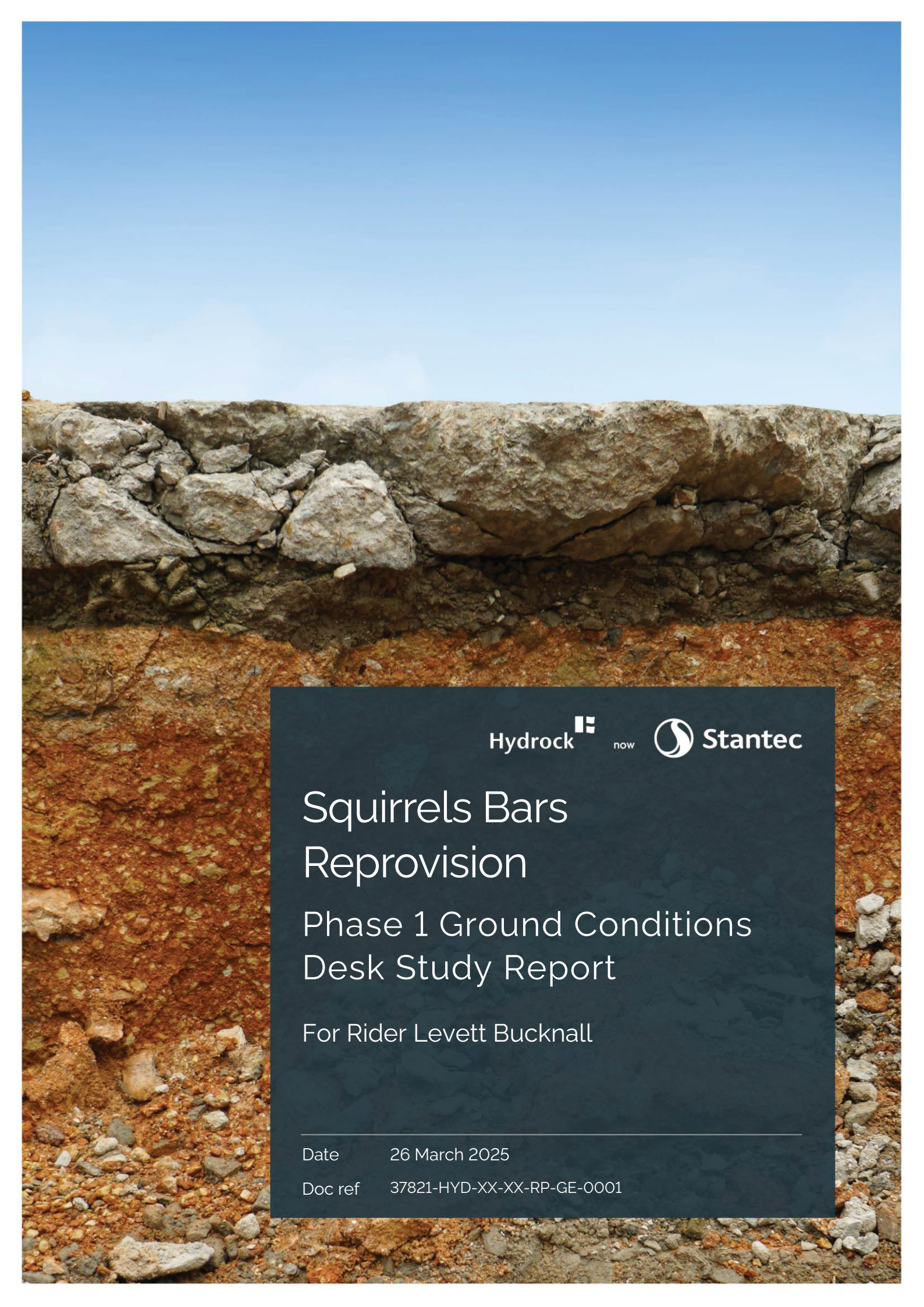




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Squirrels Bars Reprovision

Phase 1 Ground Conditions Desk Study Report

For Rider Levett Bucknall

Date 26 March 2025

Doc ref 37821-HYD-XX-XX-RP-GE-0001

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- Appendix B Field reconnaissance photographs
- Appendix C Historical mapping
- Appendix D Desk study research information
- Appendix E Climate change considerations for CSM

Executive Summary

Project Information	
Site name and location	Squirrels Bar. Moseley Road, Manchester, M14 6PA.
Objectives	The objective of the Phase 1 Ground Conditions Desk Study is to provide a preliminary assessment of any potential environmental and geotechnical risks to the proposed development.
Proposed development	It's proposed to construct a one storey retrofitted container with a steel frame to include a bar area and event space/seating area with associated landscaping and vehicle access.
Site Information	
Site Description	The site currently comprised approximately 80% concrete hardstanding used for car parking, with landscaping and sporadic mature trees and seedlings in the north and west.
Topography	The site is generally level at 47m Above Ordnance Datum (AOD). The site locally grades from the northern access onto site with an approximately 0.1m AOD level difference. The site in the south west corner locally grades back to Chancellors Way with a level difference of 0.2-0.3m AOD. The landscaping to the west and north is approximately 0.5m higher than the site. Landscaping offsite to the south appears to have been mounded and built up and is approximately 1.5m higher than the existing site level.
Desk Study Data Review	
Site history	From earliest mapping, 1880, the site is largely undeveloped with sporadic trees and a footpath running south-west to north east, with a small building present along the northern boundary. From 1905 three additional small building have been constructed in the north-east corner of the site, labelled as 'Firs Farm'. By 1934 All former buildings have been demolished and is now labelled as 'playing field'. The site was initially constructed as a car park in 1988 with the landscaping currently present installed at a later date.
Geology	Superficial deposits: Glacial Till. Bedrock: Chester Pebble Bed Formation.
Hydrogeology	Glacial Till- Secondary Undifferentiated Chester Pebble Bed Formation- Principal Aquifer The site is in a source protection zone SPZ3 for total catchment protection. Groundwater within the bedrock will be confined and protected by the overlying low permeability clays of the Glacial Till which is anticipated to be up to 4.7m in thickness.

Hydrology	There are no surface water courses within 250m of the site.
Mining and Mineral Extraction	The site not within a coal mine reporting area. The site is at a very low risk from past mining within no underground workings recorded.
Radon	The site lies within an area where less than 1% of homes are affected by radon. Therefore, no radon protection measures are required within new builds.
UXO risk	No greater than background, considered to be low.
Other	There are no Sites of Special Scientific Interest (SSSI) within 1km of the site however the site lies within a SSSI impact risk zone.

Preliminary Ground Model

- » It is considered unlikely that the site would be classified as Contaminated Land under Part 2A of the EPA 1990.
- » The overall risk from land contamination at the site is considered to be low for the current development, as it is covered by hard standing or buildings limiting the possibility of contact with the soils, as well as the risk of significant rainwater infiltration leading to leaching.
- » The overall risk for a redeveloped site is assessed to be low, with some specific potentially moderate risks, but this would need to be confirmed by appropriate intrusive investigation, testing and assessment of the results of the investigation.

Preliminary Geotechnical Hazard Identification

The following plausible geotechnical risks are identified:

- » Variable Made Ground - settlement or differential settlement of foundations, floor slabs, roads and infrastructure elements.
- » Low strength, compressible ground associated with the Made Ground or upper Glacial Till – risk of shear failure and excessive settlement of foundations, roads and infrastructure elements.
- » Attack of buried concrete by aggressive ground conditions – the development site may contain Made Ground and potentially sulphate bearing soils.
- » Shrinkage/swelling of clay – settlement/heave of foundations, especially where located within the influence of trees and vegetation.
- » Obstructions associated buried slabs/footings associated with former farm buildings.
- » Potential for unforeseen ground conditions and the risks associated with limited data.

Initial Conceptual Site Model

Sources:	Pathways:	Receptors:
Made Ground, associated with former farm buildings and imported fill, possibly including elevated concentrations of metals, metalloids, polycyclic aromatic hydrocarbons (PAH) and petroleum hydrocarbons.	Ingestion, inhalation, and dermal contact with soil-derived dust.	Site users

Asbestos fibres and ACM associated with the unknown composition of imported fills.	Inhalation of fibres	Site users
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Conclusions and Recommendations

In order to confirm the actual risks to receptors and confirm the ground conditions with respect to potential geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken. This investigation will need to:

- » determine the depth, distribution and properties of Made Ground and natural soils across the site;
- » determine the soils strength/ density profile beneath the site;
- » determine the depth/ level of groundwater beneath the site;
- » determine the ground gas concentrations beneath the site;
- » allow for sampling for chemical and geotechnical laboratory testing;
- » obtain information in terms of Aggressive Chemical Environment for Concrete Class (ACEC class)
- » confirm the composition of the Made Ground and possible associated ground gas risk;
- » confirm the depth to the groundwater table and assess potential impacts on construction;
- » determine California Bearing Ration (CBR) values to assist with pavement design; and
- » assessment of tree influence on foundations and design of foundations.

Following investigation, assessment will be required to:

- » update the ground model;
- » update the geotechnical register;
- » provide geotechnical design recommendations;
- » update the Conceptual Site Model (CSM), including identification of plausible pollution linkages;
- » discuss potential environmental liabilities associated with land contamination (soils, water and gas);
- » undertake generic quantitate risk assessment of potential chemical contaminants to establish 'suitability of end use' under the current planning regime; and
- » provide outline mitigation recommendations to ensure the site is 'suitable for end use'

This Executive Summary forms part of Hydrock Consultants Limited report number 37821-HYD-XX-XX-RP-GE-0001. and should not be used as a separate document.

1. Introduction

1.1 Terms of reference

In February 2025, Hydrock now Stantec was commissioned by Rider Levett Bucknall (the Client) to prepare a Phase 1 Ground Conditions Desk Study for the site located at Squirrels Bar, Moseley Road, Manchester, M14 6PA.

A site location plan (Hydrock Drawing 37821-HYD-XX-XX-DR-GE-1001) is presented in Appendix A.

The works have been undertaken in accordance with Hydrock's proposal (37821-HYD-XX-XX-FP-GE-0001, dated 29th January 2025) and the Client's instructions to proceed (via sub consultant agreement received 17th February 2025 referenced SCA2A).

It's proposed to construct a one storey retrofitted container with a steel frame to include a bar area and event space/seating area with associated landscaping and vehicle access. The proposed development is shown on Rider Levett Bucknall, Location Plan, Proposed Site Layout, Proposed Elevations and Proposed Floor Plan Drawings are presented in Appendix A.

1.2 Project background and Objectives

The site currently comprises approximately 80% concrete hardstanding used for car parking with landscaping and sporadic mature trees and seedlings in the north and west.

The works have been commissioned to support the planning application.

The Phase 1 Desk Study report will evaluate a variety of data sources to develop a preliminary Ground Model and an initial Conceptual Site Model (CSM) of the site. This will identify potential contaminant linkages and establish where there are potentially unacceptable risks in the context of the report objectives. It will also provide a preliminary assessment of geotechnical risks at the site.

1.3 Available information

The following documents have been provided to Hydrock by the Client for use in the preparation of this report:

- » Rider Levett Bucknall (RLB), March 2025. 'Squirrels Bar Reprovision, Existing Site layout. Ref: 004150_01;
- » Rider Levett Bucknall (RLB), March 2025. 'Squirrels Bar Reprovision, Location Plan. Ref: 004150_02;
- » Rider Levett Bucknall (RLB), March 2025. 'Squirrels Bar Reprovision, Proposed Site Layout'. Ref: 004150_03;
- » Rider Levett Bucknall (RLB), March 2025. 'Squirrels Bar Reprovision, Proposed Floor Plan'. Ref: 004150_04.
- » Rider Levett Bucknall (RLB), March 2025. 'Squirrels Bar Reprovision, Proposed Elevations. Ref: 004150_06.

The above documents have been referred to for information purposes but unless commissioned by, or assigned to the Client, Hydrock has not placed formal reliance on them.

1.4 Regulatory context and guidance

The methods used follow a risk-based approach, with this report constituting the first stage, a Phase 1 Desk Study and Field Reconnaissance (also referred to as 'preliminary investigation'). The potential geo-environmental risks have been assessed qualitatively using the 'source-pathway-receptor (SPR) contaminant linkage' concept as introduced in the Environmental Protection Act 1990 (EPA, 1990).

The geotechnical aspects of this report are prepared in general accordance with:

- » relevant parts of BS EN 1997-1:2004+A1:2013 'Eurocode 7: Geotechnical design. General rules' (EC7); and
- » associated document NA+A2:2022 'UK National annex to Eurocode 7: Geotechnical design. General rules' and BS 8004:2015+A1:2020 Code of Practice for foundations.

The geo-environmental aspects of this report are written with reference to:

- » Environment Agency (EA) guidance 'Land Contamination Risk Management' (LCRM), 2023; and
- » BS EN ISO 21365:2020 'Soil quality – Conceptual site models for potentially contaminated sites.

1.5 Uncertainties and limitations

Hydrock has prepared this report in accordance with the instructions of the Client, under the terms of appointment for Hydrock. It is for the sole and specific use of the Client and parties to whom reliance has been agreed with Hydrock.

Hydrock shall not be responsible for use of the report or its contents for purposes other than that for which it was prepared or for use of the report by parties not defined in Hydrock's appointment. Third parties who use the information contained herein do so at their own risk.

The report has been prepared by Hydrock on the basis of available information obtained during the study period. Although every reasonable effort has been made to gather all relevant information, not all potential environmental constraints or liabilities associated with the site may have been revealed.

Hydrock has used reasonable skill, care and diligence in its interpretation of the information obtained. The inherent variation of ground conditions however, means that significant extrapolation and inference may be made between data points. This could result in actual ground conditions not correlating with the assessment or conclusions of this report.

Information provided by third parties has been used in good faith and is taken at face value; however, Hydrock do not guarantee its accuracy or completeness.

The work has been carried out in general accordance with recognised best practice. Unless otherwise stated, no assessment has been made for the presence of radioactive substances or unexploded ordnance. Where the phrase 'suitable for use' is used in this report, it is in keeping with the terminology used in planning control and does not imply specific warranty or guarantee offered by Hydrock.

Please note that notwithstanding site observations concerning the presence or otherwise of archaeological sites, asbestos-containing materials or invasive weeds, this report does not constitute a formal survey of these potential constraints. Specialist advice should be sought.

Site boundary lines depicted on plans do not imply legal ownership of land.

2. Desk study and field reconnaissance

2.1 Site referencing

Table 2.1: Site referencing information

Item	Description
Site name	Squirrels Bar Reprovision
Site address	Chancellors Way, Fallowfield, Manchester, M14 6PA.
Site dimensions	The site is roughly rectangular in shape.

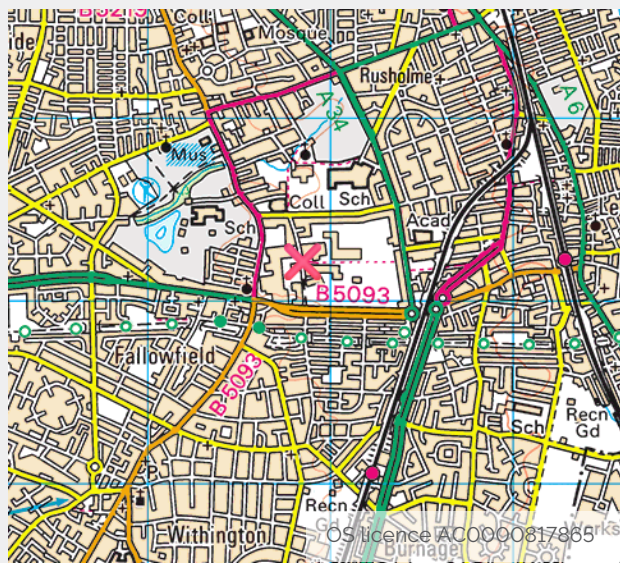


Figure 2.1: Site location



Figure 2.2: Site location

2.2 Site Description and field reconnaissance survey

The following information is based on online aerial imagery and maps and observations from the field reconnaissance survey undertaken on 25th February 2025. The weather during the field reconnaissance survey was overcast and dry. Photographs are presented in Appendix B.

A site features plan (Hydrock Drawing 37821-HYD-XX-XX-DR-GE-0002) is presented in Appendix A.

Table 2.2: Site description

Item	Description
Site access	The site is access of Chancellors Way.
Elevation and topography	The site is generally level at 47m Above Ordnance Datum (AOD). The site locally grades from the northern access onto site with an approximately 0.1m AOD level difference. The site in the south west corner locally grades back to Chancellors Way with a level difference of 0.2-0.3m AOD.

Item	Description
	The landscaping to the west and north is approximately 0.5m higher than the site. Landscaping offsite to the south appears to have been mounded and built up and is approximately 1.5m higher than the existing site level.
Site boundaries and surrounding land use	The site is bound to the north (groundsmen machinery storage buildings situated on Gunnery Lane) and west (Chancellors Way) which transects north from Moseley Road. The southern boundary is bound by a landscaped area. To the east Armitage Sports Centre and associated 4G pitches. The surrounding land use is largely recreational and residential with university accommodation and several sports pitches.
Present land use	The site currently comprises of concrete hardstanding used for car parking. The concrete hardstanding and joints were all in good conditions with no evidence of patching or remedial works. A manhole is present in the centre of the site. In the landscaping to the west there were various manholes assumed to included services i.e. sewers/water and electricity for street lighting. Mature trees are present in the west and north west. Bins storage and a charity donation store are present in the south east corner.
Surface cover and vegetation	The site is primarily concrete hardstanding, 80% with landscaping composing approximately 20% of the site area.
Evidence of contamination	No evidence of contamination was observed during the site walkover.
General site sensitivity	Residential/ student accommodation is present adjacent to the northern boundary and to the west beyond Chancellors Way with a sports centre adjacent to the eastern boundary and several 4G pitches to the south.

Selected photographs from the field reconnaissance are presented in Figure 2.3 to Figure 2.6.



Figure 2.3: Access from Chancellors Way showing a gradual slope to the south-west corner of the site.



Figure 2.4: Semi mature trees along the western boundary and mature trees along the western boundary.



Figure 2.5: Raised man-hole covers in soft standing along the western boundary.



Figure 2.6: Concrete hardstanding in good condition and bin store in south-east corner of the site.

2.3 Data sources

The following sources of information have been reviewed as part of the Desk Study:

- » Historical Ordnance Survey mapping (Appendix C).
- » Third-party environmental report (Groundsure report, reference HYD-OP1-ABG-N3S-OEG) (Appendix D).
- » British Geological Survey (BGS) GeoIndex Onshore (mapapps2.bgs.ac.uk/geoindex/home.html).
- » BGS 1:50,000 geological map of Manchester (Sheet 85).
- » BGS Lexicon (webapps.bgs.ac.uk/lexicon/).
- » DEFRA's MAGiC Map (magic.defra.gov.uk/MagicMap.aspx).
- » BGS/Environment Agency's aquifer designation dataset (bgs.ac.uk/datasets/aquifer-designation-data/).
- » Environment Agency Catchment Data Explorer (environment.data.gov.uk/catchment-planning/).
- » Environment Agency's Hydrology Data Explorer (environment.data.gov.uk/hydrology/explore).
- » Mining Remediation Authority's Interactive Viewer (Mining Remediation Authority Map Viewer).
- » UK Health Security Agency's Interactive Radon Map (ukradon.org/information/ukmaps).
- » Unexploded bomb (UXB) Risk Maps (zeticauxo.com/downloads-and-resources/risk-maps/).
- » Preliminary UXO Desk Top Study, (1st line defence, Report Referenced: PA21593-00).

2.4 Site history

A study of historical maps (Appendix C) and aerial imagery has been undertaken to identify former land uses at the site and in the surrounding areas, which may have affected, or be affected by, the site.

2.4.1 On-site

Table 2.3: Site history

Reference	Key Features on-site
OS Maps ¹ : 1880-1893	The site is largely undeveloped with sporadic trees and a footpath running south-west to north east. A small building is present along the northern boundary in 1893.
OS Maps: 1905-1907	Three additional small building have been constructed in the north-east corner of the site, labelled as 'Firs Farm' with the footpath still present to the south of these buildings.
OS Maps: 1934-1957	All former buildings have been demolished and is labelled as a 'playing field'.
OS Maps: 1988	A road or path is present in the east running parallel to the site boundary. The site is now labelled 'Manchester University Athletic Ground' and appears to close to its existing configuration likely used as a car park for the adjacent Sport Hall.
OS Maps: 1992	Landscaping is shown to the west and north west of the car park.
OS Maps: 1995-2003	The car park has been extended south up to the southern boundary and secondary access constructed in the south-west boundary. The site now exists in its present configuration. Chancellors Way is constructed to the west in 2003, with access onto the site improved.

2.4.2 Off-site

The key off-site feature within 250m of the site are summarised in Table 2.4. All distances quoted are approximate.

Table 2.4: Key off-site historical features

Feature	Location	Dates	Comment
Athletics Ground	30m north	1907-1995	Including stands, track, and earthworks.
Manchester Central Station Line	400m - 450m south	1890 - 1892	Labelled as dismantled railway on 2001 mapping.
Ruin	220m south-west	1956 - 1957	A 'ruin' is labelled on post WWII mapping.

¹ Ordnance Survey Historical Map provided by Groundsure. Dates are not representative of individual maps; they are the range of dates covered over various mapping scales.

2.4.3 Site history summary

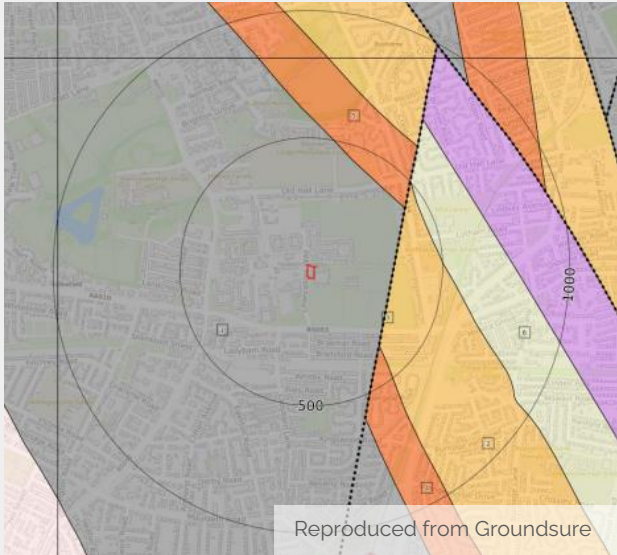
The sites previous usage is not envisaged to pose a significant contamination source. Earliest mapping shows the site as undeveloped with the addition of four small farm/ agricultural related buildings between 1893 and 1907. These buildings were no longer present on 1934 mapping with the land used as playing field until 1992 with the site constructed as a car park. Minor extension to the car park and reconfiguration occurred in 1995 with landscaping added to the west and north west.

2.5 Published Geology

The general geology of the site is shown on the BGS GeoIndex and 1:50,000 geological map of Manchester (Sheet 85). The 1:50,000 and 1:10,000 BGS map extracts are reproduced as part of the Groundsure Report in Appendix C. A summary of the published geology is presented in Table 2.5.

Table 2.5: Published Geological Sequence

Reference	Location	Stratigraphic Name	Description
Artificial Ground/Topsoil			
Artificial Ground is not indicated to be present on site, although based on the site history, some Made Ground is expected to be present in the vicinity of historical farm buildings, hardstanding and landscaped areas.			
Superficial Deposits (Figure 2.7)			
1	On site	Glacial Till	Clay, sand, gravel and boulders. Generally, over consolidated and unsorted, deposited directly by and underneath a glacier without subsequent reworking by water/ glacial meltwater.
Solid Geology (Figure 2.8)			
1	On site	Chester Pebble Beds Formation - Sandstone	The formation comprises conglomerates and reddish brown, cross-bedded, pebbly sandstones with subordinate beds of red-brown mudstone. The conglomerates have a reddish-brown sandy matrix and consist mainly of pebbles of brown or purple quartzite, with quartz conglomerate and vein quartz.
Geological Features			
Normal Fault 300m east.			
Naturally elevated elements			
None.			

Reference	Location	Stratigraphic Name	Description
Figures			
			
Figure 2.7: Superficial deposits		Figure 2.8: Solid geology	

A number of borehole logs from the BGS archive (through GeoIndex) have been reviewed. Selected relevant records are summarised in Table 2.6.

Table 2.6: BGS archive borehole logs

Reference	Location	Strata and Groundwater Observations
SJ89SE	475m north-west	Made Ground between ground level and 0.91m bgl; CLAY between 0.91m and 3.96m bgl (Glacial Till); Stiff CLAY between 3.91m and 4.88m bgl (Glacial Till); Dense red SAND between 4.88m and 6.40m bgl (Weathered Chester Pebble Bed Formation); Dense light SAND between 6.40m and 9.14m bgl (Weathered Chester Pebble Bed Formation); and loamy red SAND between 9.14m and 13.11m bgl (Weathered Chester Pebble Bed Formation). Ground water recorded at 3.66m bgl.

In 2024 Hydrock completed a ground investigation for The Limes 155m north west of the site on behalf of the University of Manchester. The finding of the BGS borehole is similar to findings of the aforementioned ground investigation with up to 4.9m of firm to stiff CLAYs overlying weathered bedrock recovered as SAND.

2.6 Hydrogeology

Information relating to the hydrogeological setting of the site is summarised in Table 2.7 through to Table 2.11.

Table 2.7: Aquifer system

Stratum	Aquifer Designation	Comments
Artificial Ground		
Made Ground	Unclassified	Artificial ground not included in the classification system. Likely to be moderate to high porosity because of unconsolidated nature, but permeability is likely to be constrained to low, or low to moderate because of poor sorting and where a high clay content is present.
Superficial Deposits		
Glacial Till	Secondary Undifferentiated Aquifer	Ground Investigations completed within the area confirmed the deposits are low permeability CLAY with the absence of notable bands of sand or gravel. Therefore, vertical migration of infiltrating waters will be limited by the CLAYs,
Solid Geology		
Chester Pebble Beds Formation - Sandstone	Principal Aquifer	Groundwater flow occurs mainly along fissures and bedding planes, with an average of two to three bedding plane fractures per 10m of section down to 150m. Hydraulic conductivity range is 2.5 $\times$ 10 ⁻⁴ -15. Groundwater within the bedrock will be confined and protected by the overlying low permeability clays of the Glacial Till.

Table 2.8: Active licenced groundwater abstractions (within 250m)

Details
There are no licenced groundwater abstractions within 250m of the site.

Table 2.9: Active licenced groundwater discharges (within 250m)

Details
There are no active licenced discharges to controlled waters within 250m.

Table 2.10: Groundwater Vulnerability and Source Protection Zones

Item	Details
Groundwater Vulnerability	Low.
Source Protection Zone	Source Protection Zone 3- Total catchment protection

Table 2.11: Other groundwater information

Item	Details
Groundwater levels	Historical boreholes indicate groundwater at 3.66m bgl.
Groundwater recharge	Low due to the presence of low permeability clays.
Groundwater flow	West towards the River Mersey.
Groundwater quality	Poor overall status.
Groundwater flooding	Moderate- although anticipated to be low unless shallow perched groundwater is present on top of the CLAYs.

2.7 Hydrology

Information relating to the hydrological setting of the site is summarised in Table 2.12 through to Table 2.14.

Table 2.12: Surface water features

Details
There are no surface water features within 250m of the site.

Table 2.13: Active licenced surface water abstractions (within 250m)

Details
There are no active licenced surface water abstractions within 250m of the site.

Table 2.14: Other surface water information

Item	Details
Surface water quality	Moderate ecological status.
Tidal influence	None.
Surface water drainage	To the west within Chancellors Way.
Surface water flooding	The site is situated within a Flood Zone 1 with a low probability of flooding from rivers or coastal.

2.8 Mining and mineral extraction

The risk associated with past coal mining, non- coal mining and surface ground workings is summarised in Table 2.15.

Table 2.15: Mining and mineral extraction

Item	Details
Coal mining	None on site or within 250m of the site, no records of Underground Workings.
Non-Coal mining	None on site or within 250m of the site.
Surface ground workings	Unspecified ground workings 170m east. Unspecified Heap 215m – 225m south-west.

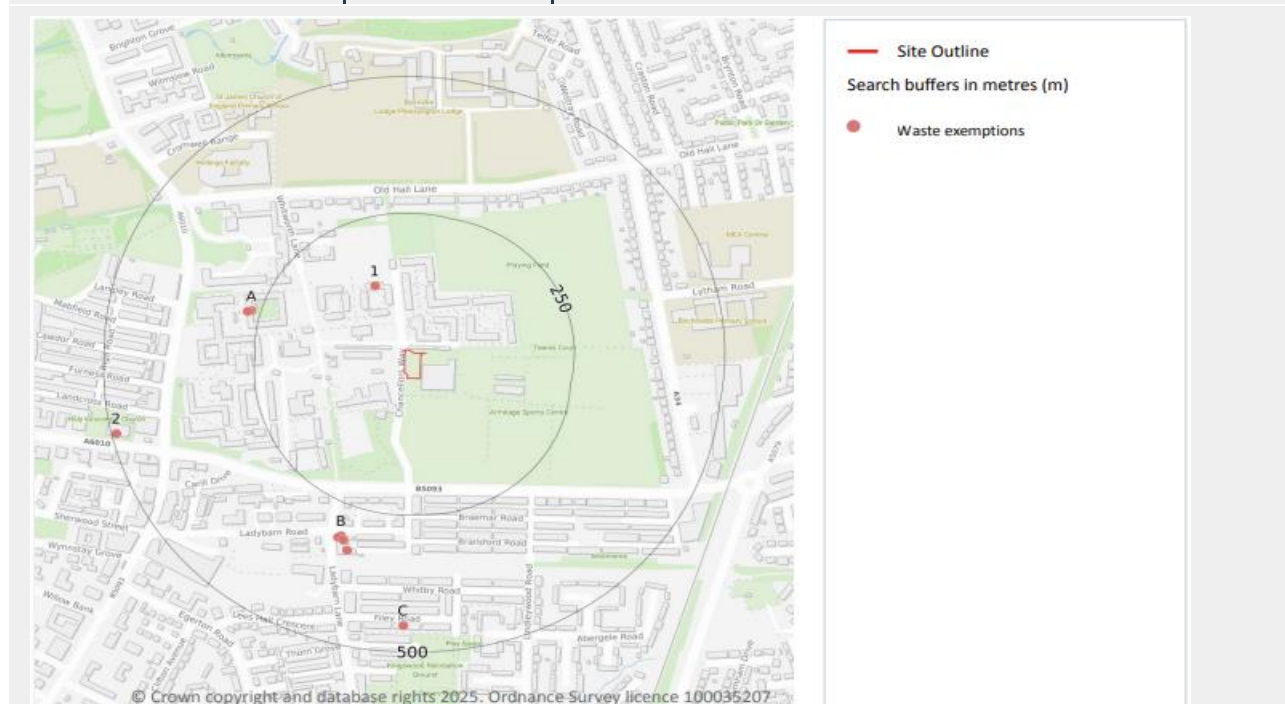
2.9 Waste management

There are no current or historical waste landfill sites recorded within 250m of the site.

There is one waste exemption sites recorded within 250m of the site, as listed in Table 2.16 and shown in Figure 2.9.

Table 2.16: Waste management sites

Location	Category	Details
130m north-west	Using waste exemption	Use of waste in construction.



2.10 Regulatory information

Information in the Groundsure Report (Appendix D), relating to various regulatory controls has been reviewed, with a summary of key aspects not included in the above sections presented in Table 2.17. Refer to Appendix D for further information. All distances quoted are approximate.

Table 2.17: Regulatory information within 250m of the site

Regulatory Data	Location	Details	Potential Risk	Comment
Recent industrial land uses.	40m – 145m NE, NW, SW and W.	Electrical substation	Low	The significant thickness of low permeability Glacial Till underlying the area will restrict/limit horizontal or vertical movement of contaminants from the source.

2.11 Radon

The radon risk is reported in the environmental report and by reference to the Indicative atlas of radon potential for Great Britain version 3 (<https://www.ukradon.org/information/ukmaps>).

The guidance indicates that the site is not in a Radon Affected Area and no radon protection measures are required. The site is in an area where less than 1% of homes are above the radon action level.

2.12 Unexploded ordnance

In general accordance with CIRIA Report C681 (Stone et al 2009) a non-specialist UXO screening exercise has been undertaken for the purposes of ground investigation and is presented in Table 2.18.

Table 2.18: Non-specialist UXO screening for ground investigation

Data	Comment	Further Assessment Required
Site History	There is no indication of former military use from the desk study.	No
Post War Development	The 1956 OS mapping shows a 'ruin' and areas of missing housing, approximately 220m south-west, suggesting bomb damage. This is most likely as a result of WWII bombing.	Yes
Geology Type	The ground conditions comprise of 4m of firm to stiff CLAY over Chester Pebble Beds Formation.	No
Surface Cover during WWI	The surface cover during WWII comprised open fields. There is the potential that UXO, if present, would remain undetected.	Yes

Data	Comment	Further Assessment Required
Indicator of Aerial Delivered UXO	Screening against the regional bomb risk map (Manchester) Appendix D, indicates the site to be in an area where the bomb risk is moderate.	Yes

The non-specialist UXO screening exercise indicates further assessment is required. As per CIRIA Report C681, a specialist UXO risk assessment has been commissioned (see Appendix D) This indicates:

- » During WWII the site was situated within the County Borough of Manchester, which sustained an overall low density of bombing, with an average of 27.1 items recorded per 1,000 acres according to official Home Office bombing statistics
- » Local bomb plot and damage mapping does not record any bomb strikes or damage on or directly bordering the site area.
- » The closest bomb strike recorded is a HE bomb recorded approximately 270m south-east of the site, on an Athletic Ground.
- » Although the site was undeveloped, as it stood on a sports ground, adjacent to a Manchester University research facility, wartime access and monitor is anticipated to have been reasonably high, increasing the likelihood of evidence of UXO being discovered.

Given the site's history, the possibility of UXO contamination cannot be entirely reduced. Nonetheless, neither is the risk from UXO on site considered to be significantly elevated above the 'background level' for this part of the country. Whilst it would be possible to conduct further research in the form of a Detailed UXO Risk Assessment for this site, it is not thought likely to significantly alter the findings of this report. It is therefore recommended that no further research is taken, however the mitigation measures discussed in the preliminary report (presented in Appendix D) should be adopted (e.g. UXO Safety Awareness Briefings and risk management plan).

3. Preliminary Ground Model

The preliminary ground model is based on the information on the ground conditions presented in Sections 1 and integrates site-specific data (where available) with regional geological desk-based information.

The preliminary Ground Model is discussed below.

Table 3.1: Preliminary Ground Model

Strata	Expected Thickness (m)	Description	Comments
Artificial Ground/Topsoil			
Made Ground	Unknown	Expected to be underlying the concrete hardstanding.	Potential for perched groundwater to be present within Made Ground.
Superficial Deposits			
Glacial Till	4.70m to 4.90m	Anticipated cohesive soils.	Historical boreholes recorded groundwater to be present at 3.66m bgl. Borehole completed by Hydrock 150m confirmed at least 4.7m of low permeability clays overlying the bedrock
Solid Geology			
Chester Pebble Bed Formation	150m (BGS, Sheet 85, Manchester, 1, 50, 000).	Dense sands of weathered sandstone bedrock anticipated underlying the Glacial Till.	Groundwater within the Principal Aquifer will be protected from the downward migration by the overlying confining layer of firm to stiff CLAYs,

Information from BGS historical boreholes indicate groundwater levels in the Chester Formation will be circa 3.7m bgl, more likely 4.7m bgl based on closer available ground investigation completed by Hydrock in 2024.

The groundwater within the Principal Aquifer is likely to be confined by the low permeability cohesive CLAYs. Therefore, shallow perched groundwater if present will not be in vertical connectivity with groundwater in the Principal Aquifer, reducing the risk from leachable contaminants.

Given the distance between the site and the closest surface water body, it is unlikely that groundwater underlying the site is in direct hydraulic continuity providing baseflow to the surface water features. Surface water features to the west are likely to be recharged via the Alluvium mapped further to the west.

Groundwater is likely to flow westerly towards Platt Brook and the River Mersey.

4. Ground hazards

4.1 Natural ground instability

Mature trees and semi-mature trees are present along the northern and western boundary. Cohesive deposits of Glacial Till may be affected by potential for shrink swell ground movements as a result of changes in moisture content from removal or growth of trees.

The environmental report data report lists the on-site risk from running sands, compressible deposits ground dissolution of soluble rocks, compressible deposits, shrink swell clays and landslides to be negligible or very low.

4.2 Preliminary geotechnical hazard identification

Potential geotechnical hazards have been assessed in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents CS 641 and CD 622. Table 4.1 sets out the identified geotechnical risks and hazards which are associated with the site.

Table 4.1: Preliminary geotechnical hazard identification

Hazard	Hazard Plausible	Hazard Unlikely	Comment
Uncontrolled Made Ground (variable strength and compressibility).	✓	-	Artificial Ground is not indicated to be present on site, although based on the site history, some Made Ground is expected to be present in the vicinity of historical farm buildings, hardstanding and landscaping mounds.
Soft / loose compressible ground (low strength and high settlement potential).	✓	-	The Made Ground and upper Glacial Till may be soft and pose a compressibility risk.
Shrink swell of the clay fraction of soils under the influence of vegetation.	✓	-	There are sporadic mature and semi-mature trees in the west and north west landscaping. Cohesive soils of the Glacial Till may be impacted by the planting or removal of vegetation.
Variable lateral and vertical changes in ground conditions.	✓	-	The Made Ground composition may vary vertically.
Attack of buried concrete by aggressive ground conditions	✓	-	The Made Ground may contain elevated sulphates.
Adverse chemical ground conditions, (e.g. expansive slag).	-	✓	Unlikely to pose a risk.

Hazard	Hazard Plausible	Hazard Unlikely	Comment
Obstructions.	✓	-	Associated with demolished farm buildings.
Existing below ground structures to remain.	-	✓	No below ground structures anticipated.
Shallow groundwater.	✓	-	Potential for perched groundwater on top of cohesive soils.
Changing groundwater conditions.	✓	-	Seasonal groundwater variations may occur with the environmental report stating groundwater flooding is moderate.
Risk from erosion.	-	✓	No significant risk.
Risk from flooding.	-	✓	No significant risk.
Running sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.	✓	-	Loose Made Ground may be present but is not anticipated to be of significant depth.
Slope stability issues – general slopes.	-	✓	Unlikely to pose a risk.
Slope stability issues – retaining walls.	-	✓	Unlikely to pose a risk.
Earthworks – settlement (due to placement of fill on soft / loose ground).	-	✓	Significant earthworks are not anticipated.
Earthworks – poor bearing capacity of new fill.	-	✓	
Earthworks – unsuitability of site won material to be reused as fill.	-	✓	
Solution features in Chalk.	-	✓	No risk posed to site.
Cavities in the Superficial Deposits due to solution features.	-	✓	No risk posed to site.
Dissolution (associated with “wet rock head”).	-	✓	No risk posed to site.
Brine extraction.	-	✓	No risk posed to site.
Mining.	-	✓	No recorded underground workings.
Cambered ground with gulls possibly present.	-	✓	No risk posed to site.

Hazard	Hazard Plausible	Hazard Unlikely	Comment
Relict Slip Surfaces.	-	✓	No risk posed to site.
Solifluction.	-	✓	No risk posed to site.
Problematic soils (silts and rewetting etc.).	-	✓	No risk posed to site.

4.3 Potential development elements affected

Development elements potentially affected by geotechnical hazards are:

- » Building foundations;
- » External Area vehicle access.
- » Services.
- » Construction staff, vehicles and plant operators.

Health and safety risks to site Contractors and maintenance workers have not been assessed and will need to be considered separately during design.

5. Initial Conceptual Site Model and Preliminary Risk Assessment

5.1 Introduction

The initial Conceptual Site Model (CSM) and Preliminary Risk Assessment incorporates evidence from the site walkover, the Desk Study, and previous investigations carried out near the site. The formulation of an initial CSM is a key component of the LCRM methodology for assessing geoenvironmental risk, and incorporates the Preliminary Ground Model of the site physical conditions (Section 3) and the identification of potential contaminant linkages.

The available information has been used to identify geo-environmental hazards and to establish potential contaminant linkages based on the source-pathway-receptor (S-P-R) approach. A viable contaminant linkage requires all the components of an S-P-R to be present. If only one or two are present, there is no linkage and no further assessment is required.

Health and safety risks to site development contractors and maintenance workers have not been assessed as part of this study and will need to be considered separately.

5.2 Potential contaminants

For the purpose of this assessment the potential contaminants have been separated according to whether they are likely to have originated from an on-site or off-site source.

5.2.1 *Potential on-site sources of contamination*

- » Made Ground, associated with farm buildings or imported fill, possibly including elevated concentrations of metals, metalloids, polycyclic aromatic hydrocarbons (PAH) and petroleum hydrocarbons.
- » Asbestos fibres and ACM from imported fills.
- » Due to the unknown composition of Made Ground it may contain a degradable organic content which could pose a low ground source potential (as outlined in BS 8576: 2013 decision matrix for initial monitoring).

5.2.2 *Potential off-site sources of contamination*

No potential notable off-site sources of contamination have been identified.

5.3 Potential receptors

The following potential receptors in relation to the proposed land use have been identified.

- » People (neighbours, site end users)
- » Development end use (buildings and utilities)
- » Plant life in landscaped area

The overlying cohesive Glacial Till will offer suitable protection to the Principal Aquifer in the Chester Formation therefore there is unlikely to be an active pathway to the receptor.

5.4 Potential pathways

The following potential pathways have been identified.

- » Ingestion and dermal contact with soils.
- » Ingestion, inhalation and dermal contact with soil-derived dust.
- » Migration of ground gas through impermeable and unsaturated Made Ground or gaps in construction.
- » Inhalation of fibres.
- » Root uptake by plants/vegetation.

5.5 Potential implications of climate change

Climate change has the potential to change the risk profile for conceptual site models and associated contaminant linkages. The impact of climate change on the CSM is site-specific, and a qualitative assessment of the potential impact of climate change on the CSM for this site is summarised below. The assessment has primarily utilised the guidance in Environment Agency (2010) and SoBRA (2022) which set out the UK context to climate change and land contamination. Both guidance documents advocate a "what if" scenario approach in the context of changes in ambient temperatures, an increase in the frequency of extreme rainfall/storm events and heatwaves/droughts, and long-term changes in groundwater and sea levels.

Those "what if" scenarios that are relevant to this CSM are:

- » Increased long-term rainfall leading to increased infiltration and seasonally higher groundwater and water levels in surface waters – *the site will include hardstanding therefore infiltration of water will be restricted.*
- » Increased frequency and/or magnitude of extreme rainfall events leading to short-term surface flooding, surface water run-off, groundwater flooding, and/or land-based erosion. – *the site is not located in the vicinity of surface water courses and perched groundwater if present will not be recharged on the site due to the presence of hardstanding.*
- » Occurrence of extreme cold and hot weather events leading to changes in ground conditions such as soil temperature, evapo(trans)piration, and soil moisture (for example freeze-thaw effects and desiccation), decreased infiltration and fall in groundwater and surface water levels. – *Construction build up will protect the Glacial Till from significant changes in moisture content post development.*
- » Long-term decrease in rainfall leading to lower infiltration and fall in groundwater and surface water levels- *the confining Glacial Till will restrict infiltration into the Principal Aquifer, drop in the water table in Principal Aquifer are unlikely to impact the CSM.*

In considering the potential impact of climate change, the following factors have been considered

- » The design life of the proposed development is 50 years.
- » The current depth to groundwater is 3.66m bgl.
- » The superficial deposits and underlying geology at the site are likely to be physically adversely affected by desiccation.
- » The UK Climate Predictions published by the Met Office indicate that over the lifetime of the proposed development average:
 - » Precipitation is forecast to increase by up to 10%;
 - » Temperature is forecast to increase by 4°C; and
 - » Groundwater recharge will increase in wetter months

No foreseeable impacts of climate change on the CSM have been identified.

For further details on the considerations made, refer to Table E.1 in Appendix E.

5.6 Summary of potential contaminant linkages

The above sources, pathways and receptors have been considered as part of the Preliminary Risk Assessment in accordance with Stage 1 of LCRM (2023).

Table 5.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2023) and additional risk assessment is required.

S-P-R linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland et al 2001) as modified to reflect changes made in Table A4.5 of NHBC/EA R&D66 (2008), to remove the ambiguous term “low/moderate risk”, and to adopt “Extremely low risk” for the lowest risk category (see Table 5.1).

Table 5.1: Consequences versus probability assessment

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Extremely low risk

Table 5.2: Initial CSM

Source	Pathway	Receptor	Probability	Consequence	Risk Level	Comment
Made Ground, associated with former farm buildings and imported fill, possibly including elevated concentrations of metals, metalloids, polycyclic aromatic hydrocarbons (PAH) and petroleum hydrocarbons.	Ingestion, inhalation and dermal contact with soil-derived dust.	People (site end users)	Likely	Medium	Moderate	Made Ground may be present associated with the former farm buildings or imported fills and contact with the Made Ground could occur within landscaped area. Further ground investigation is required to assess the risk posed to site end users.
	Direct contact	Water supply pipes	Low likelihood	Medium	Low	The Made Ground may contain organics above the PE threshold due to their unknown composition which requires further investigations. A significant thickness of Made Ground is not anticipated therefore by design water pipes may be laid in natural soils.
	Leaching through unsaturated zone	Groundwater: Principal aquifer status of the Chester Pebble Beds Formation.	Low likelihood	Medium	Low	The groundwater within the principal aquifer is anticipated to be protected by at least 4.5m of low permeability Glacial Till which will restrict the downward migration of contamination,
	Root uptake by plants/vegetation.	Plant life	Low likelihood	Minor	Low	The existing landscaping build requires investigation, future plant life may require imported Topsoil for installation in landscaped areas.
Due to the unknown composition of	Migration of ground gas through	Buildings (explosion) or	Unlikely	Severe	Low	The Made Ground associated with imported fills is of an unknown composition and is there is potential for it

Source	Pathway	Receptor	Probability	Consequence	Risk Level	Comment
Made Ground it may contain a degradable organic content which could pose a low ground source potential (as outlined in BS 8576: 2013 decision matrix for initial monitoring).	impermeable or unsaturated Made Ground or gaps in constructions.	site end (asphyxiation)				contain degradable organics. However, the abundance of such organics may be expected in small pockets. Further investigation is required to confirm the composition of the Made Ground. In accordance with BS 8576: 2013 Made Ground with organics is considered a low ground gas source potential therefore ground gas monitoring will be required aligning with the relevant risk in BS 8576: 2013 and development end use cited in CIRIA 665. Gaps in construction may be present where the repurposed container ties into the foundation of the steel frame.
Asbestos fibres and ACM associated with the unknown composition of imported fills.	Inhalation of fibres	People (neighbours, site end users)	Low likelihood	Severe	Moderate	The proposed development will remain as hardstanding and building cover but the risk is moderate where soft landscaping is proposed (such as the embankment along the western boundary which is to remain). The imported fills may include asbestos loose fibres and asbestos containing materials which if disturbed pose an inhalation risk to site end users.

6. Conclusions and recommendations

6.1 Geotechnical conclusions

The following plausible geotechnical risks are identified:

- » Variable Made Ground - settlement or differential settlement of foundations, floor slabs, roads and infrastructure elements.
- » Low strength, compressible ground associated with the Made Ground or upper Glacial Till – risk of shear failure and excessive settlement of foundations, roads and infrastructure elements.
- » Attack of buried concrete by aggressive ground conditions – the development site may contain Made Ground and potentially sulphate bearing soils.
- » Shrinkage/swelling of clay – settlement/heave of foundations, especially where located within the influence of trees and vegetation.
- » Obstructions associated buried slabs/footings associated with former farm buildings.
- » Potential for unforeseen ground conditions and the risks associated with limited data.

These plausible risks require further investigation and assessment (see recommendations).

6.2 Geoenvironmental conclusions

Based on historical and current land uses:

- » It is considered unlikely that the site would be classified as Contaminated Land under Part 2A of the EPA 1990.
- » The overall risk from land contamination at the site is considered to be low for the current development, as it is covered by hard standing or buildings limiting the possibility of contact with the soils, as well as the risk of significant rainwater infiltration leading to leaching.
- » The overall risk for a redeveloped site is assessed to be low, with some specific potentially moderate risks, but this would need to be confirmed by appropriate intrusive investigation, testing and assessment of the results of the investigation.

The possible contaminant linkages (for risk levels of moderate or greater) on an unremediated redeveloped site, as determined by the desk study and walk-over, are summarised in the table below:

Table 6.1: Possible Contaminant Linkages (for Risk Levels of Moderate or Greater)

Source(s)	Pathway(s)	Receptor(s)
Made Ground, associated with former farm buildings and imported fill, possibly including elevated concentrations of metals, metalloids, polycyclic aromatic hydrocarbons (PAH) and petroleum hydrocarbons.	Ingestion, inhalation, and dermal contact with soil-derived dust.	Site users
Asbestos fibres and ACM associated with the unknown composition of imported fills.	Inhalation of fibres	Site users

These possible contaminant linkages require further investigation and assessment (see recommendations below).

6.3 Recommendations for further work

6.3.1 Ground investigation

In order to confirm the actual risks to receptors and confirm the ground conditions with respect to potential geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken. This investigation will need to:

- » determine the depth, distribution, and properties of Made Ground and natural soils across the site;
- » determine the soils strength/ density profile beneath the site;
- » determine the depth/ level of groundwater beneath the site;
- » determine the ground gas concentrations beneath the site;
- » confirm the composition of the Made Ground and possible associated ground gas risk;
- » confirm the depth to the groundwater table and assess potential impacts on construction;
- » allow for sampling for chemical and geotechnical laboratory testing;
- » obtain information in terms of Aggressive Chemical Environment for Concrete Class (ACEC class)
- » determine California Bearing Ration (CBR) values to assist with pavement design; and
- » assessment of tree influence on foundations and design of foundations.

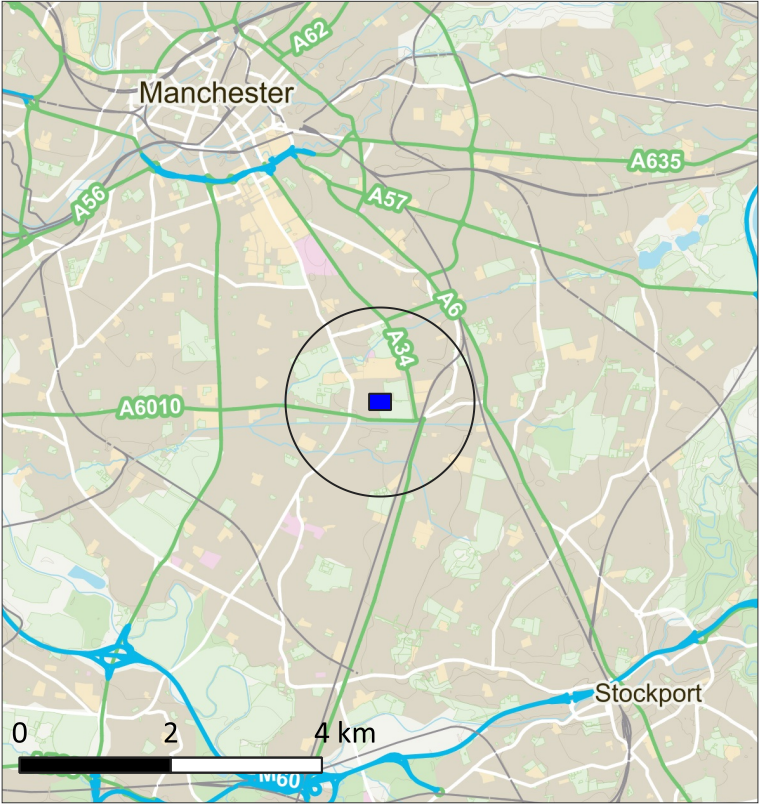
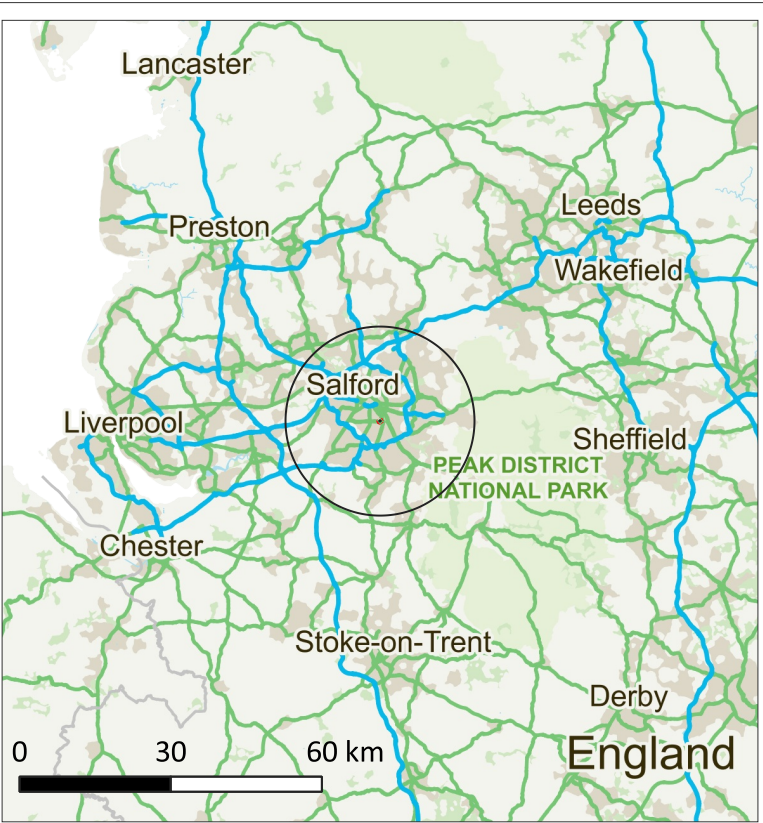
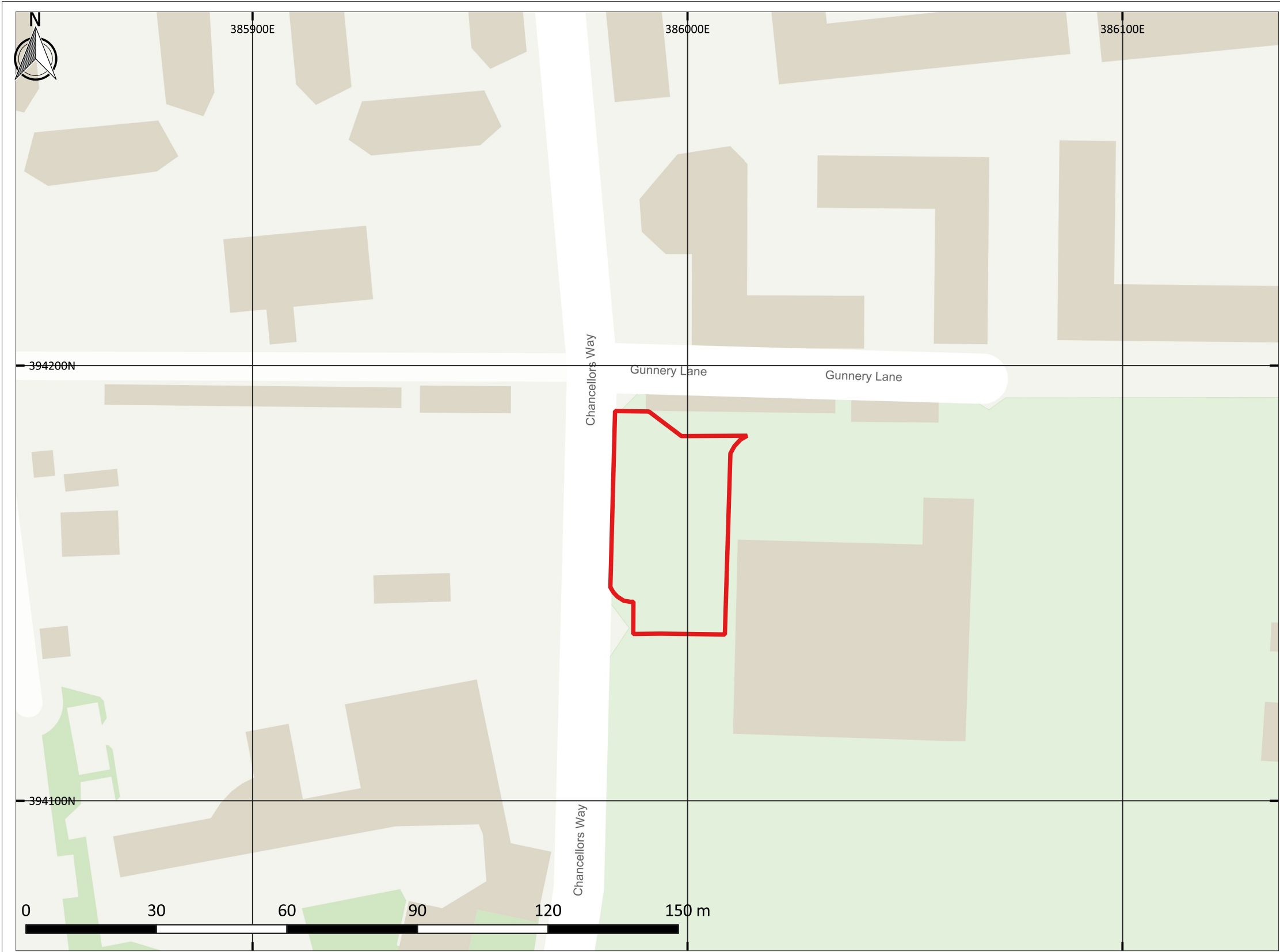
Following investigation, assessment will be required to:

- » update the ground model;
- » update the geotechnical register;
- » provide geotechnical design recommendations;
- » update the Conceptual Site Model (CSM), including identification of plausible pollution linkages;
- » discuss potential environmental liabilities associated with land contamination (soils, water and gas);
- » undertake generic quantitative risk assessment of potential chemical contaminants to establish 'suitability of end use' under the current planning regime; and
- » provide outline mitigation recommendations to ensure the site is 'suitable for end use'

7. References

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Appendix A Drawings



KEY PLAN

 Site Boundary

NOTES

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REVISIONS

REV.	DRAWN BY INITIALS	CHECKED BY INITIALS	DATE	REVISION NOTES/COMMENTS
P01	JH	RS	05/03/25	First issue



CLIENT
Rider Levett Bucknall

PROJECT
Squirrels Bar Reprovision

TITLE
SITE LOCATION PLAN

HYDROCK PROJECT NO.
37821

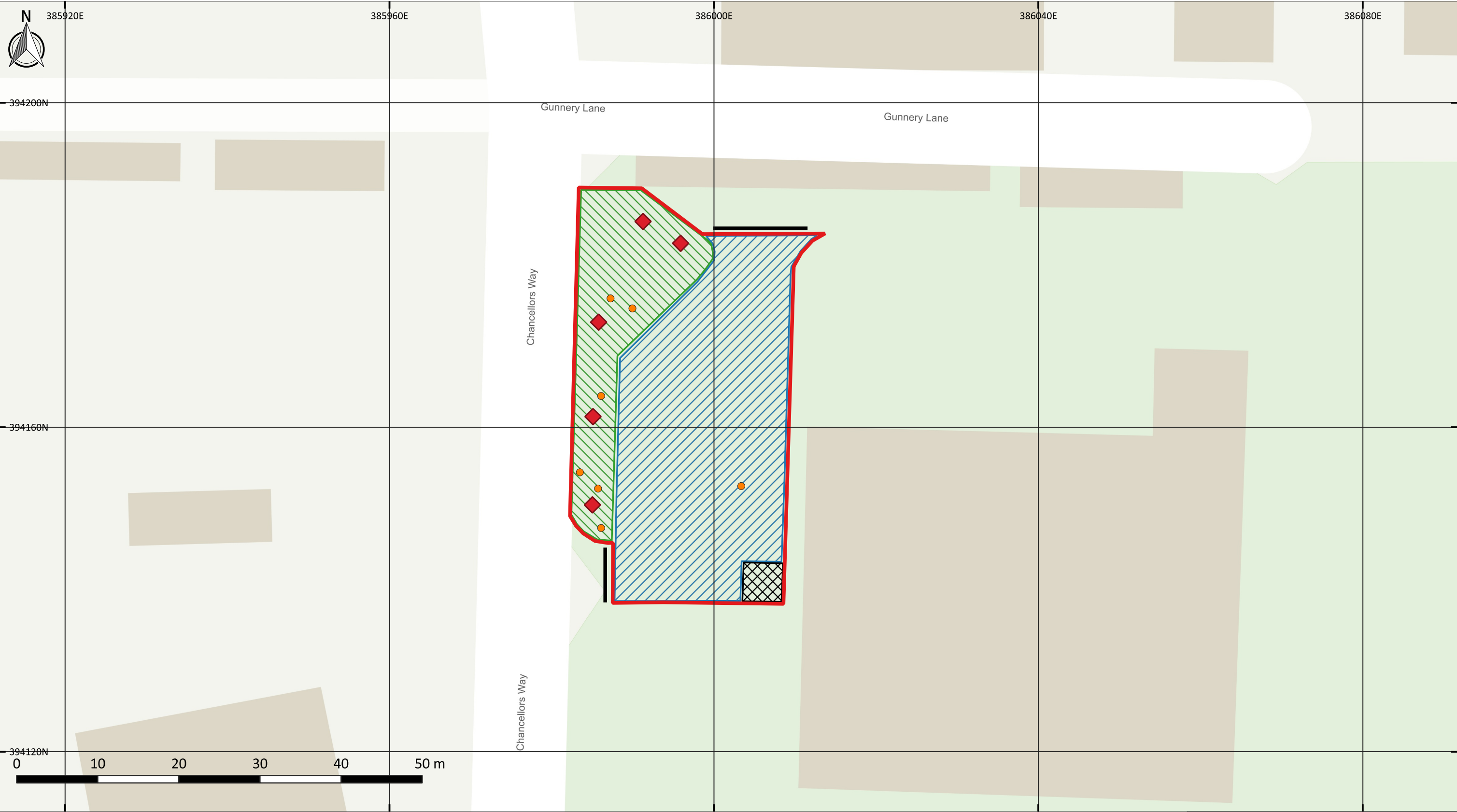
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PURPOSE OF ISSUE
SUITABLE FOR INFORMATION

STATUS
S2

DRAWING NO.
37821-HYD-XX-XX-DR-GE-0001

REVISION
P01



KEY PLAN

-  Site Boundary
-  Manholes
-  Bin Store
-  Trees
-  Site Entrance
-  Landscaping
-  Concrete

NOTES

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REVISIONS

REV.	DRAWN BY INITIALS	CHECKED BY INITIALS	DATE	REVISION NOTES/COMMENTS
P01	JH	RS	05/03/25	First issue



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PROJECT
Squirrels Bar Reprovision

TITLE
SITE FEATURES PLAN

HYDROCK PROJECT
NO.

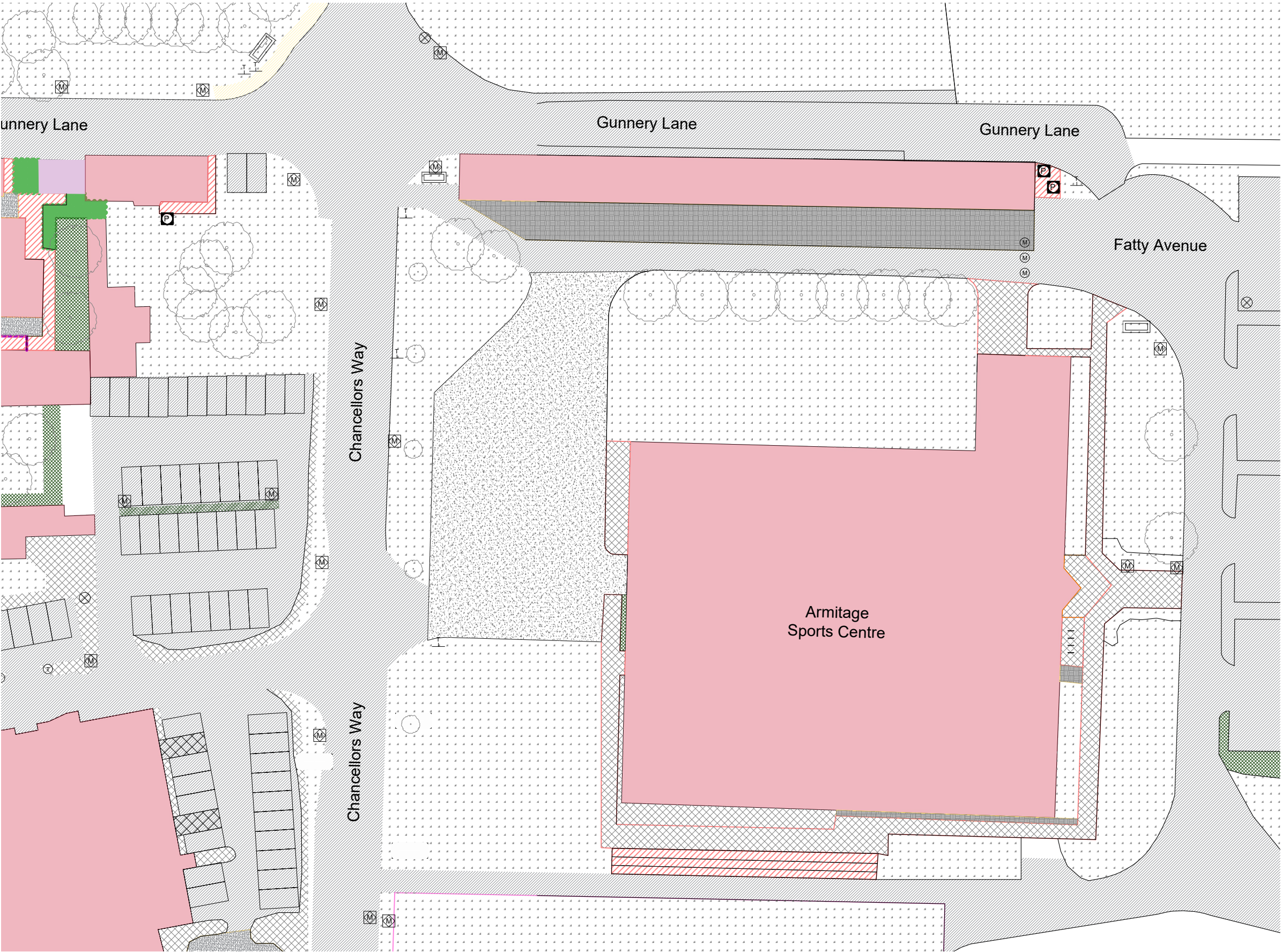
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PURPOSE OF ISSUE
SUITABLE FOR INFORMATION

STATUS
S2

DRAWING NO.
32821-HYD-XX-XX-DR-GE-0002

REVISION
P01



Existing Site Layout

SCALE : 1:500

Rev	Description	Date
P01	First issue.	06/03/25

Client:

UOM

Project Title:

SQUIRRELS BAR
REPROVISION

RLB ID:

004150

Drawing Number:

01

Drawing Title:

EXISTING SITE LAYOUT

Stage:	Status:	Revision:
PLANNING	S0	P01
Date:	Size:	Scale:
26/03/2025	A3	1:500



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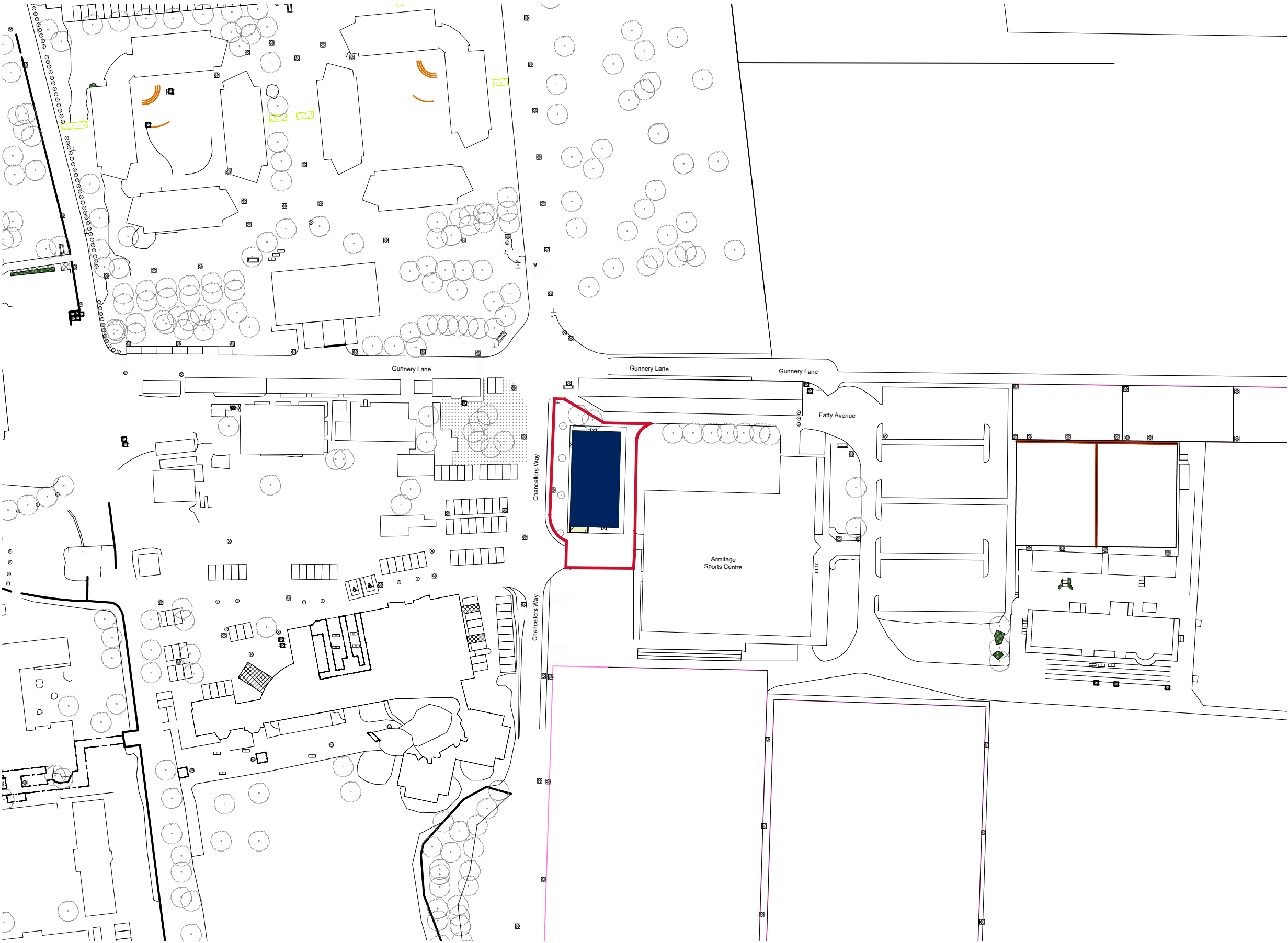
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LEGEND

PLANNING BOUNDARY LINE

Rev	Description	Date
P01	First issue.	06/03/2025
P02	Updated to suit new site boundary	19/03/2025

Client:

UOM

Project Title:

SQUIRRELS BAR
REPROVISION

RLB ID:	Drawing Number:
004150	02

Drawing Title:

LOCATION PLAN

Stage:	Status:	Revision:
PLANNING	S0	P01

Date:	Size	Scale:
26/03/2025	A3	1:1250



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1:100

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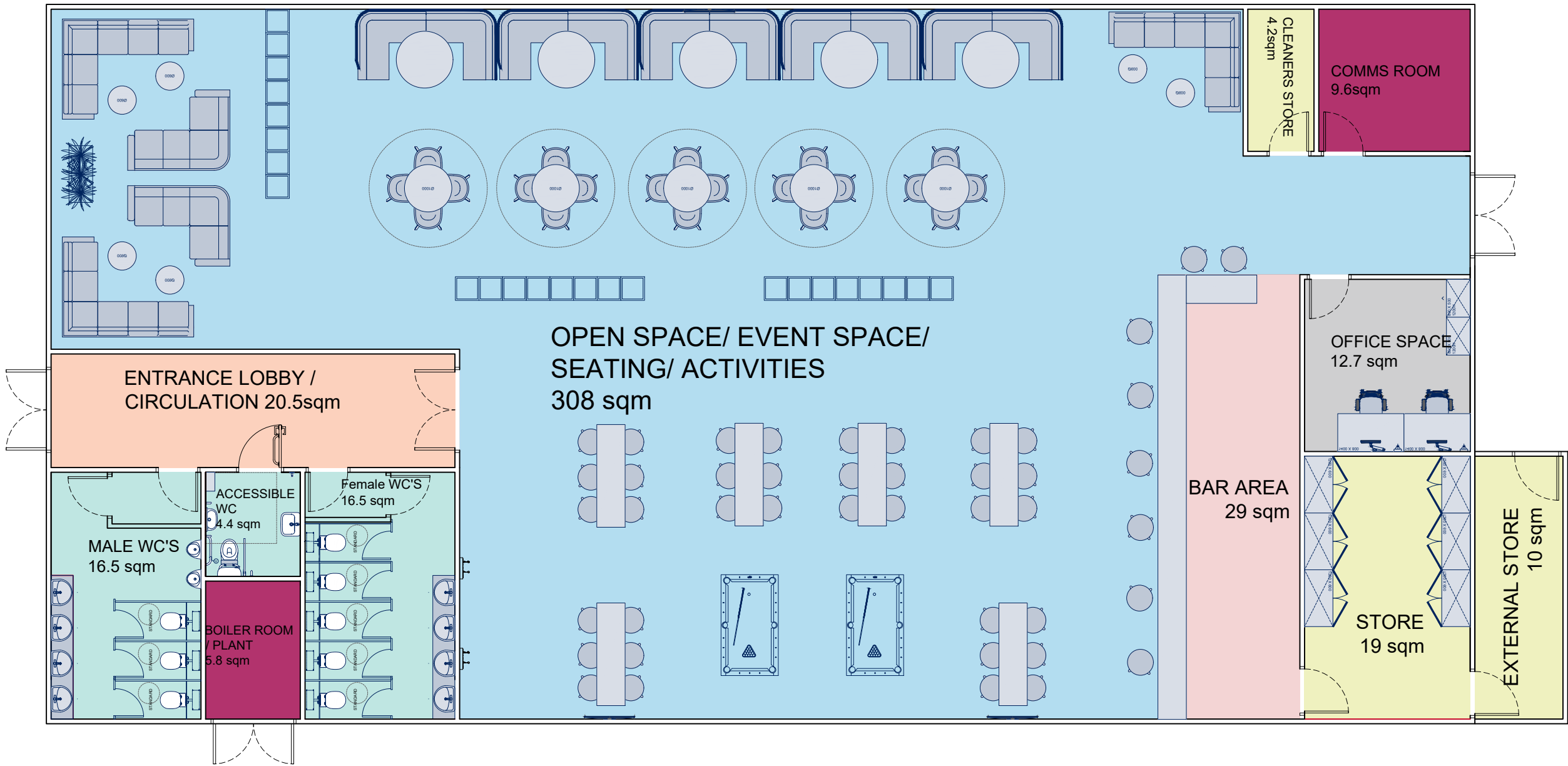
Location Plan

SCALE : 1:1250



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UOM

1:500



LEGEND

- OPEN SPACE/ SEATING
- WC'S
- BAR/ STAFF AREA
- STORE ROOMS
- CIRCULATION
- OFFICE SPACE
- SERVICES/ BOILER/ COMMS

Total GIA: 460 Sqm

Rev	Description	Date
P01	First issue.	06/03/2025
P02	Internal layout updated.	18/03/2025
P03	Internal layout updated.	19/03/2025
P04	Internal layout updated.	20/03/2025

Client:

UOM

Project Title:

SQUIRRELS BAR
REPROVISION

RLB ID:

004150

Drawing Number:

04

Drawing Title:

PROPOSED FLOOR PLAN

Stage:	Status:	Revision:
PLANNING	S0	P04
Date:	Size:	Scale:
26/03/2025	A3	1:100



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Print colour check (CMYK) Print size check 9mm

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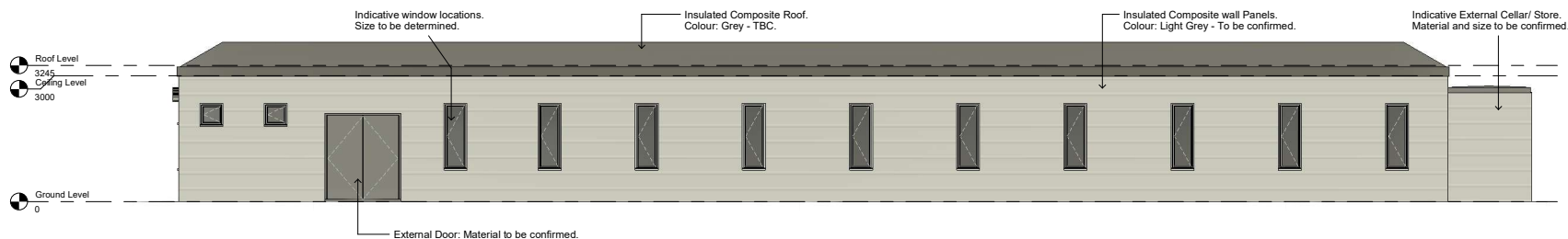
1m 2m 5m

1:100

PROPOSED GF LAYOUT

SCALE : 1:100

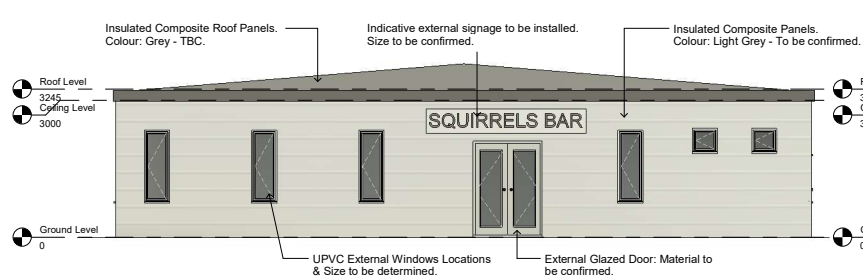
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UOM



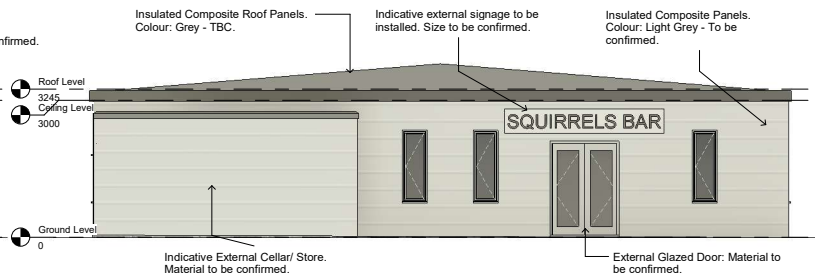
3 Proposed West Elevation
1 : 50



4 Proposed East Elevation
1 : 50



1 Proposed North Elevation
1 : 50



2 Proposed South Elevation
1 : 50

Revisions

Client:

UOM

Issue:

Planning

Project:

Squirrels Bar

Title:

Proposed Elevations

Drawing No:	Rev:	A1 Scale:
0 06	4	1 : 50
Date:	Drawn:	Approved:
06/03/2025	TT	ALV



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Appendix B Field reconnaissance photographs

Photograph 1 Date: 25/02/2025 Direction Photograph Taken: Looking south-west Description: Site entrance from Chancellors Way with metal barriers.	 A wide-angle photograph showing a paved road leading to a site entrance. In the background, there is a large, multi-story brick building with a flat roof. The road is flanked by grassy areas and metal barriers. The sky is overcast.
Photograph 2 Date: 25/02/2025 Direction Photograph Taken: Looking north-west. Description: Raised manholes within the soft landscaping along the western boundary.	 A photograph showing a raised manhole cover in a grassy area. In the background, there is a brick wall and a small brick building. A road is visible in the distance. The sky is overcast.

Photograph 3	
Date: 25/02/2025	
Direction Photograph Taken: Looking south-east	
Description: Bin store within the south-east corner of the site.	
Photograph 4	
Date: 25/02/2025	
Direction Photograph Taken: Looking east.	
Description: An access to the Armitage Sports Centre parallel to the eastern site boundary.	

Photograph 5 Date: 25/02/2025 Direction Photograph Taken: Looking north. Description: Concrete hardstanding in good condition.	
Photograph 6 Date: 25/02/2025 Direction Photograph Taken: Looking north. Description: Second access to the site off a private road.	

Photograph 7	
Date: 25/02/2025	
Direction Photograph Taken: Looking north-west.	
Description: Mature trees within the soft landscaping along the northern boundary.	
Photograph 8	
Date: 25/02/2025	
Direction Photograph Taken: Looking south.	
Description: Semi mature trees and a lighting column within the soft landscaping along the western boundary.	

Appendix C Historical mapping



Groundsure
INSIGHTS

HISTORICAL MAP PACK LEGEND

COUNTY SERIES
1:1,2500
NATIONAL GRID
1:1,250 & 1:2,500

Information present on these legends is sourced
from the same Ordnance Survey mapping
as the maps used in this product.

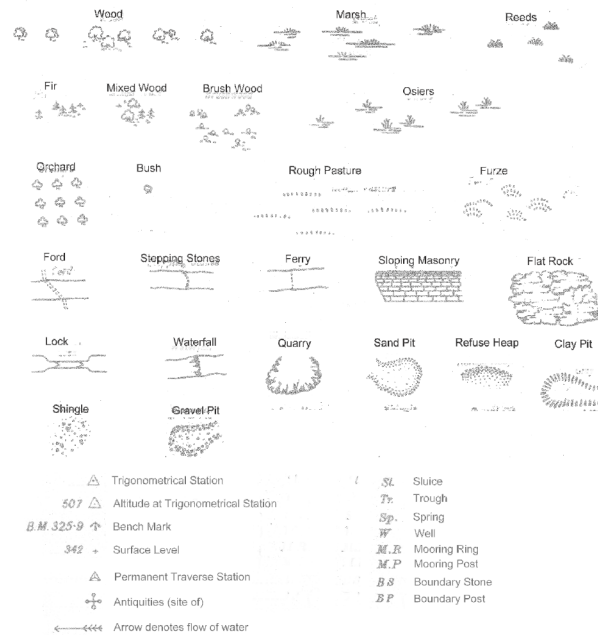
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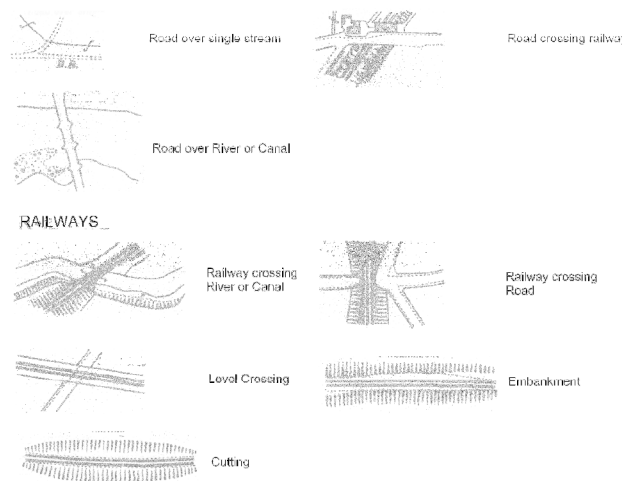
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COUNTY SERIES 1:2,500

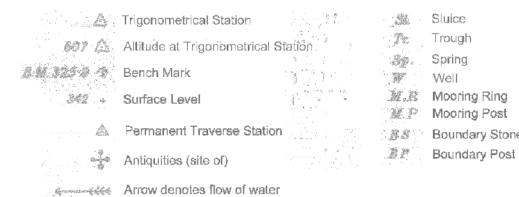
GENERAL FEATURES



ROADS

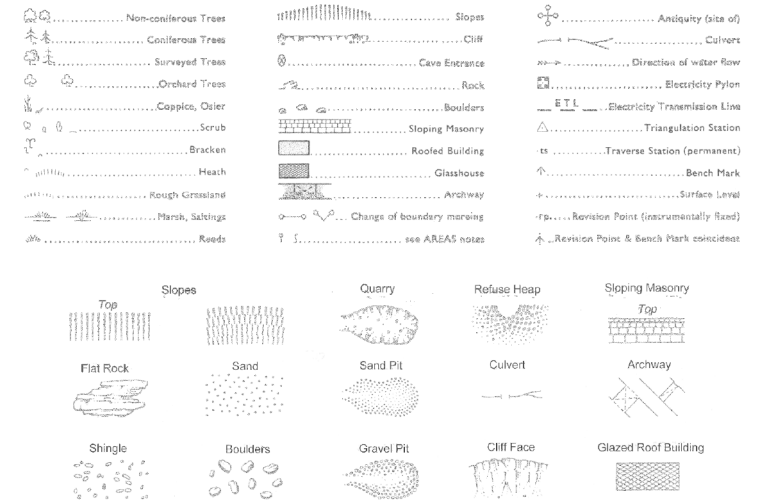


ABBREVIATIONS

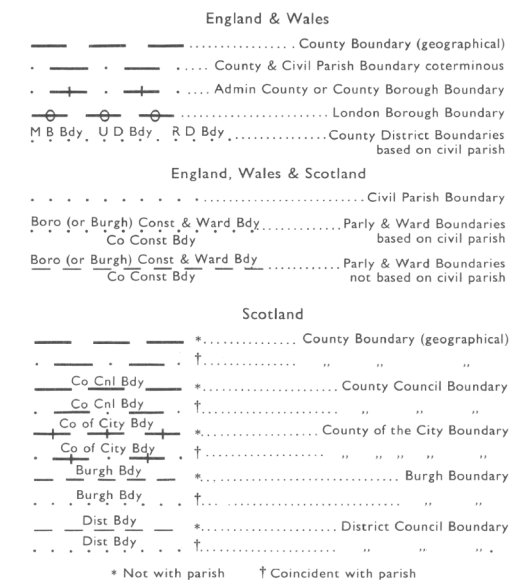


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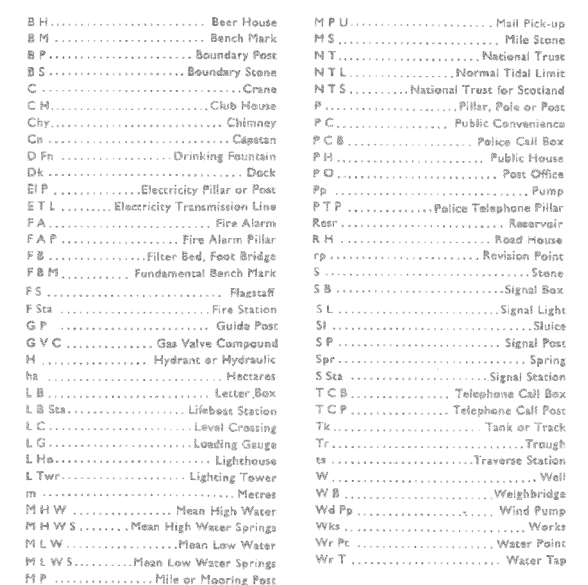
GENERAL FEATURES

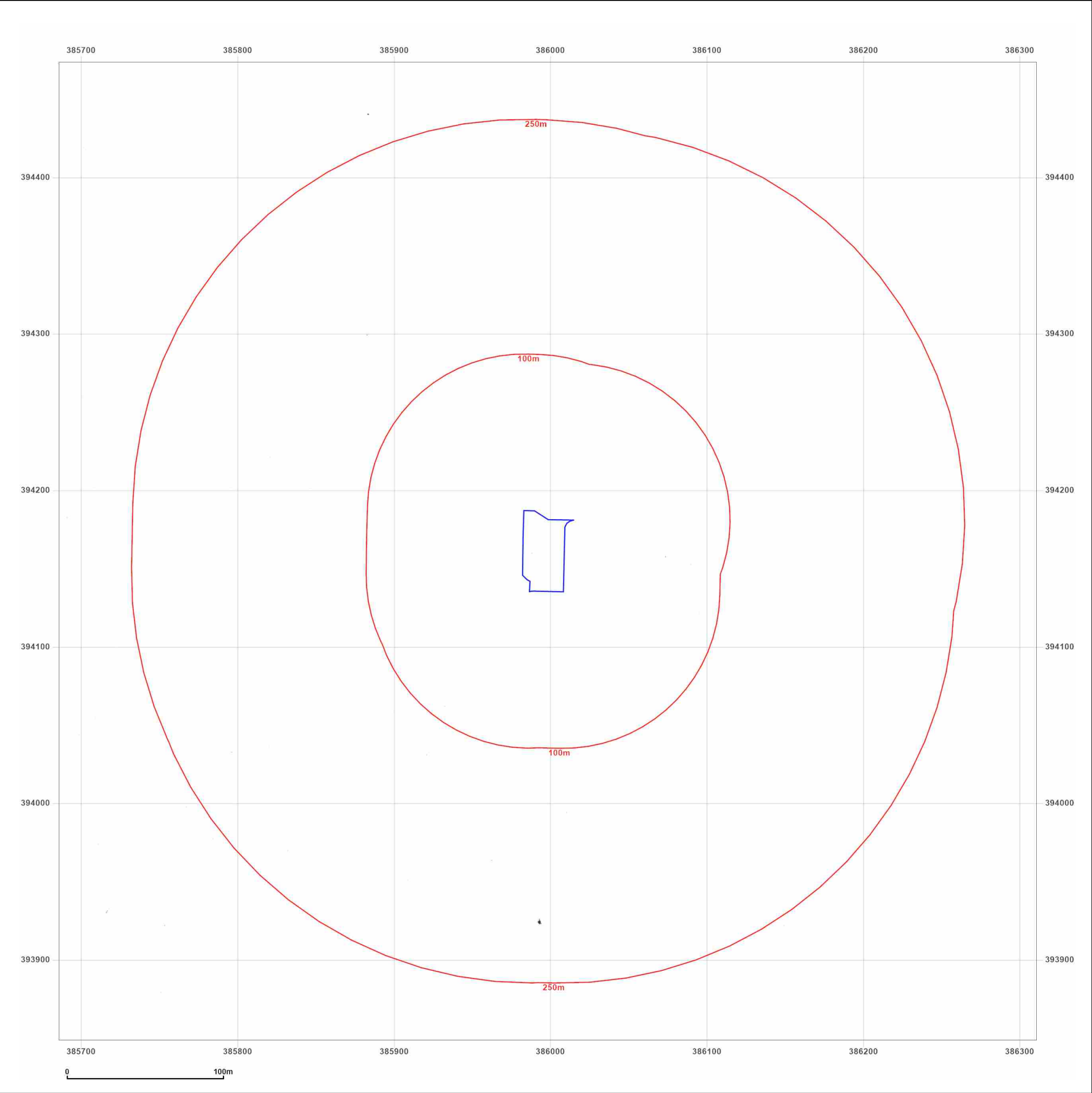


BOUNDARIES



ABBREVIATIONS





Site Details:

SQUIRRELS BAR REPROVISION,
MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

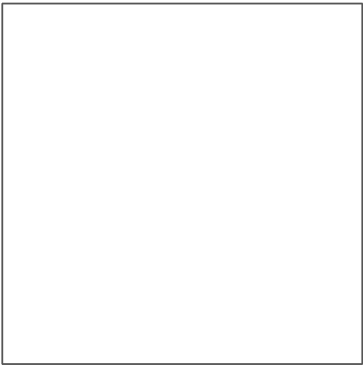
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Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

Map date: 1893

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Printed at: 1:2,500



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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

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Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

Map date: 1922

Scale: 1:2,500

Printed at: 1:2,500



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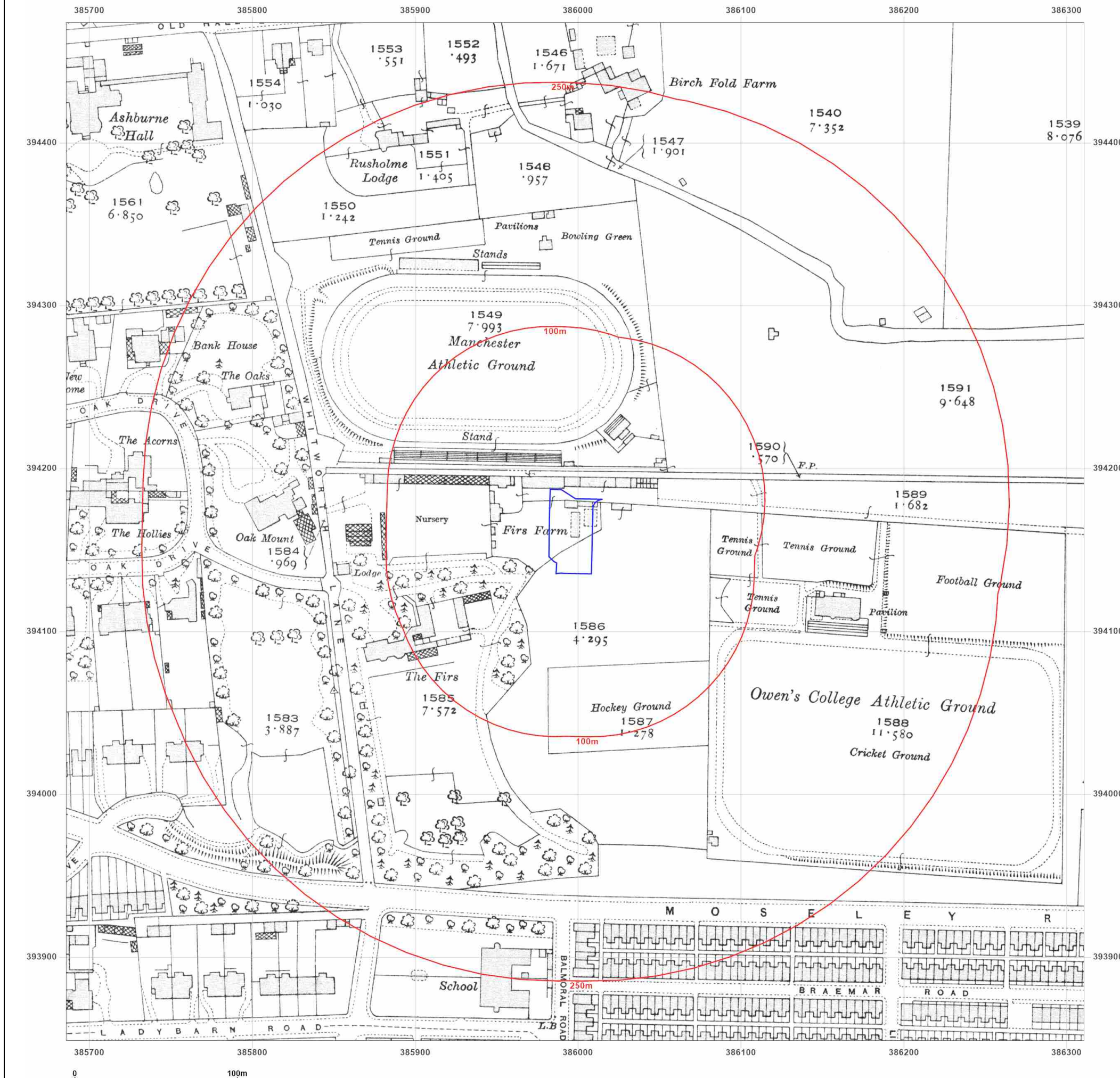


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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

Map date: 1934

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Printed at: 1:2,500



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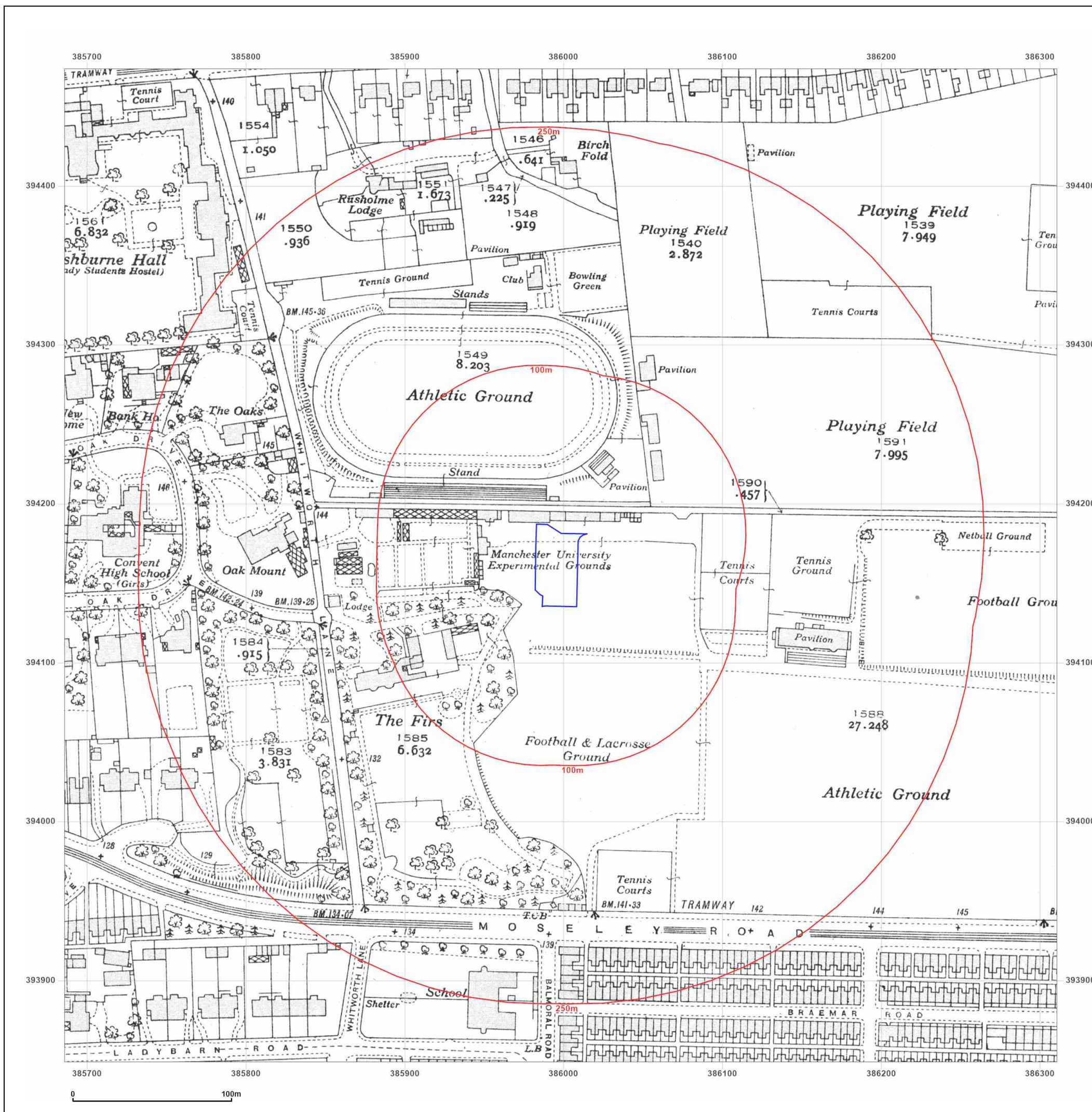


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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 1956-1957

Scale: 1:1,250

Printed at: 1:2,000



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Revised 1956
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Levelled 1949

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1956
Revised 1956
Edition N/A
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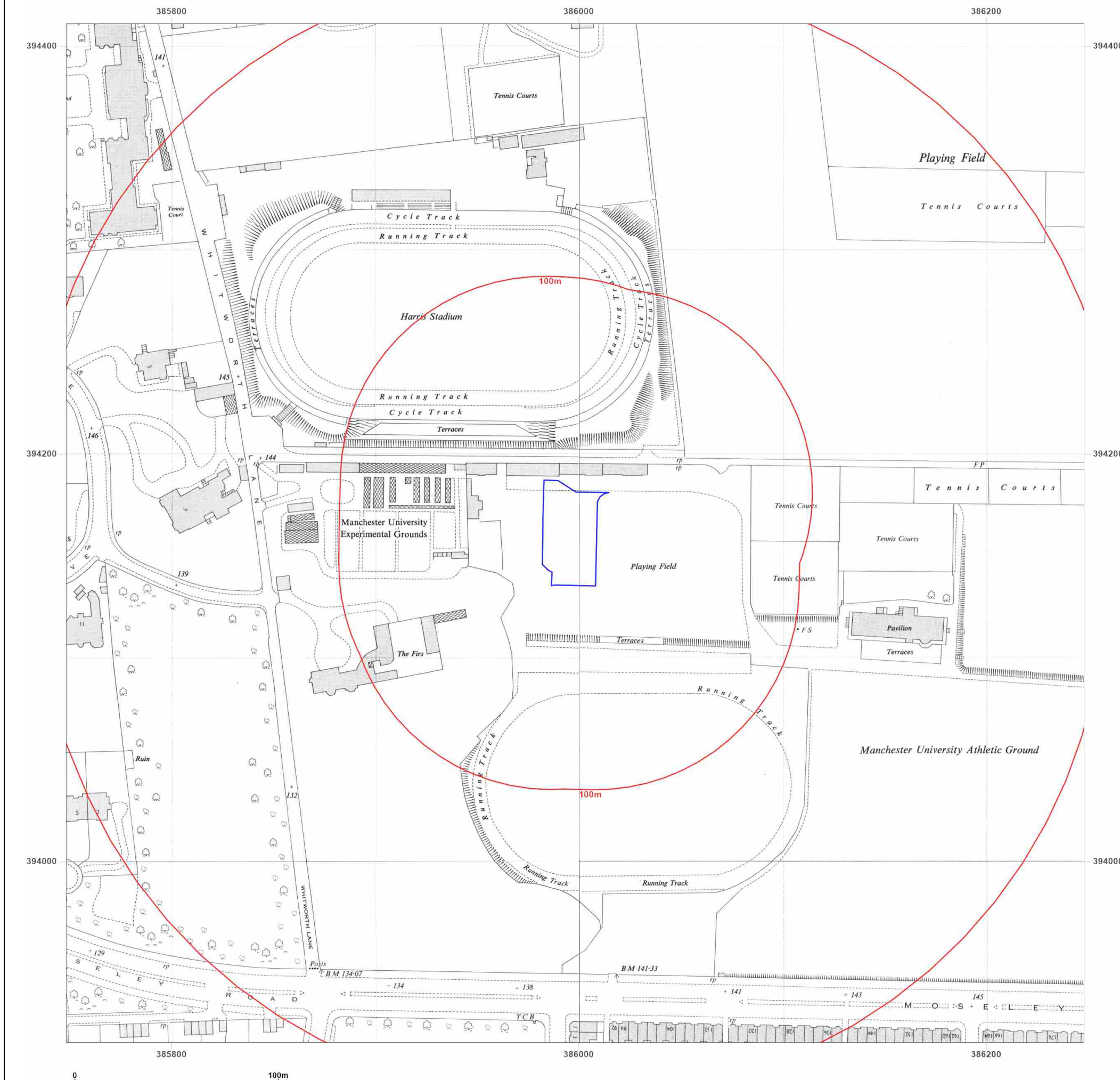


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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 1957-1958

Scale: 1:2,500

Printed at: 1:2,500



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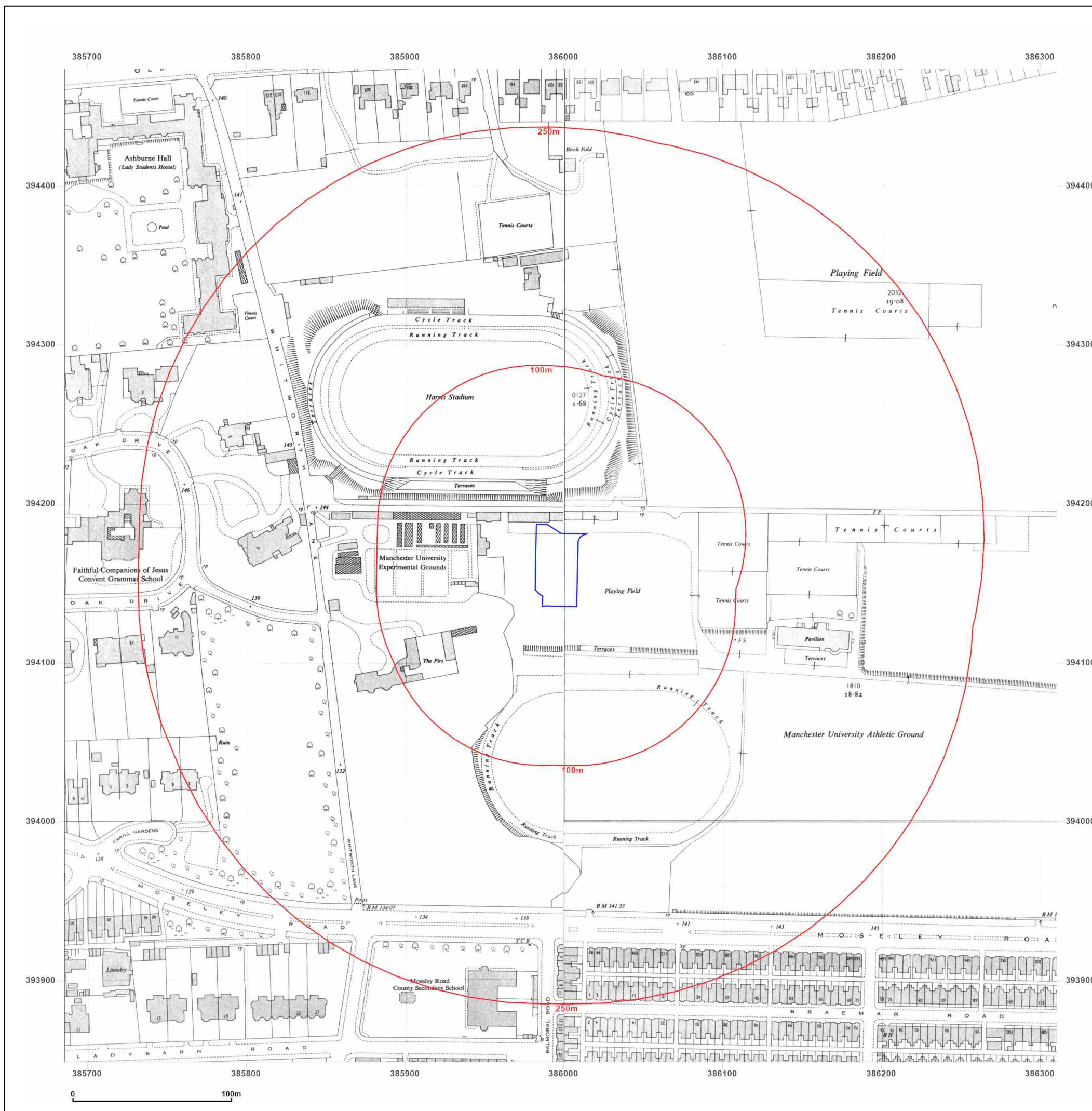


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Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

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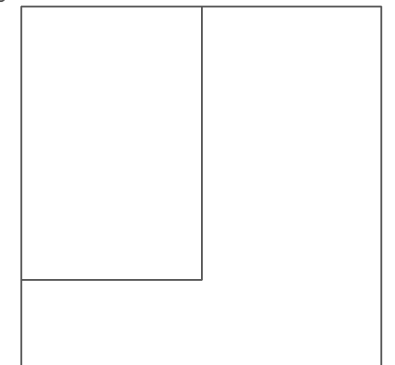
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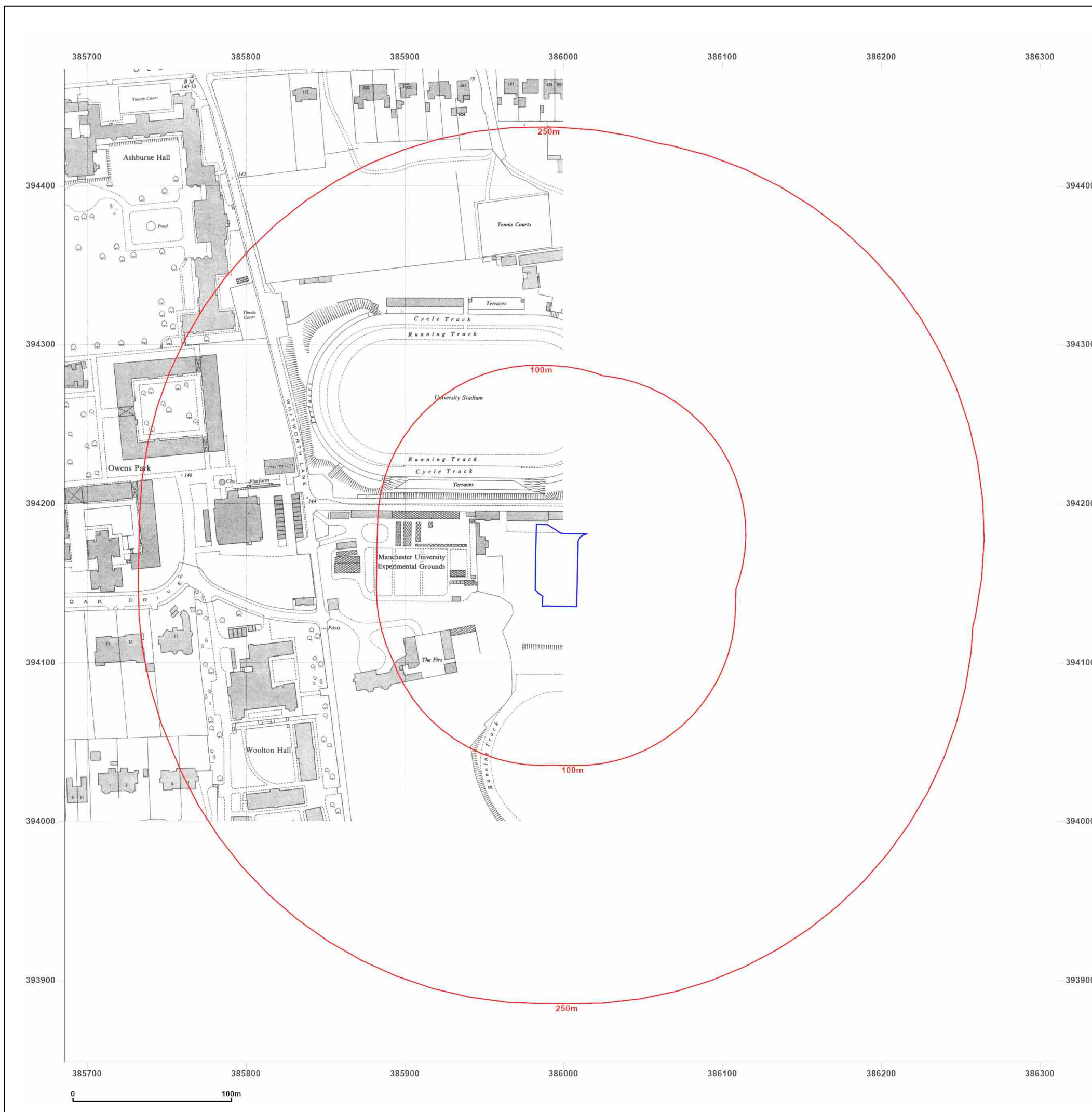


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Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 1967-1971

Scale: 1:1,250

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Revised 1970
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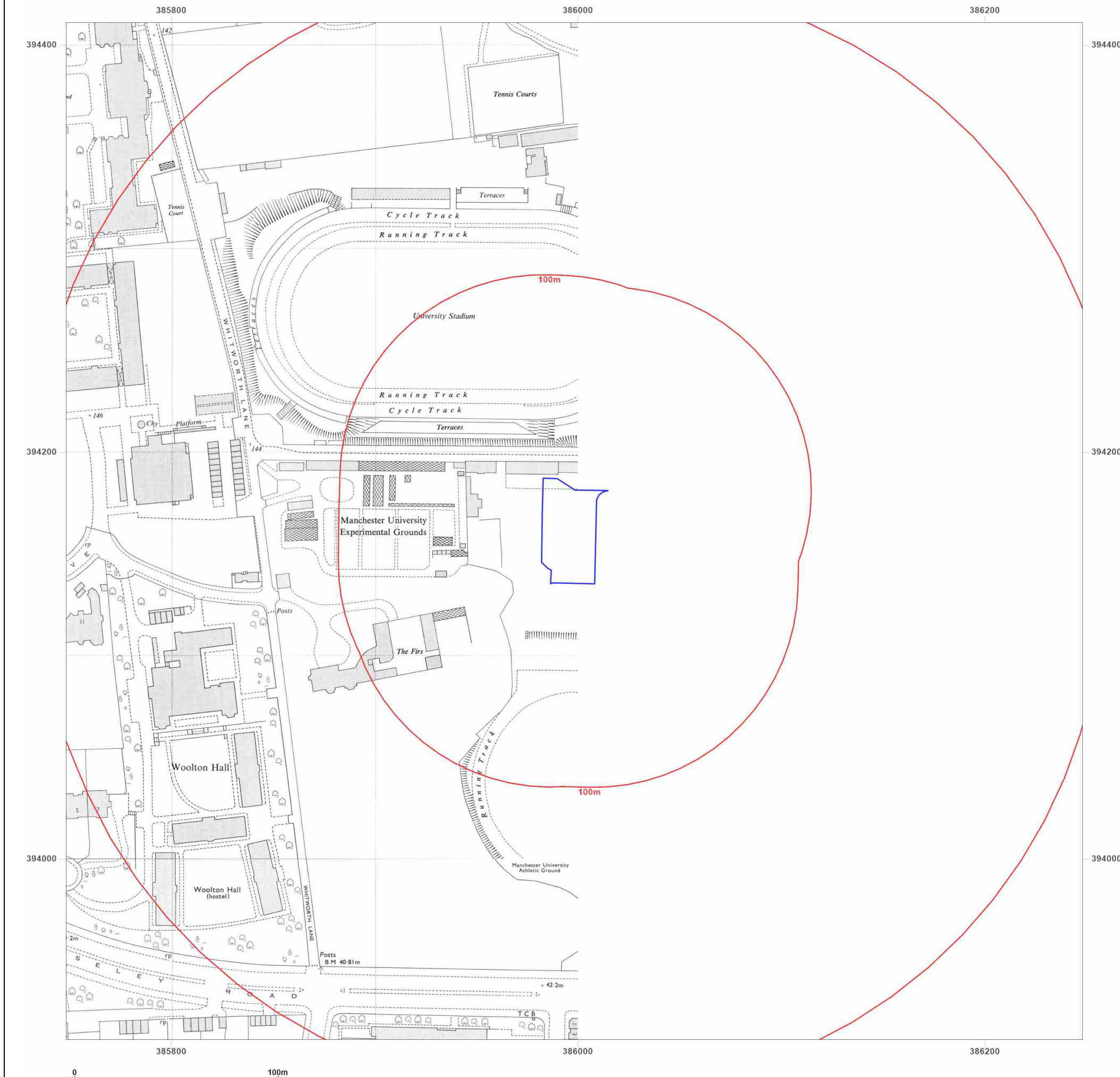


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Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 1988

Scale: 1:1,250

Printed at: 1:2,000



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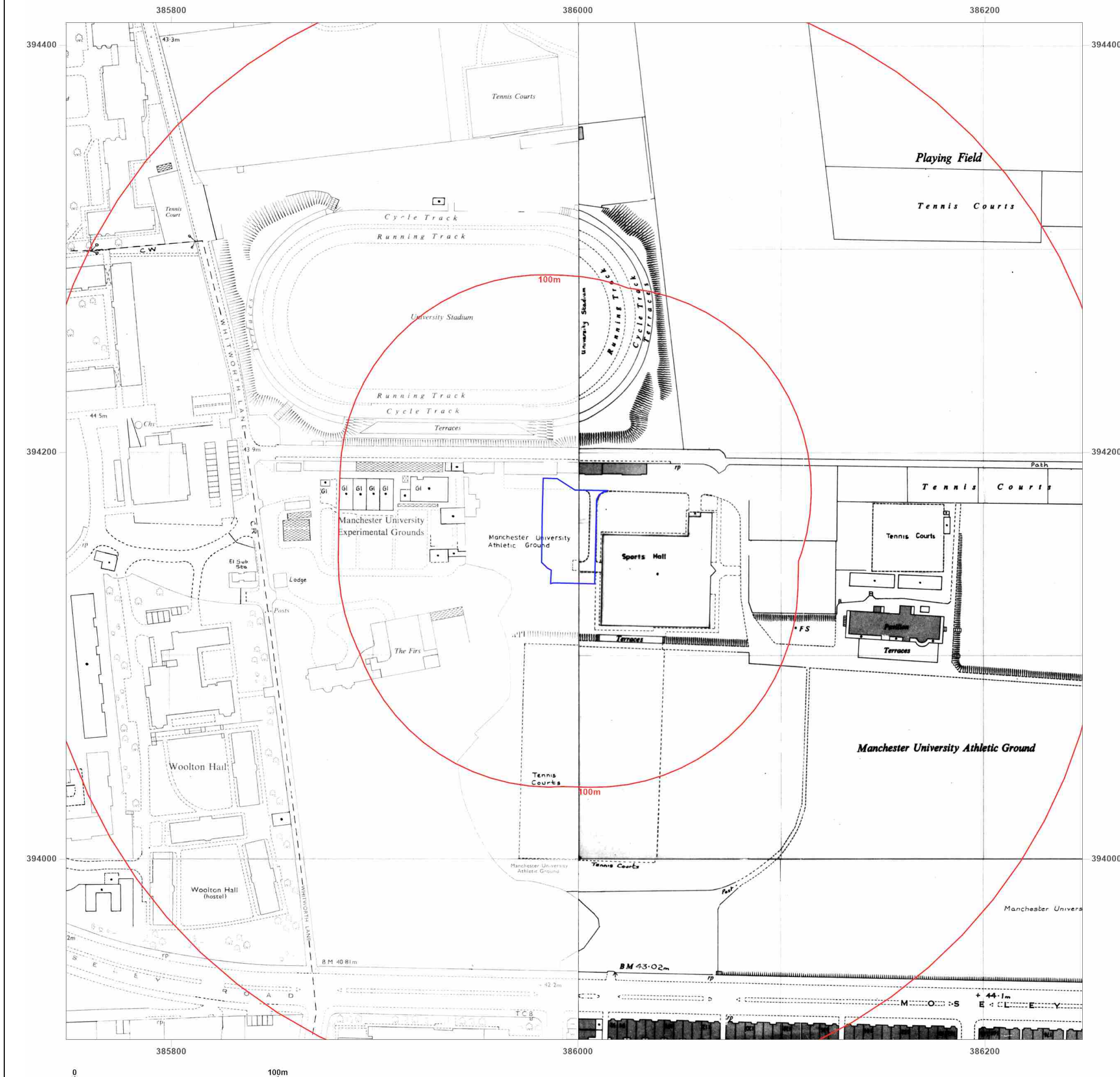


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Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 1992

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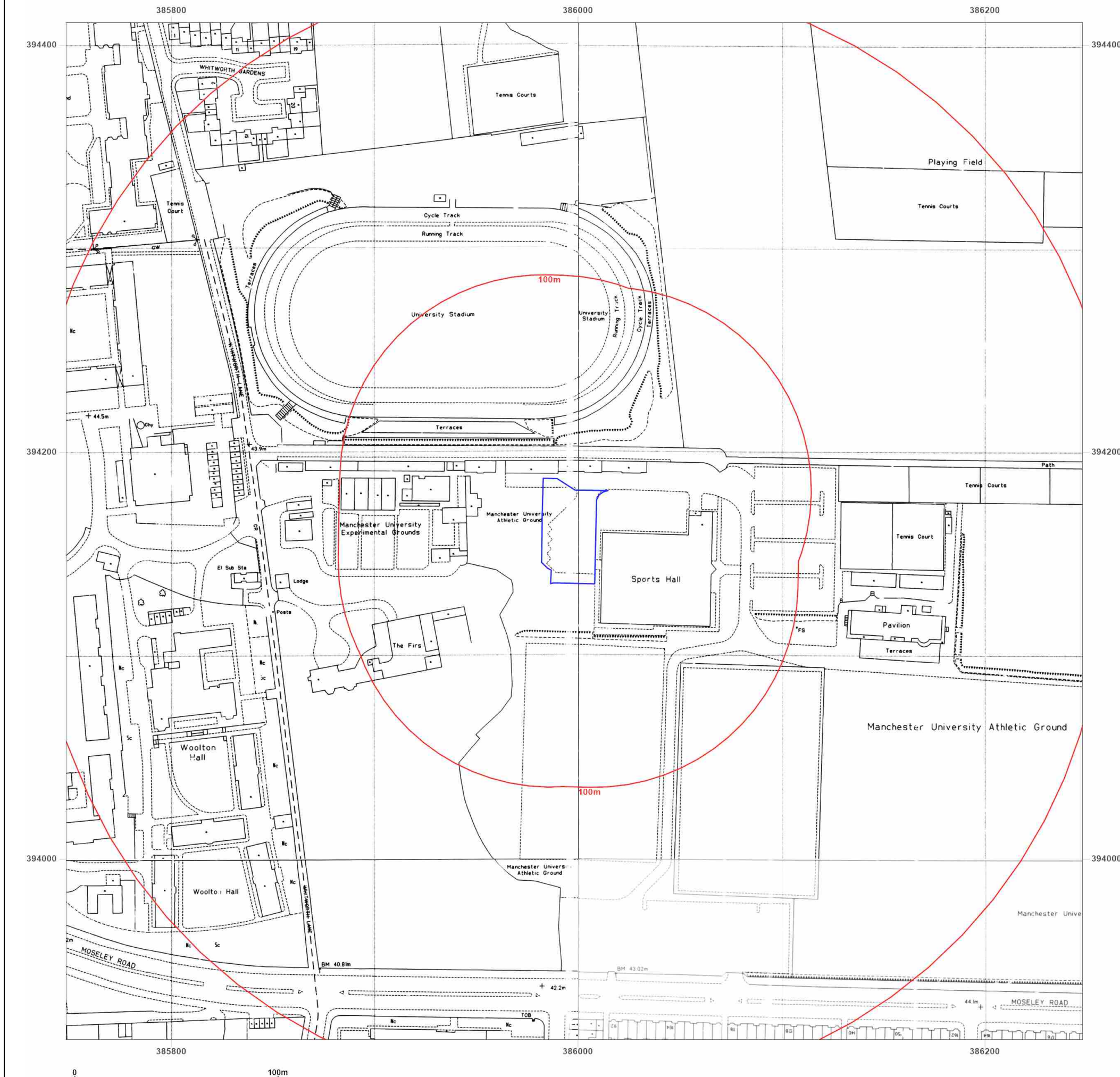


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Grid Ref: 385998, 394161

Map Name: National Grid

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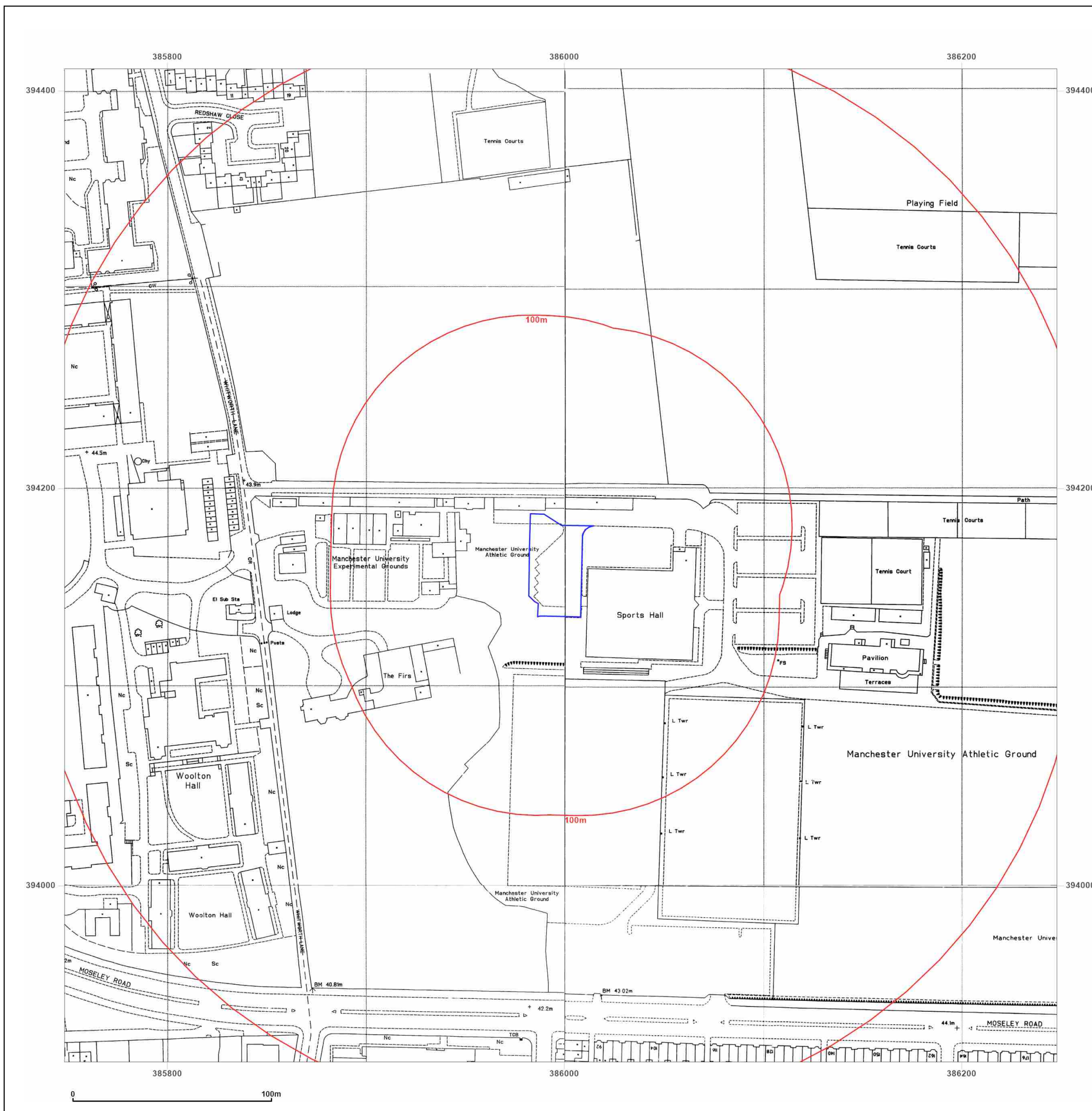


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Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

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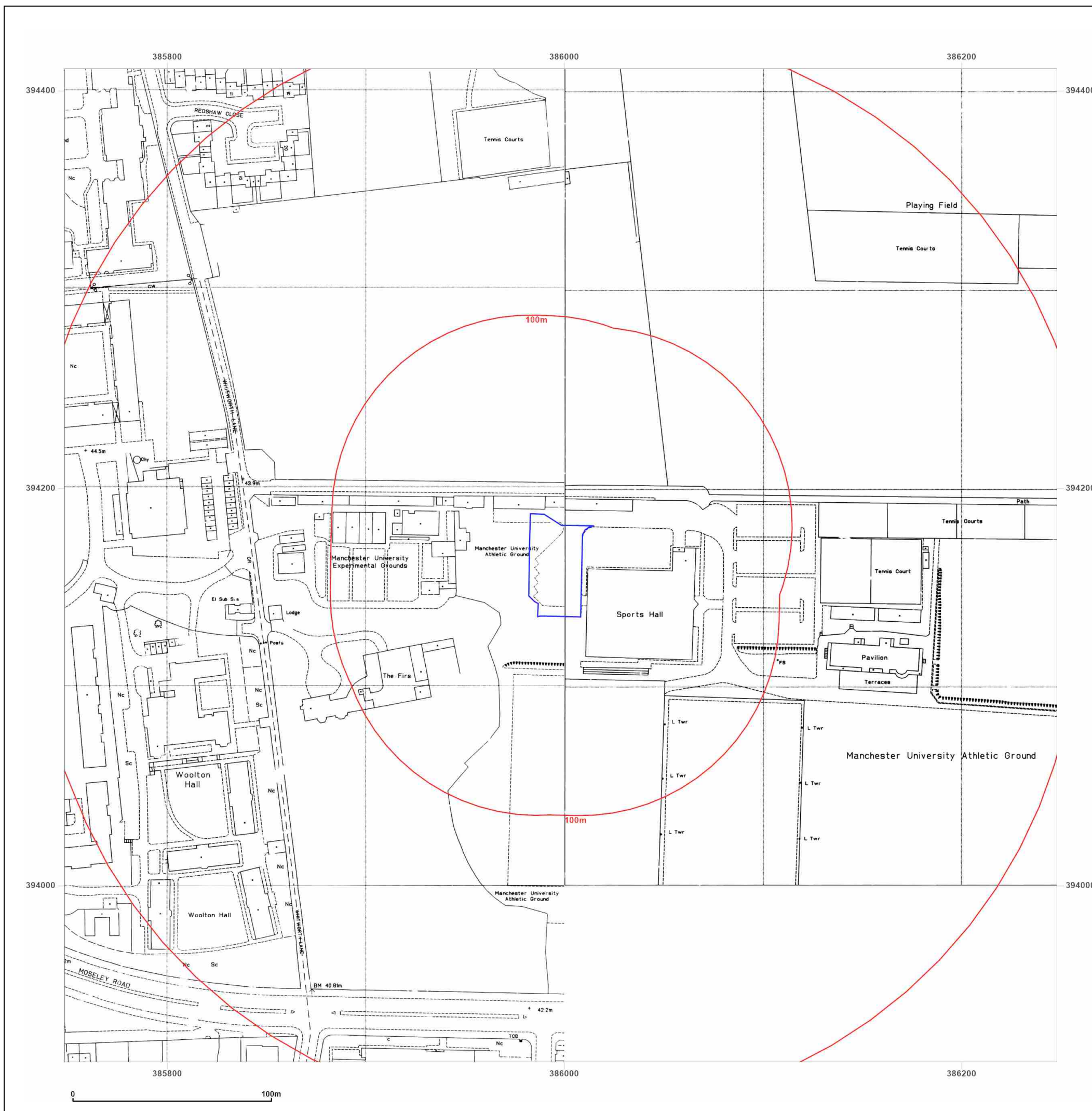


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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid
Map date: 1995
Scale: 1:1,250
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Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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Groundsure

INSIGHTS

HISTORICAL MAP PACK LEGEND

COUNTY SERIES & NATIONAL GRID 1:10,560 & 1:10,000

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COUNTY SERIES 1:10,560

VEGETATION



Fir Wood



Mixed Wood



Orchard



Rough Pasture



Marsh



Deciduous Wood



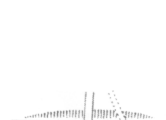
Brushwood



Reeds

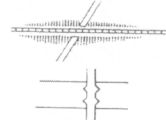


Furze

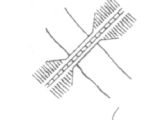


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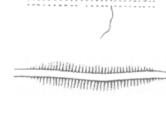
ROADS



Railway over Road



Road over River or Canal



Railway over River



Road over Stream



Raised Road

RAILWAYS



Double Lines of Railway



Single Lines of Railway and Tramway

GENERAL FEATURES



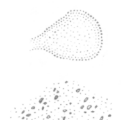
Gravel Pit



Quarry



Other Pits



Sand Pit



Shingle



Antiquities, Site of

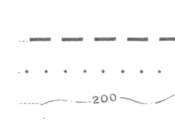


Arrow, showing direction of flow of water



Trigonometrical Station

BOUNDARIES



County Boundary



Parish Boundary



Contours



Parliamentary Division Boundary



Union Boundary



Rural District Boundary

NATIONAL GRID 1:10,000 & 1:10,560

HEIGHTS (METRES)

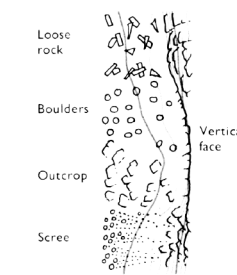
Values are given in metres above mean sea level at Newlyn.

Surface heights determined by ground survey 163m

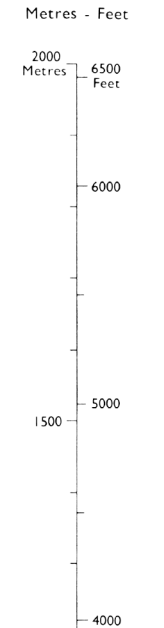
Bench marks and their values are shown on large scale maps, and bench mark lists containing fuller and possibly later levelling information are obtainable from the Director General, Ordnance Survey.

Contours are at 5 metres vertical interval.

ROCK FEATURES



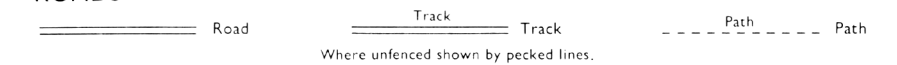
CONVERSION SCALE



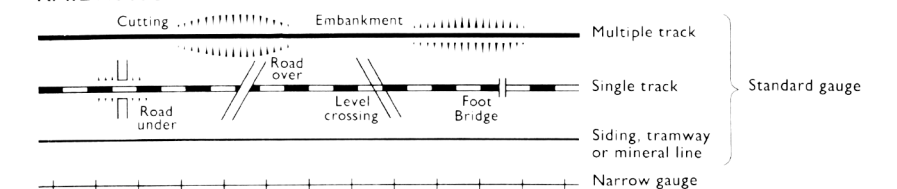
ABBREVIATIONS

BP,BS	Boundary Post or Stone	PO	Post Office
Ch	Church	PC	Public Convenience
CH	Club House	PH	Public House
F Sta	Fire Station	S	Stone
FB	Foot Bridge	Spr	Spring
Fn	Fountain	TCB	Telephone Call Box
GP	Guide Post	TCP	Telephone Call Post
MP,MS	Mile Post or Stone	TH	Town Hall
P	Pole or Post	W	Well
Pol Sta	Police Station	Y	Youth hostel

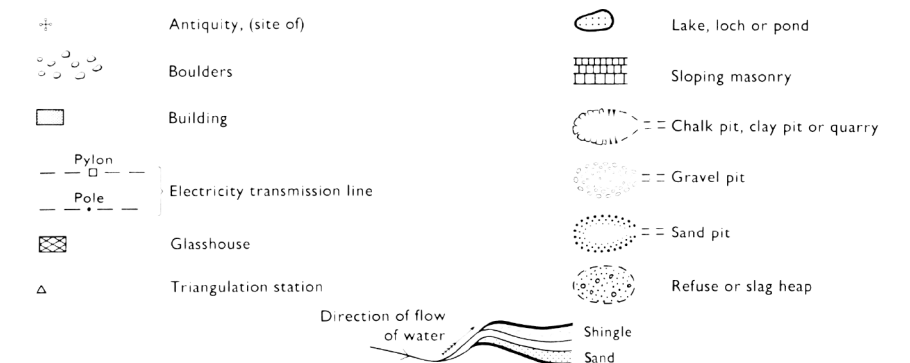
ROADS



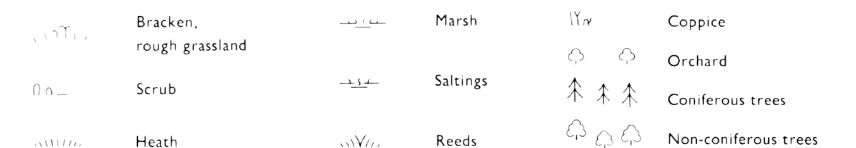
RAILWAYS



GENERAL FEATURES



VEGETATION



In some areas bracken (T) and rough grassland (T) are shown separately.

Site Details:

SQUIRRELS BAR REPROVISION,
MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

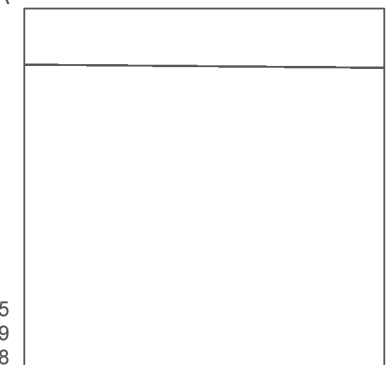
Map date: 1848-1849

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1845
Revised N/A
Edition 1848
Copyright N/A
Levelled N/A



Surveyed 1845
Revised 1849
Edition 1848
Copyright N/A
Levelled N/A

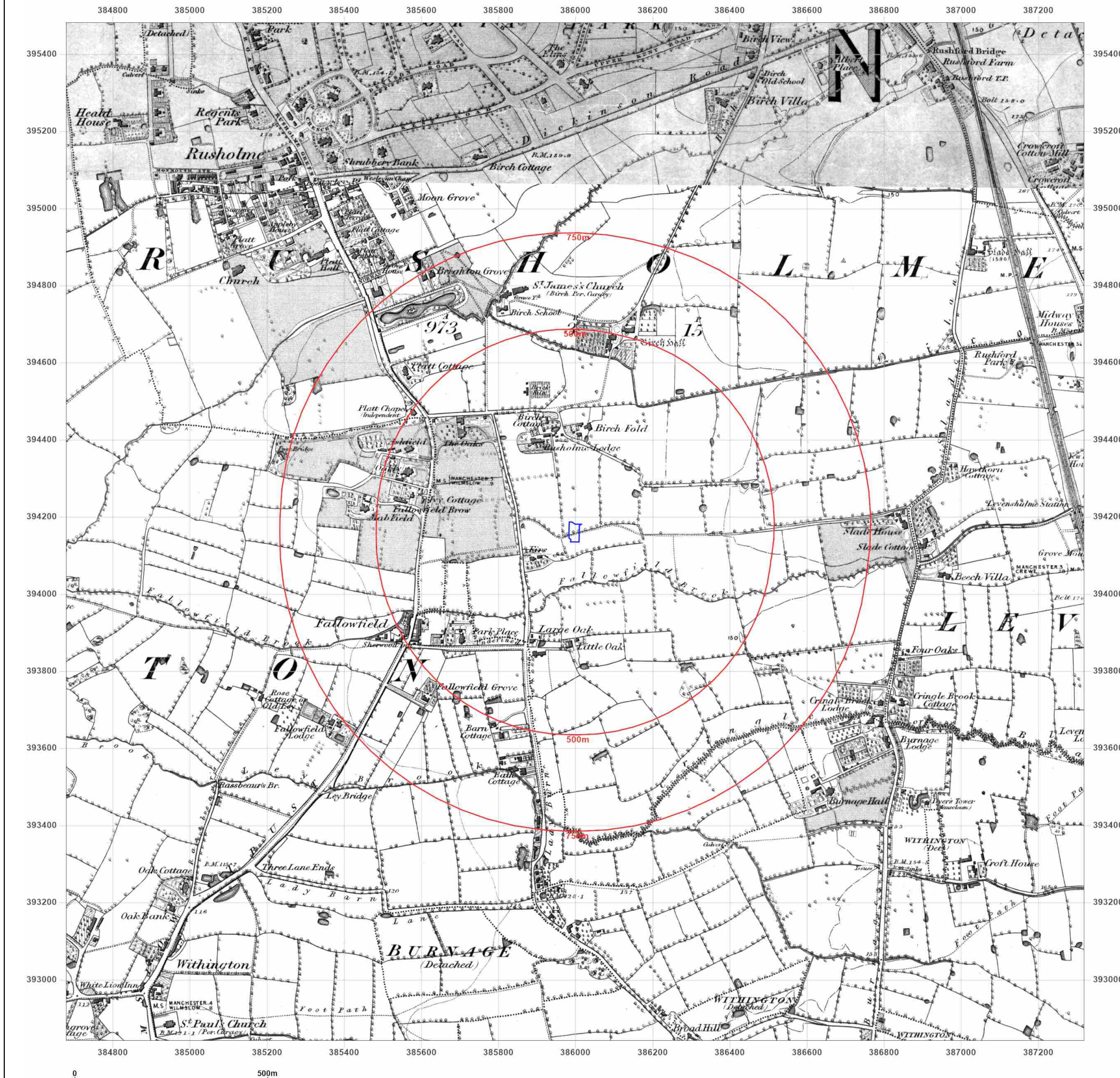


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MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

Map date: 1890-1892

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
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Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
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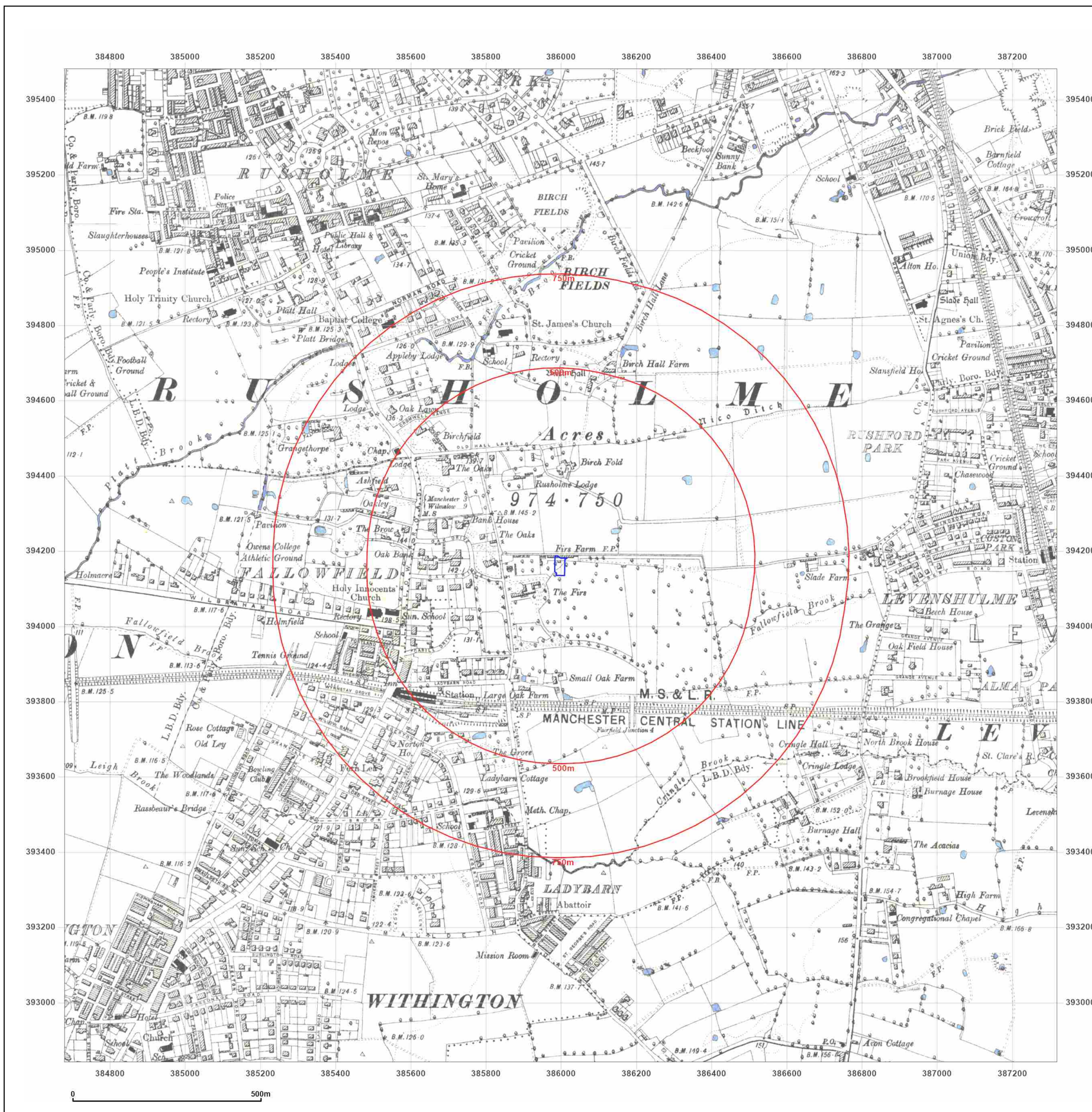


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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

Map date: 1905

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1905
Edition N/A
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Surveyed 1892
Revised 1905
Edition N/A
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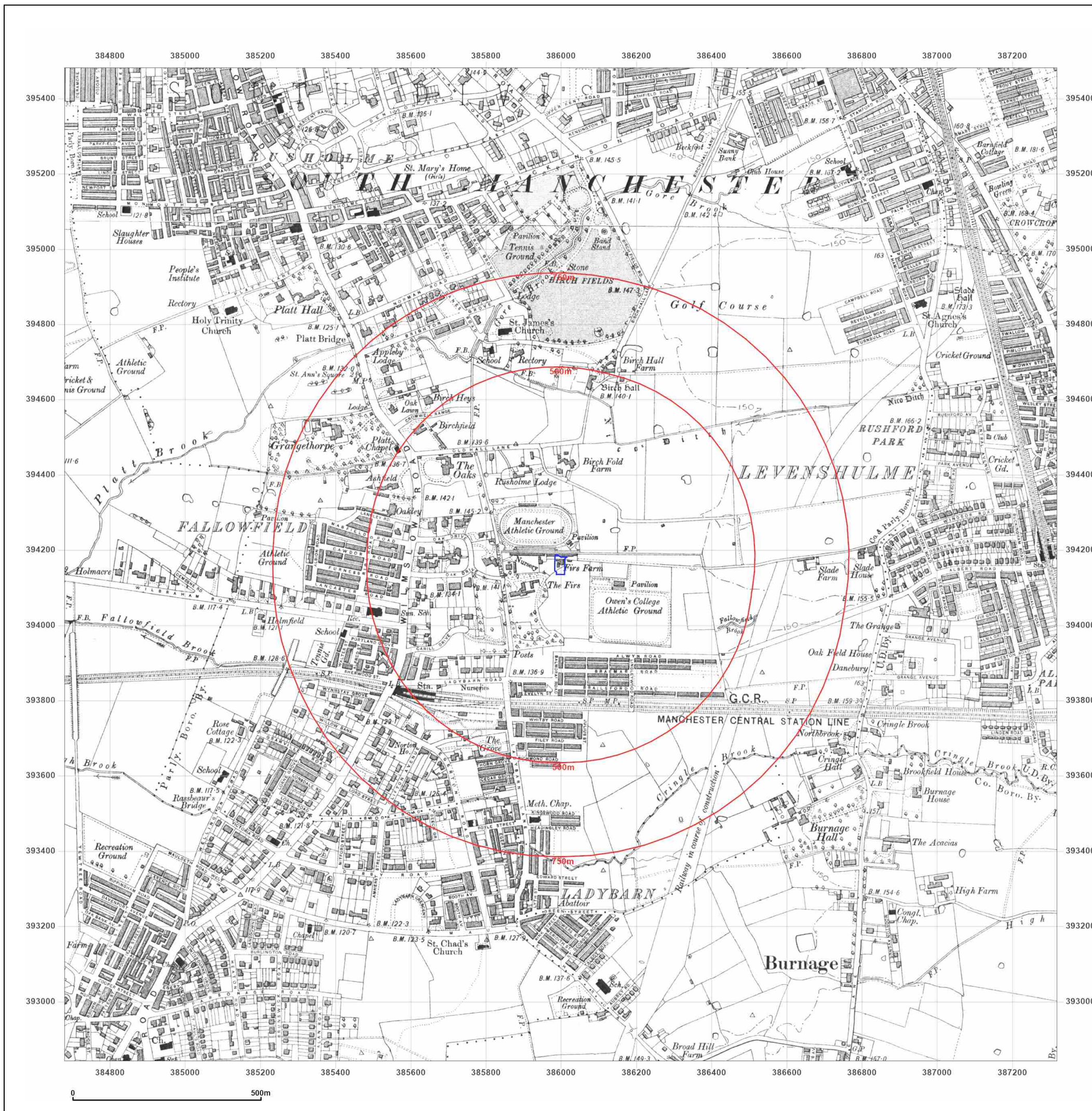


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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

Map date: 1911-1916

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1915
Edition N/A
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Surveyed 1844
Revised 1916
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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series

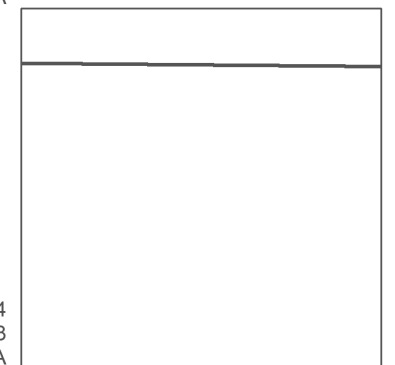
Map date: 1923

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
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Revised 1923
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MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series
Map date: 1934
Scale: 1:10,560
Printed at: 1:10,560



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Revised 1934
Edition N/A
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Levelled N/A

Surveyed 1844
Revised 1934
Edition N/A
Copyright N/A
Levelled N/A

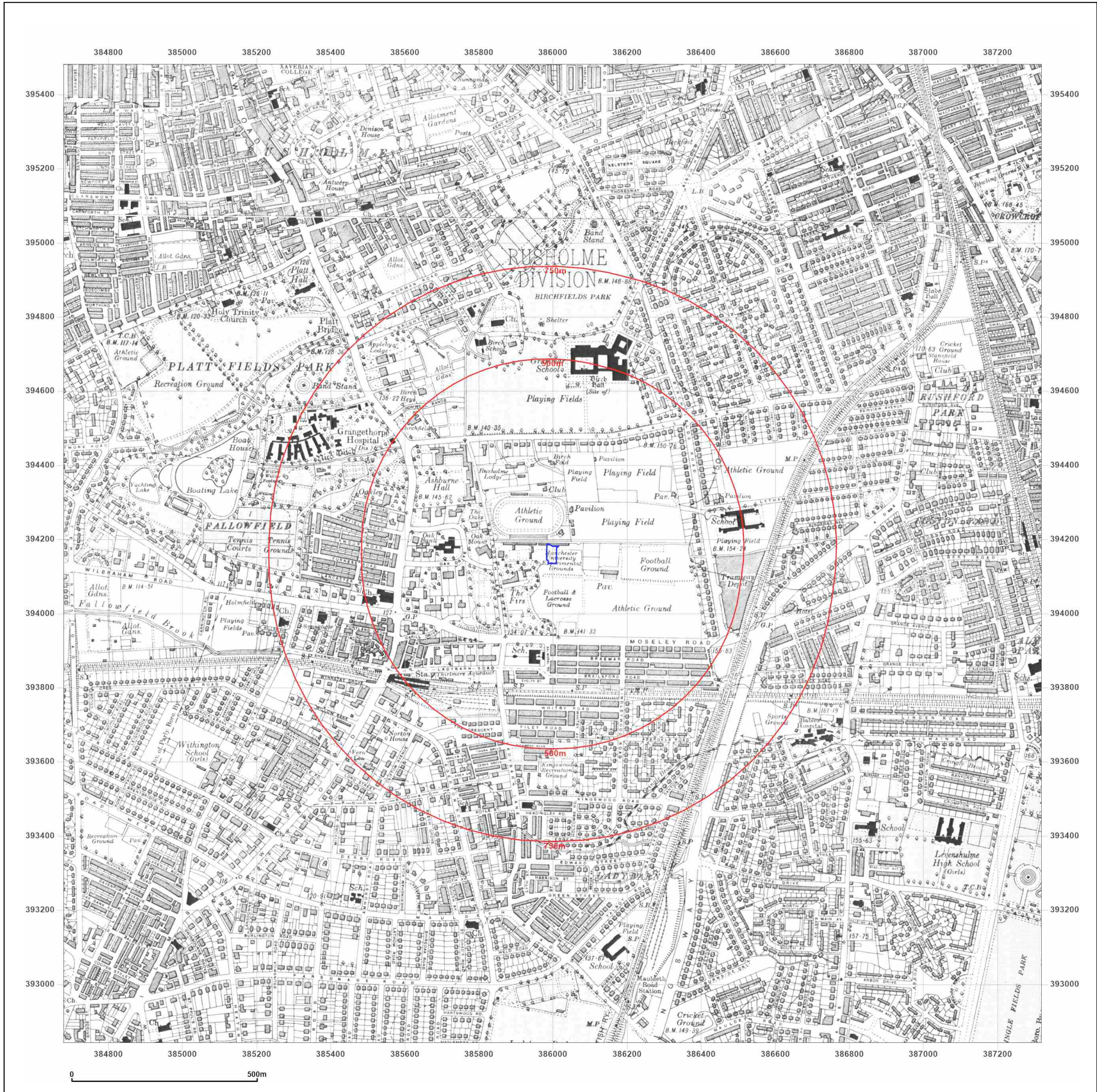


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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: County Series
Map date: 1938
Scale: 1:10,560
Printed at: 1:10,560



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Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1938
Edition N/A
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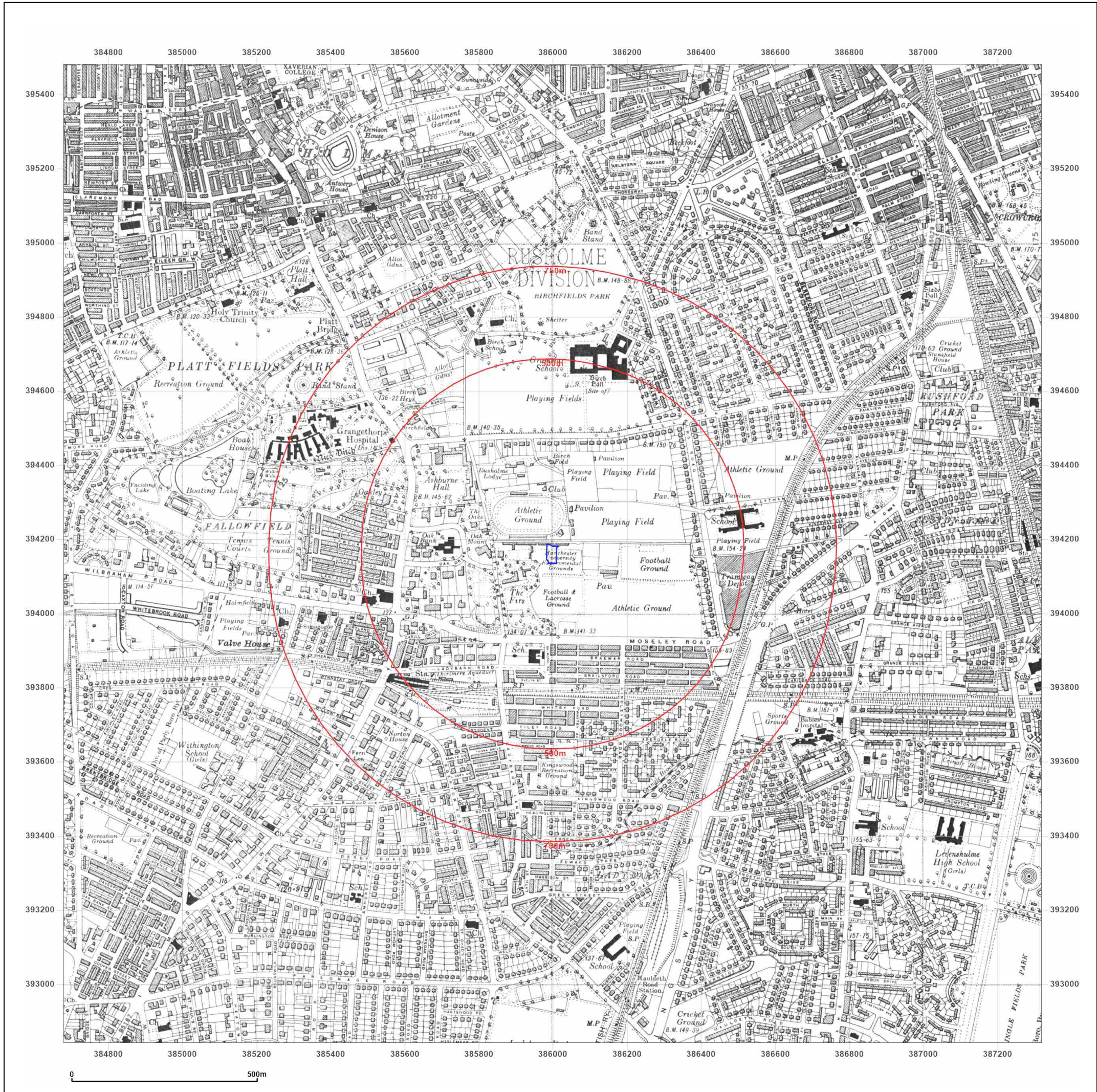
Surveyed 1872
Revised 1938
Edition N/A
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Client Ref: PO39648

Report Ref: HYD-Y7E-PEK-QOZ-X5S

Grid Ref: 385998, 394161

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

Printed at: 1:10,560

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Revised 1955
Edition 1955
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Revised 1955
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MANCHESTER CB & PH

RUSHOLME

PLATT FIELDS PARK

FALLOWFIELD

750m

500m

0 500m

Site Details:

SQUIRRELS BAR REPROVISION,
MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: Provisional

Map date: 1965-1968

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1966
Edition N/A
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Surveyed 1965
Revised 1965
Edition N/A
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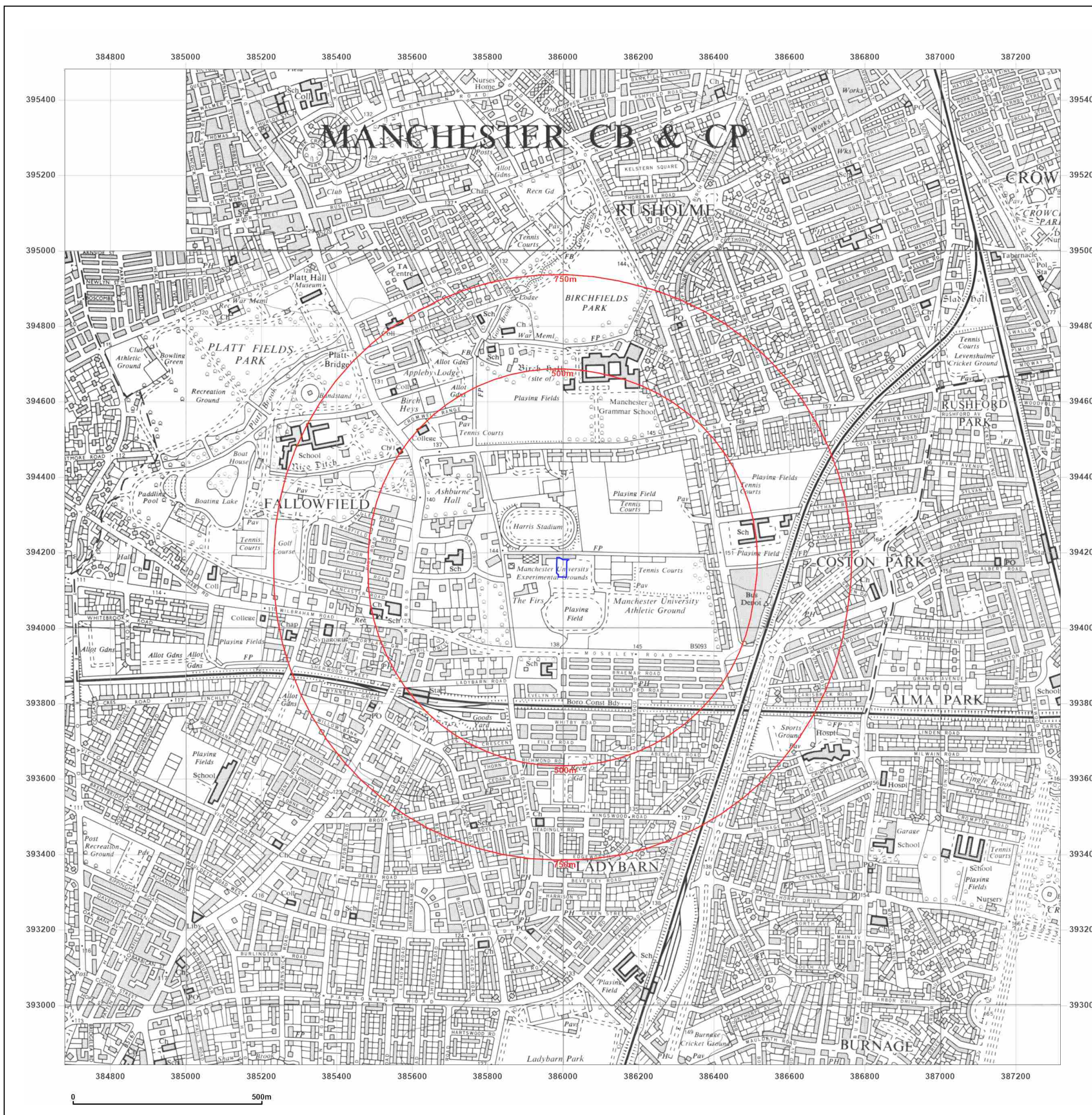


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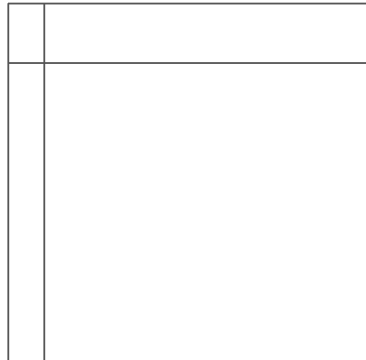
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MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid
Map date: 1972-1976
Scale: 1:10,000
Printed at: 1:10,000



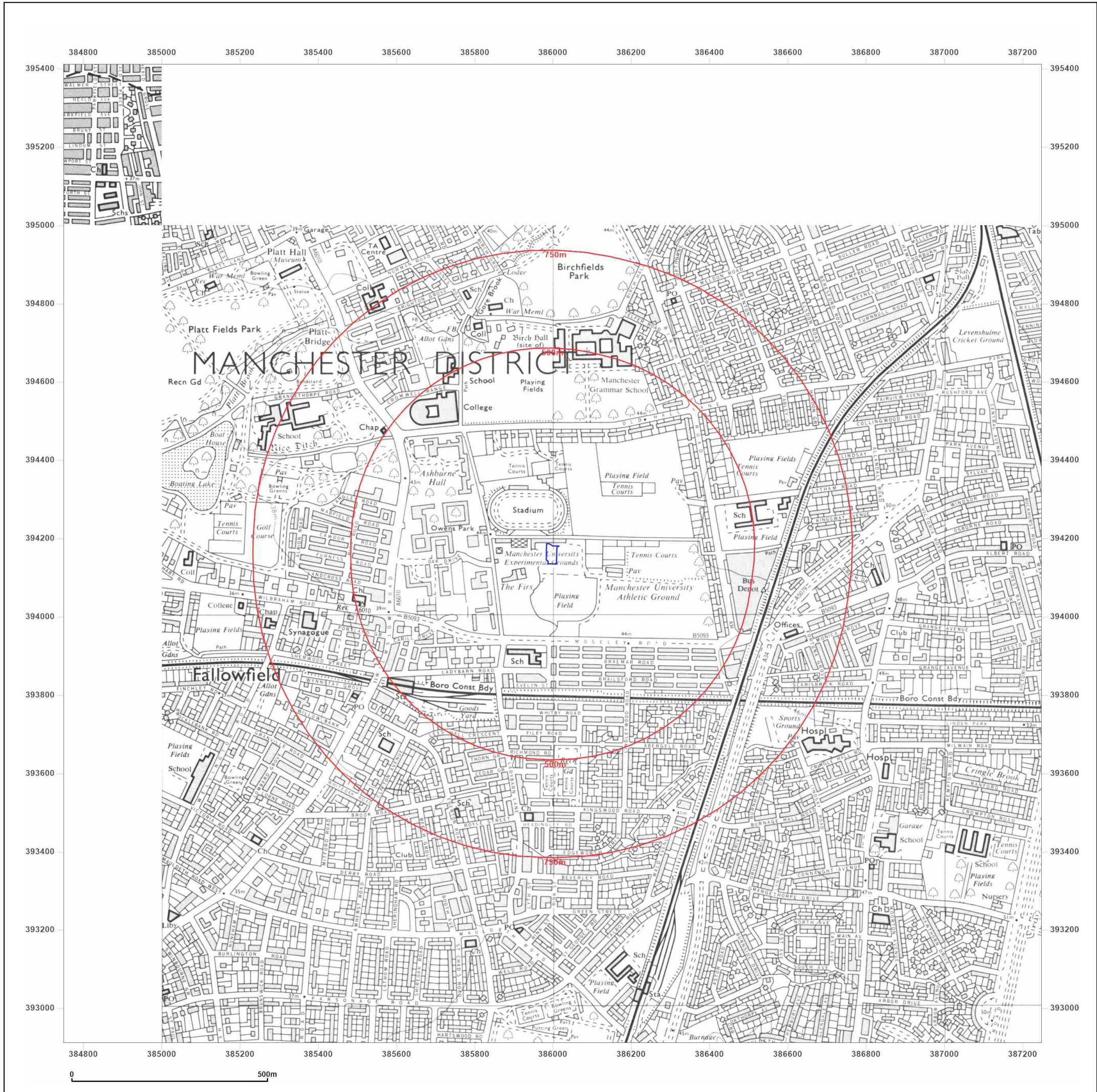
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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid
Map date: 1980-1983
Scale: 1:10,000
Printed at: 1:10,000



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Surveyed 1977 Revised 1981 Edition N/A Copyright 1981 Levelled 1976	Surveyed 1981 Revised 1983 Edition N/A Copyright 1981 Levelled N/A



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Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 1985-1989

Scale: 1:10,000

Printed at: 1:10,000



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

Surveyed 1985
Revised 1988
Edition N/A
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MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



2001



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Site Details:

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MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010



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Site Details:

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MANCHESTER, M14 6PA

Client Ref: PO39648
Report Ref: HYD-Y7E-PEK-QOZ-X5S
Grid Ref: 385998, 394161

Map Name: National Grid

Map date: 2025

Scale: 1:10,000

Printed at: 1:10,000



2025

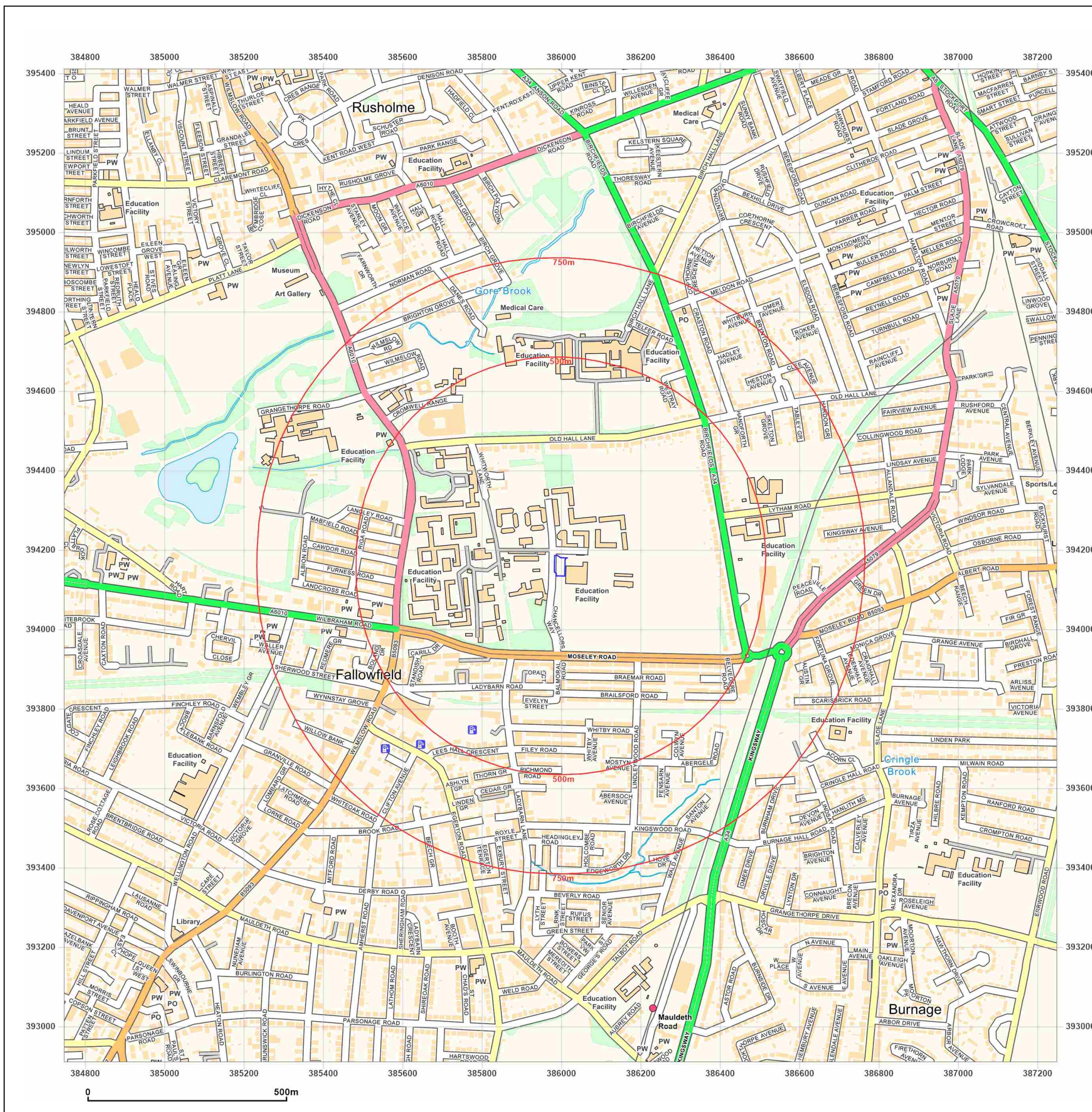


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Appendix D Desk study research information

Groundsure insight

SQUIRRELS BAR REPROVISION, MANCHESTER, M14 6PA

Order Details

Date: 24/02/2025
Your ref: PO39648
Our Ref: HYD-OP1-ABG-N3S-OEG

Site Details

Location: 385995 394160
Area: 0.12 ha
Authority: [Manchester City Council](#) ↗



[Summary of findings](#)

[p. 2 >](#) [Aerial image](#)

[p. 9 >](#)

[OS MasterMap site plan](#)

[p.14 >](#) [Insight User Guide](#) ↗

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	3	3	56	-
18	1.2	Historical tanks	0	0	0	0	-
18 >	1.3 >	Historical energy features >	0	0	2	4	-
19	1.4	Historical petrol stations	0	0	0	0	-
19 >	1.5 >	Historical garages >	0	0	0	4	-
19	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
20 >	2.1 >	Historical industrial land uses >	0	3	7	89	-
24	2.2	Historical tanks	0	0	0	0	-
24 >	2.3 >	Historical energy features >	0	0	4	8	-
25	2.4	Historical petrol stations	0	0	0	0	-
25 >	2.5 >	Historical garages >	0	0	0	7	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
27	3.1	Active or recent landfill	0	0	0	0	-
27	3.2	Historical landfill (BGS records)	0	0	0	0	-
28	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
28	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
28	3.5	Historical waste sites	0	0	0	0	-
28	3.6	Licensed waste sites	0	0	0	0	-
28 >	3.7 >	Waste exemptions >	0	0	1	18	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
31 >	4.1 >	Recent industrial land uses >	0	2	3	-	-
32 >	4.2 >	Current or recent petrol stations >	0	0	0	1	-
32	4.3	Electricity cables	0	0	0	0	-
32	4.4	Gas pipelines	0	0	0	0	-
32	4.5	Sites determined as Contaminated Land	0	0	0	0	-



33	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
33	4.7	Regulated explosive sites	0	0	0	0	-
33	4.8	Hazardous substance storage/usage	0	0	0	0	-
33	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
33	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
34 >	4.11 >	<u>Licensed pollutant release (Part A(2)/B) ></u>	0	0	0	2	-
34	4.12	Radioactive Substance Authorisations	0	0	0	0	-
34	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
34	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
35	4.15	Pollutant release to public sewer	0	0	0	0	-
35	4.16	List 1 Dangerous Substances	0	0	0	0	-
35	4.17	List 2 Dangerous Substances	0	0	0	0	-
35	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
35	4.19	Pollution inventory substances	0	0	0	0	-
36	4.20	Pollution inventory waste transfers	0	0	0	0	-
36	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	<u>Hydrogeology ></u>	On site	0-50m	50-250m	250-500m	500-2000m
37 >	5.1 >	<u>Superficial aquifer ></u>	Identified (within 500m)				
38 >	5.2 >	<u>Bedrock aquifer ></u>	Identified (within 500m)				
40 >	5.3 >	<u>Groundwater vulnerability ></u>	Identified (within 50m)				
41	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
41	5.5	Groundwater vulnerability- local information	None (within 0m)				
42 >	5.6 >	<u>Groundwater abstractions ></u>	0	0	0	0	1
43	5.7	Surface water abstractions	0	0	0	0	0
43	5.8	Potable abstractions	0	0	0	0	0
43 >	5.9 >	<u>Source Protection Zones ></u>	1	0	0	0	-
44	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	<u>Hydrology ></u>	On site	0-50m	50-250m	250-500m	500-2000m
45	6.1	Water Network (OS MasterMap)	0	0	0	-	-

