirm the risk. The overall risk is considered to be low.
Off site Potentially Infilled Features Coal Pit/ Opencast Mine/ Quarry / Pond Ground Gas (carbon dioxide, methane)	Migration into confined spaces, inhalation and asphyxiation/ explosion	End-users / Property	Unlikely	Severe	Moderate/ Low	A coal pit, opencast mine, a quarry, and a pond were historically present from 50m to 250m from the site, later being infilled with unknown materials. These infilled features may present a potential for ground gas generation. Given the distance of these infilled features to the site and the presence of cohesive deposits associated with the Till indicated to be present in that area and the propensity for ground gas to migrate upwards it is considered unlikely any ground gases produced will migrate onsite. Additionally, considering the time since the potential infilling of the off site features any resultant ground gasses generated will have likely dissipated. The risk is therefore considered moderate / low with further investigation required to confirm the risk.

Controlled Waters						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
Made Ground PAHs, Metals	Overland flow, / migration through saturated zone	Unnamed river 35m SW away (Surface waters)	Unlikely	Medium	Low	It is considered contaminants associated with the made ground and other past industrial uses are unlikely to impact the River. This is due to the small area of made ground present, the low permeability of the clays underlying the area, which will inhibit lateral migration, and the potential for contaminants to attenuate and degrade over this distance. The proposed development will include gardens which would minimise overland flow to the river and roadways would include drainage which would channel rainfall away. Therefore, a low risk is posed to the river from the made ground.
	Leaching through unsaturated zone / Migration through saturated zone	Secondary Superficial Undifferentiated Aquifer (Groundwater)	Unlikely	Medium	Low	Gross contamination is not anticipated to be present at the site. Contaminants are unlikely to be transmitted in low permeability strata such as Till, where migration of groundwater will be limited. The Secondary undifferentiated aquifer is not considered to be a significantly sensitive receptor. The site is not located within an SPZ and there are no groundwater abstractions for potable water supply within 1km of the site. New roadways with drainage are proposed as part of the development, however areas of gardens and soft landscaping are also planned. By virtue of the development taking place, this should contribute to an overall “betterment” of groundwater quality.
	Migration through saturated zone	Secondary A Bedrock Aquifer (Groundwater)	Unlikely	Medium	Low	There are no groundwater abstraction licences or Source Protection Zones within 1km of the site. New roadways with drainage are proposed as part of the development, however areas of gardens and soft landscaping are also planned. As stated above, the site is underlain by low permeability deposits, which will inhibit vertical migration, with a new surface water drainage system installed which will further reduce the risk to controlled waters, and by virtue of the development taking place, it should contribute to an overall “betterment” of groundwater quality..

Human Health Risk – Soils Contamination Summary

Based on the preliminary CSM and the current use of the site, the overall risk from land contamination at the site is considered to be **low to moderate / low** for a redeveloped site. This would need to be confirmed by appropriate intrusive investigation, testing and assessment.

Human Health Risk – Ground Gas Summary

A potential on-site gas source has been identified associated with natural solid geology, and underground historic mine workings. Off-site potential sources include historic infilled quarries and mines. Potentially viable linkages are considered to exist and the preliminary CSM considers these sources to be of **moderate / low to moderate** risk.

In accordance with BS8576 and CIRIA C665 as set out in Appendix A of this report, the gas generation potential is considered to be very low. The sensitivity of the development is high on account of the proposed residential use.

In line with current guidance, it is recommended that ground gas monitoring should comprise 6 visits over a 3 month period.

Controlled Waters Risk - Summary

Based on the preliminary CSM, BSL believes the overall risk to controlled waters at the site is **low**.

The above assessed level of risk will need to be confirmed by intrusive investigation and quantitative risk assessment.

5.0 PRELIMINARY GEOTECHNICAL ASSESSMENT

5.1 Hazard Identification

A preliminary geotechnical hazard identification exercise has been undertaken in general accordance with the Highways England document CD 622, 'Managing geotechnical risk'. Potential geotechnical hazards based on the expected ground conditions are listed below:

- Made ground of unknown nature; if placed in a non-engineered manner may cause excessive settlement of foundations, highways and infrastructure.
- Attack of buried concrete by aggressive ground conditions; the site may contain unknown made ground and potentially sulphate bearing soils. The coal measures are known to be high in naturally occurring sulphates.
- Shrink / swell of clay; settlement / heave of foundations and floor slabs when located within the influence of trees and vegetation.
- Shallow groundwater / groundwater rise causing resulting in difficulties with excavations due to trench collapse.
- Mining subsidence; the site is in an area of former shallow coal mine workings.

In respect to potential for mining induced stability, the site has two former coal mine shafts, where the Coal Authority holds no further details on treatment, except that shaft 347390-006 has been proved to be filled and may have been capped to an unknown specification. The site is also in an area of probable shallow coal mine workings and will likely require further investigation. Further research should be carried out in the form of a site-specific Coal Mining Risk Assessment to fully determine the risk. The location of the mine entries may have an impact on the development layout as an easement is required around the shaft for any proposed structures.

The above identified geotechnical hazards will need to be considered as part of further investigations and assessments.

5.2 Foundation and Geotechnical Design

The proposed development will comprise low-rise residential housing with associated gardens and infrastructure. The type of foundation solution should be informed by an onsite intrusive investigation to confirm ground conditions and obtain geotechnical parameters for preliminary design.

Given the historical coal mining that has occurred in the local area, it would be considered prudent to contact the Local Authority Building Control and take advice on any localised foundation designs that may be required (e.g. a reinforced raft design).

5.3 Drainage

Given the site is underlain by low permeability clays, it is unlikely that drainage to SuDS such as traditional soakaways will be suitable.

5.4 Recommendations

To confirm the ground conditions in respect to the identified potential geotechnical hazards and risks, an appropriate intrusive investigation will need to be undertaken.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Geo-Environmental Summary

The site has generally remained as greenfield since mapping began in 1850, having only a very small amount of residential development on site, although historical coal mining is present. Based on the proposed residential end-use, the overall risk to human health from on site contamination is considered to be low to moderate/ low.

The risk from off-site sources of contamination considered to be low to moderate/ low.

The risk from permanent ground gases is considered to be moderate/ low to moderate and further monitoring is recommended.

Radon is not considered to pose a risk.

The overall risk to controlled waters is considered to be low.

Intrusive investigations will be required to confirm the above assessed levels of risks and determine remedial requirements, if any.

6.2 Geotechnical Summary

Intrusive investigations will be required to confirm the most suitable foundation solution and to obtain parameters for concrete classification, floor slab and highways design.

Whilst the site lies within a Coal Authority Reporting Area, mining related instability is not considered to pose a risk to the site.

Drainage to SuDS is unlikely to be a viable option for the site subject to intrusive investigation and testing.

6.3 Further Work

To confirm the risks to the identified receptors and confirm the ground conditions in respect to the identified geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken. The following further works are recommended, although this list is not exhaustive and should be read in conjunction with any planning conditions that are applicable to the site:

-
- Topographical survey / utility mapping.
 - Demolition / Refurbishment Asbestos survey (where applicable).
 - Intrusive ground investigation comprising:
 - Trial pitting, windowless sampling and rotary open hole drilling.
 - Installation of standpipes in boreholes to allow gas concentrations and groundwater levels to be monitored.
 - The undertaking of soil infiltration rate testing.
 - Geotechnical testing of soils.
 - Contamination analyses of soil.
 - Assessment and recommendations based on the above, including requirements for further work, if necessary.
-

7.0 ABBREVIATIONS AND DEFINITIONS

GLOSSARY	
Term / Abbreviation	Definition
AST	Above Ground Storage Tank.
B(a)P	Benzo (a) Pyrene.
BGS	British Geological Survey.
BRE	Building Research Establishment.
BS	British Standard.
BSL	Brownfield Solutions Ltd.
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes.
CBR	California Bearing Ratio (used in pavement/highways design).
CAR 2012	Control of Asbestos Regulations (2012).
CBCB	Cheshire Brine Compensation Board.
CBCD	Cheshire Brine Compensation District.
CBR	California Bearing Ratio.
CIEH	Chartered Institute of Environmental Health.
CIRIA	Construction Industry Research Association.
CL:AIRE	Contaminated Land: Applications in Real Environments.
CLEA	Contaminated Land Exposure Assessment.
CLO	Contaminated Land Officer.
COMAH	Control of Major Accident Hazards.
Contamination	Presence of a substance which is in, on or under land, and which has the potential to cause significant harm or to cause significant pollution of controlled water. There is no assumption in this definition that harm results from the presence of the contamination. Naturally enhanced concentrations of harmful substances can fall within this definition of contamination. Contamination may relate to soils, surface water, groundwater or ground gas.
Controlled Waters	Inland freshwater (any lake, pond or watercourse above the freshwater limit), water contained in underground strata and any coastal water between the limit of highest tide or the freshwater line to the three-mile limit of territorial waters.
CPT	Cone Penetration Test.
CSM	Conceptual Site Model. A schematic hypothesis of the nature and sources of contamination, potential migration pathways (including description of the ground and groundwater) and potential receptors, developed on the basis of the information from the preliminary investigation and refined during subsequent phases of investigation and which is an essential part of the risk assessment process. The conceptual site model is initially derived from the information obtained by the preliminary investigation (i.e. the Phase I Phase I Assessment). This conceptual model is used to focus subsequent investigations, where these are considered to be necessary, in order to meet the objectives of the investigations and the risk assessment. The results of intrusive investigations can provide additional data that can be used to further refine the conceptual site model.
DCP	Dynamic Cone Penetrometer.
DNAPL	Dense Non-Aqueous Phase Liquid.
DoWCoP	Definition of Waste Code of Practice.
DWS	Drinking Water Standard.
EA	Environment Agency.
EHO	Environmental health Officer.
EQS	Environmental Quality Standard.
GAC	Generic Assessment Criteria.

GLOSSARY	
Term / Abbreviation	Definition
GDR	Geotechnical Design Report.
GFR	Geotechnical Feedback Report.
GIR	Ground Investigation Report.
GSV	Gas Screening Value.
Harm	Adverse effect on the health of living organisms, or other interference with ecological systems of which they form part, and, in the case of human health, including property/structures and water supply pipelines.
Hazard	Inherently dangerous quality of a substance, procedure or event.
HDPE	High Density Polyethylene.
HSV	Hand Shear Vane.
K	Modulus of Subgrade Reaction.
LCRM	Land Contamination: Risk Management (EA guidance).
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene).
LOD	Limit of Detection (for particular method adopted).
MMP	Materials Management Plan.
Mv	Modulus of Volume of Compressibility.
ND	Not Detected.
NHBC	National House Building Council.
NR	Not Recorded.
OS	Ordnance Survey.
PAH	Polycyclic Aromatic Hydrocarbon.
Pathway	Mechanism or route by which a contaminant comes into contact with, or otherwise affects, a receptor.
PCB	Poly-Chlorinated Biphenyl.
PCSM	Preliminary Conceptual Site Model.
pH	Scale used to specify how acidic or basic a water-based solution is.
PHC	Petroleum Hydrocarbons.
PID	Photo Ionisation Detector.
PNEC	Predicted No-Effect Concentration.
Precision	Level of agreement within a series of measurements of a parameter.
PSD	Particle Size Distribution.
PVC	Polyvinyl Chloride.
Receptor	Human health, living organisms, ecological systems, controlled waters (surface waters and groundwater within aquifers), atmosphere, structures and utilities that could potentially be adversely affected by contaminant(s).
Risk	Probability of the occurrence, magnitude and consequences of an unwanted adverse effect on a receptor.
Risk Assessment	Process of establishing, to the extent possible, the existence, nature and significance of risk.
Sampling	Methods and techniques used to obtain a representative sample of the material under investigation.
SOM	Soil Organic Matter.
Source	Location from which contamination is, or was, derived. This could possibly be the location of the highest soil, groundwater or gas concentration of the contaminant(s).
SPT	Standard Penetration Test.
SVOCs	Semi Volatile Organic Compounds.
TOC	Total Organic Carbon.
TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group).

GLOSSARY	
Term / Abbreviation	Definition
TVOCs	Total volatile organic compounds.
UCS	Unconfined Compressive Strength.
Uncertainty	Parameter, associated with the result of a measurement that characterises the dispersion of the values that could reasonably be attributed to the measurement.
UST	Underground Storage Tank.
UXO	Unexploded Ordnance.
VCCs	Vibro Concrete Columns.
VSCs	Vibro Stone Columns
VOCs	Volatile Organic Compounds.
WAC	Waste Assessment Criteria.
WFD (in waste context)	Waste Framework Directive.
WFD (in water context)	Water Framework Directive.
Units	Definition
°	Degrees
Φ	Phi angle (in degrees)
g/l	Grams per Litre
Km	Kilometres
kPa	Kilo Pascal (Equivalent to kN/m ²)
KN/m ² /mm	Kilo Newton per metered squared per millimeter
kN/m ²	Kilo Newtons per metre squared
kPa	Kilo Pascal (Equivalent to kN/m ²)
l/hr	Litres per hour
MJ/kg	Mega joule per kilogram
MN	Mega Newton
M ² /MN	Mega Newton per metre squared
M	Metres
m bgl	Metres Below Ground Level
m OD	Metres Ordnance Datum (sea level)
µg/l	Micrograms per Litre (parts per billion)
µm	Micrometre
mb	Millibars (atmospheric pressure)
mg/kg	Milligrams per kilogram (parts per million)
mg/m ³	Milligram per metre cubed
mm	Millimetre
ppb	Parts Per Billion
Ppm	Parts Per Million

8.0 REFERENCES

References used in the production of this report are listed below; note not all of the below are relevant to the subject site and may not have been utilised.

Association of Ground Investigation Specialists. 'Description Of Anthropogenic Materials– A Practitioners' Guide'. 2018.

BS 8576 'Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)'. 2013.

BS 5930+A1:2020: 'Code of Practice for Site Investigations'. 2020.

BS 10175:2011+A2:2017 'Investigation of Potentially Contaminated sites - code of practice'. 2017.

BRE Report BR211, Scivyer, C. 'Radon – Guidance on protective measures for new buildings' 2023 Edition.

CIRIA Special Publication SP32, PSA Civil Engineering Technical Guide 34, 'Construction over abandoned mine workings'. 1984.

CIRIA C574 'Engineering in Chalk'. 2002.

CIRIA C665 'Assessing Risks Posed by Hazardous Ground Gases to Buildings'. 2007.

CIRIA C681 'Unexploded Ordnance (UXO) A guide for the construction industry'. 2009.

CIRIA C753 'The SuDS Manual'. 2015.

CIRIA C758 'Abandoned Mine Workings Manual'. 2019.

CL:AIRE RB17 'A Pragmatic Approach to Ground Gas Risk Assessment'. 2012.

CL:AIRE TB19 'Managing Risks and Liabilities associated with Per and Polyfluoroalkyl Substances (PFASs)'. 2019.

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Highways England. CD 622, 'Managing geotechnical risk'. 2020.

National Planning Policy Framework (NPPF). 2023.

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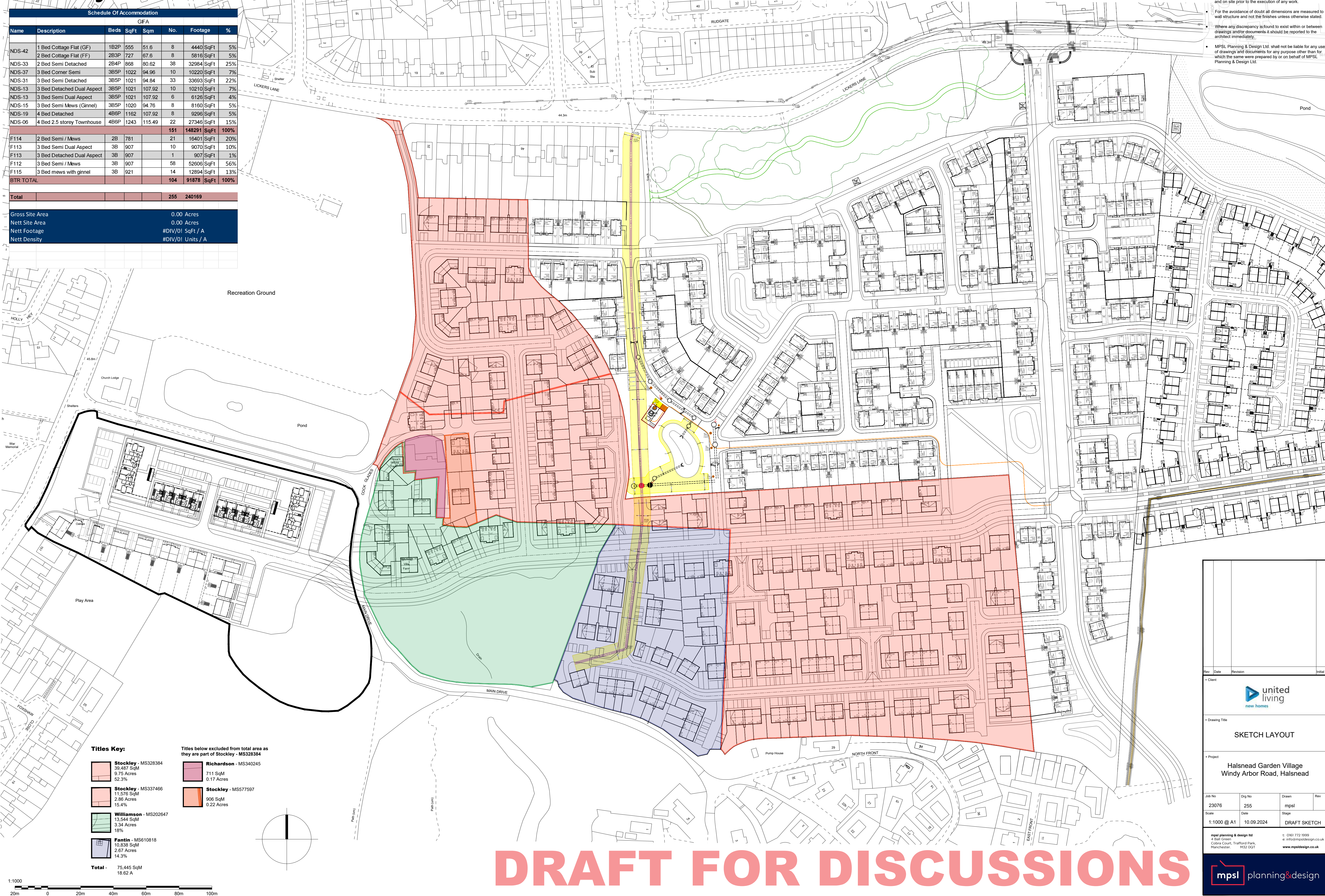
NHBC Standards. Chapter 4.1: Land Quality - Managing Ground Conditions.

NHBC. 'Hazardous Ground Gas - An essential guide for housebuilders'. May 2023.

Water Framework Directive, 2000.

DRAWINGS

Windy Arbor Road, Halsnead



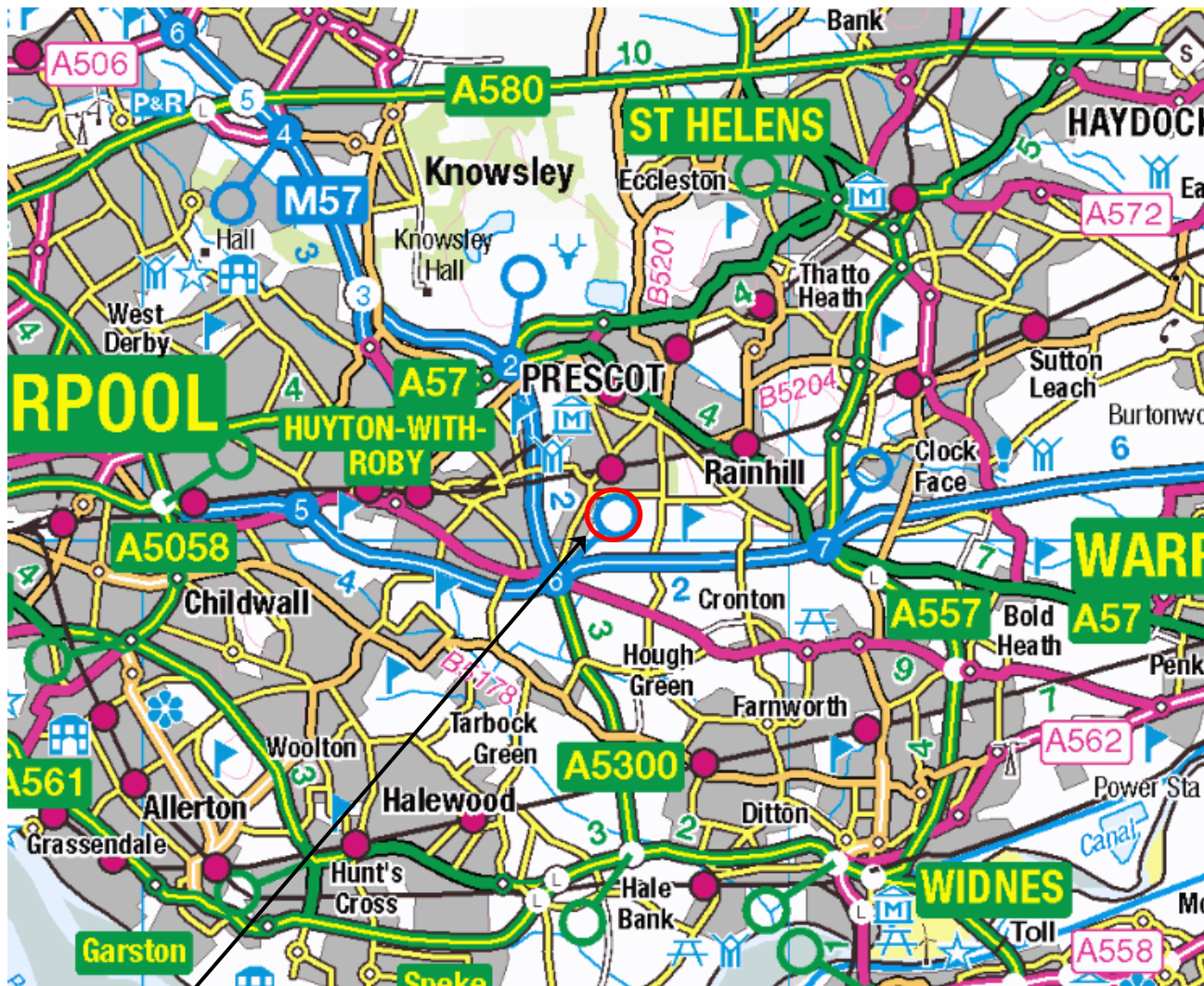
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Only scale for 'Town and Country Planning Act 1990' services. For construction purposes, work to figured dimensions only. All dimensions to be checked with MPSLI and on site prior to the execution of any work.

For the avoidance of doubt all dimensions are measured to wall structure and not the finishes unless otherwise stated.

Where any discrepancy is found to exist within or between drawings and/or documents it should be reported to the architect immediately.

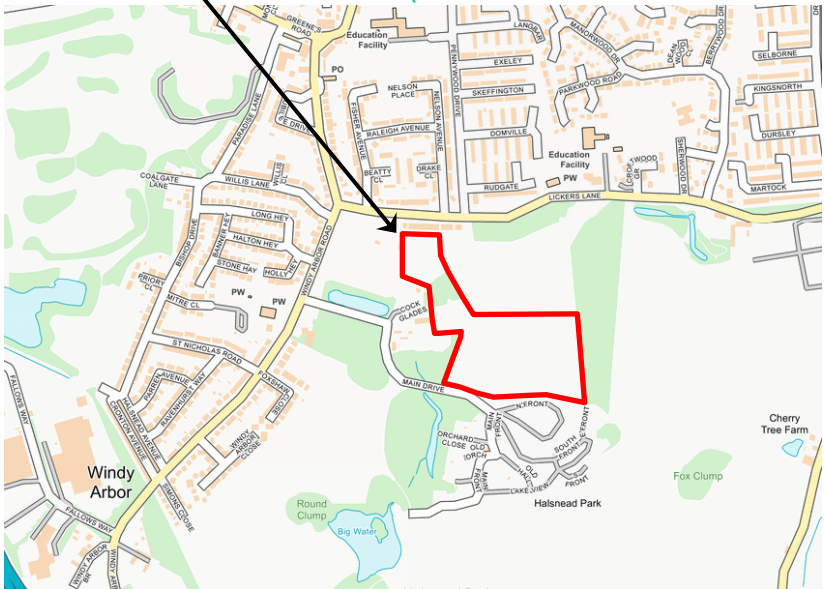
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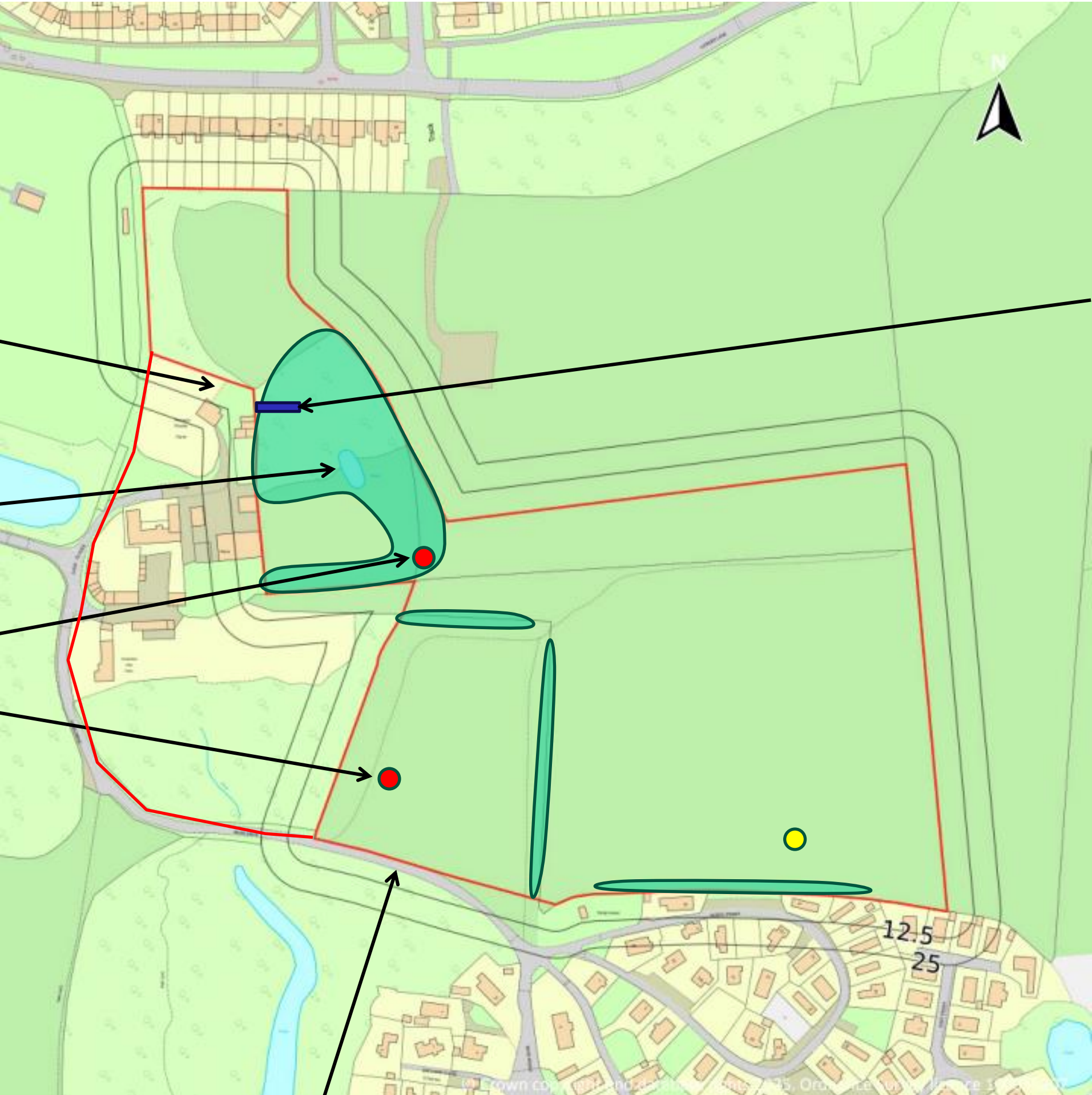
SITE LOCATION

NEAREST POSTCODE: L35 3PW

SITE ENTRANCE WHAT3WORDS:
///GATES.MAYBE.SWEEP



REV	DATE	DESCRIPTION	BY	CKD
 BROWNFIELD SOLUTIONS LTD CEO ENVIRONMENTAL ENGINEERING EXCELLENCE				
CLIENT UNITED LIVING				
PROJECT TITLE HALSNEAD GARDENS PHASE 1				
DRAWING TITLE SITE LOCATION PLAN				
DRAWING No. C5980/01		REVISION -	SCALE NTS	DATE 10/01/25
DRAWN BY SD			CHECKED BY JM	



GATED
SITE
ACCESS

SMALL POND

RAISED
MANHOLE
COVER

SITE ACCESS

3FT HIGH
BRICK WALL

KEY

- APPROXIMATE SITE BOUNDARY
- DENSE VEGETATION
- BRICK WALL
- RAISED MANHOLE COVERS
- SUSPECTED MINE SHAFT

- NOTES
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REV	DATE	DESCRIPTION	BY	CKD



CLIENT UNITED LIVING			
PROJECT TITLE HALSNEAD GARDENS PHASE 1			
DRAWING TITLE SITE FEATURES PLAN			
DRAWING No. C5980/02	REVISION -	SCALE NTS	DATE 14/01/25
DRAWN BY JL		CHECKED BY JEM	

PHOTOGRAPHS



Photograph 1: Site Entrance



Photograph 2: SW area of site



Photograph 3: Above ground manhole



Photograph 4: Dense vegetation toward NW of site



Photograph 5: Onsite pond



Photograph 6: 3ft high brick wall



Photograph 7: SE area of site



Photograph 8: Suspected mine shaft toward SE



Photograph 9: Previous gas monitoring well



Photograph 10: Evidence of underground services

APPENDIX A

BSL Methodology and Guidance

BSL Phase I Geo-Environmental Assessment Reports - Methodology and Guidance

Background

This Appendix provides information on the approaches, methods and guidance used by Brownfield Solutions Ltd in the preparation of this report.

The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential soils and groundwater contamination). The term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). It should be noted that this is an integrated investigation and these two main aspects are related, unless otherwise specified within the report.

Phase I reports are written in general accordance with the description of a Preliminary Investigation as defined in BS10175:2011+A2:2017 and are also produced in general accordance with the recommendations for a Tier 1 Preliminary Risk Assessment as described in LCRM guidance.

The first stage of the investigation and assessment of a site is the Preliminary Investigation/Tier 1 Preliminary Risk Assessment, often referred to as a Phase 1 Desk Study, comprising a desk study and walk-over survey and collation of desk-based searches, which culminates in the Preliminary Risk Assessment and the development of a preliminary/initial **Conceptual Site Model (CSM)**. From this are identified any potential geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them. In the case of the geotechnical hazard identification, this is referred to as the **Ground Model**.

From the geo-environmental perspective, the hazard Identification process uses professional judgement to evaluate all the hazards in terms of possible contaminant linkages (of source-pathway-receptor). Possible contaminant linkages are potentially unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and generic risk assessment as part of Phase II investigations and reports.

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The Ground Investigation comprises field work and laboratory testing based on the findings of the Preliminary Risk Assessment, to reduce uncertainty in the geotechnical and geo-environmental hazard identification. This may include an exploratory, a detailed or/and supplementary Investigations as described in BS 10175:2011+A2:2017. Phase II Assessments are produced in general accordance with the recommendations for a Tier 2 Generic Quantitative Risk Assessment as described in LCRM guidance and are also intended to fulfil the requirements of a Ground Investigation Report (GIR) as detailed in BS EN 1997-2:2007.

Contaminated Land - Legislative Background

Land contamination can be addressed in several ways, e.g. during planning, under Part 2A, following an incident, during an investigation into environmental damages, or during the application of an environmental permit, or its surrender.

For the planning process the key test is **as a minimum the site cannot be determined as contaminated land**, e.g. there is not significant harm, significant possibility of significant harm to human health or that there is not significant harm to, or the significant possibility that the pollution of controlled waters will occur.

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

-  The 1995 Environment Act.
-  The Contaminated Land Statutory Guidance, DEFRA – April 2012.
-  The Contaminated Land (England) Regulations 2006.
-  The Contaminated Land (England) Amendment Regulations 2012.
-  Water Resources Act.
-  Water Framework Directive.
-  Environmental Damage Regulations.
-  Environment Agency (EA) - Land Contamination Risk Management (LCRM) 2019.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

- 1) Significant harm is being caused or there is a significant possibility of such harm being caused.
- 2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

Source - substances that are potential contaminants or pollutants that may cause harm.

Pathway - a potential route by which contaminants can move from the source to the receptor, and the impact of that migration on the source e.g., attenuation.

Receptor - a receptor that may be harmed, for example the water environment, humans and water, considering the sensitivity of the receptor.

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused.



Where any one of the “pollution linkages” between the above is absent there is deemed to be no risk.

The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the S-P-R approach is ‘suitable for use’ criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

Relevant Guidance Documents

This report has been prepared in accordance with the list of guidance below, however the list is not exhaustive:

- DETR: Circular 02/2000: Environmental Protection Act 1990: Part IIA: Contaminated land. 2012.
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002.
- BS 10175:2011+A2:2017.
- Environment Agency (EA) - Land Contamination Risk Management (LCRM). 2019.
- Groundwater Protection <https://www.gov.uk/government/collections/groundwater-protection>
- UK Technical Advisory Group (UKTAG) - - Water Framework Directive
- Incidents and their classification: the Common Incident Classification Scheme (CICS) – Used by the Environment Agency to classify pollution incidents.

Relevant Legislative Documents

The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012).
- The Environment Protection Act (1990).
- The Water Resources Act (1991).
- The Environment Act (1995).
- The Contaminated Land (England) Act (2000).
- The Pollution Prevention and Control (England and Wales) Regulations (2000).
- The Landfill Regulations (England and Wales) Regulations (2002).
- The Landfill (England and Wales) (Amendment) Regulations (2004).
- Contaminated Land (England) Regulations (2012).
- The Environmental Damage (Prevention and Remediation) Regulations (2009).
- Environmental Permitting Regulations (England and Wales) Regulations (2010).
- The Water Environment (Water Framework Directive) (England and Wales) Regulations (2017).
- Health and Safety at Work Act.
- National Planning Policy Framework (NPPF) – latest version.

Contaminated Land Risk Assessment Approach

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:



LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process. Under LCRM, three tiers of risk assessment exist – Stage/Tier Preliminary Risk Assessment, Stage 2 Generic Quantitative Assessment and Stage 3 Detailed Quantitative Assessment.

Further information can be found at the below site:

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme (CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report if applied.

The likelihood of a given receptor being impacted is related to a number of factors, e.g. the geology which could inhibit contaminant migration. For example, a site with a significant thickness of clay between it and a receptor may reduce migration of contamination via the subsurface, which will reduce the likelihood of a given receptor being impacted. The geology or drainage for example could offer a preferential pathway e.g. mines shafts/faults increasing the likelihood and potential magnitude of an impact. The depth of contamination will also affect the exposure pathway, for example petroleum hydrocarbons at depth are unlikely to reach a receptor via dermal contact but could via vapour pathways which will influence the likelihood of an impact being felt e.g. if there are no buildings on site.

The terms and definitions used for the assessment of the likelihood are provided below:

High likelihood: There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.

Examples - Extensive areas with concentrations above saturation limits for mobile contamination e.g. petroleum hydrocarbons within the water table.

Likely: There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term.

Examples – Localised areas of contaminants with concentrations above saturation limits for mobile contamination e.g. localised petroleum hydrocarbons within the water table; shallow contamination above relevant human health generic assessment criteria is present with little or no hardstanding,

Low likelihood: There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term.

Examples - A thickness/distance of low permeability deposits preventing contaminant migration to a receptor is present; a site is mostly covered hard standing preventing exposure to soil contamination.

Unlikely: There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.

Examples – A site is underlain by a substantial thickness of low permeability clays, between the source and potential receptors which will inhibit significantly, but not completely rule out migration to sensitive receptors.

The severity is also classified using a system based on CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme (CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report, if applied. The terms and definitions are:

Severe: Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);

Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse.

Medium: Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);

Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve.

Mild: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment.

Examples - Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.

Minor: harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.

Examples - Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very Low	Very low
	Negligible	Negligible Risk / No Linkage			

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

Very high: There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required.

High: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term.

Moderate: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term.

Low: It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.

Very Low: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Some linkages may be identified which constitutes a theoretical connection between a source and a receptor, but professional judgement shows them not to be possible for some reason. These are labelled ‘negligible risk’ and ‘no linkage’ in the summary table, which give rise to an overall **negligible** risk category and no further action is required.

Ground Gas Risk Assessment

BS8485:2015+A1:2019, BS 8576:2013, CL:AIRE RB17, and NHBC ‘Hazardous Ground Gas - An essential guide for housebuilders’ 2023, are the current guidance which gives up-to-date advice on all aspects of permanent ground gas risk. BS8576 alongside CIRIA C682 also provides guidance on assessment of hydrocarbon vapour intrusion.

The CL:AIRE publication ‘Good Practice for Coal Mine Gas Emissions’ 2021 provides guidance on the assessment of risks from mine gas sources.

The above all outline good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to ground gas contamination. The aim of the guidance is for a consistent approach to decision making, particularly relating to the scope of protective design measures on a site-specific basis.

Legislative Framework

BS8485:2015+A1:2019, BS 8576:2013 and CIRIA C665 provides technical guidance, however they also recognise the context into which the guidance has to be employed. Government policy is based upon a “suitable for use approach”, which is relevant to both the current and proposed future use of land. When considering the current use of land, Part IIA of the Environment Protection Act 1990 provides the regulatory regime. The presence of hazardous ground gases could provide the “source” in a “pollutant linkage” which could lead the regulator to determine that considerable harm or there is a significant possibility of such harm being caused. Under such circumstances, the regulator would determine the land to be “contaminated land” under the provisions of the Act, setting out the process of remediation as described in the DETR Circular 02/2000 *Statutory guidance on contaminated land*.

Generation Potential of Sources

BS 8576:2013 Figure 6 provides a basis for assessing the generation potential from sources identified as part of the Phase I Assessment. These are summarised below:

Generation Potential	Typical Sources
Very Low	- Natural carbonate soil and strata, e.g. chalk and limestone. - Natural soil strata with a low degradable organic content, e.g. alluvium, peat. - In-filled pond less than 15 m diameter, in-filled before 1930s to 1940s. - Made ground with low degradable organic content (e.g. up to 5% organic material such as pieces of wood, pieces of paper, rags, etc. with a high proportion of ash and no food or other easily degradable waste). - Mine workings shallow or shaft (where there is clear evidence that they are flooded). - Inert landfill sites.
Low	- Natural soil strata with a high degradable organic content (DOC). - Made ground with total organic carbon (TOC) up to 6% (e.g. dock silt, no food or other easily degradable waste). - Foundry sand (includes phenolic binders, rags and wood that decay, albeit at low rates). - Landfill 1945 to mid 1960s (see also Moderate below).
Moderate	- Sewage sludge. - Mine workings – unflooded, more than 50 years since last worked (gas is liberated from coal when mine workings are excavated; this continues for up to about 50 years). - Landfill 1945 to mid 1960s (this could also be “low” or, if disturbed, “high”).
High	- Landfill mid 1960s to early 1990s. - Mine workings – unflooded – less than 50 years since last worked.
Very High	- Municipal landfill sites. - Landfill early 1990s onward.

Frequency and Duration of Monitoring

BS8576 notes to determine where and how to monitor ground gases requires consideration of credible pathways of possible exposure of the receptors, taking into account what is known about the geology and hydrogeology, building construction and services layout, foreseeable events such as flooding, changes in groundwater level, climate change, extreme weather conditions, the closure of mines, and possible changes to the gas regime caused by future development.

The monitoring period for a specific site should cover the “worst case” scenario. A “worst case” scenario will typically occur during falling atmospheric pressure and, in particular, weather conditions such as rainfall, frost and dry weather.

The benefits of additional information and whether it is likely to change the scope of gas protection should be considered, as are the consequences of failing to characterise adequately pollutant linkages. Investigations concerned with ground gas are required to provide monitoring data sufficient to allow prediction of worst case conditions enabling the confident assessment of risk and subsequent design of appropriate gas protection schemes. Monitoring programmes should not be an academic exercise in data collection. CL:AIRE publication TB17 “Ground Gas Monitoring and ‘Worst-Case’ Conditions” provides further guidance.

Below are matrices that will aid in determining an appropriate number of gas monitoring visits and the length of monitoring period.

Typical/idealised periods of monitoring

		Generation of Potential Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	1 month	2 months	3 months	6 months	12 months
	Moderate (Apartments)	2 months	3 months	6 months	12 months	24 months
	High (Low rise Residential)	3 months	6 months	6 months	12 months	24 months

Typical/idealised frequency of monitoring/Number of Visits Required

		Gas Generation of Potential Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	4	6	6	12	12
	Moderate (Apartments)	6	6	9	12	24
	High (Low rise Residential)	6	9	12	24	24

Notes

- 1 Generation potential of sources based on descriptions within BS 8576:2013.
- 2 At least two sets of readings should be at low and falling atmospheric pressure (but not restricted to periods below <1000 mb) known as worst case conditions. Historical data can be used as part of the data set (Table 5.5b).

RB17 Approach

CL:AIRE RB17 (Card et al 2012) is a pragmatic approach to ground gas risk assessment and was developed because gas concentration, pressure and flow rate measured in a well headspace may not be representative of the conditions in the surrounding formation.

In these low-risk situations, the approach is to use the conceptual site model and the estimation of the likely gas generation from a source to identify where or if gas monitoring is required to better define the risks.

Under this approach, for sites with natural soils only with no credible methane source, then no action is required (no monitoring or gas protection measures) as this represents Characteristic Situation 1 (CS1).

Radon

Advice on radon protection in England is provided by the UK Health Security Agency, <https://www.ukradon.org/information/ukmaps> and by the BRE (BR 211 (Scivyer 2023)).

Areas of the country can be categorised according to the percentage of existing homes where radon is present above the Action Level:

-  0-1% lower probability.
-  1-3% and 3-10% intermediate probability.
-  >10% higher probability.

Basic radon protection measures are required in new buildings and extensions in areas of England and Wales where 3-10% of properties exceed the Action Level and full radon protection measures where >10% exceed the Action Level.

Unexploded Ordnance (UXO) Guidance

Clients have a legal duty under the CDM 2015 Regulations to provide designers and contractors with project-specific health and safety information needed to identify hazards and risks. This includes the possibility of unexploded ordnance (UXO) being encountered on the site. Further details are given in CIRIA report C681.

BSL carry out non-specialist UXO screening exercises by considering any evidence of UK defence activities on or near the site evident from gathered desk study information and the unexploded aerial delivered bomb (UXB) online risk maps produced by Zetica. Other data sources are available, but as a first stage screening exercise the freely available online Zetica maps have been used. The level of risk stated is that determined by Zetica, a company experienced and considered competent in the assessment of UXO.

Geotechnical Guidance

A preliminary risk assessment of geotechnical hazards is carried out at the desk study stage and confirmed (or amended) at the ground investigation stage. The desk-based stage may include the requirements for a Coal Mining Risk Assessment (CMRA) which specifically assesses the risks from mining induced instability and related issues in high risk development areas: <https://www.gov.uk/guidance/planning-applications-coal-mining-risk-assessments>

APPENDIX B

Historical Maps

Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX
Grid Ref: 347185, 390293

Map Name: County Series

Map date: 1891

Scale: 1:10,560

Printed at: 1:10,560



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Edition N/A
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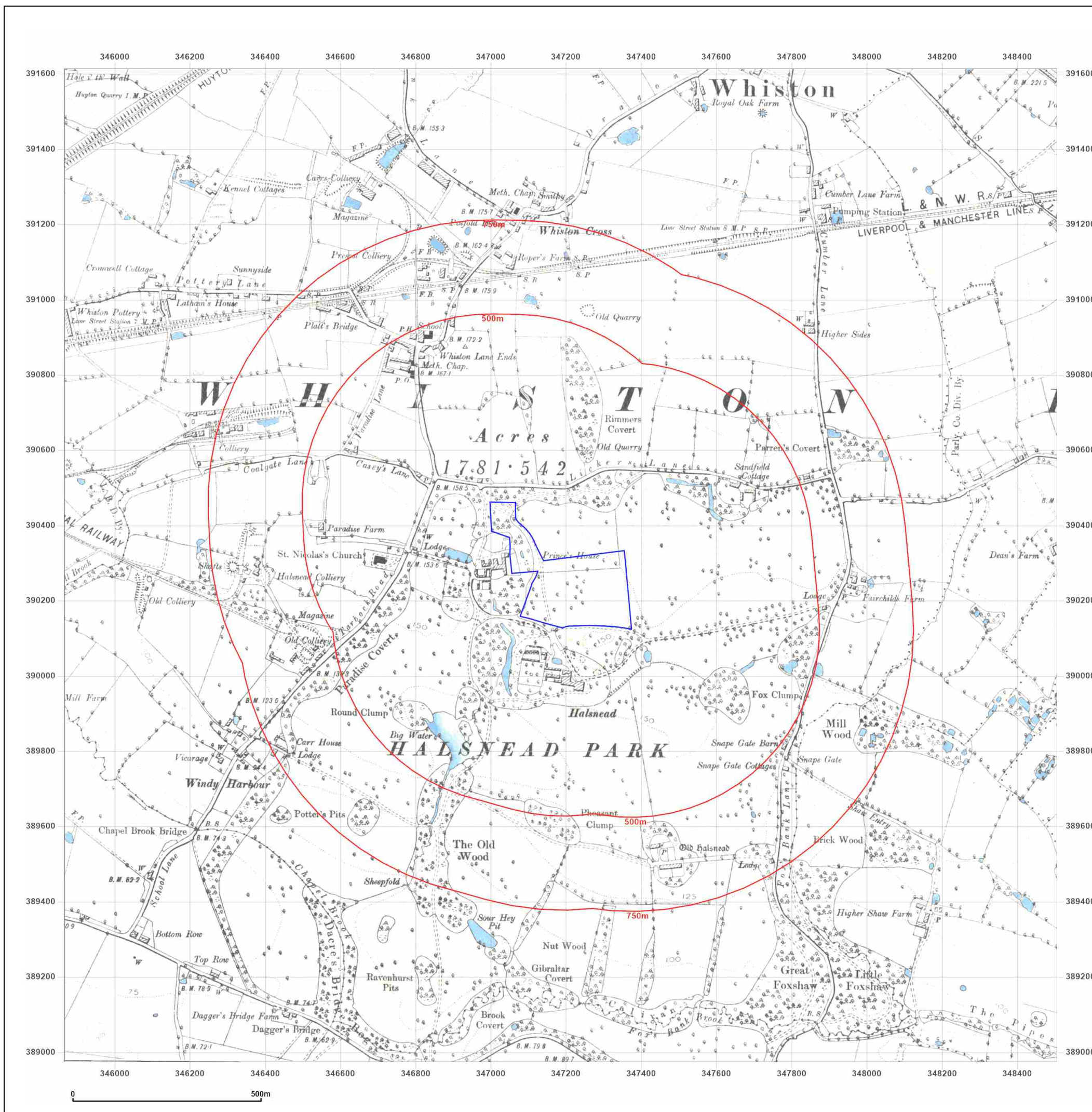


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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX
Grid Ref: 347185, 390293

Map Name: County Series

Map date: 1905-1906

Scale: 1:10,560

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Revised 1906
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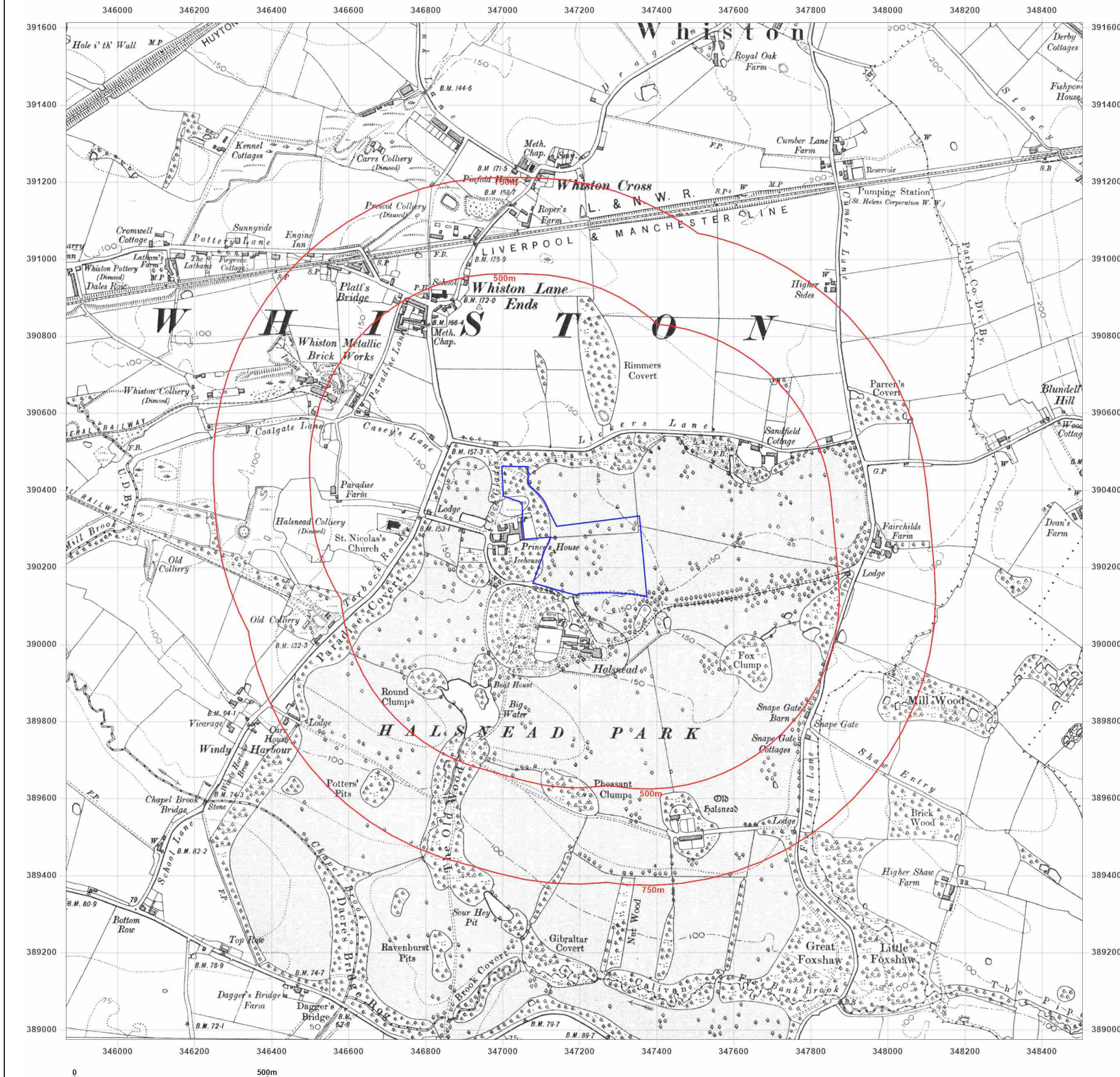


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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX
Grid Ref: 347185, 390293

Map Name: County Series

Map date: 1925

Scale: 1:10,560

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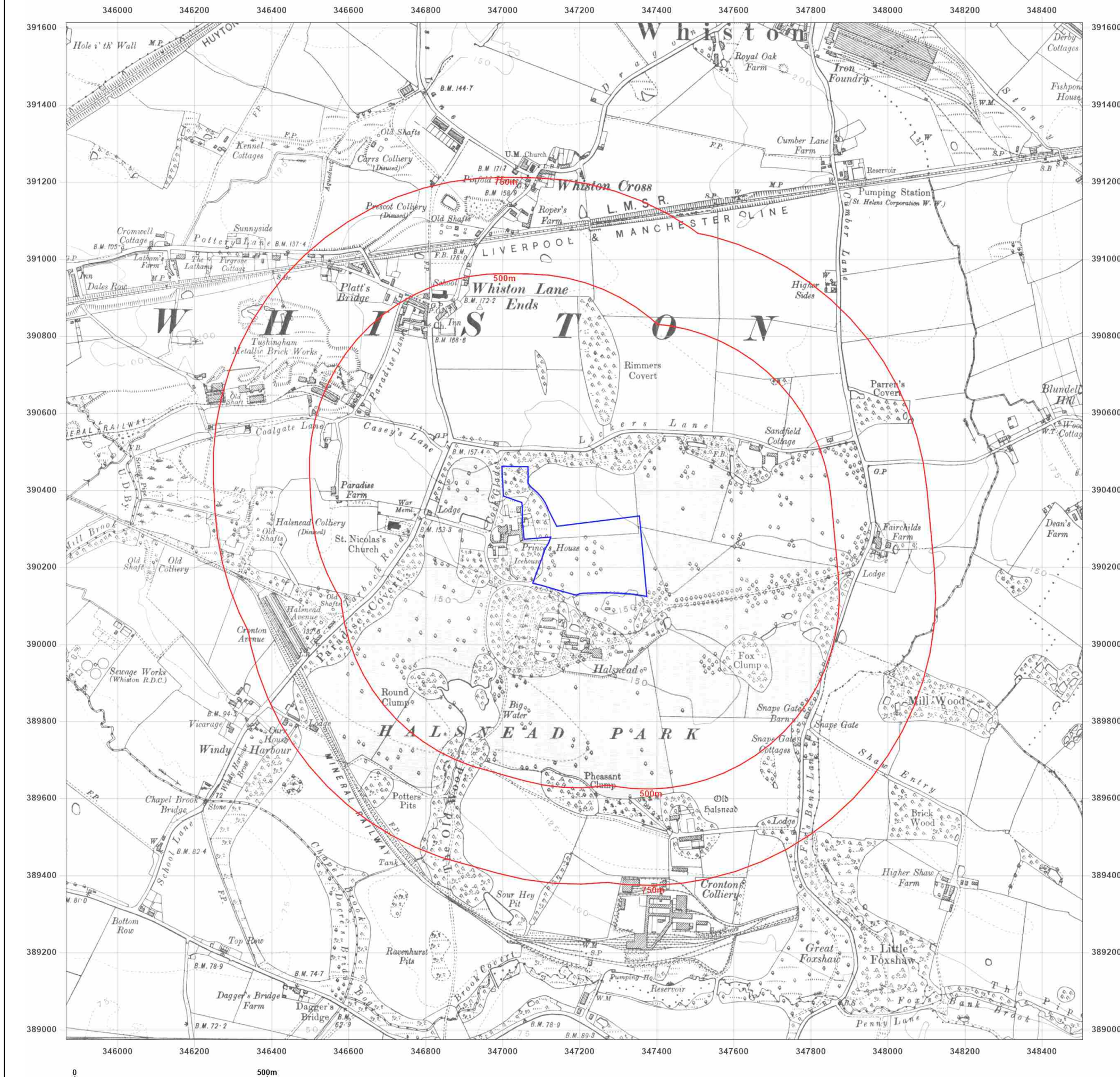


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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX
Grid Ref: 347185, 390293

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Map date: 1938

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Printed at: 1:10,560



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Edition 1938
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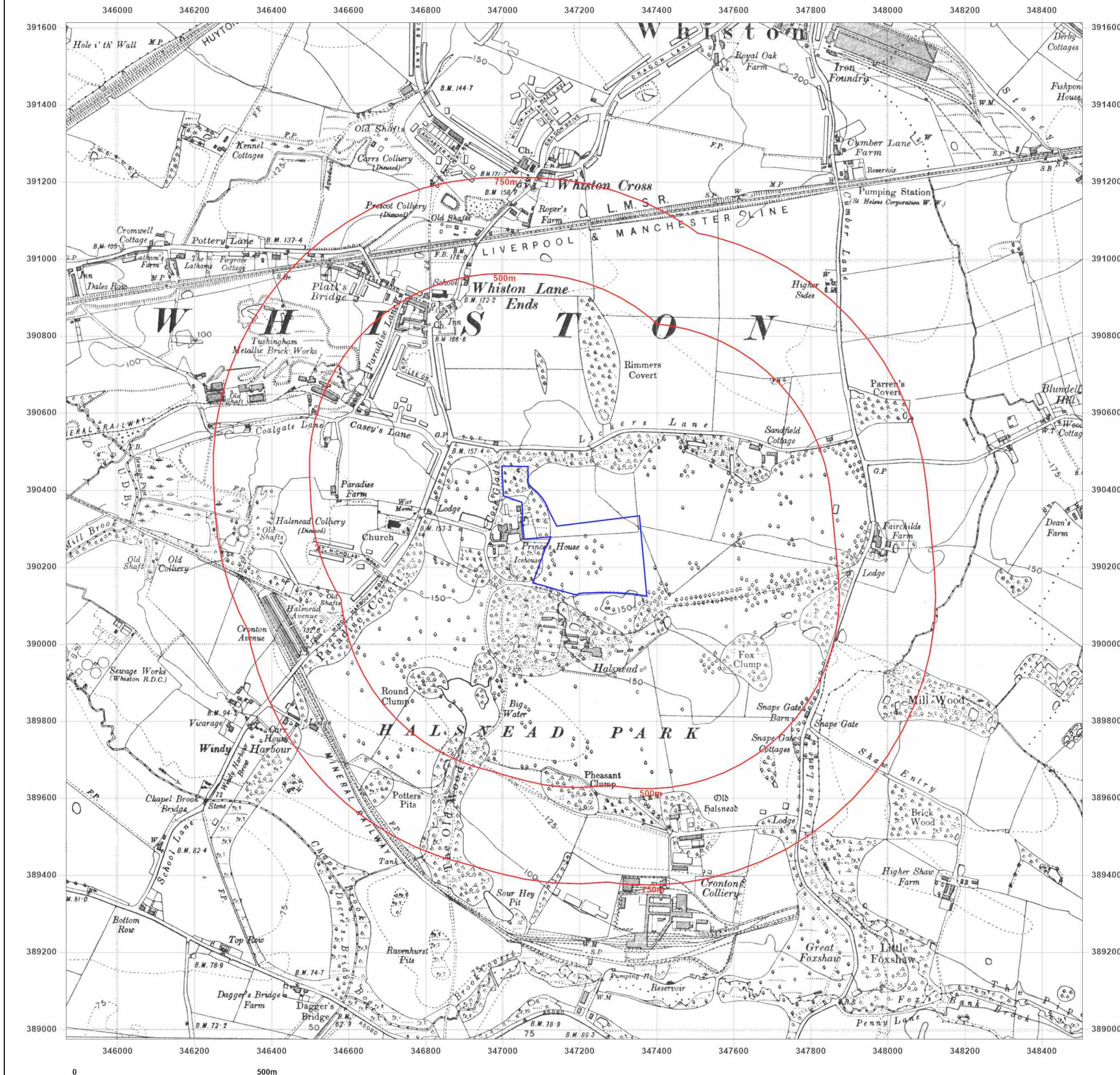


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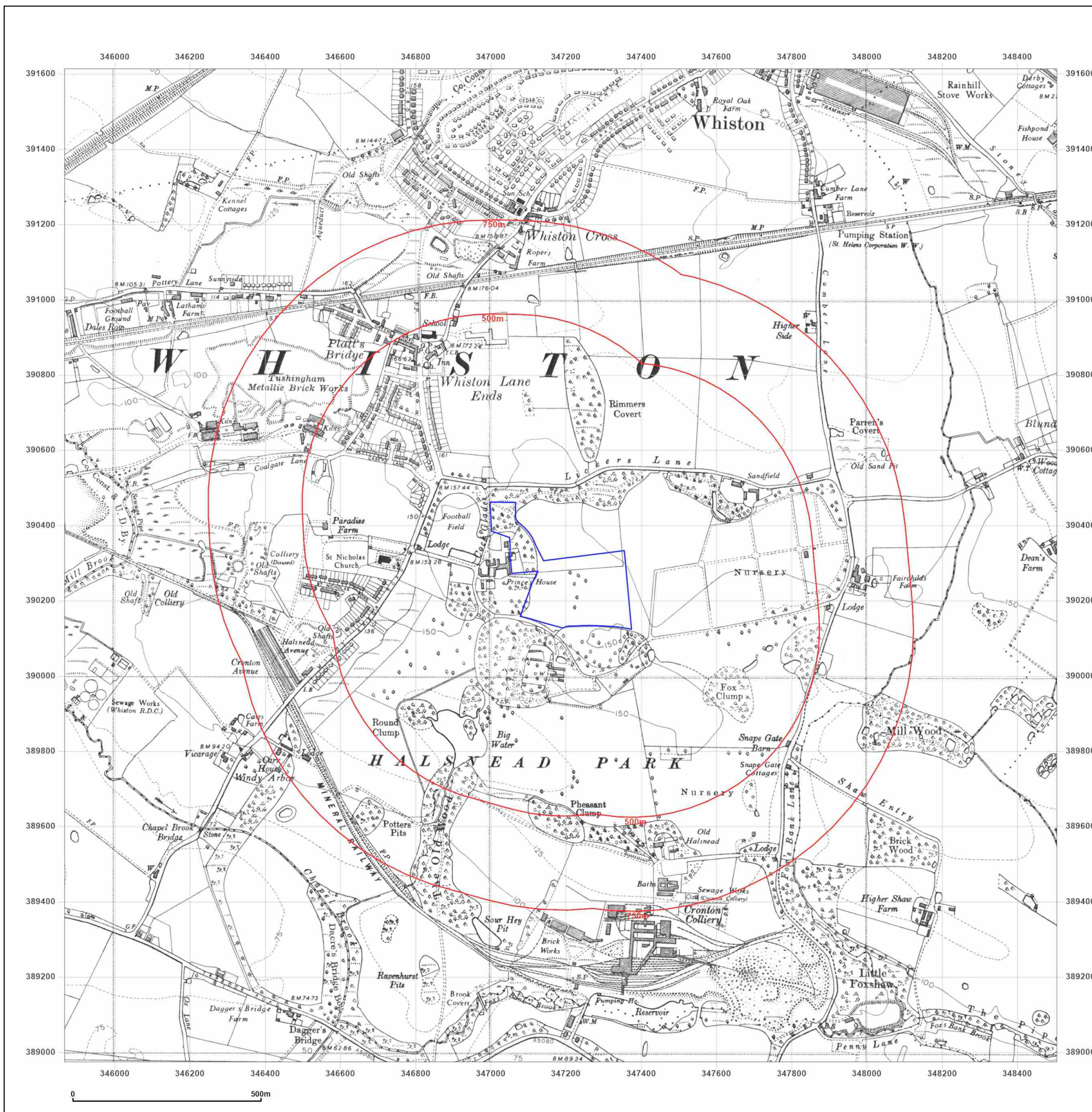


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Grid Ref: 347185, 390293

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

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Revised 1955
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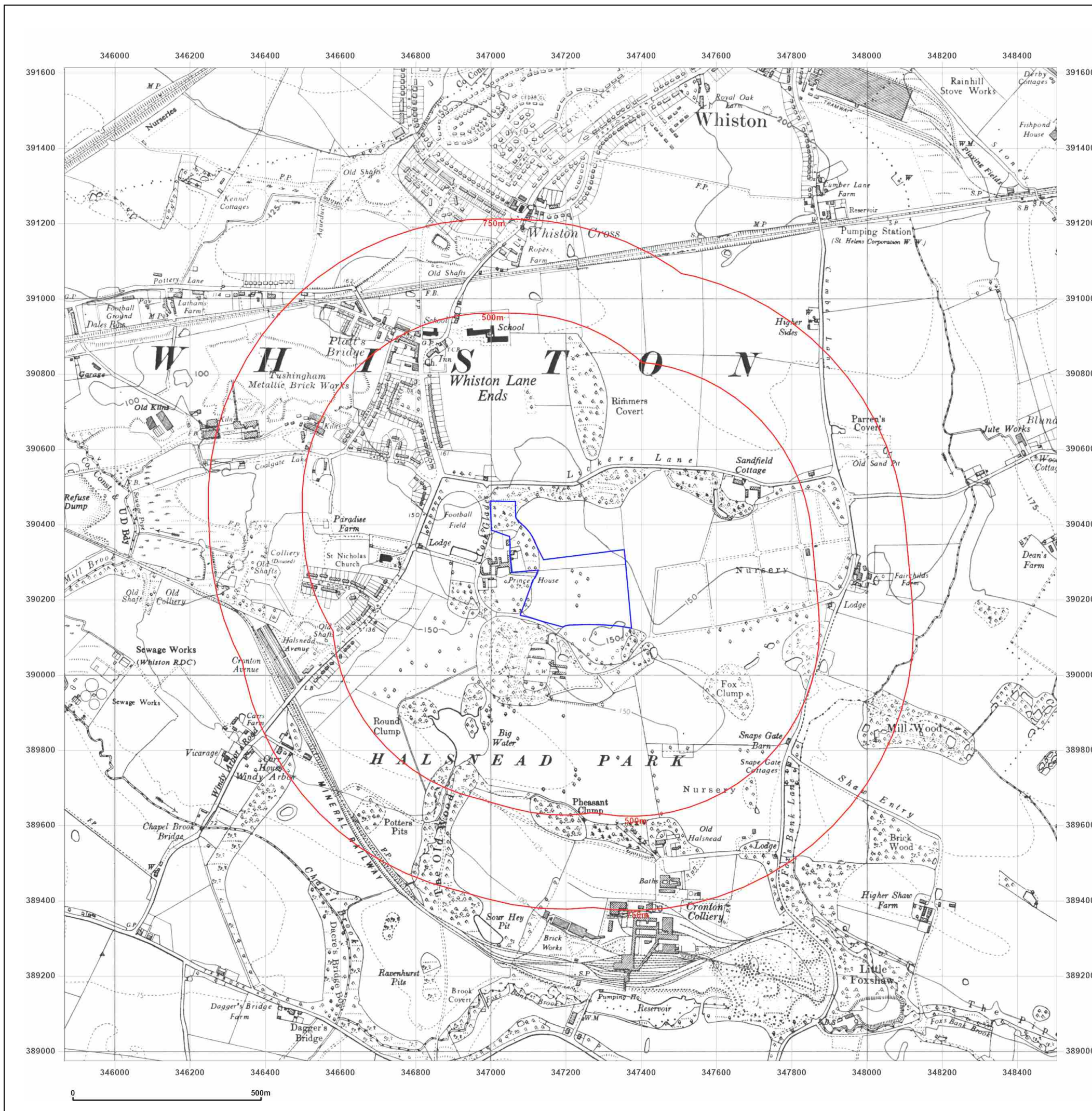


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Grid Ref: 347185, 390293

Map Name: National Grid
Map date: 1989-1990
Scale: 1:10,000
Printed at: 1:10,000

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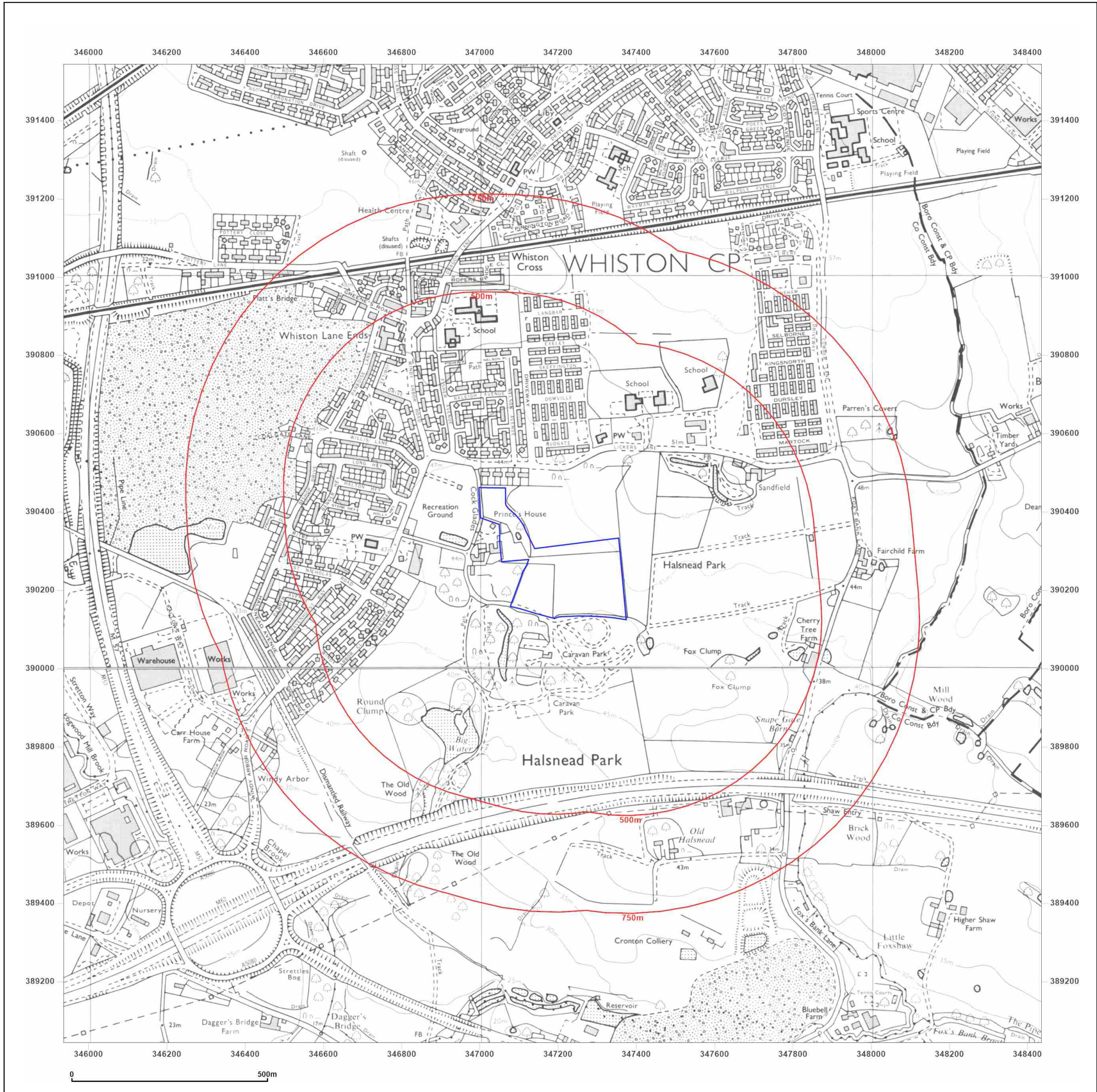


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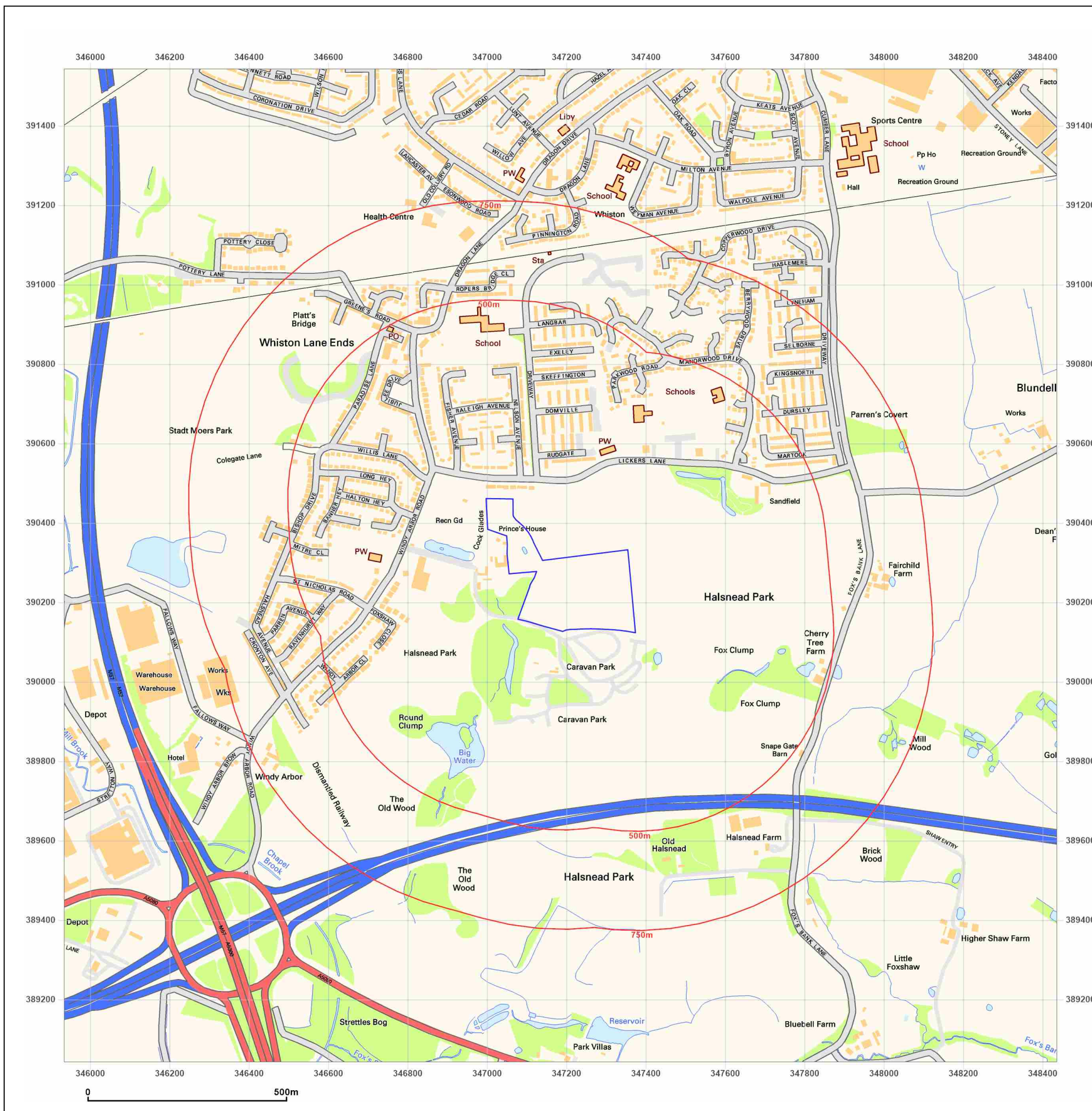


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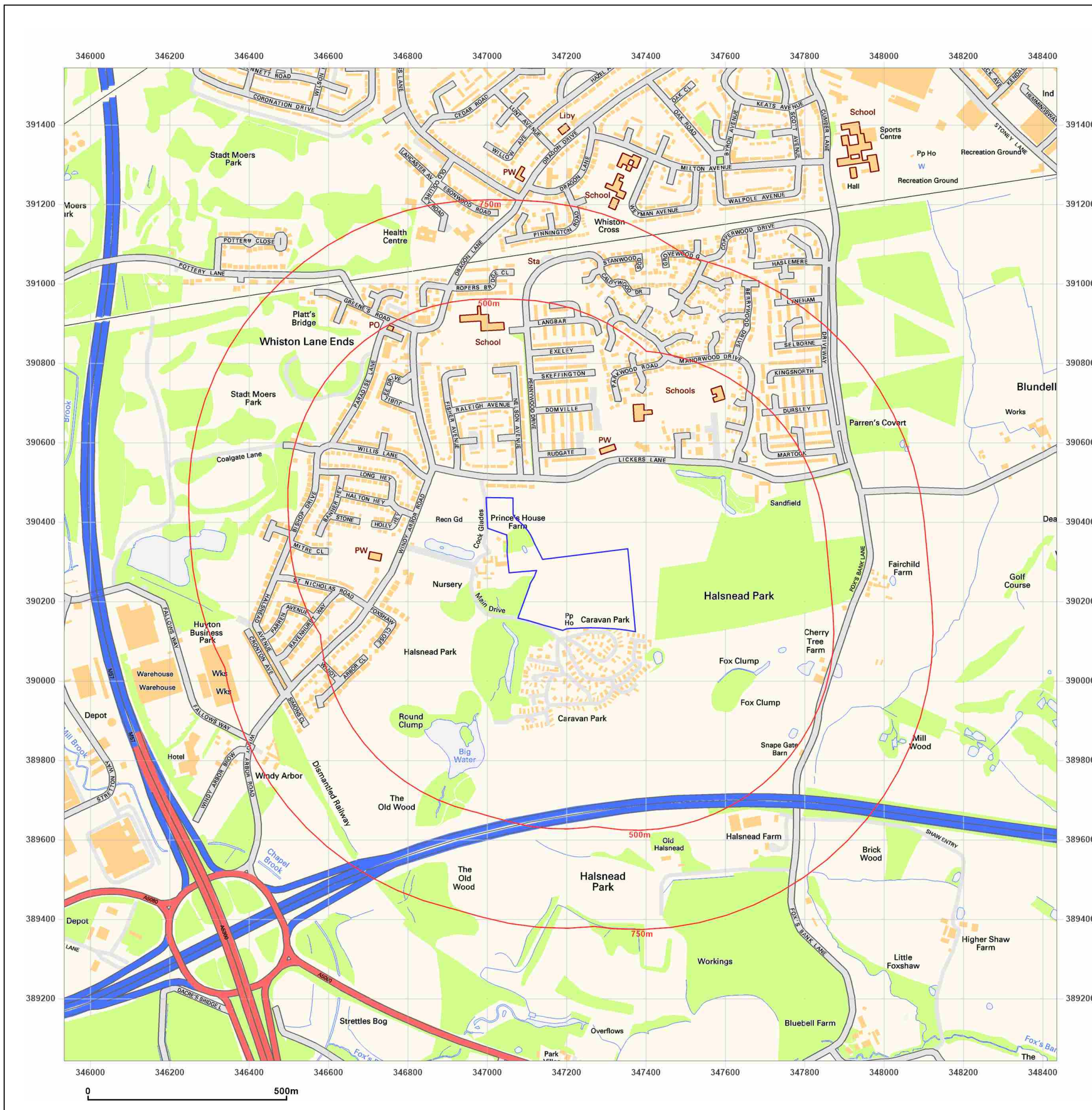


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2025

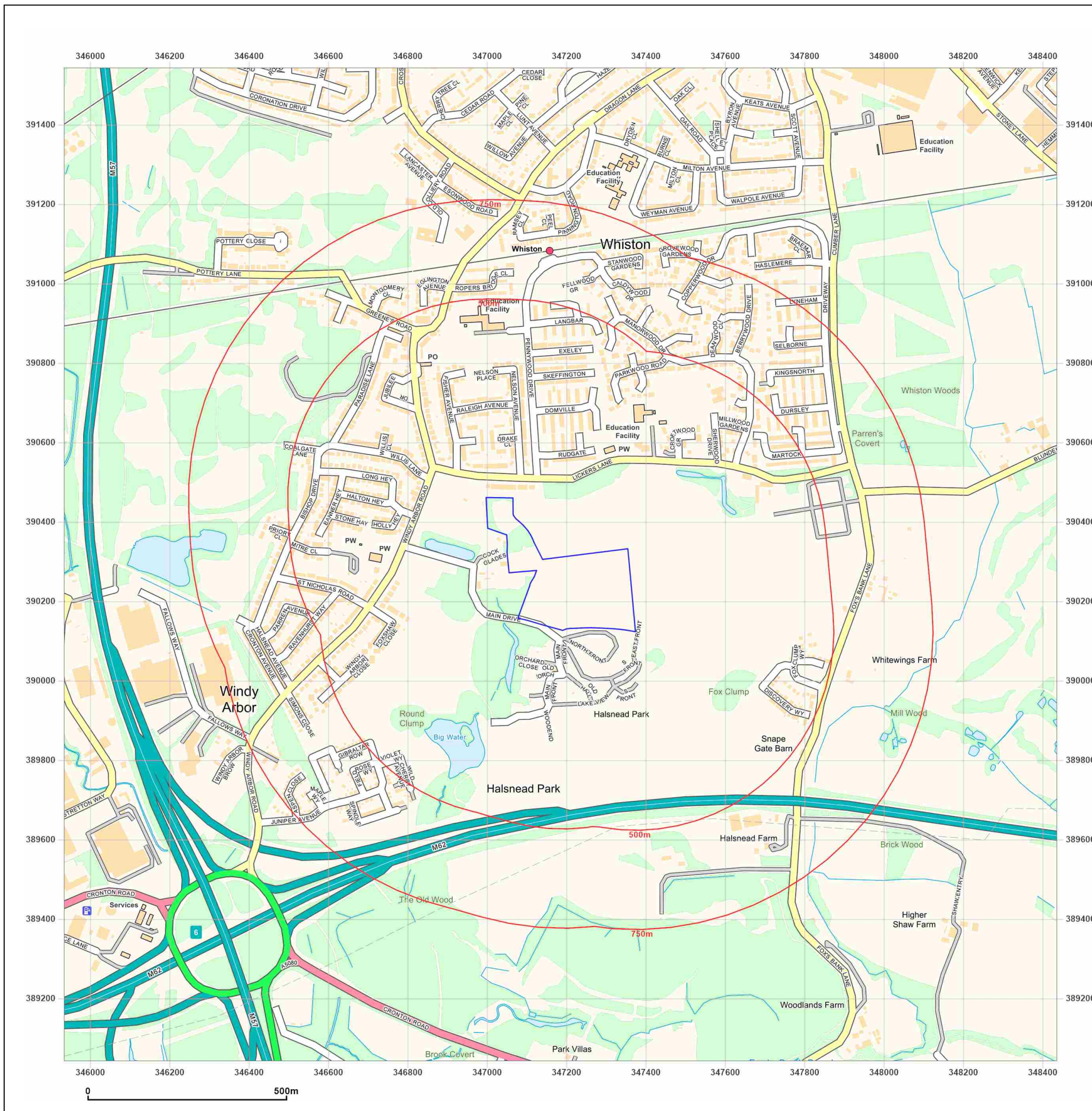


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Site Details:

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Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_1
Grid Ref: 346934, 390043

Map Name: National Grid

Map date: 1973

Scale: 1:1,250

Printed at: 1:2,000



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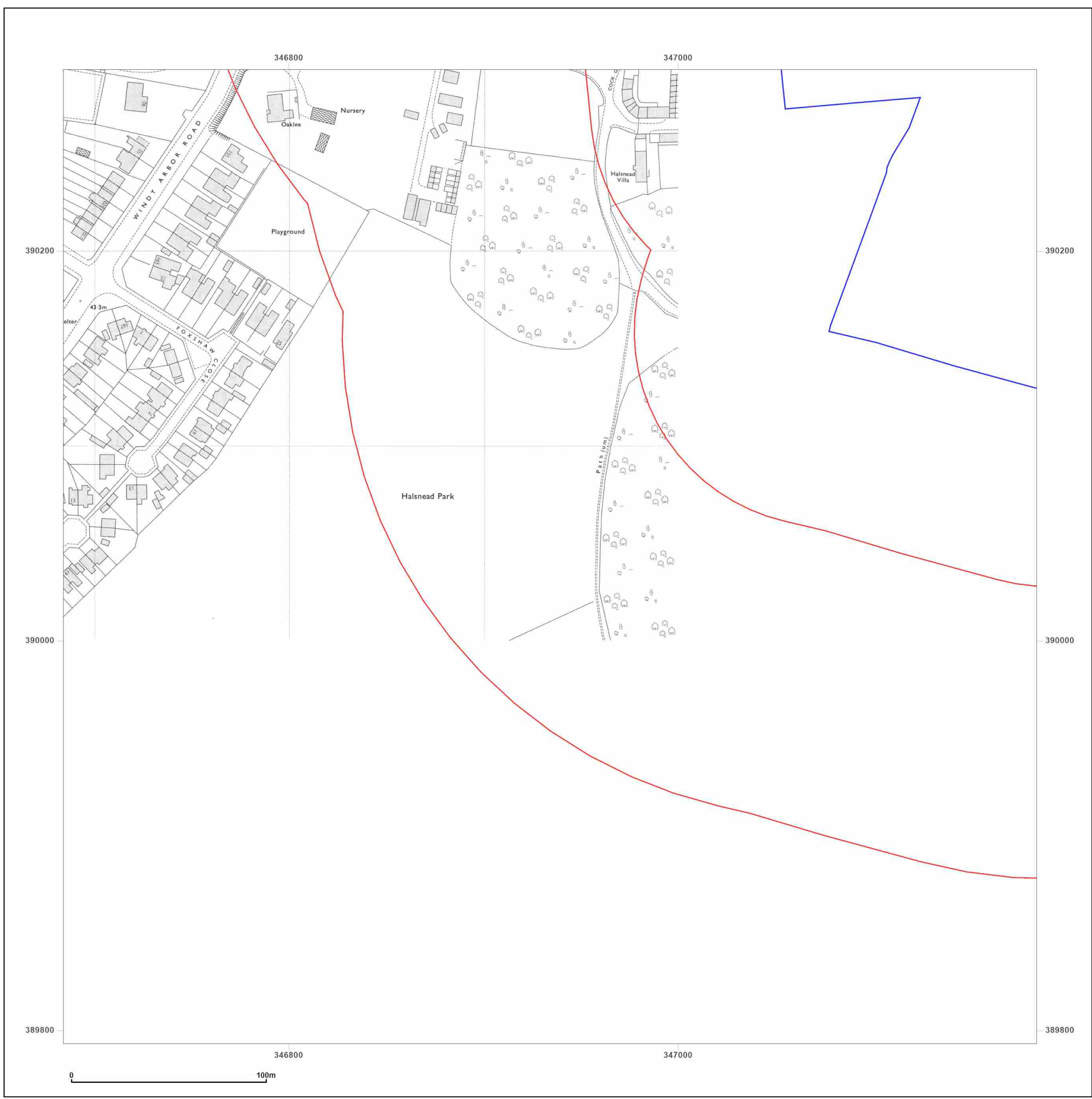


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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_1
Grid Ref: 346934, 390043

Map Name: National Grid

Map date: 1984

Scale: 1:1,250

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_1
Grid Ref: 346934, 390043

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

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Grid Ref: 346934, 390543

Map Name: National Grid

Map date: 1973-1974

Scale: 1:1,250

Printed at: 1:2,000



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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_2
Grid Ref: 346934, 390543

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Edition N/A
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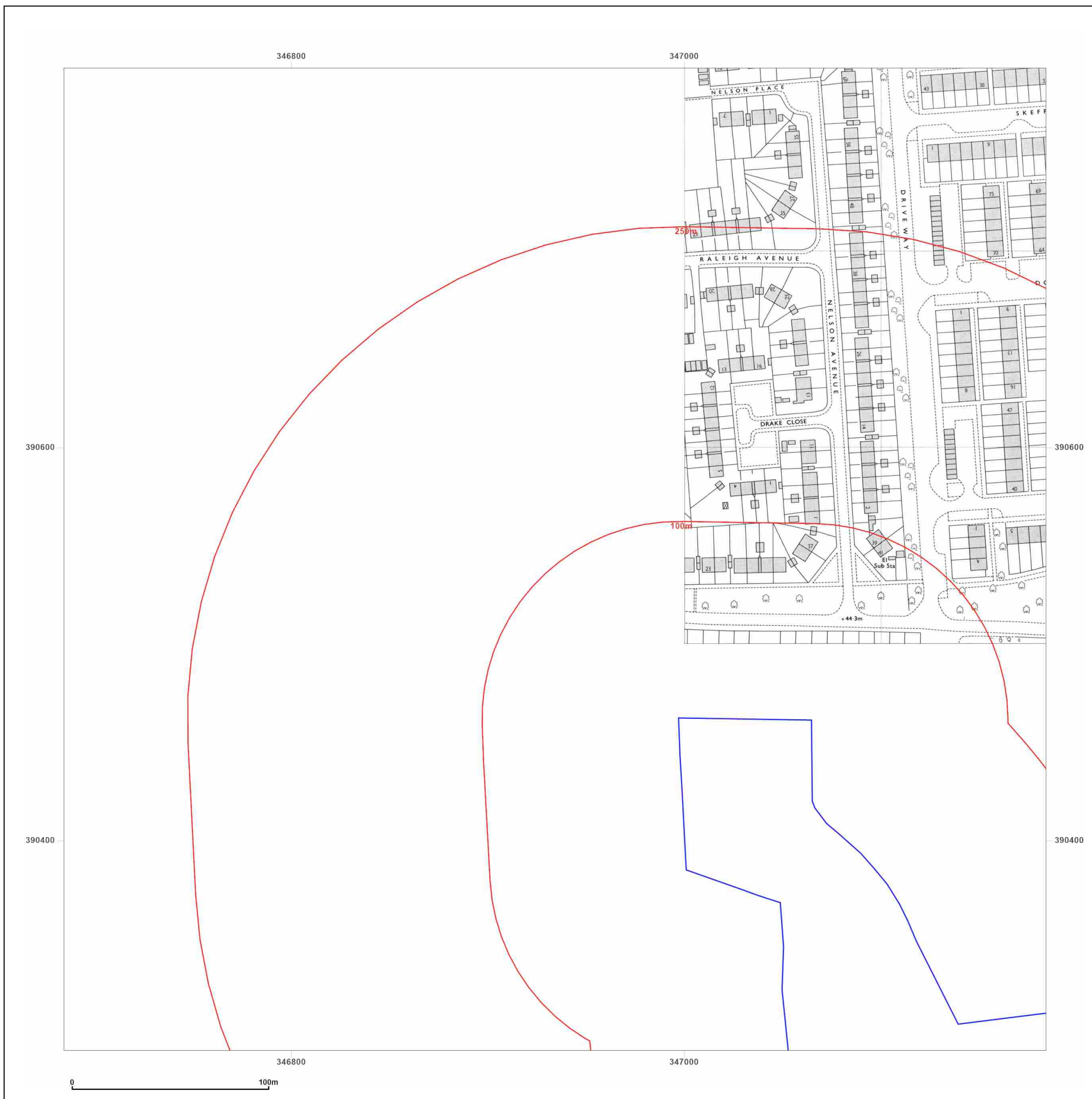


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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_2
Grid Ref: 346934, 390543

Map Name: National Grid

Map date: 1984

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
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Surveyed 1963
Revised 1984
Edition N/A
Copyright 1984
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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_2
Grid Ref: 346934, 390543

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_2
Grid Ref: 346934, 390543

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_1_2
Grid Ref: 346934, 390543

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_1
Grid Ref: 347434, 390043

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1993
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Revised N/A
Edition N/A
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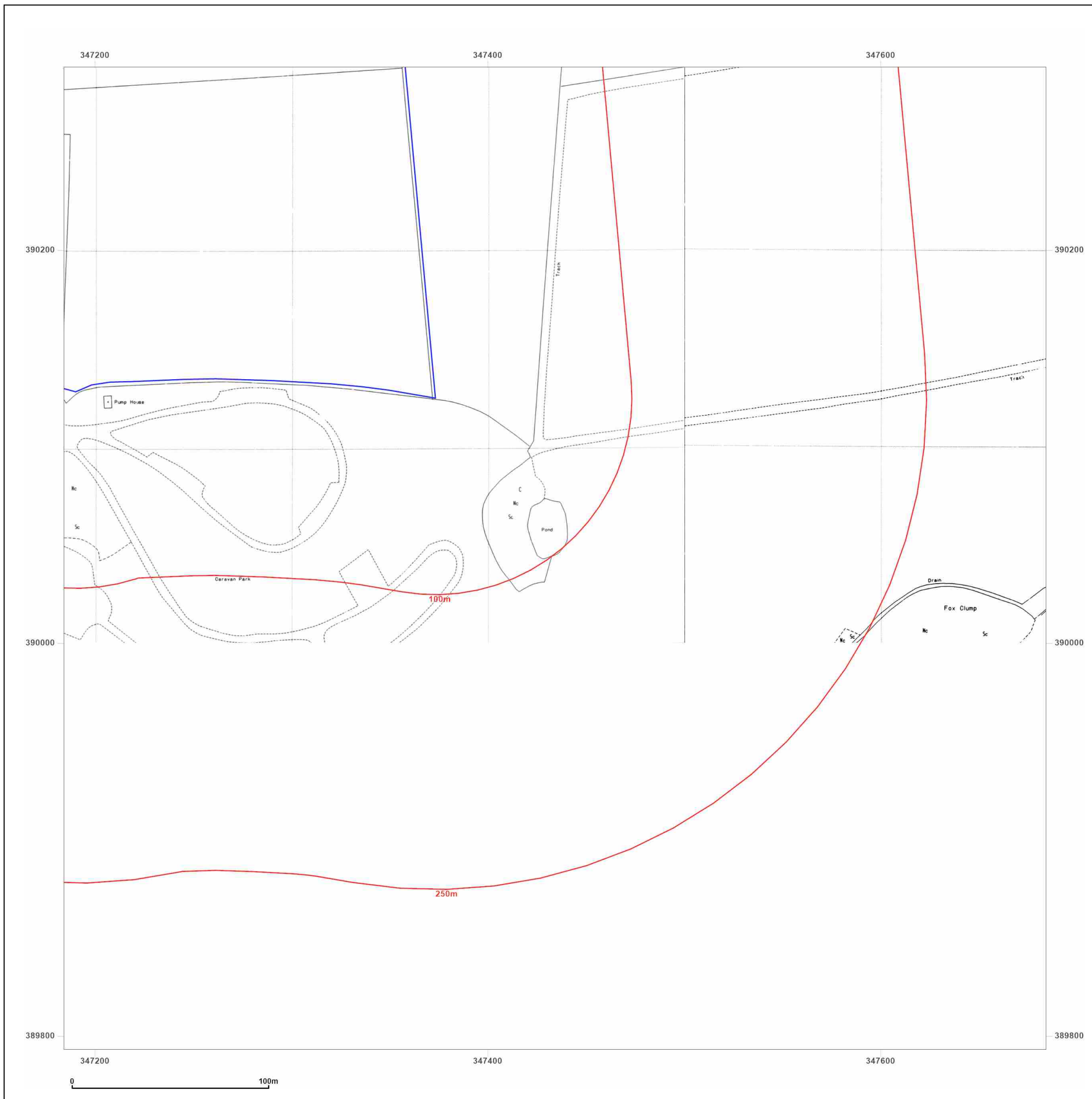


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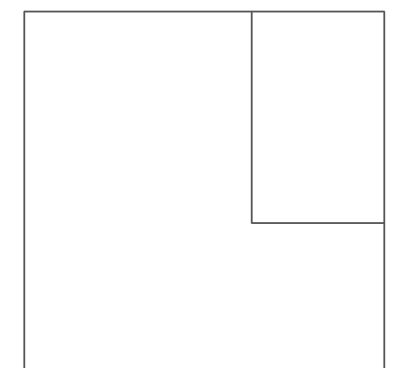
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Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_1
Grid Ref: 347434, 390043

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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

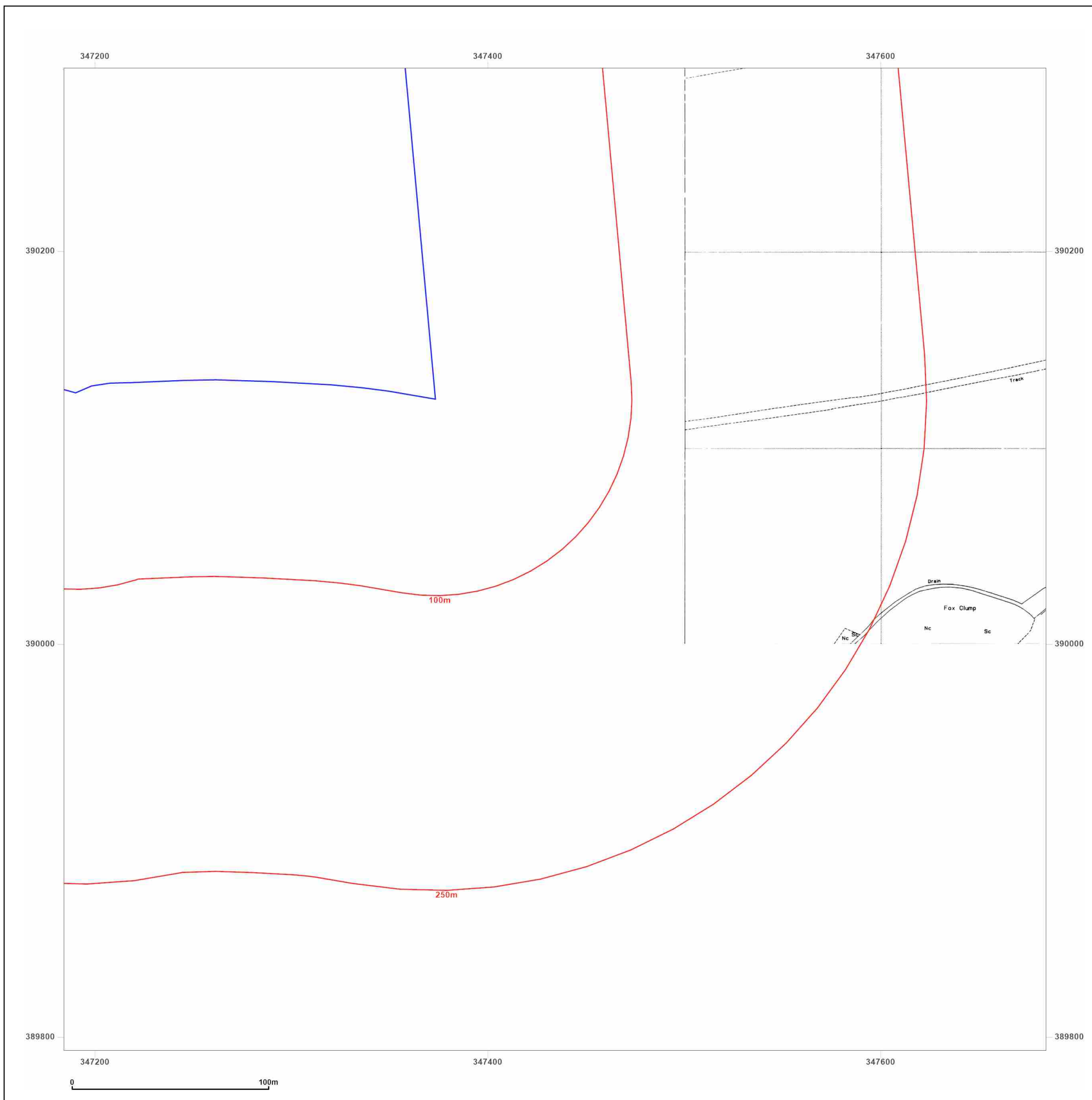


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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_1
Grid Ref: 347434, 390043

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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

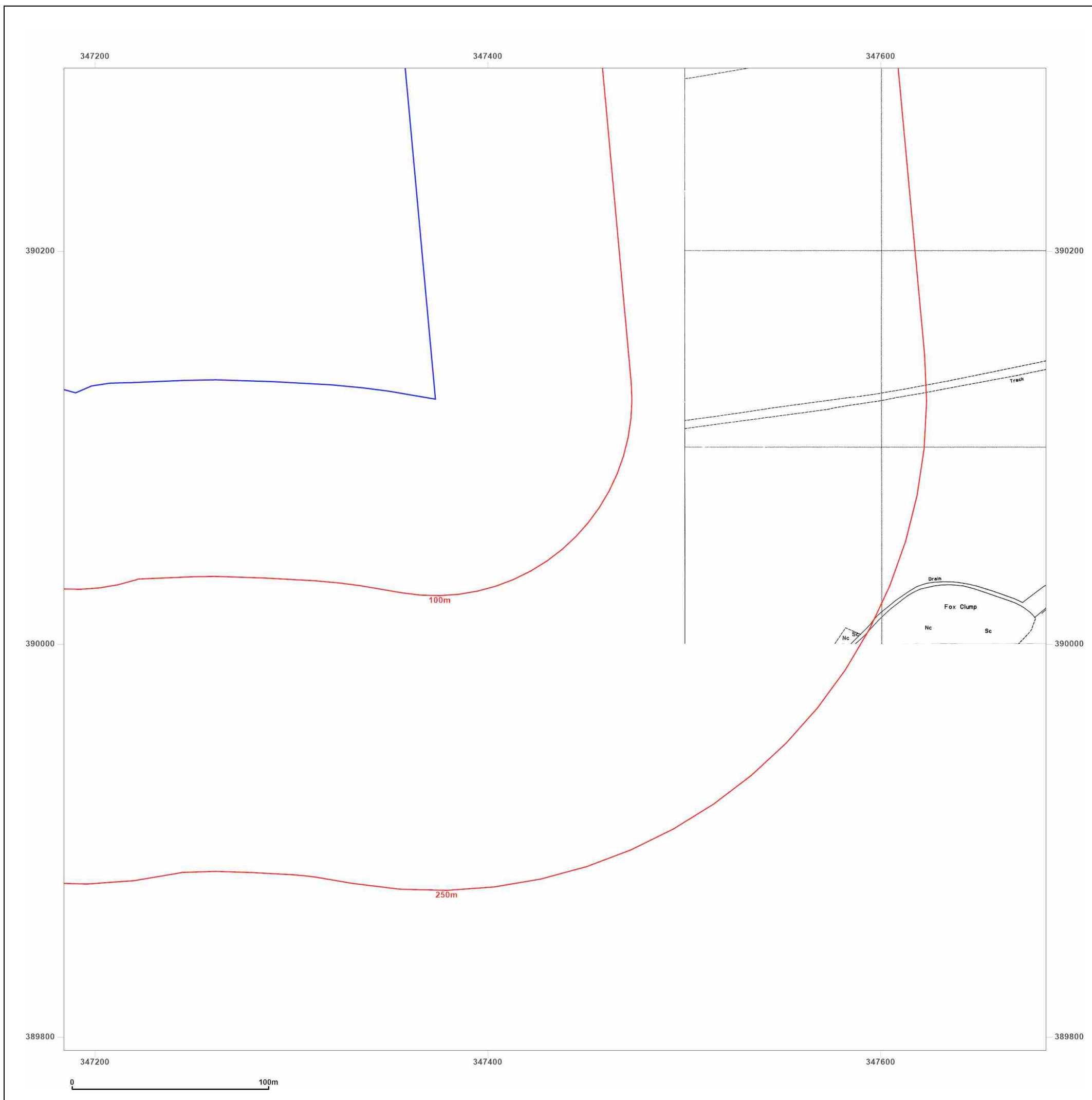


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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1974

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1974-1976

Scale: 1:1,250

Printed at: 1:2,000



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 Edition N/A
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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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

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

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 Revised 1993
 Edition N/A
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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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

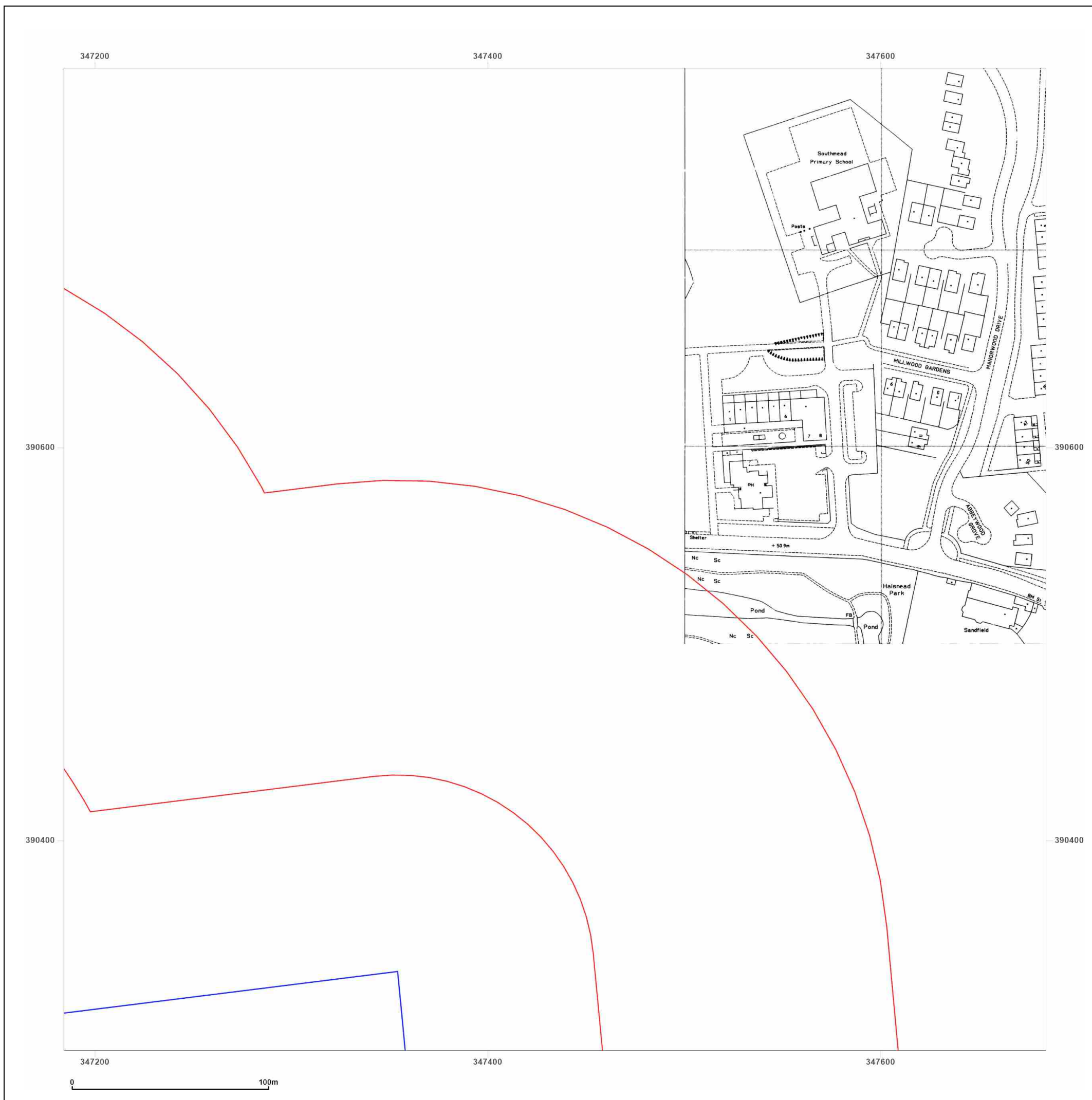


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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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

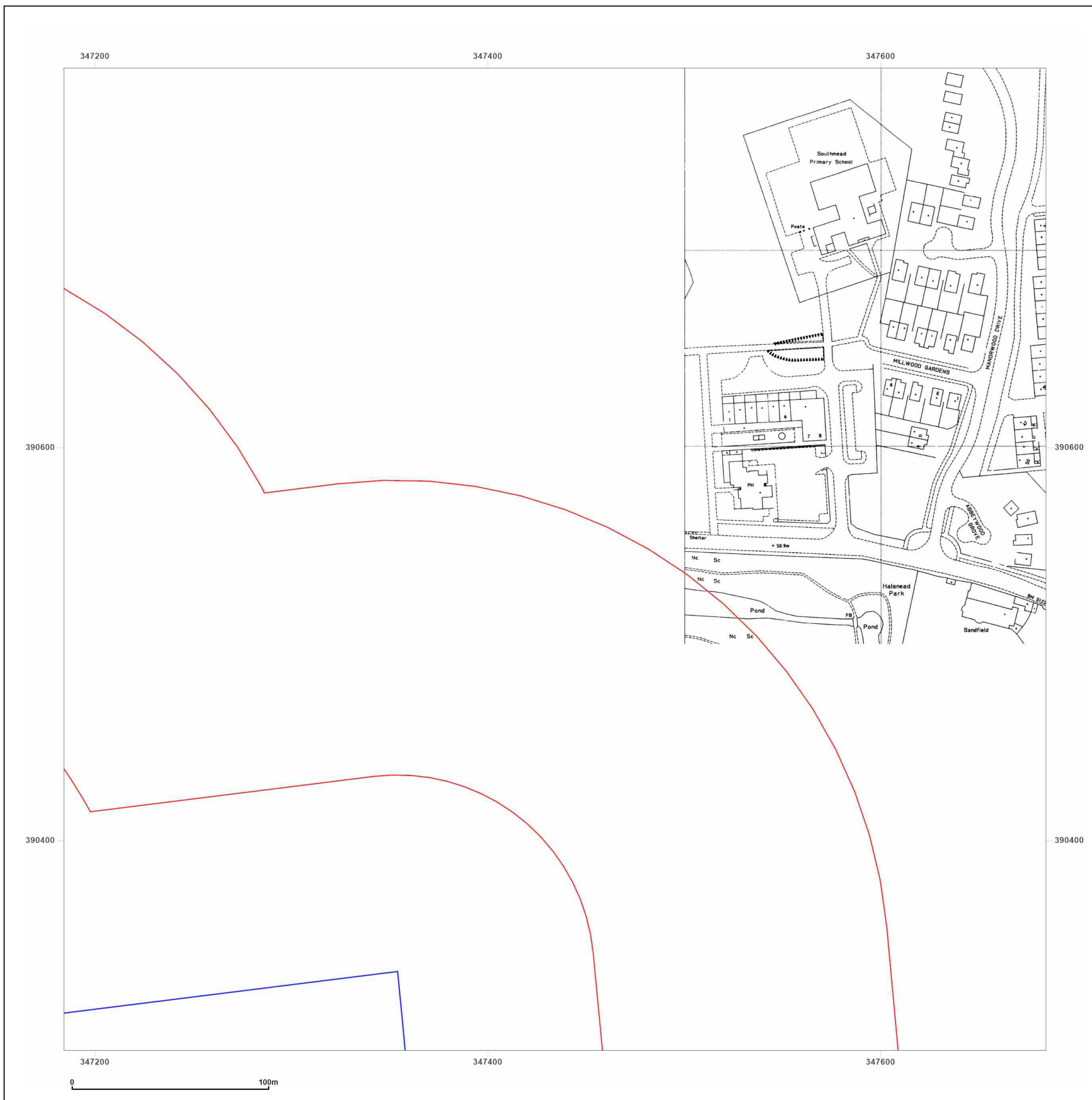


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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



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

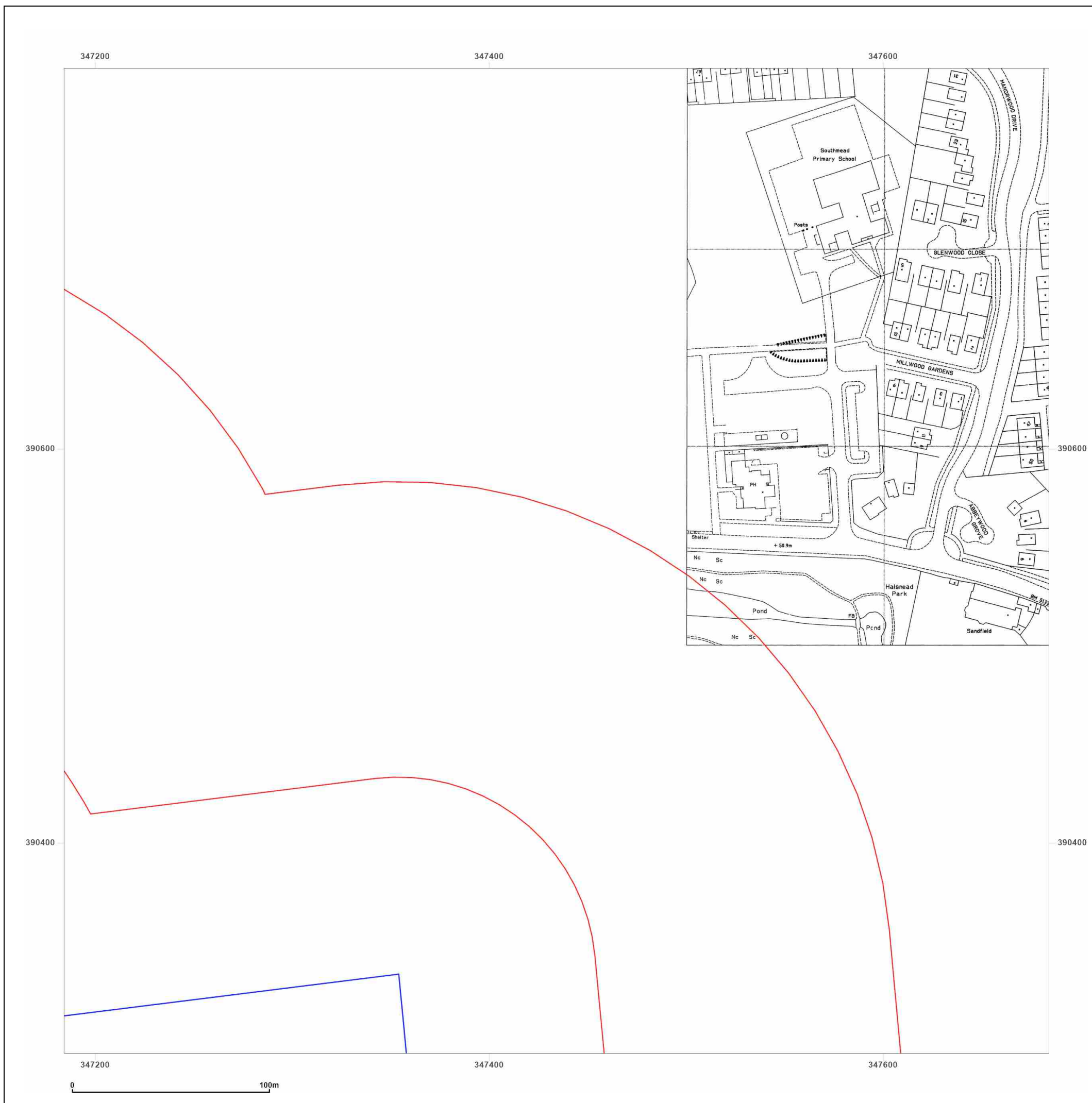


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Site Details:

Whiston, Prescot, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



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

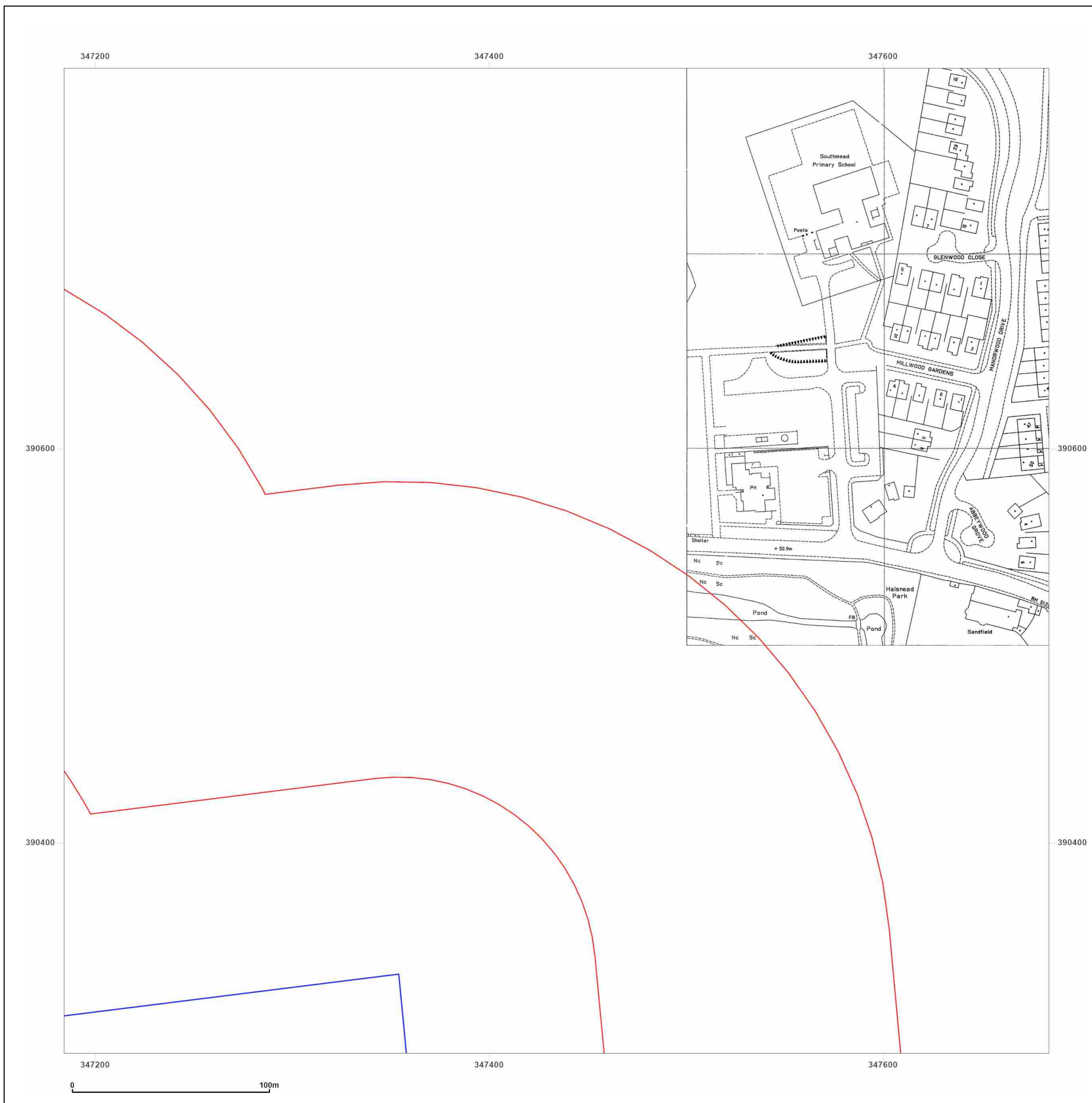


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Site Details:

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Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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

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

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Revised N/A
Edition N/A
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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1994
Revised 1994
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Site Details:

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Client Ref: C5980-6002-SD
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Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1995

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Printed at: 1:2,000



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

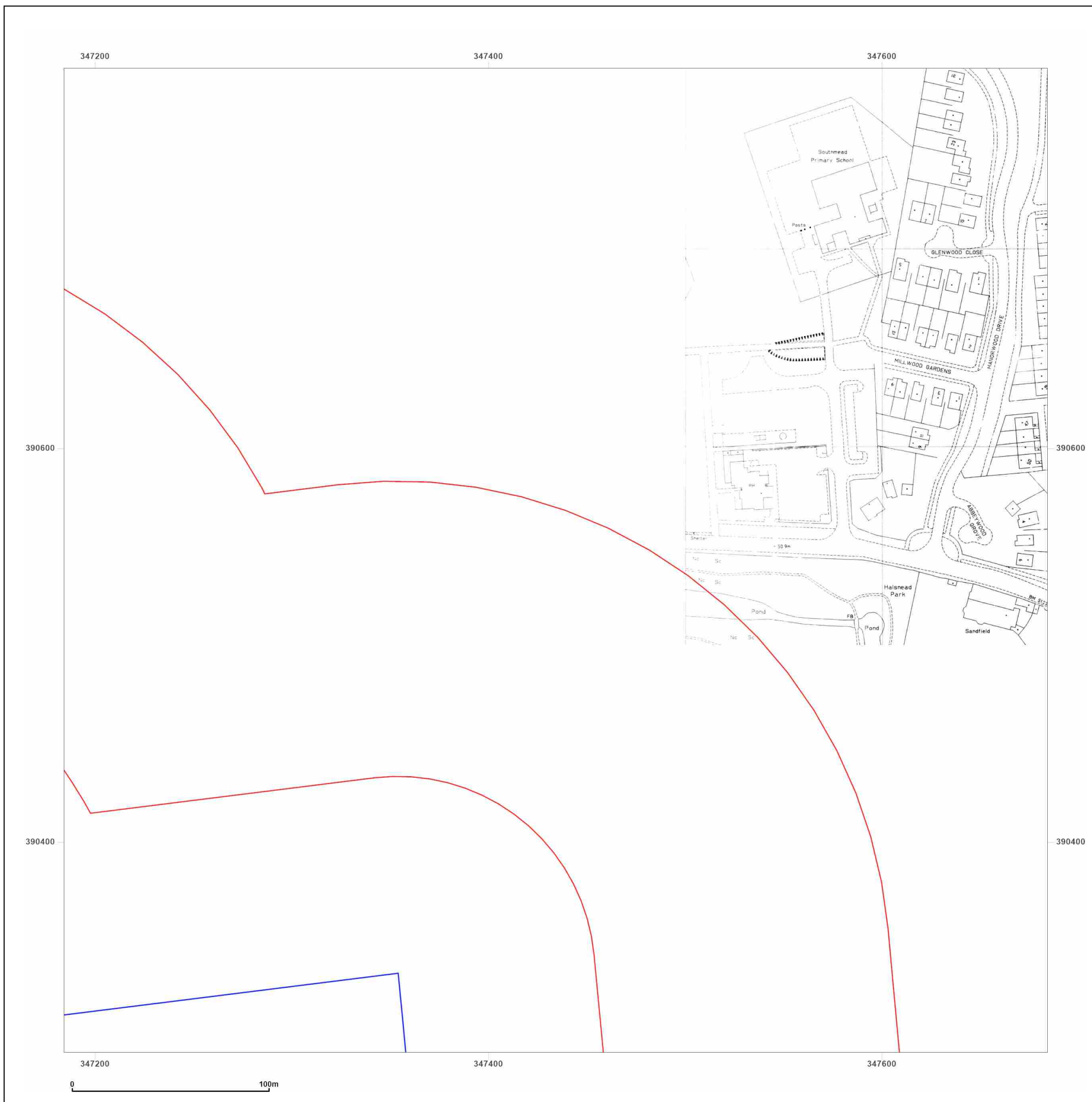


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Site Details:

Whiston, Prescot, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_1250_2_2
Grid Ref: 347434, 390543

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

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

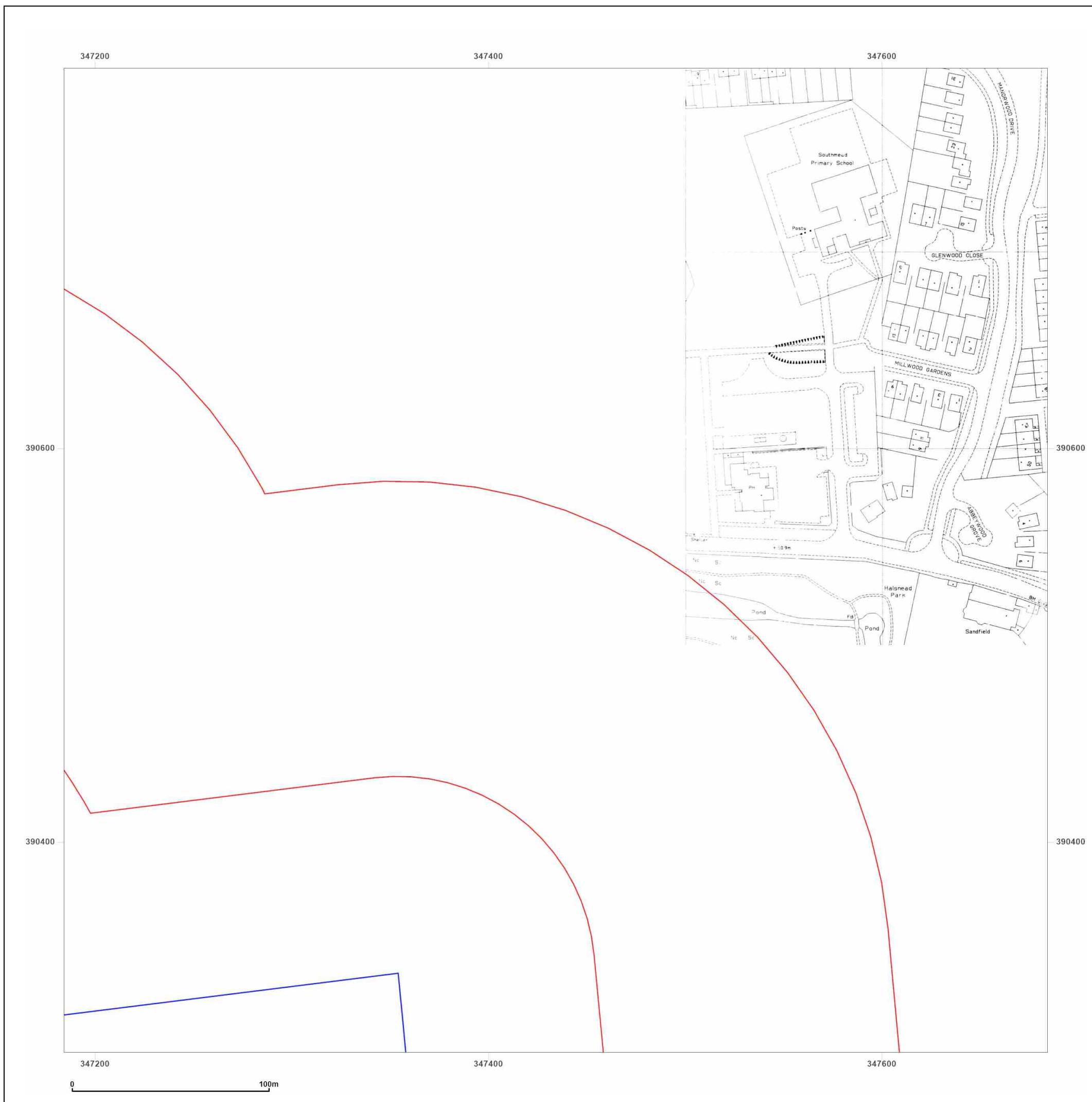


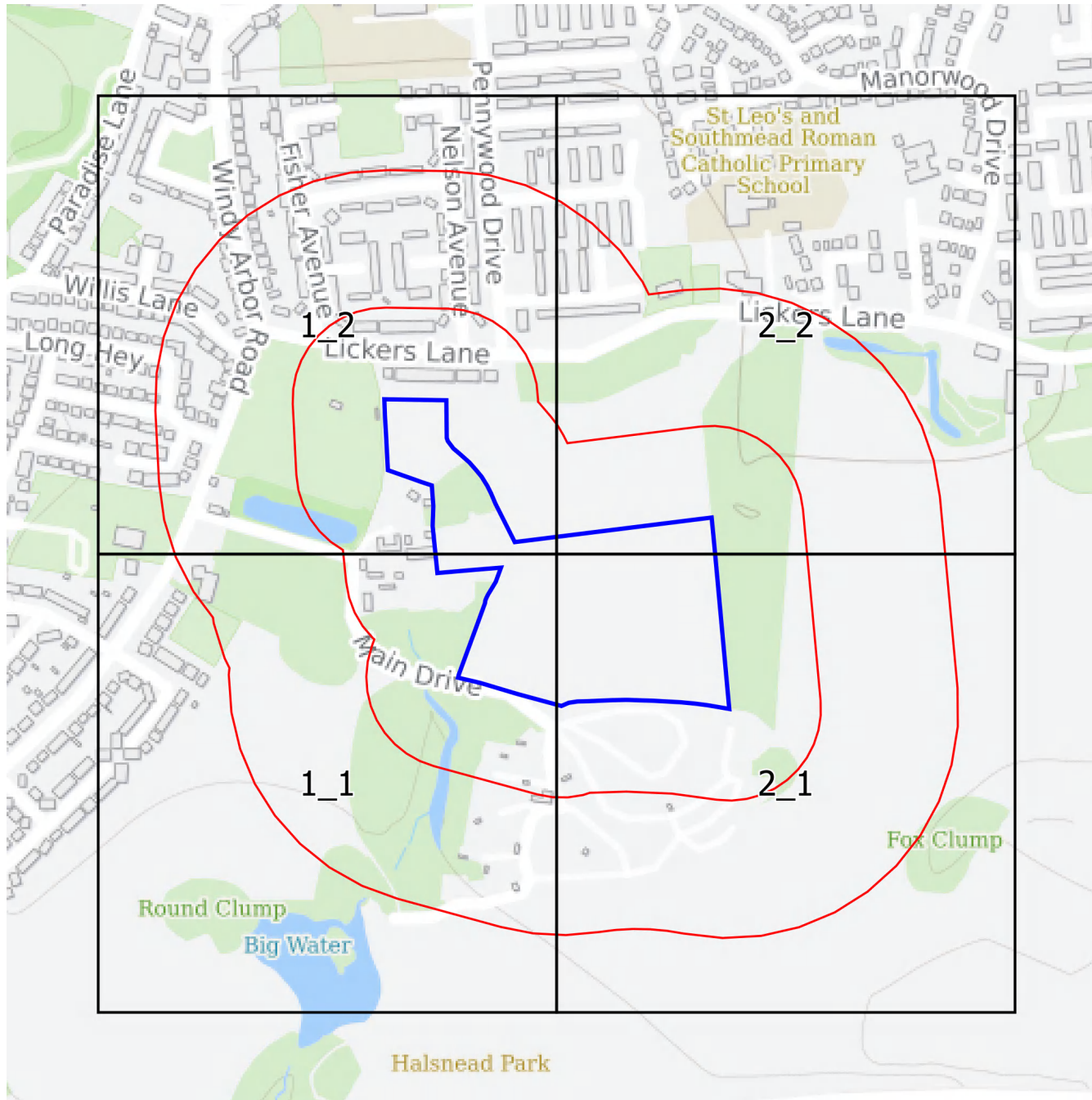
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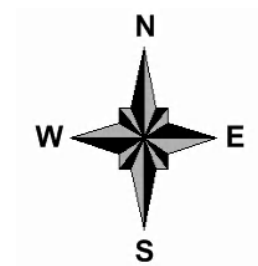
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1:1,250 Scale Grid Index



Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: County Series

Map date: 1892

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

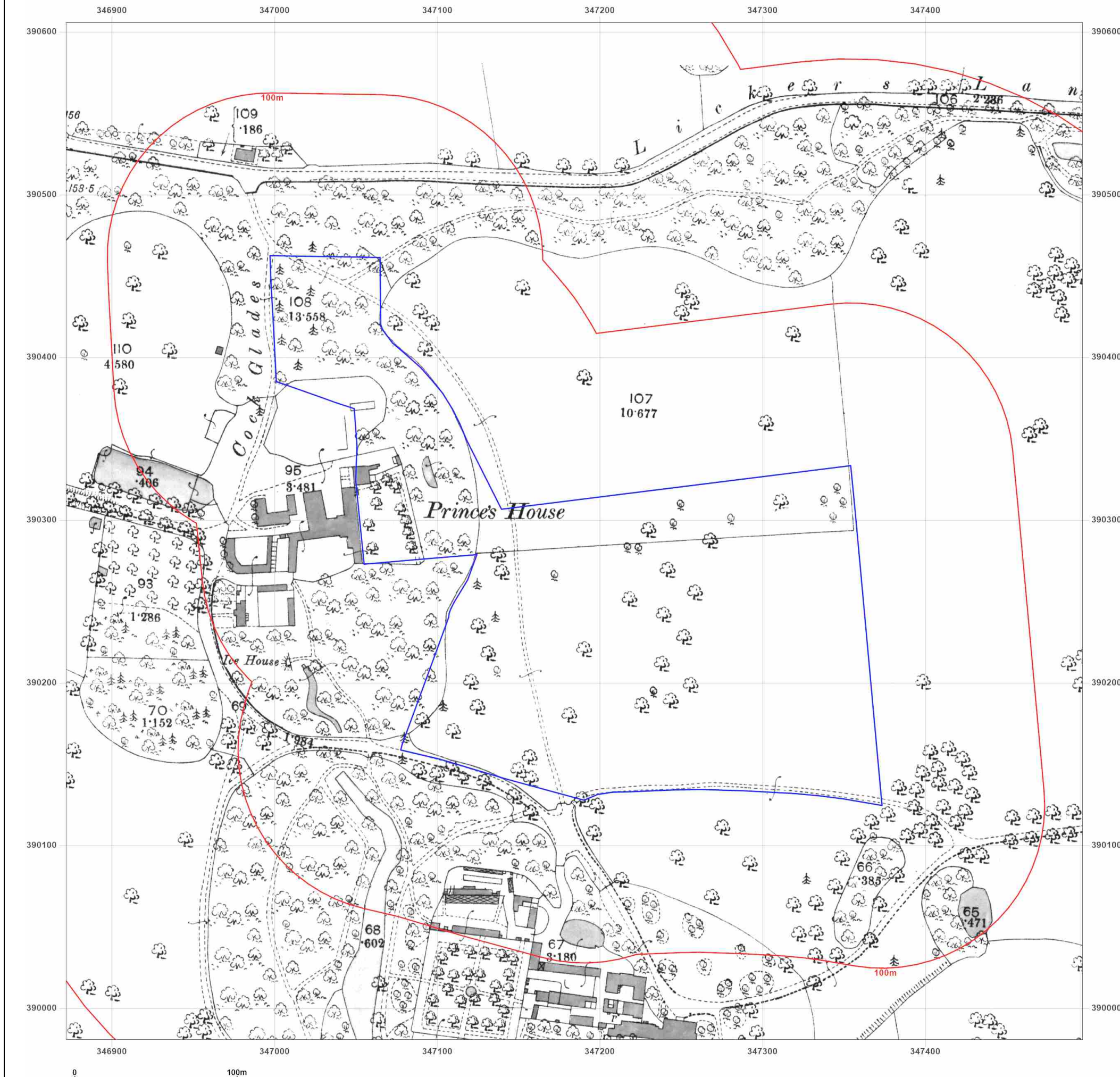


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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1907
 Revised 1907
 Edition N/A
 Copyright N/A
 Levelled N/A

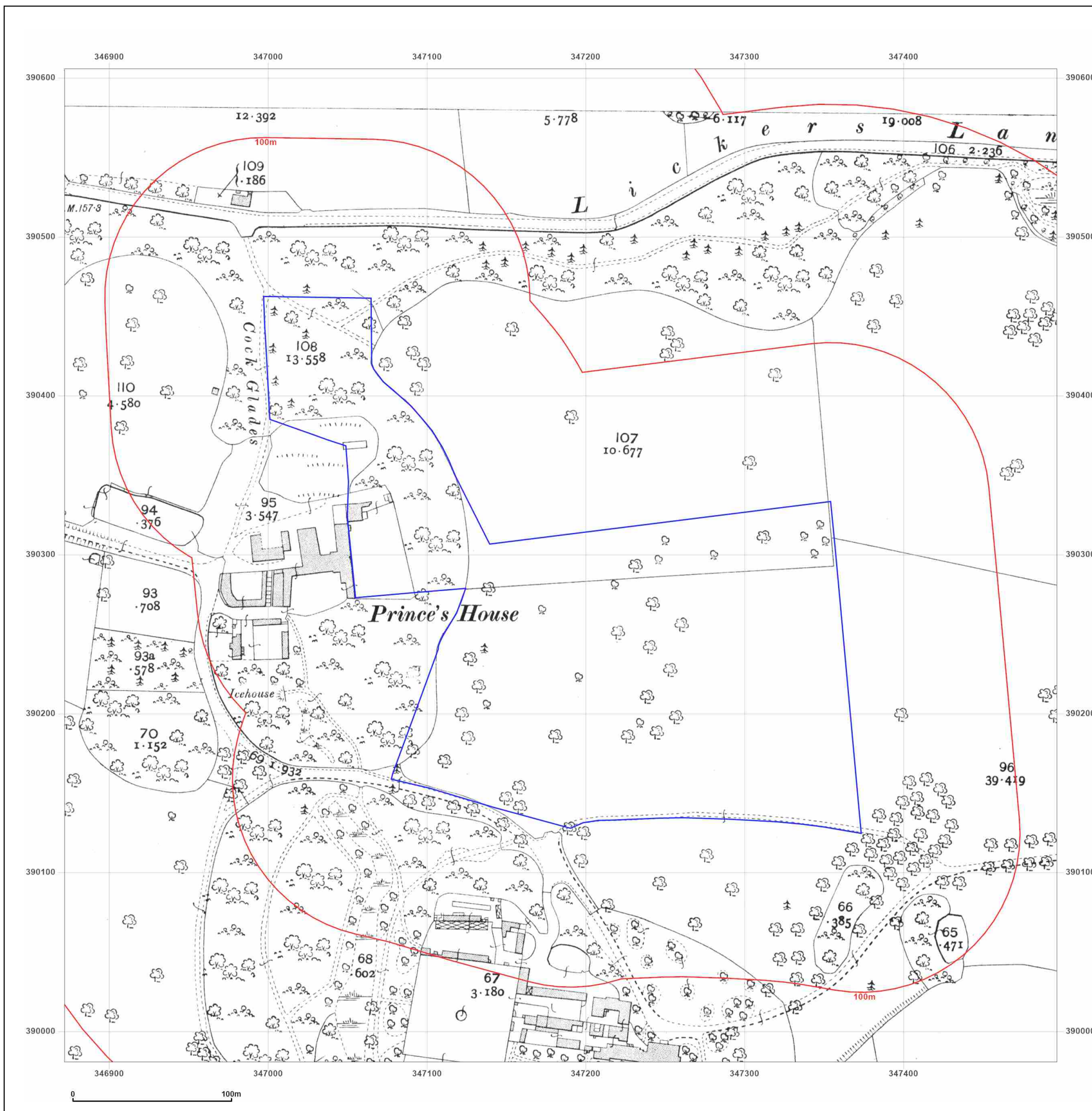


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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1927
 Revised 1927
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1927
 Revised 1927
 Edition N/A
 Copyright N/A
 Levelled N/A

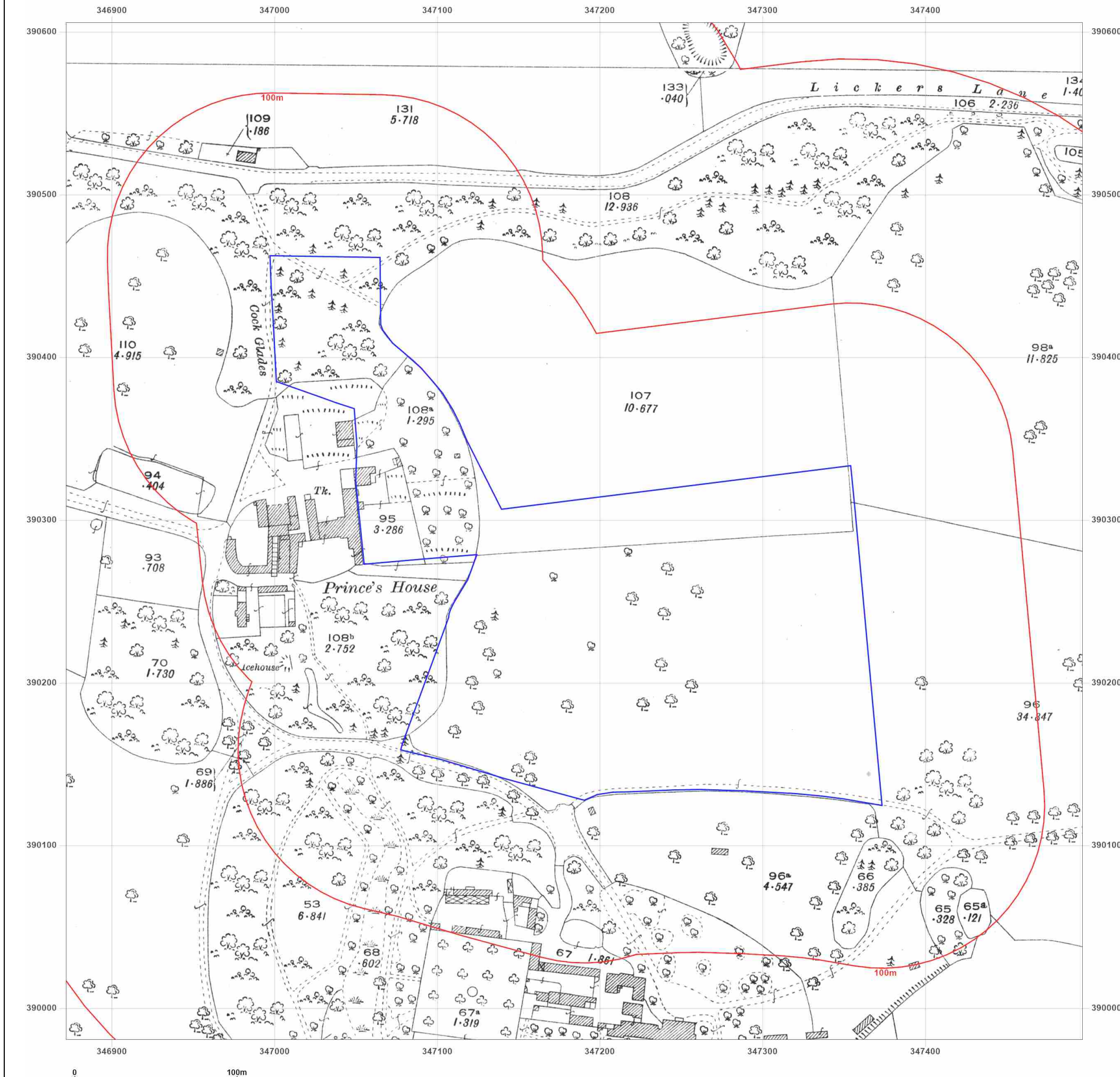


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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: County Series

Map date: 1937

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1937
 Revised 1937
 Edition N/A
 Copyright N/A
 Levelled N/A

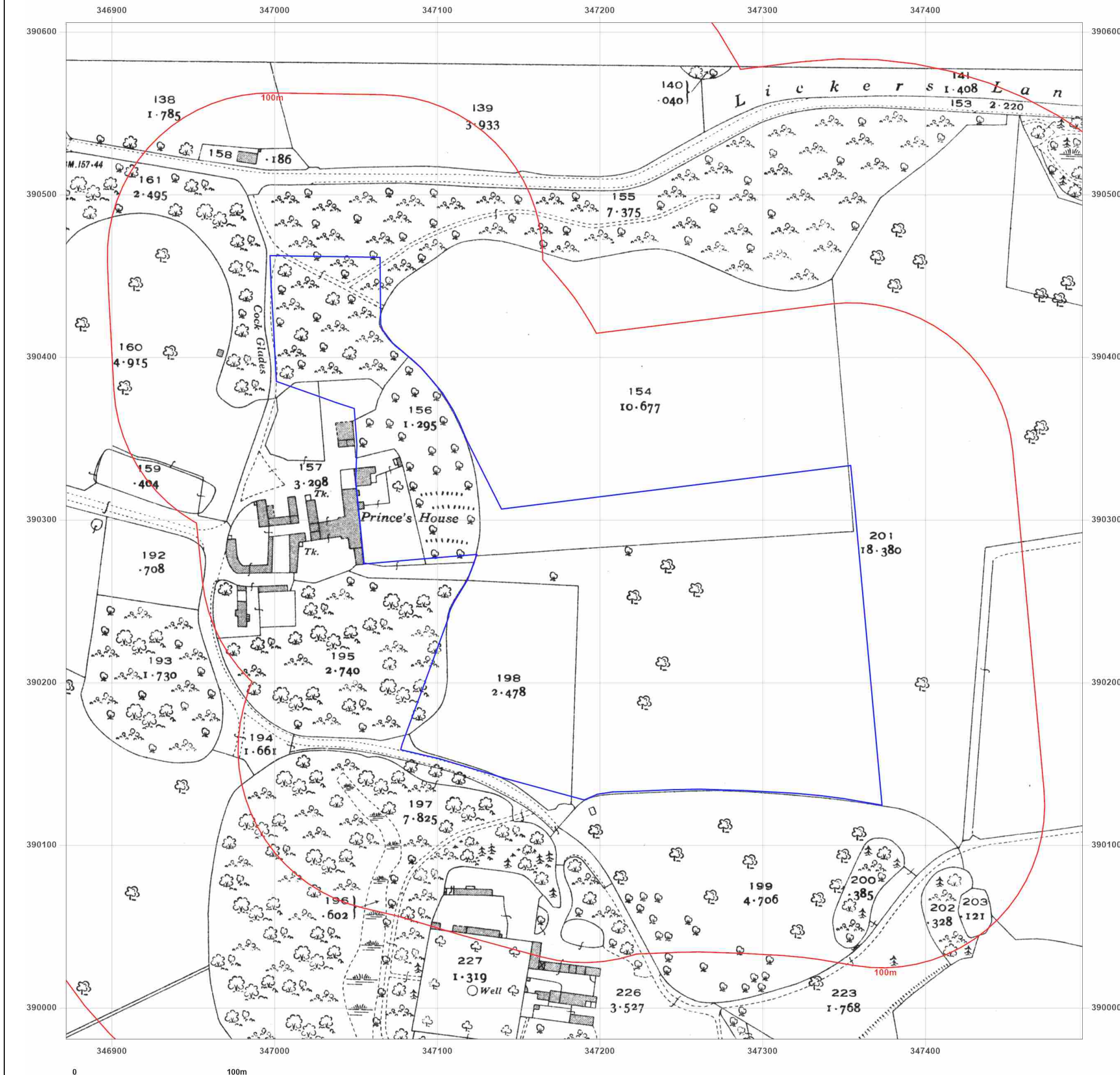


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Site Details:

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Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: National Grid

Map date: 1959

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
 Revised 1958
 Edition N/A
 Copyright 1959
 Levelled 1926

Surveyed 1958
 Revised 1958
 Edition N/A
 Copyright 1959
 Levelled 1926

Surveyed 1958
 Revised 1958
 Edition N/A
 Copyright 1959
 Levelled 1926

Surveyed 1958
 Revised 1958
 Edition N/A
 Copyright 1959
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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: National Grid

Map date: 1975-1979

Scale: 1:2,500

Printed at: 1:2,500



		Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A
Surveyed 1978 Revised 1978 Edition N/A Copyright 1979 Levelled 1963		Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A

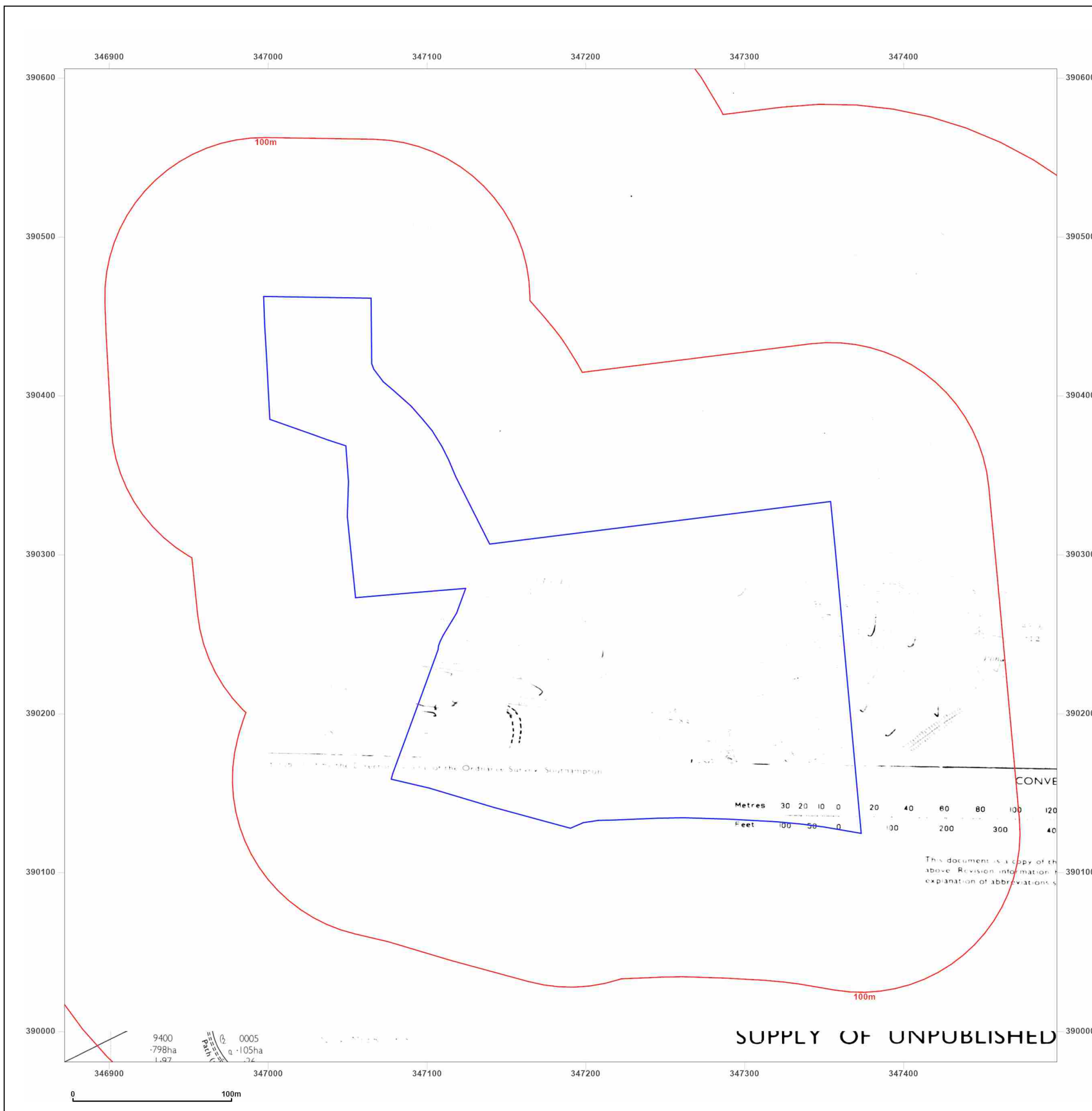


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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: National Grid

Map date: 1980-1985

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1963
 Revised 1984
 Edition N/A
 Copyright 1984
 Levelled 1963

Surveyed 1963
 Revised 1985
 Edition N/A
 Copyright 1985
 Levelled 1963

Surveyed N/A
 Revised N/A
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 Copyright 1980
 Levelled 1963

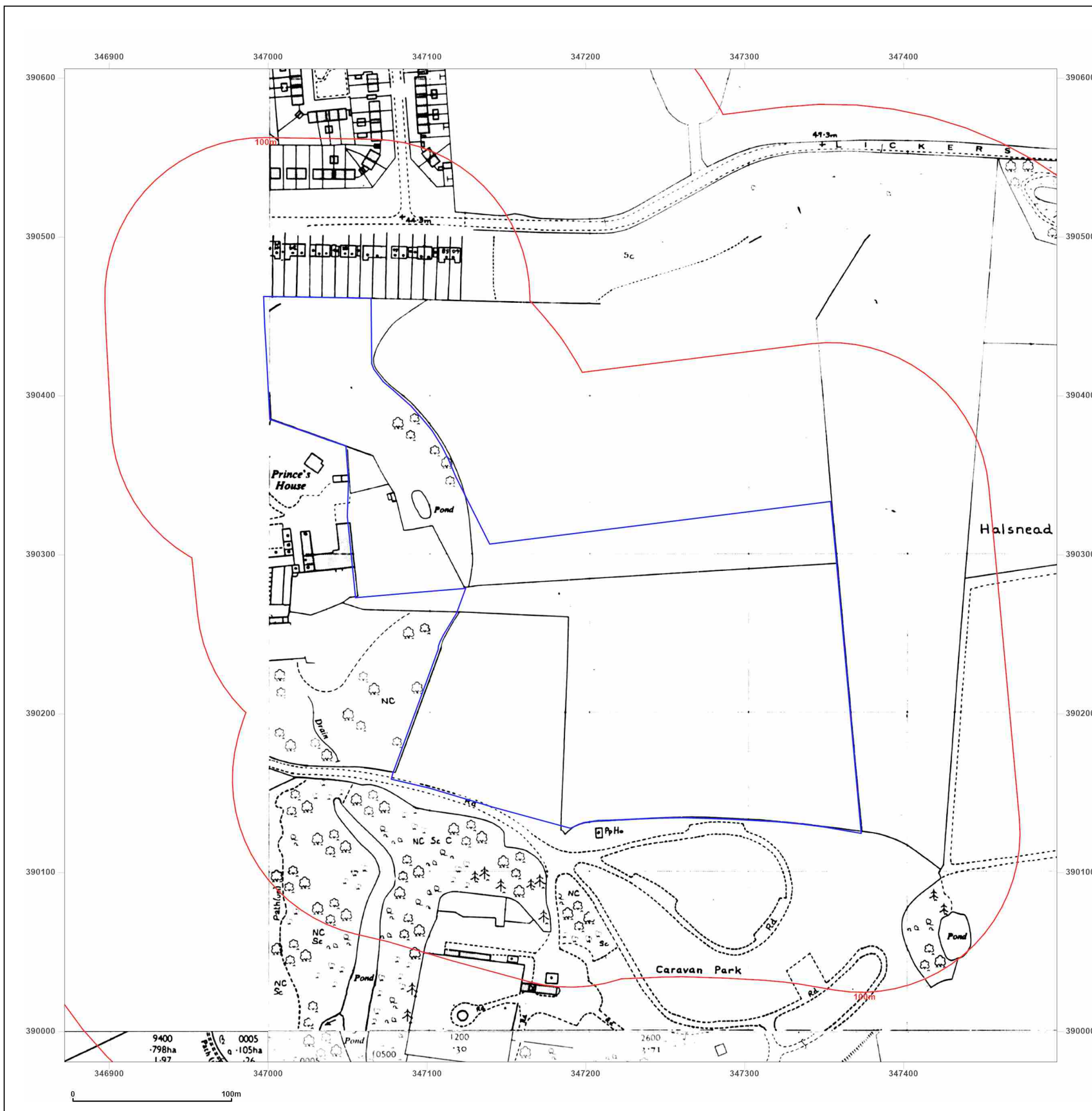


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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_2500
Grid Ref: 347184, 390293

Map Name: National Grid

Map date: 1981-1986

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1963
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 Edition N/A
 Copyright 1986
 Levelled 1963

Surveyed 1980
 Revised 1980
 Edition N/A
 Copyright 1981
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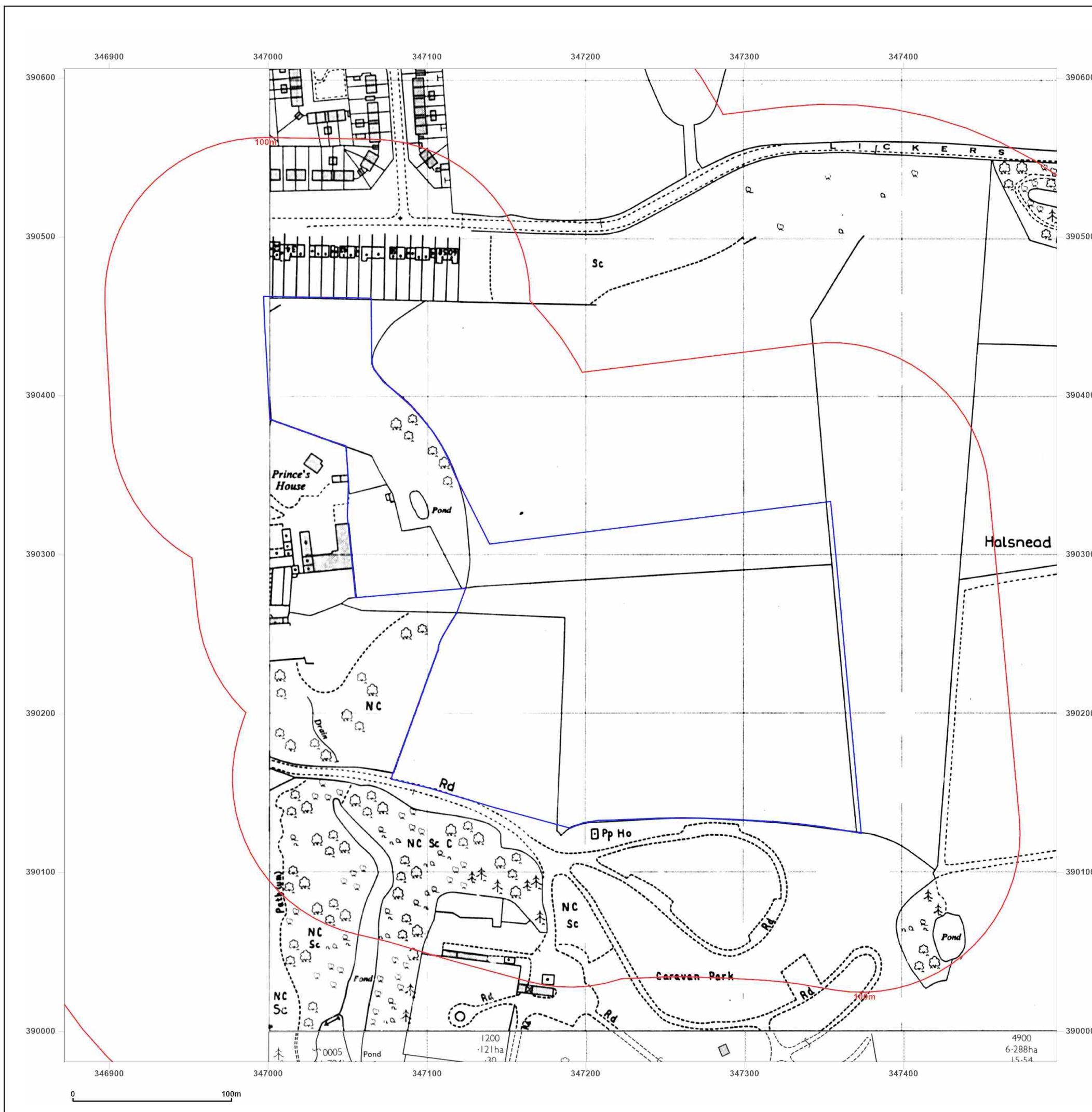


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Site Details:

Whiston, Prescott, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_Landline_1_1
Grid Ref: 347035, 390143

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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Production date: 09 January 2025

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





Site Details:

Whiston, Prescot, L35 3PW

Client Ref:

C5980-6002-SD

Report Ref:

GS-QLM-MGF-L3A-EIX_Landline_2_1

Grid Ref:

347335, 390143

Map Name:

LandLine

Map date:

2003

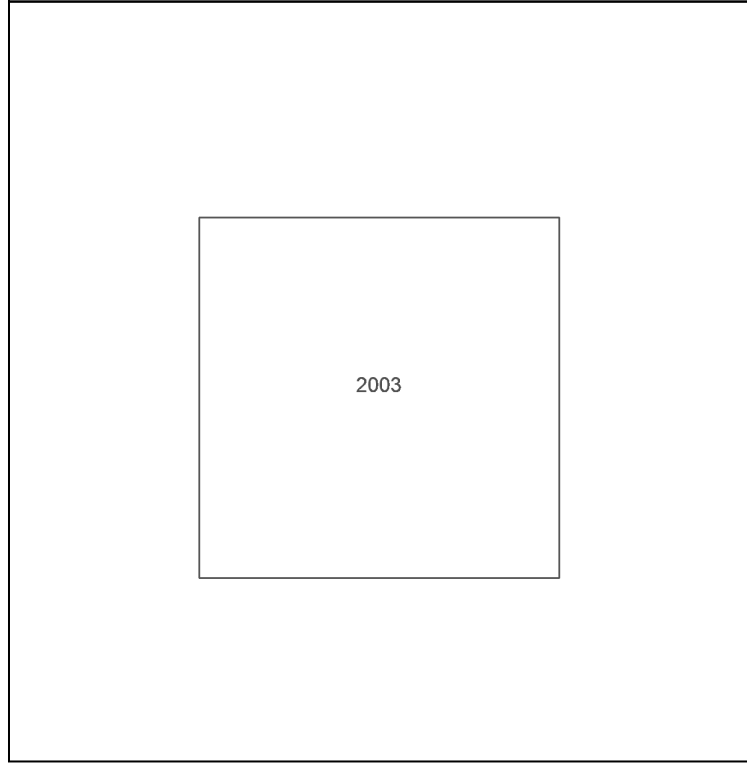
Scale:

1:1,250

Printed at:

1:1,250







Produced by

Groundsure Insights

T: 08444 159000

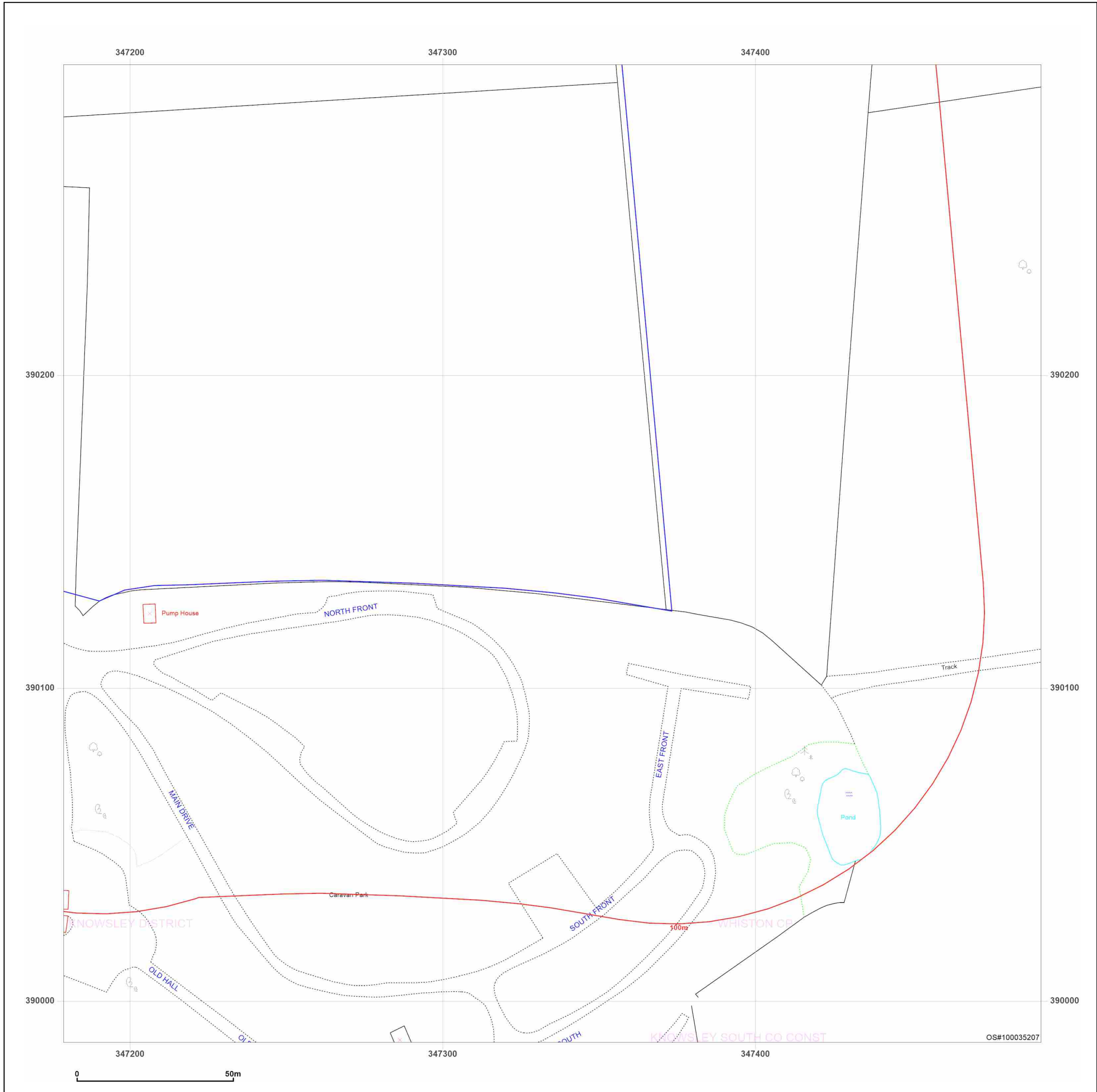
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Production date: 09 January 2025

Map legend available at:
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Site Details:

Whiston, Prescot, L35 3PW

Client Ref: C5980-6002-SD
Report Ref: GS-QLM-MGF-L3A-EIX_Landline_2_2
Grid Ref: 347335, 390443

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



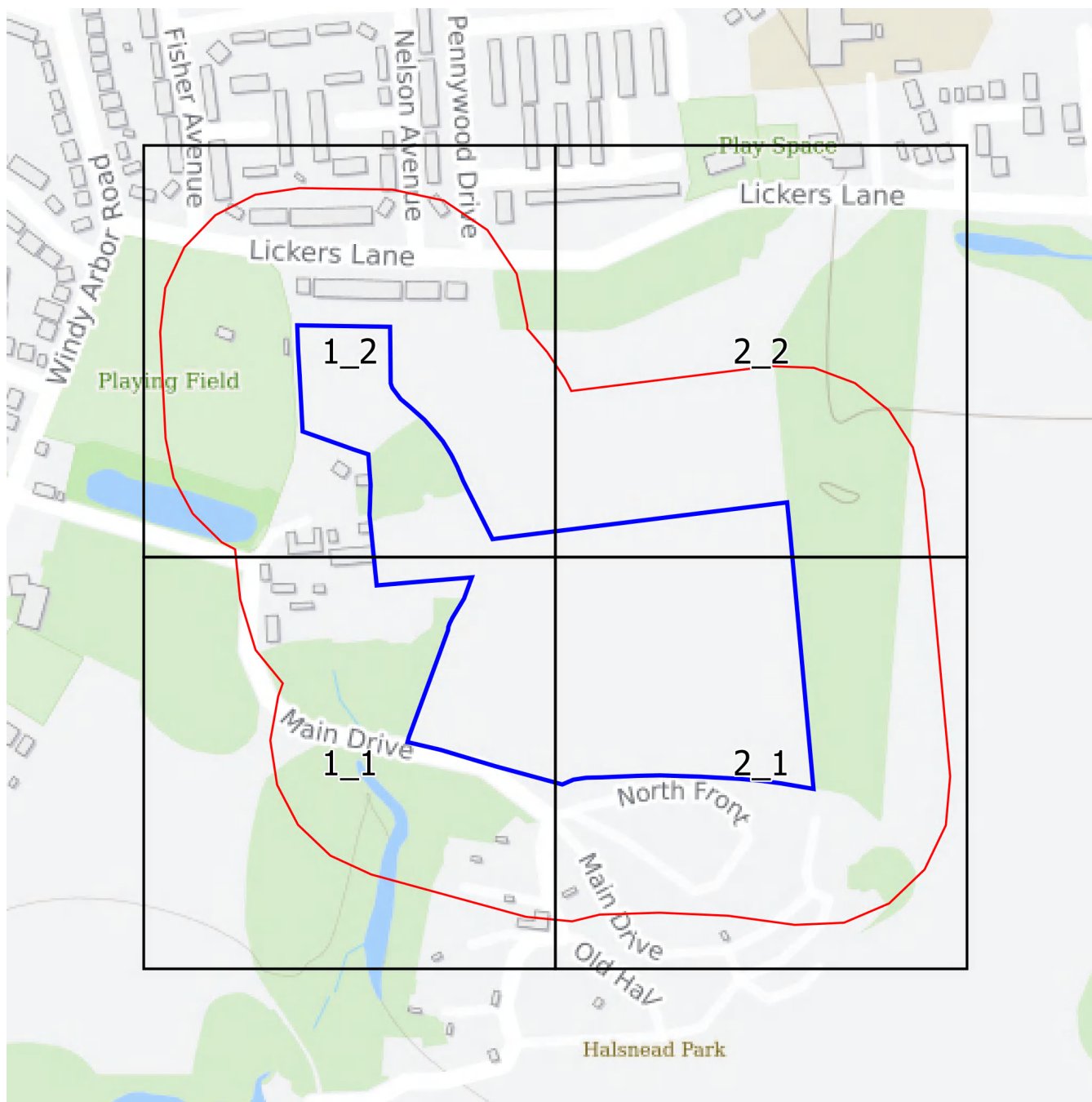
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Production date: 09 January 2025

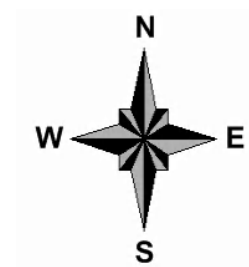
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf





Groundsure
INSIGHTS

Landline Scale Grid Index



APPENDIX C

Geo-Environmental Data Report



Whiston, Prescott, L35 3PW

Order Details

Date: 09/01/2025
Your ref: C5980-6002-SD
Our Ref: GS-6ZX-TZB-AY5-WGC

Site Details

Location: 347199 390255
Area: 6.15 ha
Authority: [Knowsley Metropolitan Borough Council](#) ↗



Summary of findings

[p. 2 >](#)

Aerial image

[p. 9 >](#)

OS MasterMap site plan

[p.14 >](#)

[Insight User Guide](#) ↗

Contact us with any questions at:

info@groundsure.com ↗

01273 257 755

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	2	8	40	-
17 >	1.2 >	Historical tanks >	0	4	1	6	-
18 >	1.3 >	Historical energy features >	0	0	5	10	-
19	1.4	Historical petrol stations	0	0	0	0	-
19	1.5	Historical garages	0	0	0	0	-
20	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
21 >	2.1 >	Historical industrial land uses >	0	3	10	44	-
24 >	2.2 >	Historical tanks >	0	5	2	11	-
25 >	2.3 >	Historical energy features >	0	0	8	23	-
26	2.4	Historical petrol stations	0	0	0	0	-
26	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
27	3.1	Active or recent landfill	0	0	0	0	-
27	3.2	Historical landfill (BGS records)	0	0	0	0	-
28 >	3.3 >	Historical landfill (LA/mapping records) >	0	0	0	2	-
28 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	0	4	-
29	3.5	Historical waste sites	0	0	0	0	-
29	3.6	Licensed waste sites	0	0	0	0	-
29 >	3.7 >	Waste exemptions >	0	0	5	6	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
31 >	4.1 >	Recent industrial land uses >	0	1	4	-	-
32	4.2	Current or recent petrol stations	0	0	0	0	-
32	4.3	Electricity cables	0	0	0	0	-
32	4.4	Gas pipelines	0	0	0	0	-
32	4.5	Sites determined as Contaminated Land	0	0	0	0	-



33	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
33	4.7	Regulated explosive sites	0	0	0	0	-
33	4.8	Hazardous substance storage/usage	0	0	0	0	-
33	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
33	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
34	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
34	4.12	Radioactive Substance Authorisations	0	0	0	0	-
34	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
34	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
34	4.15	Pollutant release to public sewer	0	0	0	0	-
35	4.16	List 1 Dangerous Substances	0	0	0	0	-
35	4.17	List 2 Dangerous Substances	0	0	0	0	-
35 >	4.18 >	<u>Pollution Incidents (EA/NRW)</u> >	0	0	2	0	-
35	4.19	Pollution inventory substances	0	0	0	0	-
36	4.20	Pollution inventory waste transfers	0	0	0	0	-
36	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	<u>Hydrogeology</u> >	On site	0-50m	50-250m	250-500m	500-2000m
37 >	5.1 >	<u>Superficial aquifer</u> >	Identified (within 500m)				
39 >	5.2 >	<u>Bedrock aquifer</u> >	Identified (within 500m)				
41 >	5.3 >	<u>Groundwater vulnerability</u> >	Identified (within 50m)				
42	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
42	5.5	Groundwater vulnerability- local information	None (within 0m)				
43 >	5.6 >	<u>Groundwater abstractions</u> >	0	0	0	0	11
46 >	5.7 >	<u>Surface water abstractions</u> >	0	0	0	0	4
48 >	5.8 >	<u>Potable abstractions</u> >	0	0	0	0	5
49 >	5.9 >	<u>Source Protection Zones</u> >	0	0	1	0	-
49	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	<u>Hydrology</u> >	On site	0-50m	50-250m	250-500m	500-2000m
50 >	6.1 >	<u>Water Network (OS MasterMap)</u> >	0	3	7	-	-



51 >	6.2 >	Surface water features >	0	2	4	-	-
52 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
52 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
52 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
54	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
54	7.2	Historical Flood Events	0	0	0	-	-
54	7.3	Flood Defences	0	0	0	-	-
55	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
55	7.5	Flood Storage Areas	0	0	0	-	-
56	7.6	Flood Zone 2	None (within 50m)				
56	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding >					
57 >	8.1 >	Surface water flooding >	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
59 >	9.1 >	Groundwater flooding >	Low (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
60	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
61	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
61	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
61	10.4	Special Protection Areas (SPA)	0	0	0	0	0
61	10.5	National Nature Reserves (NNR)	0	0	0	0	0
62	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
62 >	10.7 >	Designated Ancient Woodland >	0	0	0	1	1
62	10.8	Biosphere Reserves	0	0	0	0	0
62	10.9	Forest Parks	0	0	0	0	0
63	10.10	Marine Conservation Zones	0	0	0	0	0
63 >	10.11 >	Green Belt >	0	0	0	1	2
63	10.12	Proposed Ramsar sites	0	0	0	0	0



63	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
64	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
64	10.15	Nitrate Sensitive Areas	0	0	0	0	0
64 >	10.16 >	Nitrate Vulnerable Zones >	1	0	0	0	2
65 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
66	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
67	11.1	World Heritage Sites	0	0	0	-	-
67	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
67	11.3	National Parks	0	0	0	-	-
67	11.4	Listed Buildings	0	0	0	-	-
68	11.5	Conservation Areas	0	0	0	-	-
68	11.6	Scheduled Ancient Monuments	0	0	0	-	-
68	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
69 >	12.1 >	Agricultural Land Classification >	Grade 3b (within 250m)				
70	12.2	Open Access Land	0	0	0	-	-
70 >	12.3 >	Tree Felling Licences >	0	0	1	-	-
71	12.4	Environmental Stewardship Schemes	0	0	0	-	-
71	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
72 >	13.1 >	Priority Habitat Inventory >	2	3	12	-	-
73	13.2	Habitat Networks	0	0	0	-	-
73	13.3	Open Mosaic Habitat	0	0	0	-	-
74	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
75 >	14.1 >	10k Availability >	Identified (within 500m)				
76	14.2	Artificial and made ground (10k)	0	0	0	0	-
77 >	14.3 >	Superficial geology (10k) >	0	0	1	1	-



78	14.4	Landslip (10k)	0	0	0	0	-
79 >	14.5 >	Bedrock geology (10k) >	0	0	3	3	-
80 >	14.6 >	Bedrock faults and other linear features (10k) >	0	0	4	3	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
81 >	15.1 >	50k Availability >	Identified (within 500m)				
82	15.2	Artificial and made ground (50k)	0	0	0	0	-
82	15.3	Artificial ground permeability (50k)	0	0	-	-	-
83 >	15.4 >	Superficial geology (50k) >	1	0	0	1	-
84 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
84	15.6	Landslip (50k)	0	0	0	0	-
84	15.7	Landslip permeability (50k)	None (within 50m)				
85 >	15.8 >	Bedrock geology (50k) >	2	0	3	5	-
86 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
86 >	15.10 >	Bedrock faults and other linear features (50k) >	7	1	12	6	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
88	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence >					
89 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
90 >	17.2 >	Running sands >	Very low (within 50m)				
91 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
92 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
93 >	17.5 >	Landslides >	Very low (within 50m)				
94 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
96 >	18.1 >	BritPits >	0	0	1	3	-
97 >	18.2 >	Surface ground workings >	0	10	26	-	-
99 >	18.3 >	Underground workings >	0	0	0	8	68
102	18.4	Underground mining extents	0	0	0	0	-
102 >	18.5 >	Historical Mineral Planning Areas >	0	0	1	1	-



103 >	18.6 >	Non-coal mining >	0	0	0	0	2
103	18.7	JPB mining areas	None (within 0m)				
103	18.8	The Coal Authority non-coal mining	0	0	0	0	-
104 >	18.9 >	Researched mining >	0	0	0	1	-
104	18.10	Mining record office plans	0	0	0	0	-
104	18.11	BGS mine plans	0	0	0	0	-
104 >	18.12 >	Coal mining >	Identified (within 0m)				
105	18.13	Brine areas	None (within 0m)				
105	18.14	Gypsum areas	None (within 0m)				
105	18.15	Tin mining	None (within 0m)				
105	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
106	19.1	Natural cavities	0	0	0	0	-
106	19.2	Mining cavities	0	0	0	0	0
106	19.3	Reported recent incidents	0	0	0	0	-
106	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
108 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
110 >	21.1 >	BGS Estimated Background Soil Chemistry >	3	3	-	-	-
110	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
111	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
112	22.1	Underground railways (London)	0	0	0	-	-
112	22.2	Underground railways (Non-London)	0	0	0	-	-
112	22.3	Railway tunnels	0	0	0	-	-
112	22.4	Historical railway and tunnel features	0	0	0	-	-
112	22.5	Royal Mail tunnels	0	0	0	-	-
113	22.6	Historical railways	0	0	0	-	-

113	22.7	Railways	0	0	0	-	-
113	22.8	Crossrail 2	0	0	0	0	-
113	22.9	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 28/09/2022

Site Area: 6.15ha



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Date: 9 January 2025

Recent site history - 2019 aerial photograph



Capture Date: 22/04/2019

Site Area: 6.15ha



Contact us with any questions at:

info@groundsure.com

01273 257 755

Date: 9 January 2025

Recent site history - 2009 aerial photograph



Capture Date: 24/06/2009

Site Area: 6.15ha



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info@groundsure.com

01273 257 755

Date: 9 January 2025

Recent site history - 2005 aerial photograph



Capture Date: 02/09/2005

Site Area: 6.15ha



Contact us with any questions at:

info@groundsure.com

01273 257 755

Date: 9 January 2025

Recent site history - 2000 aerial photograph



Capture Date: 21/07/2000

Site Area: 6.15ha



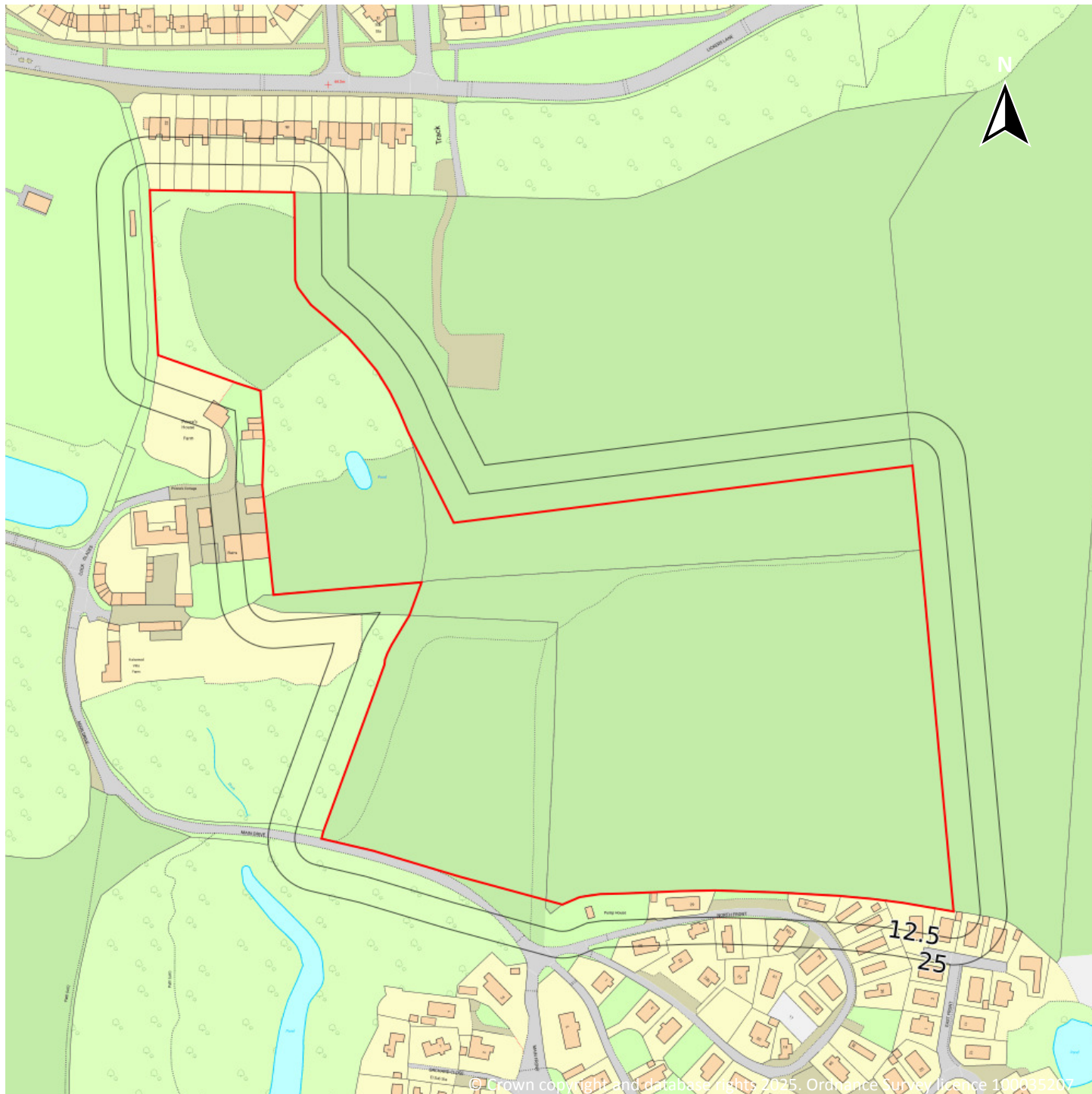
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01273 257 755

Date: 9 January 2025

OS MasterMap site plan



Site Area: 6.15ha



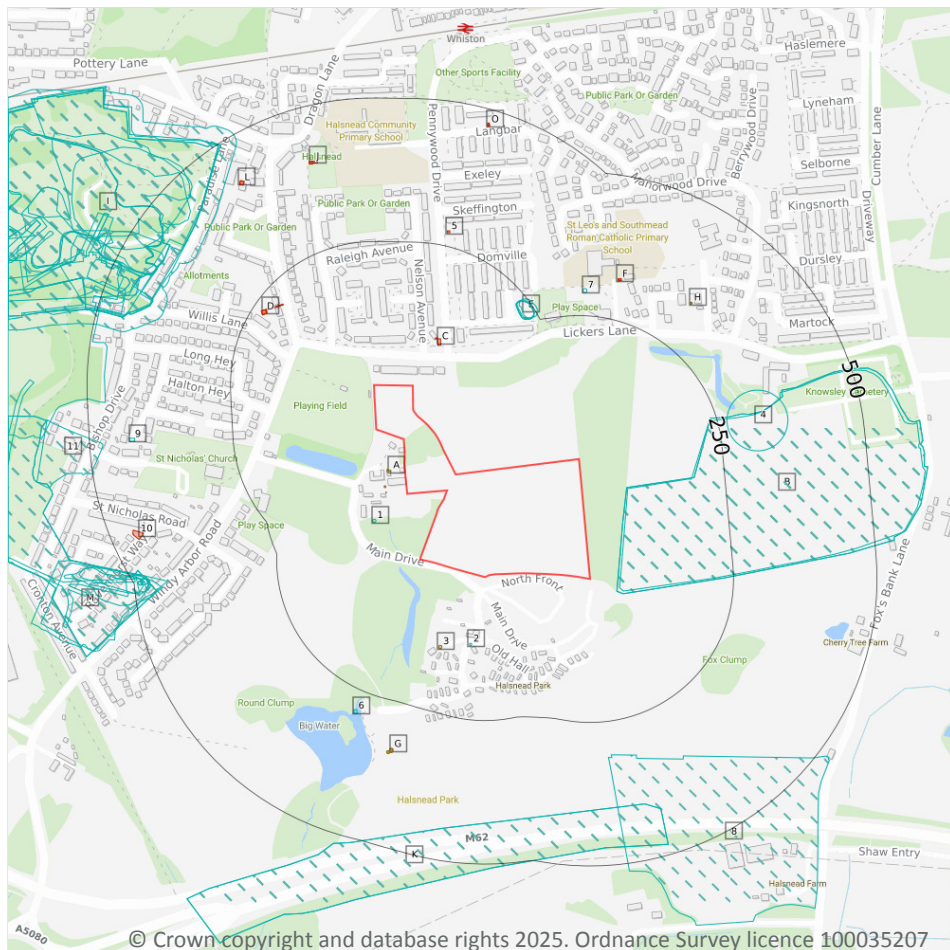
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Date: 9 January 2025

1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

1.1 Historical industrial land uses

Records within 500m

50

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

Features are displayed on the Past land use map on [page 15](#) >

ID	Location	Land use	Dates present	Group ID
B	49m SE	Nursery	1956	915647



ID	Location	Land use	Dates present	Group ID
B	49m SE	Nursery	1966 - 1978	991508
B	53m SE	Nursery	1947	966693
1	71m W	Coal Pit	1850	832453
2	118m S	Pump	1850	834680
E	224m N	Unspecified Old Quarry	1891	812872
E	224m N	Unspecified Pit	1947	859893
E	224m N	Unspecified Pit	1906 - 1925	863264
E	226m N	Unspecified Pit	1938	926303
E	230m N	Unspecified Pit	1956	1001242
4	265m E	Unspecified Tank	1966	851501
6	284m SW	Boat House	1906	824647
7	290m NE	Sandstone Quarry	1850	820475
8	309m SE	Nursery	1947 - 1955	971880
I	383m NW	Brick Works	1956	937800
K	401m SE	Cuttings	1989	863456
K	401m SE	Cuttings	1977	937451
I	405m NW	Brick Works	1925	953660
I	408m NW	Brick Works	1947	859970
I	409m NW	Unspecified Works	1966	919078
I	410m NW	Refuse Heap	1990	928900
I	413m NW	Metallic Brick Works	1938	856365
9	421m W	Weighing Machine	1850	832490
I	426m NW	Brick Works	1906	866021
I	427m NW	Unspecified Ground Workings	1947 - 1956	886094
I	428m NW	Unspecified Pits	1925	855984
I	430m NW	Unspecified Pit	1938	996191
I	430m NW	Unspecified Pit	1906	960946
M	442m W	Old Colliery	1891 - 1906	909585



ID	Location	Land use	Dates present	Group ID
I	443m NW	Mineral Railway Sidings	1925	858667
I	446m NW	Unspecified Ground Workings	1966	862086
I	450m NW	Railway Sidings	1938	941955
I	451m NW	Unspecified Disused Pit	1978	856197
M	452m W	Colliery	1850	844685
I	458m NW	Unspecified Disused Works	1978	848701
I	461m NW	Railway Sidings	1906	1004470
N	462m W	Disused Colliery	1947	897393
N	462m W	Disused Colliery	1925	1004148
M	472m W	Unspecified Ground Workings	1925	1002560
M	474m W	Unspecified Heap	1956	994545
I	475m NW	Railway Sidings	1956	1007991
M	475m W	Unspecified Ground Workings	1906	903757
M	476m W	Unspecified Ground Workings	1947 - 1956	910693
M	477m W	Unspecified Disused Shafts	1966	834327
11	477m W	Colliery	1850	844684
M	483m W	Unspecified Old Shaft	1956	823984
M	485m W	Unspecified Heap	1891	905880
M	485m W	Unspecified Old Shafts	1925	869860
M	485m W	Unspecified Old Shafts	1947	973294
N	495m W	Railway Sidings	1850	862742

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

11

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



Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
A	24m W	Unspecified Tank	1927 - 1937	153801
A	28m W	Unspecified Tank	1959	125924
A	36m W	Unspecified Tank	1937	125930
A	36m W	Unspecified Tank	1959	125923
3	135m S	Unspecified Tank	1892 - 1907	127270
G	331m S	Unspecified Tank	1996	141492
G	333m S	Unspecified Tank	1981	152988
H	333m NE	Unspecified Tank	1994 - 1997	151014
H	333m NE	Unspecified Tank	1976	138615
G	337m S	Unspecified Tank	1959 - 1980	147408
G	337m S	Unspecified Tank	1989	155106

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

15

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

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
C	83m N	Electricity Substation	1995 - 1999	81814
C	90m N	Electricity Substation	1974	66100
D	211m NW	Electricity Substation	1973	79050
D	224m NW	Electricity Substation	1984	92641
D	225m NW	Electricity Substation	1994	73264
5	273m N	Electricity Substation	1995 - 1999	90625



ID	Location	Land use	Dates present	Group ID
F	318m NE	Electricity Substation	1995 - 1999	71719
F	318m NE	Electricity Substation	1974	84629
J	399m NW	Electricity Substation	1973	79581
J	399m NW	Electricity Substation	1984 - 1994	83998
L	416m NW	Electricity Substation	1994	82790
L	417m NW	Electricity Substation	1973 - 1984	78225
10	444m W	Electricity Substation	1973 - 1997	80815
O	471m N	Electricity Substation	1995 - 1999	82113
O	472m N	Electricity Substation	1974	78132

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.



1.6 Historical military land

Records within 500m

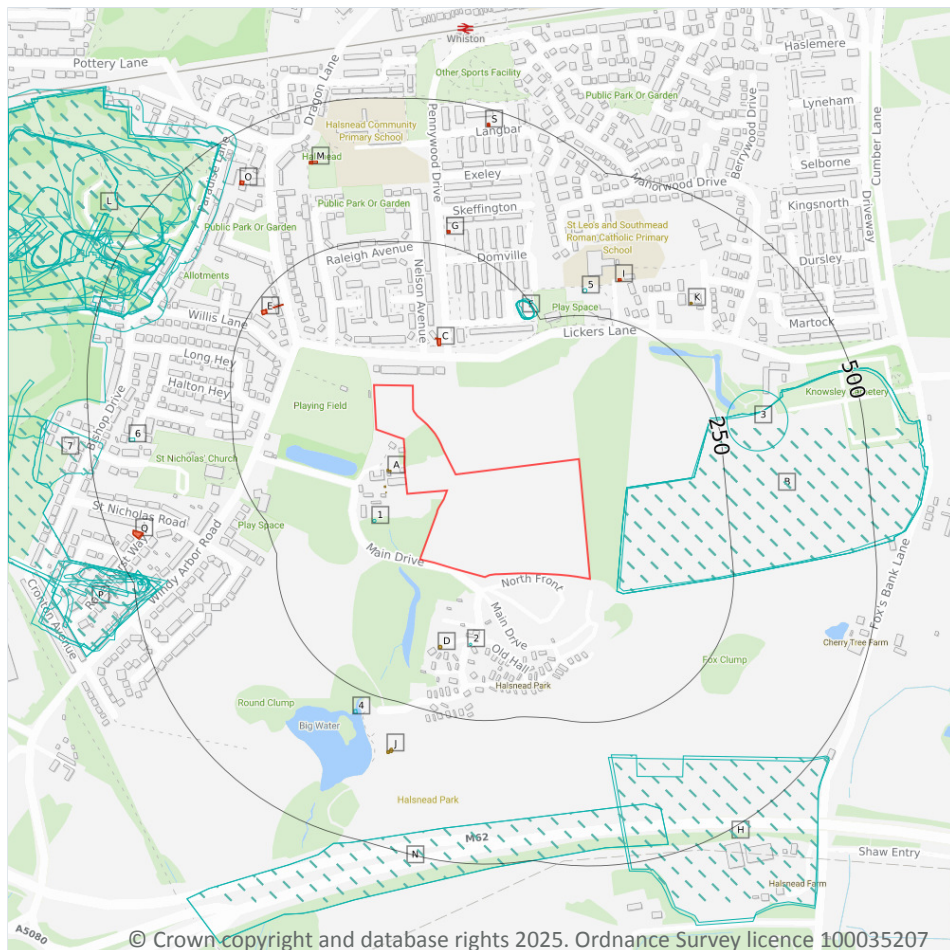
0

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

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



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

2.1 Historical industrial land uses

Records within 500m

57

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

Features are displayed on the Past land use - un-grouped map on [page 21](#) >

ID	Location	Land Use	Date	Group ID
B	49m SE	Nursery	1956	915647
B	49m SE	Nursery	1978	991508
B	49m SE	Nursery	1966	991508



ID	Location	Land Use	Date	Group ID
B	53m SE	Nursery	1947	966693
1	71m W	Coal Pit	1850	832453
2	118m S	Pump	1850	834680
F	224m N	Unspecified Pit	1947	859893
F	224m N	Unspecified Pit	1925	863264
F	224m N	Unspecified Pit	1906	863264
F	224m N	Unspecified Old Quarry	1891	812872
F	226m N	Unspecified Pit	1938	926303
F	226m N	Unspecified Pit	1938	926303
F	230m N	Unspecified Pit	1956	1001242
3	265m E	Unspecified Tank	1966	851501
4	284m SW	Boat House	1906	824647
5	290m NE	Sandstone Quarry	1850	820475
H	309m SE	Nursery	1955	971880
H	313m SE	Nursery	1947	971880
L	383m NW	Brick Works	1956	937800
N	401m SE	Cuttings	1977	937451
N	401m SE	Cuttings	1989	863456
L	405m NW	Brick Works	1925	953660
L	408m NW	Brick Works	1947	859970
L	409m NW	Unspecified Works	1966	919078
L	410m NW	Refuse Heap	1990	928900
L	413m NW	Metallic Brick Works	1938	856365
6	421m W	Weighing Machine	1850	832490
L	426m NW	Brick Works	1906	866021
L	427m NW	Unspecified Ground Workings	1956	886094
L	428m NW	Unspecified Pits	1925	855984
L	430m NW	Unspecified Ground Workings	1947	886094



ID	Location	Land Use	Date	Group ID
L	430m NW	Unspecified Pit	1938	996191
L	430m NW	Unspecified Pit	1938	996191
L	430m NW	Unspecified Pit	1906	960946
P	442m W	Old Colliery	1906	909585
L	443m NW	Mineral Railway Sidings	1925	858667
L	446m NW	Unspecified Ground Workings	1966	862086
L	450m NW	Railway Sidings	1938	941955
L	451m NW	Unspecified Disused Pit	1978	856197
P	452m W	Colliery	1850	844685
P	453m W	Old Colliery	1891	909585
L	458m NW	Unspecified Disused Works	1978	848701
L	461m NW	Railway Sidings	1906	1004470
R	462m W	Disused Colliery	1947	897393
R	462m W	Disused Colliery	1925	1004148
P	472m W	Unspecified Ground Workings	1925	1002560
P	474m W	Unspecified Heap	1956	994545
L	475m NW	Railway Sidings	1956	1007991
P	475m W	Unspecified Ground Workings	1906	903757
P	476m W	Unspecified Ground Workings	1947	910693
P	477m W	Unspecified Disused Shafts	1966	834327
7	477m W	Colliery	1850	844684
P	483m W	Unspecified Old Shaft	1956	823984
P	485m W	Unspecified Heap	1891	905880
P	485m W	Unspecified Old Shafts	1947	973294
P	485m W	Unspecified Old Shafts	1925	869860
R	495m W	Railway Sidings	1850	862742

This data is sourced from Ordnance Survey / Groundsure.



2.2 Historical tanks

Records within 500m

18

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

Features are displayed on the Past land use - un-grouped map on [page 21 >](#)

ID	Location	Land Use	Date	Group ID
A	24m W	Unspecified Tank	1927	153801
A	24m W	Unspecified Tank	1937	153801
A	28m W	Unspecified Tank	1959	125924
A	36m W	Unspecified Tank	1937	125930
A	36m W	Unspecified Tank	1959	125923
D	135m S	Unspecified Tank	1892	127270
D	135m S	Unspecified Tank	1907	127270
J	331m S	Unspecified Tank	1996	141492
J	333m S	Unspecified Tank	1981	152988
K	333m NE	Unspecified Tank	1997	151014
K	333m NE	Unspecified Tank	1996	151014
K	333m NE	Unspecified Tank	1994	151014
K	333m NE	Unspecified Tank	1994	151014
K	333m NE	Unspecified Tank	1995	151014
K	333m NE	Unspecified Tank	1976	138615
J	337m S	Unspecified Tank	1980	147408
J	337m S	Unspecified Tank	1989	155106
J	337m S	Unspecified Tank	1959	147408

This data is sourced from Ordnance Survey / Groundsure.



2.3 Historical energy features

Records within 500m

31

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

Features are displayed on the Past land use - un-grouped map on [page 21](#) >

ID	Location	Land Use	Date	Group ID
C	83m N	Electricity Substation	1996	81814
C	83m N	Electricity Substation	1995	81814
C	83m N	Electricity Substation	1996	81814
C	83m N	Electricity Substation	1999	81814
C	90m N	Electricity Substation	1974	66100
E	211m NW	Electricity Substation	1973	79050
E	224m NW	Electricity Substation	1984	92641
E	225m NW	Electricity Substation	1994	73264
G	273m N	Electricity Substation	1996	90625
G	273m N	Electricity Substation	1995	90625
G	273m N	Electricity Substation	1996	90625
G	273m N	Electricity Substation	1999	90625
I	318m NE	Electricity Substation	1996	71719
I	318m NE	Electricity Substation	1995	71719
I	318m NE	Electricity Substation	1996	71719
I	318m NE	Electricity Substation	1999	71719
I	318m NE	Electricity Substation	1974	84629
M	399m NW	Electricity Substation	1973	79581
M	399m NW	Electricity Substation	1994	83998
M	401m NW	Electricity Substation	1984	83998
O	416m NW	Electricity Substation	1994	82790
O	417m NW	Electricity Substation	1973	78225
O	417m NW	Electricity Substation	1984	78225



ID	Location	Land Use	Date	Group ID
Q	444m W	Electricity Substation	1973	80815
Q	445m W	Electricity Substation	1997	80815
Q	445m W	Electricity Substation	1984	80815
S	471m N	Electricity Substation	1996	82113
S	471m N	Electricity Substation	1995	82113
S	471m N	Electricity Substation	1996	82113
S	471m N	Electricity Substation	1999	82113
S	472m N	Electricity Substation	1974	78132

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

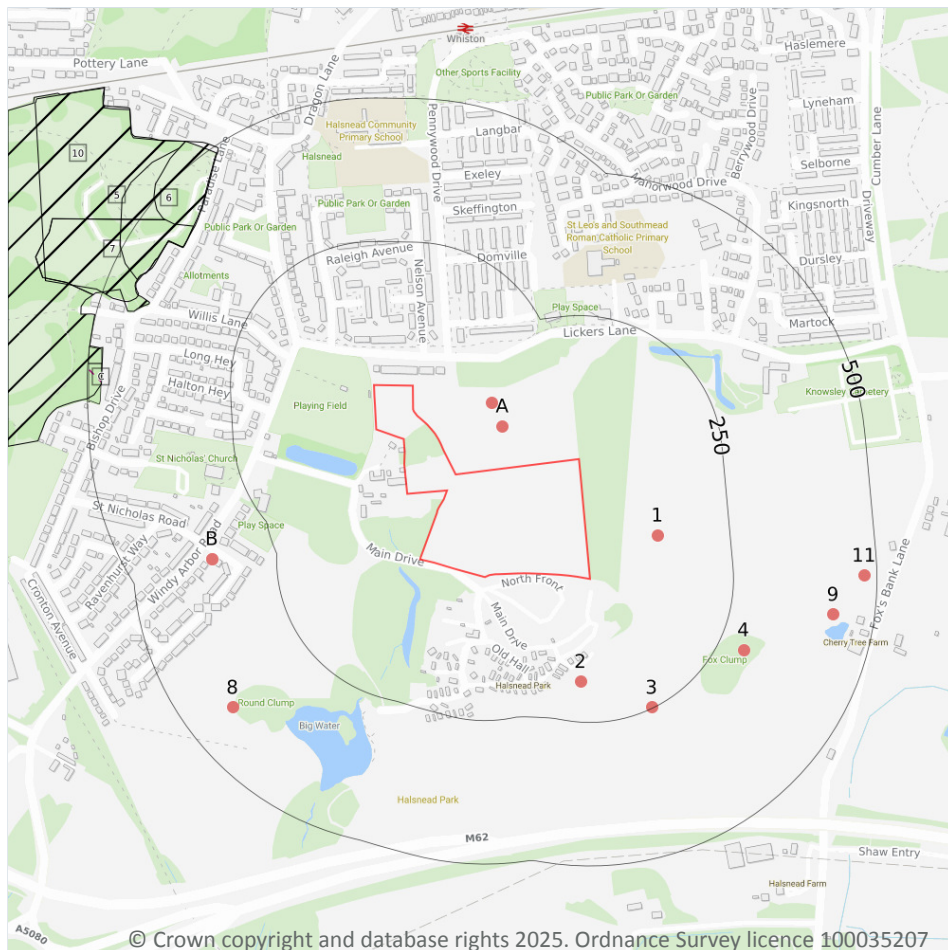
0

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

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical landfill (EA/NRW)
- Historical landfill (LA/OS)
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

2

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

Features are displayed on the Waste and landfill map on [page 27 >](#)

ID	Location	Site address	Source	Data type
C	475m W	Refuse Tip	1997 mapping	Polygon
C	476m W	Refuse Tip	1994 mapping	Polygon

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

3.4 Historical landfill (EA/NRW records)

Records within 500m

4

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

Features are displayed on the Waste and landfill map on [page 27 >](#)

ID	Location	Details		
5	410m NW	Site Address: Whiston Tip, St Helens, Lancashire Licence Holder Address: -	Waste Licence: - Site Reference: - Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Central Electricity Generating Board - North Western Region Licence Holder: - First Recorded 07/01/1967 Last Recorded: -
6	410m NW	Site Address: Tushingham's Quarry, Coalgate Lane, Paradise Lane, Stadt-Moers Park, Whiston, Merseyside, Knowsley Licence Holder Address: Bridle Road, Bootle, Merseyside	Waste Licence: Yes Site Reference: 026/01,GDO 020 Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 27/05/1977 Licence Surrender: -	Operator: W F Doyle and Company Limited Licence Holder: George Wimpey and Company Limited First Recorded 01/04/1976 Last Recorded: 31/12/1979
7	410m NW	Site Address: Coalgate Lane Wimpeym, Tushingham's Quarry, Paradise Lane, Stadt-Moers Park, Knowsley, Merseyside Licence Holder Address: Bridle Road, Bootle	Waste Licence: - Site Reference: GDO M017, 026/01 Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: G Wimpey and Company Limited Licence Holder: G Wimpey and Company Limited First Recorded 31/12/1976 Last Recorded: 01/01/1979



ID	Location	Details		
10	464m NW	Site Address: Coalgate Lane Landfill Site, Ellis Ashton Street, Huyton, Knowsley, Merseyside Licence Holder Address: -	Waste Licence: - Site Reference: R13/01, GDO 017, GDO M019, GDO 020 Waste Type: Inert, Industrial, Commercial, Household, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Huyton Urban District Council and Merseyside County Council Licence Holder: Huyton Urban District Council and Merseyside County Council First Recorded 01/01/1972 Last Recorded: 01/01/1983

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

3.5 Historical waste sites

Records within 500m	0
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Waste site records derived from Local Authority planning records and high detail historical mapping.

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

3.6 Licensed waste sites

Records within 500m	0
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Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

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

3.7 Waste exemptions

Records within 500m	11
----------------------------	-----------

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

Features are displayed on the Waste and landfill map on [page 27 >](#)

ID	Location	Site	Reference	Category	Sub-Category	Description
A	73m N	Norlands Farm Norlands Lane Widnes Wa8 5at	EPR/FE5748CS /A001	Storing waste exemption	Non-agricultural waste only	Storage of sludge
A	111m N	Halsnead Park, Prescott, L35 3qe	WEX382364	Disposing of waste exemption	Not on a farm	Burning waste in the open



ID	Location	Site	Reference	Category	Sub-Category	Description
1	123m E	Cherry Tree Farm Foxs Bank Lane Prescott Merseyside L35 3ss	EPR/GE5052W J/A001	Storing waste exemption	Non-agricultural waste only	Storage of sludge
2	181m SE	-	WEX275502	Disposing of waste exemption	Not on a farm	Burning waste in the open
3	249m SE	Cherry Tree Farm Foxs Bank Lane Prescott Merseyside L35 3ss	EPR/KE5352W K/A001	Storing waste exemption	Non-agricultural waste only	Storage of sludge
4	295m SE	-	WEX368667	Using waste exemption	Not on a farm	Use of waste in construction
B	359m W	Halsnead Garden Village, Windy Arbour Road, Whiston, L35 3sf	WEX402949	Using waste exemption	Not on a farm	Use of waste in construction
B	359m W	Halsnead Garden Village, Windy Arbour Road, Whiston, L35 3sf	WEX275530	Using waste exemption	Not on a farm	Use of waste in construction
8	417m SW	Norlands Farm Norlands Lane Widnes Wa8 5at	EPR/CE5048CT /A001	Storing waste exemption	Non-agricultural waste only	Storage of sludge
9	428m E	-	WEX377394	Using waste exemption	Not on a farm	Use of waste in construction
11	477m E	Cherry Tree Farm Foxs Bank Lane Prescott Merseyside L35 3ss	EPR/SE5844ZK /A001	Storing waste exemption	Non-agricultural waste only	Storage of sludge

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

5

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 31](#) >

ID	Location	Company	Address	Activity	Category
1	8m S	Pump House	Merseyside, L35	Water Pumping Stations	Industrial Features
2	90m S	Electricity Sub Station	Merseyside, L35	Electrical Features	Infrastructure and Facilities
3	91m N	Electricity Sub Station	Merseyside, L35	Electrical Features	Infrastructure and Facilities



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Date: 9 January 2025

ID	Location	Company	Address	Activity	Category
5	143m NW	Gas Governor	Merseyside, L35	Gas Features	Infrastructure and Facilities
6	230m NW	Electricity Sub Station	Merseyside, L35	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m **0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m **0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m **0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m **0**

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

This data is sourced from Local Authority records.



4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m

0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m

0

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

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

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

Records within 500m

0

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

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m

0

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

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

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

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

4.15 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

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



4.16 List 1 Dangerous Substances

Records within 500m

0

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

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

4.17 List 2 Dangerous Substances

Records within 500m

0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m

2

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

Features are displayed on the Current industrial land use map on [page 31 >](#)

ID	Location	Details	
4	123m W	Incident Date: 15/07/2002 Incident Identification: 91608 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)
7	238m W	Incident Date: 20/05/2002 Incident Identification: 79877 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m

0

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



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

4.20 Pollution inventory waste transfers

Records within 500m

0

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

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

4.21 Pollution inventory radioactive waste

Records within 500m

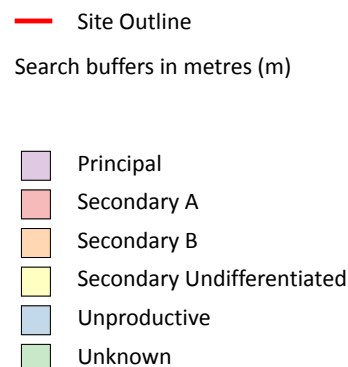
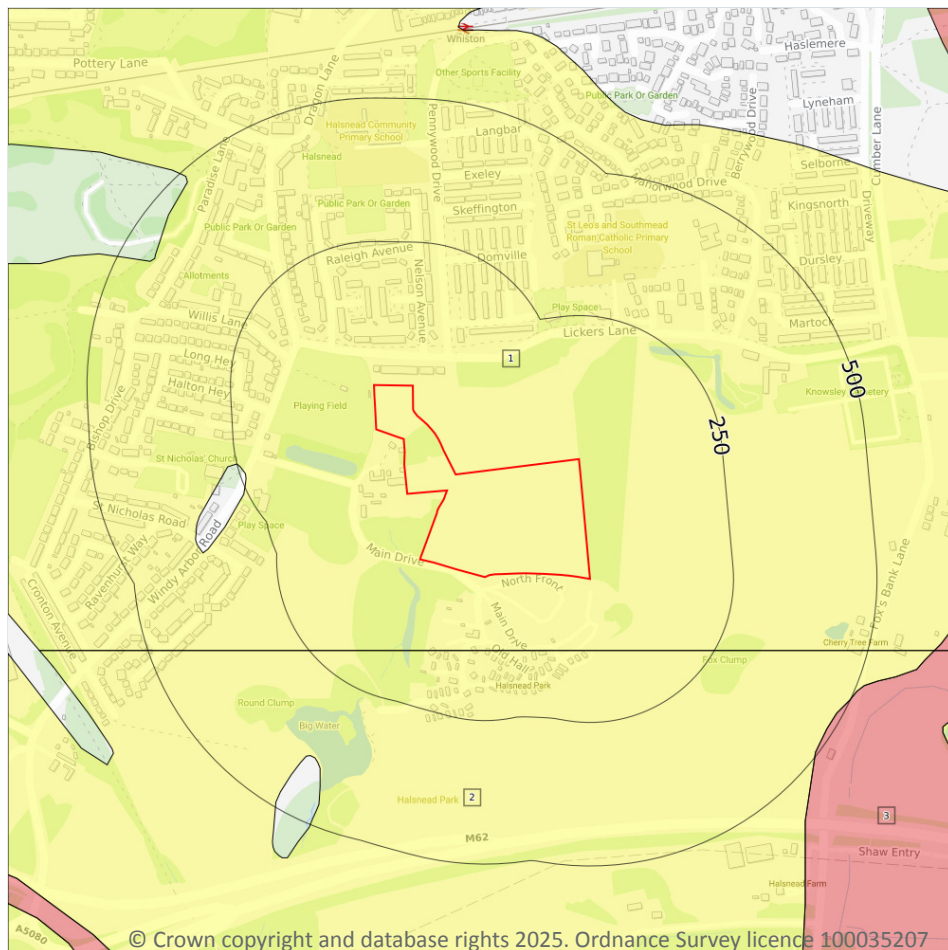
0

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

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



5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m

3

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on [page 37](#) >

ID	Location	Designation	Description
1	On site	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	125m SE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

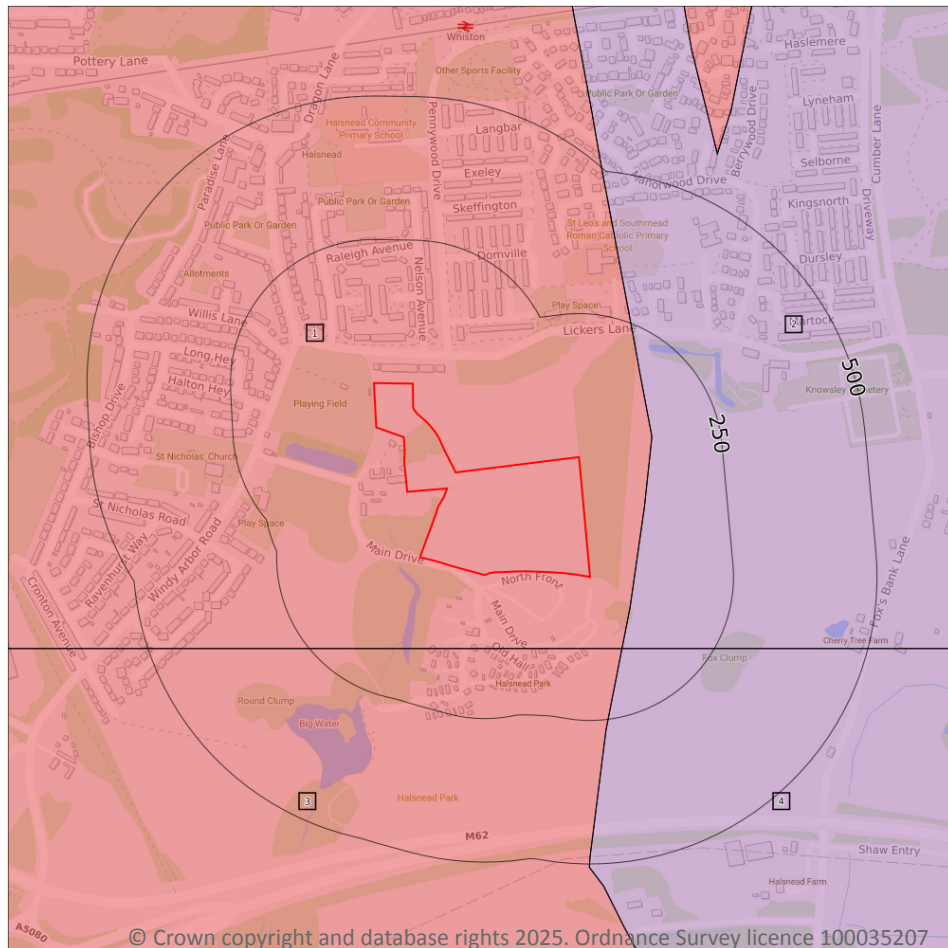


ID	Location	Designation	Description
3	488m SE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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



Bedrock aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

4

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on [page 39](#) >

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	77m SE	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

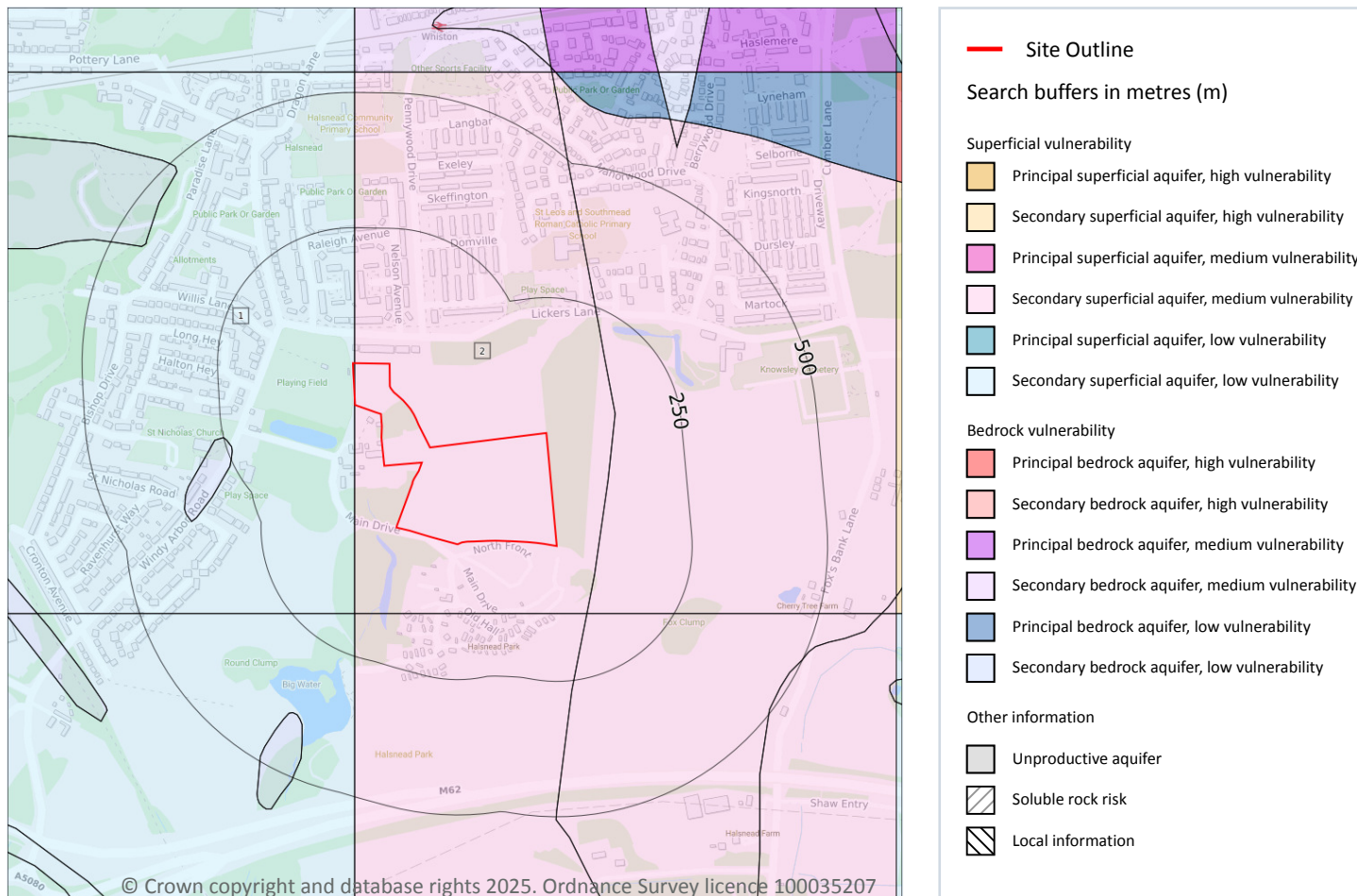


ID	Location	Designation	Description
3	125m SE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	137m SE	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

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



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

2

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

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

Features are displayed on the Groundwater vulnerability map on [page 41](#) >



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0
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This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

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

5.5 Groundwater vulnerability- local information

Records on site	0
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This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

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



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)**
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

11

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

Features are displayed on the Abstractions and Source Protection Zones map on [page 43](#) >



ID	Location	Details	
-	1192m E	Status: Active Licence No: 2569028021 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Easting: 348550 Northing: 390340	Annual Volume (m ³): 21966.87 Max Daily Volume (m ³): 191.81 Original Application No: NPS/WR/029993 Original Start Date: 06/09/1994 Expiry Date: - Issue No: 103 Version Start Date: 07/11/2018 Version End Date: -
-	1192m E	Status: Active Licence No: 2569028021 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Easting: 348550 Northing: 390340	Annual Volume (m ³): 21966.87 Max Daily Volume (m ³): 191.81 Original Application No: NPS/WR/029993 Original Start Date: 06/09/1994 Expiry Date: - Issue No: 103 Version Start Date: 07/11/2018 Version End Date: -
-	1192m E	Status: Historical Licence No: 2569028021 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL" Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Easting: 348550 Northing: 390340	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 101 Version Start Date: 19/02/2001 Version End Date: -
-	1192m E	Status: Historical Licence No: 2569028021 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL" Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Easting: 348550 Northing: 390340	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 101 Version Start Date: 19/02/2001 Version End Date: -



ID	Location	Details	
-	1221m NE	Status: Historical Licence No: 2569028008 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: 2 WELLS + CONNECTING B/HOLES, CUMBER LA, WHISTON, MERSEYSIDE Data Type: Point Name: NORTH WEST WATER LTD Easting: 348100 Northing: 391300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1302m NE	Status: Active Licence No: 2569028020 Details: Laundry Use Direct Source: Ground Water - North West Region Point: BOREHOLE AT STONEY LANE, RAINHILL Data Type: Point Name: Elis UK Limited Easting: 348100 Northing: 391400	Annual Volume (m ³): 118181.82 Max Daily Volume (m ³): 545.46 Original Application No: NPS/WR/034947 Original Start Date: 01/06/1993 Expiry Date: - Issue No: 103 Version Start Date: 20/01/2021 Version End Date: -
-	1302m NE	Status: Historical Licence No: 2569028020 Details: Laundry Use Direct Source: Ground Water - North West Region Point: "BOREHOLE AT STONEY LANE, RAINHILL" Data Type: Point Name: THE SUNLIGHT SERVICES GROUP LTD Easting: 348100 Northing: 391400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/06/1993 Expiry Date: - Issue No: 101 Version Start Date: 24/10/1996 Version End Date: -
-	1881m NE	Status: Historical Licence No: 2569025072 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -



ID	Location	Details	
-	1881m NE	Status: Historical Licence No: 2569025072 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1881m NE	Status: Historical Licence No: 2569025072 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1881m NE	Status: Historical Licence No: 2569025072 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m

4

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

Features are displayed on the Abstractions and Source Protection Zones map on [page 43 >](#)



ID	Location	Details	
-	1161m SW	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: "Surface, Non-Tidal - North West Region" Point: "OCHRE & DOG CLOG BRKS, TARBOCK HALL FARM, TARBOCK, PRESCOT" Data Type: Line Name: T H CRITCHLEY & SON Easting: 346600 Northing: 389100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/05/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date: -
-	1161m SW	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: OCHRE & DOG CLOG BRKS, TARBOCK HALL FARM, TARBOCK, PRESCOT Data Type: Line Name: T H CRITCHLEY & SON Easting: 346600 Northing: 389100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/05/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date: -
-	1161m SW	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: OCHRE AND DOG CLOG BROOKS TARBOCK HALL FARM PRESCOT Data Type: Line Name: T H CRITCHLEY & SON Easting: 346600 Northing: 389100	Annual Volume (m ³): 2098 Max Daily Volume (m ³): 636 Original Application No: - Original Start Date: 13/05/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date: -
-	1700m SW	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: OCHRE AND DOG CLOG BROOKS TARBOCK HALL FARM PRESCOT Data Type: Line Name: BELPOOL DEVELOPMENTS LTD Easting: 346400 Northing: 388600	Annual Volume (m ³): 2098 Max Daily Volume (m ³): 636 Original Application No: NPS/WR/006330 Original Start Date: 13/05/1976 Expiry Date: - Issue No: 102 Version Start Date: 31/01/2011 Version End Date: -

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



5.8 Potable abstractions

Records within 2000m

5

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

Features are displayed on the Abstractions and Source Protection Zones map on [page 43](#) >

ID	Location	Details	
-	1192m E	Status: Active Licence No: 2569028021 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Easting: 348550 Northing: 390340	Annual Volume (m ³): 21966.87 Max Daily Volume (m ³): 191.81 Original Application No: NPS/WR/029993 Original Start Date: 06/09/1994 Expiry Date: - Issue No: 103 Version Start Date: 07/11/2018 Version End Date: -
-	1192m E	Status: Historical Licence No: 2569028021 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL" Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Easting: 348550 Northing: 390340	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 101 Version Start Date: 19/02/2001 Version End Date: -
-	1221m NE	Status: Historical Licence No: 2569028008 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: 2 WELLS + CONNECTING B/HOLES, CUMBER LA, WHISTON, MERSEYSIDE Data Type: Point Name: NORTH WEST WATER LTD Easting: 348100 Northing: 391300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -



ID	Location	Details	
-	1881m NE	Status: Historical Licence No: 2569025072 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1881m NE	Status: Historical Licence No: 2569025072 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	1
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on [page 43 >](#)

ID	Location	Type	Description
1	78m SE	3	Total catchment

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0
----------------------------	----------

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

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



6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

10

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

Features are displayed on the Hydrology map on [page 50 >](#)

ID	Location	Type of water feature	Ground level	Permanence	Name
A	35m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
A	36m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	37m SW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	151m SW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	151m SW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	152m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	189m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	194m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	220m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
5	245m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

6

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

Features are displayed on the Hydrology map on [page 50 >](#)

This data is sourced from the Ordnance Survey.



6.3 WFD Surface water body catchments

Records on site

1

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

Features are displayed on the Hydrology map on [page 50 >](#)

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River	Prescot Brook (Logwood Mill Brook)	GB112069060710	Ditton	Mersey Lower

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

6.4 WFD Surface water bodies

Records identified

1

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

Features are displayed on the Hydrology map on [page 50 >](#)

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	888m SW	River	Prescot Brook (Logwood Mill Brook)	GB112069060710 ↗	Poor	Fail	Poor	2019

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

6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.



Features are displayed on the Hydrology map on [page 50](#) >

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	On site	Sankey and Glaze Carboniferous aquifers	GB41202G100100 ↗	Poor	Poor	Good	2019

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



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m

0

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

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

7.2 Historical Flood Events

Records within 250m

0

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

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

7.3 Flood Defences

Records within 250m

0

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

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



7.4 Areas Benefiting from Flood Defences

Records within 250m

0

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

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

7.5 Flood Storage Areas

Records within 250m

0

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

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



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

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

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

7.7 Flood Zone 3

Records within 50m

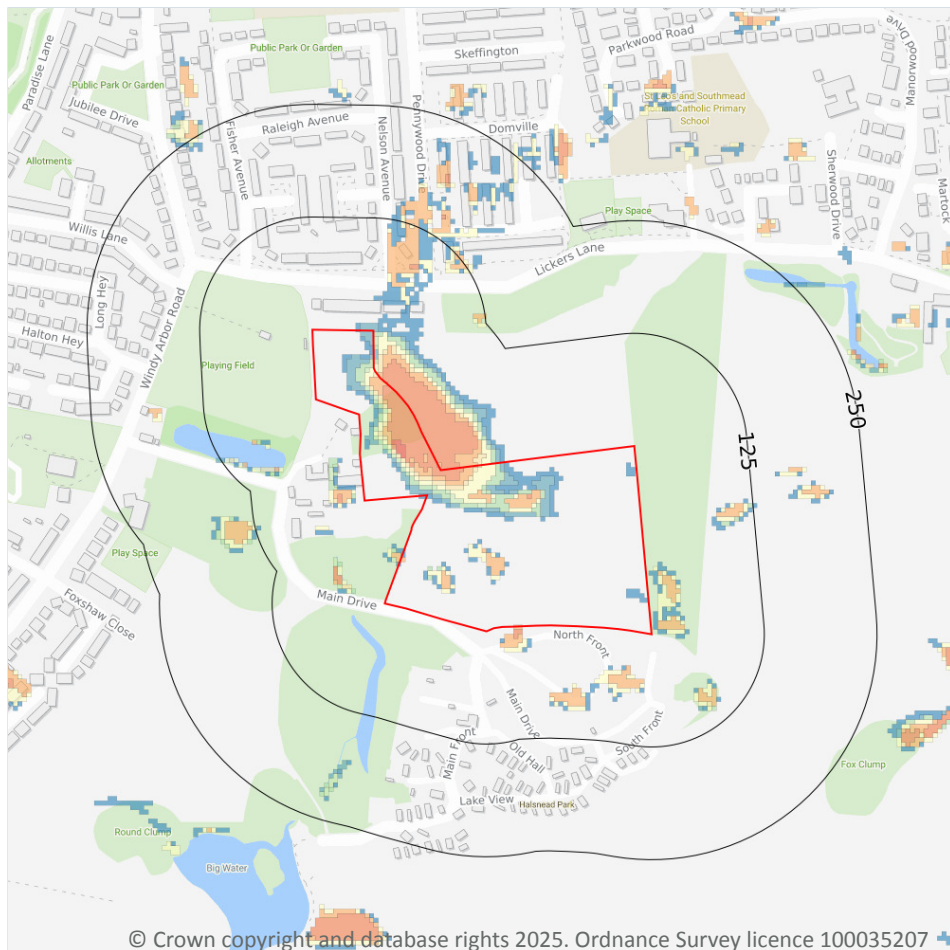
0

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

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



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 30 year, Greater than 1.0m

Highest risk within 50m

1 in 30 year, Greater than 1.0m

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

Features are displayed on the Surface water flooding map on [page 57 >](#)

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

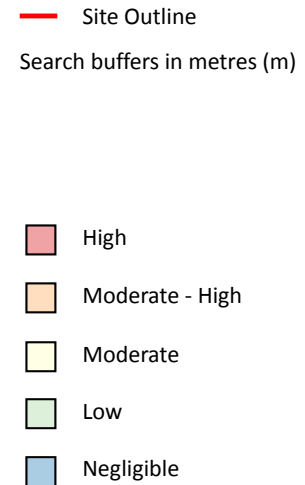
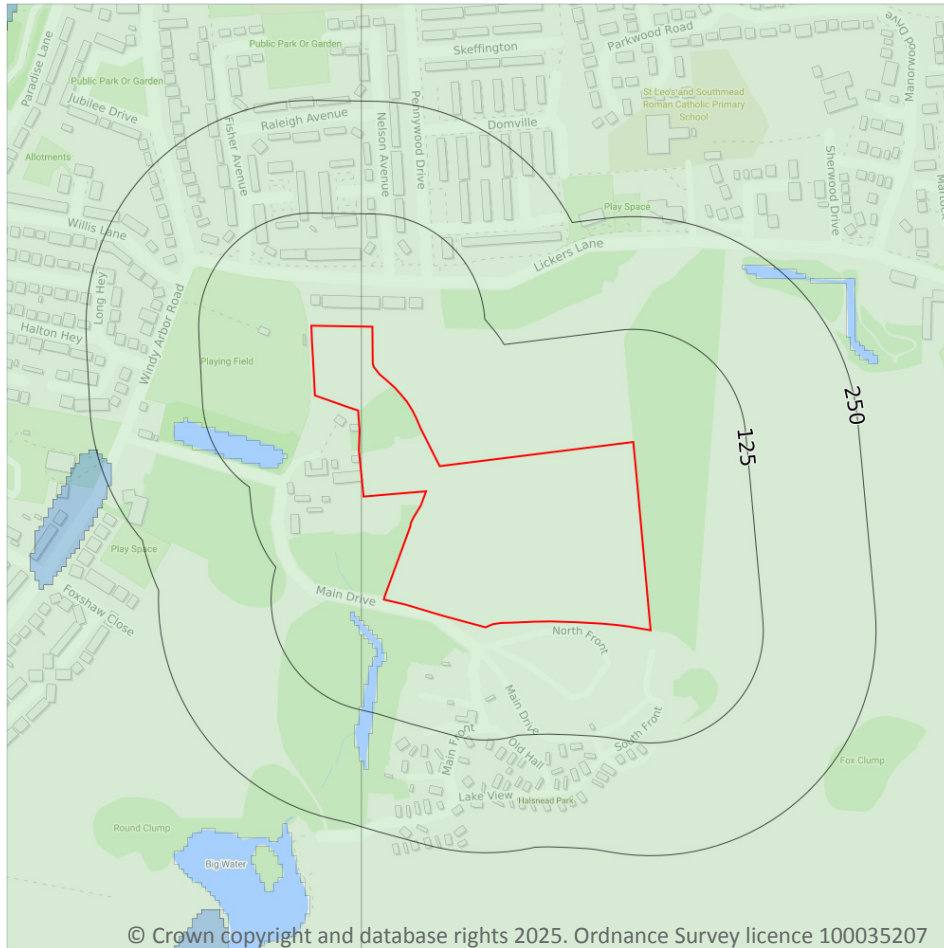
The table below shows the maximum flood depths for a range of return periods for the site.

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

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Low

Highest risk within 50m

Low

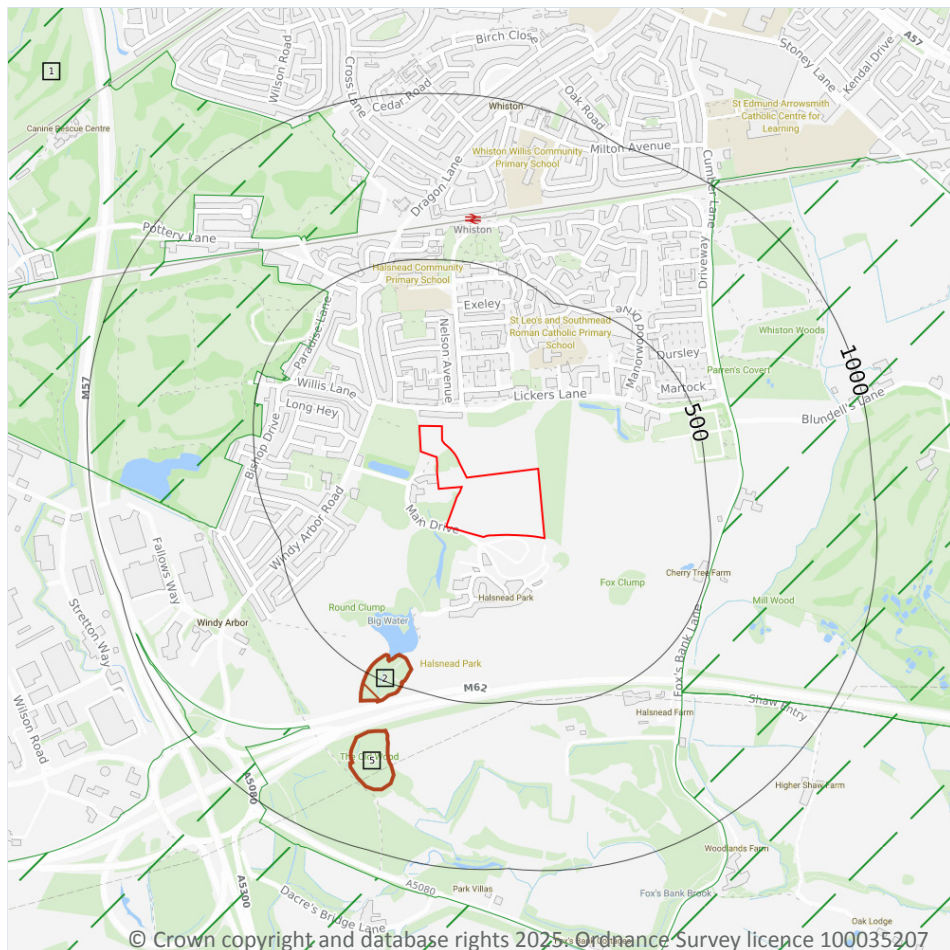
Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks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

Features are displayed on the Groundwater flooding map on [page 59](#) >

This data is sourced from Ambiantal Risk Analytics.



10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Designated Ancient Woodland
- Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

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

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



10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m**0**

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

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

10.7 Designated Ancient Woodland

Records within 2000m**2**

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

Features are displayed on the Environmental designations map on [page 60](#) >

ID	Location	Name	Woodland Type
2	410m SW	The Old Wood	Ancient & Semi-Natural Woodland
5	640m SW	The Old Wood	Ancient & Semi-Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m**0**

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

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

10.9 Forest Parks

Records within 2000m**0**

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

This data is sourced from the Forestry Commission.



10.10 Marine Conservation Zones

Records within 2000m

0

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

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

10.11 Green Belt

Records within 2000m

3

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

Features are displayed on the Environmental designations map on [page 60 >](#)

ID	Location	Name	Local Authority name
1	407m NW	Merseyside and Greater Manchester Green Belt	Knowsley
3	508m E	Merseyside and Greater Manchester Green Belt	St. Helens
4	622m SE	Merseyside and Greater Manchester Green Belt	Knowsley

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

10.12 Proposed Ramsar sites

Records within 2000m

0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

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

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



10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

3

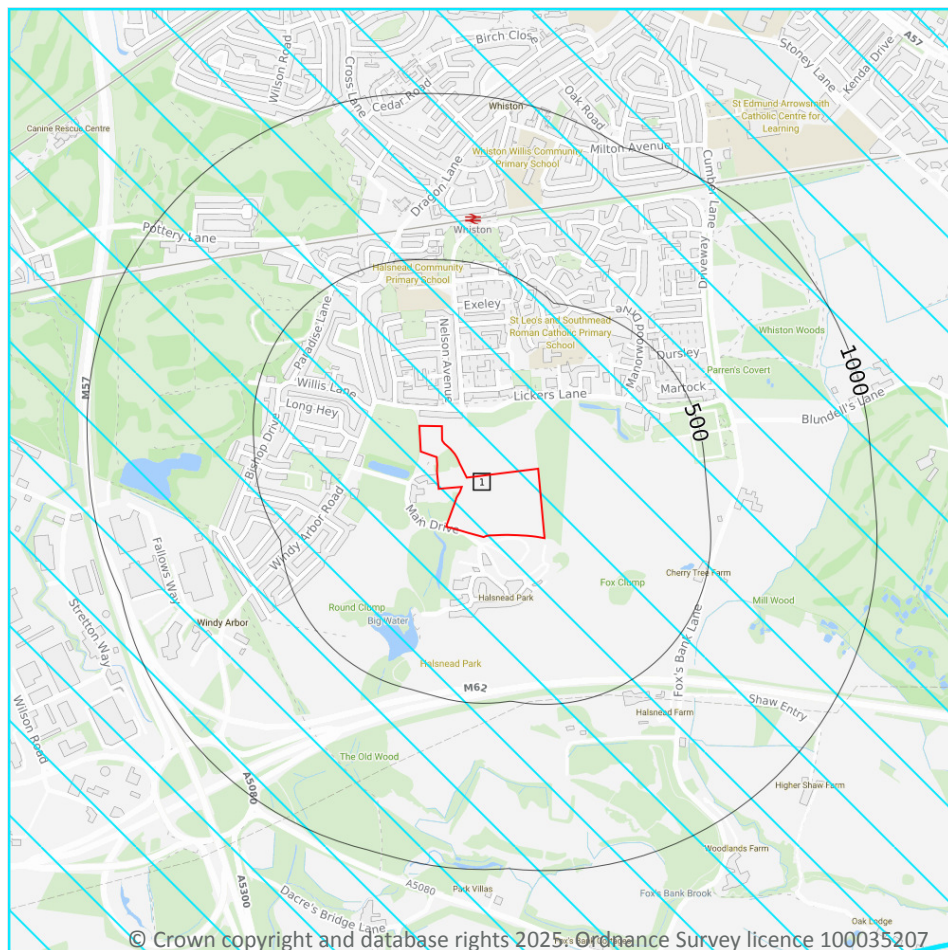
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	Dittton Brook (Halewood to Mersey Estuary) NVZ	Surface Water	640	Existing
1656m W	ALT NVZ	Surface Water	642	Existing
1698m E	Sankey Brook (Black Bk to Mersey) NVZ	Surface Water	639	Existing

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



SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

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

Features are displayed on the SSSI Impact Zones and Units map on [page 65 >](#)

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

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

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

11.3 National Parks

Records within 250m

0

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

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

11.4 Listed Buildings

Records within 250m

0

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



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

11.5 Conservation Areas

Records within 250m

0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m

0

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

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

11.7 Registered Parks and Gardens

Records within 250m

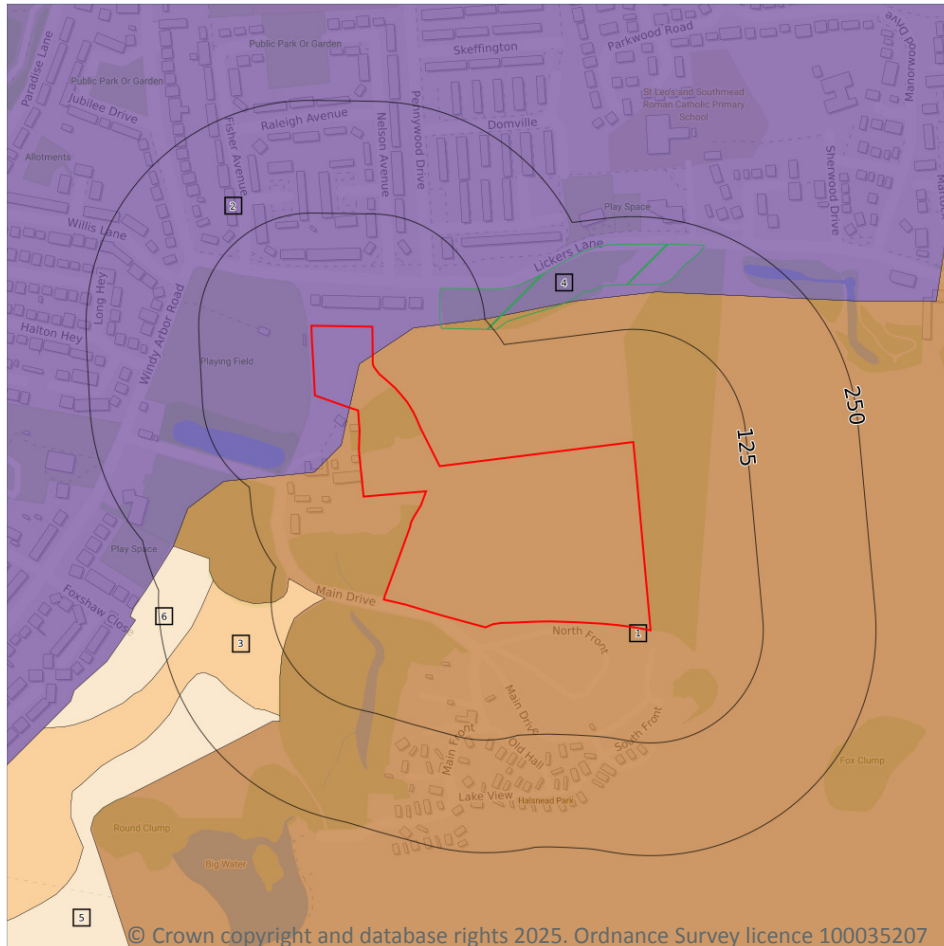
0

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

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



12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

5

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

Features are displayed on the Agricultural designations map on [page 69](#) >



ID	Location	Classification	Description
1	On site	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
2	On site	Urban	Non-agricultural/no quality assigned
3	65m SW	Grade 3a	Good quality agricultural land. Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.
5	173m SW	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
6	184m W	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0
----------------------------	----------

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

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

12.3 Tree Felling Licences

Records within 250m	1
----------------------------	----------

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

Features are displayed on the Agricultural designations map on [page 69 >](#)

ID	Location	Description	Reference	Application date
4	75m N	Selective Fell/Thin (Unconditional)	010/120/09-10	17/12/2009



This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

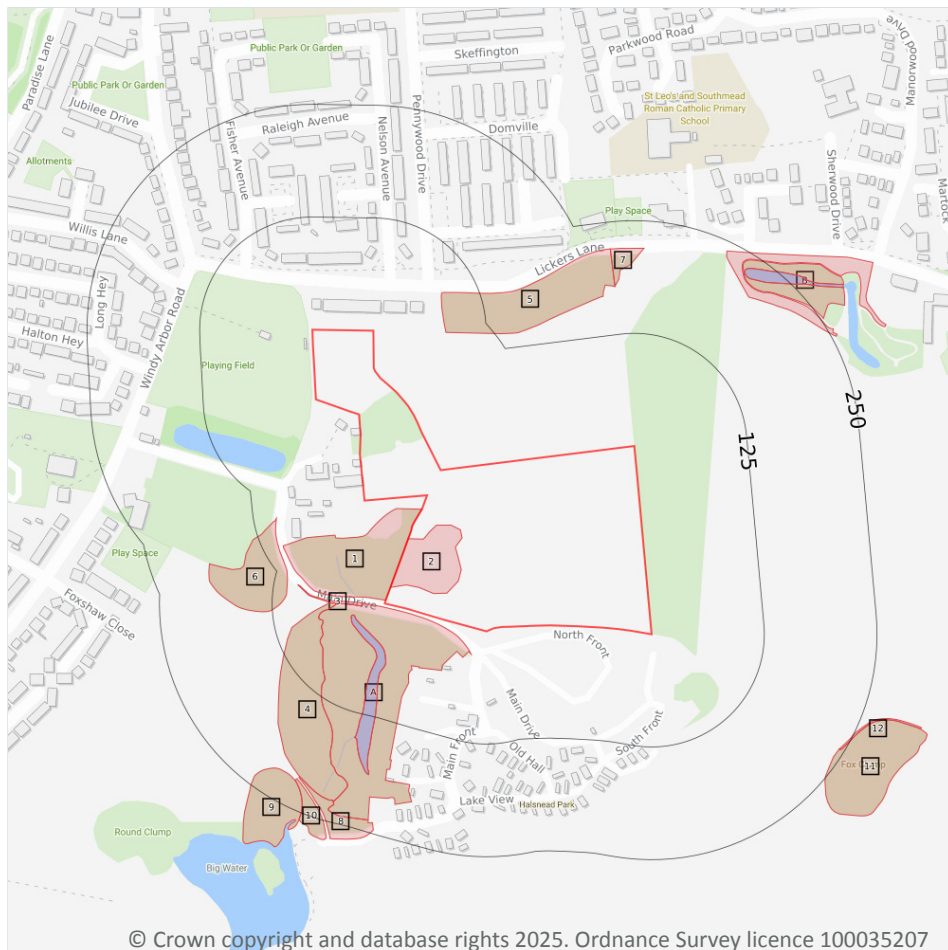
0

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

This data is sourced from Natural England.



13 Habitat designations



- Site Outline**
- Search buffers in metres (m)**
- Priority Habitat Inventory
 - Open Mosaic Habitat
 - Limestone Pavement Orders
- Habitat Networks**
- Primary Habitat
 - Restorable Habitat
 - Associated Habitats
 - Habitat Restoration-Creation
 - Network Enhancement Zone 1
 - Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

17

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

Features are displayed on the Habitat designations map on [page 72 >](#)

ID	Location	Main Habitat	Other habitats
1	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	4m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	24m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)



ID	Location	Main Habitat	Other habitats
A	35m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	53m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	79m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
6	100m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
7	178m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	208m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
8	214m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
9	217m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
10	217m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	220m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	226m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
11	243m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
12	244m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

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

This data is sourced from Natural England.



13.4 Limestone Pavement Orders

Records within 250m

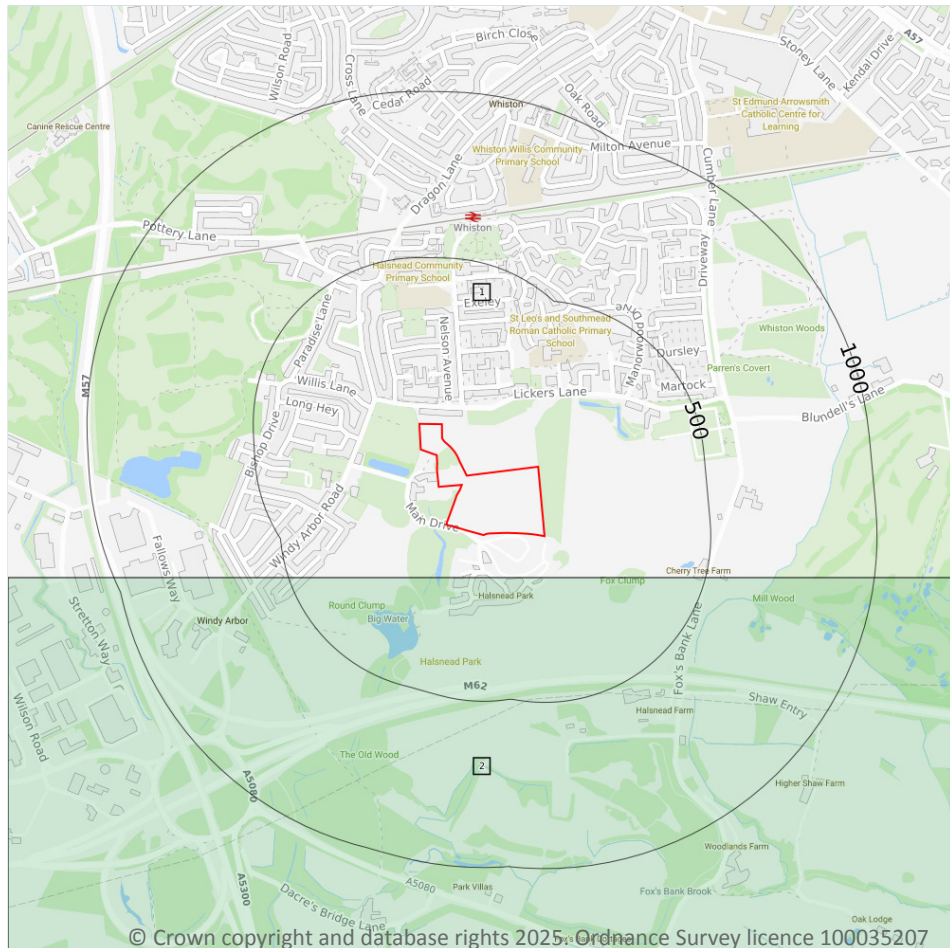
0

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

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

2

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

Features are displayed on the Geology 1:10,000 scale - Availability map on [page 75](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov
2	125m SE	No coverage	Full	Full	No coverage	SJ48NE

This data is sourced from the British Geological Survey.



Contact us with any questions at:

info@groundsure.com ↗

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Date: 9 January 2025

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

14.2 Artificial and made ground (10k)

Records within 500m

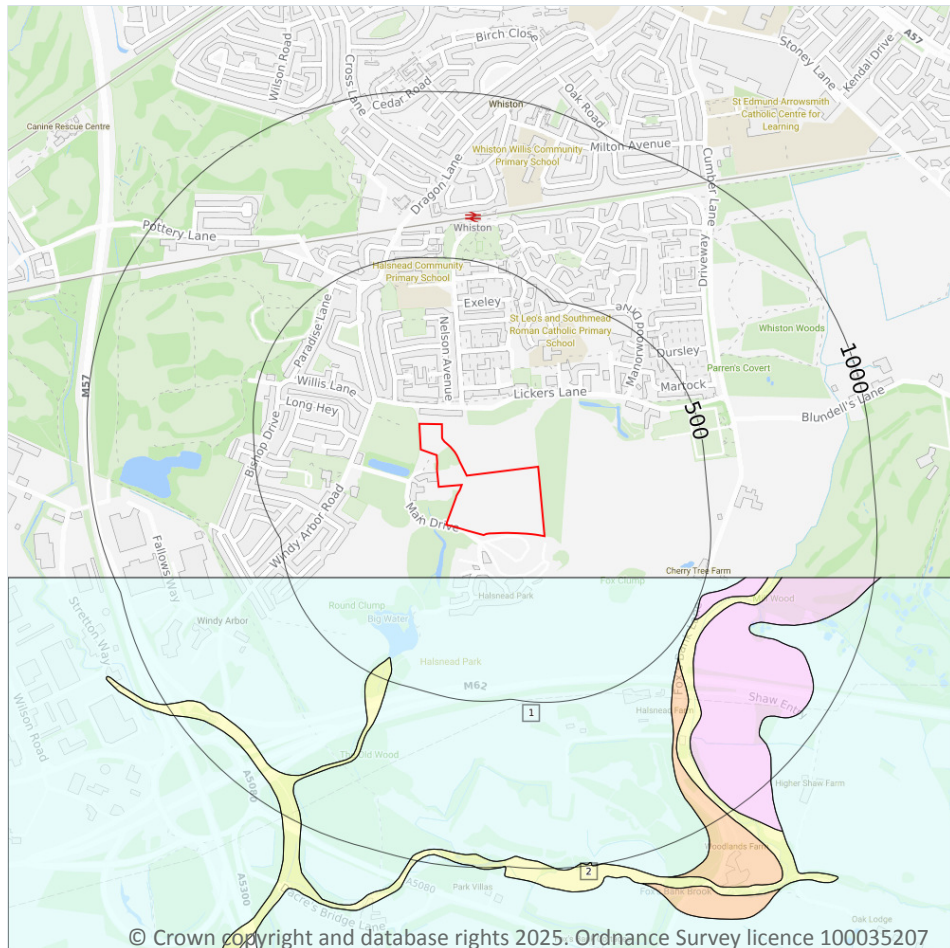
0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

☒ Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m

2

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 77 >](#)

ID	Location	LEX Code	Description	Rock description
1	125m SE	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
2	434m SW	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

This data is sourced from the British Geological Survey.



14.4 Landslip (10k)

Records within 500m

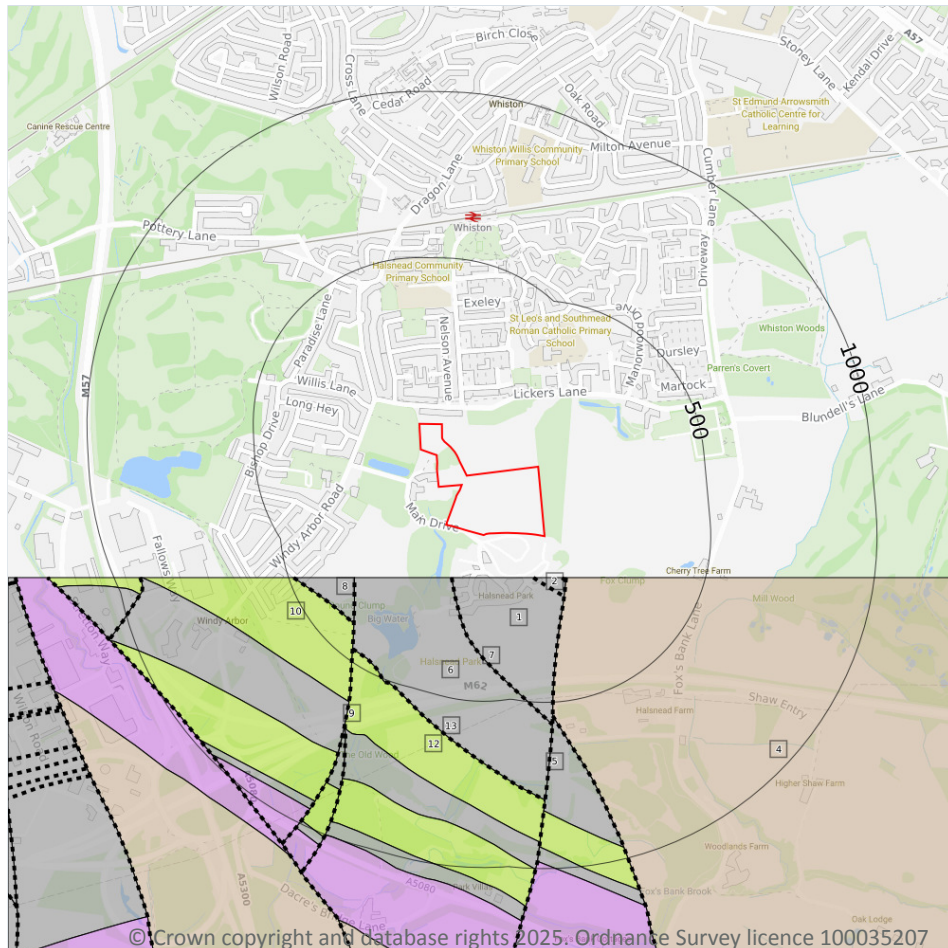
0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m

6

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 79](#) >

ID	Location	LEX Code	Description	Rock age
1	125m SE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
4	141m SE	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch
6	149m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age



ID	Location	LEX Code	Description	Rock age
8	318m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
10	407m SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
12	467m SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovia Sub-age - Duckmantian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

7

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

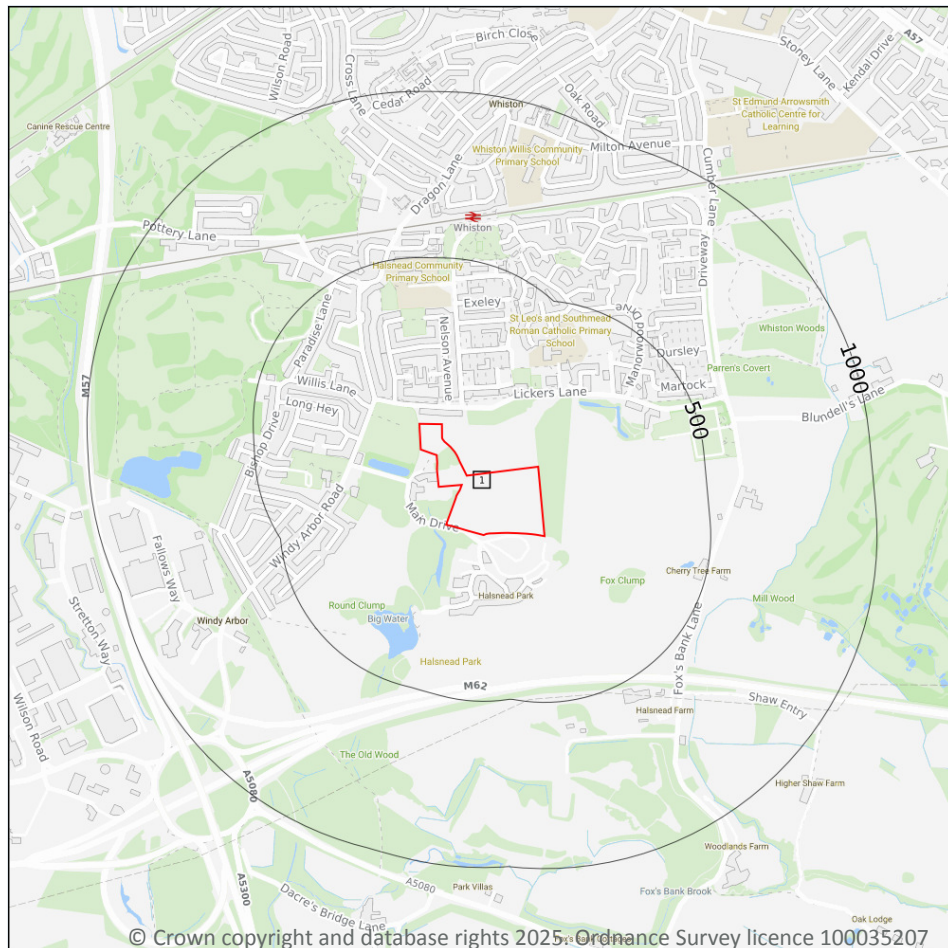
Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 79 >](#)

ID	Location	Category	Description
2	129m SE	ROCK	Coal seam, inferred (None)
3	135m SE	ROCK	Coal seam, inferred (None)
5	141m SE	FAULT	Normal fault, observed; crossmark on downthrow side
7	149m SW	FAULT	Normal fault, observed; crossmark on downthrow side
9	318m SW	FAULT	Normal fault, observed; crossmark on downthrow side
11	407m SW	ROCK	Coal seam, inferred (Coal_Inf+BedRock)
13	467m SW	ROCK	Coal seam, observed (Coal_Obs+BedRock)

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline
Search buffers in metres (m)

☐ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on [page 81](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW097_runcorn_v4

This data is sourced from the British Geological Survey.



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

15.2 Artificial and made ground (50k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

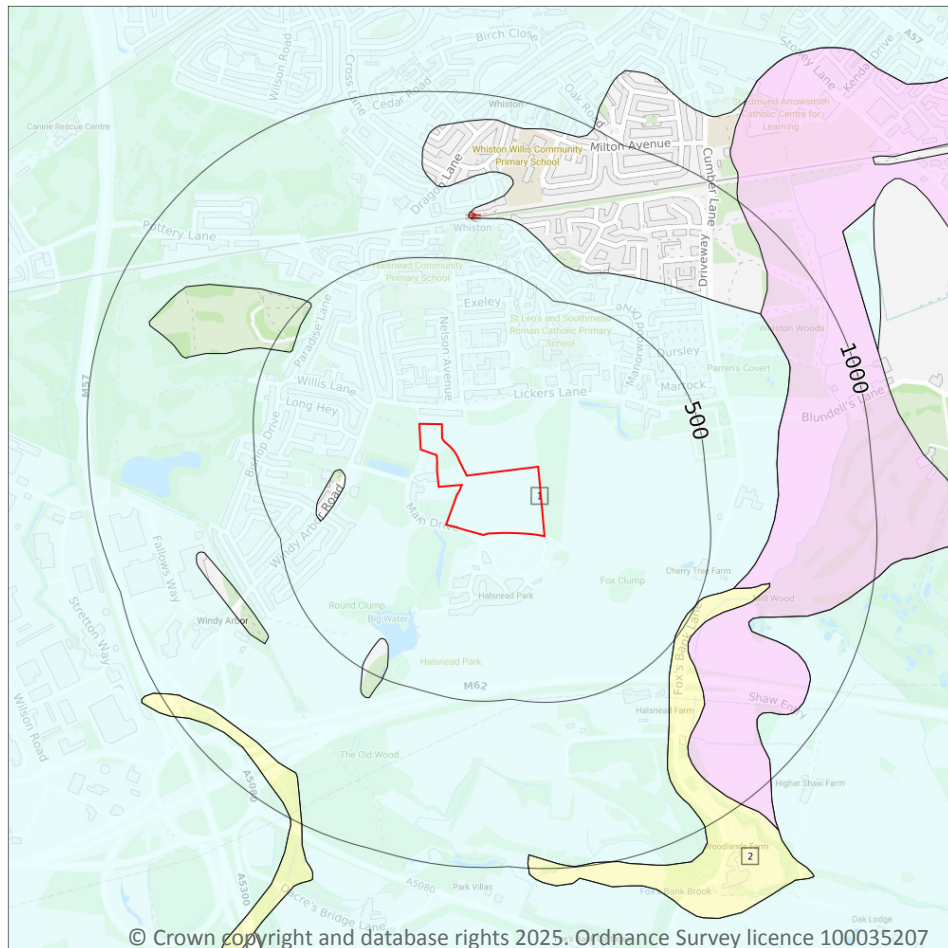
0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (50k)
- Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

2

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 83](#) >

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON
2	488m SE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m**1**

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

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m**0**

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

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

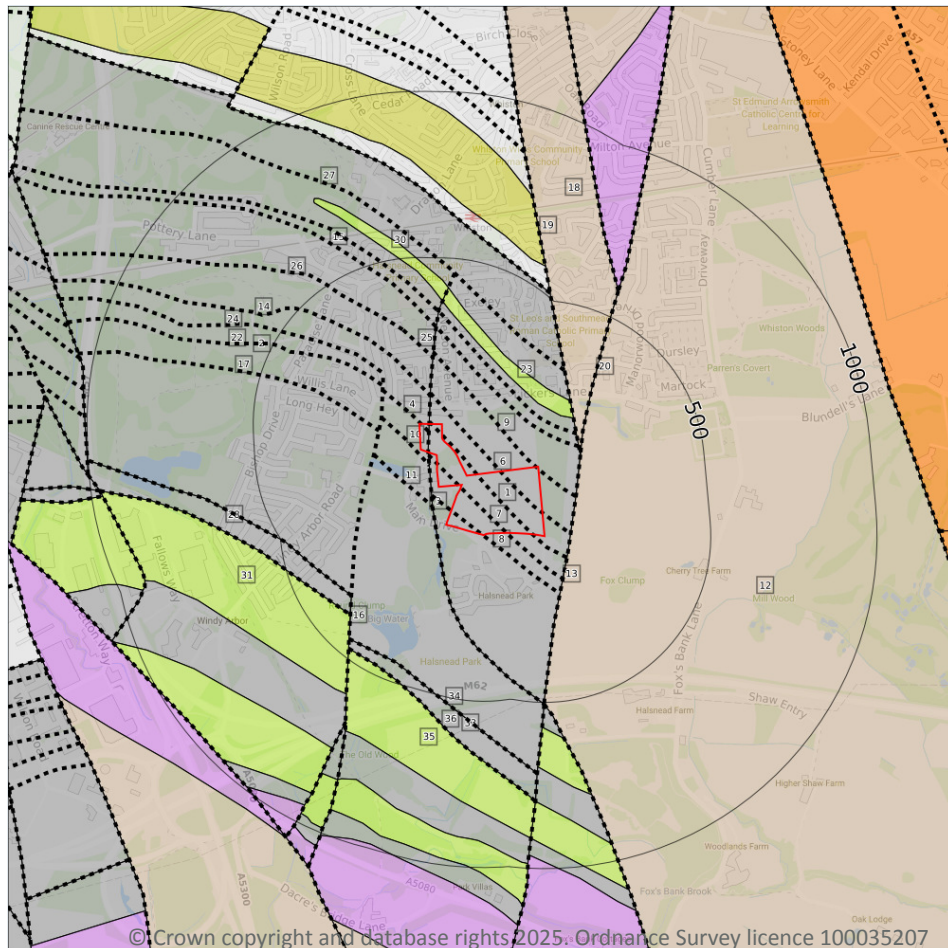
Records within 50m**0**

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

..... Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m

10

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 85](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	On site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	77m SE	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-



ID	Location	LEX Code	Description	Rock age
18	132m E	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-
23	168m NE	PMR-SDST	PEMBERTON ROCK - SANDSTONE	WESTPHALIAN
28	356m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
30	371m N	PMR-SDST	PEMBERTON ROCK - SANDSTONE	WESTPHALIAN
31	396m SW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
33	437m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
35	470m SW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1
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A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

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

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	26
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Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 85 >](#)

ID	Location	Category	Description
3	On site	FAULT	Fault, observed
4	On site	ROCK	Coal seam, inferred



ID	Location	Category	Description
5	On site	ROCK	Coal seam, inferred
6	On site	ROCK	Coal seam, inferred
7	On site	ROCK	Coal seam, inferred
8	On site	ROCK	Coal seam, inferred
9	On site	ROCK	Coal seam, inferred
10	13m NW	ROCK	Coal seam, inferred
11	57m W	ROCK	Coal seam, inferred
13	77m SE	FAULT	Fault, observed
14	85m NW	ROCK	Coal seam, inferred
15	100m NE	ROCK	Coal seam, inferred
16	115m NW	FAULT	Fault, observed
17	123m NW	ROCK	Coal seam, inferred
19	132m E	FAULT	Fault, observed
20	132m E	FAULT	Fault, observed
21	132m NE	ROCK	Coal seam, inferred
22	159m NW	ROCK	Coal seam, inferred
24	187m NW	ROCK	Coal seam, inferred
25	201m N	ROCK	Coal seam, inferred
26	287m NW	ROCK	Coal seam, inferred
27	300m NE	ROCK	Coal seam, inferred
29	356m SW	FOSSIL_HORIZON	Marine band
32	396m SW	ROCK	Coal seam, inferred
34	437m SW	FOSSIL_HORIZON	Marine band
36	470m SW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



16 Boreholes

16.1 BGS Boreholes

Records within 250m

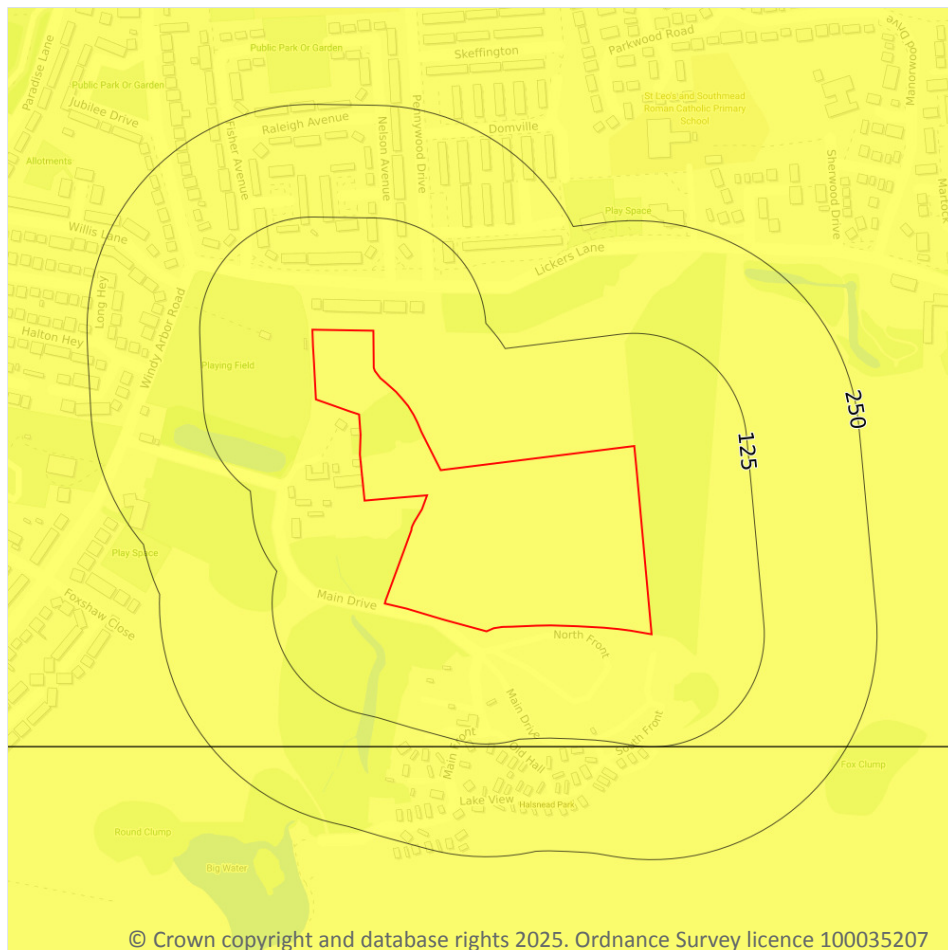
0

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

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

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17.1 Shrink swell clays

Records within 50m

1

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

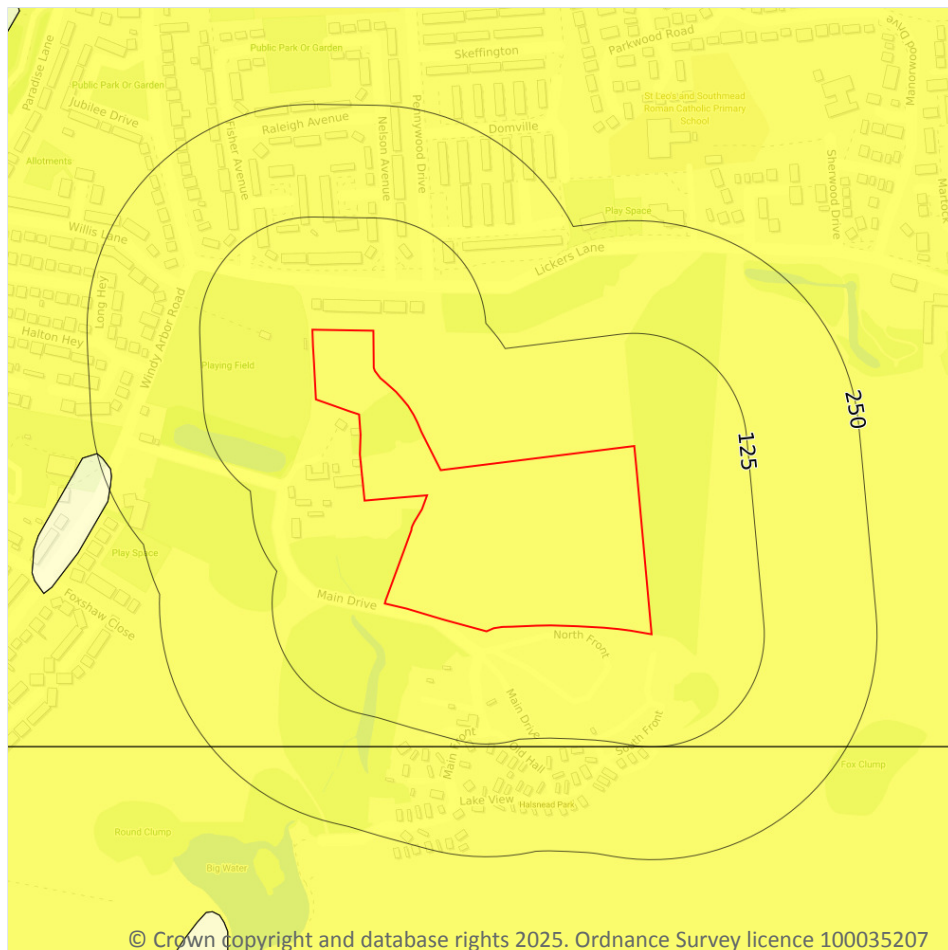
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 89](#) >

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.2 Running sands

Records within 50m

1

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

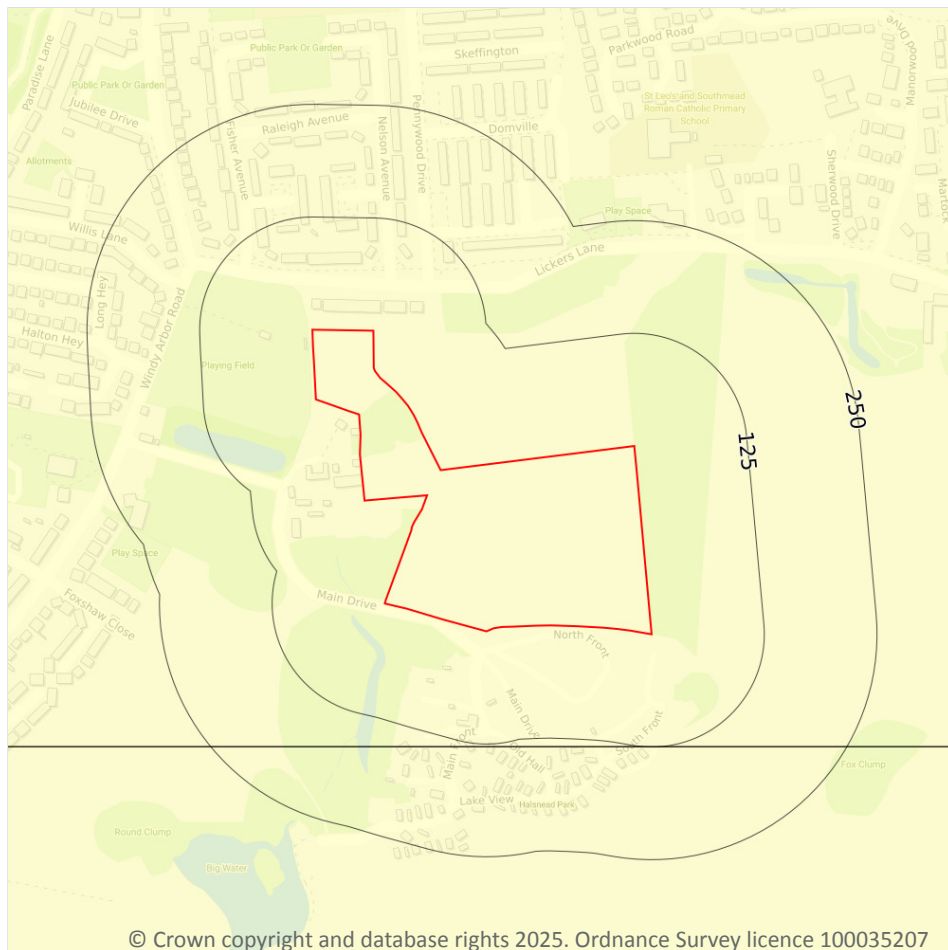
Features are displayed on the Natural ground subsidence - Running sands map on [page 90](#) >

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



- Site Outline**
- Search buffers in metres (m)**
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.3 Compressible deposits

Records within 50m

1

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

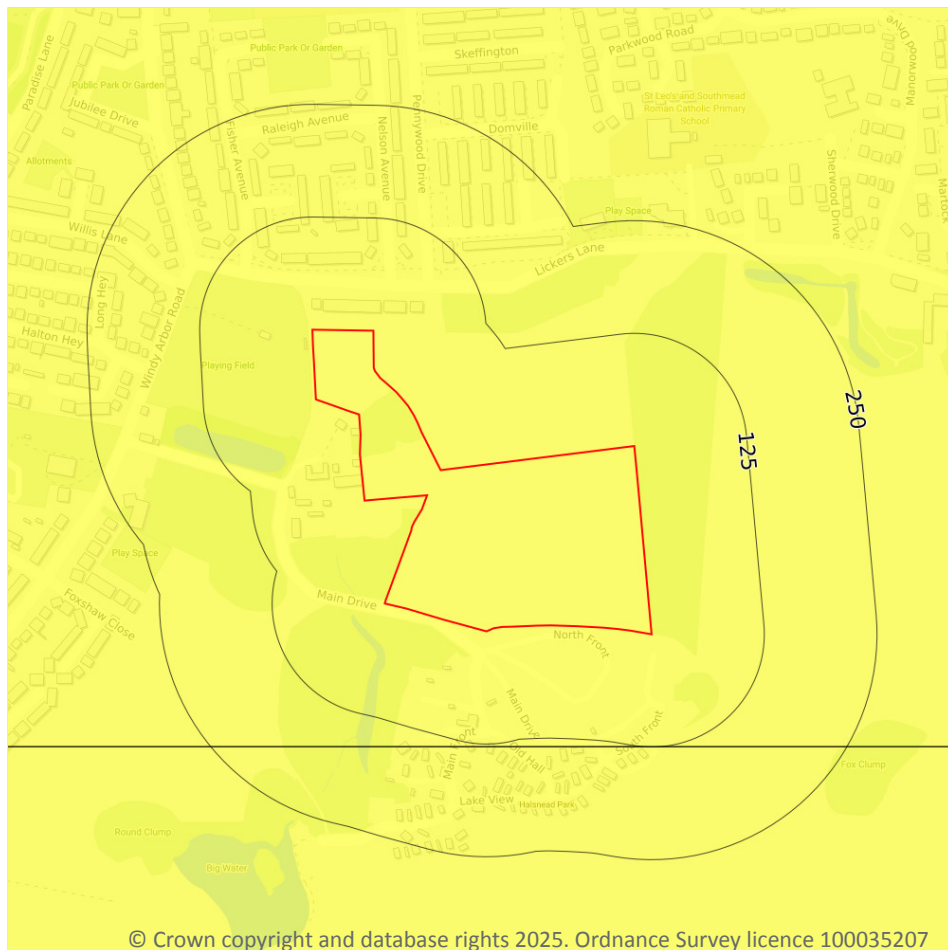
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 91](#) >

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline**
- Search buffers in metres (m)**
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

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

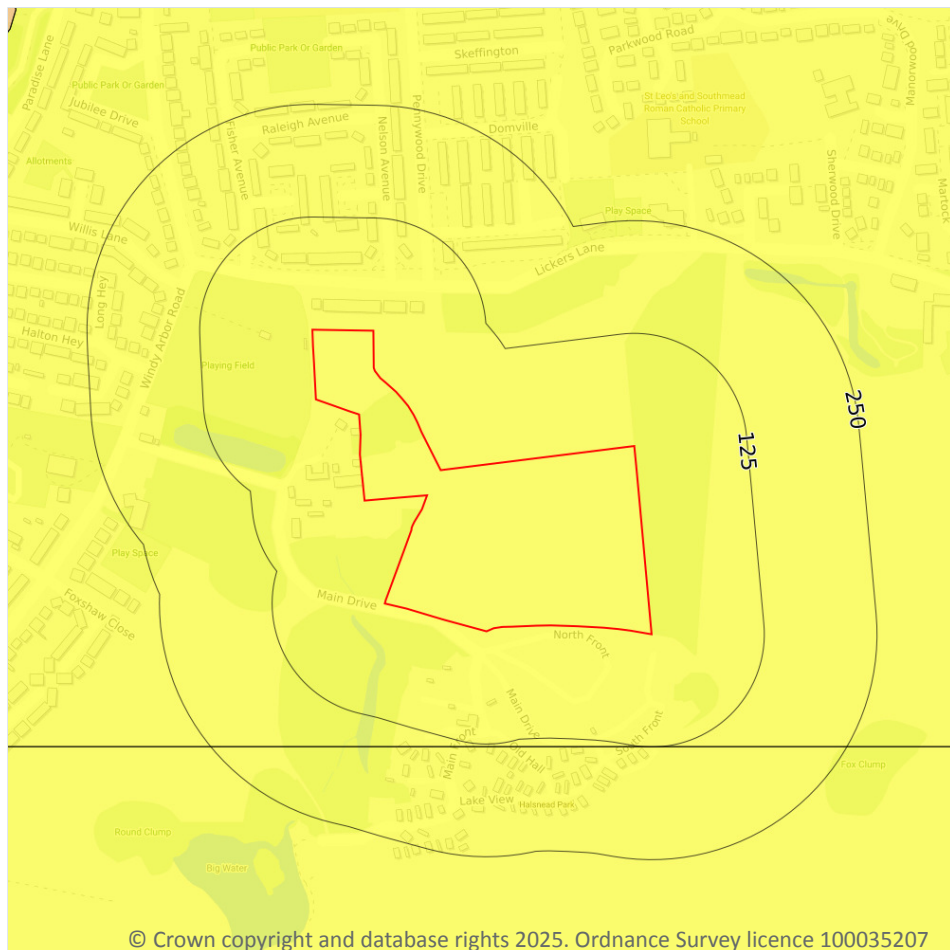
Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 92 >](#)

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



- Site Outline**
- Search buffers in metres (m)**
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.5 Landslides

Records within 50m

1

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

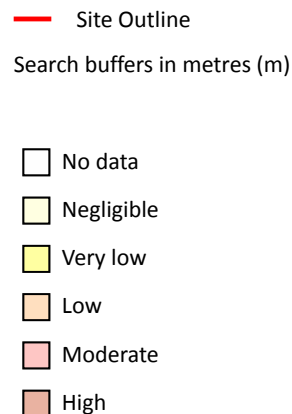
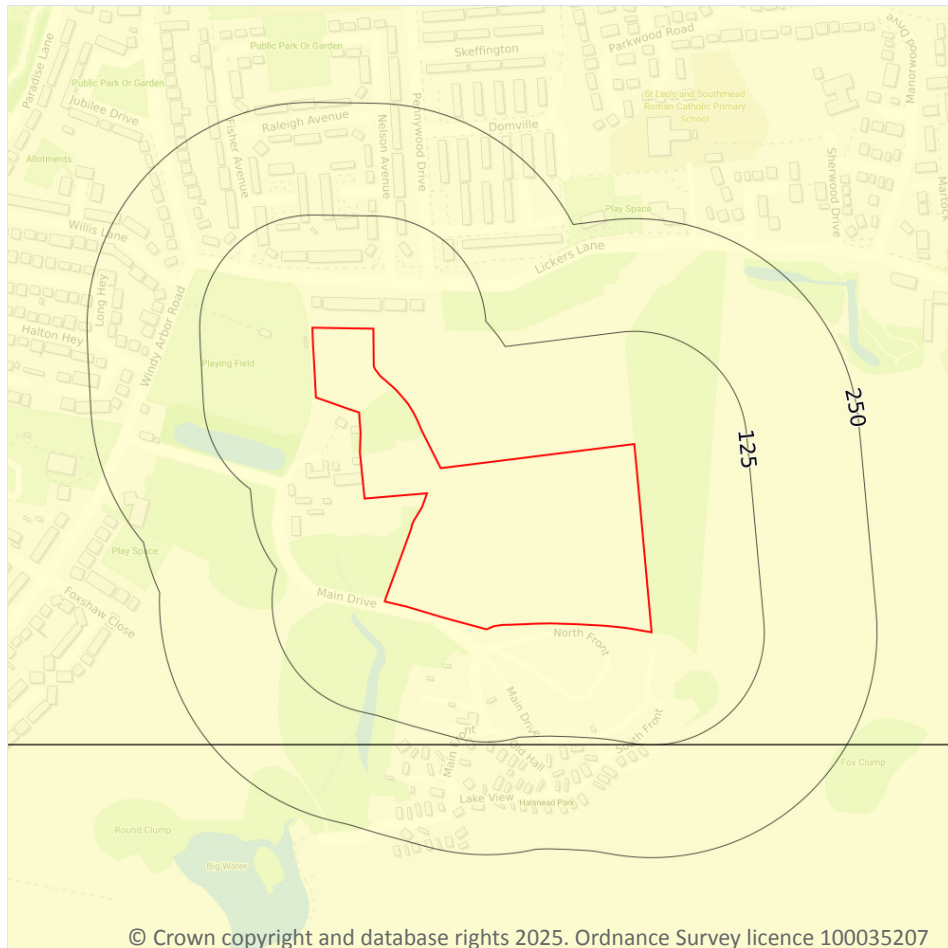
Features are displayed on the Natural ground subsidence - Landslides map on [page 93](#) >

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 94](#)

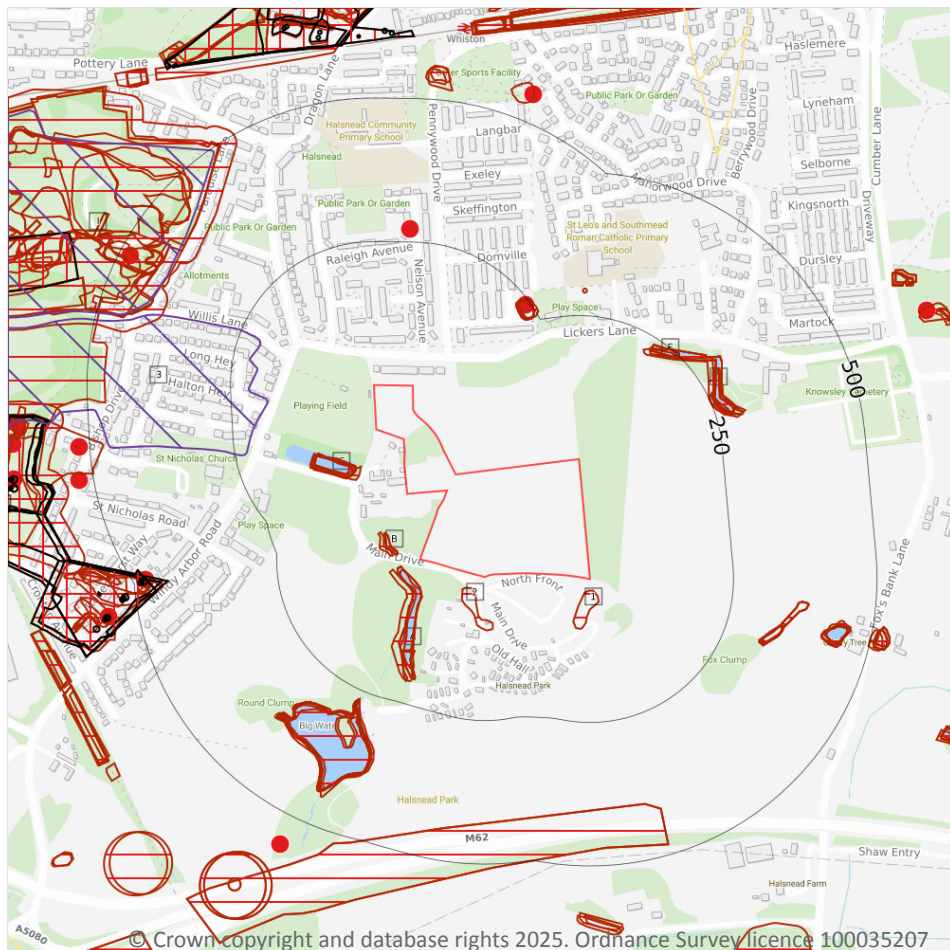
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



This data is sourced from the British Geological Survey.



18 Mining and ground workings



- Site Outline
- Search buffers in metres (m)
- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m

4

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

Features are displayed on the Mining and ground workings map on [page 96 >](#)

ID	Location	Details	Description
F	242m N	Name: Stone Quarry Plantation Address: Whiston, PRESCOT, Merseyside Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
4	273m N	Name: Whitson Lane Ends Pit Address: Whiston Lane Ends, Whiston, PRESCOT, Merseyside Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
M	480m W	Name: Halsnead Colliery, No. 3 Pit Address: Whiston Lane Ends, Whiston, PRESCOT, Merseyside Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
L	480m NW	Name: Whiston Metallic Brick Works Address: Whiston Lane Ends, Whiston, PRESCOT, Merseyside Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m

36

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

Features are displayed on the Mining and ground workings map on [page 96 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
1	20m SE	Pond	1978	1:10000



ID	Location	Land Use	Year of mapping	Mapping scale
2	25m S	Ponds	1956	1:10560
A	33m SW	Pond	1978	1:10000
A	33m SW	Pond	1990	1:10000
A	33m SW	Pond	1966	1:10560
A	34m SW	Water Body	1850	1:10560
B	40m SW	Pond	1925	1:10560
B	41m SW	Pond	1938	1:10560
A	47m SW	Water Body	1891	1:10560
B	48m SW	Pond	1891	1:10560
C	70m W	Pond	1938	1:10560
C	74m W	Pond	1956	1:10560
C	74m W	Pond	1978	1:10000
C	74m W	Pond	1990	1:10000
C	74m W	Pond	1966	1:10560
C	79m W	Pond	1947	1:10560
C	79m W	Pond	1925	1:10560
C	79m W	Pond	1891	1:10560
C	79m W	Pond	1906	1:10560
C	80m W	Pond	1850	1:10560
A	157m SW	Pond	1989	1:10000
A	159m SW	Pond	1967	1:10560
A	160m SW	Pond	1977	1:10000
D	217m NE	Ponds	1891	1:10560
E	221m NE	Pond	1925	1:10560
E	222m NE	Pond	1938	1:10560
F	224m N	Unspecified Pit	1947	1:10560
F	224m N	Unspecified Pit	1925	1:10560
F	224m N	Unspecified Pit	1906	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
F	224m N	Unspecified Old Quarry	1891	1:10560
F	226m N	Unspecified Pit	1938	1:10560
F	226m N	Unspecified Pit	1938	1:10560
D	227m NE	Ponds	1978	1:10000
D	227m NE	Ponds	1990	1:10000
D	227m NE	Ponds	1966	1:10560
F	230m N	Unspecified Pit	1956	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m

76

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

Features are displayed on the Mining and ground workings map on [page 96 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
M	442m W	Old Colliery	1906	1:10560
M	453m W	Old Colliery	1891	1:10560
O	462m W	Disused Colliery	1947	1:10560
O	462m W	Disused Colliery	1925	1:10560
M	477m W	Unspecified Disused Shafts	1966	1:10560
M	483m W	Unspecified Old Shaft	1956	1:10560
M	485m W	Unspecified Old Shafts	1947	1:10560
M	485m W	Unspecified Old Shafts	1925	1:10560
M	512m W	Unspecified Disused Shafts	1966	1:10560
M	517m W	Unspecified Old Shaft	1956	1:10560
M	520m W	Unspecified Old Shafts	1947	1:10560
M	520m W	Unspecified Old Shafts	1925	1:10560
V	548m NW	Colliery	1891	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
M	549m W	Unspecified Disused Shafts	1966	1:10560
M	553m W	Unspecified Old Shaft	1956	1:10560
M	556m W	Unspecified Old Shafts	1947	1:10560
M	556m W	Unspecified Old Shafts	1925	1:10560
M	559m W	Unspecified Old Shaft	1956	1:10560
T	568m W	Unspecified Disused Mine	1966	1:10560
M	571m W	Unspecified Disused Shafts	1966	1:10560
T	572m W	Disused Colliery	1906	1:10560
T	583m W	Colliery	1891	1:10560
Z	594m N	Disused Colliery	1925	1:10560
Z	595m N	Disused Colliery	1906	1:10560
Z	595m N	Colliery	1891	1:10560
Z	606m N	Unspecified Old Shafts	1956	1:10560
Z	606m N	Unspecified Disused Shafts	1990	1:10000
AA	608m NW	Disused Colliery	1906	1:10560
Z	610m N	Unspecified Old Shafts	1925	1:10560
Z	610m N	Unspecified Old Shafts	1956	1:10560
Z	613m N	Unspecified Old Shafts	1956	1:10560
Z	619m N	Unspecified Old Shafts	1925	1:10560
Z	623m NW	Unspecified Disused Shafts	1990	1:10000
T	631m W	Unspecified Disused Shaft	1966	1:10560
T	633m W	Unspecified Disused Shaft	1966	1:10560
Z	638m NW	Unspecified Old Shafts	1947	1:10560
Z	638m NW	Unspecified Old Shafts	1925	1:10560
T	638m W	Unspecified Old Shaft	1956	1:10560
Z	639m NW	Unspecified Old Shafts	1956	1:10560
T	639m W	Unspecified Old Shafts	1947	1:10560
T	639m W	Unspecified Old Shafts	1925	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
T	642m W	Unspecified Old Shaft	1956	1:10560
T	643m W	Unspecified Old Shafts	1947	1:10560
T	643m W	Unspecified Old Shafts	1925	1:10560
-	655m W	Unspecified Shafts	1891	1:10560
-	663m W	Unspecified Old Shaft	1956	1:10560
-	670m S	Unspecified Mine	1967	1:10560
-	703m S	Colliery	1925	1:10560
-	721m S	Colliery	1955	1:10560
-	724m NW	Unspecified Old Shaft	1925	1:10560
-	726m S	Colliery	1947	1:10560
-	744m NW	Colliery	1925	1:10560
-	807m NW	Colliery	1891	1:10560
-	809m W	Disused Colliery	1906	1:10560
-	885m W	Old Colliery	1956	1:10560
-	887m W	Unspecified Disused Mine	1966	1:10560
-	888m W	Old Colliery	1947	1:10560
-	888m W	Old Colliery	1925	1:10560
-	888m W	Old Colliery	1906	1:10560
-	888m W	Old Colliery	1891	1:10560
-	895m NW	Unspecified Old Shafts	1947	1:10560
-	895m NW	Unspecified Old Shafts	1925	1:10560
-	895m NW	Unspecified Disused Shaft	1978	1:10000
-	895m NW	Unspecified Disused Shaft	1990	1:10000
-	897m NW	Unspecified Disused Shaft	1966	1:10560
-	898m NW	Unspecified Old Shafts	1956	1:10560
-	912m NW	Unspecified Old Shafts	1947	1:10560
-	912m NW	Unspecified Old Shafts	1925	1:10560
-	913m NW	Unspecified Disused Shaft	1966	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
-	915m NW	Unspecified Old Shafts	1956	1:10560
-	915m W	Unspecified Disused Shaft	1966	1:10560
-	918m W	Unspecified Old Shaft	1956	1:10560
-	922m W	Unspecified Old Shaft	1947	1:10560
-	922m W	Unspecified Old Shaft	1925	1:10560
-	925m NW	Unspecified Old Shafts	1956	1:10560
-	953m NW	Unspecified Old Shafts	1947	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m

0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

2

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

Features are displayed on the Mining and ground workings map on [page 96 >](#)

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
3	187m NW	Whiston	Clay, shale, bricks	Surface mineral working	Valid	7/7/47,25/9/52
I	407m NW	Whiston	Clay, shale, bricks	Surface mineral working	Valid	7/7/47,25/9/52

This data is sourced from the British Geological Survey.



18.6 Non-coal mining

Records within 1000m

2

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

Features are displayed on the Mining and ground workings map on [page 96 >](#)

ID	Location	Name	Commodity	Class	Likelihood
7	581m NE	Not available	Vein Mineral	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
14	945m SW	Not available	Vein Mineral	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site

0

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m

0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.



18.9 Researched mining

Records within 500m

1

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

Location	Mineral type
420m W	Metals

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m

0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m

0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site

1

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

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

This data is sourced from the Coal Authority.



18.13 Brine areas

Records on site	0
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The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

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

18.14 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0
-----------------	---

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

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

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m

0

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

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m

0

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

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m

0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m

0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

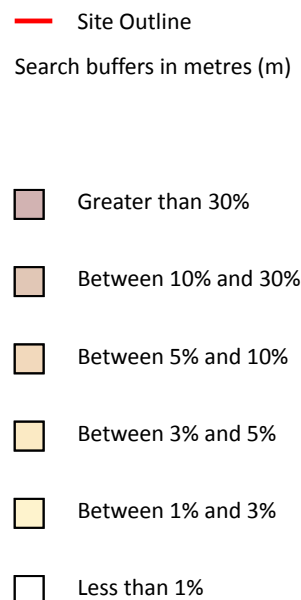
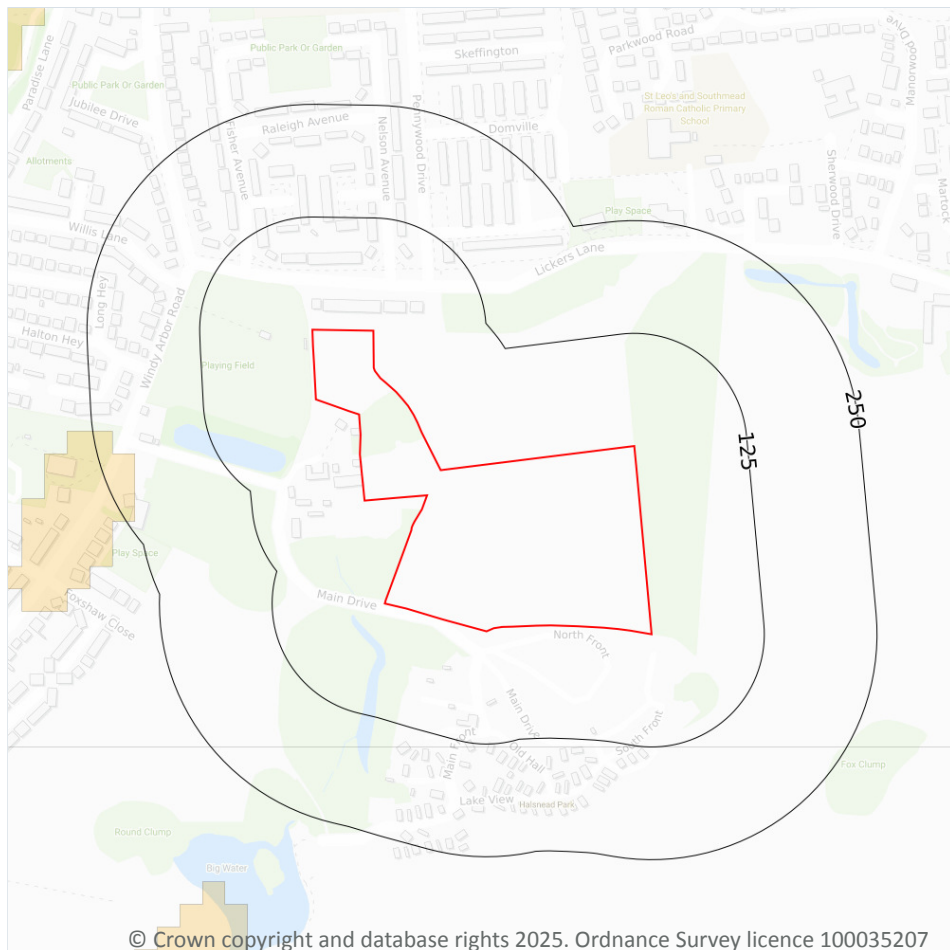
Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.



This data is sourced from Groundsure.



20 Radon



20.1 Radon

Records on site

1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on [page 108 >](#)

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None



This data is sourced from the British Geological Survey and UK Health Security Agency.



21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m

6

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	300 - 600 mg/kg	240 - 360 mg/kg	1.8 - 2.2 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
37m NW	15 mg/kg	No data	300 - 600 mg/kg	240 - 360 mg/kg	2.2 - 3.0 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
38m NW	15 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 - 2.2 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
38m NW	15 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 - 2.2 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.



21.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



22 Railway infrastructure and projects

22.1 Underground railways (London)

Records within 250m**0**

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

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m**0**

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

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m**0**

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m**0**

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

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m**0**

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



This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m

0

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

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m

0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 2

Records within 500m

0

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

This data is sourced from publicly available information by Groundsure.

22.9 HS2

Records within 500m

0

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

This data is sourced from HS2 Ltd.



Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.



APPENDIX D

BGS Exploratory Hole Records

APPENDIX E

Mining Search Report



The Coal
Authority

Consultants Coal Mining Report

Whiston, Prescot
Merseyside
L35 3PW

Date of enquiry: 9 January 2025
Date enquiry received: 9 January 2025
Issue date: 9 January 2025

Our reference: 51003472137001
Your reference: GS-W10-Y2E-D7G-LMS



Consultants

Coal Mining Report

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

Client name

GROUNDSURE LIMITED

Enquiry address

Whiston, Prescot
Merseyside
L35 3PW

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

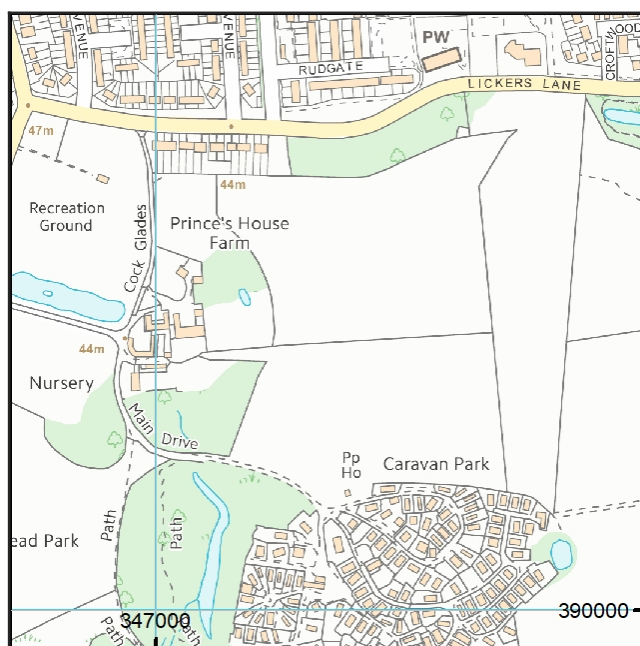
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	WIGAN FOUR FEET	Coal	3002	146	North	11.2	South	160	1900
unnamed	WIGAN TWO FEET	Coal	3007	172	North	11.5	South	80	1903
unnamed	WIGAN FOUR FEET	Coal	3040	184	Beneath Property	11.2	South	160	1902
unnamed	WIGAN FOUR FEET	Coal	3041	186	North-West	11.2	South	160	1900
unnamed	WIGAN TWO FEET	Coal	3045	198	Beneath Property	11.5	South-West	80	1903
unnamed	PLODDER	Coal	304B	234	Beneath Property	9.5	South-West	240	1880
unnamed	PLODDER	Coal	300B	246	North	9.5	South-West	240	1880
unnamed	RUSHY PARK	Coal	300F	365	North	9.4	South	130	1883
unnamed	RUSHY PARK	Coal	304L	384	Beneath Property	13.4	South-West	130	1896
unnamed	RUSHY PARK	Coal	304I	389	Beneath Property	9.5	South	130	1886
unnamed	RUSHY PARK	Coal	304J	391	South-West	12.0	South	130	1889

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	347390-002	347304 390332		Coal	
Shaft	347390-003	347281 390166		Coal	
Shaft	347390-004	347378 390178		Coal	
Shaft	347390-005	347413 390184		Coal	
Shaft	347390-006	347004 390243	this shaft has been proved to be filled and may have been capped to an unknown specification at some time in the past	Coal	
Shaft	347390-007	347031 390542		Coal	
Shaft	347390-008	347053 390541		Coal	

Abandoned mine plan catalogue numbers

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

NW849	NW836	14235
NW638	11564	NW535
10958	NW727	PO0

Our records show we have more plans than those shown above which could affect the enquiry boundary.

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

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
CROMBOUKE	Coal	Yes	Within	N/A	131
LONDON DELPH (BIN)	Coal	Yes	Within	N/A	129
RAMS	Coal	Yes	Within	N/A	122
ROGER	Coal	Yes	Within	N/A	127
ROGER	Coal	Yes	Within	N/A	135
ROGER	Coal	Yes	Within	N/A	136
ST. HELENS YARD	Coal	Yes	Within	N/A	132

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Fault under or close to the property recorded.

Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

Distance to site investigation (m)	Direction
0.1	East
Within	N/A

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

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

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

Payments to owners of former copyhold land

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

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

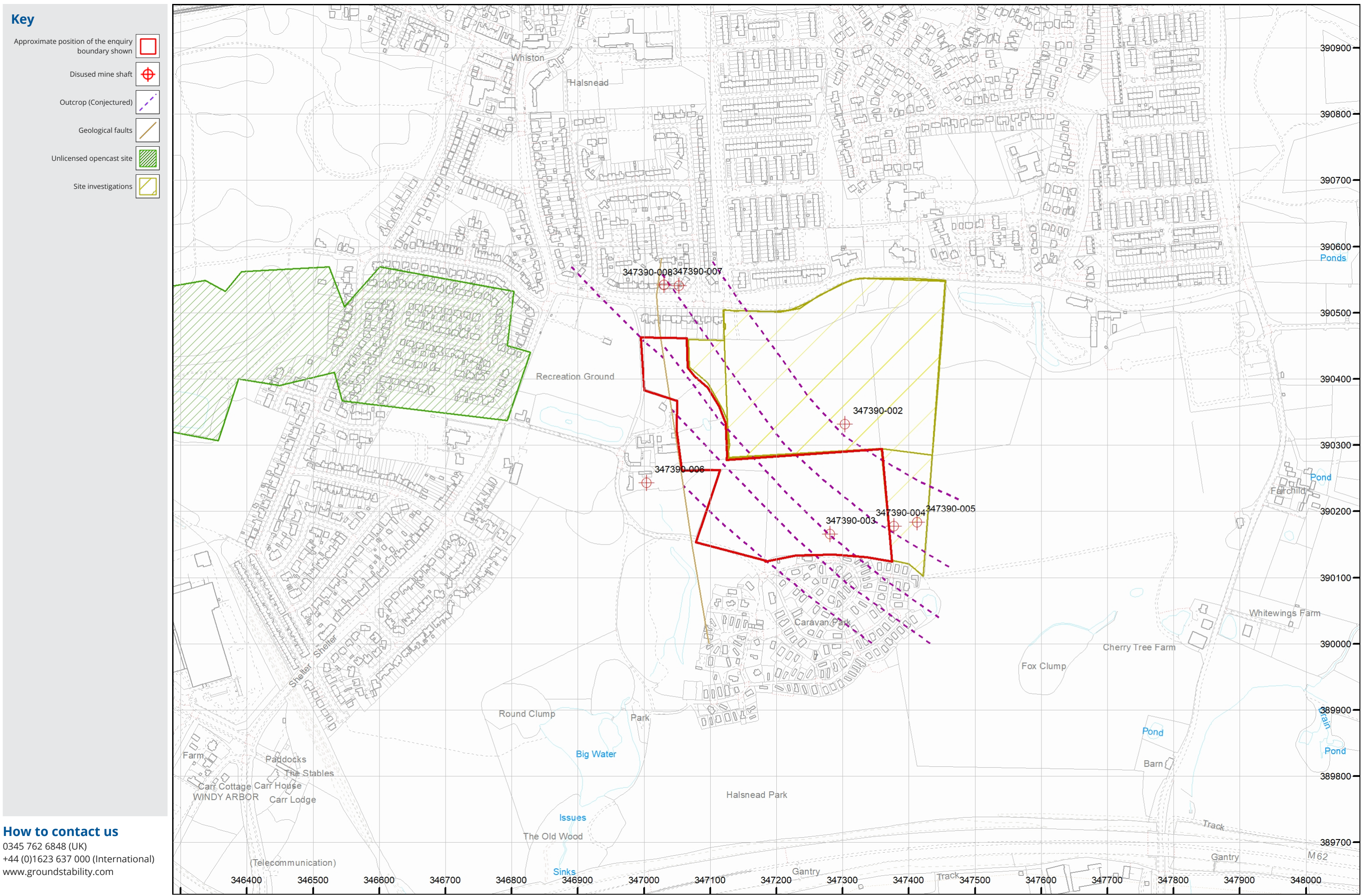
Withdrawal of support notices

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

Payment to owners of former copyhold land

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

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



APPENDIX F

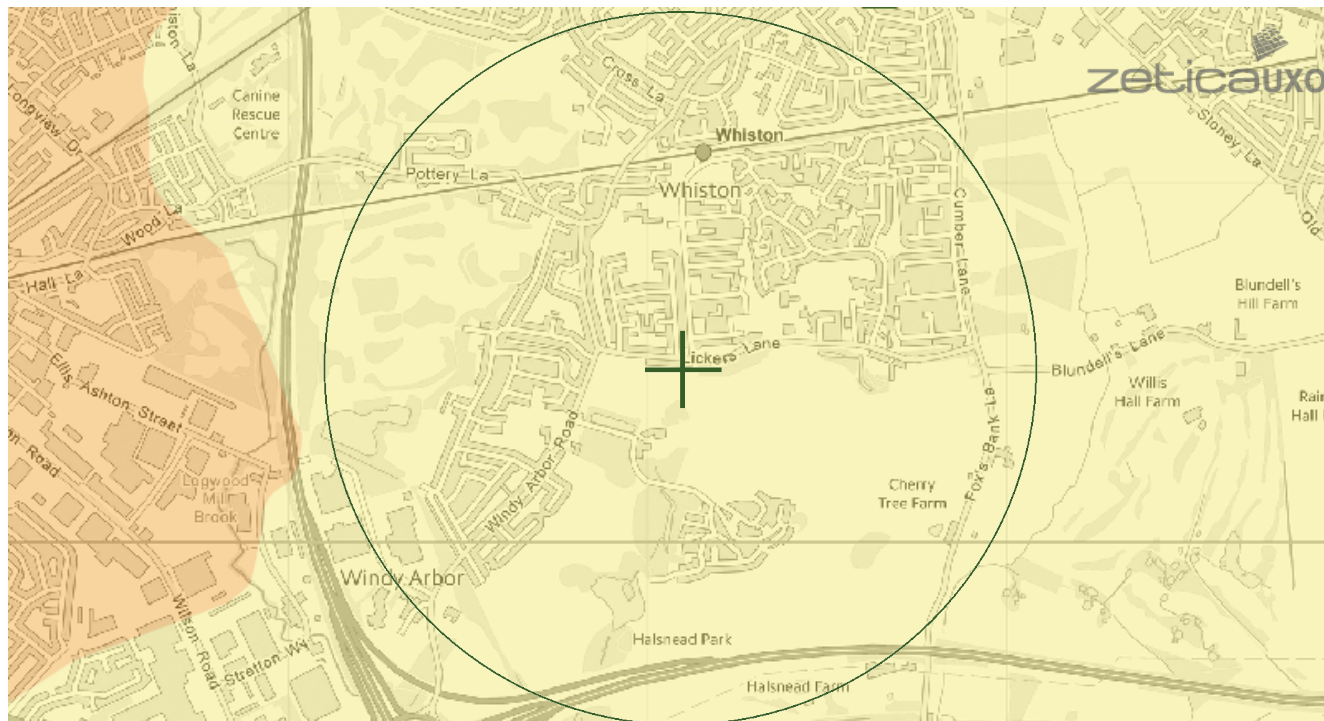
UXO Screening Map

UNEXPLODED BOMB RISK MAP



SITE LOCATION

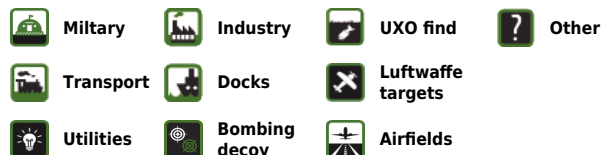
Location: L35 3PW,
Map Centre: 347063,390489



This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.



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

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density. Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then [additional detailed research](#) is recommended.

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

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

If you are unsure whether other sources of UXO may be present, you can request one of our [pre-desk study assessments \(PDSA\)](#) by emailing a site boundary and location to pdsa@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: [+44 \(0\) 1993 886682](tel:+44201993886682) email: uxo@zetica.com web: www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the [accompanying notes on our website](#).

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgement. The copyright remains with Zetica Ltd.

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