

Manchester Metropolitan University, All Saints Library Transformation Project

Geoenvironmental Desk Study Report

1044B-BHE-XX-XX-RP-CG-000001

053621

26 October 2023

Revision P04

Revision	Description	Issued by	Date	Checked
P01	DRAFT – S2 For Information	LR	10/08/23	COH
P02	FINAL DRAFT – S2 For Information	LR	23/08/23	PH
P03	FINAL	PH	20/10/23	COH
P04	FINAL – new redline boundary	PH	26/10/23	COH

https://burohappold.sharepoint.com/sites/053621/05_Teams Files/Ground Engineering/Reports/Desk Study/1044B-BHE-XX-XX-RP-CG-000001 P04.docx

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1 Executive Summary

Objectives	The purpose of this Desk Study is to establish the environmental, geological, hydrological and hydrogeological conditions present at the Manchester Metropolitan University All Saints Library Transformation site that may result in potential contamination risks / ground related risks for existing and/or potential future uses. The overall aims of this report were (i) to inform the Client's understanding of potential ground-related risks associated with the proposed redevelopment and (ii) to provide evidence necessary to support the planning application.
Site Setting	The Site specifically relates to the proposed demolition of the eastern portion of the existing All Saints Library building (adjacent to footpath/Oxford Road) and build a new 12 No. storey building, and the refurbishment of the remaining building, plus a 2 No. storey rooftop extension located at the existing MMU All Saints Library, Manchester, M16 6BH, and is centred on the National Grid Reference (NGR) SJ 84225 97158. The site is approximately 400m south of Manchester Oxford Road Train Station. The site covers approximately 0.70 ha.
Geological Setting	It is anticipated that the site is underlain by a sequence of Made Ground, over Glacial Till in the northeast of the site, and Glaciofluvial deposits in the southwest of the site. Manchester Marls Formation and/or the Chester Pebble Beds Formations form the bedrock that underlies the Glacial deposits. The BGS map indicates that the West Manchester Fault underlies the site and is downthrown to the northeast. It is considered that bedrock beneath the site is likely to be highly fractured.
History	The earliest maps for the site, record that the site has been developed since pre-1850's and has had various uses including a timber yard, depot and school. The site is presently occupied by the MMU All Saints Library, which was first recorded as a Manchester Polytechnic building in 1985.
Geoenvironmental Considerations	A number of potential sources of contamination in near surface ground have been identified relating to the previous / historic uses (Made Ground). Low/moderate risk were assessed to people (construction workers, future site users and off-site users) associated with this potential contamination. The initial risks associated with the possible presence of Unexploded Ordnance (UXO) were assessed as "Moderate". A detailed UXO risk assessment was commissioned by the Client and identifies the Site to be high-risk, with mitigation measures required to reduce the risk to as low as reasonably possible. It is recommended that prior to the commencement of development, data is obtained from a site-specific ground investigation and is assessed and presented in a report suitable for submission to the Local Planning Authority to address standard planning conditions. The report would include recommendations on the need for and scope of any further investigation (e.g. gap analysis) and / or more detailed risk assessment and / or requirements for remediation.
Geotechnical Considerations	Perched groundwater has been recorded within the Made Ground between 1.05-1.07m bgl (36.03-36.05 mAOD) in the vicinity of the site. Two groundwater levels have been identified on site. One within the Glaciofluvial deposits between 0.99-2.27m bgl (34.58-36.83 mAOD) and one within the Bedrock strata [CHESTER FORMATION/MANCHESTER MARL FORMATION] between 11.79-14.50 m bgl (24.15-26.12 mAOD). It is likely that groundwater will impact the proposed development, with possible water ingress into excavations due to perched groundwater conditions within the Made Ground. Localised sump pumping is considered sufficient to control such seepages. Any buried obstructions encountered during the demolition of the eastern portion of the building will need to be cropped down where they clash with new substructure. Utility plans should be obtained to understand where they are present onsite, and if any require re-routing.

2 Introduction

2.1 General

This report presents the results of a Geotechnical and Geoenvironmental Desk Study for the Manchester Metropolitan University (MMU) All Saints Library (ASL) Transformation Project site prepared by Buro Happold on behalf of the Client. The purpose of this Study is to establish the environmental, geological, hydrological and hydrogeological conditions present at the site that may result in potential contamination risks for the proposed future use.

The site covers approximately 0.70 ha, M16 6BH, National Grid Reference (NGR) SJ 84225 97158. A summary of the existing site and immediate surrounding area is as below:

- Buildings associated with MMU;
- The Mancunian Way (elevated highway);
- Oxford Road;
- Commercial buildings; and
- All Saints' Park;

The approximate location of the site is shown below in Figure 2-1.

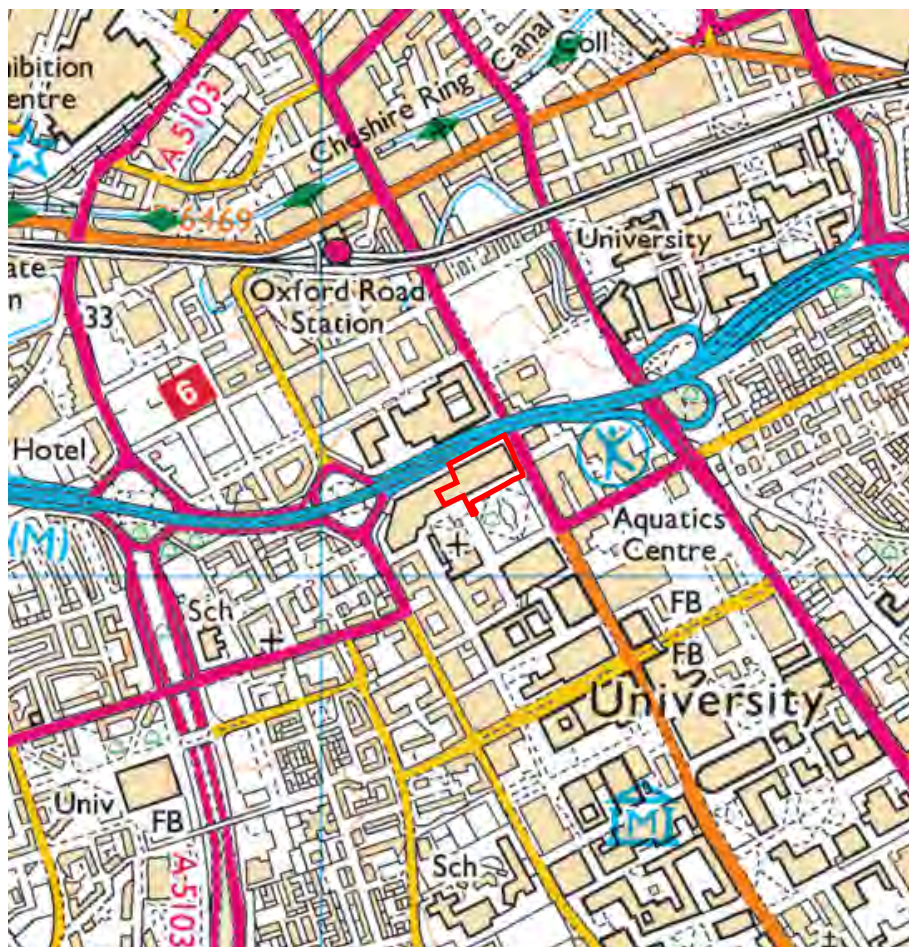


Figure 2-1: The MMU All Saints' Library site location plan. Image source www.streetmap.co.uk at 1:25,000 scale.

2.2 Study Aims and Objectives

The overall aim of this study was to carry out a geoenvironmental and geotechnical assessment of the site in order to inform the Client's understanding of potential ground-related risks associated with the refurbishment of the existing building and proposed extension.

This report will provide information relevant to the redevelopment in accordance with the requirements of the National Planning Policy Framework (NPPF) [1]. The work was carried out in general accordance with the Model Procedures [2], the relevant British Standard [3], the Environment Agency Guiding Principles [4] and other current good practice guidance. The particular objectives were:

- To determine the historical and current use of the Site and its surroundings;
- To determine the nature of the ground conditions and the environmental sensitivity of the Site;
- To assess the potential location, nature and extent of any ground and groundwater contamination;
- To identify any geotechnical potential constraints;
- To assess the potential risks to people and the environment (natural and built) associated with ground contamination (solid, liquid or gas) both in the site's existing condition and for the proposed future use;
- To construct an initial Conceptual Site Model and carry out a preliminary contaminated land risk assessment, in general accordance with the EA/DEFRA Model Procedures [2];
- To prepare a report based upon all of the above suitable to inform the Client about potential risks related to ground conditions and also suitable to support a planning application in accordance with NPPF [1]
- To evaluate the potential need for and scope of any subsequent Site investigations and/or remedial action or design.

2.3 Information Sources

The principal sources of information for this desk study report include:

- Historical and current topographic maps,
- British Geological Survey (BGS) geological maps [5],
- BGS boreholes (Appendix B),
- Public register information,
- Groundsure report [6],
- Historic Ground Investigation reports, held by the client for sites in the immediate vicinity [7] [8].
- Information available from the Environment Agency website and other online sources.

This report is therefore based upon information obtained from third-party sources. The third-party data has been accepted as face value and has not been independently verified. Buro Happold can therefore give no warranty, representation or assurance as to the accuracy or completeness of such information.

2.4 Competence

This work reported here was carried out by geoenvironmental scientists and engineers from Buro Happold. Buro Happold is a consulting engineering company that manages its work under various Quality Management Systems that are certified to ISO 9001. The work itself was carried out by the staff with relevant qualifications, training and experience. Technical elements of this report have been reviewed by a Chartered Geologist.

3 Current land use and proposed development

3.1 Site Location

The site is located in the north of England in the city of Manchester, approximately 400 m south-southeast of Manchester Oxford Road Train Station and is centred on MMU All Saints Library, Manchester, M16 6BH, National Grid Reference (NGR) SJ 84225 97158. The site is relatively flat lying, with a gentle slope from 44 mAOD in the NE of the site to ~40.00mAOD in the SW of the site. The site comprises 0.70 ha occupied by the existing MMU All Saints Library and associated service yard, and a tree lined footpath. The site is bounded to the north by the elevated “Mancunian Way”, Oxford Road to the east, All Saints Park to the south and MMU Business School to the west (refer to Figure 3-1).



Figure 3-1: Aerial Photograph of the site. and immediate surrounding area.

3.2 Proposed development

At present, the proposal for development is to demolish the eastern portion of the existing All Saints Library building (adjacent to footpath/Oxford Road) and build a new 12 No. storey building, and the refurbishment of the remaining building (refer to Figure 3-2 and Figure 3-3).





Figure 3-3: Architect's Impression of the All Saints Library Transformation

3.3 Current site conditions

3.3.1 Layout and topography

The site is irregular in shape and is approximately 125 m in length (W-E) and is between 30 m and 65 m in width (N-S) with a total area of approximately 0.70 hectares (ha). It is currently occupied by the All Saints Library Building. The site is relatively flat lying with ground levels ranging from ~44.00 mAOD in the NE, gently sloping to 40.00 mAOD in the SW of the site. The Utility survey [9] suggests that the site is very congested with utilities in the footpaths. It may be necessary to protect the utilities during the construction work. Utilities may be required to be diverted in the northeast of the site where the section of the building is to be demolished and replaced with a new 12 No. storey building. The existing utility survey drawing is included as Appendix E.

3.4 Surrounding land use

The surrounding land uses are summarised below (within ~100m).

North: The Mancunian Way (elevated) with MMU Faculty of Science & Engineering beyond;

Northeast: Pavement, Oxford Road, with MMU buildings beyond;

East: Pavement, Oxford Road, with commercial buildings beyond;

South: All Saints Park;

Southwest: MMU buildings and St Augustine's Catholic Church; and

West: MMU Business School

4 Environmental Setting

4.1 Published Geology

The anticipated Site geology has been determined with reference to the relevant 1:50 000 BGS Map [5] and Groundsure Report [6].

4.1.1 Artificial and Made Ground

The BGS 1:50,000 geological map [5] indicates that the site is not underlain by artificial and Made Ground, however due to the nature of the historic and current site-use, it is anticipated that Made Ground is likely to be present on the Site.

4.1.2 Superficial Geology

The BGS 1:50,000 geological map [5] indicates that the site is underlain by Glaciofluvial deposits (GFSD-DXSV) (Sand & Gravel) in the southwest of the site, and Till (TILLD-DMTN) in the northeast of the site. The total thickness of the superficial deposits is not recorded.

4.1.3 Solid Geology

The BGS 1:50,000 geological map [5] and the Groundsure Report [6] indicate that the drift deposits are underlain by the Permian Manchester Marl Formation – Mudstone (MM-MDST) in the northeast of the site, and the Triassic Chester Pebble Beds Formation – Sandstone (CPB-SDST) in the southwest of the site. The Manchester Marl Formation is comprised of *“red marl (calcareous mudstone and siltstone) with thin beds of fossiliferous marine limestone and dolomite; frequently sandy towards the top of the unit, local breccias and pebble beds present”*, whilst the Chester Formation comprises *“fine-to-coarse grained sandstone, commonly pebbly, with conglomerates and sporadic siltstones”*. The regional dip for the Chester Formation is recorded to be 8° to the southwest.

4.1.4 Structural Geology

The West Manchester Fault is recorded on-site and is downthrown to the northeast by approximately 50-80m.

4.2 Unpublished Geology

The anticipated ground conditions on-site has been determined with reference to the relevant BGS Borehole Logs (Appendix B), and the Curtins Ground Investigation Report [7] and Howley Energy & Water Ltd report [8] for sites in close proximity. A site-specific ground investigation has also been undertaken by Geotechnical Engineering Limited (GEL) for the site as directed by Buro Happold on behalf of the client. The ground conditions encountered during the ground investigation are summarised in Table 4-1.

Table 4-1: Ground conditions encountered during the GEL site investigation

Depth to Top of Strata (m BGL)	Typical Thickness (m)	Generalized Description
0.00	>0.90-3.30	sandy GRAVEL of limestone AND soft slightly sandy gravelly CLAY AND Slightly clayey gravelly SAND. Gravel of brick, mudstone, sandstone, concrete & limestone [MADE GROUND]
0.90-3.30	absent-3.00	Medium dense clayey gravelly SAND AND Medium dense sandy GRAVEL. Of siltstone, sandstone & mudstone [GLACIOFLUVIAL]*
3.30-4.60	0.60-10.40	Firm to stiff slightly sandy gravelly CLAY. Gravel of mudstone, siltstone, sandstone and coal [GLACIAL TILL]
10.50-16.55	>15.00	very weak SILTSTONE AND very weak SANDSTONE AND Extremely weak Mudstone [MANCHESTER MARL FORMATION / CHESTER FORMATION]

Note: Groundwater strike was recorded in; BH01 at 2.30, WS01 and WS04 at 2.90, and WS02 and WS03 at 2.80m bgl.

*Glaciofluvial deposits were absent in WS02 and WS03.

In summary, the geology comprises Made Ground (reworked natural material) locally underlain by glaciofluvial deposits (medium dense clayey gravelly SAND/medium dense sandy GRAVEL), underlain by glacial till (firm to stiff slightly gravelly, slightly sandy CLAY, underlain by locally fractured due to faulting, red, yellow sandstone, part pebbly with subordinate red mudstone and siltstone.

4.2.1 BGS Boreholes

A summary of the BGS boreholes in Appendix B is presented in Table 4-3 below.

Table 4-2 Summary of ground conditions encountered in the BGS boreholes.

BGS Reference	Location from site	Drilling method	Ground conditions (thickness m)	Groundwater
SJ89NW4180	90M SW	Unknown	Made Ground – 1.00 Alluvial deposits (possible Glaciofluvial) – 4.00 Glacial Till – 2.00 Red sandstone (Sherwood SDST) – 28.00 Marl (Manchester Marl) – ~36.00	
SJ89NW3795 (TP 1)	~60m E	Trial Pit	Made Ground – 2.10 Glaciofluvial – 1.80 Glacial Till - >0.10	2.10 (slight)
SJ89NW3796 (TP 2)	~60m E	Trial Pit	Made Ground – 1.90 Glaciofluvial – 1.10 Glacial Till - >0.80	No Water
SJ89NW3797 (TP3)	~60m E	Trial Pit	Made Ground – 2.10 Glaciofluvial – 1.70 Glacial Till - >0.20	3.50 (slow)
SJ89NW3797 (TP4)	~60m E	Trial Pit	Made Ground – 2.50 Glaciofluvial – 0.40 Glacial Till - >1.10	No Water

4.3 Coal Mining

The Groundsure report [6] states that the site is located in a coal mining area as defined by the Coal Authority. The Coal Authority [10] interactive map was also consulted which recorded that the site is in a Coal Mining Reporting area. A CON29M [11] report was obtained for the site and is summarised in section 4.3.1. A copy of the CON29M report is also included as Appendix D.

The BGS geological map [5] indicates that the shallowest coal bearing strata beneath the site (Pennine Upper Coal Measures Formation - PUCM) is likely to be >200 m below existing ground level.

4.3.1 CON29M

The Coal Authority report [11] indicates that the site is located in an area that has not been affected by past underground or opencast mining, nor that it is likely to be affected in the future. However, coal exists beneath the site (at significant depths) which could be worked in the future. No mine entries are known to the coal authority onsite or within 20 m of the site boundary.

4.4 Curtins Report [12]

An existing report on the ground conditions for a site to the east of the 1044B Library Building (MMU Institute of Sport Building). The summary below presents an initial appreciation of the baseline ground conditions from the report but this is subject to revision as more detail becomes available.

The commission of the Curtins investigation was as summarised below:

- 5 No. window sample holes to a maximum depth of 5.45 mBGL,
- *In situ* SPT tests at 1m intervals
- Installation of groundwater and ground gas monitoring wells
- Post-fieldwork geotechnical and geoenvironmental laboratory testing
- Post-fieldwork monitoring visits.

Table 4-3 Summary of ground conditions encountered in the Curtins investigation (2019 GI).

Top of Strata (m bgl)	Description	Depth to top (m)	Thickness (m)
Made Ground	Tile and/or Macadam OVER Brown sandy, clayey, gravelly gravel. Grave of brick, mudstone, tarmac and glass.	0.00	0.40-3.20
Glacial Till	Firm to stiff gravelly sandy CLAY.**	1.20-3.20	0.00-4.15

*Groundwater strike was recorded in WS05 at 0.40 m bgl.

**BGS boreholes record glacial till to depth up to 9.20m bgl.

The Curtins report interpreted the below results from the ground investigation:

- Concrete classification within Made Ground and Glacial Till deposits is DS-2 AC-2.
- No soil chemical exceedances (8 No samples) against GACs commercial threshold.
- Ground gas classification for the site is CS-2 due to elevated CO₂ concentrations recorded in one of the installations.
- Excavations deeper than 1.2 m may require side support particularly in granular deposits.

4.5 Howley Energy & Water Limited [8]

An existing report on the ground conditions for a site to the north of the 1044B Library Building (MMU John Dalton Building (JDB)). The summary below presents an initial appreciation of the baseline ground conditions from the report but this is subject to revision as more detail becomes available.

The purpose of the Howley Energy & Water Limited concept design and thermal risk assessment was to assess the geological and hydrogeological conditions for the JDB site, and is summarised below:

Table 4-4 Summary of JDB ground conditions.

Top of Strata (m bgl)	Description	Depth to top (m)	Approximate thickness (m)
Made Ground	Building Rubble	0.00 (35m AOD)	2.00
Glacial Till	Firm to stiff gravelly sandy CLAY.**	2.00 (33 m AOD)	10.00
Chester Formation	Sandstone wit subordinate mudstone and siltstone. Locally fractured due to faulting	12.00 (23 m AOD)	25.00
Manchester Marls Formation	Red marls with thin limestone beds. Locally fractured due to faulting.	37.00 (~2 m AOD)	60.00
Collyhurst Sandstone Formation	Soft red sandstone. Locally fractured due to faulting	95.00 (-60 m AOD)	20.00
Warwickshire Group (Ardwick Group)	Siltstone, sandstone and mudstone	115.00	-
Middle Coal Measure	Mudstone and siltstone with interbedded sandstones and coal seams.	> 115.00	-

4.6 Hydrogeology & Hydrology

The Glaciofluvial and Glacial Till deposits are classified as Secondary A Aquifers, defined as “*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*”.

The Manchester Marl Formation is classified as a Secondary B Aquifer, defined as “*Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers*”.

The Chester Formation is classified as a Principal Aquifer, defined as “*geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale*”.

There are 3 No. active-groundwater abstractions recorded within 1km of the site. The groundwater abstractions are namely:

Distance	Details	Date
20m SW	Heat Pump Manchester Metropolitan University Annual Volume (m3): 283,240	Start: 2014 Expiry: 2027
596m SW	Heat Pump Manchester Metropolitan University Annual Volume (m3): 274,115	Start: 2015 Expiry: 2027
956m W	Dewatering Renaker Build Ltd Annual Volume: 260,172	Start: 2021 Expiry: 2023

There are a further 3 No. active groundwater abstractions recorded between 1 and 2km. The southwest portion of the site is located in a groundwater source protection zone.

There is a surface water body recorded 200m NE of the site, namely "Ashton Canal/River Medlock" which is an "inland river not influenced by normal tidal action".

There are no active surface water abstractions recorded within 2km of the site.

4.7 Flood Risk

The site is located within Flood Zone 1. The site is at risk of flooding defined as being less than 1 in 1000 years (0.1%) from rivers or sea.

4.8 Natural hazards

Regulatory data relating to ground stability for the Site is summarised in Table 4-5 below with the full information presented in Appendix C.

Table 4-5 Potential natural hazards based on BGS Groundsure data

Potential Hazard	Hazard Rating	
	Northeast	Southwest
Shrink swell	Very Low	Negligible
Landslide	Very Low	Very Low
Soluble Rocks	Negligible	Negligible
Compressible Ground	Negligible	Negligible
Collapsible Deposits	Very Low	Very Low
Running Sand	Very Low	Very Low

4.9 Radon

The Indicative Atlas of Radon for England and Wales [13] and the Groundsure report [6] indicates that the site is not a Radon Affected Area, as less than 1% of properties are above the Action Level. Therefore, no radon protective measures are necessary.

4.10 Unexploded ordnance (UXO)

A UXO Risk Map (included as Appendix A) was provided by Zetica, classifying the site as "moderate" risk. A detailed UXO desk study was commissioned by the client and is also provided in Appendix A, with the summary identifying the Site as high-risk, with further action required to reduce the risk from UXO to as low as reasonable possible (ALARP).

5 Site Setting

5.1 Site History

The site history and that for the immediate surrounding area has been assessed using historical maps from 1851 to 2010. This history is summarised in Table 5-1 below. The maps are presented in Appendix C

Table 5-1: Summary of site history and history of the surrounding area

Historical Land Use		
OS Map Edition	Site	Surrounding Area (within 100 m)
1851 (1:1,056)	Timber Yards and unnamed terraced buildings recorded. Devonshire Street in S of site.	Terraced buildings (N & W), Stone Yard & Smithy (35 m E), Grosvenor Square & All Saints Church (20m S), Scotchy Church (40 m S).
1893 (1:2,500)	Timber Yards no longer recorded. Carriage & Tramway Depot now identified	Hotel (40 m N), School (70 m E), Bank (92 m SE), Chorlton Union Offices (90 m S), Infant School (50 m SW).
1908 (1:2,500)	No major recorded changes.	No major recorded changes.
1922 (1:2,500)	Carriage & Tramway Depot no longer recorded. School now recorded on location of former depot.	Hospital recorded (21 m S).
1932(1:2,500)	No major recorded changes.	Bank (20 m NE), Textile Machinery Works (45 m ENE), Hall (65 m ENE), Post Office (74 m E), Bakery (56 m E), Ladies Garment Manufacturer (75 m ESE). Union Offices now recorded as Public Assistance Offices (90m S).
1950 (1:2,500)	Loxford Street (formerly Devonshire Street).	Buildings no longer recorded (65m NE), All Saints Church no longer recorded (S), Lavatories & Children's playground recorded on Grosvenor Square (S), warehouse (SW).
1970 (1:2,500)	No major recorded changes	Mancunian Way (immediately N), John Dalton College of technology (50 m N), National Computer Centre (80 m NE).
1985 (1:2,500)	School replaced by Manchester Polytechnic Building (All Saints Building).	Loxford Tower (WSW), Union Office recorded as Ormond Building (90m S), Mandela Building (20 m E). Playground no longer recorded.
1992 (1:1,250)	No major recorded changes.	Bellhouse Building (SW).
2003 (1:1,250)	No major recorded changes.	No major recorded changes.

5.2 Regulatory Data

Regulatory data relating to potentially contaminative uses is summarised in Table 5-2 below. This information was obtained from the Groundsure report [6].

Table 5-2 - Summary of Regulatory Data

Item	Location [on/off site]	Information	Potential to Impact
Environmental Permits, Incidents and Registers			
Licensed pollutant release (Part A(2)/B)	2 [250-500m]	The nearest record is for 316m W. Both records have "Historic" status.	No
Radioactive substance authorisations	6 [50-250m] 8 [250-500m]	The nearest record is 94 m W (last updated 2020).	No
Licensed discharges to controlled waters	6 [50-250m] 40 [250m-500m]	The nearest record was 82m W for cooling water and dated 2011.	No
Pollution Incidents (EA/NRM)	1 [326m N]	Oil and Fuel (2001) Water Impact: Category 4 (no impact) Land Impact: Category 4 (no impact) Air Impact: Category 4 (no impact)	No
Petrol stations	1 [50-250m]	The nearest record is 138m NW and is recorded as Obsolete.	No
None of the following were recorded within 500m of the site: Electric cables, gas pipelines, sites determined as contaminated land, control of major accident hazards (COMAH), Regulated explosive sites, Hazardous substances storage/usage, Historical licensed industrial activities (IPC), Licensed industrial activities (Part A(1)), Pollutant release to surface waters (red list), Pollutant release to public sewer, List 1 dangerous substances, List 2 dangerous substances, pollution inventory substances, pollution inventory waste transfers, pollution inventory radioactive waste.			
Landfill and Other Waste Sites			
Historical waste sites	5 [50m – 250m]	The records are for waste paper works between 197-205m NW. Last recorded in 1953.	No
Licensed waste sites	1 [250-500m]	277m NW for Terra Vac (UK) Ltd. Issue date 2002.	No
Waste exemptions	1 [on-site] 7 [0-50m] 4 [50-250m] 17 [250-500m]	On-site – disposal and waste treatment exemption (not a farm).	No.
The following industrial activities were recorded beyond 50m: active or recent landfill, historical landfill (BGS records), Historical landfill (LA/mapping records) and historical landfill (EA/NRW records).			
Current and Past Industrial Land Use			
Electrical Sub Station	On-site	Electric Features	Yes
Gantry	3m NW	Travelling Cranes & Gentries	No
Gantry	26m W	Travelling Cranes & Gentries	No
Gantry	43m NE	Travelling Cranes & Gentries	No
The following industrial activities were recorded beyond 50m: WSP Engineers, Electrical Sub Stations, Gantry, Compudos Ltd, Haadi Composite Woods, FM Laptop Repairs, Gantry, Euro Exim Ltd, Final Print, Territorial Army Centre, Gas Governor, Chimney & Manchester Business Centre.			

Item	Location [on/off site]	Information	Potential to Impact
Points of Interest (Environmentally Sensitive Sites, visual, cultural, agricultural, habitat designations)			
Nitrate vulnerable zones	3 [500m-2000m]	>1000m N River Irk & Irwell / Man. Ship Canal	No.
SSSI Impact Risk Zones	1 [on-site]	It is considered the proposed development type does not require consultation for these matters.	No
None of the following were recorded within 2000 m of the site: Site of Special Scientific Interest (SSSI), Ramsar Sites, Special Areas of Conservation (SAC), Special Protection Areas (SPA), National Nature Reserves (NNR), Local Nature Reserves (LNR), designated Ancient Woodland, Biosphere Reserves, Forest Parks, Marine Conservation Zones, Green Belt and Nitrate Sensitive Areas.			

6 Preliminary Geoenvironmental Risk Assessment

6.1 General Approach

In the UK, the assessment of risk from contamination is based on consideration of the conceptual site model and follows the “source-pathway-receptor” approach. If one of these three elements (source, pathway or receptor) is absent, it is considered that there is no risk of harm. If, however, there is considered to be a linkage between any given source and any given receptor, then a risk-based approach is used to assess the significance or impact of the linkage. Risks are defined as the probability of an event occurring combined with the severity of the consequence of that event. Particularly, to assess the risks to site end users posed by any given source, the sensitivity of each receptor is considered. For example, the concentration of contamination acceptable at a site to be developed as a residential property with a garden used to grow vegetables and accessible to young children is set lower than that for a commercial site where soil is exposed only in minor areas of landscaping and the only long-term users of the site are adults. Similarly, a site overlying a Principal Aquifer supplying potable water will be considered more stringently than a site overlying an impermeable geology with only minor seepages of groundwater.

6.2 Conceptual site model

The potential risks posed to human health and the environment by ground contamination at this site have been evaluated by a generic quantitative risk assessment which incorporates the ‘source-pathway-receptor’ identification and assessment methodology in accordance with LCRM [14]. The risk assessment process therefore involves the identification of each source based on the information in this report, including any available existing ground investigation results together with the identification of relevant exposure pathway(s) and receptors. The potential risks to the receptors have been assessed by considering the potential effect of the source on the receptor as well as the likelihood of a pathway linking the two, i.e. a contaminant linkage as discussed above.

6.3 Sources

The potential contamination sources at the site have been identified from the review of regulatory data, historical maps and previous site investigations and are summarised in Table 6-1. The ‘Contaminants of Concern’ in this risk assessment are based primarily on information from this review of historical information and by reference to relevant Industry Profile reports ([15], [16] and [17]) and R&D 66 [18].

Table 6-1 Summary of potential sources of contamination

Potential Source	Location	Likely Age	Potential Contaminants of Concern
The site area current uses: made ground, electrical sub-station	On-site	Pre 1851 to present	Asbestos, heavy metals, organic and inorganic compounds, acids /alkalis, PCBs, PAHs, TPHs, fuels and oils, organic solvents, stain protectors, phenols and ground gases.
The site area previous industrial uses: timber yard, carriage and tramway depot	On-site	Pre 1851 to 1893	Asbestos, heavy metals, organic and inorganic compounds, acids /alkalis, PCBs, PAHs, TPHs, fuels and oils, organic solvents, resins/adhesives, catalysts, sizing agents, binders and ground gases.

Potential Source	Location	Likely Age	Potential Contaminants of Concern
Surrounding area current industrial uses: electrical sub-stations, Exo Exim Ltd -(UPV recycling).	Off-site	Unknown to present	Asbestos, heavy metals, organic and inorganic compounds, acids /alkalis, PAHs, PCBs, PFA TPHs, fuels and oils, organic solvents, rubber and rubber preservatives, vulcanising agents, anti-oxidants, stain protectors, solvents, Phenols and ground gases.
Surrounding area previous industrial uses: Textile machinery works	Off-site	1932 to 1950	Asbestos, heavy metals, organic and inorganic compounds, chlorinated inorganic compounds, sizing agents, water repellents, fire/flame retardants, soaps & detergents, pesticides, fuels and oils, and ground gases.

6.4 Pathways and receptors

The proposed development comprises an industrial scheme (see Section 3.2) and comprises the refurbishment of the existing building and a new build extension to the northeast. The presence of contamination (in soils, liquids or gases) has the potential to impact upon human and environmental receptors both in the short term (during construction) and in the long term (during use and occupation). The potential contamination sources at the site have been identified from the review of regulatory data, historical maps and previous site investigations and are summarised in Table 6-1. The 'Contaminants of Concern' in this risk assessment are based primarily on information from this review of historical information and by reference to relevant Industry Profile reports ([15], [16]and [17] R&D 66) .

Table 6-2 Summary table of receptors and potential pathways

Receptor		Pathway
Human Health	Investigation and construction workers	Direct/ dermal contact. Ingestion/ inhalation of soils. Inhalation of gas / vapour.
	Future site users / visitors (residents, guests, workers)	Direct/dermal contact. Inhalation of contaminated dusts, gas & vapour.
	Off site occupiers / visitors of neighbouring land	Inhalation of contaminated dusts.
Controlled Waters	River Medlock	Migration via permeable strata and preferential pathways (e.g. piling)
	Chester Formation: Principal Aquifer	Migration via permeable strata and preferential pathways (e.g. piling)
	Secondary Aquifers (Glacial deposits, Manchester Marl Formation)	Migration via permeable strata and preferential pathways (e.g. piling)
Building/Services	Buried concrete foundations. Potable water supply pipework	Direct contact / aggressive attack

6.5 Assessment of risk

The assessment of the level of risk for each of the potential contaminant linkages identified above is summarised in Table 6-3. The table lists the potential sources identified above. For each source, an assessment is made, receptor by receptor, as to the magnitude of the potential consequence (reflecting the potential severity of the hazard associated with that source and the sensitivity of the receptor).

Consideration has also been given to the level of uncertainty associated with each of these potential sources. For example, some of the information is based on historical records. Where site specific information has been used the uncertainty is reduced, however it is also noted that no investigation can examine 100% of the ground and therefore some degree of uncertainty will remain. Because of this uncertainty, the identification of the sources is based upon a conservative assessment of the potential location, nature and extent of the source. The probability or likelihood of the hazard being realised is then assessed by consideration of the directness / integrity of the exposure pathway that could link the receptor to the source. The assigned level of risk is determined by the terms of consequence and probability in accordance with C552 [19]. The final column describes all of the factors considered in the assessment and presents the justification for the assessed level of risk.

Table 6-3 - Preliminary Risk Assessment

Source		Receptor/ Pathway	Risk assessment (following CIRIA C552)			Comment on hazard realisation
Origin	Contaminants of concern		Consequence	Probability	Risk	
On-site: Made Ground, electric substation, historic timber yard & carriage and tramway depot	Asbestos, heavy metals, organic and inorganic compounds, acids /alkalis, PCBs, PAHs, TPHs, fuels and oils, organic solvents, stain protectors, phenols and ground gases.	Description of the Source: The surrounding area of the site was first recorded to be developed in the 1950s.				
		Future site users / visitors (employees, guests and maintenance) Direct / dermal contact. Inhalation of soils / dusts. Ingestion of contaminated water supplies. Migration and accumulation of hazardous gases.	Medium	Unlikely	Low	Proposed future use is for commercial (educational) use with soft and hard landscaping. Potential for dust generation, direct contact and ingestion. Exposure time is relatively limited. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of remediation / mitigation measures including encapsulation.
		Investigation and construction workers Direct / dermal contact. Ingestion / inhalation of contaminated soils, gases and vapours.	Medium	Low likelihood	Moderate / Low	Potential for exposure during investigations/ earthworks. Period of exposure dependent on construction timescales. Standard Health and Safety precautions likely to be used by workers. Mitigation of potential risks can be achieved by appropriate investigation and adoption of standard good construction practice.
		Off site occupiers / visitors of neighbouring land Inhalation of contaminated dusts.	Medium	Unlikely	Low	Large scale development, potential to impact surrounding visitors by dust generation. Increased potential during any earthworks. Mitigation of potential risks can be achieved by appropriate investigation and adoption of standard good construction practice.
		Degradation of Water quality [Superficial Secondary A aquifer – Glacial Deposits] Migration via permeable strata	Medium	Low likelihood	Moderate / Low	Potential for increased infiltration and promotion of leaching during development earthworks. Mitigation of potential risks could be achieved by appropriate investigation, risk assessment and design.
		Degradation of Water quality [Bedrock Secondary B aquifer – Manchester Marl Formation]	Medium	Unlikely	Low	Potential for increased infiltration and promotion of leaching during development earthworks. Mitigation of potential risks could be achieved by appropriate investigation, risk assessment and design.

Source		Receptor/ Pathway	Risk assessment (following CIRIA C552)			Comment on hazard realisation
Origin	Contaminants of concern		Consequence	Probability	Risk	
		Degradation of Water quality [Bedrock Principal aquifer – Chester Pebble Beds Formation] Migration via permeable strata	Severe	Unlikely	Moderate / Low	Potential for increased infiltration and promotion of leaching during development earthworks. Mitigation of potential risks could be achieved by appropriate investigation, risk assessment and design.
		Buildings/services - permeation of water supply pipework, degradation of concrete Direct contact/, aggressive attack/ below ground structures	Medium	Unlikely	Low	Potential for direct contact on development site. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of appropriate design.

7 Conclusions and Recommendations

7.1 Summary of geoenvironmental risks

7.1.1 Assessed risks

An Initial Conceptual Site Model has been determined and a Preliminary Risk Assessment with respect to ground contamination has been carried out for the site on the basis of the available data. The main sources of potential contamination have been identified and the potential risks have been qualitatively assessed. The assessment is based upon the site in its current condition, but it also includes consideration of the potential risks associated with any below ground works (e.g. site investigation or future foundation works etc.) and the potential future use. A summary of the potentially significant risks (i.e. greater than Low) is presented below.

Table 7-1 Summary of potential risks

Receptor	Source	Potential risk
Investigation and construction workers	Infilled land / Made Ground/ Demolition debris	Moderate/Low
Degradation of Water quality (Superficial Secondary A aquifer and bedrock Principal aquifer)	Infilled land / Made Ground/ Demolition debris	Moderate/Low

7.1.2 Recommendations

There are potential risks associated with the Site due to geology, site history, and land use in the surrounding area. Therefore it is recommended that an intrusive site investigation is completed. The aims and objectives of the investigation should combine geotechnical and geoenvironmental objectives.

The geoenvironmental aims will be to gain an understanding of:

- The presence, extent, and nature of any Made Ground/ fill materials,
- The ground gas regime,
- The shallow groundwater regime.

The investigation should identify the potential pathways and allow assessment of risk to sensitive receptors. This data will also inform any remediation/ mitigation requirements associated with the proposed development. To meet both the geotechnical and geoenvironmental aims and objectives above, the scope of the site investigation should include the following:

- Boreholes (of suitable frequency and depth) to determine the shallow and deep ground conditions. Boreholes should include monitoring installations to intercept ground gas and shallow groundwater,
- Trial pitting across the site with sampling of near surface soils,

- *In situ* testing (SPTs, U100 samples)
- Geotechnical & chemical testing of representative soil and groundwater samples; and
- A ground gas and groundwater monitoring programme.

The data obtained from this investigation would be collated, assessed and presented in a report suitable for submission submitted to Manchester City Council. The report would include recommendations on the need for and scope of any remediation.

8 References

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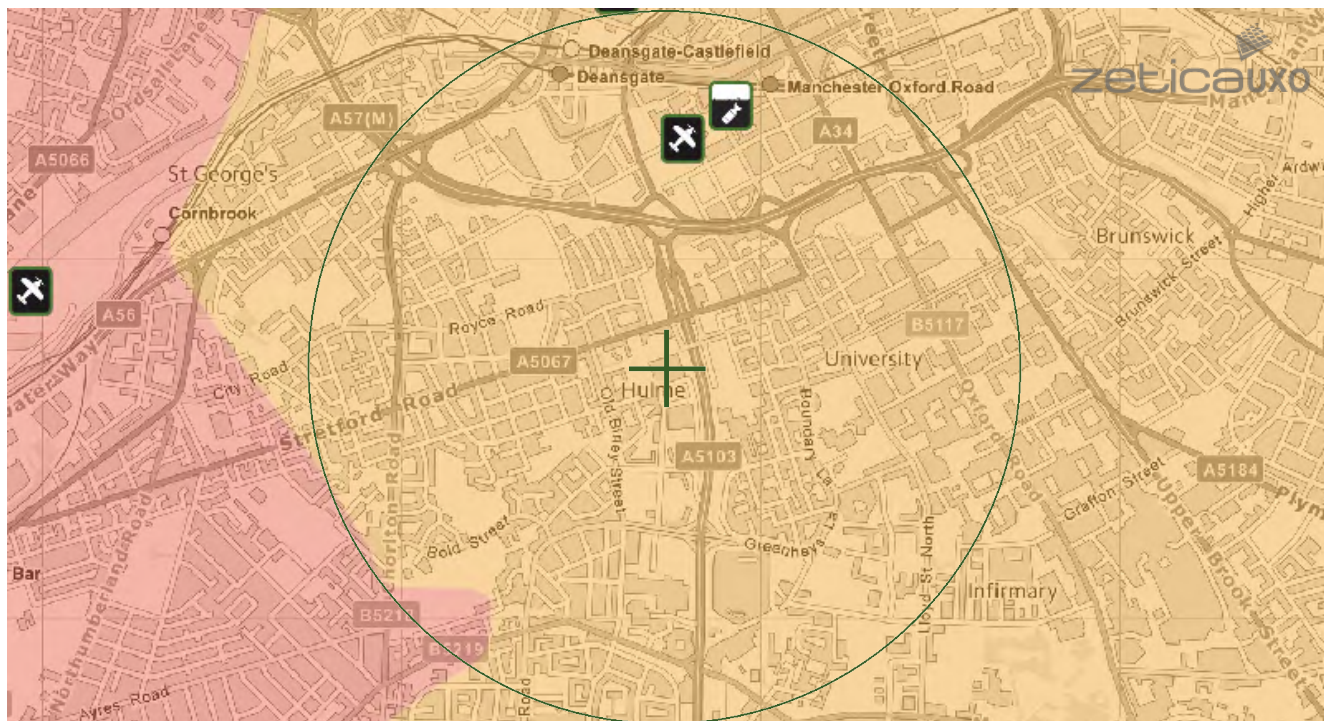
Appendix A UXO Risk Assessment

UNEXPLODED BOMB RISK MAP



SITE LOCATION

Location: M15 6GX,
Map Centre: 383743,396697



LEGEND

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

- military
- industry
- UXO find
- transport
- dock
- Luftwaffe targets
- utilities
- Bombing decoy
- other

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

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

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

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

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (<https://zeticauxo.com/downloads-and-resources/risk-maps/>)

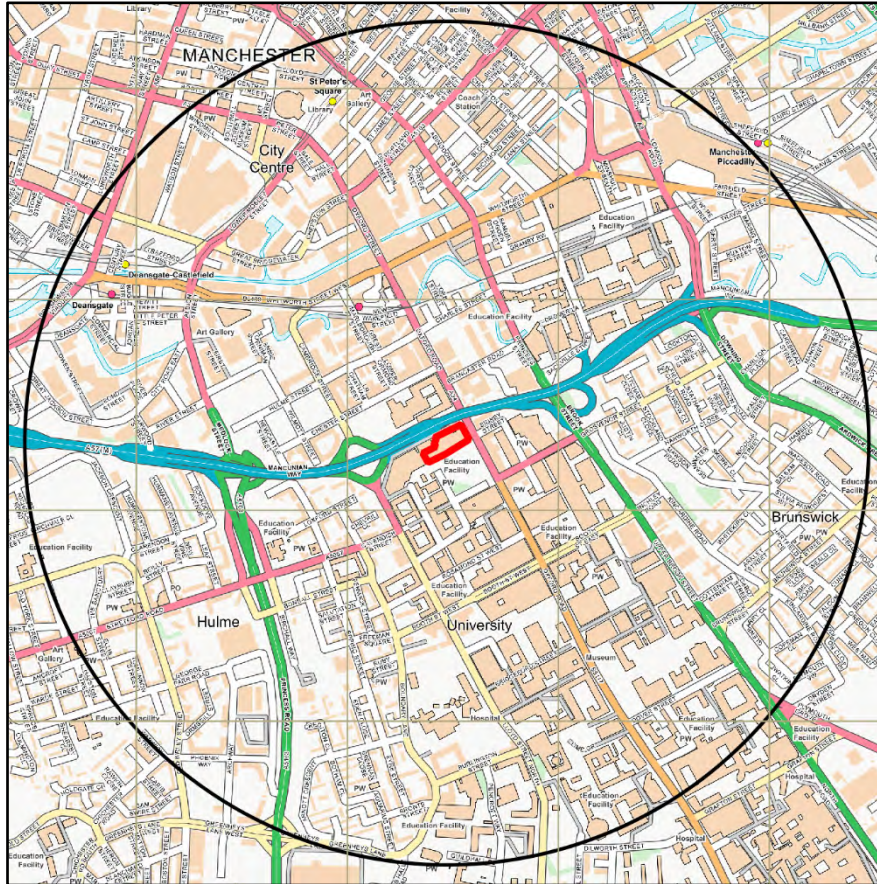
Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgment. The copyright remains with Zetica Ltd.

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Detailed Unexploded Ordnance (UXO) Threat & Risk Assessment

Meeting the requirements of *CIRIA C681 'Unexploded Ordnance (UXO) A Guide for the Construction Industry'* Risk Management Framework



PROJECT NUMBER	10307	ORIGINATOR	G. Rogers
PROJECT	MMU All Saints Library	REVIEWED BY	B. Wilkinson
CLIENT	Buro Happold	RELEASED BY	L. Gregory
VERSION	1.0	DATE	24 th March 2023
UXO RISK RATING	HIGH - This Study Site requires further action to reduce risk to ALARP during intrusive activities.		





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Acronyms and Abbreviations

AA	Anti-Aircraft	NEQ	Net Explosive Quantity
AAA	Anti-Aircraft Ammunition	NFF	National Filling Factory
ALARP	As Low As Reasonably Practicable	NGR	National Grid Reference
AOD	Above Ordnance Datum	OD	Ordnance Datum
ARP	Air Raid Precaution	OS	Ordnance Survey
AXO	Abandoned Explosive Ordnance	PM	Parachute Mine
BD	Bomb Disposal	PoW	Prisoner of War
BDO	Bomb Disposal Officer	RADAR	Radio Detection And Ranging
bgl	Below Ground Level	RAF	Royal Air Force
BGS	British Geological Survey	RN	Royal Navy
BH	Borehole	RNAS	Royal Naval Air Service
BPD	Bomb Penetration Depth	ROF	Royal Ordnance Factory
CDP	Cast Driven Piles	SAA	Small Arms Ammunition
CFA	Continuous Flight Auger	TA	Territorial Army
CIRIA	Construction Industry Research and Information Association	TNT	Trinitrotoluene
CPT	Cone Penetration Testing	UK	United Kingdom
CS	County Series	UN	United Nations
EO	Explosive Ordnance	USAAF	United States Army Air Force
EOC	Explosive Ordnance Clearance	UXB	Unexploded Bomb
EOD	Explosive Ordnance Disposal	UXO	Unexploded Ordnance
GI	Ground Investigation	V Weapons	<i>Vergeltungswaffen</i> – Vengeance Weapons
GIS	Geographic Information Systems	WD	War Department
GL	Ground Level	WWI	World War One
GP	General Purpose	WWII	World War Two
GPS	Global Positioning Systems		
HAA	Heavy Anti-Aircraft		
HE	High Explosive		
HO	Home Office		
HSE	Health and Safety Executive		
IB	Incendiary Bomb		
kg	Kilograms		
km	Kilometres		
LAA	Light Anti-Aircraft		
LCC	London County Council		
LE	Low Explosive		
LSA	Land Service Ammunition		
m	Metres		
MoD	Ministry of Defence		
mm	Millimetres		



EXECUTIVE SUMMARY

Study Site

The Client has defined the Study Site as “MMU All Saints Library” and it is centred on NGR 384236, 397159.

Potential Threat Sources

The most probable UXO threat is posed by WWII-era *German* HE bombs, whilst IBs and *British* AAA projectiles (which were used to defend against *German* bombing raids) pose a residual threat.

Risk Pathway

The Client has provided a number of documents relating to the proposed works at the Study Site. Initially, a GI campaign is proposed which will consist of shallow hand dug trial pits to 2m bgl – which are proposed to stay within the foundations of the existing structure – and deep boreholes to 30m bgl.

Subsequently, a redevelopment/construction phase is proposed. Specifically, the structures in the west Site will be refurbished rather than demolished and rebuilt. If proposed refurbishment works do not involve intrusive works, then a viable UXO risk pathway will not be generated by these activities.

The eastern half of the Site will be demolished, with a new structure built in its place. Such demolition and construction works may generate a UXO risk pathway and – in addition to the proposed GI works – have been subject to a risk assessment.

Risk Level

HIGH

Key Findings

During WWII, the Study Site was situated within *Manchester Country Borough*, which recorded six HE bomb strikes per 100 hectares, a “very low” level of bombing.

Luftwaffe aerial reconnaissance photography did not identify the Study Site as a primary bombing target. Nonetheless, such targets were recorded in the Study Site’s immediate vicinity, *Whitworth Station Gas Works* was the closest of these targets to the Study Site (located 375m to the north-east of the Site).

ARP records associated with the Study Site identified one bomb strike on-site, which impacted in the south-west of the Study Site. In addition, further HE bomb strikes were recorded within the Site’s immediate vicinity, the closest of these being 70m to the south-east.

An analysis of the official bomb damage mapping associated with the Study Site does not show any bomb damage within it, although numerous areas of bomb damage were documented nearby. The closest of these was 30m to the south within *Grovesnor Square*, with additional damage recorded 35m and 45m to the north-west on *Angle Street*. Additional areas of damage were recorded within the Site’s vicinity.

Pre-WWII mapping (1938) associated with the Study Site shows that the Study Site was located within a densely developed urban area during WWII, and the Study Site itself consisted of a school and a paved roadway. Therefore, it is likely that footfall within the Study Site would have been relatively high throughout WWII. However, given that an HE bomb strike was recorded within the Site, combined with the recorded bomb damage in close proximity to the Study Site, it is possible that bomb damage debris may have concealed a UXB entry hole, causing it to have gone unnoticed.

The Study Site has undergone several phases of development post-WWII. Specifically, between 1951 and 1981 multiple residential properties, a roadway and the pre-existing school were demolished and cleared from the Study Site. By 1981, the existing multi-storey university building had been constructed which covers the majority of the Study Site. Consequently, it is considered likely that any UXO within post-war disturbed and developed ground would potentially have been discovered and removed. However, the potential for deep buried UXO to be present below any disturbed ground within any remaining areas of undisturbed ground is assessed to be extant. Given that the nature, locations and depths of the proposed works have not been communicated, 6 Alpha must assume that the proposed works may extend into previously undisturbed ground.

EXECUTIVE SUMMARY (...continued)

Conclusions

As the Study Site and its immediate vicinity were subjected to bombing during WWII, the following risk mitigation measures are recommended as a minimum in order to reduce risks ALARP during intrusive works in **all previously undisturbed ground** (i.e., that which has not previously been excavated, probed, drilled or otherwise intrusively disturbed since it was potentially contaminated with UXO).

Recommended Risk Mitigation Measures Overview

“Open” Intrusive Works

Engineering Methodology	UXO Emergency Response Plan	UXO Safety and Awareness Briefing	On-Call EOD Engineer	Non-Intrusive Magnetometer Survey	EODE Watching Brief	Intrusive Magnetometer Survey	UXO Risk Rating (Post-Mitigation)
Trial Pits	✓	✓	✓	✗	✗	✗	ALARP
Excavations	✓	✓	✗	✗	✓	✗	
Trenching	✓	✓	✗	✗	✓	✗	

“Blind” Intrusive Works

Engineering Methodology	UXO Emergency Response Plan	UXO Safety and Awareness Briefing	On-Call EOD Engineer	Non-Intrusive Magnetometer Survey	EODE Watching Brief	Intrusive Magnetometer Survey	UXO Risk Rating (Post-Mitigation)
Boreholes	✓	✓	✗	✗	✗	✓	ALARP
Window Sampling	✓	✓	✗	✗	✗	✓	
Piling	✓	✓	✗	✗	✗	✓	

A full and detailed guide to the recommended risk mitigation measures is presented at Section 5 of this report.

For further information, please contact 6 Alpha Associates:

Website: <http://www.6alpha.com>

Telephone: +44 (0)2033 713 900

Email: enquiry@6alpha.com



ASSESSMENT METHODOLOGY

Approach

6 Alpha Associates is an independent, specialist risk management consultancy practice, which has assessed the prospective UXO risk at this Study Site by employing a process advocated by CIRIA. The CIRIA guide for managing UXO risks in the construction industry (C681) not only represents industry best practice but has also been endorsed by the UK's HSE. 6 Alpha were the lead technical author of the CIRIA C681 guide.

UXO hazards can be identified through the investigation of local and national archives associated with the Study Site, MoD archives, local historical sources, historical mapping as well as contemporary aerial photography (where it is available). Prospective hazards will have only been recorded if there is specific information that could reasonably place them within the boundaries of the Study Site. The amalgamation of information is then assessed within a Semi-Quantitative Risk Assessment (as per industry best practice outlined in CIRIA C681) in order to form the basis of a proportional UXO risk mitigation strategy in circumstances where the SQRA evidences that further action is necessary in order to reduce the UXO risk at the Study Site.

The assessment of UXO risk is a measure of the probability of UXO encounter and initiation and the consequence of an inadvertent UXO initiation; the former being a function of the identified hazard and proposed development methodology and the latter being a function of the type of hazard and the proximity of personnel (and/or other 'sensitive receptors', such as equipment) to the hazard. UXO risk is thus calculated using the following formula:

$$\text{Risk (R)} = \text{Probability (P)} \times \text{Consequence (C)}$$

If intolerable UXO risks are identified, the methods of mitigation we have recommended are considered reasonable and sufficiently robust to reduce them to ALARP. We advocate the adoption of the ALARP legal principle because it is a key factor in efficiently and effectively ameliorating UXO risks. It also provides a ready means for assessing the Client's tolerability of UXO risk. In essence, the principle states that if the cost of reducing a risk significantly outweighs the benefit, then the risk may be considered tolerable. This does not mean that there is never a requirement for UXO risk mitigation, but that any mitigation must demonstrate that it is beneficial. Any additional mitigation that delivers diminishing benefits and that consume disproportionate time, money and effort are considered *de minimis* and thus unnecessary. Because of this principle, UXB and UXO risks will rarely be reduced to zero (nor need they be).

Important Notes

Although this report is up to date and accurate at the time of writing, 6 Alpha's UXO threat databases are continually being populated and updated as and when additional information becomes available. Nonetheless, 6 Alpha have exercised all reasonable care, skill and due diligence in providing this service and producing this report.

The assessment levels are also based upon our professional opinion and have been supported by our interpretation of historical records and third-party data sources. Wherever possible, 6 Alpha has sought to corroborate and to verify the accuracy of all data we have employed, but we are not accountable for any inherent errors that may be contained in third party data sets (e.g., *National Archive* or other library sources), and over which 6 Alpha cannot exercise control.

STAGE ONE – STUDY SITE LOCATION AND DESCRIPTION

Study Site

The Client has defined the Study Site as “MMU All Saints Library” and it is centred on NGR 384236, 397159, as presented at *Figures 1 and 2*, respectively.

Location Description (*Figure 1 & 2*)

The Study Site is situated within the *Greater Manchester* and totals an area of 0.24 hectares (ha).

Furthermore, the Study Site is bounded by:

- North: *Manchester Law School* and an area of hardstanding (car park).
- East: Areas of hardstanding.
- South: *All Saints Park* and areas of hardstanding.
- West: Areas of hardstanding and *MMU Faculty of Business and Law*.

Aerial Photography (2021) (*Figure 3*)

2021 aerial photography corroborates the information above and shows that the Study Site is situated within a densely developed urban area. The Study Site itself consists of a building known as *All Saints Library*.

Proposed Works (*Figure 4*)

The Client has provided a number of documents relating to the proposed works at the Study Site. Initially, a GI campaign is proposed which will consist of shallow hand dug trial pits to 2m bgl – which are proposed to stay within the foundations of the existing structure – and deep boreholes to 30m bgl.

Subsequently, a redevelopment/construction phase is proposed. Specifically, the structures in the west Site will be refurbished rather than demolished and rebuilt. If proposed refurbishment works do not involve intrusive works, then a viable UXO risk pathway will not be generated by these activities.

The eastern half of the Site will be demolished, with a new structure built in its place. Such demolition and construction works may generate a UXO risk pathway and – in addition to the proposed GI works – have been subject to a risk assessment at Page 13 of this document.

The locations of the proposed works are outlined at *Figure 4*.

Ground Conditions

It is important to establish the specific ground conditions in order to determine the maximum *German* UXB penetration depth as well as the potential for other types of munitions to be buried. It is also important to establish the provenance of made ground, where this is recorded as being part of the ground make-up, in order to accurately determine the ground levels at the time when UXO contamination may have occurred so as to accurately determine the average/maximum bomb penetration depths and subsequently to make appropriate recommendations aimed at reducing the risk to ALARP.

BGS borehole log “SJ89NW4180- Manchester Metropolitan University” (located in the Study Site’s western sector), recorded the following strata:

Depth bgl (m)	Strata	Description
0.00m to 1.00m	Made Ground	N/A
1.00m to 5.00m	Alluvial Deposits	N/A
5.00m to 7.00m	Clay	Clay with sand horizons
7.00m to 28.00m	Sand	Soft red sand



STAGE TWO – REVIEW OF HISTORICAL DATASETS

Sources of Information Consulted

The following information sources have been employed in order to establish the nature and scope of the UXO threat:

1. *6 Alpha's Azimuth Database*;
2. *Home Office WWII Bomb Census Maps*;
3. WWII and post-WWII aerial photography;
4. Official Abandoned Bomb Register;
5. Information gathered from the *National Archives at Kew*;
6. Historic UXO information provided by *33 Engineer Regiment (Explosive Ordnance Disposal)* at *Carver Barracks, Wimbish*.

Potential Sources of UXO Contamination - Overview

In general, there are several activities that might have contaminated a site with UXO, but the three most common ways are: legacy munitions from military training/exercises; deliberate or accidental dumping (AXO) and ordnance resulting from war fighting activities (also known as the Explosive Remnants of War (ERW)).

During WWII, the *Luftwaffe* undertook bombing campaigns all over the *UK* and although the *Luftwaffe* had designated primary bombing targets across the *UK*, their high-altitude night bombing was not accurate. There was also a period of indiscriminate bombing of civilian and industrial areas alike in *British* cities in an attempt to cripple the morale of the *British* people. As a result, thousands of buildings were damaged across industrial and residential areas and civilian fatalities were common. Bombs were also jettisoned over opportunistic targets and more rural locations were also attacked in this manner.

As the threat of invasion lingered over *Britain* during WWII, defensive actions were undertaken. The *British* and *Allied Forces* requisitioned large areas of land for military training and bomb storage (including HE bombs, naval shells, artillery and tank projectiles, explosives, LSA and SAA). Thousands of tonnes of these munitions were used for the *Allied Forces* weapon testing and military training alone. It has been estimated that at least 20 per cent of the *UK's* land has been used for military training at some point.

The most common type of UXO discovered today in the *UK* is the aurally delivered high explosive (HE) bomb, which are comparatively thick-skinned and were dropped from *Luftwaffe* aircraft. If the bomb did not detonate when it was dropped, the force of impact enabled the UXO to penetrate the ground, often leaving behind it a UXB entry hole. These entry holes were not always apparent, and some went unreported, leaving the bomb buried and unrecorded. *British* AXO/LSA/SAA is also commonly encountered in areas that were formerly occupied by military forces (such as RAF airfields, military camps and/or military training areas). More rarely, additional forms of *German* UXO are occasionally discovered including *inter alia* Incendiary Bombs (IBs), and Anti-personnel (AP) bomblets and fragments of V1 and V2 rockets.

"The best practice guide for dealing with your UXO risks on land" (CIRIA publication C681) suggests that approximately 10 per cent of all munitions deployed during WWII failed to function as designed. ERW are therefore, still commonly encountered, especially whilst undertaking construction and civil engineering groundwork.

Furthermore, in exceptional circumstances, UXO is discovered unexpectedly and without apparent rational explanation. There are several ways this might occur:

- When *Luftwaffe* aircraft wished to swiftly escape e.g., from an aerial attack, they would jettison some or all of their bombs and flee. This is commonly referred to as *tip and run* and it has resulted in bombs being found in unexpected locations;
- Transportation of aggregate containing munitions to an area that was previously free of UXO, usually related to construction activities employing material dredged from a contaminated offshore borrow site;
- *British* decoy sites were also constructed to deliberately cause incorrect targeting. For obvious reasons, such sites were often built in remote and uninhabited areas – few historical records concerning these sites are available.



WWII Bombing of *Greater Manchester*

Manchester's importance to the *British* war economy as an inland port, industrial centre, and aircraft manufacturer, meant the city and surrounding area represented a significant bombing target for the *Luftwaffe*. The first air raids occurred during August 1940 and continued until 1942.

The *Luftwaffe* bombing campaign of *Manchester* peaked between the 22nd and the 24th of December 1940 (the *Manchester*, or *Christmas, Blitz* as it was known) and involved over 400 aircraft delivering more than 460 tons of HE bombs and 37,000 IBs. Following this raid, approximately 65 warehouses, 200 business premises and 150 offices were destroyed or damaged with the *Manchester Cathedral*, the *Royal Exchange*, and the *Free Trade Hall* among the significant buildings damaged. An estimated 684 people were killed, and a further 2,364 people were injured.

WWII HE Bomb Density (*Figure 5*)

The Study Site was located within *Manchester County Borough*, which recorded six HE bombs per 100 hectares, a “very low” level of bombing.

WWII Luftwaffe Bombing Targets (*Figure 6*)

Prior to WWII, the *Luftwaffe* conducted numerous aerial photographic reconnaissance missions over *Britain*, recording key military, industrial and commercial targets for attack, in the event of war. In addition, logistics infrastructure and public services, such as railways, canals, power stations, reservoirs, water and gas works were also considered viable bombing targets.

Luftwaffe aerial reconnaissance photography did not identify the Study Site as a primary bombing target. Nonetheless, such targets were recorded in the Study Site's immediate vicinity and these were: *Whitworth Station Gas Works* (located 375m to the north-east of the Site), *Victoria University* (located 550m to the south-east) and *Victoria Station* (situated 685m to the north-west).

WWII HE Bomb Strikes (*Figure 7*)

During WWII, ARP wardens compiled detailed logs of bomb strikes across their respective districts. ARP records associated with the Study Site identified a single bomb strike on-site, which impacted in the south-west of the Study Site. In addition, a further four HE bomb strikes were recorded within the Site's immediate vicinity: 70m to the south-east, 125m to the south-west, 150m to the south-west and 190m to the south-south-east of the Study Site.

Furthermore, whilst IBs may have fallen within the Study Site, they were dropped in such large numbers that accurate record keeping was either non-existent or perfunctory. Nonetheless, numerous IB strikes were noted within 100m of the Study Site boundary: 15m to the north, 20m to the north-west, 25m to the north-west, 30m to the south, 85m to the south-west, 90m to the south-west, 95m to the west and 100m to the west.

In addition to IBs and HE bomb strikes, during the latter part of the war when aerial bombing had significantly declined, the main threat came from V type weapons. V1 and V2 rockets were thin-skinned, unmanned and inaccurate weapons. Despite this, there is no evidence to suggest that the Study Site (or its immediate vicinity) was subjected to rockets strikes during WWII.

The potential penetration depth of an UXB was dependent on a number of factors including but not restricted to those prior to striking the ground e.g. velocity and orientation of the UXB which in turn will be influenced on factors such as the release altitude from the aircraft and encounters with infrastructure during its fall; those encountered at the point of impact i.e. was the impact on concrete, grass, water etc. and finally, the below ground level conditions which were encountered such as infrastructure e.g. services, basements, foundations, and geology e.g. made ground, clay, sand, etc. Further, as the UXB penetrated the ground, it's velocity naturally slowed where, it either came to an abrupt stop e.g., against foundations or would continue for 10's of feet along a route of least resistance which often resulted in a curving of the trajectory back towards the surface. This is known as the “J Curve” effect and often resulted in a considerable horizontal off-set from the point of entry. This is often the reason why UXBs have been discovered against or under the foundations of buildings, which were present during WWII, or many meters from the point of impact.

WWII Bomb Damage (*Figure 8*)

An analysis of the official bomb damage mapping associated with the Study Site does not show any bomb damage within it, although numerous areas of bomb damage were documented nearby. The closest of these was 30m to the south within *Grovesnor Square*, with additional damage recorded 35m and 45m to the north-west on *Angle Street*. Additional areas of damage were recorded within the Site's vicinity and these are documented at *Figure 7*.

Abandoned Bombs

An examination of the official abandoned bomb records did not identify any abandoned bombs within 1,000m of the Study Site Boundary.

Records of WWII UXB Disposal Tasks

Civil defence records did not identify any UXB disposal tasks within *Manchester County Borough* from 1940-45, within 1,000m of the Study Site. However, it is known that these records are incomplete, some having been destroyed by *Luftwaffe* action during WWII.

Military Activity

There is no evidence to suggest that the Study Site has previously been occupied by military personnel. Therefore, it is considered unlikely that munitions were previously stored, located and/or fired from this Study Site during WWII.

WWII Site Use

The CS mapping prior to WWII (1938) shows that the Study Site was located within a densely developed urban area during WWII, and the Study Site itself consisted of a school and a paved roadway. Therefore, it is likely that footfall within the Study Site would have been relatively high throughout WWII. However, given that an HE bomb strike was recorded within the Site, combined with the recorded bomb damage in close proximity to the Study Site, it is possible that bomb damage debris may have concealed a UXB entry hole, causing it to have gone unnoticed.

Post-WWII UXO Encounters

An examination of the post-WWII BDO tasks associated with the Study Site has not identified any BDO operations within the Study Site itself, nor within 1,000m of the Study Site Boundary.

Sources of UXO Contamination

Given that a bomb strike was located on-site and that numerous bomb strikes were located in the immediate vicinity of the Study Site, the most likely source of UXO contamination is *German* aerially delivered ordnance, which ranges from small IBs through to large HE bombs (the latter forms the principal threat). Additional residual contamination may be present from *British* AAA projectiles (which were used to defend the UK against *German* bombing raids).

Post-WWII Study Site Development

Generally, the probability of encountering UXO in ground that has been disturbed since it may have been contaminated with UXO is considered to be remote (up to the depth below ground level previously disturbed by any intrusive works). Therefore, an understanding of the Study Site's previous development history is crucial when assessing the likelihood that UXO might be encountered at the Study Site.



Study Site Development History

From an analysis of the CS and OS historical mapping associated with the Study Site, the following history can be deduced:

Year	Analysis
1909 CS Map	The Study Site was located in a developed urban area and consisted of a roadway and multiple structures.
1923 CS Map	Several structures in the centre of the Site had been demolished and cleared, with a school constructed in their place.
1931-33 CS Map	Changes were not recorded at the Study Site.
1938 CS Map	Changes were not recorded at the Study Site.
1950-1951 OS Map	Changes were not recorded at the Study Site but there is evidence of the bomb damage experienced in the immediate vicinity.
1970 OS Map	Multiple residential structures and part of the roadway had been removed from the west of the Study Site.
1980-81 OS Map	The previous school building had been demolished and cleared from the centre of the Site. A university building had been constructed across the vast majority of the Study Site.
1985-87 OS Map	Changes were not recorded at the Study Site.
1993-94 OS Map	Changes were not recorded at the Study Site.
2003 Aerial Photography	Changes were not recorded at the Study Site.
2013 Aerial Photography	Changes were not recorded at the Study Site.
2023 Streetview Map	Changes were not recorded at the Study Site.

The Study Site history assessment is our best interpretation of the data available at the time of writing. Given that yearly revisions of neither CS and OS mapping, nor aerial photography, are available for analysis, there are gaps between the mapping revisions.

Consequently, it should not be assumed that any new structures and/or features that are labelled on a map revision were constructed, developed, installed or demolished in the exact year that the mapping illustrates the change. It is possible – and indeed likely – that the exact date of development occurred somewhere between the two closest mapping revisions. Specifically, this may be particularly relevant where there is a gap between pre- and post-WWII mapping, as it may not be clear whether structures were present during WWII or if they were constructed in the post-WWII period.

STAGE THREE – DATA ANALYSIS

Variable	Result	Comment
Was the area considered to be a primary bombing target during WWII?	✓	The closest documented bombing target was <i>Whitworth Station Gas Works</i> (located 375m to the north-east of the Site).
Was the Study Site or the immediate area bombed during WWII?	✓	ARP records identified one bomb strike on-site, with further bomb strikes documented in the wider area.
Did the Study Site or the immediate area experience bomb damage?	✓	Official bomb damage mapping recorded significant bomb damage in the area, the closest instance being 30m to the south within <i>Grovesnor Square</i> .
Would munitions have been manufactured, stored and/or fired from the Study Site previously?	✗	There is no evidence to suggest munitions were located or fired from this Study Site.
Was the ground undeveloped during WWII?	✗	The Study Site consisted of a school and a surfaced roadway.
Would the footfall have been high in the area?	✓	Given that a school was located on-site and residential housing in the immediate vicinity, it is likely that footfall would have been high.
Would a UXB entry hole have been observed during WWII?	✓	Given that an HE bomb strike was recorded on-site, with bomb damage documented in close proximity to the Site, it is possible that bomb damage debris may have concealed a UXB entry hole.
Has UXO been encountered previously at the Study Site?	✗	There have been no documented UXO encounters within 1,000m.
Have previous intrusive works removed the potential for UXO to be present?	✗	It is likely that any UXO within post-war disturbed and developed ground would potentially have been discovered and removed. However, the potential for a UXO encounter in areas of undisturbed ground remains extant.
Are proposed intrusive works likely to extend into previously undisturbed ground?	✓	The nature, locations and depths of the proposed works have not been communicated and therefore, <i>6 Alpha</i> must assume that they may to extend into previously undisturbed ground.
Is there potential for an unplanned encounter with UXO to occur during proposed intrusive works?	✓	Given that WWII bombing and bomb damage were recorded at the Study Site and/or nearby, it is considered possible for an unplanned encounter with UXO to occur.
Does the probability of a UXO encounter vary across the Study Site?	✓	The probability of encountering UXO within post-war disturbed and developed ground is considered to be remote. However, the probability of a UXO encounter within all previously undisturbed areas of the Study Site is extant.

N.B. The ✓ / ✗ symbology is intended to act only as a succinct visual indicator as to whether the data analysis has returned a positive (i.e., ✓) or negative (✗) answer to each question concerning the potential for UXO contamination at the Study Site.



STAGE FOUR – RISK ASSESSMENT

Threat Items

The most probable UXO threat items are *German* HE bombs, whilst IBs and *British* AAA projectiles pose a residual threat. The consequences of initiating *German* HE bombs are generally more severe than initiating IBs or AAA projectiles, and thus they pose the greatest prospective risk to intrusive works.

Bomb Penetration Depth

Considering the ground conditions (highlighted in Stage 1), the average BPD for a 250kg *German* HE bomb is assessed to be approximately 7m bgl, with the maximum BPD considered to be approximately 15m bgl. Although it is possible that the *Luftwaffe* deployed larger bombs in the area, their deployment was infrequent, and to use such larger (or the largest) bombs for BPD calculations are not justifiable on either technical or risk management grounds.

WWII *German* bombs have a greater penetration depth when compared to IBs and AAA projectiles, which are unlikely to be encountered at depths greater than 1m bgl. However, due to the “J Curve” and the potential for structures to impede the penetration into the ground, HE bombs have been discovered at much shallower depths than the average.

Risk Pathway

Given the types of UXO that might be present on-site, all types of aggressive intrusive engineering activities (i.e., investigative groundworks and construction methodologies) may generate a significant risk pathway. Whilst not all UXO encountered aggressively will initiate upon contact, such a discovery could lead to serious impact on the project especially in terms of critical injury to personnel, damage to equipment and project delay.

Prospective Consequences

Consequences of UXO initiation include:

1. Fatally injure personnel;
2. Severe damage to plant and equipment;
3. Deliver blast and fragmentation damage to nearby buildings;
4. Rupture and damage underground utilities/services.

Consequences of UXO discovery include:

1. Delay to the project and blight;
2. Disruption to local community/infrastructure;
3. The expenditure of additional risk mitigation resources and EOD clearance;
4. Incurring additional time and cost.

UXO RISK CALCULATION

Site Activities

Although there is some variation in the probability of encountering and initiating items of UXO when conducting different types of intrusive activities, a number of ground intrusive methodologies have been described for analysis at this Study Site. The consequences of initiating UXO vary greatly, depending upon, *inter alia* the mass of HE in the UXO and how aggressively it might be encountered. For this reason, 6 Alpha has conducted separate risk rating calculations for each intrusive methodology that might be employed.

Risk Rating Calculation

6 Alpha’s Semi-Quantitative Risk Assessment assesses and rates the risks posed by the most probable threat items when conducting a number of different activities on the site. UXO risk is determined by calculating the probability of encountering and initiating UXO and the consequences of an inadvertent UXO detonation.



UXO Risk Calculation Table – All Areas

Activity	UXO Threat Items	Probability (SH+EM=P)	Consequence (D+PSR=C)	UXO Risk (PxC=R)
Trial Pits (within existing foundations, up to 2m bgl)	HE Bombs	1+2=3	3+3=6	3x6=18
	AAA Projectiles	1+2=3	3+1=4	3x4=12
	IBs	1+2=3	3+1=4	3x4=12
Window Sampling (up to 5m bgl)	HE Bombs	2+3=5	3+2=5	5x5=25
	AAA Projectiles	1+3=4	3+1=4	4x4=16
	IBs	1+3=4	3+1=4	4x4=16
Boreholes (up to 30m bgl)	HE Bombs	2+3=5	3+2=5	5x5=25
	AAA Projectiles	1+3=4	3+1=4	4x4=16
	IBs	1+3=4	3+1=4	4x4=16
Excavations	HE Bombs	2+2=4	3+3=6	4x6=24
	AAA Projectiles	1+2=3	3+1=4	3x4=12
	IBs	1+2=3	3+1=4	3x4=12
Trenching	HE Bombs	2+2=4	3+3=6	4x6=24
	AAA Projectiles	1+2=3	3+1=4	3x4=12
	IBs	1+2=3	3+1=4	3x4=12
Piling	HE Bombs	2+3=5	3+2=5	5x5=25
	AAA Projectiles	1+3=4	3+1=4	4x4=16
	IBs	1+3=4	3+1=4	4x4=16

Abbreviations – Site History (SH), Engineering Methodology (EM), Probability (P), Depth (D), Consequence (C), Proximity to Sensitive Receptors (PSR) and Risk Rating (RR).



STAGE FIVE – RECOMMENDED RISK MITIGATION MEASURES

Do the ground conditions support a geophysical UXO survey?

Non-Intrusive Methods of Mitigation – Magnetometer results may be affected by ferro-magnetic contamination due to previous construction activities and made ground within the Study Site.

Intrusive Methods of Mitigation – Intrusive magnetometry may be effective on this Study Site, prior to boreholing and piling especially. However, any ferrous metal/red brick contamination in made ground/old foundations may affect the detection capability of the UXB survey equipment, as it passes through the contaminated layer especially. Nonetheless, beyond the contaminated strata such a survey should prove effective.

Mitigation Measures to Reduce Risk to 'ALARP'

Activity	Risk Mitigation Measures	Final Risk Rating
All Activities in All Areas	1. Operational UXO Emergency Response Plan; appropriate site management documentation should be held on-site to guide and plan for the actions which should be undertaken in the event of a suspected or real UXO discovery (this plan can be supplied by 6 Alpha); 2. UXO Safety & Awareness Briefings; the briefings are essential when there is a possibility of explosive ordnance encounter and are a vital part of the general safety requirement. All personnel working on the site should receive a briefing on the identification of a UXB, what actions they should take to keep people and equipment away from such a hazard and to alert site management. Information concerning the nature of the UXB threat should be held in the site office and displayed for general information on notice boards, both for reference and as a reminder for ground workers. The safety awareness briefing is an essential part of the <i>Health & Safety Plan</i> for the site and helps to evidence conformity with the principles laid down in the <i>CDM regulations 2015</i> (this brief can be delivered directly, or in some cases remotely, by 6 Alpha).	ALARP
Trial Pits within Existing Foundations up to 2m bgl	3. On-Call Engineer; An on-call EOD Engineer will be able to identify and/or advise on the appropriate course of action in the event of any suspicious and/or real UXO finds. 6 Alpha offer three tiers of immediate telephone and/or email response.	
Excavations and Trenching into Previously Undisturbed Ground	4. EOD Engineer in the Watching Brief Role; Where "open" intrusive works into previously undisturbed ground are proposed an EOD Engineer should be present in the UXO Watching Brief role to monitor ongoing "open" intrusive works to identify any suspicious items that may be UXB or UXO related (this service can be provided by 6 Alpha).	
Window Sampling, Piling and Boreholing into Previously Undisturbed Ground	5. Intrusive UXO Survey; Where 'blind' intrusive works into previously undisturbed ground are proposed, an intrusive UXO survey (employing down-hole magnetometer or MagCone techniques) is strongly recommended. Such a survey should extend to the <i>assessed average bomb penetration depth</i> or to the maximum depth of the works, whichever is encountered first, or until geology is encountered through which it is assessed a UXB would not penetrate, to identify for signs of sub-surface anomalies which may model as the target UXO in advance of said works. (This service can be provided by 6 Alpha).	

This assessment has been conducted partially based on the information provided by the Client, should the proposed works change then 6 Alpha should be re-engaged to refine this risk assessment



Report Figures



Figure One - Study Site Location



Site Location

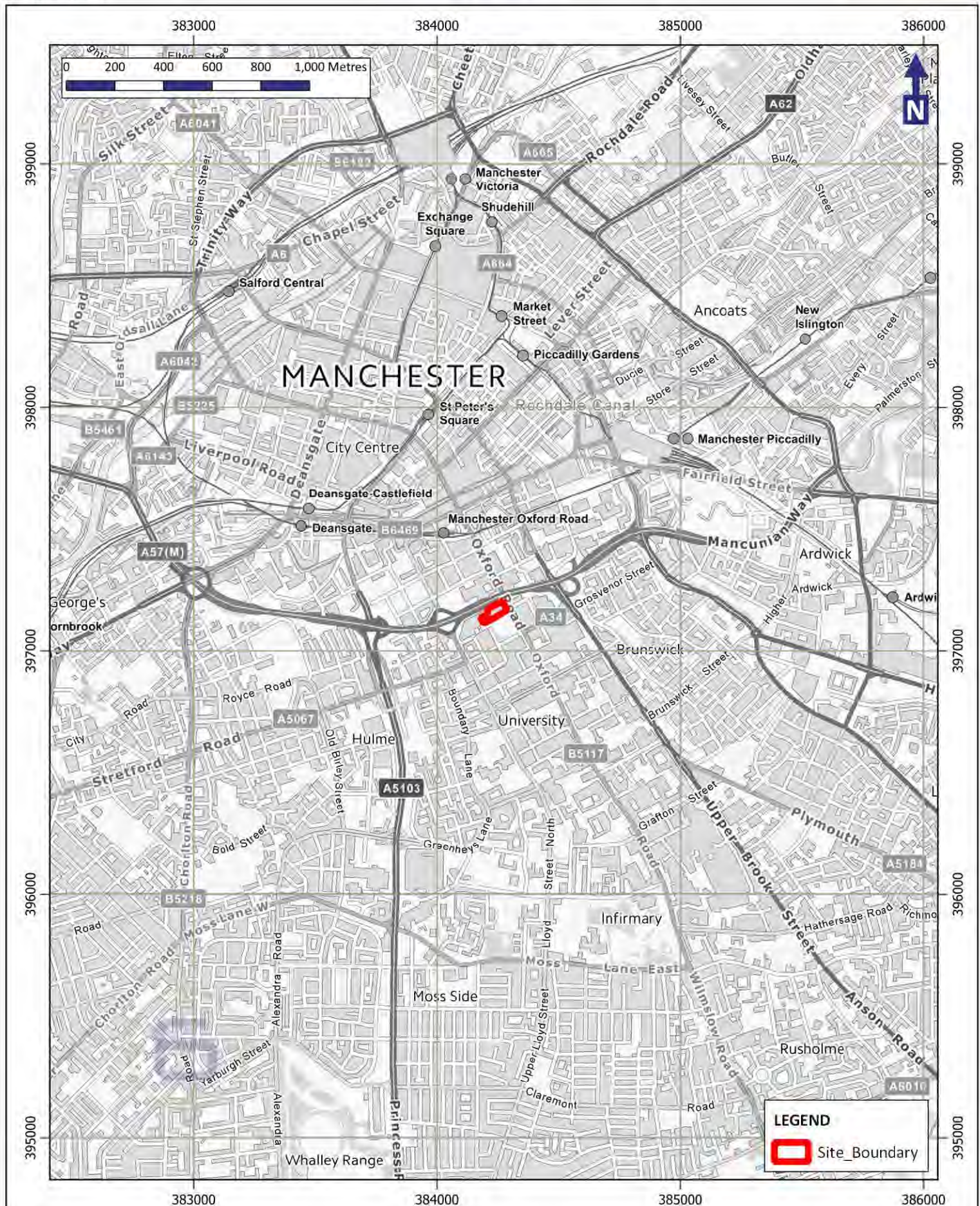




Figure Two - Study Site Boundary



British National Grid

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Site Boundary

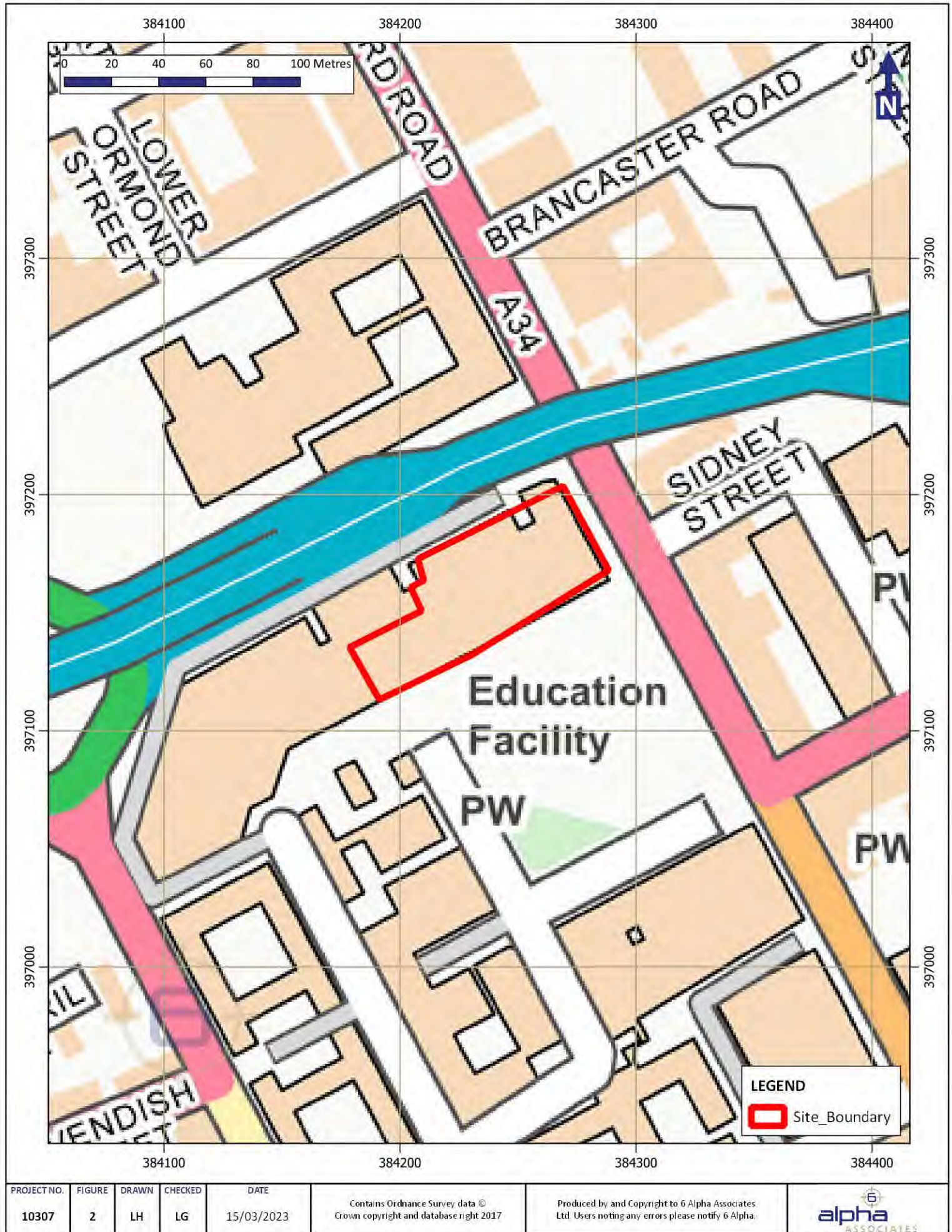




Figure Three - Aerial Photography (2021)



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Aerial Photography (2021)

British National Grid



PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE	Map data: Google, The GeoInformation Group, Infoterra Ltd, Bluesky, Getmapping plc	Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha.	6 Alpha ASSOCIATES
10307	3	LH	LG	15/03/2023			



Figure Four – 2023 Proposed Development Plans



British National Grid

MMU ALL SAINTS LIBRARY, M15 6BH



Proposed Development Plans

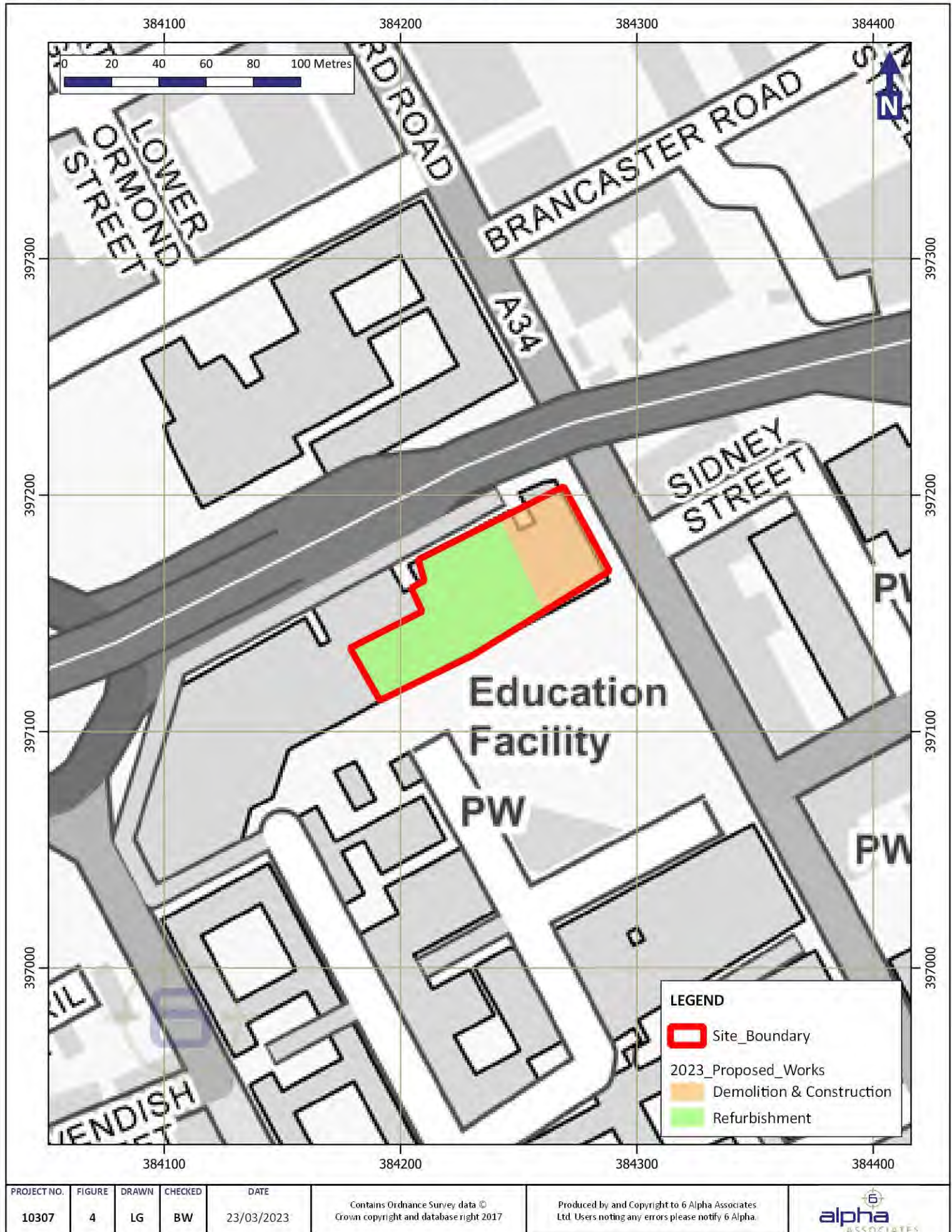




Figure Five - WWII High Explosive Bomb Density



British National Grid

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WWII High Explosive Bomb Density

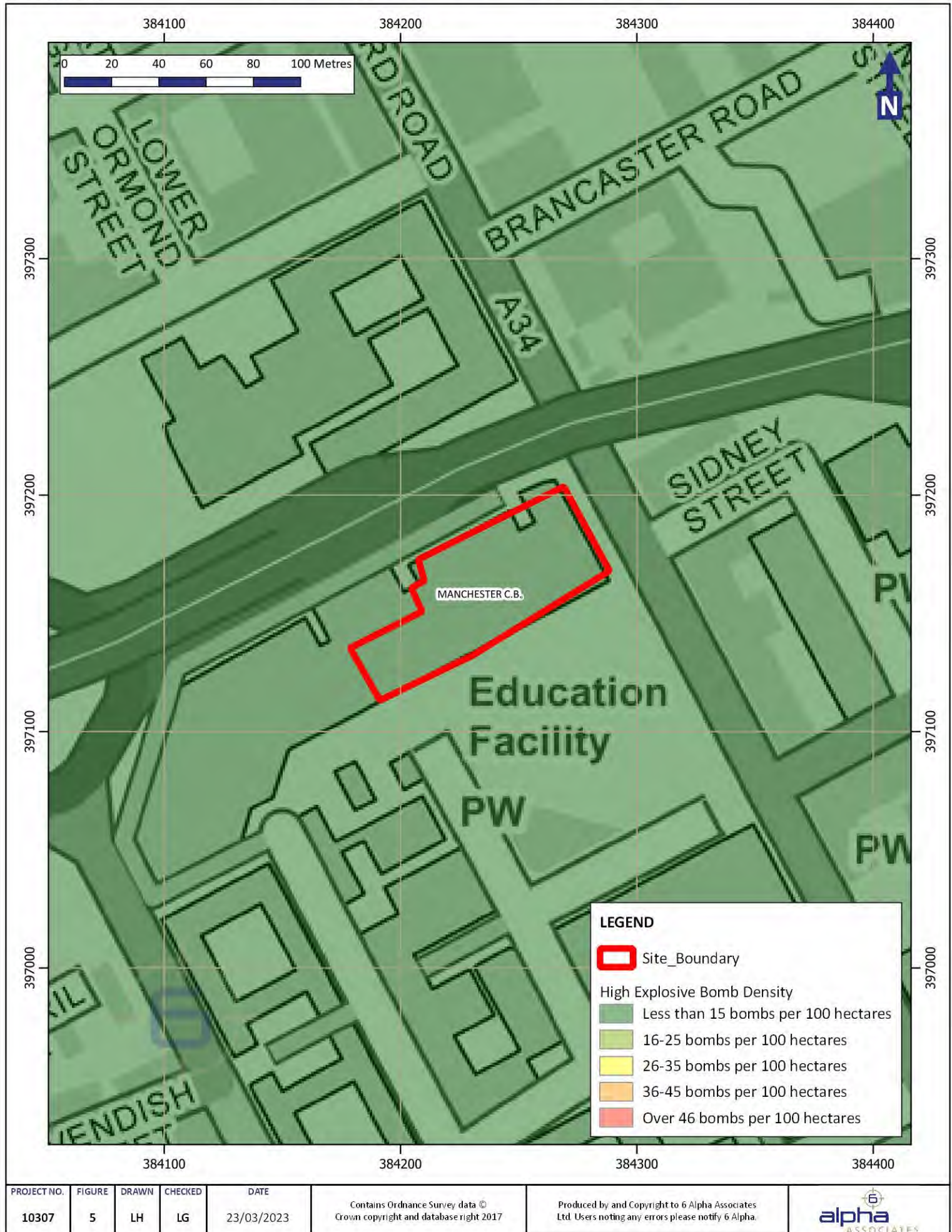




Figure Six - WWII Luftwaffe Bombing Targets

WWII Luftwaffe Bombing Targets

British National Grid

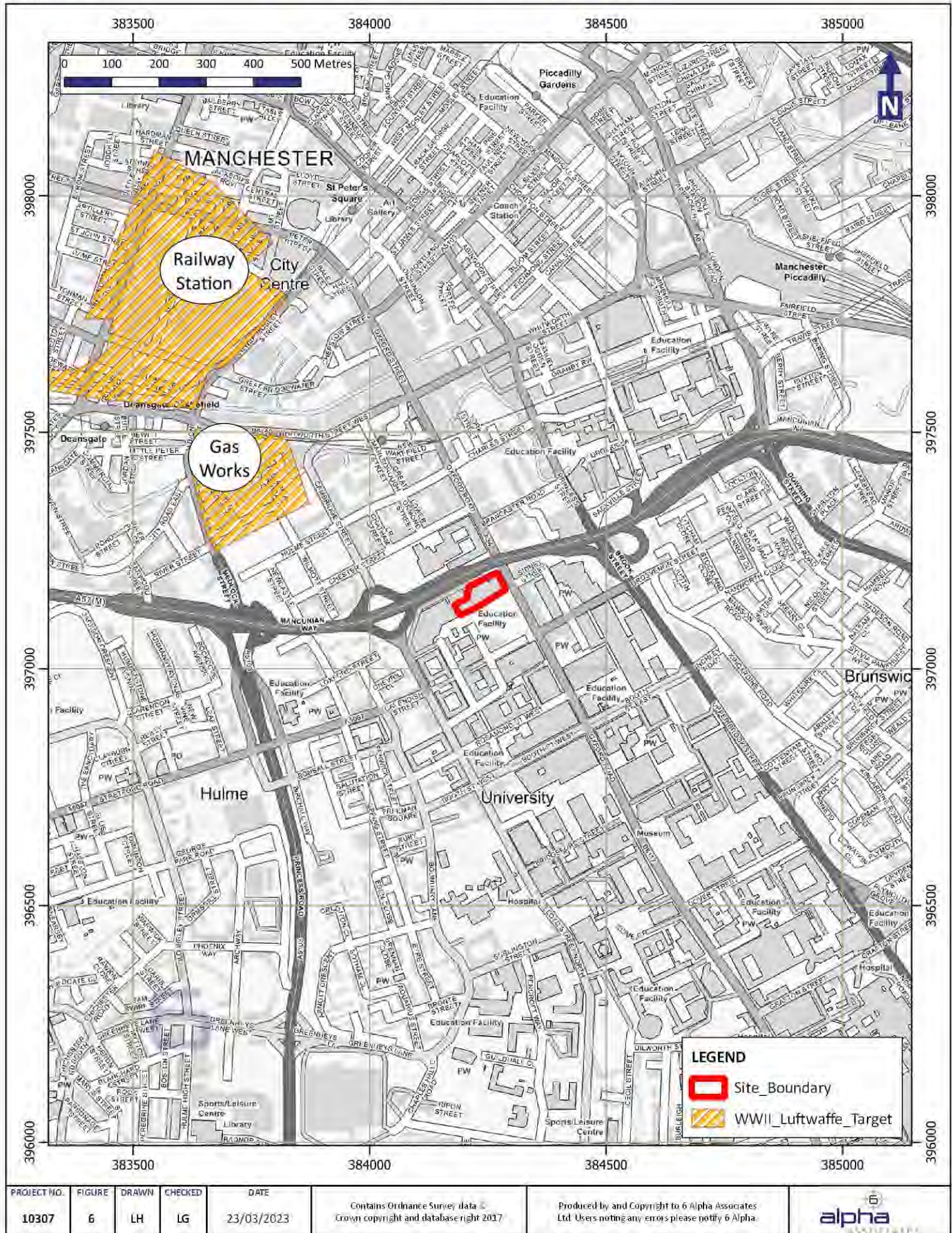




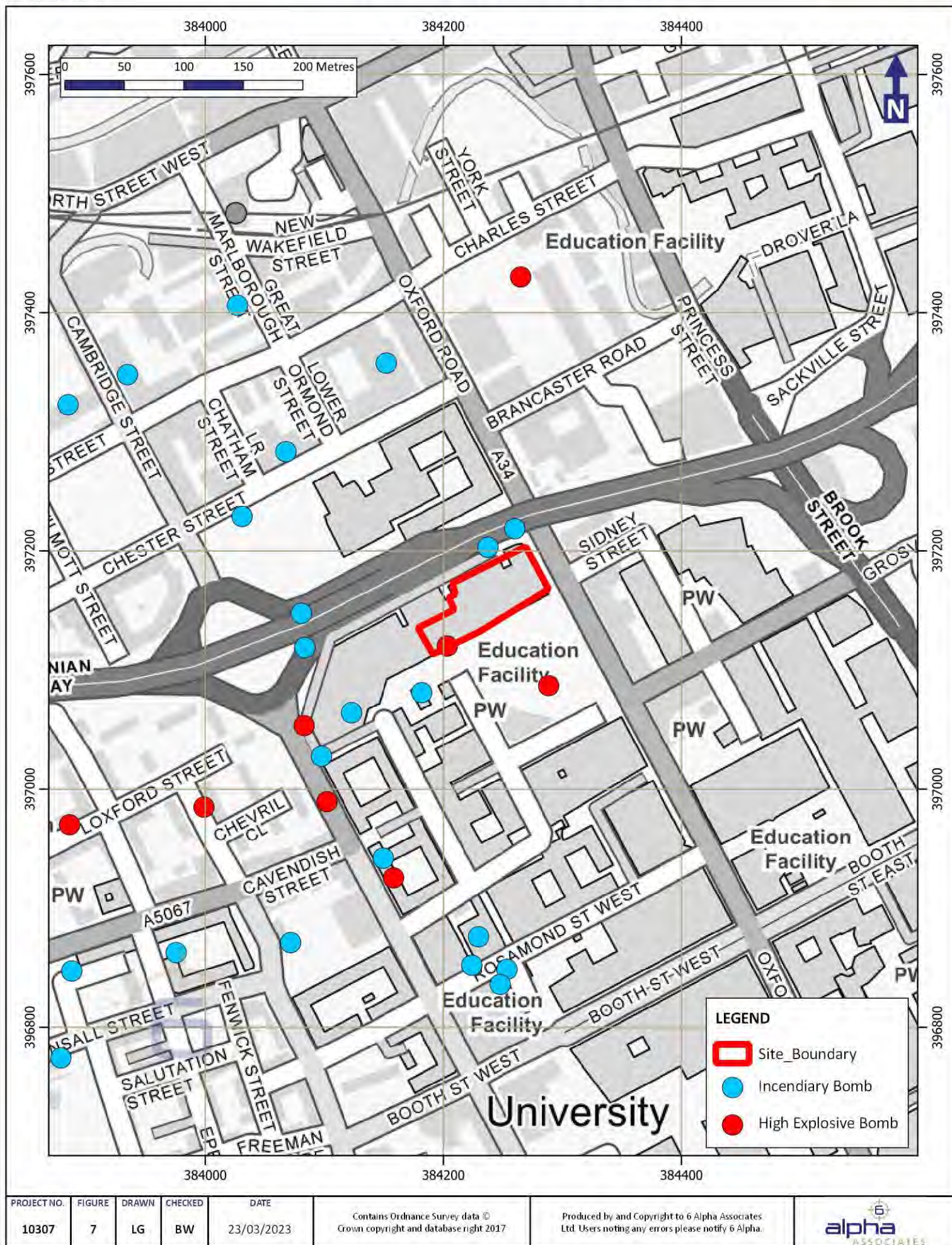
Figure Seven - WWII Consolidated Bomb Strikes



British National Grid

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WWII Consolidated Bomb Strikes



PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE
10307	7	LG	BW	23/03/2023

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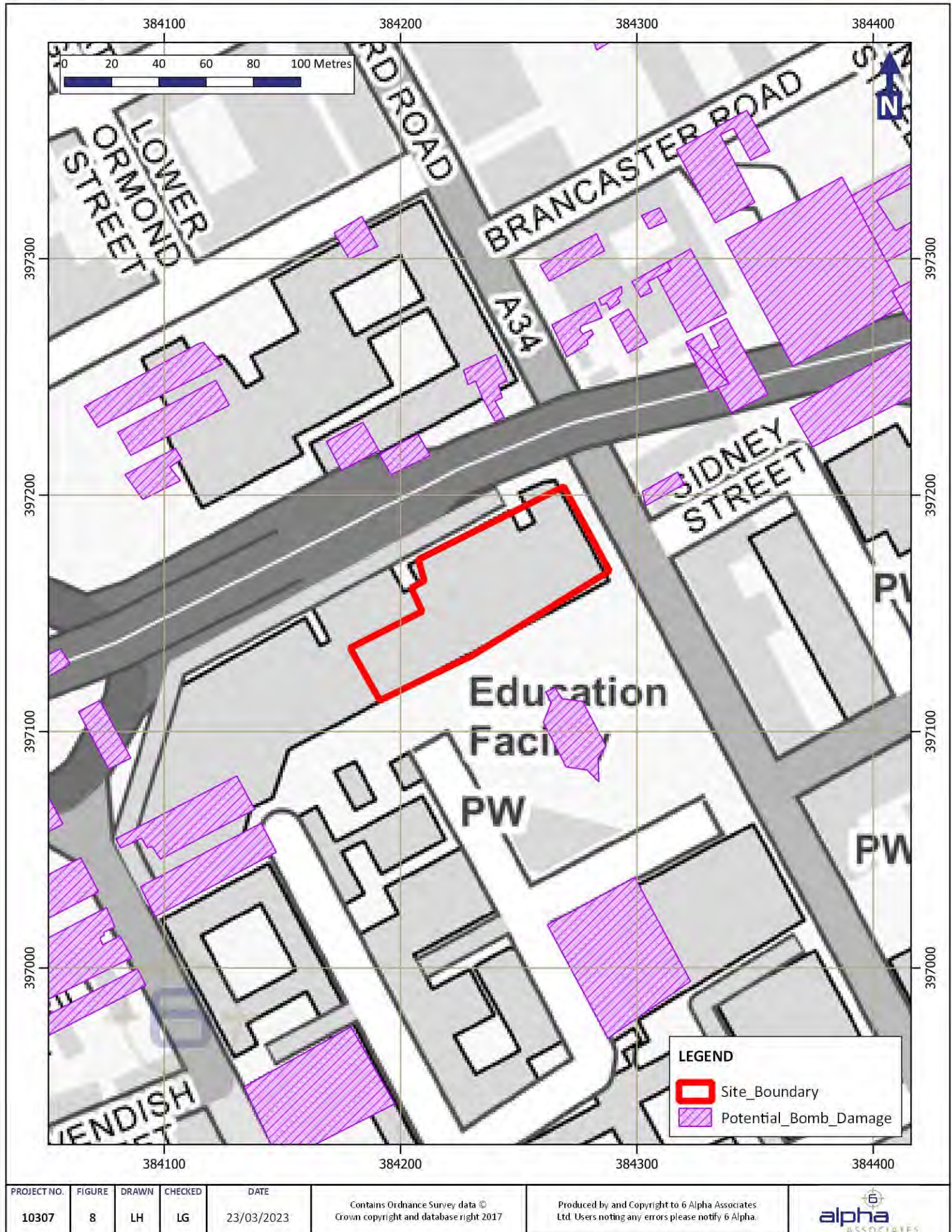
Figure Eight – Potential Bomb Damage



British National Grid

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Potential Bomb Damage



Appendix B BGS Boreholes

TRIAL PIT RECORDS

STRATA SURVEYS LTD.,
HOLMES CHAPEL ROAD,
MIDDLEWICH, CHESHIRE.
Telephone: Middlewich (STD 0606 84) 4637

384341
397184

Job No: 3673/10 Location: Sidney St. Scale 1:50
Client: MANCHESTER CITY COUNCIL J.C.B. 3CX

T.P. No. Description of Strata	Reduced Level	Legend	Thick-ness	Depth	Samples			NMC	Assessment Known No. 2	Assessment Unknown No. 2	Daily Progress Water Levels Remarks
					from	to	Type				
Ground Level											
Sand and hardcore over brick rubble (70-90% bricks) some timber, metal pipe					0.50		D ₁				20-7-87
1.90m - 40-60mm thick sst slab			1.40	1.90							SLIGHT 2.1
Medium-dense brown clayey gravelly sand with some brick fragments			0.20	2.10							
Medium-dense brown sand with lenses of sandy gravel at times slightly clayey.			0.40	3.50							SLIGHT 2.1
Dense rusty brown slightly sandy gravel with occasional cobbles			0.40	3.90							UNSTABLE SIDES
From 3.90m to 4.00m dark brown clay with fine to coarse gravel.			0.10	4.00							
4.00m COMPLETE											

T.P. No. Description of Strata	Reduced Level	Legend	Thick-ness	Depth	Samples			NMC	Assessment Known No. 2	Assessment Unknown No. 2	Daily Progress Water Levels Remarks
					from	to	Type				
Ground Level											
Sand and hardcore over brick rubble (70-90% Bricks) with metal, wire, broken sst flags.											20-7-87 384346 397175
1.90m - 50mm thick sst slab floor.			1.40	1.90							UNSTABLE IN THE FILL.
Medium-dense brown sandy gravel at times gravelly sand - occasional cobbles below 2.70m.			1.10	3.00							NO WATER.
Stiff brown clay with fine to coarse gravel			0.80	3.80							
COMPLETE 3.80m.											

U - undisturbed D - disturbed B - bulk W - groundwater P - standard penetration CP - cone penetration V - vane test

Webbseries

TRIAL PIT RECORDS

STRATA SURVEYS LTD., HOLMES CHAPEL ROAD, MIDDLEWICH, CHESHIRE. Telephone: Middlewich (STD 0606 84) 4637										384333 397180	
Job No: 3673/10 Location: SIDNEY ST										Scale 1:50	
Client: MANCHESTER CITY COUNCIL										JCB 3cx.	
T.P. No. 3.	Reduced Level	Legend	Thick-ness	Depth	Samples			NMC	Assessment Cohesion KN/m2	Dilatancy	Daily Progress Water Levels Remarks
Description of Strata	Ground Level				from	to	Type				
Sand and hardcore over brick rubble (70-90% bricks) with some sandstone, timber, metal and ash.					0.50		D ₁				20.7.87.
Very loose black ashes, white ashes, limeburn, tiles and bricks.			1.60	1.60							UNSTABLE SIDES IN FILL MATERIAL.
From - some with ssb slab floor - medium dense brown clayey sand with brick fill.			0.30	1.90							
Medium-dense to dense brown clayey silty gravelly SAND.			0.20	2.10							
Medium-dense brown medium SAND with lenses of sandy GRAVEL.			0.50	2.60							Brick foundations extend to 2.10m. buildings on Oxford Rd. SLOW 1.5
Dense rusty brown (wet) slightly sandy GRAVEL with cobbles.			0.40	3.00	3.50		W ₁				
Firm to stiff dark brown CLAY F-C gravel			0.30	3.80	3.90		V ₁	8.8 7.0 6.2			
4.00m COMPLETE.			0.20	4.00							COHESION VALUE DETAILED BY MULTI- 1.2.4.0.

T.P. No. 4.										384338 397171	
Description of Strata	Reduced Level	Legend	Thick-ness	Depth	Samples			NMC	Assessment Cohesion KN/m2	Dilatancy	Daily Progress Water Levels Remarks
Description of Strata	Ground Level				from	to	Type				
Sand and hardcore over brick rubble (70-90% bricks) with some timber, broken concrete and ash.											20.7.87.
Slab covering ssb slab floor 30-40mm thick Purple ASH.			1.50	1.50							UNSTABLE SIDES IN FILL. NO WATER.
Soft brown sandy gravelly CLAY with ash and brick fragments. (old drain encountered 2.0m) becomes less clayey			0.15	1.65							
Medium-dense brown gravelly SAND.			0.85	2.50							
Stiff dark brown CLAY with fine to coarse gravel. - becomes slightly less stiff and slightly silty to silty at times			0.40	2.90	3.00		V ₁	12.1 11.5 11.8			
COMPLETE 4.00m.			(1.10)	4.00							

U - undisturbed D - disturbed B - bulk W - groundwater P - standard penetration CP - cone penetration V - vane test

Webberley

SJ89/262

British Geological Survey

Appendix C Groundsure Report

ALL SAINTS CAMPUS, OXFORD ROAD, MANCHESTER, M15 6BH

Order Details

Date: 25/11/2022
Your ref: PO244532_MMU_Library
Our Ref: GS-9223729

Site Details

Location: 384240 397166
Area: 0.71 ha
Authority: [Manchester City Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

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Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	0	1	13	80	-
17	1.2	Historical tanks	0	0	3	100	-
21	1.3	Historical energy features	0	0	3	39	-
23	1.4	Historical petrol stations	0	0	0	0	-
23	1.5	Historical garages	0	2	9	5	-
24	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
25	2.1	Historical industrial land uses	0	1	19	132	-
31	2.2	Historical tanks	0	0	10	174	-
38	2.3	Historical energy features	0	0	4	85	-
41	2.4	Historical petrol stations	0	0	0	0	-
42	2.5	Historical garages	0	3	30	15	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
44	3.1	Active or recent landfill	0	0	0	0	-
44	3.2	Historical landfill (BGS records)	0	0	0	0	-
45	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
45	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
45	3.5	Historical waste sites	0	0	5	0	-
46	3.6	Licensed waste sites	0	0	0	1	-
46	3.7	Waste exemptions	4	7	4	17	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
50	4.1	Recent industrial land uses	1	3	16	-	-
52	4.2	Current or recent petrol stations	0	0	1	0	-
52	4.3	Electricity cables	0	0	0	0	-
52	4.4	Gas pipelines	0	0	0	0	-
52	4.5	Sites determined as Contaminated Land	0	0	0	0	-



53	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
53	4.7	Regulated explosive sites	0	0	0	0	-
53	4.8	Hazardous substance storage/usage	0	0	0	0	-
53	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
53	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
54	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	0	2	-
54	4.12	<u>Radioactive Substance Authorisations</u>	0	0	6	8	-
56	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	6	40	-
63	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
63	4.15	Pollutant release to public sewer	0	0	0	0	-
63	4.16	List 1 Dangerous Substances	0	0	0	0	-
63	4.17	List 2 Dangerous Substances	0	0	0	0	-
64	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	0	1	-
64	4.19	Pollution inventory substances	0	0	0	0	-
64	4.20	Pollution inventory waste transfers	0	0	0	0	-
64	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
65	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
67	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
69	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
70	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
70	5.5	Groundwater vulnerability- local information	None (within 0m)				
71	5.6	<u>Groundwater abstractions</u>	0	2	0	0	37
81	5.7	<u>Surface water abstractions</u>	0	0	0	0	2
82	5.8	Potable abstractions	0	0	0	0	0
82	5.9	<u>Source Protection Zones</u>	1	0	0	0	-
83	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
84	6.1	<u>Water Network (OS MasterMap)</u>	0	0	3	-	-



85	6.2	<u>Surface water features</u>	0	0	2	-	-
85	6.3	<u>WFD Surface water body catchments</u>	2	-	-	-	-
86	6.4	<u>WFD Surface water bodies</u>	0	0	1	-	-
86	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
87	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
87	7.2	Historical Flood Events	0	0	0	-	-
87	7.3	Flood Defences	0	0	0	-	-
88	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
88	7.5	Flood Storage Areas	0	0	0	-	-
89	7.6	Flood Zone 2	None (within 50m)				
89	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
90	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
92	9.1	<u>Groundwater flooding</u>	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
93	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
93	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
93	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
93	10.4	Special Protection Areas (SPA)	0	0	0	0	0
94	10.5	National Nature Reserves (NNR)	0	0	0	0	0
94	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
94	10.7	Designated Ancient Woodland	0	0	0	0	0
94	10.8	Biosphere Reserves	0	0	0	0	0
95	10.9	Forest Parks	0	0	0	0	0
95	10.10	Marine Conservation Zones	0	0	0	0	0
95	10.11	Green Belt	0	0	0	0	0
95	10.12	Proposed Ramsar sites	0	0	0	0	0



95	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
96	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
96	10.15	Nitrate Sensitive Areas	0	0	0	0	0
96	10.16	<u>Nitrate Vulnerable Zones</u>	0	0	0	0	3
97	10.17	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
98	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
99	11.1	World Heritage Sites	0	0	0	-	-
100	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
100	11.3	National Parks	0	0	0	-	-
100	11.4	<u>Listed Buildings</u>	0	1	13	-	-
101	11.5	Conservation Areas	0	0	0	-	-
101	11.6	Scheduled Ancient Monuments	0	0	0	-	-
102	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
103	12.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
104	12.2	Open Access Land	0	0	0	-	-
104	12.3	Tree Felling Licences	0	0	0	-	-
104	12.4	Environmental Stewardship Schemes	0	0	0	-	-
104	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
105	13.1	Priority Habitat Inventory	0	0	0	-	-
105	13.2	Habitat Networks	0	0	0	-	-
105	13.3	Open Mosaic Habitat	0	0	0	-	-
105	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
106	14.1	<u>10k Availability</u>	Identified (within 500m)				
107	14.2	<u>Artificial and made ground (10k)</u>	0	1	1	1	-
108	14.3	<u>Superficial geology (10k)</u>	2	0	0	2	-



109	14.4	Landslip (10k)	0	0	0	0	-
110	14.5	<u>Bedrock geology (10k)</u>	2	0	0	0	-
111	14.6	<u>Bedrock faults and other linear features (10k)</u>	1	0	0	1	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
112	15.1	<u>50k Availability</u>	Identified (within 500m)				
113	15.2	<u>Artificial and made ground (50k)</u>	0	1	0	0	-
114	15.3	<u>Artificial ground permeability (50k)</u>	0	1	-	-	-
115	15.4	<u>Superficial geology (50k)</u>	2	0	0	2	-
116	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
116	15.6	Landslip (50k)	0	0	0	0	-
116	15.7	Landslip permeability (50k)	None (within 50m)				
117	15.8	<u>Bedrock geology (50k)</u>	2	0	0	0	-
118	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
118	15.10	<u>Bedrock faults and other linear features (50k)</u>	1	0	0	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
119	16.1	<u>BGS Boreholes</u>	1	5	86	-	-
Page	Section	Natural ground subsidence					
124	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
125	17.2	<u>Running sands</u>	Very low (within 50m)				
126	17.3	<u>Compressible deposits</u>	Very low (within 50m)				
128	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
129	17.5	<u>Landslides</u>	Very low (within 50m)				
130	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
132	18.1	Natural cavities	0	0	0	0	-
133	18.2	BritPits	0	0	0	0	-
133	18.3	Surface ground workings	0	0	0	-	-
133	18.4	Underground workings	0	0	0	0	0
133	18.5	Historical Mineral Planning Areas	0	0	0	0	-



133	18.6	Non-coal mining	0	0	0	0	0
<u>134</u>	<u>18.7</u>	<u>Mining cavities</u>	0	0	0	0	1
<u>134</u>	<u>18.8</u>	<u>JPB mining areas</u>	Identified (within 0m)				
<u>135</u>	<u>18.9</u>	<u>Coal mining</u>	Identified (within 0m)				
135	18.10	Brine areas	None (within 0m)				
135	18.11	Gypsum areas	None (within 0m)				
135	18.12	Tin mining	None (within 0m)				
135	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
<u>136</u>	<u>19.1</u>	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
<u>137</u>	<u>20.1</u>	<u>BGS Estimated Background Soil Chemistry</u>	3	0	-	-	-
<u>137</u>	<u>20.2</u>	<u>BGS Estimated Urban Soil Chemistry</u>	4	4	-	-	-
138	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
139	21.1	Underground railways (London)	0	0	0	-	-
139	21.2	Underground railways (Non-London)	0	0	0	-	-
139	21.3	Railway tunnels	0	0	0	-	-
139	21.4	Historical railway and tunnel features	0	0	0	-	-
139	21.5	Royal Mail tunnels	0	0	0	-	-
140	21.6	Historical railways	0	0	0	-	-
140	21.7	Railways	0	0	0	-	-
140	21.8	Crossrail 1	0	0	0	0	-
140	21.9	Crossrail 2	0	0	0	0	-
140	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 22/04/2019

Site Area: 0.71ha



Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 0.71ha



Recent site history - 2009 aerial photograph



Capture Date: 02/06/2009

Site Area: 0.71ha



Recent site history - 2000 aerial photograph



Capture Date: 19/06/2000

Site Area: 0.71ha



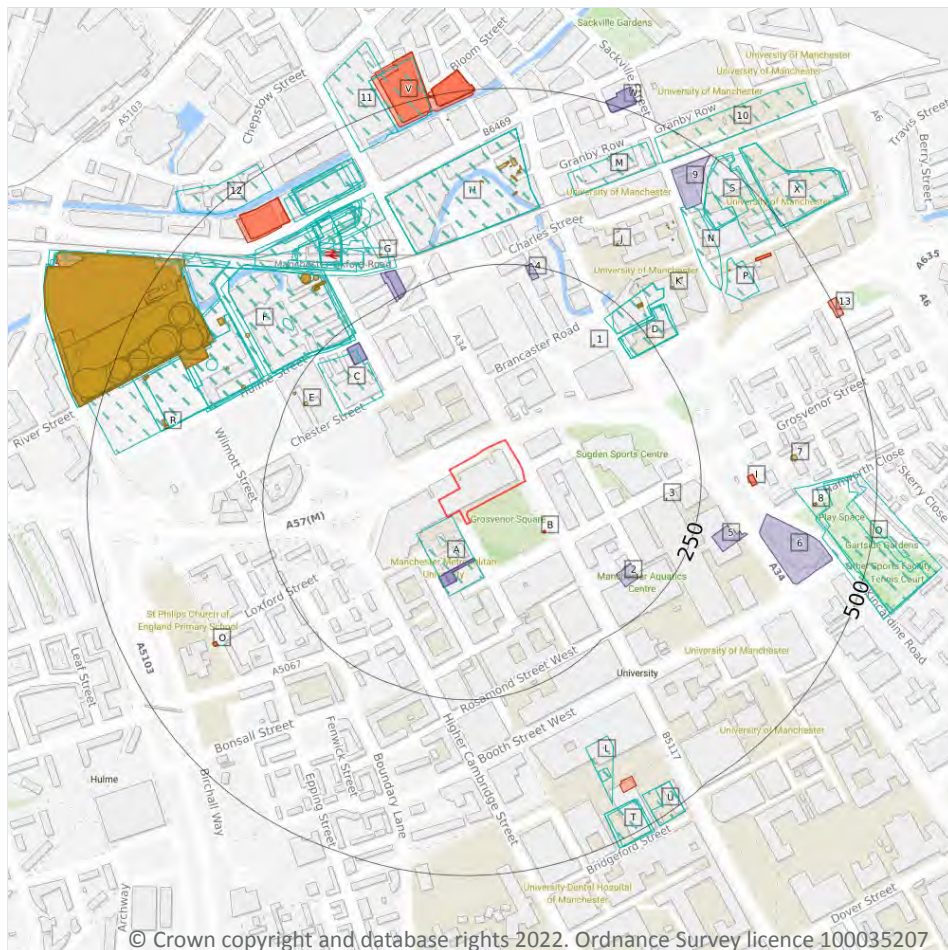
OS MasterMap site plan



Site Area: 0.71ha



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

94

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 13**

ID	Location	Land use	Dates present	Group ID
A	1m SW	Hospital	1971	834385



ID	Location	Land use	Dates present	Group ID
C	141m NW	Unspecified Mills	1916 - 1923	874195
D	213m NE	Unspecified Mills	1890	858454
D	213m NE	Unspecified Mills	1915	960133
D	213m NE	Unspecified Mills	1934 - 1938	967294
D	216m NE	Unspecified Mills	1923	975952
D	219m NE	Unspecified Works	1923	932223
D	220m NE	Unspecified Works	1915	929652
F	228m NW	Rubber Works	1916	915281
F	229m NW	Rubber Works	1923 - 1938	926915
F	233m NW	Unspecified Commercial/Industrial	1905	944072
F	233m NW	Unspecified Commercial/Industrial	1896	857423
F	236m NW	Unspecified Works	1985 - 1994	862878
F	236m NW	Unspecified Works	1978	976366
F	288m N	Railway Sidings	1905 - 1938	864885
H	292m N	Unspecified Mills	1916	861845
H	292m N	Unspecified Commercial/Industrial	1923	874542
H	292m N	Unspecified Commercial/Industrial	1905	968335
H	292m N	Unspecified Mills	1932 - 1938	989884
F	295m NW	Railway Sidings	1985 - 1994	928139
F	295m NW	Unspecified Works	1978	865006
F	295m NW	Unspecified Works	1985 - 1994	927569
F	296m NW	Rubber Works	1956	849382
F	298m NW	Unspecified Commercial/Industrial	1851 - 1896	849974
F	298m NW	Unspecified Tanks	1851	815405
F	311m NW	Railway Station	1905 - 1938	962635
F	313m NW	Railway Station	1956	923967
F	324m NW	Railway Station	1896	887032
F	329m NW	Railway Station	1971	960776



ID	Location	Land use	Dates present	Group ID
F	329m NW	Railway Station	1985	962611
F	329m NW	Railway Station	1978	981767
F	332m NW	Unspecified Tank	1896	825247
F	334m NW	Railway Station	1988 - 1994	912150
F	356m NW	Gas Works	1851	802208
F	359m NW	Tanks	1851	832185
L	360m SE	Unspecified Works	1916	830418
M	361m N	Unspecified Commercial/Industrial	1923	796719
F	361m NW	Unspecified Tank	1851	825246
N	368m NE	Unspecified Works	1915 - 1923	951103
P	376m NE	Unspecified Works	1915 - 1923	972915
F	376m NW	Railway Sidings	1896	989778
Q	382m E	Cemetery	1851	948454
F	382m NW	Unspecified Commercial/Industrial	1956	976686
F	387m NW	Unspecified Commercial/Industrial	1932 - 1938	872530
F	387m NW	Gas Works	1905 - 1923	927583
F	387m NW	Railway Building	1956	820261
F	388m NW	Gas Works	1985	894760
F	388m NW	Gas Works	1978	953907
F	389m NW	Unspecified Works	1971	976313
F	389m NW	Unspecified Tank	1851	987864
F	393m NW	Unspecified Tanks	1896	952761
F	393m NW	Unspecified Tanks	1956	991069
F	397m NW	Gasometer	1905 - 1923	889070
F	397m NW	Unspecified Tank	1932 - 1938	961454
L	399m S	Police Station	1971	832593
F	410m NW	Hospital	1923	848326
F	410m NW	Hospital	1916	938342

ID	Location	Land use	Dates present	Group ID
F	414m NW	Coal Wharf	1851	794097
Q	414m E	Cemetery	1890 - 1938	877404
F	414m NW	Hospital	1932 - 1938	949847
F	416m NW	Hospital	1956 - 1971	915521
F	416m NW	Hospital	1978	957282
F	418m NW	Gasometer	1978	909770
F	418m NW	Gasometer	1985	937412
F	418m NW	Unspecified Tank	1971	953873
S	422m NE	Iron Works	1890	822793
S	423m NE	Unspecified Works	1915 - 1923	954702
S	424m NE	Railway Sidings	1915 - 1923	959198
Q	424m E	Cemetery	1956	980504
F	427m NW	Unspecified Tank	1932 - 1938	893786
F	427m NW	Gasometer	1905 - 1923	961140
F	427m NW	Gasometer	1905 - 1923	856404
F	427m NW	Unspecified Tank	1932 - 1938	943763
10	453m NE	Unspecified Commercial/Industrial	1923	796723
F	456m W	Unspecified Tank	1932 - 1938	864386
F	456m W	Gasometer	1905 - 1923	911162
T	457m S	Corporation Yard	1915	882266
T	457m S	Corporation Yard	1934 - 1938	891984
11	457m N	Unspecified Commercial/Industrial	1923	796724
U	458m SE	Hospital	1934 - 1938	988396
T	459m SE	Corporation Yard	1923	894742
U	461m SE	Hospital	1915	978354
V	464m N	Electricity Station	1916 - 1923	992043
F	469m NW	Unspecified Works	1978	921026
12	471m NW	Corporation Yard	1905 - 1938	920120



ID	Location	Land use	Dates present	Group ID
F	472m NW	Unspecified Tank	1851	825227
F	473m W	Unspecified Tanks	1956	927953
F	480m W	Gasometer	1905 - 1923	967050
F	480m W	Unspecified Tank	1932 - 1938	989404
X	495m NE	Unspecified Mills	1934 - 1938	854159
X	495m NE	Unspecified Mills	1915	967472
X	496m NE	Unspecified Mills	1923	914258
F	499m W	Gasometer	1978	910445
F	499m W	Unspecified Tank	1971	973500

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

103

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 13**

ID	Location	Land use	Dates present	Group ID
1	183m NE	Unspecified Tank	1891	115782
E	222m NW	Unspecified Tank	1948 - 1985	122344
E	244m NW	Unspecified Tank	1922	115781
D	266m NE	Unspecified Tank	1948	137703
D	267m NE	Unspecified Tank	1955	144222
D	267m NE	Tanks	1962 - 1969	129099
D	267m NE	Unspecified Tank	1950 - 1953	134156
G	313m NW	Unspecified Tank	1953	136354
G	313m NW	Unspecified Tank	1955	136262



ID	Location	Land use	Dates present	Group ID
F	313m W	Unspecified Tank	1893 - 1922	143428
F	317m NW	Unspecified Tank	1948 - 1953	135406
F	317m NW	Unspecified Tank	1955	123253
F	317m NW	Tanks	1950	106780
J	318m NE	Unspecified Tank	1891	115940
F	319m NW	Unspecified Tank	1955	135180
F	319m NW	Tanks	1953	106778
F	319m NW	Unspecified Tank	1948 - 1953	141893
K	321m NE	Tanks	1891	106779
F	321m NW	Unspecified Tank	1948 - 1953	145471
F	321m NW	Unspecified Tank	1955	135178
F	329m NW	Unspecified Tank	1922	115957
F	333m NW	Gasometer	1891 - 1908	131372
F	334m NW	Unspecified Tank	1893	115950
J	336m NE	Unspecified Tank	1891	115941
K	338m NE	Unspecified Tank	1891	115939
F	342m NW	Unspecified Tank	1893 - 1922	122317
F	345m NW	Unspecified Tank	1908	115778
H	347m N	Tanks	1891	106787
H	367m N	Tanks	1891	106782
H	368m N	Tanks	1891	106786
N	370m NE	Unspecified Tank	1891	115943
H	371m N	Unspecified Tank	1891	115958
F	378m NW	Gas Works	1922	148353
F	378m NW	Gas Works	1893 - 1908	148771
F	378m NW	Gas Works	1891	138194
7	379m E	Unspecified Tank	1954	115780
H	379m N	Unspecified Tank	1891	115948

ID	Location	Land use	Dates present	Group ID
N	380m NE	Unspecified Tank	1891	115945
N	381m NE	Unspecified Tank	1891	115942
F	381m NW	Unspecified Tank	1980 - 1990	133041
H	382m N	Unspecified Tank	1891	115959
F	382m NW	Gas Works	1948	138071
F	382m NW	Unspecified Tank	1969 - 1998	138462
H	384m N	Unspecified Tank	1891	115960
M	384m N	Unspecified Tank	1891	115946
H	385m N	Unspecified Tank	1891 - 1893	141146
F	387m NW	Unspecified Tank	1891 - 1893	137941
H	388m N	Unspecified Tank	1891	115961
H	389m N	Unspecified Tank	1891	115947
F	389m NW	Unspecified Tank	1987 - 1990	144099
N	390m NE	Unspecified Tank	1891	115944
H	390m N	Unspecified Tank	1891	115949
H	390m N	Unspecified Tank	1891	115962
F	390m NW	Disused Gas Holder Station	1985	108346
F	390m NW	Gas Holder Station	1980	144973
F	391m NW	Unspecified Tank	1969	140316
F	391m NW	Unspecified Tank	1963 - 1979	129031
F	391m NW	Gasometer	1948	144835
F	392m NW	Unspecified Tank	1953	128601
H	392m N	Tanks	1891	106792
H	393m N	Unspecified Tank	1893	115963
F	394m NW	Tanks	1932	107129
F	394m NW	Gasometers	1908 - 1922	124662
F	395m NW	Gasometer	1891 - 1893	138622
R	398m W	Unspecified Tank	1980 - 1985	135450



ID	Location	Land use	Dates present	Group ID
P	398m NE	Unspecified Tank	1889 - 1908	134036
R	401m W	Unspecified Tank	1948 - 1979	133333
8	410m E	Unspecified Tank	1948 - 1955	136552
F	421m NW	Unspecified Tank	1963 - 1979	138510
F	421m NW	Gasometer	1948	142120
F	421m NW	Gas Holder	1980 - 1985	125516
F	422m NW	Unspecified Tank	1953	134836
F	422m NW	Gasometer	1893 - 1969	136753
F	423m NW	Gasometer	1948	135973
F	423m NW	Unspecified Tank	1963 - 1979	148209
F	423m NW	Unspecified Tank	1953	127502
F	425m NW	Gasometer	1891	124584
F	426m NW	Gasometer	1891 - 1893	128004
F	428m NW	Unspecified Tank	1953 - 1985	147415
F	428m NW	Gasometer	1969	108524
F	430m NW	Unspecified Tank	1893	123594
F	441m W	Unspecified Tank	1893	125584
F	445m W	Gasometer	1891	108523
F	447m W	Unspecified Tank	1998	124573
F	449m W	Unspecified Tank	1948 - 1990	148192
F	455m W	Gasometer	1893	138389
F	455m W	Gasometer	1891	126443
V	462m N	Unspecified Tank	1891	115964
F	464m W	Unspecified Tank	1953 - 1985	140482
F	468m NW	Unspecified Tank	1891	133313
F	469m W	Unspecified Tank	1891 - 1893	143653
F	471m NW	Unspecified Tank	1891	115951
F	473m W	Unspecified Tank	1963 - 1979	128106



ID	Location	Land use	Dates present	Group ID
F	473m W	Gasometer	1893 - 1948	135717
F	475m NW	Unspecified Tank	1979	115952
F	475m NW	Tanks	1948	147005
F	475m W	Unspecified Tank	1953	136419
F	475m NW	Tanks	1953 - 1969	129358
F	476m NW	Unspecified Tank	1948 - 1979	131914
F	477m NW	Tanks	1979	106781
F	482m W	Unspecified Tank	1953 - 1979	147656
F	486m W	Unspecified Tank	1893	147070
F	486m NW	Tanks	1948 - 1979	124597

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	42
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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 13**

ID	Location	Land use	Dates present	Group ID
B	75m SE	Electricity Substation	1990	62181
B	77m SE	Electricity Substation	1995 - 1998	84357
3	201m E	Electricity Substation	1987	62178
I	316m E	Electricity Substation	1984 - 1998	82529
I	316m E	Electricity Substation	1948 - 1970	67698
F	333m NW	Gasometer	1891 - 1908	84082
O	373m SW	Electricity Substation	1973 - 1997	85389
O	374m SW	Electricity Substation	1972	80664

ID	Location	Land use	Dates present	Group ID
F	378m NW	Gas Works	1893 - 1908	79545
F	378m NW	Gas Works	1922	81689
F	378m NW	Gas Works	1891	72601
F	382m NW	Gas Works	1948	66529
F	390m NW	Disused Gas Holder Station	1985	59539
F	390m NW	Gas Holder Station	1980	77508
F	391m NW	Gasometer	1948	64845
F	394m NW	Gasometers	1908 - 1922	65853
F	395m NW	Gasometer	1891 - 1893	71826
F	420m NW	Electricity Substation	1948 - 1999	65682
F	420m NW	Hydraulic Power Station	1932	78003
F	420m NW	Hydraulic Power Station	1948 - 1979	64692
F	421m NW	Hydraulic Power Station	1948 - 1973	64396
F	421m NW	Gasometer	1948	71445
F	421m NW	Gas Holder	1980 - 1985	70318
F	422m NW	Gasometer	1893 - 1969	68062
F	423m NW	Gasometer	1948	78274
F	425m NW	Gasometer	1891	67026
F	426m NW	Gasometer	1891 - 1893	80269
L	426m SE	Electricity Substation	1948 - 1951	84116
F	428m NW	Gasometer	1969	59717
P	437m NE	Electricity Substation	1970 - 1984	85141
P	438m NE	Electricity Substation	1968 - 1998	81695
F	445m W	Gasometer	1891	59716
F	455m W	Gasometer	1893	75823
F	455m W	Gasometer	1891	71699
F	467m W	Electricity Substation	1998	62182
V	469m N	Electricity Station	1908 - 1922	81883



ID	Location	Land use	Dates present	Group ID
F	473m W	Gasometer	1893 - 1948	65525
V	474m N	Electricity Station	1950 - 1955	66381
V	474m N	Electricity Station	1948	73425
V	483m N	Electricity Station	1955	77896
V	484m N	Electricity Station	1950	68267
13	495m NE	Electricity Substation	1968 - 1998	85157

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0
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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	16
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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 13**

ID	Location	Land use	Dates present	Group ID
A	49m S	Garage	1948	23136
A	50m S	Garage	1955	26713
A	50m S	Garage	1965	27197
A	62m S	Garage	1953	22930
A	63m S	Garage	1962	22634



ID	Location	Land use	Dates present	Group ID
2	185m SE	Garage	1962 - 1965	27390
C	196m NW	Garage	1962 - 1987	25909
C	197m NW	Garage	1968	21471
4	231m N	Garage	1948 - 1955	24945
G	244m NW	Garage	1948 - 1998	27861
G	245m NW	Garage	1955 - 1990	26377
5	277m E	Garage	1954	20302
6	341m E	Garage	1984 - 1998	27289
9	417m NE	Garage	1952 - 1955	26338
W	490m N	Garage	1948 - 1968	26993
W	490m N	Garage	1985 - 1990	27728

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

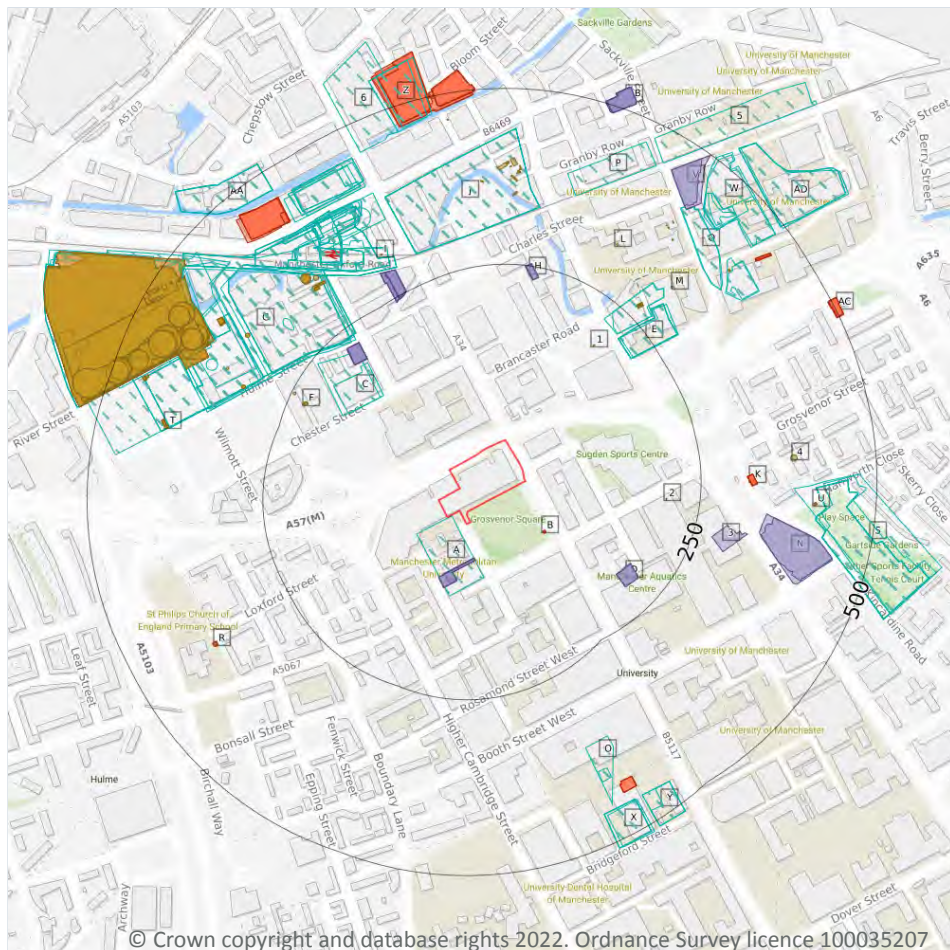
0

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

152

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 25**

ID	Location	Land Use	Date	Group ID
A	1m SW	Hospital	1971	834385
C	141m NW	Unspecified Mills	1916	874195
C	142m NW	Unspecified Mills	1923	874195



ID	Location	Land Use	Date	Group ID
E	213m NE	Unspecified Mills	1938	967294
E	213m NE	Unspecified Mills	1934	967294
E	213m NE	Unspecified Mills	1915	960133
E	213m NE	Unspecified Mills	1890	858454
E	216m NE	Unspecified Mills	1923	975952
E	219m NE	Unspecified Works	1923	932223
E	220m NE	Unspecified Works	1915	929652
G	228m NW	Rubber Works	1916	915281
G	229m NW	Rubber Works	1923	926915
G	233m NW	Rubber Works	1938	926915
G	233m NW	Rubber Works	1932	926915
G	233m NW	Unspecified Commercial/Industrial	1905	944072
G	233m NW	Unspecified Commercial/Industrial	1896	857423
G	236m NW	Unspecified Works	1988	862878
G	236m NW	Unspecified Works	1978	976366
G	236m NW	Unspecified Works	1985	862878
G	236m NW	Unspecified Works	1994	862878
G	288m N	Railway Sidings	1938	864885
G	288m N	Railway Sidings	1932	864885
G	288m N	Railway Sidings	1916	864885
G	288m N	Railway Sidings	1905	864885
G	288m N	Railway Sidings	1923	864885
J	292m N	Unspecified Mills	1938	989884
J	292m N	Unspecified Mills	1932	989884
J	292m N	Unspecified Mills	1916	861845
J	292m N	Unspecified Commercial/Industrial	1905	968335
J	292m N	Unspecified Commercial/Industrial	1923	874542
G	295m NW	Railway Sidings	1988	928139



ID	Location	Land Use	Date	Group ID
G	295m NW	Railway Sidings	1985	928139
G	295m NW	Railway Sidings	1994	928139
G	295m NW	Unspecified Works	1988	927569
G	295m NW	Unspecified Works	1978	865006
G	295m NW	Unspecified Works	1985	927569
G	295m NW	Unspecified Works	1994	927569
G	296m NW	Rubber Works	1956	849382
G	298m NW	Unspecified Commercial/Industrial	1896	849974
G	298m NW	Unspecified Tanks	1851	815405
G	310m NW	Unspecified Commercial/Industrial	1851	849974
G	311m NW	Railway Station	1938	962635
G	311m NW	Railway Station	1932	962635
G	311m NW	Railway Station	1916	962635
G	311m NW	Railway Station	1905	962635
G	311m NW	Railway Station	1923	962635
G	313m NW	Railway Station	1956	923967
G	324m NW	Railway Station	1896	887032
G	329m NW	Railway Station	1971	960776
G	329m NW	Railway Station	1978	981767
G	329m NW	Railway Station	1985	962611
G	332m NW	Unspecified Tank	1896	825247
G	334m NW	Railway Station	1988	912150
G	334m NW	Railway Station	1994	912150
G	356m NW	Gas Works	1851	802208
G	359m NW	Tanks	1851	832185
O	360m SE	Unspecified Works	1916	830418
P	361m N	Unspecified Commercial/Industrial	1923	796719
G	361m NW	Unspecified Tank	1851	825246

ID	Location	Land Use	Date	Group ID
Q	368m NE	Unspecified Works	1915	951103
Q	369m NE	Unspecified Works	1923	951103
Q	376m NE	Unspecified Works	1923	972915
G	376m NW	Railway Sidings	1896	989778
Q	378m NE	Unspecified Works	1915	972915
S	382m E	Cemetery	1851	948454
G	382m NW	Unspecified Commercial/Industrial	1956	976686
G	387m NW	Unspecified Commercial/Industrial	1938	872530
G	387m NW	Unspecified Commercial/Industrial	1932	872530
G	387m NW	Gas Works	1916	927583
G	387m NW	Gas Works	1905	927583
G	387m NW	Gas Works	1923	927583
G	387m NW	Railway Building	1956	820261
G	388m NW	Gas Works	1978	953907
G	388m NW	Gas Works	1985	894760
G	389m NW	Unspecified Works	1971	976313
G	389m NW	Unspecified Tank	1851	987864
G	393m NW	Unspecified Tanks	1896	952761
G	393m NW	Unspecified Tanks	1956	991069
G	397m NW	Gasometer	1916	889070
G	397m NW	Gasometer	1905	889070
G	397m NW	Unspecified Tank	1938	961454
G	397m NW	Unspecified Tank	1932	961454
G	397m NW	Gasometer	1923	889070
O	399m S	Police Station	1971	832593
G	410m NW	Hospital	1923	848326
G	410m NW	Hospital	1916	938342
G	414m NW	Coal Wharf	1851	794097



ID	Location	Land Use	Date	Group ID
S	414m E	Cemetery	1923	877404
S	414m E	Cemetery	1938	877404
S	414m E	Cemetery	1934	877404
S	414m E	Cemetery	1915	877404
S	414m E	Cemetery	1905	877404
S	414m E	Cemetery	1890	877404
G	414m NW	Hospital	1938	949847
G	414m NW	Hospital	1932	949847
G	416m NW	Hospital	1971	915521
G	416m NW	Hospital	1956	915521
G	416m NW	Hospital	1978	957282
G	418m NW	Unspecified Tank	1971	953873
G	418m NW	Gasometer	1978	909770
G	418m NW	Gasometer	1985	937412
W	422m NE	Iron Works	1890	822793
W	423m NE	Unspecified Works	1915	954702
W	424m NE	Unspecified Works	1923	954702
W	424m NE	Railway Sidings	1923	959198
S	424m E	Cemetery	1956	980504
G	427m NW	Gasometer	1916	961140
G	427m NW	Gasometer	1905	961140
G	427m NW	Unspecified Tank	1938	893786
G	427m NW	Unspecified Tank	1932	893786
G	427m NW	Gasometer	1923	961140
G	427m NW	Gasometer	1916	856404
G	427m NW	Gasometer	1905	856404
G	427m NW	Unspecified Tank	1938	943763
G	427m NW	Unspecified Tank	1932	943763



ID	Location	Land Use	Date	Group ID
G	427m NW	Gasometer	1923	856404
W	428m NE	Railway Sidings	1915	959198
5	453m NE	Unspecified Commercial/Industrial	1923	796723
G	456m W	Gasometer	1916	911162
G	456m W	Gasometer	1905	911162
G	456m W	Unspecified Tank	1938	864386
G	456m W	Unspecified Tank	1932	864386
G	456m W	Gasometer	1923	911162
X	457m S	Corporation Yard	1938	891984
X	457m S	Corporation Yard	1934	891984
X	457m S	Corporation Yard	1915	882266
6	457m N	Unspecified Commercial/Industrial	1923	796724
Y	458m SE	Hospital	1938	988396
Y	458m SE	Hospital	1934	988396
X	459m SE	Corporation Yard	1923	894742
Y	461m SE	Hospital	1915	978354
Z	464m N	Electricity Station	1923	992043
Z	467m N	Electricity Station	1916	992043
G	469m NW	Unspecified Works	1978	921026
AA	471m NW	Corporation Yard	1938	920120
AA	471m NW	Corporation Yard	1932	920120
AA	471m NW	Corporation Yard	1916	920120
AA	471m NW	Corporation Yard	1905	920120
AA	471m NW	Corporation Yard	1923	920120
G	472m NW	Unspecified Tank	1851	825227
G	473m W	Unspecified Tanks	1956	927953
G	480m W	Gasometer	1916	967050
G	480m W	Gasometer	1905	967050



ID	Location	Land Use	Date	Group ID
G	480m W	Unspecified Tank	1938	989404
G	480m W	Unspecified Tank	1932	989404
G	480m W	Gasometer	1923	967050
AD	495m NE	Unspecified Mills	1938	854159
AD	495m NE	Unspecified Mills	1934	854159
AD	495m NE	Unspecified Mills	1915	967472
AD	496m NE	Unspecified Mills	1923	914258
G	499m W	Unspecified Tank	1971	973500
G	499m W	Gasometer	1978	910445

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

184

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 25**

ID	Location	Land Use	Date	Group ID
1	183m NE	Unspecified Tank	1891	115782
F	222m NW	Unspecified Tank	1979	122344
F	222m NW	Unspecified Tank	1963	122344
F	222m NW	Unspecified Tank	1948	122344
F	222m NW	Unspecified Tank	1969	122344
F	222m NW	Unspecified Tank	1953	122344
F	223m NW	Unspecified Tank	1980	122344
F	223m NW	Unspecified Tank	1980	122344
F	223m NW	Unspecified Tank	1985	122344
F	244m NW	Unspecified Tank	1922	115781
E	266m NE	Unspecified Tank	1948	137703



ID	Location	Land Use	Date	Group ID
E	267m NE	Unspecified Tank	1955	144222
E	267m NE	Unspecified Tank	1955	144222
E	267m NE	Tanks	1969	129099
E	267m NE	Tanks	1962	129099
E	267m NE	Tanks	1968	129099
E	267m NE	Unspecified Tank	1950	134156
E	268m NE	Unspecified Tank	1953	134156
I	313m NW	Unspecified Tank	1953	136354
I	313m NW	Unspecified Tank	1955	136262
G	313m W	Unspecified Tank	1893	143428
G	313m W	Unspecified Tank	1922	143428
G	317m NW	Unspecified Tank	1953	135406
G	317m NW	Unspecified Tank	1955	123253
G	317m NW	Tanks	1950	106780
G	317m NW	Unspecified Tank	1948	135406
L	318m NE	Unspecified Tank	1891	115940
G	319m NW	Unspecified Tank	1955	135180
G	319m NW	Tanks	1953	106778
G	319m NW	Unspecified Tank	1953	141893
G	320m NW	Unspecified Tank	1948	141893
M	321m NE	Tanks	1891	106779
G	321m NW	Unspecified Tank	1953	145471
G	321m NW	Unspecified Tank	1955	135178
G	321m NW	Unspecified Tank	1955	135178
G	321m NW	Unspecified Tank	1948	145471
G	329m NW	Unspecified Tank	1922	115957
G	333m NW	Gasometer	1908	131372
G	333m NW	Gasometer	1891	131372



ID	Location	Land Use	Date	Group ID
G	334m NW	Unspecified Tank	1893	115950
L	336m NE	Unspecified Tank	1891	115941
M	338m NE	Unspecified Tank	1891	115939
G	342m NW	Unspecified Tank	1893	122317
G	342m NW	Unspecified Tank	1922	122317
G	345m NW	Unspecified Tank	1908	115778
J	347m N	Tanks	1891	106787
J	367m N	Tanks	1891	106782
J	368m N	Tanks	1891	106786
Q	370m NE	Unspecified Tank	1891	115943
J	371m N	Unspecified Tank	1891	115958
G	378m NW	Gas Works	1893	148771
G	378m NW	Gas Works	1922	148353
G	378m NW	Gas Works	1891	138194
4	379m E	Unspecified Tank	1954	115780
J	379m N	Unspecified Tank	1891	115948
Q	380m NE	Unspecified Tank	1891	115945
Q	381m NE	Unspecified Tank	1891	115942
G	381m NW	Unspecified Tank	1980	133041
G	381m NW	Unspecified Tank	1980	133041
G	381m NW	Unspecified Tank	1985	133041
G	381m NW	Unspecified Tank	1987	133041
G	381m NW	Unspecified Tank	1987	133041
G	381m NW	Unspecified Tank	1990	133041
J	382m N	Unspecified Tank	1891	115959
G	382m NW	Gas Works	1948	138071
G	382m NW	Unspecified Tank	1969	138462
G	382m NW	Unspecified Tank	1998	138462



ID	Location	Land Use	Date	Group ID
J	384m N	Unspecified Tank	1891	115960
G	384m NW	Gas Works	1908	148771
P	384m N	Unspecified Tank	1891	115946
J	385m N	Unspecified Tank	1893	141146
J	385m N	Unspecified Tank	1891	141146
G	387m NW	Unspecified Tank	1893	137941
G	388m NW	Unspecified Tank	1891	137941
J	388m N	Unspecified Tank	1891	115961
J	389m N	Unspecified Tank	1891	115947
G	389m NW	Unspecified Tank	1987	144099
G	389m NW	Unspecified Tank	1987	144099
G	389m NW	Unspecified Tank	1990	144099
Q	390m NE	Unspecified Tank	1891	115944
J	390m N	Unspecified Tank	1891	115949
J	390m N	Unspecified Tank	1891	115962
G	390m NW	Gas Holder Station	1980	144973
G	390m NW	Gas Holder Station	1980	144973
G	390m NW	Disused Gas Holder Station	1985	108346
G	391m NW	Unspecified Tank	1969	140316
G	391m NW	Unspecified Tank	1979	129031
G	391m NW	Unspecified Tank	1963	129031
G	391m NW	Gasometer	1948	144835
G	392m NW	Unspecified Tank	1953	128601
J	392m N	Tanks	1891	106792
J	393m N	Unspecified Tank	1893	115963
G	394m NW	Gasometers	1908	124662
G	394m NW	Gasometers	1922	124662
G	394m NW	Tanks	1932	107129



ID	Location	Land Use	Date	Group ID
G	395m NW	Gasometer	1893	138622
G	396m NW	Gasometer	1891	138622
T	398m W	Unspecified Tank	1980	135450
T	398m W	Unspecified Tank	1980	135450
T	398m W	Unspecified Tank	1985	135450
Q	398m NE	Unspecified Tank	1889	134036
Q	398m NE	Unspecified Tank	1908	134036
Q	398m NE	Unspecified Tank	1889	134036
T	401m W	Unspecified Tank	1979	133333
T	401m W	Unspecified Tank	1948	133333
T	401m W	Unspecified Tank	1969	133333
T	401m W	Unspecified Tank	1953	133333
U	410m E	Unspecified Tank	1954	136552
U	410m E	Unspecified Tank	1948	136552
U	411m E	Unspecified Tank	1955	136552
U	411m E	Unspecified Tank	1955	136552
U	411m E	Unspecified Tank	1950	136552
G	421m NW	Unspecified Tank	1979	138510
G	421m NW	Unspecified Tank	1963	138510
G	421m NW	Gasometer	1948	142120
G	421m NW	Gas Holder	1980	125516
G	421m NW	Gas Holder	1980	125516
G	421m NW	Gas Holder	1985	125516
G	422m NW	Gasometer	1969	136753
G	422m NW	Unspecified Tank	1953	134836
G	423m NW	Unspecified Tank	1979	148209
G	423m NW	Unspecified Tank	1963	148209
G	423m NW	Gasometer	1948	135973



ID	Location	Land Use	Date	Group ID
G	423m NW	Unspecified Tank	1953	127502
G	425m NW	Gasometer	1891	124584
G	426m NW	Gasometer	1891	128004
G	427m NW	Gasometer	1893	136753
G	427m NW	Gasometer	1893	128004
G	428m NW	Unspecified Tank	1980	147415
G	428m NW	Unspecified Tank	1985	147415
G	428m NW	Unspecified Tank	1979	147415
G	428m NW	Unspecified Tank	1963	147415
G	428m NW	Gasometer	1969	108524
G	428m NW	Unspecified Tank	1953	147415
G	430m NW	Unspecified Tank	1893	123594
G	441m W	Unspecified Tank	1893	125584
G	445m W	Gasometer	1891	108523
G	447m W	Unspecified Tank	1998	124573
G	449m W	Unspecified Tank	1980	148192
G	449m W	Unspecified Tank	1985	148192
G	449m W	Unspecified Tank	1987	148192
G	449m W	Unspecified Tank	1987	148192
G	449m W	Unspecified Tank	1990	148192
G	449m W	Unspecified Tank	1979	148192
G	449m W	Unspecified Tank	1948	148192
G	450m W	Unspecified Tank	1969	148192
G	450m W	Unspecified Tank	1953	148192
G	455m W	Gasometer	1893	138389
G	455m W	Gasometer	1891	126443
Z	462m N	Unspecified Tank	1891	115964
G	464m W	Unspecified Tank	1980	140482



ID	Location	Land Use	Date	Group ID
G	464m W	Unspecified Tank	1980	140482
G	464m W	Unspecified Tank	1985	140482
G	465m W	Unspecified Tank	1969	140482
G	465m W	Unspecified Tank	1953	140482
G	465m W	Unspecified Tank	1979	140482
G	465m W	Unspecified Tank	1963	140482
G	468m NW	Unspecified Tank	1891	133313
G	469m W	Unspecified Tank	1891	143653
G	469m W	Unspecified Tank	1893	143653
G	471m NW	Unspecified Tank	1891	115951
G	473m W	Unspecified Tank	1979	128106
G	473m W	Unspecified Tank	1963	128106
G	473m W	Gasometer	1948	135717
G	475m NW	Unspecified Tank	1979	115952
G	475m NW	Tanks	1948	147005
G	475m W	Unspecified Tank	1953	136419
G	475m NW	Tanks	1969	129358
G	475m NW	Tanks	1953	129358
G	476m NW	Unspecified Tank	1979	131914
G	476m NW	Unspecified Tank	1963	131914
G	476m NW	Unspecified Tank	1948	131914
G	476m W	Gasometer	1893	135717
G	476m NW	Unspecified Tank	1969	131914
G	476m NW	Unspecified Tank	1953	131914
G	477m NW	Tanks	1979	106781
G	482m W	Unspecified Tank	1953	147656
G	482m W	Unspecified Tank	1979	147656
G	482m W	Unspecified Tank	1963	147656



ID	Location	Land Use	Date	Group ID
G	486m W	Unspecified Tank	1893	147070
G	486m NW	Tanks	1969	124597
G	486m NW	Tanks	1953	124597
G	486m NW	Tanks	1979	124597
G	486m NW	Tanks	1948	124597

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

89

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 25**

ID	Location	Land Use	Date	Group ID
B	75m SE	Electricity Substation	1990	62181
B	77m SE	Electricity Substation	1995	84357
B	77m SE	Electricity Substation	1998	84357
2	201m E	Electricity Substation	1987	62178
K	316m E	Electricity Substation	1984	82529
K	316m E	Electricity Substation	1998	82529
K	316m E	Electricity Substation	1954	67698
K	316m E	Electricity Substation	1970	67698
K	316m E	Electricity Substation	1970	67698
K	316m E	Electricity Substation	1970	67698
K	316m E	Electricity Substation	1948	67698
K	316m E	Electricity Substation	1955	67698
K	316m E	Electricity Substation	1968	67698
K	316m E	Electricity Substation	1950	67698
K	316m E	Electricity Substation	1955	67698



ID	Location	Land Use	Date	Group ID
G	333m NW	Gasometer	1908	84082
G	333m NW	Gasometer	1891	84082
R	373m SW	Electricity Substation	1995	85389
R	373m SW	Electricity Substation	1997	85389
R	373m SW	Electricity Substation	1973	85389
R	374m SW	Electricity Substation	1972	80664
G	378m NW	Gas Works	1893	79545
G	378m NW	Gas Works	1922	81689
G	378m NW	Gas Works	1891	72601
G	382m NW	Gas Works	1948	66529
G	384m NW	Gas Works	1908	79545
G	390m NW	Gas Holder Station	1980	77508
G	390m NW	Gas Holder Station	1980	77508
G	390m NW	Disused Gas Holder Station	1985	59539
G	391m NW	Gasometer	1948	64845
G	394m NW	Gasometers	1908	65853
G	394m NW	Gasometers	1922	65853
G	395m NW	Gasometer	1893	71826
G	396m NW	Gasometer	1891	71826
G	420m NW	Electricity Substation	1996	65682
G	420m NW	Electricity Substation	1995	65682
G	420m NW	Electricity Substation	1994	65682
G	420m NW	Electricity Substation	1999	65682
G	420m NW	Hydraulic Power Station	1932	78003
G	420m NW	Hydraulic Power Station	1979	64692
G	420m NW	Electricity Substation	1979	65682
G	420m NW	Hydraulic Power Station	1948	64692
G	421m NW	Hydraulic Power Station	1951	64396



ID	Location	Land Use	Date	Group ID
G	421m NW	Electricity Substation	1951	65682
G	421m NW	Electricity Substation	1988	65682
G	421m NW	Hydraulic Power Station	1973	64396
G	421m NW	Electricity Substation	1973	65682
G	421m NW	Electricity Substation	1948	65682
G	421m NW	Hydraulic Power Station	1948	64396
G	421m NW	Gasometer	1948	71445
G	421m NW	Gas Holder	1980	70318
G	421m NW	Gas Holder	1980	70318
G	421m NW	Gas Holder	1985	70318
G	421m NW	Electricity Substation	1985	65682
G	422m NW	Gasometer	1969	68062
G	423m NW	Gasometer	1948	78274
G	425m NW	Gasometer	1891	67026
G	426m NW	Gasometer	1891	80269
O	426m SE	Electricity Substation	1948	84116
O	426m SE	Electricity Substation	1951	84116
O	427m SE	Electricity Substation	1949	84116
G	427m NW	Gasometer	1893	68062
G	427m NW	Gasometer	1893	80269
G	428m NW	Gasometer	1969	59717
Q	437m NE	Electricity Substation	1984	85141
Q	438m NE	Electricity Substation	1998	81695
Q	438m NE	Electricity Substation	1970	85141
Q	438m NE	Electricity Substation	1970	85141
Q	438m NE	Electricity Substation	1970	85141
Q	439m NE	Electricity Substation	1968	81695
G	445m W	Gasometer	1891	59716



ID	Location	Land Use	Date	Group ID
G	455m W	Gasometer	1893	75823
G	455m W	Gasometer	1891	71699
G	467m W	Electricity Substation	1998	62182
Z	469m N	Electricity Station	1922	81883
Z	471m N	Electricity Station	1908	81883
G	473m W	Gasometer	1948	65525
Z	474m N	Electricity Station	1955	66381
Z	474m N	Electricity Station	1948	73425
Z	474m N	Electricity Station	1950	66381
G	476m W	Gasometer	1893	65525
Z	483m N	Electricity Station	1955	77896
Z	484m N	Electricity Station	1950	68267
AC	495m NE	Electricity Substation	1984	85157
AC	495m NE	Electricity Substation	1998	85157
AC	496m NE	Electricity Substation	1968	85157
AC	496m NE	Electricity Substation	1970	85157
AC	496m NE	Electricity Substation	1970	85157
AC	496m NE	Electricity Substation	1970	85157

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

48

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 25**

ID	Location	Land Use	Date	Group ID
A	49m S	Garage	1948	23136
A	50m S	Garage	1955	26713
A	50m S	Garage	1955	26713
A	50m S	Garage	1965	27197
A	50m S	Garage	1965	27197
A	62m S	Garage	1953	22930
A	63m S	Garage	1962	22634
D	185m SE	Garage	1965	27390
D	185m SE	Garage	1965	27390
D	186m SE	Garage	1962	27390
C	196m NW	Garage	1985	25909
C	197m NW	Garage	1987	25909
C	197m NW	Garage	1969	25909
C	197m NW	Garage	1962	25909
C	197m NW	Garage	1965	25909
C	197m NW	Garage	1965	25909
C	197m NW	Garage	1968	21471
H	231m N	Garage	1948	24945
H	231m N	Garage	1953	24945
H	231m N	Garage	1955	24945
I	244m NW	Garage	1987	27861
I	244m NW	Garage	1969	27861
I	244m NW	Garage	1948	27861



ID	Location	Land Use	Date	Group ID
I	244m NW	Garage	1953	27861
I	244m NW	Garage	1962	27861
I	244m NW	Garage	1995	27861
I	244m NW	Garage	1998	27861
I	245m NW	Garage	1990	26377
I	245m NW	Garage	1985	26377
I	247m NW	Garage	1965	26377
I	247m NW	Garage	1965	26377
I	247m NW	Garage	1968	26377
I	247m NW	Garage	1955	26377
3	277m E	Garage	1954	20302
N	341m E	Garage	1998	27289
N	344m E	Garage	1984	27289
V	417m NE	Garage	1955	26338
V	419m NE	Garage	1952	26338
AB	490m N	Garage	1965	26993
AB	490m N	Garage	1965	26993
AB	490m N	Garage	1964	26993
AB	490m N	Garage	1948	26993
AB	490m N	Garage	1990	27728
AB	490m N	Garage	1990	27728
AB	490m N	Garage	1985	27728
AB	491m N	Garage	1955	26993
AB	491m N	Garage	1968	26993
AB	491m N	Garage	1950	26993

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical waste sites
- Licensed waste sites
- 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	0
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Landfill sites identified from Local Authority records and high detail historical mapping.

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	0
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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.

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

3.5 Historical waste sites

Records within 500m	5
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Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 44**

ID	Location	Address	Further Details	Date
D	197m NW	Site Address: N/A	Type of Site: Waste Paper Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948
D	201m NW	Site Address: N/A	Type of Site: Waste Paper Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1953
D	201m NW	Site Address: N/A	Type of Site: Waste Paper Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1932

ID	Location	Address	Further Details	Date
D	201m NW	Site Address: N/A	Type of Site: Waste Paper Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1932
D	205m NW	Site Address: N/A	Type of Site: Waste Paper Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1953

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

3.6 Licensed waste sites

Records within 500m	1
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Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 44**

ID	Location	Details		
4	277m NW	Site Name: Terra Vac (uk) Ltd Site Address: Little Ireland Phase B, Great Marlborough Street, Manchester, M1 5NN Correspondence Address: Unit 7a, Whitwood Enterprise Park, Castleford, WF10 5PX	Type of Site: Mobile Plant Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TER003 EPR reference: - Operator: Terra Vac (uk) Ltd Waste Management licence No: 50191 Annual Tonnage: 0	Issue Date: 17/06/2002 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

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

3.7 Waste exemptions

Records within 500m	32
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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 44**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	On site	ALL SAINTS, GROSVENOR SQUARE, MANCHESTER, M15 6BH	WEX228932	Disposing of waste exemption	Not on a farm	Depositing samples of waste for the purposes of testing or analysing them
A	On site	ALL SAINTS, GROSVENOR SQUARE, MANCHESTER, M15 6BH	WEX228932	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
A	On site	ALL SAINTS, GROSVENOR SQUARE, MANCHESTER, M15 6BH	WEX083555	Disposing of waste exemption	Not on a farm	Depositing samples of waste for the purposes of testing or analysing them
A	On site	ALL SAINTS, GROSVENOR SQUARE, MANCHESTER, M15 6BH	WEX083555	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
B	29m E	Transfer Station Europa Gate Manchester M17 1DU	EPR/DF0804PP /A001	Storing waste exemption	Both agricultural and non-agricultural waste	Storage of waste in secure containers
B	29m E	Transfer Station Europa Gate Manchester M17 1DU	EPR/DF0804PP /A001	Storing waste exemption	Both agricultural and non-agricultural waste	Storage of waste in a secure place
B	29m E	Transfer Station Europa Gate Manchester M17 1DU	EPR/DF0804PP /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Preparatory treatments (baling, sorting, shredding etc)
B	29m E	Transfer Station Europa Gate Manchester M17 1DU	EPR/DF0804PP /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
B	29m E	Transfer Station Europa Gate Manchester M17 1DU	EPR/DF0804PP /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Mechanical treatment of end-of-life tyres
B	29m E	Transfer Station Europa Gate Manchester M17 1DU	EPR/DF0804PP /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Recovery of scrap metal



ID	Location	Site	Reference	Category	Sub-Category	Description
B	29m E	Transfer Station Europa Gate Manchester M17 1DU	EPR/DF0804PP /A001	Treating waste exemption	Non-Agricultural Waste Only	Manual treatment of waste
C	85m N	Circle Square Plot 14 - (Russells Construction Site), Brancaster Road, Manchester, M1 7ED	WEX144388	Treating waste exemption	Not on a farm	Screening and blending of waste
C	85m N	Circle Square Plot 14 - (Russells Construction Site), Brancaster Road, Manchester, M1 7ED	WEX144388	Using waste exemption	Not on a farm	Use of waste in construction
1	119m N	John Dalton Building Chester Street MANCHESTER M1 5GD	EPR/VF0005U T/A001	Disposing of waste exemption	Non-Agricultural Waste Only	Depositing samples of waste for the purposes of testing or analysing them
2	203m S	12, HIGHER CHATHAM STREET, MANCHESTER, M15 6ED	WEX196171	Using waste exemption	Not on a farm	Use of waste in construction
3	250m NE	-	WEX264013	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
5	314m SE	National Graphene Institute Booth Street East MANCHESTER M13 9SS	EPR/GE5751R U/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
6	345m SW	OXFORD COURT, FLAT D1, 2, BONSALL STREET, MANCHESTER, M15 6DG	WEX163913	Using waste exemption	Not on a Farm	Use of waste in construction
7	407m SE	OXFORD ROAD, MANCHESTER, M13 9GH	WEX281629	Treating waste exemption	Not on a farm	Aerobic composting and associated prior treatment
E	431m N	Bridgewater House 60 Whitworth Street MANCHESTER M1 6LT	EPR/NF0707M F/A001	Disposing of waste exemption	Non-Agricultural Waste Only	Deposit of waste from a railway sanitary convenience
E	431m N	LINEAR NETWORK: MAINLINE RAILWAY BETWEEN MANCHESTER AIRPORT AIRPORT AND BARROW-IN-FURNESS	EPR/BE5446FE /A001	Disposing of waste exemption	Non-Agricultural Waste Only	Deposit of waste from a railway sanitary convenience
F	453m SE	-	WEX285535	Treating waste exemption	Not on a farm	Aerobic composting and associated prior treatment
F	453m SE	-	WEX313299	Disposing of waste exemption	Not on a Farm	Depositing samples of waste for the purposes of testing or analysing them



ID	Location	Site	Reference	Category	Sub-Category	Description
F	453m SE	-	WEX322402	Using waste exemption	Not on a Farm	Spreading waste on non-agricultural land to confer benefit
G	461m SE	Michael Smith Building, OXFORD ROAD, MANCHESTER, M13 9PL	WEX029843	Treating waste exemption	Not on a farm	Treatment of kitchen waste in a wormery
G	461m SE	Michael Smith Building, OXFORD ROAD, MANCHESTER, M13 9PL	WEX029843	Using waste exemption	Not on a farm	Spreading waste on non-agricultural land to confer benefit
G	461m SE	OXFORD ROAD, MANCHESTER, M13 9PL	WEX034895	Using waste exemption	Not on a farm	Use of waste in construction
G	461m SE	OXFORD ROAD MANCHESTER M13 9PL	WEX006036	Storing waste exemption	Not on a farm	Storage of waste in a secure place
G	461m SE	OXFORD ROAD MANCHESTER M13 9PL	WEX006029	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
G	461m SE	OXFORD ROAD MANCHESTER M13 9PL	WEX006497	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
G	461m SE	Michael Smith Building Oxford Road Manchester M13 9PL	EPR/XE5784LB /A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of kitchen waste in a wormery
G	461m SE	Michael Smith Building Oxford Road Manchester M13 9PL	EPR/XE5784LB /A001	Using waste exemption	Non-Agricultural Waste Only	Spreading waste on non-agricultural land to confer benefit

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Licensed pollutant release (Part A(2)/B)
- Radioactive Substance Authorisations
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

20

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 50**

ID	Location	Company	Address	Activity	Category
A	On site	Electricity Sub Station	Greater Manchester, M15	Electrical Features	Infrastructure and Facilities
A	3m NW	Gantry	Greater Manchester, M15	Travelling Cranes and Gantries	Industrial Features
A	26m W	Gantry	Greater Manchester, M1	Travelling Cranes and Gantries	Industrial Features



ID	Location	Company	Address	Activity	Category
1	43m NE	Gantry	Greater Manchester, M1	Travelling Cranes and Gantries	Industrial Features
2	51m E	The Woodward Workshop	123, Oxford Road, Manchester, Greater Manchester, M1 7DU	Sports and Leisure Equipment Repair	Repair and Servicing
3	80m N	W S P	Oxford House Retail Unit A, Manchester Technology Centre, Oxford Road, Manchester, Greater Manchester, M1 7ED	Civil Engineers	Engineering Services
D	108m NE	Electricity Sub Station	Greater Manchester, M1	Electrical Features	Infrastructure and Facilities
4	112m S	Electricity Sub Station	Greater Manchester, M15	Electrical Features	Infrastructure and Facilities
D	116m NE	Electricity Sub Stations	Greater Manchester, M1	Electrical Features	Infrastructure and Facilities
D	122m NE	Gantry	Greater Manchester, M1	Travelling Cranes and Gantries	Industrial Features
5	129m E	Compudos Ltd	124, Grosvenor Street, Manchester, Greater Manchester, M1 7HL	Electrical Equipment Repair and Servicing	Repair and Servicing
C	131m W	Haadi Composite Woods	John Dalton Building, Chester Street, Manchester, Greater Manchester, M1 5GD	Wood Products Including Charcoal, Paper, Card and Board	Industrial Products
E	184m NW	F M Laptop Repairs	8a, Lower Ormond Street, Manchester, Greater Manchester, M1 5QF	Electrical Equipment Repair and Servicing	Repair and Servicing
7	193m NE	Gantry	Greater Manchester, M1	Travelling Cranes and Gantries	Industrial Features
F	198m E	Euro Exim Ltd	98, Grosvenor Street, Manchester, Greater Manchester, M1 7HL	Colours, Chemicals and Water Softeners and Supplies	Industrial Products
F	210m E	Final Print	Grosvenor Street, All Saints, Manchester, Greater Manchester, M1 7HL	Published Goods	Industrial Products
9	228m SW	Territorial Army Centre	Training Core University Barracks, Boundary Lane, Manchester, Greater Manchester, M15 6DH	Armed Services	Central and Local Government
10	239m NE	Gas Governor	Greater Manchester, M1	Gas Features	Infrastructure and Facilities
11	244m NW	Chimney	Greater Manchester, M1	Chimneys	Industrial Features



ID	Location	Company	Address	Activity	Category
G	250m N	Manchester Business Centre Ltd	60, Charles Street, Manchester, Greater Manchester, M1 7DF	Business Parks and Industrial Estates	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1
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Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 50**

ID	Location	Company	Address	LPG	Status
6	138m NW	OBSOLETE	2-4, Lower Ormond Street, Manchester, Greater Manchester, M1 5QF	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0
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High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0
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High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0
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Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m**0**

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m**0**

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

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



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

Records within 500m

2

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

Features are displayed on the Current industrial land use map on **page 50**

ID	Location	Address	Details	
12	316m W	Dunlop Ltd, Cambridge St, M60 1PD	Process: Rubber Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
16	481m W	Jessop & Baird Ltd, Hulme St, M15 6AL	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

14

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

Features are displayed on the Current industrial land use map on **page 50**

ID	Location	Address	Details	
C	94m W	Manchester Metropolitan University, John Dalton Building, Chester Street, Manchester, Greater Manchester, M1 5GD	Operator: Manchester Metropolitan University Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AC9688 Date of approval: 31/03/1991	Effective from: 31/03/1991 Last date of update: 01/01/2015 Status: Superseded By Variation
C	94m W	Manchester Metropolitan University, John Dalton Building, Chester Street, Manchester, Greater Manchester, M1 5GD	Operator: Manchester Metropolitan University Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AC9688 Date of approval: 16/10/1994	Effective from: 16/10/1994 Last date of update: 01/01/2015 Status: Superseded By Variation
C	94m W	Manchester Metropolitan University, John Dalton Building, Chester Street, Manchester, Greater Manchester, M1 5GD	Operator: Manchester Metropolitan University Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AC9688 Date of approval: 09/03/1995	Effective from: 09/04/1995 Last date of update: 01/01/2015 Status: Superseded By Variation



ID	Location	Address	Details	
C	94m W	Manchester Metropolitan University, John Dalton Building, Chester Street, Manchester, Greater Manchester, M1 5GD	Operator: Manchester Metropolitan University Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AC9688 Date of approval: 01/12/2003	Effective from: 01/01/2004 Last date of update: 01/01/2015 Status: Superseded By Variation
C	94m W	John Dalton Building, Chester Street, Manchester, M1 5GD	Operator: Manchester Metropolitan University Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: CA1464 Date of approval: 17/02/2006	Effective from: 17/03/2006 Last date of update: 01/01/2020 Status: Issued
C	94m W	John Dalton Building, Chester Street, Manchester, M1 5GD	Operator: Manchester Metropolitan University Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: BL0324 Date of approval: 23/05/2001	Effective from: 23/05/2001 Last date of update: 01/01/2020 Status: Issued
K	362m NE	Umist, Po Box 88, Sackville Street, Manchester, M60 1QD	Operator: Umist Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AC8878 Date of approval: 31/03/1991	Effective from: 31/03/1991 Last date of update: 01/01/2015 Status: Revoked/cancelled
K	362m NE	Umist, Po Box 88, Sackville Street, Manchester, M60 1QD	Operator: Umist Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: AC8886 Date of approval: 06/03/2001	Effective from: 06/03/2001 Last date of update: 01/01/2015 Status: Revoked/cancelled
K	362m NE	Umist, Po Box 88, Sackville Street, Manchester, M60 1QD	Operator: Umist Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AG4009 Date of approval: 16/01/1995	Effective from: 16/02/1995 Last date of update: 01/01/2015 Status: Superseded By Variation
K	362m NE	Umist, Po Box 88, Sackville Street, Manchester, M60 1QD	Operator: Umist Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AG4009 Date of approval: 30/01/1997	Effective from: 25/02/1997 Last date of update: 01/01/2015 Status: Superseded By Variation
K	362m NE	Umist, Po Box 88, Sackville Street, Manchester, M60 1QD	Operator: Umist Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AG4009 Date of approval: 13/11/1997	Effective from: 11/12/1997 Last date of update: 01/01/2015 Status: Superseded By Variation



ID	Location	Address	Details	
K	362m NE	Umist, Po Box 88, Sackville Street, Manchester, M60 1QD	Operator: Umist Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AG4009 Date of approval: 09/04/2002	Effective from: 06/05/2002 Last date of update: 01/01/2015 Status: Revoked/cancelled
M	452m NE	North Campus, Manchester, M1 3BU	Operator: The University of Manchester Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: BX8645 Date of approval: 02/09/2004	Effective from: 01/10/2004 Last date of update: 01/01/2020 Status: Issued
M	452m NE	North Campus, Manchester, M1 3BU	Operator: The University of Manchester Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: BX8661 Date of approval: 01/10/2004	Effective from: 01/10/2004 Last date of update: 01/01/2020 Status: Issued

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

4.13 Licensed Discharges to controlled waters

Records within 500m

46

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

Features are displayed on the Current industrial land use map on **page 50**

ID	Location	Address	Details	
B	82m W	GSHP AT MANCHESTER METROPOLITAN UNI, MANCHESTER METROPOLITAN UNI, LOWER CHATHAM STREET, ., MANCHESTER, M15 6BH	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: EPRDP3526GN Permit Version: 1 Receiving Water: GROUNDWATERS	Status: NEW ISSUED UNDER EPR 2010 Issue date: 23/08/2010 Effective Date: 01/04/2011 Revocation Date: -
B	111m SW	GSHP AT MANCHESTER METROPOLITAN UNI, MANCHESTER METROPOLITAN UNI, LOWER CHATHAM STREET, ., MANCHESTER, M15 6BH	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: EPRDP3526GN Permit Version: 1 Receiving Water: GROUNDWATERS	Status: NEW ISSUED UNDER EPR 2010 Issue date: 23/08/2010 Effective Date: 01/04/2011 Revocation Date: -



ID	Location	Address	Details	
E	206m NW	CHESTER STREET CSO, JUNCTION OF CHESTER STREET/, LOWER OSMOND STREET, ., MANCHESTER, M1 5QF	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016983278 Permit Version: 1 Receiving Water: THE RIVER MEDLOCK	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 19/02/1999 Effective Date: 01/12/1999 Revocation Date: 08/07/2018
E	220m NW	LOWER ORMOMD ST/HULME ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0282 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 09/08/2019
E	221m NW	CHESTER STREET CSO, JUNCTION OF CHESTER STREET/, LOWER OSMOND STREET, ., MANCHESTER, M1 5QF	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016983278 Permit Version: 2 Receiving Water: THE RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 09/07/2018 Effective Date: 09/07/2018 Revocation Date: -
8	222m NE	BBC VEHICLE MAINTENANCE BASE SWO, PRITCHARD STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991346 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 22/09/1994 Revocation Date: 22/09/1994
G	251m N	OXFORD RD, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0342 Permit Version: 1 Receiving Water: -	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 19/12/1999
G	263m N	OXFORD ROAD/GROSVENOR STREET CSO, 137 OXFORD ROAD, MANCHESTER, ., GREATER MANCHESTER, M1 7DZ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0189 Permit Version: 4 Receiving Water: RIVER MEDLOCK VIA SWS	Status: VARIED UNDER EPR 2010 Issue date: 29/03/2021 Effective Date: 29/03/2021 Revocation Date: -
G	269m N	OXFORD ROAD/GROSVENOR STREET CSO, 137 OXFORD ROAD, MANCHESTER, ., GREATER MANCHESTER, M1 7DZ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0189 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010



ID	Location	Address	Details	
G	269m N	OXFORD ROAD/GROSVENOR STREET CSO, 137 OXFORD ROAD, MANCHESTER, ., GREATER MANCHESTER, M1 7DZ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0189 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 04/02/2016
G	269m N	OXFORD ROAD/GROSVENOR STREET CSO, 137 OXFORD ROAD, MANCHESTER, ., GREATER MANCHESTER, M1 7DZ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0189 Permit Version: 3 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 05/02/2016 Effective Date: 05/02/2016 Revocation Date: 28/03/2021
G	269m N	OXFORD/NEW WAKEFIELD ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0165 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/01/1995 Revocation Date: 31/03/1998
H	282m N	112-116 PRINCESS STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991403 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 24/04/1989 Revocation Date: 31/03/1992
H	282m N	112-116 PRINCESS STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991403 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/04/1992 Revocation Date: 10/02/1993
H	282m N	112-116 PRINCESS STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991403 Permit Version: 3 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 11/02/1993 Revocation Date: 01/11/1994
H	285m N	CHARLES STREET CSO, 7 CHARLES STREET, ., MANCHESTER, M1 7EN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0183 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010
H	285m N	CHARLES STREET CSO, 7 CHARLES STREET, ., MANCHESTER, M1 7EN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0183 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 31/03/2018



ID	Location	Address	Details	
H	285m N	CHARLES STREET CSO, 7 CHARLES STREET, ., MANCHESTER, M1 7EN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0183 Permit Version: 3 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 19/03/2018 Effective Date: 01/04/2018 Revocation Date: -
G	295m N	YORK ST/CHARLES ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0281 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 09/08/2019
H	297m N	CHARLES ST PRINCESS ST CSO 28116, 106 PRINCESS STREET, ., MANCHESTER, M1 6NG	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0166 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010
H	297m N	CHARLES ST PRINCESS ST CSO 28116, 106 PRINCESS STREET, ., MANCHESTER, M1 6NG	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0166 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 31/03/2018
H	297m N	WHITWORTH ST/SACKVILLE ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0253 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/01/1995 Revocation Date: 01/01/2017
G	298m N	MALLARD STREET/CHARLES STREET CSO, MALLARD STREET, MANCHESTER, ., GREATER MANCHESTER, M1 6EY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982736 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 10/07/2020 Effective Date: 10/07/2020 Revocation Date: -
G	299m N	MALLARD STREET/CHARLES STREET CSO, MALLARD STREET, MANCHESTER, ., GREATER MANCHESTER, M1 6EY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982736 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 30/09/1994 Revocation Date: 09/07/2020



ID	Location	Address	Details	
G	299m N	MEDLOCK ST(OFF CHARLES ST), MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0343 Permit Version: 1 Receiving Water: -	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: - Effective Date: 01/01/1995 Revocation Date: 01/01/1995
H	300m N	CHARLES ST PRINCESS ST CSO 28116, 106 PRINCESS STREET, ., MANCHESTER, M1 6NG	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0166 Permit Version: 3 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 21/03/2018 Effective Date: 01/04/2018 Revocation Date: -
H	302m N	PRINCESS ST/WHITWORTH ST CSO 282MN, 67 WHITWORTH ST, MANCHESTER, ., GREATER MANCHESTER, M1 6LQ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982950 Permit Version: 2 Receiving Water: RIVER MEDLOCK VIA SWS	Status: VARIED UNDER EPR 2010 Issue date: 20/10/2020 Effective Date: 20/10/2020 Revocation Date: -
I	304m NE	MOUNT STREET/GREEK STREET CSO, MANCUNIAN WAY, (OPP TO GEORGE BEGG BUILDING), MANCHESTER, GREATER MANCHESTER, M1 7DN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0187 Permit Version: 3 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 05/02/2016 Effective Date: 05/02/2016 Revocation Date: 09/07/2020
H	307m N	PRINCESS ST/GRANBY ROW CS, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982956 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: CONSENT REVOKED - DISCHARGE CEASED (WRA 91, SCHED 10 & 6) Issue date: - Effective Date: 23/06/1995 Revocation Date: 31/03/1998
H	307m N	PRINCESS ST/WHITWORTH ST CSO 282MN, 67 WHITWORTH ST, MANCHESTER, ., GREATER MANCHESTER, M1 6LQ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982950 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 23/06/1995 Revocation Date: 19/10/2020
J	309m NE	112-116 PRINCESS STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991403 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 24/04/1989 Revocation Date: 31/03/1992

ID	Location	Address	Details	
J	309m NE	112-116 PRINCESS STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991403 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/04/1992 Revocation Date: 10/02/1993
I	310m NE	MOUNT STREET/GREEK STREET CSO, MANCUNIAN WAY, (OPP TO GEORGE BEGG BUILDING), MANCHESTER, GREATER MANCHESTER, M1 7DN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0187 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010
I	310m NE	MOUNT STREET/GREEK STREET CSO, MANCUNIAN WAY, (OPP TO GEORGE BEGG BUILDING), MANCHESTER, GREATER MANCHESTER, M1 7DN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0187 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 04/02/2016
I	334m NE	MOUNT STREET/GREEK STREET CSO, MANCUNIAN WAY, (OPP TO GEORGE BEGG BUILDING), MANCHESTER, GREATER MANCHESTER, M1 7DN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0187 Permit Version: 4 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 10/07/2020 Effective Date: 10/07/2020 Revocation Date: -
I	379m NE	MOUNT ST/RUTLAND ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0287 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: -
14	398m SW	HULME WALK, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0362 Permit Version: 1 Receiving Water: -	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: -
L	414m NW	CAMBRIDGE STREET CSO 282D9, 1 CAMBRIDGE STREET, , MANCHESTER, GREATER MANCHESTER, M1 5BW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982721 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: - Effective Date: 15/11/1999 Revocation Date: 10/04/2018



ID	Location	Address	Details	
15	416m W	NEWCASTLE ST/CHESTER ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0361 Permit Version: 1 Receiving Water: -	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: -
L	425m NW	CAMBRIDGE STREET CSO 282D9, 1 CAMBRIDGE STREET, ., MANCHESTER, GREATER MANCHESTER, M1 5BW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982721 Permit Version: 3 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 11/04/2018 Effective Date: 11/04/2018 Revocation Date: -
L	425m NW	LOWER CAMBRIDGE ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0285 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: - Effective Date: 01/01/1995 Revocation Date: 15/11/1999
L	425m NW	WILMOTT ST AT RIVER ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0184 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 18/10/1999
N	467m NW	GREAT BRIDGEWATER ST CSO (281WI), 80 GREAT BRIDGEWATER STREET, GREAT ANCOATS, MANCHESTER, GREATER MANCHESTER, M1 5JG	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982707 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 20/10/2020 Effective Date: 20/10/2020 Revocation Date: -
N	475m NW	GREAT BRIDGEWATER ST CSO (281WI), 80 GREAT BRIDGEWATER STREET, GREAT ANCOATS, MANCHESTER, GREATER MANCHESTER, M1 5JG	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982707 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 30/09/1994 Revocation Date: 19/10/2020
N	475m NW	GREAT BRIDGEWATER ST CSO (281WI), 80 GREAT BRIDGEWATER STREET, GREAT ANCOATS, MANCHESTER, GREATER MANCHESTER, M1 5JG	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0252 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: - Effective Date: 01/01/1995 Revocation Date: 01/01/1995



ID	Location	Address	Details	
17	489m SW	HULME WALK/PRINCESS RD, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0363 Permit Version: 1 Receiving Water: -	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: -

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0
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Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

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

4.15 Pollutant release to public sewer

Records within 500m	0
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Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0
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Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.17 List 2 Dangerous Substances

Records within 500m	0
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Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m

1

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

Features are displayed on the Current industrial land use map on **page 50**

ID	Location	Details	
13	326m N	Incident Date: 12/07/2001 Incident Identification: 15886 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m

0

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

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

4.20 Pollution inventory waste transfers

Records within 500m

0

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

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

4.21 Pollution inventory radioactive waste

Records within 500m

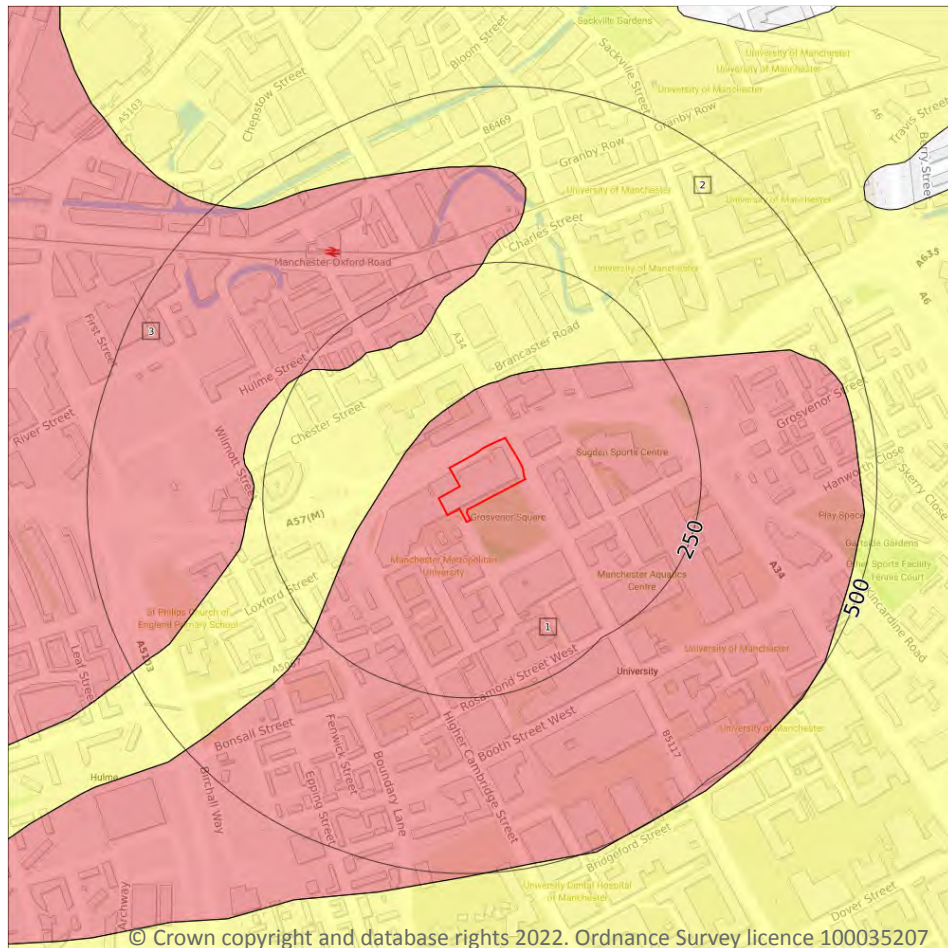
0

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

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



5 Hydrogeology - Superficial aquifer



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

5.1 Superficial aquifer

Records within 500m

3

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 65**

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	63m NW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type



ID	Location	Designation	Description
3	185m NW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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



Bedrock aquifer



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

5.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 67**

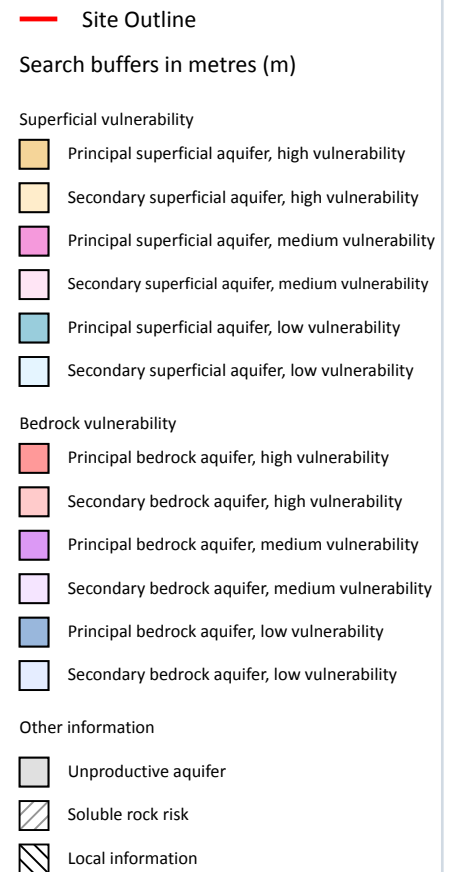
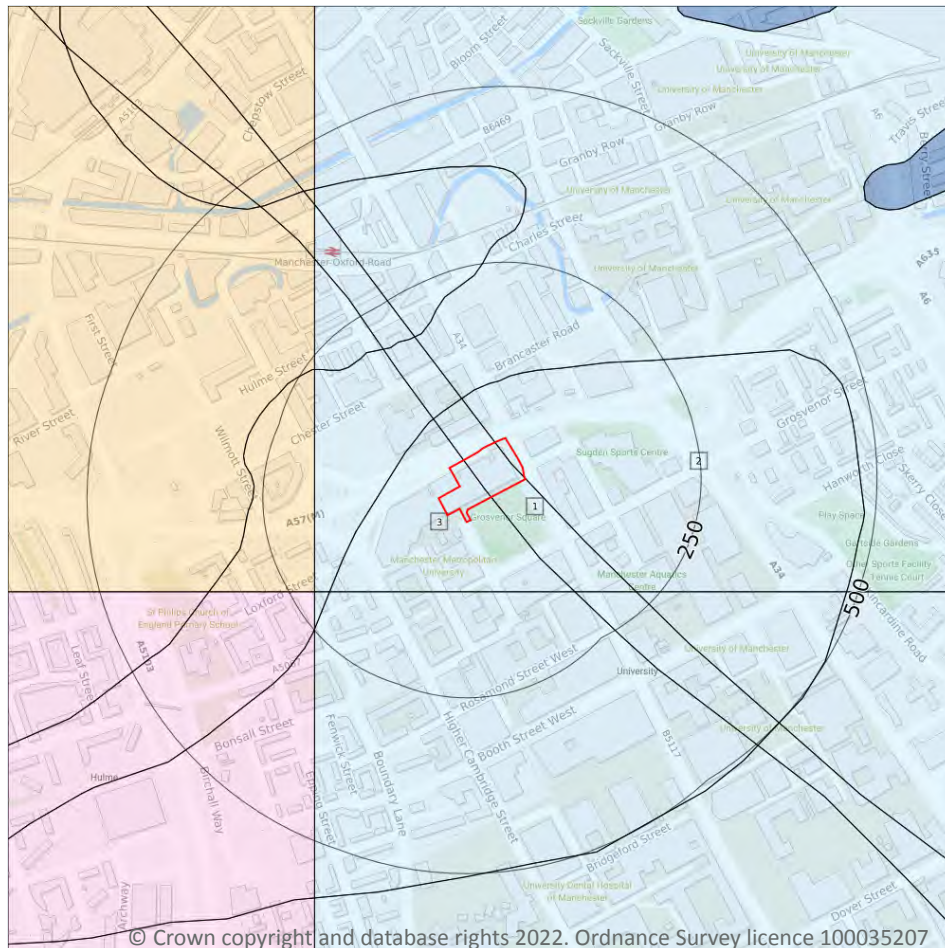
ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers



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



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

3

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

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

Features are displayed on the Groundwater vulnerability map on **page 69**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

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

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

5.5 Groundwater vulnerability- local information

Records on site

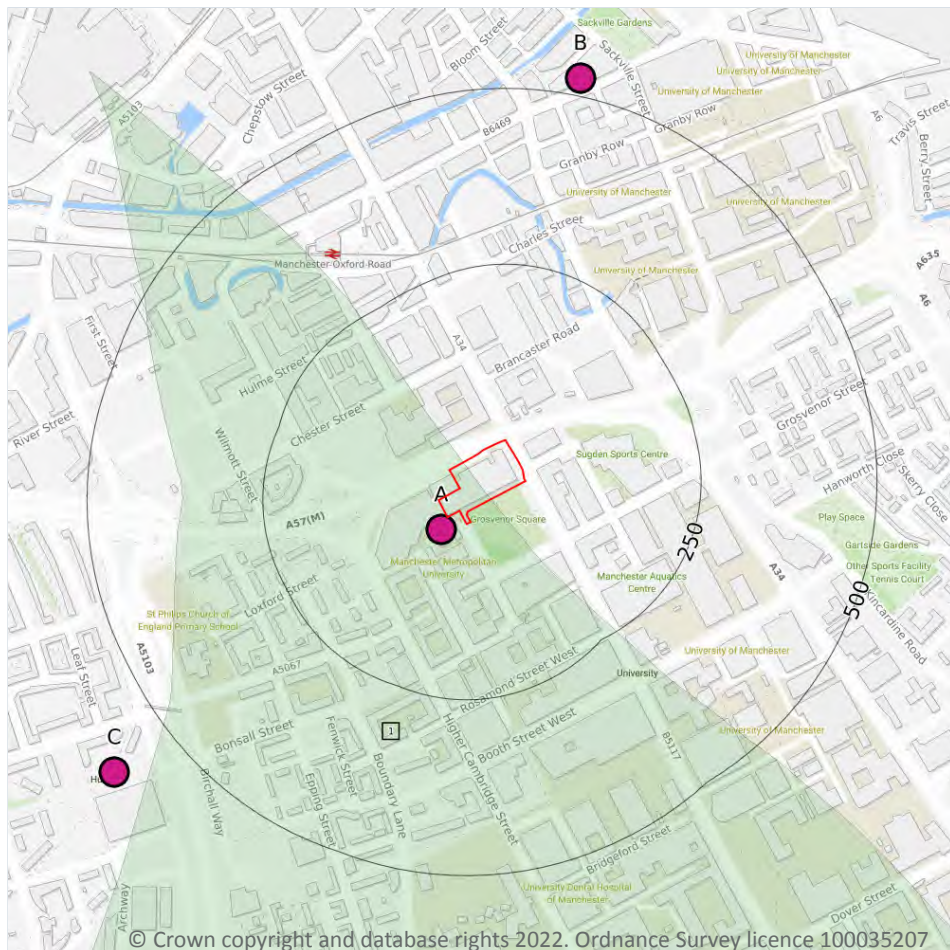
0

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

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



Abstractions and Source Protection Zones



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

5.6 Groundwater abstractions

Records within 2000m

39

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 71**

ID	Location	Details	
A	20m SW	Status: Active Licence No: NW/069/0006/003 Details: Heat Pump Direct Source: Ground Water - North West Region Point: BOREHOLE 1 AT LOWER CHATHAM STREET Data Type: Point Name: Manchester Metropolitan University Easting: 384180 Northing: 397091	Annual Volume (m ³): 283,240 Max Daily Volume (m ³): 1,532 Original Application No: NPS/WR/015264 Original Start Date: 04/04/2014 Expiry Date: 31/03/2027 Issue No: 2 Version Start Date: 04/04/2014 Version End Date: -
A	20m SW	Status: Active Licence No: NW/069/0006/003 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE 1 AT LOWER CHATHAM STREET Data Type: Point Name: Manchester Metropolitan University Easting: 384180 Northing: 397091	Annual Volume (m ³): 283,240 Max Daily Volume (m ³): 1,532 Original Application No: NPS/WR/015264 Original Start Date: 04/04/2014 Expiry Date: 31/03/2027 Issue No: 2 Version Start Date: 04/04/2014 Version End Date: -
B	525m N	Status: Historical Licence No: NW0690006001 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLES AT ORIGIN DEVELOPMENTS, MANCHESTER Data Type: Point Name: West Contracting Easting: 384378 Northing: 397733	Annual Volume (m ³): 139128 Max Daily Volume (m ³): 1010 Original Application No: - Original Start Date: 19/01/2009 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 19/01/2009 Version End Date: -
B	525m N	Status: Historical Licence No: NW/069/0006/001 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLES AT ORIGIN DEVELOPMENTS, MANCHESTER Data Type: Point Name: West Contracting Easting: 384378 Northing: 397733	Annual Volume (m ³): 139128 Max Daily Volume (m ³): 1010 Original Application No: - Original Start Date: 19/01/2009 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 19/01/2009 Version End Date: -



ID	Location	Details	
C	596m SW	Status: Active Licence No: NW/069/0004/003 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT MANCHESTER METROPOLITAN UNIVERSITY Data Type: Point Name: Manchester Metropolitan University Easting: 383715 Northing: 396746	Annual Volume (m ³): 274,115 Max Daily Volume (m ³): 751 Original Application No: NPS/WR/008077 Original Start Date: 20/09/2013 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/01/2015 Version End Date: -
C	596m SW	Status: Active Licence No: NW/069/0004/003 Details: Heat Pump Direct Source: Ground Water - North West Region Point: BOREHOLE AT MANCHESTER METROPOLITAN UNIVERSITY Data Type: Point Name: Manchester Metropolitan University Easting: 383715 Northing: 396746	Annual Volume (m ³): 274,115 Max Daily Volume (m ³): 751 Original Application No: NPS/WR/008077 Original Start Date: 20/09/2013 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/01/2015 Version End Date: -
-	799m N	Status: Historical Licence No: 2569007069 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT GEORGE ST, MANCHESTER" Data Type: Point Name: BRITISH TELECOM Easting: 384100 Northing: 398000	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 100 Version Start Date: 27/01/1971 Version End Date: -
-	799m N	Status: Historical Licence No: 2569007069 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT GEORGE ST, MANCHESTER Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 384100 Northing: 398000	Annual Volume (m ³): 1100 Max Daily Volume (m ³): 860 Original Application No: - Original Start Date: 01/04/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2007 Version End Date: -



ID	Location	Details	
-	956m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW8 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383224 Northing: 397225	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	961m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW9 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383223 Northing: 397253	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	976m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW10 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383211 Northing: 397276	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	986m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW11 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383204 Northing: 397298	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -



ID	Location	Details	
-	988m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW5 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383193 Northing: 397230	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	994m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW7 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383184 Northing: 397203	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1011m E	Status: Historical Licence No: 2569006001 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, BROADIE ST, ARDWICK, MANCHESTER" Data Type: Point Name: MOSELEY RUBBER CO LTD Easting: 385240 Northing: 397540	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 08/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/02/1966 Version End Date: -
-	1011m E	Status: Historical Licence No: 2569006001 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, BROADIE ST, ARDWICK, MANCHESTER Data Type: Point Name: MOSELEY RUBBER CO LTD Easting: 385240 Northing: 397540	Annual Volume (m ³): 331858 Max Daily Volume (m ³): 909.2 Original Application No: - Original Start Date: 08/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/02/1966 Version End Date: -

ID	Location	Details	
-	1015m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW6 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383171 Northing: 397275	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1020m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW4 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383159 Northing: 397210	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1039m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW3 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383140 Northing: 397217	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1067m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW2 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383113 Northing: 397230	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -



ID	Location	Details	
-	1097m W	Status: Active Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW1 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383085 Northing: 397249	Annual Volume (m ³): 260,172 Max Daily Volume (m ³): 712.80 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1240m S	Status: Historical Licence No: 2569007007 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER" Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/08/1995 Version End Date: -
-	1240m S	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER" Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/08/1995 Version End Date: -
-	1240m S	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/12/2003 Version End Date: -



ID	Location	Details	
-	1240m S	Status: Historical Licence No: 2569007007 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/12/2003 Version End Date: -
-	1240m S	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383900 Northing: 395900	Annual Volume (m ³): 227000 Max Daily Volume (m ³): 900 Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 23/11/2009 Version End Date: -
-	1240m S	Status: Historical Licence No: 2569007007 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383900 Northing: 395900	Annual Volume (m ³): 227000 Max Daily Volume (m ³): 900 Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 23/11/2009 Version End Date: -
-	1241m S	Status: Active Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383865 Northing: 395909	Annual Volume (m ³): 227,000 Max Daily Volume (m ³): 900 Original Application No: NPS/WR/015793 Original Start Date: 15/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 08/05/2014 Version End Date: -



ID	Location	Details	
-	1241m S	Status: Active Licence No: 2569007007 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383865 Northing: 395909	Annual Volume (m ³): 227,000 Max Daily Volume (m ³): 900 Original Application No: NPS/WR/015793 Original Start Date: 15/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 08/05/2014 Version End Date: -
-	1343m NW	Status: Historical Licence No: 2569007089 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: 2 BOREHOLES AT GARTSIDE STREET MANCHESTER Data Type: Line Name: HER MAJESTY'S COURT SERVICE Easting: 383335 Northing: 398310	Annual Volume (m ³): 200000 Max Daily Volume (m ³): 1179 Original Application No: - Original Start Date: 26/01/2005 Expiry Date: 31/03/2011 Issue No: 2 Version Start Date: 10/07/2008 Version End Date: -
-	1360m NW	Status: Historical Licence No: NW/069/0004/019 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: Ground Water - North West Region Point: ST JOHNS MANCHESTER Data Type: Poly4 Name: Manchester Quays Development (MGY) Ltd Easting: 383094 Northing: 398099	Annual Volume (m ³): 543,120 Max Daily Volume (m ³): 1,488 Original Application No: - Original Start Date: 13/09/2019 Expiry Date: 31/12/2020 Issue No: 1 Version Start Date: 13/09/2019 Version End Date: -
-	1471m E	Status: Historical Licence No: NW/069/0004/005 Details: Heat Pump Direct Source: Ground Water - North West Region Point: AREA OF ABSTRACTION - LOWER CARBONIFEROUS LIMESTONE Data Type: Poly4 Name: G T Energy UK Limited Easting: 385729 Northing: 396778	Annual Volume (m ³): 2,049,840 Max Daily Volume (m ³): 8640 Original Application No: - Original Start Date: 17/01/2013 Expiry Date: 16/01/2037 Issue No: 2 Version Start Date: 11/06/2013 Version End Date: -



ID	Location	Details	
-	1587m N	Status: Historical Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT DIAL HOUSE, CHAPEL ST, SALFORD" Data Type: Point Name: BRITISH TELECOM Easting: 383700 Northing: 398700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 100 Version Start Date: 27/01/1971 Version End Date: -
-	1587m N	Status: Historical Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIAL HOUSE, CHAPEL ST, SALFORD Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 383700 Northing: 398700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 101 Version Start Date: 01/04/1984 Version End Date: -
-	1587m N	Status: Active Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIAL HOUSE CHAPEL STREET SALFORD Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 383700 Northing: 398700	Annual Volume (m ³): 45 Max Daily Volume (m ³): 30 Original Application No: 2333 Original Start Date: 27/01/1971 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2007 Version End Date: -
-	1588m SW	Status: Historical Licence No: 2569007009 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER" Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 07/10/2000 Version End Date: -



ID	Location	Details	
-	1588m SW	Status: Historical Licence No: 2569007009 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER" Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 07/10/2000 Version End Date: -
-	1588m SW	Status: Historical Licence No: 2569007009 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m ³): 66826.2 Max Daily Volume (m ³): 372.772 Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 07/10/2000 Version End Date: -
-	1588m SW	Status: Historical Licence No: 2569007009 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m ³): 66826.2 Max Daily Volume (m ³): 372.772 Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 19/07/2018 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m

2

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 71**



ID	Location	Details	
-	1697m W	Status: Historical Licence No: 2569007053 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "R IRWELL AT IRWELL WORKS, ORDSALL LANE, SALFORD" Data Type: Point Name: CDS COMPUTER DESIGN SYSTEMS LTD Easting: 382500 Northing: 397400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 22/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1987 Version End Date: -
-	1697m W	Status: Historical Licence No: 2569007053 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: R IRWELL AT IRWELL WORKS, ORDSALL LANE, SALFORD Data Type: Point Name: CDS COMPUTER DESIGN SYSTEMS LTD Easting: 382500 Northing: 397400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 22/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1987 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0
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Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

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

5.9 Source Protection Zones

Records within 500m	1
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 71**

ID	Location	Type	Description
1	On site	3	Total catchment



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

5.10 Source Protection Zones (confined aquifer)

Records within 500m

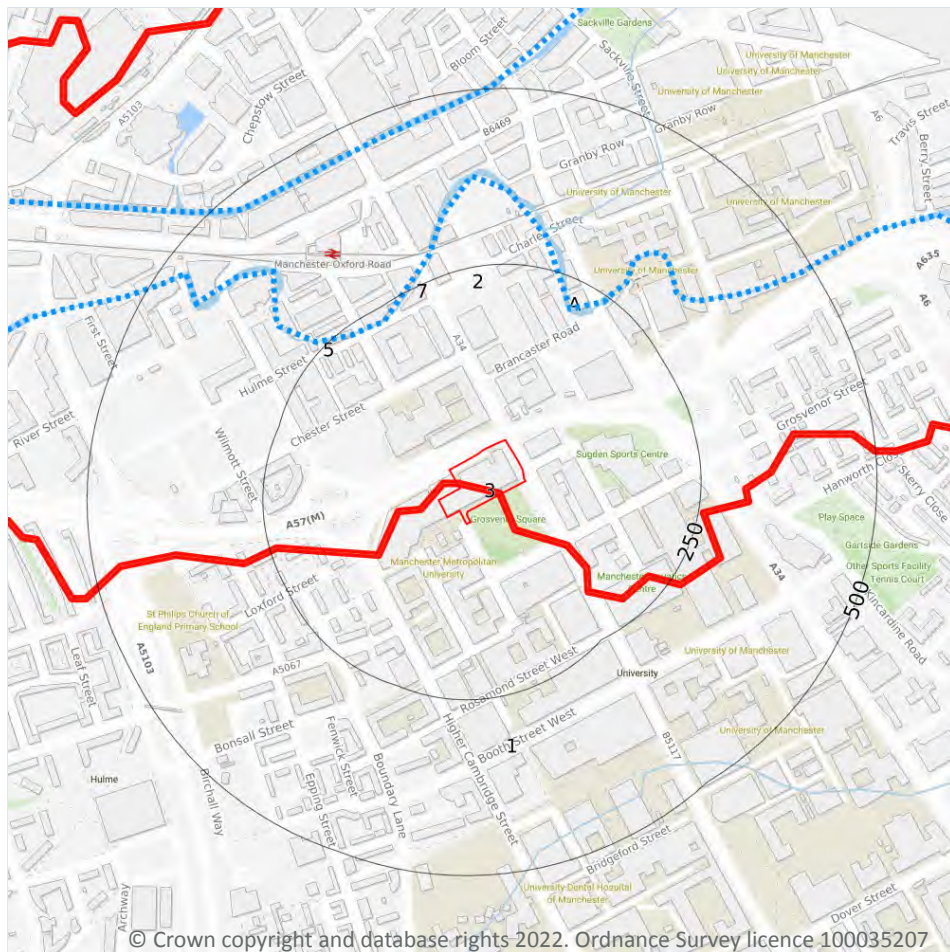
0

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

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



6 Hydrology



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

6.1 Water Network (OS MasterMap)

Records within 250m

3

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

Features are displayed on the Hydrology map on **page 84**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	206m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Medlock



ID	Location	Type of water feature	Ground level	Permanence	Name
5	229m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	River Medlock
7	235m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Medlock

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

2

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

Features are displayed on the Hydrology map on **page 84**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

2

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

Features are displayed on the Hydrology map on **page 84**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River	Irwell / Manchester Ship Canal (Irk to confluence with Upper Mers)	GB112069061452	Croal Irwell	Irwell
2	On site	River	Medlock (Lumb Brook to Irwell)	GB112069061152	Roch Irk Medlock	Irwell

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



6.4 WFD Surface water bodies

Records identified

2

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

Features are displayed on the Hydrology map on **page 84**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	208m NE	River	Medlock (Lumb Brook to Irwell)	GB112069061152	Moderate	Fail	Moderate	2019
-	1471m NW	River	Irwell / Manchester Ship Canal (Irk to confluence with Upper Mers)	GB112069061452	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site

1

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

Features are displayed on the Hydrology map on **page 84**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
3	On site	Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	GB41201G101100	Poor	Poor	Poor	2019

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



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m**0**

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

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

7.2 Historical Flood Events

Records within 250m**0**

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

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

7.3 Flood Defences

Records within 250m**0**

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

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



7.4 Areas Benefiting from Flood Defences

Records within 250m

0

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

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

7.5 Flood Storage Areas

Records within 250m

0

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

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



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

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

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

7.7 Flood Zone 3

Records within 50m

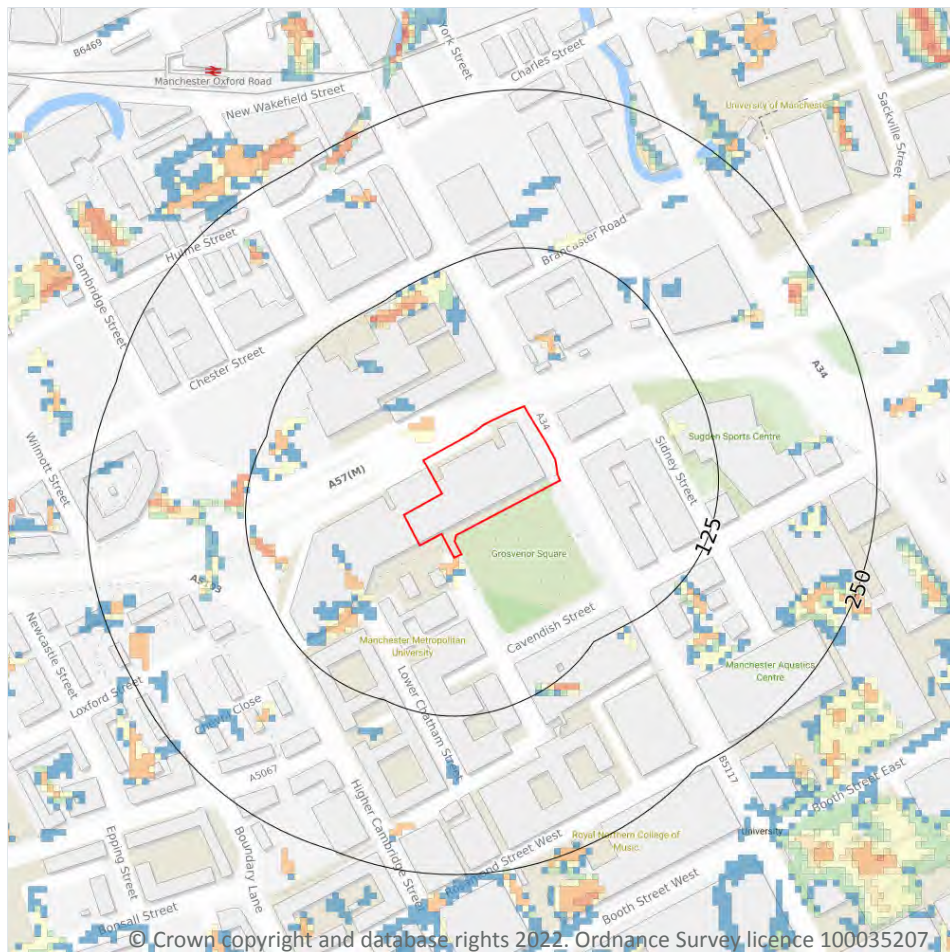
0

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

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



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

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

1 in 250 return period

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

1 in 100 return period

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

1 in 30 return period

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

8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.1m - 0.3m

Highest risk within 50m

1 in 30 year, 0.1m - 0.3m

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

Features are displayed on the Surface water flooding map on **page 90**

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

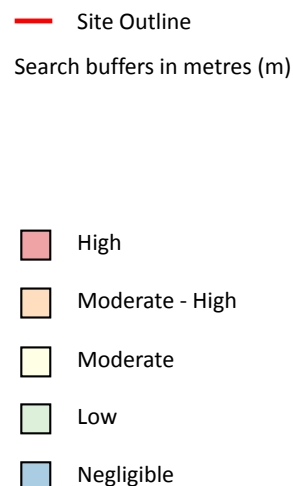
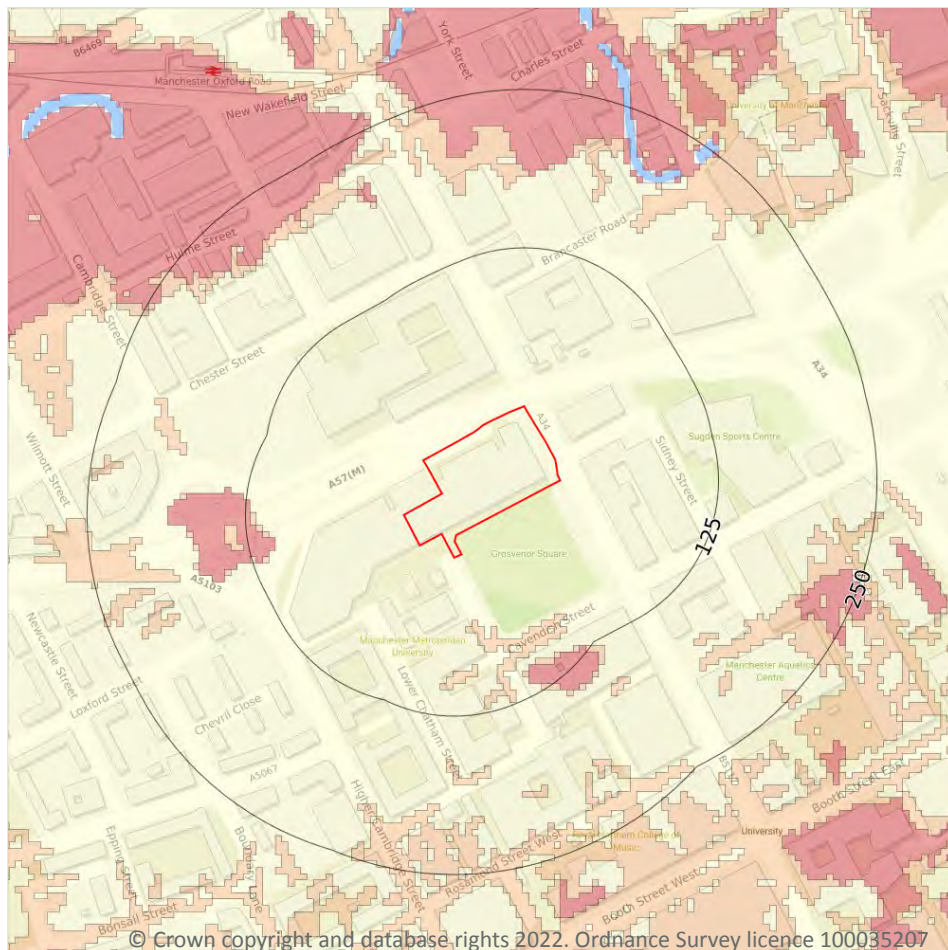
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiental Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Moderate

Highest risk within 50m

Moderate

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

Features are displayed on the Groundwater flooding map on **page 92**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m**0**

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

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

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



10.5 National Nature Reserves (NNR)

Records within 2000m**0**

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m**0**

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

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

10.7 Designated Ancient Woodland

Records within 2000m**0**

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

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

10.8 Biosphere Reserves

Records within 2000m**0**

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

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

10.9 Forest Parks

Records within 2000m

0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m

0

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

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

10.11 Green Belt

Records within 2000m

0

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

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

10.12 Proposed Ramsar sites

Records within 2000m

0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

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

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



10.14 Potential Special Protection Areas (pSPA)

Records within 2000m**0**

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m**0**

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m**3**

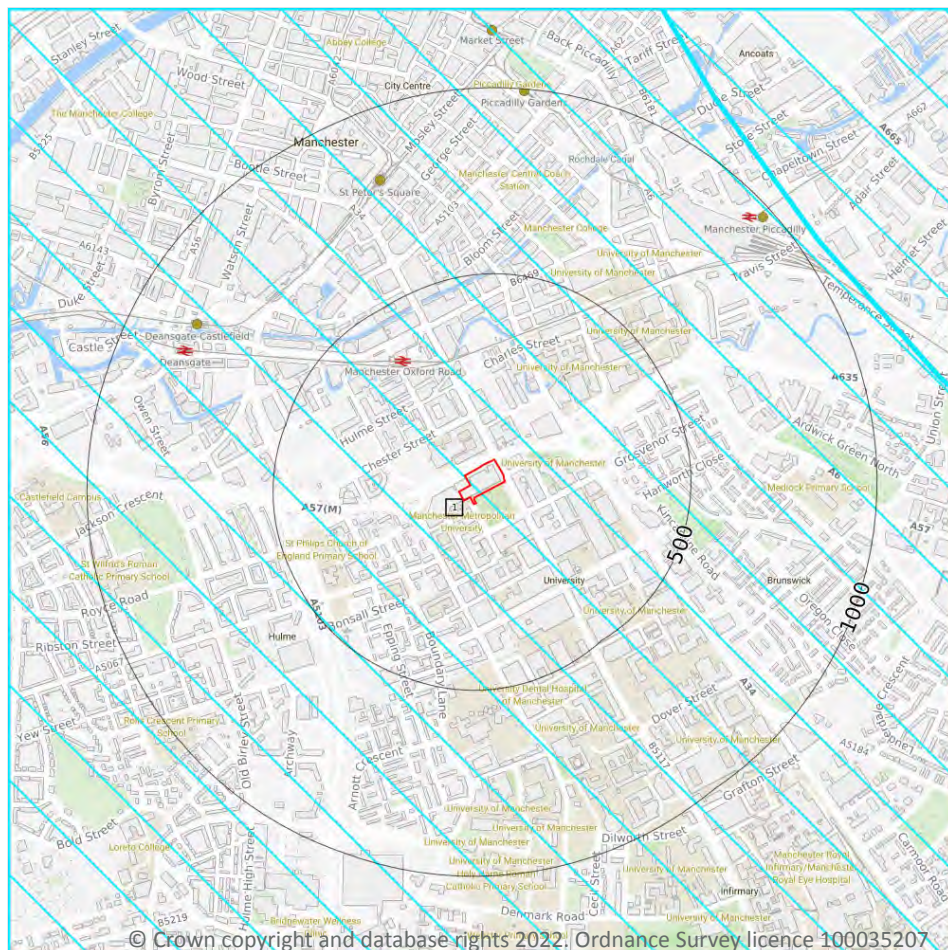
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
1182m N	River Irk (Moston Brook to River Irwell) NVZ	Surface Water	638	Existing
1393m N	River Irk (Moston Brook to River Irwell) NVZ	Surface Water	638	Existing
1746m N	Irwell / Man. Ship Canal (Kearsley to Irlam Locks) NVZ	Surface Water	643	Existing

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



SSSI Impact Zones and Units



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

10.17 SSSI Impact Risk Zones

Records on site

1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 97**

ID	Location	Type of developments requiring consultation
1	On site	Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m². Combustion - General combustion processes >50mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m

0

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

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



11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

11.3 National Parks

Records within 250m

0

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

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

11.4 Listed Buildings

Records within 250m

14

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

Features are displayed on the Visual and cultural designations map on **page 99**

ID	Location	Name	Grade	Reference Number	Listed date
1	21m SW	Former Manchester Ear Hospital, Hulme, Manchester, M15	II	1197922	03/10/1974
2	57m SW	Roman Catholic Church of St Augustine, Hulme, Manchester, M15	II	1392331	16/11/2007
3	71m S	ormond Building, Manchester Metropolitan University (Formerly Municipal offices), Hulme, Manchester, M15	II	1219718	03/10/1974
4	103m S	Grosvenor Building, Manchester Metropolitan University Faculty of Art and Design, Hulme, Manchester, M15	II	1293192	03/10/1974



ID	Location	Name	Grade	Reference Number	Listed date
5	106m NW	Dalton Statue in Forecourt of Dalton College, Deansgate, Manchester, M1	II	1197791	03/10/1974
6	114m SE	Former Town Hall Facade To Mabel Tylecote Building, Manchester Metropolitan University, Hulme, Manchester, M15	II	1283062	25/02/1952
7	121m S	Righton Building, Hulme, Manchester, M15	II	1197781	11/06/1991
A	126m SE	Former Grosvenor Picture Palace, Hulme, Manchester, M1	II	1218431	03/10/1974
A	127m SE	Adult Deaf and Dumb institute (Former), Hulme, Manchester, M1	II	1200839	03/10/1974
8	168m NW	Chatham Mill, Deansgate, Manchester, M1	II	1293040	11/03/1988
9	179m N	Dancehouse Theatre including Numbers 6-14, Deansgate, Manchester, M1	II	1384997	05/10/2000
10	210m E	94-98, Grosvenor Street, Hulme, Manchester, M1	II	1218404	13/05/1974
11	222m W	Mill On North East Corner of Junction With Chester Street, Deansgate, Manchester, M1	II	1197776	11/03/1988
12	230m E	Oddfellows Hall, Hulme, Manchester, M1	II	1200840	06/06/1994

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

11.5 Conservation Areas

Records within 250m

0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial



sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

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

11.7 Registered Parks and Gardens

Records within 250m

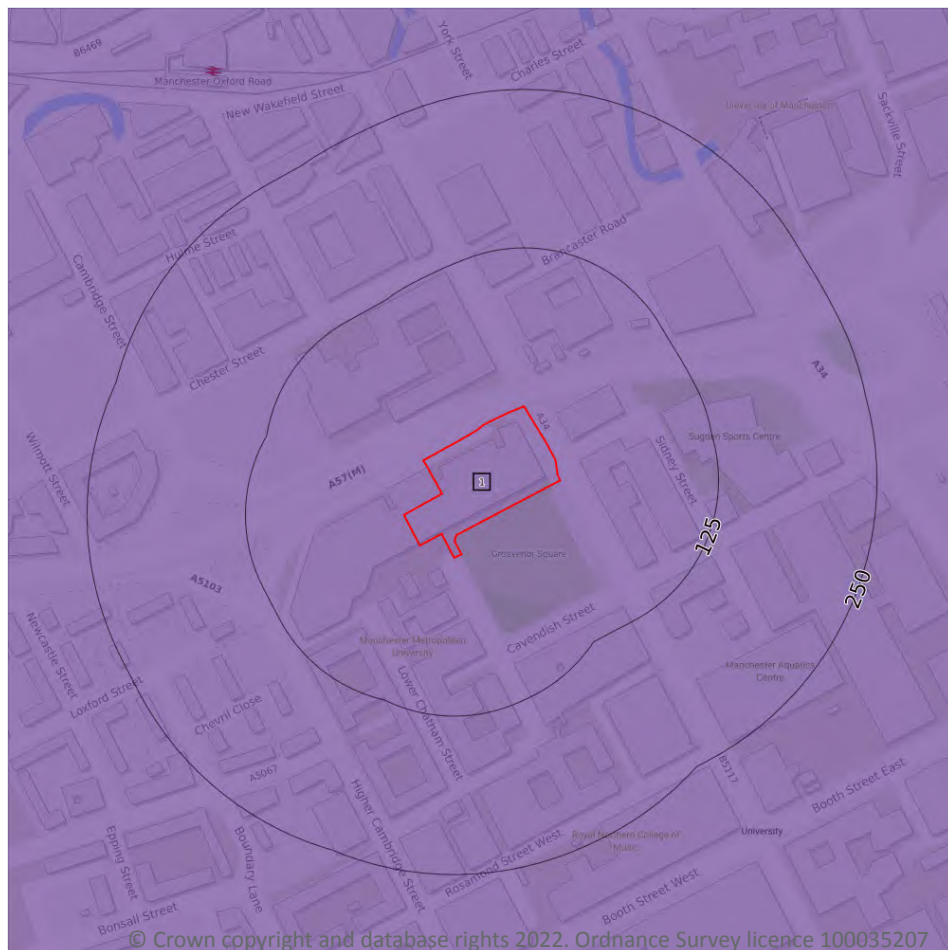
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Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process,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

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



12 Agricultural designations



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

12.1 Agricultural Land Classification

Records within 250m

1

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

Features are displayed on the Agricultural designations map on **page 103**

ID	Location	Classification	Description
1	On site	Urban	-

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m

0

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

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

12.3 Tree Felling Licences

Records within 250m

0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m

0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

0

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

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

1

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

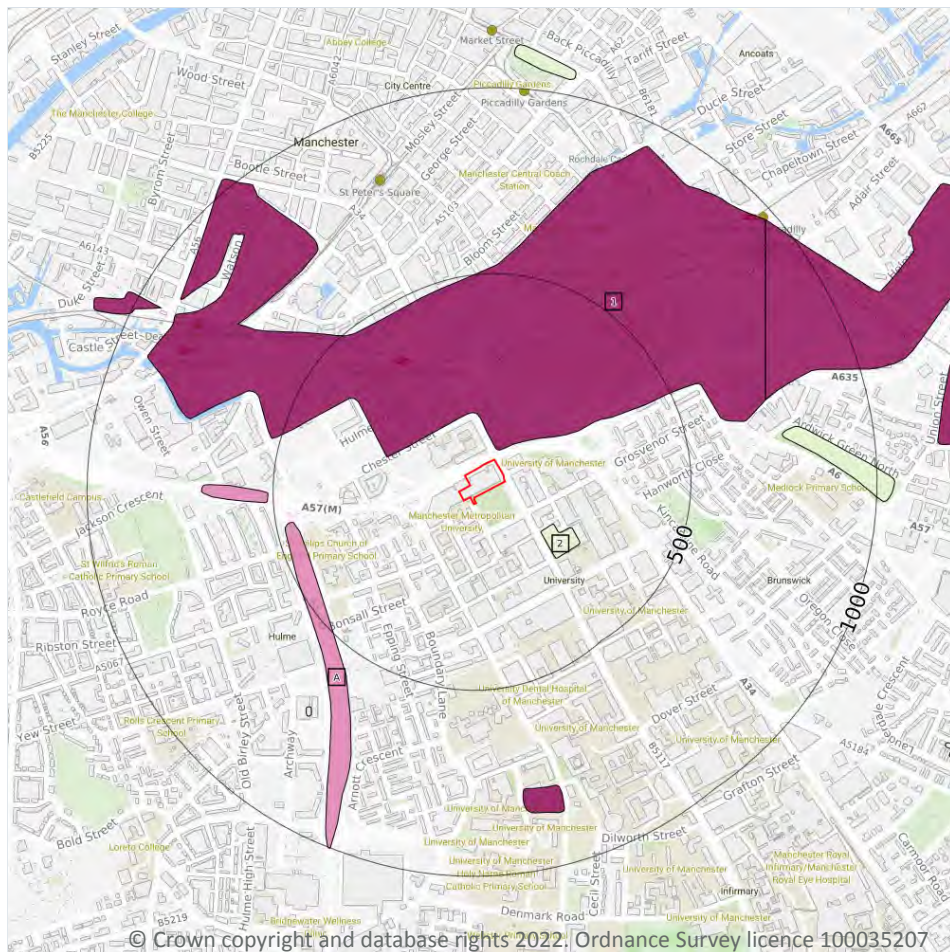
Features are displayed on the Geology 1:10,000 scale - Availability map on **page 106**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SJ89NW

This data is sourced from the British Geological Survey.



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



- Site Outline**
- Search buffers in metres (m)**
- Reclaimed ground
 - Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

3

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

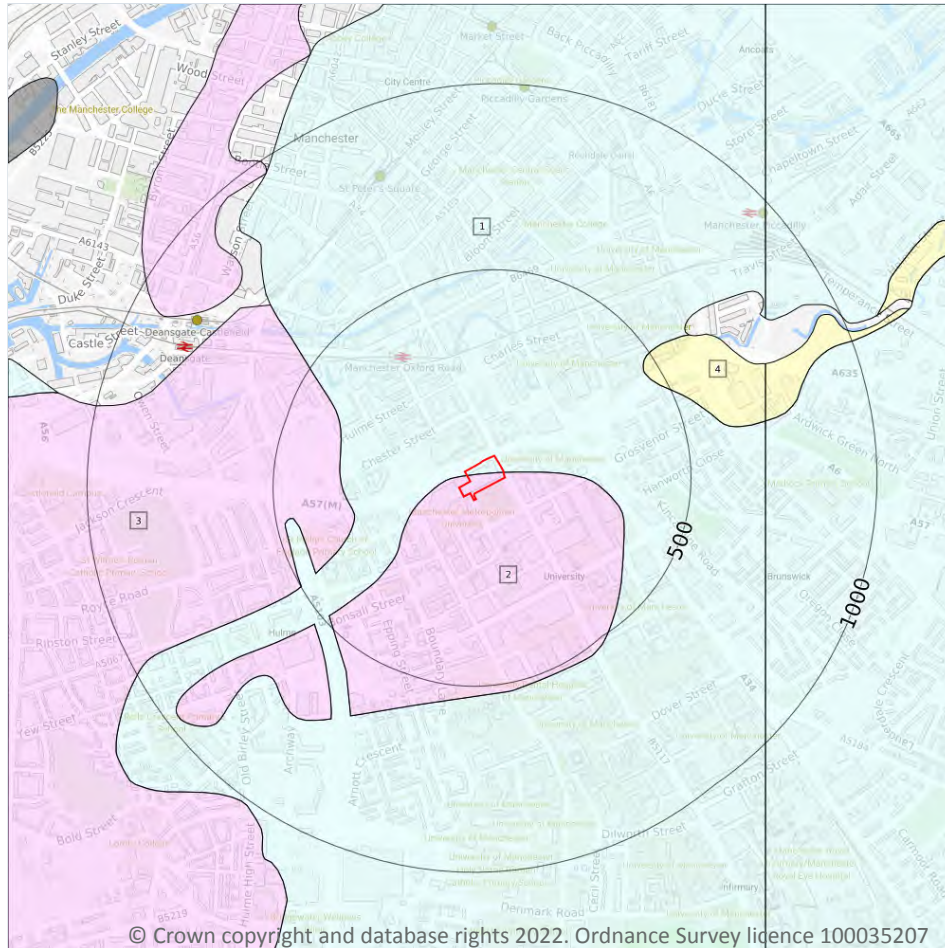
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 107**

ID	Location	LEX Code	Description	Rock description
1	28m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	166m SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
A	439m W	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m

4

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 108**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
2	On site	GFSDX-SXV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel
3	290m W	GFSDX-SXV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel



ID	Location	LEX Code	Description	Rock description
4	461m NE	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

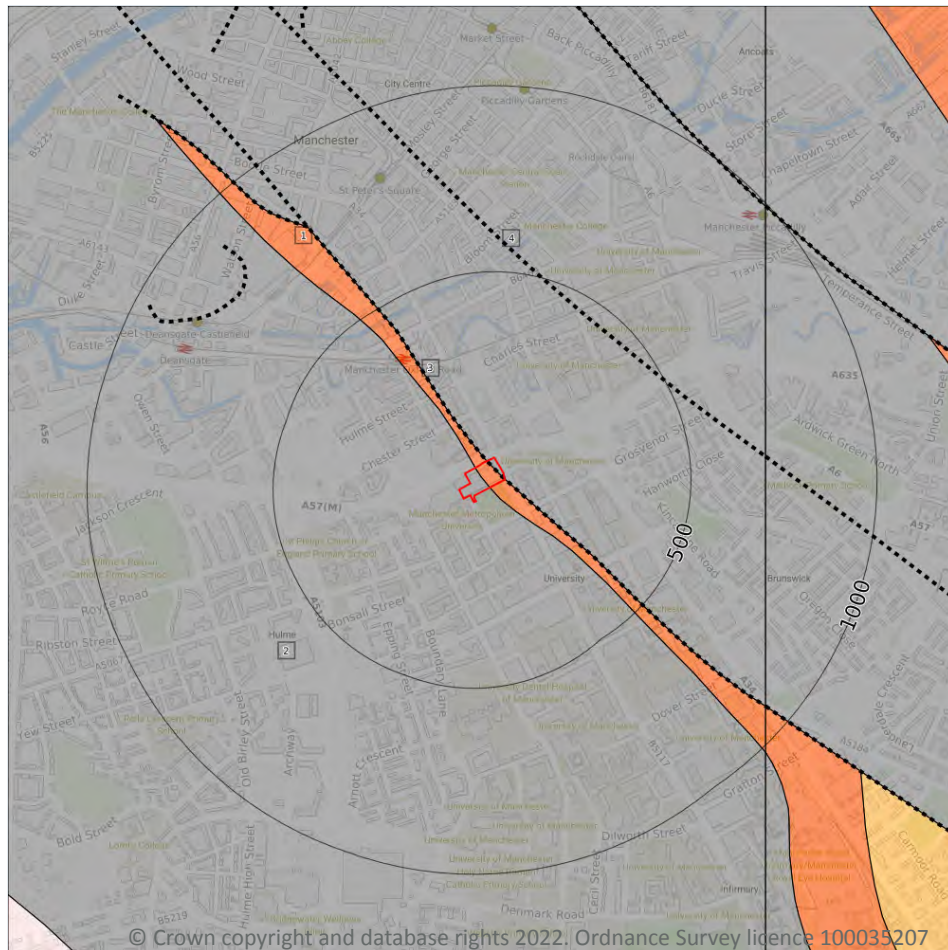
0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m

2

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 110**

ID	Location	LEX Code	Description	Rock age
1	On site	MM-MDST	Manchester Marls Formation - Mudstone	Late Permian Epoch [Obsolete name]
2	On site	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.



14.6 Bedrock faults and other linear features (10k)

Records within 500m

2

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

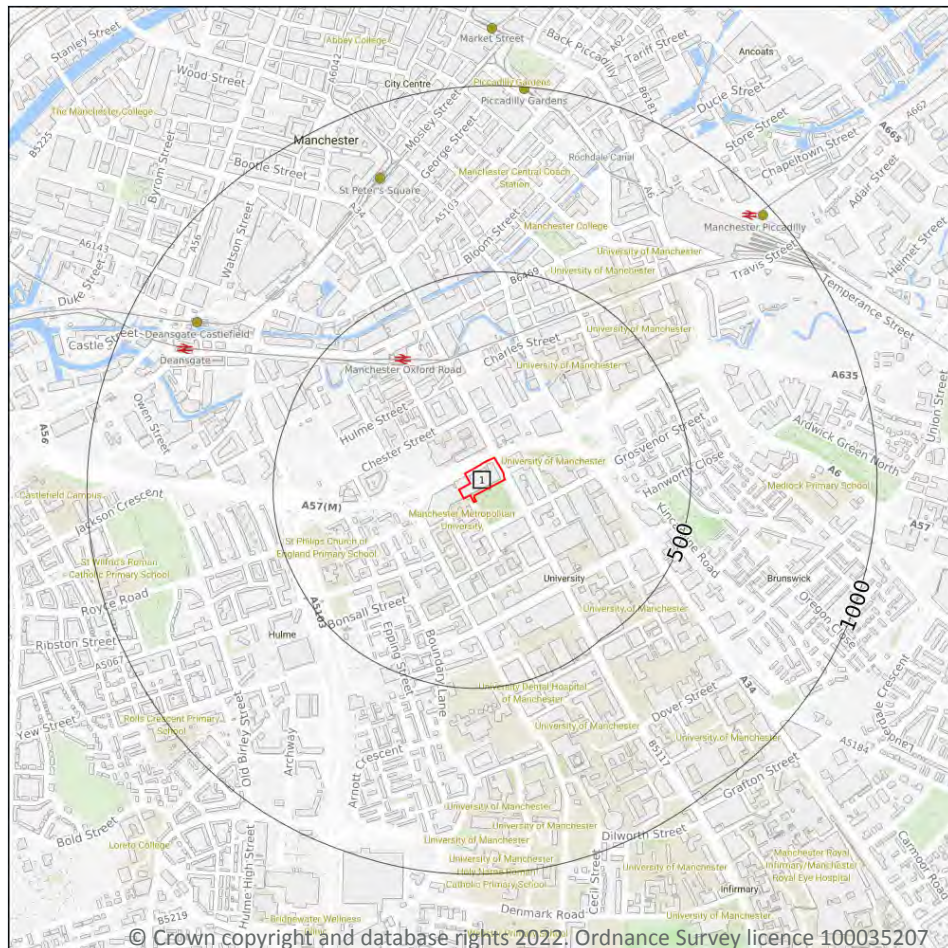
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 110**

ID	Location	Category	Description
3	On site	FAULT	Normal fault, inferred; crossmarks on downthrow side
4	451m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

1

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

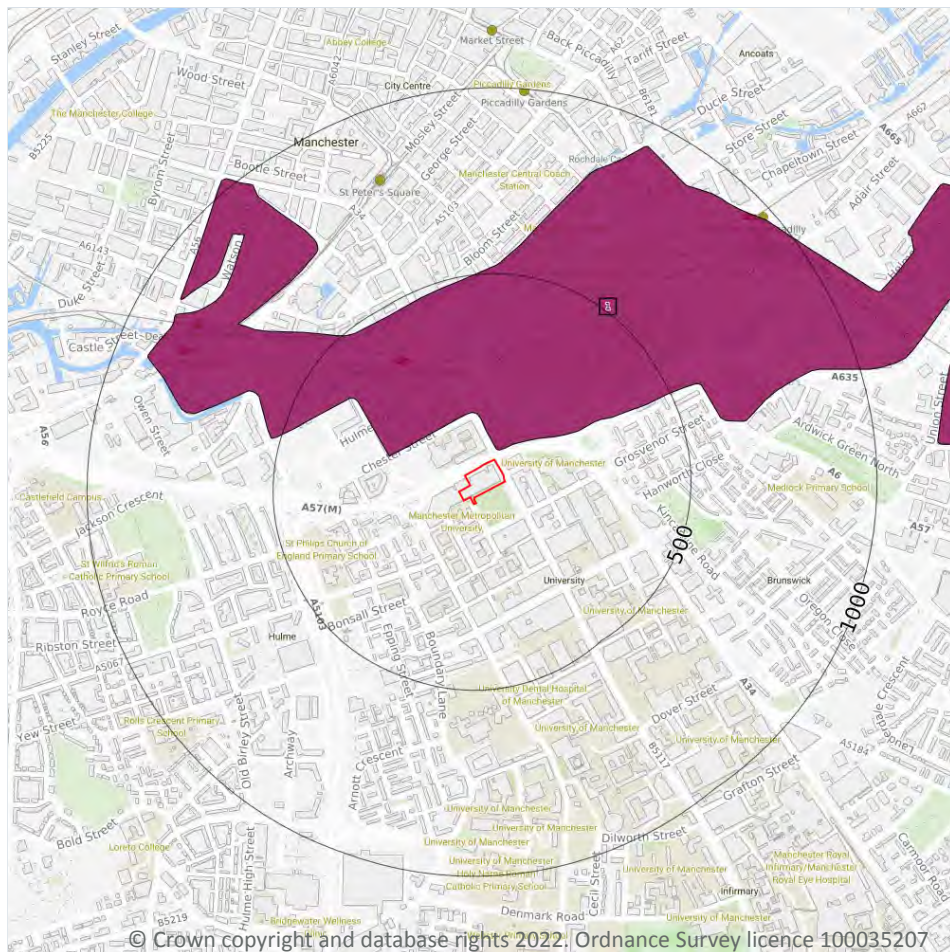
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 112**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW085_manchester_v4

This data is sourced from the British Geological Survey.



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



- Site Outline**
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 113**

ID	Location	LEX Code	Description	Rock description
1	28m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

1

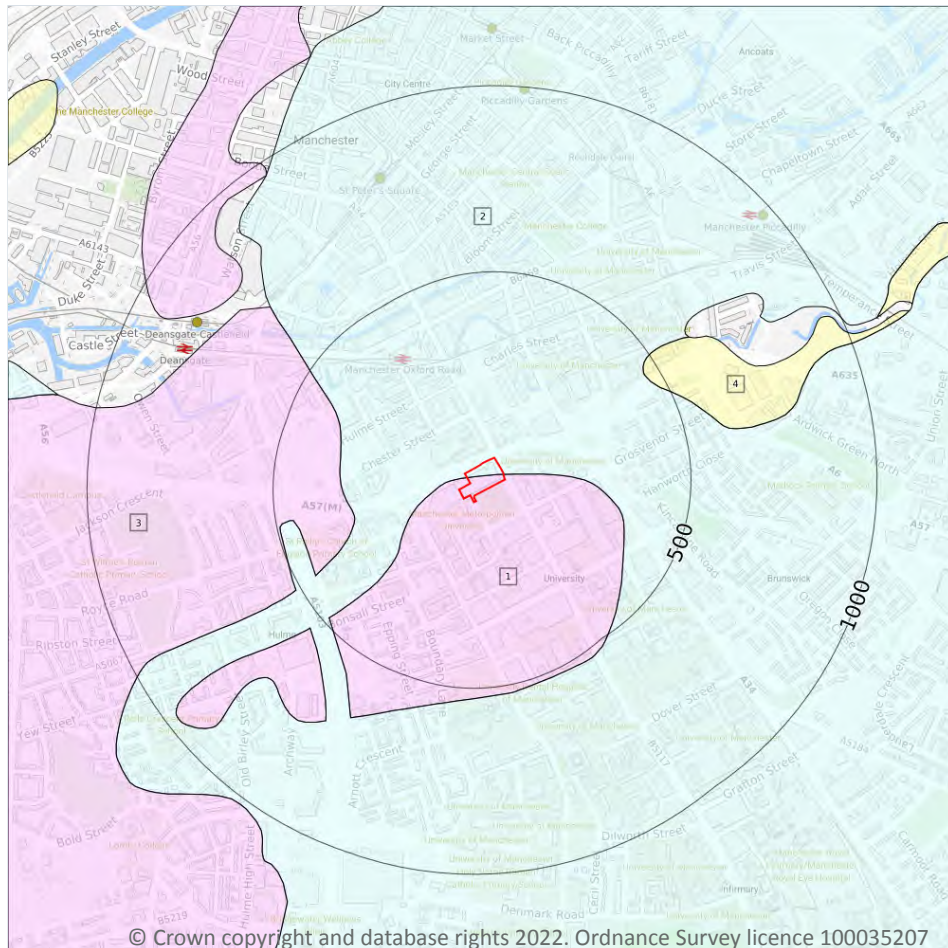
A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
28m NE	Mixed	Very High	Low

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m

4

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 115**

ID	Location	LEX Code	Description	Rock description
1	On site	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	On site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
3	290m W	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL



ID	Location	LEX Code	Description	Rock description
4	461m NE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	2
---------------------------	----------

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

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

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

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

This data is sourced from the British Geological Survey.

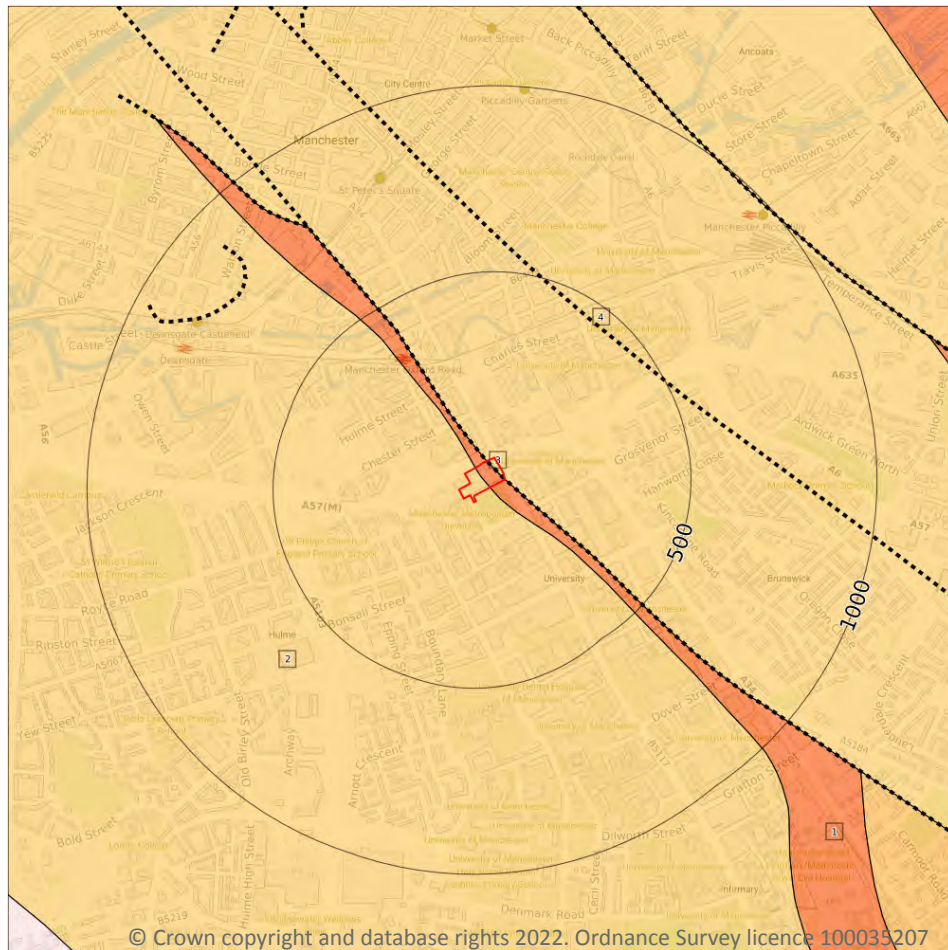
15.7 Landslip permeability (50k)

Records within 50m	0
---------------------------	----------

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

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

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

15.8 Bedrock geology (50k)

Records within 500m

2

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 117**

ID	Location	LEX Code	Description	Rock age
1	On site	MM-MDST	MANCHESTER MARLS FORMATION - MUDSTONE	-
2	On site	CHES-SDST	CHESTER FORMATION - SANDSTONE	OLENEKIAN

This data is sourced from the British Geological Survey.



15.9 Bedrock permeability (50k)

Records within 50m

2

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

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

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

2

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

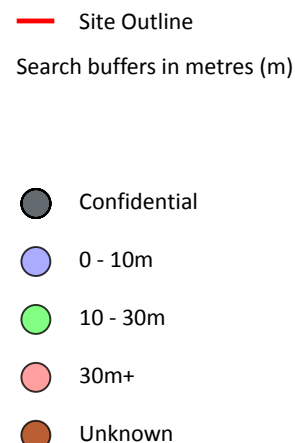
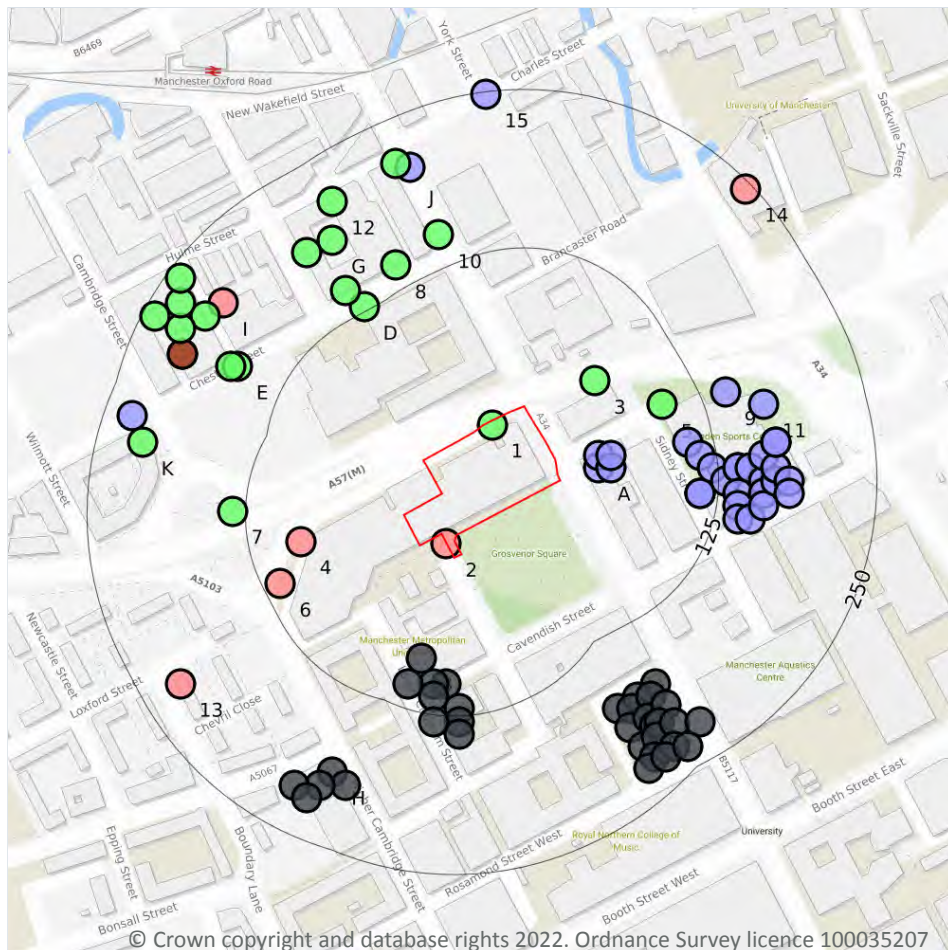
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 117**

ID	Location	Category	Description
3	On site	FAULT	Fault, inferred
4	451m NE	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.



16 Boreholes



16.1 BGS Boreholes

Records within 250m

92

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

Features are displayed on the Boreholes map on **page 119**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	384246 397204	MANCUNIAN WAY 9	11.58	N	1042496
2	0m SW	384210 397110	MANCHESTER METROPOLITAN UNIVERSITY	92.0	N	18293103
A	32m E	384330 397170	SIDNEY STREET, TRIAL PIT SURVEY TP 4	4.0	N	15018267



ID	Location	Grid reference	Name	Length	Confidential	Web link
A	34m E	384330 397180	SIDNEY STREET, TRIAL PIT SURVEY TP 3	4.0	N	15018265
A	42m E	384340 397170	SIDNEY STREET, TRIAL PIT SURVEY TP 2	3.8	N	15018261
A	44m E	384340 397180	SIDNEY STREET, TRIAL PIT SURVEY TP 1	4.0	N	15018254
3	58m NE	384327 397239	MANCUNIAN WAY 10	18.29	N	1042497
B	83m S	384190 397020	MANCHESTER METRO' UNIVERS' TP 8	-	Y	N/A
4	84m W	384095 397112	MANCHESTER METROPOLITAN UNIVERSITY BH 3	107.0	N	18662697
5	95m E	384380 397220	YORK ST/SIDNEY ST.MANCHESTER	21.03	N	1045477
B	99m S	384210 397000	MANCHESTER METRO' UNIVERS' TP 5	-	Y	N/A
B	101m S	384200 397000	MANCHESTER METRO' UNIVERS' TP 7	-	Y	N/A
C	105m E	384400 397190	UMIST/MMU JOINT SPORTS FACILITY 4	10.0	N	1044210
B	106m S	384180 397000	MANCHESTER METRO' UNIVERS' TP 9	-	Y	N/A
B	110m S	384200 396990	MANCHESTER METRO' UNIVERS' TP 6	-	Y	N/A
C	111m E	384410 397150	UMIST/MMU JOINT SPORTS FACILITY 2	10.0	N	1044208
C	111m E	384410 397150	UMIST/MMU JOINT SPORTS FACILITY TP3	2.7	N	1044214
6	111m SW	384079 397079	MANCHESTER METROPOLITAN UNIVERSITY BH 2	100.0	N	18662695
C	112m E	384410 397180	UMIST/MMU JOINT SPORTS FACILITY TP6	2.7	N	1044217
B	119m S	384220 396980	MANCHESTER METRO' UNIVERS' TP 3	-	Y	N/A
C	121m E	384420 397170	YORK STREET LATUMIST CENTRE TP4	2.8	N	1045687
D	129m NW	384145 397297	MANCHESTER CORP. K.SEWER	10.06	N	1042247
B	129m S	384220 396970	MANCHESTER METRO' UNIVERS' TP 4	-	Y	N/A
B	130m S	384200 396970	MANCHESTER METRO' UNIVERS' TP 2	-	Y	N/A
C	130m E	384430 397160	YORK STREET LATUMIST CENTRE TP3	2.55	N	1045686
7	136m W	384041 397136	MANCUNIAN WAY 8	16.15	N	1042495
B	139m S	384220 396960	MANCHESTER METRO' UNIVERS' TP 1	-	Y	N/A
C	141m E	384440 397170	UMIST/MMU JOINT SPORTS FACILITY TP4	3.0	N	1044215
C	141m E	384440 397170	YORK STREET LATUMIST CENTRE TP6	2.85	N	1045689
C	141m E	384440 397150	YORK STREET LATUMIST CENTRE TP2	2.25	N	1045685
C	142m E	384440 397140	UMIST/MMU JOINT SPORTS FACILITY TP2	2.0	N	1044213



ID	Location	Grid reference	Name	Length	Confidential	Web link
C	144m E	384440 397130	YORK STREET LATUMIST CENTRE TP1	2.55	N	1045684
8	144m NW	384170 397330	LOWER MEDLOCK UCSD'S CONTRACT 1 MAN 0342 506	15.0	N	1043418
9	144m E	384430 397230	YORK STREET LATUMIST CENTRE 1	9.7	N	1045683
D	147m NW	384130 397310	LOWER MEDLOCK UCSD'S CONTRACT 1 MAN 0342 507	15.0	N	1043419
10	151m N	384204 397354	MANCHESTER CORP. K.SEWER	10.06	N	1042248
C	151m E	384450 397170	YORK STREET LATUMIST CENTRE TP9	2.75	N	1045692
C	153m E	384450 397130	YORK STREET LATUMIST CENTRE TP5	2.5	N	1045688
C	160m E	384460 397160	YORK STREET LATUMIST CENTRE TP8	2.9	N	1045691
C	161m E	384460 397150	UMIST/MMU JOINT SPORTS FACILITY 1	9.5	N	1044207
C	162m E	384460 397180	YORK STREET LATUMIST CENTRE TP13	2.2	N	1045696
C	162m E	384460 397140	YORK STREET LATUMIST CENTRE TP7	2.7	N	1045690
E	164m NW	384045 397250	MANCHESTER CORP. K.SEWER	10.06	N	1042246
E	169m NW	384040 397250	HULME STREET MANCHESTER 4	13.2	N	1043318
11	170m E	384460 397220	UMIST/MMU JOINT SPORTS FACILITY 5	10.0	N	1044211
C	170m E	384470 397160	YORK STREET LATUMIST CENTRE TP11	2.1	N	1045694
C	171m E	384470 397170	YORK STREET LATUMIST CENTRE TP12	2.6	N	1045695
C	173m E	384470 397190	UMIST/MMU JOINT SPORTS FACILITY TP5	2.7	N	1044216
C	173m E	384470 397190	UMIST/MMU JOINT SPORTS FACILITY 3	9.0	N	1044209
F	173m SE	384345 396980	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - 1		Y	N/A
F	177m SE	384375 397000	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - 2		Y	N/A
F	179m SE	384361 396989	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 9		Y	N/A
C	180m E	384480 397160	UMIST/MMU JOINT SPORTS FACILITY TP1	2.5	N	1044212
C	181m E	384480 397150	YORK STREET LATUMIST CENTRE TP10	2.95	N	1045693
F	181m SE	384356 396980	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 10		Y	N/A
F	184m SE	384371 396990	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 8		Y	N/A



ID	Location	Grid reference	Name	Length	Confidential	Web link
G	187m NW	384120 397350	LOWER MEDLOCK UCISO'S CONTRACT 1 MAN 0342 509	15.32	N	1043421
G	188m NW	384100 397340	LOWER MEDLOCK UCISO'S CONTRACT 1 MAN 0342 509A	16.0	N	1043422
F	191m SE	384355 396965	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 13	-	Y	N/A
H	192m SW	384120 396930	HIGHER CAMBRIDGE ST MANCHESTER TP 1	-	Y	N/A
F	196m SE	384369 396973	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 12	-	Y	N/A
F	196m SE	384383 396983	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 11	-	Y	N/A
H	198m SW	384130 396920	HIGHER CAMBRIDGE ST MANCHESTER TP 4	-	Y	N/A
I	201m NW	384034 397300	BINYON & FRYER'S, SUGAR WORKS, CHESTER STREET	163.53	N	1042400
F	203m SE	384374 396967	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - 3	-	Y	N/A
H	205m SW	384110 396920	HIGHER CAMBRIDGE ST MANCHESTER TP 5	-	Y	N/A
F	205m SE	384378 396969	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 7	-	Y	N/A
I	206m NW	384020 397290	HULME STREET MANCHESTER 5	12.0	N	1043319
I	207m W	384002 397260	DUNLOP RUBBER CO. 1 CAMBRIDGE STREET	-1.0	N	1042396
J	208m N	384181 397407	MANCHESTER CORP. K.SEWER	8.84	N	1042249
F	209m SE	384365 396950	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 6	-	Y	N/A
F	211m SE	384376 396958	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 5	-	Y	N/A
F	211m SE	384390 396969	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY - TP 4	-	Y	N/A
12	213m NW	384120 397380	LOWER MEDLOCK UCISO'S CONTRACT 1 MAN 0342 508/508A	15.9	N	1043420
H	213m SW	384090 396920	HIGHER CAMBRIDGE ST MANCHESTER TP 2	-	Y	N/A
K	214m W	383970 397190	LOWER MEDLOCK UCISO'S CONTRACT 1 MAN 0285 504	15.0	N	1043424
J	216m N	384170 397410	LOWER MEDLOCK UCISO'S CONTRACT 1 MAN 0342 505	10.5	N	1043417

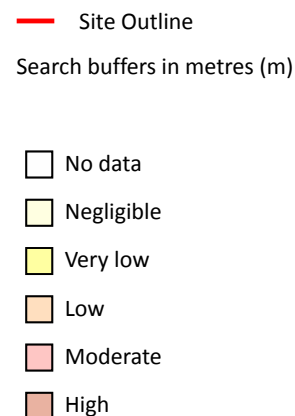
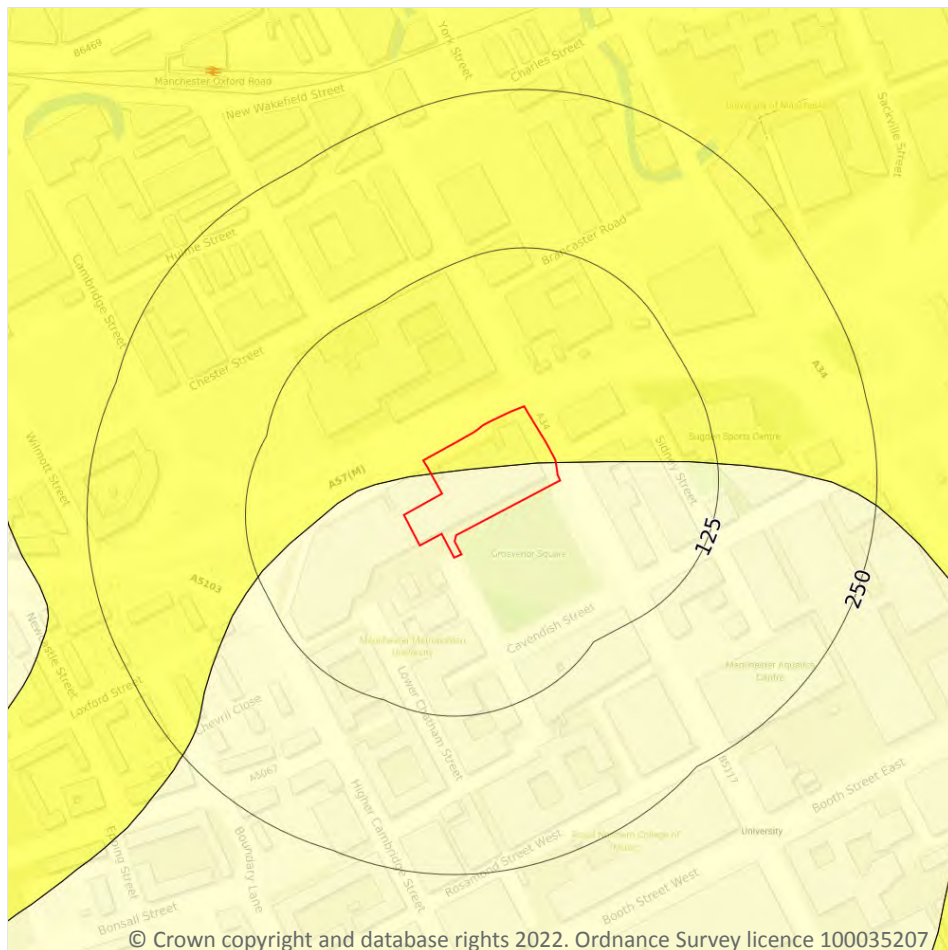


ID	Location	Grid reference	Name	Length	Confidential	Web link
H	218m SW	384100 396910	HIGHER CAMBRIDGE ST MANCHESTER TP 3	-	Y	N/A
13	218m SW	384000 397000	DYE WORKS OLD GARRATT MANCHESTER	98.76	N	1045463
I	218m NW	384000 397280	HULME STREET MANCHESTER 8	11.9	N	1043322
F	220m SE	384410 396970	OXFORD ROAD MANCHESTER TP1	-	Y	N/A
F	221m SE	384374 396942	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY TP 3	-	Y	N/A
F	225m SE	384370 396933	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY 4	-	Y	N/A
F	227m SE	384390 396950	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY TP 1	-	Y	N/A
F	227m SE	384383 396942	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY TP 2	-	Y	N/A
K	228m W	383962 397211	MANCHESTER CORP. K.SEWER	9.75	N	1042245
I	228m NW	384000 397300	HULME STREET MANCHESTER 7/7A	11.1	N	1043321
F	233m SE	384400 396950	SITE 3 MANCHESTER METROPOLITAN UNIVERSITY 5	-	Y	N/A
I	240m NW	384000 397320	HULME STREET MANCHESTER 6	10.4	N	1043320
I	240m NW	383980 397290	HULME STREET MANCHESTER 9	10.8	N	1043323
14	245m NE	384446 397390	DUNLOP RUBBER CO, BROOK STREET 2	76.5	N	1042402
15	248m N	384241 397465	MANCHESTER CORP. K.SEWER	6.71	N	1042250

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m

2

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

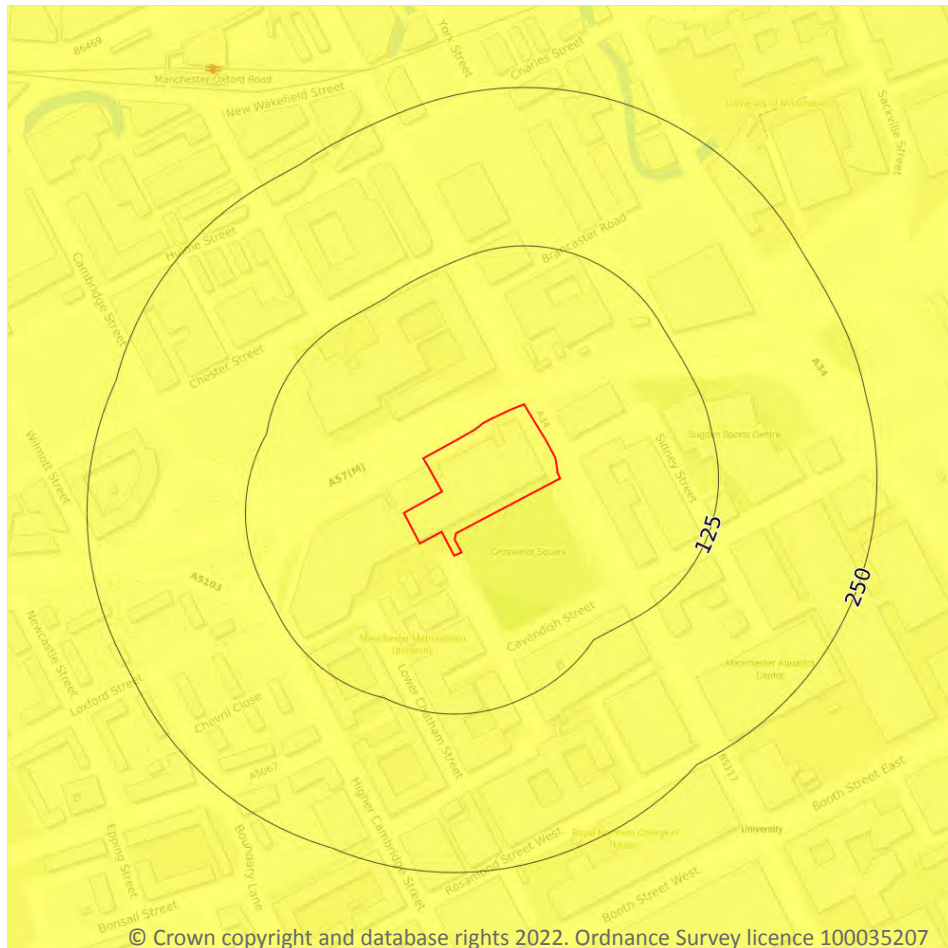
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 124**

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
On site	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



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

17.2 Running sands

Records within 50m

1

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

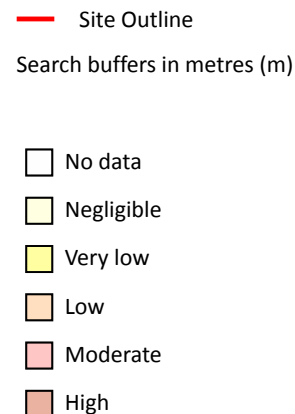
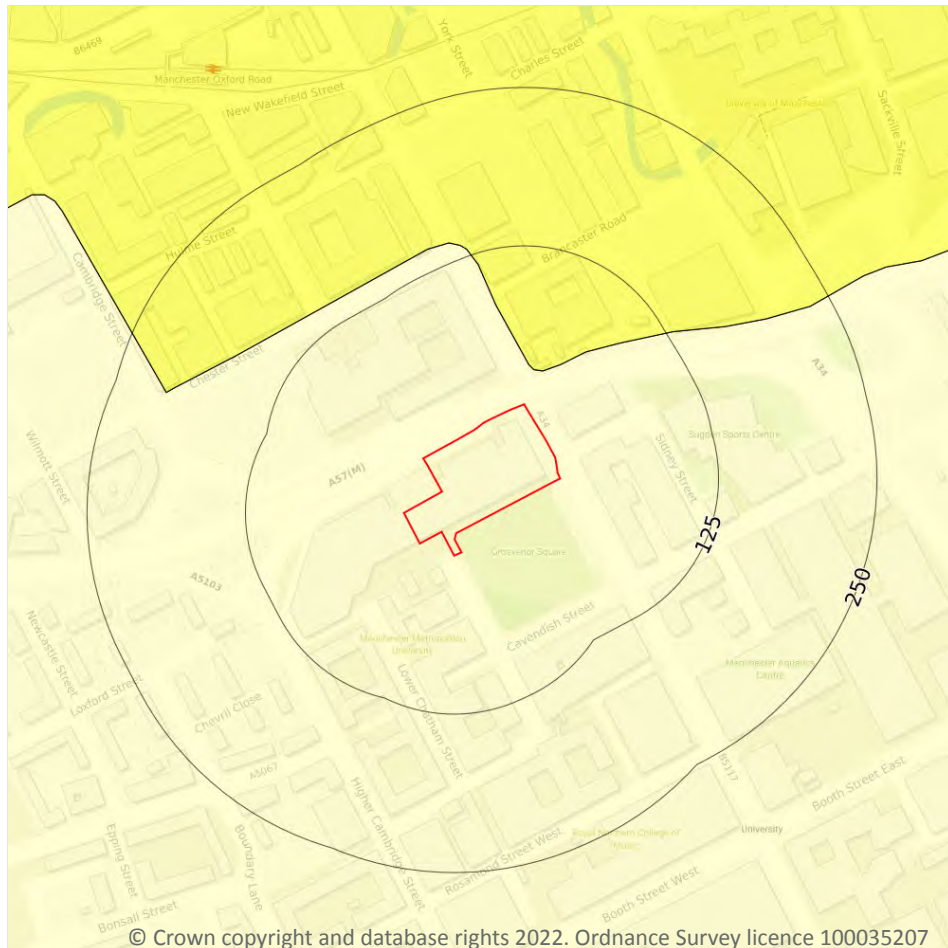
Features are displayed on the Natural ground subsidence - Running sands map on **page 125**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

2

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

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 126**

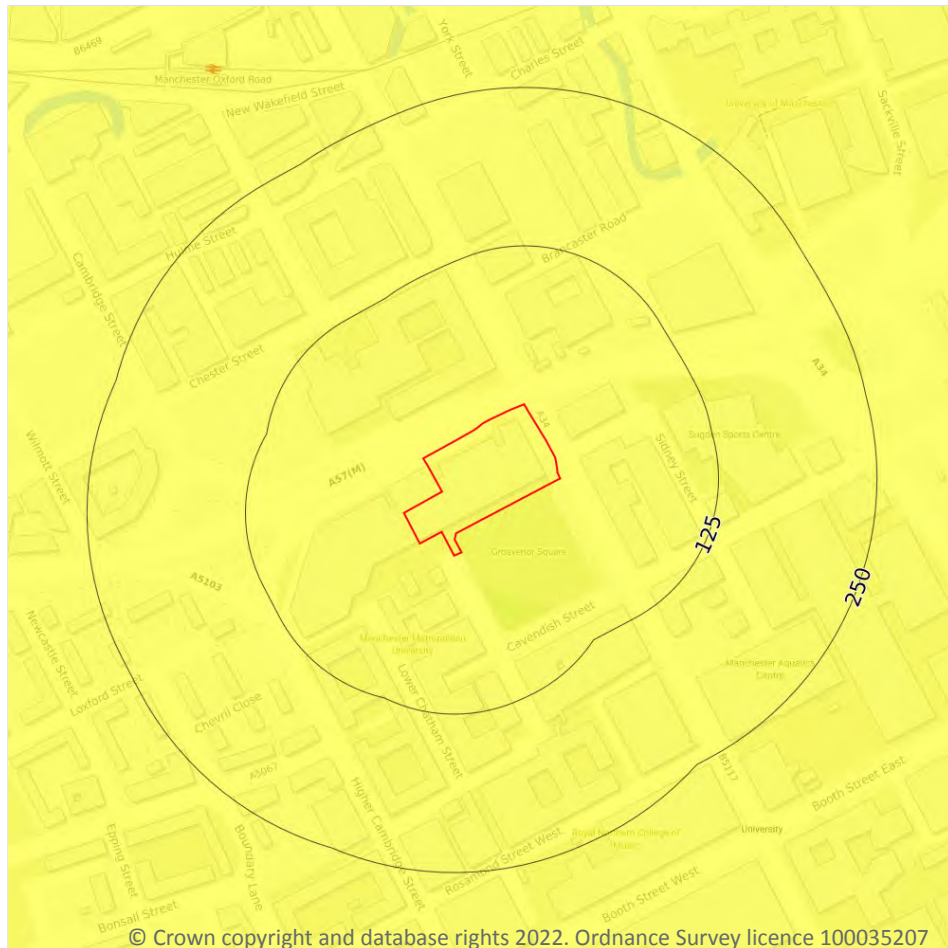
Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
28m NE	Very low	Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.



This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



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

17.4 Collapsible deposits

Records within 50m

1

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

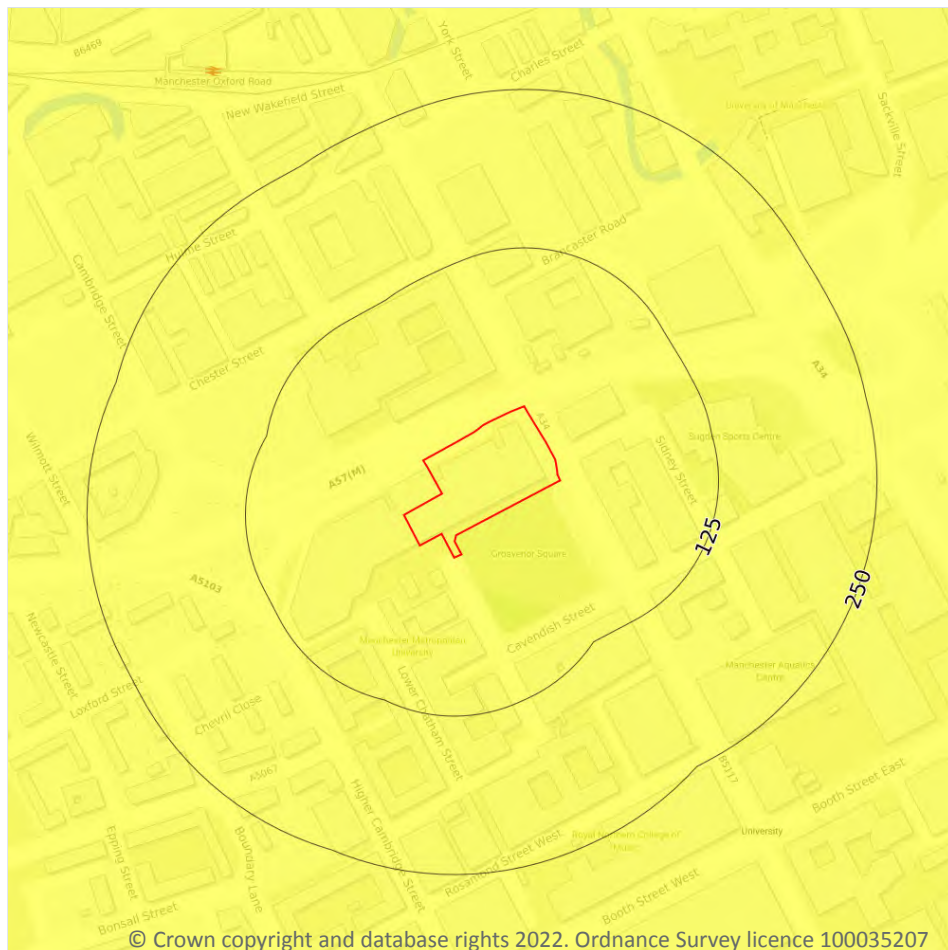
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 128**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



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

17.5 Landslides

Records within 50m

1

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

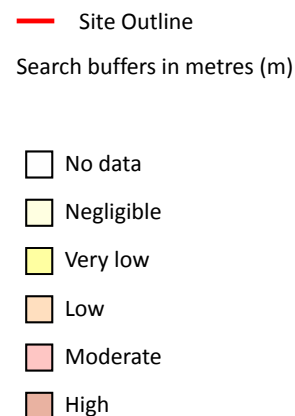
Features are displayed on the Natural ground subsidence - Landslides map on **page 129**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 130**

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



This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

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

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

0

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

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

0

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

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

0

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

This data is sourced from the British Geological Survey.



18.7 Mining cavities

Records within 1000m

1

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 132**

ID	Location	Mine Address	Mineral	Data source	Publisher
3	603m E	Manchester, Greater Manchester	Firestone, Freestone, Hearthstone , Honestone, Ragstone, Sandstone, Scythestone , Silver Sand, Whetstone	'Underground Manchester - Secrets of the city revealed'	Willow Publishing

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site

1

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

Location	Details
On site	In addition to being located inside an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property which may supplement this information. Please note, the plans held by JPB may also relate to non-mining records. Further details and a quote for services (if appropriate) can be obtained by emailing this report to enquiries.gs@jpb.co.uk .

This data is sourced from Johnson Poole and Bloomer.



18.9 Coal mining

Records on site	1
-----------------	---

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

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

This data is sourced from the Coal Authority.

18.10 Brine areas

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

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

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

18.11 Gypsum areas

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

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

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

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

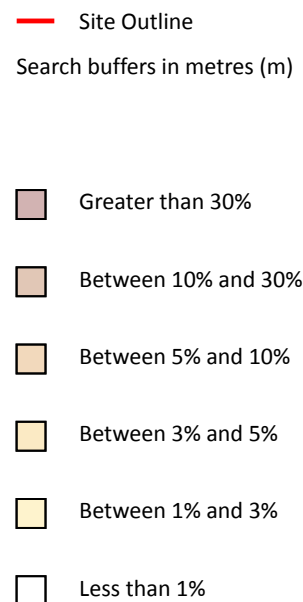
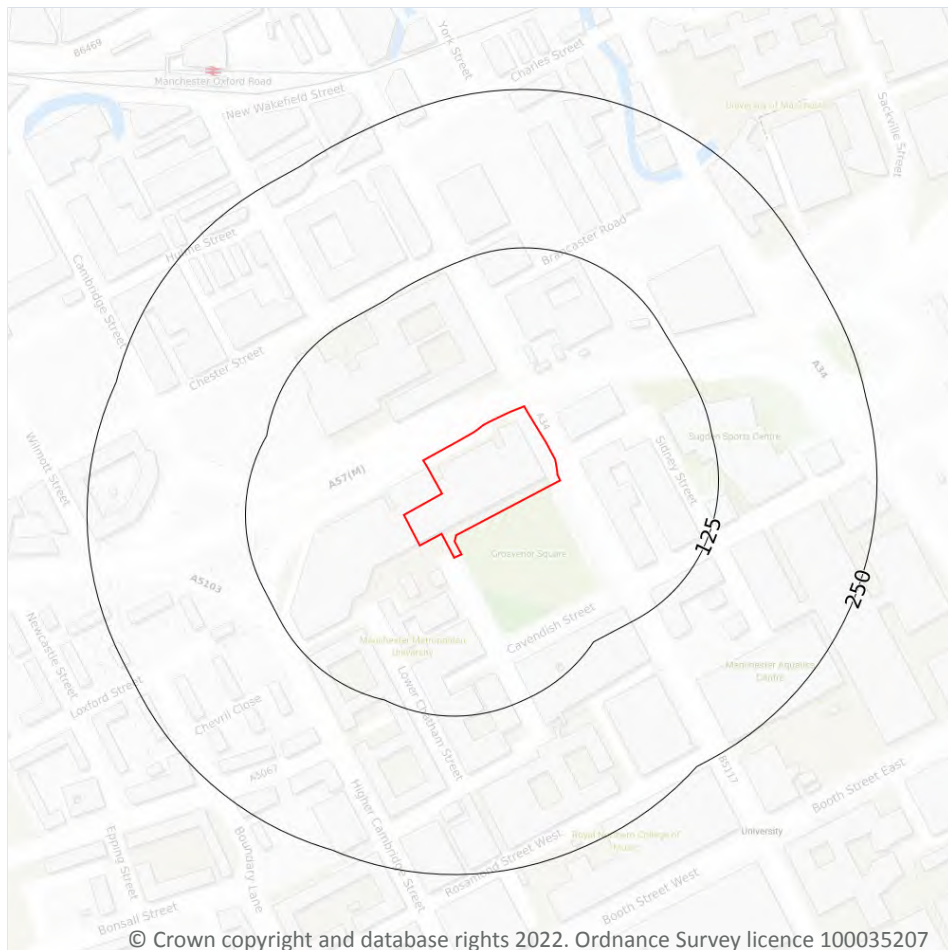
Records on site	0
-----------------	---

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

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



19 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 136**

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

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

3

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

8

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

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	15	2.6	91	63	0.6	71	43	21	11
On site	16	2.8	132	91	0.6	71	51	21	13
On site	17	3	111	76	0.5	70	40	21	8
On site	18	3.2	202	139	0.7	72	62	23	16



Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
0m E	14	2.5	122	84	0.6	69	50	20	12
9m SW	19	3.3	98	67	0.5	68	38	22	9
15m NE	13	2.3	109	75	0.6	67	48	19	11
17m NW	15	2.6	116	80	0.6	75	41	22	7

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

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

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m**0**

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m**0**

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m**0**

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m**0**

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m**0**

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



This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m

0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m

0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m

0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m

0

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m

0

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

This data is sourced from HS2 Ltd.



Data providers

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Map date: 1851

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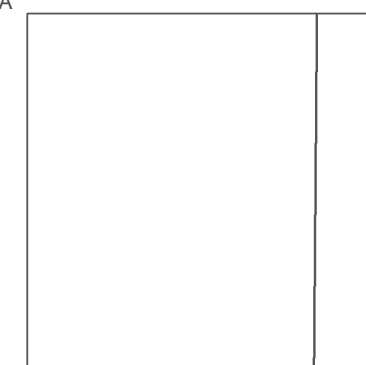
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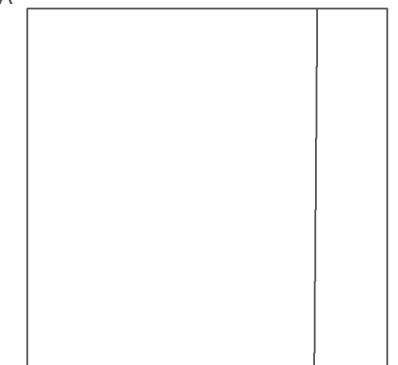
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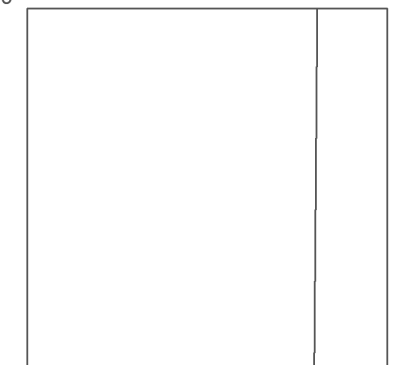
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Map date: 1932

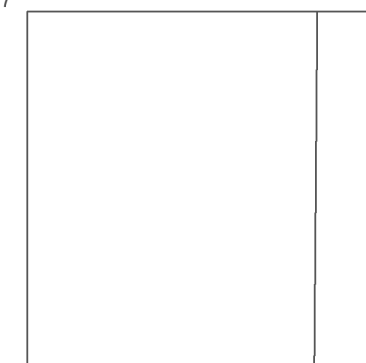
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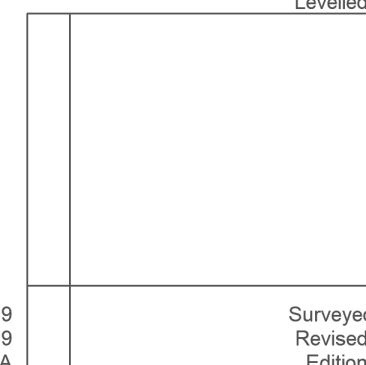
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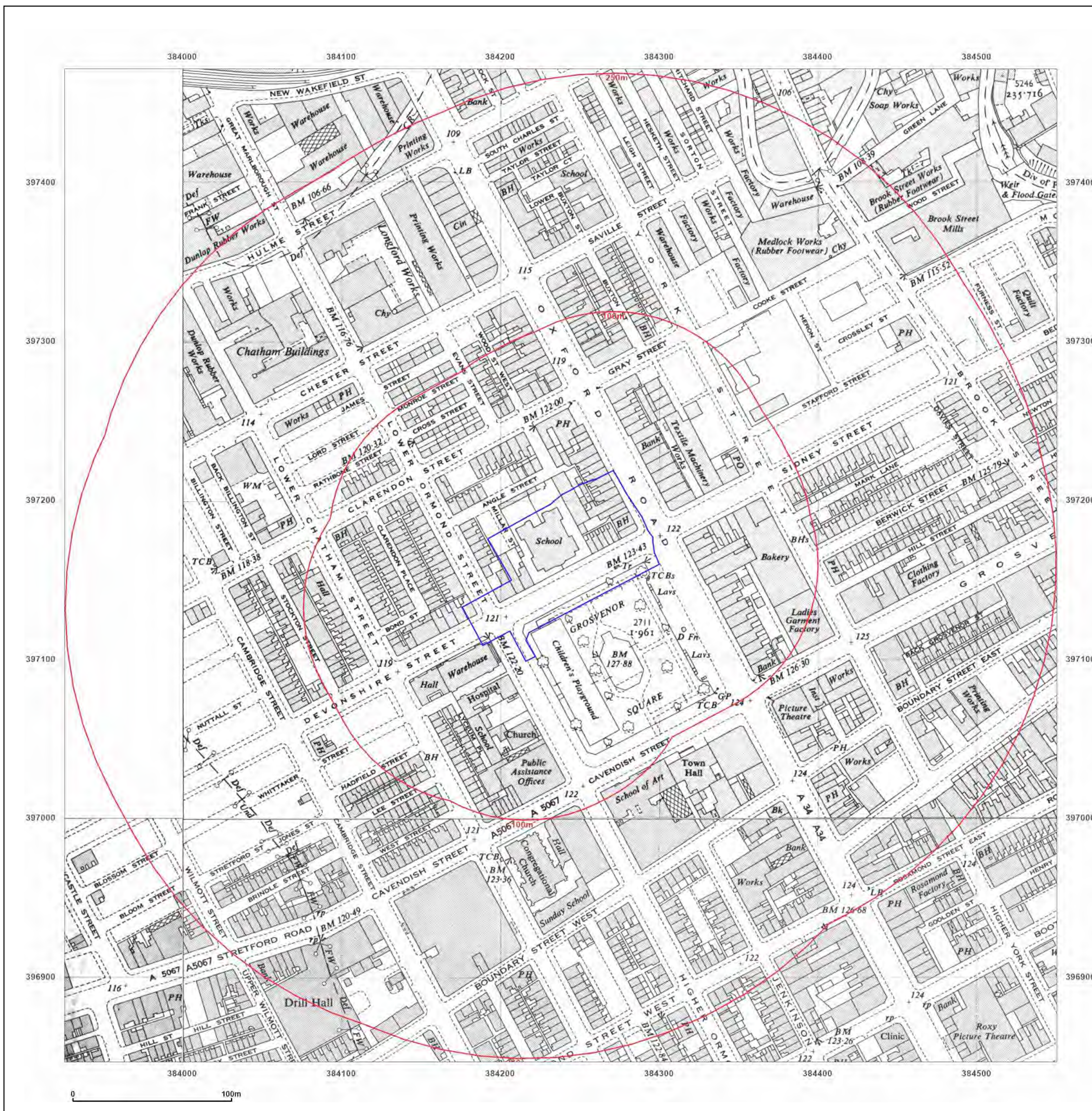


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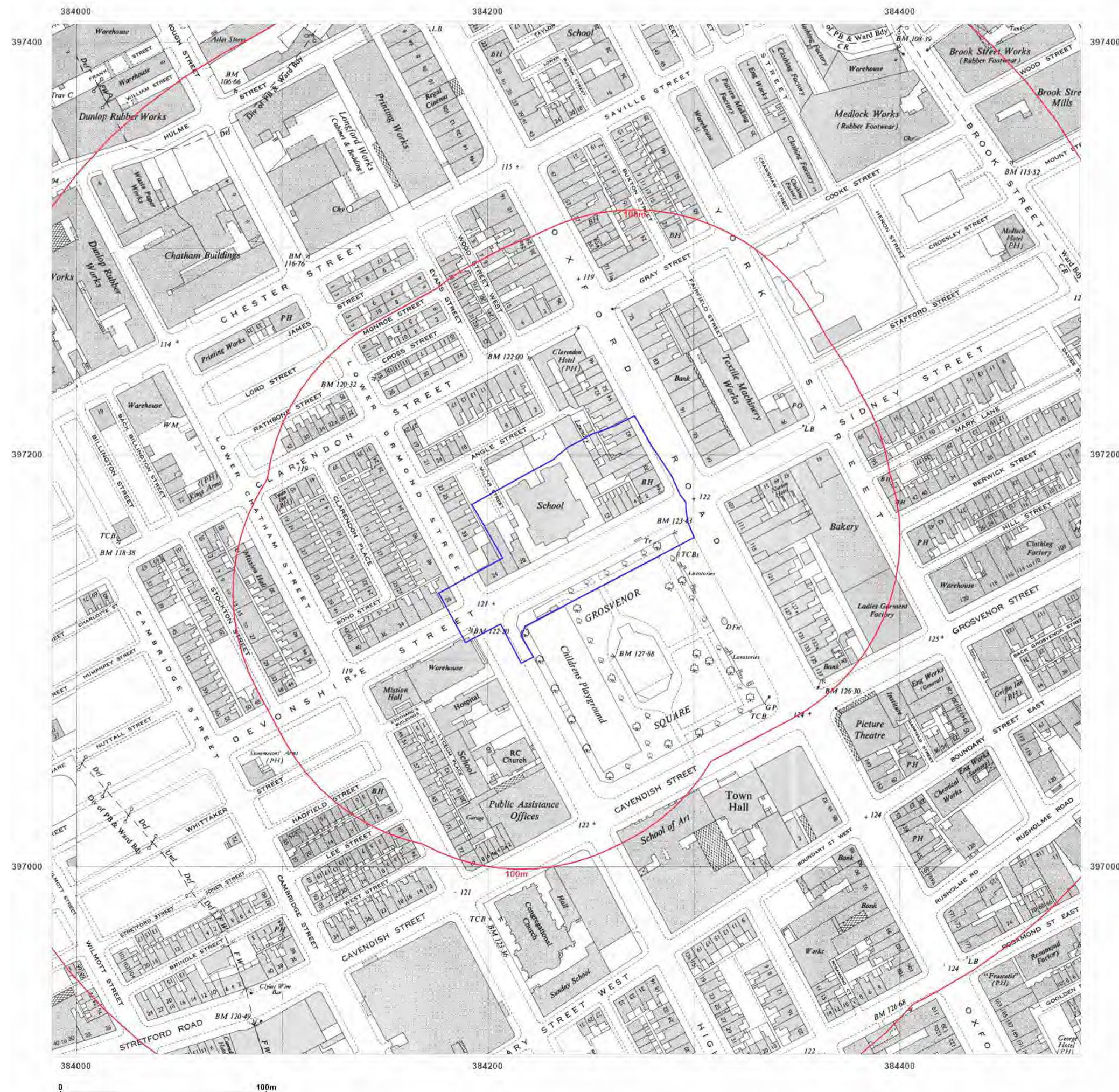


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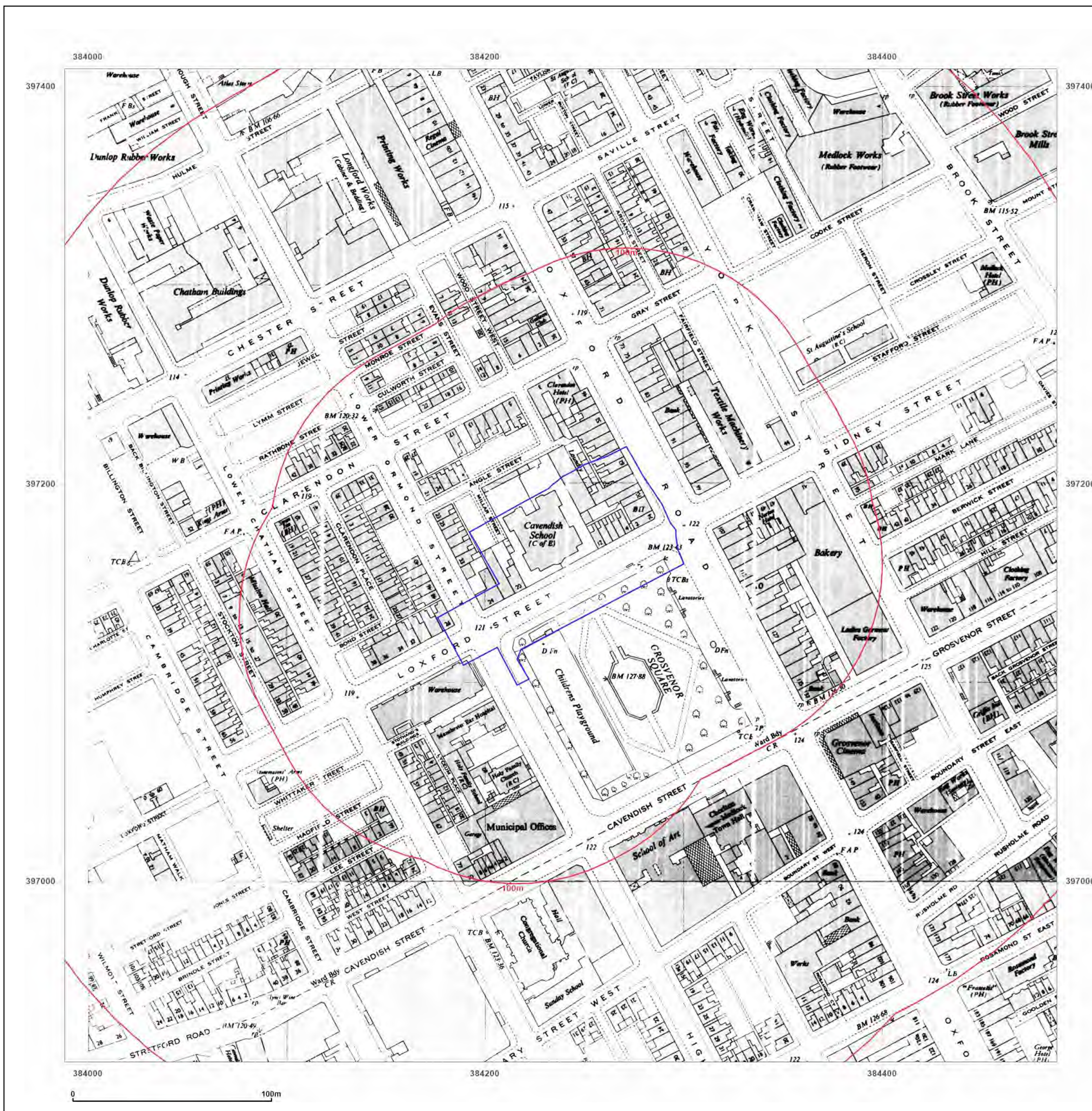


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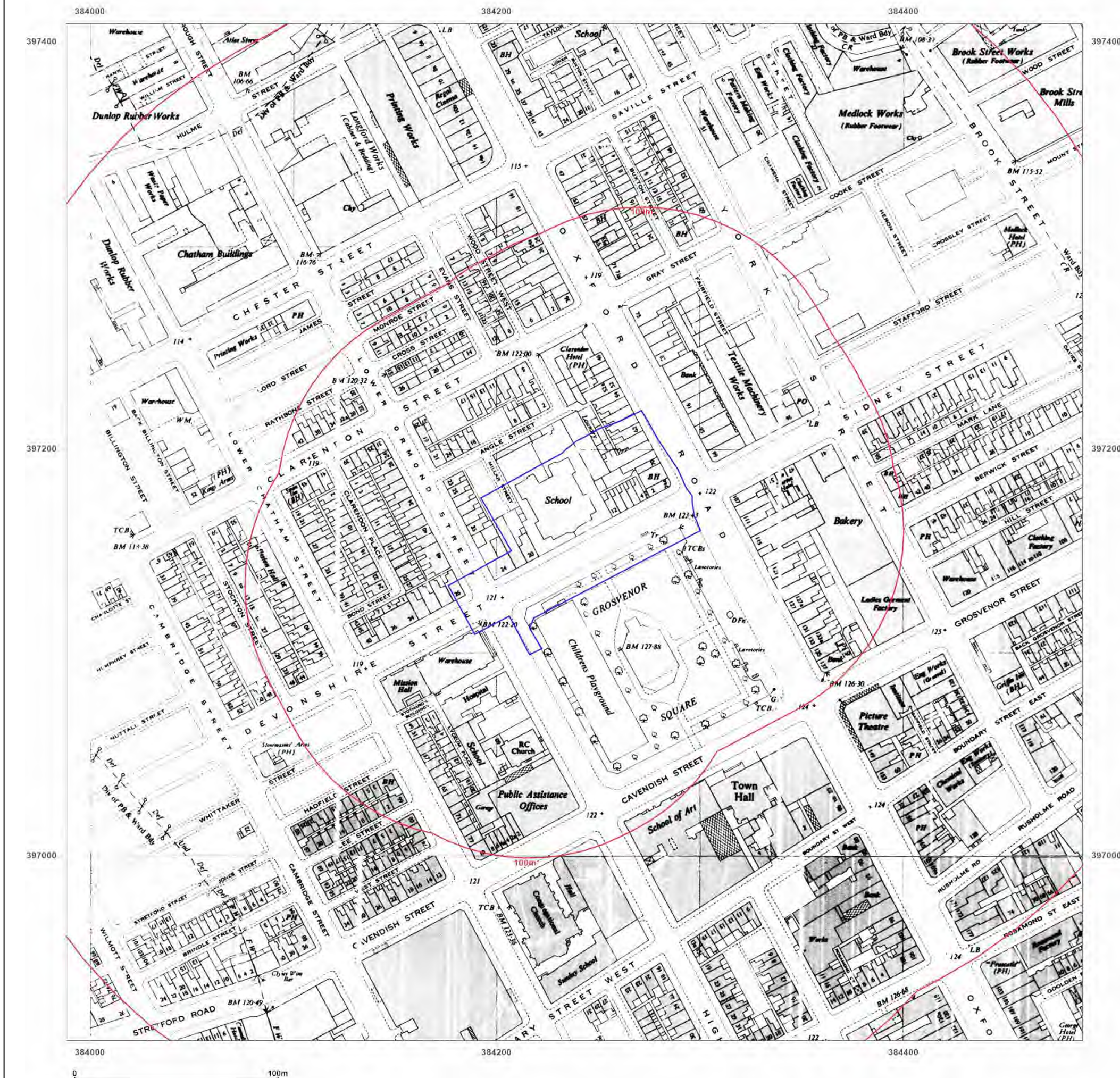


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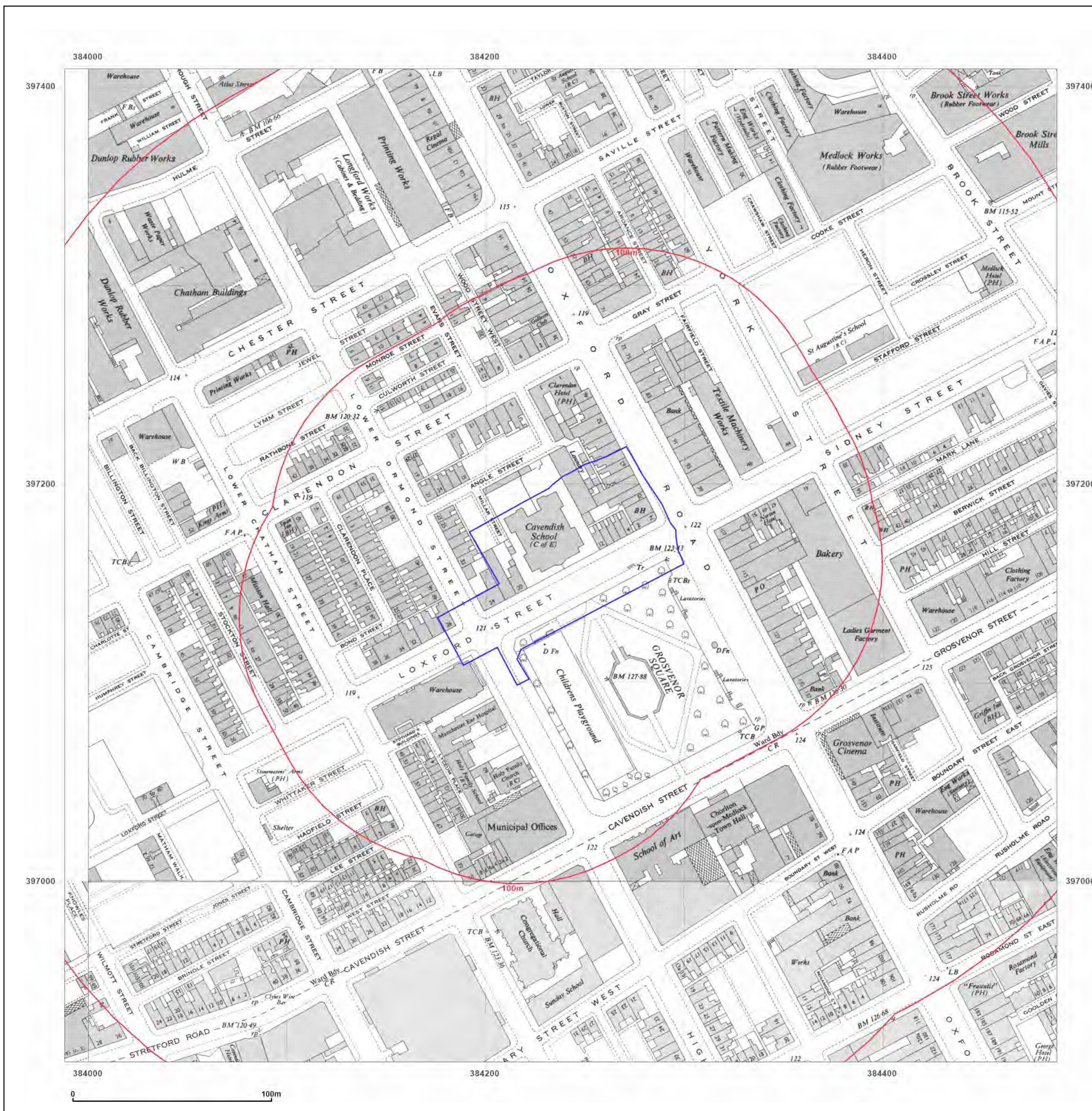


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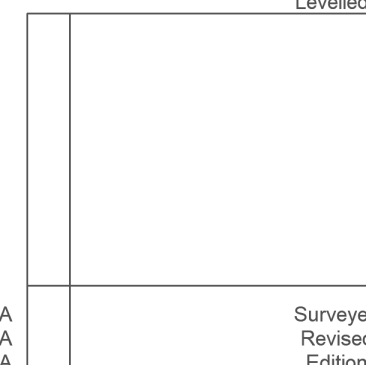
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Site Details:

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ROAD, MANCHESTER, M15
6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1961-1962

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1948
Revised 1961
Edition N/A
Copyright 1962
Levelled 1958

Surveyed 1948
Revised 1948
Edition N/A
Copyright 1961
Levelled 1958

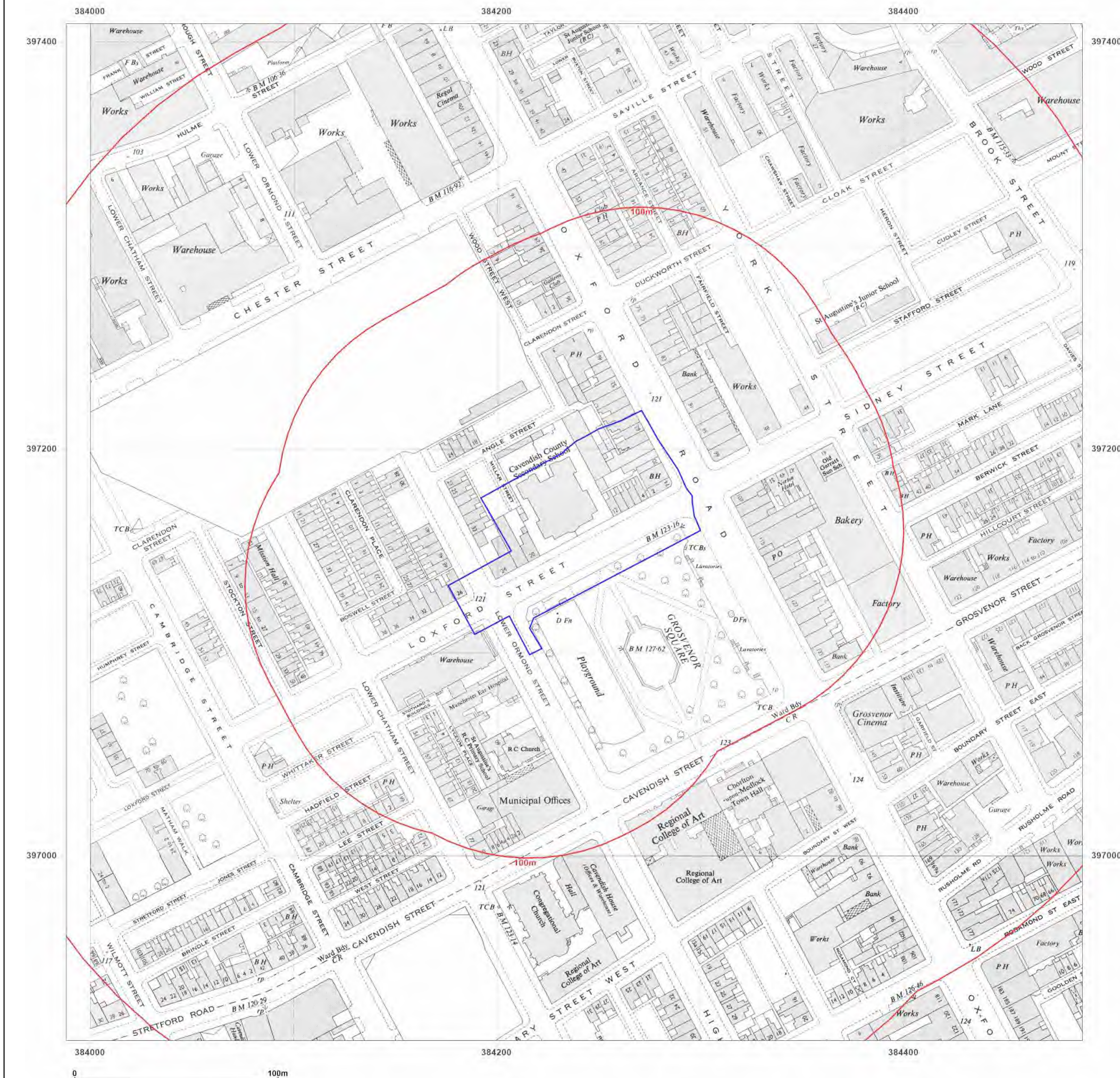


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1965

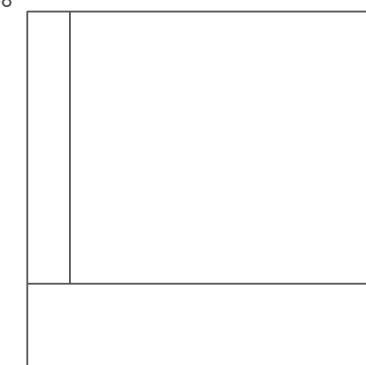
Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1963
Revised 1963
Edition N/A
Copyright 1965
Levelled 1958

Surveyed 1963
Revised 1963
Edition N/A
Copyright 1965
Levelled 1959

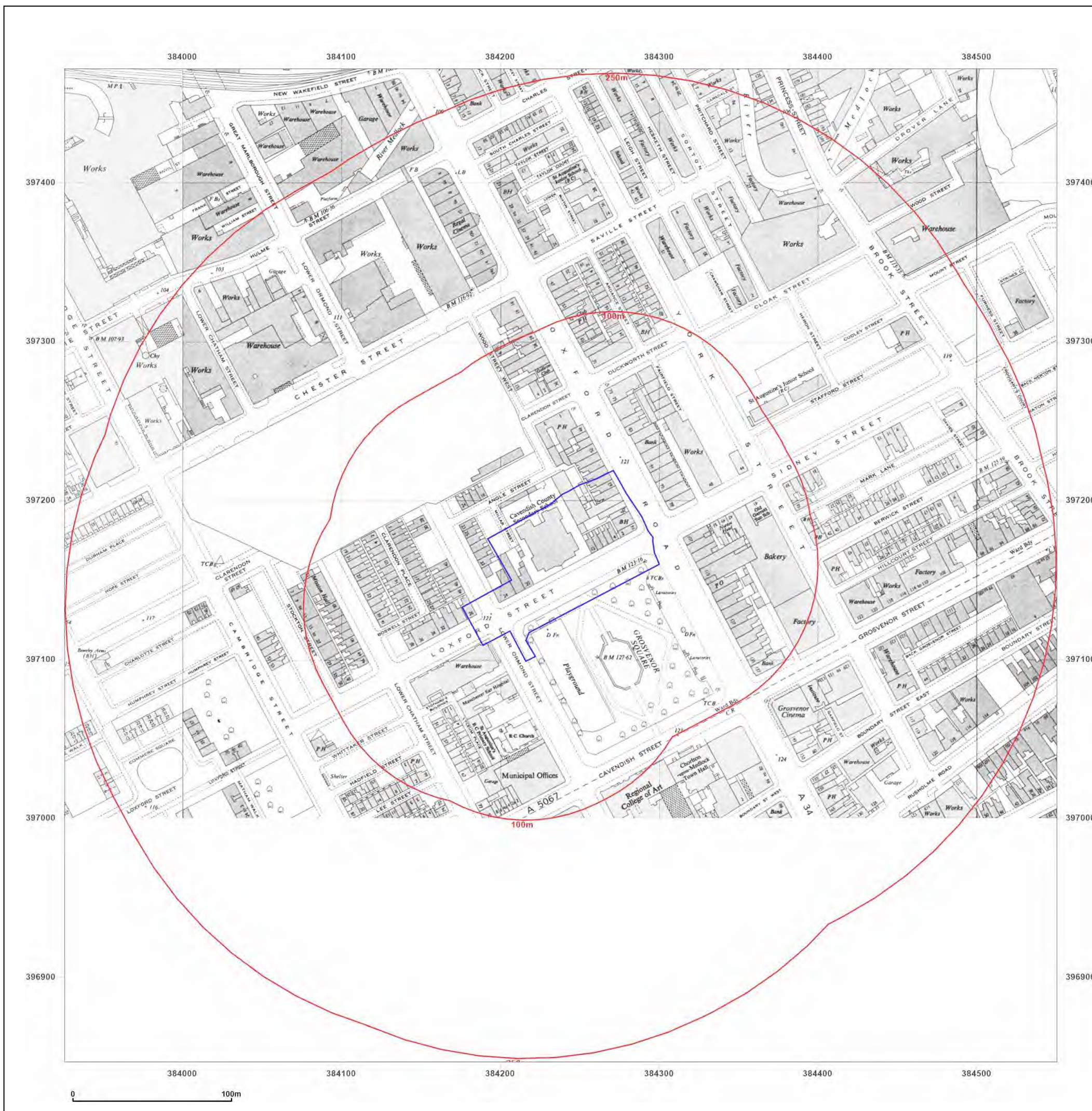


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

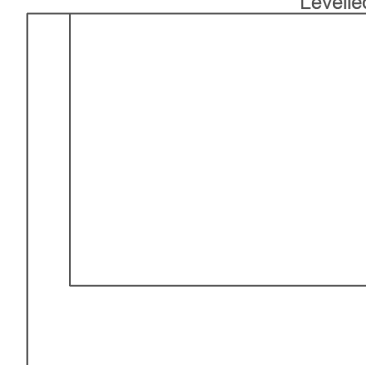
Map date: 1970

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1969-1974

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1948
Revised 1968
Edition N/A
Copyright 1969
Levelled 1963

Surveyed 1948
Revised 1968
Edition N/A
Copyright 1969
Levelled 1963

Surveyed 1948
Revised 1972
Edition N/A
Copyright 1973
Levelled 1958

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

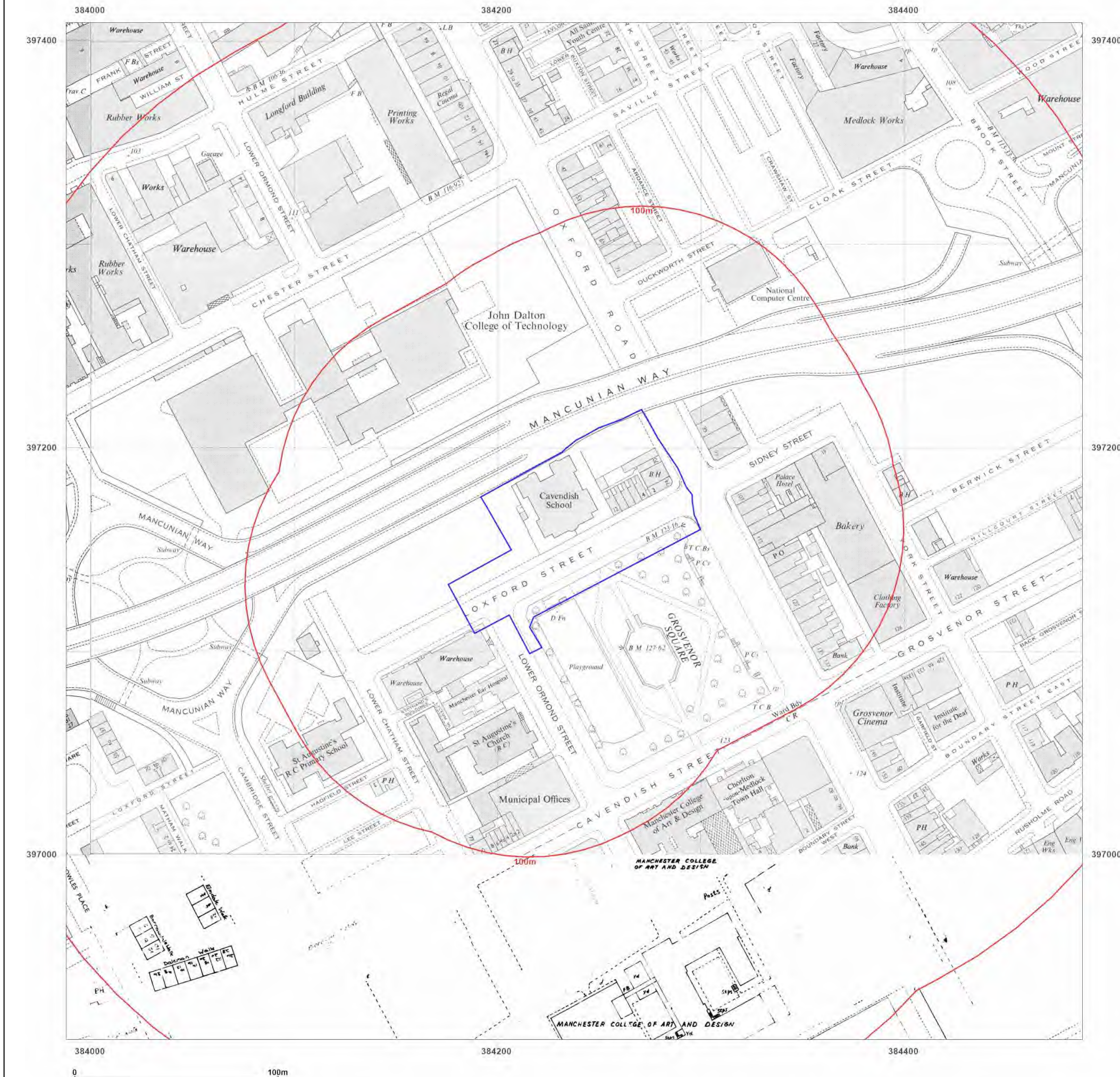


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1975-1980

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1975
Levelled N/A

Surveyed 1948
Revised 1975
Edition N/A
Copyright 1976
Levelled 1958

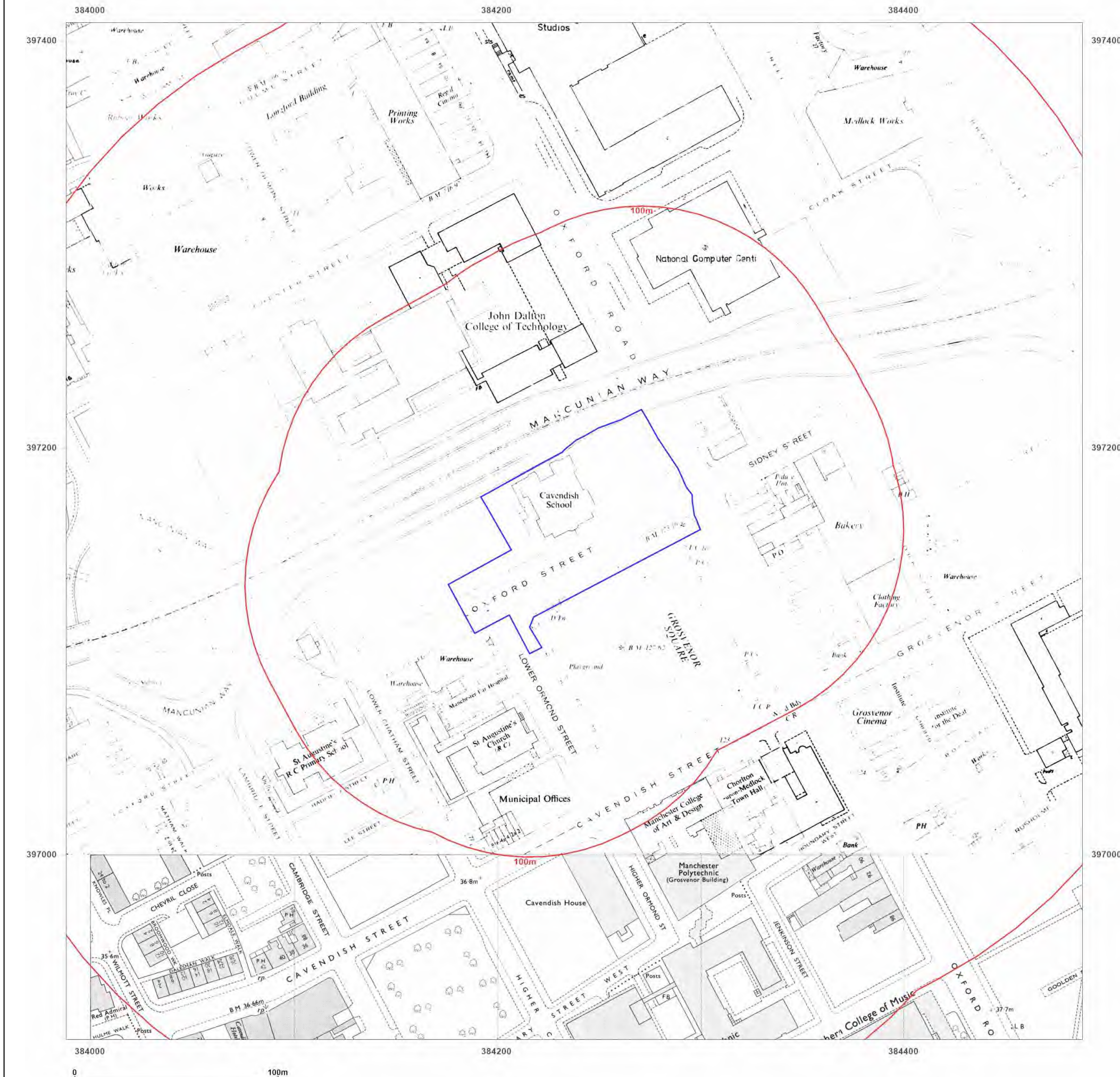


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1987-1990

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1987
Levelled 1963

Surveyed 1948
Revised 1985
Edition N/A
Copyright 1990
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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1985-1990

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1985
Levelled 1964

Surveyed 1948
Revised 1990
Edition N/A
Copyright 1990
Levelled N/A

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

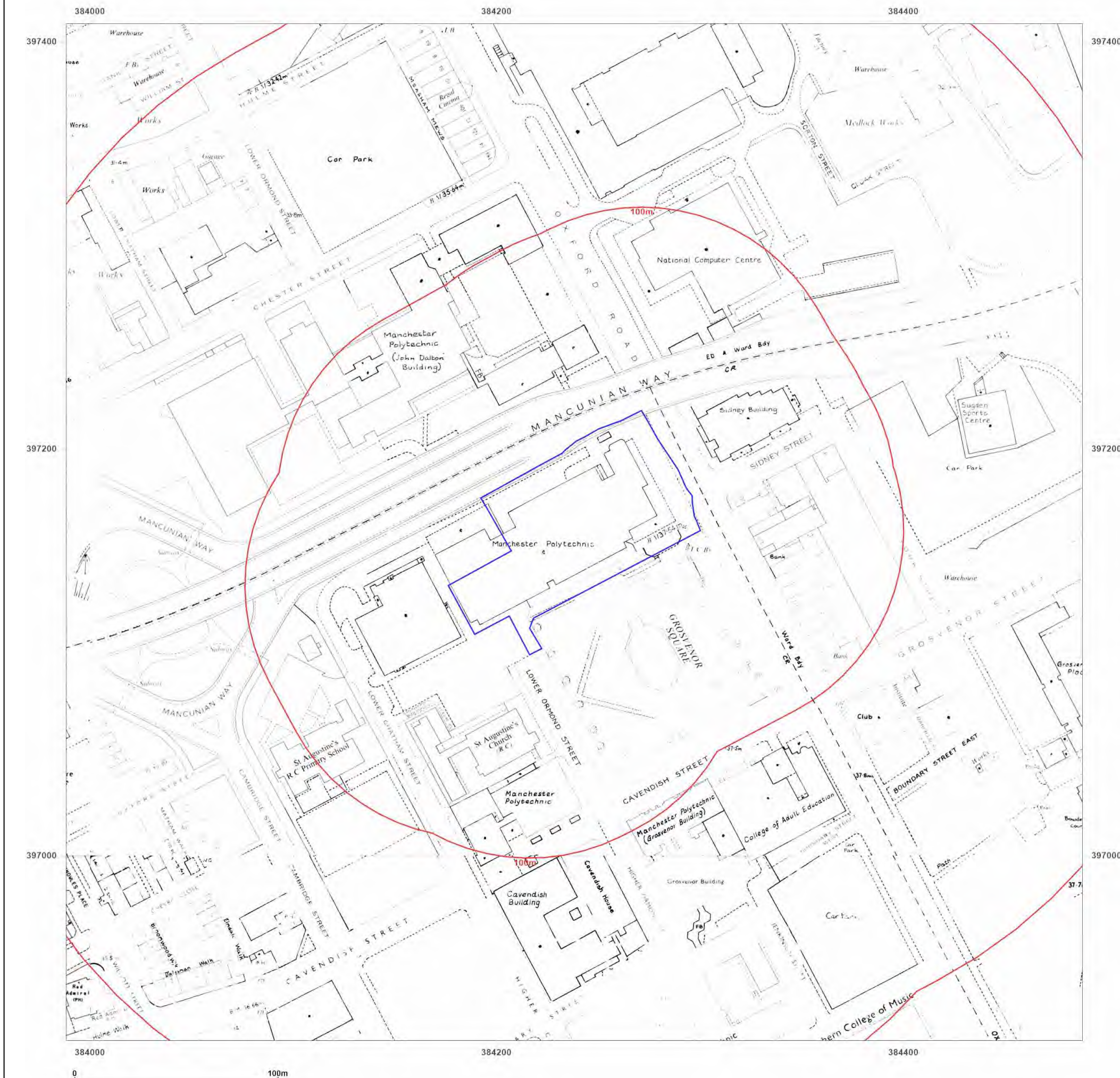


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1987-1992

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1963
Revised 1987
Edition N/A
Copyright 1987
Levelled 1963

Surveyed 1948
Revised 1985
Edition N/A
Copyright 1987
Levelled 1964

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

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

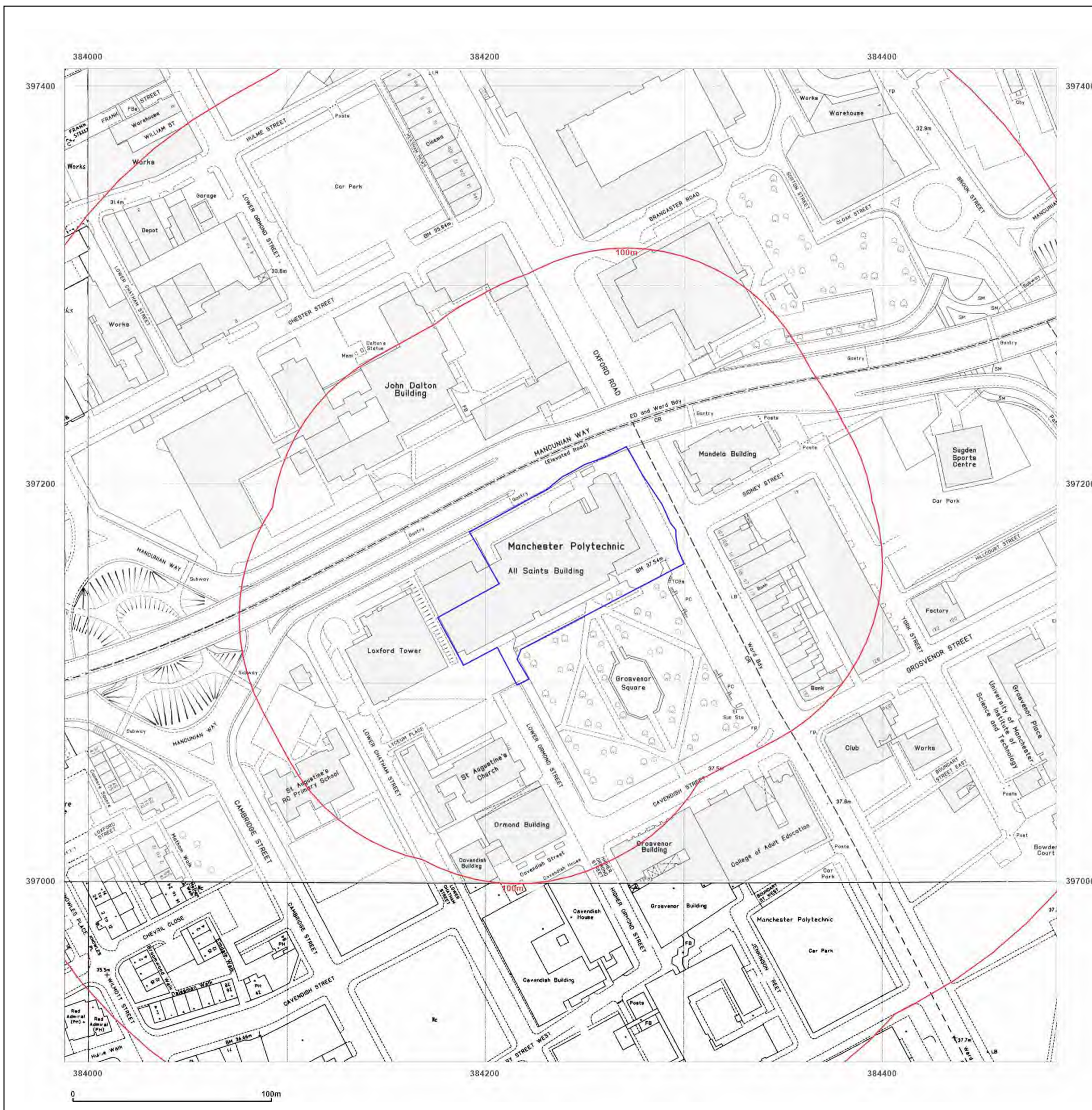


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1990-1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1963
Revised 1990
Edition N/A
Copyright 1990
Levelled 1963

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

Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
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Revised 1995
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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1992-1995

Scale: 1:1,250

Printed at: 1:2,000



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

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

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

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

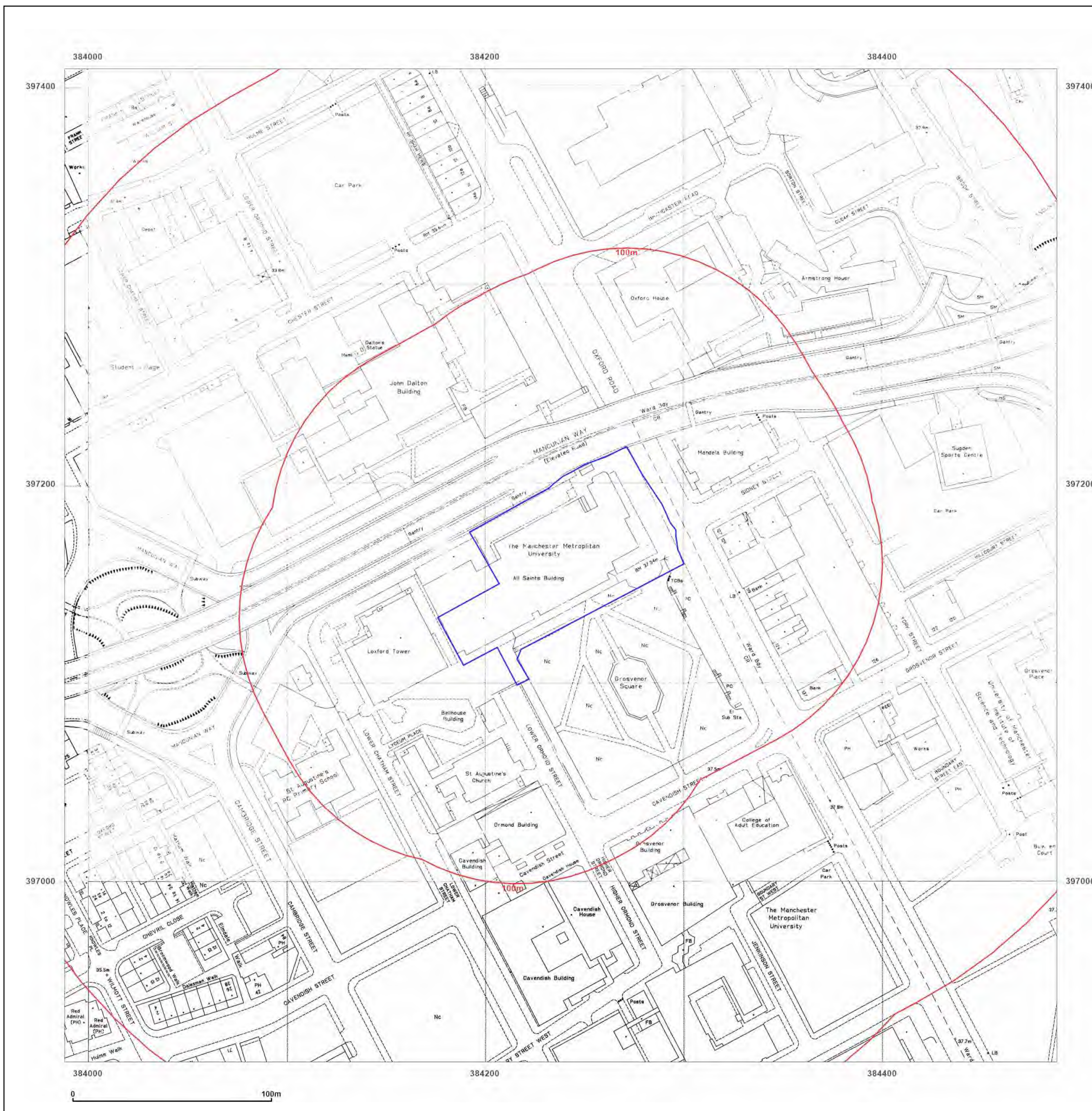


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



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



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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003

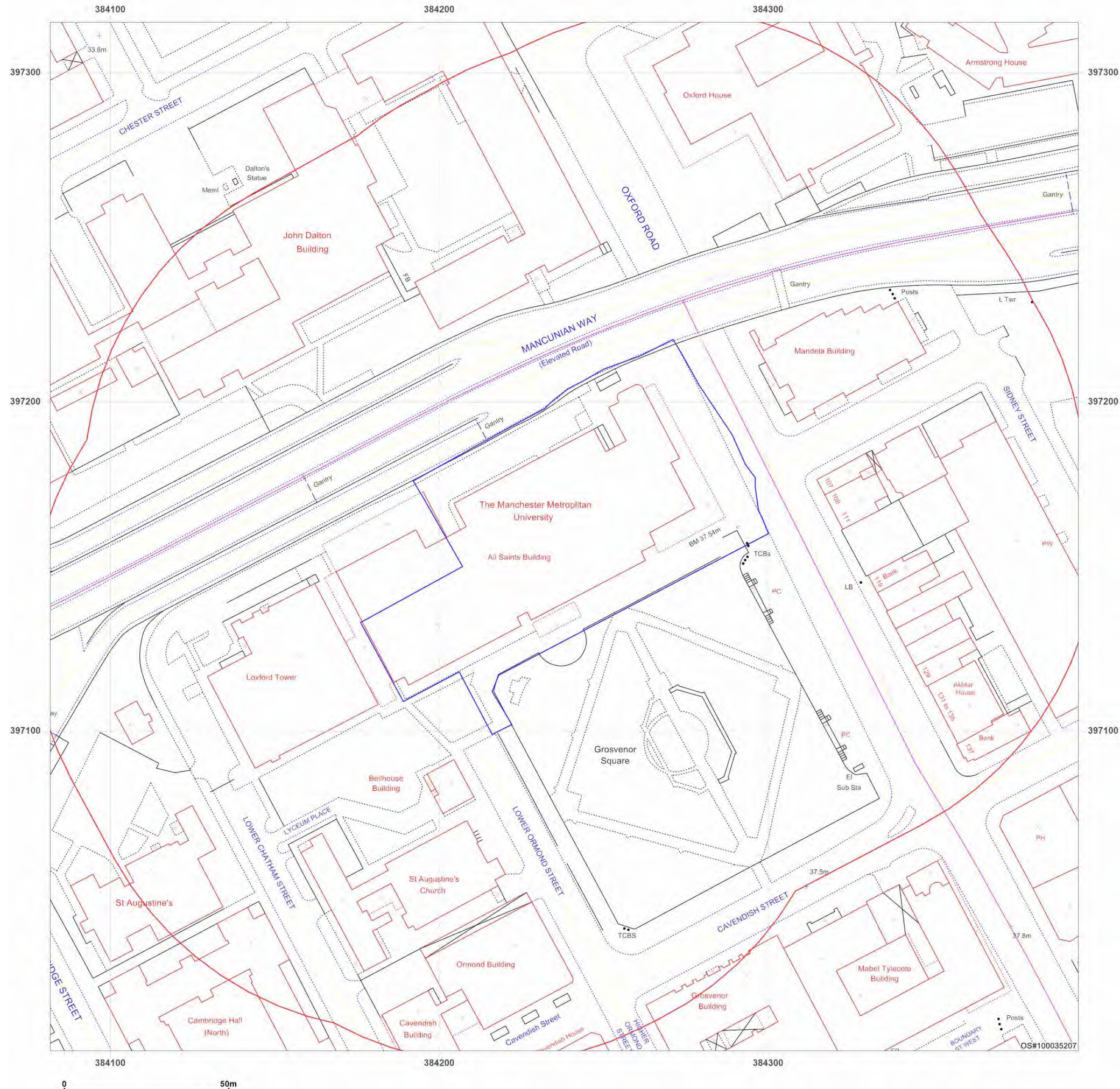


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

Map date: 1848

Scale: 1:10,560

Printed at: 1:10,560



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

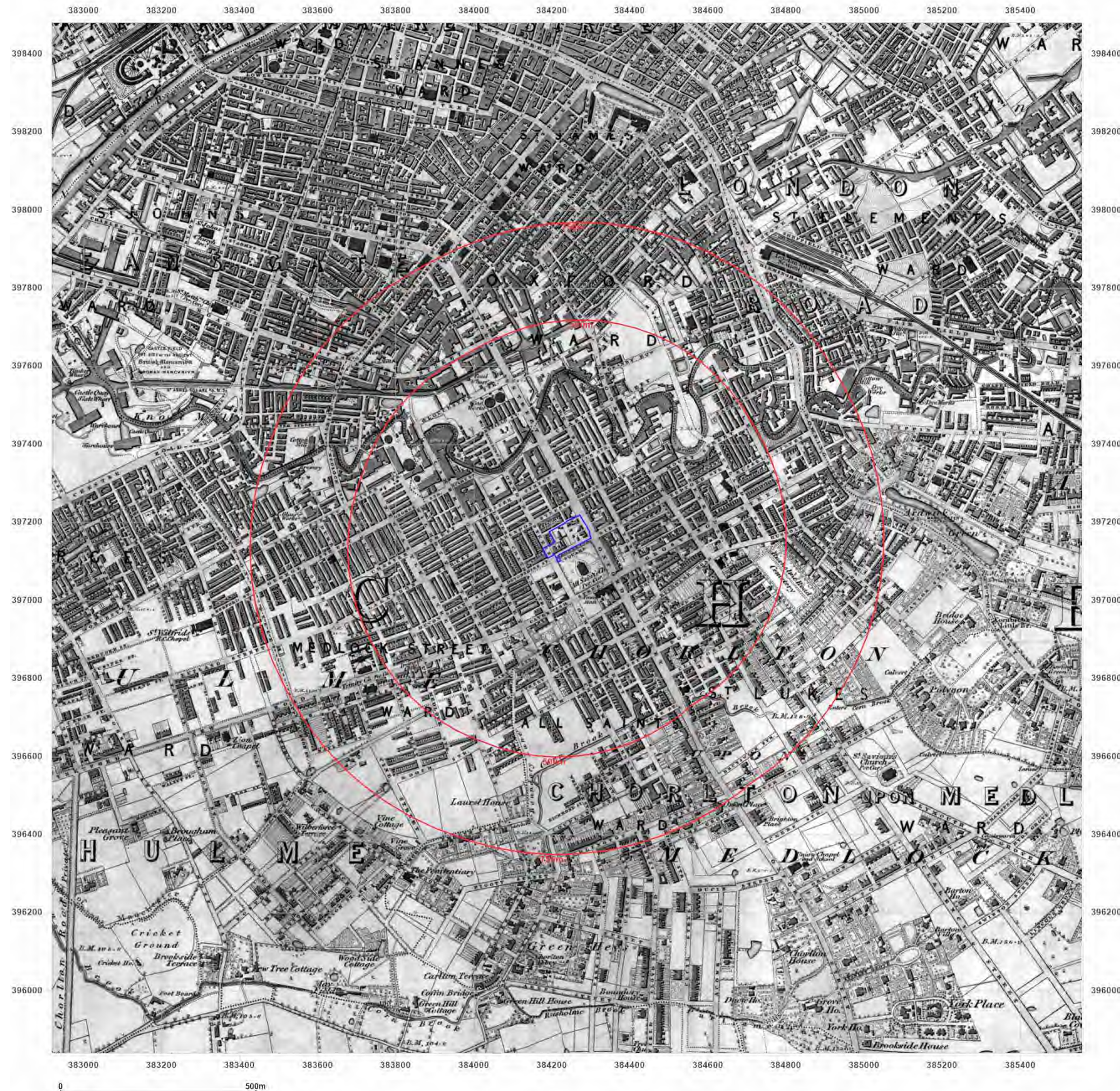


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

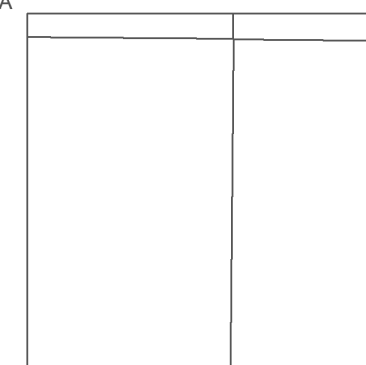
Map date: 1890-1894

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1889
Revised 1889
Edition 1894
Copyright N/A
Levelled N/A



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

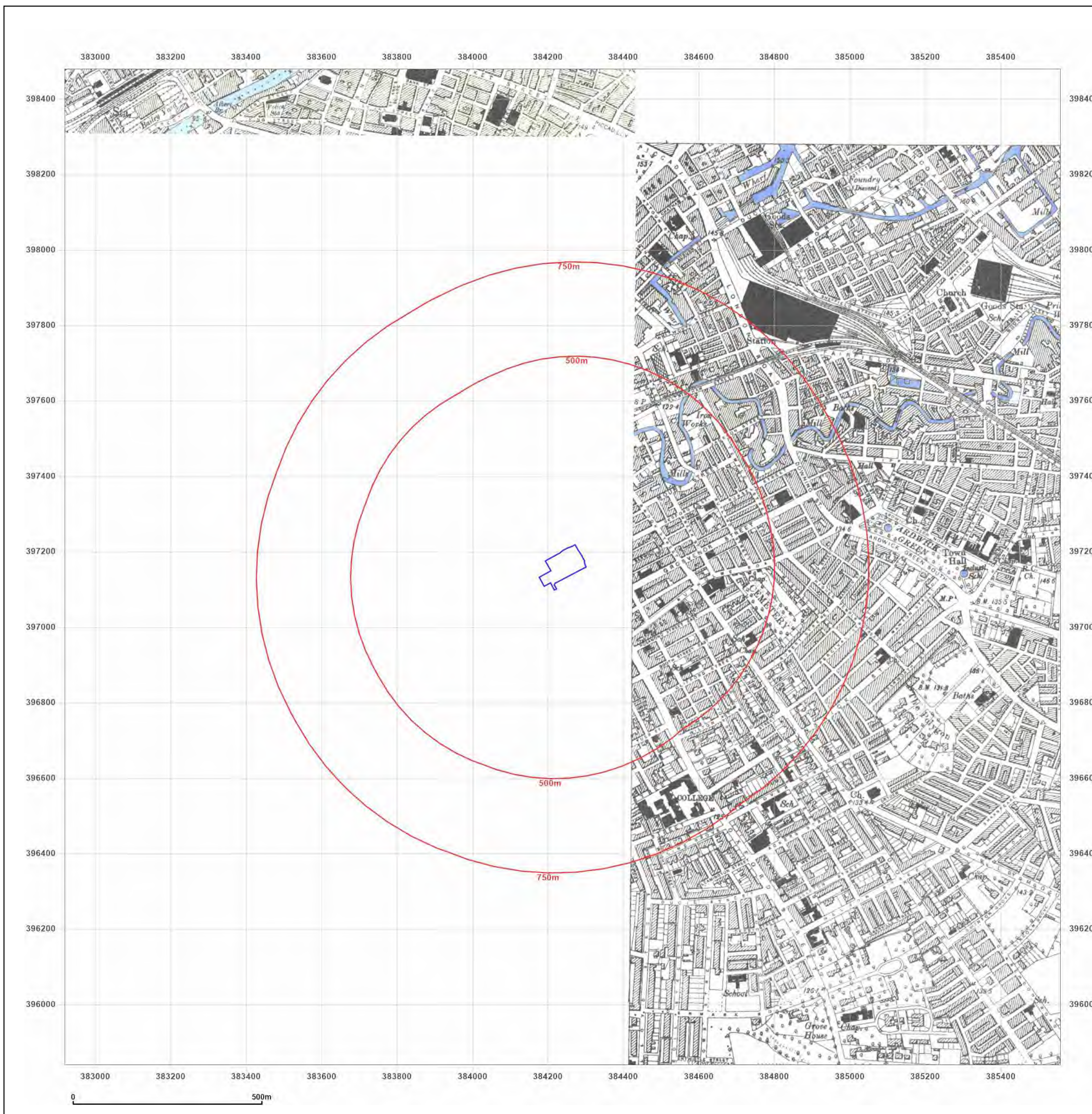


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ROAD, MANCHESTER, M15
6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

Map date: 1891-1896

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1894
Revised 1896
Edition 1896
Copyright N/A
Levelled N/A

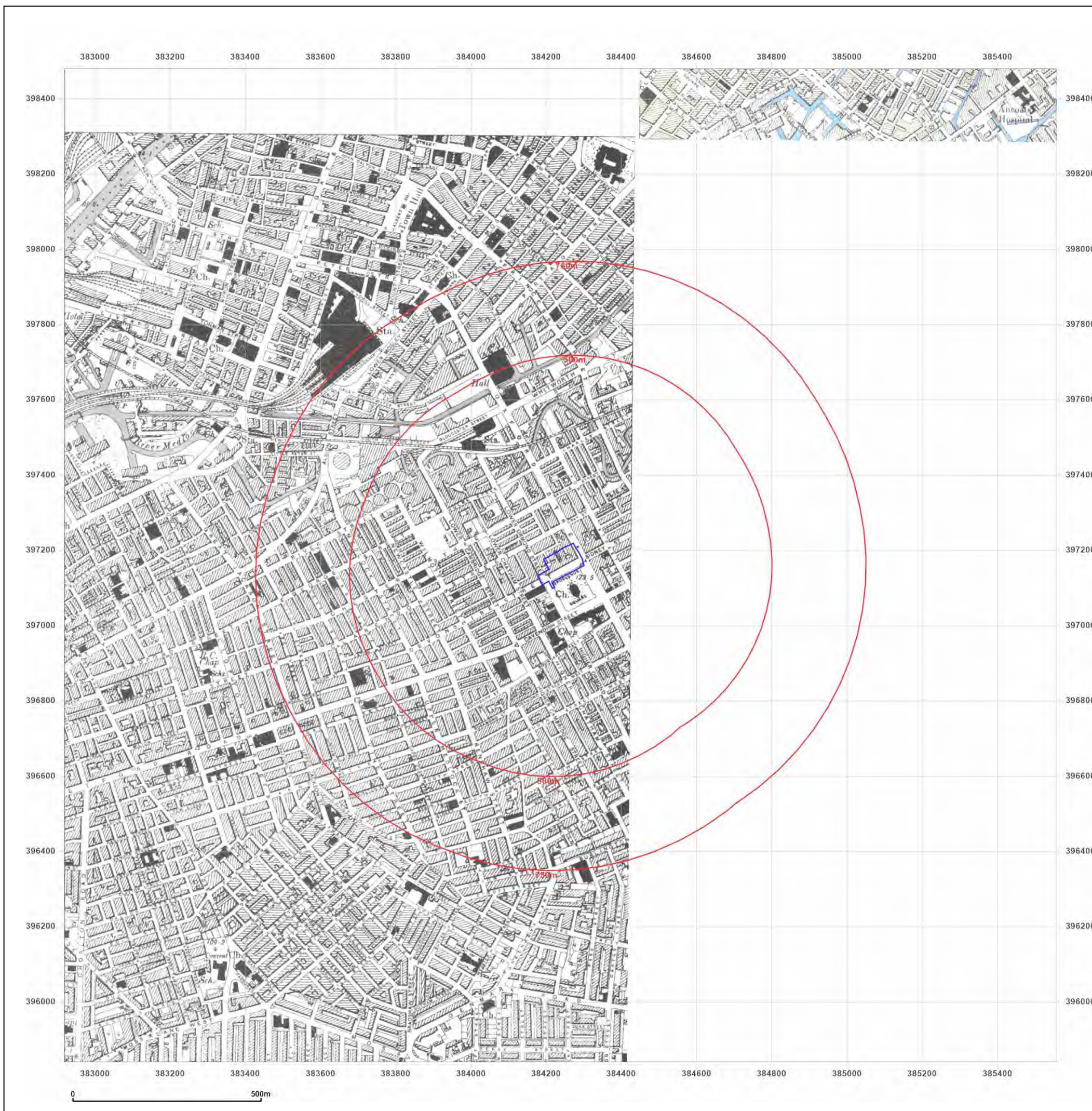


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Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

Map date: 1905-1906

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1906
Edition 1906
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1906
Edition 1906
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1905
Edition 1905
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1905
Edition 1905
Copyright N/A
Levelled N/A

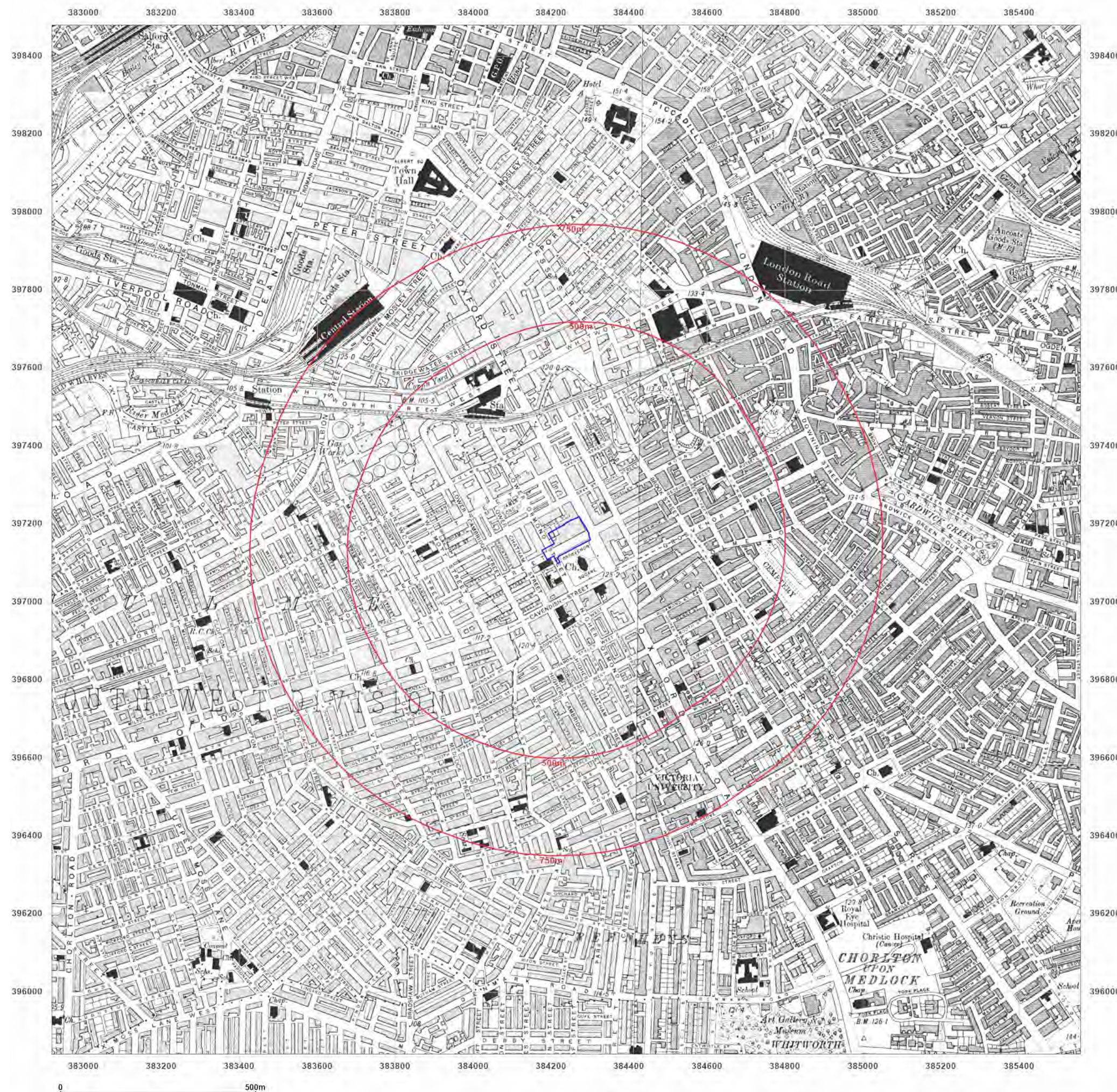


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

Map date: 1923

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915

Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915

Surveyed 1844
Revised 1915
Edition 1923
Copyright N/A
Levelled 1915

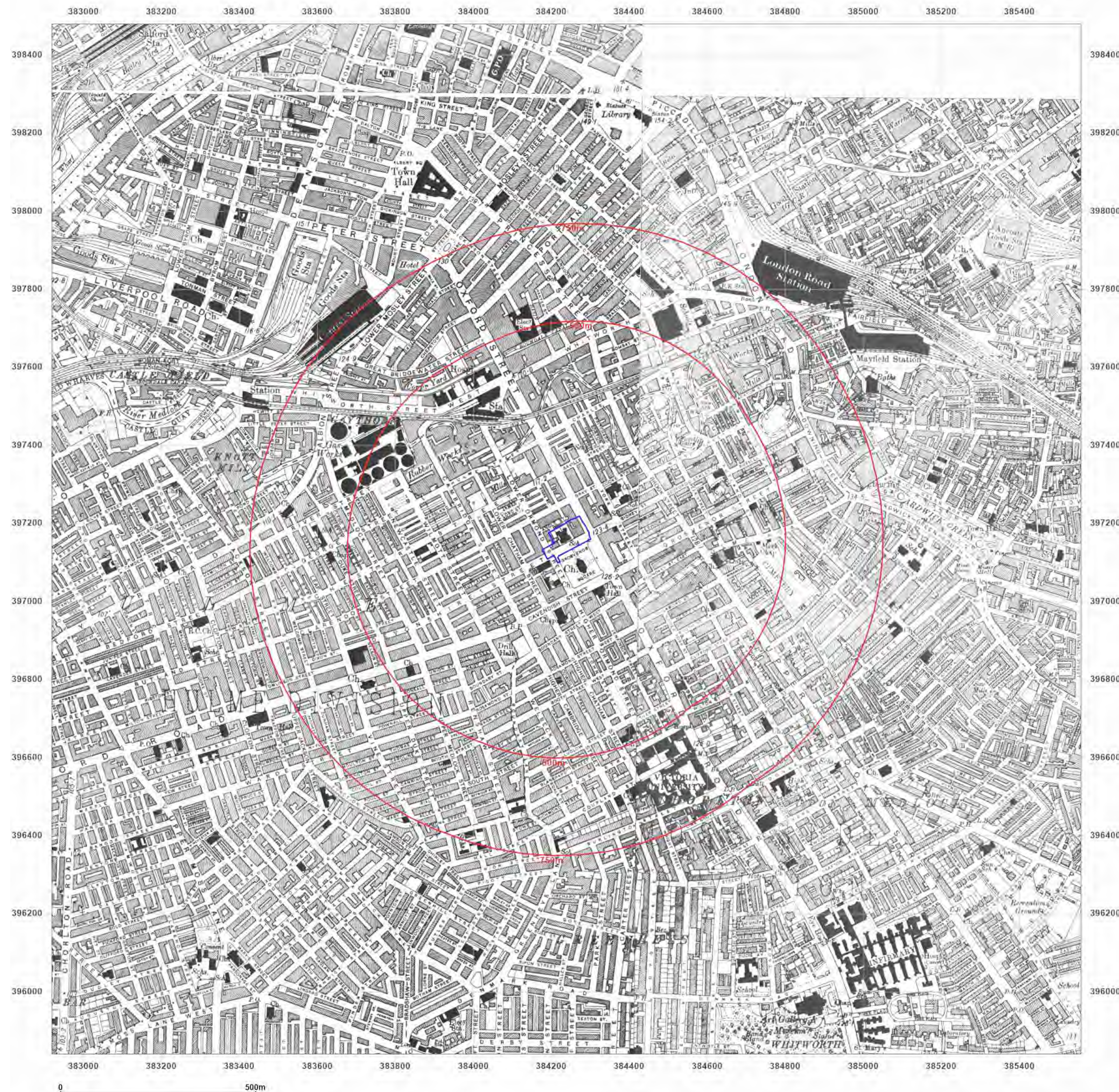


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

Map date: 1923

Scale: 1:10,560

Printed at: 1:10,560

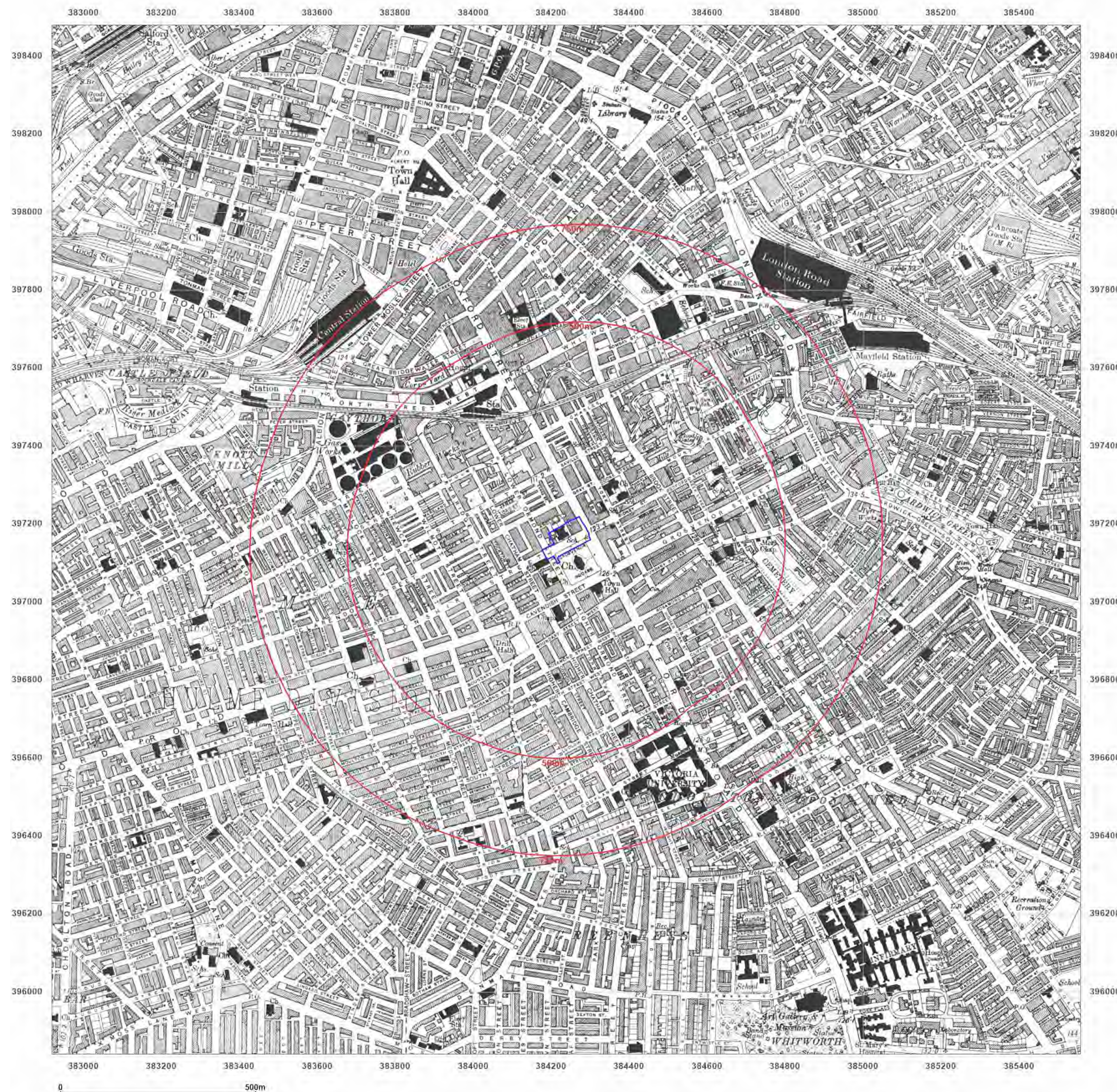


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

Map date: 1931-1934

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1931
Edition 1931
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1933
Edition 1933
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1932
Edition 1932
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1934
Edition 1934
Copyright N/A
Levelled 1927

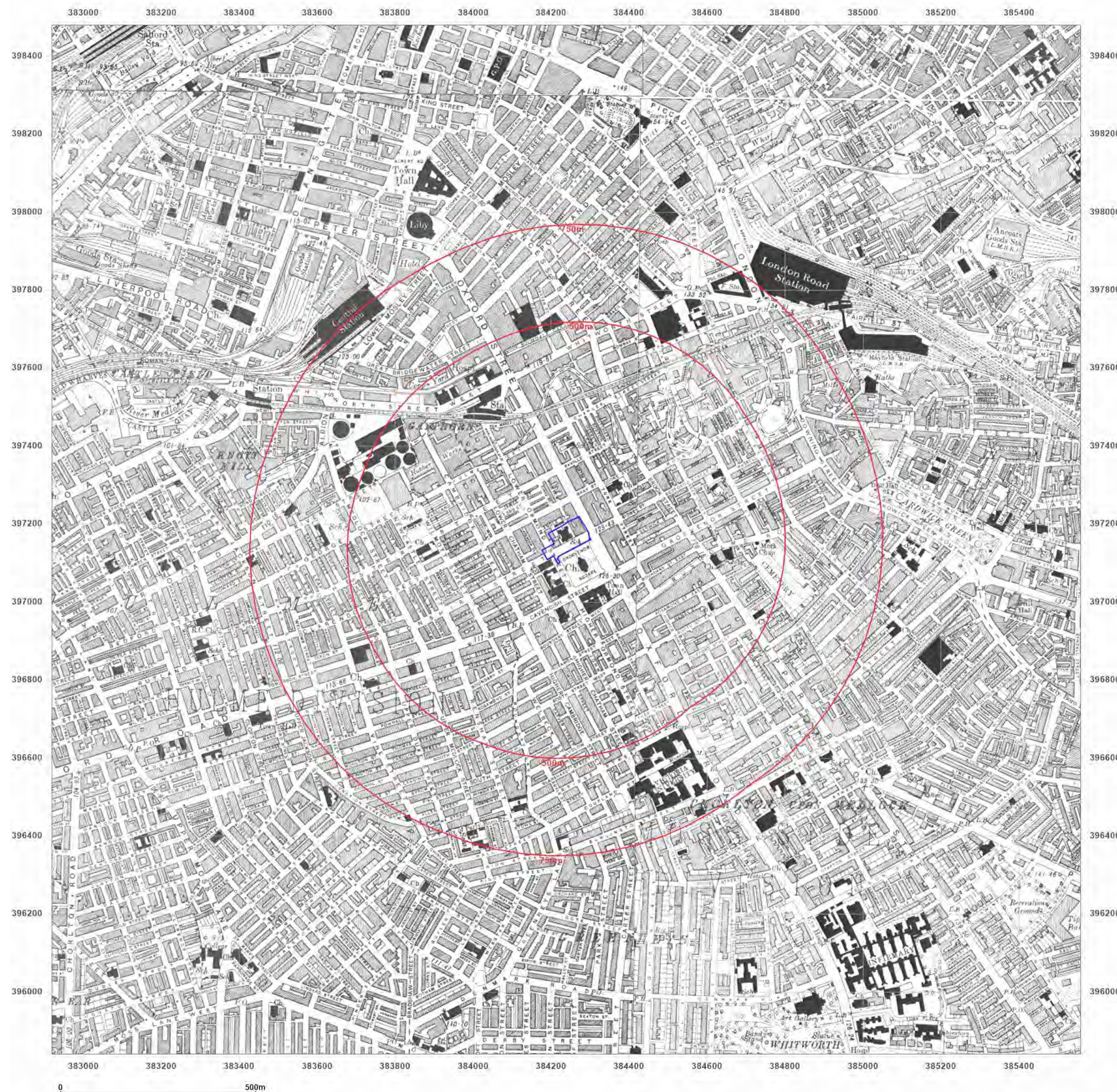


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1938
Edition 1938
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1938
Edition 1938
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1938
Edition 1938
Copyright N/A
Levelled 1927

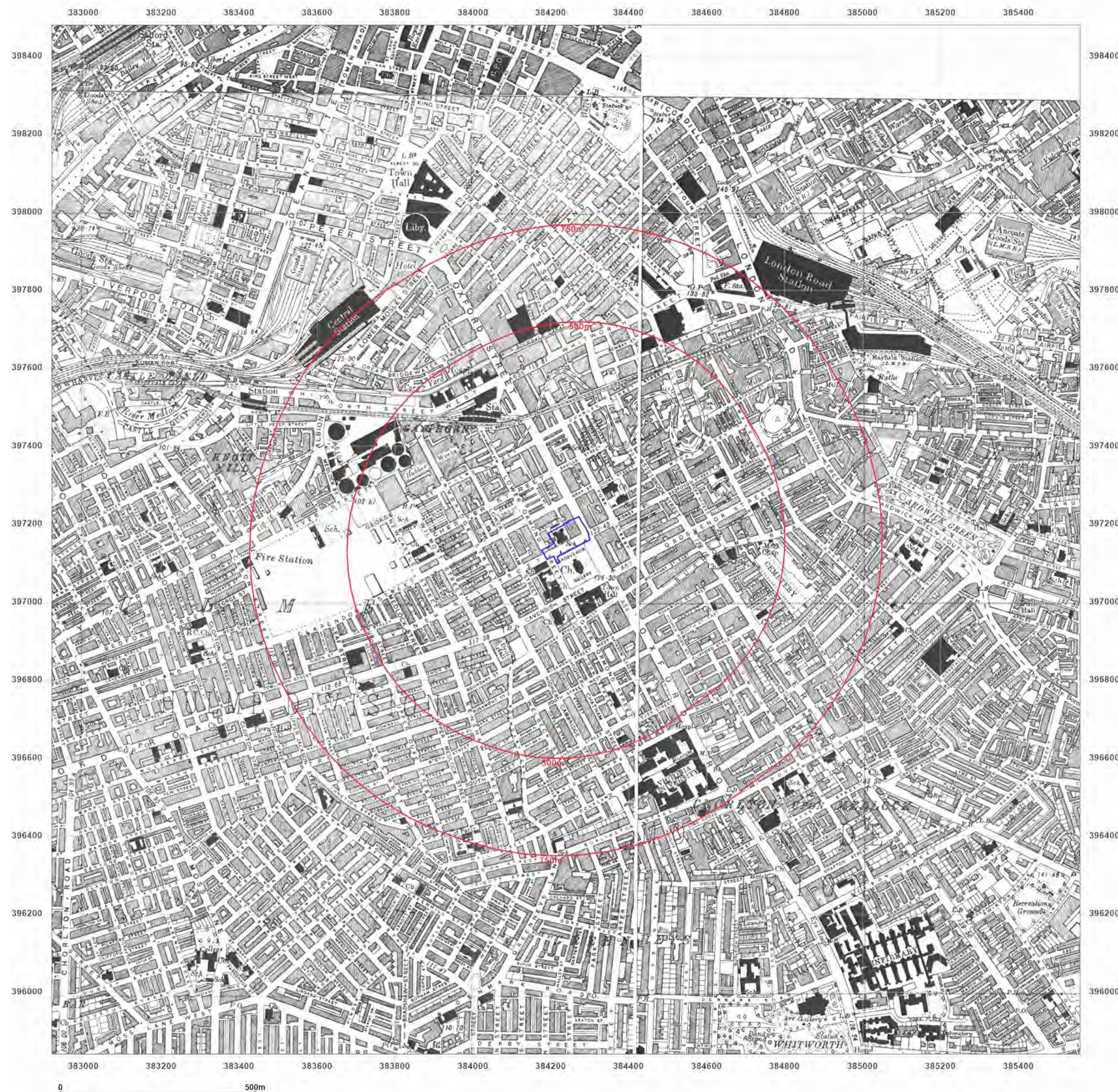


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: Provisional

Map date: 1956

Scale: 1:10,560

Printed at: 1:10,560



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

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

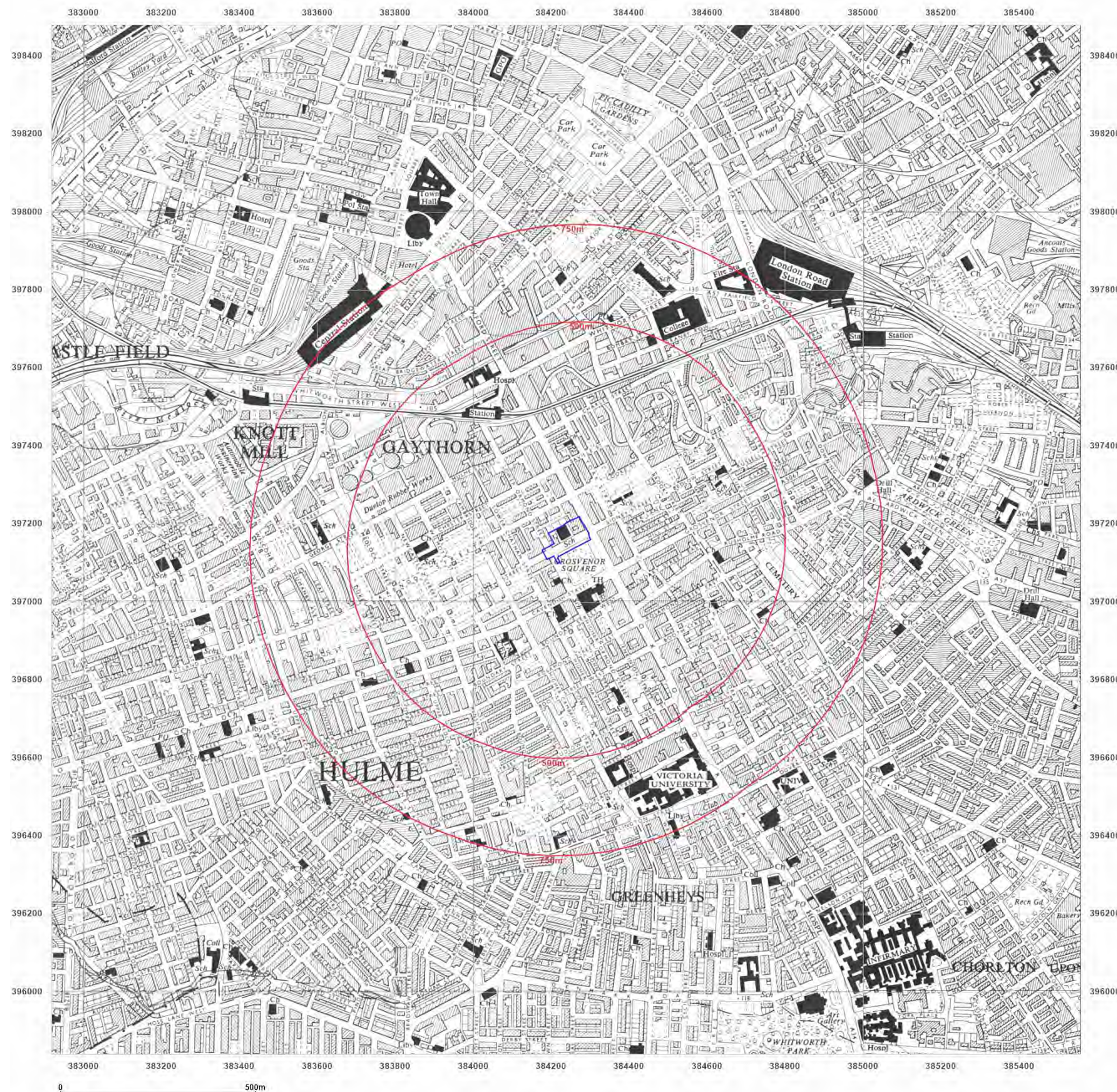


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ROAD, MANCHESTER, M15
6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1972

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1971
Revised 1972
Edition N/A
Copyright 1972
Levelled 1972

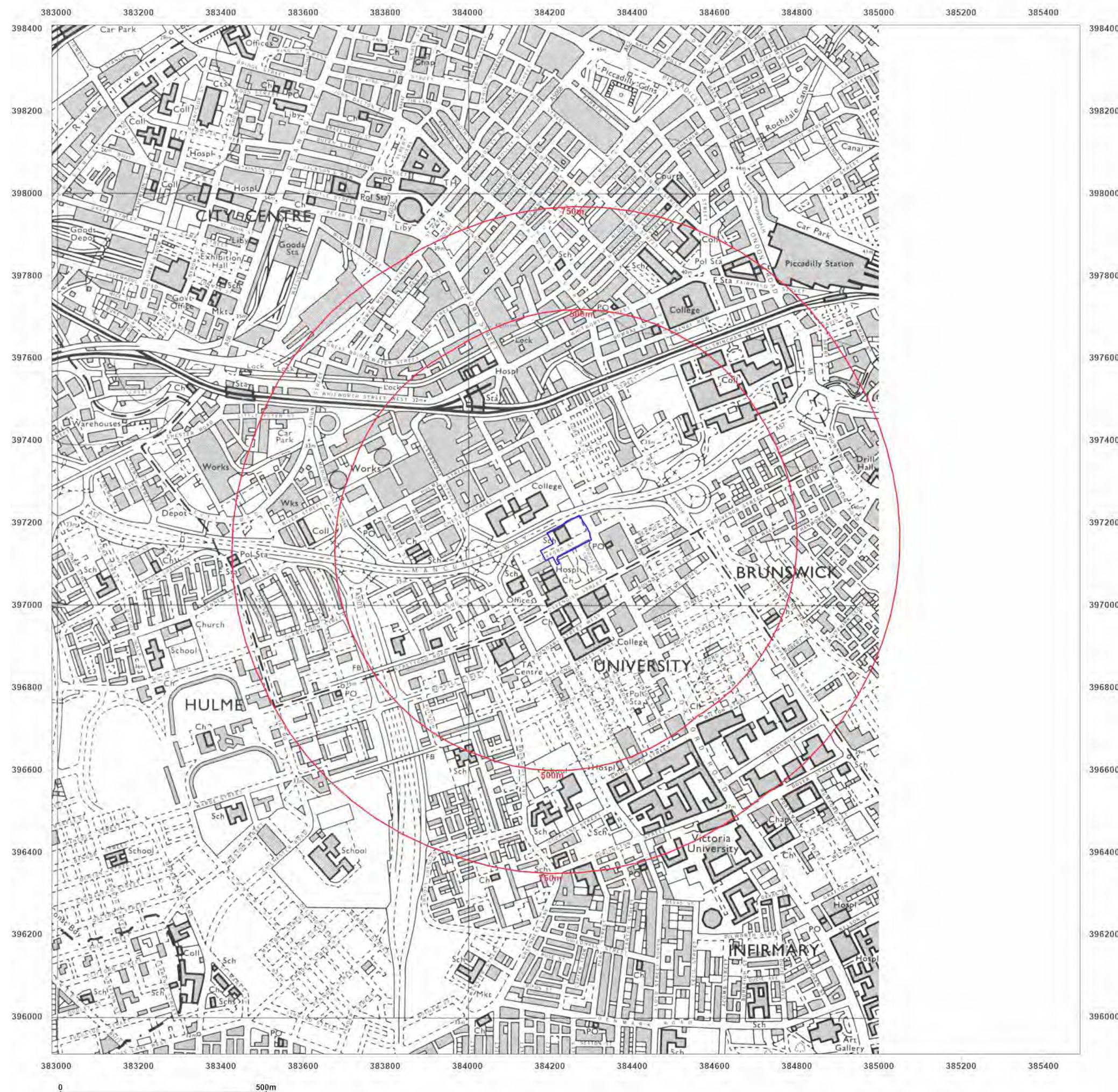


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1980-1981

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1976
Revised 1980
Edition N/A
Copyright 1980
Levelled 1976

Surveyed 1976
Revised 1980
Edition N/A
Copyright 1981
Levelled 1976

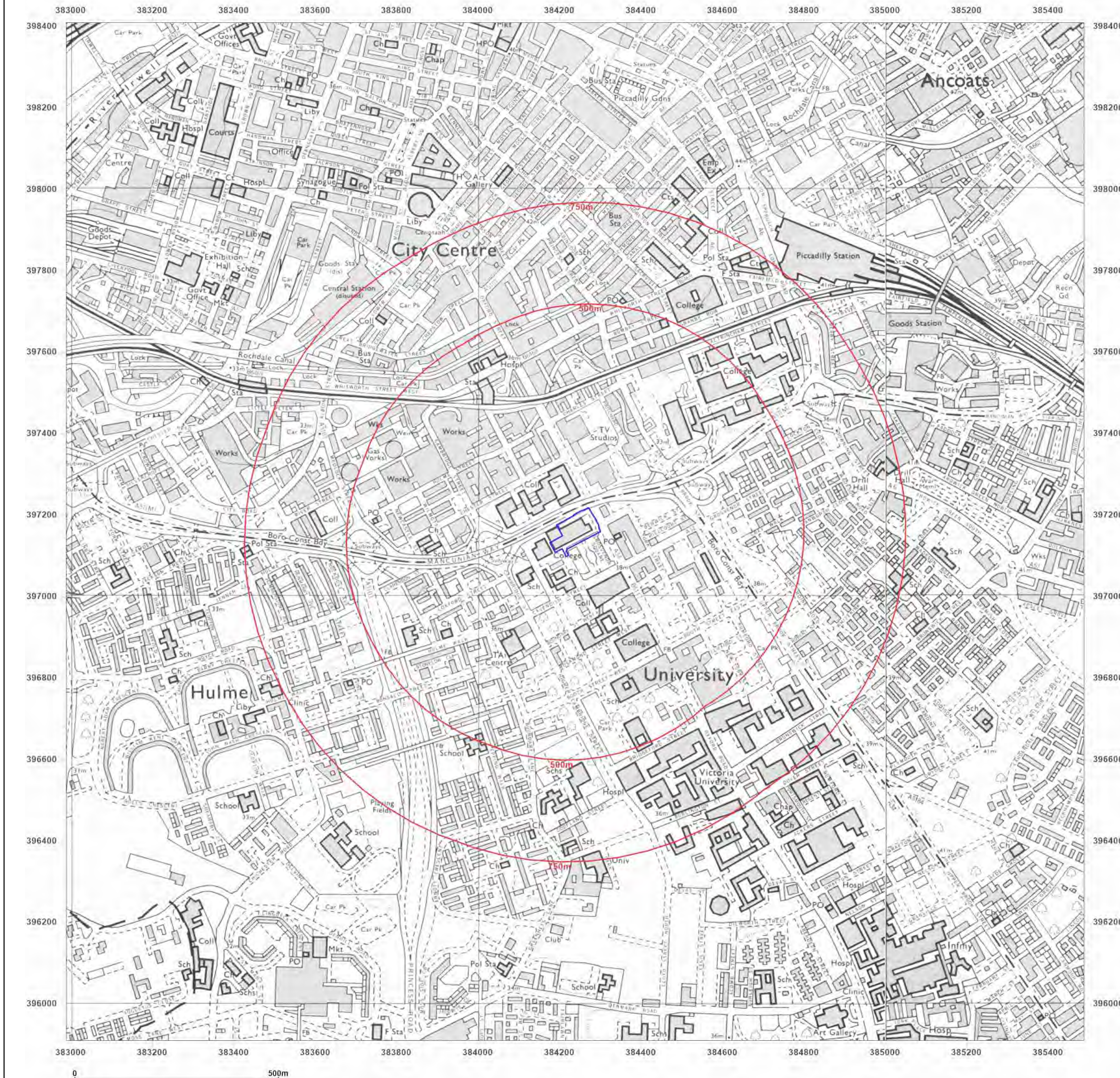


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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1985

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1983
Revised 1985
Edition N/A
Copyright 1985
Levelled 1981

Surveyed 1985
Revised 1985
Edition N/A
Copyright 1985
Levelled 1981

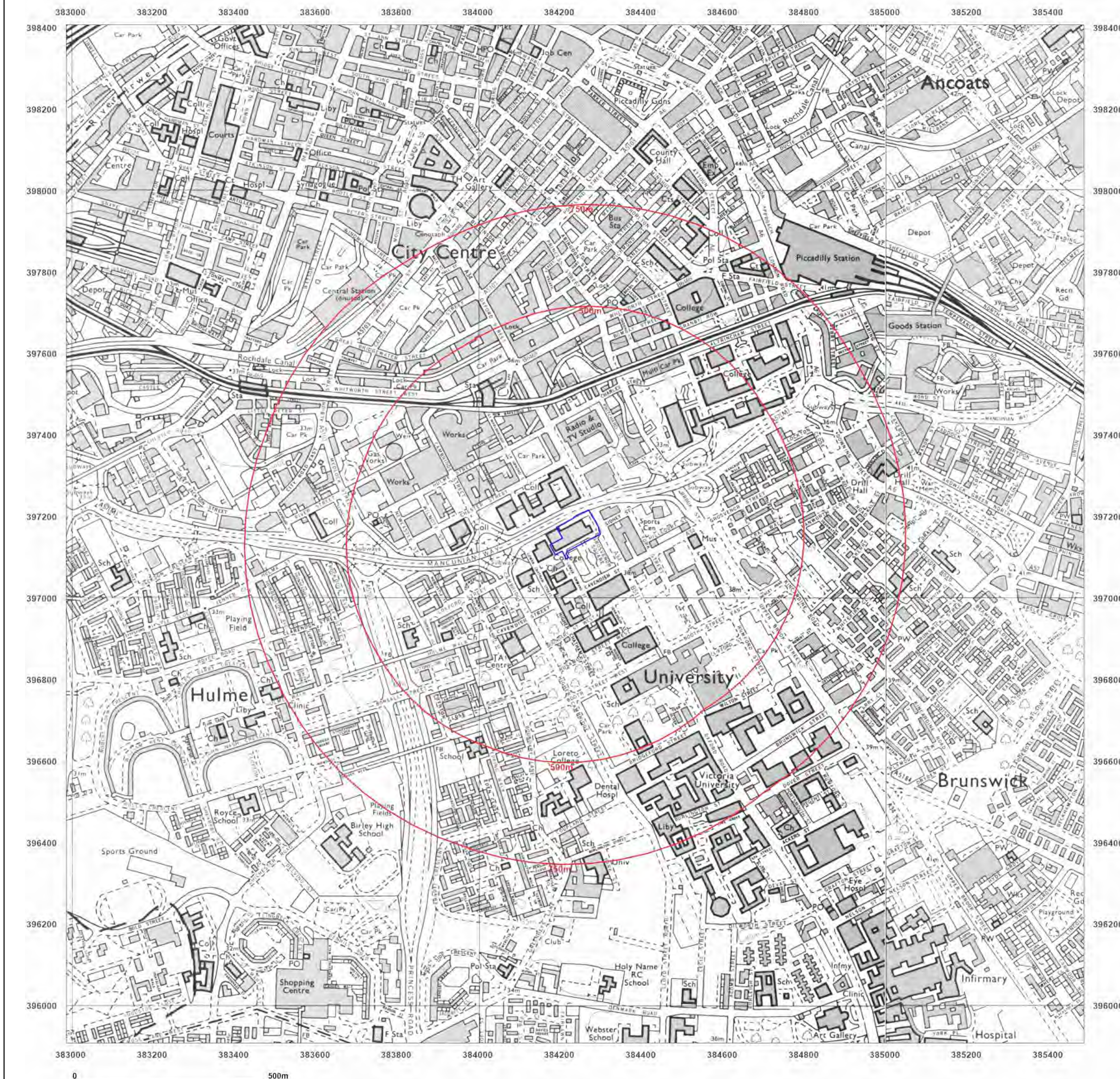


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Site Details:

ALL SAINTS CAMPUS, OXFORD
ROAD, MANCHESTER, M15
6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1988-1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1986
Revised 1988
Edition N/A
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Surveyed 1985
Revised 1991
Edition N/A
Copyright 1991
Levelled 1981

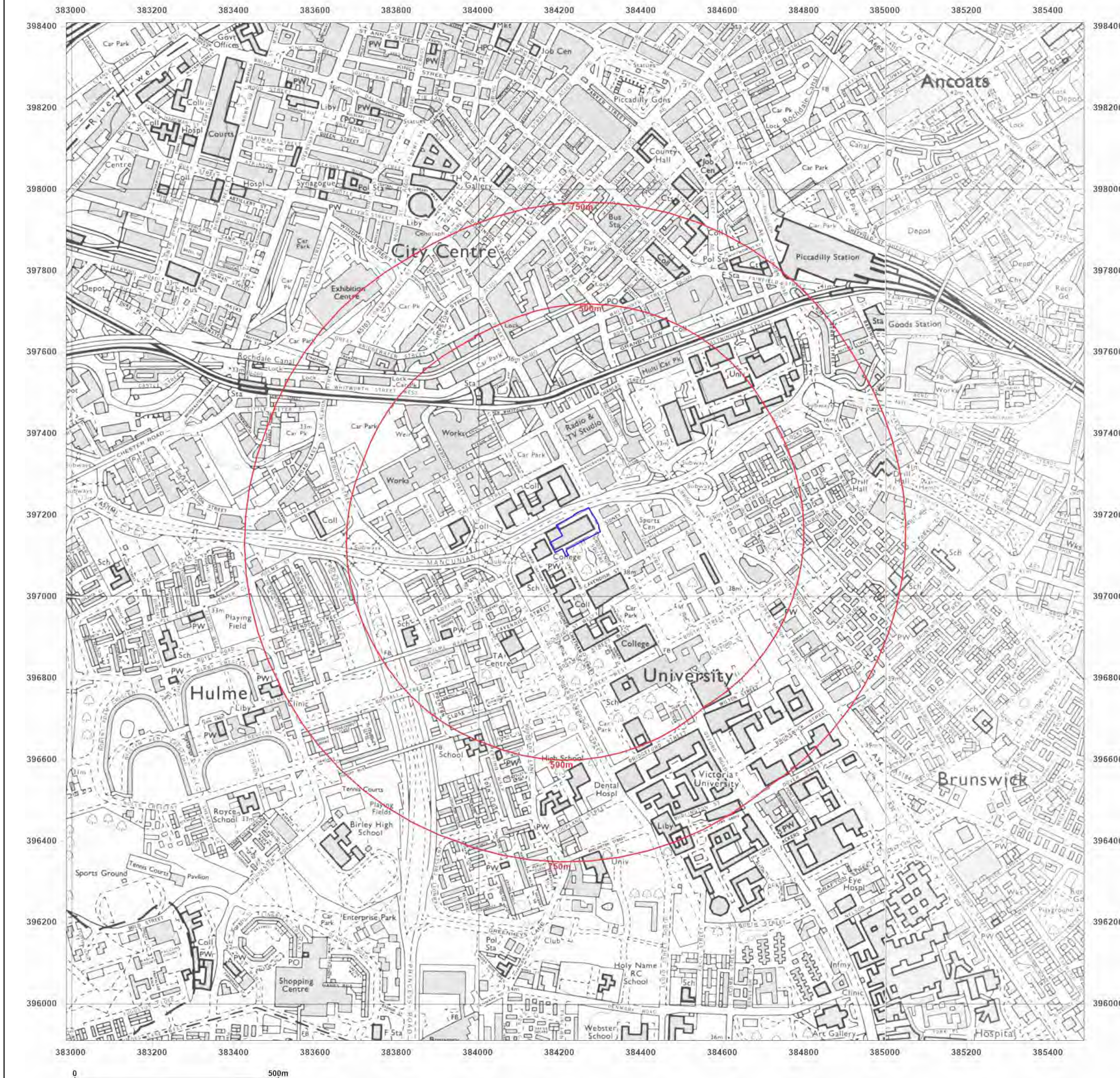


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Site Details:

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ROAD, MANCHESTER, M15
6BH

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Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 1994

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Printed at: 1:10,000



Surveyed 1986
Revised 1994
Edition N/A
Copyright 1994
Levelled 1981

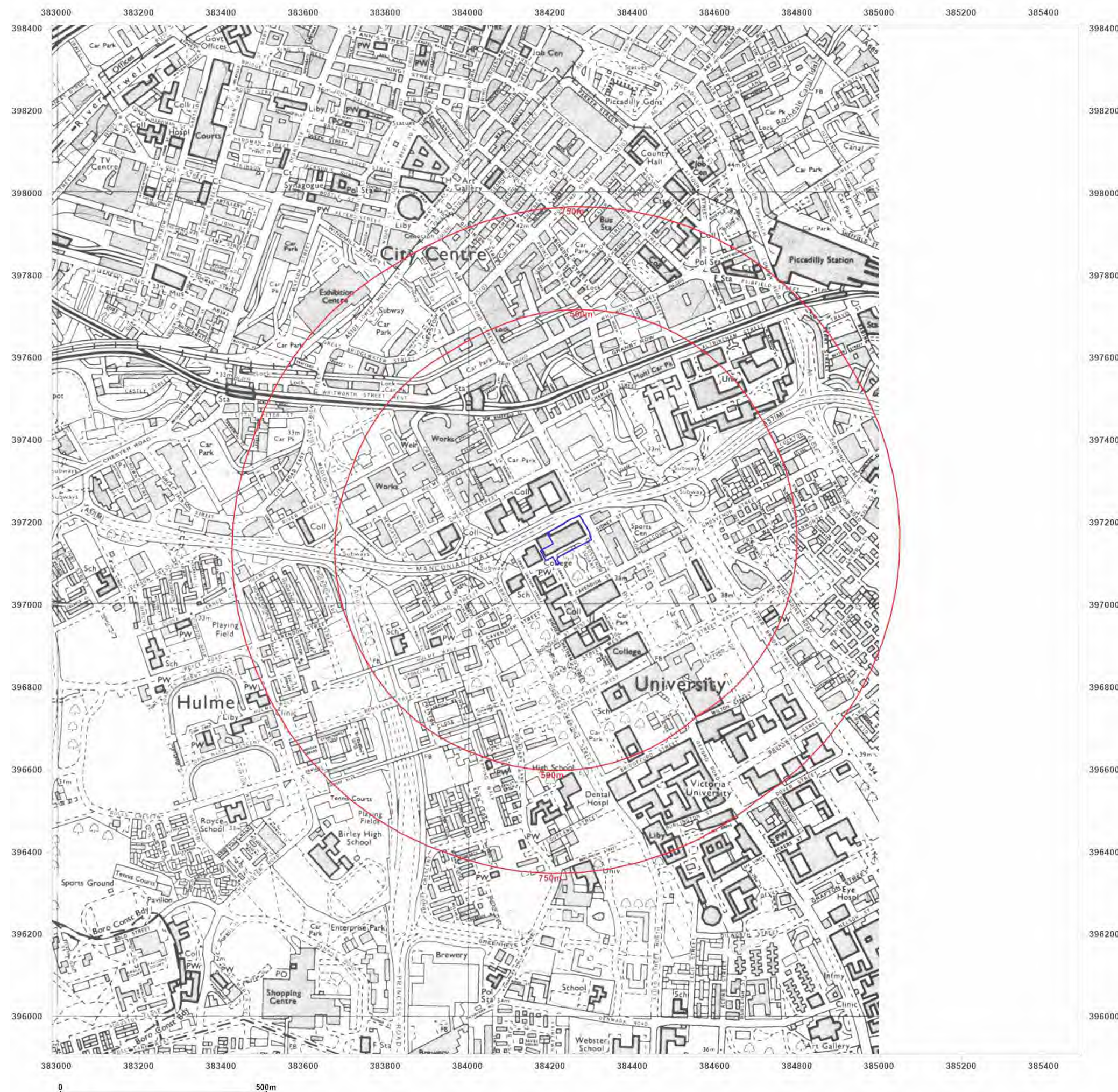


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Site Details:

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6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

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2001



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Site Details:

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ROAD, MANCHESTER, M15
6BH

Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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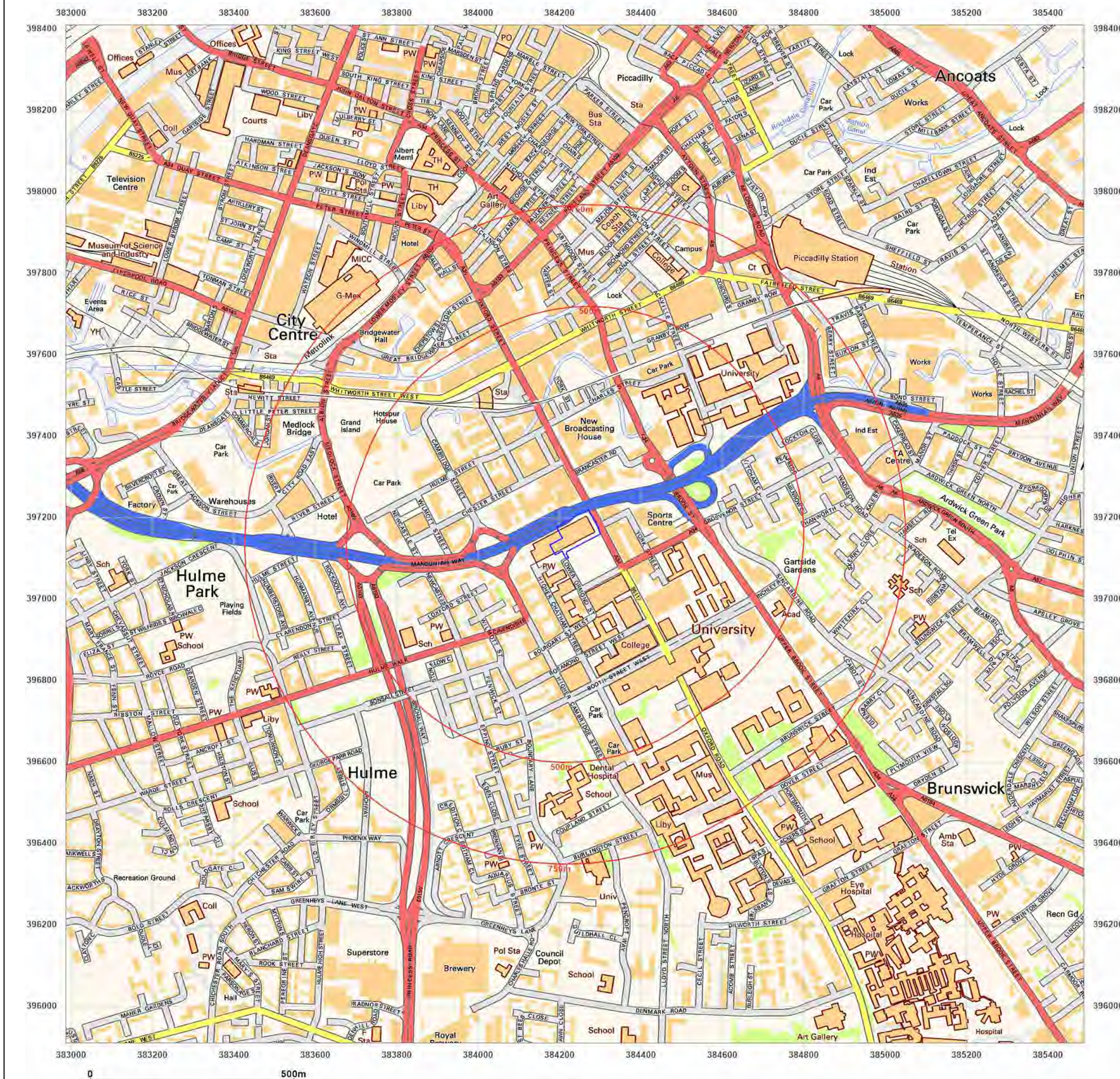


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Site Details:

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ROAD, MANCHESTER, M15
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Client Ref: PO244532_MMU_Library
Report Ref: GS-9223728
Grid Ref: 384238, 397159

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2022

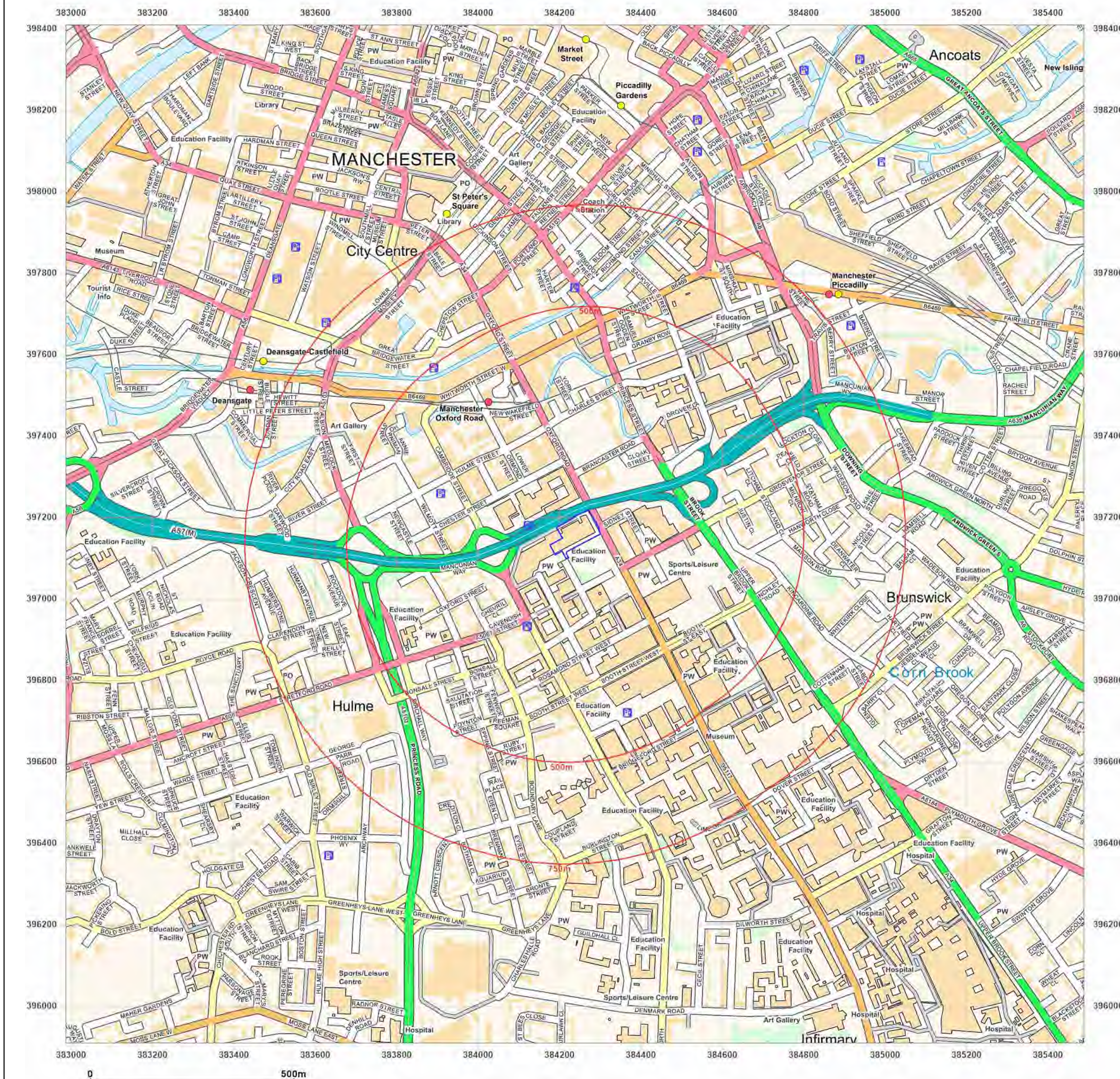


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Appendix D CON29M



The Coal
Authority

CON29M

coal mining report

ALL SAINTS BUILDING AND CENTRAL BUILDING, OXFORD ROAD,
MANCHESTER, M15 6BH



Known or potential coal mining risks

Future underground coal mining

Page 4



Further action

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

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



Professional opinion

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

Your reference: **245527**
Our reference: **51003334594001**
Date: **20 January 2023**

Client name:
**BuroHappold Engineering
Limited**

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



The Law
Society

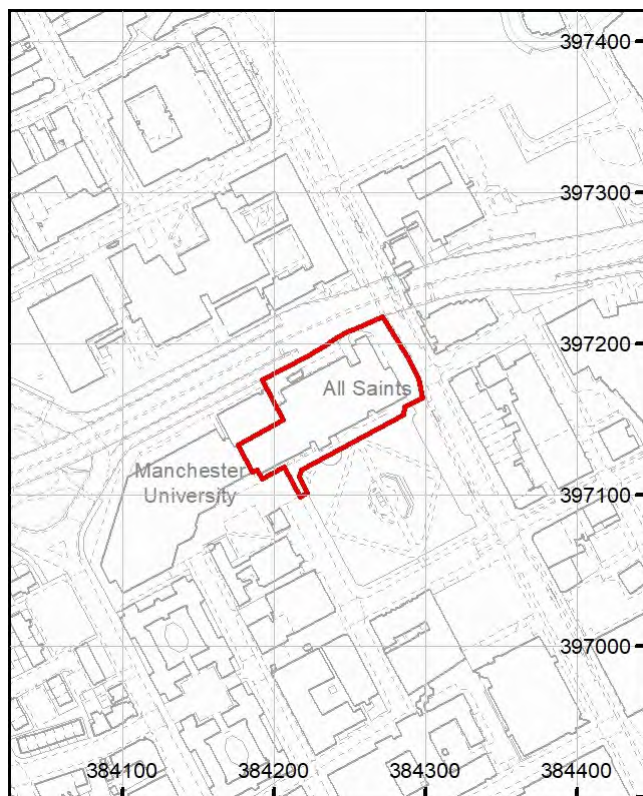
Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is
on the coalfield



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



Accessibility

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

Professional opinion



Future development

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

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

If you are looking to develop, or undertake works, within a coal mining development high risk area your Local Authority planning department may require a Coal Mining Risk Assessment to be undertaken by a qualified mining geologist or engineer. Should you require any additional information then please contact the Coal Authority on **0345 762 6848** or email **cmra@coal.gov.uk**.

Detailed findings

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

The Coal Authority owns the copyright in this report and the information used to produce this report is protected by our database rights. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

1 Past underground coal mining

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

2 Present underground coal mining

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

3 Future underground coal mining

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

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

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

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

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

4 Mine entries

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

5 Coal mining geology

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

6 Past opencast coal mining

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

7 Present opencast coal mining

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

8 Future opencast coal mining

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

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

9 Coal mining subsidence

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

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

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

10 Mine gas

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

11 Hazards related to coal mining

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

12 Withdrawal of support

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

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

13 Working facilities order

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

14 Payments to owners of former copyhold land

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

Statutory cover



Coal mining subsidence

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

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

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

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



Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call **0800 288 4242**. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary



Key terms

adit - horizontal or sloped entrance to a mine

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

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

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

coal seams - bed of coal of varying thickness

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

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

mine entries - collective name for shafts and adits

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

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

shaft - vertical entry into a mine

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

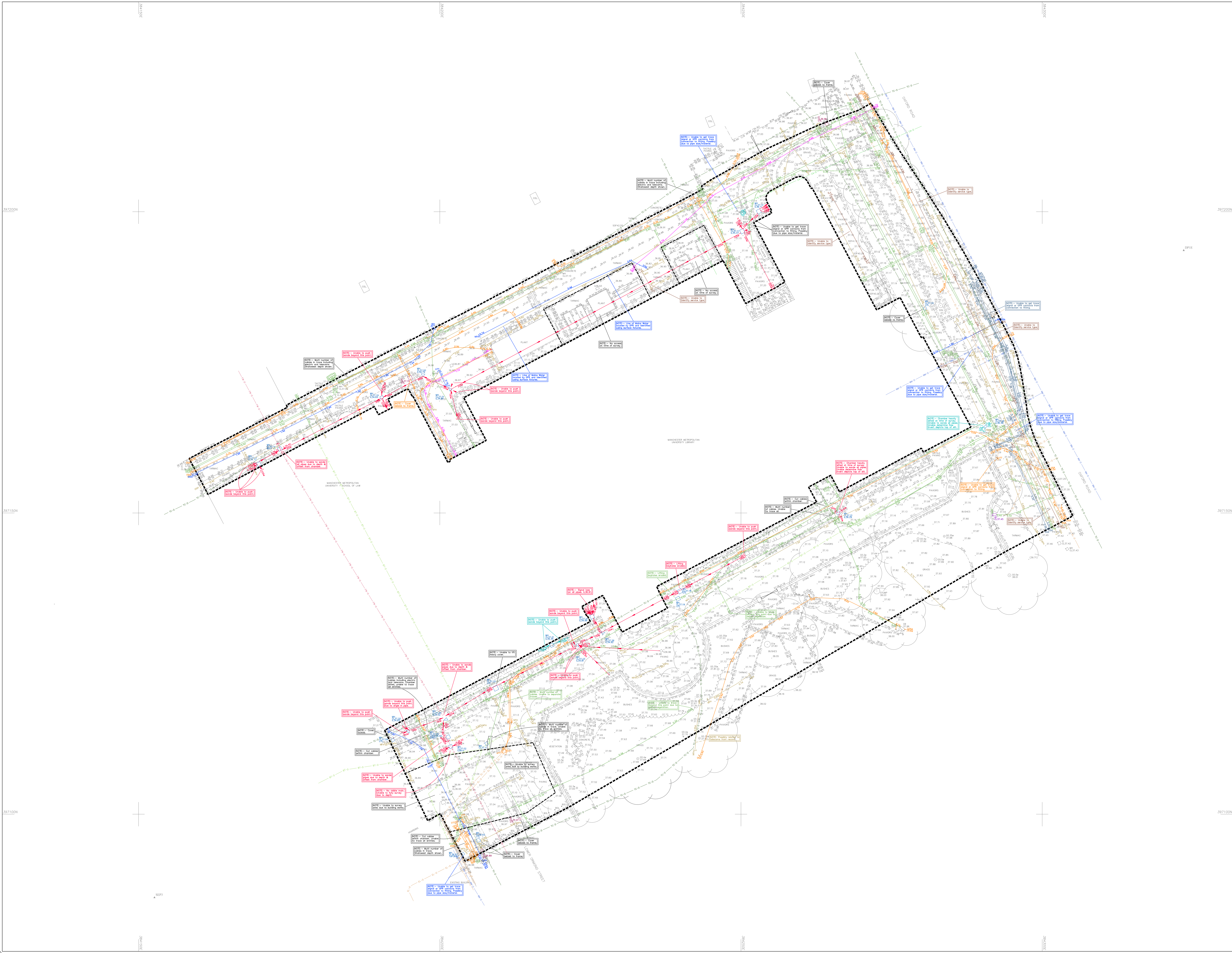
stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

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

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

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

Appendix E Topographic and Utility Survey



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1. Project No: SEP-23-001 | Date: 15/01/2024 | File: 524167-GPR.dwg

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PLAN GRID NORTH

File Name: 524167-GPR.dwg

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QUALITY LEVEL

NOTES:

1. All data is to O.S. (Ordnance Survey) Datum. Established using network RTK. Survey carried out on a plane grid (not geoid) system. All elevations are relative to O.S. datum.

2. This investigation was carried out in compliance with the BS 5938:2014 standard.

3. Service providers should be notified of the location of the service lines shown on this plan. It is the responsibility of the service provider to ensure that the service lines are correctly located and that the service is not damaged.

4. For information on quality levels, please consult the BS 5938:2014 standard document.

5. Unless indicated as GPR, all data is a series of continuous subsurface anomalies located using the Ground Penetrating Radar method and should be considered as Quality Level 2. The nature of these anomalies could not be determined by non-invasive means. GPR data that is identifiable as a service line is shown as best practice service.

6. This plan is for information only and should not be used for any other purpose.

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SCALE BAR

REV	DATE	DESCRIPTION
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SURVEY & ENGINEERING PROJECTS

Client: Hawkins Brown Architects
159 St John Street
London
EC1V 4JQ

Project Title: Post processed GPR of Land at:
Al Saints Library
Manchester Metropolitan University
Al Saints Park
Manchester
M15 6BT

Surveyed L. Biggar	Drawn D. Shipton	Checked B. Brady
Scale 1:200	Date Jan 23	Drawing Ref. 524167-GPR
No. 01	Site AD	Rev --

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