



Leigh Lane, Bury

Phase 1 Geo-Environmental Investigation

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1.0 INTRODUCTION

This Phase 1 Geo-Environmental Investigation report has been prepared at the request of Pedro Properties Ltd.

Instructions to proceed were received in February 2022. Phase 1 Desk study work was undertaken between 4th and 14th February 2022.

Proposed Development

This Phase 1 Geo-Environmental Investigation is to be used for submission to the Local Authority as part of a planning application as it is the Client's intention to redevelop the existing house and separate bungalow on site into a low-rise residential scheme in the north western section of the wider site. Also Phase 1 Geo-Environmental Investigation has been undertaken on the wider site area, also under the ownership of the client, to understand the geo-environmental conditions of the wider site.

1.1 Brief

The brief was to carry out a Phase 1 Geo-Environmental Investigation for the site based upon the proposed development outlined in Section 1.0. The site area is shown on the site location plan contained in Appendix 2.

The investigation was to include the following:

- a) Assess the probable ground conditions and contaminated land conditions on and below the site based on existing and historic site uses and relevant off-site activities, this is to include a site walkover.
- b) Identify probable contaminants / sources of contamination that may be present at the site using current contaminated land guidance and develop a conceptual site model for potential human health, ground gas and controlled waters receptors.

- c) Undertake a Preliminary Risk Assessment – which will determine the requirement for further environmental (contaminated land) investigation and assessment.
- d) Design on the basis of the anticipated ground conditions appropriate ground investigation works and discuss potential development issues (i.e. sub-surface features – obstructions, infilling, compressible ground, faulting, mineral extraction, mining and land instability).

A summary of the information / data sources is detailed in Section 2.2. A report was to be provided to summarise findings and to provide recommendations.

The limitations of this investigation work and report are included in Appendix 1.

1.2 Third Parties

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2.0 SCOPE OF INVESTIGATION WORK

2.1 Walkover Survey

The site was visited on 9th February 2022 in clear weather conditions and the objectives of the site walkover were, where applicable:

- to identify and assess visual and olfactory evidence of contamination (e.g. staining of concrete / soils, odours, presence of gas protection measures etc.);
- to identify locations of potential sources of contamination and assess their conditions (i.e. tank location, presence / condition of secondary containment / bunds, location of fill points, process areas);
- to identify surrounding land uses and any potentially contaminating activities;
- to identify / verify the presence of potential receptors (on- and off-site) which may be affected by identified sources;
- to obtain information on activities / procedures and standards of housekeeping etc.;
- to assess site access and potential investigation locations and constraints; and
- to assess any visual subsurface geotechnical features / anomalies (e.g. foundations, made ground, subsidence etc.).

Photographs were taken of the site during the walkover survey and these photographs, together with a plan indicating their location and direction, are contained in Appendix 3.

2.2 Documentation

The following documents were obtained and examined during the desk study:

- a) Aerial photographs of the site dated; May 2019, March 2012, May 2011, May 2001 and June 2000. The photographs are contained within the Groundsure Enviro and Geo Insight report in Appendix 5.

- b) Historical Ordnance Survey maps dated between 1850 and 2022, at scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.
- c) Groundsure maps, all dated 2022 as follows:
- Historical Land Use map;
 - Environmental Permits, Incidents and Registers map;
 - Landfill and other Waste Sites map;
 - Current Land Use map;
 - Hydrogeology and Hydrology maps;
 - Environment Agency / Natural Resources Wales flood maps;
 - Designated Environmentally Sensitive Sites map;
 - Geological maps and Ground Working map;
 - Mining, Extraction & Natural Cavities map;
 - Natural Ground Subsidence maps;
 - Borehole Records map;
 - Railways and Tunnels map.

These maps are contained within the geo and enviro insight report in Appendix 5.

- d) A combined Enviro and Geo Insight report was obtained from Groundsure, an environmental database company, which provides a list of recorded past and present activities at or adjacent to the site which could have an impact on the levels of contamination in the soils and groundwater at the site. The report is contained in Appendix 5.
- e) The British Geological Survey (BGS) 1:50,000 solid and drift geological map (sheet No. 85 dated 2011). 3 No. BGS Borehole Logs were also obtained, references: SD71SE5, SD71SE11, SD71SE14. All items were copied under licence; [C18/01] British Geological Survey ©UKRI. All rights reserved.
- f) The Indicative Atlas of Radon in England and Wales published by the British Geological and the Health Protection Agency and BR 211 Radon Report (2015)

were examined to assess the probable presence or otherwise of radon gas in the ground. Extracts of the relevant maps are contained in Appendix 7.

- g) A Zetica UXO Risk Map was also obtained and is included in Appendix 8.

3.0 FINDINGS

3.1 Site Location and Description

This report pertains to a c. 3.2 Ha site located off Leigh Lane, Bury, c. 1.90km west of Bury Town Centre at the approximate postcode BL8 1RD. The National Ordnance Survey Grid Reference for the centre of the site is 378386E, 411141N.

The site currently comprises a dilapidated two-storey house and separate bungalow in a similar condition, with various derelict outbuildings associated with the former plant nursery. The rest of site is densely vegetated open land / woodland. The site is bound by Elton Brook to the south, Leigh Lane to the north, Elton All Saints Cricket Club to the east and open fields / woodland to the west. Access to the site is off Leigh Lane along the northern boundary. An aerial photo of the site is included below:



Figure 1; Aerial image of the site dated February 2022. Site boundary highlighted in pink.

3.2 Walkover Survey

The walkover survey was carried out on 9th February 2022. During the walkover survey the following features were noted.

Geology

The site was predominantly woodland with numerous mature trees up to 30m tall both along the boundaries and on the site itself. Much of the site was vegetated and overgrown. The site gently sloped from the north to the south. A pond was noted in the central eastern site section with short, steep slopes along its banks (c. 1.5m high).

The ground was generally waterlogged, particularly in the eastern and southern site sections. Above ground services including electric and telecoms were noted from Leigh Lane to the house and bungalow. A second stream, potentially man made, was noted on the site side of Elton Brook. Elton Brook was noted to be flowing east to west.

A two-storey house, a bungalow and numerous outbuildings were noted on-site, which were generally in a dilapidated or derelict condition, particularly the outbuildings, and appeared as though they had not been used in some time.

A chimney was noted in the western site section which was noted to be square based, c. 15m tall and c. 1.00m in diameter; a circular entry point was noted on the side where it presumably used to join a small structure, which is now derelict.

Contamination

A possible above ground tank base was observed in the western site section. No evidence of contamination (leakages / spillages) was noted. An old, small, cast iron pump was noted on the north western bank of the pond and appeared to not have been used in some time. Numerous piles of suspected ACM (asbestos sheet roofing) were noted across the site, generally close to old derelict buildings, presumably the old sheet roofing of said buildings. Evidence of fires was noted on and in some of the

buildings, as well as a suspected small campfire. The old brick base of the nursery growing tunnels was still present on site, albeit overgrown.



Figure 2; Images from the site walkover: top left – the historic chimney, top right – potential historic above ground tank base, bottom left – one of the mature trees on site, bottom right – a pile of suspected ACM (asbestos cement sheeting).

The features mentioned above are shown on the Site Features Plan in Appendix 9.

3.3 Site History

The site development history has been researched by reference to historical maps, street plans and aerial photographs. The historical maps are included in Appendix 4 to this report and the principal observations which are divided into on-site history and off-site history are summarised below:

On-Site History

Date	History
1850 - 1890	The site is noted as open fields on the earliest historic maps
1890 - 1930	A plant nursery appears on site in 1890 and remains this way to the present day. Minimal changes have occurred on site during this time. On the historic map for 1890, the site comprises sporadic minor buildings, possibly residential dwellings, in the north west of site with polytunnels in the centre of site. A pond with a pump on its western bank is noted in the central eastern site section.
1930 - 1975	The buildings in the north west of site experienced some minor changes during the 1930's and there were also minor changes to the polytunnels during this time.
1975- 2022	A tank is noted in the west of site in 1957 and a second tank with a chimney appears in 1975. All of the aforementioned features are present on the most recent historic maps but on more recent aerial images the polytunnels appear to have been removed. No evidence of tanks were note during the site walkover.

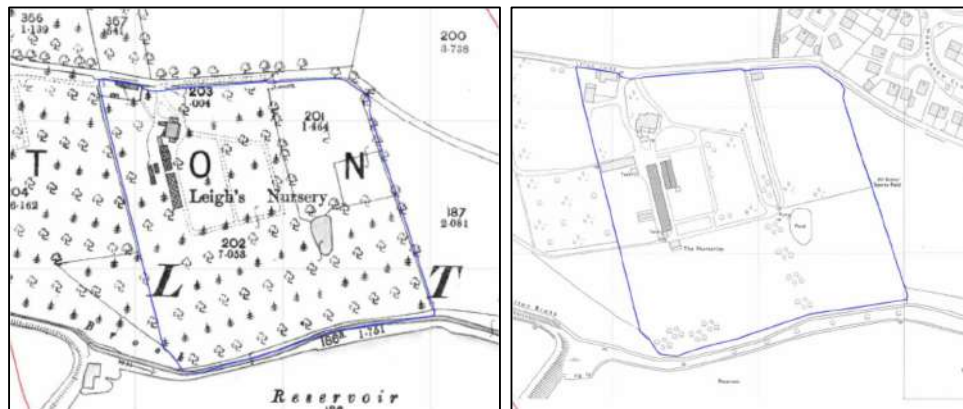


Figure 3; Extracts of the OS historical maps dated 1890 (left) and 1975 (right).

Off Site History

Given the industrial nature of the area surrounding the site, numerous mills, works and other industrial land uses have existed within 750m of the site since the late 19th century. Therefore, only the most pertinent and adjacent off-site historic features have been included in the below table.

Date	Site Feature	Distance (m)	Direction
1890 - 2005	Elton Vale Bleach Works is present on the earliest historic maps and is noted as such until 1965 when it is then noted as 'works'. It is an unnamed building by 2001 and appears to have been demolished by 2005. The main building underwent minimal changes throughout its history. There were ancillary buildings present to the east and south and the main building appears to have been connected to the southern building in 1927, at which time an additional ancillary building appears in the west. In 1955 the main building appears to have been connected to the western building. In 1965, the southern ancillary building appears to have been demolished.	135	SE
1927 - 1955	Filter beds are noted 200m east and west of the site in 1908. A Sewage Works , presumably associated with the filter beds is present 300m west of the site in 1927 but is noted as disused by 1955. The filter beds are no longer present by 1980, presumably infilled. The sewage works is later noted as 'works (disused)' by 1980 and is no longer present by 2000.	300	W
1890 - Present	A Reservoir is present directly south of the site on the earliest historic maps and to the present day. It appears to be natural but it is unclear whether it was utilised by either the bleach works or the sewage works.	0	S

3.4 Geology

3.4.1 BGS Geological Map

The BGS 1:50,000 Solid and Drift Geological Map of the area (Sheet No:85 dated 2010) indicates that the site is underlain by superficial deposits comprising Glacial Till which typically comprise a heterogeneous mixture of CLAY, SAND and GRAVEL.

The north of site is underlain by bedrock of the Cannel Rock (South Lancashire), which typically comprises sandstone. The south of site is underlain by bedrock of the Pennine Lower Coal Measures Formation which typically comprises interbedded grey MUDSTONE, SILTSTONE and pale grey SANDSTONE, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.

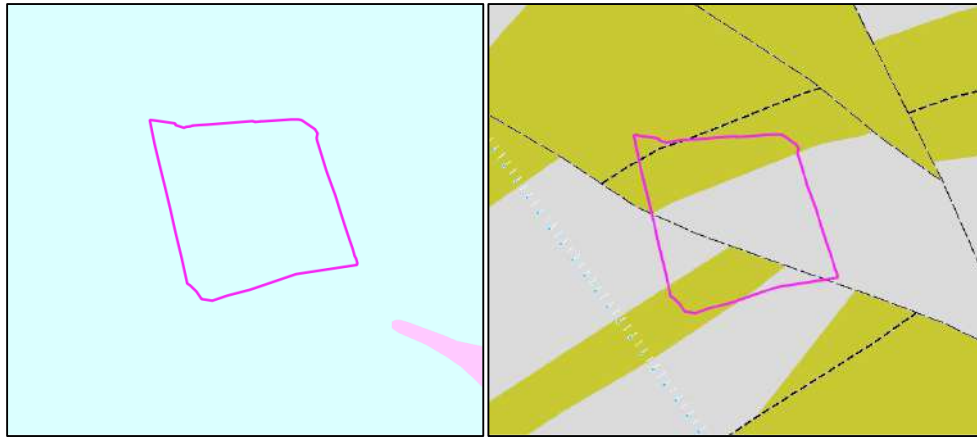


Figure 4; Extracts of the BGS 1:50,000 Drift (left) and Solid (right) Geological Maps. Light blue = Glacial Till, pink = Glaciofluvial Sheet Deposits, green = Cannel Rock, grey = Pennine Lower Coal Measures Formation.

A fault exists in the south west of site (long dashed black line), trending north west to south east and downthrowing to the south west. Consequently, the Cannel Rock also exists in the south west of site. An additional fault is present 65m north east of the site, downthrowing to the north east.

A buried channel is present 64m west of the site (sky blue dashed line), trending north west to south east; Consequently, deeper superficial deposits may be present in this area. The bedrock dip is recorded to be 9.5° south.

A coal outcrop is recorded in the north west of the site (short dashed black line). Upon consulting the General Vertical Section of the 1:50,000 BGS Solid and Drift Geological Map of the area (Sheet No:85 dated 2010), the coal seam is thought to be the Trencherbone (Oldham Great) coal seam. As the bedrock is dipping to the south at an angle of 9.5°, this coal seam will be present beneath the site at shallow depth (<30m bgl).

Consequently, a coal mining risk assessment is recommended for the site.

3.4.2 BGS Borehole Logs

There were no available BGS boreholes on-site. There were 3 No. BGS boreholes available in close proximity to the site within a comparable geological setting. The pertinent information from the borehole logs is outlined below:

BGS Borehole Reference: SD71SE5

This borehole is located approximately 245m south of the site and was excavated to a depth of 185.65m bgl in 1876. The log recorded the following pertinent information:

- SOIL to a depth of 2.13m bgl, underlain by;
- MARL to a depth of 14.95m bgl, underlain by;
- SAND to a depth of 16.15m bgl, underlain by;
- MARL to a depth of 21.95m bgl, underlain by;
- Red ROCK to a depth of 27.13m bgl, underlain by;
- BURR to a depth of 27.74m bgl, underlain by;
- Red METAL to a depth of 31.09m bgl, underlain by;
- COAL seating to a depth of 32.61m bgl, underlain by;
- Light COAL METAL to a depth of 37.80m bgl, underlain by;
- Red ROCK to a depth of 40.54m bgl.

The additional strata to a depth of 185.65m bgl can be seen in Appendix 6.

BGS Borehole Reference: SD71SE11

This borehole is located approximately 600m east of the site and was excavated to a depth of 85.34m bgl on an unknown date. The log recorded the following pertinent information:

- GRAVEL to a depth of 35.05m bgl, underlain by;
- Red SANDSTONE to a depth of 42.67m bgl, underlain by;
- Red MARL to a depth of 51.82m bgl, underlain by;
- Grey SHALE to a depth of 57.91m bgl, underlain by;
- Grey ROCK to a depth of 68.58m bgl, underlain by;
- SHALE to a depth of 79.25m bgl, underlain by;
- Grey ROCK to a depth of 83.82m bgl, underlain by;
- SHALE to a depth of 85.34m bgl at termination.

BGS Borehole Reference: SD71SE14

This borehole is located approximately 394m north west of the site and was excavated to a depth of 92.91m bgl on an unknown date. The log recorded the following pertinent information:

- SOIL to a depth of 0.30m bgl, underlain by;
- MARL to a depth of 4.42m bgl, underlain by;
- SAND to a depth of 4.93m bgl, underlain by;
- GRAVEL to a depth of 6.76m bgl, underlain by;
- LOAM and SAND to a depth of 7.67m bgl, underlain by;
- SAND to a depth of 8.89m bgl, underlain by;
- GRAVEL to a depth of 10.41m bgl, underlain by;
- MARL to a depth of 11.02m bgl, underlain by;
- LOAM and SAND to a depth of 13.16m bgl, underlain by;
- MARL to a depth of 15.60m bgl, underlain by;
- GRAVEL to a depth of 18.49m bgl, underlain by;
- METAL and GRAVEL to a depth of 20.32m bgl, underlain by;
- Red SANDSTONE to a depth of 21.25m bgl, underlain by;
- Red SHALE to a depth of 22.45m bgl, underlain by;
- Grey SANDSTONE to a depth of 22.11m bgl, underlain by;
- Brown SHALE to a depth of 26.57m bgl, underlain by;
- Grey MUDSTONE to a depth of 27.15m bgl.

The additional strata to a depth of 92.91m bgl can be seen in Appendix 6.

3.4.3 BGS Geohazards

Data Type	Details
Ground Stability Data	➤ The Potential for Shrinking or Swelling Clay Ground Stability Hazards is regarded as very low. ➤ The Potential for Landslide Ground Stability Hazards is regarded as very low. ➤ The Potential for Dissolution Ground Stability Hazards is regarded as negligible. ➤ The Potential for Compressible Ground Stability Hazards is regarded as negligible. ➤ The Potential for Collapsible Ground Stability Hazards is regarded as very low. ➤ The Potential for Running Sand Ground Stability Hazards is regarded as very low.

For further details please see the Groundsure Geo and Enviro Insight Report contained in Appendix 5.

3.4.4 BGS Estimated Soil Chemistry

The BGS have estimated that the superficial deposits across the site to naturally comprise of the following determinands:

- Arsenic – 15mg/kg – 25mg/kg
- Cadmium – 1.8mg/kg
- Chromium – 60mg/kg – 90mg/kg
- Nickel – 15mg/kg – 30mg/kg
- Lead – 200mg/kg – 300mg/kg
- Bioaccessible Lead – 120mg/kg – 240mg/kg

3.5 Mining

3.5.1 Coal Mining

The site does lie within a Coal Authority Coal Mining Reporting Area and a development high risk area exists in the northern site section. A coal seam (believed to be the Trencherbone coal seam) outcrops in the north of site, dipping 9.5° south and therefore may be present at shallow depth beneath the site. A previous site investigation (see section 3.6) undertaken 150m south east of the site found bedrock at between 12.00m and 12.50m bgl. Consequently, a coal mining risk assessment is recommended for the site.

3.5.2 Non-Coal Mining

The Groundsure geo and enviro-insight report (contained in Appendix 5) indicates that no non-coal mining is recorded within 2km of the site.

3.5.3 Salt Mining / Brine Extraction

The site does not lie within a recognised salt mining or brine extraction area.

3.5.4 Historical Surface Excavations

No recorded historic surface excavations have been recorded on-site, however, numerous historical surface excavations exist in close proximity to the site including ponds, filter beds, pits and reservoirs. Consequently, the presence of unrecorded historical excavations on-site cannot be discounted.

3.5.5 Mineral Safeguarding

Where mineral resources are present the mineral planning authority may designate areas as Mineral Safeguarding Areas (MSA) and Mineral Consultation Areas (MCA). These are aimed to safeguard mineral resource areas from unnecessary sterilization by non-mineral development. The BGS Mineral Resources maps designate the areas of potential mineral resources and where active / lapsed planning permission was granted for mineral extraction.

The BGS Mineral Resources Map for Greater Manchester indicates that the site lies within an area of sandstone and shallow coal resources, however no surface or underground planning permissions (valid or expired) or active / inactive mineral works exist on-site or in close proximity to the site. The Greater Manchester Minerals Local Plan, Mineral Safeguarding Maps indicates that the site lies within a coal, brick clay and potentially sandstone Safeguarding Area.

However, any surface excavations are deemed unlikely given the large reservoir immediately south of site as any deep excavations may impact on the integrity of the reservoir, therefore creating a dewatering requirement.

Additionally, although the site is of moderate size, it is bound by the reservoir to the south, a school to the north and a cricket club and residential estate to the north east. Therefore any surface extraction of the clay or underlying bedrock would be limited to the site itself and consequently yield would be low due to the requirement to step the excavation. Additionally, the clay in the area contains a significant proportion of coal and sandstone gravel as well as sand bands which would create a requirement to purify the clay.

Furthermore, the sandstone is not present across the whole site and the depth to bedrock is thought to be c. 12m bgl and therefore any sandstone extraction would require a significant excavation, which would not be possible given the site boundary limitations.

The coal seam is thought to have already been worked in the area and the area is also faulted. In which case if the coal is present and hasn't already been worked, it may not be continuous and be of poor quality due to faulting, creating a difficult extraction and a poor quality yield.

Consequently, the proposed development is not anticipated to lead to sterilisation of the mineral resources as the sandstone resource is not significant (not whole site) and sits beneath a significant thickness of superficial; the coal may not be consistent due to the highly faulted bedrock and may have already been extracted. Although the clay is present across the site and may be a significant thickness, this resource exists in great quantities elsewhere and given the site boundary limitations, it is unlikely to be extracted in future.

The BGS Mineral Resource Map and The Greater Manchester Minerals Local Plan, Mineral Safeguarding Maps are contained in Appendix 6.

3.6 Previous Site Investigations

A site investigation was undertaken 150m south east of the site at the former Elton Vale Bleach Works in 2010 for the development of 16 No. residential dwellings. The information has not been included as it was not deemed comparable due to the varying site history and the underlying superficial deposits (Glaciofluvial Sheet Deposits). However, 3 No. Rotary Boreholes were undertaken as part of the investigation which recorded bedrock to be at 12.00m – 12.50m bgl. Bedrock is anticipated to be at a similar depth on-site.

3.7 Hydrology and Hydrogeology

Environmental data relevant to the site and its immediately surrounding area has been obtained from sources available in the public domain. In addition, an environmental report was obtained from Groundsure. The Geo and Enviro Insight report and associated maps that have been inspected are presented in Appendix 5 and the principal observations in relation to waters and flooding can be summarised as follows:

Data Type	Details
Flooding	➤ With respect to rivers and seas, the site lies within a Flood Zone 1. ➤ The highest risk to surface water flooding on site or within 50m of site pertains to a 1 in 30 year event with less than 1.00m of flooding. ➤ The highest risk to groundwater flooding on site or within 50m of site is deemed to be low.
Surface Water Features	➤ Elton Brook is present directly south of the site, along the southern site boundary. Beyond this is an unnamed reservoir.
Surface Water Abstractions	➤ There are no recorded surface water abstraction licenses on-site. ➤ There are 18 surface water abstraction licenses located within 2km of the site, all apart from one are historical. The active license pertains to extraction from the river Irwell at RMC Northerent, Bury Canal Wharf for Cemex UK Materials Ltd. where 5,500m³ are extracted annually for general use.
Superficial Aquifer	➤ The site is underlain by superficial deposits classed as a <i>Secondary Undifferentiated Aquifer - 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.</i>
Bedrock Aquifer	➤ The site is underlain by bedrock classed as a Secondary A Aquifer - <i>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</i>
Groundwater Abstractions	➤ There are no recorded groundwater abstraction licenses located on-site. ➤ There are 5 No. groundwater abstraction licenses located within 2km of the site, all of which are historical. The closest groundwater abstraction license was located 676m north of the site and pertained to the extraction of water from a borehole at Bolholt Farm for general use.
Source Protection Zones	➤ There are no recorded Source Protection Zones recorded on-site or within 500m of the site.
Nitrate Vulnerable Zones	➤ There are no Nitrate Vulnerable Zones recorded on-site or within 2km of the site.
Licensed Discharge Consents	➤ There are no recorded licensed discharge consents on-site. ➤ There is one historical licensed discharge consent located within 500m of the site, located 274m south east of site and pertains to the discharge of treated sewage effluent from Elton Vale Bleach Works into Elton Brook.
Pollution Incidents to Controlled Waters	➤ There are no recorded pollution incidents to controlled waters located on-site or within 500m of the site.

For further details please see the Groundsure Enviro Insight Report contained in Appendix 5.

3.8 Hazardous Installations, Landfill and Waste

The following information relating to hazardous installations, landfill and waste obtained from the Groundsure Geo and Enviro Insight report, published information and the walkover survey can be summarised as follows:

Data Type	Details
Environment Agency Recorded Active Landfill Sites	➤ There are no Environment Agency recorded landfill sites located on-site or within 500m of the site.
Environment Agency Recorded Historic Landfill Sites	➤ There are no Environment Agency recorded historic landfill sites located on site. ➤ There are 2 No. recorded Environment Agency historic landfill sites located within 500m of the site. The closest of which was located 426m north of site and received inert industrial waste from 1980 to 1984.
BGS Recorded Historic Landfill Sites	➤ There are no BGS recorded landfill sites located on-site or within 500m of the site.
Local Authority Recorded Landfill Sites	➤ There are no Local Authority recorded landfill sites located on-site. ➤ There are 3 No. Local Authority recorded landfill sites located within 500m of the site. The closest of which is a refuse tip 384m east of site.
Local Authority Pollution Prevention and Control (Part A(2) and Part B Activities and Enforcements)	➤ There are no Local Authority Part A2 or Part B Activities or Enforcements located on-site. ➤ There is a single Local Authority Part A2 or Part B Activities or Enforcements located within 500m of the site, pertaining to a petrol vapour recovery process at Walshaw Road Filling Station located 457m north east of the site.
Registered Radioactive Substances	➤ There are no Registered Radioactive Substances recorded on-site or within 500m of the site.
Registered Waste Treatment, Transfer or Disposal Sites	➤ There are no waste treatment, transfer or disposal sites located on-site. ➤ There are 3 No. waste exemption sites located within 500m of the site, the closest of which is located 443m west of the site and pertains to using waste in construction on a farm.
Industrial Land Use	➤ There are 3 No. current industrial land uses recorded on-site pertaining to a pump, chimney and tank. ➤ There are 5 No. additional industrial land uses recorded within 250m of the site, the closest of which pertains to an Electricity Sub-Station recorded 103m north of the site. ➤ There are no petrol or fuel sites located on-site. ➤ There is one obsolete petrol station located 446m north east of the site on Walshaw Road, Bury. ➤ There are 6 No. historic industrial site uses recorded on-site, all pertaining to a nursery. There are also 6 No. unspecified tanks recorded on site. ➤ There are a further 66 No. historic industrial land-uses recorded within 500m of the site, pertaining to a nursery, filter beds, bleach works, unspecified pit, unspecified ground workings, unspecified works, chimney, sewage works, unspecified tank, print works, refuse heap, unspecified mill, old coal shaft, pump house, dye works and timber yard. There are also a further 24 No. tanks, 9 No. electricity sub stations and 2 No. garages recorded within 500m of site.
Dangerous Substances	➤ There are no recorded discharges of dangerous substances on-site or within 500m of the site.
Hazardous Building Materials	➤ Given the presence of historic buildings on-site, Asbestos Containing Material including asbestos cement roofing is considered likely.

For further details please see the Groundsure Geo and Enviro Insight Report contained in Appendix 5.

3.9 Radon

The Indicative Atlas of Radon in England and Wales produced by the Health Protection Agency and British Geological Survey indicates the site lies within a lower probability area as less than 1% of homes are above the action level. Consequently, BR211 (2015) indicates that no radon protection measures are required for the proposed development.

Map 13 of the Indicative Atlas of Radon in England and Wales and BR 211 (2015) are contained within Appendix 7.

3.10 Services

Overhead services were noted during the site walkover, however, additional underground services associated with the house, bungalow and outbuildings cannot be discounted. Full service plans should be obtained prior to any intrusive works.

3.11 Unexploded Ordnance (UXO)

The Zetica UXO risk map, contained in Appendix 8, indicates that the site lies within an area of low risk.

3.12 Animal Burial Sites

The Animal Health and Veterinary Laboratories Agency (AHVLA) no longer routinely respond to consultations relating to records of animal burial sites. Based upon a review of the site history it is considered unlikely that the site has been subject to recorded animal burials.

3.13 Archaeology

We do not anticipate that the site will be affected by archaeological issues, however consultation with the county archaeologist is recommended.

4.0 CONCLUSIONS

4.1 General

Leigh's Nursery has been present on site since 1890. The nursery has not been operational for 20 years but the buildings and infrastructure are still present on site, albeit dilapidated and derelict. Minor changes were made to the nursery throughout its history, including the addition of 2 No. tanks and 1 No. chimney in the 1950's and 1970's. The tanks appear to have been removed.

4.2 Anticipated Ground Conditions and Geotechnical Hazards

The anticipated typical ground conditions across the site are as follows:

- TOPSOIL underlain by;
- [IN PLACE] MADE GROUND of unknown composition to an unknown depth, underlain by;
- GLACIAL TILL typically comprising firm to stiff, brown, slightly gravelly, slightly sandy CLAY to a depth of between c.12.00m and 12.50m bgl, underlain by;
- PENNINE LOWER COAL MEASURES comprising interbedded grey mudstone, siltstone and pale grey sandstone with coal seams.

4.2.1 Geotechnical Hazard Identification

Potential geotechnical hazards based on the expected ground conditions that may require further consideration at the site are outlined below:

Factors	Remarks	Considerations	Northern Site Section
Made Ground	Localised pockets of Made Ground may be present associated with the plant nursery.	Made Ground may settle variably, have highly inconsistent bearing capacity and may suffer significant movements that may be problematic for foundations, externals and infrastructure elements without treatment. The presence of Made Ground may be problematic for foundations as there may be loose / soft spots within the Made Ground and it may not be suitable to utilise traditional foundation.	Low
Aggressive Ground and Groundwater	While the risk posed from the natural strata is anticipated to be very low, localised Made Ground of unknown composition may be present creating a potential for	Acidic ground / groundwater and sulphate may attack the concrete and steel used in foundations and react with aggregates. The oxidation of pyrite and other sulphides can also occur due to geotechnical activities. This can lead to the generation of high concentrations of sulphate and low pH that attacks construction materials and may	Low

	aggressive ground conditions to be present on-site.	lead to the precipitation of gypsum resulting in the heave of foundations and floor slabs. Pyrite oxidation can also be triggered by mixing susceptible materials with lime or cement resulting in high pH that can lead to the expansion of some sulphates that cause heave of stabilised soils.	
Shrink and Swell Clays	Semi-mature and mature trees are present across the site and along the boundaries of the site and cohesive Glacial Till deposits may be present. Cohesive Glacial Till deposits may be moderate to high plasticity and therefore of moderate to high volume change potential.	Some types of ground (e.g. clay soils) can change volume due to changes in moisture content that may be induced by weather variations (e.g. drought), vegetation (e.g. growth or removal of trees) or man-made activities (e.g. changes to local drainage). This shrink / swell behaviour typically causes ground movement to a depth of approx. 3m potentially damaging building foundations, externals, pipes or services by differential movements.	Low
Coal Seam(s) and Possible Shallow Workings	The Trencherbone coal seam is recorded to outcrop on-site. Therefore, a shallow coal seam and possible workings may be present across the majority of the site. Consequently, possible shallow workings may be present in the seam at shallow depth.	The site is within a coal mining area and there is a potential for workings to have taken place within the underlying coal seam. Workings can result in collapses and surface ground movement. The depth of the underlying seam will need to be established prior to development.	Moderate
Fault	A fault is recorded in the south western site section. If shallow bedrock is encountered, the fault zone may be present in close proximity to the surface.	The presence of a fault could have implications on foundations if the fault zone is substantial and the bedrock highly fractured i.e. reinforced foundations may be required in the vicinity of the fault.	Low
Obstructions	Although the majority of buildings remain at the time of writing, there may be a demolition and grubbing exercise required prior to construction. The on site chimney may have deep foundations.	May act as obstructions to excavations and / or the chosen foundation solution or act as 'hard spots' within the ground if left in-situ.	Low

4.3 Sources of Contamination and Probable Contaminants

Based on the desk study information the following potentially contaminative on-site sources have been identified:

Potentially Contaminative Source	Associated Determinands	Remarks	Hazard
On Site Made Ground	Unknown, anticipated to be metals, semi-metals, PAHs, TPH, asbestos. Ground Gas – carbon dioxide, methane, hydrogen sulphide, VOCs	Localised Made Ground is possible on site, composition and depth are unknown but not anticipated to be deep or particularly contaminative.	Low

On Site Suspected ACM	Asbestos	Numerous piles of suspected ACM (asbestos cement sheeting) were noted during the site walkover. These were above ground and in tact and therefore should be picked and removed. Suspected ACM was also noted on the existing buildings.	Low to Moderate
On Site Leigh's Nursery	Herbicides and Pesticides	The site has been a plant nursery since 1890 and therefore herbicides and pesticides may be present.	Low
On Site Chimney	Hydrocarbons, PAHs, BTEX, , metals and semi metals.	A chimney is present in the central western section of site. This is a potential PAH hotspot. Ash and clinker may be present.	Low
Off-Site Elton Vale Bleach Works (1890 - 2005) (135m SE)	Possibly metals and semi-metals, inorganic compounds such as sulphuric acid, sodium hydroxide, cyanides, borates, fluorides, chlorinated organic solvents, soaps, glycerol, hydrocarbons, pesticides and herbicides, BTEX and pigments	A bleach works was present 135m south east of site from 1890 to 2005. Although this is a potentially contaminative source, given its distance from site and the cohesive Glacial Till superficial deposits it is not considered to be potentially harmful.	Low
Off- Site Sewage Works (1927 - 1955) (300m W)	Metals and semi-metals, inorganic compounds, acids and alkalis, asbestos and organic compounds. Ground Gas – carbon dioxide, methane, hydrogen sulphide	A sewage works with associated filter beds was present 300m west of site from 1927 to 1955. This is a potential significant ground gas source, although given the distance from site and the cohesive Glacial Till superficial deposits the migration of gases to site is considered unlikely.	Low
On Site Historic Tanks	Diesel, waste oil and unknown	Tanks are recorded in the western site section from the 1950s. The historic contents are unknown and the tanks appear to have been removed.	Low
Other off site various	Possibly metals and semi-metals, inorganic compounds such as sulphuric acid, sodium hydroxide, cyanides, borates, fluorides, chlorinated organic solvents such as tetrachloroethene (TCE) and perchloroethene (PCE), bonding agents including various forms of formaldehyde, soaps, glycerol, hydrocarbons, pesticides and herbicides, BTEX and pigments	Various other off site industrial mills and works, including print and dye works, are present within 500m of site which will contain a wide range of contaminants.	Low

Off-site ponds	Ground Gas – carbon dioxide, methane, hydrogen sulphide, VOCs	Numerous off site ponds appear to have been infilled. Organic rich matter may be present within the infilled ponds which may be a ground gas source.	Low
Coal workings		The Trencherbone Coal Seam outcrops in the north of site. If workings exist, they may be a ground gas source as pathways would be present.	Low
Off-Site Landfill (424m N)		The landfill received inert, industrial waste between 1980 and 1984	Low

It should be noted that potentially contaminative unrecorded historic activities may have occurred (e.g. the use or deposition of Made Ground from off-site during historic on-site developments) and in this event, further contaminative sources may be present.

4.3.1 Unknowns

Following the desk study, the areas of uncertainty are summarised as follows:

- Extent, composition and thickness of possible localised Made Ground.
- Extent, composition and thickness of superficial deposits (Glacial Till deposits)
- Depth to bedrock
- Presence of a shallow groundwater table within superficial deposits
- Presence of obstructions
- Depth of groundwater within bedrock
- Presence of coal workings

4.4 Pathways for Contamination

4.4.1 Human Health

The pathways along which contamination could potentially reach the receptors on-site during use and after completion of development works are detailed in 'Updated Technical Background to the CLEA Model' (Environment Agency 2009) but can be summarised as follows:

End Users (Residential Land Use Scenario):

- Ingestion of soil directly and indoor dust* including on home-grown produce;
- Inhalation of soil dust (indoor and outdoor);
- Dermal contact with soil (indoor and outdoor);
- Inhalation of soil vapours (indoor and outdoor);
- Oral background;
- Inhalation background.

** Treated as one pathway*

4.4.2 Controlled Waters

The pathways along which contamination could potentially reach the controlled waters receptors during use and after completion of development works are as follows:

- Vertical migration along current and future foundations and pooling at base / beneath foundations.
- Vertical migration through granular made ground, natural granular deposits (superficial and bedrock) and granular lenses in natural cohesive deposits.
- Lateral migration along low permeability natural deposits and pooling at relative low points.
- Negligible infiltration through low-permeability natural cohesive deposits.
- Migration through porous sandstone bedrock.
- Migration along groundwater flow.
- Overland flow

4.4.3 Ground Gas Pathways

The pathways along which ground gas could potentially reach the receptors on-site during use and after completion of the development works are as follows;

- Migration through fractures and fissures in bedrock
- Preferential migration along foundations, service ducts / trenches
- Migration within groundwater
- Ingress through wall cavities and floors and accumulation
- Inhalation of ground gas and vapours

4.5 **Receptors of Contamination**

Human Health receptors for these pathways include the following:

- End Users (residential land use scenario)
- Construction workers.
- The general public and adjacent site users.

Controlled waters receptors for these pathways include the following:

- Groundwater contained within the underlying Secondary Undifferentiated Aquifer (superficial deposits) and Secondary A Aquifer (Pennine Lower Coal measures),
- Surface Water – On-site pond and Elton Brook along the southern site boundary

Other receptors for these pathways include the following:

- Subsurface plastic (e.g. potable plastic water pipe).
- Building fabric (e.g. concrete foundations, etc.)

4.6 **Conceptual Model for Human Health Risk Assessment**

A site conceptual model in the form of a linkage table for the purposes of a preliminary risk assessment for the human health of site occupants has been produced as a result of the probable contaminants, pathways and receptors identified above.

Sources of Contamination	Pathway	Receptor	Hazard (severity)	Likelihood	Risk
Made Ground Suspected ACM Leigh's Nursery Chimney Elton Vale Bleach Works (135m SE, 1890 – 2005) Sewage Works (300m W, 1927 – 1955) Historic Tanks Other Off-Site Sources	Ingestion of contaminated soil and dust (indoor and outdoor) Dermal contact with contaminated soil (outdoor and indoor) Inhalation of contaminated dust (indoor and outdoor)	End users and general public Construction workers	Effect on human health (Medium)	Low likelihood: Widespread Made Ground is not anticipated on site. On site tanks appear to have been removed and no evidence of contamination is present, however, the presence of associated contaminative hotspots cannot be discounted. Off site sources are not thought to pose a significant risk due to their distance from site and the cohesive superficial deposits in the area significantly reducing migration of possible contaminants. Given the site's historical use as a plant nursery, herbicides and pesticides may be present in the areas of the growing beds, however, they are not likely to include the persistent organochloride pesticides such as Dieldrin, Aldrin, DDT etc. Pesticides and herbicides routinely used in the UK degrade in soils or leach via rainwater infiltration to groundwater. Therefore, given that the site has not been used in 20 years significant concentrations are unlikely to be present. Significant piles of suspected ACM were noted across the site. The presence of further ACM and free fibres cannot be discounted given the significant quantity for suspected ACM noted. Possible contaminative hotspots may also be present (i.e. PAHs) associated with the on-site chimney.	LOW TO MODERATE
		Low likelihood: No widespread contamination is anticipated on-site however hotspots may be present. Construction workers will be at increased risk due to their acute interaction with soils. Asbestos will be a contaminant of concern as disturbance may cause the release of loose fibres. However, the appropriate use of PPE, Good Practice and Health and Safety Measures will significantly reduce the risk.		LOW TO MODERATE	
	Inhalation of soil vapours (indoors and outdoors)	End users and general public			Low Likelihood: No widespread potential source of VOCs identified on site. Although contaminative hotpots may be present (i.e. hydrocarbon hotspots), given their relative mobility and volatility VOCs are unlikely to remain at significant concentrations.
		Construction workers		Unlikely: Construction workers at increased risk if any disturbance of soil occurs as this may generate a temporary increase in the release of soil vapours, however risk remains low given the lack of a source of VOCs.	LOW

Diagrams of the conceptual site model is contained within Appendix 10.

4.7 Conceptual Model for Ground Gas Risk Assessment

A conceptual model in the form of a linkage table for the purposes of a preliminary risk assessment for ground gas has been produced as a result of the probable contaminants, pathways and targets identified above as follows:

Source	Pollutant	Pathway	Receptor	Hazard (severity)	Likelihood of Occurrence	Risk
On-Site Made Ground	Methane		Human occupants	Effect on human health (Mild to Severe*)	Low Likelihood: Widespread Made Ground is not anticipated on site, and any localised pockets are considered unlikely to contain significant organic rich or putrescible deposits. Consequently, the Made Ground is anticipated to be a low ground gas generation source unless organic rich / putrescible or contaminative hotspots are present.	LOW
	Carbon dioxide		Site Workers	Effect on human health (Mild to Severe*)		
	Hydrogen Sulphide		Human occupants	Effect on human health (Mild to Severe*)		LOW
	VOCs		Site Workers	Effect on human health (Mild to Severe*)		
On-Site Possible Coal Workings	Methane	Preferential migration along foundations, service ducts / trenches	Human occupants	Effect on human health (Mild to Severe*)	Low Likelihood: Although a shallow coal seam is anticipated to be present beneath the site with possible workings which is considered a ground gas source, given the thickness of primarily cohesive superficial deposits (>10m) the ground gas risk associated with possible shallow coal seams is deemed low as vertical migration of ground gas is deemed unlikely.	LOW
	Carbon dioxide	Ingress through wall cavities and floors and accumulation	Site Workers	Effect on human health (Mild to Severe*)		
Off site landfill (424m N) 1980-1984 Off site Sewage works (300m W, 1927 – 1955) Off site infilled ponds (c. 1950's-1980's)	Methane	Inhalation of ground gas	Human occupants	Effect on human health (Mild to Severe*)	Low Likelihood: Although off site ground gas sources exist, they are all a significant distance from site and were infilled c. 50 years ago. Additionally, given the cohesive superficial deposits in the area a ground gas migration pathway to the site is considered unlikely.	VERY LOW
	Carbon dioxide		Site Workers	Effect on human health (Mild to Severe*)		
	Hydrogen Sulphide		Building and Structures	Damage to building (Mild)		
	VOCs					

*Due to the risk of explosion.

Diagrams of the conceptual site model is included within Appendix 10.

4.8 Conceptual Model for Waters Risk Assessment

A site conceptual model in the form of a linkage table for the purposes of a preliminary risk assessment for pollution of waters has been produced as a result of the probable contaminants, pathways and targets identified above as follows:

Source	Pathway	Receptor	Hazard (severity)	Likelihood of Occurrence	Risk
Made Ground Leigh's Nursery Chimney Historic Tanks	Vertical migration along current and future foundations	Groundwater within Secondary A Aquifer and Secondary Undifferentiated Aquifer	Effects to controlled waters (Mild)	Pre-Development Site Low Likelihood: Widespread contamination is not anticipated across the site however contaminative hotspots are possible. There is currently minimal hardstanding across the site therefore infiltration of water is possible. However, the site is underlain by cohesive Glacial Till superficial deposits which will negate vertical migration. Additionally, any contamination associated with the historic tanks and nursery will be significantly degraded given the 20+ years since the nursery was active. Consequently, the risk is deemed low given that no significant contamination is anticipated. Furthermore, any contamination is likely to be associated with low mobility and solubility contaminants of concern (i.e. metals and semi-metals and PAHs).	LOW
	Vertical migration through granular Made Ground and / or natural deposits			Post-Development Site Unlikely: Following development there will be an increase in hardstanding (i.e. buildings and roads) and therefore vertical migration will be significantly reduced. Furthermore, if any contamination is encountered, the remedial measures may be undertaken for human health purposes (i.e. possible removal of source) further reducing the risk to controlled waters.	VERY LOW
	Negligible infiltration through low permeability cohesive deposits				
	Migration through porous bedrock				
	Lateral migration along low permeability cohesive deposits	Surface water courses (On-site Pond, Elton Brook) & aquatic organisms	Effects to controlled waters: (Mild)	Pre Development Site: Low Likelihood: Although lateral migration of contaminants is possible given the anticipated presence of cohesive Glacial Till deposits across the site, there is not anticipated to be widespread contamination on site and therefore the risk is deemed low. Additionally, no shallow groundwater to facilitate lateral migration is anticipated.	LOW
	Lateral migration along historic drainage			Furthermore, any contamination is likely to be associated with low mobility and solubility contaminants of concern (i.e. metals and semi-metals and PAHs).	
	Migration along groundwater flow			Post Development Site: Unlikely: The potential for lateral migration of contaminants will be further reduced following development given the increased presence of hardstanding significantly reducing infiltration of water into the underlying ground.	VERY LOW
	Overland flow	Surface water courses (Elton Brook) & aquatic organisms	Effects to controlled waters: (Mild)	Pre Development Site Unlikely: Although the surface water features are located on-site (pond) and adjacent to the site (Elton Brook), minimal hardstanding is currently present across the site. Therefore, the topsoil will facilitate vertical migration rather than lateral migration to the surface water receptors.	VERY LOW
				Post Development Site: Unlikely: Although the presence of hardstanding is likely to increase significantly following development, the risk remains very low as any contamination is likely to be beneath hardstanding or beneath areas of soft landscaping / private gardens which will	VERY LOW

				facilitate vertical migration rather than lateral migration to the surface water receptors.	
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Diagrams of the conceptual site model is included within Appendix 10.

4.9 Preliminary Risk Assessment Summary

Human Health

Based on the human health conceptual model the risk to human health is deemed low to moderate to end users and construction workers given the presence of potential contaminative hotspots and possible pollutant linkages. The risk to construction workers can be mitigated through the use of appropriate PPE and health and safety measures.

Ground Gas

Potential ground gas sources have not been identified on-site. Although potential sources have been identified in the vicinity of the site, they are all a significant distance from site and the underlying cohesive superficial deposits will negate ground gas migration, therefore the risk is deemed low. Consequently, it is recommended to undertake ground gas monitoring over a period of 2 months with a minimum of 6 No. visits to confirm the ground gas regime.

If any organic rich Made Ground deposits are identified or if previously unrecorded potential ground gas sources are recorded during the ground investigation works, then additional ground gas monitoring may be required. The length and frequency of the ground gas monitoring regime and the sampling method, initial results and alterations to the conceptual model are subject to the findings of the ground investigation works and development constraints (i.e. development timescales and liaison with the local authority).

Controlled Waters

Although sensitive receptors have been identified in close proximity to the site (Elton Brook, Secondar A Aquifer) no significant contaminative linkages exist on site, therefore the risk to controlled waters is deemed very low to low.

If unrecorded contaminative sources are noted, the above conceptual models may require re-assessment / re-appraisal.

4.10 Scope of Phase 2 Intrusive Geo-Environmental Ground Investigation

As a result of the preliminary risk assessment a Phase 2 intrusive geo-environmental ground investigation should be carried out to quantify the identified risks. This intrusive ground investigation works should include the collection of appropriate samples – solid, leachate and / or liquid, if determined necessary, across the site for appropriate chemical testing as detailed above.

Furthermore, to determine the geotechnical and geological properties of the underlying ground conditions, appropriate intrusive works and associated testing should be undertaken. The rationale and aims for these Phase 2 environmental, geotechnical and geological investigative works are detailed below.

In order to provide adequate assessment in terms of both environmental and geotechnical site parameters, ground investigation works will be required on a spatial basis and also targeting the location of the following features:

- Historic growing beds
- Historic tanks
- Chimney
- On site buildings
- Historical buildings

The proposed initial ground investigation works should comprise the following:

- Dynamic Sampling Boreholes
- Trial pits

- Rotary Open Hole Boreholes – *for purposes of assessing the coal mining risk across the site. To be confirmed based on the findings of the Coal Mining Risk Assessment.*

The rationale for the exploratory holes is discussed below:

- To allow the collection of samples from potential Made Ground and natural deposits for chemical laboratory testing (solid samples) for an appropriate suite of determinands and for soluble sulphate (2:1 extract) and / or total sulphate and pH testing to determine the suitable concrete classification in associated with relevant guidance e.g. BRE Special Digest 1.
- To determine the extent, composition and depth of the possible made ground.
- To determine the presence of any subterranean obstructions i.e. relic foundations, slabs, walls.
- To determine the nature, thickness and extent of superficial deposits.
- Enable in-situ and ex-situ geotechnical testing, including density testing (SPTs), hand shear vane (HSV) testing and undrained shear strengths of the underlying Made Ground and natural deposits for the purposes of sub-structure design;
- Rotary Holes to determine the thickness of overlying superficial deposits and the depth to rockhead as well as the position and depth of the shallow coal seam on-site.

Ground investigation should also include the following:

- Ground gas and groundwater depth monitoring of wells for 6 No. visits over 2 No. months, although, this monitoring period is subject to change following intrusive ground investigation findings.

Based on the findings of the initial ground investigation works, further works may be required for detail design including:

- CBR Plate tests / Dynamic Cone Penetrometer tests

5.0 RECOMMENDATIONS

- 5.1 As a result of the information gathered and the risks identified in this report, it is regarded that there is a low risk to human health on site on the basis that no contaminative linkages have been identified for end users or construction workers. The risk to controlled waters is deemed very low to low given the absence of contamination.
- 5.2 As the site lies within a development high risk area and a coal seam outcrops in the north of site, dipping south, a Coal Mining Risk Assessment is recommended for the site. Ground investigation works should be carried out to determine the risk associated with shallow coal seams / workings. This information should be used to update the Coal Mining Risk Assessment for the site.
- 5.3 Due to geotechnical requirements, ground investigation works should be undertaken in order to determine the ground conditions with a greater degree of certainty and allow design of the proposed development, drainage, services and immediate external areas to be undertaken. It is therefore recommended that exploratory holes are constructed where access is permitted across the site.
- 5.4 From the results of the Phase 2 ground investigation work – if this report identifies a potential risk and / or a requirement for further detailed site specific assessment, a Phase 3 environmental investigation report and / or a Remedial Strategy (informing on potential remediation solutions) may be required.
- 5.5 The nature and extent of the proposed targeted chemical and environmental testing should be confirmed, if time / commercial constraints allow, with the relevant Local Authority Environmental Health Officer and the Environment Agency prior to undertaking works on-site. Proceeding without agreement between regulatory authorities may result in further assessment being required.

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- 5.6 It should be noted that, if any visual or olfactory evidence of contamination is encountered during remediation or construction work, then the Local Authority Environmental Health Officer and Environment Agency should be contacted immediately in order to agree any necessary remediation measures.
- 5.7 Given the presence of services on-site, full service plans should be obtained prior to any intrusive ground investigation works.
- 5.8 Due to the presence of semi-mature and mature trees on-site and the presence of cohesive deposits, an arboricultural survey is recommended.

APPENDIX 1

LIMITATIONS OF INVESTIGATION WORK AND REPORT AND CONTAMINATED LAND LEGISLATIVE FRAMEWORK

LIMITATIONS OF REPORT

This consultancy report was compiled and carried out by IGE Consulting Limited ('IGE') for the client, as defined in the main report (the 'client'), on the basis of a defined programme and scope of works and the terms of a contract between IGE and the client. IGE undertook this with all reasonable skill and care, taking into account the limits of the scope of works required by the client, the prevailing site conditions, the time scale involved and the resources, including financial and manpower resources, agreed between IGE and the client. IGE cannot accept responsibility to any parties whatsoever, following the issue of this report, for any matters arising which may be considered outwith the agreed scope of works.

Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices. This report may not be relied upon, or transferred to, by any other party without the written agreement of its author. If a third party relies on this report, it does so wholly at its own and sole risk and IGE disclaims any liability to such parties.

It is IGE's understanding that this report is to be used for the purpose described in the 'Brief' section of this report. That purpose was a significant factor in determining the scope and the services to be provided. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without IGE's review and advice shall be at the client's sole and own risk.

The information contained in this report is protected by disclosure under Part 3 of the Environmental Information Regulations 2004 pursuant to the provisions of Regulation 12(5) without the consent in writing of a Director of IGE.

This report is a function of the date it was written and should be read in light of any subsequent changes in legislation, statutory requirements and industry practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal

provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of IGE. In the absence of such written advice of IGE, reliance on the report in the future shall be at the client's own and sole risk. Should IGE be requested to review the report in the future, IGE shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between IGE and the client.

The observations and conclusions described in this report are based solely upon the scope of works agreed between the client and IGE. IGE has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report. IGE is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the agreed scope of works. For the avoidance of doubt, this report is strictly limited to the nature of contamination contained within the ground and groundwater at the site. The report does not cover environmental aspects such as air or noise pollution and ground vibrations and the like. In addition, ecological matters relating to wildlife, flora and fauna have not been investigated as part of this report. In particular, the site has not been inspected for the presence or otherwise of invasive species (e.g. Japanese Knotweed). It is recommended that the client appoints a specialist in this subject to carry out a detailed inspection / survey of the site if its presence is suspected. Where mention has been made to the suspected presence asbestos or asbestos-containing materials this is for indicative purposes only and does not constitute or replace full and proper surveys.

Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements) and the term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. The geo-environmental sections are written in broad agreement with BS 10175:2011+A2 2017.

LIMITATIONS OF INVESTIGATION WORK

Desk Study References

This report is based upon IGE's observations of existing physical conditions at the site gained from a walkover survey of the site together with IGE's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. Reliance has been placed on this publicly available data obtained from the sources identified in the main report. When using the information, it has been assumed that it is correct. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst IGE have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified. No responsibility can be accepted for errors within third party items presented in this report. IGE did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services. IGE is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to IGE and including the doing of any independent investigation of the information provided to IGE except when otherwise provided in the terms of the contract between the client and IGE.

Historical Mapping

Historical Ordnance Survey maps do not provide a comprehensive description of a site history. They provide details of the site from a date prior to the publication of the map (i.e. a snapshot in time). The period between map editions can be substantial (i.e. several decades). Not all map series are available for every date range in many areas of the UK and therefore there will be gaps in this mapped record for some sites. Potentially contaminative land uses could have been present and removed during such periods and may therefore not form a part of this particular record. In addition, there will be potentially contaminative land uses which are not identified on the map records such as small scale storage / use of hazardous materials, illegal / unlicensed

waste disposal activities etc. Different map series identify different features utilising different symbols which can result in features that remain on-site being removed from maps. Some features are also not mapped for security reasons (e.g. airfields and other military installations). These areas are mostly shown as blank areas on historical maps.

Site Walkover

During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not be made known or accessible.

Flooding

Flooding in this report is defined as flooding caused by the sea, ditches, rivers, streams, ponds, lakes, reservoirs and the like. It does not extend to flooding caused by surcharged piped drainage systems and investigations into flooding of this nature are excluded from this report.

Extent of Contamination Studies

Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

The conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the reporting in full. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

PLANNING CONTEXT

The National Planning Policy Framework (NPPF, 2019) states that the purpose of the planning system is to contribute to the achievement of sustainable development. In order to do this the planning system has three overarching objectives, one of which directly relates to the potential for pollution and contaminated land:

- *‘environmental objective - to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy’.*

In accordance with this environmental objective, Paragraph 118 clarifies that ‘making effective use of land’ includes to:

- *‘give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land’.*

In accordance with this environmental objective, Paragraph 170 clarifies that conserving and enhancing the natural environment includes:

- *‘preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability’; and*
- *‘remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate’.*

Paragraph 178 of the NPPF states that planning policies and decisions for developments should also ensure that:

- *‘a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation)’; and,*

- *'after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990'; and*
- *'adequate site investigation information, prepared by a competent person, is available to inform these assessments'.*

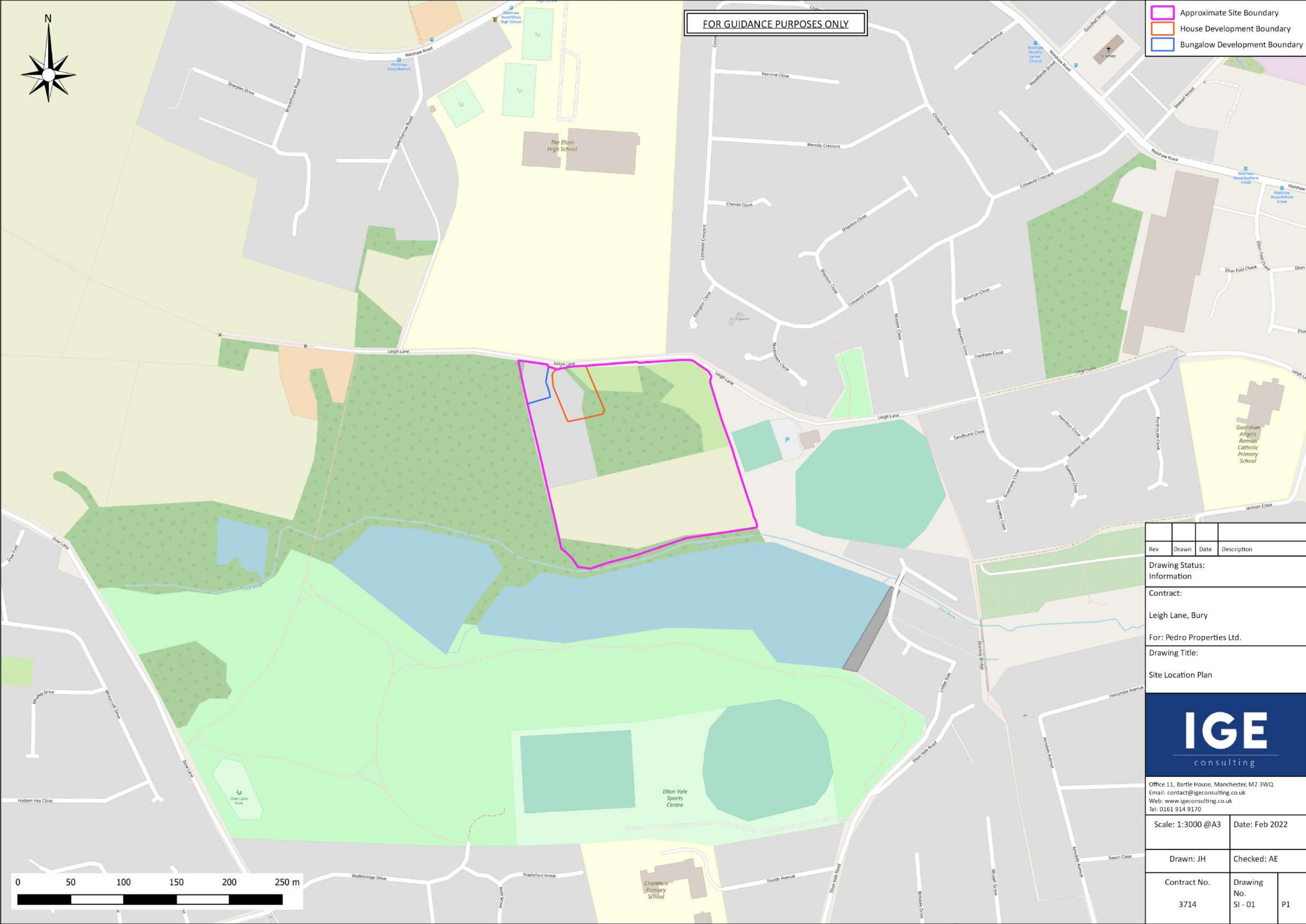
This report has been prepared and authorised by staff that are competent as defined in the NPPF.

APPENDIX 2
SITE LOCATION PLAN



FOR GUIDANCE PURPOSES ONLY

- Approximate Site Boundary
- House Development Boundary
- Bungalow Development Boundary



Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: Leigh Lane, Bury			
For: Pedro Properties Ltd.			
Drawing Title: Site Location Plan			
IGEconsulting			
Office 11, Bartle House, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:3000 @A3		Date: Feb 2022	
Drawn: JH		Checked: AE	
Contract No. 3714		Drawing No. SI - 01	P1

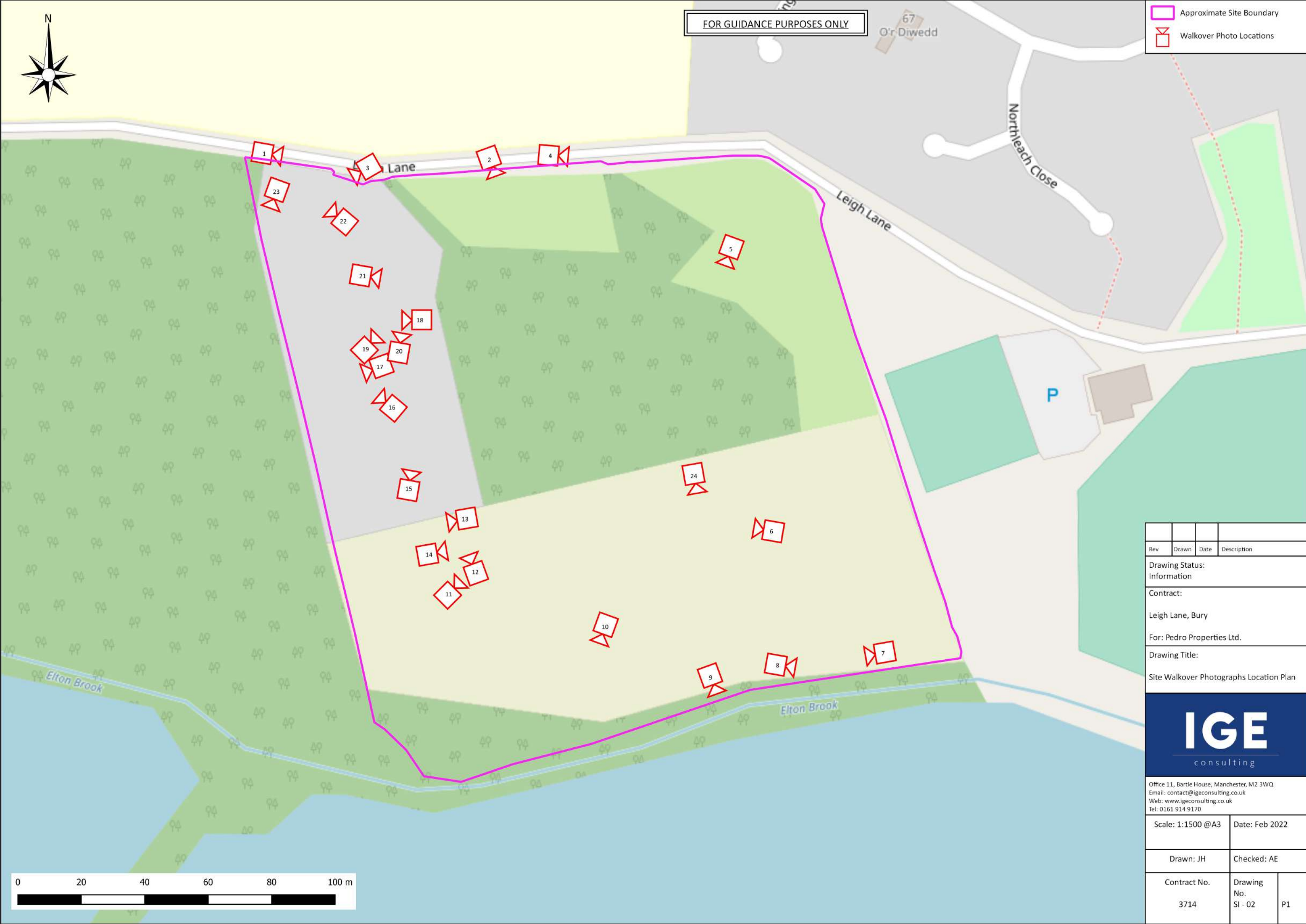
APPENDIX 3

WALKOVER SURVEY PHOTOGRAPHS AND PHOTOGRAPH LOCATION PLAN



FOR GUIDANCE PURPOSES ONLY

- Approximate Site Boundary
- Walkover Photo Locations



Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: Leigh Lane, Bury For: Pedro Properties Ltd.			
Drawing Title: Site Walkover Photographs Location Plan			
IGE consulting			
Office 11, Bartle House, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:1500 @A3		Date: Feb 2022	
Drawn: JH		Checked: AE	
Contract No. 3714		Drawing No. SI - 02	P1

SITE WALKOVER PHOTOGRAPHS – 9th February 2022



Figure 1 – Looking east from the north west of site showing the north western site boundary with an overhead electric cable supplying the site.



Figure 2 – One of the numerous 30m mature trees on site.



Figure 3 – The bungalow in the north west of site.



Figure 4 – Looking east along Leigh Lane.



Figure 5 – Looking south from the north east of site showing an open area of site.



Figure 6 – The pond in the south east of site.

SITE WALKOVER PHOTOGRAPHS – 9th February 2022



Figure 7 – Looking west from the south east of site showing a small pond / stream, possibly man made.



Figure 8 – Looking south east along Elton Brook.



Figure 9 – Looking south east from the south east of site showing Elton Brook in the foreground with the reservoir beyond.



Figure 10 – Mature tree in the centre of site.



Figure 11 – One of the derelict historic outbuildings on site.



Figure 12 – The c. 15.00m tall chimney in the central south west of site.

SITE WALKOVER PHOTOGRAPHS – 9th February 2022



Figure 13 – The inlet at the base of the chimney.



Figure 14 – A possible old tank base on the side of a derelict outbuilding in the central south west of site.



Figure 15 – Looking north east from the central west of site showing one of the historical brick based nursery plant beds.



Figure 16 – Another derelict outbuilding in the north west of site.



Figure 17 – A more recent outbuilding, also now derelict, with sheet metal roofing rather than suspected ACM.



Figure 18 – A pile of suspected ACM on site.

SITE WALKOVER PHOTOGRAPHS – 9th February 2022



Figure 19 – A campfire in the north western site section.



Figure 20 – Looking north towards the on site dilapidated house.



Figure 21 – The inside of the house on site showing the poor condition of the property.



Figure 22 – The bungalow in the north west of site.



Figure 23 – Suspected ACM asbestos cement roofing still in place on an outbuilding in the north west of site.



Figure 24 – The cast iron pump on the north western bank of the pond.

APPENDIX 4

HISTORICAL ORDNANCE SURVEY MAPS

Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1910
 Revised 1910
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1910
 Revised 1910
 Edition N/A
 Copyright N/A
 Levelled N/A



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Production date: 04 February 2022

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



Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: County Series

Map date: 1930

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1930
Revised 1930
Edition N/A
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Surveyed 1930
Revised 1930
Edition N/A
Copyright N/A
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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: County Series

Map date: 1939

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1939
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A

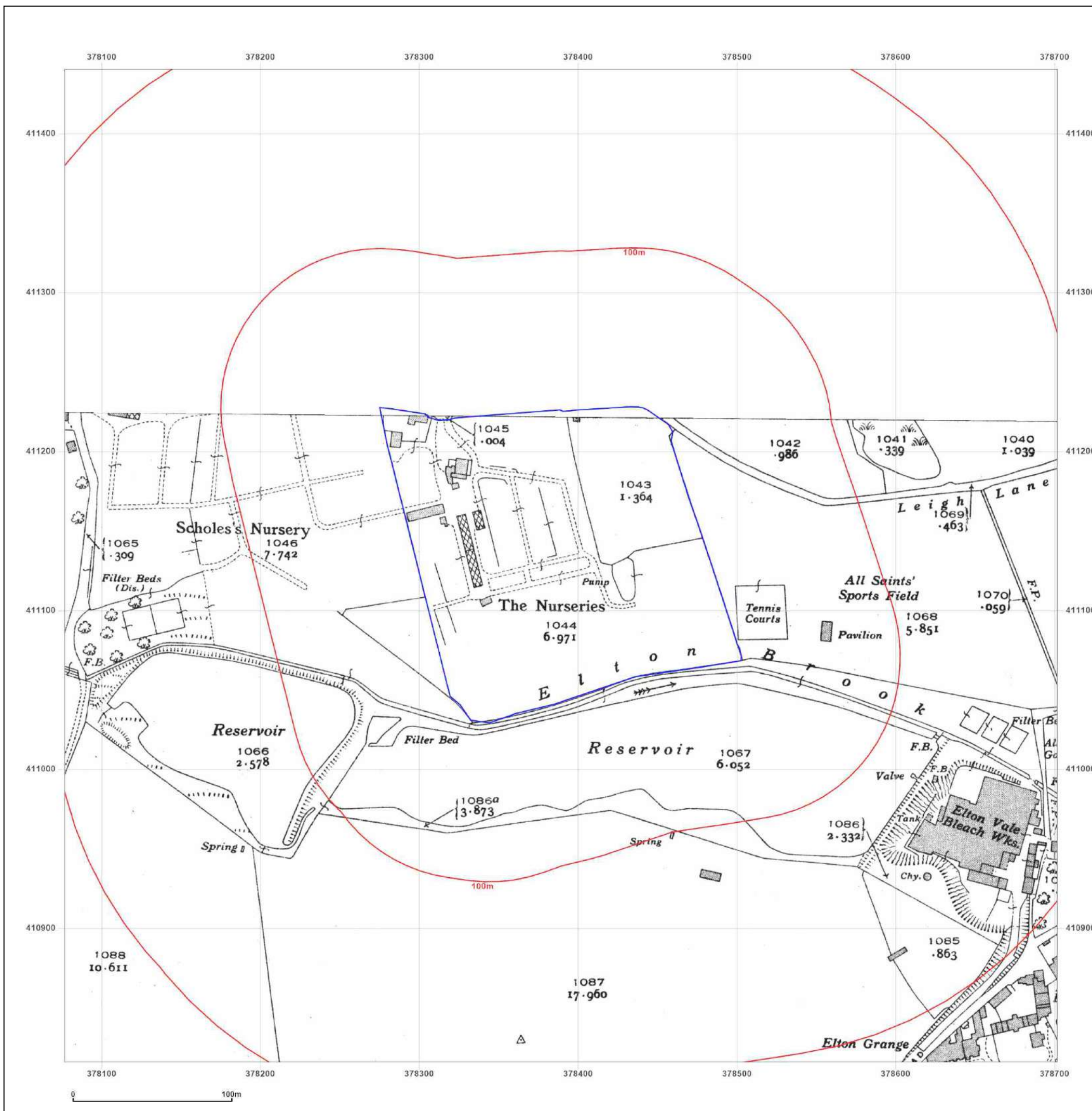


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1957-1959

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959 Revised 1959 Edition N/A Copyright 1959 Levelled 1957	Surveyed 1959 Revised 1959 Edition N/A Copyright 1959 Levelled 1957
Surveyed 1957 Revised 1957 Edition N/A Copyright N/A Levelled 1927	Surveyed 1957 Revised 1957 Edition N/A Copyright N/A Levelled 1927



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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1958-1960

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1959
 Revised 1959
 Edition 1960
 Copyright 1960
 Levelled 1957

Surveyed 1957
 Revised 1957
 Edition 1958
 Copyright N/A
 Levelled 1927

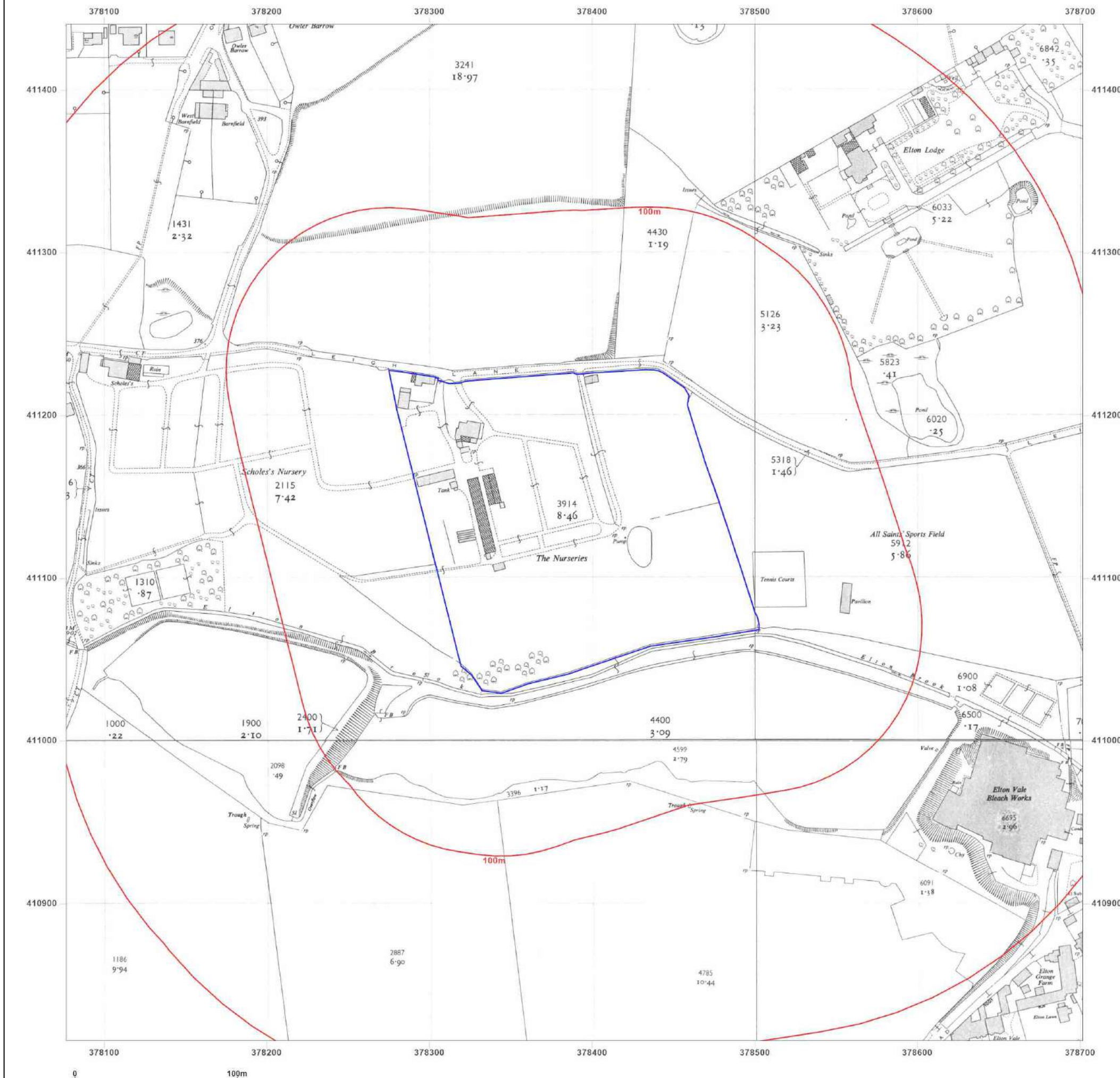


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1963-1967

Scale: 1:1,250

Printed at: 1:2,000



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Surveyed 1957 Revised 1963 Edition N/A Copyright 1963 Levelled 1963		Surveyed 1957 Revised 1963 Edition N/A Copyright 1963 Levelled 1962



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Site Details:

378387, 411140

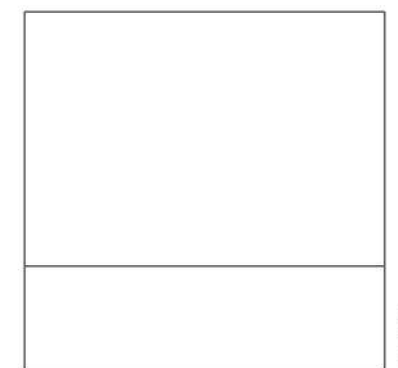
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Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1970

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1968
Revised 1968
Edition N/A
Copyright 1970
Levelled 1963

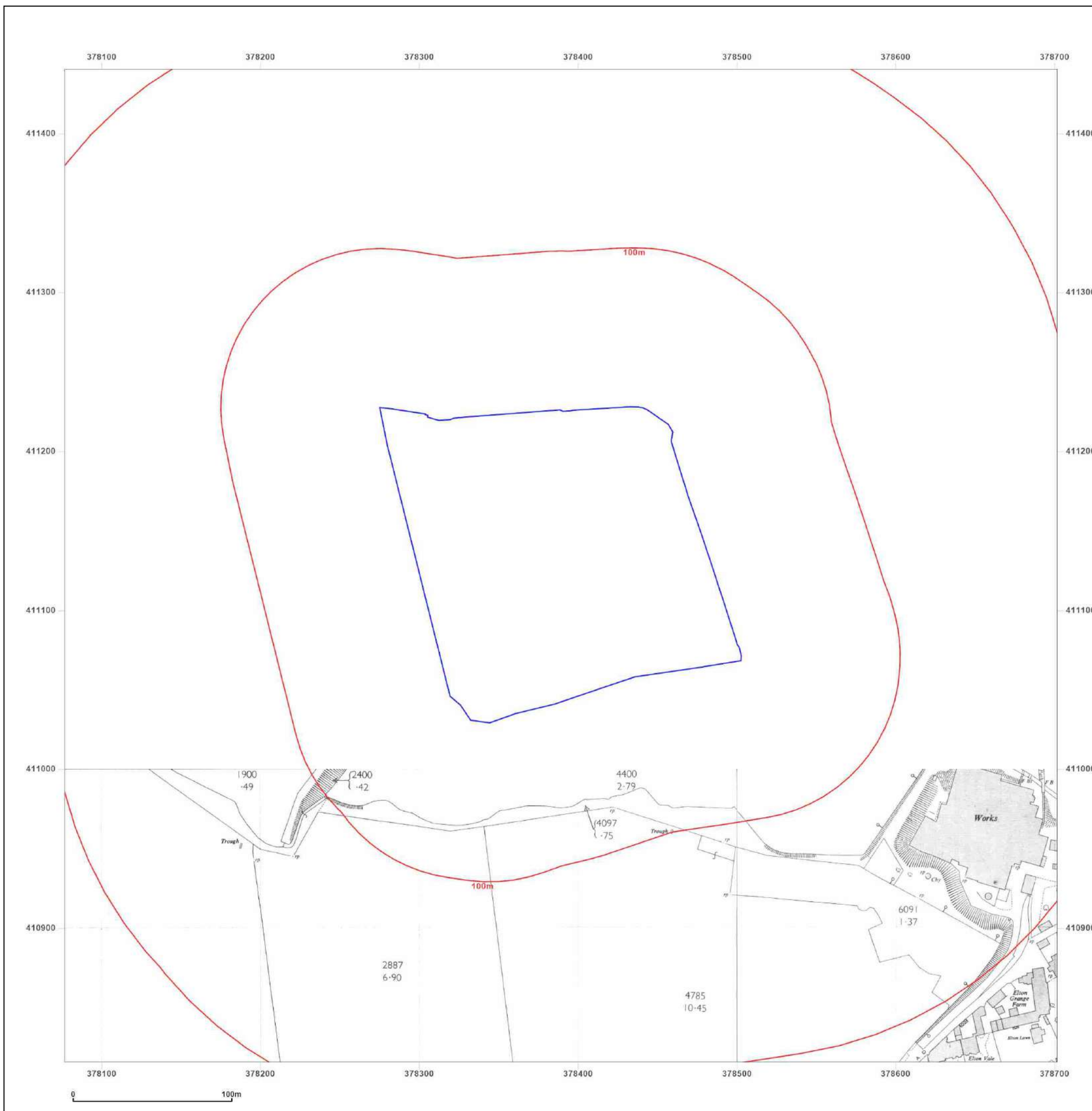


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1975

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
 Revised 1974
 Edition N/A
 Copyright 1975
 Levelled 1957

Surveyed 1959
 Revised 1974
 Edition N/A
 Copyright 1975
 Levelled 1962

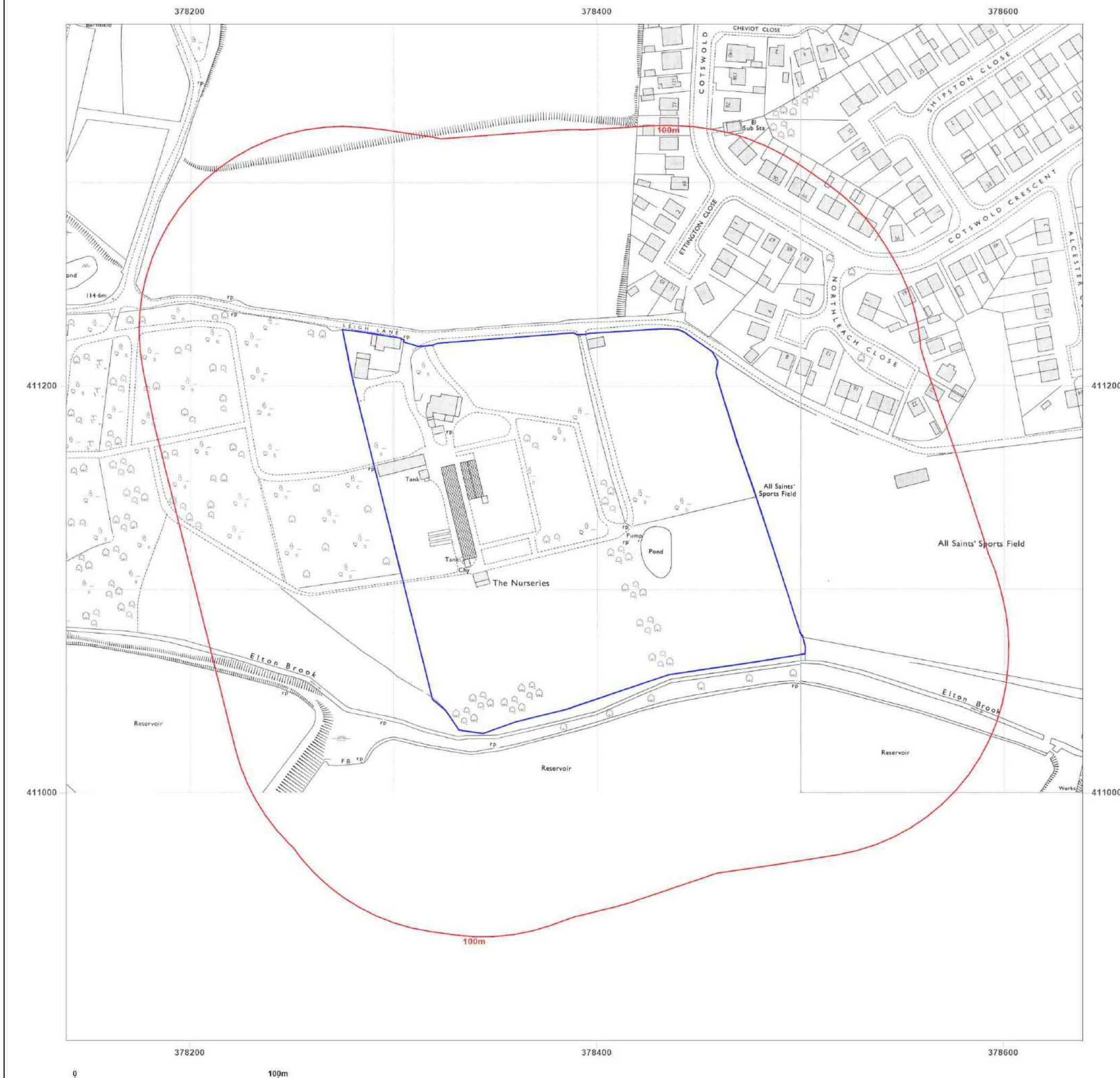


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1991-1992

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1992 Revised 1992 Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1991 Levelled 1957
Surveyed 1992 Revised N/A Edition N/A Copyright 1992 Levelled N/A	Surveyed 1992 Revised 1992 Edition N/A Copyright N/A Levelled N/A



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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1991-1994

Scale: 1:1,250

Printed at: 1:2,000



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



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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1992-1995

Scale: 1:1,250

Printed at: 1:2,000



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



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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1992-1995

Scale: 1:1,250

Printed at: 1:2,000



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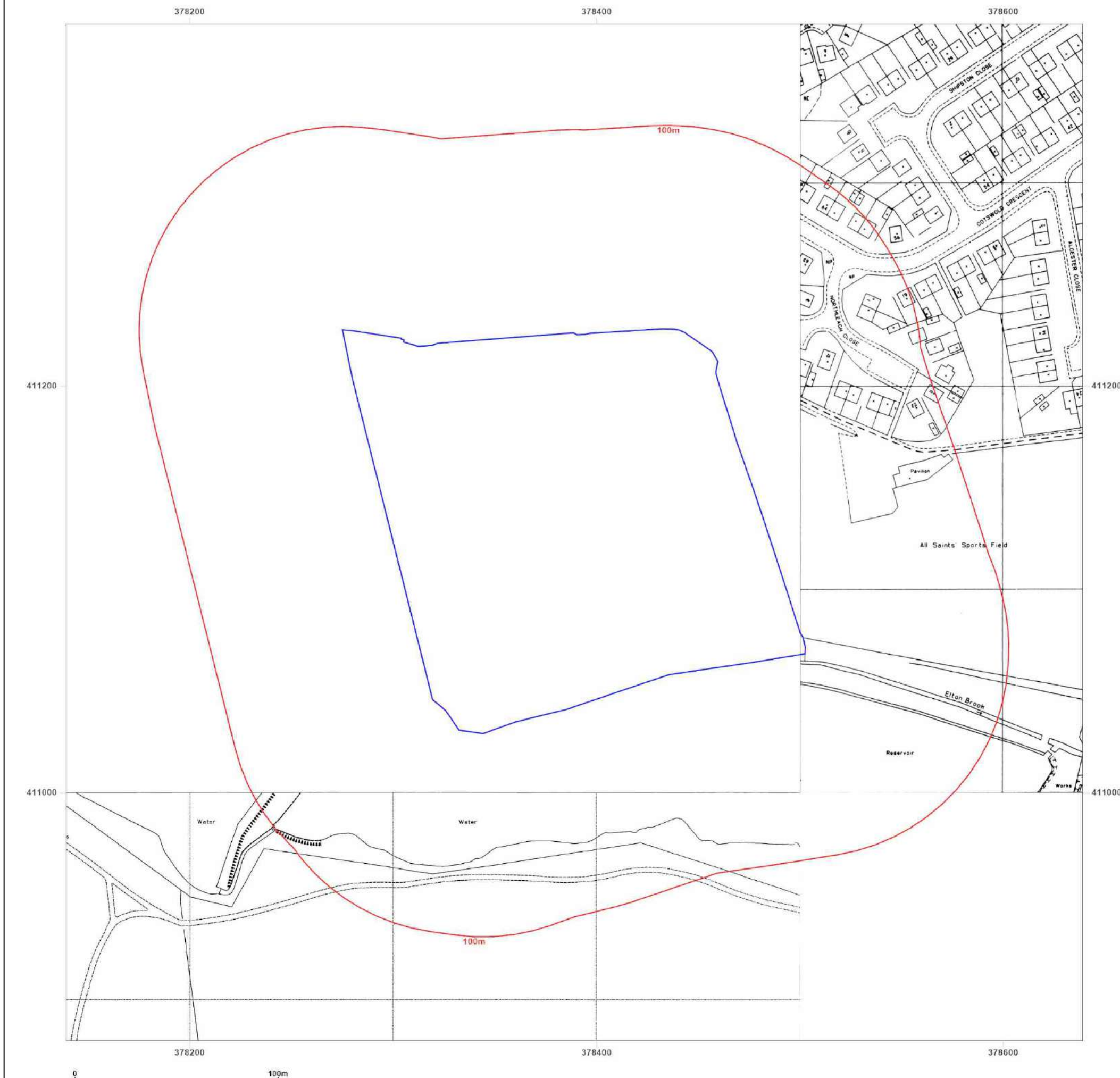


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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



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Site Details:

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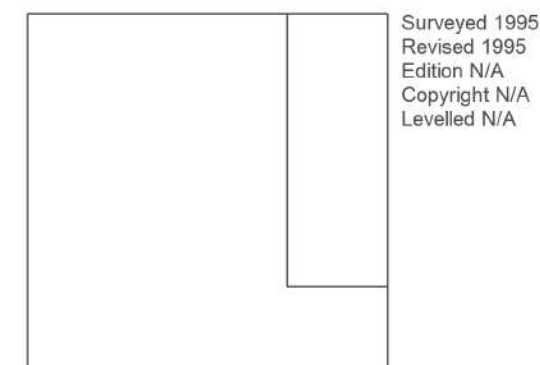
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Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: County Series

Map date: 1850-1851

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1847
Revised N/A
Edition 1851
Copyright N/A
Levelled N/A

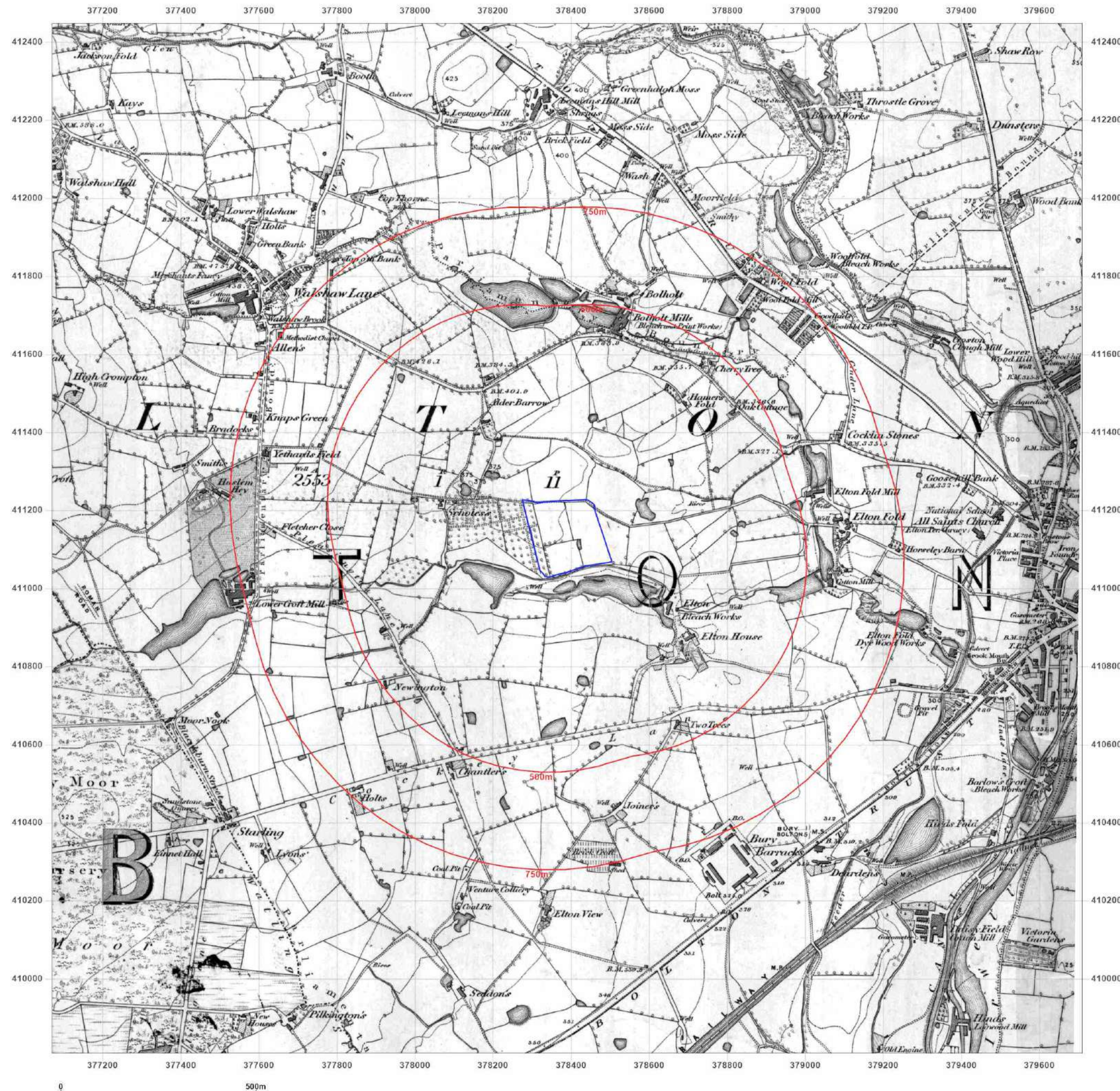


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: County Series

Map date: 1890-1891

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A

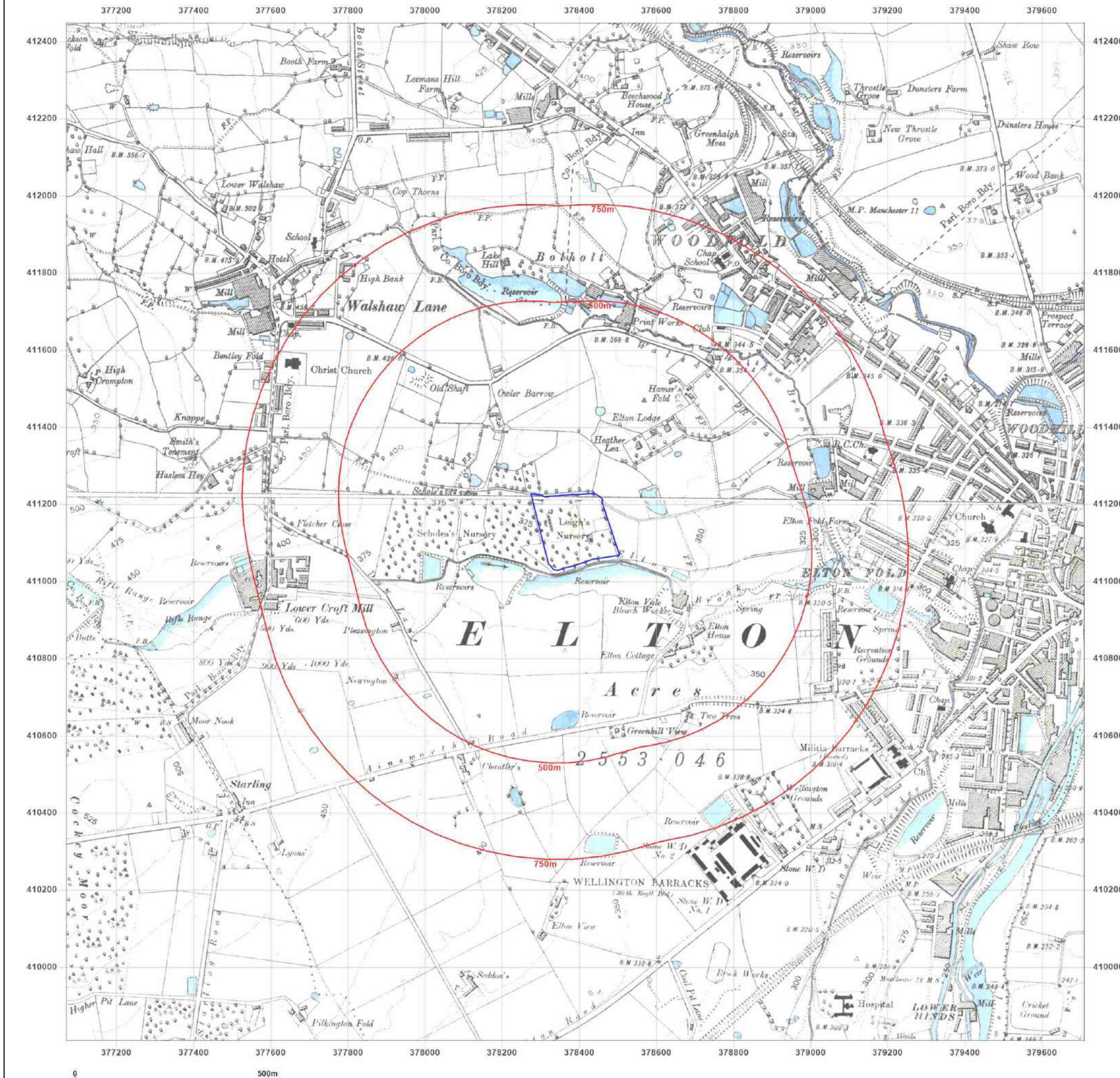


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: County Series

Map date: 1927-1928

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

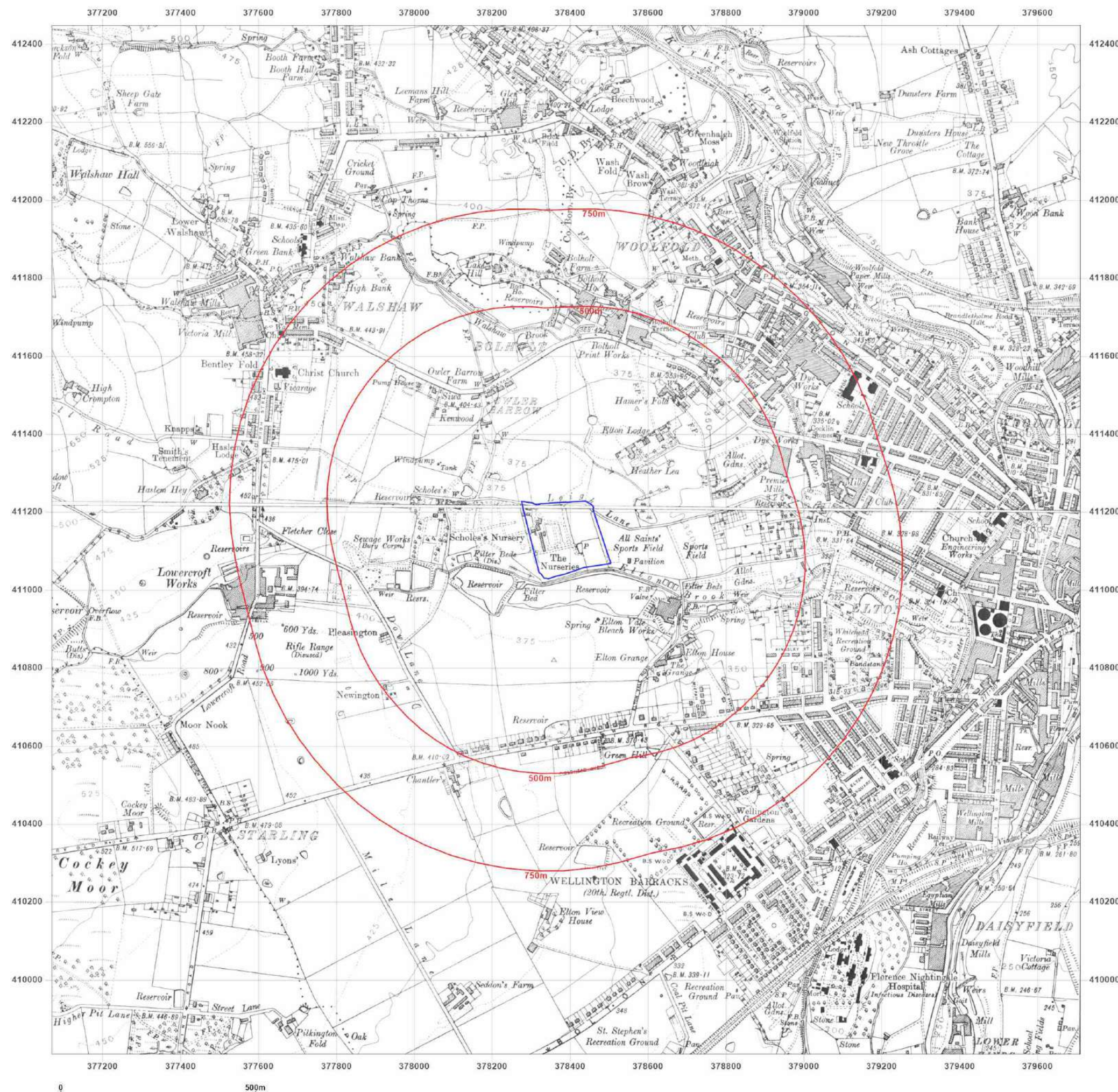


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

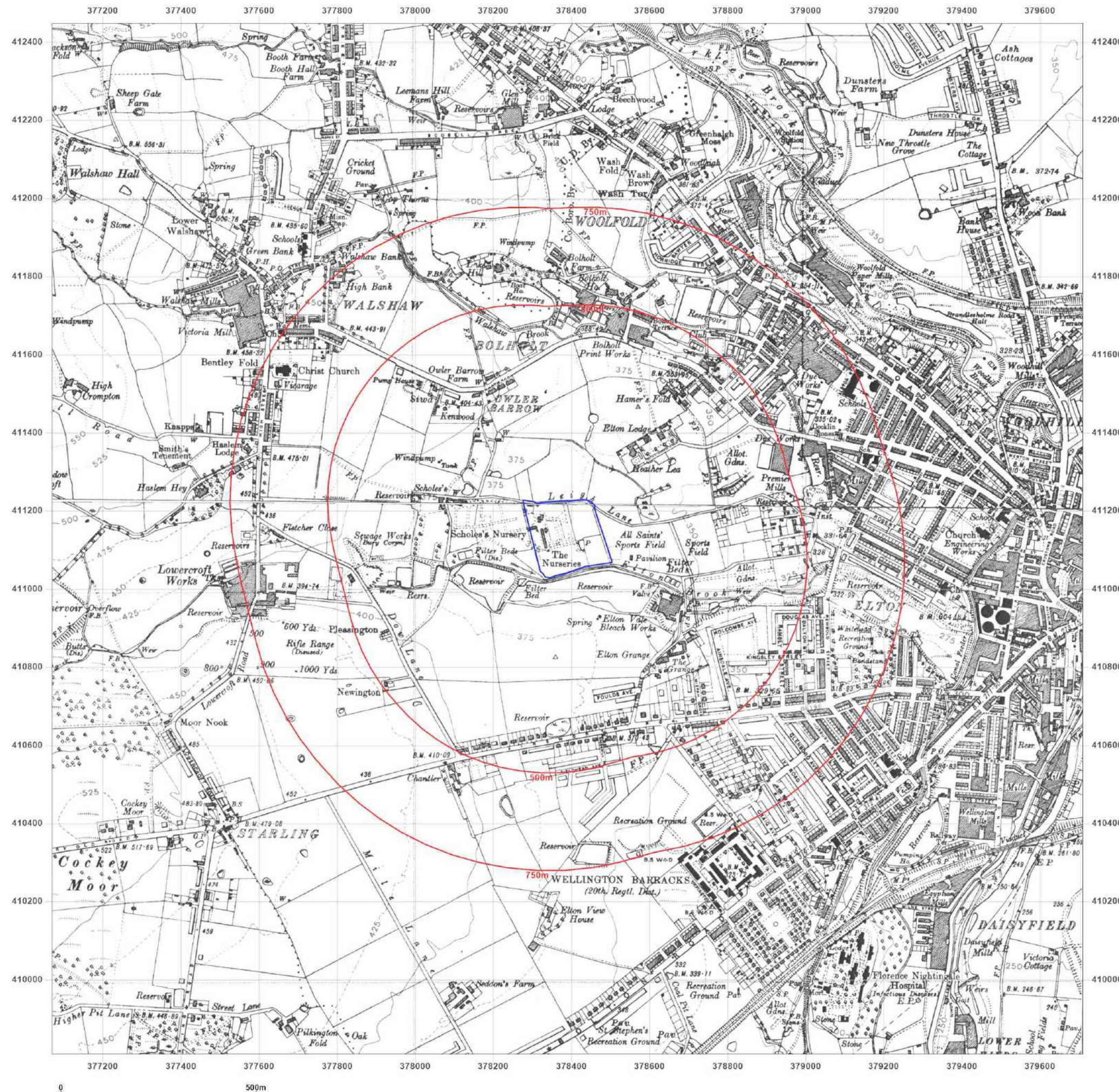


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Production date: 04 February 2022

Map legend available at:
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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1949
Revised 1949
Edition N/A
Copyright 1956
Levelled N/A

Surveyed 1950
Revised 1955
Edition 1955
Copyright N/A
Levelled N/A

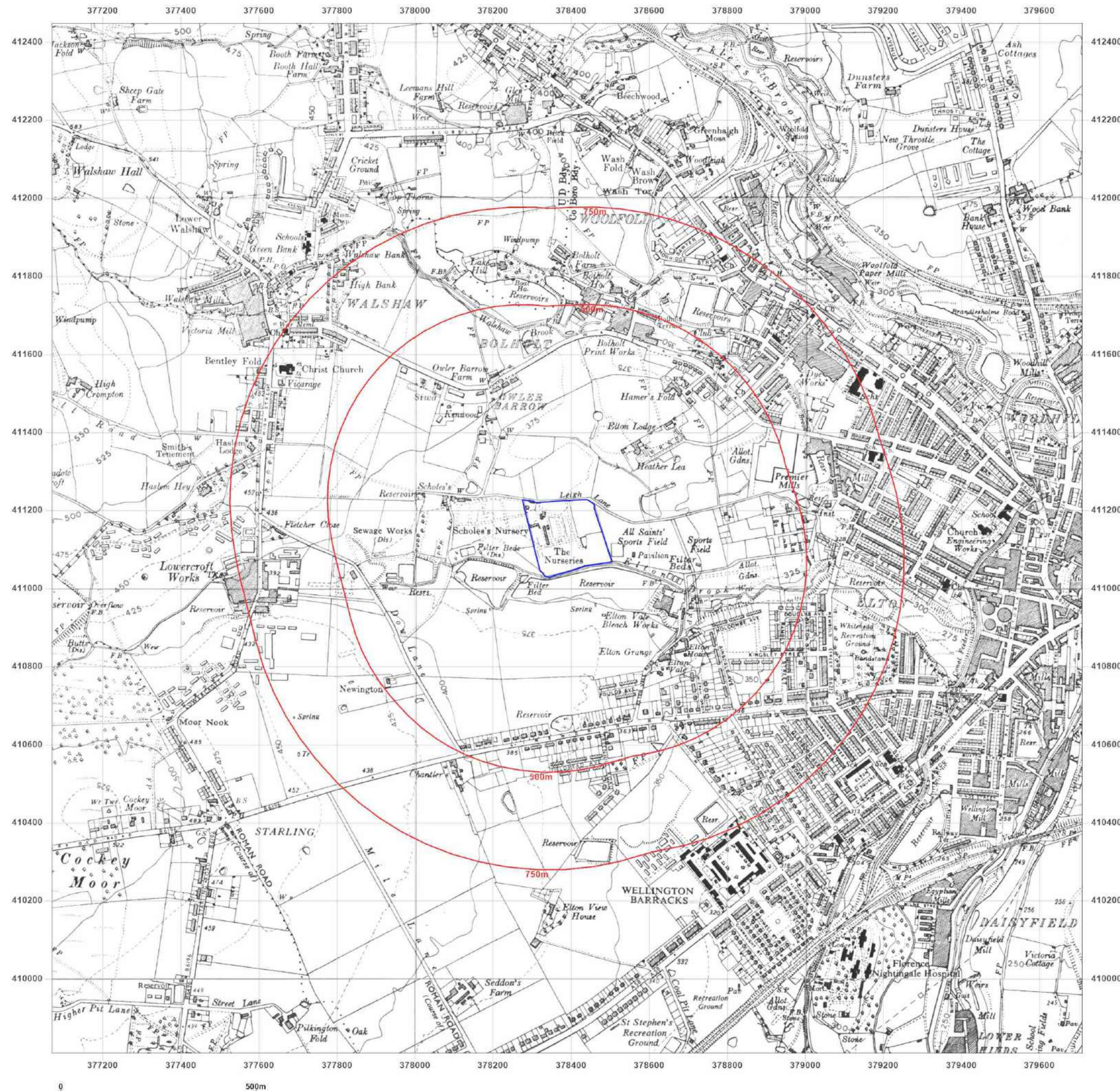


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: Provisional

Map date: 1965-1969

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1969
 Revised 1969
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1965
 Revised 1965
 Edition N/A
 Copyright N/A
 Levelled N/A

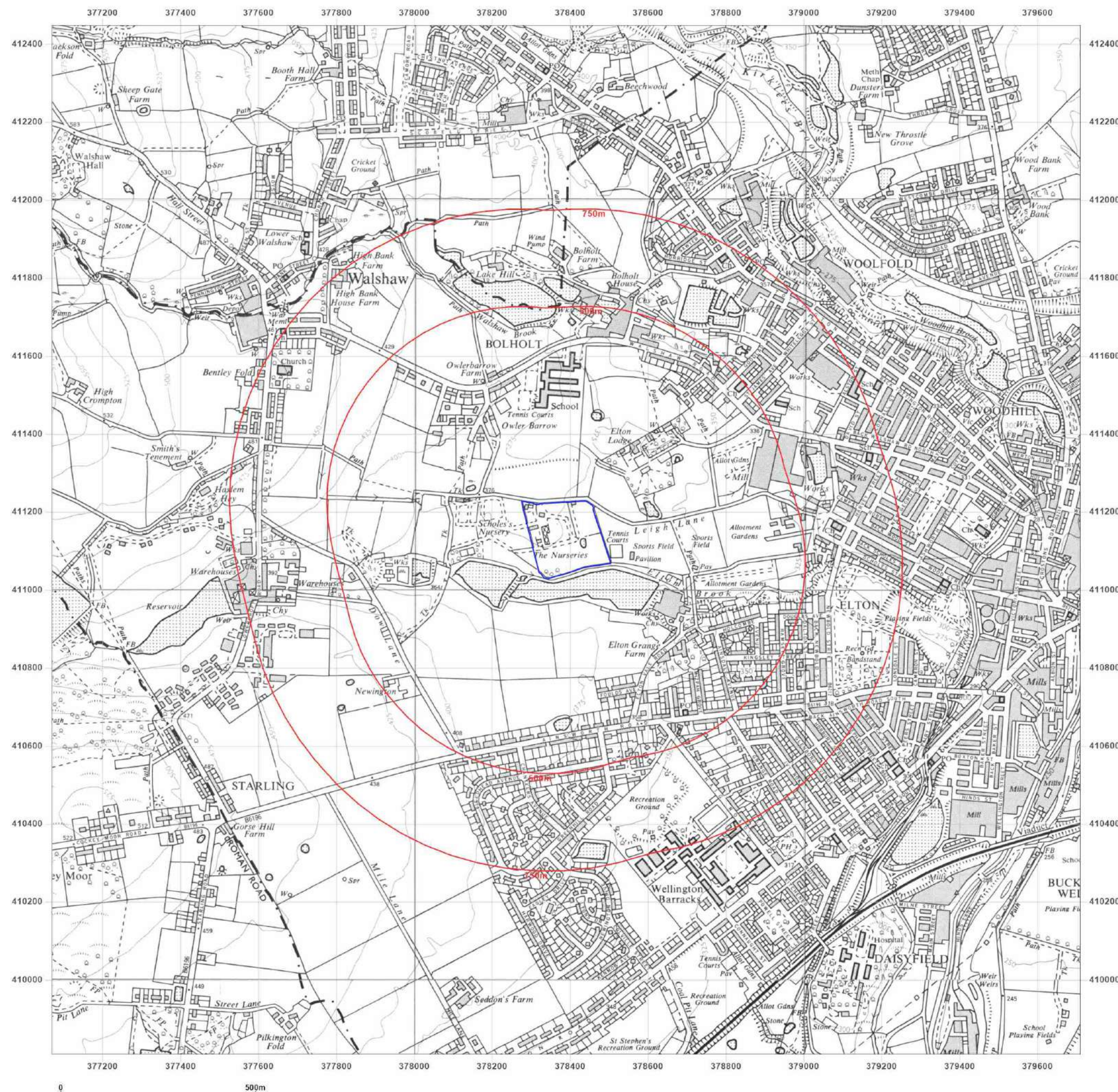


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1974-1977

Scale: 1:10,000

Printed at: 1:10,000



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

Surveyed 1976
 Revised 1977
 Edition N/A
 Copyright N/A
 Levelled N/A

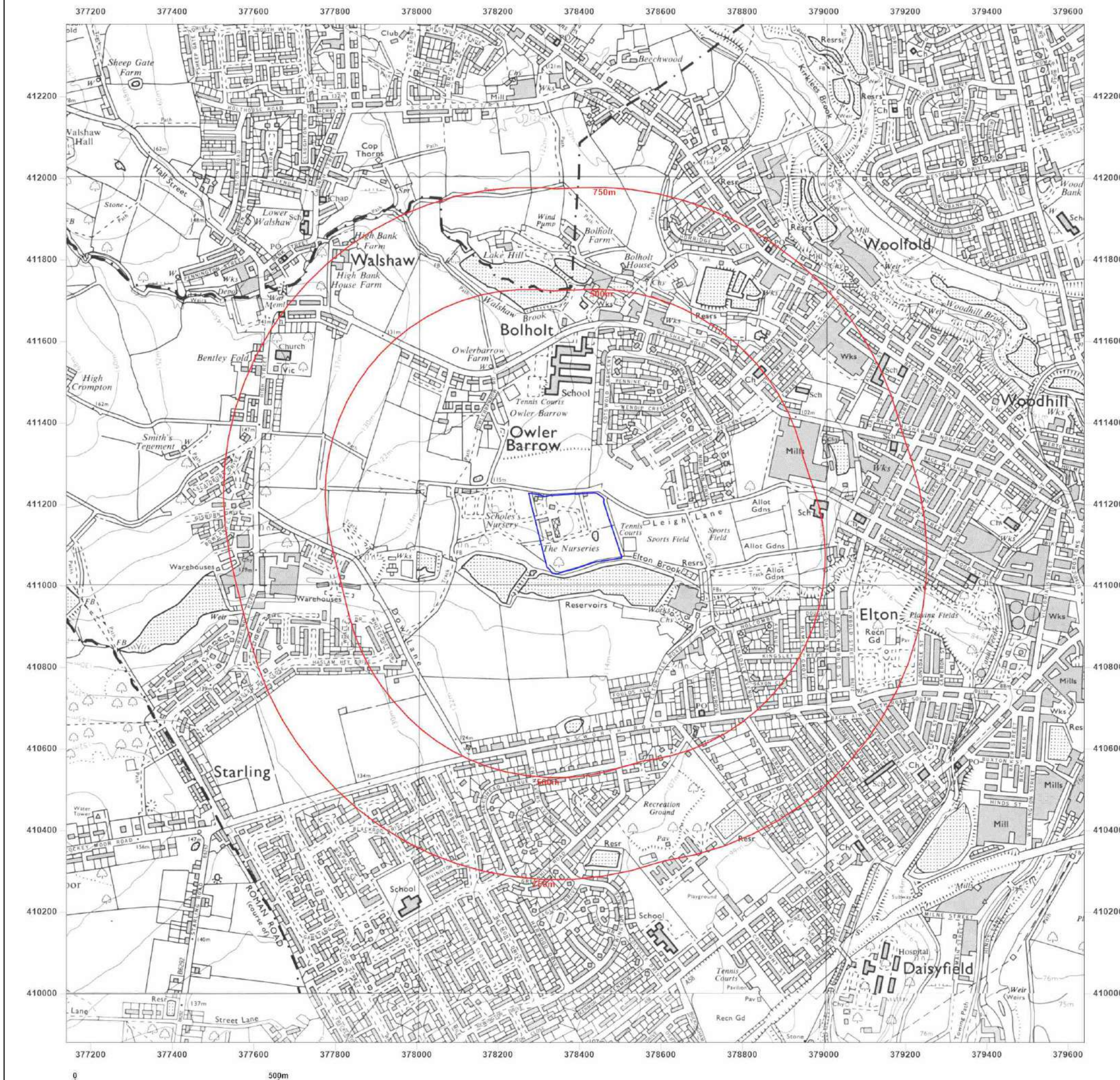


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Map legend available at:
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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 1980

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1978
 Revised 1980
 Edition N/A
 Copyright N/A
 Levelled N/A

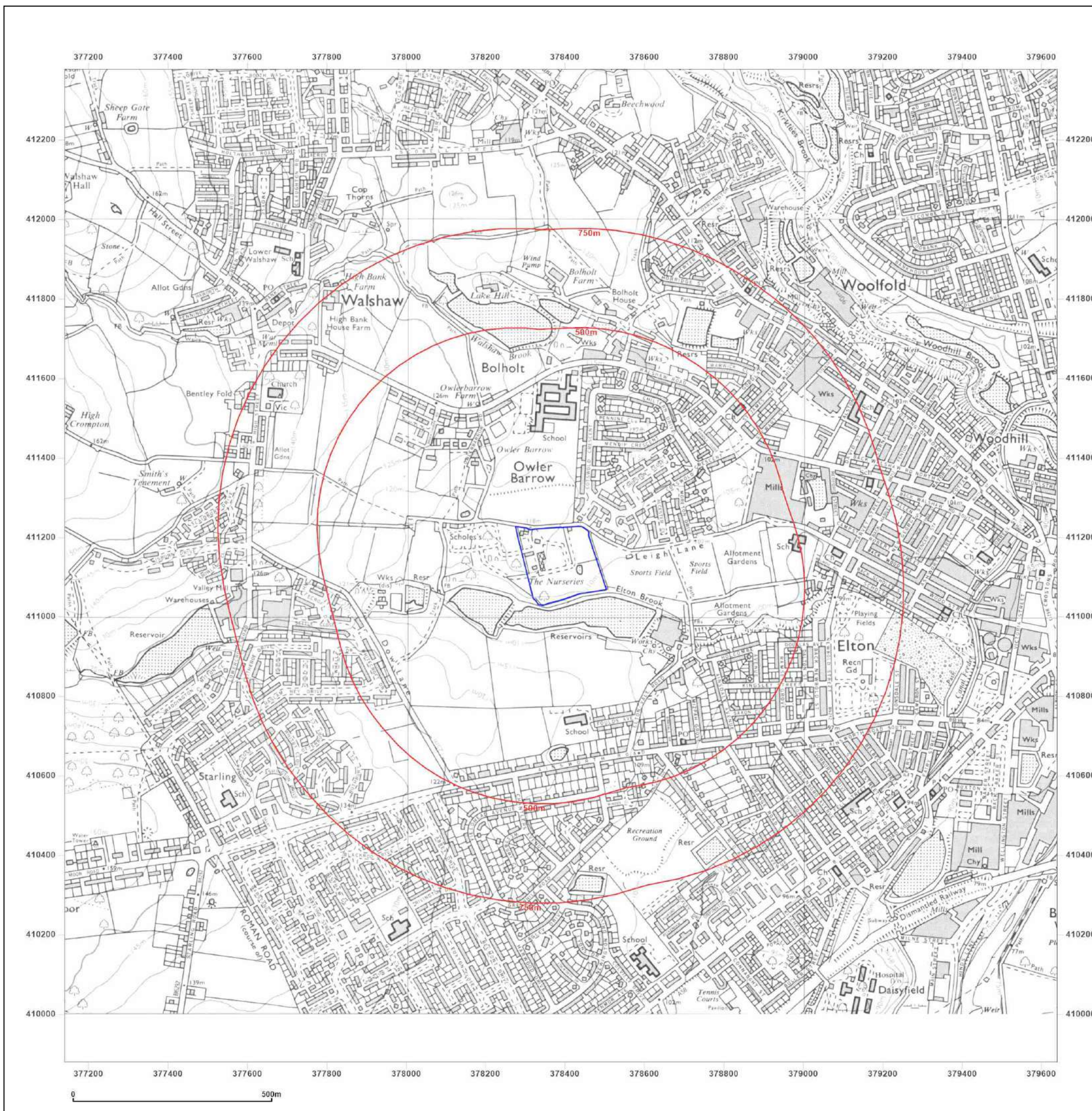


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Production date: 04 February 2022

Map legend available at:
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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



2001

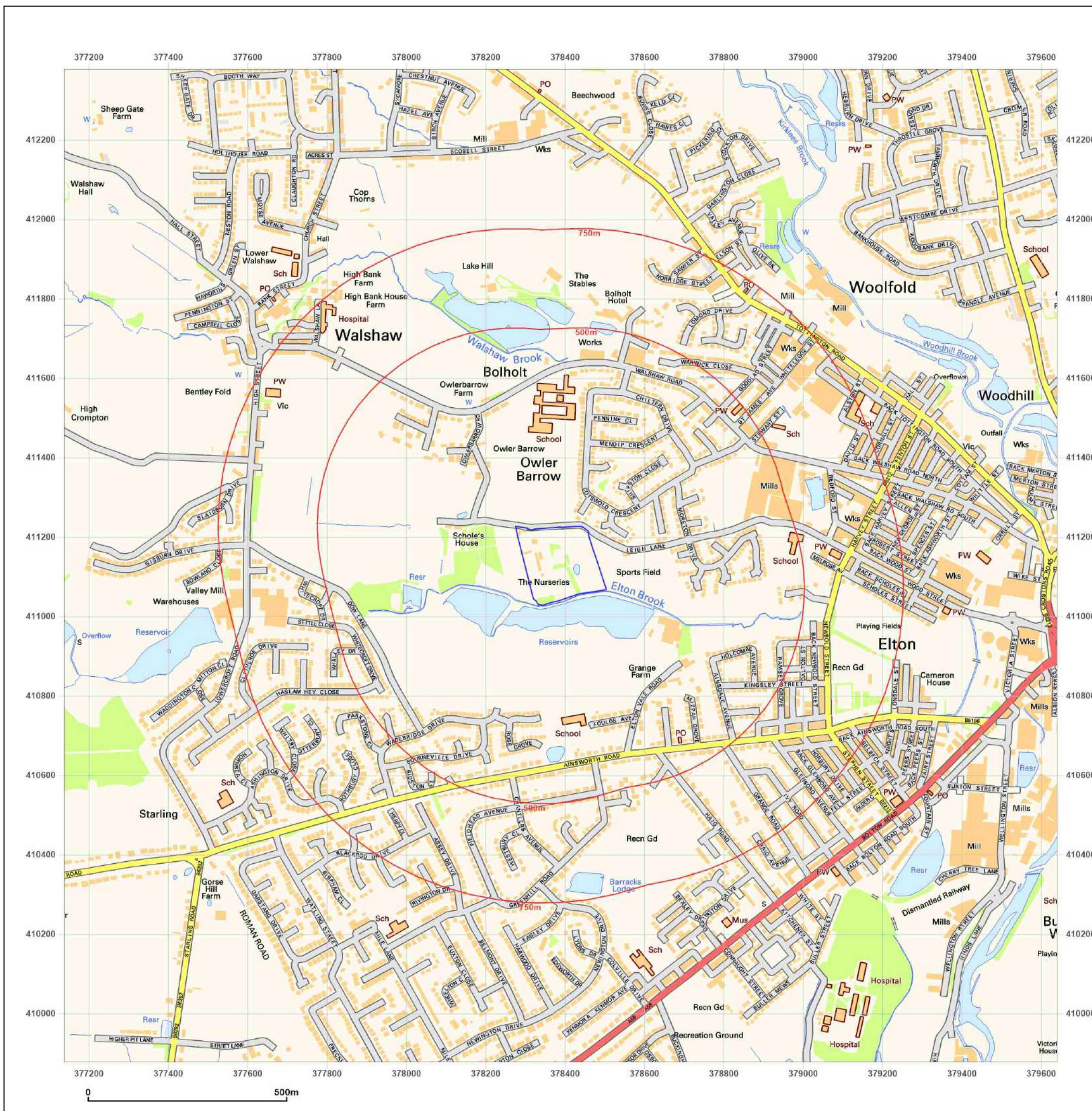


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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010



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Site Details:

378387, 411140

Client Ref: 3714
Report Ref: GS-8496229
Grid Ref: 378389, 411128

Map Name: National Grid

Map date: 2022

Scale: 1:10,000

Printed at: 1:10,000



2022

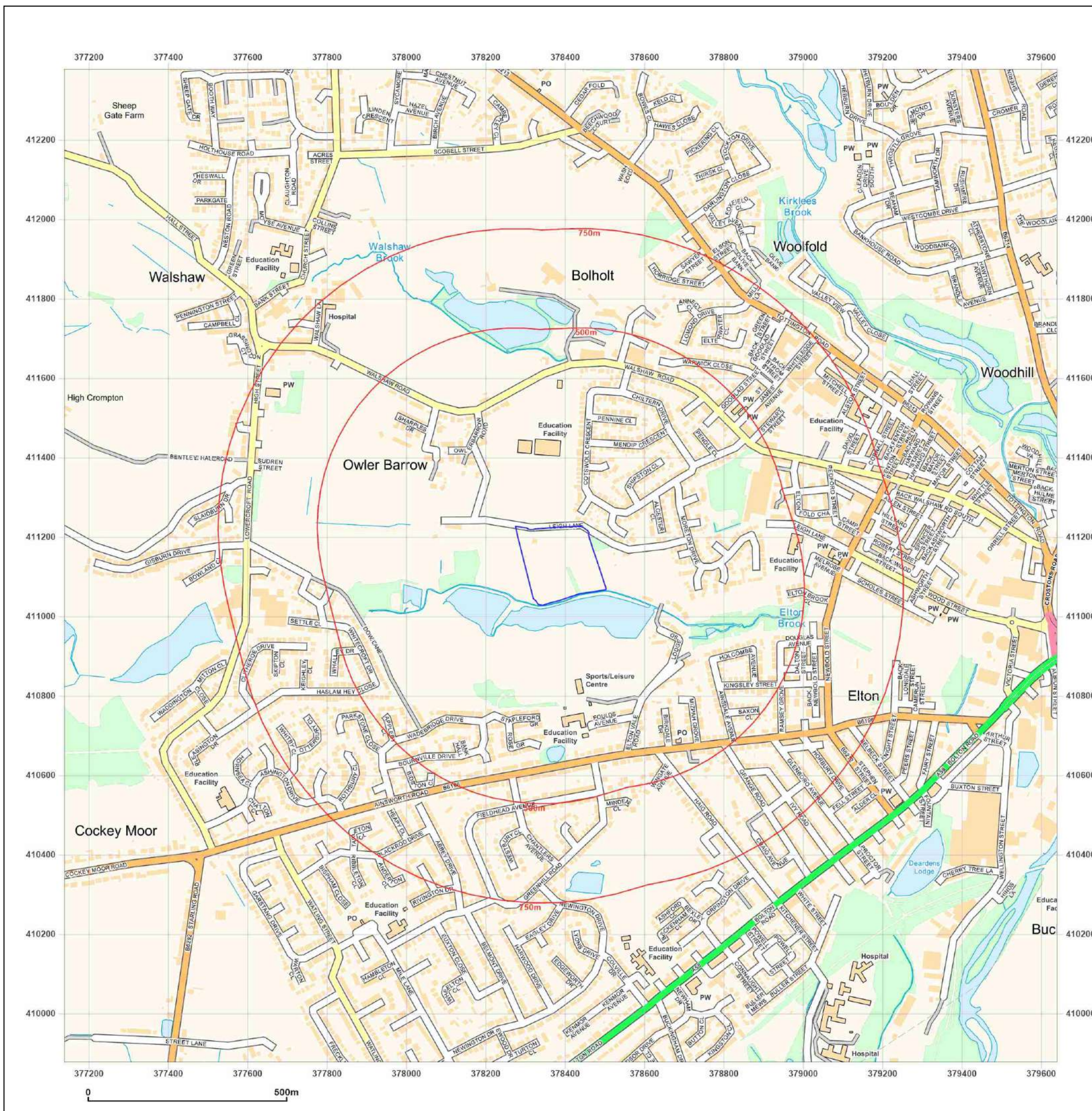


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APPENDIX 5

GROUNDSURE COMBINED ENVIRO AND GEO INSIGHT REPORT

378387, 411140

Order Details

Date: 04/02/2022
Your ref: 3714
Our Ref: GS-8496230
Client: IGE Consulting Ltd

Site Details

Location: 378388 411134
Area: 3.23 ha
Authority: [Bury Metropolitan Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.13

groundsure.com/insightuserguide

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	6	4	22	40	-
17	1.2	Historical tanks	6	0	5	19	-
19	1.3	Historical energy features	0	0	4	5	-
19	1.4	Historical petrol stations	0	0	0	0	-
20	1.5	Historical garages	0	0	0	2	-
20	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
21	2.1	Historical industrial land uses	11	7	32	49	-
25	2.2	Historical tanks	6	0	7	24	-
27	2.3	Historical energy features	0	0	9	13	-
28	2.4	Historical petrol stations	0	0	0	0	-
28	2.5	Historical garages	0	0	0	9	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
29	3.1	Active or recent landfill	0	0	0	0	-
29	3.2	Historical landfill (BGS records)	0	0	0	0	-
30	3.3	Historical landfill (LA/mapping records)	0	0	0	3	-
30	3.4	Historical landfill (EA/NRW records)	0	0	0	2	-
31	3.5	Historical waste sites	0	0	0	0	-
31	3.6	Licensed waste sites	0	0	0	0	-
31	3.7	Waste exemptions	0	0	0	3	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
32	4.1	Recent industrial land uses	3	0	5	-	-
33	4.2	Current or recent petrol stations	0	0	0	1	-
33	4.3	Electricity cables	0	0	0	0	-
33	4.4	Gas pipelines	0	0	0	0	-
34	4.5	Sites determined as Contaminated Land	0	0	0	0	-



34	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
34	4.7	Regulated explosive sites	0	0	0	0	-
34	4.8	Hazardous substance storage/usage	0	0	0	0	-
34	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
35	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
35	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	0	1	-
35	4.12	Radioactive Substance Authorisations	0	0	0	0	-
35	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	0	1	-
36	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
36	4.15	Pollutant release to public sewer	0	0	0	0	-
36	4.16	List 1 Dangerous Substances	0	0	0	0	-
36	4.17	List 2 Dangerous Substances	0	0	0	0	-
37	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
37	4.19	Pollution inventory substances	0	0	0	0	-
37	4.20	Pollution inventory waste transfers	0	0	0	0	-
37	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
38	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
40	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
41	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
42	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
42	5.5	Groundwater vulnerability- local information	None (within 0m)				
43	5.6	<u>Groundwater abstractions</u>	0	0	0	0	5
45	5.7	<u>Surface water abstractions</u>	0	0	6	1	11
49	5.8	Potable abstractions	0	0	0	0	0
50	5.9	Source Protection Zones	0	0	0	0	-
50	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
51	6.1	<u>Water Network (OS MasterMap)</u>	0	1	12	-	-



53	6.2	<u>Surface water features</u>	0	1	2	-	-
53	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
53	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
54	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
55	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
55	7.2	Historical Flood Events	0	0	0	-	-
55	7.3	Flood Defences	0	0	0	-	-
56	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
56	7.5	Flood Storage Areas	0	0	0	-	-
57	7.6	Flood Zone 2	None (within 50m)				
57	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
58	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
60	9.1	<u>Groundwater flooding</u>	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
61	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
62	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
62	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
62	10.4	Special Protection Areas (SPA)	0	0	0	0	0
62	10.5	National Nature Reserves (NNR)	0	0	0	0	0
63	10.6	<u>Local Nature Reserves (LNR)</u>	0	0	0	0	4
63	10.7	Designated Ancient Woodland	0	0	0	0	0
63	10.8	Biosphere Reserves	0	0	0	0	0
64	10.9	Forest Parks	0	0	0	0	0
64	10.10	Marine Conservation Zones	0	0	0	0	0
64	10.11	<u>Green Belt</u>	1	0	0	0	3
64	10.12	Proposed Ramsar sites	0	0	0	0	0



65	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
65	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
65	10.15	Nitrate Sensitive Areas	0	0	0	0	0
65	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
66	<u>10.17</u>	<u>SSSI Impact Risk Zones</u>	2	-	-	-	-
67	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
68	11.1	World Heritage Sites	0	0	0	-	-
68	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
68	11.3	National Parks	0	0	0	-	-
68	11.4	Listed Buildings	0	0	0	-	-
69	11.5	Conservation Areas	0	0	0	-	-
69	11.6	Scheduled Ancient Monuments	0	0	0	-	-
69	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
70	<u>12.1</u>	<u>Agricultural Land Classification</u>	Grade 4 (within 250m)				
71	12.2	Open Access Land	0	0	0	-	-
71	12.3	Tree Felling Licences	0	0	0	-	-
71	12.4	Environmental Stewardship Schemes	0	0	0	-	-
72	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
73	<u>13.1</u>	<u>Priority Habitat Inventory</u>	17	3	13	-	-
75	<u>13.2</u>	<u>Habitat Networks</u>	1	0	1	-	-
75	13.3	Open Mosaic Habitat	0	0	0	-	-
75	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
76	<u>14.1</u>	<u>10k Availability</u>	Identified (within 500m)				
77	<u>14.2</u>	<u>Artificial and made ground (10k)</u>	0	2	3	4	-
79	<u>14.3</u>	<u>Superficial geology (10k)</u>	1	0	1	3	-

80	14.4	Landslip (10k)	0	0	0	0	-
81	14.5	<u>Bedrock geology (10k)</u>	6	1	11	24	-
83	14.6	<u>Bedrock faults and other linear features (10k)</u>	2	0	7	7	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
85	15.1	<u>50k Availability</u>	Identified (within 500m)				
86	15.2	Artificial and made ground (50k)	0	0	0	0	-
86	15.3	Artificial ground permeability (50k)	0	0	-	-	-
87	15.4	<u>Superficial geology (50k)</u>	1	0	1	3	-
88	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
88	15.6	Landslip (50k)	0	0	0	0	-
88	15.7	Landslip permeability (50k)	None (within 50m)				
89	15.8	<u>Bedrock geology (50k)</u>	6	1	9	16	-
91	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
92	15.10	<u>Bedrock faults and other linear features (50k)</u>	2	0	6	6	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
93	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
94	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
95	17.2	<u>Running sands</u>	Very low (within 50m)				
96	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
97	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
98	17.5	<u>Landslides</u>	Very low (within 50m)				
99	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
101	18.1	Natural cavities	0	0	0	0	-
102	18.2	BritPits	0	0	0	0	-
102	18.3	<u>Surface ground workings</u>	0	13	40	-	-
104	18.4	<u>Underground workings</u>	0	0	0	3	3
104	18.5	Historical Mineral Planning Areas	0	0	0	0	-



105	18.6	Non-coal mining	0	0	0	0	0
105	18.7	Mining cavities	0	0	0	0	0
105	18.8	JPB mining areas	None (within 0m)				
105	18.9	<u>Coal mining</u>	Identified (within 0m)				
106	18.10	Brine areas	None (within 0m)				
106	18.11	Gypsum areas	None (within 0m)				
106	18.12	Tin mining	None (within 0m)				
106	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
107	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
108	20.1	<u>BGS Estimated Background Soil Chemistry</u>	5	3	-	-	-
109	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
109	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
110	21.1	Underground railways (London)	0	0	0	-	-
110	21.2	Underground railways (Non-London)	0	0	0	-	-
110	21.3	Railway tunnels	0	0	0	-	-
110	21.4	Historical railway and tunnel features	0	0	0	-	-
110	21.5	Royal Mail tunnels	0	0	0	-	-
111	21.6	Historical railways	0	0	0	-	-
111	21.7	Railways	0	0	0	-	-
111	21.8	Crossrail 1	0	0	0	0	-
111	21.9	Crossrail 2	0	0	0	0	-
111	21.10	HS2	0	0	0	0	-



Recent aerial photograph



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Capture Date: 23/05/2019

Site Area: 3.23ha



Recent site history - 2012 aerial photograph



Capture Date: 26/03/2012

Site Area: 3.23ha



Recent site history - 2011 aerial photograph



Capture Date: 02/05/2011

Site Area: 3.23ha



Recent site history - 2001 aerial photograph



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Capture Date: 07/05/2001

Site Area: 3.23ha

Recent site history - 2000 aerial photograph



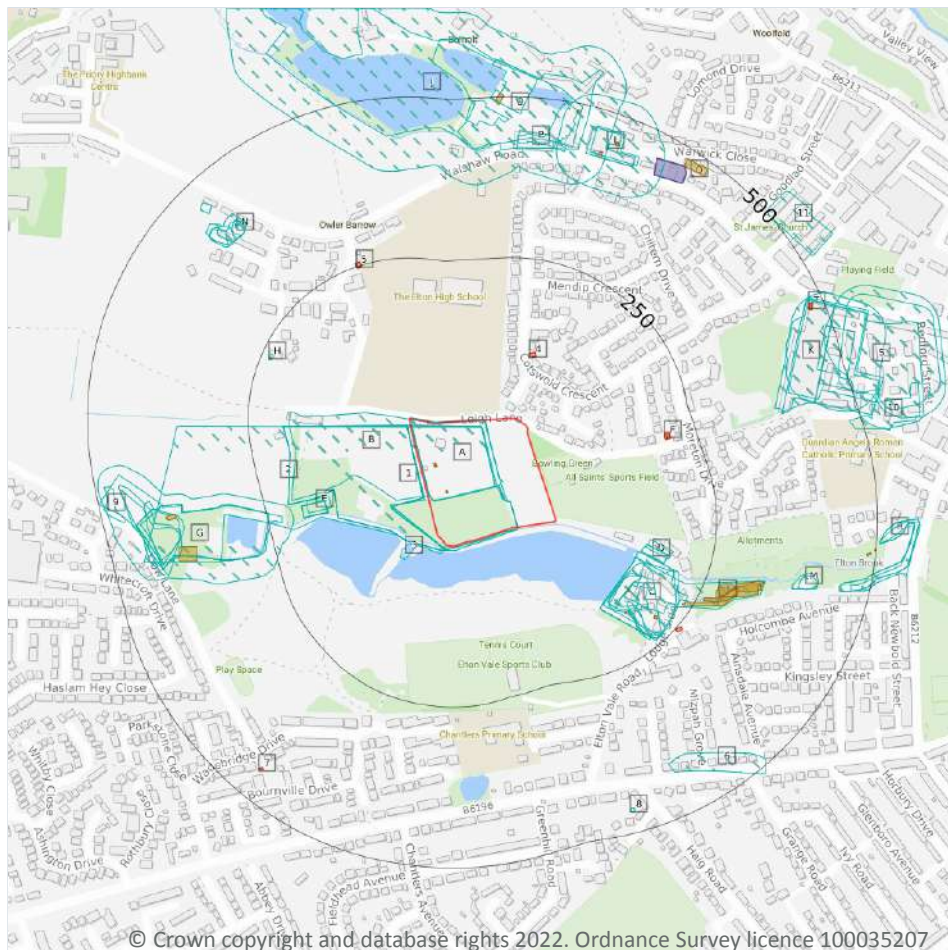
Capture Date: 27/06/2000

Site Area: 3.23ha

The map shows a large green field outlined in red, situated between a road and a reservoir. The field contains several buildings, including a large one labeled 'The Nurseries', and a small pond labeled 'Pond'. To the right of the field is 'Etons Bowling Green'. The field is bordered by a road on the top and right, and a 'Reservoir' on the bottom. A 'Pump' is located near the pond. The map includes a north arrow and a scale bar indicating 12.5 and 25 units. The map is credited to Ordnance Survey.



1 Past land use



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

1.1 Historical industrial land uses

Records within 500m

72

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

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

ID	Location	Land use	Dates present	Group ID
1	On site	Nursery	1908	721192



ID	Location	Land use	Dates present	Group ID
A	On site	Nurseries	1956	694486
A	On site	Nurseries	1890	751325
A	On site	Nurseries	1969 - 1980	757183
A	On site	Nurseries	1927 - 1938	775880
B	On site	Nursery	1956 - 1974	746897
2	5m W	Nursery	1890	693984
B	5m SW	Nursery	1927	735919
B	5m SW	Nursery	1938	755511
3	33m SW	Filter Bed	1927 - 1956	725733
C	135m SE	Bleach Works	1908 - 1938	755384
C	135m SE	Bleach Works	1890	761006
C	135m E	Bleach Works	1956	718442
C	137m SE	Unspecified Pit	1938	691012
C	139m SE	Unspecified Ground Workings	1908	775250
C	140m SE	Unspecified Ground Workings	1927	765733
D	140m E	Filter Beds	1908	694951
D	140m E	Filter Beds	1927 - 1938	731461
D	146m E	Filter Beds	1956	709998
E	149m W	Disused Filter Beds	1956	694112
C	153m SE	Unspecified Works	1969 - 1980	758648
E	156m W	Disused Filter Beds	1938	754881
E	157m W	Filter Beds	1908	665798
E	157m W	Disused Filter Beds	1927	715495
C	166m SE	Bleach Works	1851	726537
C	167m SE	Unspecified Ground Workings	1908	722656
C	179m SE	Chimney	1969 - 1980	758619
G	210m W	Sewage Works	1927 - 1938	703980
G	227m W	Sewage Works Air Compressing Station	1956	641159



ID	Location	Land use	Dates present	Group ID
H	232m NW	Unspecified Tank	1928 - 1938	695547
G	247m W	Unspecified Disused Works	1980	664929
G	247m W	Unspecified Works	1969 - 1974	759165
J	365m N	Print Works	1938	706856
K	378m E	Unspecified Mill	1969	711060
L	378m N	Print Works	1956	723757
G	379m W	Unspecified Heap	1974 - 1980	713018
M	381m E	Refuse Heap	1969	720630
G	385m W	Unspecified Heap	1969	694251
K	385m E	Unspecified Mills	1980	766006
G	386m W	Refuse Heap	1927	678005
N	386m NW	Unspecified Heap	1938	774010
N	386m NW	Unspecified Heap	1909 - 1928	781294
N	386m NW	Unspecified Heap	1891	718808
N	388m NW	Unspecified Ground Workings	1956	648118
G	389m W	Unspecified Heap	1938	729494
N	390m NW	Unspecified Heap	1938	745425
M	390m E	Refuse Heap	1974 - 1980	720294
N	400m NW	Old Coal Shaft	1909	639854
N	400m NW	Unspecified Old Shaft	1891	651873
K	405m E	Unspecified Mill	1974	740108
K	410m E	Unspecified Mill	1928	732528
6	413m SE	Cuttings	1890 - 1908	716442
O	417m N	Unspecified Works	1969	751374
P	419m N	Unspecified Works	1980	734115
J	420m N	Print Works	1891 - 1928	708186
P	422m N	Mills	1851	655366
L	427m N	Unspecified Works	1969	707429



ID	Location	Land use	Dates present	Group ID
L	431m N	Unspecified Works	1974 - 1980	706310
N	445m NW	Pump House	1938	693618
R	452m E	Unspecified Ground Workings	1938	725743
R	452m E	Unspecified Ground Workings	1908	714074
S	455m E	Unspecified Works	1969	766063
O	456m N	Filter Beds	1909	665797
K	459m E	Unspecified Mills	1938	760346
8	461m S	Unspecified Old Shaft	1908	651879
9	465m W	Refuse Heap	1908	678006
R	469m E	Unspecified Ground Workings	1927	714413
O	474m N	Unspecified Works	1974	730560
S	479m E	Dye Works	1928 - 1938	772843
10	481m E	Unspecified Mill	1891	755222
S	486m E	Unspecified Mills	1956	791124
11	498m NE	Timber Yard	1909 - 1928	704486

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

30

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

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

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Tank	1992	97086
A	On site	Unspecified Tank	1992	99418
A	On site	Unspecified Tank	1959	89952



ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Tank	1975	90109
A	On site	Unspecified Tank	1975	99444
A	On site	Unspecified Tank	1959	102922
C	154m SE	Unspecified Tank	1939	82539
C	178m SE	Unspecified Tank	1890	82538
C	213m SE	Unspecified Tank	1963 - 1992	89896
H	233m NW	Unspecified Tank	1930	82512
I	235m SE	Settling Tanks	1930	92805
I	259m SE	Settling Tank	1957	102475
I	272m E	Settling Tank	1957	90812
I	281m SE	Settling Tanks	1939	101066
I	285m SE	Settling Tank	1957	90363
I	296m E	Settling Tank	1957	102461
I	299m E	Unspecified Tank	1957	101897
I	300m E	Unspecified Tank	1957	93273
G	367m W	Settling Tanks	1939	78127
G	387m W	Settling Tanks	1930 - 1939	98116
L	454m N	Tanks	1930	87238
Q	466m NE	Unspecified Tank	1891	82511
Q	472m NE	Settling Tanks	1930	78128
P	486m N	Unspecified Tank	1990	82510
R	486m E	Unspecified Tank	1939	82552
P	488m N	Unspecified Tank	1891	82509
O	490m N	Tanks	1930	87239
R	498m E	Unspecified Tank	1967	92864
R	498m E	Unspecified Tank	1959	100263
R	498m E	Unspecified Tank	1959	92205

This data is sourced from Ordnance Survey / Groundsure.



1.3 Historical energy features

Records within 500m

9

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

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

ID	Location	Land use	Dates present	Group ID
4	97m N	Electricity Substation	1975 - 1992	55375
F	201m E	Electricity Substation	1975 - 1995	52049
F	204m E	Electricity Substation	1967	47933
5	247m N	Electricity Substation	1975 - 1992	58750
C	252m SE	Electricity Substation	1957	49743
L	427m N	Electricity Substation	1990 - 1996	59295
7	448m SW	Electricity Substation	1995 - 1996	55055
T	474m NE	Electricity Substation	1967 - 1992	52305
T	475m NE	Electricity Substation	1995	47548

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.



1.5 Historical garages

Records within 500m

2

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

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

ID	Location	Land use	Dates present	Group ID
Q	435m NE	Garage	1967 - 1996	19354
Q	436m NE	Garage	1978 - 1988	19022

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

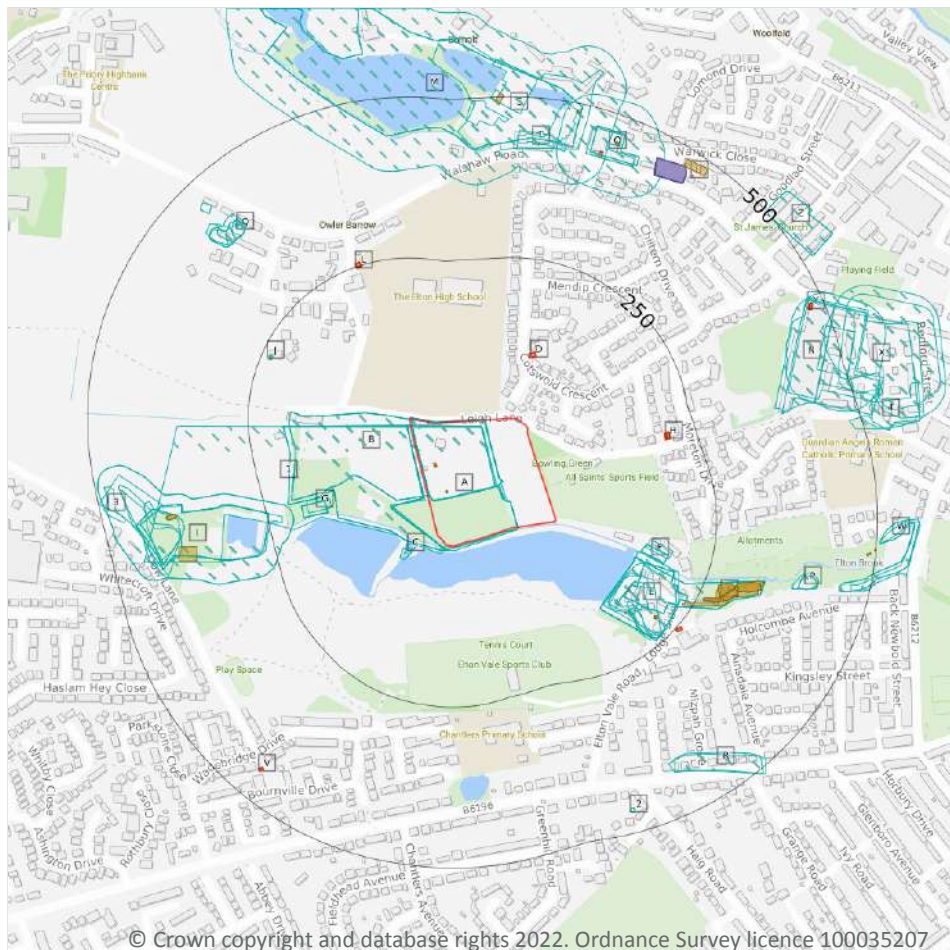
0

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

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



2 Past land use - un-grouped



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

2.1 Historical industrial land uses

Records within 500m

99

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

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
A	On site	Nurseries	1938	775880
A	On site	Nurseries	1927	775880
A	On site	Nursery	1908	721192



ID	Location	Land Use	Date	Group ID
A	On site	Nurseries	1890	751325
A	On site	Nurseries	1980	757183
A	On site	Nurseries	1969	757183
A	On site	Nurseries	1974	757183
A	On site	Nurseries	1956	694486
B	On site	Nursery	1969	746897
B	On site	Nursery	1974	746897
B	On site	Nursery	1956	746897
1	5m W	Nursery	1890	693984
B	5m SW	Nursery	1938	755511
B	5m SW	Nursery	1927	735919
B	5m SW	Nursery	1908	721192
C	33m SW	Filter Bed	1956	725733
C	44m SW	Filter Bed	1938	725733
C	44m SW	Filter Bed	1927	725733
E	135m SE	Bleach Works	1938	755384
E	135m SE	Bleach Works	1927	755384
E	135m SE	Bleach Works	1908	755384
E	135m SE	Bleach Works	1890	761006
E	135m E	Bleach Works	1956	718442
E	137m SE	Unspecified Pit	1938	691012
E	139m SE	Unspecified Ground Workings	1908	775250
E	140m SE	Unspecified Ground Workings	1927	765733
F	140m E	Filter Beds	1938	731461
F	140m E	Filter Beds	1927	731461
F	140m E	Filter Beds	1908	694951
F	146m E	Filter Beds	1956	709998
G	149m W	Disused Filter Beds	1956	694112



ID	Location	Land Use	Date	Group ID
E	153m SE	Unspecified Works	1980	758648
E	153m SE	Unspecified Works	1969	758648
E	153m SE	Unspecified Works	1974	758648
G	156m W	Disused Filter Beds	1938	754881
G	157m W	Disused Filter Beds	1927	715495
G	157m W	Filter Beds	1908	665798
E	166m SE	Bleach Works	1851	726537
E	167m SE	Unspecified Ground Workings	1908	722656
E	179m SE	Chimney	1980	758619
E	179m SE	Chimney	1969	758619
E	179m SE	Chimney	1974	758619
I	210m W	Sewage Works	1938	703980
I	210m W	Sewage Works	1927	703980
I	227m W	Sewage Works Air Compressing Station	1956	641159
J	232m NW	Unspecified Tank	1938	695547
J	233m NW	Unspecified Tank	1928	695547
I	247m W	Unspecified Disused Works	1980	664929
I	247m W	Unspecified Works	1969	759165
I	247m W	Unspecified Works	1974	759165
M	365m N	Print Works	1938	706856
N	378m E	Unspecified Mill	1969	711060
O	378m N	Print Works	1956	723757
I	379m W	Unspecified Heap	1980	713018
I	379m W	Unspecified Heap	1974	713018
P	381m E	Refuse Heap	1969	720630
I	385m W	Unspecified Heap	1969	694251
N	385m E	Unspecified Mills	1980	766006
I	386m W	Refuse Heap	1927	678005



ID	Location	Land Use	Date	Group ID
Q	386m NW	Unspecified Heap	1938	774010
Q	386m NW	Unspecified Heap	1928	781294
Q	386m NW	Unspecified Heap	1909	781294
Q	386m NW	Unspecified Heap	1891	718808
Q	388m NW	Unspecified Ground Workings	1956	648118
I	389m W	Unspecified Heap	1938	729494
Q	390m NW	Unspecified Heap	1938	745425
P	390m E	Refuse Heap	1980	720294
P	390m E	Refuse Heap	1974	720294
Q	400m NW	Old Coal Shaft	1909	639854
Q	400m NW	Unspecified Old Shaft	1891	651873
N	405m E	Unspecified Mill	1974	740108
N	410m E	Unspecified Mill	1928	732528
R	413m SE	Cuttings	1890	716442
R	414m SE	Cuttings	1908	716442
S	417m N	Unspecified Works	1969	751374
T	419m N	Unspecified Works	1980	734115
M	420m N	Print Works	1928	708186
M	420m N	Print Works	1909	708186
M	420m N	Print Works	1891	708186
T	422m N	Mills	1851	655366
O	427m N	Unspecified Works	1969	707429
O	431m N	Unspecified Works	1980	706310
O	431m N	Unspecified Works	1974	706310
Q	445m NW	Pump House	1938	693618
W	452m E	Unspecified Ground Workings	1938	725743
W	452m E	Unspecified Ground Workings	1908	714074
X	455m E	Unspecified Works	1969	766063



ID	Location	Land Use	Date	Group ID
S	456m N	Filter Beds	1909	665797
N	459m E	Unspecified Mills	1938	760346
2	461m S	Unspecified Old Shaft	1908	651879
3	465m W	Refuse Heap	1908	678006
W	469m E	Unspecified Ground Workings	1927	714413
S	474m N	Unspecified Works	1974	730560
X	479m E	Dye Works	1928	772843
4	481m E	Unspecified Mill	1891	755222
X	486m E	Unspecified Mills	1956	791124
X	498m E	Dye Works	1938	772843
Z	498m NE	Timber Yard	1928	704486
Z	498m NE	Timber Yard	1909	704486

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

37

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

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Tank	1959	102922
A	On site	Unspecified Tank	1959	89952
A	On site	Unspecified Tank	1975	99444
A	On site	Unspecified Tank	1975	90109
A	On site	Unspecified Tank	1992	99418
A	On site	Unspecified Tank	1992	97086
E	154m SE	Unspecified Tank	1939	82539
E	178m SE	Unspecified Tank	1890	82538



ID	Location	Land Use	Date	Group ID
E	213m SE	Unspecified Tank	1968	89896
E	214m SE	Unspecified Tank	1963	89896
E	214m SE	Unspecified Tank	1992	89896
J	233m NW	Unspecified Tank	1930	82512
K	235m SE	Settling Tanks	1930	92805
K	259m SE	Settling Tank	1957	102475
K	259m SE	Settling Tank	1957	102475
K	272m E	Settling Tank	1957	90812
K	272m E	Settling Tank	1957	90812
K	281m SE	Settling Tanks	1939	101066
K	285m SE	Settling Tank	1957	90363
K	285m SE	Settling Tank	1957	90363
K	296m E	Settling Tank	1957	102461
K	297m E	Settling Tank	1957	102461
K	299m E	Unspecified Tank	1957	101897
K	300m E	Unspecified Tank	1957	93273
I	367m W	Settling Tanks	1939	78127
I	387m W	Settling Tanks	1930	98116
I	387m W	Settling Tanks	1939	98116
O	454m N	Tanks	1930	87238
U	466m NE	Unspecified Tank	1891	82511
U	472m NE	Settling Tanks	1930	78128
T	486m N	Unspecified Tank	1990	82510
W	486m E	Unspecified Tank	1939	82552
T	488m N	Unspecified Tank	1891	82509
S	490m N	Tanks	1930	87239
W	498m E	Unspecified Tank	1967	92864
W	498m E	Unspecified Tank	1959	100263



ID	Location	Land Use	Date	Group ID
W	498m E	Unspecified Tank	1959	92205

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	22
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Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
D	97m N	Electricity Substation	1992	55375
D	98m N	Electricity Substation	1975	55375
H	201m E	Electricity Substation	1991	52049
H	201m E	Electricity Substation	1992	52049
H	202m E	Electricity Substation	1975	52049
H	202m E	Electricity Substation	1995	52049
H	204m E	Electricity Substation	1967	47933
L	247m N	Electricity Substation	1992	58750
L	248m N	Electricity Substation	1975	58750
E	252m SE	Electricity Substation	1957	49743
E	252m SE	Electricity Substation	1957	49743
O	427m N	Electricity Substation	1990	59295
O	427m N	Electricity Substation	1993	59295
O	427m N	Electricity Substation	1996	59295
V	448m SW	Electricity Substation	1996	55055
V	448m SW	Electricity Substation	1995	55055
Y	474m NE	Electricity Substation	1991	52305
Y	474m NE	Electricity Substation	1992	52305
Y	474m NE	Electricity Substation	1991	52305



ID	Location	Land Use	Date	Group ID
Y	475m NE	Electricity Substation	1995	47548
Y	476m NE	Electricity Substation	1967	52305
Y	476m NE	Electricity Substation	1975	52305

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

9

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

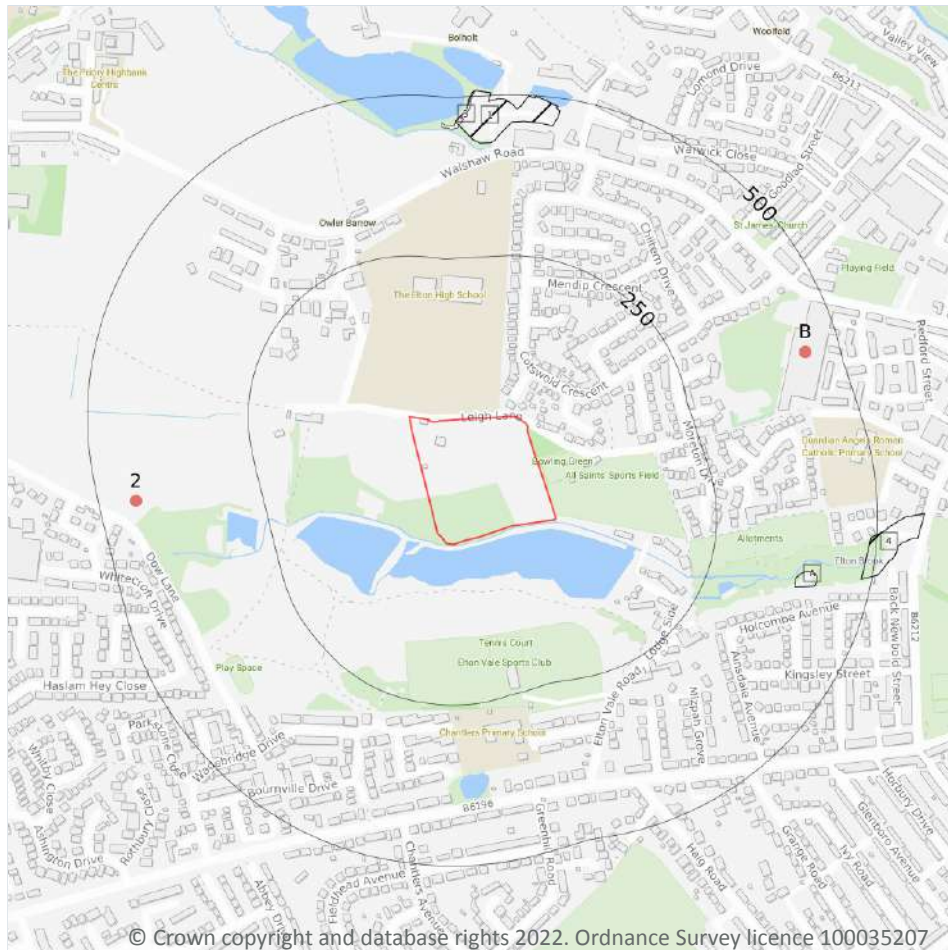
Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
U	435m NE	Garage	1967	19354
U	435m NE	Garage	1990	19354
U	436m NE	Garage	1978	19022
U	436m NE	Garage	1985	19022
U	436m NE	Garage	1987	19022
U	436m NE	Garage	1988	19022
U	436m NE	Garage	1988	19022
U	436m NE	Garage	1996	19354
U	436m NE	Garage	1993	19354

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



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

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

3

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

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

ID	Location	Site address	Source	Data type
A	384m E	Refuse Tip	1968 mapping	Polygon
A	384m E	Refuse Tip	1963 mapping	Polygon
3	450m N	Refuse Tip	1974 mapping	Polygon

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

3.4 Historical landfill (EA/NRW records)

Records within 500m

2

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

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

ID	Location	Details		
1	426m N	Site Address: Bolholt Works, Walshaw Road, Bury Licence Holder Address: 11 Whitelegge Street, Bury	Waste Licence: Yes Site Reference: RD/LIC/186/79, C016 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 01/01/1980 Licence Surrender: -	Operator: - Licence Holder: Mancunian Waste Company First Recorded 31/12/1980 Last Recorded: 31/12/1984
4	484m E	Site Address: Land off Newbold Street, Newbold Street, Bury Licence Holder Address: 29, Pickering Close, Woolfold, Bury	Waste Licence: Yes Site Reference: RD/LIC/0752/91, C015, RD/LIC/357/84, 4200/9727 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 12/09/1984 Licence Surrender: 19/06/1991	Operator: - Licence Holder: Cooke, Simm and Bentley First Recorded 01/10/1984 Last Recorded: 31/12/1988

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



3.5 Historical waste sites

Records within 500m**0**

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

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

3.6 Licensed waste sites

Records within 500m**0**

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

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

3.7 Waste exemptions

Records within 500m**3**

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

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

ID	Location	Site	Reference	Category	Sub-Category	Description
2	443m W	-	WEX244949	Using waste exemption	On a farm	Use of waste in construction
B	446m E	-	WEX271445	Treating waste exemption	Not on a farm	Screening and blending of waste
B	446m E	-	WEX271445	Using waste exemption	Not on a farm	Use of waste in construction

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

