



39 DEANS GATE, MANCHESTER
PHASE 1 SITE INVESTIGATION REPORT

Project No: 1901-02
July 2021
Rev P03

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DRAWINGS		
DRAWING NUMBER	REV	TITLE
C4293/01	-	Site Location Plan
6145-SRA-XX-B1-DR-A-02199	P02	Proposed Basement Plan
6145-SRA-XX-00-DR-A-02110	P02	Proposed Ground Floor Plan

APPENDICES	
APPENDIX	TITLE
Photographs	Site Walkover Photographs
Appendix A	Methodology and Guidance
Appendix B	Historical Maps
Appendix C	BGS Boreholes
Appendix D	Mining Search Report
Appendix E	Environmental Database Search
Appendix F	UXO Screening Map

1 INTRODUCTION

1.1 CONTEXT

This report describes a Phase I Desk Study Assessment carried out by Renaissance Ltd on a site at No.39 Deansgate, Manchester.

This report has been completed in general accordance with the following guidance:

- CLR11 Model Procedures for the Management of Land Contamination.
- BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites.
- BS5930: 2015 Code of Practice for Ground Investigations.
- BS EN 1997-2:2007 Eurocode 7 Geotechnical design. Ground investigation and testing plus UK National Annex.

1.2 OBJECTIVES AND SCOPE

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

The scope of works comprises a Desk Study and site walk-over, with a review of the site, surroundings, historical uses and environmental setting in order to develop a preliminary Conceptual Site Model (CSM). A summary of previous investigations carried out at the site has also been undertaken.

1.3 PROPOSED DEVELOPMENT

Erection of a 17 storey building comprising office use (Use Class E(g)(i)) and flexible ground floor commercial units (Use Classes E(a),(b),(c) and sui generis 'drinking establishment'), new electricity sub-station, basement cycle parking and rooftop plant enclosure, together with access, servicing and associated works following demolition of the existing building"

1.4 LIMITATIONS

This desk study assessment has been prepared in accordance with the relevant legislative framework, guidance and risk assessment methodology as outlined in Appendix A.

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

There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by this assessment and therefore have not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

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

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

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

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

2.0 THE SITE

2.1 LOCATION

The site is located off Deansgate, Manchester, M3 2AY. It is situated approximately 0.5 miles from Manchester City Centre, centered on National Grid Reference 383764, 398515 as shown on the Site Location Plan, Drawing No. C4293/01.

2.2 SITE DESCRIPTION

A walkover survey was carried out on the site on the 14th August 2019. The main site features and potential issues identified during this survey are detailed below and are shown on the Site Constraints Plan, Drawing No. DNG - REN - 00 - XX - DR - C - 0001 - P01. A selection of photographs from the site walkover is presented to the rear of this report.

FEATURE	DESCRIPTION
Site Area	The site covers approximately 0.12 hectares.
Site Access	Pedestrian access to the site is gained off Deansgate to the west. Vehicular access to the first floor roof top car park is gained off Exchange Street to the east.
Current Land Use and Site Features	The site comprises an existing 9 storey mixed use building. The building is rectangular with retail units covering the ground floor. The north of the site comprises a 7-storey building utilised for offices above the ground floor. Adjoining this to the south is a 7-storey block located in the centre of the site on concrete columns above the second-floor rooftop car parking area which covers the remainder of the site. Two small basement rooms are present in the centre of the site which are utilised as plant rooms. To the rear of the building is a small external area housing air conditioning plant and a concrete staircase to the car park above. A spiral ramp is present in the south-eastern corner of the site providing vehicular access to the car park above.
Potential Sources of Gross Contamination	No evidence of storage tanks was noted during the site walkover. An electricity station is present within the centre of the spiral ramp in the south-east of the site.
Vegetation	No vegetation was recorded at the site.
Topography	The site is generally flat however the rear (east) of the building was noted to be slightly elevated above the levels at the front of the building (west), noted on plans to be approximately 200mm.
Site Boundaries	The site comprises building footprint / associated infrastructure in its entirety. The north of the building is bound by St Mary's Gate, the east of the site is bound by a commercial building, the south of the site is bound by Barton Arcade, and the west of the site is bound by Deansgate.
Surrounding Area	The site is set within a mixed retail and business area, bordered by office buildings and ground floor retail units.

3.0 ENVIRONMENTAL SETTING

3.1 HISTORICAL SETTING

Information has been obtained from historical Ordnance Survey Maps with the pertinent issues that may have affected the site, or its environs summarised below.

Notable features within 100m of the site boundary have been presented. Any features that have potentially been infilled will be considered up to 250m from the site boundary.

FEATURE	DISTANCE	YEARS PRESENT	DESCRIPTION
Terrace Buildings including commercial	On site	1848 - 1949	The earliest map of 1840/1850 indicates the site to be occupied by a row of terrace buildings, with exchange arcade showing in the middle of the site, one of these is labelled as a public house and these units are anticipated to be commercial. By 1891 the site appears to have been largely redeveloped with a mixed use of small buildings. Deansgate and St Mary's Gate have both been significantly widened. The buildings remain on site until the map dated 1949 where the site and surrounding area are no longer occupied, a ruin is noted adjacent to the site, so it is assumed that these buildings had been destroyed during WWII bombing.
Terrace Buildings	On site	1970 - 2014	By the map dated 1970 the site had been re-occupied by terrace buildings, one of these is noted as 'Air Terminus' until the map dated 1979. This structure remains on-site.
Cotton Mills	50m – 75m radius	1851	A number of cotton related buildings are situated in the surrounding area, these are only noted on the 1851 map however the buildings are present well after this date.
Ruins	0m – 100m radius	1949 - 1958	The surrounding area is densely developed, however between 1949 and 1958 a noticeable number of these buildings are either noted as 'ruins' or are not present on the map suggesting the area was heavily bombed during WWII.

The site is situated in an area that has been densely developed since the 1840s. The surrounding area appears to have been a mix of residential and commercial, with a number of cotton works interspersed. The area has remained generally unchanged, with the re-building of a number of buildings following WWII and a shift toward primarily commercial land use.

The Historical Maps are presented in Appendix B.

3.2 PUBLISHED GEOLOGY

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

- 1:50,000 Scale Geological Map Sheet 85 Macclesfield. Solid and Drift Edition.
- British Geological Survey (BGS) Geology of Britain Map Viewer.
- Coal Authority Interactive Map.
- Environmental Data Report.

MADE GROUND

BGS mapping does not display and made ground deposits on site, however based on the historical mapping and the development that has taken place, made ground deposits are highly likely to be present.

SUPERFICIAL DEPOSITS

The site is indicated to be underlain by Glaciofluvial Sheet Deposits. This stratum typically comprises sands and gravels, locally with lenses of silt or clay. The superficial deposits are indicated to have been deposited within a channel the runs roughly parallel to Deansgate for approximately 1km.

SOLID GEOLOGY

The deeper solid geology underlying the superficial deposits is indicated to be part of the Chester Formation, which typically comprises red sandstones.

The East Manchester Fault is present approximately 100m south of the site striking NW-SE, down throwing to the northeast. However, any movements associated with this fault should now have stopped.

The nearest coal seam sub crop is circa 2.5km north east of the site of the Openshaw Coal.

3.3 BGS BOREHOLES

There a BGS borehole record is available across the road from the site. The log indicates made ground to 0.90m bgl. Sand and gravel with occasional thin clay bands was present to 7.80m bgl.

A dense brown red silty sand was present between 5.90m and 7.80m which may represent weathered bedrock. Sandstone was present from 7.80m to the base of the borehole at 15.00m bgl.

The BGS Borehole Logs are presented in Appendix C.

3.4 MINING AND MINERAL EXTRACTION

The site lies in an area where the Law Society and Coal Authority recommends a mining search be undertaken as the site could be affected by past or current coal mining.

Therefore, a mining search was carried out, which is presented in Appendix D, the main findings of which are presented below.

HIGHLIGHTED EVIDENCE	ISSUE	DETAILS
Past Underground Mining	No	
Present Underground Mining	No	
Future Underground Mining	No	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.
Mine Entries	No	
Past, present and future opencast coal mining	No	
Coal mining subsidence	No	
Mine gas	No	
Withdrawal of support	No	
Information from the Cheshire Brine Subsidence Compensation Board	No	

3.5 HYDROGEOLOGY

The superficial deposits beneath the site are classified by the Environment Agency as a Secondary (A) Aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The bedrock underlying the site is classified as a Principal Aquifer. This is Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers.

There are no source protection zones within 500m of the site.

The nearest active groundwater abstraction license is 172m north of the site for general cooling. There are not active potable water abstractions within 2000m of the site.

The soils have been assigned a Soil Vulnerability Category of HU (High). This is a worst-case classification for urban areas and restored mineral workings. These soils are assumed to be highly permeable in the absence of site-specific information.

3.6 HYDROLOGY

The nearest watercourse to the site is the River Irwell, which lies at a distance of 99m northwest of the site and flow direction is indicated to be from north to south.

Biological River Quality is available for one location 362m north of the site which is graded as 'E' for the years 2005 to 2009.

Chemical River Quality data is available at two locations on the River Irk and six locations on the Rochdale Canal between 362m and 1173m from the site. The River Irk is graded as 'C' for 2005 to 2008, and 'D' in 2009, the Rochdale Canal is graded as 'A' for 2005 to 2009.

The nearest surface water abstraction license is 1666m from the site and is historical.

The closest active licensed discharge consent is 99m northwest and relates to sewer storm overflow.

Information obtained from the Environment Agency (EA) Risk of Flooding from Rivers and the Sea (RoFRaS) database indicates that the risk of flooding across the site is very low (less than 1 in 1000 chance of flooding in any given year).

No further consideration of flood risk is undertaken in this report. Refer to the Flood Risk Assessment Report produced by others.

3.7 ENVIRONMENTAL SEARCHES

An Environmental Search has been conducted which utilises British Geological Survey and Environment Agency databases. The full report can be found in Appendix E, although a summary of the more relevant findings is presented below.

ENTRY	ON-SITE	0 –249m	250 –500m	DETAILS
Authorised Industrial Processes (IPC/IPPC/LAPPC)	0	0	6	One List 2 site 426m west of the site. Five Part B permits between 278m and 480m both historic and active for dry cleaning and vehicle spraying.
Pollution Incidents	0	4	1	Incidents are recorded as having a 'Minor' or 'No impact' on water, land and air.
Landfill Sites	0	0	0	
Waste Treatment	0	0	14	The nearest entry is 379m south for a recycling centre that appears to have been cancelled at the planning stage. The remainder of the entries are duplicates for a scrapyard approximately 385m northwest.
Control of Major Accident Hazard (COMAH) Sites	0	0	0	
Consents issued under planning (Hazardous Substances) Act 1990	0	0	0	

ENTRY	ON-SITE	0 –249m	250 –500m	DETAILS
Radioactive Substances	0	0	0	
Fuel Station Entries	0	0	0	
Other Current industrial land uses	1	26	2	The nearest entry is a substation on site. The remainder of the entries are for commercial use and occasional substations.
National Grid Services	0	0	0	

3.8 RADON

Information from the environmental database report indicates the property is not in a radon affected area and therefore no radon protective measures are necessary in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2015 Edition.

3.8 UXO RISK

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

There is no indication of former military use from the desk study. The map indicates the site to be in an area where the bomb risk is moderate. A UXO find is indicated circa 100m southwest of the site. A copy of the map is presented in Appendix F.

The mapping shows a number of "ruins" and areas of missing buildings, including on site, suggesting bomb damage following WWII.

This is confirmed by the bomb damage maps for Manchester that can viewed online. This shows the site to have been completely destroyed (shaded red) by bombing during the second world war. An extract of the map covering the site and surrounding area is shown below.



Since the risk is deemed moderate bomb risk, in order to determine if and what further action may be required to mitigate the risk, the next stage would be to follow the recommended process set out in CIRIA Report C681 and carry out a preliminary risk assessment or undertake a full detailed risk assessment. Intrusive works on site may also require supervision by a UXO specialist.

4.0 DESK STUDY SUMMARY AND RISK ASSESSMENT

4.1 INTRODUCTION

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

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

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

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

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

4.2 POTENTIAL CONTAMINATIVE SOURCES

ON-SITE

From the information obtained during the desk study the following sources have been identified by the desk study which may affect the redevelopment of the site for commercial/retail end use:

- Made ground associated with former and current land use.
- Ground gas from on-site made ground.
- Electricity substation.

OFF-SITE

There are no sources within a relevant distance to the site that are considered to pose a risk to site end-users.

ASSOCIATED CONTAMINANTS

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

Contaminative Sources	Department of the Environment Industry Profile	Commonly Associated Contaminants
ON-SITE		
Made Ground	-	Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, ground gases (carbon dioxide and methane).
Electricity Substation	Electrical Works	Polychlorinated Biphenyls (PCBs)

4.3 PATHWAYS

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

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

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

4.4 RECEPTORS

The identified receptors are listed below:

- Commercial end users (human health).
- Structures/Property/water pipes.
- Nearest watercourse. River Irwell (Controlled waters).
- Superficial Secondary (A) Aquifer. Glaciofluvial Sheet Deposits (Controlled waters).
- Bedrock Principal Aquifer. Chester Formation (Controlled waters).
- Construction workers.

4.5 PRELIMINARY CONCEPTUAL SITE MODEL

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

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

CONTROLLED WATERS						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
Made Ground PAH's, Metals	Overland flow, / migration through saturated zone	River Irwell 99m away (Surface waters)	Unlikely	Medium	Low	The majority of made ground on site will have been removed through the development of the site, additionally the footprint of the proposed building will cover the majority of the site and the surrounding area is covered in hardstanding which will prevent infiltration of rainwater and the mobilisation of any contaminants. Previous site use does not suggest any significant contaminative processes.
	Leaching through unsaturated zone / Migration through saturated zone	Secondary A Aquifer (Ground-water)	Unlikely	Medium	Low	The majority of made ground on site will have been removed through the development of the site, additionally the footprint of the proposed building will cover the majority of the site and the surrounding area is covered in hardstanding which will prevent infiltration of rainwater and the mobilisation of any contaminants. The site does not lie within an SPZ. There are no potable water abstractions within 2000m of the site. The nearest groundwater abstraction is for general cooling. Previous site use does not suggest any significant contaminative processes.
	Migration through saturated zone	Principal Aquifer (Ground-water)	Unlikely	Medium	Low	The majority of made ground on site will have been removed through the development of the site, additionally the footprint of the proposed building will cover the majority of the site and the surrounding area is covered in hardstanding which will prevent infiltration of rainwater and the mobilisation of any contaminant. There are no potable water abstractions within 2000m of the site. The nearest groundwater abstraction is for general cooling. Previous site use does not suggest any significant contaminative processes.

HUMAN HEALTH RISK – Summary

Based on the preliminary CSM and the current use of the site, the overall risk from land contamination at the site is considered low for a redeveloped site.

A potential on-site gas source has been identified associated with the made ground from previous developments. The preliminary CSM considers the sources to be a low risk to site end users and property based on its future redevelopment.

As the proposed design will contain an inherent level of protection equivalent to Characteristic Situation 4 (CS4) protection measures ground gas monitoring is not considered necessary.

CONTROLLED WATERS RISK - Summary

Based on the preliminary CSM, renaissance believes the overall risk to controlled waters at the site is low for the following reasons:

- No significant contamination is anticipated on site based on past end-use.
- The majority of made ground is expected to be removed through the construction of basements.
- The site does not lie within 500m of an SPZ.
- There are no potable (sensitive) water abstractions within 2000m.
- The nearest groundwater abstraction is for general cooling.
- The site and surrounding area are predominantly covered in hardstanding reducing the infiltration of groundwater.

5.0 PRELIMINARY GEOTECHNICAL ASSESSMENT

5.1 HAZARD IDENTIFICATION

Potential geotechnical hazards based on the expected ground conditions are listed below:

- Made ground of unknown nature; if placed in a non-engineered manner may cause excessive settlement of foundations, highways and infrastructure.
- Buried obstructions such as old foundations basements etc. leading to difficulty in excavation or deep foundation emplacement (e.g. piles).
- Attack of buried concrete by aggressive ground conditions; the site may contain unknown made ground and potentially sulphate bearing soils.
- Presence of UXO preventing the safe installation of foundations.

5.2 FOUNDATIONS

The proposed development will comprise a fourteen-storey steel framed building and full footprint RC basement. Foundations will comprise of a piled wall to the basement perimeter and piled internal foundations. The ground conditions on site should be confirmed to allow the detailed design of the foundations.

5.3 SOAKAWAYS

The presence of permeable glaciofluvial sheet deposits may be suitable for infiltration, subject to the depth to the groundwater and test results. This would need to be confirmed by an onsite intrusive investigation to confirm ground conditions and infiltration rates.

6.0 OTHER DEVELOPMENT CONSTRAINTS

6.1 CONSTRAINT IDENTIFICATIONS

Asbestos was not covered in this report. It should be noted that an asbestos demolition survey will be required prior to any demolition of structures. If asbestos is present in soils, these will need to be dealt with in accordance with the Control of Asbestos Regulations (CAR) 2012.

No invasive species have been noted during the walkover.

The preliminary risk assessment undertaken within this Desk Study may identify potential risks to site demolition and construction workers. However, full consideration of occupational health and safety issues is beyond the scope of this report.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 ENVIRONMENTAL

The site is situated in an area that has been densely developed since the 1840s. The surrounding area has remained generally unchanged; however, the site appears to have been redeveloped three times since the 1840s with the re-building of a number of buildings, including the buildings on site following WWII and a shift toward primarily commercial land use.

The risk from onsite sources is considered low due to the lack of significantly contaminative processes and the removal of the majority of made ground through the development of the site.

The risk from ground gas is considered low due to the inherent level of protection included within the proposed building design.

The risk for offsite sources is considered low.

The risk to controlled waters is considered to be low due to the lack of significantly contaminative processes, this site not being within 500m of an SPZ or within 2000m of a potable water abstraction, and the site being covered by hard standing.

7.2 GEOTECHNICAL

The proposed development will comprise a seventeen-storey steel framed building and full footprint basement. Intrusive investigations will be required to confirm ground conditions to allow detailed foundation design and obtain parameters for concrete classification and highways design.

The site is potentially at risk from Unexploded Ordnance (UXO) and further risk assessment is recommended.

7.3 FURTHER WORK

To confirm the risks to the identified receptors and confirm the ground conditions in respect to the identified geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken.

Therefore, to allow future development of the site the following further works are recommended, although this list is not exhaustive and should be read in conjunction with any planning conditions that are applicable to the site.

- Undertake preliminary UXO risk assessment by a UXO specialist.
- Post demolition intrusive site investigations comprising cable percussive drilling, rotary core drilling and geotechnical and chemical confirmatory testing of soils and rock.
- Assessment and recommendations based on the above, including requirements for further work, if necessary.
- Demolition Asbestos survey.

8.0 REFERENCES

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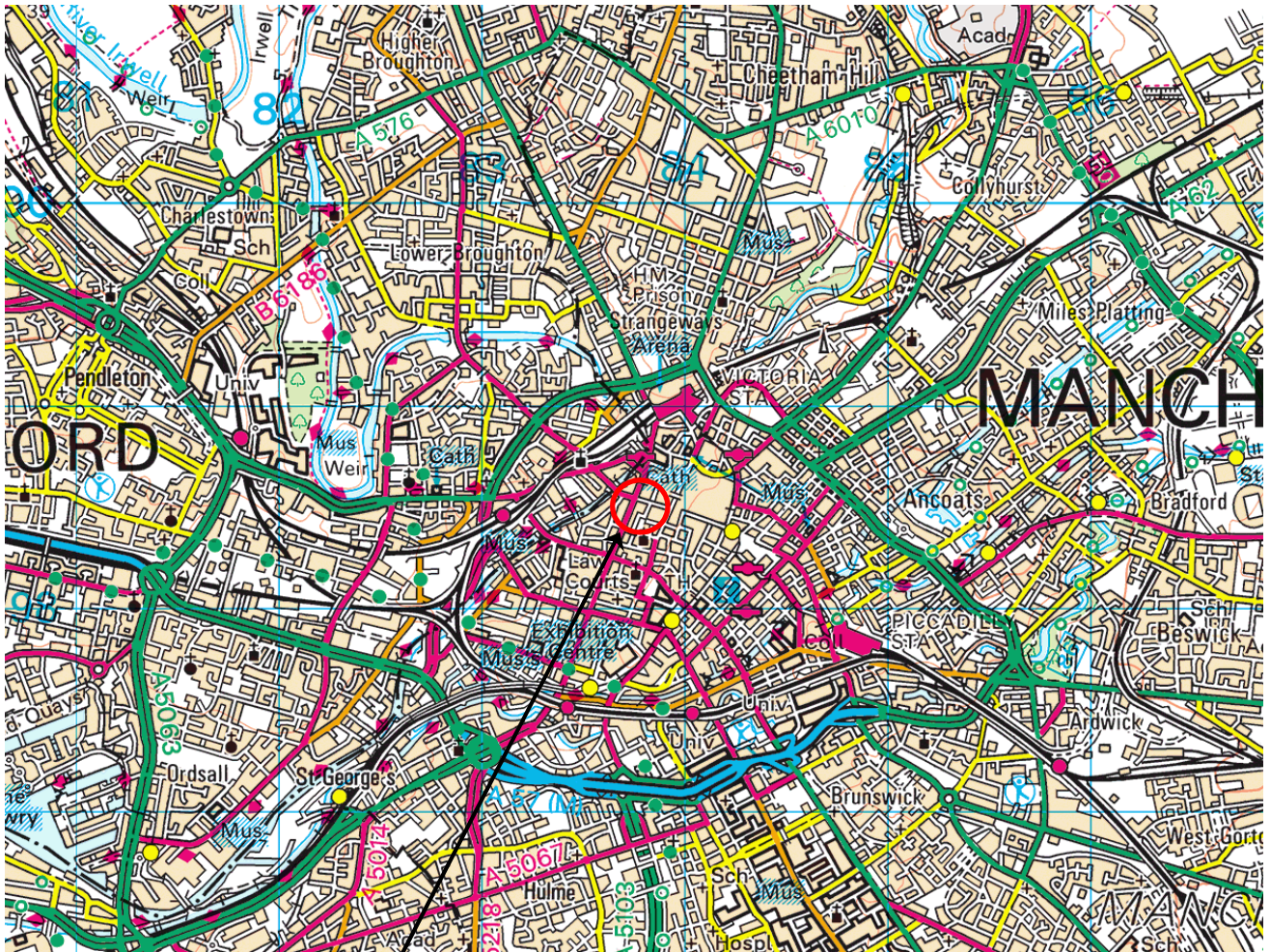
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DRAWINGS



SITE LOCATION

NEAREST POSTCODE: M3 2AY



REV	DATE	DESCRIPTION	BY	CKD
 renaissance				
CLIENT KAMES PROPERTY INCOME FUND				
PROJECT TITLE 39 DEANSGATE				
DRAWING TITLE SITE LOCATION PLAN				
DRAWING No. C4293/01	REVISION -	SCALE NTS	DATE 12/08/19	
DRAWN BY DI		CHECKED BY JMJ		

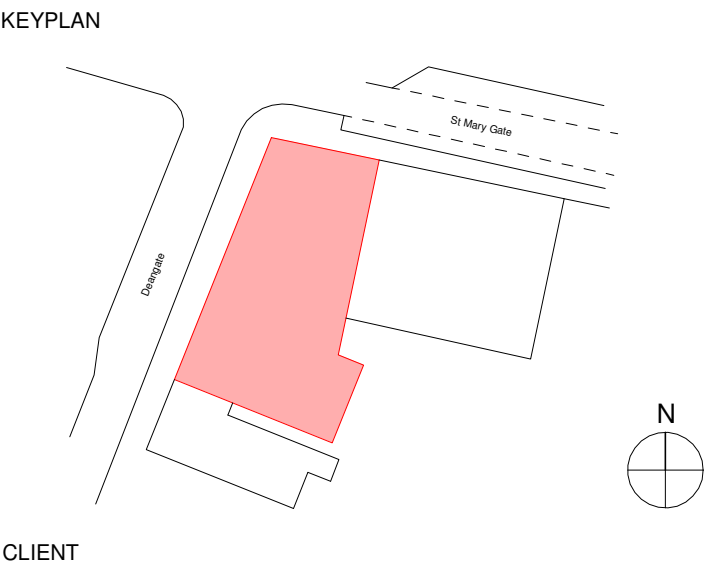
© COPYRIGHT
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DO NOT SCALE FROM THIS DRAWING
The contractor shall check and verify all dimensions on site and report any discrepancies in writing to Sheppard Robson before proceeding work.

FOR ELECTRONIC DATA ISSUE
Electronic Data / drawings are issued as "read only" and should not be interrogated for measurement. All dimensions and levels should read, only from those values stated in text, on the drawing.

AREA MEASUREMENT
The areas are approximate and can only be verified by a detailed dimensional survey of the completed building. Any decisions to be made on the basis of these predictions, whether as to project viability, pre-letting, lease agreements or otherwise, should include due allowance for the increases and decreases inherent in the design development and building processes. Existing buildings may present anomalies in relation to surveyed/drawn plans that may also effect the stated areas. All areas are subject to Town Planning and Conservation Area Consent and detailed Rights to Light analysis. Figures relate to the likely areas of the building at the current stage of the design and are calculated using one of the following (as stated in the accompanying areas schedule) IPMS1, IPMS2, IPMS3, Gross External Area (GEA), Gross Internal Area (GIA) or Net Internal Area (NIA) methods of measurement from the RICS Property Measurement 1st edition.

REV.	DATE	AMENDMENT
P01	20/12/19	Planning Issue
P02	July 2021	Planning Issue



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T: +44 (0)20 7504 1700 E: london@sheppardrobson.com

PROJECT
39 Deansgate

SCALE@A1	DATE	ORIGINATOR	CHECKED	AUTHORISED
1 : 100	DEC.19	MM	MM	TO'B

Proposed Ground Floor Plan

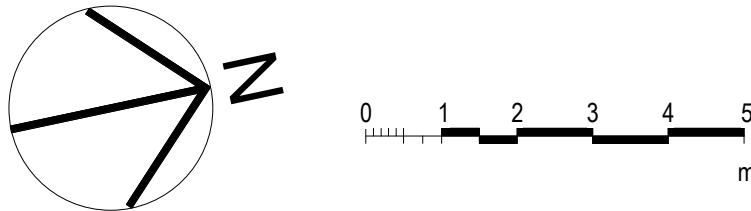
Stage 3

STATUS	PURPOSE FOR ISSUE	SR NO.
S2	PLANNING	6145
DRAWING NO.		REV.
6145 · SRA · XX · 00 · DR · A · 02110		P02



Proposed Ground Floor Plan

1 : 100





Proposed Basement Plan
1 : 100

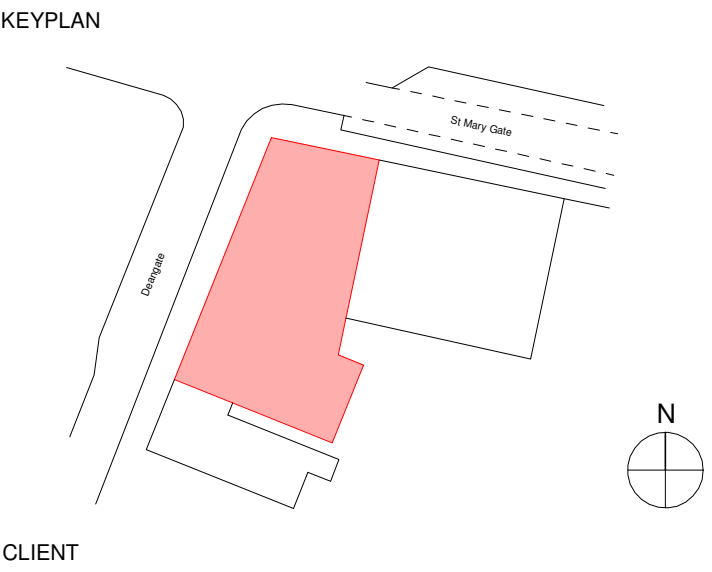
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The copyright in this drawing is vested in Sheppard Robson and no license or assignment of any kind has been, or is, granted to any third party whether by provision of copies or originals or otherwise unless agreed in writing.

DO NOT SCALE FROM THIS DRAWING
The contractor shall check and verify all dimensions on site and report any discrepancies in writing to Sheppard Robson before proceeding work.

FOR ELECTRONIC DATA ISSUE
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The areas are approximate and can only be verified by a detailed dimensional survey of the completed building. Any decisions to be made on the basis of these predictions, whether as to project viability, pre-letting, lease agreements or otherwise, should include due allowance for the increases and decreases inherent in the design development and building processes. Existing buildings may present anomalies in relation to surveyed/drawn plans that may also effect the stated areas. All areas are subject to Town Planning and Conservation Area Consent and detailed Rights to Light analysis. Figures relate to the likely areas of the building at the current stage of the design and are calculated using one of the following (as stated in the accompanying areas schedule) IPMS1, IPMS2, IPMS3, Gross External Area (GEA), Gross Internal Area (GIA) or Nett Internal Area (NIA) methods of measurement from the RICS Property Measurement 1st edition.

REV.	DATE	AMENDMENT
P01	20/12/19	Planning Issue
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PROJECT
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1 : 100	DEC.19	MM	MM	TO'B

Proposed Basement Plan

Stage 3			
STATUS	PURPOSE FOR ISSUE	SR NO.	
S2	PLANNING	6145	
DRAWING NO.		REV.	
6145 - SRA - XX - B1 - DR - A - 02199		P02	

PHOTOGRAPHS



Photo 1: Current Site Occupation



Photo 2: Electric substation to rear of property



Photo 3: Roof carpark.



Photo 4: Overlooking onto adjacent plot Barton Arcade

APPENDIX A

METHODOLOGY AND GUIDANCE

Desk Study Methodology and Guidance

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

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

Desk Studies are written in broad agreement with BS 10175:2011+A1:2013. The first stage of a two-staged investigation and assessment of a site is the Preliminary Investigation (BS 10175:2011+A1:2013), often referred to as a Phase 1 Desk Study Assessment, comprising a desk study and walk-over survey, which culminates in the Preliminary Risk Assessment. A preliminary conceptual site model (CSM) is developed. From this are identified any geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them.

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

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The Ground Investigation comprises field work and laboratory testing based on the findings of the Preliminary Risk Assessment, to reduce uncertainty in the geotechnical and geo-environmental hazard identification. This may include the initial, main and supplementary Investigations described in BS 10175:2011+A1:2013.

Legislative Background

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

- The 1995 Environment Act.
- The DETR circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land.
- The Contaminated Land (England) Regulations 2000.

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

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

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

- **Source** - substances that are potential contaminants or pollutants that may cause harm;
- **Pathway** - a potential route by which contaminants can move from the source to the receptor;
- **Receptor** - a receptor that may be harmed, for example the water environment, humans and water.

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

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

Relevant Guidance Documents

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

- DETR Circular 02/2000, Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990.
- CLR11 – Model Procedures.
- Brownfields – Managing the development of previously developed land – A client's guide, CIRIA 2002.
- DEFRA and Environment Agency publications CLR7 – 10, supported by the TOX guides and SGV guides, dated March 2002.
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002.
- Contamination and Environmental Matters - Their implications for Property Professionals (2nd Edition RICS Nov 2003).
- BS 10175:2011+A2:2017.

Relevant Legislative Documents

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

- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012).
- The Environment Protection Act (1990).
- The Water Resources Act (1991).
- The Environment Act (1995).
- The Contaminated Land (England) Act (2000).
- The Pollution Prevention and Control (England and Wales) Regulations (2000).
- The Landfill Regulations (England and Wales) Regulations (2002).
- The Landfill (England and Wales) (Amendment) Regulations (2004).
- Contaminated Land (England) Regulations (2012).
- Health and Safety at Work Act.

Contaminated Land Risk Assessment

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

Hazard Identification → Hazard Assessment → Risk Estimation → Risk Evaluation

CLR11 outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process. Under CLR11, three tiers of risk assessment exist - Preliminary, Generic Quantitative and Detailed Quantitative.

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

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

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

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552:

- **High likelihood:** There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution;
- **Likely:** There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term;

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

The severity is also classified using a system based on CIRIA C552. The terms and definitions are:

- **Severe:** Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000); *Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse;*
- **Medium:** Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000); *Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve;*
- **Mild:** Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment; *Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.*
- **Minor:** harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services. *Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.*

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

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

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

- **Very high:** There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required;
- **High:** Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term;
- **Moderate:** It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term;
- **Low:** It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild;
- **Very Low:** There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Some linkages may be identified which constitutes a theoretical connection between a source and a receptor, but professional judgement shows them not to be possible for some reason. These are labelled 'no linkage' in the summary table and no further action is required.

Ground Gas Guidance

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

BS8485:2015+A1:2019 and CIRIA C665 is the current guidance which gives up-to-date advice on all aspects of ground gas. It outlines good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to gas contaminated land. Two semi-quantitative methods are set out for the assessment of risk:

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

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

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

Legislative Framework

CIRIA C665 provides technical guidance however also recognises the context into which the guidance has to be employed. Government policy is based upon a "suitable for use approach", which is relevant to both

the current and proposed future use of land. When considering the current use of land, Part IIA of the Environment Protection Act 1990 provides the regulatory regime. The presence of hazardous ground gases could provide the “source” in a “pollutant linkage” which could lead the regulator to determine that considerable harm or there is a significant possibility of such harm being caused. Under such circumstances, the regulator would determine the land to be “contaminated land” under the provisions of the Act, setting out the process of remediation as described in the DETR Circular 02/2000 Statutory guidance on contaminated land (DETR, 2000a).

Frequency and Duration of Monitoring

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

The benefits of the additional information and whether it is likely to change the scope of gas protection should be considered, as are the consequences of failing to characterise adequately pollutant linkages. Investigations concerned with soil gas are required to provide monitoring data sufficient to allow prediction of worst case conditions enabling the confident assessment of risk and subsequent design of appropriate gas protection schemes. Monitoring programmes should not be an academic exercise in data collection.

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

Typical/idealised periods of monitoring

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

Typical/idealised frequency of monitoring

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

Notes:

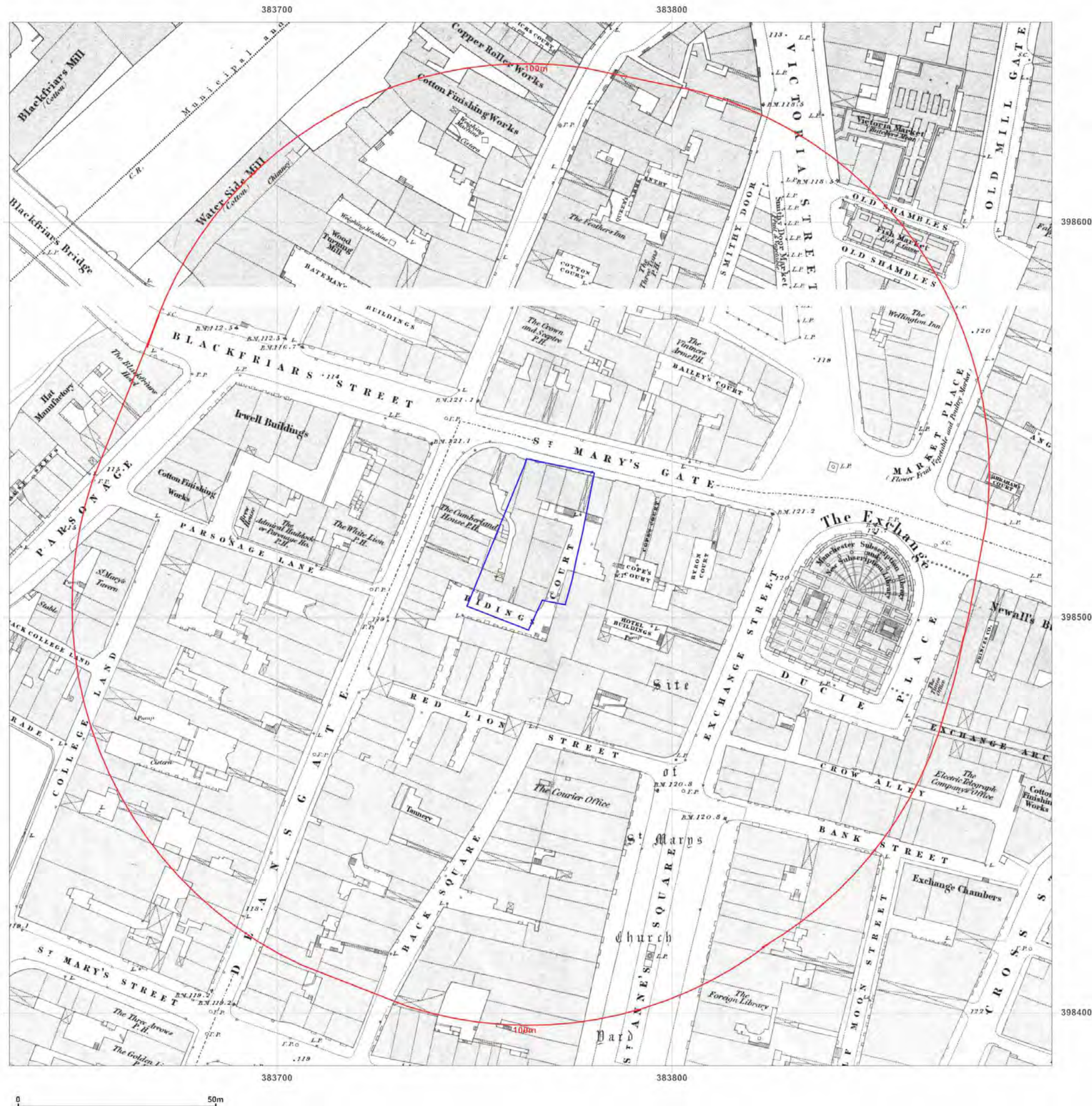
- NHBC guidance also recommends this period of monitoring (Boyle and Witherington, 2007).
- There is no industry consent over “high”, “medium” or “low” generation potential of source.

- At least two sets of readings should be at low and falling atmospheric pressure (but not restricted to periods below <1000 mb) known as worst case conditions. Historical data can be used as part of the data set (Table 5.5b).

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

APPENDIX B

HISTORICAL MAPS



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Grid Ref: 383764, 398518

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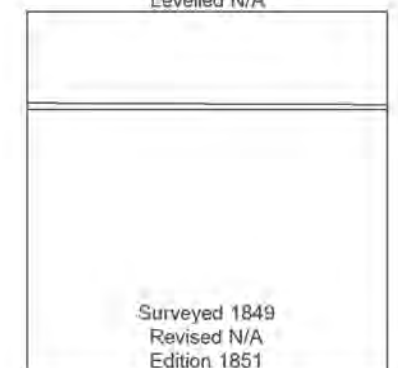
Map date: 1850-1851

Scale: 1:1,056

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Grid Ref: 383764, 398518

Map Name: County Series Town Plan

Map date: 1891

Scale: 1:500

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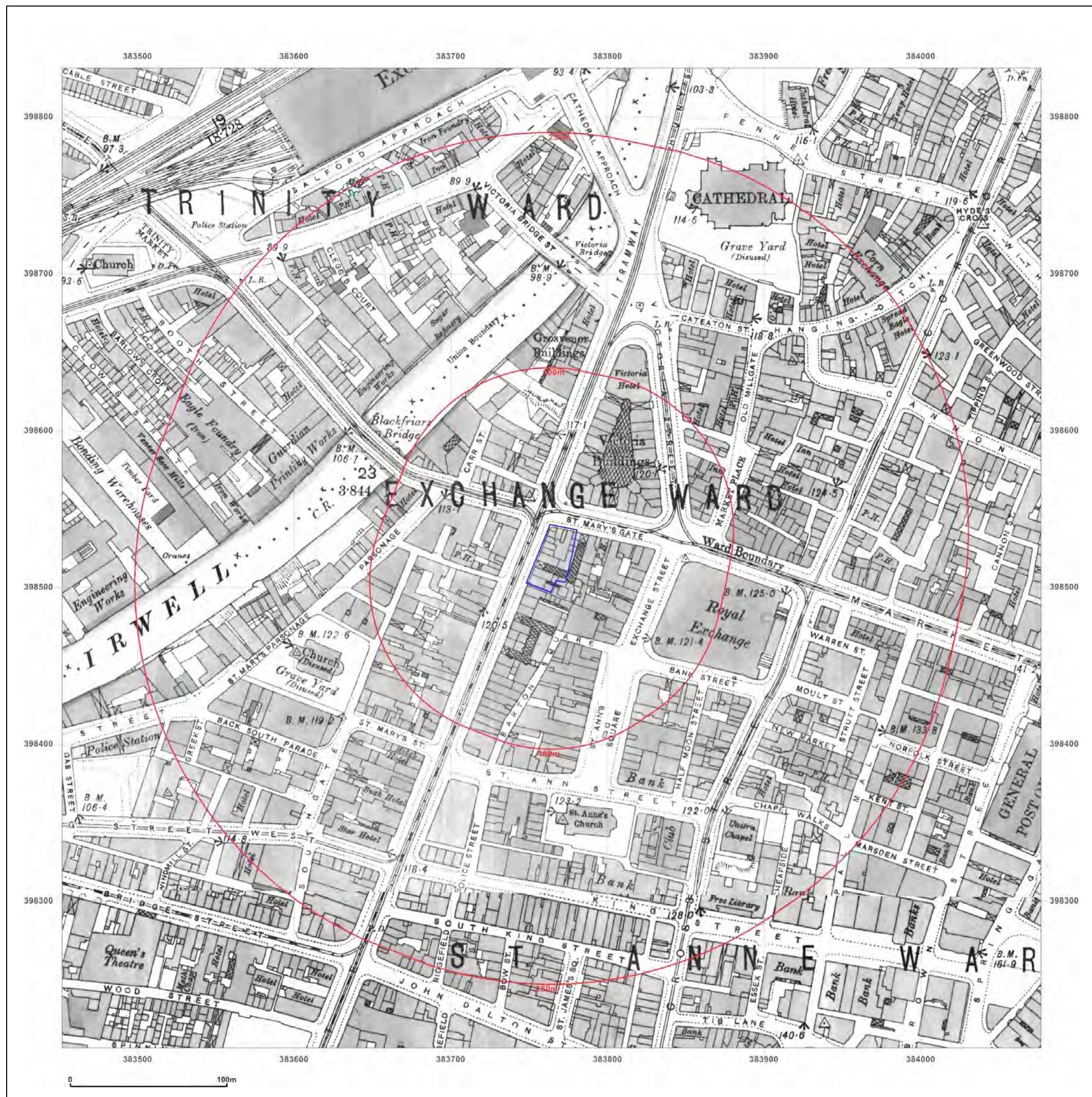


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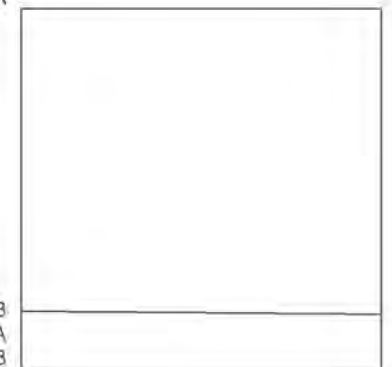
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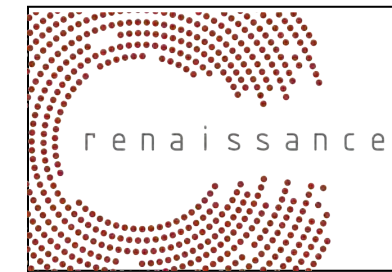
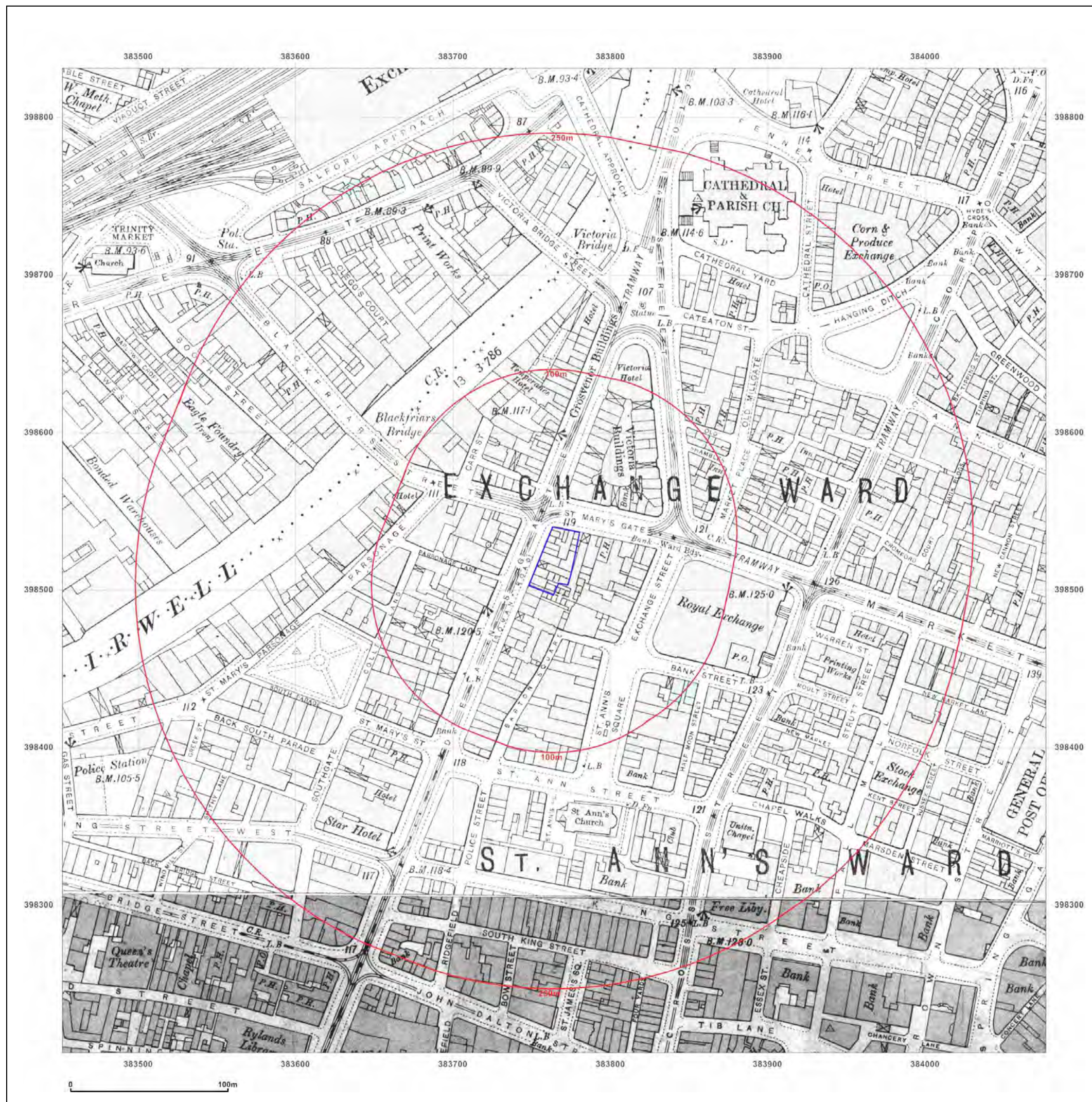


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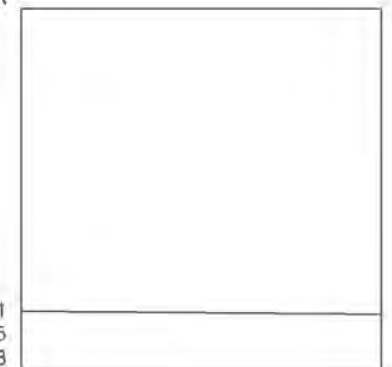
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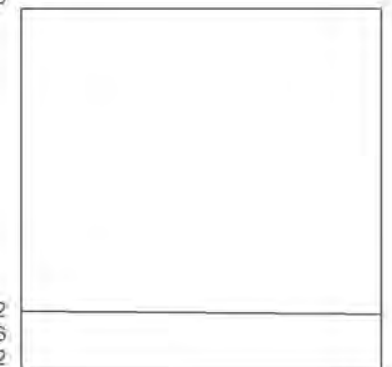
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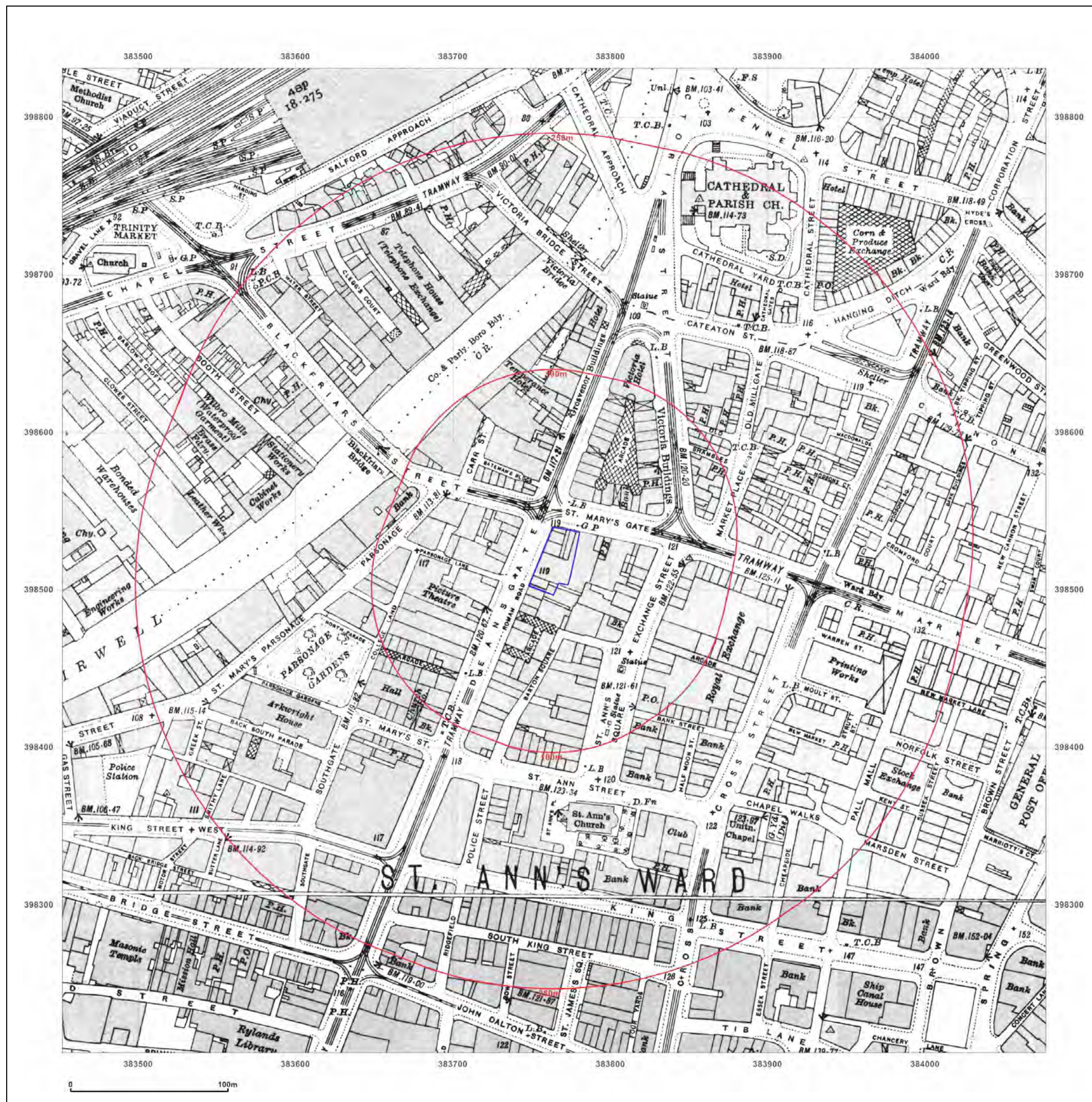


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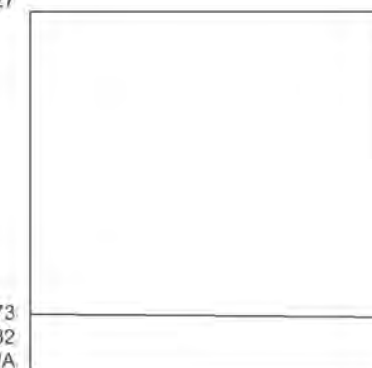
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Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1948-1949

Scale: 1:1,250

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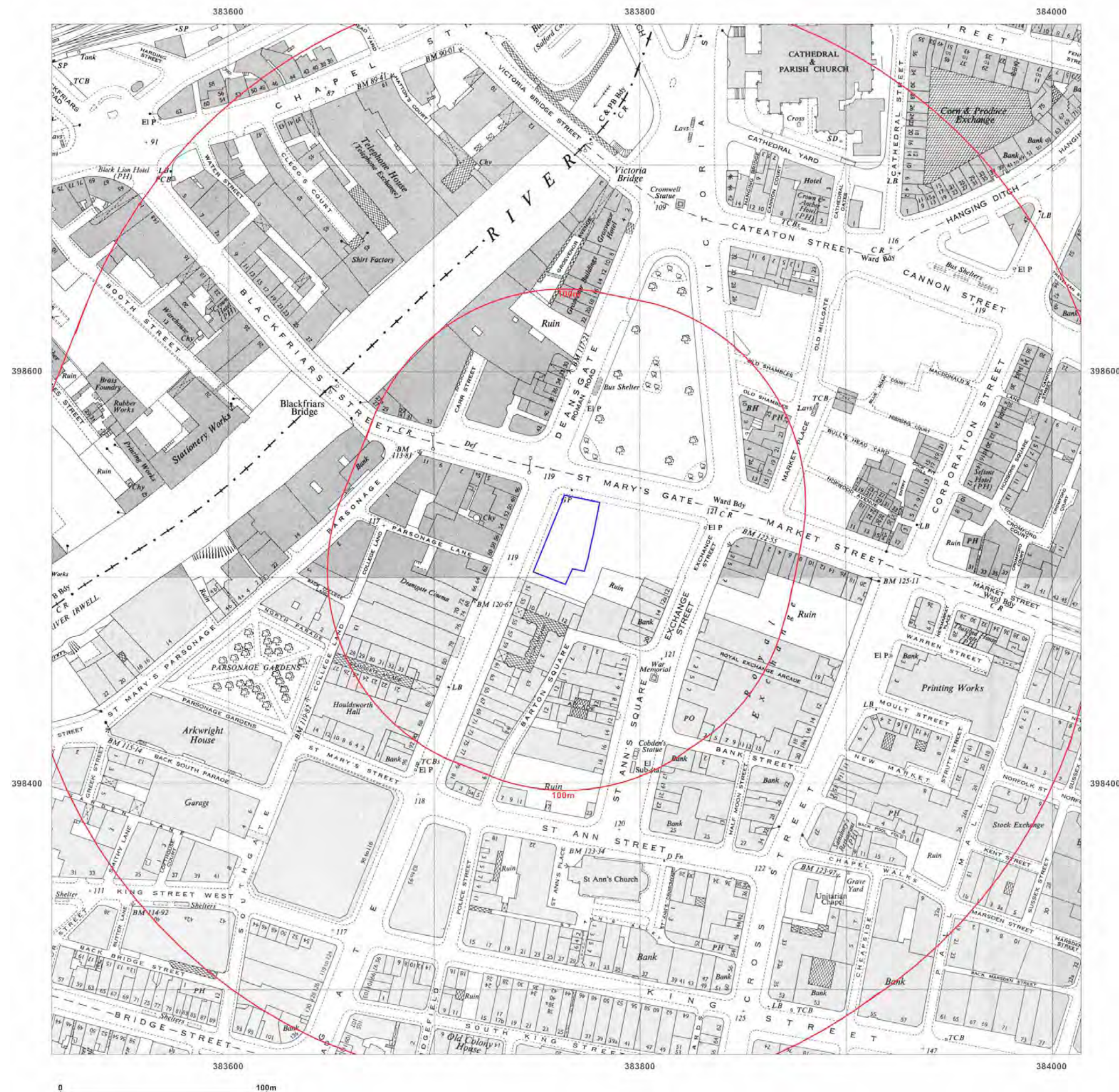


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Map Name: National Grid

Map date: 1951-1955

Scale: 1:1,250

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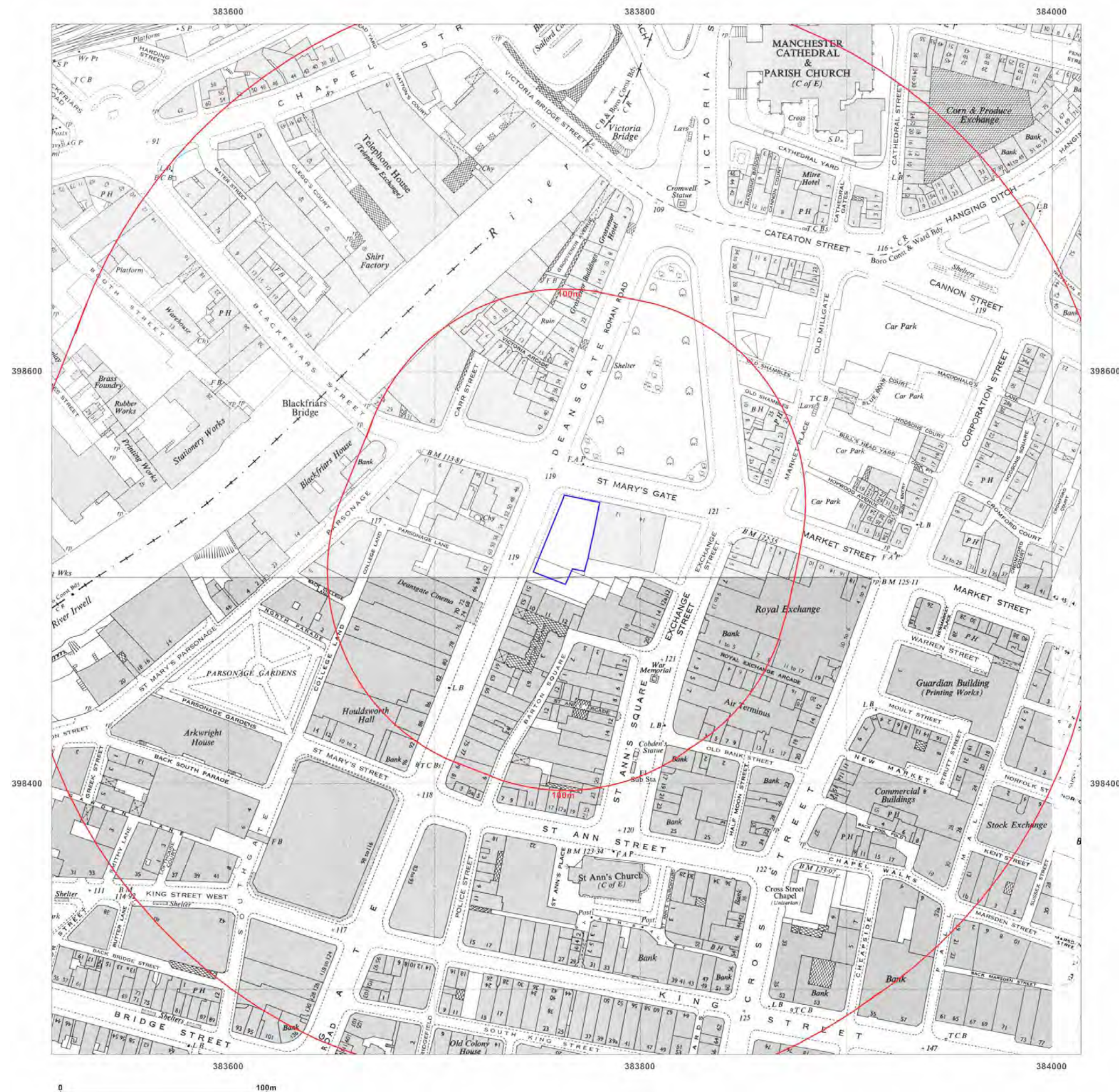


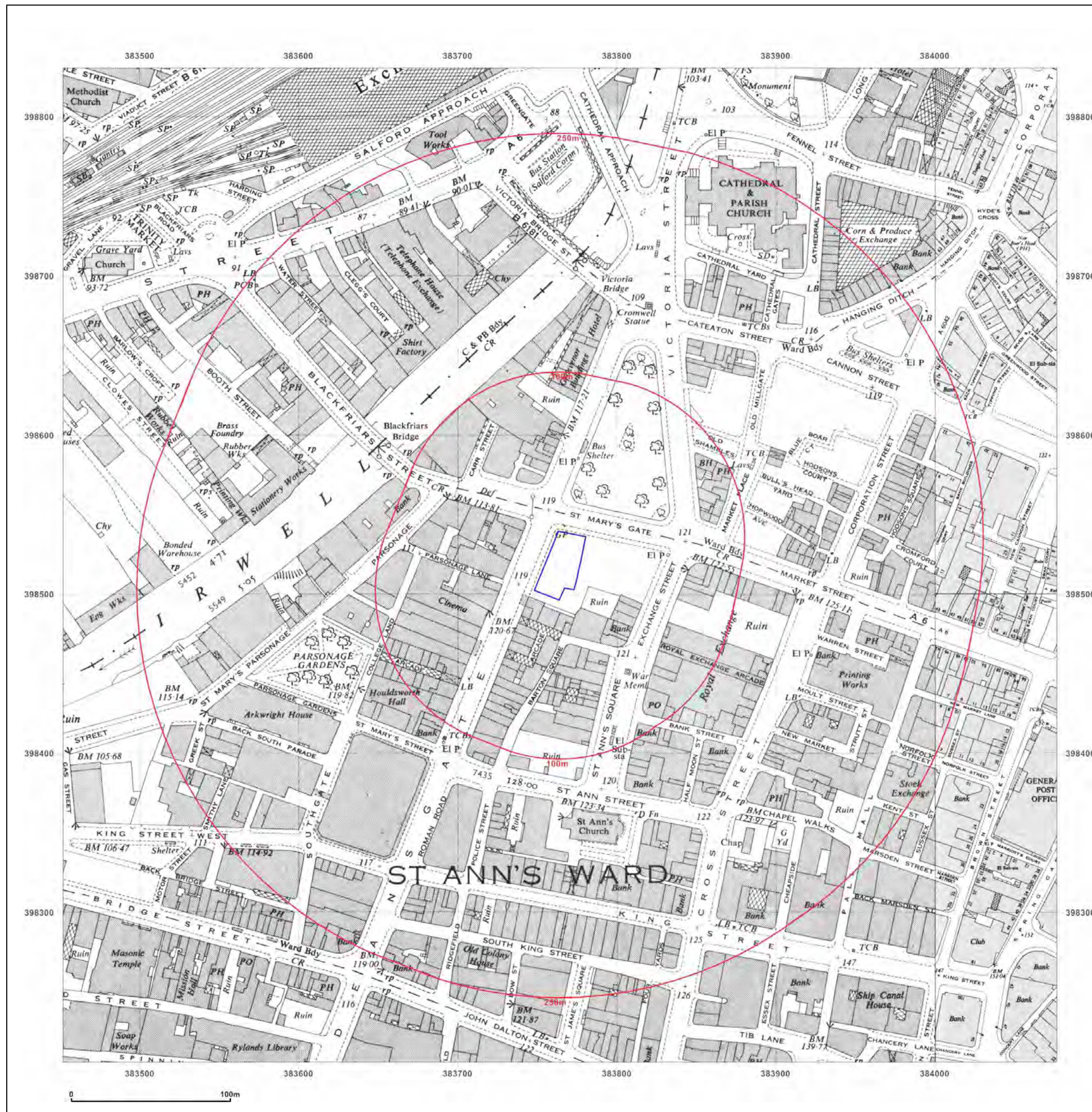
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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1953-1957

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1949
Revised 1949
Edition N/A
Copyright 1958
Levelled 1927

Surveyed 1953
Revised 1953
Edition N/A
Copyright 1954
Levelled 1929

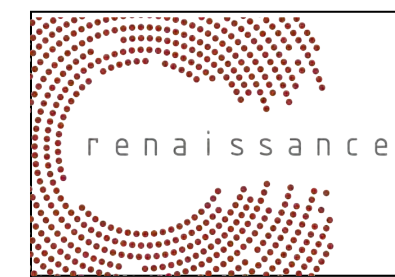
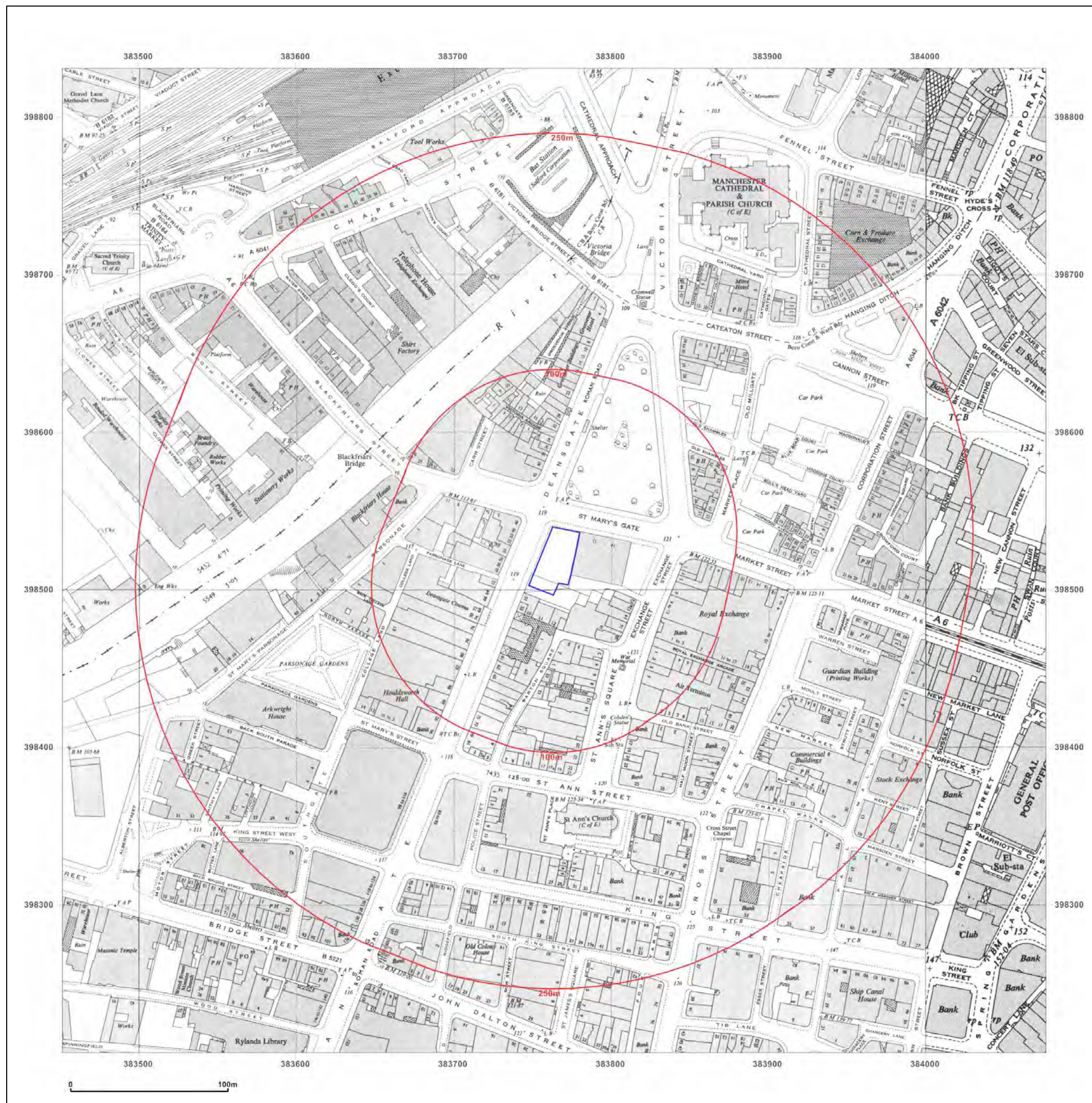


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1953-1958

Scale: 1:2,500

Printed at: 1:2,500



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

Surveyed 1948
Revised 1948
Edition N/A
Copyright 1954
Levelled 1929

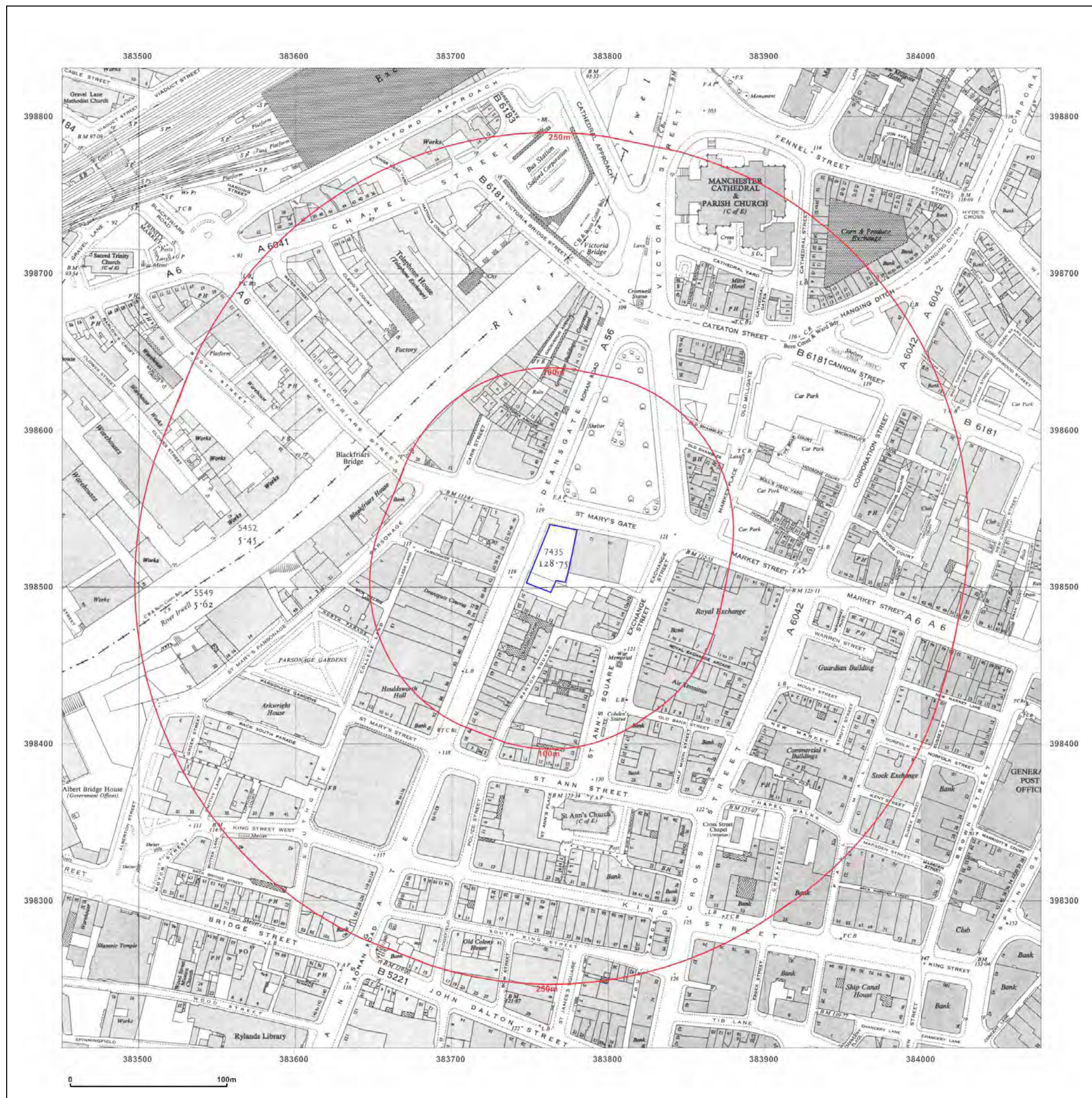


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MANCHESTER, M1 1PX

Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid
Map date: 1963-1965
Scale: 1:2,500
Printed at: 1:2,500



Surveyed N/A
Revised 1962
Edition N/A
Copyright 1963
Levelled 1958

Surveyed N/A
Revised 1964
Edition N/A
Copyright 1965
Levelled 1959



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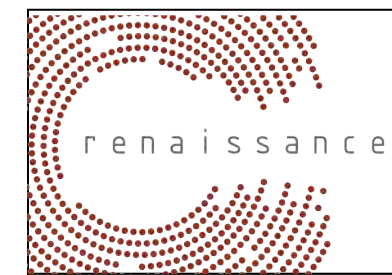
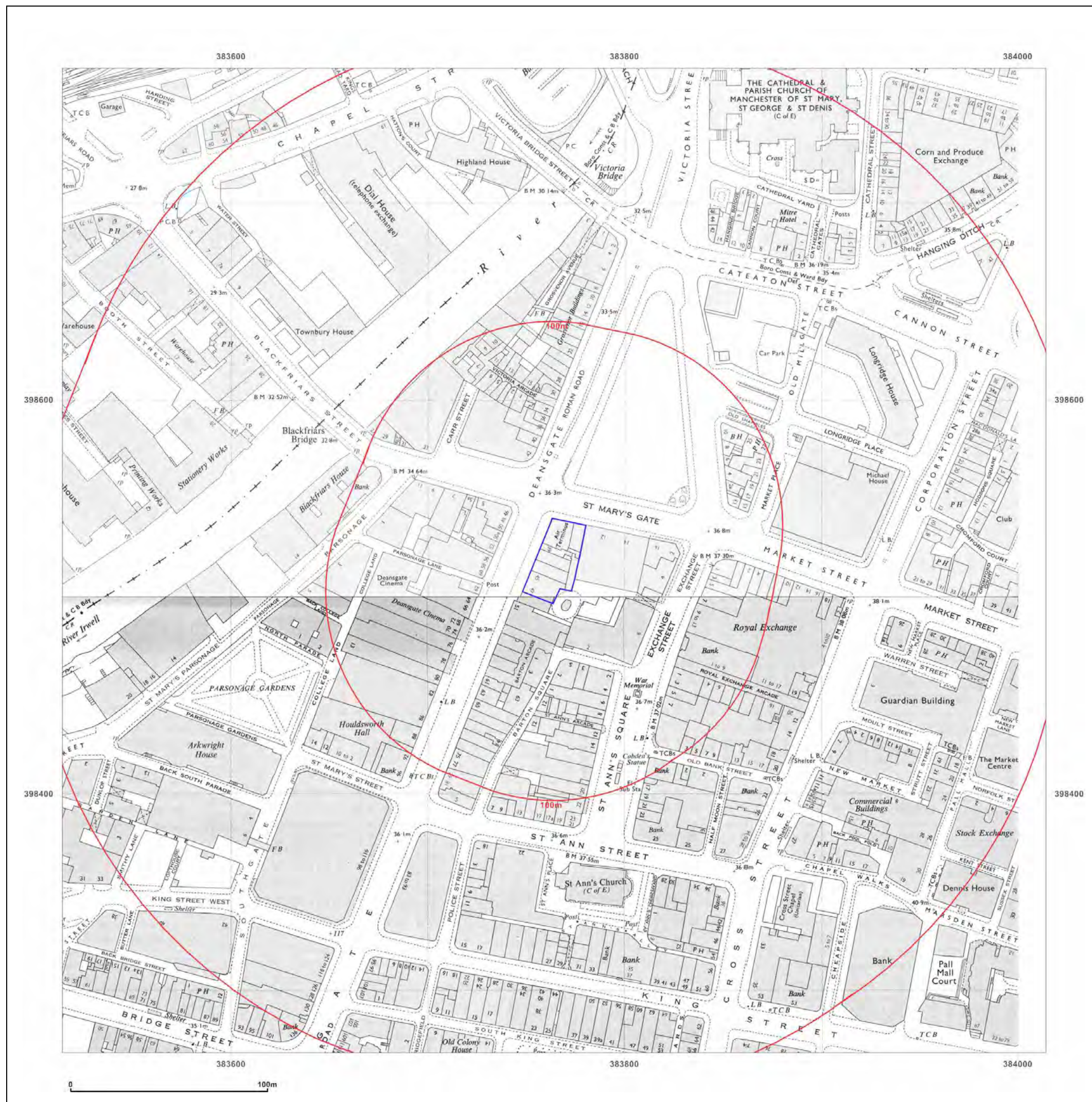
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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1970

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1949
Revised 1970
Edition N/A
Copyright 1970
Levelled 1964

Surveyed 1948
Revised 1970
Edition N/A
Copyright 1970
Levelled 1963

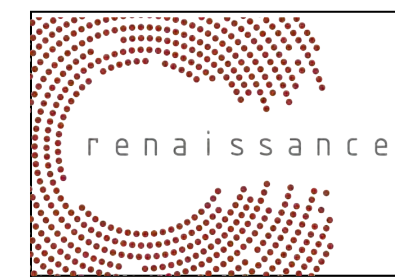
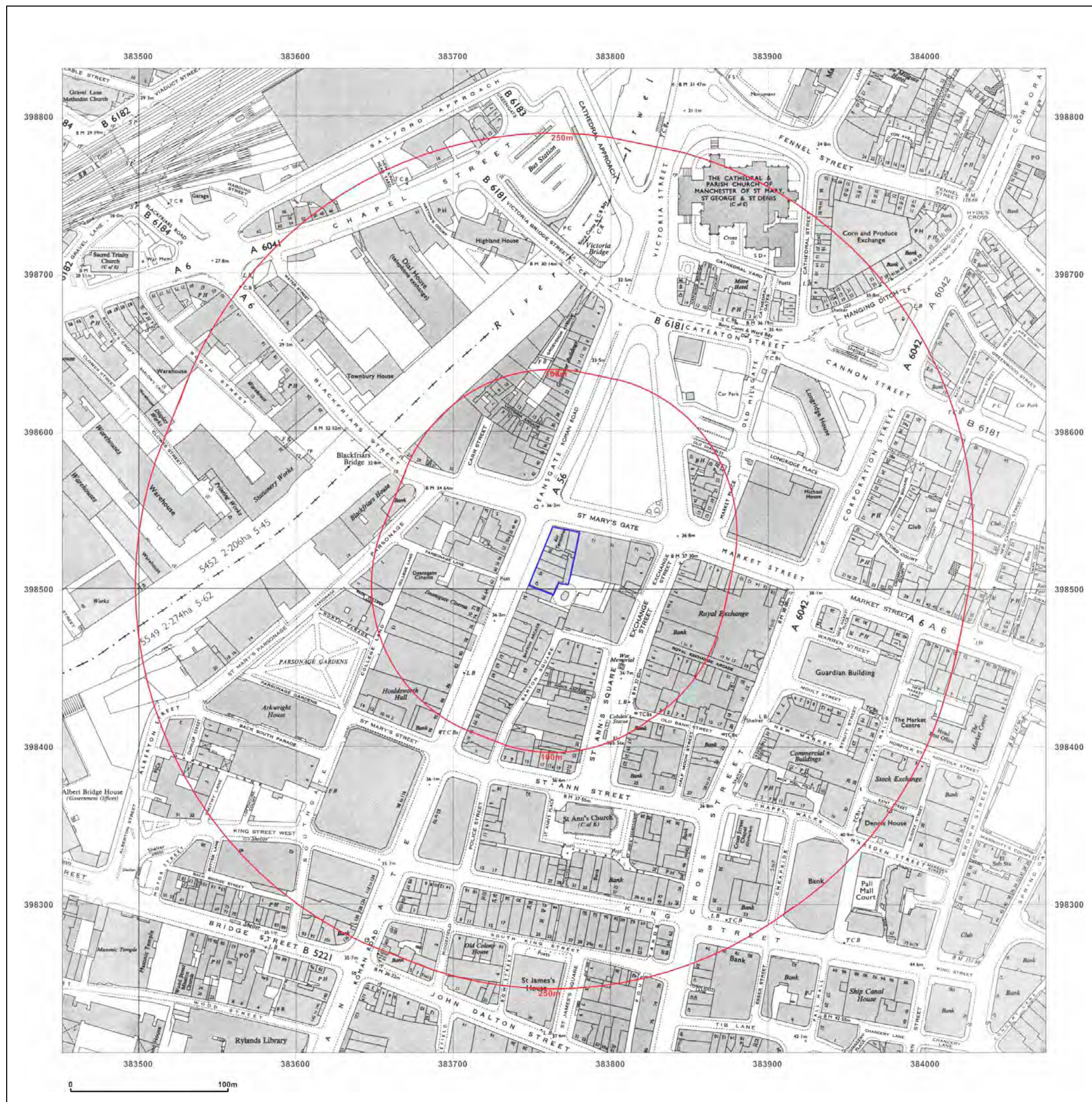


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1967-1970

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1949
Revised 1970
Edition N/A
Copyright 1971
Levelled 1964

Surveyed 1967
Revised 1967
Edition N/A
Copyright 1969
Levelled 1964

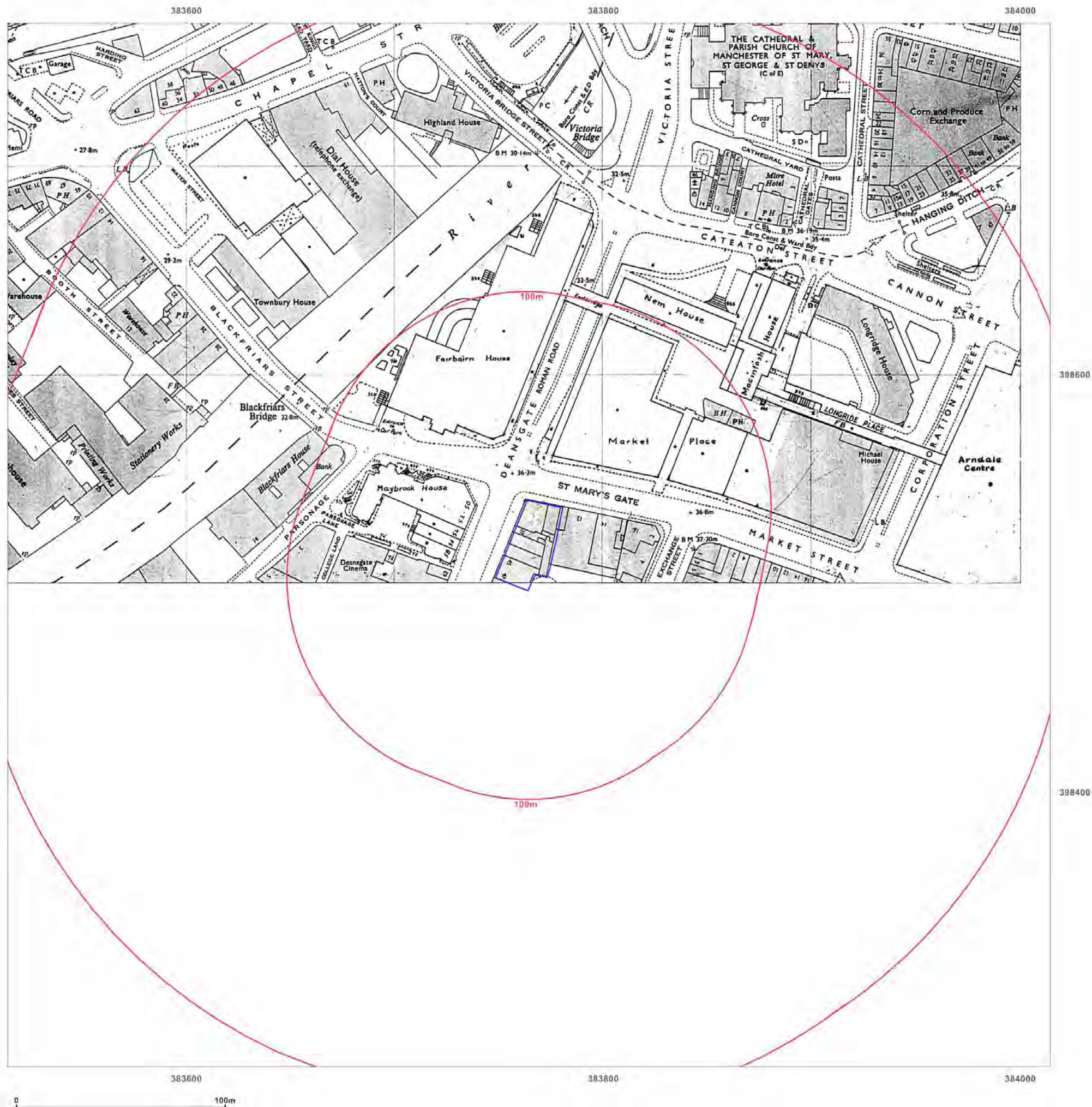


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1979

Scale: 1:1,250

Printed at: 1:2,000



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

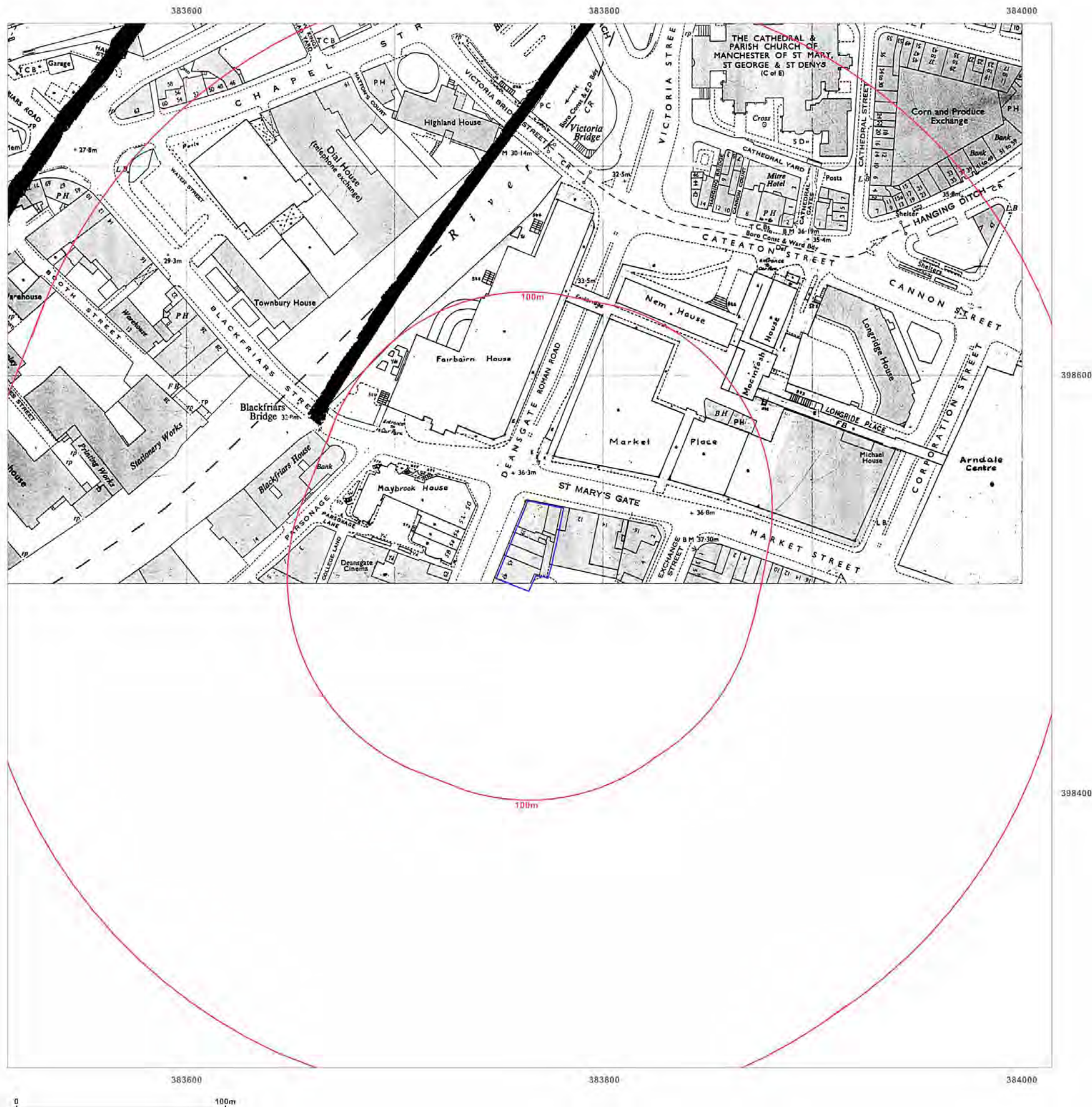


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1979

Scale: 1:1,250

Printed at: 1:2,000



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

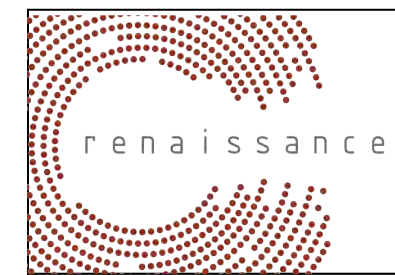
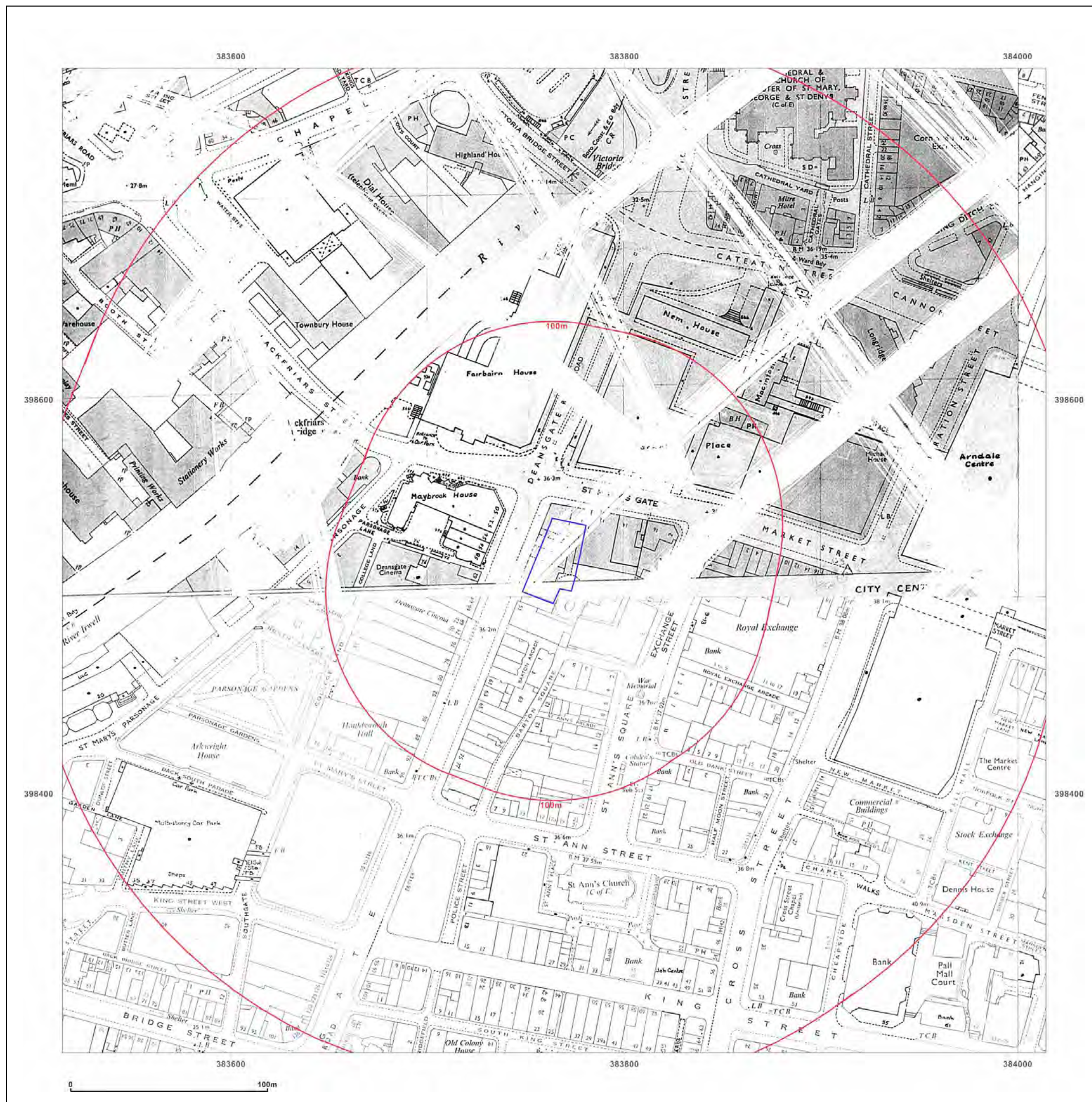


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Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1979-1980

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1980
Levelled 1964

Surveyed N/A
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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1985-1986

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1948
Revised 1985
Edition N/A
Copyright 1986
Levelled 1964

Surveyed 1964
Revised 1986
Edition N/A
Copyright 1986
Levelled 1964

Surveyed 1948
Revised 1985
Edition N/A
Copyright 1986
Levelled 1964

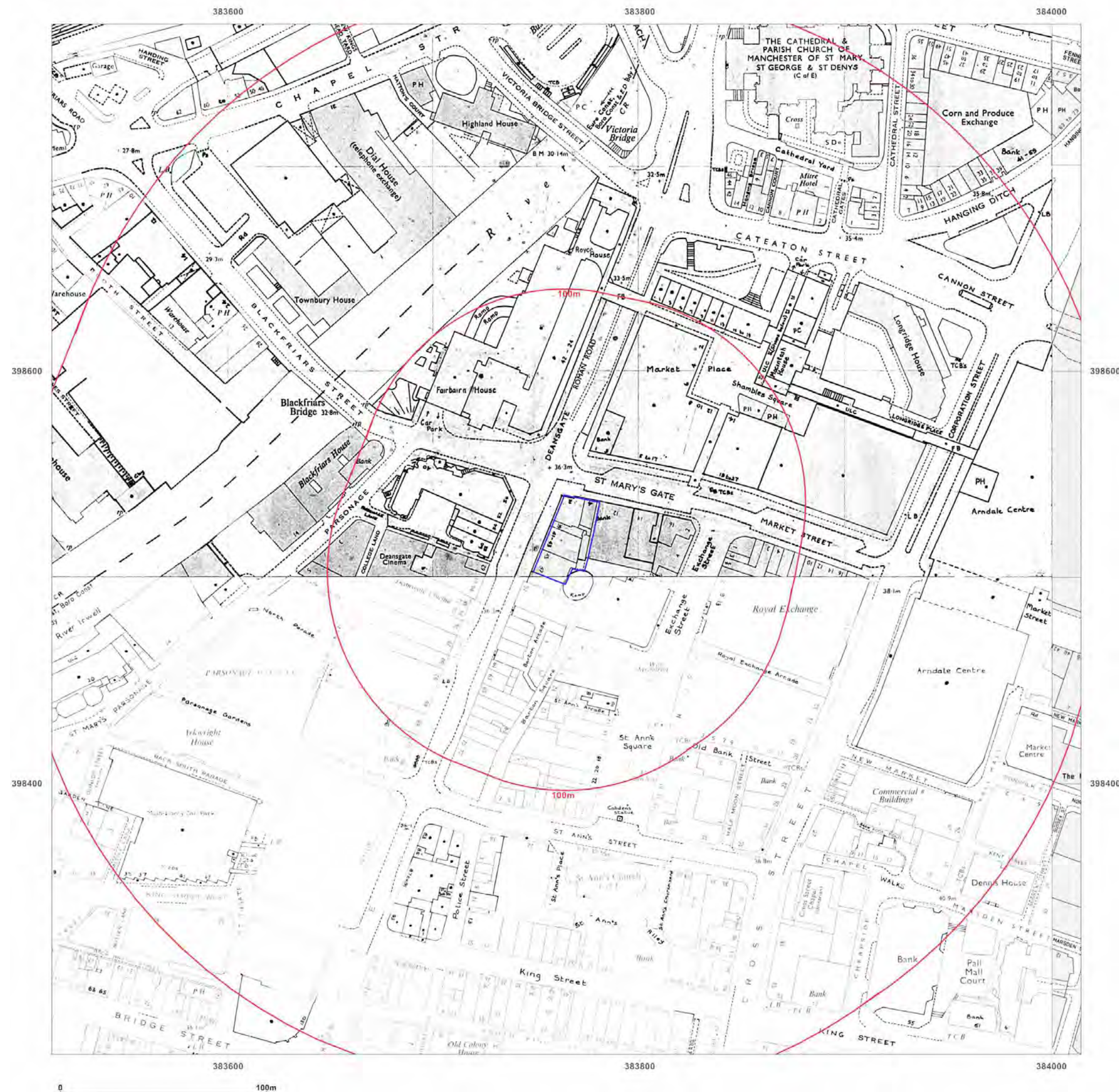


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1989-1992

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1949
Revised 1989
Edition N/A
Copyright 1989
Levelled N/A

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

Surveyed 1948
Revised 1989
Edition N/A
Copyright 1989
Levelled N/A

Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
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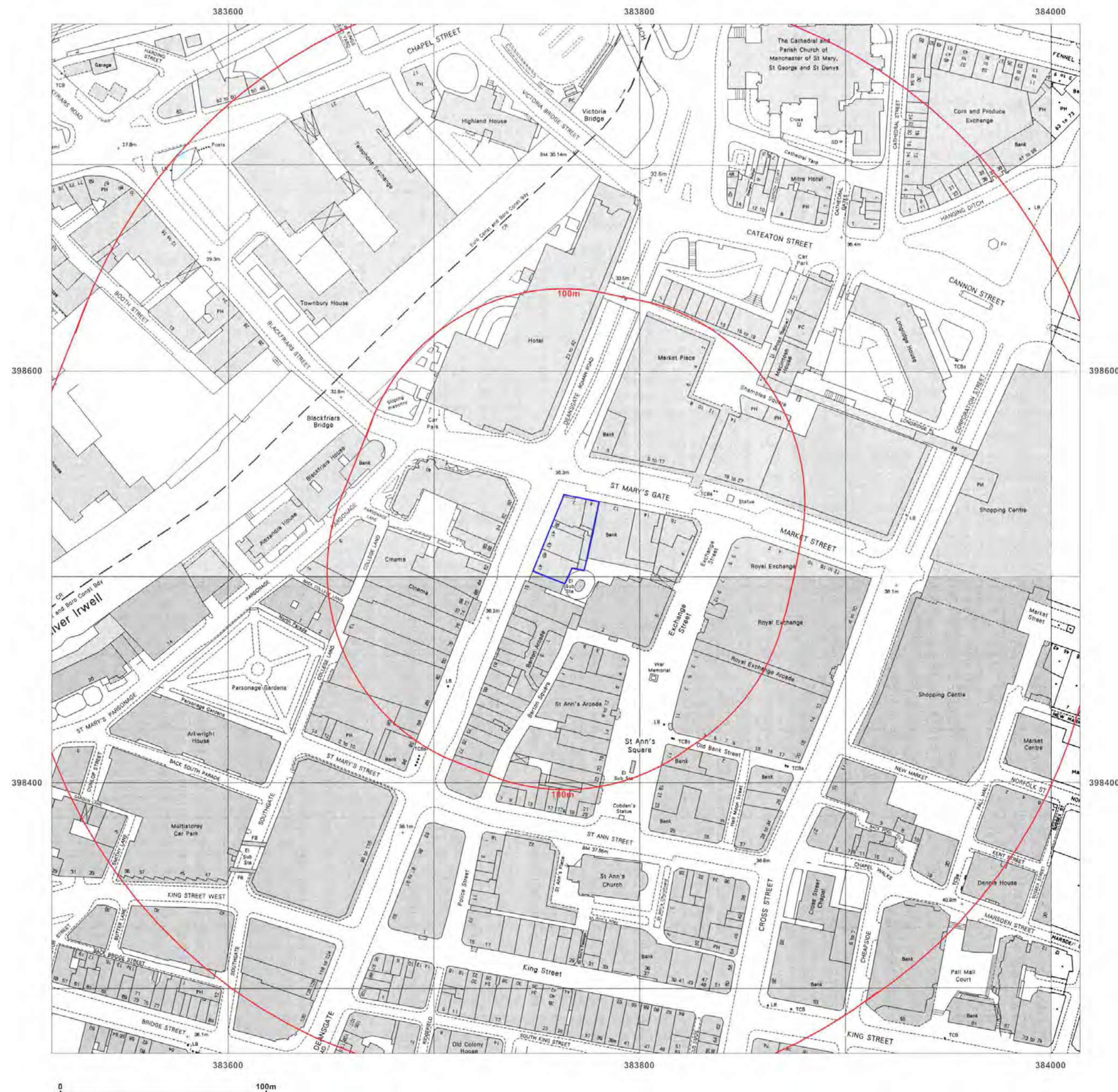


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1992-1995

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1992
Revised 1992
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Copyright 1992
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Surveyed N/A
Revised 1995
Edition N/A
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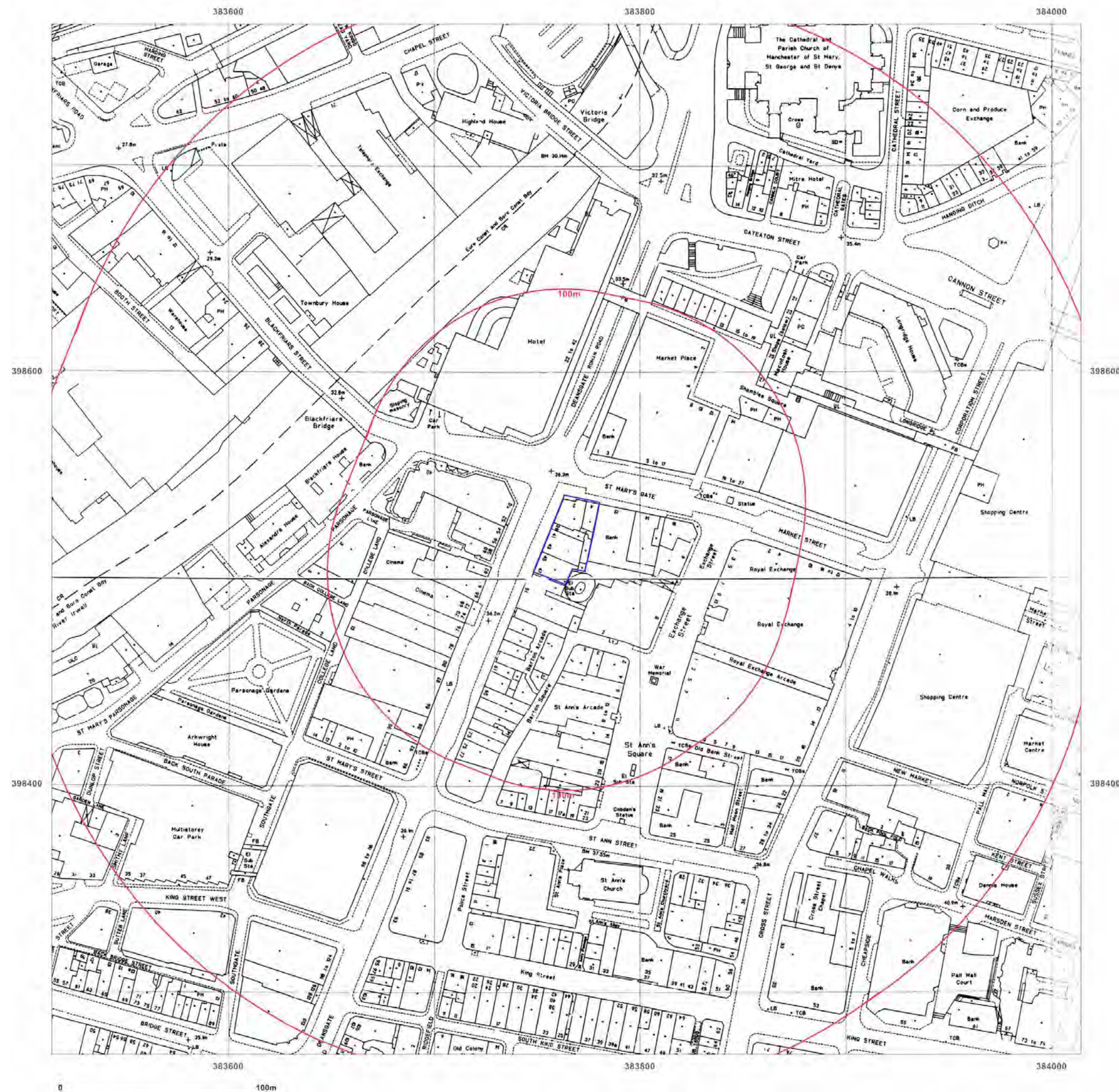


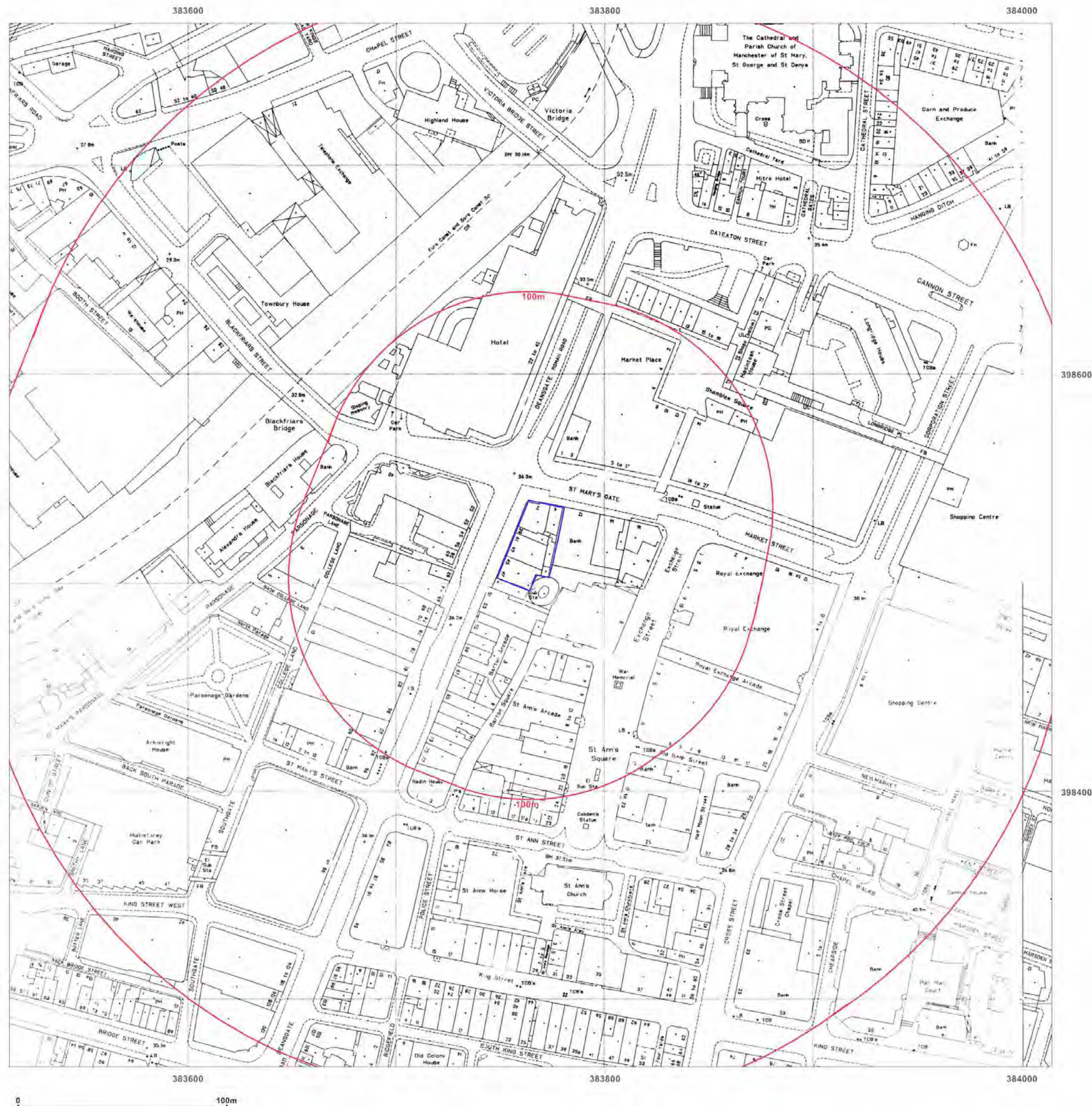
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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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

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Revised 1995
Edition N/A
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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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

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

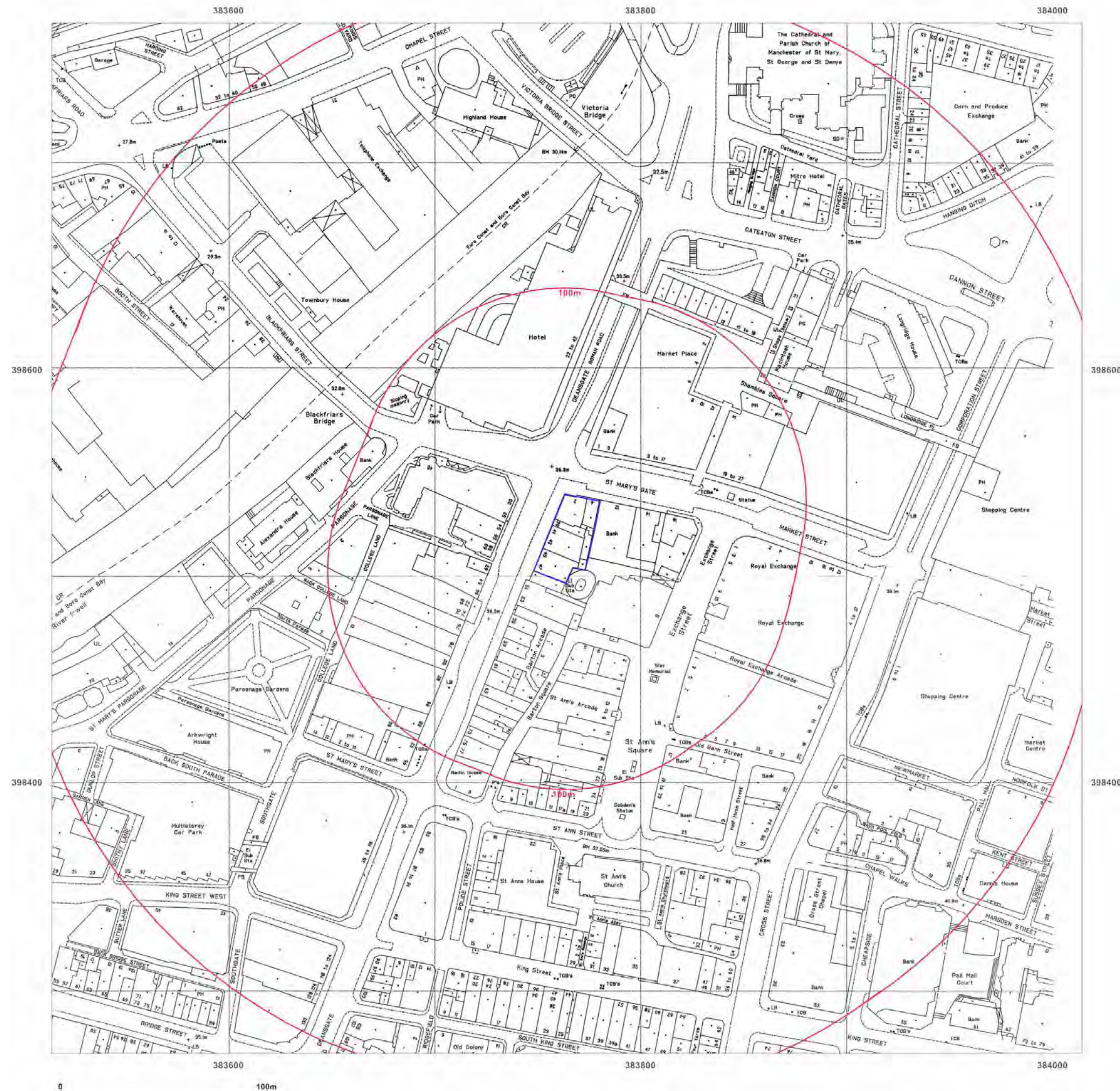


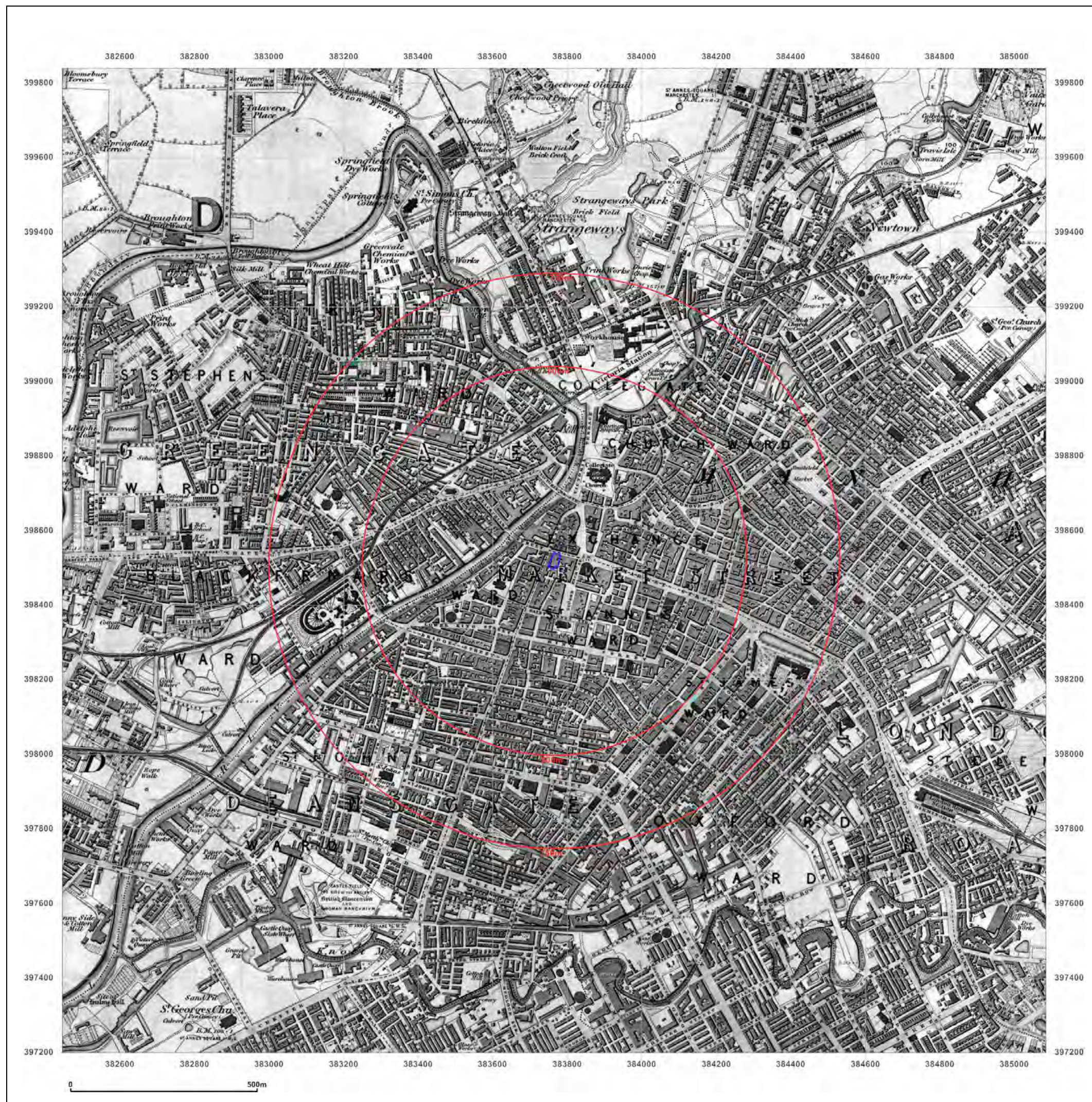
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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

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

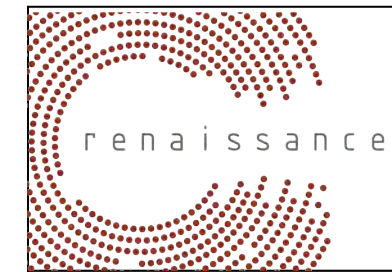
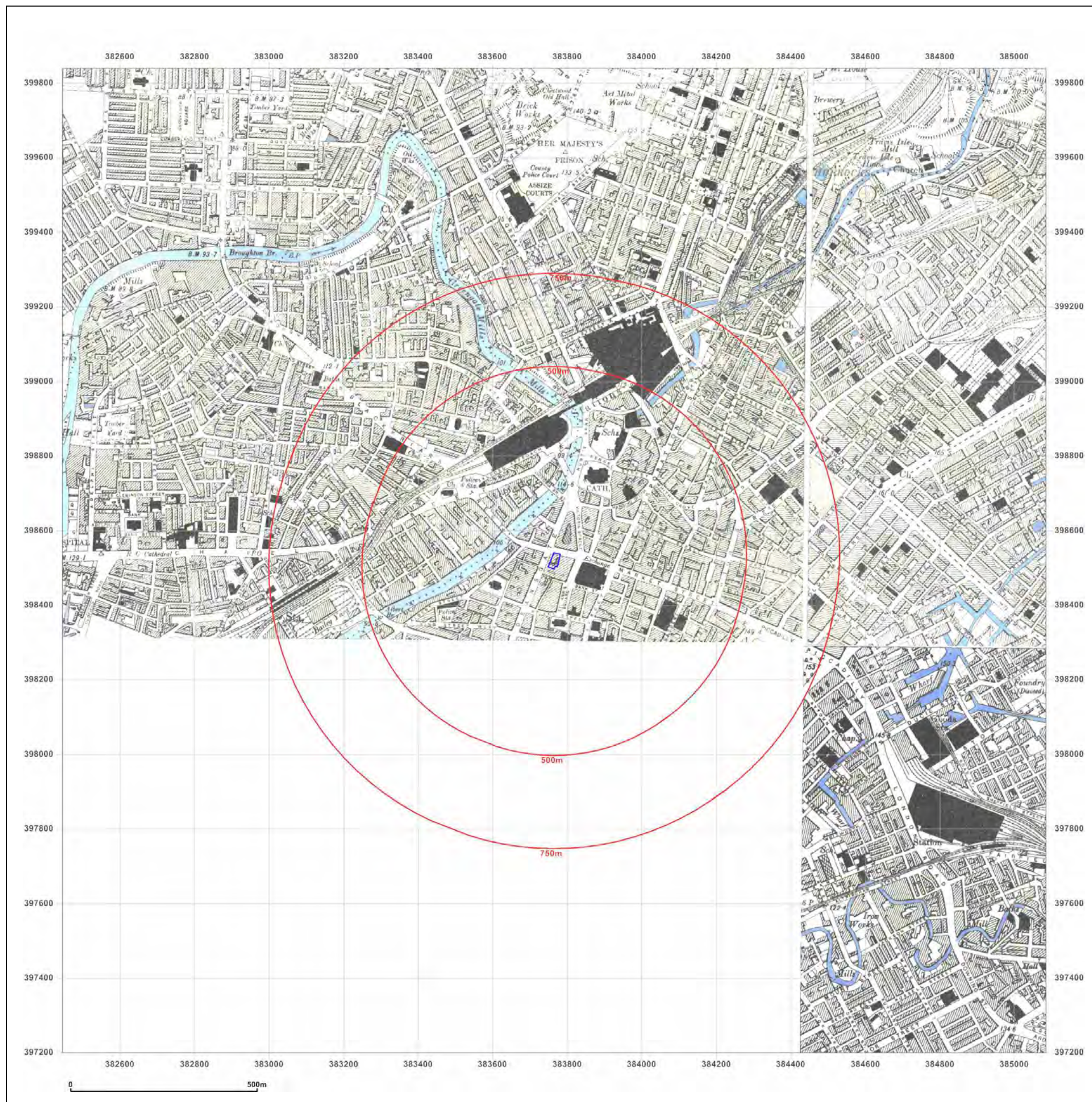


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: County Series

Map date: 1890-1894

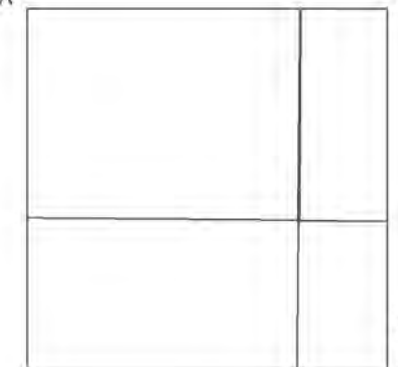
Scale: 1:10,560

Printed at: 1:10,560



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

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



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

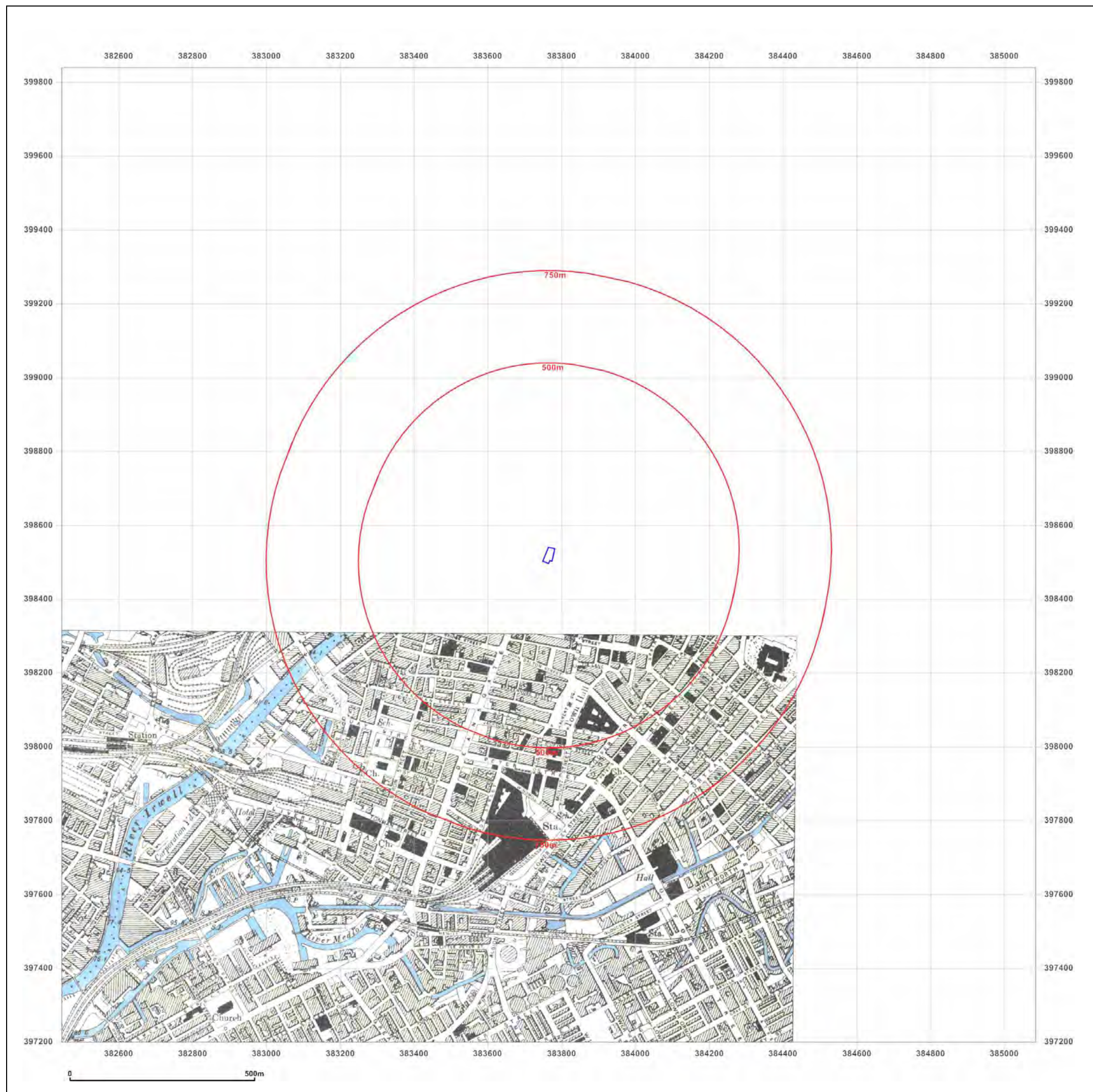


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: County Series

Map date: 1896

Scale: 1:10,560

Printed at: 1:10,560



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

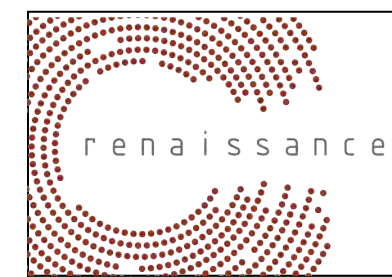


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

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

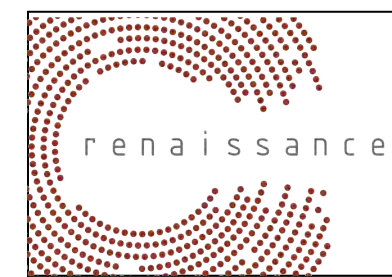
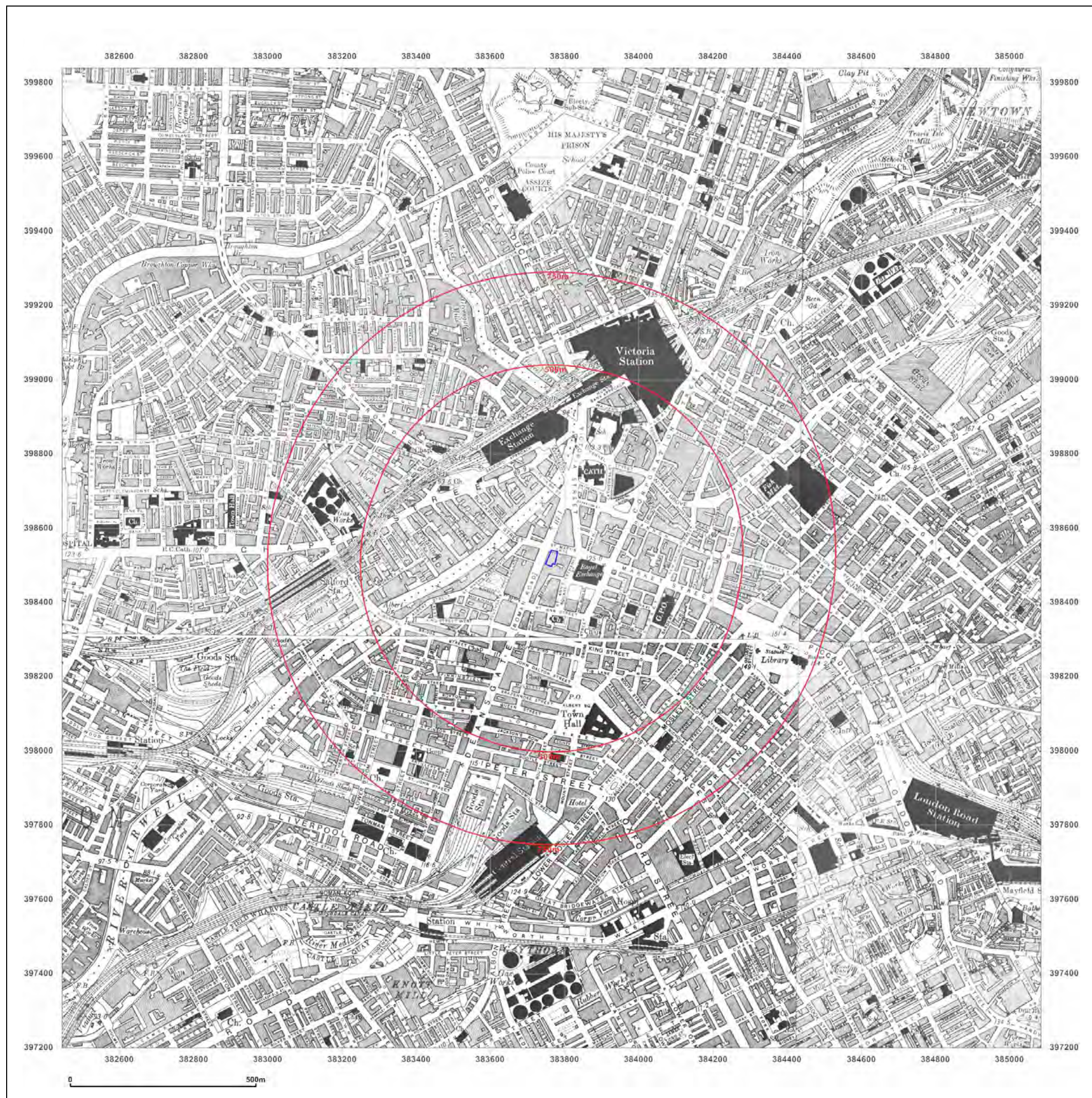


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: County Series

Map date: 1923

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1916
Edition 1923
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Levelled 1915

Surveyed 1844
Revised 1921
Edition 1923
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Levelled 1906

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

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

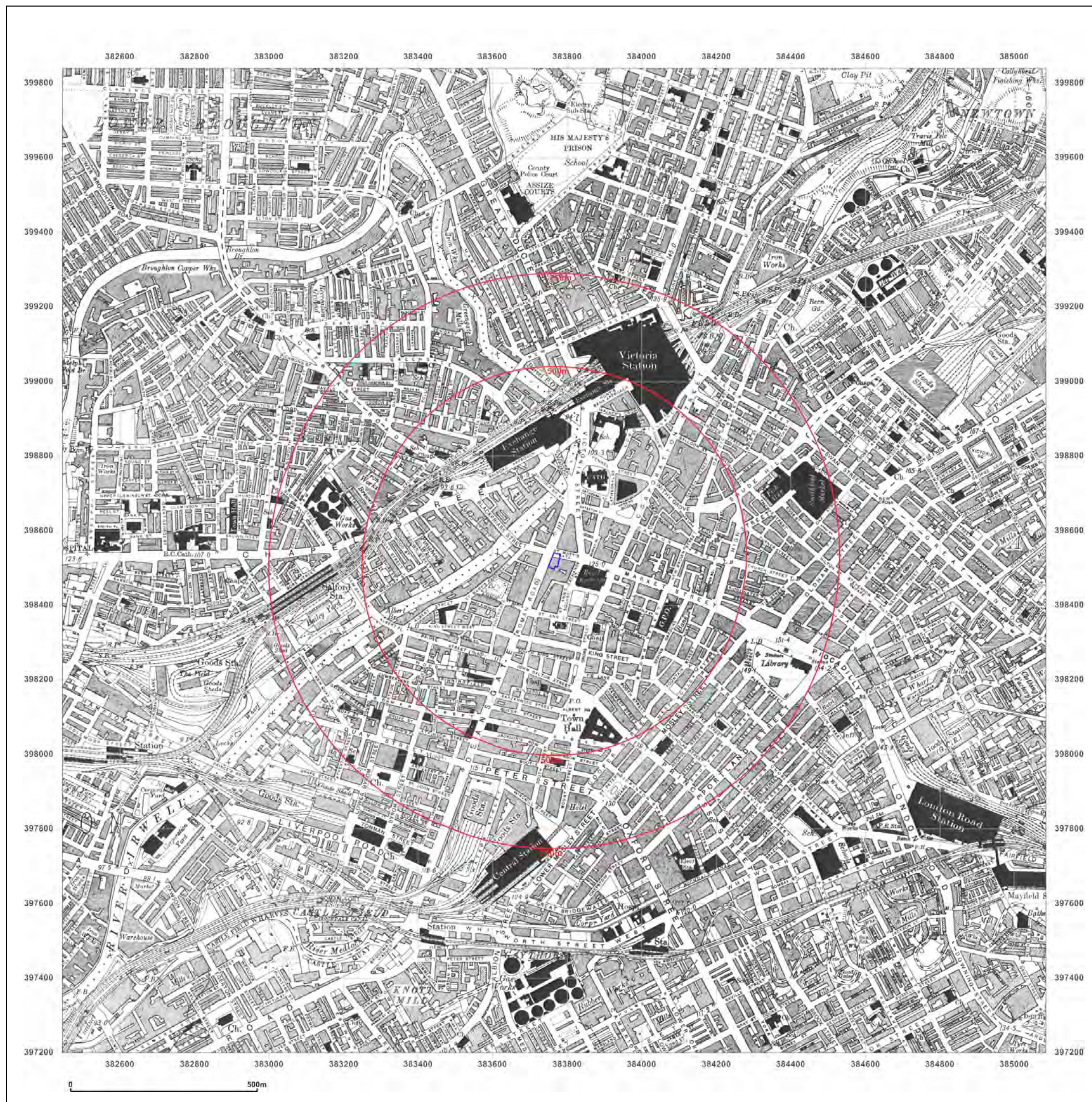


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Report Ref: BRO-6220623
Grid Ref: 383764, 398518

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

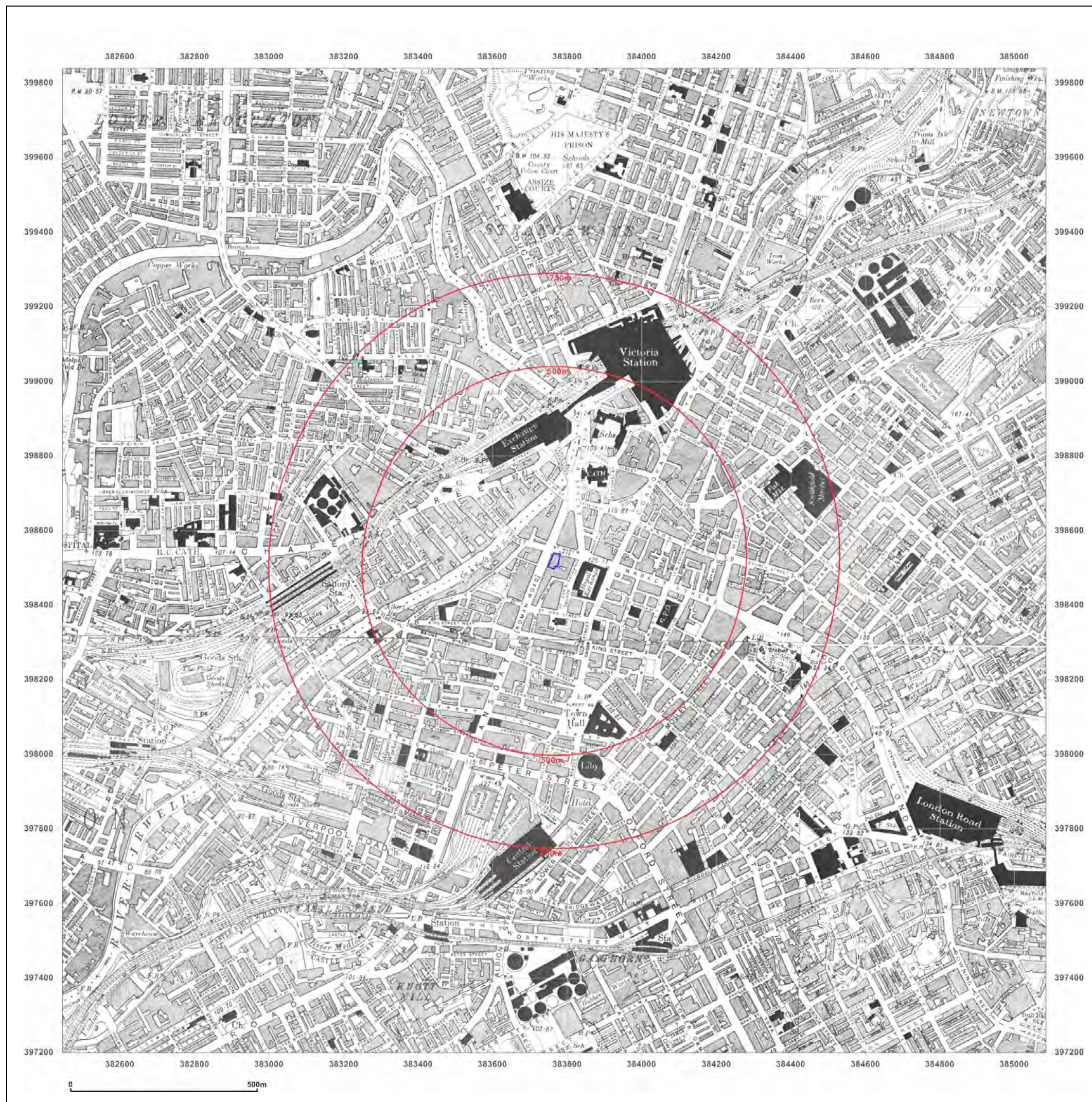


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MANCHESTER, M1 1PX

Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: County Series

Map date: 1931-1934

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1931
Edition 1931
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1933
Edition 1933
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Levelled 1927

Surveyed 1844
Revised 1932
Edition 1932
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Surveyed 1844
Revised 1934
Edition 1934
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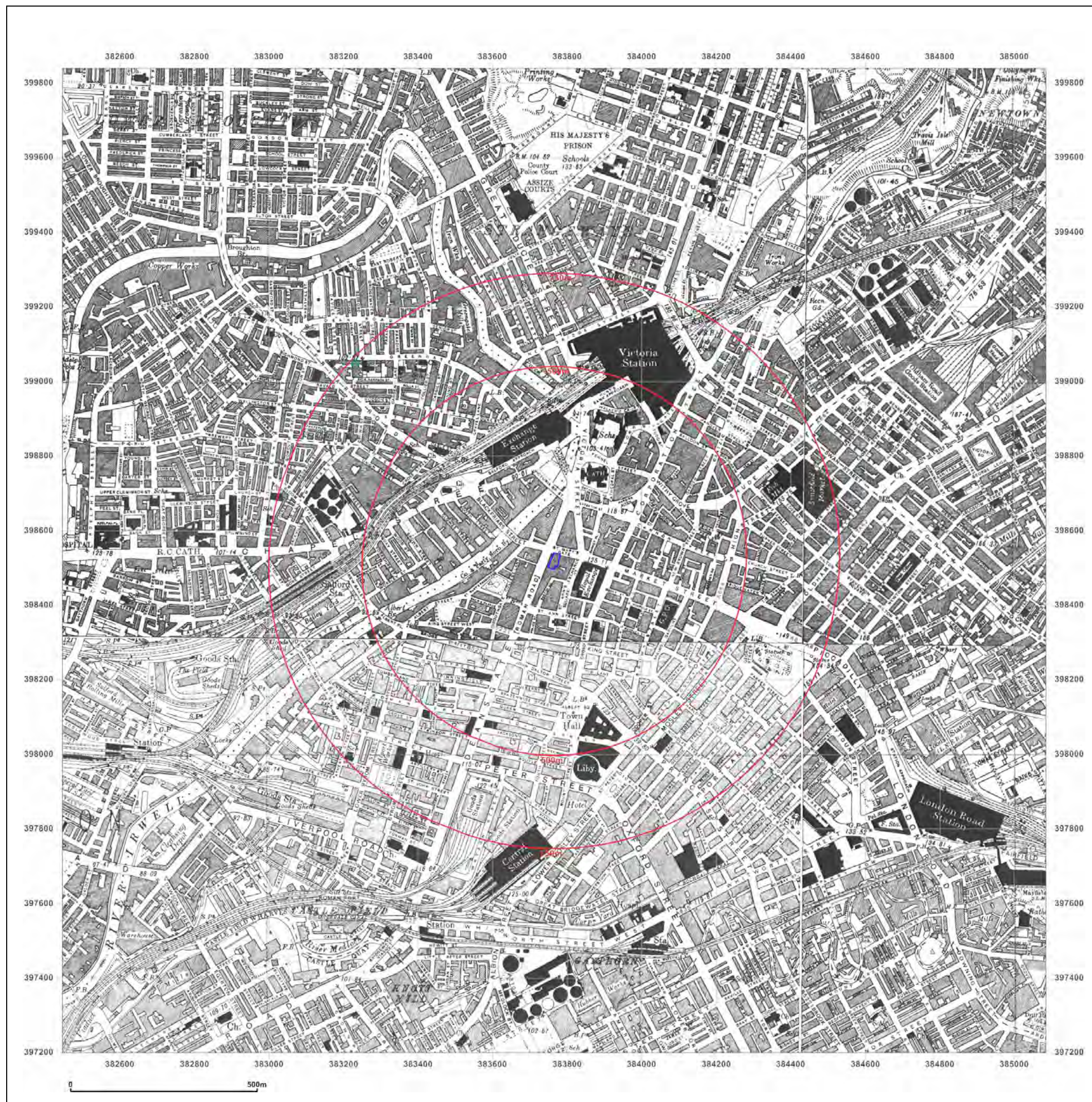


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1938
Edition 1938
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Revised 1938
Edition 1938
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Revised 1938
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Edition 1938
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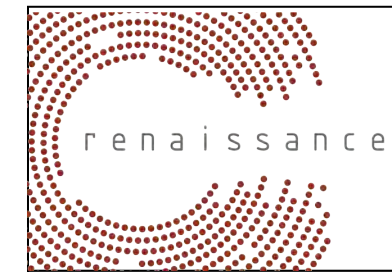
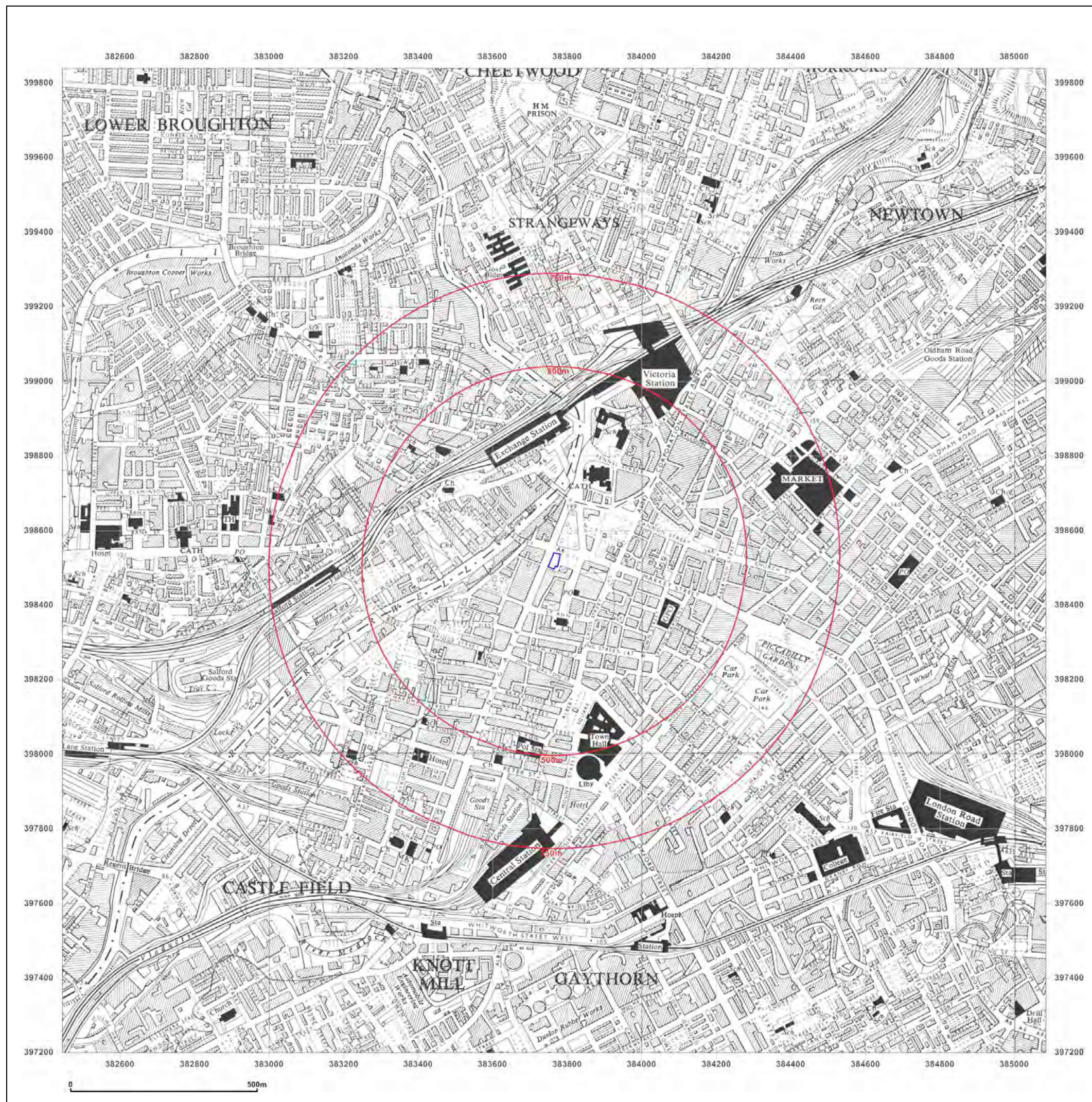


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: Provisional

Map date: 1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1956
Revised 1956
Edition N/A
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Edition N/A
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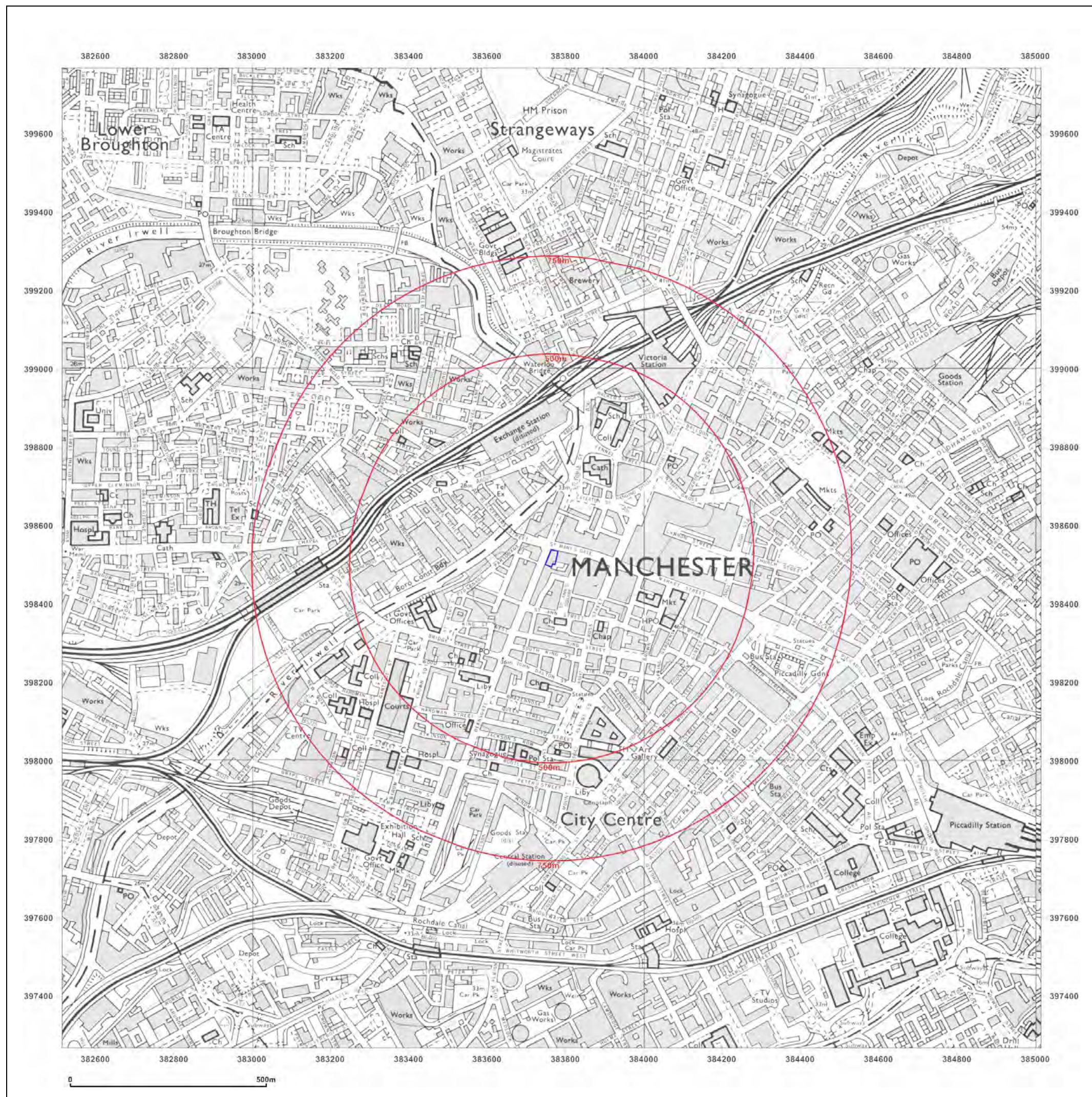


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

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

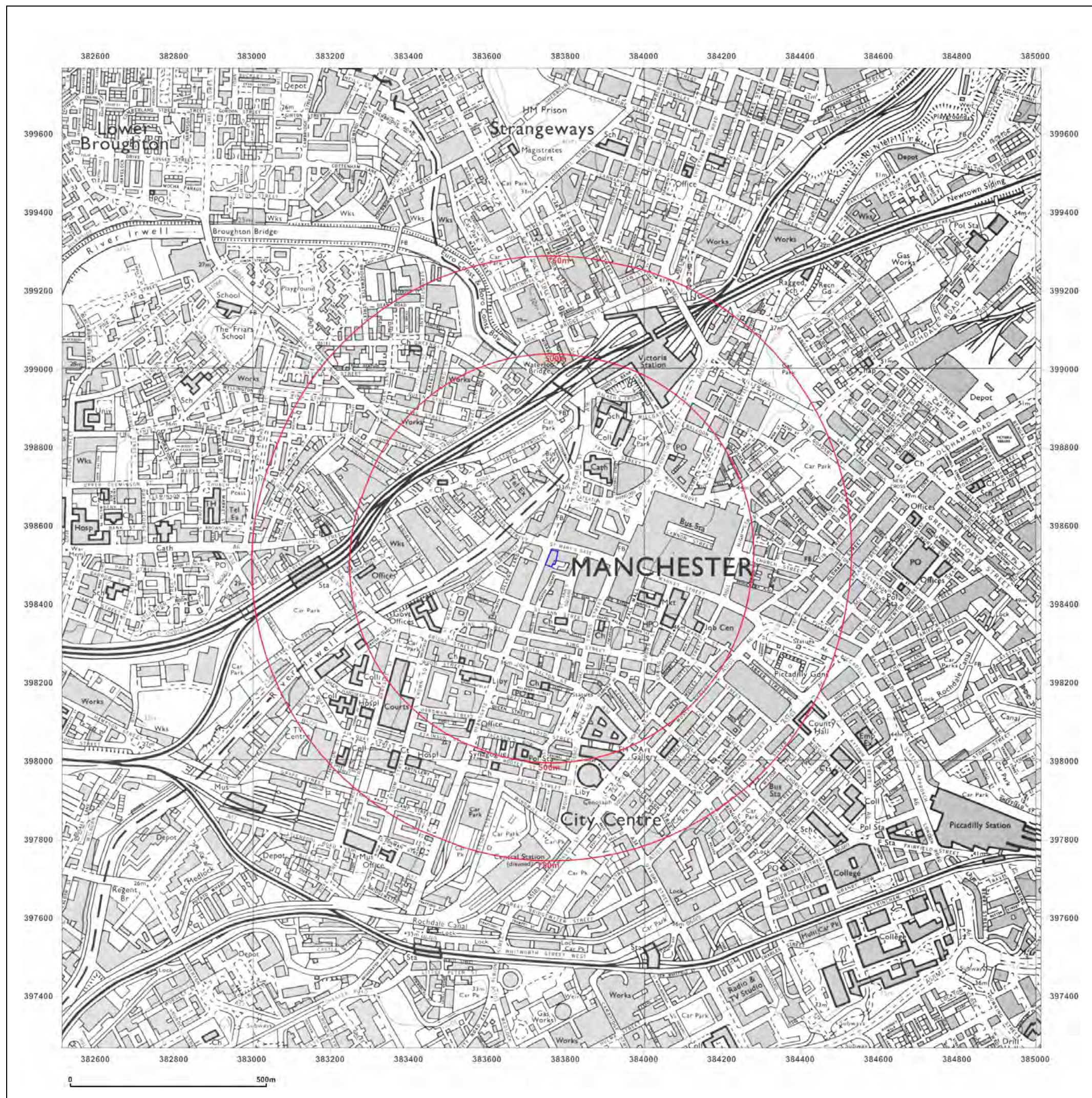


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1985

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1983
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Edition N/A
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Revised 1985
Edition N/A
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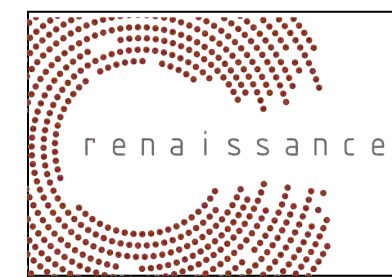
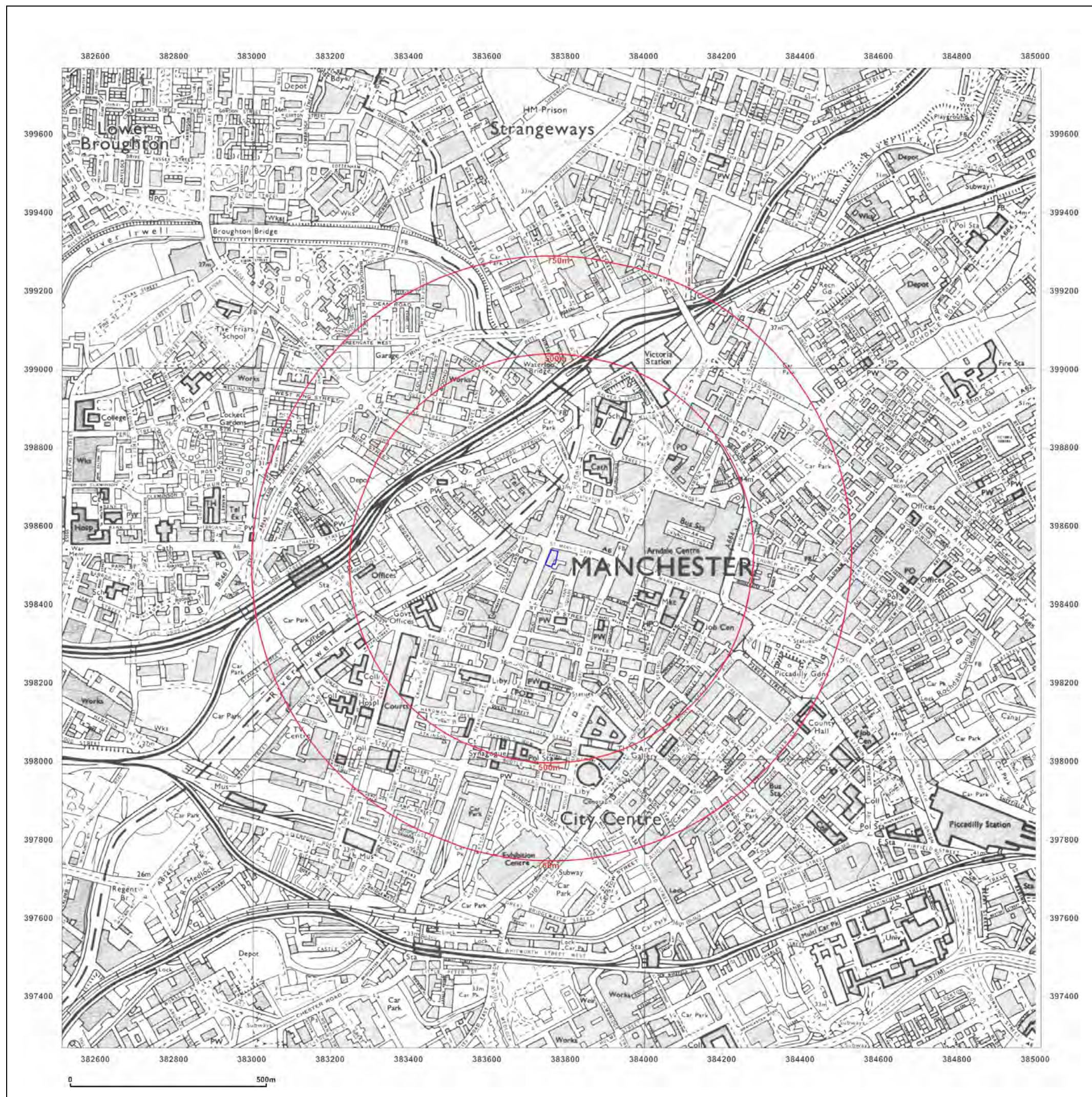


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 1994

Scale: 1:10,000

Printed at: 1:10,000



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

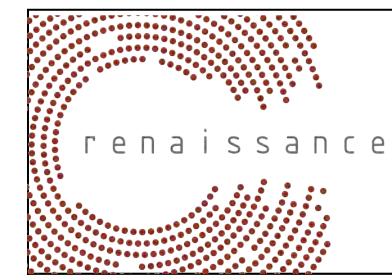
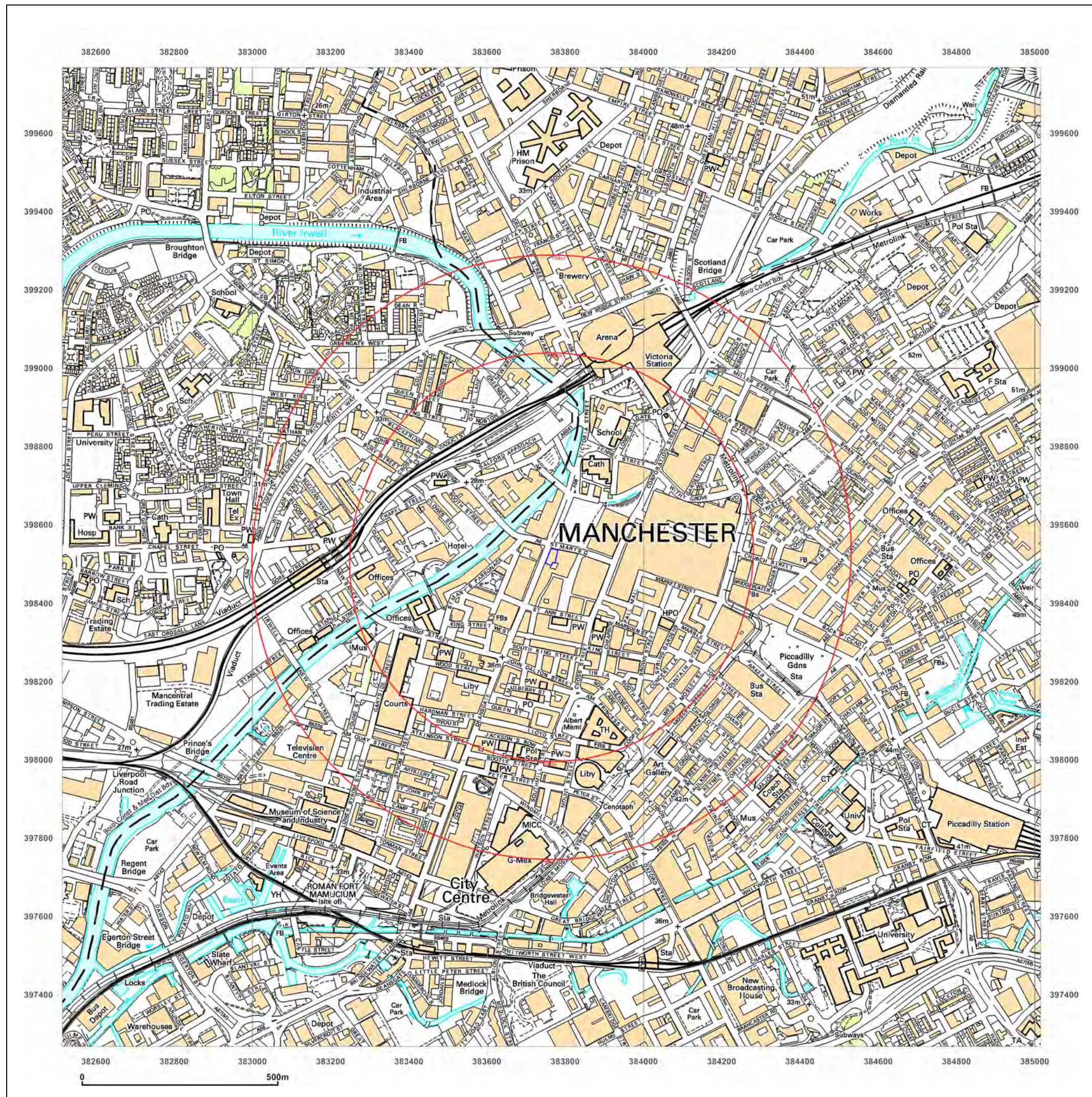


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

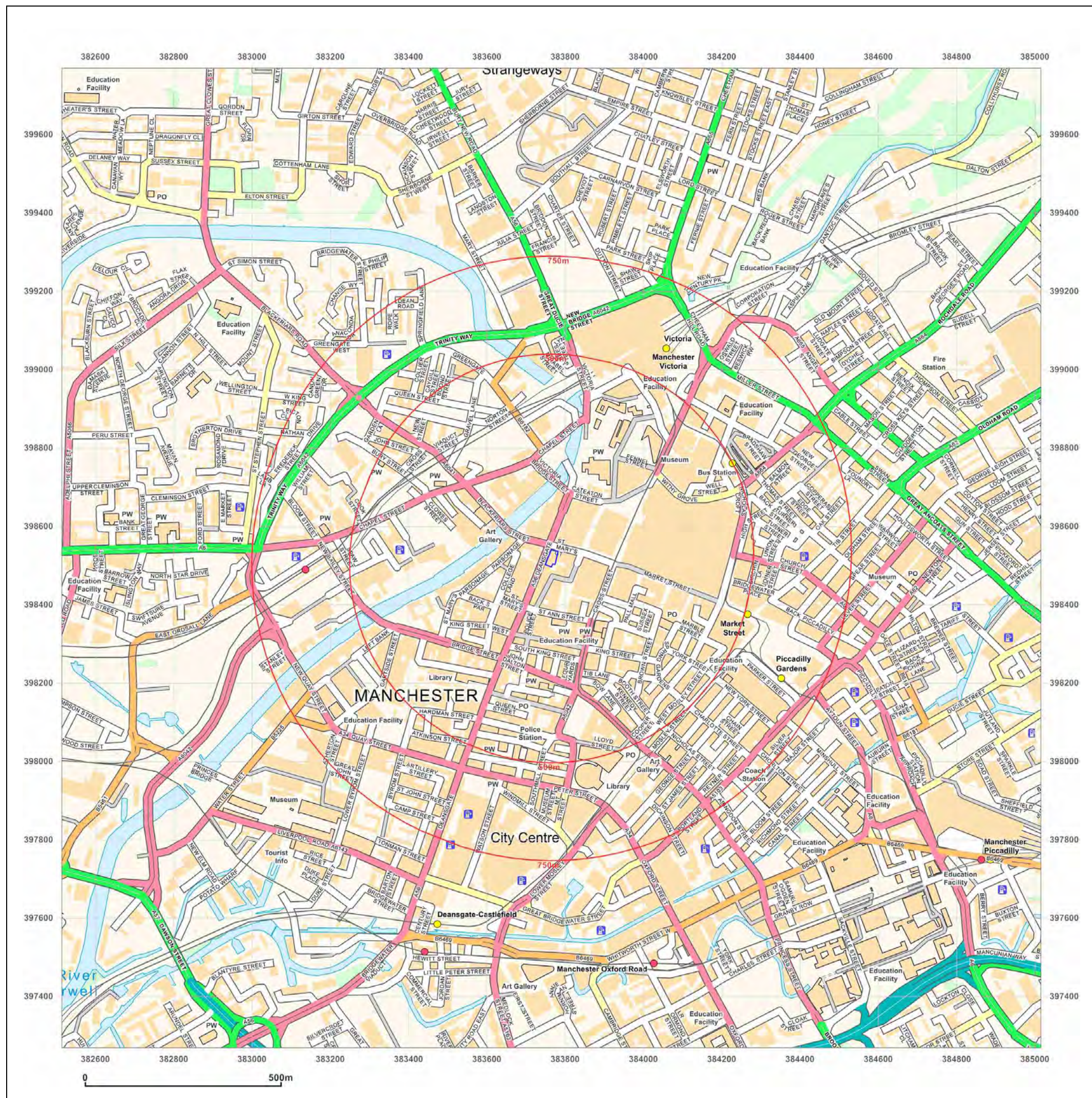


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Client Ref: C4293_215
Report Ref: BRO-6220623
Grid Ref: 383764, 398518

Map Name: National Grid
Map date: 2014
Scale: 1:10,000
Printed at: 1:10,000







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APPENDIX C

BGS BOREHOLES

Geological Investigations Ltd.

8589WN 1451
 SITE MANCHESTER.
 Deansgate Sewer.
 JOB REF. NO. MC/227
 GROUND LEVEL 36.10m
 METHOD/SIZE SAC 152mm
 DATE 25/27.5.79

RECORD OF BOREHOLE/TRIAL HOLE NO.....1....

Scale 1:50 metric

3372 9851

DESCRIPTION OF STRATA		SAMPLES					INTER- FACE LEVEL m	N
Depth		WATER	DISS.	TEST	SYMBOL			
0 to 0.12m	Tarmac.FILL.							
0.12 to 0.28m	Cobblestone FILL.							
0.28 to 0.90m	Hardcore FILL.							
0.90 to 1.50m	Compact orangy brown SILTY medium grained SAND with fine to coarse sub rounded and angular GRAVEL.						35.20	
1.50 to 5.90m	Medium dense to dense grey/brown CLAYEY SAND and GRAVEL with occasional cobbles and occasional thin clay bands.						34.60	27
5.90 to 7.80m	Dense brownish red SILTY fine to medium grained SAND with occasional fine gravel.						30.20	71
7.80 to 10.00m	Very dense weakly cemented brownish red silty fine to medium grained SANDSTONE with occasional bands of non cemented sand.						28.30	+200
								+300

Geological Investigations Ltd.

RECORD OF BOREHOLE/TRIAL HOLE NO. 1.....
continued.

SITE MANCHESTER

Deansgate

JOB REF. NO. 10/227

GROUND LEVEL 36.10m

METHOD/SIZE.....

DATE.....

British Geological Survey

British Geological Survey

Scale 1 : 50 metric

DESCRIPTION OF STRATA				3 Depth	SAMPLES				SYMBOL	INTER- FACE LEVEL m	N
				DOWN	SFT	DIET	BULK	Water			
10.00 to 15.07m Very dense weakly cemented brownish red slightly silty fine to medium grained SANDSTONE with occasional bands of non cemented sand.											+300
				11							
				12							+300
				13							
				14							+300
				15							
Hole terminated at 15.07m				16						21.03	+300
				17							
				18							
				19							
				20							
WATER STRUCK AT DEPTHS				WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION				DATE			
DEPTH OF CASING WHEN SEALED N.B.—NOT SEALED				ESTIMATED FLOW				WATER ADDED AT DEPTHS TO ASSIST BORING			

APPENDIX D

MINING SEARCH REPORT



The Coal
Authority

CON29M

coal mining report

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MANCHESTER, M1 1PX



Known or potential coal mining risks

Future underground coal mining

Page 3



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: **C4293/229/SD**
Our reference: **51002164824001**
Date: **12 August 2019**

Client name:
**BROWNFIELD SOLUTIONS
LIMITED**

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



The Law
Society