



**BROWNFIELD
SOLUTIONS LTD**

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

STEWART MILNE HOMES

Halsnead Park, Whiston

Desk Study Assessment Report

LC/C3593/7001

July 2017



PROJECT QUALITY CONTROL DATA SHEET

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DRAWINGS

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C3593/01	-	Site Location Plan
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C3593/05	-	Postulated subcrop of coal seams and shaft locations

APPENDICES

APPENDIX A	Historical Maps
APPENDIX B	Contaminated Land Officers Report
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**DESK STUDY ASSESSMENT REPORT
FOR A SITE AT HALSNEAD PARK,
WHISTON**

1.0 INTRODUCTION

1.1 Objectives

- 1.1.1 This report describes a Desk Study Assessment carried out by Brownfield Solutions Limited (BSL) for Stewart Milne Homes on a site at Halsnead Park, Whiston.
- 1.1.2 The objectives of the Desk Study Assessment were to determine the sites environmental setting and likely site conditions, highlighting potential areas of concern that may govern the sites redevelopment.
- 1.1.3 The report has been completed to fulfil the requirements of a preliminary risk assessment in accordance with CLR11 "Model Procedures for the Management of Land Contamination".

1.2 Proposed Development

- 1.2.1 The proposed development is residential end use comprising traditional housing and associated gardens, soft landscaping and hardstanding.

1.3 Limitations

- 1.3.1 This Desk Study Assessment has been carried out based on information obtained from a number of areas, BSL have assumed that this information is correct.
- 1.3.2 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 not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.
- 1.3.3 This report has been prepared for the sole use of the client. No other third parties may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL). If any unauthorised third party comes into possession of this report they rely on it at their own risk and BSL do not owe them any Duty of Care.



2.0 THE SITE

2.1 Location & Access

- 2.1.1 The site covers an area of approximately 11.5 hectares and is situated approximately 12.6 kilometres east of Liverpool City Centre.
- 2.1.2 The site is centred on National Grid Reference 347218, 390362 as shown on the Site Location Plan C3593/01.
- 2.1.3 Access to the site is gained off Windy Arbour Road to the west and Lickers Lane to the north.

2.2 Site Description

- 2.2.1 The site is split into two separate parcels of land Area A and Area B. Area A is located in the west with Area B occupying the east of the site. The two areas are not connected and are separated by a road known as Main Drive and two private residential properties and associated out buildings. The areas are described separately below.

Area A

- 2.2.2 The smaller parcel known as Area A is accessed via a set of Palisade gates off Windy Arbour Road to the west. This area is a former garden centre and is irregular in shape with the west of the site generally higher than the east.
- 2.2.3 Area A is largely overgrown and access to areas of the site was difficult due to the dense vegetation. A tarmac car park is present at the site entrance to the west with a derelict bungalow present in the south western corner of the site.
- 2.2.4 A larger steel framed warehouse with steel cladding and with a possible asbestos cement roof is present behind the bungalow.
- 2.2.5 Across the western area evidence of fly tipping was noted although this was noted as being household waste with no evidence of potential contaminants present.
- 2.2.6 The car park area is at a higher elevation than the remainder of the site and the neighbouring properties to the south. A small retaining wall is present in the east of the car park with a concrete ramp present to gain access to the rest of the former garden centre. Across the remainder of the site several hardstanding terraces constructed from breeze block and concrete are present with numerous areas of flags and gravel consistent with greenhouse bases present.
- 2.2.7 The south east of Area A extends out in a semi-circular shape and was heavily wooded with mature trees.
- 2.2.8 The site boundaries of Area A were defined by a mixture of steel palisade fencing, concrete panel fencing and sandstone walls.



Area B

- 2.2.9 The larger parcel of land known as Area B is made up of a large cropped field accessed from Lickers Lane to the north. A wooded area approximately 50m wide and 190m long is present running along the majority of the northern boundary of site.
- 2.2.10 The east of Area B is a smaller field which extends beyond the main field to the site. This area is partially open with sporadic vegetation present in the north becoming denser in the south. Two bunds are present with evidence of dirt biking and off road driving taking place.
- 2.2.11 Area B is bordered by fields to the east and south with a metal wire fencing marking the boundary in the south. Residential properties bound the site in the north western corner with Lickers Lane marking the remaining northern edge of Area B. To the west the site is also bordered by fields.
- 2.2.12 Pertinent site features can be found on the Site Location Plan Drawing Ref C3593/02.

3.0 ENVIRONMENTAL SETTING

3.1 Geological Search

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

- 1:50,000 Scale Geological Sheet 97, Runcorn, Drift edition
- 1:50,000 Scale Geological Sheet 97, Runcorn, Solid edition

Superficial Deposits

3.1.2 The site is indicated to be underlain by superficial deposits of glacial till. This strata typically comprises a sandy gravelly clay.

Solid Geology

3.1.3 The deeper solid geology beneath the site is the Pennine Middle Coal Measures with this strata comprising interbedded mudstone, siltstone and sandstone with coal seams and is Carboniferous in age.

3.1.4 The north eastern portion of Area B is shown to be underlain by Sandstone of the Pemberton Rock Formation.

3.1.5 Seven coal seams are shown to subcrop beneath Area B, dipping south west at approximately 12 degrees. Further detail relating to the coal seams and associated mining activities can be found in the accompanying Coal Mining Risk Assessment Referenced LC/3593/7004.

3.1.6 No coal seams are shown to subcrop beneath Area A however one seam is shown to subcrop immediately to the north east of the site dipping south west below this area.

3.1.7 Three faults are shown on or within an influencing distance of the site. The first runs north to south through the centre of Area A down throwing to the west. The second fault encountered beneath the site also runs north to south through the west of Area B and downthrows to the east. Both of these faults are regarded as local minor faults.

3.1.8 The third fault encountered abuts the eastern boundary of Area B and is a large regional fault known as the Eccleston West Fault. This fault runs north to south down throwing to the east and marks the boundary between the Pennine Middle Coal Measures and unconformable Kinnerton Sandstone to the east. The Eccleston West Fault branches beneath the site with a smaller fault trending to the north west shown to split from the main seam.

3.1.9 The postulated subcrops of coal seams beneath the site along with notable geological and mining features are shown on Drawing No. C3593/05.

3.2 Hydrogeology

3.2.1 The superficial deposits in this area are classified by the Environment Agency as a Secondary Aquifer (Undifferentiated). This classification is assigned where it is not possible to attribute either category A or B to a strata 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 strata type.

- 3.2.2 The bedrock is classified as a Secondary A Aquifer. These are 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.
- 3.2.3 The far north east of the site and the area immediately to the east is classified as a Principal Aquifer. This is 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.
- 3.2.4 The far north east site and area abutting the eastern boundary is within a Source Protection Zone, Zone III, Total Catchment (the area needed to support the discharge from the protected groundwater source) for a groundwater abstraction well.
- 3.2.5 There are no groundwater or potable water abstraction licences within 500m of the site, the nearest is located 988m to the north east and is a historical licence for potable water supply from 2 wells and connecting boreholes at Cumber Lane.

3.3 Hydrology

- 3.3.1 The nearest watercourse to the site is an unnamed tertiary river located 47m to the south of the site.
- 3.3.2 Several ponds and manmade lakes are present within 250m of the site with the nearest located 12m to the north.
- 3.3.3 Information obtained from the Environment Agency indicates that the site will not be affected by an extreme flood event.
- 3.3.4 There are no surface water abstraction licenses within 1000m of the site, the nearest is located 1101m to the south of the site at Ochre and Dog Clog Brooks, Tarbock Hall Farm, Prescott to T.H Critchley and Son and pertains to spray irrigation.
- 3.3.5 Information obtained from the Environment Agency indicates the site will not be affected by an extreme flooding event.

3.4 Historical Setting

- 3.4.1 Information has been obtained from historical Ordnance Survey Maps with the pertinent issues that may have affected the site or its environs summarised below.
- 3.4.2 The following plans produced by the Ordnance Survey were examined.

Scale	Date
1:1250	1973, 1984, 1987, 1993, 1994
1:2500	1892, 1907, 1927, 1937, 1958, 1980, 1985, 1989, 1993



Scale	Date
1:10000/10560	1850, 1891, 1906, 1925, 1938, 1947, 1956, 1967, 1978, 1990, 2002, 2010, 2014

The Site

- 3.4.3 The earliest map dated 1850 indicates both Area A and Area B to be undeveloped and forming part of the larger Halsnead Park Estate. Lickers Lane borders Area B to the north Area A bordered by a road later known as Windy Arbour to the west and an access road for the estate to the north. Wooded areas are shown in the west and south of Area A, along the northern boundary of Area B with a smaller area of woodland present in the south eastern portion of Area B. Within Area A a **ruin** is shown in the south west, this is not shown on any subsequent maps.
- 3.4.4 The maps of 1891 and 1892 show the east of Area A to be completely wooded with two **ponds** present on the edge of the wooded area in the north. A small building is also present at the edge of the wooded area to the West. No changes are noted within Area B.
- 3.4.5 The map of 1907 shows one of the ponds in Area A to no longer be present with the north east of Area A no longer shown as wooded.
- 3.4.6 There are no changes to the site between 1907 and 1958. The map of 1958 shows the woodland and building in the west of Area A to no longer be present with a drain running north to south through this portion of the site. The central portion of Area A is occupied by several small **buildings** accessed via a road entering from the north. A single small building is present in the north west of this area. In Area B the site remains largely unchanged although woodland is not shown in the south eastern corner. No further changes are shown within Area B.
- 3.4.7 The map of 1966 shows the **pond** located in Area A to no longer be present.
- 3.4.8 By 1973 a residential property known as Oaklea is present in the south west of Area A with two **greenhouses** serving an associated **nursey** also shown in the west. Oaklea is accessed via a new access road entering the site from the north. Additional greenhouses are added to the site by the map of 1984 being published with access now gained from Windy Arbour Road to the west.
- 3.4.9 By 1993 the greenhouses in the west and buildings in the east are removed and a larger building is now present in the west of the site. This is annotated on later maps as being a greenhouse.
- 3.4.10 The map of 2010 shows the greenhouse to no longer be shown although a smaller building is shown in the south west of the site.
- 3.4.11 There are no further pertinent changes to the site between the map of 2010 and most recent map of 2014 being published.

Surrounding Area

- 3.4.12 The earliest map available of 1850 shows the site to be surrounded by The Halsnead Park Estate consisting of a series of open areas, wooded areas and ornamental



ponds and **lakes** the nearest of which is located immediately to the north of Area A in the east. A large property known as Prince's House is present in the area separating Area A and Area B. The property has several associated out buildings. A **coal pit** is present to the south of Prince's House approximately 50m from the eastern boundary of Area A. The main estate house known as Halsnead Hall is located to the south of the site at a distance of circa 175m from Area B at its nearest point.

- 3.4.13 The map of 1850 also shows coal mining activity to be taking place to the west and south west of the site. Three **collieries** (Hig Hey, Houghtons Hey and Halsnead) are located within 500m of Area A with the nearest being Halsnead located circa 200m from the boundary to the south west. A mineral **railway** serving these collieries is also shown to the west. Further **coal mines** are located to the north west beyond 500m from the site boundary. To the north of Area B at a distance of circa 50m is a Stone Quarry Plantation and **Sandstone Quarry**. The Liverpool to Manchester **Railway** is located to the north of the site at a distance of 500m running east to west.
- 3.4.14 The maps of 1891 and 1892 show a St. Nicholas's church and **graveyard** to have been constructed to the west of Area A at a distance of circa 15m. The collieries to the south west are shown to have been amalgamated to form Halsnead Colliery located 300m to the west with the former Halsnead Colliery now shown as 'old colliery'. Further collieries are shown to the north and north west beyond 500m of the site. The sandstone quarry located to the north of Area B is shown as Old Quarry.
- 3.4.15 By the map of 1906 being published all of the collieries to the west and north west are shown as being disused. Whiston **Metallic Brickworks** is shown at the site of the former Whiston **Colliery** located circa 400m to the north west of the site.
- 3.4.16 The map of 1906 shows Cronton **Colliery** to be shown on the map of 1906 circa 700m to the south of the site. A mineral **railway** utilising the former line for Halsnead Colliery is shown 400m to the south west of Area A.
- 3.4.17 The map of 1927 shows **pits** associated with the brick works is present to the north west at a distance of circa 375m. The pit size increases between the maps of 1927 and 1958.
- 3.4.18 The map of 1958 shows Halsnead Hall to have largely been demolished with a ruin and disused **well** present. To the east of Area A, Halsnead Villa has been constructed at a distance of approximately 25m. Residential development has also occurred between 1937 and the map of 1958. A single row of residential properties are shown immediately to the west of Area B along Lickers Lane with larger development taking place to the north west on the opposite side of Lickers Lane. Residential development has also taken place the south of Area A with residential properties shown within the former colliery areas.
- 3.4.19 A **nursery** known as Halsnead Park Nursery is shown immediately to the east of Area B on the map of 1966.
- 3.4.20 By 1977 further residential development has taken place to the north of Area B on the adjacent side of Lickers Lane and to the west of Area A. The brick works and clay



pits to the north west are shown as being disused. The 1977 map also shows the M62 motorway to have been constructed to the south at a distance of circa 450m running east to west with the M57 motorway running north to south at a distance of circa 475m to the west.

- 3.4.21 The map of 1984 shows the disused clay pits to north west to be a **refuse tip**. By 1989 the brickworks buildings are no longer shown with the entire area to the north west shown as a **gravel pit**. This is shown on later mapping as Stadt Moers Park.
- 3.4.22 Mapping in 1989 also shows Cronton Colliery to be disused with the majority of mine buildings removed and pits being backfilled. The associated mineral railway is shown as disused. Halsnead Park Nursery to the east of the site is not shown on the 1989 mapping with a Caravan Park shown to the south at the former Halsnead Hall. To the south west of Area A at a distance of approximately 475m an industrial park is shown.
- 3.4.23 The area surrounding the site remains largely unchanged between the maps of 1989 and the most recent map of 2014 being published although some additional residential development is undertaken in the wider surrounding area.
- 3.4.24 Historical maps are presented in Appendix A.

3.5 Environmental Searches

- 3.5.1 A formal request was also been made to Knowlsey Metropolitan Borough Contaminated Land Department for information pertaining to the site. The information is pending at the time of issuing the report and will be reported as an addendum following receipt.
- 3.5.2 An Environmental Search has been conducted through Groundsure, which utilises British Geological Survey and Environment Agency databases. The full report can be found in Appendix C, although a summary of the more relevant findings is presented below.

Entry	0 – 249m	250 – 500m	Details
Authorised industrial processes (IPC/IPPC/LAPPC)	0	0	
Pollution Incidents	2	0	The nearest occurred 10m to the north of Area A in 2002 and had a minor impact on water. The pollutant is unknown.
Landfill and Waste treatment	0	4	The nearest landfill from the site is a historic landfill located 301m to the north west at Coalgate Lane Landfill. The received waste was Inert, Industrial, Commercial, Household, liquid and sludge with the last recorded use in 1983.
Discharge consent	0	0	



Entry	0 – 249m	250 – 500m	Details
Control of Major Accident Hazard (COMAH) sites	0	0	
Consents issued under planning (Hazardous substances) Act 1990	0	0	
Radioactive substances	0	0	
Fuel Station entries	0	0	
Other Current industrial land uses	8	-	The nearest is an electricity substation located 41m to the north west.

3.6 Radon

- 3.6.1 Map 13 Northern Welsh Marches and Liverpool was inspected which defines areas which require radon protective measures. Whiston is not an area requiring Radon precautions in foundations in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2007 Edition.
- 3.6.2 BRE Report 211 provides a general indication of which areas require radon protection, a site specific assessment can be carried out through UK Radon or BGS.

3.7 Coal Authority Search

- 3.7.1 The site lies in an area where the Law Society and Coal Authority recommends a mining search be undertaken as the site could be affected by past or current mining.
- 3.7.2 Therefore a search was carried out with the Coal Authority, which is presented in Appendix D, the main findings of which are presented below.

Past Mining

- 3.7.3 The site is in a surface area that could be affected by recorded underground mining in seven seams of coal at 80m to 440m depth, and last worked in 1903.
- 3.7.4 Any ground movement from these workings should have now stopped.

Present Mining

- 3.7.5 The site is not within a surface area that could be affected by current underground mining.

Future Mining

- 3.7.6 The property is not in an area where the Coal Authority are determining whether to grant a licence to remove coal by underground workings.
- 3.7.7 The property is not in an area likely to be affected from any planned future underground coal mining.
- 3.7.8 Reserves of coal exist in the local area that may be worked in the future.



- 3.7.9 No notice of the risk of land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine Entries

- 3.7.10 There are 6 mine entries on or within 20 metres of the site boundary. Of the 6 shafts no treatment details are held for five with one shaft located off site indicated to have been capped and filled to an unknown specification at some time in the past.
- 3.7.11 There may however be additional mine entries in the local area of which the coal authority has no knowledge.

Coal Mining Geology

- 3.7.12 The Authority is not aware of any damage arising to geological faults or lines of weakness that have been affected by coal mining.

Opencast Coal Mining

- 3.7.13 The property is not in an area affected by past or present coal mining extracted by opencast methods. The property is also not in an area affected by a proposed opencast coal mine.

Subsidence

- 3.7.14 The Coal Authority has not received a damage notice or claim for the subject property or within 50m since 31 October 1994.

Mine Gas

- 3.7.15 There is no record of mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

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

Withdrawal of Support

- 3.7.17 The property is not in an area which notice of entitlement to withdraw support has been given.



4.0 DESK STUDY SUMMARY AND RISK ASSESSMENT

4.1 Introduction

- 4.1.1 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.
- 4.1.2 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 a receptor could be exposed to the contaminant.
- 4.1.3 The following sections discuss the identified potential on-site and off-site sources, and any pollution that could impact receptors 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 desk study searches. The assessment has been carried out on a qualitative basis and aims to produce a complete and comprehensive Preliminary Conceptual Site Model.
- 4.1.4 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

- 4.2.1 From the information obtained during the desk study several sources of contamination which may affect the redevelopment of the site for residential end use were identified. Within Area B three mine shafts are thought to be present on the site which may be a potential contaminative source. In addition, due to coal reserves being anticipated at or near to the surface there is potential for made ground to be present if the coal has been extracted from the surface and/or shallow mined.
- 4.2.2 Within Area A two mine shafts are also expected to be present in the south east. Made ground associated with former development and backfilled ponds may also be a potential source of contamination. The former garden centre located in Area A is also considered to be a potential source of contamination.

Off-Site

- 4.2.3 Potential off-site sources of contamination include the neighbouring graveyard, electricity substation, potentially backfilled ponds and wells and backfilled pits, sandstone quarry and landfill.
- 4.2.4 Due to the distance from the site the former collieries with associated workings and shafts, landfill located 301m to the north west are and railway lines are not considered to be a potential source of contamination to the site.

Associated Contaminants

- 4.2.5 The contaminants commonly associated with the potential sources of contamination identified on-site include made ground possibly containing asbestos, metals and PAHs, coal, clinker and ash from potential workings associated with unrecorded coal mining activities. In addition in Area A hydrocarbons, herbicides and pesticides associated with the former garden centre may be a potential source.
- 4.2.6 Potentially backfilled ponds, well and mine shafts from both on-site and off-site sources are possible sources of ground gas.
- 4.2.7 The graveyard located to the west and former sandstone quarry to the north of the site are also potential sources of ground gas. The electricity substation located 44m north west is a possible source of PCB contamination.

4.3 Pathways

- 4.3.1 A pathway is defined as a medium by which a contaminant comes into contact with, or otherwise impacts a receptor. Due to the sites proposed end use being residential potential pollution pathways for contaminant migration at the site will exist.
- 4.3.2 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:
- Ingestion of contaminated soils;
 - Dermal contact with contamination;
 - Inhalation of gases or vapours in both indoor and outdoor air;
 - Direct contact by buried structures such as services pipes;
 - Surface run-off;
 - Leaching of mobile contamination into groundwater;
 - Migration of perched groundwater in any permeable soils or along existing or proposed service runs

4.4 Receptors

- 4.4.1 Receptors generally fall into the categories of human health or controlled waters. The identified receptors are listed below:
- Site end users (residential)
 - Secondary A and Principal Aquifer in bedrock
 - Surface waters

- 4.4.2 Contaminants within the soil and groundwater could potentially attack the clean potable water supply pipe, the contaminants should be assessed to determine the correct pipe material and level of precautions.

4.5 Preliminary Conceptual Site Model

- 4.5.1 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 Appendix E.

Human Health

4.5.2 The Preliminary CSM for human health is presented in the table below:

Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk
ON-SITE					
Made Ground	Ingestion, direct contact, inhalation of dusts.	End-users	Likely to Low Likelihood	Medium	Moderate/Low
Garden Centre (Area A)	Ingestion, direct contact, inhalation of dusts.	End-users	Likely to Low likelihood	Medium	Moderate/Low
Backfilled Ponds (Area A)	Migration of ground gases into confined spaces.	End-users	Low likelihood	Medium to Severe	Moderate /Low
Mine Shaft	Migration of mine gas into confined spaces.	End-users	Likely to Low Likelihood	Medium to Severe	High/Moderate
OFF-SITE					
Graveyard	Migration of ground gases into confined spaces.	End-users	Unlikely	Medium to Severe	Moderate/ Low
Backfilled Ponds/Quarry	Migration of ground gases into confined spaces.	End-users	Unlikely	Medium to Severe	Moderate/Low
Electricity Substation	Ingestion, direct contact, inhalation of dusts.	End-users	Unlikely	Medium	Low

Human Health Justification

4.5.3 Area B has not been previously developed, however as reserves of coal from seven seams exist at or near to the surface within this area it is possible that unrecorded mine workings and therefore colliery spoil and made ground associated with these workings may be present. The risk is from made ground within Area B is therefore assessed as moderate to low at this stage.

4.5.4 Within Area A made ground associated with former construction and the garden centre are considered to more likely, given the apparent changes in site levels and hardstanding areas that were noted during the site walkover. However processes associated with garden centres are not considered to be especially contaminative and therefore the risk is considered to be moderate to low at this stage from made ground. The garden centre was first established in the 1960s therefore pesticides and herbicides may have been used at the site. The risk from the garden centre is considered to be moderate to low at present and should be confirmed by site intrusive investigations.

4.5.5 Five mine shafts are thought to be present beneath the site (two within Area A and three within Area B). The Coal Authority holds no records as to what measures, if any have been taken to fill and cap the mine shafts, however as these are not shown



on historical mapping it is considered likely that the shafts are pre 1850s and therefore unlikely to have been backfilled with putrescible materials conducive to producing ground gases. If the shafts have not been backfilled and workings have been flooded there is a possibility for mine gas to be produced. Therefore the risk to site end users from mine shafts is considered to be high to moderate at this stage and a detailed assessment and monitoring is required.

- 4.5.6 Two ponds were located in the north east of Area A with the first not shown post 1907 and the second not shown post 1966. The type and nature of the backfill material, if any is unknown however given the relatively small size of the ponds and age of backfill it is unlikely that large amounts of material conducive to the production of ground gases are likely to be present. The risk is currently assessed as moderate to low and should be confirmed by site intrusive investigations.
- 4.5.7 Off site sources of contamination are also generally related to the production of ground gases from the neighbouring graveyard to the west and former quarry to the north.
- 4.5.8 The cemetery located to the west of the site is also a potential ground gas risk. Cemeteries are known to produce carbon dioxide and methane gases as organic material breaks down. However, gases are produced over a short span of time with levels of gases produced regarded as low and generally venting vertically directly into the atmosphere. In addition geological records indicate superficial deposits of Glacial Till to be present beneath the site with these deposits being relatively impermeable and inhibiting lateral migration of ground gases to the site. The risk from ground gases from the cemetery is therefore considered to be moderate to low.
- 4.5.9 A former quarry and several small backfilled ponds are present within 250m of the site. However as the area to the north of the site has been largely developed for residential end use it is unlikely that ground gas generation would occur from these sources in addition superficial deposits of Glacial Till are anticipated beneath the site which will inhibit the migration of any potential off site gas sources. The risk is therefore assessed as moderate to low.
- 4.5.10 The nearest electricity substation is located circa 40m from the site. PCBs which were present within substations before being outlawed in 1981 are a potential contaminative source. However, PCBs are relatively immobile and given the distance and relatively impermeable superficial strata underlying the site the risk is considered to be low from this source.

Controlled Waters

- 4.5.11 The Preliminary CSM for controlled waters is presented in the table below:

Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk
Made Ground	Migration through groundwater or granular soils	Controlled waters	Unlikely	Medium	Low



Controlled Waters Justification

- 4.5.12 Several buildings existed historically on Area A with two buildings still present in the west. Several terraced areas are also present with this part of the site indicating site levels may have been altered in the past and therefore there is potential for made ground to exist. Although surface water features are present within 50m of the site boundaries no known contaminative processes are thought to have taken place on the site. The superficial clay deposits will inhibit migration of any contaminants towards the watercourse the risk is considered to be low to surface waters.
- 4.5.13 Limited, if any contamination associated with the made ground is likely present at the site the superficial clay deposits will prevent vertical migration into the Secondary (A) Aquifer which is located across the majority of the site. In the far north east and area abutting the eastern site boundary the bedrock is classified as a Principal Aquifer within a Source Protection Zone. However in this area the site is considered to be greenfield and contamination is considered to be highly unlikely, and there are no abstraction licences within the vicinity of the site. Therefore the risk to groundwater is considered to be low.

4.6 Ground Gas Risk Assessment

- 4.6.1 Several potential on-site gas source has been identified and the preliminary CSM considers it to be a high to medium risk to site end users.
- 4.6.2 In accordance with CIRIA C665 as set out in Appendix F of this report, the recommended gas monitoring should comprise 12 visits over a 6 month period. However the risk is based on an unknown gas risk therefore it is recommended that the ground gas risk is reassessed following site works and an initial period of monitoring.



5.0 DEVELOPMENT CONSTRAINTS

5.1 Foundations

- 5.1.1 At this stage, due to unknown depths of made ground and the potential for unrecorded shallow coal workings to be present beneath the site it is not possible to provide preliminary foundation recommendations.
- 5.1.2 However it is anticipated that a mixed foundation solution comprising shallow spread foundations and deeper foundations where made ground or workings are present will likely be required.
- 5.1.3 This should be confirmed by on site intrusive investigations.

5.2 Other Constraints

- 5.2.1 Asbestos was not covered in this report. It should be noted that an intrusive survey will be required prior to demolition of existing buildings.
- 5.2.2 The site is in a Development High Risk Area, mining will be covered in the Coal Mining Risk Assessment under a separate cover.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Environmental

- 6.1.1 Coal Authority records show five coal shafts exist on the site although these are not shown on historic maps and therefore are anticipated to predate 1850. The shafts are a potential source of mine gas and/or permanent gases and gas monitoring is required to determine if it is considered a risk.
- 6.1.2 Area A was historically a garden centre with Area B being Greenfield with no development noted, however as coal reserves exist beneath Area B at or near to the surface there may be unrecorded workings and possible made ground present.
- 6.1.3 Due to previous uses generally being limited with no particularly contaminative processes having occurred at the site and limited off-site sources the risk to site end users is generally considered to be moderate to low.
- 6.1.4 A risk from ground gas may still impact the proposed development and requires further investigation and assessment.
- 6.1.5 The water resources in the vicinity of the site are generally considered to be of low sensitivity and the risk from the subject site is considered to be low. Where more sensitive resources exist in the Far East no development has occurred historically therefore a source is not likely to be present.

6.2 Geotechnical

- 6.2.1 Shallow foundations are anticipated, however this will need to be confirmed by site intrusive investigations.
- 6.2.2 The risk from coal mining will be assessed by the Coal Mining Risk Assessment under a separate cover.

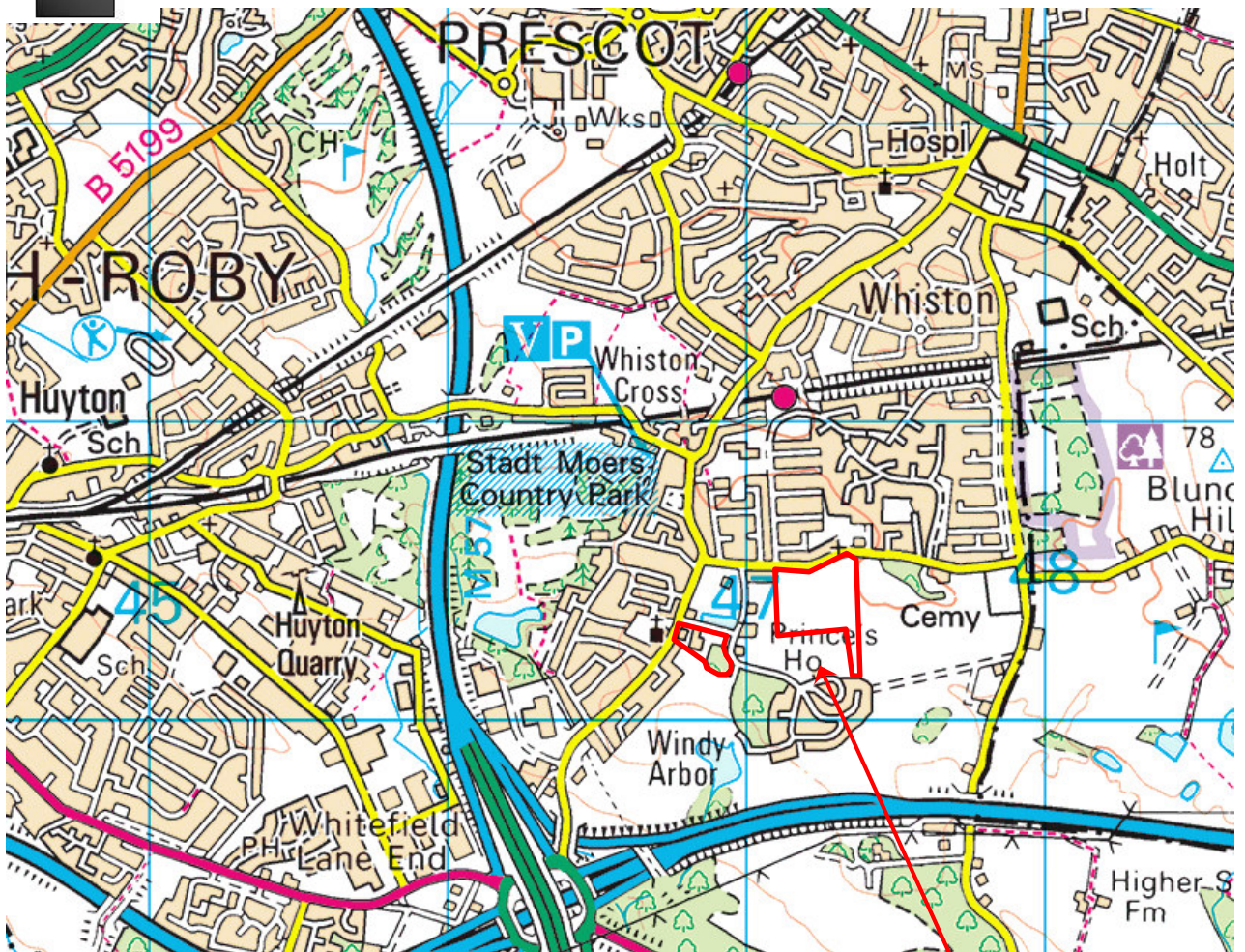
6.3 Further Work

- 6.3.1 Therefore to allow future development of the site 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.

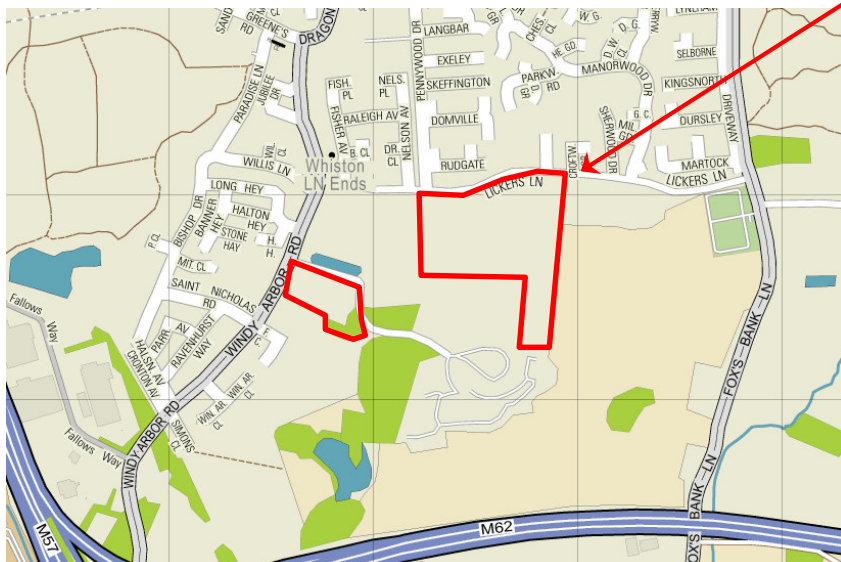
- Coal Mining Risk Assessment.
- Topographical survey
- Intrusive site investigations comprising window sampling, trial pitting.
- Mining Investigation.
- Demolition Asbestos survey.
- Foundation design
- Design of remedial strategy if required.
- Confirmation of remedial strategy with the Local Authority



DRAWINGS



SITE



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HOMES**

Halsnead Park, Whiston

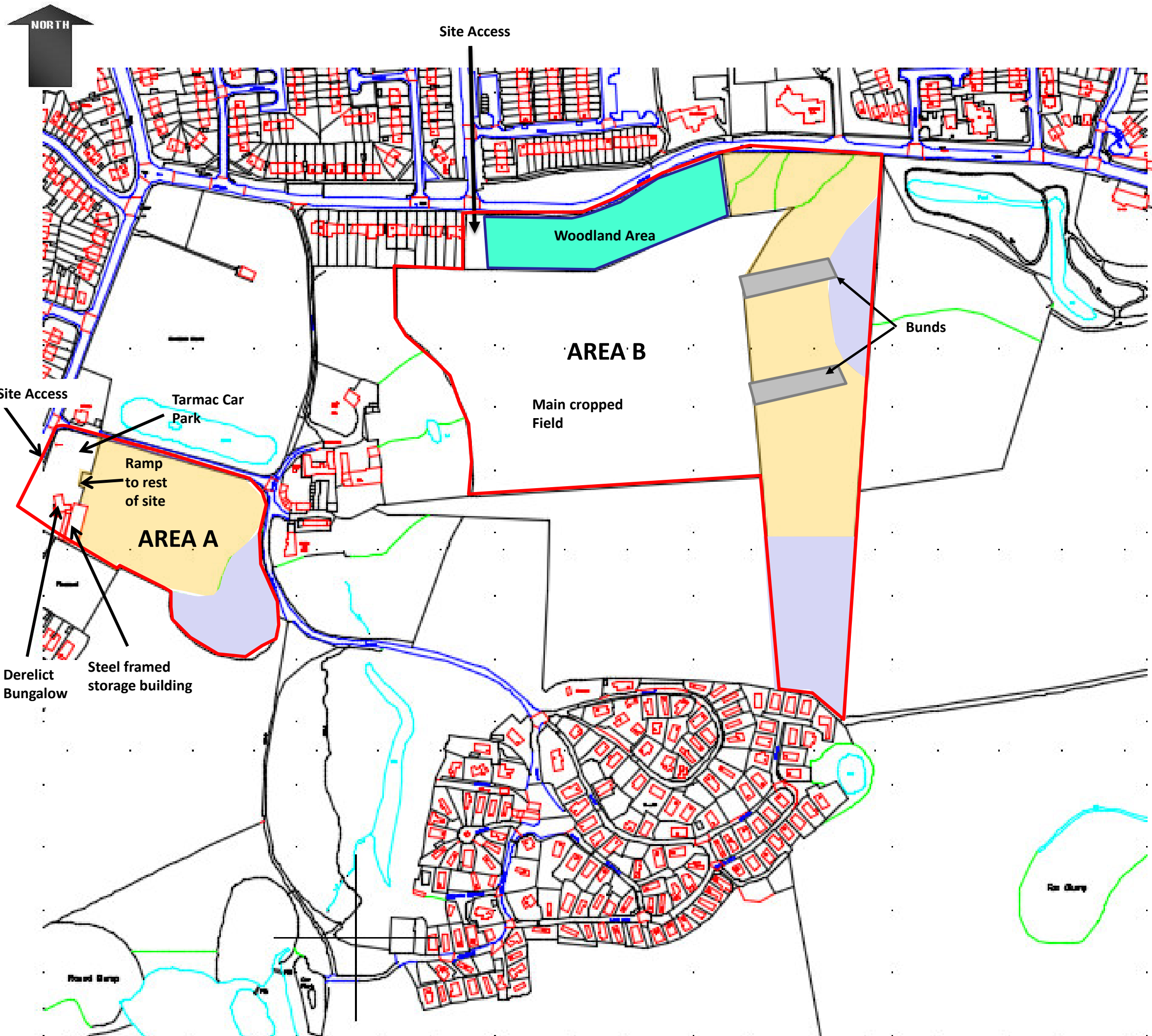
Site Location Plan

Drawing Number C3593/01

Scale: NTS

Drawn By: LC

Checked By: AJH



KEY

- Densely vegetated areas
- Lightly vegetated area



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HALSNEAD PARK, WHISTON

Pertinent Site Features Plan

Drawing No. C3593/02

Scale: NTS

Drawn By: LC

Checked By: AJH

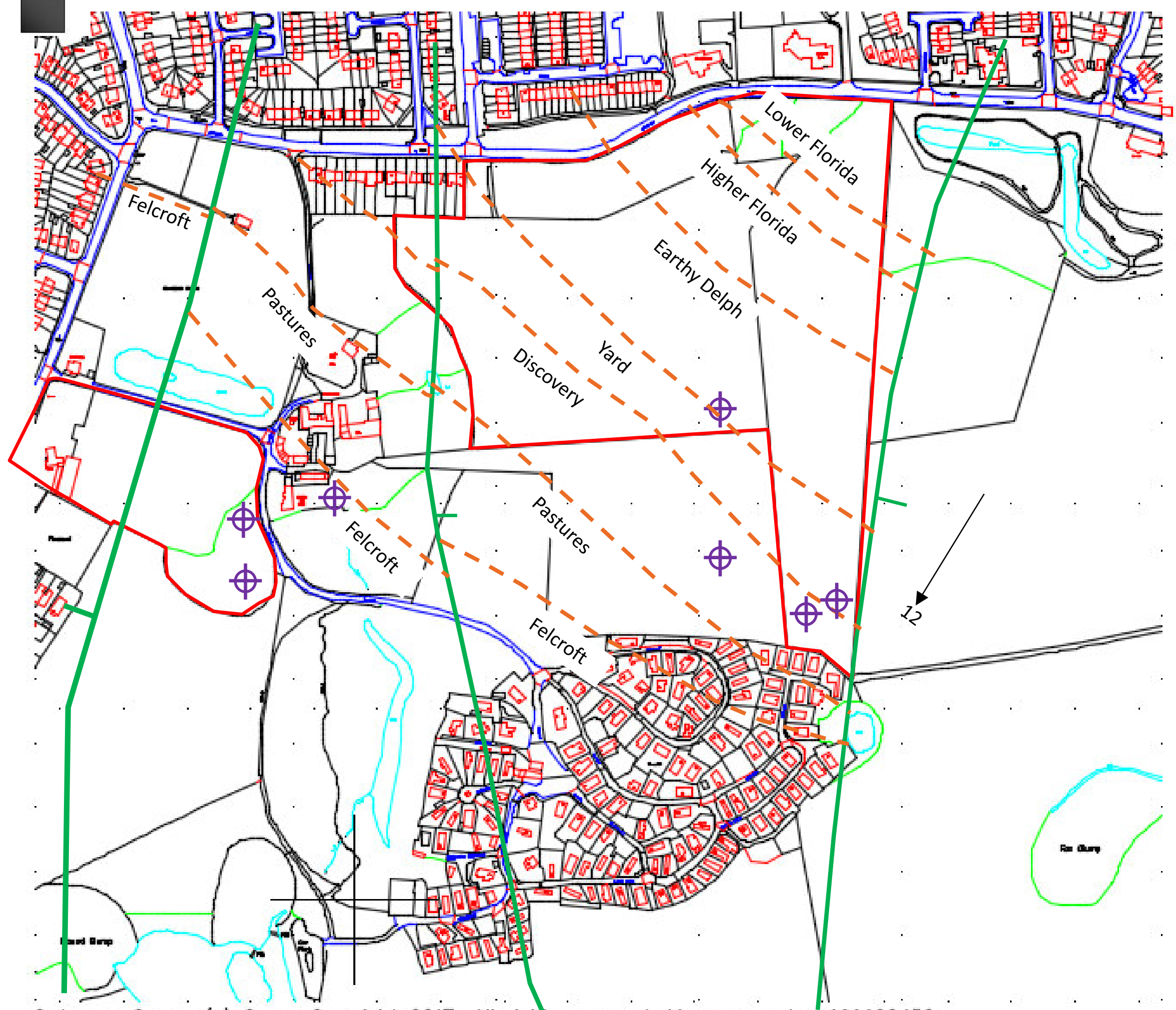
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KEY

-  Site Boundary
-  Approximate Location of Mine Shafts Based on Coal Authority Data
-  Approximate Location of Coal Seam subcrops
-  Approximate Location of Fault

Seam Thicknesses (estimated based on third party information)	
• Felcroft –	2.4m
• Pastures –	1.5m
• Discovery –	unknown
• Yard –	0.91m
• Earthy Delph –	1.80m
• Higher Florida –	1.82m
• Lower Florida –	0.91m



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STEWART MILNE
HOMES

HALSNEAD PARK, WHISTON

Postulated Subcrops of Coal
Seams and Shaft Locations

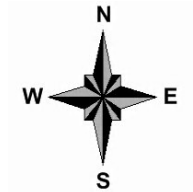
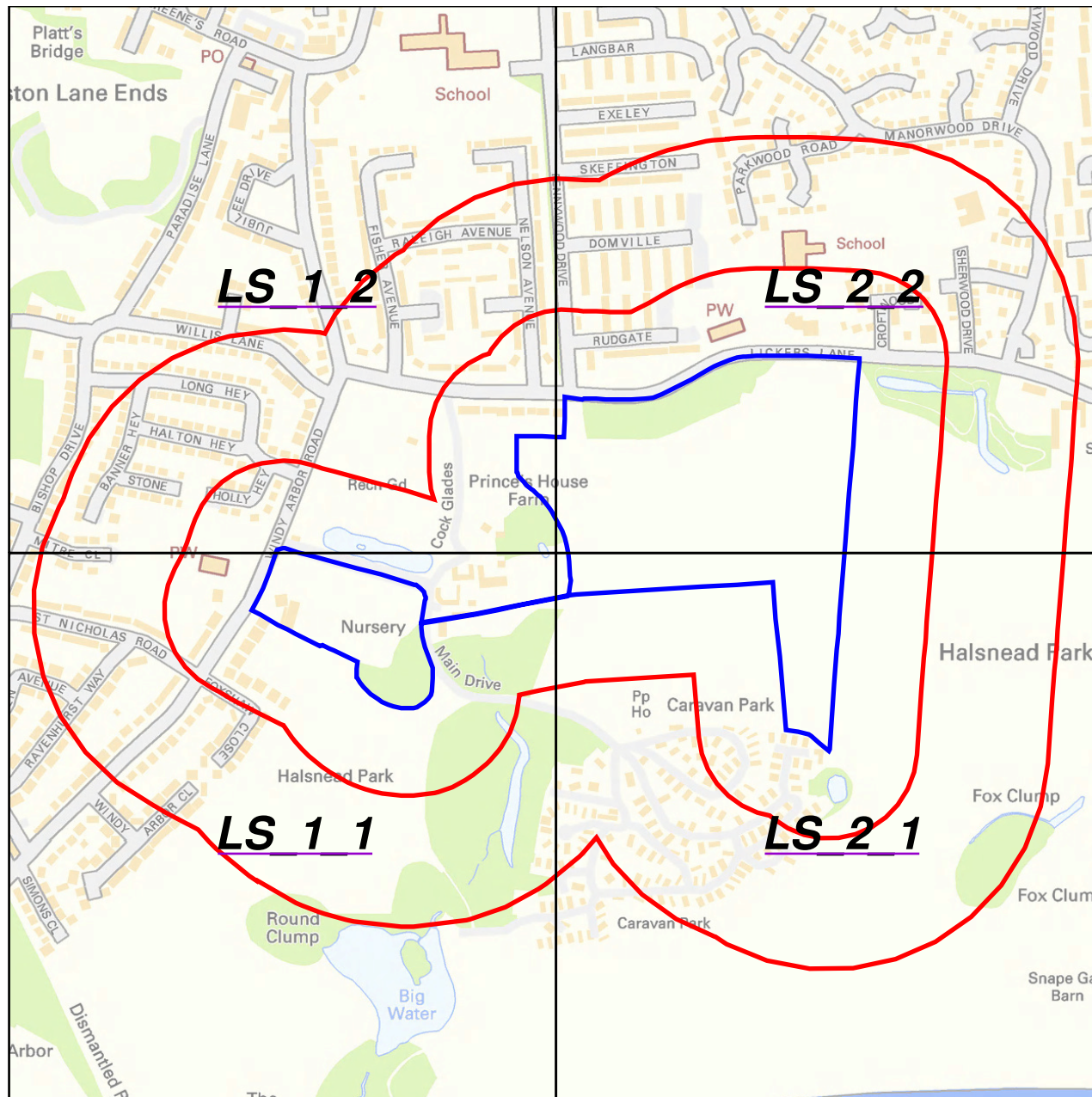
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Drawn By: LC	Checked By: AJH
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APPENDIX A

Historical Maps



1:2500 Scale Grid Index

Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_1_1
Grid Ref: 346797, 390014

Map Name: County Series

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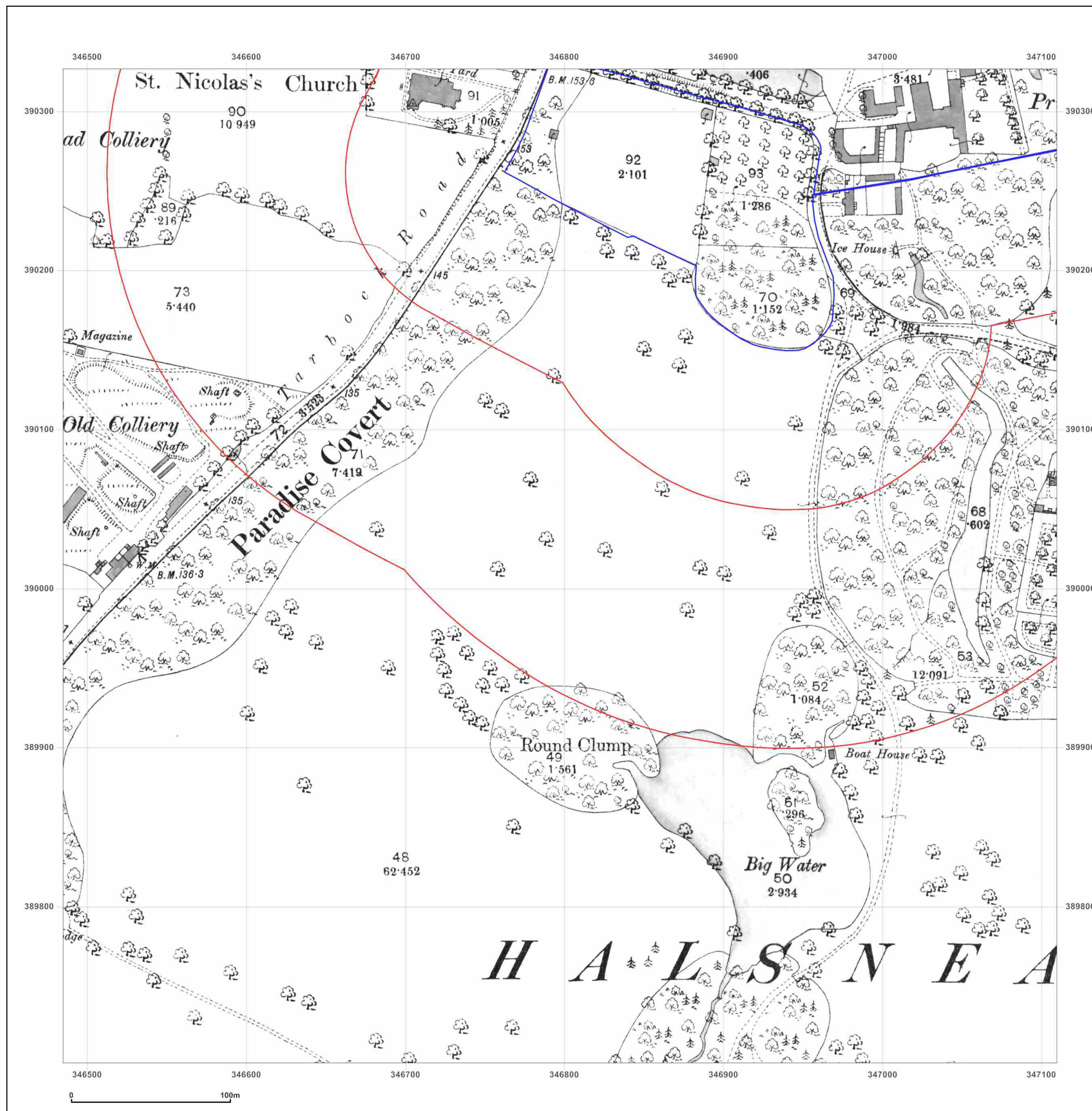


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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_1_1
Grid Ref: 346797, 390014

Map Name: County Series

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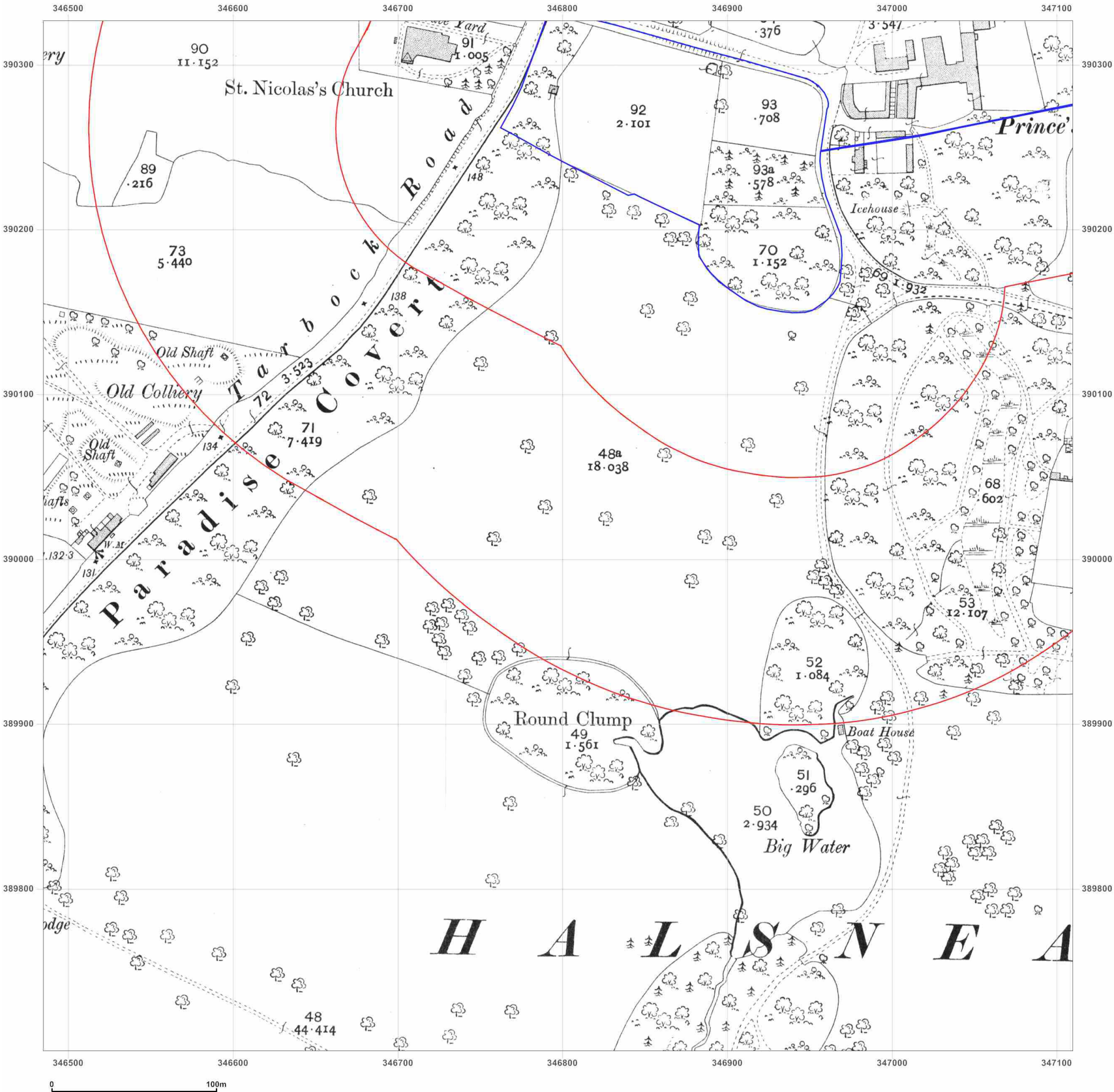


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Report Ref: EMS-418542_559267_LS_1_1
Grid Ref: 346797, 390014

Map Name: County Series

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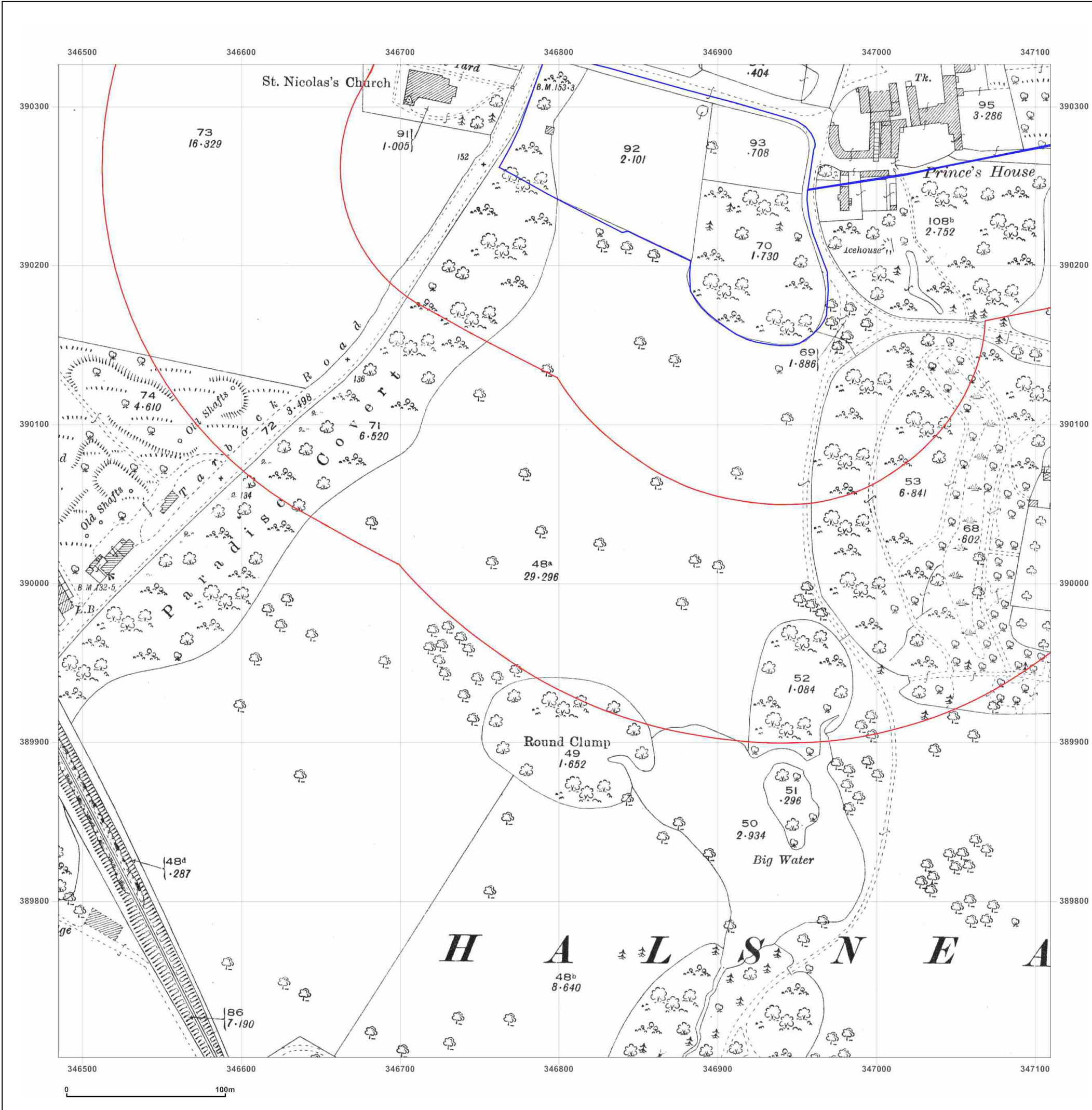


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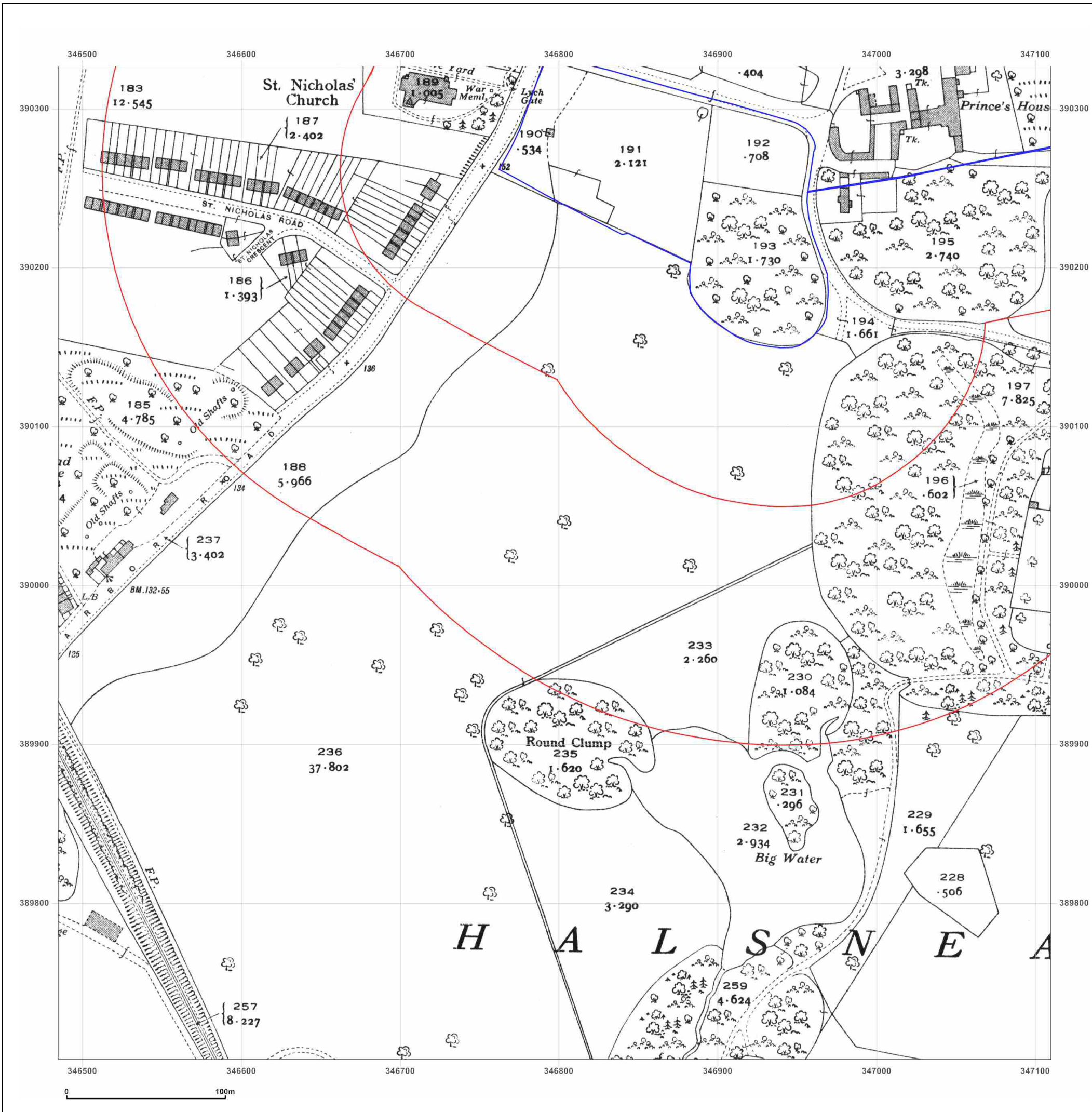


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Map Name: National Grid
Map date: 1958
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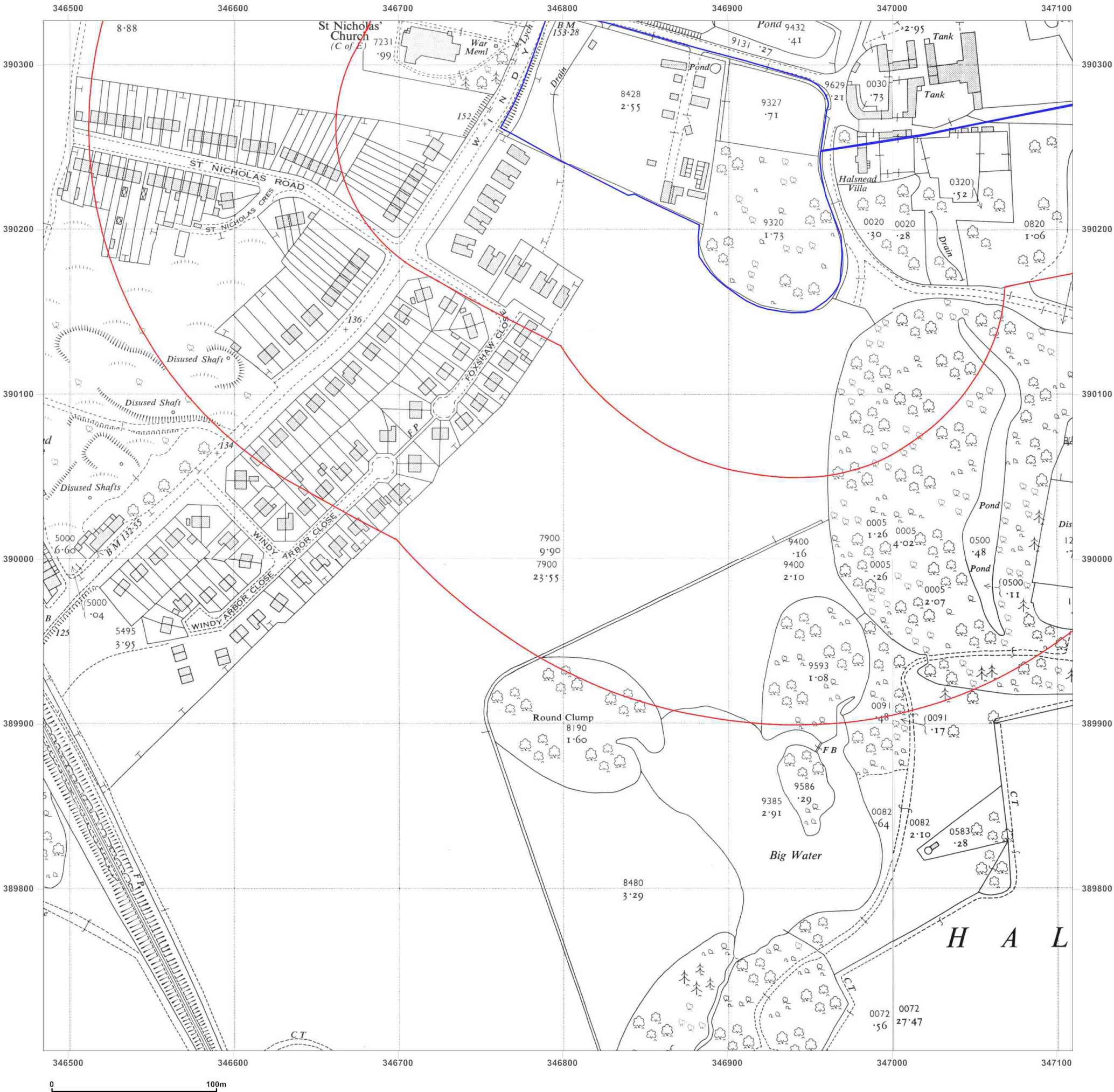


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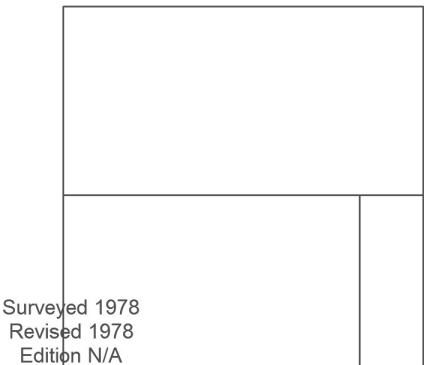
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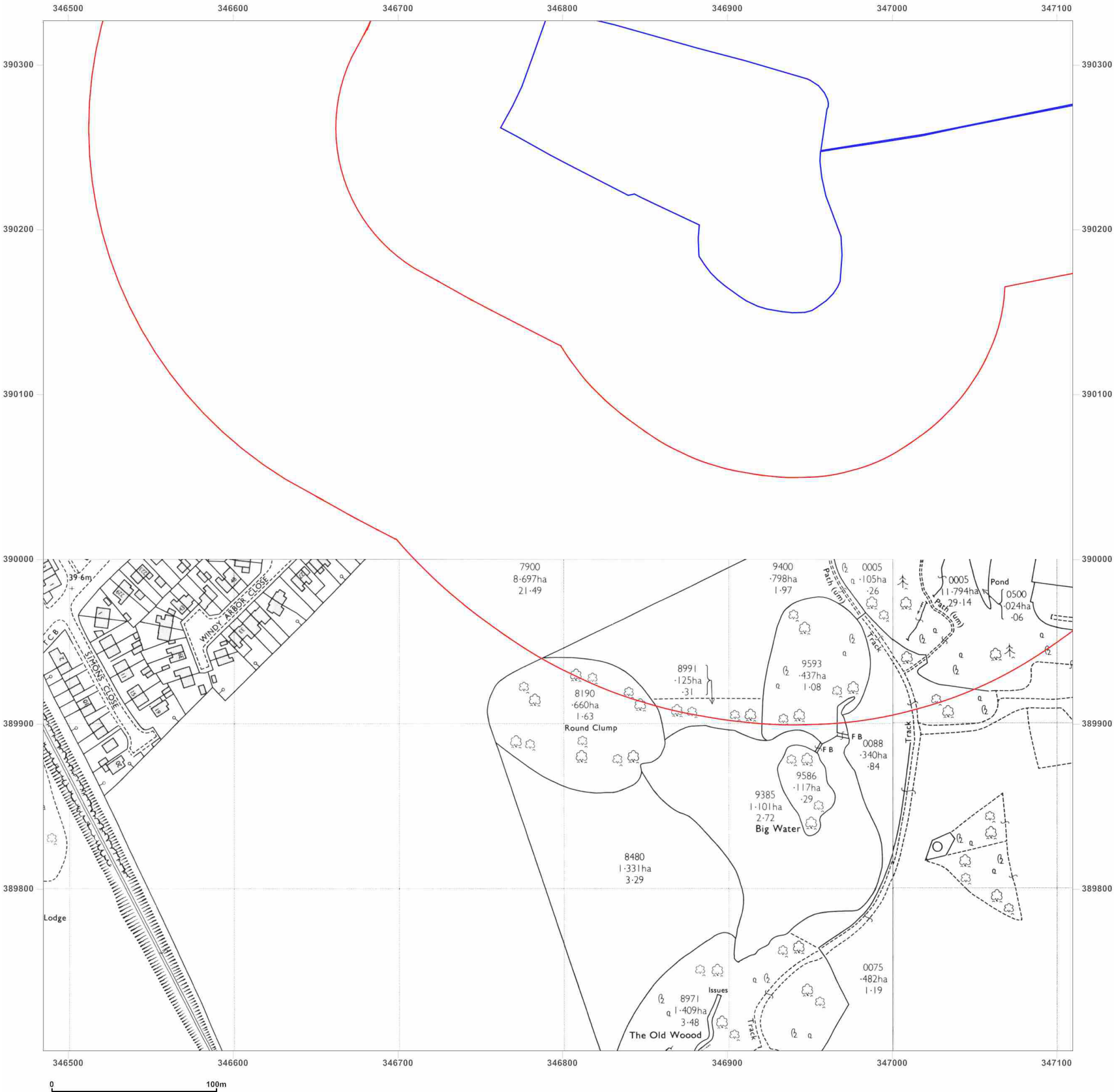


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Map Name: National Grid

Map date: 1980-1985

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Map Name: National Grid
Map date: 1986-1989
Scale: 1:2,500
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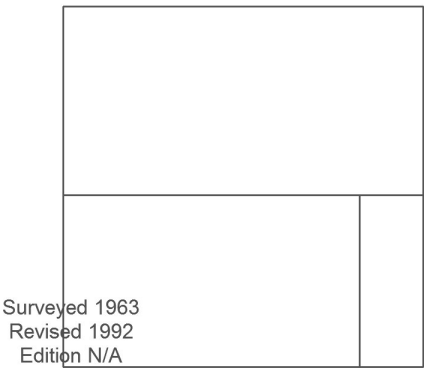
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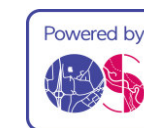
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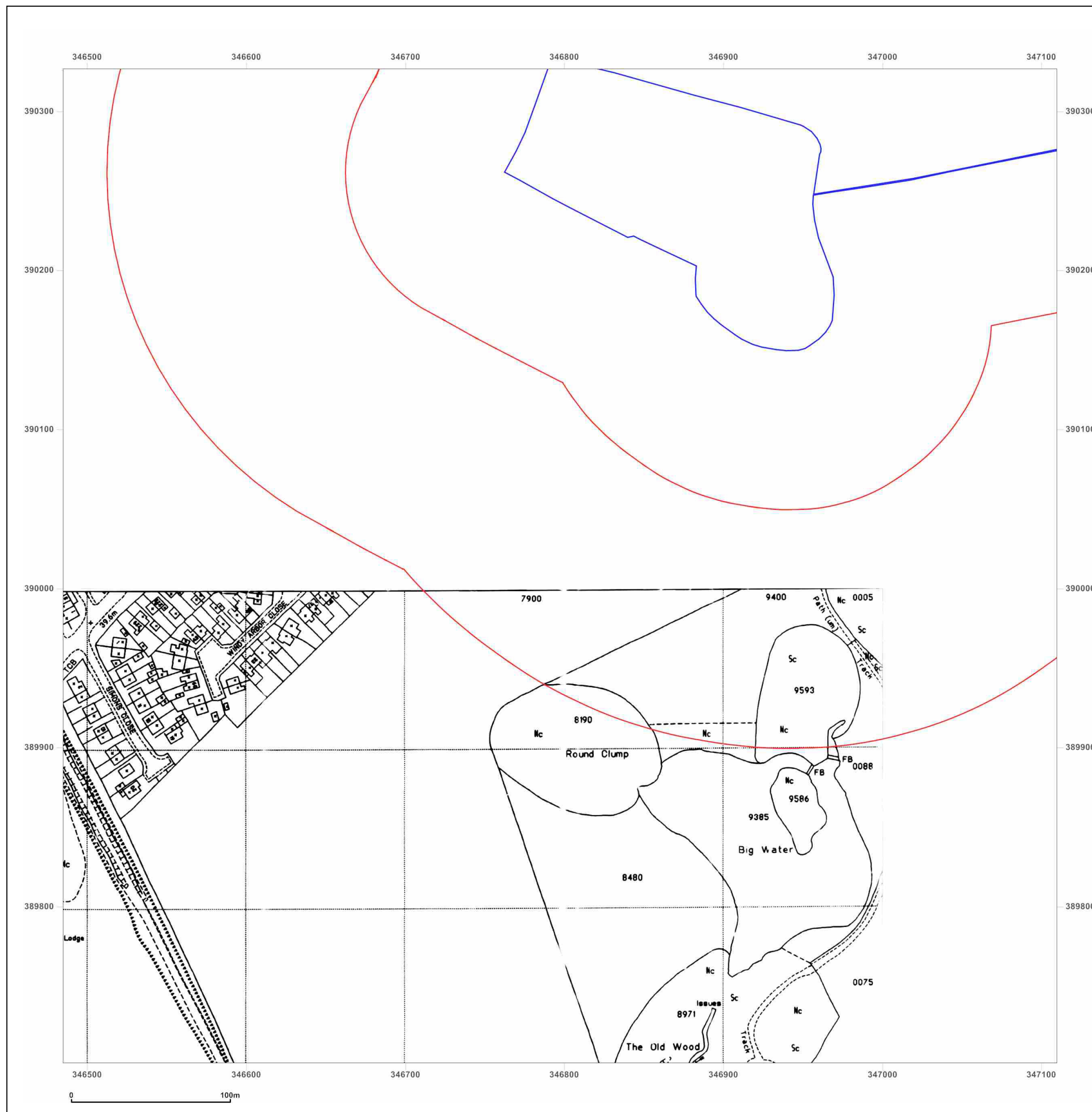


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Grid Ref: 346797, 390640

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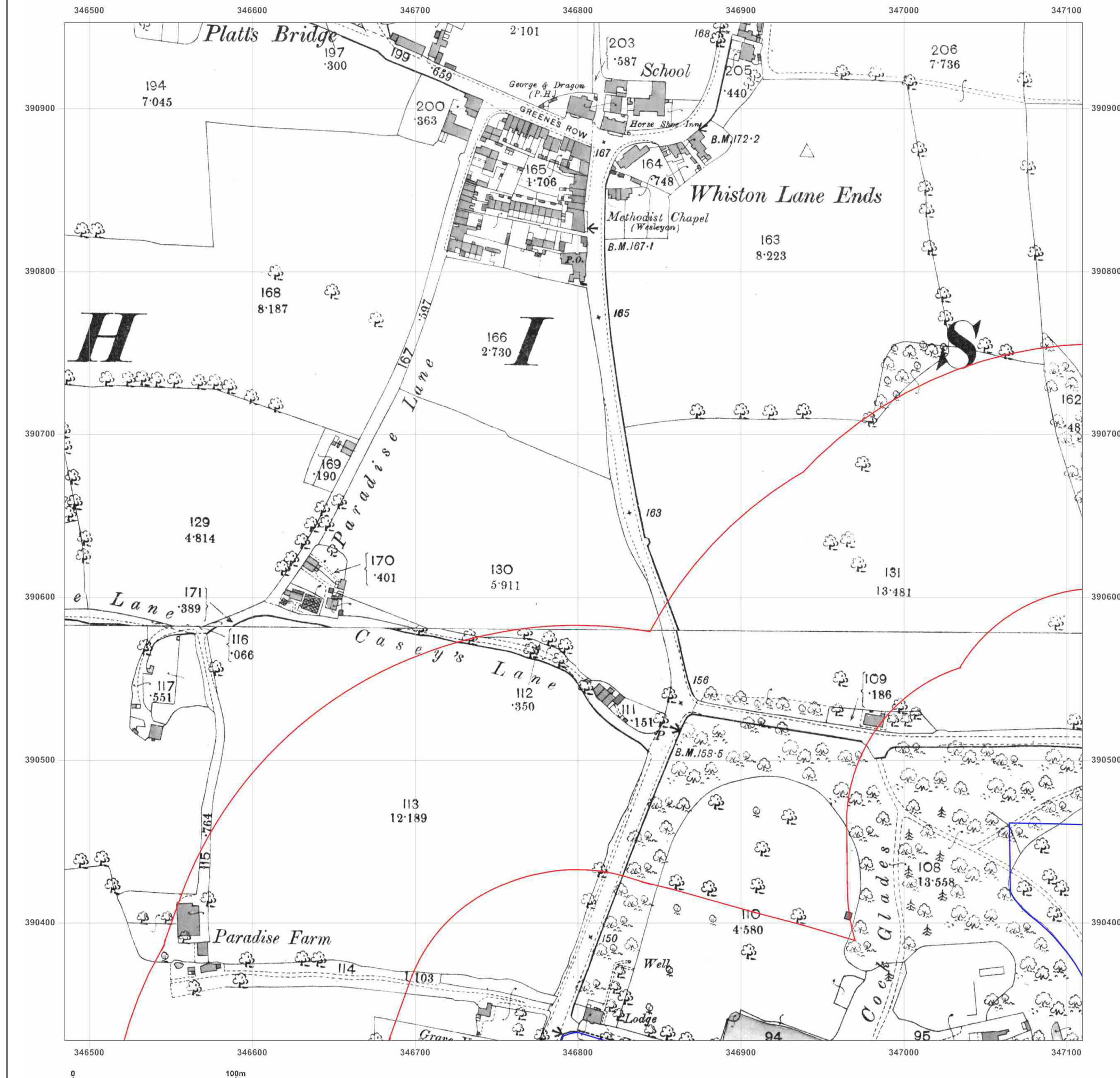


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Grid Ref: 346797, 390640

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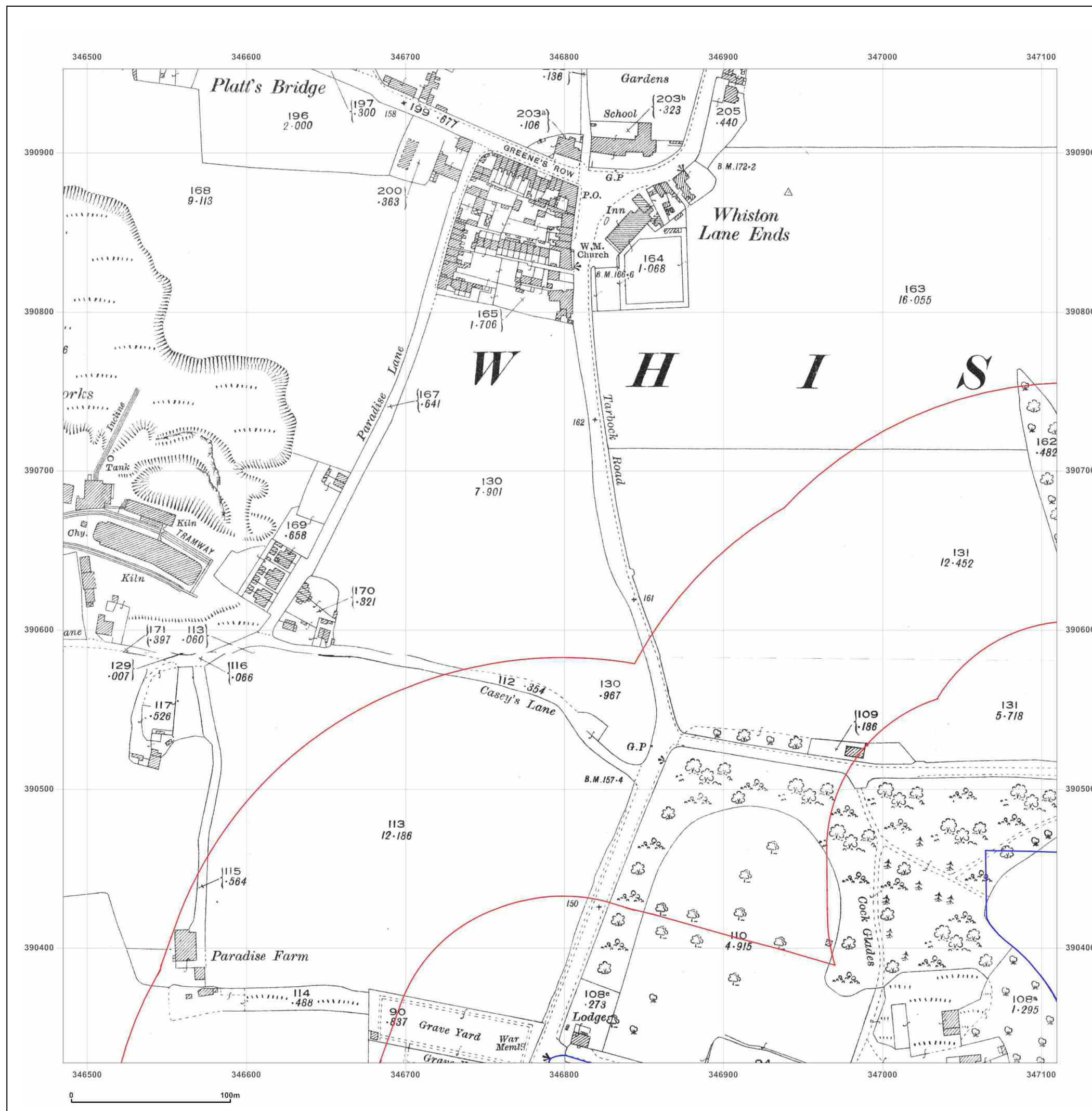


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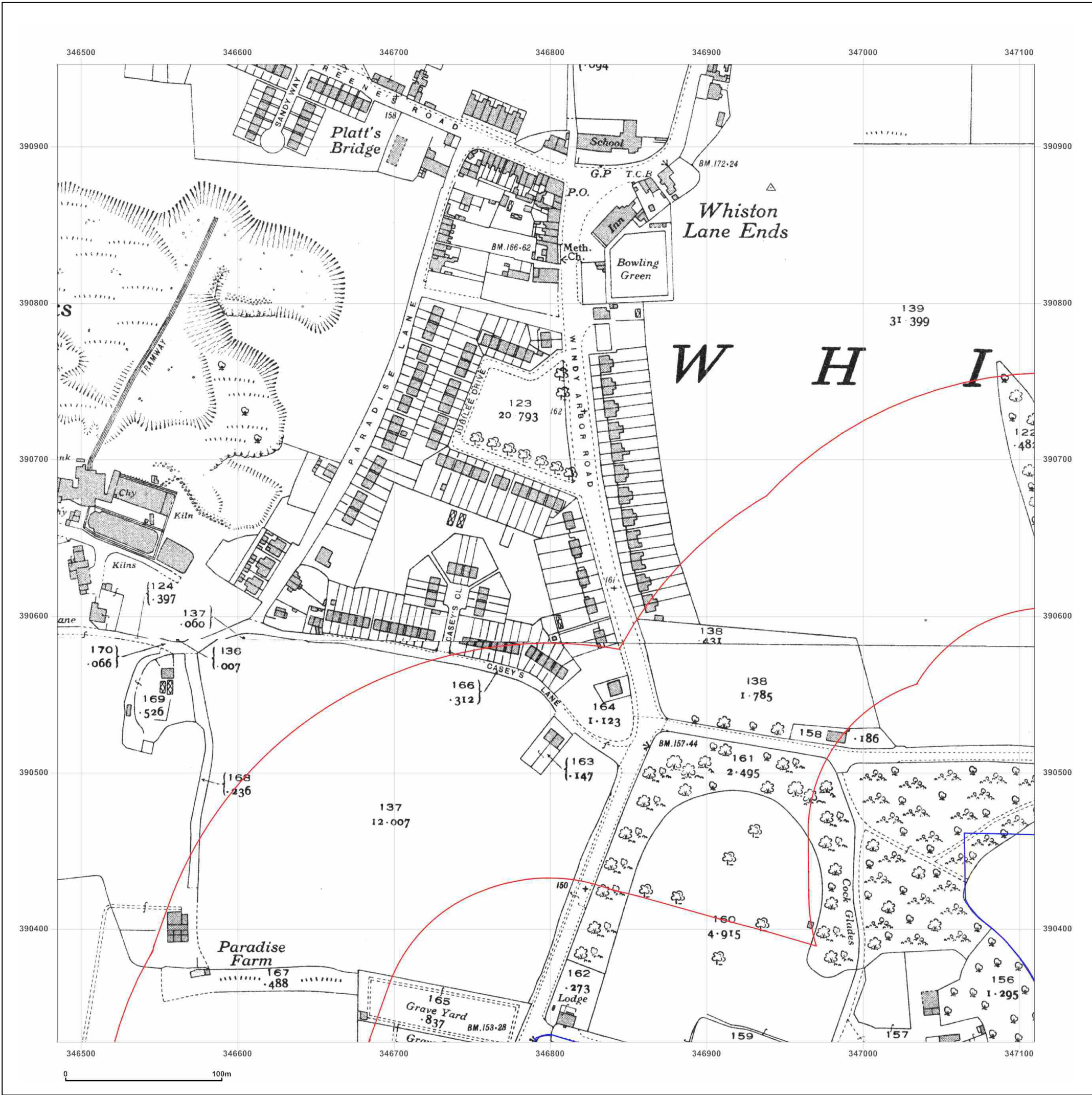


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Grid Ref: 346797, 390640

Map Name: National Grid

Map date: 1958

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Report Ref: EMS-418542_559267_LS_2_1
Grid Ref: 347422, 390014

Map Name: County Series

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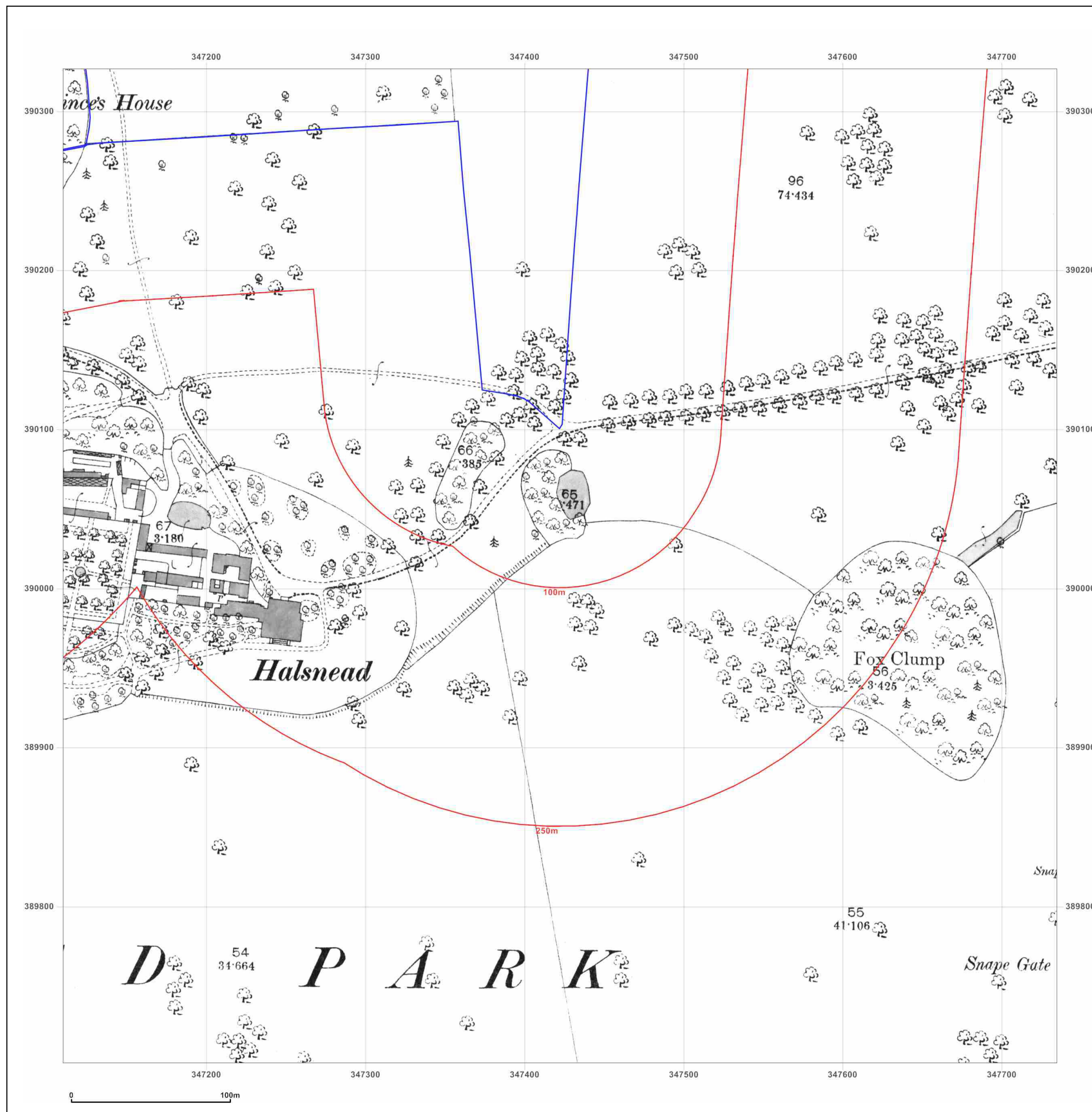


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Report Ref: EMS-418542_559267_LS_2_1
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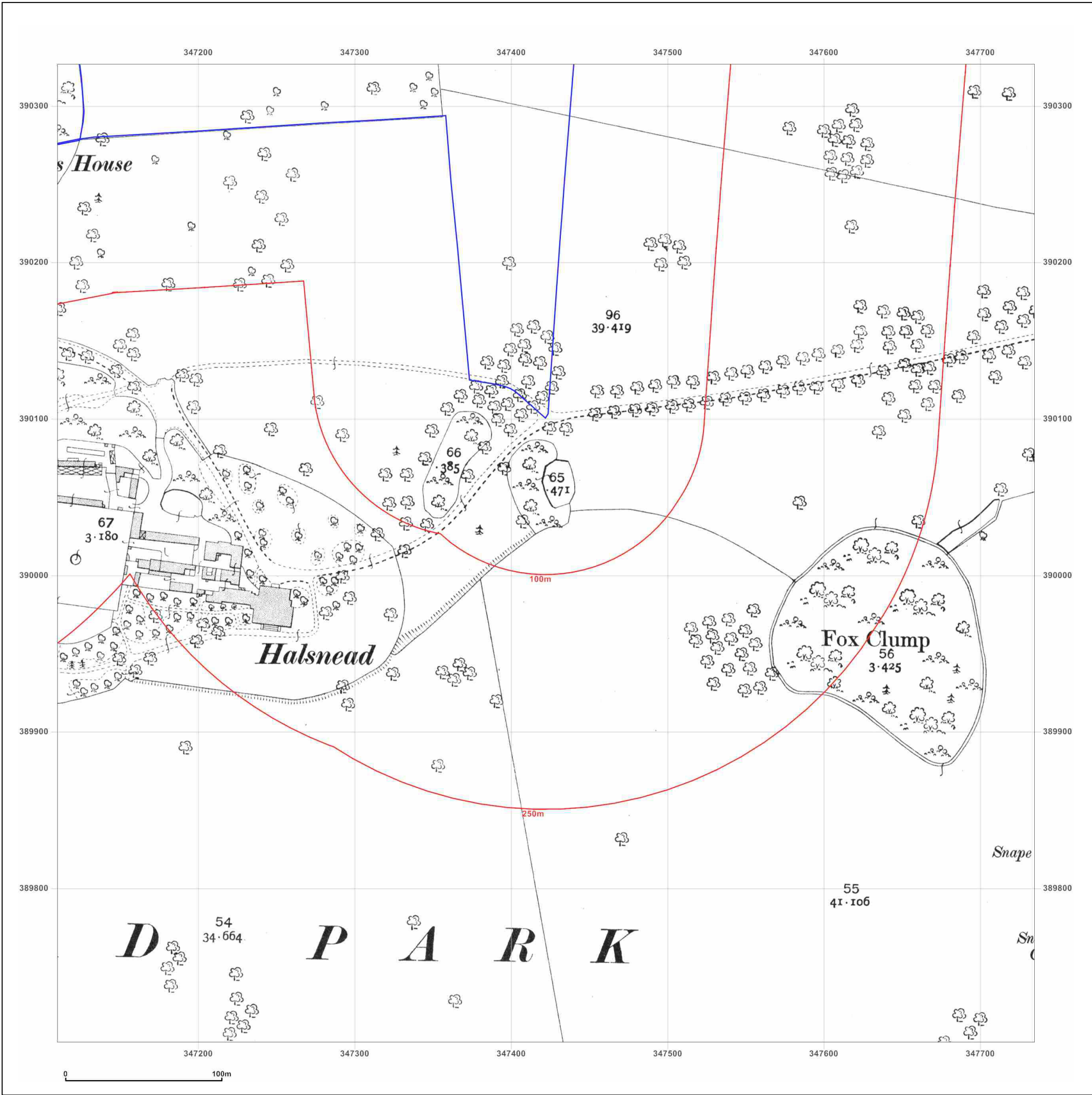


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Report Ref: EMS-418542_559267_LS_2_1
Grid Ref: 347422, 390014

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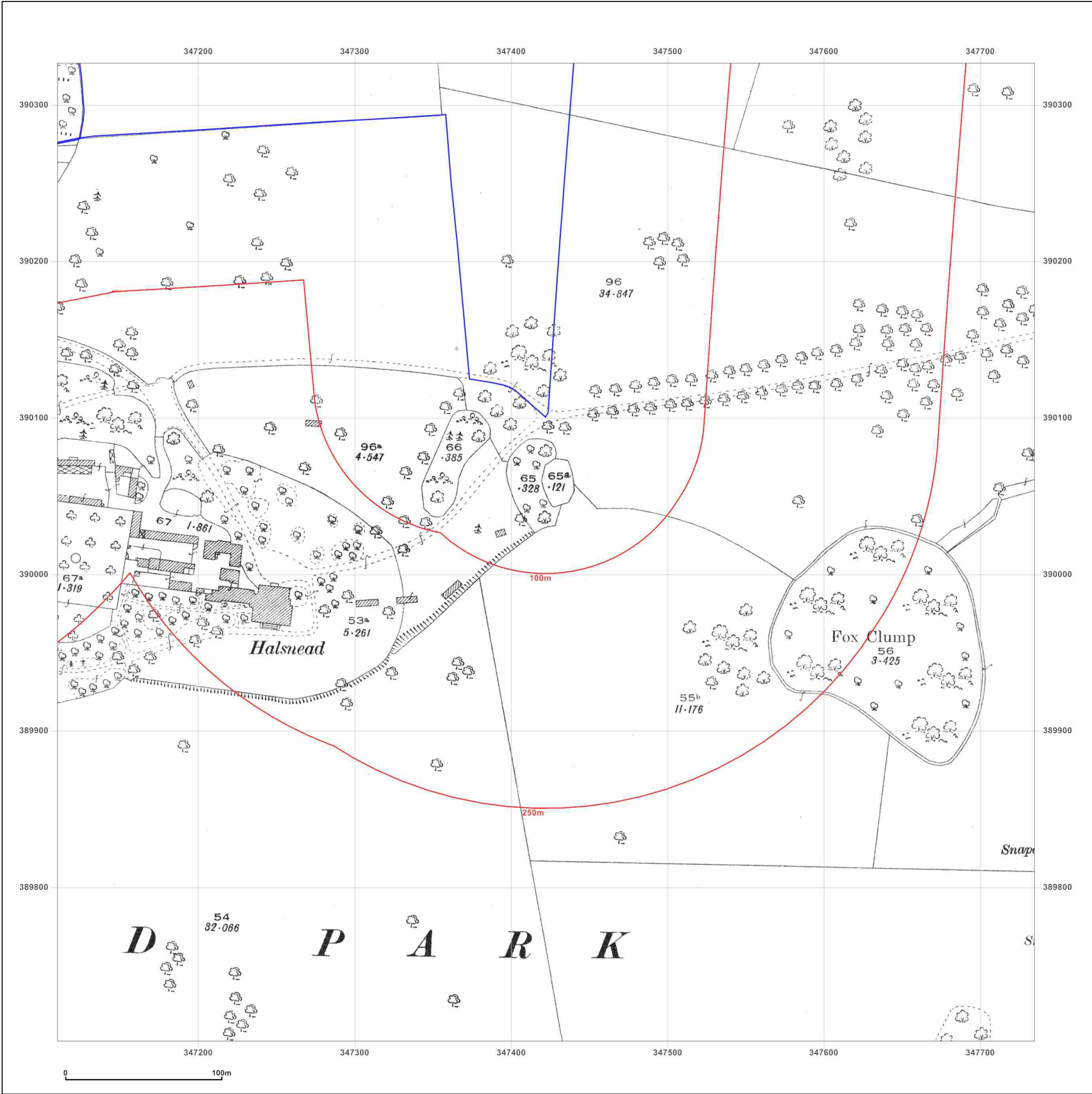


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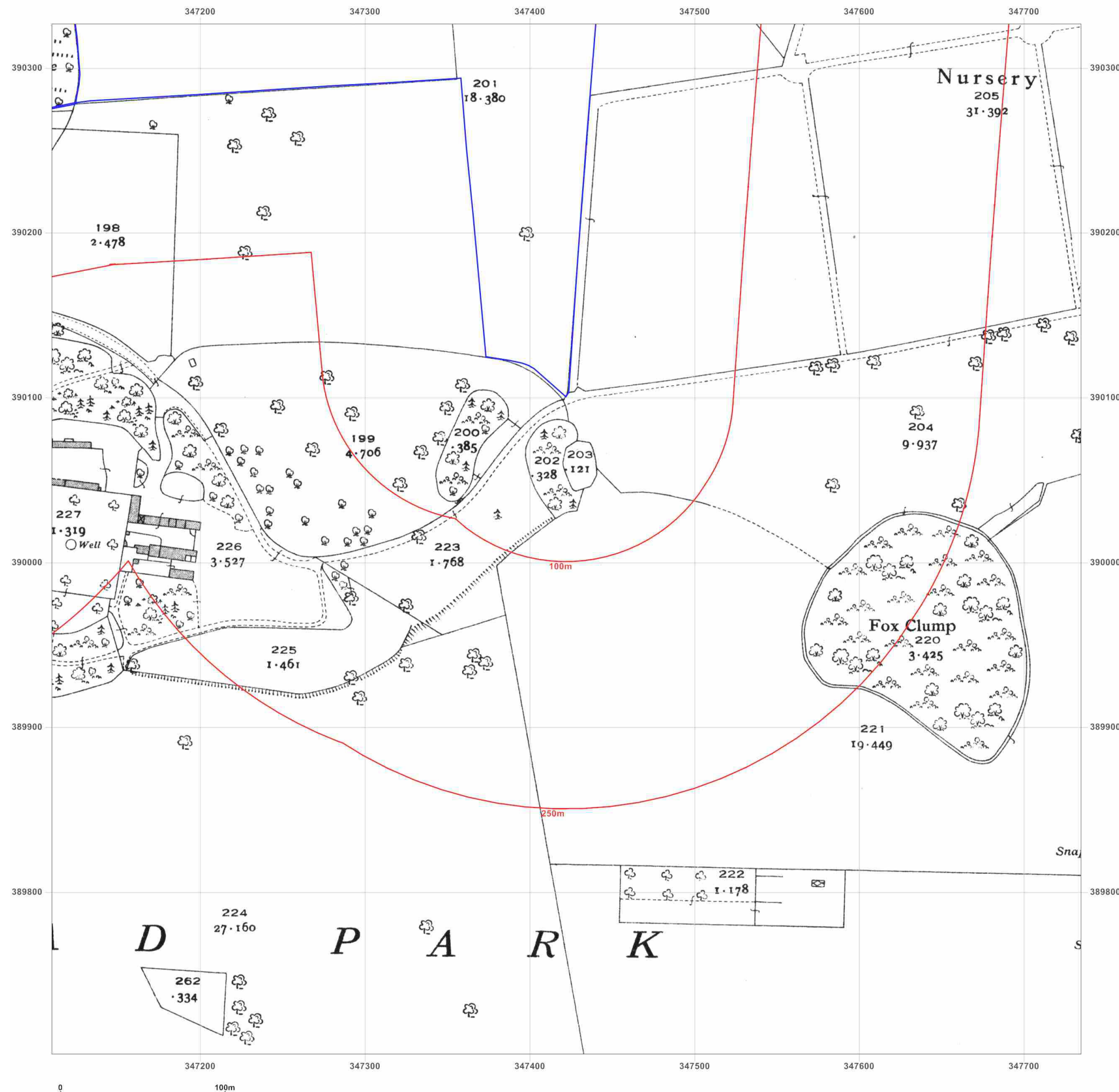


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Levelled 1926

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1957



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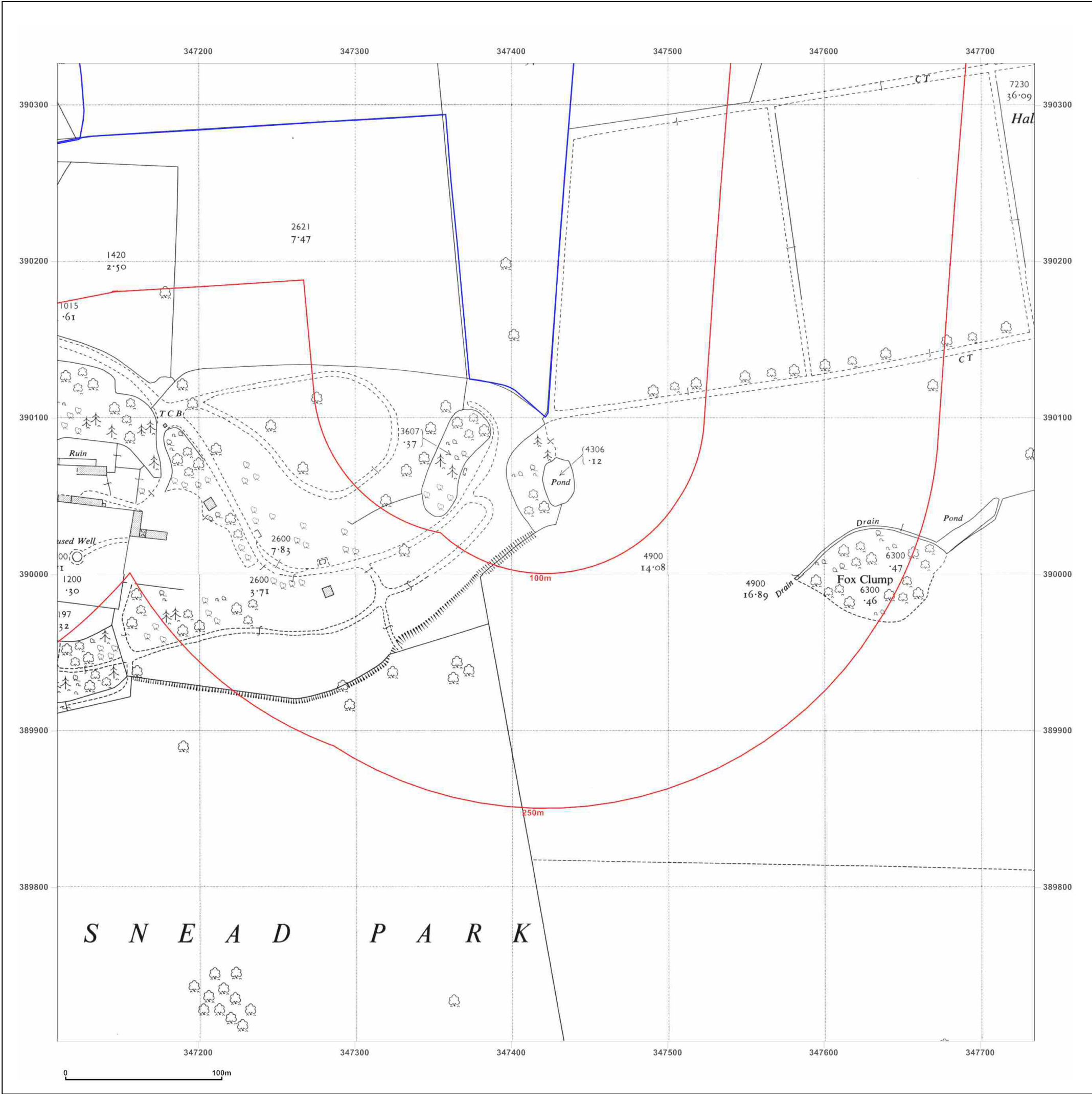


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Site Details:

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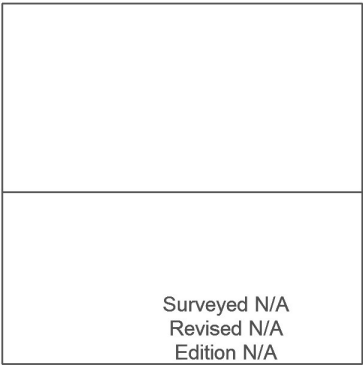
Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_1
Grid Ref: 347422, 390014

Map Name: National Grid

Map date: 1980

Scale: 1:2,500

Printed at: 1:2,500



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



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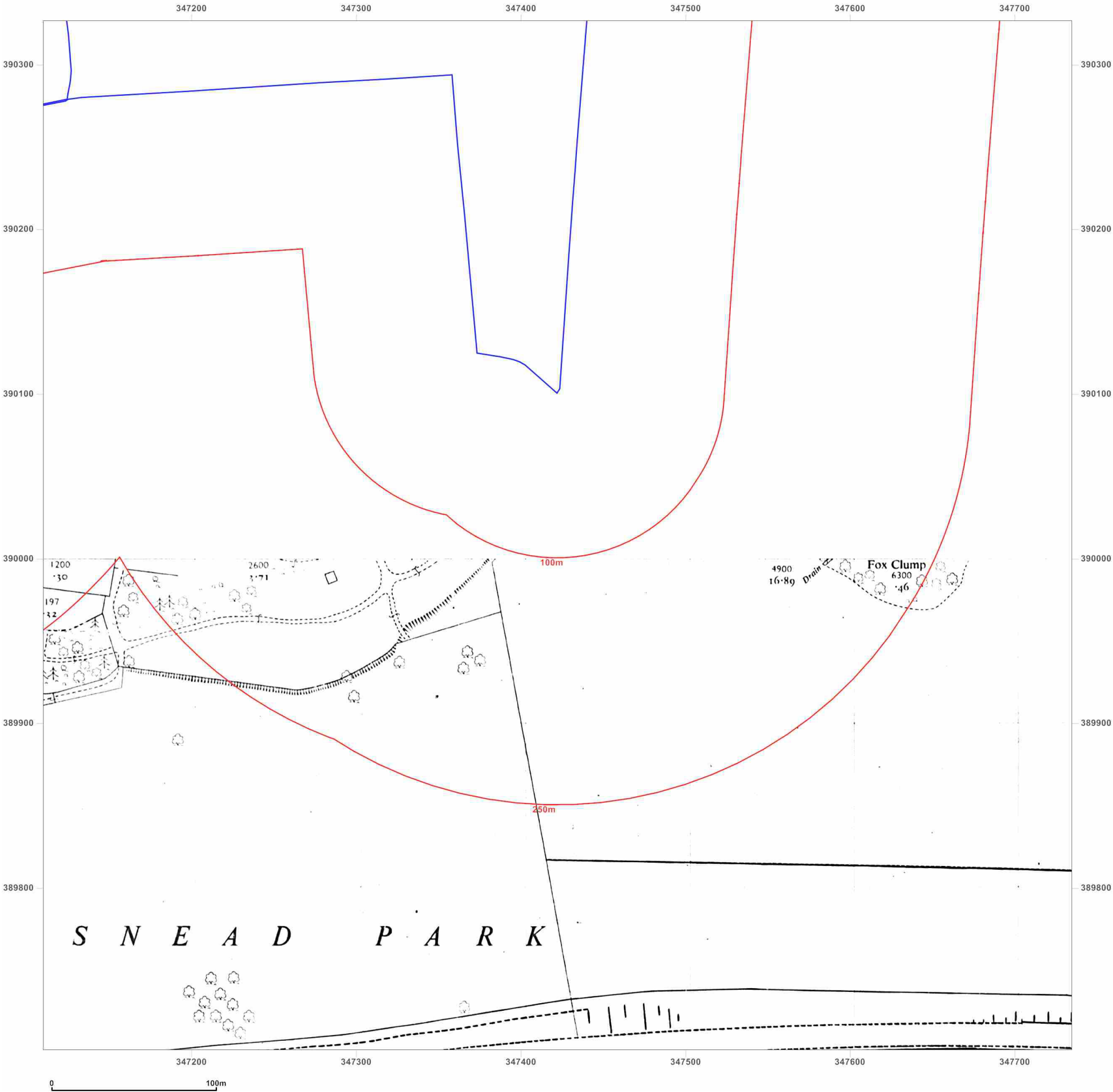


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_1
Grid Ref: 347422, 390014

Map Name: National Grid

Map date: 1980-1985

Scale: 1:2,500

Printed at: 1:2,500



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Levelled 1963

Surveyed 1980
Revised 1980
Edition N/A
Copyright 1981
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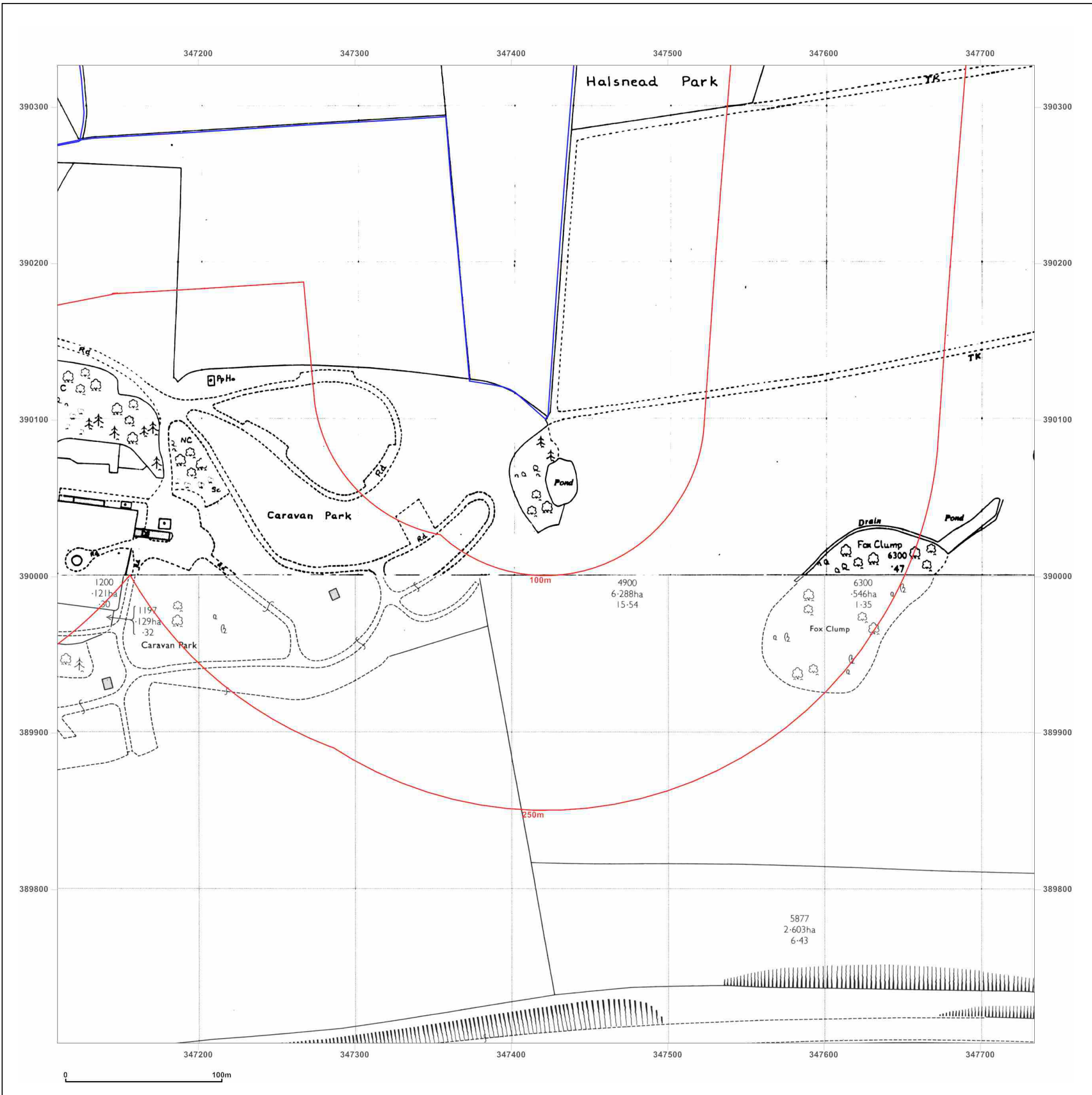


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_1
Grid Ref: 347422, 390014

Map Name: National Grid

Map date: 1986-1989

Scale: 1:2,500

Printed at: 1:2,500



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Surveyed 1963
Revised 1989
Edition N/A
Copyright 1989
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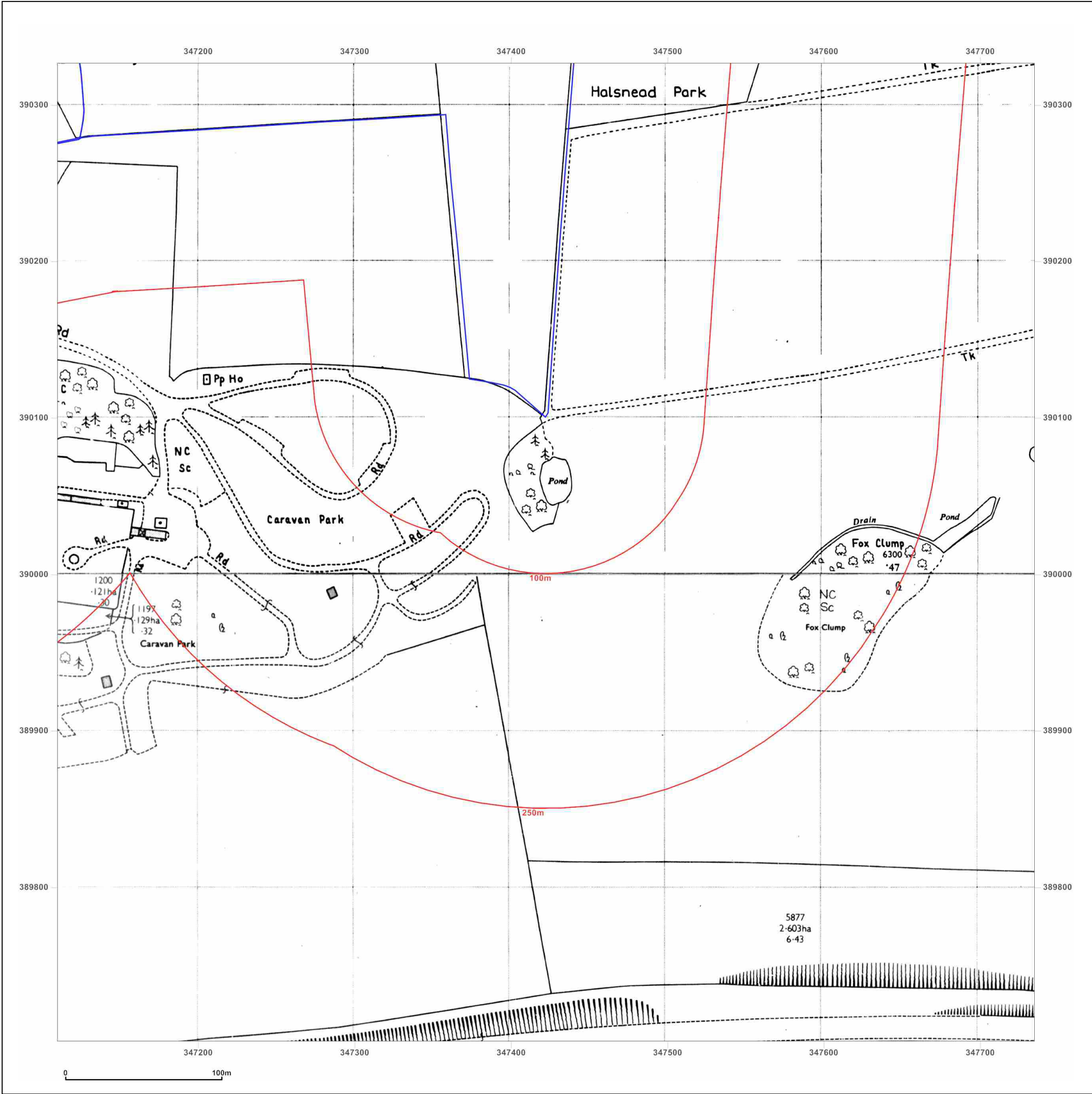


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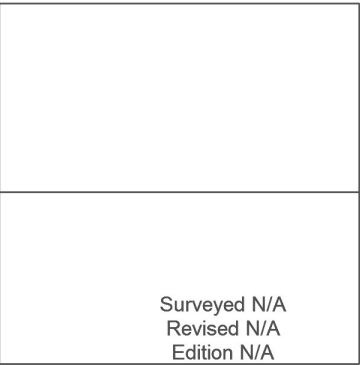
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Report Ref: EMS-418542_559267_LS_2_1
Grid Ref: 347422, 390014

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
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Edition N/A
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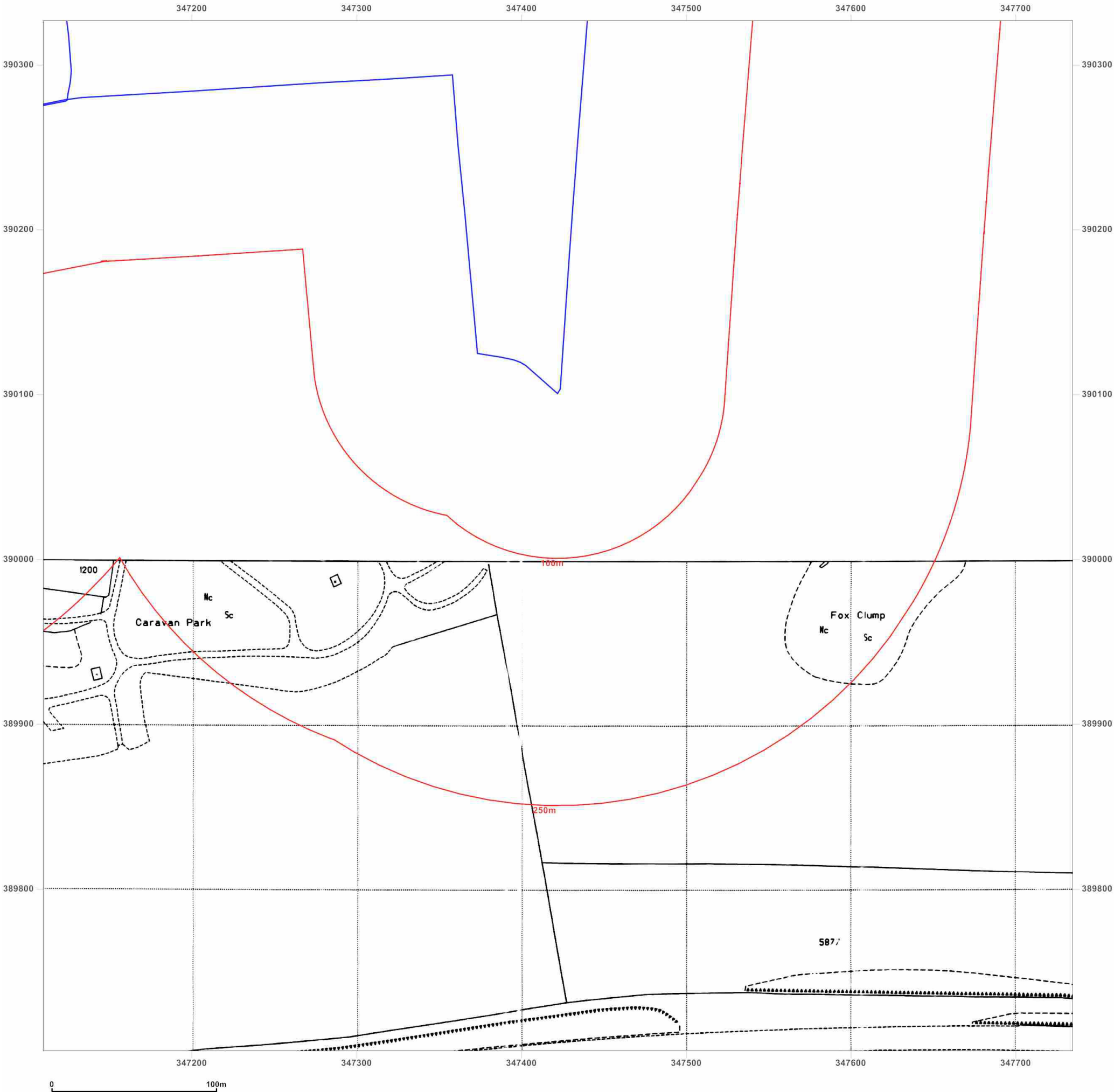


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_2
Grid Ref: 347422, 390640

Map Name: County Series

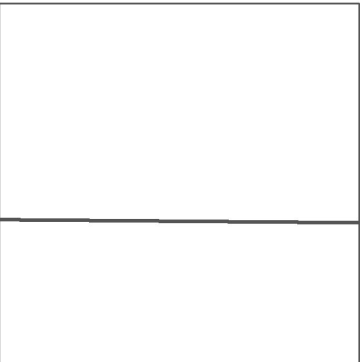
Map date: 1892

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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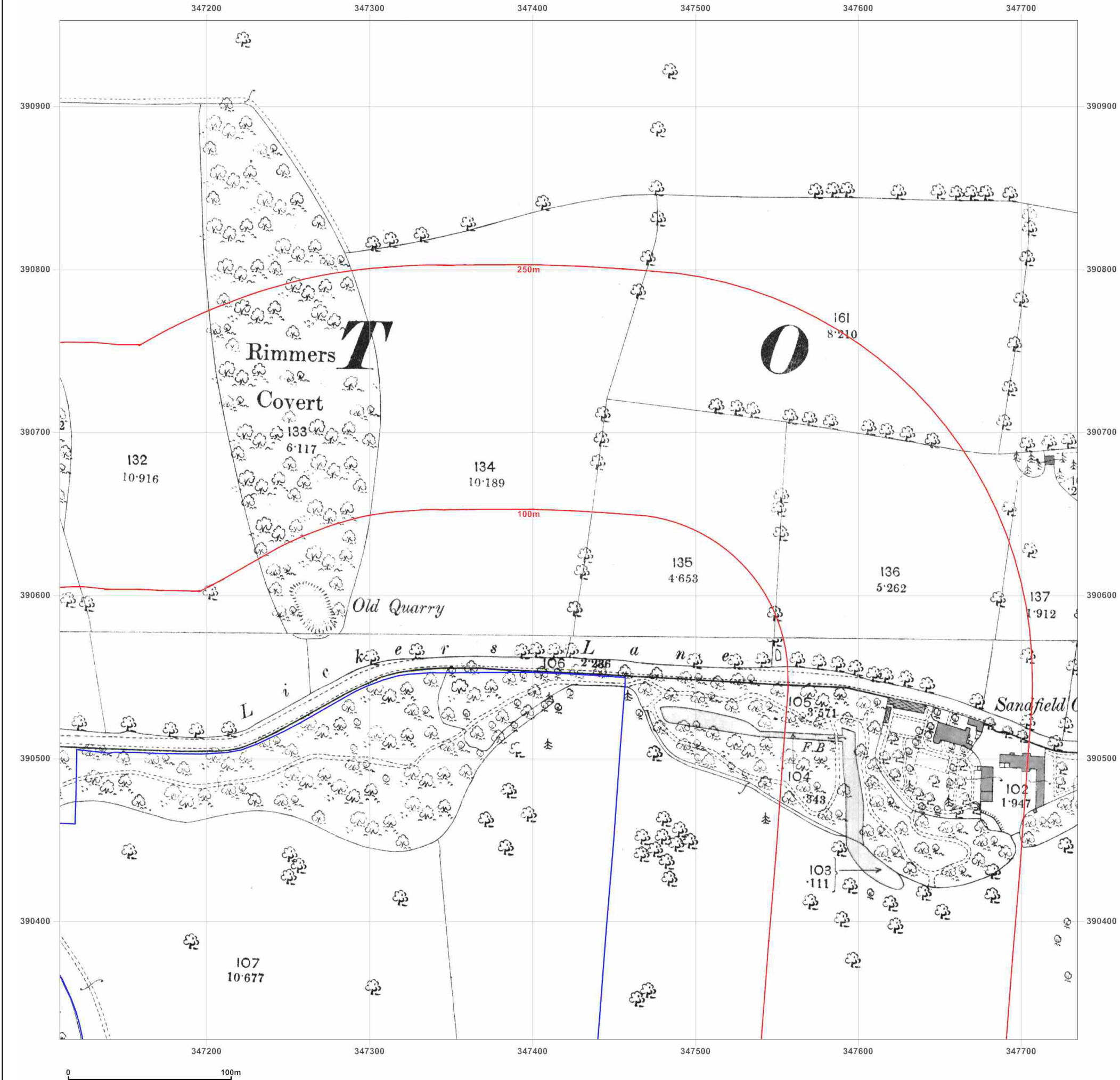


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_2
Grid Ref: 347422, 390640

Map Name: County Series

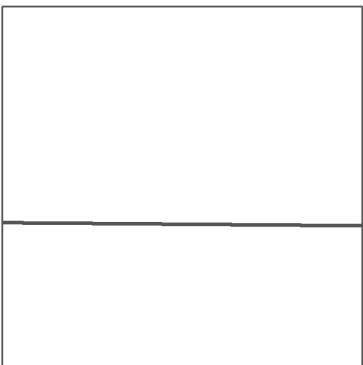
Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1907
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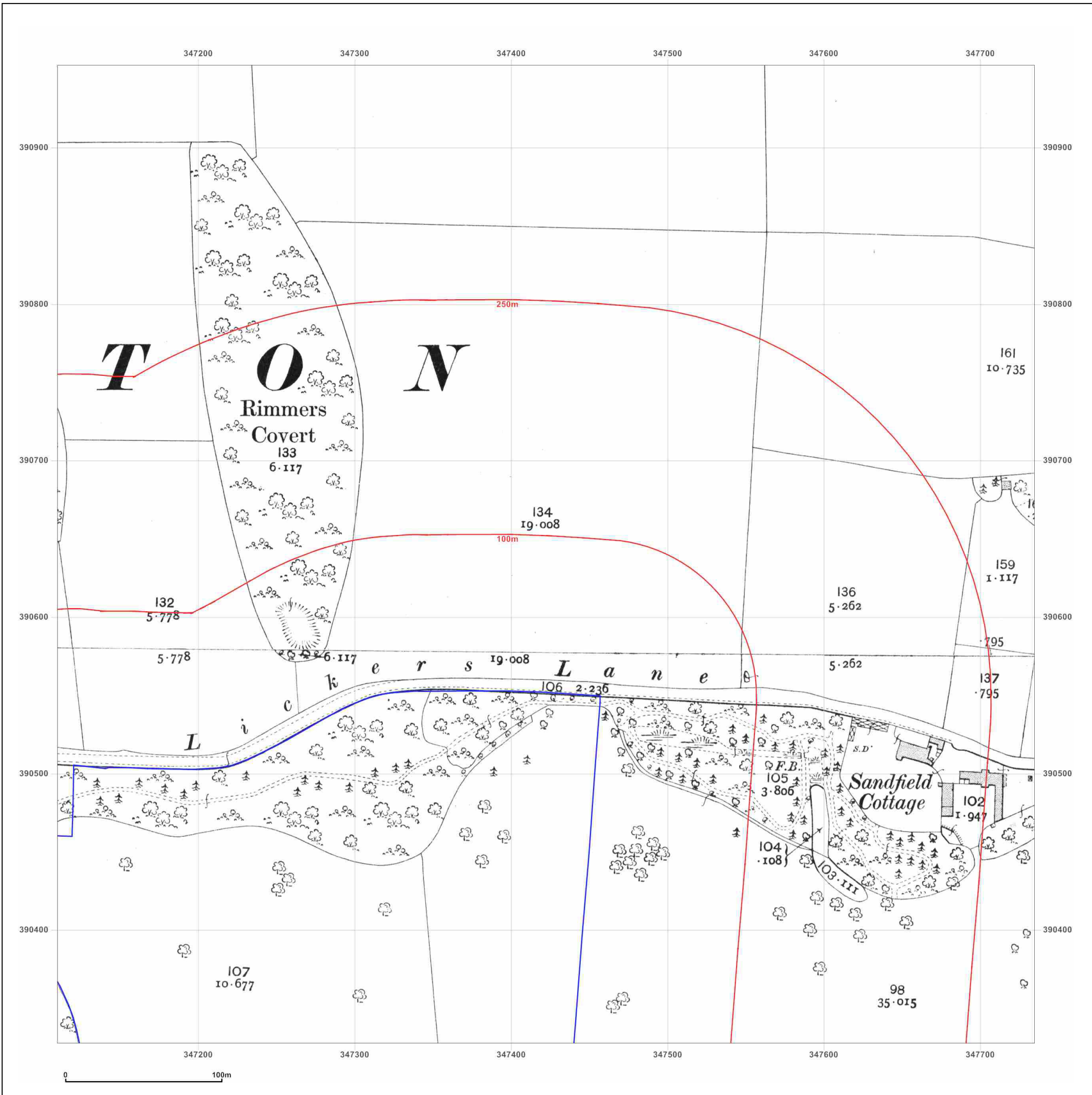


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_2
Grid Ref: 347422, 390640

Map Name: County Series

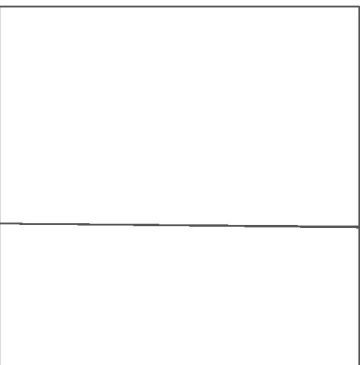
Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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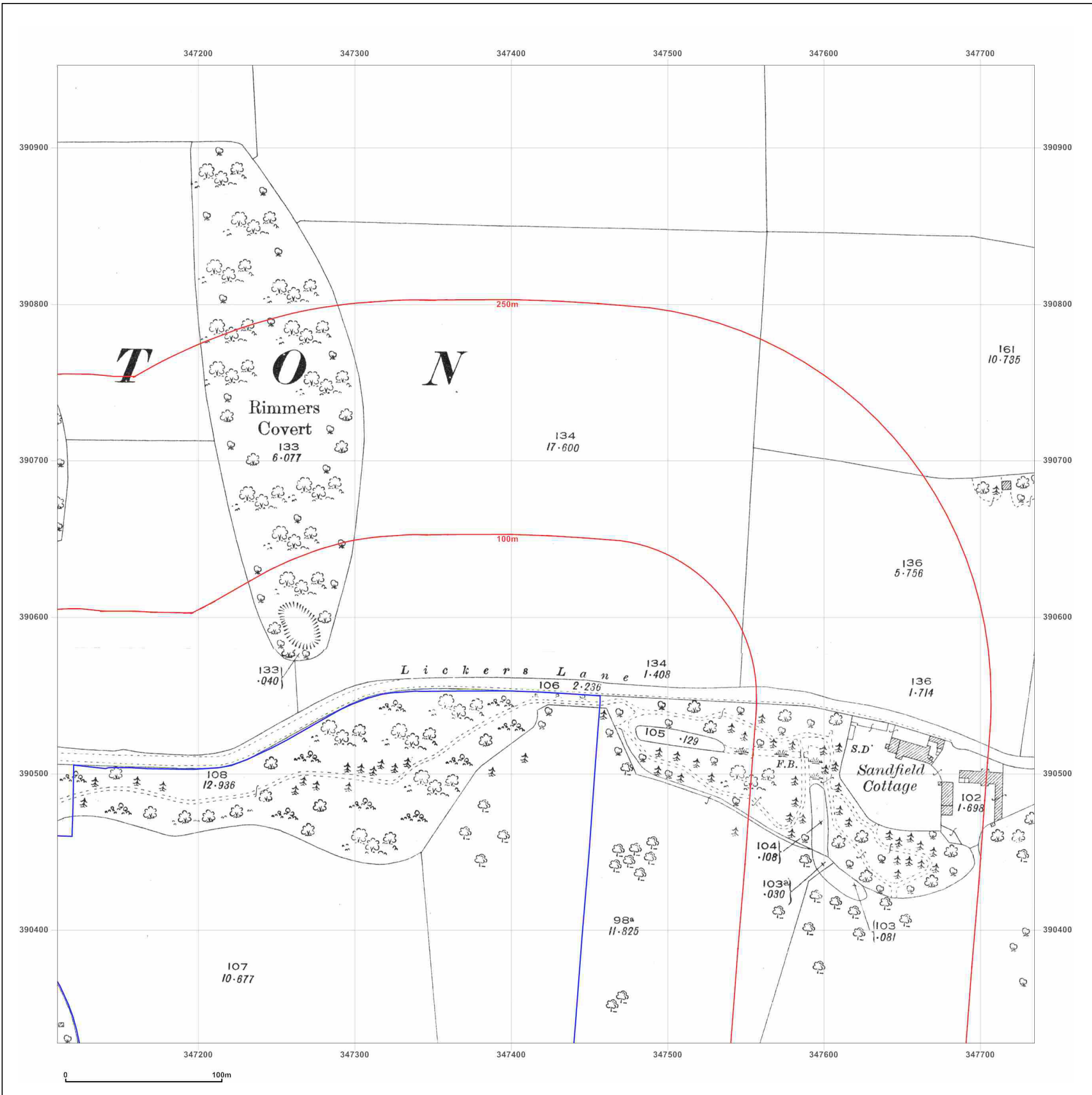


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_2
Grid Ref: 347422, 390640

Map Name: County Series

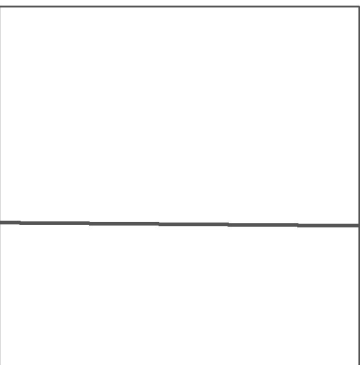
Map date: 1937

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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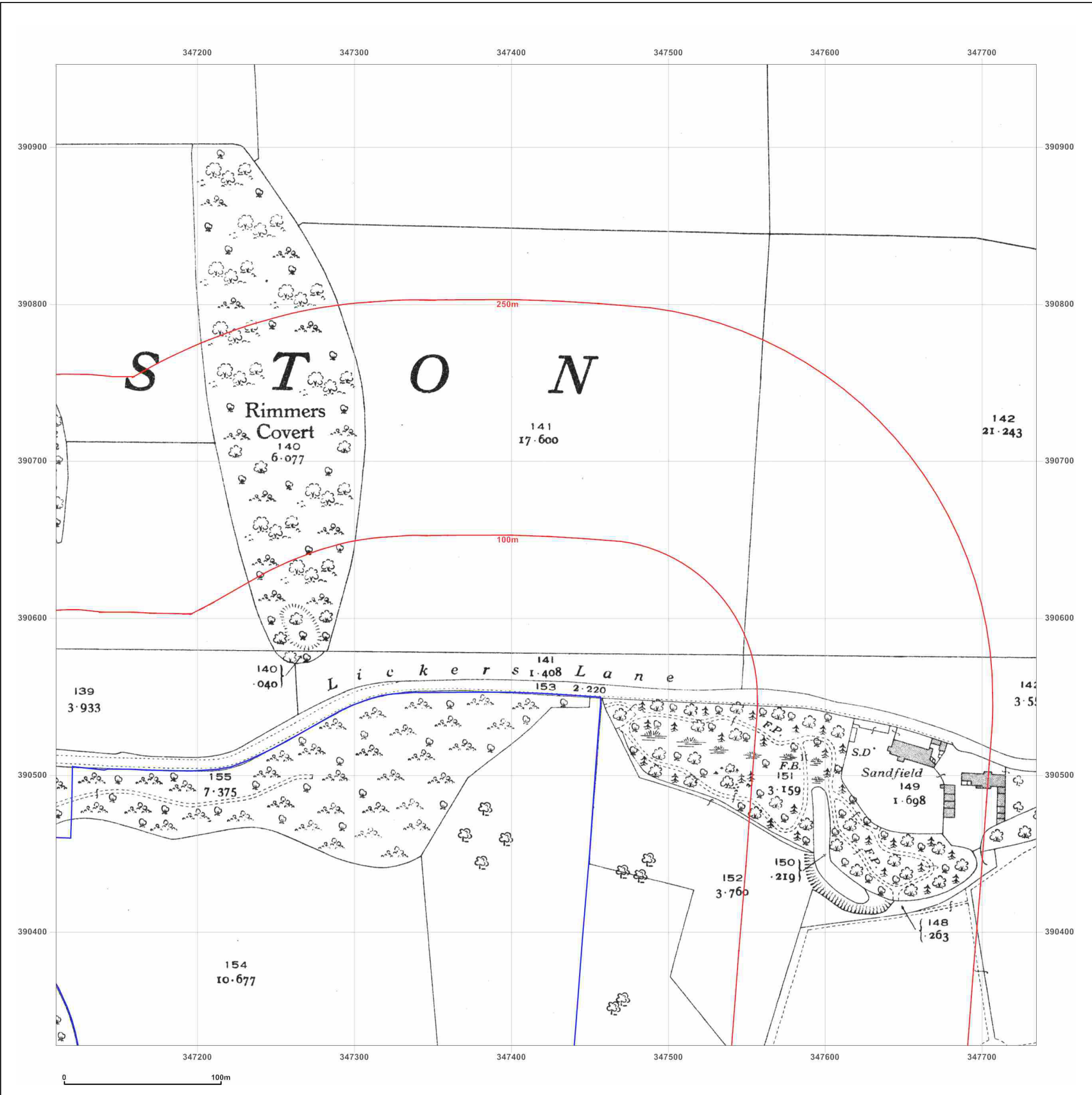


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Site Details:

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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_2
Grid Ref: 347422, 390640

Map Name: National Grid

Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
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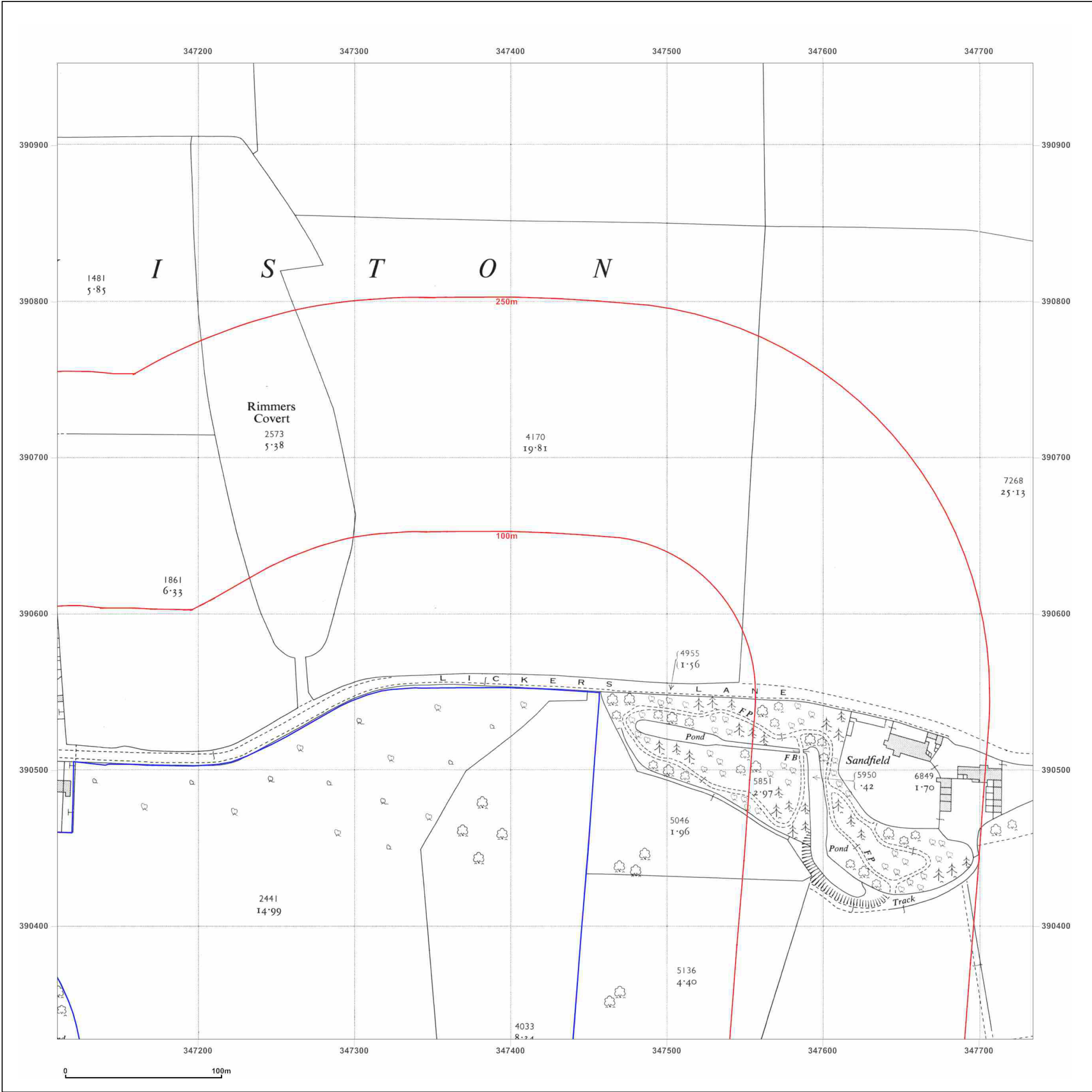


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_2
Grid Ref: 347422, 390640

Map Name: National Grid

Map date: 1985

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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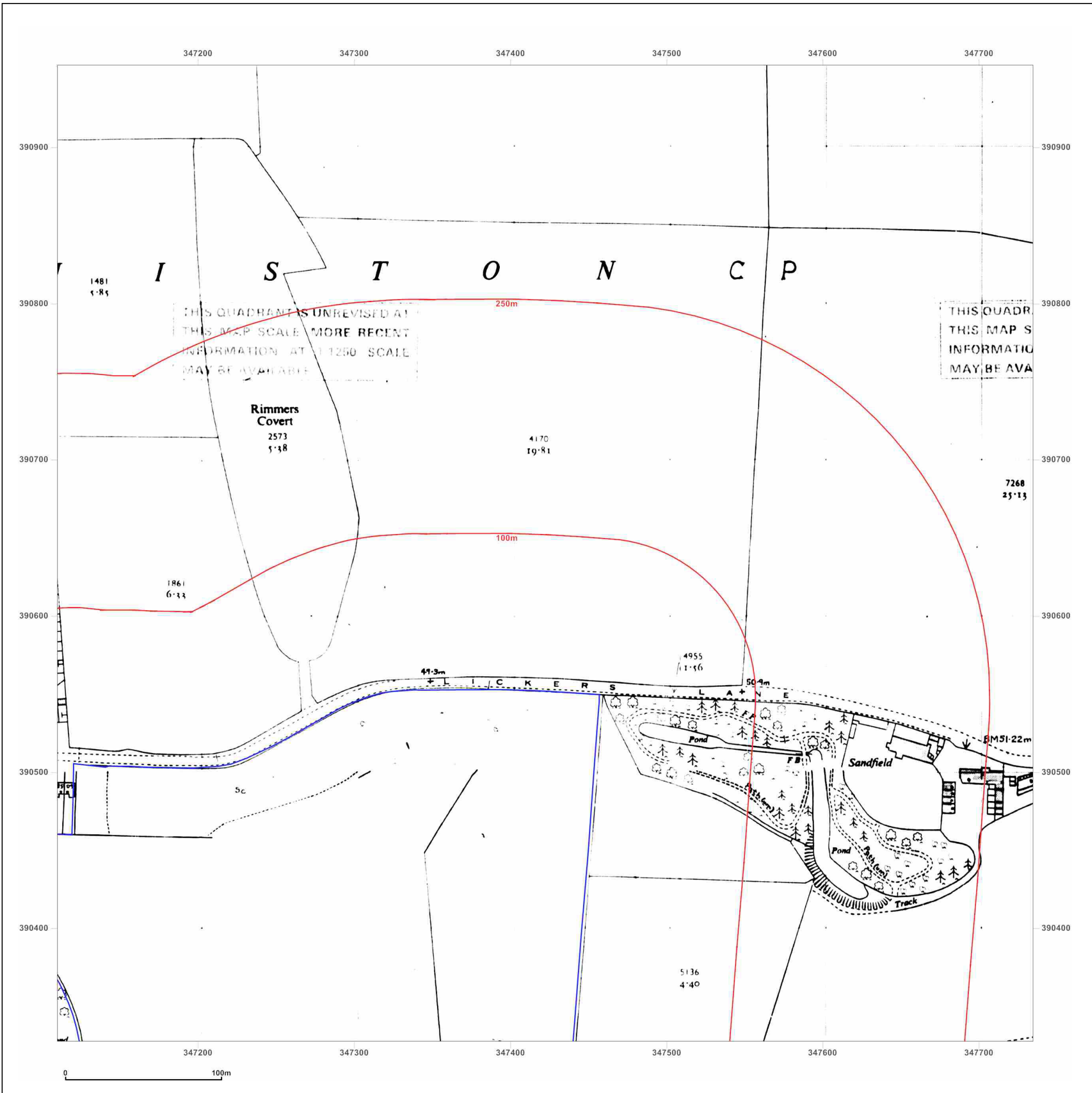


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_LS_2_2
Grid Ref: 347422, 390640

Map Name: National Grid

Map date: 1986

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1963
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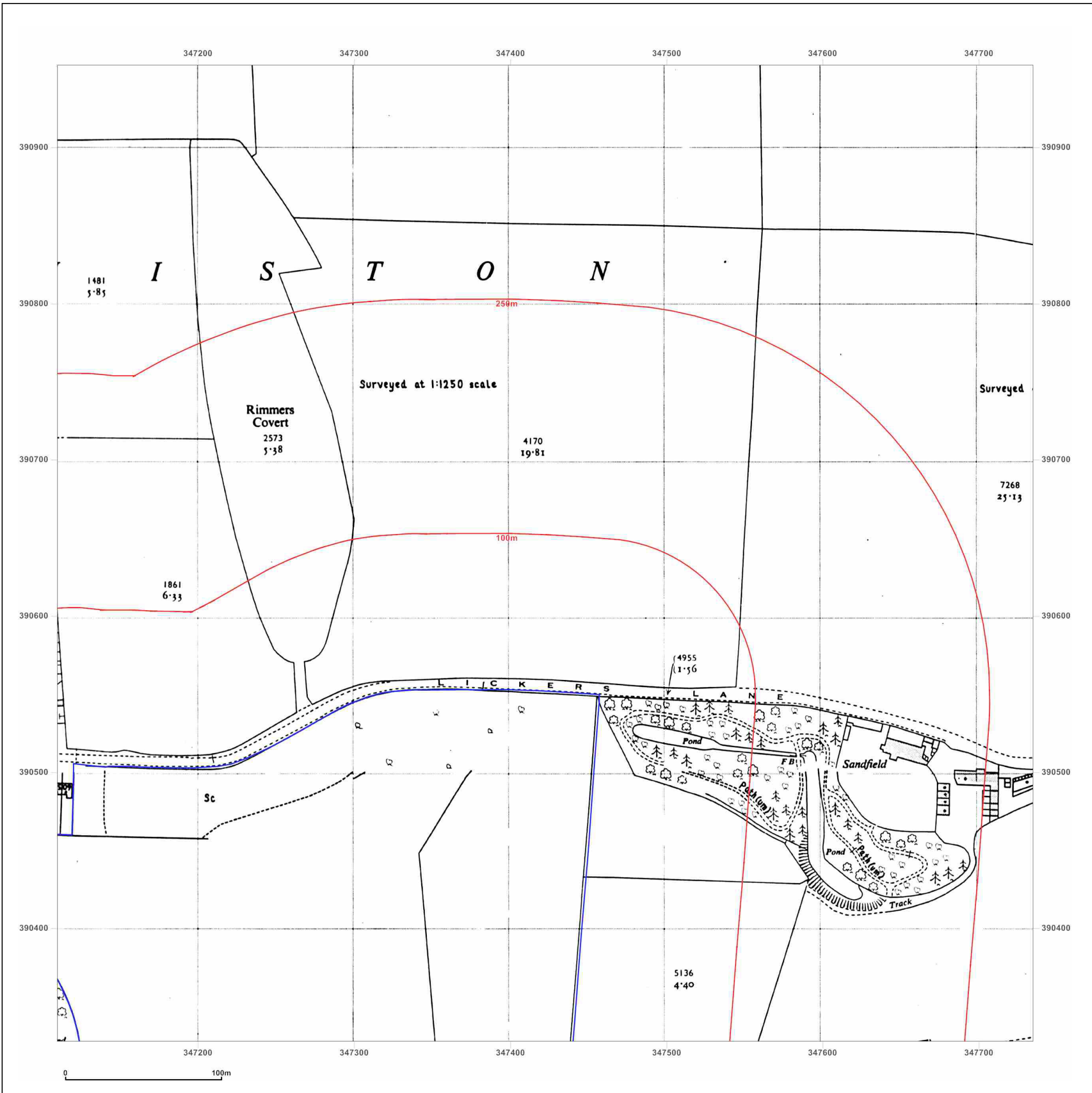


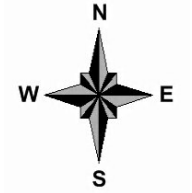
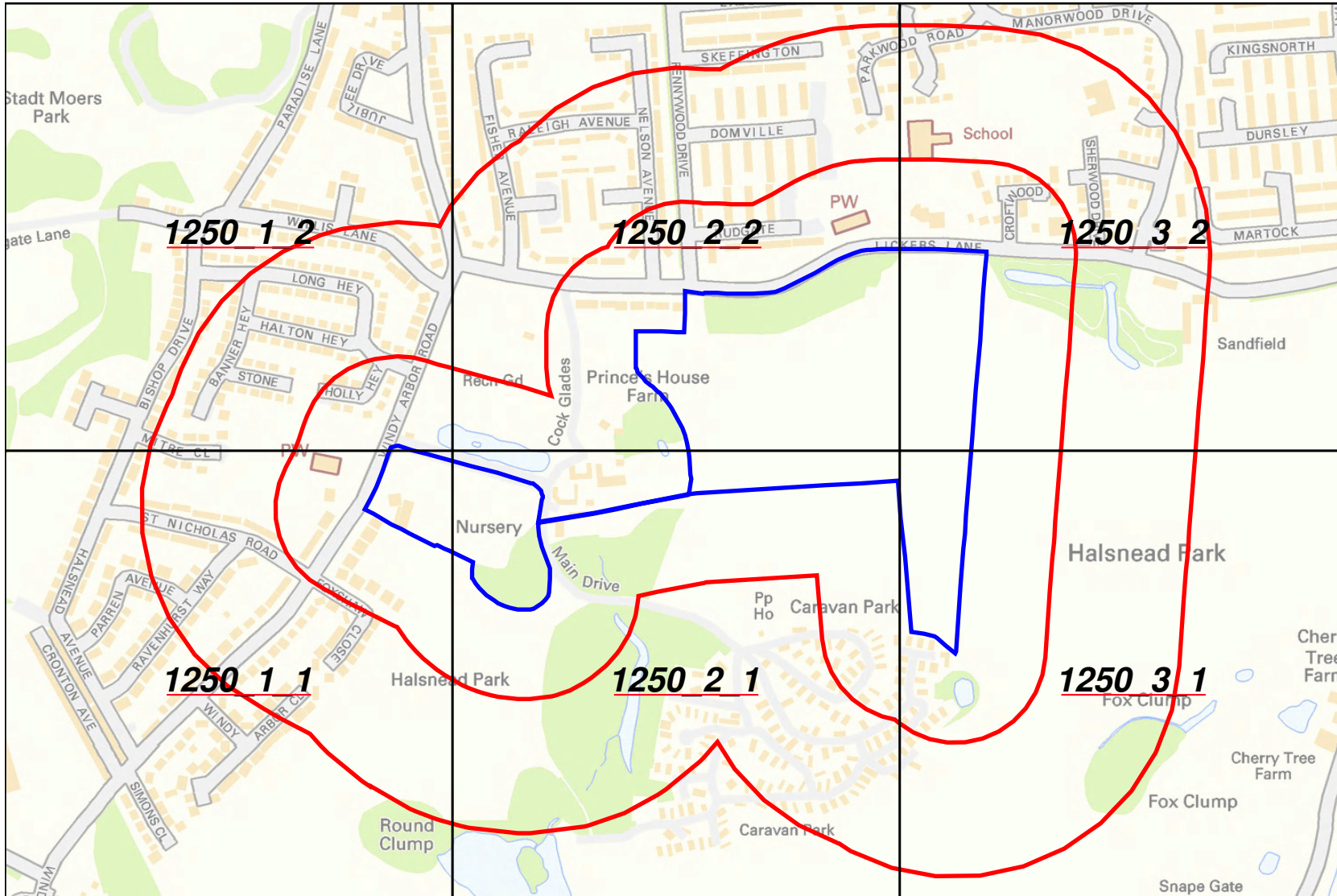
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1:1250 Scale Grid Index

Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_1
Grid Ref: 346610, 390077

Map Name: National Grid

Map date: 1973

Scale: 1:1,250

Printed at: 1:2,000



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Edition N/A
Copyright 1973
Levelled 1963

Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
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Site Details:
HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_1
Grid Ref: 346610, 390077

Map Name: National Grid
Map date: 1981-1984
Scale: 1:1,250
Printed at: 1:2,000



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

Surveyed 1963
Revised 1984
Edition N/A
Copyright 1984
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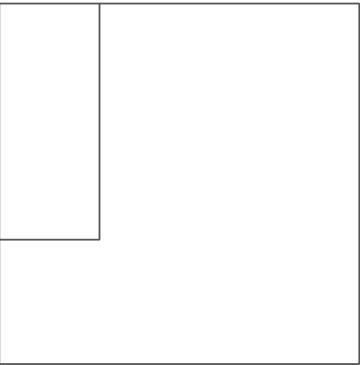
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_1
Grid Ref: 346610, 390077

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



Surveyed 1957
Revised 1987
Edition N/A
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Levelled 1957



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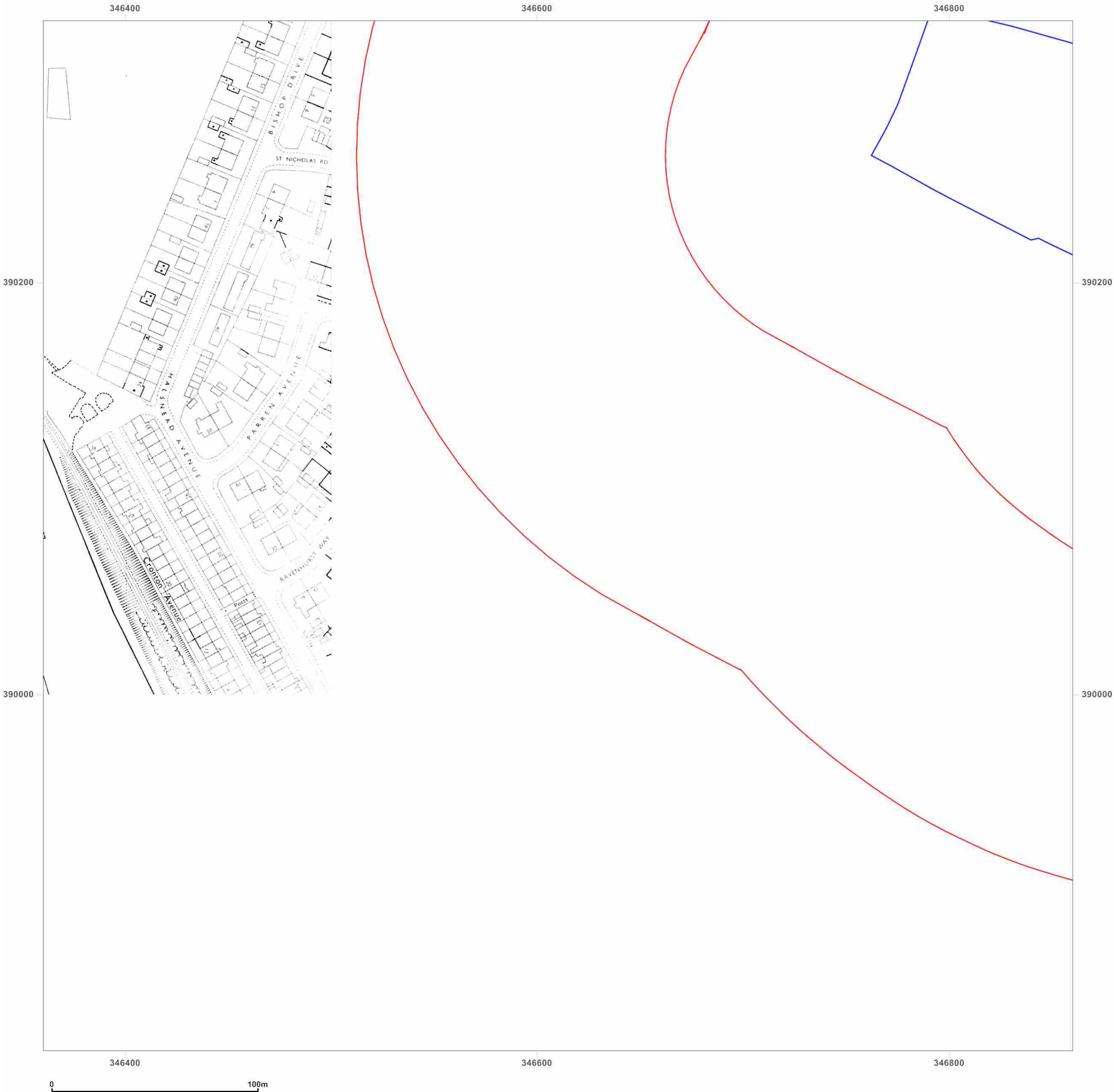


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_1
Grid Ref: 346610, 390077

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed N/A
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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_1
Grid Ref: 346610, 390077

Map Name: National Grid

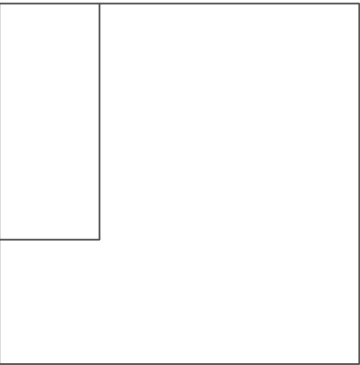
Map date: 1994

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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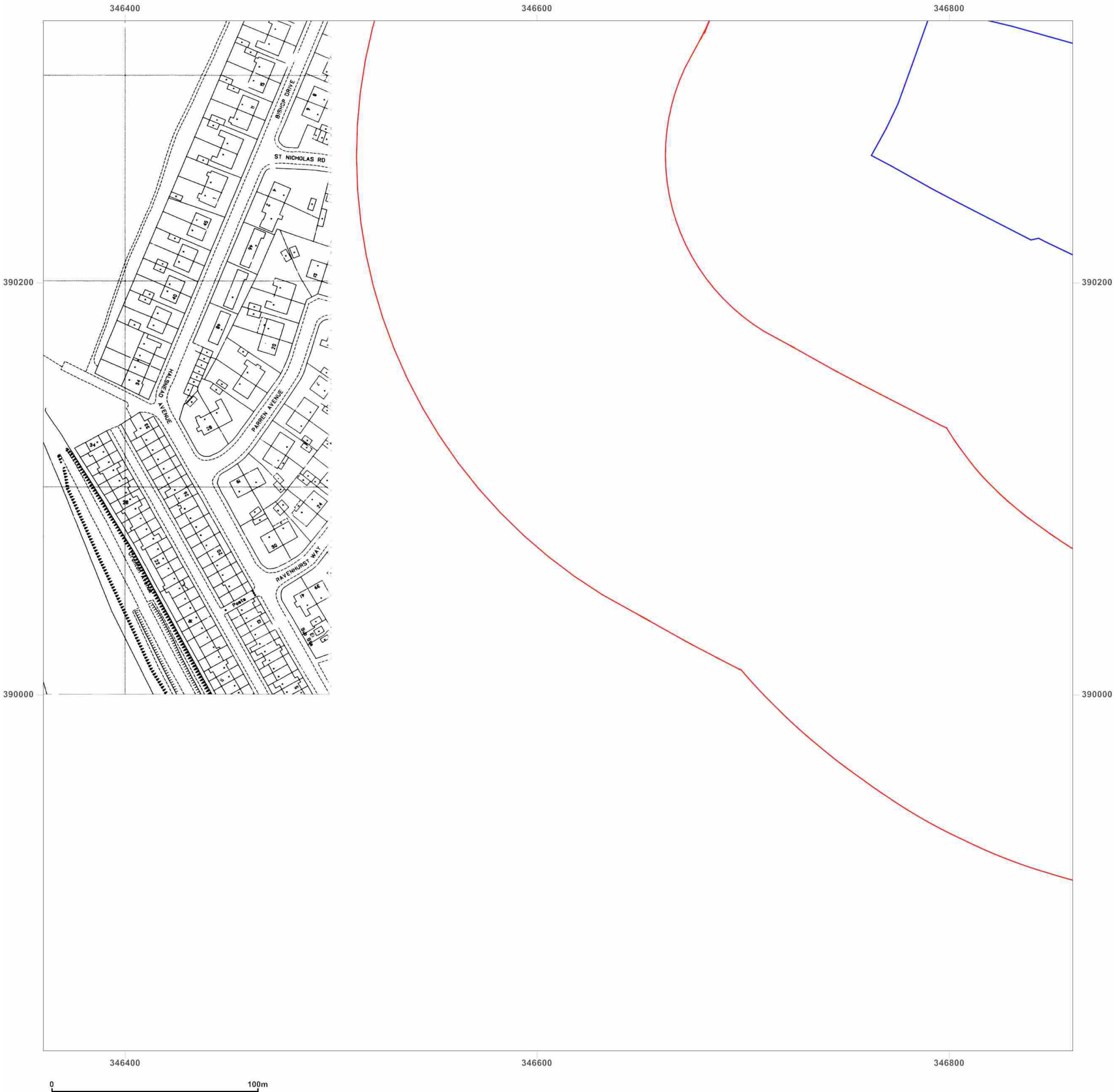


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_1
Grid Ref: 346610, 390077

Map Name: National Grid

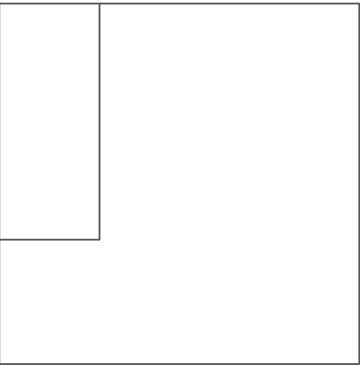
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Scale: 1:1,250

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



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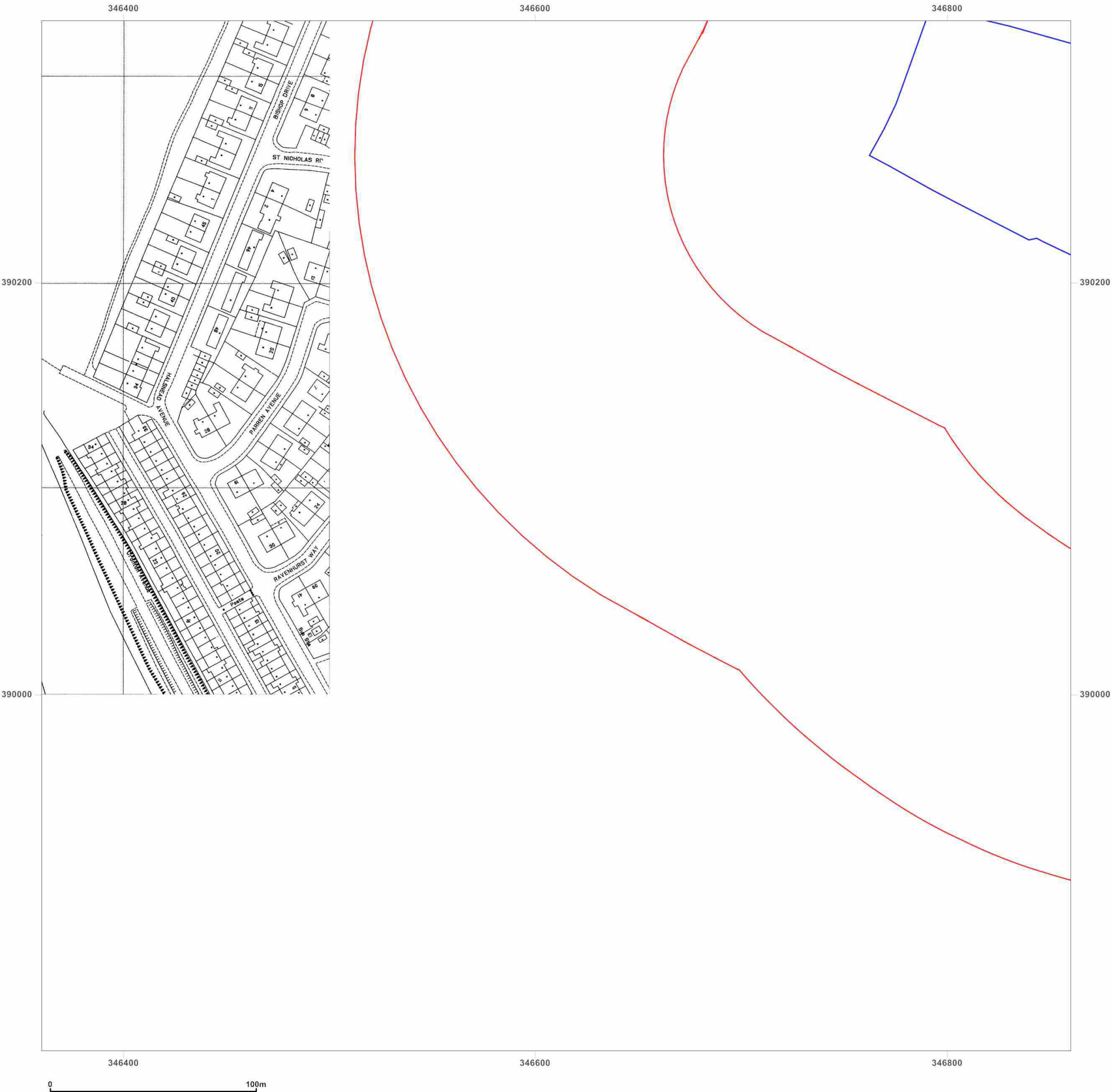


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_2
Grid Ref: 346610, 390577

Map Name: National Grid

Map date: 1973

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1972
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Edition N/A
Copyright 1973
Levelled 1957

Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
Levelled 1963

Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_2
Grid Ref: 346610, 390577

Map Name: National Grid
Map date: 1981-1984
Scale: 1:1,250
Printed at: 1:2,000



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



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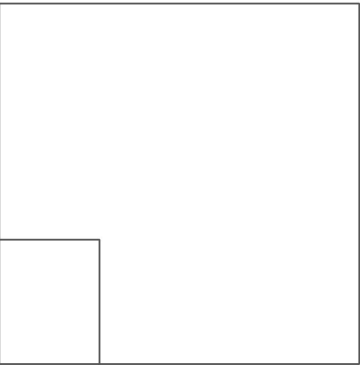
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_2
Grid Ref: 346610, 390577

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



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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_1_2
Grid Ref: 346610, 390577

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_1
Grid Ref: 347110, 390077

Map Name: National Grid

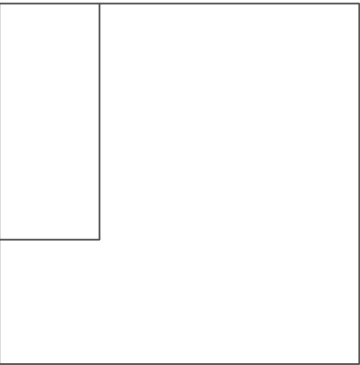
Map date: 1973

Scale: 1:1,250

Printed at: 1:2,000



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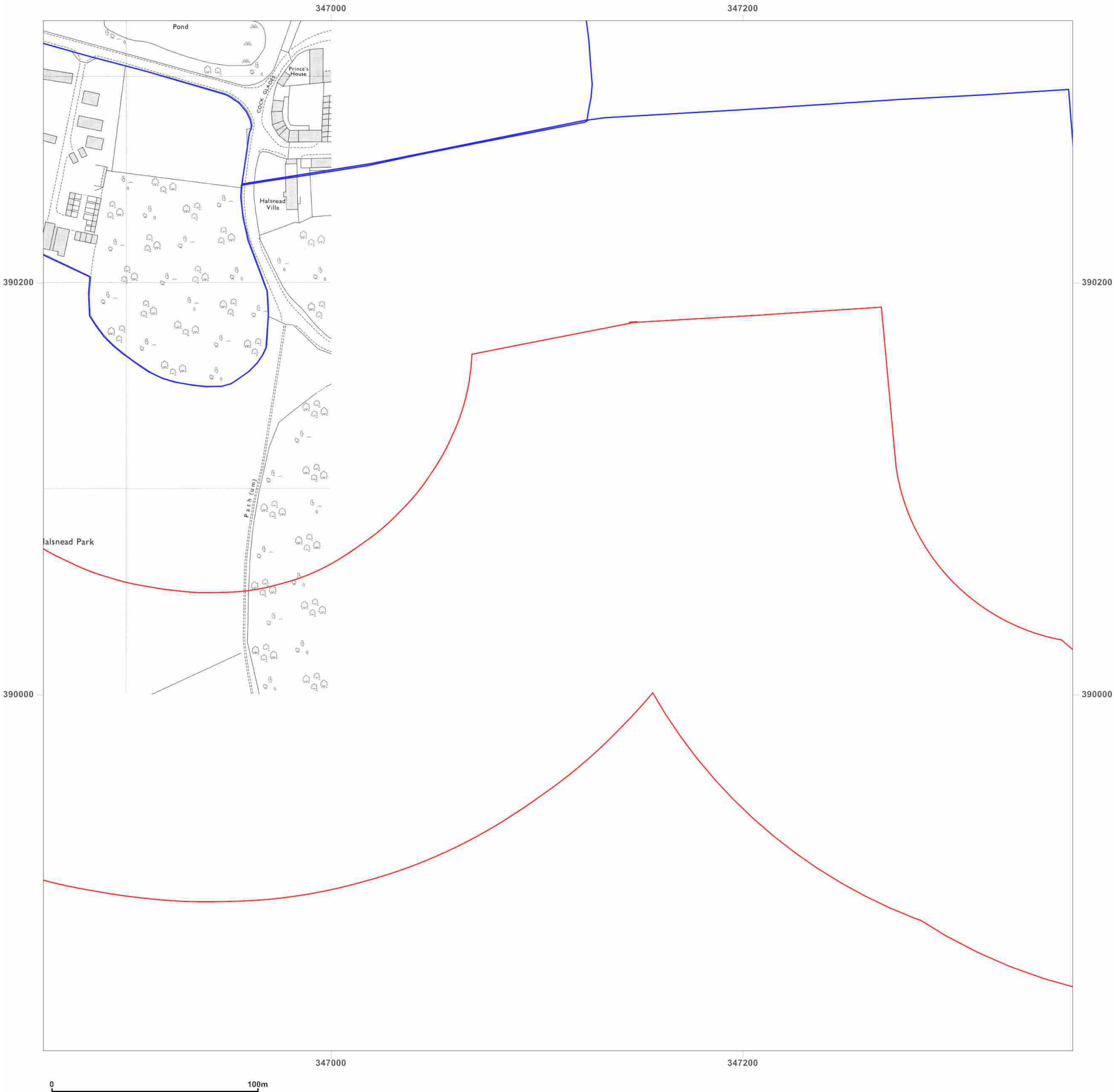


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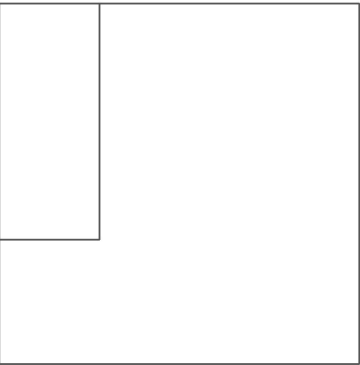
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_1
Grid Ref: 347110, 390077

Map Name: National Grid
Map date: 1984
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1963
Revised 1984
Edition N/A
Copyright 1984
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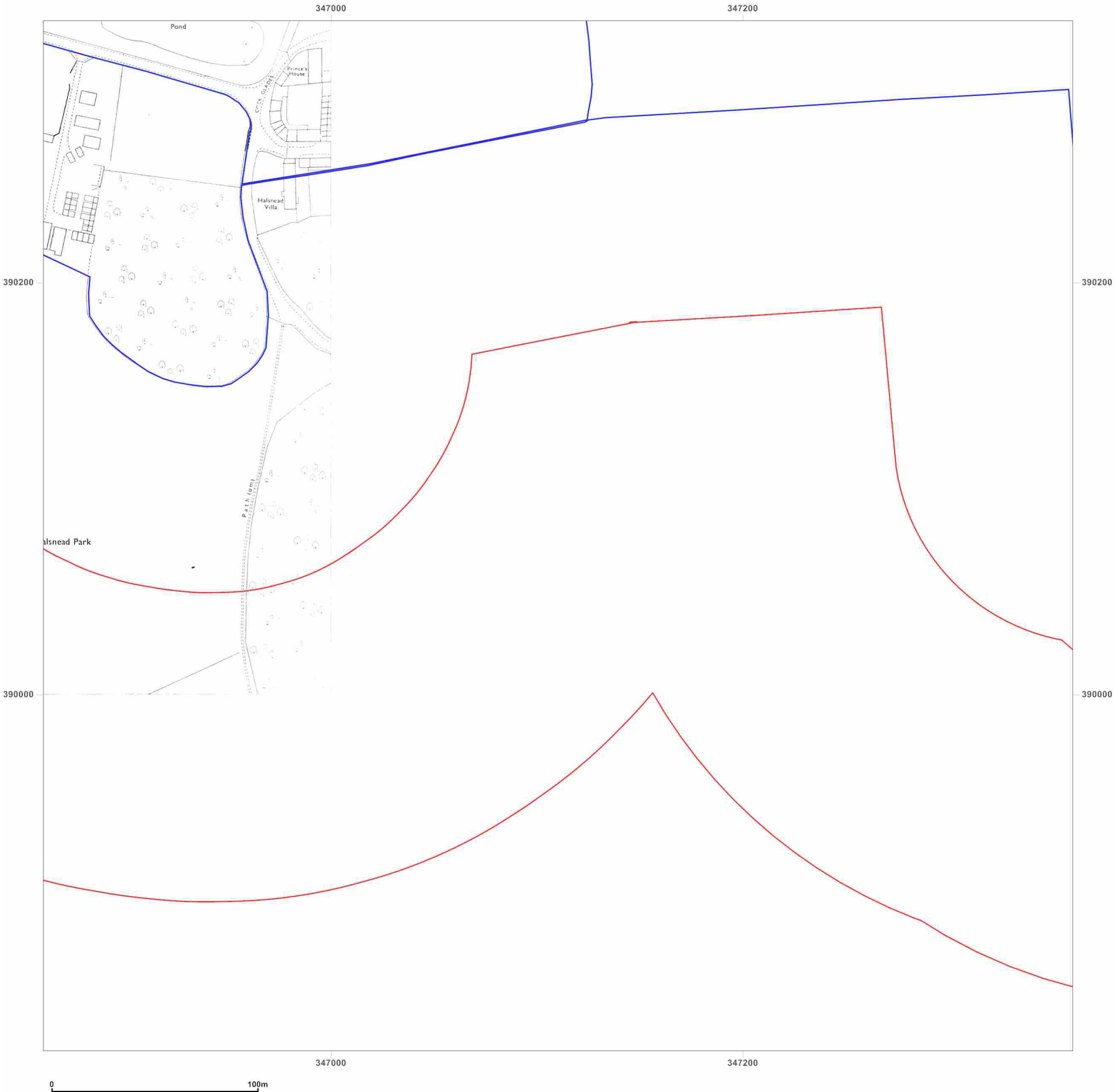


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_1
Grid Ref: 347110, 390077

Map Name: National Grid

Map date: 1993

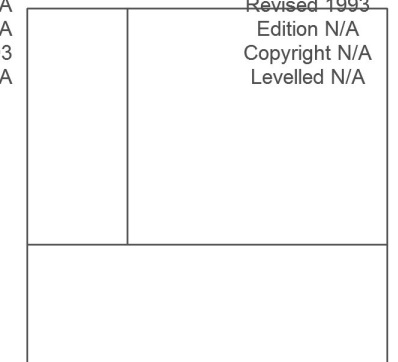
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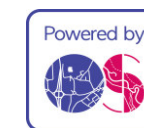


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_2
Grid Ref: 347110, 390577

Map Name: National Grid
Map date: 1973-1974
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1972
Revised 1972
Edition N/A
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Levelled 1963

Surveyed 1973
Revised 1973
Edition N/A
Copyright 1974
Levelled 1963

Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
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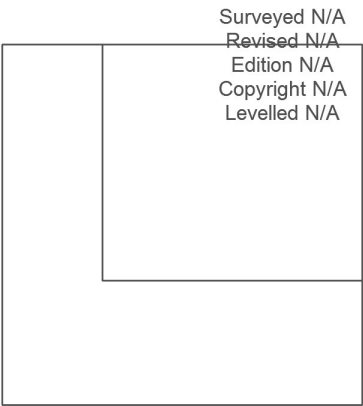
To view map legend click here [Legend](#)



Site Details:
HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_2
Grid Ref: 347110, 390577

Map Name: National Grid
Map date: 1974
Scale: 1:1,250
Printed at: 1:2,000



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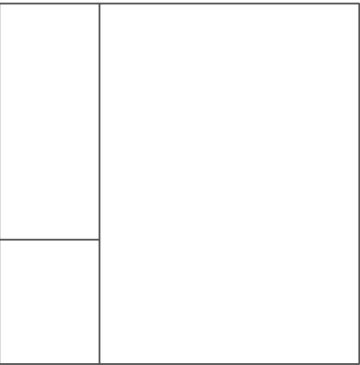
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_2
Grid Ref: 347110, 390577

Map Name: National Grid
Map date: 1984
Scale: 1:1,250
Printed at: 1:2,000



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Site Details:
HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_2
Grid Ref: 347110, 390577

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



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Site Details:
HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_2
Grid Ref: 347110, 390577

Map Name: National Grid
Map date: 1994-1995
Scale: 1:1,250
Printed at: 1:2,000



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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_2_2
Grid Ref: 347110, 390577

Map Name: National Grid
Map date: 1994-1995
Scale: 1:1,250
Printed at: 1:2,000



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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_1
Grid Ref: 347610, 390077

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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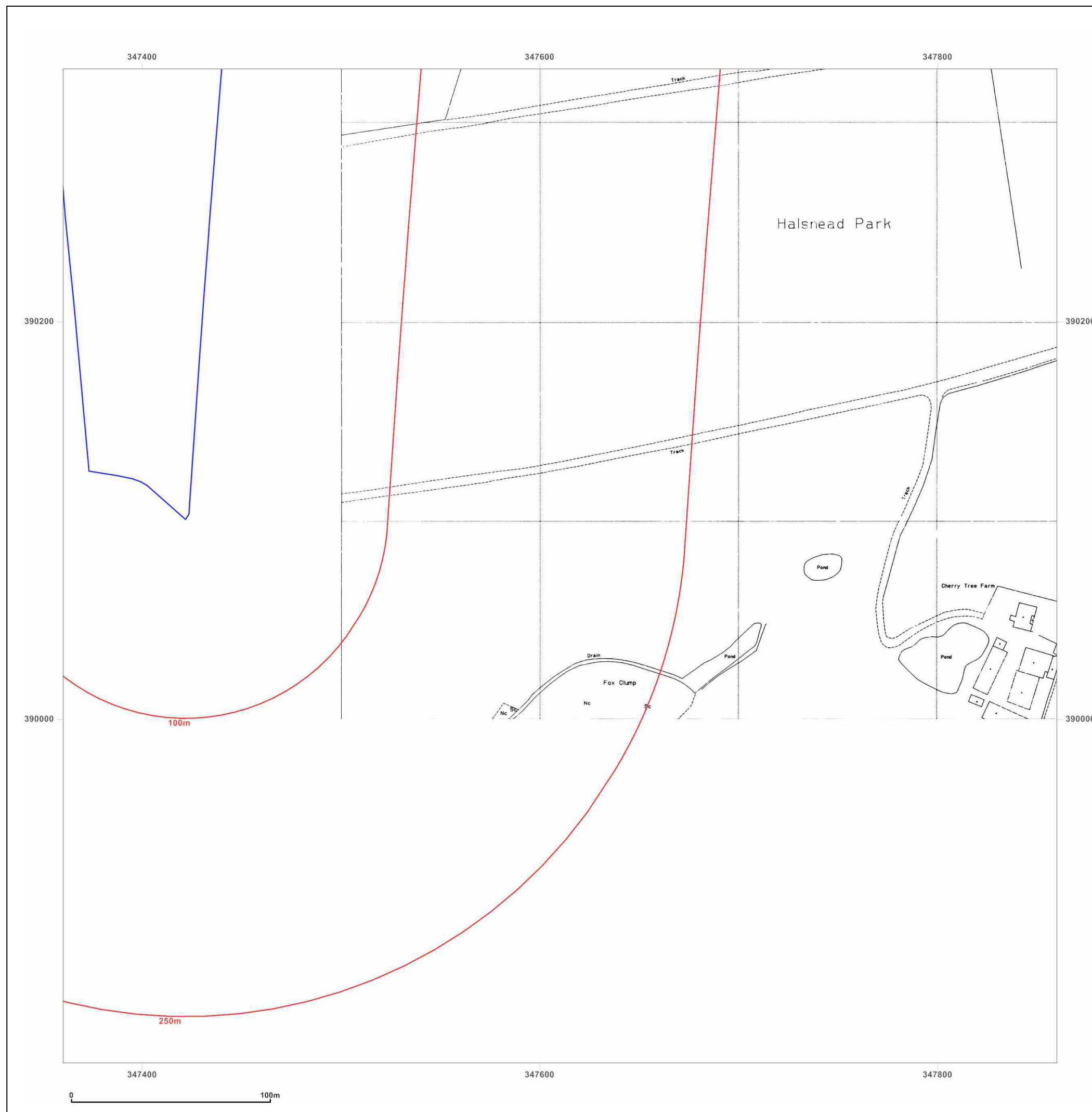


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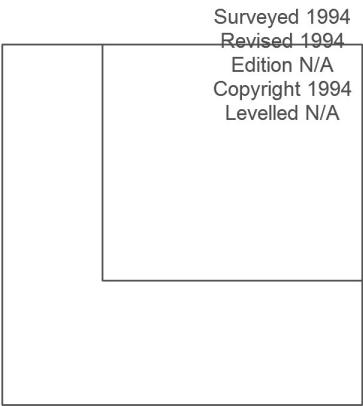
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Site Details:
HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_1
Grid Ref: 347610, 390077

Map Name: National Grid
Map date: 1994
Scale: 1:1,250
Printed at: 1:2,000



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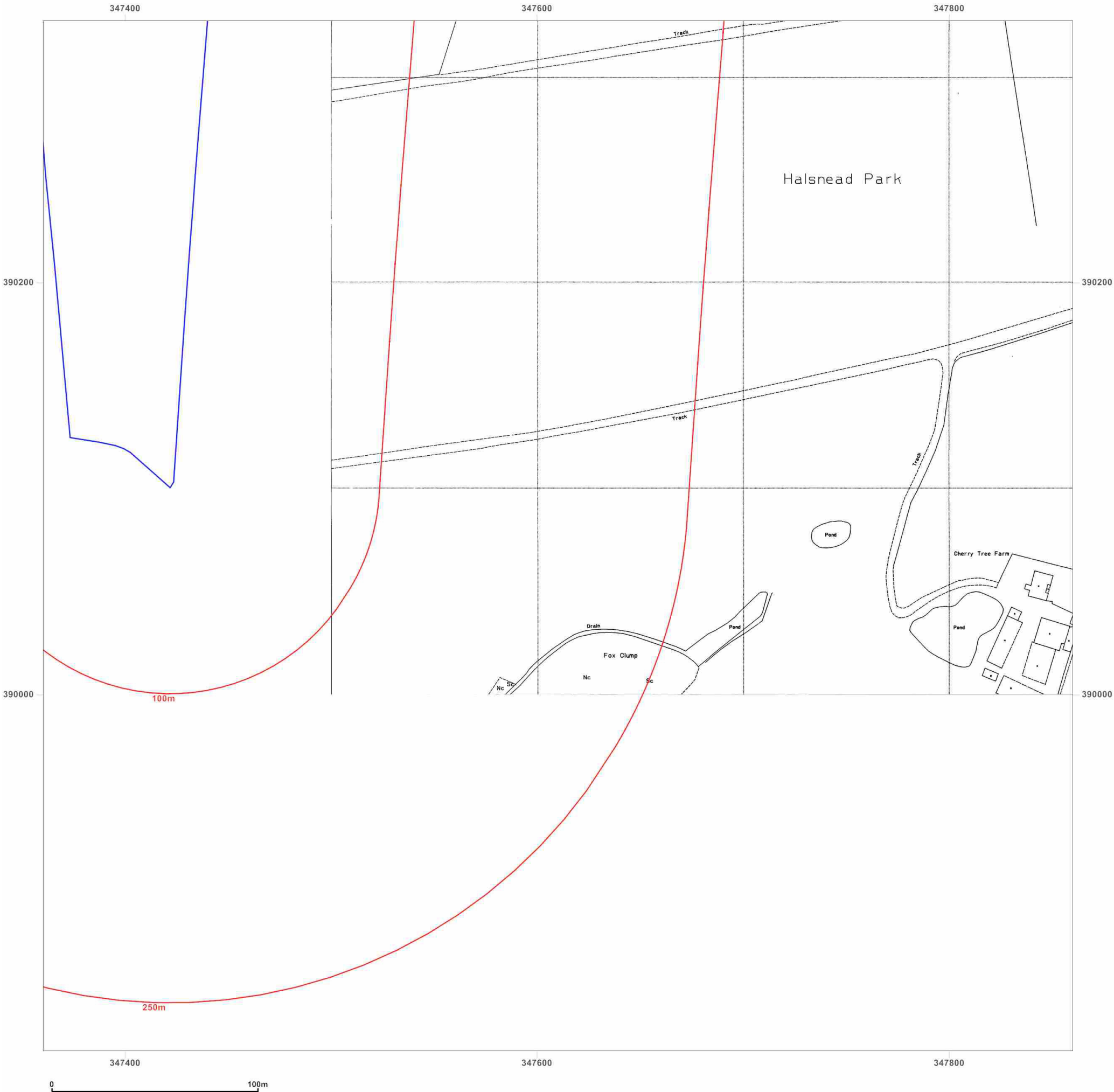


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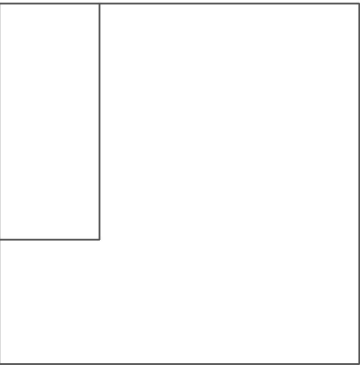
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid
Map date: 1974
Scale: 1:1,250
Printed at: 1:2,000



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Edition N/A
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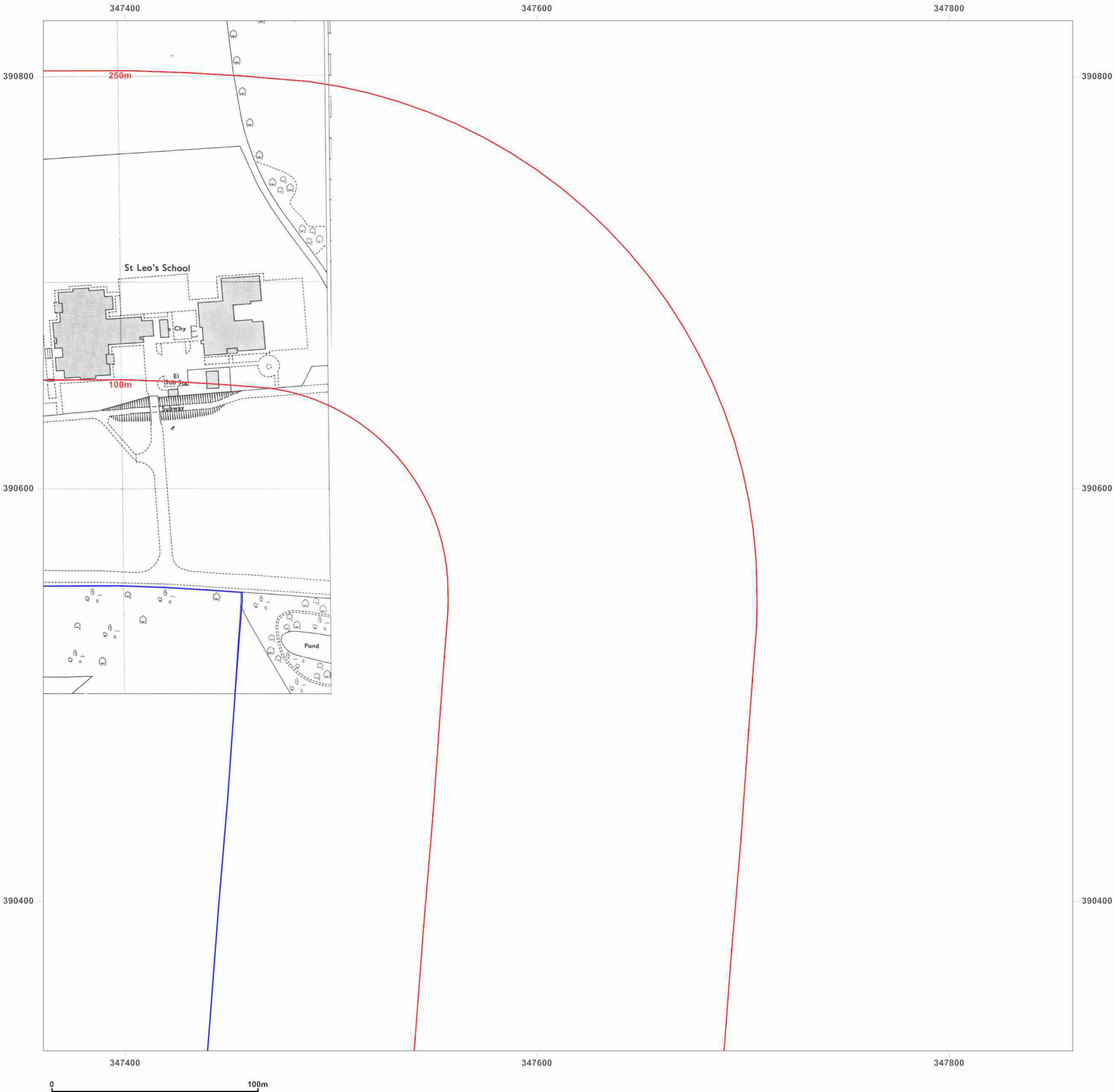


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Site Details:
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid
Map date: 1974-1976
Scale: 1:1,250
Printed at: 1:2,000



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Surveyed 1975
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Edition N/A
Copyright 1976
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
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Edition N/A
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid
Map date: 1994
Scale: 1:1,250
Printed at: 1:2,000



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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1994
Revised 1994
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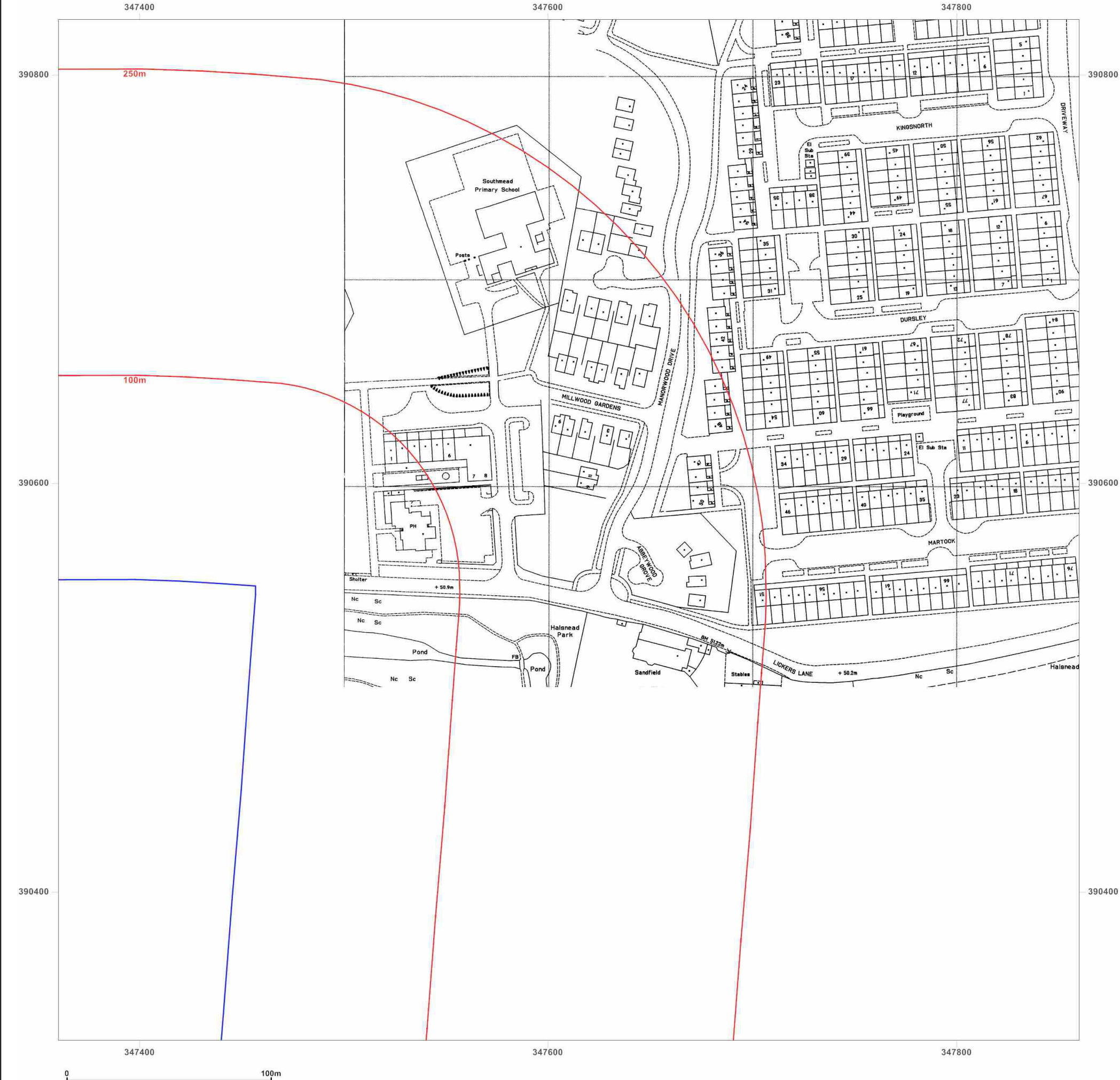


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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1995
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Edition N/A
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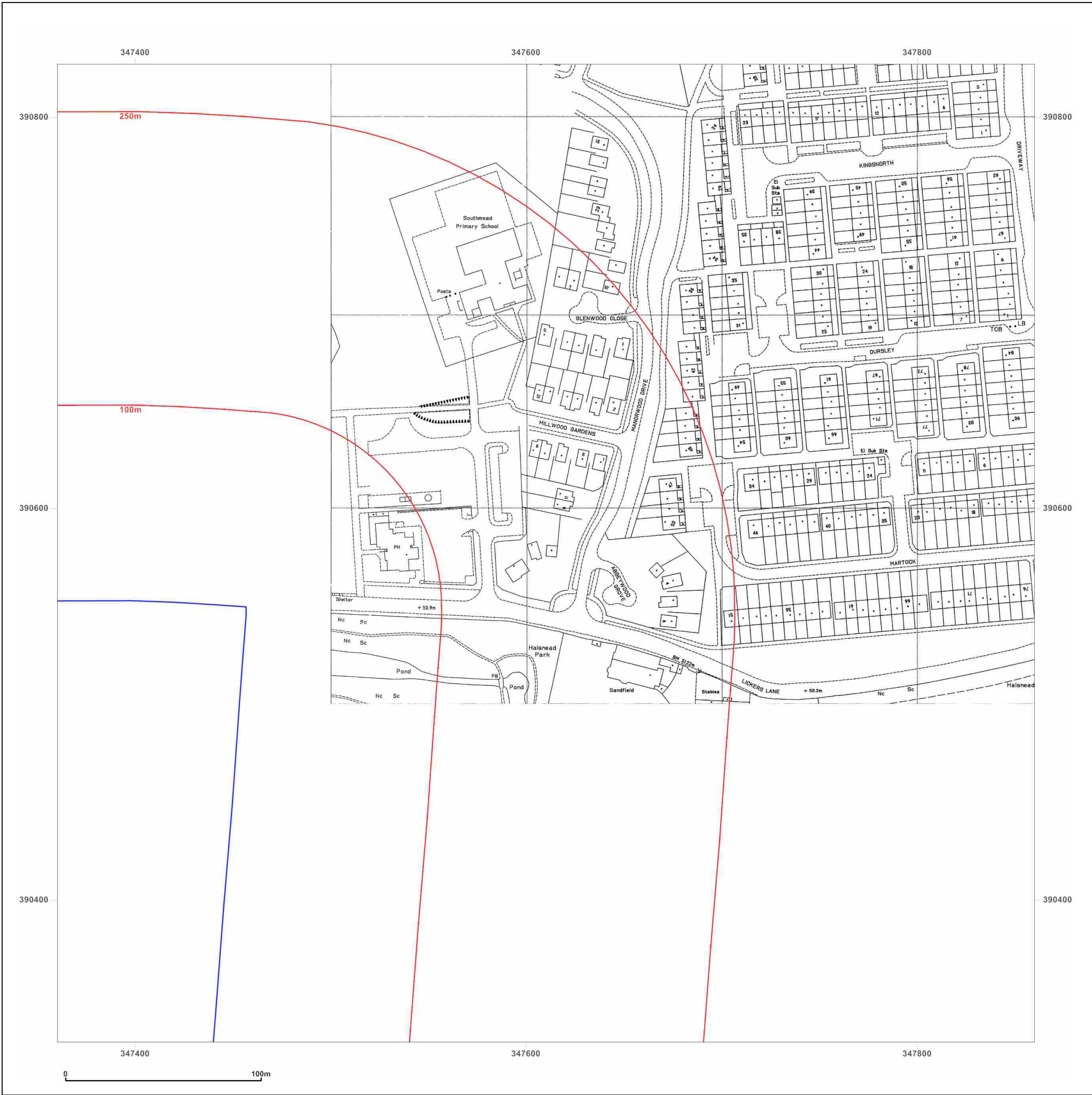


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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

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 N/A
Revised N/A
Edition N/A
Copyright 1994
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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid
Map date: 1994-1995
Scale: 1:1,250
Printed at: 1:2,000



Surveyed 1995
Revised 1995
Edition N/A
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

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Revised 1994
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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

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
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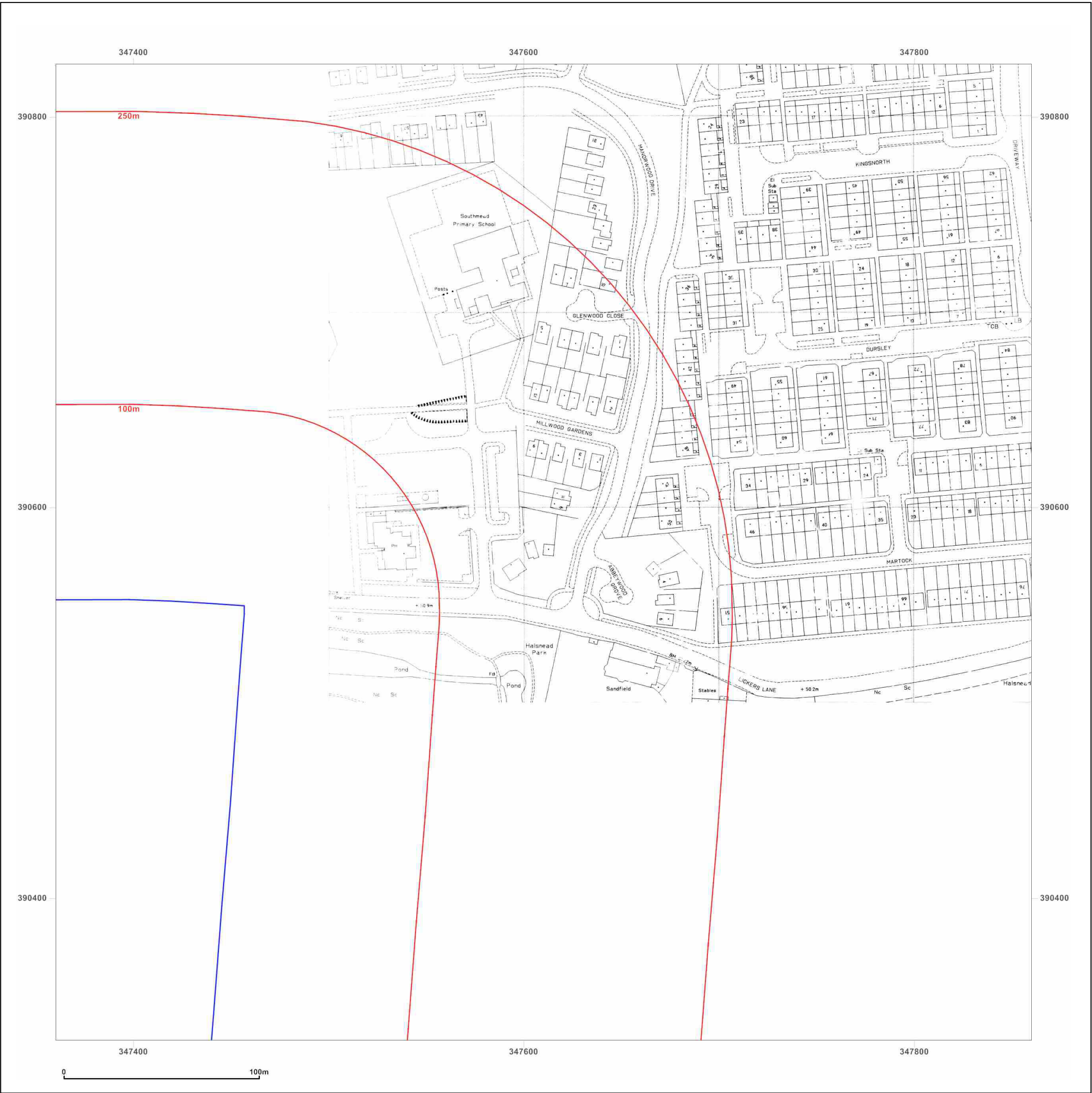


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Site Details:

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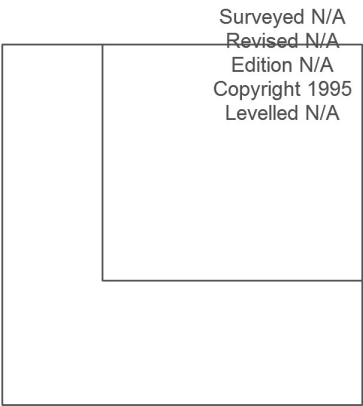
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Grid Ref: 347610, 390577

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



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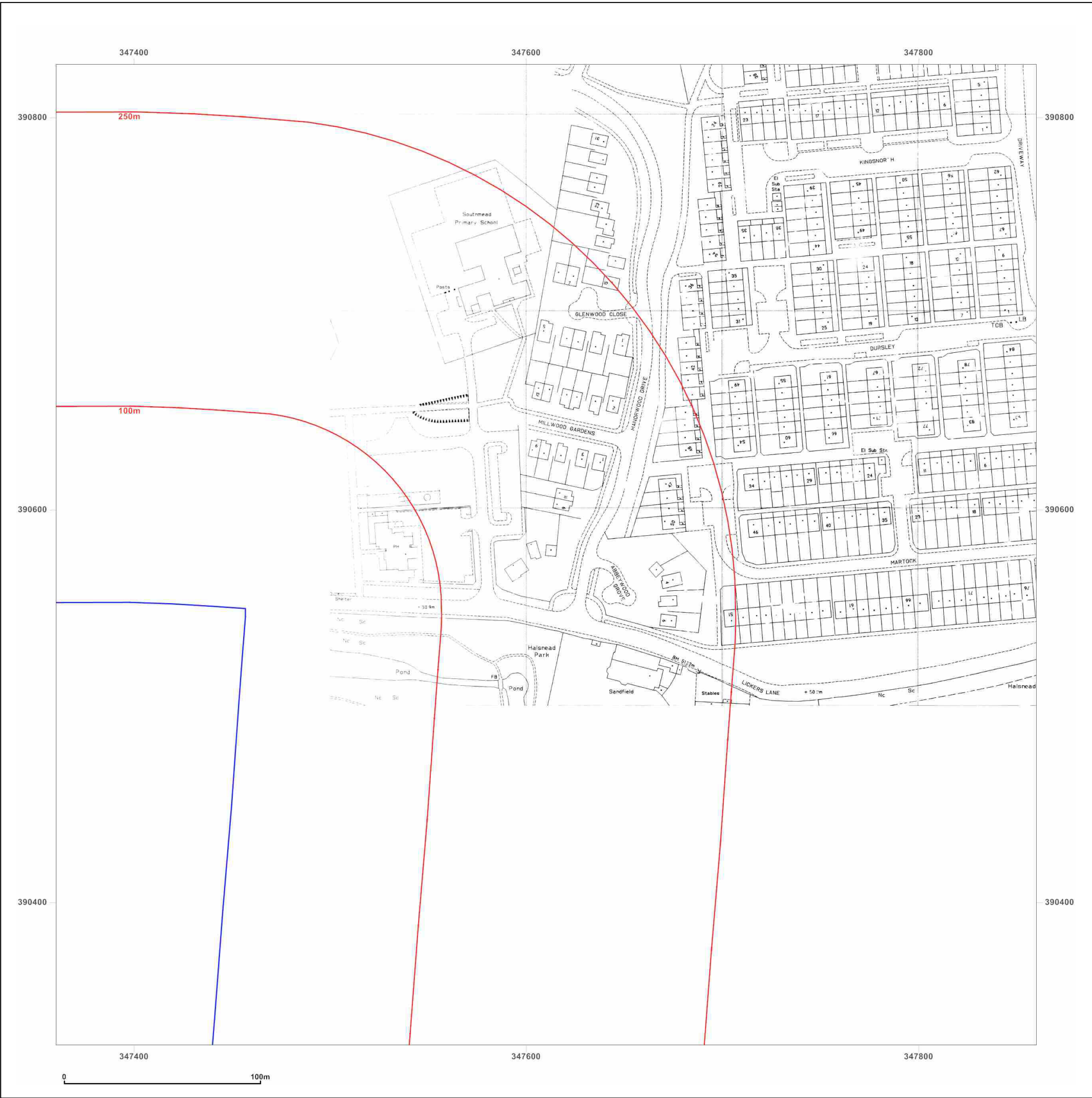


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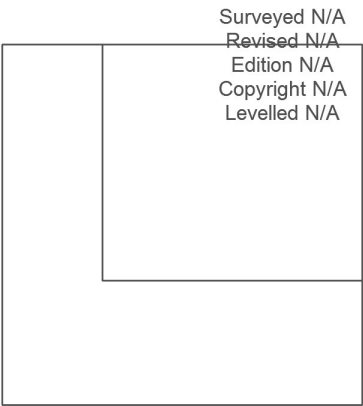
To view map legend click here [Legend](#)



Site Details:
HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267_1250scale_3_2
Grid Ref: 347610, 390577

Map Name: National Grid
Map date: 1995
Scale: 1:1,250
Printed at: 1:2,000



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Revised N/A
Edition N/A
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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: County Series

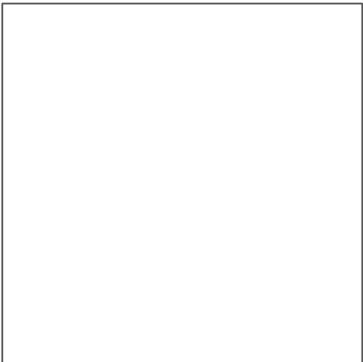
Map date: 1850

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A



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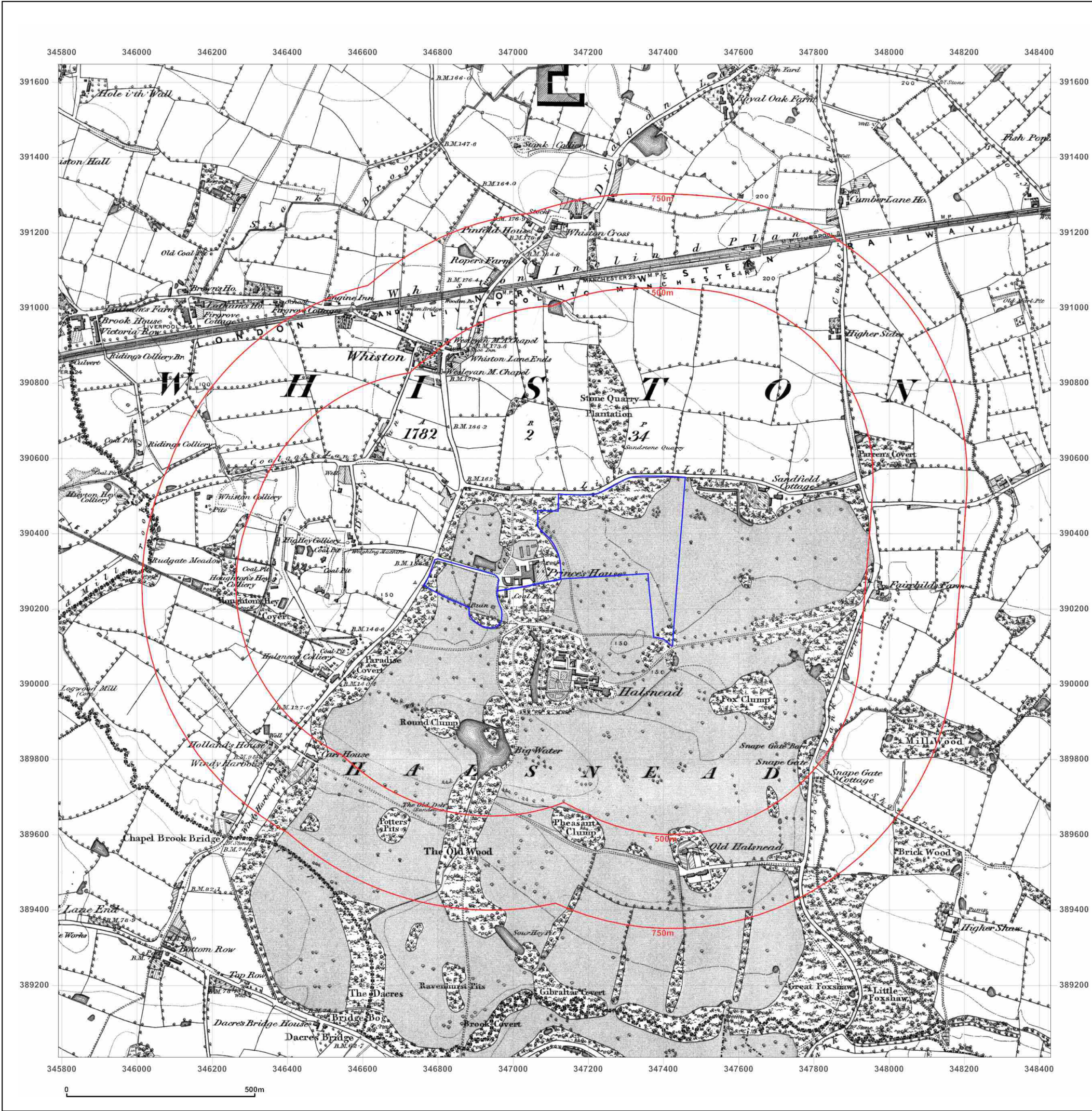


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: County Series

Map date: 1891

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1891
Revised 1891
Edition N/A
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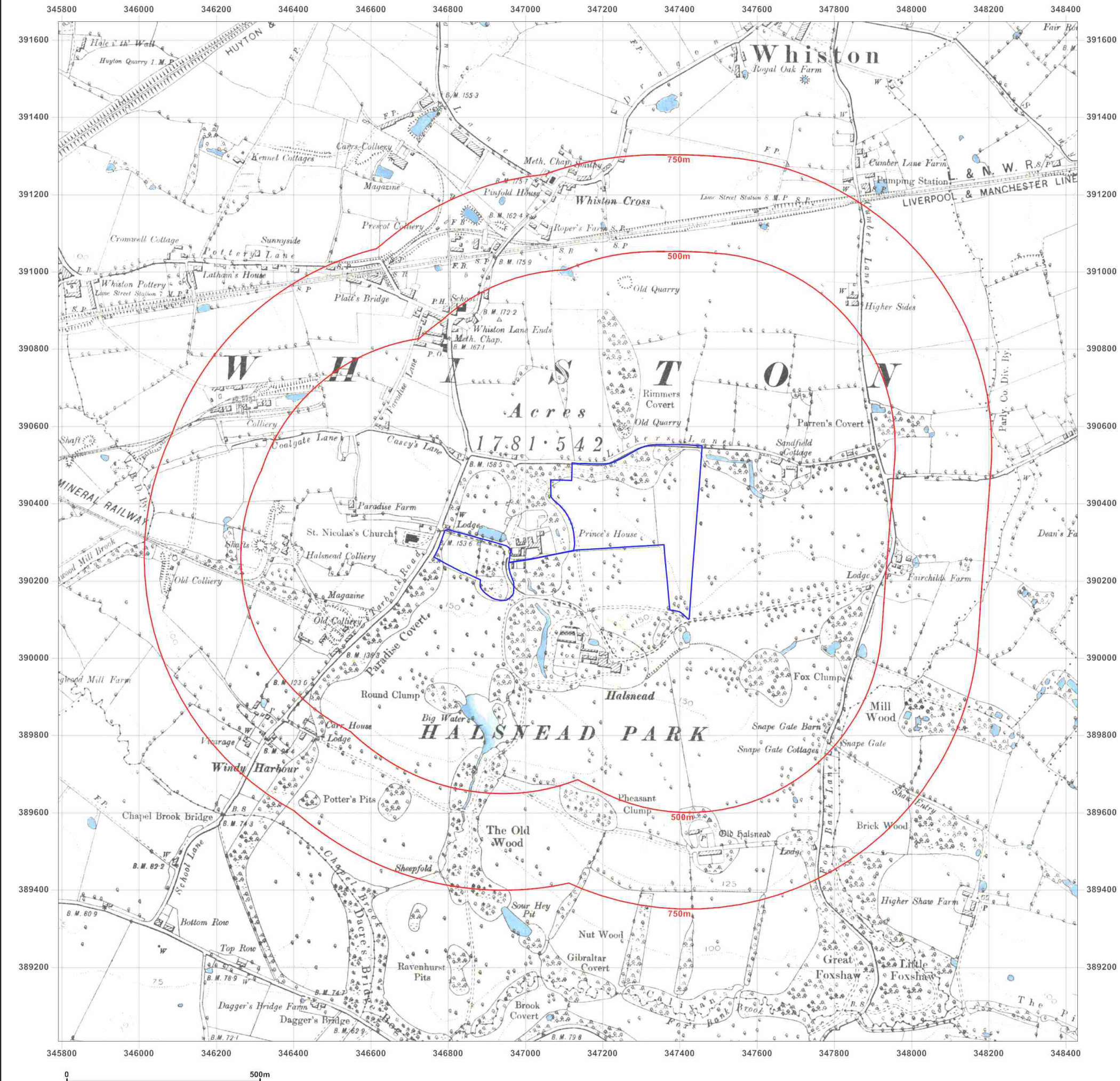


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Site Details:

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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: County Series

Map date: 1906

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1891
Revised 1906
Edition N/A
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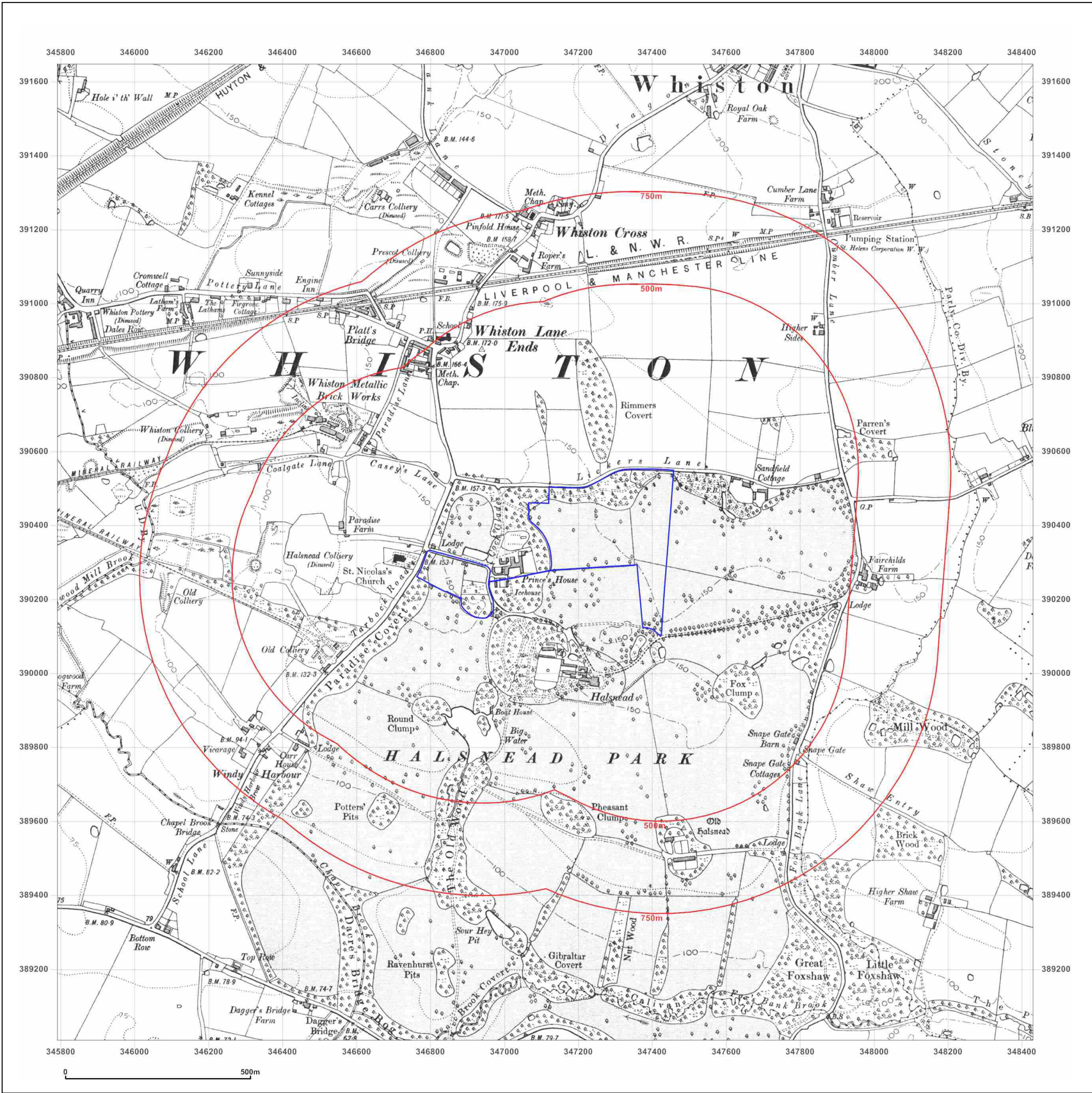


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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: County Series

Map date: 1925

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1846
Revised 1925
Edition N/A
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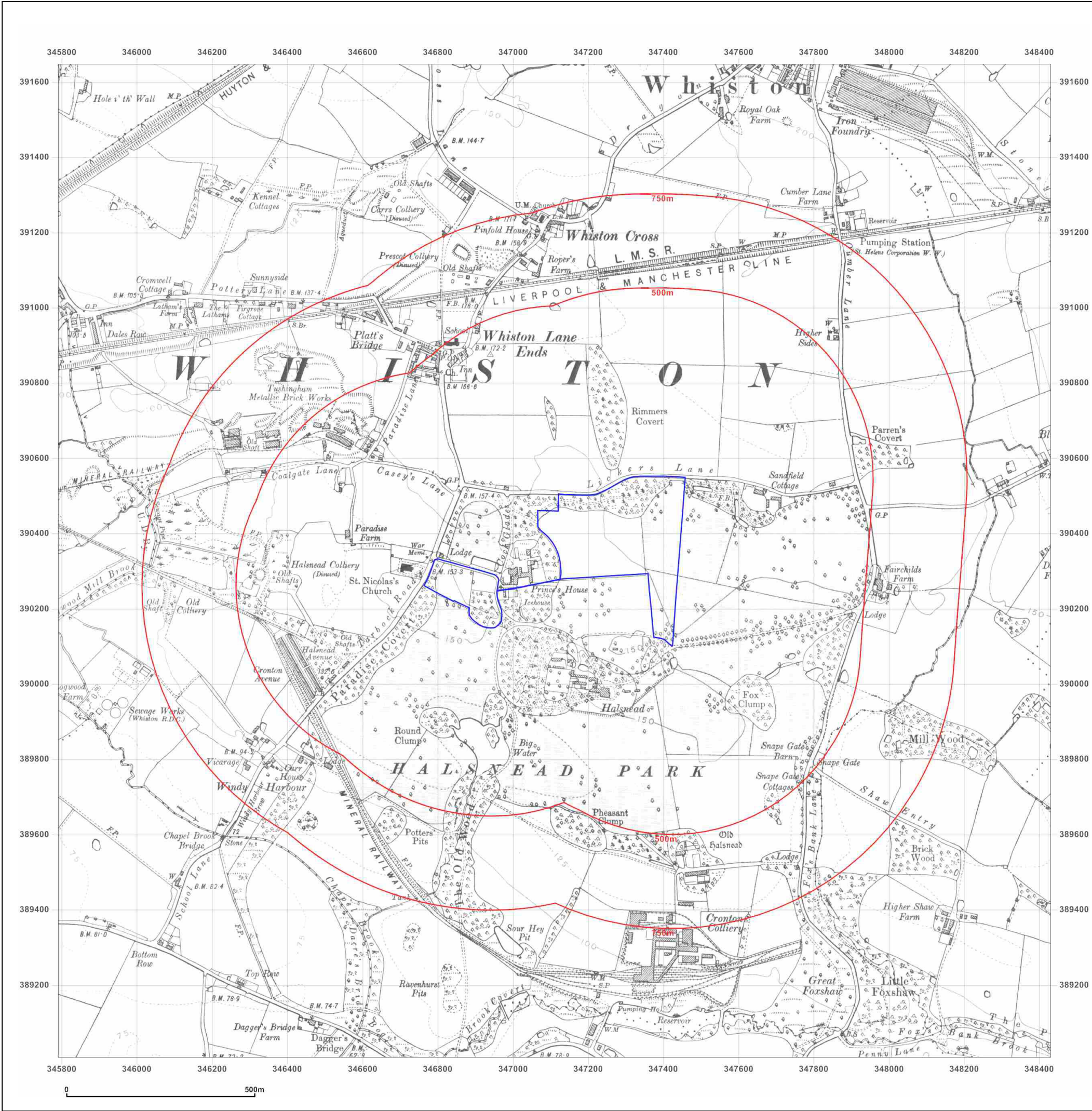


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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1846
Revised 1938
Edition 1938
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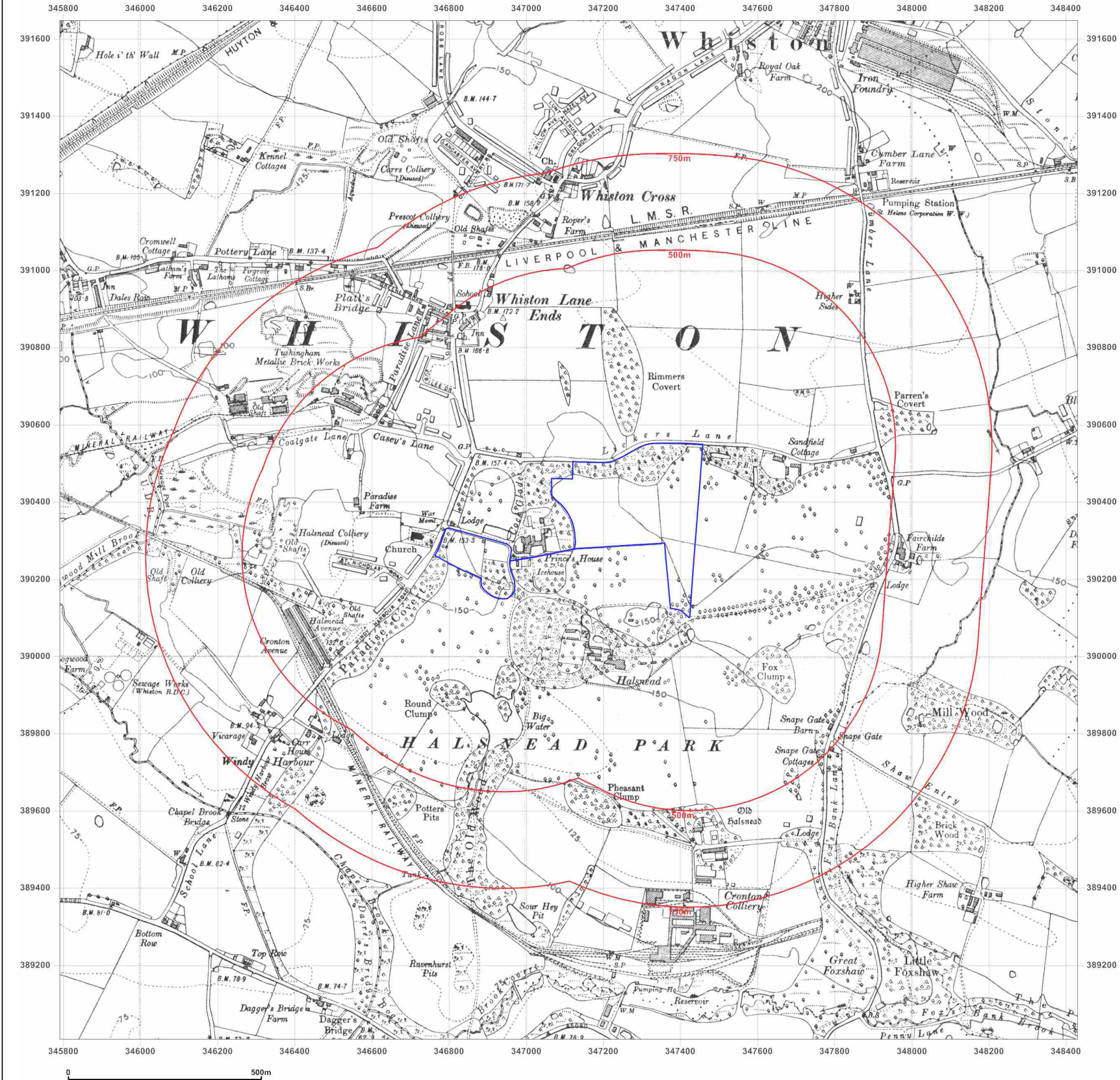


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: County Series

Map date: 1947

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1846
Revised 1947
Edition N/A
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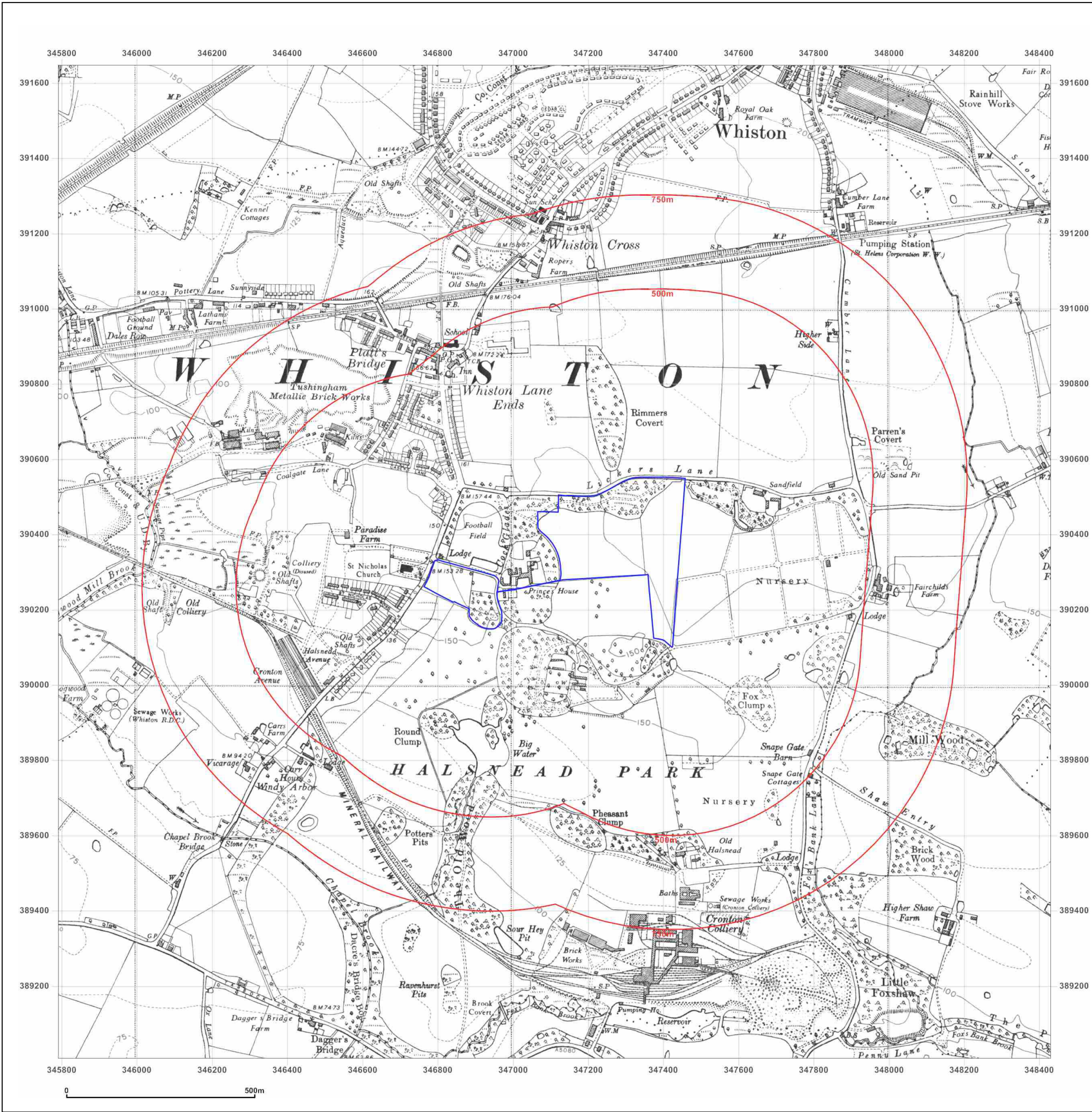


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

Printed at: 1:10,560



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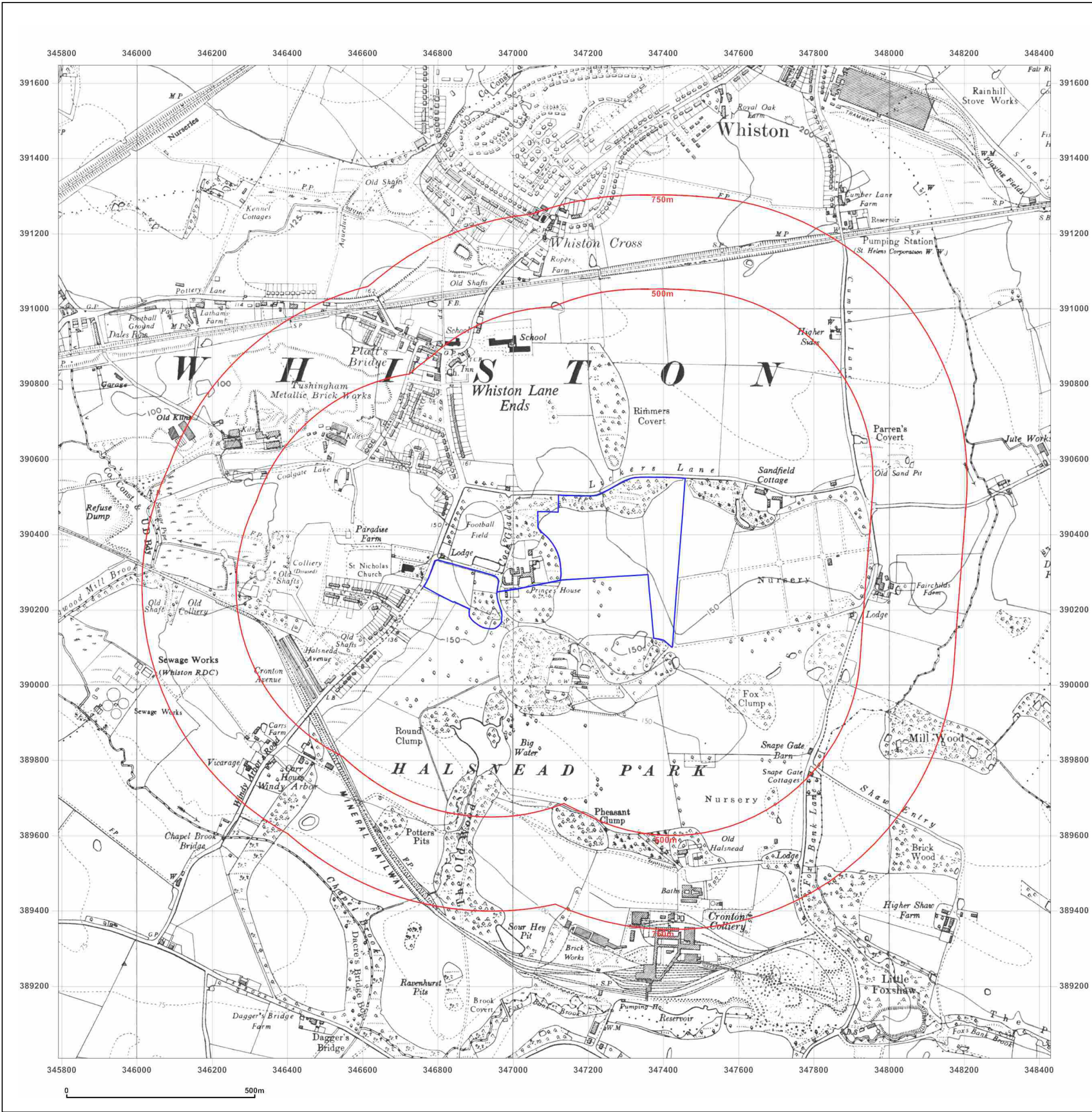


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: Provisional

Map date: 1966-1967

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1967
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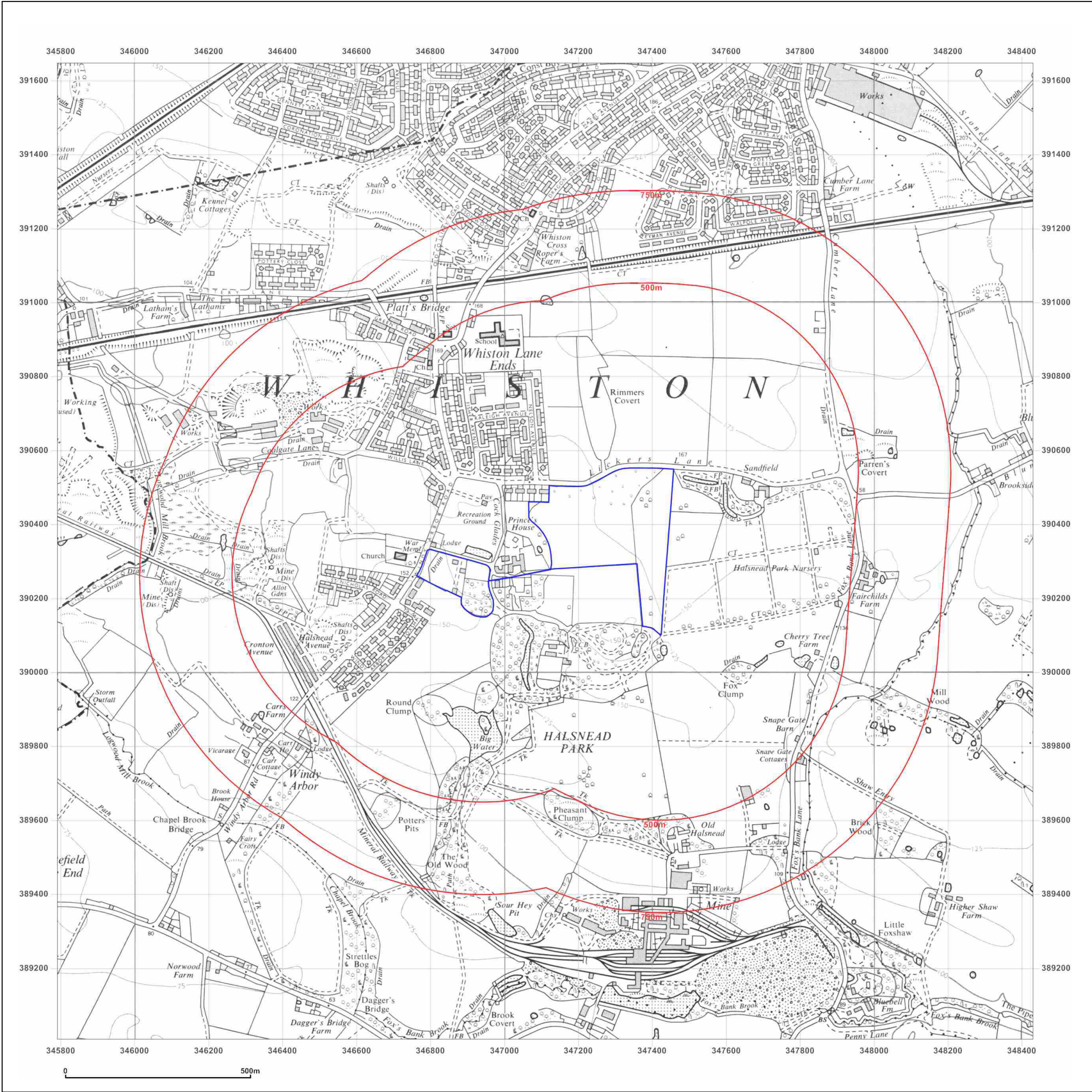


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Site Details:

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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: National Grid

Map date: 1977-1978

Scale: 1:10,000

Printed at: 1:10,000



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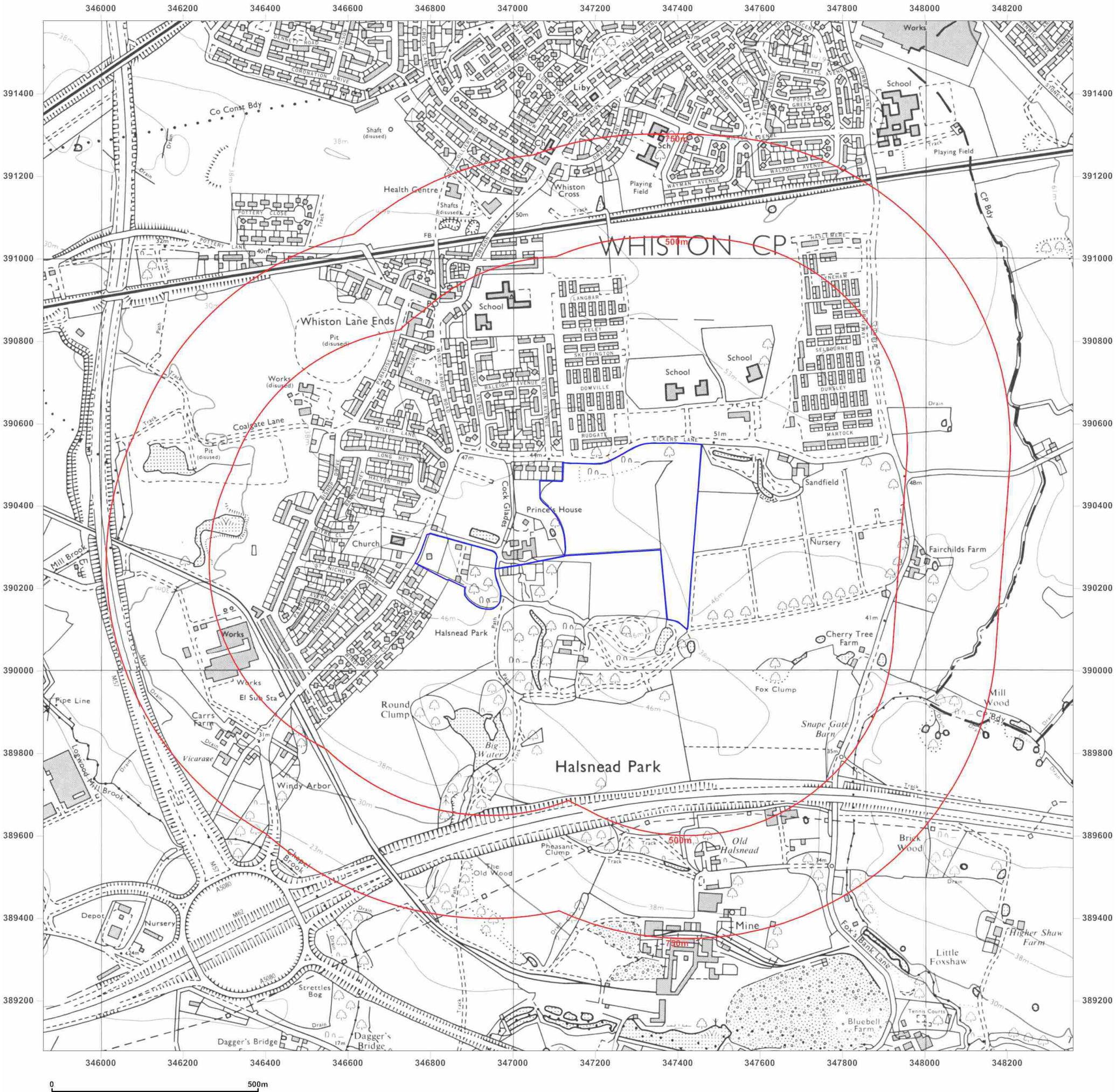


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Site Details:

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Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: National Grid

Map date: 1989-1990

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1989
Revised 1990
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1986
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A



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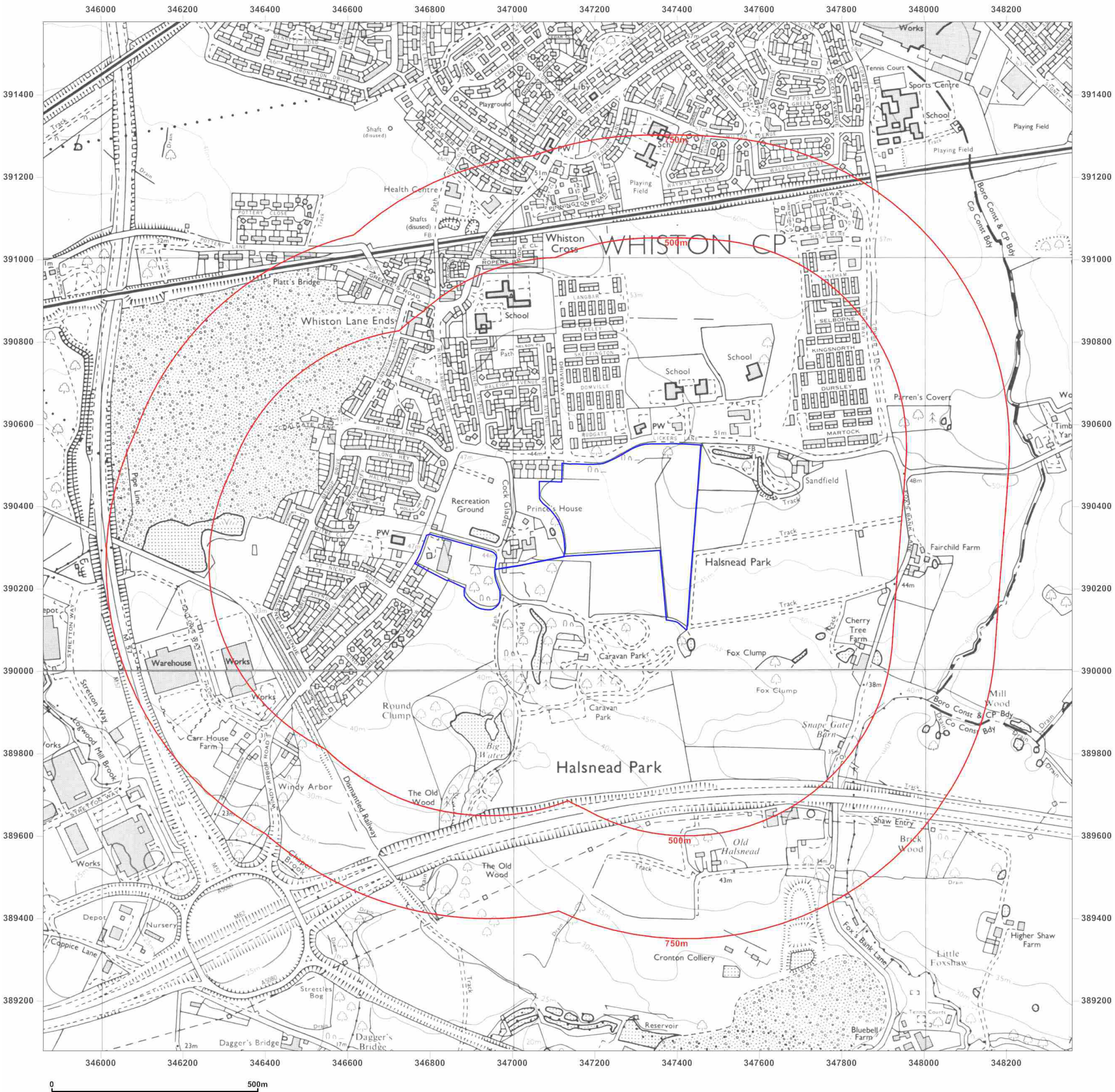


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



2002



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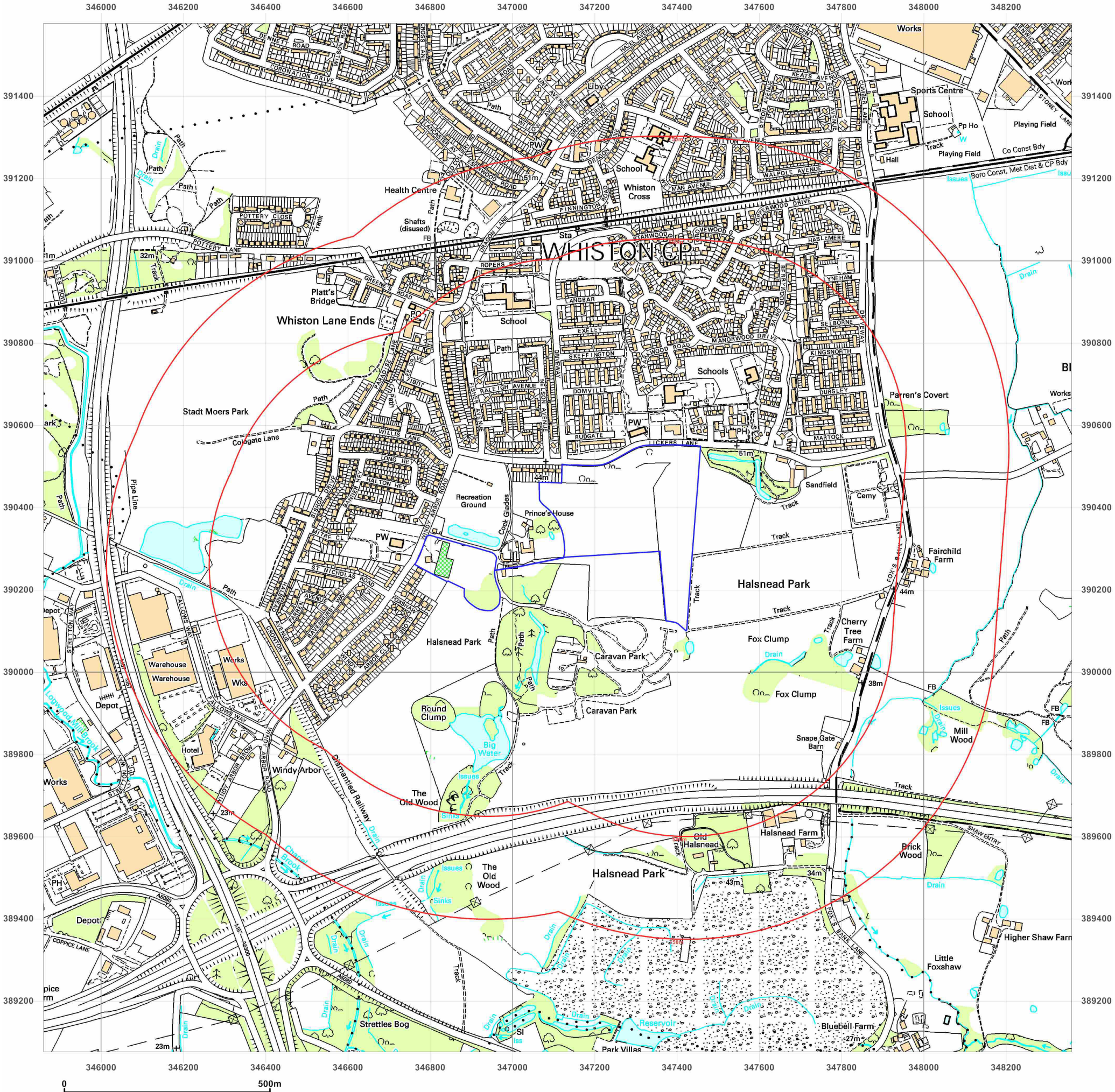


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Site Details:

HALSNEAD PARK WHISTON

Client Ref: EMS_418542_559267
Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010



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Site Details:

HALSNEAD PARK WHISTON

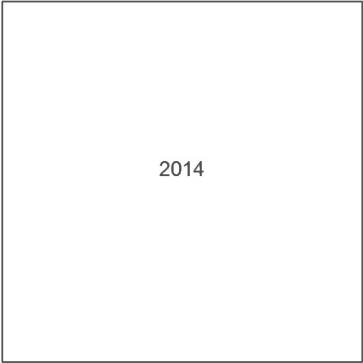
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Report Ref: EMS-418542_559267
Grid Ref: 347109, 390327

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



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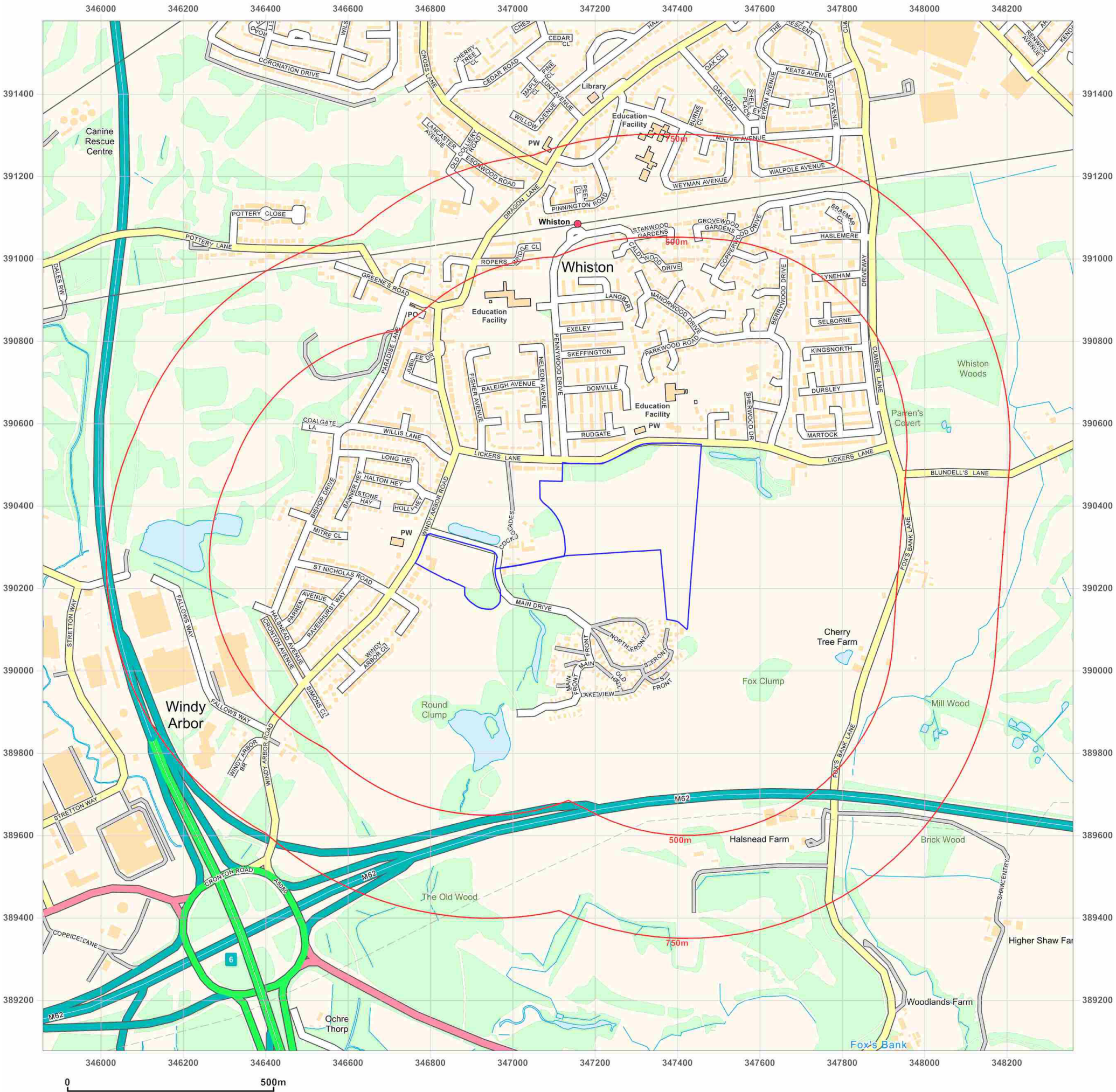


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APPENDIX B
Contaminated Land Officers Report (Pending)

APPENDIX C
GroundSure Report



emapsite

Masdar House, 1 Reading Road,
Eversley, RG27 0RP

Groundsure
Reference:

EMS-418542_559268

Your Reference:

EMS_418542_559268

Report Date

2 May 2017

Report Delivery
Method:

Email - pdf

Groundsure Enviro Insight

Address: HALSNEAD PARK WHISTON ,

Dear Sir/ Madam,

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

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.

Groundsure Enviroinsight

Groundsure Enviro Insight

Address: HALSNEAD PARK WHISTON ,

Date: 2 May 2017

Reference: EMS-418542_559268

Client: emapsite



Aerial Photograph Capture date: 11-Jun-2015

Grid Reference: 347218,390362

Site Size: 11.59ha

Report Reference: EMS-418542_559268

Client Reference: EMS_418542_559268

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Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	3	9	19	129
1.2 Additional Information – Historical Tank Database	0	2	11	9
1.3 Additional Information – Historical Energy Features Database	0	5	12	39
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	0	28	37	142
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	2	0	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	4	1	5
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	1	2
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	2	0	2
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	7	10

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	7	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology				0-500m		
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?				Yes		
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?				Yes		
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	10
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	5
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	4
6.6 Source Protection Zones (within 500m of the study site)	1	0	1	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	2	1	4	Not searched	Not searched

Section 6: Hydrogeology and Hydrology		0-500m				
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	No	No	Yes
6.10 Detailed River Network entries within 500m of the site	0	1	4	4	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding	
7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	No
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low
7.4 Are there any Flood Defences within 250m of the study site?	No
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	1	1	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	1	0	0	2
8.14 Records of Green Belt land	0	0	0	3	1	0

Section 9: Natural Hazards	
9.1 What is the maximum risk of natural ground subsidence?	Very Low
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Very Low
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Are there any coal mining areas within 75m of the study site?	Yes
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	No
10.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

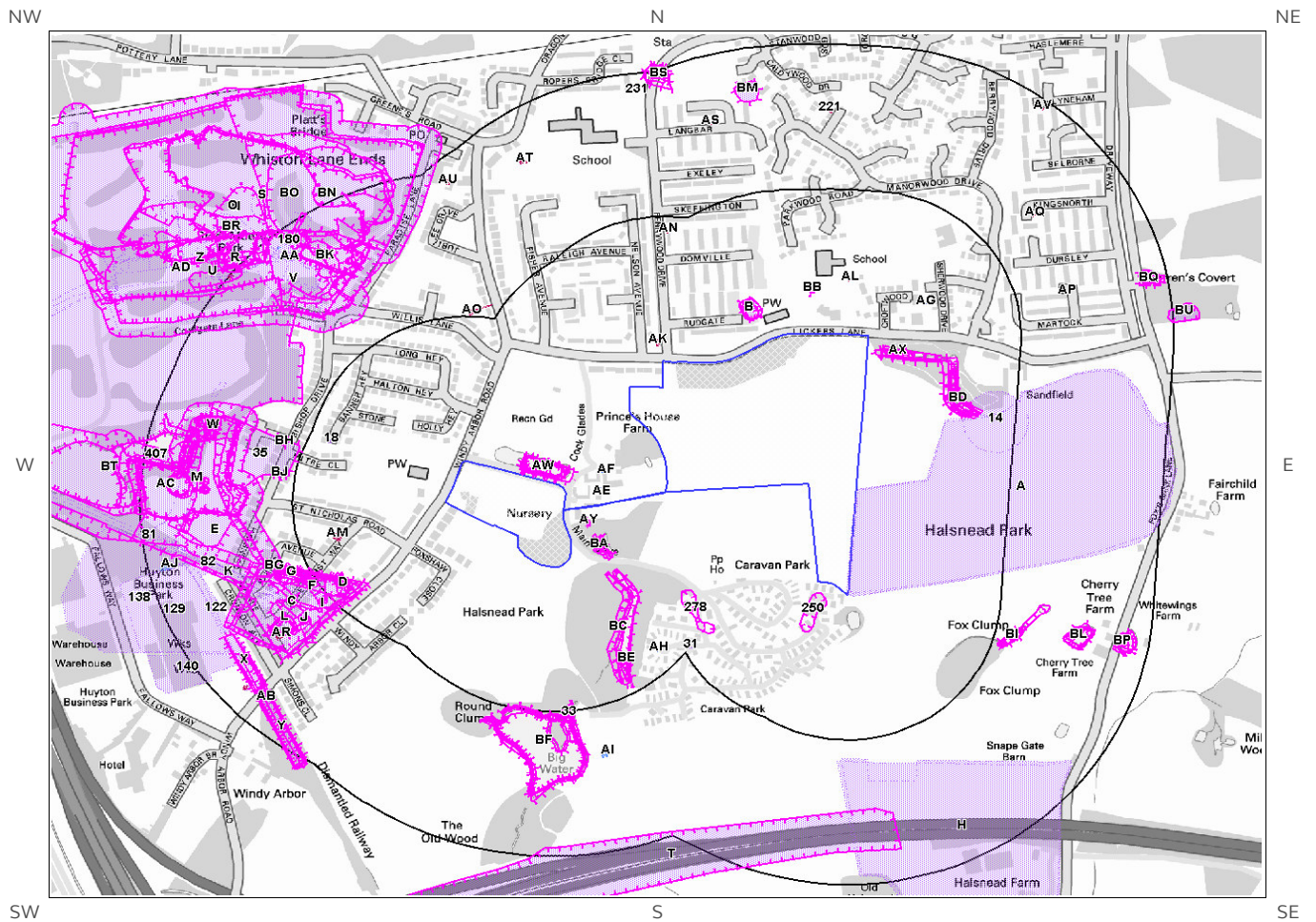
Note: Maps

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

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

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

1. Historical Land Use



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Historical 1:10,000 and 1:10,560 scale mapping



Site Outline



Industrial Land Use



Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping



Search Buffers (m)



Energy Features



Petrol Stations



Tanks



Garages

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 160

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Nursery	1966
2A	0	On Site	Nursery	1975
3A	0	On Site	Nursery	1955
4A	1	E	Nursery	1947
5AY	25	S	Coal Pit	1851
6B	42	NW	Unspecified Old Quarry	1891
7B	42	NW	Unspecified Pit	1925
8B	42	NW	Unspecified Pit	1906
9B	42	NW	Unspecified Pit	1947
10B	42	NW	Unspecified Pit	1955
11B	44	NW	Unspecified Pit	1938
12B	44	NW	Unspecified Pit	1938
13BB	71	N	Sandstone Quarry	1851
14	166	E	Unspecified Tank	1966
15C	188	SW	Old Colliery	1906
16C	197	SW	Old Colliery	1891
17C	203	SW	Colliery	1851
18	209	NW	Weighing Machine	1851
19D	210	SW	Unspecified Heap	1955
20F	210	SW	Unspecified Ground Workings	1906
21D	210	SW	Unspecified Ground Workings	1925
22D	212	SW	Unspecified Disused Shafts	1966
23E	213	SW	Disused Colliery	1947
24E	213	SW	Disused Colliery	1925
25F	213	SW	Unspecified Ground Workings	1947
26D	218	SW	Unspecified Old Shaft	1955
27D	220	SW	Unspecified Heap	1891
28D	221	SW	Unspecified Old Shafts	1947
29D	221	SW	Unspecified Old Shafts	1925
30	228	SW	Railway Sidings	1851
31	235	SW	Pump	1851

32F	252	SW	Unspecified Ground Workings	1955
33	253	S	Boat House	1906
34F	255	SW	Unspecified Disused Shafts	1966
35	256	W	Colliery	1851
36G	259	SW	Unspecified Ground Workings	1925
37G	260	SW	Unspecified Heap	1966
38F	260	SW	Unspecified Old Shaft	1955
39F	262	SW	Unspecified Old Shafts	1938
40F	262	SW	Unspecified Old Shafts	1938
41G	263	SW	Unspecified Heap	1938
42G	263	SW	Unspecified Heap	1938
43F	264	SW	Unspecified Old Shafts	1925
44F	264	SW	Unspecified Old Shafts	1947
45C	268	SW	Unspecified Heap	1891
46I	268	SW	Coal Pit	1851
47BJ	273	W	Coal Pit	1851
48BH	280	W	Coal Pit	1851
49Z	281	W	Refuse Heap	1990
50H	282	S	Nursery	1950
51AC	287	W	Disused Colliery	1955
52H	287	S	Nursery	1947
53C	291	SW	Unspecified Old Shaft	1955
54BG	298	W	Magazine	1891
55C	299	SW	Unspecified Ground Workings	1906
56O	300	NW	Brick Works	1955
57I	303	SW	Unspecified Disused Shafts	1966
58J	306	SW	Unspecified Old Shaft	1955
59J	308	SW	Unspecified Old Shafts	1938
60J	308	SW	Unspecified Old Shafts	1938
61J	310	SW	Unspecified Old Shafts	1947
62J	310	SW	Unspecified Old Shafts	1925
63L	311	SW	Unspecified Heaps	1891
64M	312	W	Disused Colliery	1906
65K	313	SW	Railway Sidings	1925
66K	318	SW	Railway Sidings	1938
67L	321	SW	Unspecified Ground Workings	1925
68L	321	SW	Unspecified Ground Workings	1938
69L	321	SW	Unspecified Ground Workings	1938
70M	321	W	Unspecified Disused Mine	1966
71P	322	SW	Mineral Railway Sidings	1891

72M	325	W	Disused Colliery	1938
73M	325	W	Disused Colliery	1938
74N	327	NW	Brick Works	1925
75N	327	NW	Brick Works	1947
76O	329	NW	Metallic Brick Works	1938
77O	329	NW	Unspecified Works	1966
78L	330	SW	Unspecified Disused Shafts	1966
79P	331	W	Colliery	1891
80L	338	SW	Coal Pit	1851
81	340	SW	Railway Sidings	1906
82	340	SW	Railway Sidings	1947
83R	340	NW	Brick Works	1906
84Q	347	W	Unspecified Ground Workings	1891
85V	347	NW	Unspecified Disused Works	1975
86Q	349	W	Colliery	1851
87R	356	NW	Mineral Railway Sidings	1925
88BK	361	NW	Unspecified Pit	1906
89U	363	NW	Railway Sidings	1938
90S	371	NW	Unspecified Pit	1938
91S	371	NW	Unspecified Pit	1938
92T	371	S	Cuttings	1975
93T	371	S	Cuttings	1989
94S	371	NW	Unspecified Pits	1925
95U	373	NW	Railway Sidings	1906
96N	374	NW	Unspecified Ground Workings	1947
97N	375	NW	Unspecified Ground Workings	1955
98V	383	NW	Railway Sidings	1955
99M	387	W	Unspecified Disused Shaft	1966
100M	388	W	Unspecified Disused Shaft	1966
101W	390	W	Unspecified Ground Workings	1966
102M	392	W	Coal Pit	1851
103W	394	W	Unspecified Ground Workings	1947
104W	394	W	Unspecified Ground Workings	1925
105W	395	W	Unspecified Ground Workings	1955
106W	395	W	Unspecified Ground Workings	1906
107M	395	W	Unspecified Old Shaft	1955
108M	395	W	Unspecified Old Shaft	1955
109W	396	W	Unspecified Ground Workings	1938

110W	396	W	Unspecified Ground Workings	1938
111M	396	W	Unspecified Old Shafts	1947
112M	396	W	Unspecified Old Shafts	1925
113M	397	W	Unspecified Old Shafts	1938
114M	397	W	Unspecified Old Shafts	1938
115M	397	W	Unspecified Old Shafts	1925
116M	397	W	Unspecified Old Shafts	1947
117M	397	W	Unspecified Old Shafts	1938
118M	397	W	Unspecified Old Shafts	1938
119W	403	W	Unspecified Heap	1891
120BM	407	N	Unspecified Old Quarry	1891
121M	409	W	Unspecified Shafts	1891
122	410	SW	Railway Sidings	1955
123M	414	W	Unspecified Heap	1966
124AB	415	SW	Cuttings	1938
125X	415	SW	Cuttings	1947
126X	415	SW	Cuttings	1925
127X	416	SW	Cuttings	1989
128X	416	SW	Cuttings	1950
129	418	W	Unspecified Works	1990
130M	419	W	Unspecified Heap	1938
131M	419	W	Unspecified Heap	1938
132M	419	W	Unspecified Old Shaft	1955
133BN	419	NW	Unspecified Disused Pit	1975
134M	420	W	Unspecified Heap	1906
135M	420	W	Unspecified Heap	1891
136M	420	W	Unspecified Heap	1925
137M	420	W	Unspecified Heap	1947
138	424	SW	Unspecified Works	1975
139BO	425	N	Unspecified Ground Workings	1966
140	433	SW	Unspecified Works	1989
141Y	435	SW	Cuttings	1950
142Y	436	SW	Cuttings	1947
143Y	436	SW	Cuttings	1925
144Y	441	SW	Cuttings	1989
145AD	443	NW	Railway Sidings	1891
146Z	443	NW	Colliery	1891
147AA	446	NW	Unspecified Kilns	1955
148AA	447	NW	Unspecified Kilns	1947
149AB	451	SW	Electric Substation	1975
150AJ	454	W	Unspecified Tanks	1975
151AA	462	NW	Unspecified Kilns	1955
152AA	463	NW	Unspecified Kilns	1947
153BR	475	NW	Unspecified Ground Workings	1906

154U	486	NW	Gravel Pit	1906
155R	488	NW	Unspecified Heap	1891
156AC	490	W	Unspecified Heap	1955
157BU	491	E	Unspecified Pit	1966
158U	495	NW	Unspecified Tank	1891
159AD	495	NW	Railway Sidings	1955
160Z	497	NW	Railway Sidings	1947

1.2 Additional Information – Historical Tank Database

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

Records of historical tanks within 500m of the search boundary:

22

ID	Distance (m)	Direction	Use	Date
161AE	17	N	Unspecified Tank	1937
162AE	26	N	Unspecified Tank	1958
163AF	51	N	Unspecified Tank	1937
164AF	51	N	Unspecified Tank	1927
165AF	53	N	Unspecified Tank	1958
166AG	106	NE	Unspecified Tank	1997
167AG	106	NE	Unspecified Tank	1996
168AG	106	NE	Unspecified Tank	1994
169AG	106	NE	Unspecified Tank	1994
170AG	106	NE	Unspecified Tank	1995
171AG	106	NE	Unspecified Tank	1976
172AH	212	SE	Unspecified Tank	1892
173AH	212	SE	Unspecified Tank	1907
174AI	330	S	Unspecified Tank	1996
175AI	331	S	Unspecified Tank	1980
176AI	333	S	Unspecified Tank	1980
177AI	333	S	Unspecified Tank	1989
178AI	333	S	Unspecified Tank	1958
179AJ	458	W	Tanks	1973
180	472	NW	Unspecified Tank	1927
181AA	475	NW	Unspecified Tank	1937
182U	493	NW	Gasometer	1892

1.3 Additional Information – Historical Energy Features Database

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

Records of historical energy features within 500m of the search boundary:

56

ID	Distance (m)	Direction	Use	Date
183AK	27	N	Electricity Substation	1996
184AK	27	N	Electricity Substation	1995
185AK	27	N	Electricity Substation	1996
186AK	27	N	Electricity Substation	1999
187AK	40	N	Electricity Substation	1974
188AL	92	N	Electricity Substation	1996
189AL	92	N	Electricity Substation	1995
190AL	92	N	Electricity Substation	1996
191AL	92	N	Electricity Substation	1999
192AL	92	N	Electricity Substation	1974
193AM	177	W	Electricity Substation	1973
194AM	177	W	Electricity Substation	1997
195AM	177	W	Electricity Substation	1984
196AN	222	N	Electricity Substation	1995
197AN	222	N	Electricity Substation	1996
198AN	222	N	Electricity Substation	1996
199AN	222	N	Electricity Substation	1999
200AO	252	N	Electricity Substation	1994
201AO	252	N	Electricity Substation	1973
202AO	253	N	Electricity Substation	1984
203AP	331	E	Electricity Substation	1997
204AP	331	E	Electricity Substation	1996
205AP	331	E	Electricity Substation	1994
206AP	331	E	Electricity Substation	1994
207AP	331	E	Electricity Substation	1995
208AP	332	E	Electricity Substation	1976
209AQ	339	NE	Electricity Substation	1994
210AQ	339	NE	Electricity Substation	1994
211AQ	339	NE	Electricity Substation	1997
212AQ	339	NE	Electricity Substation	1996
213AQ	339	NE	Electricity Substation	1995
214AR	348	SW	Electricity Substation	1994
215AR	348	SW	Electricity Substation	1973
216AR	352	SW	Electricity Substation	1987
217AS	381	N	Electricity Substation	1996
218AS	381	N	Electricity Substation	1995
219AS	381	N	Electricity Substation	1996
220AS	381	N	Electricity Substation	1999
221	382	N	Electricity Substation	1999
222AS	383	N	Electricity Substation	1974
223AT	409	NW	Electricity Substation	1973

224AT	412	NW	Electricity Substation	1994
225AT	413	NW	Electricity Substation	1984
226AB	453	SW	Electricity Substation	1984
227AB	455	SW	Electricity Substation	1978
228AU	458	NW	Electricity Substation	1994
229AU	458	NW	Electricity Substation	1984
230AU	458	NW	Electricity Substation	1973
231	465	N	Gas Substation	1974
232AV	482	NE	Electricity Substation	1994
233AV	482	NE	Electricity Substation	1997
234AV	482	NE	Electricity Substation	1996
235AV	482	NE	Electricity Substation	1994
236AV	482	NE	Electricity Substation	1995
237AV	482	NE	Electricity Substation	1976
238U	493	NW	Gasometer	1892

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 207

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

ID	Distance(m)	Direction	Use	Date
239AW	7	N	Pond	1851
240AW	8	N	Pond	1891
241AW	8	N	Pond	1947
242AW	8	N	Pond	1925

243AW	9	N	Pond	1938
244AW	10	N	Pond	1906
245AW	11	N	Pond	1955
246AZ	12	E	Ponds	1891
247AW	14	N	Pond	1966
248AW	14	N	Pond	1975
249AW	14	N	Pond	1990
250	19	S	Pond	1975
251AX	22	E	Pond	1938
252AX	23	E	Pond	1925
253AY	25	S	Coal Pit	1851
254AZ	26	E	Ponds	1990
255AZ	26	E	Ponds	1966
256AZ	26	E	Ponds	1975
257BA	37	E	Pond	1891
258B	42	NW	Unspecified Old Quarry	1891
259B	42	NW	Unspecified Pit	1925
260B	42	NW	Unspecified Pit	1947
261B	42	NW	Unspecified Pit	1906
262B	42	NW	Unspecified Pit	1955
263B	44	NW	Unspecified Pit	1938
264B	44	NW	Unspecified Pit	1938
265BA	47	E	Pond	1938
266BA	47	E	Pond	1925
267BC	64	SE	Water Body	1891
268BB	71	N	Sandstone Quarry	1851
269BC	74	E	Pond	1966
270BC	74	E	Pond	1990
271BC	74	E	Pond	1975
272BC	81	E	Water Body	1851
273BD	132	E	Pond	1947
274BD	135	E	Ponds	1938
275BD	135	E	Pond	1906
276BD	136	E	Pond	1955
277BD	136	E	Pond	1925
278	172	S	Ponds	1955
279BE	179	SE	Pond	1989
280BE	179	SE	Pond	1967
281BE	180	SE	Pond	1975
282C	188	SW	Old Colliery	1906
283C	197	SW	Old Colliery	1891
284C	203	SW	Colliery	1851
285D	210	SW	Unspecified Heap	1955
286G	210	SW	Unspecified Ground Workings	1906

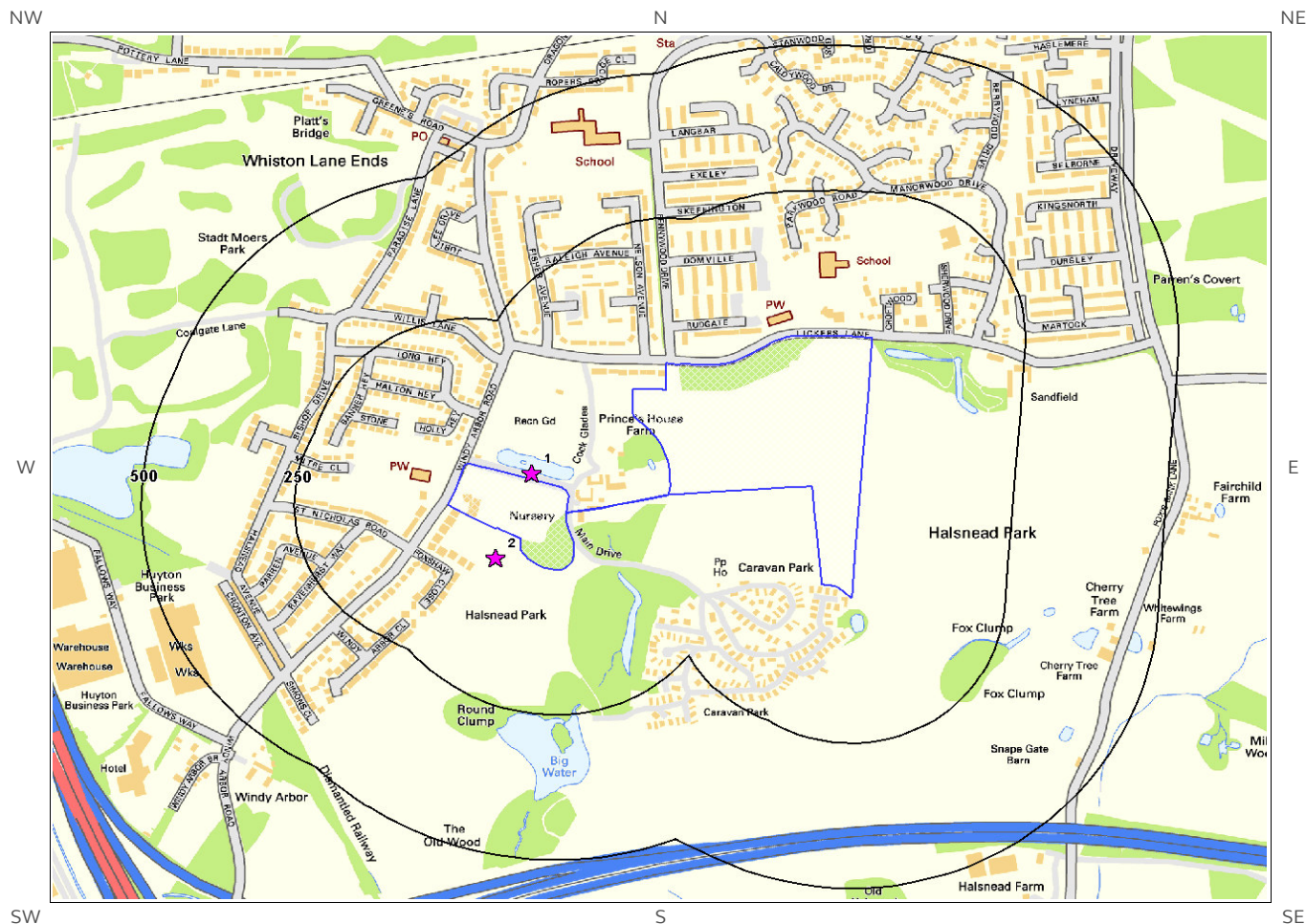
287D	210	SW	Unspecified Ground Workings	1925
288D	212	SW	Unspecified Disused Shafts	1966
289E	213	SW	Disused Colliery	1947
290E	213	SW	Disused Colliery	1925
291F	213	SW	Unspecified Ground Workings	1947
292D	218	SW	Unspecified Old Shaft	1955
293D	220	SW	Unspecified Heap	1891
294D	221	SW	Unspecified Old Shafts	1925
295D	221	SW	Unspecified Old Shafts	1947
296BF	235	S	Water Body	1950
297BF	235	S	Pond	1967
298BF	237	S	Water Body	1906
299BF	237	S	Water Body	1925
300BF	237	S	Water Body	1891
301BF	237	S	Water Body	1947
302BF	237	S	Water Body	1938
303BF	247	S	Water Body	1975
304BF	251	S	Water Body	1851
305BF	251	S	Pond	1989
306BG	252	SW	Unspecified Ground Workings	1955
307I	255	SW	Unspecified Disused Shafts	1966
308BH	256	W	Colliery	1851
309BI	259	E	Pond	1938
310BG	259	SW	Unspecified Ground Workings	1925
311BG	260	SW	Unspecified Heap	1966
312BI	260	E	Pond	1947
313BI	260	E	Pond	1925
314BI	260	E	Pond	1906
315BI	260	E	Pond	1891
316I	260	SW	Unspecified Old Shaft	1955
317I	262	SW	Unspecified Old Shafts	1938
318I	262	SW	Unspecified Old Shafts	1938
319BI	263	E	Ponds	1990
320BI	263	E	Ponds	1966
321BI	263	E	Ponds	1975
322BI	263	E	Ponds	1955
323BG	263	SW	Unspecified Heap	1938
324BG	263	SW	Unspecified Heap	1938
325I	264	SW	Unspecified Old Shafts	1925
326I	264	SW	Unspecified Old Shafts	1947
327C	268	SW	Unspecified Heap	1891
328I	268	SW	Coal Pit	1851

329BJ	273	W	Coal Pit	1851
330BH	280	W	Coal Pit	1851
331Z	281	W	Refuse Heap	1990
332AC	287	W	Disused Colliery	1955
333C	291	SW	Unspecified Old Shaft	1955
334J	299	SW	Unspecified Ground Workings	1906
335O	300	NW	Brick Works	1955
336I	303	SW	Unspecified Disused Shafts	1966
337J	306	SW	Unspecified Old Shaft	1955
338I	308	SW	Unspecified Old Shafts	1938
339I	308	SW	Unspecified Old Shafts	1938
340J	310	SW	Unspecified Old Shafts	1925
341J	310	SW	Unspecified Old Shafts	1947
342J	311	SW	Unspecified Heaps	1891
343M	312	W	Disused Colliery	1906
344J	321	SW	Unspecified Ground Workings	1925
345J	321	SW	Unspecified Ground Workings	1938
346J	321	SW	Unspecified Ground Workings	1938
347M	321	W	Unspecified Disused Mine	1966
348M	325	W	Disused Colliery	1938
349M	325	W	Disused Colliery	1938
350N	327	NW	Brick Works	1925
351N	327	NW	Brick Works	1947
352O	329	NW	Metallic Brick Works	1938
353J	330	SW	Unspecified Disused Shafts	1966
354P	331	W	Colliery	1891
355J	338	SW	Coal Pit	1851
356R	340	NW	Brick Works	1906
357Q	347	W	Unspecified Ground Workings	1891
358Q	349	W	Colliery	1851
359BL	361	E	Pond	1938
360BK	361	NW	Unspecified Pit	1906
361BL	361	E	Pond	1947
362BL	361	E	Pond	1906
363BL	361	E	Pond	1925
364BL	361	E	Pond	1891
365BL	366	E	Pond	1955
366BL	366	E	Pond	1990
367BL	366	E	Pond	1966
368BL	366	E	Pond	1975
369BL	370	E	Pond	1851

370S	371	NW	Unspecified Pit	1938
371S	371	NW	Unspecified Pit	1938
372T	371	S	Cuttings	1975
373T	371	S	Cuttings	1989
374S	371	NW	Unspecified Pits	1925
375N	374	NW	Unspecified Ground Workings	1947
376N	375	NW	Unspecified Ground Workings	1955
377BK	384	NW	Pond	1906
378M	387	W	Unspecified Disused Shaft	1966
379M	388	W	Unspecified Disused Shaft	1966
380W	390	W	Unspecified Ground Workings	1966
381M	392	W	Coal Pit	1851
382W	394	W	Unspecified Ground Workings	1947
383W	394	W	Unspecified Ground Workings	1925
384W	395	W	Unspecified Ground Workings	1955
385W	395	W	Unspecified Ground Workings	1906
386M	395	W	Unspecified Old Shaft	1955
387M	395	W	Unspecified Old Shaft	1955
388W	396	W	Unspecified Ground Workings	1938
389W	396	W	Unspecified Ground Workings	1938
390M	396	W	Unspecified Old Shafts	1925
391M	396	W	Unspecified Old Shafts	1947
392M	397	W	Unspecified Old Shafts	1938
393M	397	W	Unspecified Old Shafts	1938
394M	397	W	Unspecified Old Shafts	1947
395M	397	W	Unspecified Old Shafts	1925
396M	397	W	Unspecified Old Shafts	1938
397M	397	W	Unspecified Old Shafts	1938
398W	403	W	Unspecified Heap	1891
399BM	407	N	Unspecified Old Quarry	1891
400M	409	W	Unspecified Shafts	1891
401M	414	W	Unspecified Heap	1966
402AB	415	SW	Cuttings	1938
403X	415	SW	Cuttings	1925
404X	415	SW	Cuttings	1947
405X	416	SW	Cuttings	1989
406X	416	SW	Cuttings	1950
407	417	W	Pond	1975
408M	419	W	Unspecified Heap	1938
409M	419	W	Unspecified Heap	1938

410M	419	W	Unspecified Old Shaft	1955
411BN	419	NW	Unspecified Disused Pit	1975
412M	420	W	Unspecified Heap	1906
413M	420	W	Unspecified Heap	1891
414M	420	W	Unspecified Heap	1947
415M	420	W	Unspecified Heap	1925
416BT	425	W	Pond	1990
417BO	425	N	Unspecified Ground Workings	1966
418Y	435	SW	Cuttings	1950
419Y	436	SW	Cuttings	1947
420Y	436	SW	Cuttings	1925
421Y	441	SW	Cuttings	1989
422Z	443	NW	Colliery	1891
423BP	445	E	Pond	1891
424BP	452	E	Pond	1906
425BQ	453	E	Pond	1925
426BQ	453	E	Pond	1906
427BQ	453	E	Pond	1947
428BQ	453	E	Pond	1891
429BQ	453	E	Pond	1938
430BP	454	E	Pond	1925
431BP	454	E	Pond	1947
432BP	457	E	Pond	1990
433BP	457	E	Pond	1955
434BP	457	E	Pond	1966
435BQ	458	E	Pond	1966
436BQ	458	E	Pond	1955
437BS	462	N	Pond	1851
438BR	475	NW	Unspecified Ground Workings	1906
439BS	476	N	Pond	1891
440BS	478	N	Pond	1966
441U	486	NW	Gravel Pit	1906
442R	488	NW	Unspecified Heap	1891
443BT	490	W	Unspecified Heap	1955
444BU	491	E	Unspecified Pit	1966
445R	495	NW	Pond	1891

2. Environmental Permits, Incidents and Registers Map



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- | | | |
|-------------------------------|---|--|
| Site Outline | Recorded Pollution Incident | RAS 3 & 4 Authorisations |
| Dangerous Substances (List 1) | Dangerous Substances (List 2) | Part A(1) Authorised Processes and Historic IPC Authorisations |
| Water Industry Referrals | Licenced Discharge Consents | Part A(2) and Part B Authorised Processes |
| Red List Discharge Consents | Sites Determined as Contaminated Land | COMAH / NIHHS Sites |
| | Hazardous Substance Consents and Enforcements | |

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

2

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

ID	Distance (m)	Direction	NGR	Details
1	10	N	346899 390316	Incident Date: 15-Jul-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)
2	45	W	346840 390170	Incident Date: 20-May-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)

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

0

Database searched and no data found.

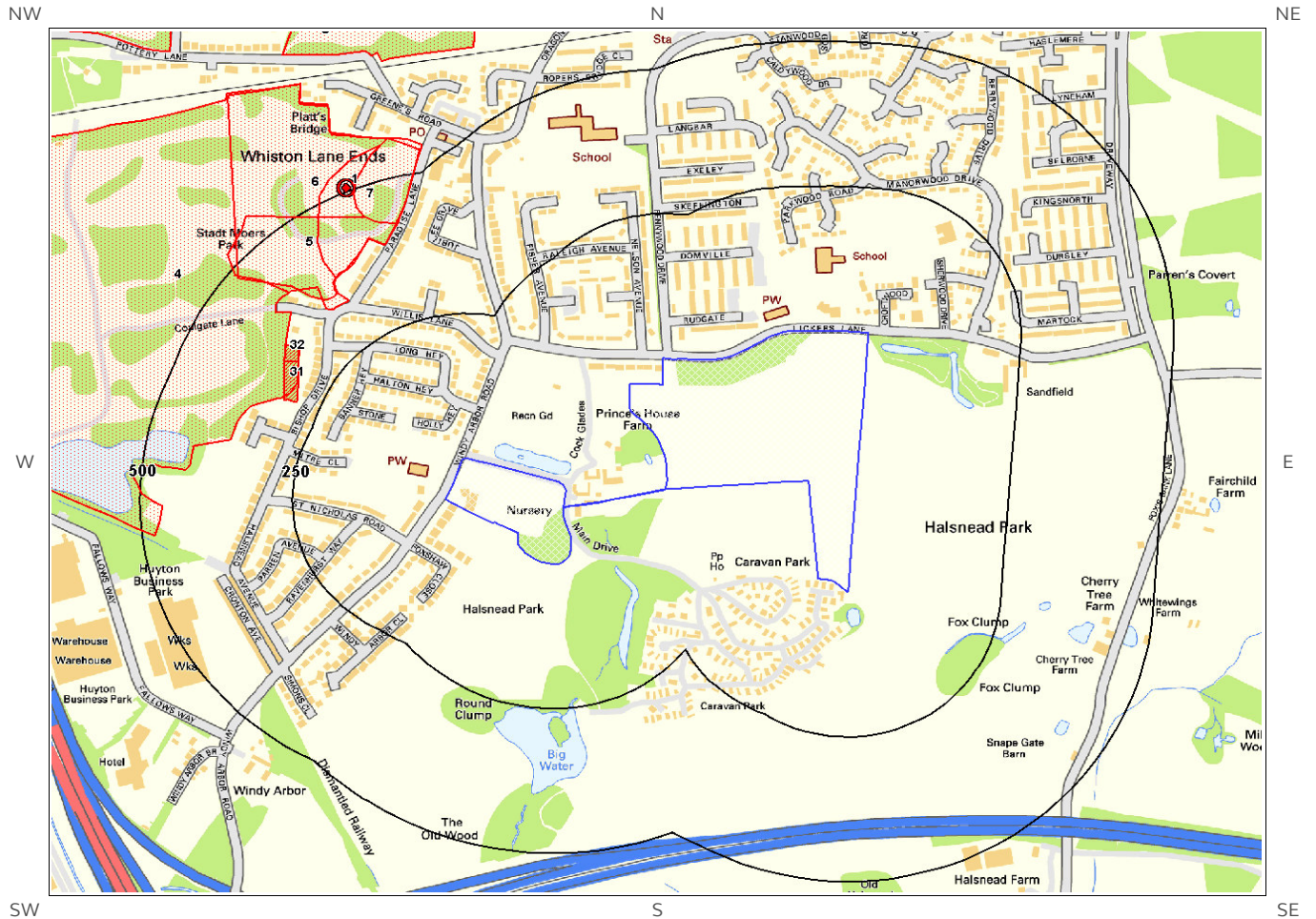
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

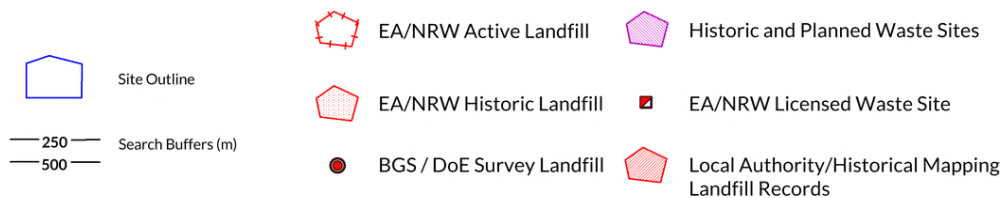
0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

10

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

ID	Distance (m)	Direction	NGR	Details
4	301	NW	346200 390600	Site Address: Coalgate Lane Landfill Site, Ellis Ashton Street, Huyton, Knowsley, Merseyside 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 Surrendered: Licence Holder Address: - Operator: Huyton Urban District Council and Merseyside County Council Licence Holder: Huyton Urban District Council and Merseyside County Council First Recorded: 01-Jan-1972 Last Recorded: 01-Jan-1983
5	330	NW	346500 390600	Site Address: Coalgate Lane Wimpeym, Tushingham's Quarry, Paradise Lane, Stadt-Moers Park, Knowsley, Merseyside Waste Licence: - Site Reference: GDO M017, 026/01 Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: Bridle Road, Bootle Operator: G Wimpey and Company Limited Licence Holder: G Wimpey and Company Limited First Recorded: 31-Dec-1976 Last Recorded: 01-Jan-1979
6	351	NW	346500 390700	Site Address: Whiston Tip, St Helens, Lancashire Waste Licence: - Site Reference: - Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Central Electricity Generating Board - North Western Region Licence Holder: - First Recorded: 07-Jan-1967 Last Recorded: -

ID	Distance (m)	Direction	NGR	Details	
7	377	NW	346600 390700	Site Address: Tushingham's Quarry, Coalgate Lane, Paradise Lane, Stadt- Moers Park, Whiston, Merseyside, Knowsley Waste Licence: Yes Site Reference: 026/01,GDO 020 Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 27-May-1977 Licence Surrendered: Licence Holder Address: Bridle Road, Bootle, Merseyside Operator: W F Doyle and Company Limited Licence Holder: George Wimpey and Company Limited First Recorded: 01-Apr-1976 Last Recorded: 31-Dec-1979
8	622	NW	346400 391200	Site Address: Whiston Tip, Knowsley, Merseyside Waste Licence: - Site Reference: 088 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Whiston Rural District Council - Prescott Urban District Council - Huyton Urban District Council First Recorded: - Last Recorded: -
Not shown	1005	NW	345700 390600	Site Address: West View Tip, Knowsley, Merseyside Waste Licence: - Site Reference: GDO M194 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Hoyton with Roby Urban District Council Licence Holder: - First Recorded: 31-Jan-1971 Last Recorded: 01-Jan-1978
Not shown	1031	NW	346200 391400	Site Address: Whiston Tip, Knowsley, Merseyside Waste Licence: - Site Reference: GDO M088 Waste Type: Industrial, Commercial, Household, Liquid, sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Whiston Rural District Council, Prescot Urban District Council, Huyton U District Council Licence Holder: Whiston Rural District Council - Prescott Urban District Council - Huyton Urban District Council First Recorded: - Last Recorded: 01-Jan-1973
Not shown	1047	W	345400 390300	Site Address: Brickfields, Knowsley, Merseyside Waste Licence: - Site Reference: GDO M209 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Tushingham Metallic Brick Works Licence Holder: Tushingham Metallic Brick Works First Recorded: - Last Recorded: -
Not shown	1122	E	348600 390400	Site Address: Deans Farm, Blundells Lane, Rainhill, St. Helens, Merseyside Waste Licence: - Site Reference: 165/01, GDO M064 Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: Harrison Street, Widnes, Cheshire Operator: K G B and M E Limited Licence Holder: K G B and M E Limited First Recorded: 01-Jan-1961 Last Recorded: -
Not shown	1197	W	345400 390600	Site Address: Huyton Quarry, Knowsley, Merseyside Waste Licence: - Site Reference: GDO M087 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 01-Oct-1971 Last Recorded: -

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

3

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

ID	Distance (m)	Direction	NGR	Details	
1	507	N	346600.0 390800.0	Address: Whiston Tip, St Helens, Lancs BGS Number: 2786.0	Risk: No risk to aquifer Waste Type: N/A
Not shown	1149	W	345700.0 390700.0	Address: West View Tip, Huyton Quarry, Liverpool, M'Side BGS Number: 197.0	Risk: No risk to aquifer Waste Type: N/A
Not shown	1222	NW	346200.0 391400.0	Address: Whiston Tip, Pottery Lane, Prescott, M'Side BGS Number: 626.0	Risk: No risk to aquifer Waste Type: N/A

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

4

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
31	289	W	346511 390465	Refuse Tip	1997 mapping	Polygon
32	317	NW	346511 390514	Refuse Tip	1994 mapping	Polygon
Not shown	1233	W	345515 390329	Refuse Tip	1967 mapping	Polygon
Not shown	1250	W	345513 390338	Refuse Tip	1969 mapping	Polygon

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

17

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

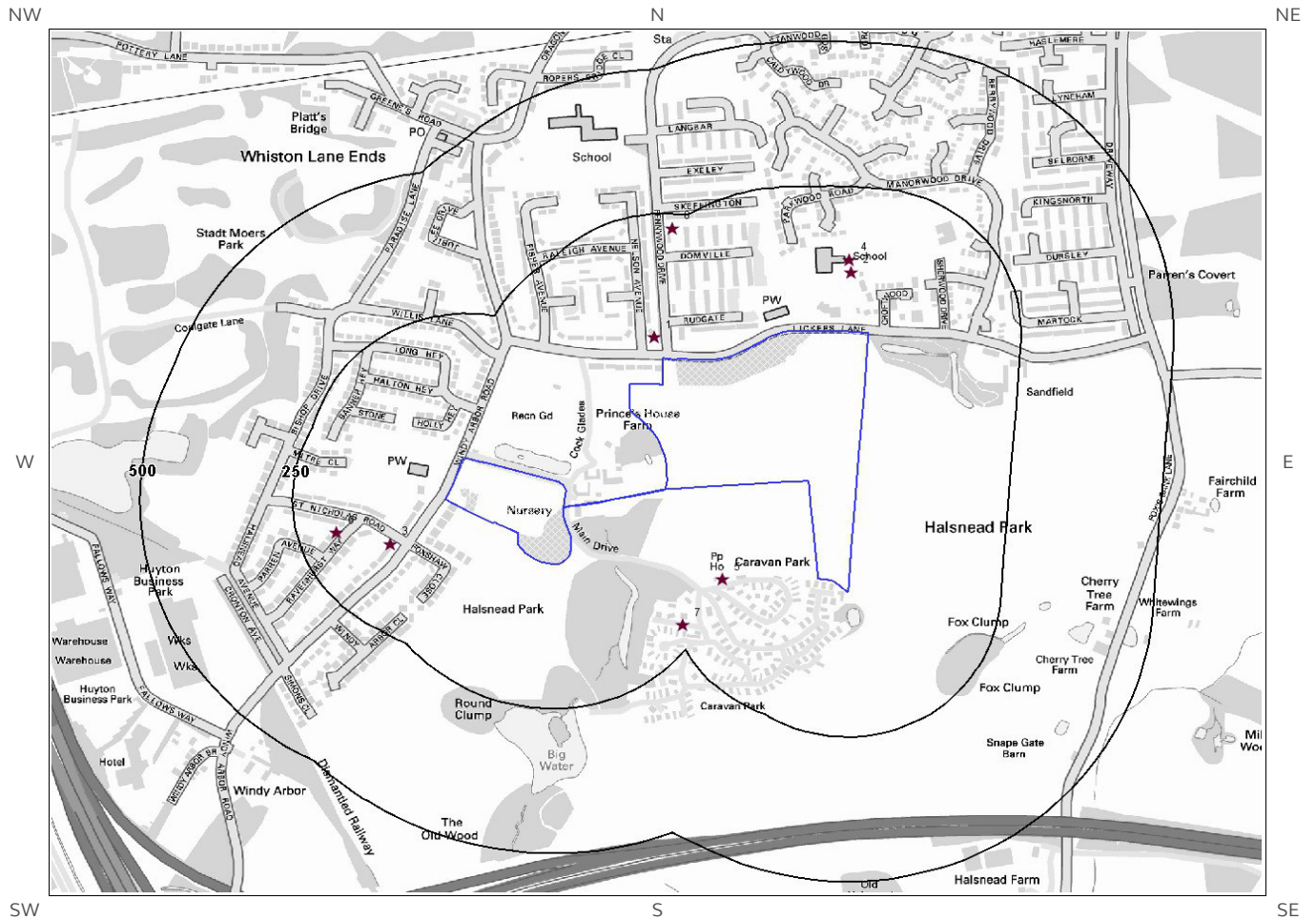
ID	Distance (m)	Direction	NGR	Details
Not shown	885	SW	345981 389846	Site Address: Stretton Way Depot, Stretton Way, Huyton, Knowsley, Merseyside, L36 6JF Type: 75kte HCI Waste Transfer Station Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KNO020 EPR reference: EA/EPR/EP3491LE/A001 Operator: Knowsley Metropolitan Borough Council Waste Management licence No: 101122 Annual Tonnage: 0.0 Issue Date: 03/11/2009 Effective Date: - Modified: - Surrendered Date: 19/06/2015 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Stretton Way Bulking Station Correspondence Address: -
Not shown	901	W	345900 390000	Site Address: Stretton Way, Huyton Ind Est, Huyton, Merseyside, L36 6JF Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FCC004 EPR reference: EA/EPR/JB3633RP/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 104504 Annual Tonnage: 120000.0 Issue Date: 23/07/2012 Effective Date: - Modified: 18/12/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Arpley 2 Correspondence Address: -
Not shown	901	W	345900 390000	Site Address: Stretton Way, Huyton Ind Est, Huyton, Merseyside, L36 6JF Type: 75kte HCI Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FCC004 EPR reference: EA/EPR/JB3633RP/A001 Operator: F C C Recycling (U K) Limited Waste Management licence No: 104504 Annual Tonnage: 74999.0 Issue Date: 23/07/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Stretton Way Correspondence Address: -
Not shown	901	W	345900 390000	Site Address: Arpley 2, Stretton Way, Huyton Ind Est, Huyton, Merseyside, L36 6JF Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FCC004 EPR reference: EA/EPR/JB3633RP/V003 Operator: F C C Recycling (U K) Limited Waste Management licence No: 104504 Annual Tonnage: 120000.0 Issue Date: 23/07/2012 Effective Date: - Modified: 08/06/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: To PPC Site Name: Arpley 2 Correspondence Address: -
Not shown	910	W	345870 390080	Site Address: M W D A Treatment Facility, Stretton Way, Huyton, Nr Liverpool, Merseyside, L36 6JF Type: Physical Treatment Facility Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FAI011 EPR reference: - Operator: Fairport Engineering Ltd Waste Management licence No: 50487 Annual Tonnage: 0.0 Issue Date: 10/05/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: M W D A Treatment Facility Correspondence Address: Market Place, Adlington, Nr Chorley, Lancashire, PR7 4EZ

ID	Distance (m)	Direction	NGR	Details	
Not shown	910	W	345870 390080	Site Address: Land/premises At, Stretton Way, Huyton, Liverpool, Merseyside, L36 6JF Type: Physical Treatment Facility Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ORC009 EPR reference: EA/EPR/DP3794ST/V004 Operator: Orchid Environmental Ltd Waste Management licence No: 50487 Annual Tonnage: 49999.0	Issue Date: 10/05/2007 Effective Date: 14/01/2009 Modified: 24/09/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Materials Recycling And Recovery Centre Correspondence Address: -
Not shown	914	W	345848 390245	Site Address: Huyton W T S, Ellis Ashton Street, Huyton Ind Est, Liverpool, Merseyside, L36 6BN Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VEO092 EPR reference: EA/EPR/EP3695SH/V006 Operator: Veolia Environmental Services Merseyside & Halton Ltd Waste Management licence No: 53645 Annual Tonnage: 500000.0	Issue Date: 15/09/1995 Effective Date: 11/11/2009 Modified: 15/05/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Huyton Waste Transfer Station Correspondence Address: -
Not shown	1023	W	345740 390220	Site Address: Ellis Ashton Street, Huyton, Liverpool, Merseyside, L36 6BJ Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MWA006 EPR reference: - Operator: Mersey Waste Holdings Ltd Waste Management licence No: 53645 Annual Tonnage: 6250.0	Issue Date: 15/09/1995 Effective Date: - Modified: 20/07/2006 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Huyton W T S / H W R C Correspondence Address: Port Of Liverpool Buildings, 2nd Floor, Pierhead, Liverpool, Merseyside, L3 1BY
Not shown	1023	W	345740 390220	Site Address: Ellis Ashton Street, Huyton, Liverpool, Merseyside, L36 6BJ Type: Special Waste Transfer Station Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MWA006 EPR reference: - Operator: Mersey Waste Holdings Ltd Waste Management licence No: 53645 Annual Tonnage: 6250.0	Issue Date: 15/09/1995 Effective Date: - Modified: 22/03/2002 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Huyton Waste Transfer Station & Waste Reception Centre Correspondence Address: Huyton Waste Transfer Station, Ellis Ashton Street, Huyton, Liverpool, Merseyside, L36 6BJ
Not shown	1137	SW	345735 389774	Site Address: Huyton Ind Est, Wilson Road, Huyton, Knowsley, Merseyside, L36 6AD Type: 75kte Non-hazardous & hazardous HWA Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VEO167 EPR reference: EA/EPR/DB3833DK/A001 Operator: Veolia E S Merseyside & Halton Ltd Waste Management licence No: 103677 Annual Tonnage: 74999.0	Issue Date: 12/12/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Huyton H W R C Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details
Not shown	1220	S	346930 388930	Site Address: Cronton Quarry, Dacre's Bridge Lane, Tarbock, Prescot, Merseyside, L35 1QZ Type: Inert LF Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAL168 EPR reference: EA/EPR/AB3909FA/V002 Operator: Grundy And Co Excavations Limited Waste Management licence No: 400986 Annual Tonnage: 20000.0 Issue Date: 03/04/2014 Effective Date: - Modified: 05/08/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Cronton Quarry Correspondence Address: -
Not shown	1257	W	345506 390229	Site Address: Units 1-3 The Lombard Centre, Link Road, Huyton, Liverpool, Merseyside, L36 6AP Type: 75kte WEEE Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RRL004 EPR reference: EA/EPR/AB3603LX/A001 Operator: Restart Recycling Limited Waste Management licence No: 400736 Annual Tonnage: 74999.0 Issue Date: 04/11/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Restart Recycling Ltd Correspondence Address: -
Not shown	1257	W	345506 390229	Site Address: Unit 1, 2 & 3, The Lombard Centre, Link Road, Huyton, Merseyside, L36 6AP Type: 75kte Materials Recycling Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LRL101 EPR reference: EA/EPR/CB3806XX/A001 Operator: Link Recycling Limited Waste Management licence No: 402341 Annual Tonnage: 75000.0 Issue Date: 22/07/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Link Recycling Limited Correspondence Address: -
Not shown	1343	W	345420 390320	Site Address: Ellis Ashton Street, Huyton, Merseyside, L36 6AH Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAI002 EPR reference: - Operator: Mainsway Ltd Waste Management licence No: 50376 Annual Tonnage: 0.0 Issue Date: 01/04/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Mainsway Ltd Correspondence Address: Keith Lewis, Pearl Environmental Ltd, 13, Middleton Road, Reddish, Stockport, SK5 6SG
Not shown	1343	W	345420 390320	Site Address: Land/premises At, Ellis Ashton Street, Huyton, Merseyside, L36 6AH Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAI002 EPR reference: EA/EPR/ZP3294CU/A001 Operator: Mainsway Ltd Waste Management licence No: 50376 Annual Tonnage: 75000.0 Issue Date: 01/04/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Mainsway Ltd Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details
Not shown	1369	W	345400 390400	Site Address: Huyton Industrial Estate, Ellis Ashton Street, Huyton, Liverpool, Merseyside, L36 6BW Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WIL204 EPR reference: EA/EPR/FP3694CW/A001 Operator: Willis Peter James Waste Management licence No: 50354 Annual Tonnage: 2500.0 Issue Date: 10/08/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Huyton Quarry Salvage Correspondence Address: -
Not shown	1415	W	345380 390564	Site Address: Units 1/2, Ellis Ashton Street, Huyton Industrial Estate, Liverpool, Merseyside, L36 6BJ Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ROB006 EPR reference: EA/EPR/XP3294CL/A001 Operator: Robcliffe Limited Waste Management licence No: 50292 Annual Tonnage: 2500.0 Issue Date: 26/08/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Robcliffe Ltd Vehicle Dismantling Correspondence Address: -

4. Current Land Use Map



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Site Outline

★ Current Industrial Sites

— Electricity Transmission Cables

— 250 — Search Buffers (m)
— 500 —

● Petrol & Fuel Sites

— Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

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

8

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	41	NW	Electricity Sub Station	347104 390543	Electricity Sub Station, L35	Electrical Features	Infrastructure and Facilities
2	103	N	Electricity Sub Station	347427 390655	Electricity Sub Station, L35	Electrical Features	Infrastructure and Facilities
3	117	SW	Underwater Vision R O V Services	346672 390185	Underwater Vision R O V Services, 112, Windy Arbor Road, Whiston, Prescot, L35 3SQ	Marine Engineers and Services	Engineering Services
4	125	N	Chimney	347424 390677	Chimney, L35	Chimneys	Industrial Features
5	156	W	Pumping House	347217 390124	Pumping House, L35	Water Pumping Stations	Industrial Features
6	188	W	Electricity Sub Station	346583 390205	Electricity Sub Station, L35	Electrical Features	Infrastructure and Facilities
7	221	SE	Electricity Sub Station	347152 390045	Electricity Sub Station, L35	Electrical Features	Infrastructure and Facilities
8	226	N	Electricity Sub Station	347134 390731	Electricity Sub Station, L35	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

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

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

5.3 Bedrock and Solid Geology

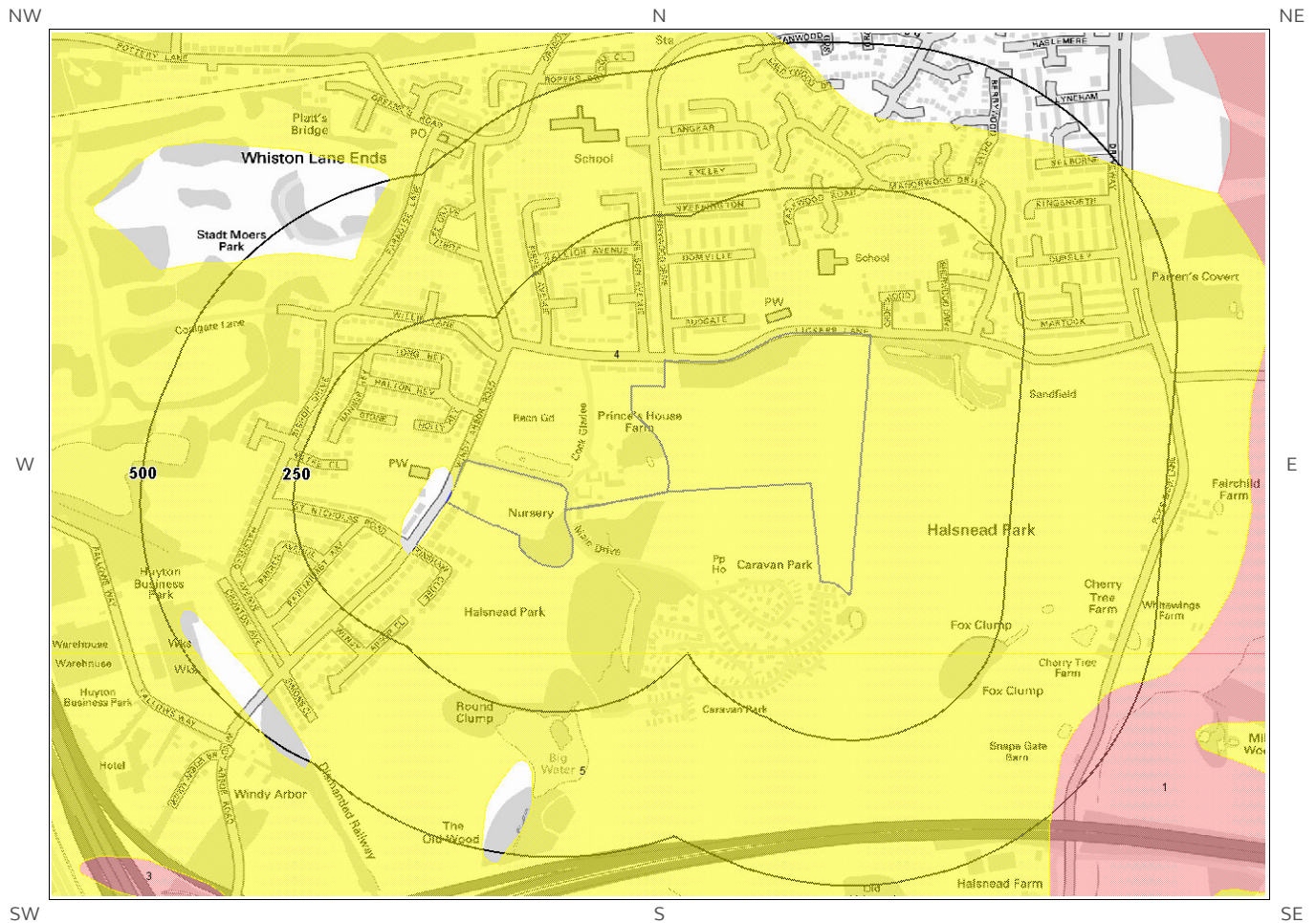
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
PMR-SDST	PEMBERTON ROCK	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
KNSF-SDST	KINNERTON SANDSTONE FORMATION	SANDSTONE
KNSF-SDST	KINNERTON SANDSTONE FORMATION	SANDSTONE

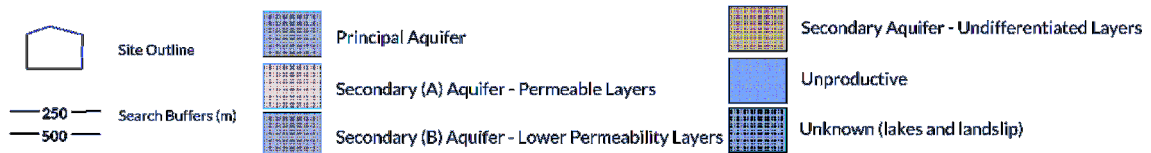
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

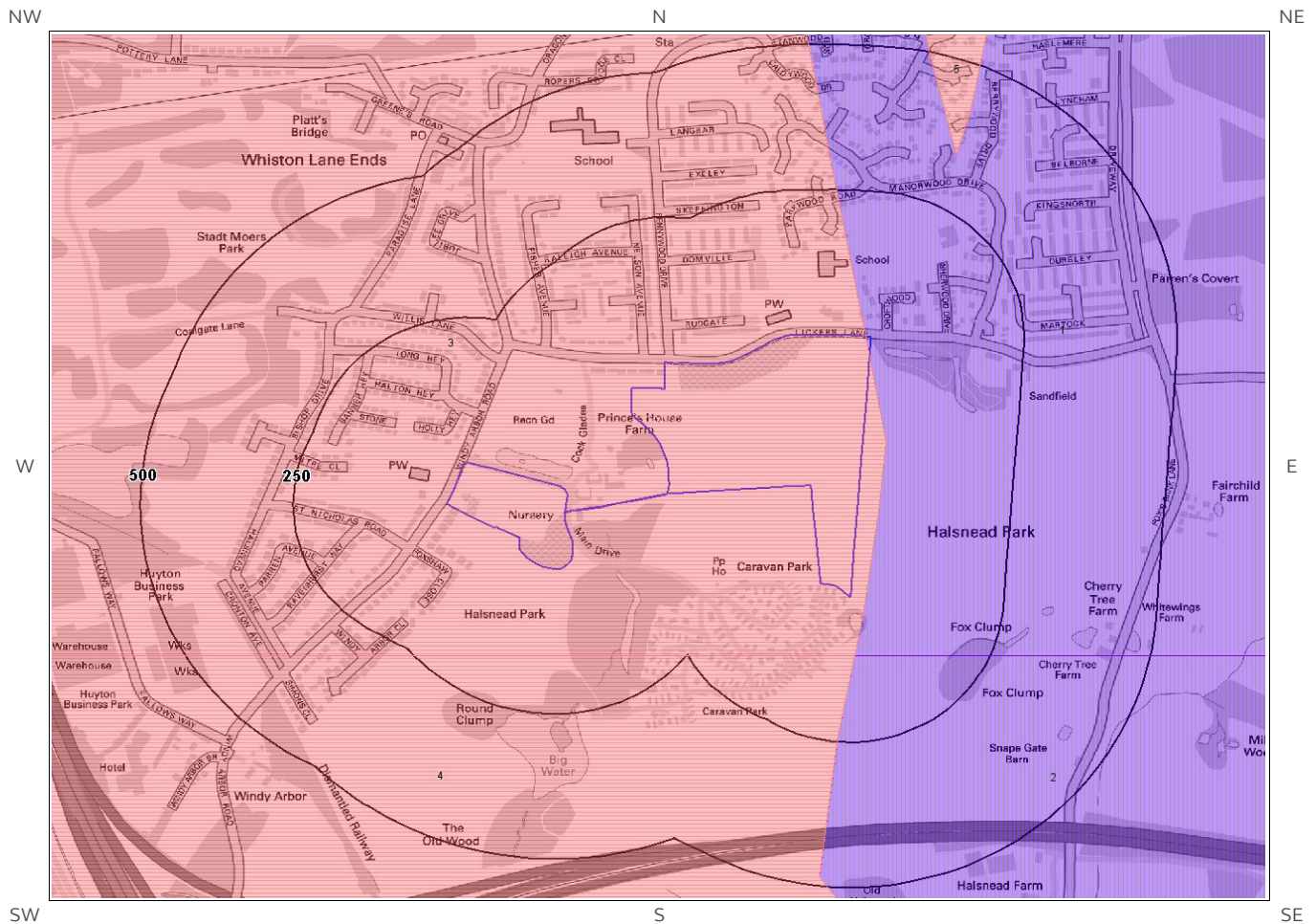
6a. Aquifer Within Superficial Geology



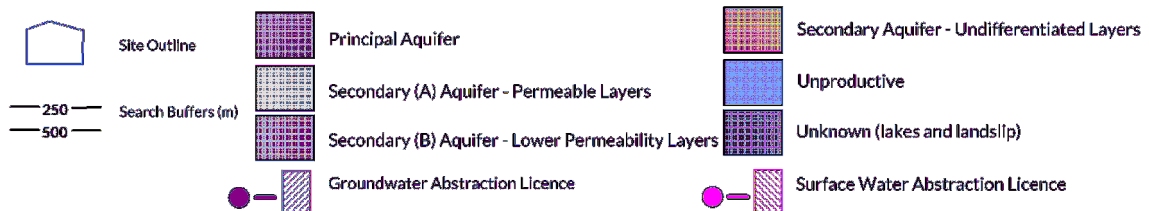
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6b. Aquifer Within Bedrock Geology and Abstraction Licenses



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Site Outline

Search Buffers (m)

250

500

Source Protection Zone 1 - Inner Catchment

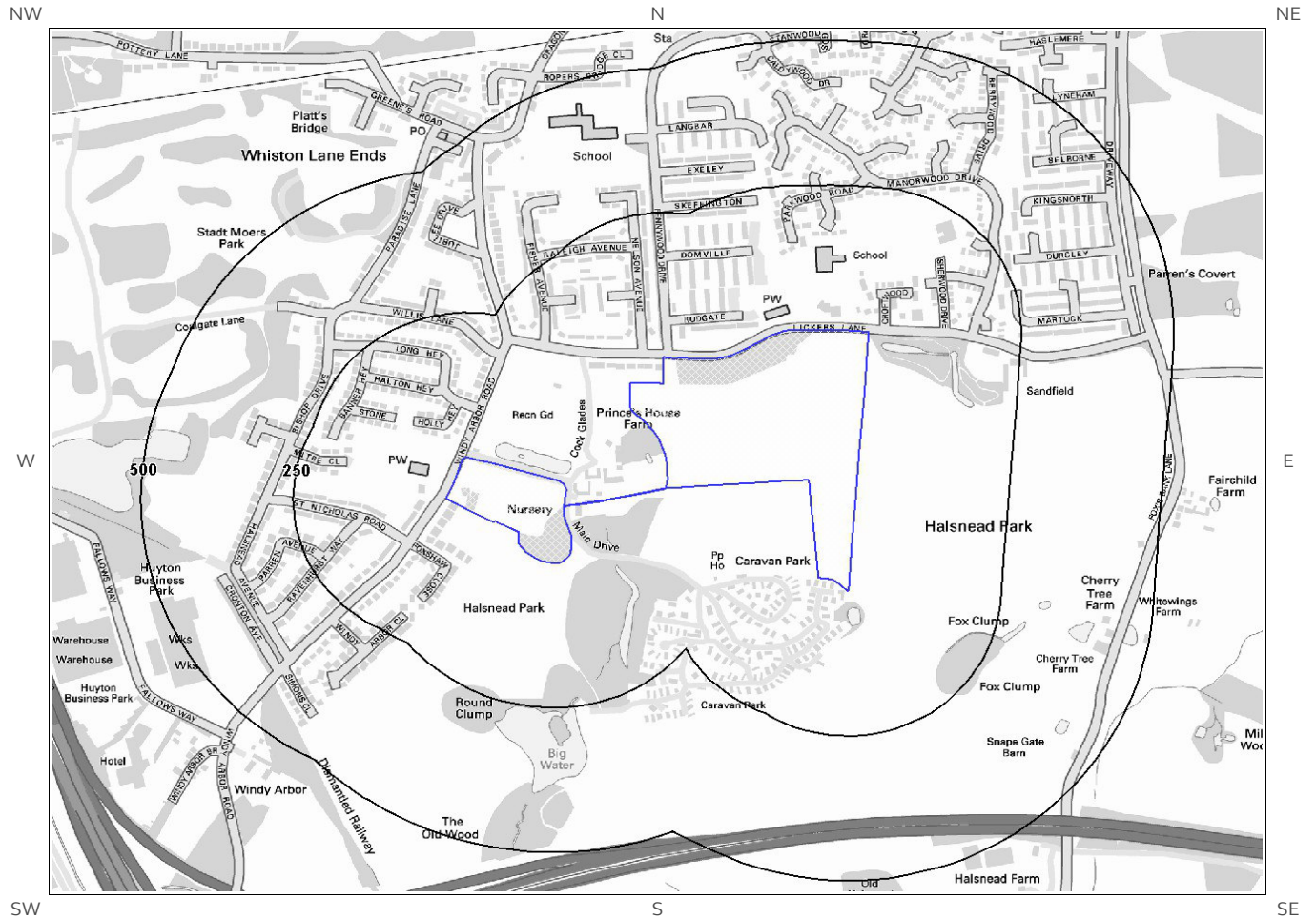
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

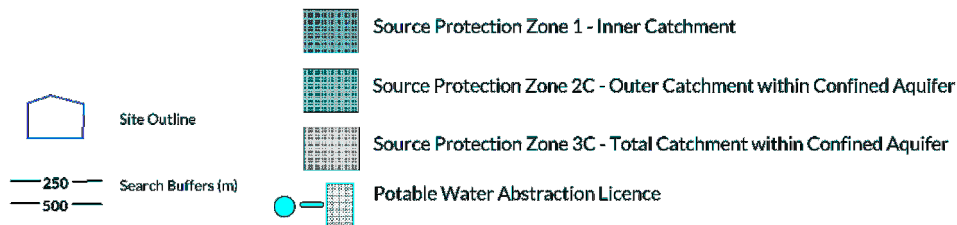
Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

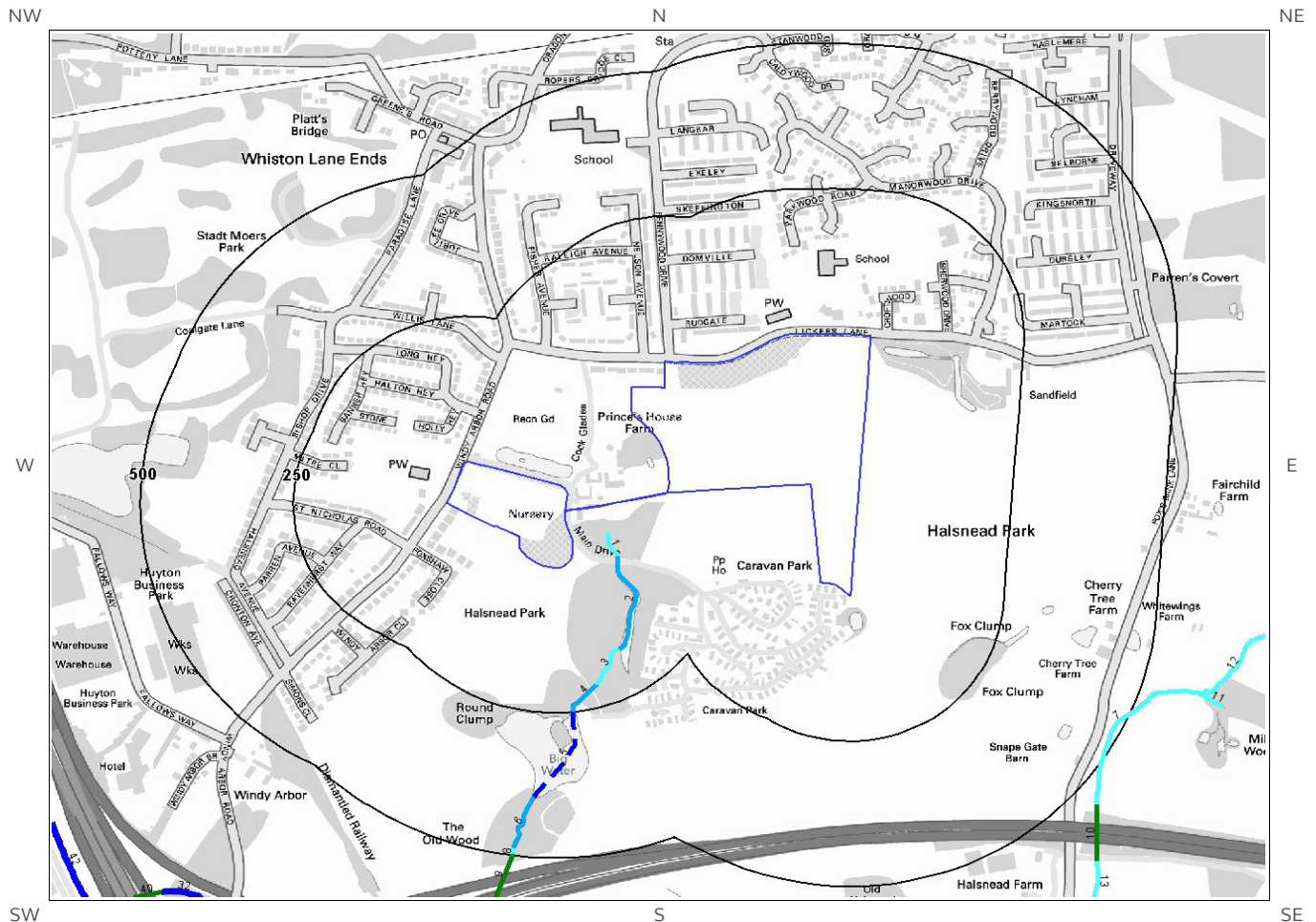
6d. Hydrogeology – Source Protection Zones within confined aquifer



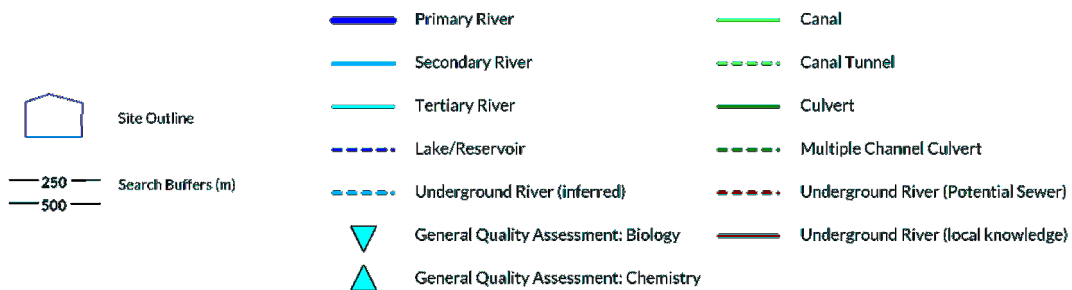
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6e. Hydrology – Detailed River Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? Yes

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

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

ID	Distance (m)	Direction	Designation	Description
4	0	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
5	101	S	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
1	434	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

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	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
3	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	101	S	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
4	101	S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	342	NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
Not shown	988	NE	348100 391300	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 1599 Original Start Date: 16/3/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/3/1966 Version End Date:
Not shown	1066	NE	348100 391400	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: S 7174 Original Start Date: 1/6/1993 Expiry Date: - Issue No: 101 Version Start Date: 24/10/1996 Version End Date:
Not shown	1066	NE	348100 391400	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: Berendsen UK Limited Annual Volume (m³): 118181.82 Max Daily Volume (m³): 545.46 Original Application No: NPS/WR/013874 Original Start Date: 1/6/1993 Expiry Date: - Issue No: 102 Version Start Date: 22/7/2013 Version End Date:
Not shown	1106	E	348550 390340	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: S 7282 Original Start Date: 6/9/1994 Expiry Date: - Issue No: 101 Version Start Date: 19/2/2001 Version End Date:
Not shown	1106	E	348550 390340	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: S 7282 Original Start Date: 6/9/1994 Expiry Date: - Issue No: 101 Version Start Date: 19/2/2001 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1106	E	348550 390340	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	Annual Volume (m³): 21966.87 Max Daily Volume (m³): 191.81 Original Application No: 7282 Original Start Date: 6/9/1994 Expiry Date: - Issue No: 102 Version Start Date: 11/2/2007 Version End Date:
Not shown	1106	E	348550 390340	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	Annual Volume (m³): 21966.87 Max Daily Volume (m³): 191.81 Original Application No: 7282 Original Start Date: 6/9/1994 Expiry Date: - Issue No: 102 Version Start Date: 11/2/2007 Version End Date:
Not shown	1643	N	348000 392100	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, Prescott, Merseyside" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 7122 Original Start Date: 13/8/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/8/1992 Version End Date:
Not shown	1643	N	348000 392100	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, Prescott, Merseyside Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 7122 Original Start Date: 13/8/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/8/1992 Version End Date:
Not shown	1643	N	348000 392100	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, Prescott, Merseyside Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 7122 Original Start Date: 13/8/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/8/1992 Version End Date:
Not shown	1643	N	348000 392100	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, Prescott, Merseyside" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 7122 Original Start Date: 13/8/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/8/1992 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1101	S	346600 389100	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, Prescott Data Type: Line Name: T H CRITCHLEY & SON Annual Volume (m³): - Max Daily Volume (m³): - Application No: 2457 Original Start Date: 13/5/1976 Expiry Date: - Issue No: 100 Version Start Date: 1/4/1993 Version End Date:
Not shown	1101	S	346600 389100	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, Prescott Data Type: Line Name: T H CRITCHLEY & SON Annual Volume (m³): - Max Daily Volume (m³): - Application No: 2457 Original Start Date: 13/5/1976 Expiry Date: - Issue No: 100 Version Start Date: 1/4/1993 Version End Date:
Not shown	1101	S	346600 389100	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 Prescott Data Type: Line Name: T H CRITCHLEY & SON Annual Volume (m³): - Max Daily Volume (m³): - Application No: 2457 Original Start Date: 13/5/1976 Expiry Date: - Issue No: 100 Version Start Date: 1/4/1993 Version End Date:
Not shown	1101	S	346600 389100	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 Prescott Data Type: Line Name: T H CRITCHLEY & SON Annual Volume (m³): 2098 Max Daily Volume (m³): 636 Application No: 2457 Original Start Date: 13/5/1976 Expiry Date: - Issue No: 100 Version Start Date: 1/4/1993 Version End Date:
Not shown	1638	S	346400 388600	Status: Active Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: Surface, Non-tidal - North West Region Point: Ochre And Dog Clog Brooks Tarbock Hall Farm Prescott Data Type: Line Name: BELPOOL DEVELOPMENTS LTD Annual Volume (m³): 2098 Max Daily Volume (m³): 636 Application No: NPS/WR/006330 Original Start Date: 13/5/1976 Expiry Date: - Issue No: 102 Version Start Date: 31/1/2011 Version End Date:

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	988	NE	348100 391300	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 1599 Original Start Date: 16/3/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1106	E	348550 390340	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 Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: S 7282 Original Start Date: 6/9/1994 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1106	E	348550 390340	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 Annual Volume (m³): 21966.87 Max Daily Volume (m³): 191.81 Original Application No: 7282 Original Start Date: 6/9/1994 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	1643	N	348000 392100	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, Prescott, Merseyside" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 7122 Original Start Date: 13/8/1992 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1643	N	348000 392100	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, Prescott, Merseyside Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 7122 Original Start Date: 13/8/1992 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

Yes

The following Source Protection Zones records are represented on the SPZ and Potable Water Abstraction Map (6c):

ID	Distance (m)	Direction	Zone	Description
1	0	On Site	3	Total catchment
2	101	S	3	Total catchment

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site?

No

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
3	E	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
3	E	Major Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
101	S	Major Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
256	SW	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
413	E	Major Aquifer/High Leaching Potential	H3	Coarse textured or moderately shallow soils which readily transmit non-adsorbed pollutants and liquid discharges but have some ability to attenuate adsorbed pollutants because of their clay or organic matter content.
427	E	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
433	E	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

6.9 River Quality

Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site? Yes

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1101	S	346600 389100	River Name: Ditton Bk Reach: Prescott Stw To Fox's Bank Bk. End/Start of Stretch: End of Stretch NGR	E	E	E	E	E

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details	
1	47	S	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
2	74	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
3	167	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
4	209	S	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
5	250	S	River Name: - Welsh River Name: - Alternative Name: -	River Type: Lake/Reservoir Main River Status: Currently Undefined
6	396	S	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
7	487	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
8	488	S	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
9	498	S	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined

6.11 Surface Water Features

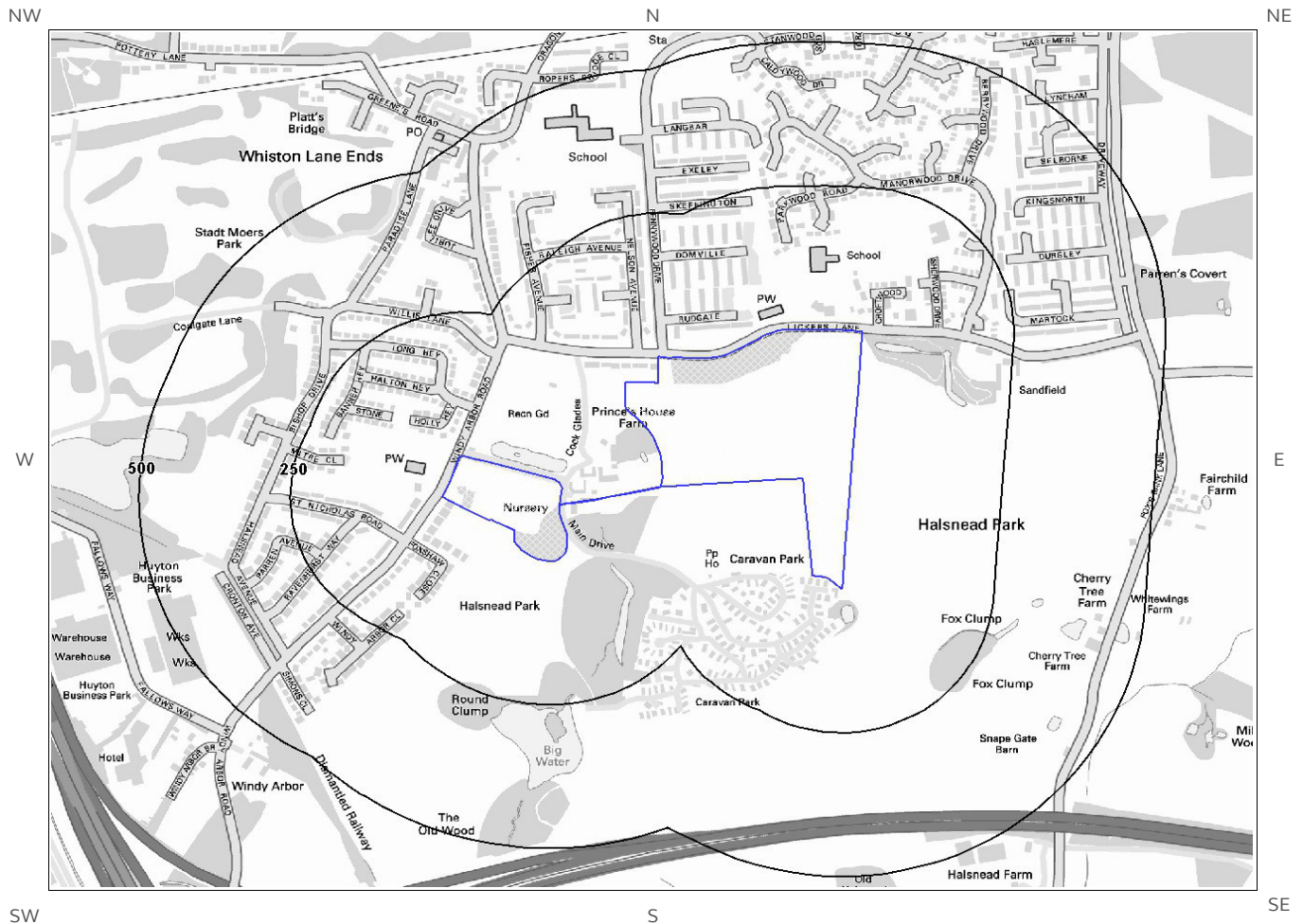
Are there any surface water features within 250m of the study site?

Yes

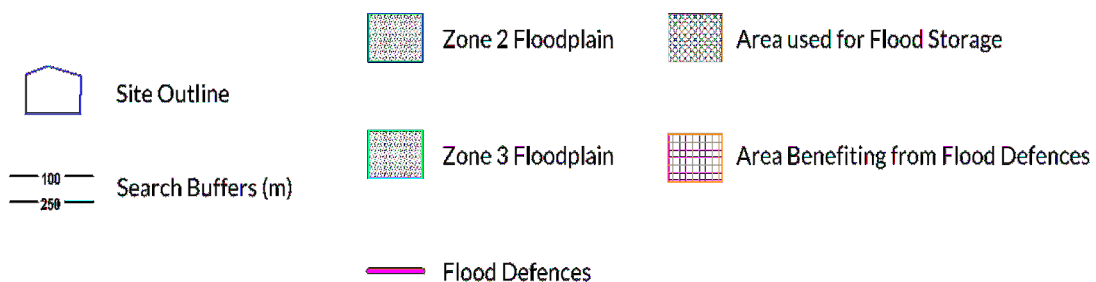
The following surface water records are not represented on mapping:

Distance (m)	Direction
12	N
21	E
47	S
76	E
168	SE
191	S
233	S

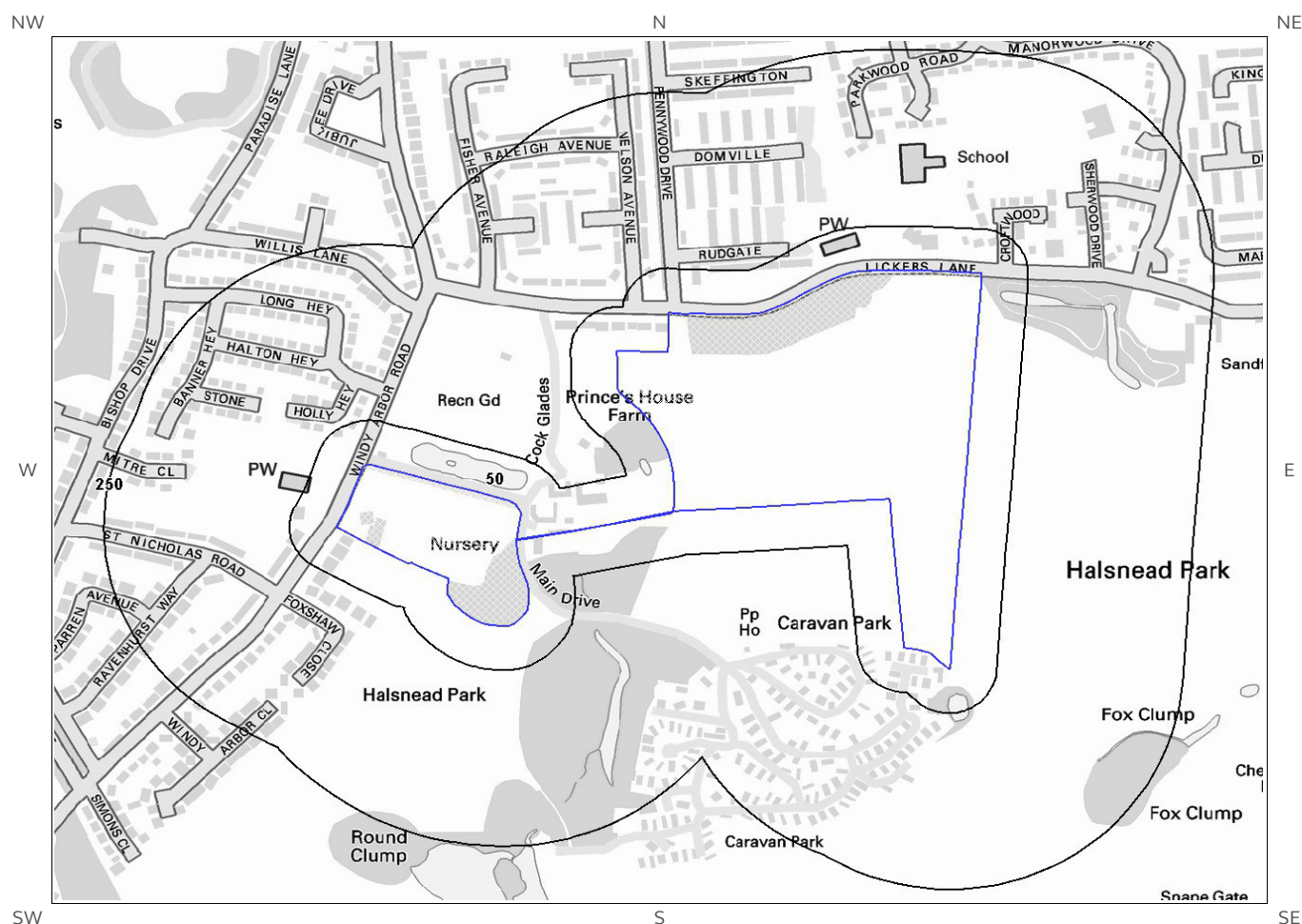
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



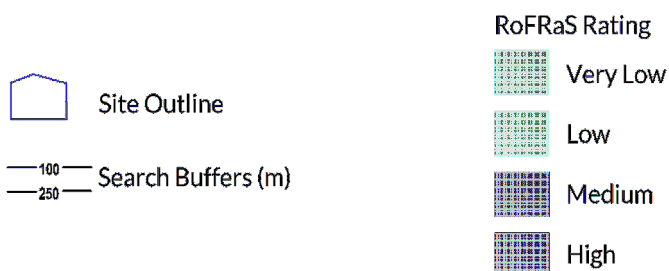
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? No

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

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? No

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

Database searched and no data found.

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

What is the highest risk of flooding onsite? Very Low

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

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

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding?

Clearwater Flooding

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

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

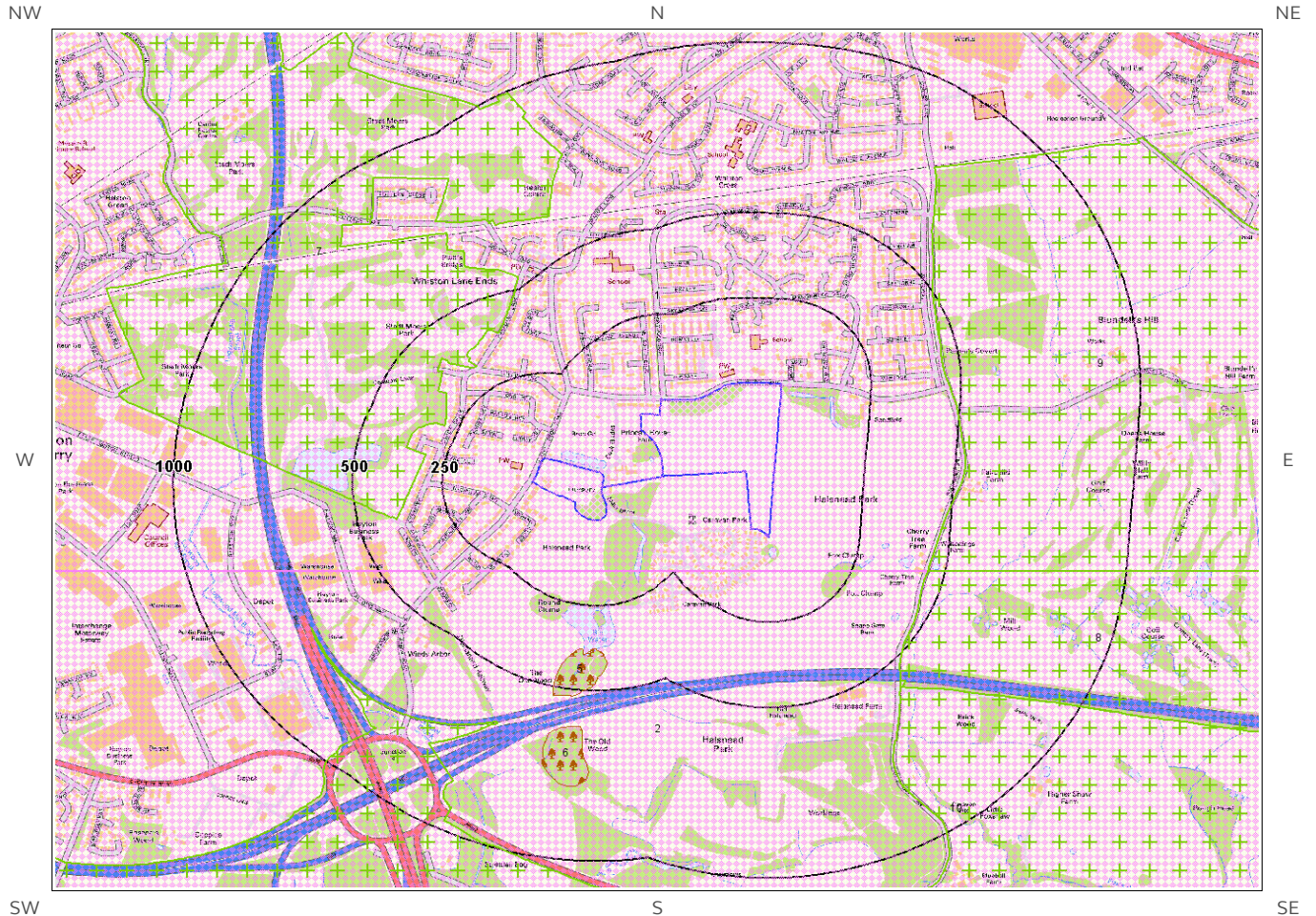
What is the British Geological Survey confidence rating in this result?

High

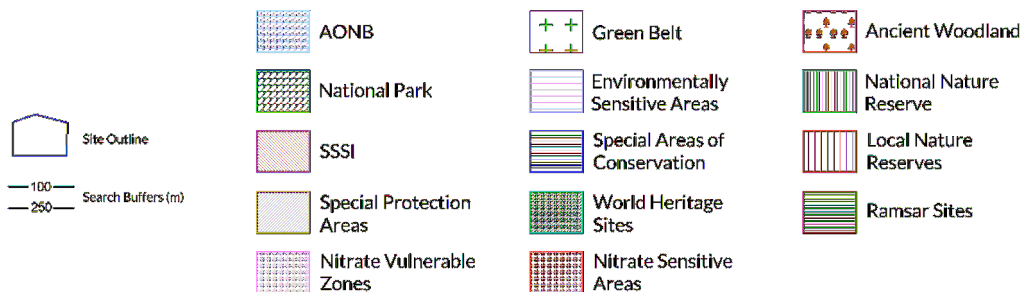
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
5	376	S	UNKNOWN	Ancient and Semi-Natural Woodland
6	605	S	UNKNOWN	Ancient and Semi-Natural Woodland

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

4

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
1	0	On Site	Existing	DEFRA
2	101	S	Existing	DEFRA
Not shown	1503	W	Existing	DEFRA
Not shown	1556	E	Existing	DEFRA

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

4

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
7	289	W	Liverpool, Manchester and West Yorks Greenbelt	Knowsley
8	451	E	Liverpool, Manchester and West Yorks Greenbelt	St. Helens District (B)
9	452	E	Liverpool, Manchester and West Yorks Greenbelt	St. Helens District (B)
10	559	SE	Liverpool, Manchester and West Yorks Greenbelt	Knowsley

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Very Low

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

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

9.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

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

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

9.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Negligible

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

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

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

9.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Negligible

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

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

9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Very Low

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

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site? Very Low

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

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

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

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site? Yes

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

Distance (m)	Direction	Details
0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary? No

Database searched and no data found.

10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? No

Guidance: No Guidance Required.

Contact Details

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Email:

Web: www.bgs.ac.uk

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



**British
Geological Survey**

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133-155 Waterloo Road, London, SE1 8UG
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Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



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DX 716176 Mansfield 5
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**The Coal
Authority**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505



Local Authority

Authority: Knowsley Metropolitan Borough Council
Phone: 0151 489 6000

Web: <http://www.knowsley.gov.uk/>

Address: Municipal Buildings, Cherryfield Drive, Knowsley, L32 1TX

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
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Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England who retain the Copyright and Intellectual Property Rights for the data.

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<https://www.groundsure.com/terms-and-conditions-sept-2016>

APPENDIX D

Coal Authority Report



The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

1 OLD ORCHARD
WHISTON
KNOWSLEY
L35 3QA

Date of enquiry: 02 May 2017
Date enquiry received: 02 May 2017
Issue date: 02 May 2017

Our reference: 51001463180001
Your reference: LC/C3593/4930



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

BROWNFIELD SOLUTIONS LIMITED

Enquiry address

1 OLD ORCHARD, WHISTON, KNOWSLEY, L35 3QA

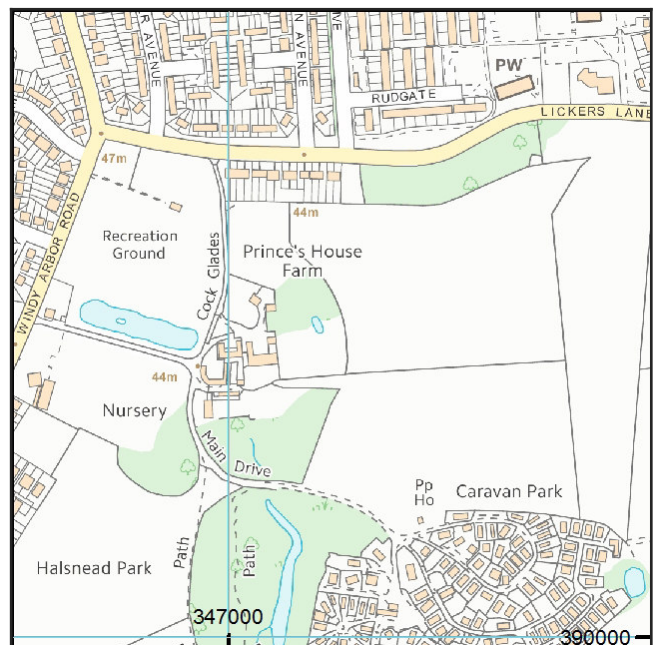
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Approximate position of property



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Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

Further recommended reports
Mine entry interpretive report
Mine entry plan and data sheets

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 7 seams of coal at 80m to 440m depth, and last worked in 1903.

Any movement in the ground due to coal mining activity should have stopped.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on the Coal Authority information section of the report.

2. Present underground coal mining

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

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

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

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

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

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

4. Mine entries

Within, or within 20 metres of, the boundary of the property there are 6 mine entries, the approximate positions of which are shown on the enquiry boundary plot.

Our records disclose the following information:

347390-005. No treatment details.

346390-029. No treatment details.

347390-002. No treatment details.

347390-004. No treatment details.

346390-026. No treatment details.

347390-006. this shaft has been proved to be filled and may have been capped to an unknown specification at some time in the past.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

For an additional fee, the Coal Authority can provide a Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry/entries referred to in this report. It gives an opinion on the likelihood of mining subsidence damage caused from ground movement as a consequence of the mine entry/entries. It also gives details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining.

Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie for development sites and new build).

For further advice on how to order this additional information please visit www.groundstability.com.

5. Coal mining geology

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

6. Past opencast coal mining

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

7. Present opencast coal mining

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

8. Future opencast coal mining

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

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

9. Coal mining subsidence

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

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

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

10. Mine gas

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

11. Hazards related to coal mining

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

12. Withdrawal of support

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

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

13. Working facilities order

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

14. Payments to owners of former copyhold land

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

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

The Coal Authority own the copyright in this report and the information used is protected by our database right.

The boundary plot shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by visiting www.groundstability.com.

If you wish to discuss the relevance of any of the information contained in this report, you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wish to examine the source plans from which the information has been taken, these are available to view, free of charge, at our Head Office in Mansfield. To book an appointment please ring 01623 637225. Should you or your advisor wish to carry out a physical investigation that may enter, disturb or interfere with any disused mine entry, prior permission of the owner must be sought. For coal mine entries, the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore 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 good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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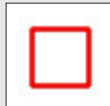
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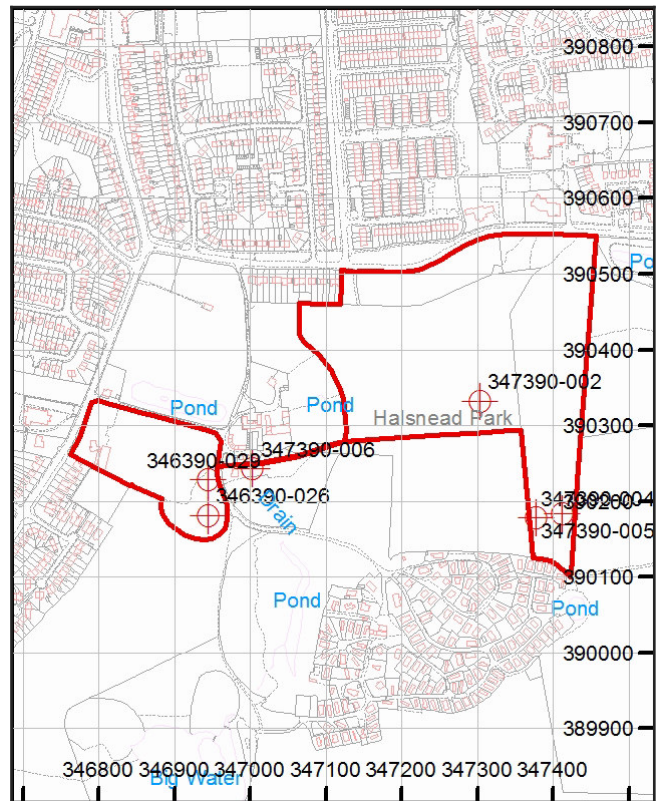
Enquiry boundary

Key

Approximate position of enquiry boundary shown



Disused mineshaft



How to contact us

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APPENDIX E

Risk Assessment Methodology

Contaminated Land Risk Assessment

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:

Hazard Identification ⇨ Hazard Assessment ⇨ Risk Estimation ⇨ Risk Evaluation

CLR11 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 CLR11, three tiers of risk assessment exist - Preliminary, Generic Quantitative and Detailed Quantitative.

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:

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

The severity is also classified using a system based on CIRIA C552. 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

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.

APPENDIX F
Ground Gas Guidance Assessment Note

Ground Gas Guidance

Redevelopment on brownfield sites is an ever increasing occurrence, including those sites where a potential ground gas issue is present.

CIRIA C665 is the current guidance which gives up-to-date advice on all aspects of ground gas. It outlines good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to gas contaminated land. Two semi-quantitative methods are set out for the assessment of risk:

- 1 For low rise housing with a ventilated under floor void at minimum 150 mm (Boyle and Witherington);
- 2 For all other development types (Wilson and Card).

Both methods use the concept of Gas Screening Values (GSVs) to identify levels of risk. The mitigation and management of potentially unacceptable risk is described with reference to both passive and active systems of gas. Source removal is also discussed as an option.

CIRIA C665 and the advice it contains has been prepared to be generally consistent with CLR11 *Model Procedures for the management of land contamination* (Defra and Environment Agency, 2004a). The aim of CIRIA C665 is a consistent approach to decision making, particularly relating to the scope of protective design measures on a site specific basis.

Legislative Framework

CIRIA C665 provides technical guidance however also recognises 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* (DETR, 2000a).

Frequency and Duration of Monitoring

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

The benefits of the 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 soil 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.

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 (Flats)	2 months	3 months	6 months	12 months	24 months
	High (Residential with Gardens)	3 months	6 months	6 months	12 months	24 months

Typical/idealised frequency of monitoring

		Generation of Potential Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	4	6	6	12	12
	Moderate (Flats)	6	6	9	12	24
	High (Residential with Gardens)	6	9	12	24	24

Note

- 1 NHBC guidance also recommends this period of monitoring (Boyle and Witherington, 2007).
- 2 There is no industry consent over "high", "medium" or "low" generation potential of source.
- 3 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).

It is recommended that newly installed monitoring wells are left for 24 hours to allow the soil gas to reach equilibrium. It should be recognised, however, that some soil gas regimes could take considerably longer (up to seven days). Interpretation of any initial readings should take this equilibrium process into account.

APPENDIX G

Legislative Background

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 (England) Regulations 2000;
- The DETR circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land.

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;
- **Receptor** - a receptor that may be harmed, for example the water environment, humans and water.

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

- CLR11 – Model Procedures;
- Contamination and Environmental Matters - Their implications for Property Professionals (2nd Edition RICS Nov 2003);
- Brownfields – Managing the development of previously developed land – A client's guide, CIRIA 2002;
- DEFRA and Environment Agency publications CLR7 – 10, supported by the TOX guides and SGV guides, dated March 2002;
- DETR Circular 02/2000, Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990;
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002;

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 Environment Act (1995);
- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012);
- The Environment Protection Act (1990);
- The Contaminated Land (England) Act (2000);
- Contaminated Land (England) Regulations (2012);
- The Water Resources Act (1991);
- 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);
- Health and Safety at Work Act;

APPENDIX H

Limitations

Standard Limitations

This desk study report was conducted and has been prepared for the sole internal use and reliance of the Client, Stewart Milne Homes. This report shall not be relied upon or transferred to any other parties without the express written authorisation of BSL. If an unauthorised third party comes into possession of this report they rely on it at their risk and the authors owe them no duty of care or skill.

The findings and opinions conveyed via the desk study are based on information obtained from a variety of sources as detailed within this report, which BSL believes are reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

Any recommendations made in this report should be confirmed with the Regulatory bodies and Planning Authority prior to implementation to ensure compliance.

No existing manhole covers were lifted or drainage runs inspected during the course of this ground investigation.

The site plans enclosed in this report should not be scaled off.