e3p

# Phase I Geoenvironmental Site Assessment
Renaissance, Manchester

Reference:14-261-R1-1
Date: September 2020

# PHASE I GEOENVIRONMENTAL SITE ASSESSMENT

Renaissance,
Deansgate
Manchester
M3 2FE

Prepared for:
**Property Alliance Group Ltd**

**Report Ref: 14-261-R1-1**
**Date Issued: September 2020**

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## QUALITY ASSURANCE

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|---|---|---|---|
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# EXECUTIVE SUMMARY

| | | |
|---|---|---|
| **Site Address** | Land to the west of Deansgate, Manchester, M3 2FE. | |
| **Grid Reference** | E383745, N398616. | |
| **Site Area** | 0.53 Hectares. | |
| **Current Site Use** | The site is currently an irregular shaped parcel of land in the centre of Manchester City Centre, with the entirety of the land being buildings and hardstanding. The subject site currently has several land uses; the Renaissance Hotel, Premier House, Doms Tavola Calda restaurant and an NCP car park.<br><br>The site is largely a 15-storey building with varying heights across the site and some areas of hardstanding used for walkways and entrance and exit roads for the multi storey car park. Vehicular and pedestrian access to the car park is located off Blackfriars Street. There also appears to be other vehicular access to the site along the A56 Deansgate. Pedestrian access can be gained along the eastern and southern boundaries and access to the car park can be gained via staircases on the northern, southern and western boundaries.<br><br>Due to the sites current land uses, the site has been levelled and there are no topographical features. There is however an overall slight fall in elevation from east to west towards the River Irwell.<br><br>It is likely that the western boundary wall of the site is a retaining wall down to the River Irwell. | |
| **Proposed Development** | E3P understands that the proposed development comprises a high-rise development. It is understood that the site will be developed with circa. 150 dwellings with associated adopted estate roads and utility infrastructure. | |
| **Environmental Setting** | **Drift Geology** | Glaciofluvial Sheet Deposits (Devensian) – Sand and Gravel. |
| | **Bedrock Geology** | Chester Formation – Sandstone. |
| | **Hydrogeology** | Secondary A Aquifer strata overlying a Principal Aquifer (Bedrock Geology). |
| | **Hydrology** | The River Irwell is located 5m west of site and forms the western boundary. The river is classified by the EA to have a river quality of E (poor). |
| | **Flood Risk** | The site is located within Flood Risk Zone 1 and is considered unaffected by river flooding. |
| | **Ecology** | Predominantly hardstanding, an ecological appraisal is unlikely to be required. |
| | **Subsidence Hazards** | No hazard identified in data searches. |

| | |
|---|---|
| **Site History** | The site has been developed since Pre 1892. A hotel was recorded in the north of the site, with numerous other buildings present across the site. A section of Carr Street is present in the south western corner of the site. From 1908 a building was named as the Temperance Hotel in the centre of the site until 1948 until it was named as a ruin. An access road named as Grosvenor Avenue was also present from 1948 along the west of the buildings. From 1973, the buildings and roads on-site are no longer recorded, and a larger hotel building is recorded as present across the site and a car park recorded as present. The site has remained relatively unchanged since 1973. |
| **Utility Locations** | A formal GPR survey has not been completed to date. However, due to the developed nature of the site it is anticipated that utility infrastructure will enter and cross the site. Further investigation will be required. |
| **Landfill Sites and Ground Gases** | There are no BGS recorded landfill sites located within 500m of the site boundary. There were also no historical landfill sites located within 500m of the site. The closest is located 690m north of the site at Overbridge Road, Salford. |
| **Invasive Plant Species** | A site walkover has not been conducted, however there is a possibility that there may be invasive species on the site. |
| **Radon** | Unaffected – No special precaution required. |
| **Coal Mining/Land Stability** | The site lies in an area at low risk of underlying coal workings. |

## Geotechnical Assessment

- Varying thickness of Made Ground was considered possible, investigation is required to determine its geotechnical properties;
- Soakaways are likely to be effective in areas where high permeability granular deposits are present, however they are unlikely to be effective where contaminated soil/groundwater may be present;
- Underground services are likely to be present and cannot be ruled out without further investigation.

## Contaminated Land Risk Assessment

| | |
|---|---|
| **Human Health** | Due to the largely developed commercial nature of the site, there are limited potential sources of contamination identified. However, localised areas of Made Ground have been identified as being potentially impacted by heavy metals, volatile organics and hydrocarbon compounds, such as the car parking areas and in areas where historic building demolition has occurred. |
| **Controlled Waters** | Significant site wide sources of potentially mobile contaminants are not anticipated at the subject site; however, localised areas have been identified, such as in areas of car parking and where historical building demolition has occurred. The site is underlain by high-permeability granular drift deposits, which will not limit the vertical migration of any mobile contaminants to the underling Principal Aquifer or the adjacent River Irwell. It is considered that there is a moderate to high risk to controlled waters and a detailed controlled waters risk assessment will be required to satisfy the Environment Agency. . |

| | |
|---|---|
| **Ground Gas** | Infilled demolition areas and areas of Made Ground may be a source of carbon dioxide and methane. Carbon dioxide and methane have associated asphyxiation and explosive risks, respectively. If present, the risks can be appropriately mitigated through the careful design of building structures. |

## RECOMMENDATIONS

A detailed Phase II intrusive Geo-Environmental Ground Investigation should be undertaken in order to confirm the findings of the initial conceptual site model and value engineer a development solution.

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14-261-001 – Site Location Plan
14-261-003 – Historical Features Plan
14-261-004 – Site Features Plan

# 1. INTRODUCTION

## 1.1. BACKGROUND

E3P Ltd has been commissioned by Property Alliance Group to undertake a Phase I Geo-Environmental Site Assessment at land at Renaissance, Deansgate, Manchester.

## 1.2. PROPOSED DEVELOPMENT

E3P understands that the proposed development comprises of a high-rise residential development. It is understood that the site will be developed with circa. 150 dwellings with associated adopted estate roads and utility infrastructure.

E3P however notes the sensitivity and confidentiality of the proposal and therefore no proposed development plan has been made available.

## 1.3. OBJECTIVES

The objectives of the geoenvironmental investigation are as follows:

- Review historical plans, geology, hydrogeology, site sensitivity, floodplain issues, mining records and any local authority information available in order to complete a desk study in line with Environment Agency (EA) document *Model Procedures for the Management of Contaminated Land (Contaminated Land Report 11 (CLR11)*).
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors.
- Assess the desk-study information and, where possible, provide preliminary recommendations in relation to foundations, pavement construction and floor slabs.
- Provide recommendations regarding future works required and undertake a preliminary pre-construction cost appraisal.

## 1.4. LIMITATIONS

The limitations of this report are presented in Appendix I.

## 1.5. Sources of Information

Background information was sought from the following sources:

- Envirocheck Search;
- Historical mapping dated 1892 to 2019. A selection of historical maps are reproduced in Appendix IV;
- On-line planning records held by Manchester City Council;
- Consultations with representatives of Manchester City Council;
- Magic Map Groundwater Vulnerability Map;
- Radon: Guidance on protective measures for new buildings (BRE Document BR 211, 2007);
- British Geological Survey Map;
- https://zeticauxo.com/downloads-and-resources/risk-maps/; and,
- https://flood-map-for-planning.service.gov.uk.

## 1.6. Confidentiality

E3P has prepared this report solely for the use of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from E3P; a charge may be levied against such approval.

# 2. SITE SETTING

## 2.1. SITE DETAILS

TABLE 2.1 SITE DETAILS

| | |
|---|---|
| **Site Address** | Land to the west of Deansgate, Manchester, M3 2FE. |
| **National Grid Reference** | E383745, N398616. |
| **Site Area** | 0.53 Hectares. |

All acronyms used within this report are defined in the Glossary presented in Appendix II.

A site location plan is presented in Appendix III as Drawing 14-261-001.

## 2.2. CURRENT SITE USE

E3P has undertaken a site walkover of the entire site and a description of the key findings is summarised in Table 2.2.

TABLE 2.2 SITE DESCRIPTION

| | | |
|---|---|---|
| **Occupancy/Use** | The subject site is an irregular shaped parcel of land in the centre of Manchester City Centre with the entirety of the land being buildings and hardstanding. The subject site currently has several land uses; The Renaissance Hotel, Premier House, Doms Tavola Calda restaurant and an NCP carpark. | |
| **Structures** | The site is largely a 15 storey building with varying height across the site and some areas of hardstanding used for walkaways and entrance and exit roads for the multi storey car park. There are also two access ramps and ticket machine infrastructure for the car park. | |
| **Access** | Vehicular and pedestrian access to the car park is located off Blackfriars Street. There also appears to be other vehicular access to the site along the A56 Deansgate. Pedestrian access can be gained along the eastern and southern boundaries. Pedestrian access to the upper levels of the car park can be gained via staircases on the northern, southern and western boundaries. | |
| **Slope** | Due to the sites current land use, the site has been levelled and there are no major topographical features present. There is however an overall slight fall in elevation from east to west towards the River Irwell. | |
| **Retaining Structures** | It is likely that the western boundary wall of the site is a retaining wall down to the River Irwell. | |
| **Surface Cover (%)** | Buildings: | 90% |
| | Hardstand: | 10% |
| | Soft cover: | 0% |
| **Vegetation/Ecology** | The site is predominantly hardstanding and as such there is very little vegetation or soft cover. Therefore an ecological appraisal is unlikely to be required. | |
| **Hazardous Material Storage** | No Above Ground Storage Tanks (ASTs) or Underground Storage Tank (USTs) were observed at the site. Due to the previously developed commercial nature of the site it is unlikely hazardous materials storage will have occurred on the site. | |

| | |
|---|---|
| **Asbestos-Containing Material (ACM)** | A site walkover has not been completed. However, due to the age of the buildings still present on-site, further surveys and assessments will be required due to the likelihood of ACM within the building fabric. |
| **Polychlorinated Biphenyls (PCBs)** | There is no equipment identified which may contain PCBs within the site boundary. |
| **Waste Storage** | Potentially hazardous waste streams are unlikely to be generated at the site and none were observed during the preliminary site inspection. |
| **Drainage** | A formal drainage survey has not been completed under the scope of this report. However, drainage infrastructure is likely present in adjacent highways and connecting with the buildings, there is therefore potential for further drainage to cross under the site. |

## 2.3. SURROUNDING AREA

The surrounding area land uses are summarised in Table 2.3.

TABLE 2.3 SURROUNDING LAND

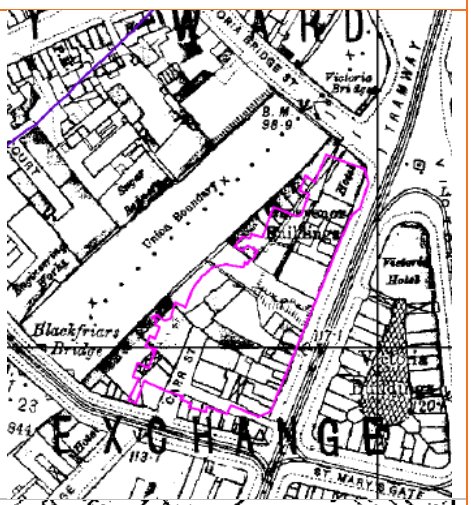
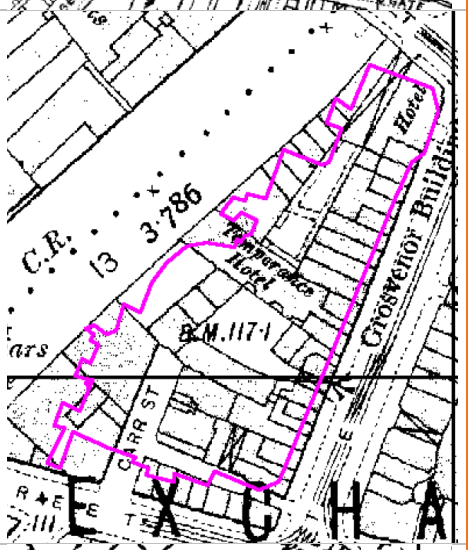
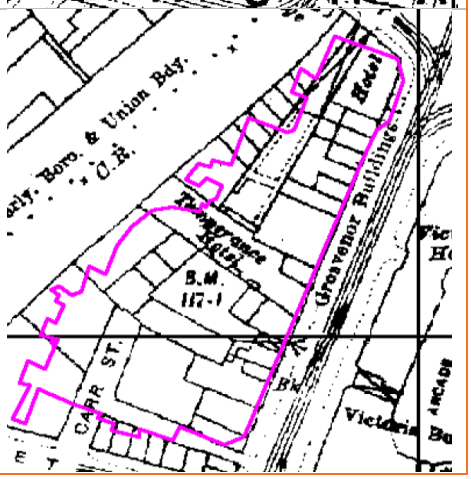
| DIRECTION | LAND USE |
|---|---|
| **North** | Victoria Bridge Street. |
| **East** | Deansgate and commercial buildings. |
| **South** | Blackfriars Street and commercial buildings. |
| **West** | River Irwell. |

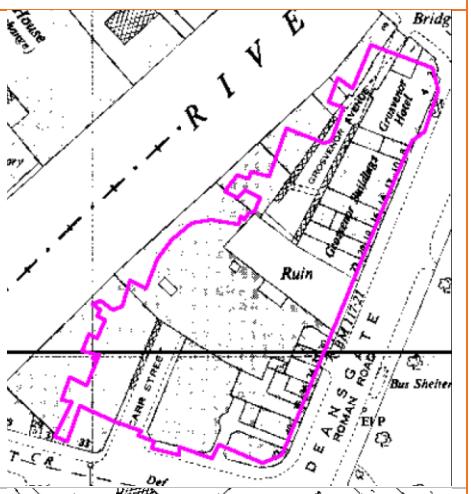
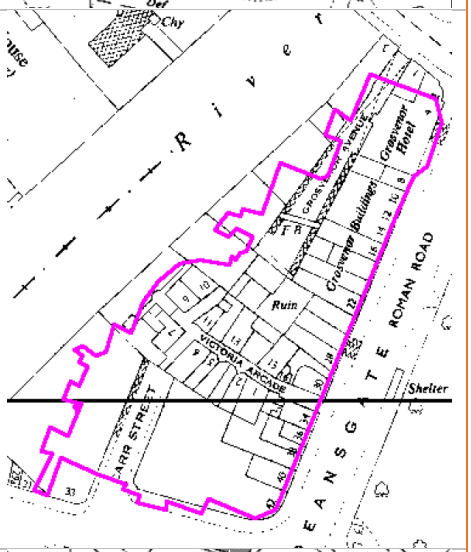
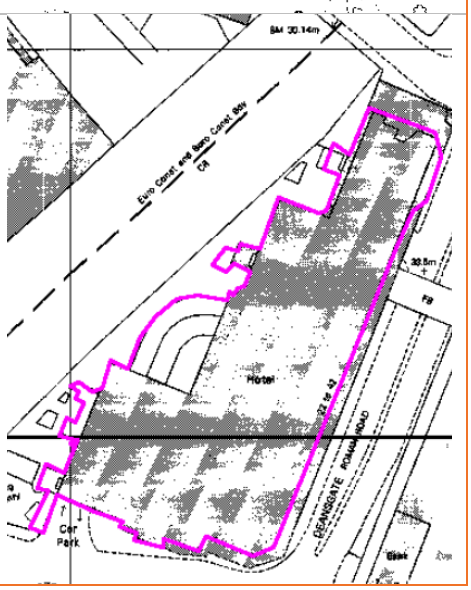
# 3. SITE HISTORY

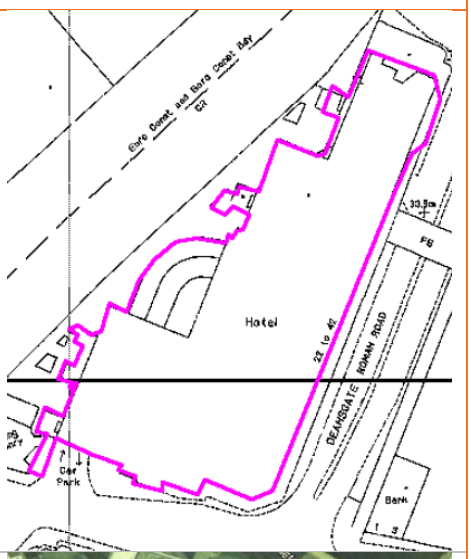
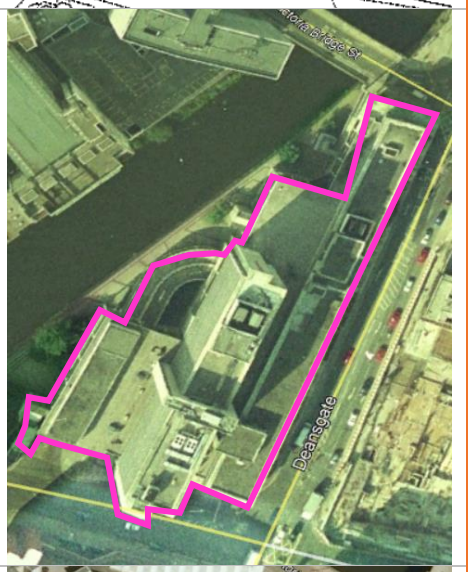
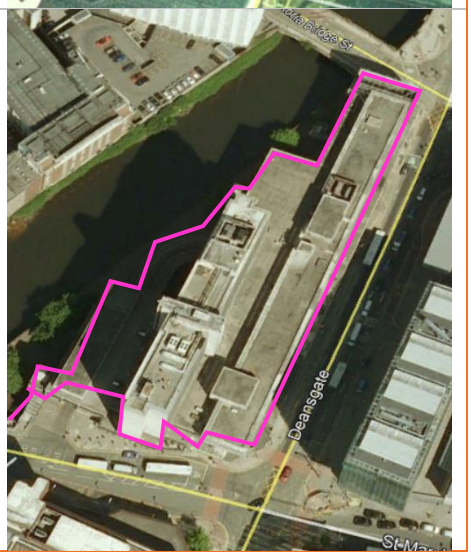
## 3.1. ON-SITE HISTORICAL DEVELOPMENT

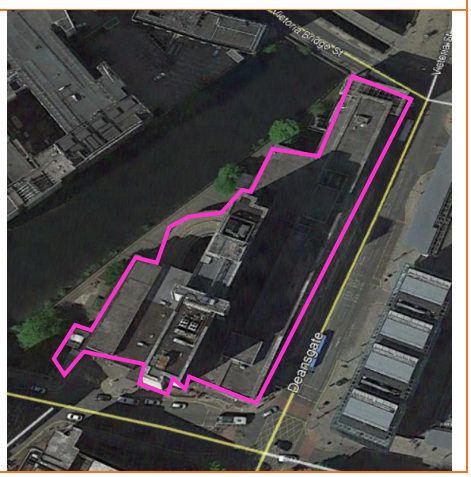
A review of historical mapping pertinent to the site is summarised in Table 3.1 below.

TABLE 3.1 SITE HISTORICAL DEVELOPMENT

| MAP EDITION | HISTORICAL LAND USE | HISTORICAL MAP EXCERPT |
|---|---|---|
| **1892**<br><br>**1:2,500** | The site has been developed since Pre 1892. A hotel is recorded in the north of the site, with numerous other buildings present across the site.<br><br>A section of Carr Street is present in the south western corner of the site. |  |
| **1908**<br><br>**1:2,500** | A building in the centre of the site is named as the Temperance Hotel.<br><br>The rest of the site remains relatively unchanged. |  |
| **1932-1933**<br><br>**1:2,500** | The site remains relatively unchanged. |  |

| MAP EDITION | HISTORICAL LAND USE | HISTORICAL MAP EXCERPT |
|---|---|---|
| **1948-1949**<br><br>**1:1,250** | The Temperance Hotel is now recorded as a Ruin.<br><br>An access road is also present from the northern boundary along the west of the buildings, named as Grosvenor Avenue.<br><br>The rest of the site remains relatively unchanged. |  |
| **1951-1957**<br><br>**1:1250** | The buildings in the south of the site appear to have been separated into smaller units. Victoria Arcade is also recorded between the buildings from Deansgate.<br><br>The rest of the site remains relatively unchanged. |  |
| **1973-1989**<br><br>**1:1,250** | The buildings and roads on-site are no longer recorded. A large hotel building is now recorded as present across the entirety of the site.<br><br>A car park is also recorded as present. |  |

| MAP EDITION | HISTORICAL LAND USE | HISTORICAL MAP EXCERPT |
|---|---|---|
| **1992**<br><br>**1:1,250** | There are no significant changes recorded at the subject site. |  |
| **Google Earth**<br><br>**2000** | There are no significant changes recorded at the subject site. |  |
| **Google Earth**<br><br>**2009** | There are no significant changes recorded at the subject site. |  |

| MAP EDITION | HISTORICAL LAND USE | HISTORICAL MAP EXCERPT |
|---|---|---|
| **Google Earth**<br><br>**2019** | There are no significant changes recorded at the subject site. |  |

## 3.2. Off-Site Historical Development

A review of potentially contaminative uses identified on historical Ordnance Survey maps within a 250 m radius of the site is summarised in Table 3.2.

TABLE 3.2 SURROUNDING POTENTIALLY CONTAMINATIVE LAND USES

| SURROUNDING FEATURE | DISTANCE | DATES | DIRECTION |
|---|---|---|---|
| **Guardian Printing Works**<br>…then no longer recorded | 83m | Pre 1892 – Pre 1908<br>Pre 1908 – Present | West |
| **Eagle Foundry (Iron)**<br>…then named as Brass Foundry<br>…then no longer recorded | 139m | Pre 1892 – Pre 1951<br>Pre 1951 – Pre 1963 | West |
| **Bonding Warehouse**<br>…then named as warehouse<br>…then recorded as car park | 150m | Pre 1892 – Pre 1951<br>Pre 1951 – Pre 1996<br>Pre 1996 – Present | West |
| **Exchange Station**<br>…then recorded as disused<br>**…then no longer recorded** | 198m | Pre 1892 – Pre 1969<br>Pre 1969 – Pre 1973<br>Pre 1973 – Present | North West |
| **Engineering Works**<br>…then recorded as Ruin<br>…then recorded as warehouse<br>…then recorded as car park | 200m | Pre 1892 – Pre 1951<br>Pre 1951 – Pre 1962<br>Pre 1962 – Pre 1996<br>Pre 1996 - Present | West |

## 3.3. Planning History

E3P has undertaken a detailed search of on-line planning records held by Manchester City Council which has identified that there have been no previous planning applications relating to the site. Planning applications within 100m of the site have been detailed in Table 3.3.

TABLE 3.3 PREVIOUS PLANNING APPLICATIONS.

| PLANNING APPLICATION | DETAILS | DATE | OUTCOME |
|---|---|---|---|
| **126218/FO/2020** | Removal of 6 antennae and 6 RRUs; installation of 6 antennae and 9 RRUs and associated equipment. | April 2020 | Approved |
| **126092/FO/2020** | Removal of an existing gate and installation of a Dry Riser Inlet to the Parsonage elevation. | March 2020 | Approved |
| **126328/FO/2020** | Erection of a 17 storey building comprising office use (Use Class B1a) and flexible ground floor commercial units (use Class A1, A2, A3 and A4), new electricity sub-station, basement cycle parking and rooftop plant enclosure, together with access, servicing and associated works following demolition of the existing building. | February 2020 | Unknown |
| **127347/FO/2020** | Erection of temporary compound and associated temporary highway access to A56 for a period of 14 weeks from 6th July 2020. | July 2020 | Unknown |

# 4. ENVIRONMENTAL SETTING

## 4.1. GEOLOGY AND HYDROGEOLOGY

The British Geological Survey (BGS) map for the site, (1:50,000, Solid and Drift edition) and online records indicate that the site is underlain by the geological sequence presented in Table 4.1.

TABLE 4.1 SUMMARY OF UNDERLYING GEOLOGY

| GEOLOGICAL UNIT | CLASSIFICATION | DESCRIPTION | AQUIFER CLASSIFICATION |
|---|---|---|---|
| **Drift** | Glaciofluvial Sheet Deposits (Devensian) | Sand and Gravel | Secondary A Aquifer |
| **Solid** | Chester Formation | Sandstone | Principal Aquifer |

TABLE 4.2 SUMMARY OF BGS BOREHOLE RECORDS

| LOCATION | DEPTH | MADE GROUND | DRIFT | SOLID |
|---|---|---|---|---|
| 40m North West **(SJ89NW1466)** | 12.72m | <1.80m | 1.80-10.90m SAND and GRAVEL | >10.90m SANDSTONE |
| 5m East **(SJ89NW62)** | 12.80m | Not recorded | <4.88m SAND and GRAVEL | >10.80m SANDSTONE |
| 58m South **(SJ89NW1451)** | 15.07m | <0.90m | 0.90-7.80m SAND and GRAVEL | >7.80m SANDSTONE |

A search of online BGS records and 1:10,000 mapping show that there are no geological faults located on-site, however a fault is located 150m south west named as East Manchester Fault and 470m north east of the site, named as the Ardwick Fault.

There is a groundwater abstraction point located 65m north west of the site licensed to British Telecoms Plc for "Other industrial/commercial/public services: general cooling (existing licenses only) (High Loss)".

Based on the local topography, it is considered likely that shallow groundwater, if present, will flow in a westerly direction, following the topographical gradient towards the River Irwell.

## 4.2. GEOTECHNICAL DATA

Geotechnical data presented within a commercially available environmental database is summarised within Table 4.3.

TABLE 4.3 SUMMARY OF GEOTECHNICAL DATA

| HAZARD | DESIGNATION |
|---|---|
| **Shrink-Swell Clay** | No Hazard. |
| **Landslides** | Very Low Risk. |
| **Ground Dissolution** | No Hazard. |
| **Compressible Ground** | No Hazard to Very Low Risk. |
| **Collapsible Deposits** | Very Low Risk. |
| **Running Sand** | Very Low to Low Risk. |
| **Natural Cavities** | None recorded within 2000m. |
| **Manmade Cavities** | None recorded within 2000m. |

## 4.3. COAL MINING

The Envirocheck report states the site is in an area that may be affected by coal mining.

A CA mining report was obtained (Ref: 51002281463001) dated 20th July 2020.

The CA operates a risk-based approach to the assessment of potential instability issues associated with future development of land located within the predefined CA consultation areas. This risk-based approach subdivides the potential risk into "low" and "high" risk categories.

The risk categories can be defined as:

***Low-Risk Sites*** – Deemed to be land where coal mining has taken place, however it was at such depth not to pose a risk to new development and it therefore contains no known recorded risks and as such no further assessment is required.

For low-risk sites, the CA categorically states:

> *If your proposed development is within the Development Low Risk Area, there is no need for you to submit any coal mining information with your planning application and The Coal Authority will not be consulted by the LPA. The LPA will include our Standing Advice as an informative note within the decision notice.*

***High-Risk Sites*** – Deemed to be landholdings located within an area known to contain legacy risks that include:

- Mine entries (shaft or adit);
- Shallow coal workings (recorded and probable);
- Workable coal seam outcrops;
- Mine gas sites and areas;

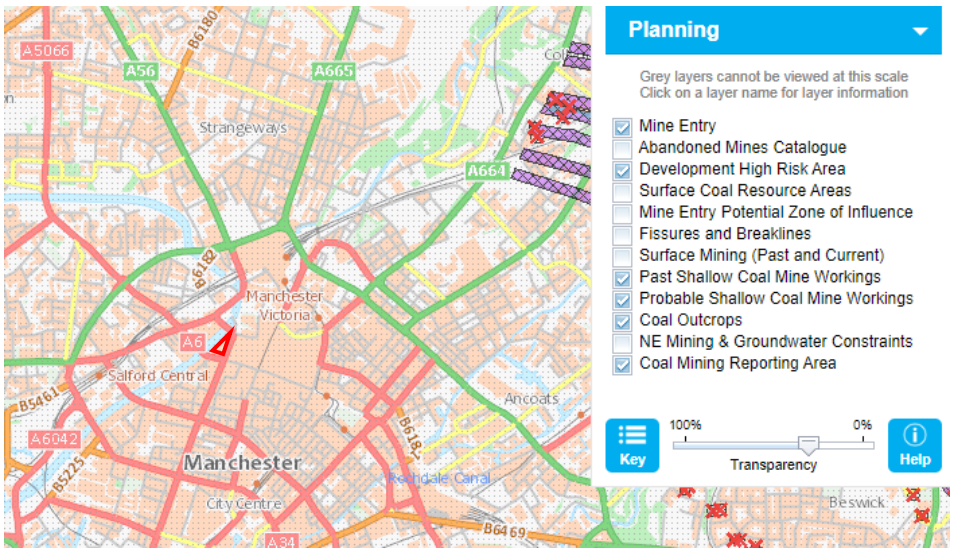
- Recorded coal-mining-related hazards;
- Geological features (fissures and break lines); and
- Former surface mining sites (sometimes using historic opencast extraction methods).

### 4.3.1. Coal Mining Information

Prior to the enactment of the Coal Mines Regulation Act (1872), which came into force on the 1st January 1883, there was no statutory requirement to record the extent of abandoned mine workings and as such the CA has no knowledge of extensive workings throughout the UK Coal Fields where shallow workings are present at a depth that could result in a subsidence event in the future (through successive cavitation) associated with failure of support mechanism.

To determine if a site may have unrecorded or recorded coal mine workings requires the consideration of a wide range of information and E3P has completed a review of relevant information in relation to potential coal mining activities. Table 4.4 provides a summary of pertinent coal mining information.

TABLE 4.4 COAL MINING INFORMATION

| SOURCES OF INFORMATION | SUMMARY |
|---|---|
| **Coal Authority Mining Report** | The Coal Authority Mining Report (Ref: 51002281463001) dated July 2020 has been obtained for the subject site by E3P. This report confirmed the following:<br>• The property is not within a surface area that could be affected by past underground mining;<br>• There are no known coal mine entries within, or within 100 metres of the site boundary;<br>• There may, however, be mine entries in the local area for which the CA has no knowledge;<br>• There is no record of a mine gas emission requiring action by the CA within the boundary of the property;<br>• There is no evidence of unrecorded coal workings;<br>• The CA is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining; and<br>• The property is not within the boundary of an opencast site from which coal has been removed by opencast methods. |
| **Coal Authority Interactive Map** |  <br>The site is not situated within a development high risk area. There are no mine entries recorded within 500m of the site boundary. There are also no past shallow coal mine workings or probable shallow coal mine workings or coal outcrops within 500m of the site boundary. |
| **British Geological Survey Mapping** | The 1:10,000 geological mapping for the area does not record any coal seams or mine entries within 1.0km of the site boundary. |

| SOURCES OF INFORMATION | SUMMARY |
|---|---|
| | |
| **Review of Coal Authority Archive** | No CA archives/mine abandonment plans are available. |
| **Historical Ordnance Survey Mapping** | A review of the 1:10,000 Ordnance Survey mapping from circa 1850, which has records of mine workings that predate the Mining & Regulation Act of 1872, has not identified any features indicative of historical mine workings in proximity to the application site. |
| **Historical Site Investigations** | E3P has not been provided with any historic site investigation reports. |

### 4.3.2. Coal Mining Risk Assessment

This risk assessment comprises a desk-based review of all available information on coal mining issues that are relevant to the application site deemed to be located within a high-risk area. This includes:

- Interpretation of information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues;
- Setting out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
- Demonstrating to the local planning authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

The coal mining risk assessment is summarised in Table 4.5.

TABLE 4.5 SUMMARY OF COAL MINING RISK ASSESSMENT

| COAL MINING RISK ASSESSMENT | YES/NO | RISK ASSESSMENT |
|---|---|---|
| **Recorded Underground Coal Mining at Shallow Depth (< 30 m)** | No | Low |
| **Recorded Underground Coal Mining at Shallow Depth (> 30 m)** | No | Low |
| **Evidence of Unrecorded Surface Extraction of Coal Outcrop** | No | Low |
| **Unrecorded Underground Coal Mining at Shallow Depth (< 30 m)** | No | Low |
| **Mine Entries (Shaft/Adits)** | No | Low |
| **Coal Mining Geology – Fractures/Fissures** | No | Low |
| **Recorded Gas Emissions** | No | Low |
| **Recorded Mining Surface Hazard** | No | Low |
| **Surface Mining (Opencast)** | No | Very Low/Low |

Based on the above, a low risk coal mining at shallow depth has been identified. No further works are required.

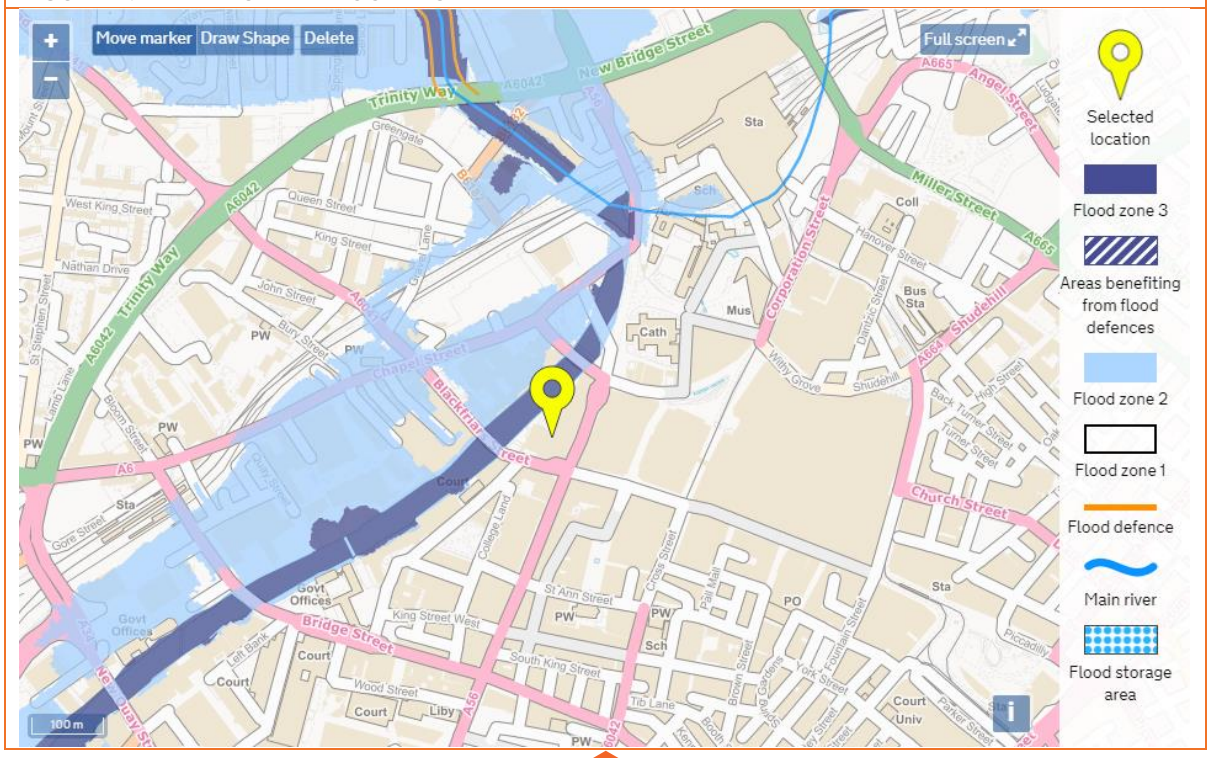
## 4.4. HYDROLOGY

The River Irwell is located 5m west of site, with the western boundary being bound by this. The Envirocheck Report indicates that the river quality is E as defined by the Environment Agency as being poor with biology restricted to pollution tolerant species and low-grade abstraction for industry.

The site is located within a currently defined Flood Risk Zone 1; defined as land assessed as having less than 1 in 1,000 annual probability of river or sea flooding (<0.1%), and as such is considered to be unaffected by river flooding. In addition, the Envirocheck Report states there is a limited potential for groundwater flooding to occur at the site.

The Fluvial Flood Risk Map is presented in Figure 4.1.

FIGURE 4.1 FLUVIAL FLOOD RISK MAP



Source - https://flood-map-for-planning.service.gov.uk/

## 4.5. Radon Risk Potential

The Envirocheck Report indicates the site is situated in an area where less than 1% of homes are above the Action Level and that the BGS reports that full radon protective measures are not necessary in the construction of new dwellings or extensions.

## 4.6. Industrial Land Uses

The site is located within a predominantly commercial area and there are seven entries in the trade directory for active contemporary trade directory entries within 250m of the site. These are summarised in Table 4.6.

TABLE 4.6 SUMMARY OF ACTIVE CONTEMPORARY TRADE DIRECTORY ENTRIES

| NAME | CLASSIFICATION | LOCATION |
|---|---|---|
| **A K A Bespoke Jewellers** | Jewellery Manufacturers & Repairers | 105m South |
| **Glyns Collections** | Leather Garments & Products | 140m West |
| **Capsule** | Commercial Cleaning Services | 184m West |
| **Smart Alex** | Dry Cleaners | 197m West |
| **Molton Brown** | Home furnishings - Manufacturers | 158m South East |
| **Epos Now** | Cash Registers & Check-Out Equipment | 172m North East |
| **Fragrance Shop** | Perfume Suppliers | 244m South East |

## 4.7. Hazardous Substance Consents

The Envirocheck Report confirms the absence of the following Hazardous Installations within 500m of the site:

- Control of Major Accident Hazard (COMAH) Sites;
- Explosive Sites;
- Notification of Installation Handling Hazardous Substances (NIHHS);
- Planning Hazardous Substance Consents; and
- Planning Hazardous Substance Enforcements.

## 4.8. Sensitive Land Uses

The site is located within a predominantly commercial area. The site is situated on the edges of two nitrate vulnerable zones of the River Irk 157m east of the site and the River Irwell 209m north west.

No other environmentally sensitive land uses have been identified within close proximity to the site.

## 4.9. SITE SENSITIVITY ASSESSMENT

The site is assessed to be located within a **high** sensitivity setting as discussed within Table 4.7.

TABLE 4.7 SITE SENSITIVITY ASSESSMENT

| SENSITIVITY PROFILE | DISCUSSION | RATING |
|---|---|---|
| **Sensitive Land Uses Within Close Proximity (e.g. Residential, School, Nursery, Local Nature Reserves)** | The site is predominantly surrounded by commercial land uses. There are also two nitrate vulnerable zones of the River Irk 157m east of the site and the River Irwell 209m north west. | **Moderate** |
| **Groundwater Source Protection Zone or Drinking Water Safeguard Zone** | The site is not located within a Groundwater Source Protection Zone. | **Low** |
| **Distance to the Closest Groundwater Abstraction Point** | There is a groundwater abstraction point located 65m north west of the site licensed to British Telecoms Plc for "Other industrial/commercial/public services: general cooling (existing licenses only) (High Loss)". | **Moderate** |
| **Aquifer Classification in Superficial Drift Deposits** | The underlying superficial deposits are likely to comprise high permeability sand and gravel soils to depths in excess of c. 5.00m which may allow the potential for mobile phase contaminants to migrate towards the bedrock aquifer or adjacent watercourse. | **High** |
| **Aquifer Classification in Bedrock** | The Principal Aquifer in the bedrock is a potential receptor for any soluble phase contaminants present at the site. Given the proximity to a potable abstraction point and the adjacent water course, the sensitivity of the site is increased. | **High** |
| **Is the Site Underlain by Low-Permeability Drift to Depths in Excess of 10 m?** | No - Off-site BGS borehole records surrounding the site indicate the site to be underlain by in excess of 5.00m of high permeability sands and gravels. | **Moderate** |
| **Is the Site Located Within 50 m of a Surface Watercourse?** | The River Irwell is located 5m west of the site boundary. | **High** |
| OVERALL SITE ENVIRONMENTAL SENSITIVITY | | **Moderate** |

## 4.10. PRELIMINARY GEOTECHNICAL ASSESSMENT

E3P has completed an assessment of potential geotechnical constraints based on the available desk-study information within the context of the proposed residential/commercial development. This assessment is summarised in Table 4.8.

TABLE 4.8 SUMMARY OF POTENTIAL GEOTECHNICAL CONSTRAINTS

| POTENTIAL ABNORMAL CONSTRAINT | LOCATION ON SITE | ESTIMATED AREA OF SITE AT RISK (%) | ASSESSMENT AND MITIGATION |
|---|---|---|---|
| **Remediation of Contaminated Soils** | On site | TBC | Additional investigation is required to determine the levels of contamination prior to developing remediation strategies. |
| **Mine Shafts** | N/A | N/A | N/A. |
| **Shallow Coal Workings** | N/A | N/A | N/A. |
| **Obstructions** | On site | TBC | The Made Ground on site may contain large pieces of material such as demolition rubble and bricks. Historic foundation may be still in-situ. |
| **Artificially Levelled and Filled Platforms** | N/A | N/A | The site appears to have been levelled. |
| **Retaining Walls** | West boundary | TBC | The western boundary of the site is likely to be a retaining wall structure down to the River Irwell. |
| **Trench Collapse** | On site | TBC | Trench collapse is considered possible where granular Made Ground and natural strata is identified. |
| **Infilled Pond/Hedges** | N/A | N/A | N/A. |
| **Mature Trees** | N/A | N/A | There are no trees located within the site boundary or influencing distance of the site. |
| **Volume Change Potential Clay** | On site | 80 | Clay strata is unlikely to be a depth beneath the Made Ground and as such heave precautions are unlikely to be needed. However, if pockets of clay are encountered, heave precautions will be required. |
| **Running Sands** | N/A | N/A | Data searches indicate low risk. |
| **Ground Dissolution** | N/A | N/A | Data searches indicate no hazard. |
| **Shallow Bedrock** | N/A | N/A | Shallow bedrock has been identified at depths less than 10.0m within a BGS borehole record to the south of the site. |
| **Peat** | N/A | N/A | N/A. |

| POTENTIAL ABNORMAL CONSTRAINT | LOCATION ON SITE | ESTIMATED AREA OF SITE AT RISK (%) | ASSESSMENT AND MITIGATION |
|---|---|---|---|
| **Concrete Design** | TBC | - | Investigation of the underlying soils will be required. |
| **Low-Permeability Ground** | On site | 100 | Soakaways likely to be effective in areas where high permeability cohesive deposits are present, however where areas of potentially contaminated soil and groundwater are present, soakaway drainage is unlikely to be effective. |
| **Services/Sensitive Structures** | TBC | TBC | Underground services are likely to be present and cannot be ruled out without further investigation. |
| **Abnormal Foundation Solutions** | TBC | TBC | In consideration of the proposed structures (high rise development) piled foundations or raft foundations may be required to transfer the load to competent strata. |

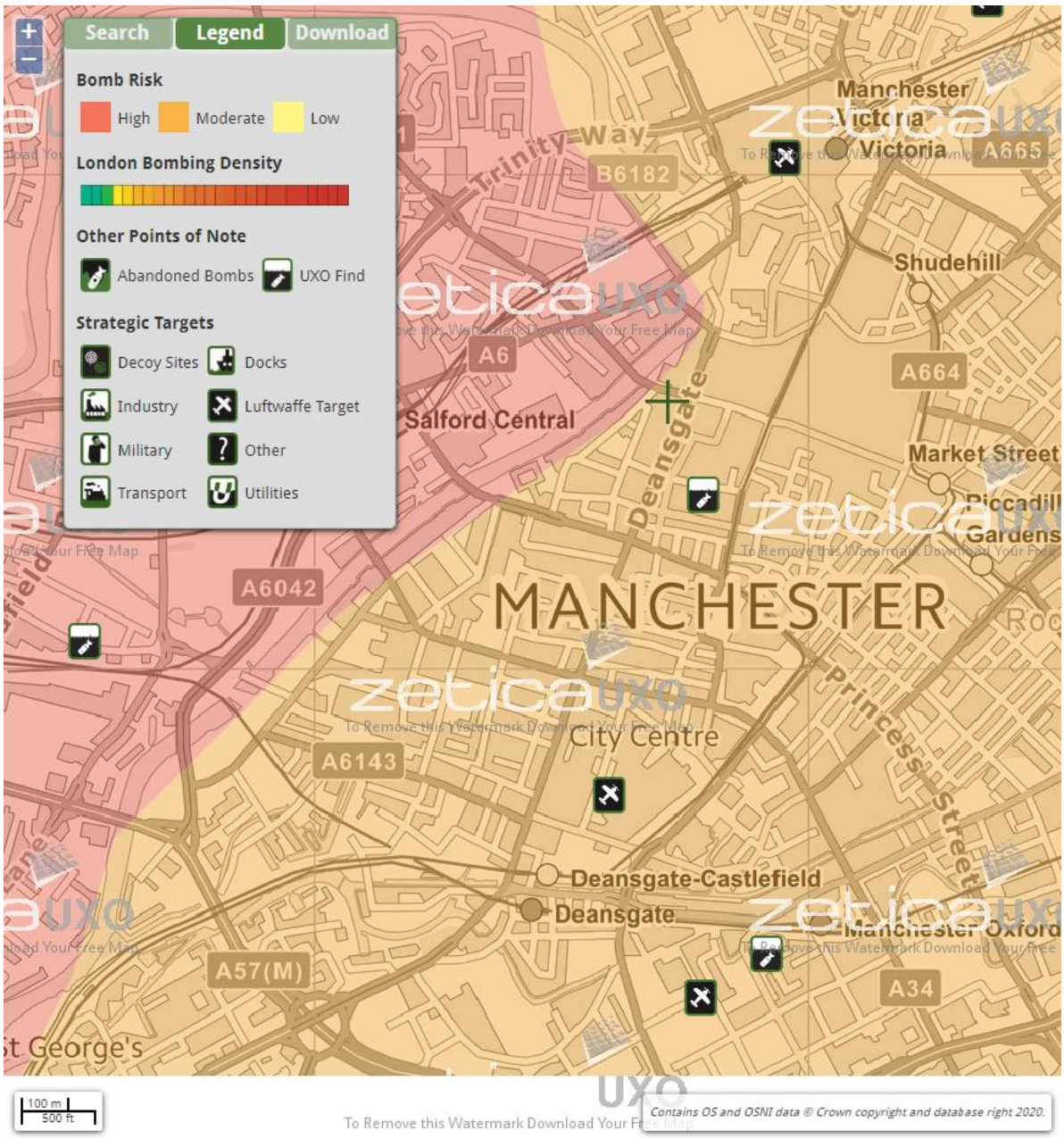
## 4.11. UNEXPLODED ORDNANCE

The regional unexploded bomb risk map from Zetica indicates that an area of the site is in an area at high risk from possible Unexploded Ordnance (UXO) resulting from the Second World War. (Zetica, 2014). The eastern area of the site, however, is classified as in an area at moderate risk from possible UXO.

The Zetica UXO Risks Map is presented in Figure 4.2 (below).

As the western boundary of the site is within the high-risk area, it is recommended that further detailed assessments are carried out to establish the level of risk and the potential need for mitigation.

FIGURE 4.2 ZETICA UXO RISKS MAP




Source: https://zeticauxo.com/downloads-and-resources/risk-maps/

# 5. CONSULTATIONS

## 5.1. CONTAMINATED LAND OFFICER

The Contaminated Land Officer at Manchester City Council has been consulted however E3P have not received a response at this time.

## 5.2. LANDFILL SITES AND WASTE TREATMENT SITES

There are no BGS recorded landfill sites located within 500m of the site boundary.

There were also no historical landfill sites located within 500m of the site boundary. The closest is located 690m north of the site at Overbridge Road, Salford.

## 5.3. REGULATORY DATABASE

The information summarised in Table 5.1 has been obtained from a commercially available environmental database. The summary table only includes records from within 250 m of the subject site and not otherwise detailed in the report.

TABLE 5.1 SUMMARY OF ENVIRONMENTAL DATA

| RECORD | ENTRIES WITHIN 250 m | DETAILS |
|---|---|---|
| **Contaminated Land Register Entries and Notices** | 0 | None Identified (N/A). |
| **Authorised Industrial Processes (IPC/IPPC/LAPPC)** | 0 | None Identified (N/A). |
| **Fuel Stations Entries** | 0 | None Identified (N/A). |
| **Licensed Radioactive Substances** | 1 | Authorisation under S13 RSA for the disposal of radioactive waste (ref: Bi9880) at Brooke Edgley Specialist Technical Services Ltd, located 217m south west of site. |
| **Enforcements, Prohibitions or Prosecutions** | 0 | None Identified (N/A). |
| **Discharge Consents** | 5 | 9-12m North - Operated by United Utilities for public sewage: storm sewage overflow between January 1995 and June 2018.<br>50m North West - Operated by British Telecoms Plc for Trade Effluent Discharge-Site Drainage issued in May 2013.<br>76m North East – Operated by United Utilities for public sewage: storm sewage overflow issued in January 1995.<br>80m West – Operated by United Utilities for sewage discharges – final/treated effluent between January 1995 and November 1995.<br>139m North – operated by Mr P Lane for the discharge of other matter-surface water in November 1994. |

| RECORD | ENTRIES WITHIN 250 m | DETAILS |
|---|---|---|
| **Discharge Consents (Continued…)** | 5 | 169m South West – Operated by Acroy Ltd for trade effluent discharge-site drainage from June 2005 and June 2008. |
| **Pollution Incidents** | 7 | 68m West, 93m West, 118m South West, 133m North West, 161m North East, 204m South West and 218m West - Category 3 – minor incidents into the River Irwell or Irk. |
| **Consents Issued Under the Planning (Hazardous Substances) Act 1990** | 0 | None Identified (N/A). |
| **Control of Major Accident Hazard (COMAH) Sites** | 0 | None Identified (N/A). |

# 6. INITIAL CONCEPTUAL SITE MODEL

In accordance with Environment Agency, LCRM (2019) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), E3P Ltd has developed an initial CSM to identify potential contamination sources, migration pathways and receptors within the study area. This is summarised within Table 6.1

TABLE 6.1 INITIAL CONCEPTUAL SITE MODEL

| CONTAMINANT (SOURCE) | PATHWAY | RECEPTOR | PROBABILITY | CURRENT RISK |
|---|---|---|---|---|
| **Human Health** | | | | |
| **Heavy metals, petroleum hydrocarbons and PAH (Made Ground)** | **Dermal contact.**<br>**Dermal contact and ingestion.** | **Future site users** | **Likely** | **High** |
| *Assessment*<br>Current and historical land uses on site as car parking is a potential source of heavy metals, PAHs and TPH. Made Ground associated with historical infilling, construction and demolition activities may contain heavy metals, PAHs and TPH. Some of the Made Ground is likely to have been excavated when the ramp for the car park was formed.<br><br>If present heavy metals, non-volatile PAH and TPH may pose a short-term risk to construction workers who may come into contact with impacted soils during earthworks. However, this risk can be mitigated through the use of appropriate Personal Protective Equipment (PPE) and the provision of adequate welfare facilities.<br><br>Future residential users may come into contact with impacted soils within any garden and landscaped areas. If impacted soils are identified then localised remediation or an appropriate cover system, designed in accordance with an agreed remediation strategy will mitigate the risk. | | | | |
| **Volatile Contaminants such as hydrocarbons, (Made Ground / Car Park)** | **Inhalation of vapours.**<br><br>**Migration through permeable strata and preferential pathways.** | **Future site users.**<br>**Off-site receptors.** | **Likely** | **Moderate** |
| *Assessment*<br>Potential Made Ground across the site resulting from demolition activities and the historical and current site use as car parking, may be potential sources of hydrocarbon compounds and volatile PAHs, such as naphthalene.<br><br>Hydrocarbon compounds and PAHs may pose a risk to construction workers if they come into contact with impacted soils during further earthworks, however appropriate PPE/ Respiratory Protective Equipment (RPE) will ensure they are at no unacceptable risk. Future residential end users may come into contact with impacted soils in garden and landscaped areas, though the main pathway of volatile compounds is considered to be vapour inhalation indoors. If identified it is likely that additional remediation of impacted soils and/or perched groundwater will be required to mitigate the risk to future residential end users. | | | | |

| CONTAMINANT (SOURCE) | PATHWAY | RECEPTOR | PROBABILITY | CURRENT RISK |
|---|---|---|---|---|
| **ACM in Made Ground or Building Fabric** | **Inhalation of dust.** | **Future site users.**<br><br>**Buildings.**<br><br>**Off-site land users.** | **Likely** | **High** |
| *Assessment*<br>Due to the age of the buildings present within the site boundary, presence of ACM cannot be discounted. A pre-demolition asbestos survey will be required with all asbestos materials removed from the building prior to demolition.<br><br>Dust associated with any Made Ground underlying the site may potentially contain ACMs which could be released during future earthworks and then subsequently inhaled by construction workers, third party property and residential end users within proposed garden areas.<br><br>However, with the appropriate construction phase health and safety controls, asbestos containing material is likely to represent a low risk. Furthermore, if identified, garden and/or landscaped areas are likely to require a cover system. | | | | |
| **Methane, carbon dioxide (Made Ground)** | **Inhalation of gas.**<br><br>**Migration through permeable strata and preferential pathways.**<br><br>**Explosion in confined spaces.** | **Future site users.**<br><br>**Buildings.**<br><br>**Off-site land users.** | **Low likelihood** | **Moderate** |
| *Assessment*<br>Made Ground is a potential source of ground gases. Low likelihood due to the presence of cohesive soils that will likely restrict migration of any ground gas into shallow foundations.<br><br>Should a ground gas risk be identified to end users, the risks can be mitigated through the adoption of suitable control measures within the building construction using guidance presented within CIRIA 665 (Assessing Risk Posed by Hazardous Ground Gases to Buildings) and BS8485 (2015)+A1(2019). | | | | |

| CONTAMINANT (SOURCE) | PATHWAY | RECEPTOR | PROBABILITY | CURRENT RISK |
|---|---|---|---|---|
| **Controlled Waters** | | | | |
| **Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds (Made Ground)** | **Surface runoff.**<br><br>**Migration through permeable strata and preferential pathways.**<br><br>**Perched waters migration.** | **Groundwater (Principal Aquifer).**<br><br>**Surface water (River Irwell).** | **Likely** | **Moderate** |
| *Assessment*<br>Likely probability as significant sources of mobile contamination identified as the Made Ground beneath the site may contain residual hydrocarbons. Leakages/spillages of mobile contamination are also considered possible.<br><br>The underlying superficial deposits are likely to comprise high permeability sand and gravel soils to depths in excess of c. 5.00m which may allow the potential for mobile phase contaminants to migrate towards the bedrock aquifer or adjacent River Irwell to the west. | | | | |
| **Buildings and Infrastructure** | | | | |
| **Sulphate (potential ash within Made Ground)** | **Sulphate attack on concrete.** | **Building structure.** | **Likely** | **Moderate/Low** |
| *Assessment*<br>Presence of pH and sulphate within Made Ground deposits may result in corrosion of buried concrete within the proposed development. Intrusive investigation with chemical analysis of soil samples is recommended to confirm the levels of pH and sulphate within Made Ground deposits and thus determine the concrete classification. | | | | |
| **Organic contaminants such as hydrocarbons and PAH's** | **Ingestion of tainted water supply.** | **Future site users.**<br><br>**Water pipes.** | **Likely** | **Moderate** |
| *Assessment*<br>Likely probability as significant contamination anticipated at pipeline depth across the site (0.75–1.35 m). | | | | |

| CONTAMINANT (SOURCE) | PATHWAY | RECEPTOR | PROBABILITY | CURRENT RISK |
|---|---|---|---|---|
| **Ecology** | | | | |
| **Phytotoxic contaminants (Made Ground)** | **Direct Contact (plant uptake).** | **Flora** | **Likely** | **Low** |
| *Assessment*<br>Likely probability as contamination considered possible, which may be taken up by flora in soft landscaping/gardens. | | | | |

# 7. CONCLUSIONS AND RECOMMENDATIONS

## 7.1. SITE SUMMARY

| | |
|---|---|
| **Current site use** | The site is currently an irregular shaped parcel of land in the centre of Manchester City Centre, with the entirety of the land being buildings and hardstanding. The subject site currently has several land uses; the Renaissance Hotel, Premier House, Doms Tavola Calda restaurant and an NCP car park.<br><br>The site is largely a 15-storey building with varying heights across the site and some areas of hardstanding used for walkways and entrance and exit roads for the multi storey car park. Vehicular and pedestrian access to the car park is located off Blackfriars Street. There also appears to be other vehicular access to the site along the A56 Deansgate. Pedestrian access can be gained along the eastern and southern boundaries and access to the car park can be gained via staircases on the northern, southern and western boundaries.<br><br>Due to the sites current land uses, the site has been levelled and there are no topographical features. There is however an overall slight fall in elevation from east to west towards the River Irwell.<br>It is likely that the western boundary wall of the site is a retaining wall down to the River Irwell. |
| **Historical Site Use** | The site has been developed since Pre 1892. A hotel was recorded in the north of the site, with numerous other buildings present across the site. A section of Carr Street is present in the south western corner of the site. From 1908 a building was named as the Temperance Hotel in the centre of the site until 1948 until it was named as a ruin. An access road named as Grosvenor Avenue was also present from 1948 along the west of the buildings. From 1973, the buildings and roads on-site are no longer recorded, and a larger hotel building is recorded as present across the site and a car park recorded as present. The site has remained relatively unchanged since 1973. |
| **Site Sensitivity** | A groundwater abstraction point is located 65m north west of the site licensed to British Telecoms Plc for "Other industrial/commercial/public services: general cooling (existing licenses only) (High Loss).<br><br>The site is also not situated within a groundwater source protection zone.<br>The River Irwell is located 5m west of site, with the western boundary being bound by this. The river is classified as river quality E as defined by the Environment Agency as being poor quality. |
| **Environmental Data** | The site is underlain by glaciofluvial sheet deposits of sands and gravels. The drift deposits are underlain by the Chester Formation of sandstone. These form a Secondary A Aquifer in the drift deposits and a Principal Aquifer in the bedrock geology.<br><br>The online BGS record s and the 1:10,000 mapping indicates that there are no geological faults located on-site, however a fault is located 150m south west named as the East Manchester Fault and 470m north east named as the Ardwick Fault. |

## 7.2. Contamination Issues

| | |
|---|---|
| **Human Health** | Due to the largely developed commercial nature of the site, there are limited potential sources of contamination identified. However, localised areas of Made Ground have been identified as being potentially impacted by heavy metals and hydrocarbon compounds, such as the car parking areas and in areas where historic building demolition has occurred.<br><br>Existing buildings are likely to have asbestos present within the building fabric due to their age. These will require identification and specialist removal prior to demolition. |
| **Controlled Waters** | Significant site wide sources of potentially mobile contaminants are not anticipated at the subject site; however, localised areas have been identified, such as in areas of car parking and where historical building demolition has occurred. The site is underlain by high-permeability granular drift deposits, which will not limit the vertical migration of any mobile contaminants to the underling Principal Aquifer or the adjacent River Irwell. It is considered that there is a moderate risk to controlled waters and a detailed controlled waters risk assessment will be required to satisfy the Environment Agency. |
| **Ground Gas** | Infilled demolition areas and areas of Made Ground may be a source of carbon dioxide and methane. Carbon dioxide and methane have associated asphyxiation and explosive risks, respectively. If present, the risks can be appropriately mitigated through the careful design of building structures. |
| **Potable Waters** | Based on existing information, it is considered that the site will be suitable for PE water supply pipework. However, an allowance for Barrier Pipe must be considered at this stage of investigation. |

## 7.3. Geotechnical Issues

| | |
|---|---|
| **Geological** | There are no running sands or organic deposits identified within the site boundary. The site is not affected by underlying coal workings. |
| **Civil and Structural** | Due to the historically developed areas of the site and demolition areas, below ground obstructions may still be present and will required grubbing out.<br><br>The site is situated within the city centre of Manchester and therefore an assessment on the risk to adjacent infrastructure will be required.<br><br>The western wall is considered to be a retaining wall down to the River Irwell. The River Irwell also forms the western boundary of the site.<br><br>It is thought at any services will be present within the highways and may cut across the site, further investigation will be required. |
| **Abnormal Foundations** | In consideration of the proposed structures (high rise development), piled foundations or raft foundations may be required to transfer the load to a competent strata. |

**END OF REPORT**

# APPENDIX I
# LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between E3P and the Client as indicated in Section 1.3.

2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information, it has been assumed it is correct. No attempt has been made to verify the information.

3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.

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

5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.

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

7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and do not constitute or replace full and proper surveys.

8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

9. E3P cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by E3P is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by E3P in this connection without their explicit written agreement there to by E3P.

10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

# APPENDIX II
# GLOSSARY

# TERMS

| | | | |
|---|---|---|---|
| **ACM** | Asbestos-containing material | **MMP** | Materials management plan |
| **ADS** | Acoustic design statement | **ND** | Not detected |
| **AST** | Above-ground storage tank | **NDP** | Nuclear density probe |
| **BGS** | British Geological Survey | **NMP** | Noise management plan |
| **BSI** | British Standards Institute | **NPSE** | Noise policy statement for England |
| **BTEX** | Benzene, toluene, ethylbenzene, xylenes | **NR** | Not recorded |
| **CA** | Coal Authority | **PAH** | Polycyclic aromatic hydrocarbon |
| **CBR** | California bearing ratio | **PCB** | Polychlorinated biphenyl |
| **CIEH** | Chartered Institute of Environmental Health | **PI** | Plasticity index |
| **CIRIA** | Construction Industry Research Association | **PID** | Photo ionisation detector |
| **CLEA** | Contaminated land exposure assessment | **POS** | Public open space |
| **CML** | Council of Mortgage Lenders | **PPE** | Personnel protective equipment |
| **CoC** | Contaminants of concern | **ProPG** | Professional practice guidance |
| **CSM** | Conceptual site model | **QA** | Quality assurance |
| **DNAPL** | Dense non-aqueous phase liquid (chlorinated solvents, PCB) | **SGV** | Soil guideline value |
| **DWS** | Drinking water standard | **SPH** | Separate-phase hydrocarbon |
| **EA** | Environment Agency | **SPT** | Standard penetration test |
| **EQS** | Environmental quality standard | **SVOC** | Semi-volatile organic compound |
| **FFL** | Finished floor level | **TPH** | Total and speciated petroleum hydrocarbon |
| **GAC** | General assessment criteria | **TPH CWG** | Total Petroleum Hydrocarbon (Criteria Working Group) |
| **GL** | Ground level | **UKWIR** | United Kingdom Water Infrastructure Risk |
| **GSV** | Gas screening value | **UST** | Underground storage tank |
| **HCV** | Health criteria value | **VCC** | Vibro-concrete column |
| **ICSM** | Initial conceptual site model | **VOC** | Volatile organic compound |
| **LEL** | Lower explosive limit | **VRSC** | Vibro-replacement stone columns |
| **LMRL** | Lower method reporting limit | **VSC** | Vibro-stone columns |
| **LNAPL** | Light non-aqueous phase liquid (petrol, diesel, kerosene) | **WHO** | World Health Organisation |
| **MCV** | Moisture condition value | **WRAP** | Waste and Resources Action Programme |
| **MIBK** | Methyl isobutyl ketone | **WTE** | Water table elevation |

| | | | |
|---|---|---|---|
| **m** | Metres | **ppm** | Parts per million |
| **km** | Kilometres | **mg/m$^3$** | Milligram per metre cubed |
| **% v/v** | Percent volume in air | **m bgl** | Metres below ground level |
| **mb** | Millibars (atmospheric pressure) | **m bcl** | Metre below cover level |
| **l/hr** | Litres per hour | **mAOD** | Metres above ordnance datum (sea level) |
| **µg/l** | Micrograms per litre (parts per billion) | **kN/m$^2$** | Kilonewtons per metre squared |
| **ppb** | Parts per billion | **µm** | Micrometre |
| **mg/kg** | Milligrams per kilogram (parts per million) | | |

# APPENDIX III
# DRAWINGS

## DRAWING 14-261-001 – SITE LOCATION PLAN

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*Historical Features*

- Former Buildings
- Former Carr Street
- Former Victoria Arcade
- Former Temperance Hotel
- Former Grosvenor Building
- Former Grosvenor Avenue
- Former Hotel
- Current Hotel and Car Park

*Notes:*

| Phase | Issue | Date | Drawn | Checked |
|---|---|---|---|---|
| P1 | REVA | 28.07.2020 | LM | EF |

*Client:* Property Alliance Group Ltd

*Job No:* 14-261

*Date:* 28.07.2020

*Drawing No:* 003

*Scale:* NTS

*Job Title:* Renaissance Deansgate

*Drawing Title:* Historical Features Plan


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*Site Features*

- Multi-Storey Car Park
- Hotel
- Restaurant
- Staircases
- Car Park Ramp

*Notes:*

| Phase | Issue | Date | Drawn | Checked |
|---|---|---|---|---|
| P1 | REVA | 28.07.2020 | LM | EF |

*Client:* Property Alliance Group Ltd

*Job No:* 14-261

*Date:* 28.07.2020

*Drawing No:* 004

*Scale:* NTS

*Job Title:* Renaissance Deansgate

*Drawing Title:* Site Features Plan

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# APPENDIX IV
# HISTORICAL MAPS

# Historical Mapping Legends

## Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

Quarry
Gravel Pit
Sand Pit
Clay Pit
Shingle
Refuse Heap
Sloping Masonry
Flat Rock
Marsh
Reeds
Osiers
Rough Pasture
Furze
Wood
Mixed Wood
Brushwood
Orchard
Fir
Ford
Stepping Stones
Ferry
Waterfall
Lock

Trig. Station
507 Altitude at Trig. Station
B.M.325·9 Bench Mark
342 Surface Level
Arrow denotes flow of water
Antiquities (site of)

Cutting
Embankment
Railway crossing Road
Level Crossing
Road crossing Railway
Railway crossing River or Canal
Road over single stream
Road over River or Canal

County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)

| | | | |
|---|---|---|---|
| B P B S | Boundary Post or Stone | P.C.B | Police Call Box |
| B.R. | Bridle Road | P | Pump |
| E.P | Electricity Pylon | S.P | Signal Post |
| F.B. | Foot Bridge | St. | Sluice |
| F.P. | Foot Path | Sp. | Spring |
| G.P | Guide Post or Board | T.C.B | Telephone Call Box |
| M.S | Mile Stone | Tr. | Trough |
| M.P M.R | Mooring Post or Ring | W | Well |

## Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Inactive Quarry, Chalk Pit or Clay Pit
or
Active Quarry, Chalk Pit or Clay Pit
Rock
Boulders
Cliff
Slopes
Top
Top
Roofed Building
Glazed Roof Building
Top
Sloping Masonry
Archway
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
B M Bench Mark
Antiquity (site of)
Cave Entrance
Triangulation Station
Electricity Pylon
E T L Electricity Transmission Line

County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
L B Bdy London Borough Boundary
Symbol marking point where boundary mereing changes

| | | | |
|---|---|---|---|
| BH | Beer House | P | Pillar, Pole or Post |
| BP, BS | Boundary Post or Stone | PO | Post Office |
| Cn, C | Capstan, Crane | PC | Public Convenience |
| Chy | Chimney | PH | Public House |
| D Fn | Drinking Fountain | Pp | Pump |
| El P | Electricity Pillar or Post | SB, S Br | Signal Box or Bridge |
| FAP | Fire Alarm Pillar | SP, SL | Signal Post or Light |
| FB | Foot Bridge | Spr | Spring |
| GP | Guide Post | Tk | Tank or Track |
| H | Hydrant or Hydraulic | TCB | Telephone Call Box |
| LC | Level Crossing | TCP | Telephone Call Post |
| MH | Manhole | Tr | Trough |
| MP | Mile Post or Mooring Post | Wr Pt, Wr T | Water Point, Water Tap |
| MS | Mile Stone | W | Well |
| NTL | Normal Tidal Limit | Wd Pp | Wind Pump |

## Large-Scale National Grid Data 1:2,500 and 1:1,250

Cliff
Slopes
Top
Top
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Positioned Boulder
Scree
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
Triangulation Station
Antiquity (site of)
E T L Electricity Transmission Line
Electricity Pylon
BM 291.60m Bench Mark
Buildings with Building Seed
Roofed Building
Glazed Roof Building

Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

| | | | |
|---|---|---|---|
| Bks | Barracks | P | Pillar, Pole or Post |
| Bty | Battery | PO | Post Office |
| Cemy | Cemetery | PC | Public Convenience |
| Chy | Chimney | Pp | Pump |
| Cis | Cistern | Ppg Sta | Pumping Station |
| Dismtd Rly | Dismantled Railway | PW | Place of Worship |
| El Gen Sta | Electricity Generating Station | Sewage Ppg Sta | Sewage Pumping Station |
| El P | Electricity Pole, Pillar | SB, S Br | Signal Box or Bridge |
| El Sub Sta | Electricity Sub Station | SP, SL | Signal Post or Light |
| FB | Filter Bed | Spr | Spring |
| Fn / D Fn | Fountain / Drinking Ftn. | Tk | Tank or Track |
| Gas Gov | Gas Valve Compound | Tr | Trough |
| GVC | Gas Governer | Wd Pp | Wind Pump |
| GP | Guide Post | Wr Pt, Wr T | Water Point, Water Tap |
| MH | Manhole | Wks | Works (building or area) |
| MP, MS | Mile Post or Mile Stone | W | Well |

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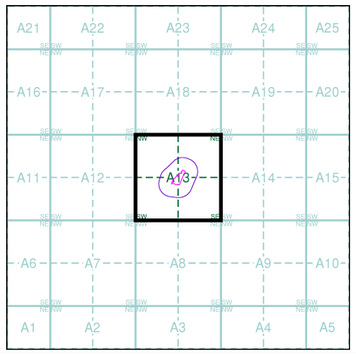
## Historical Mapping & Photography included:

| Mapping Type | Scale | Date | Pg |
|---|---|---|---|
| Lancashire And Furness | 1:2,500 | 1892 | 2 |
| Lancashire And Furness | 1:2,500 | 1908 | 3 |
| Lancashire And Furness | 1:2,500 | 1932 - 1933 | 4 |
| Ordnance Survey Plan | 1:1,250 | 1948 - 1949 | 5 |
| Ordnance Survey Plan | 1:2,500 | 1951 | 6 |
| Ordnance Survey Plan | 1:1,250 | 1951 - 1957 | 7 |
| Ordnance Survey Plan | 1:2,500 | 1955 - 1958 | 8 |
| Ordnance Survey Plan | 1:1,250 | 1962 - 1970 | 9 |
| Ordnance Survey Plan | 1:2,500 | 1963 - 1965 | 10 |
| Ordnance Survey Plan | 1:2,500 | 1969 - 1971 | 11 |
| Ordnance Survey Plan | 1:1,250 | 1973 - 1989 | 12 |
| Supply of Unpublished Survey Information | 1:1,250 | 1975 | 13 |
| Additional SIMs | 1:1,250 | 1979 - 1984 | 14 |
| Additional SIMs | 1:1,250 | 1985 - 1990 | 15 |
| Additional SIMs | 1:1,250 | 1988 | 16 |
| Additional SIMs | 1:1,250 | 1990 | 17 |
| Large-Scale National Grid Data | 1:1,250 | 1992 | 18 |
| Large-Scale National Grid Data | 1:1,250 | 1994 - 1995 | 19 |
| Large-Scale National Grid Data | 1:1,250 | 1995 | 20 |
| Large-Scale National Grid Data | 1:1,250 | 1996 | 21 |
| Large-Scale National Grid Data | 1:1,250 | 1996 | 22 |
| Historical Aerial Photography | 1:2,500 | 2000 | 23 |

## Historical Map - Segment A13

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## Order Details

Order Number: 248697096_1_1
Customer Ref: 14261-EF-A
National Grid Reference: 383750, 398620
Slice: A
Site Area (Ha): 0.53
Search Buffer (m): 100

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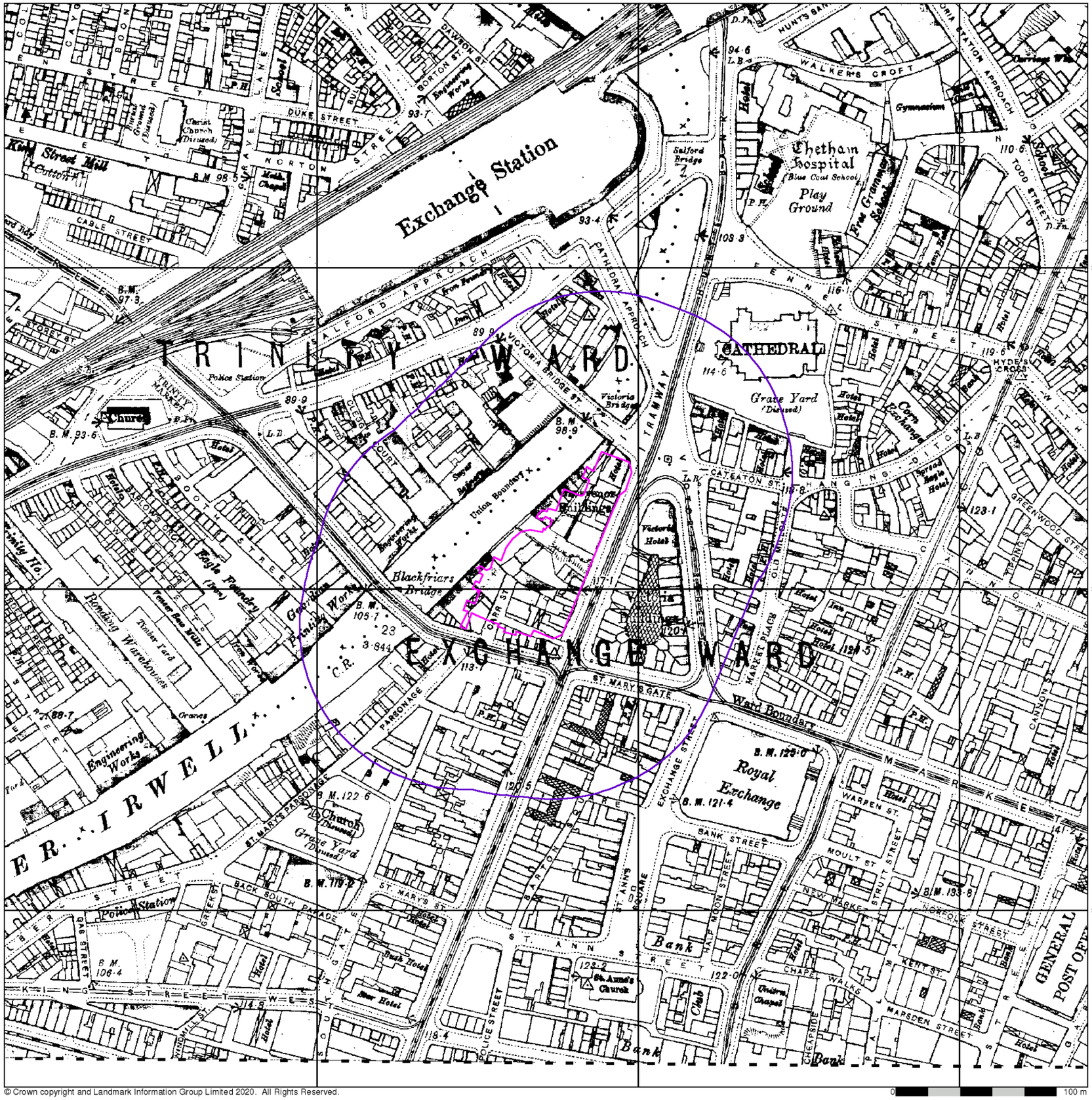


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## Lancashire And Furness

## Published 1892

## Source map scale - 1:2,500

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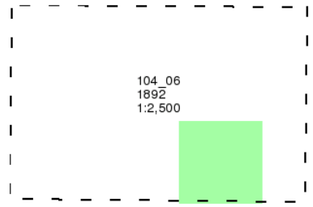


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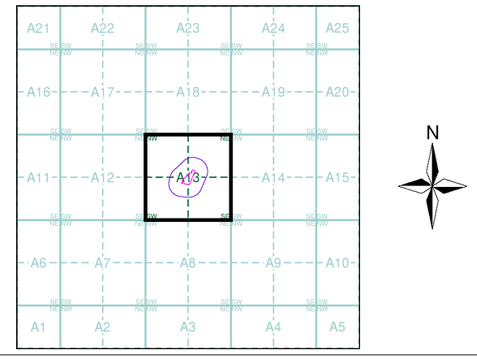


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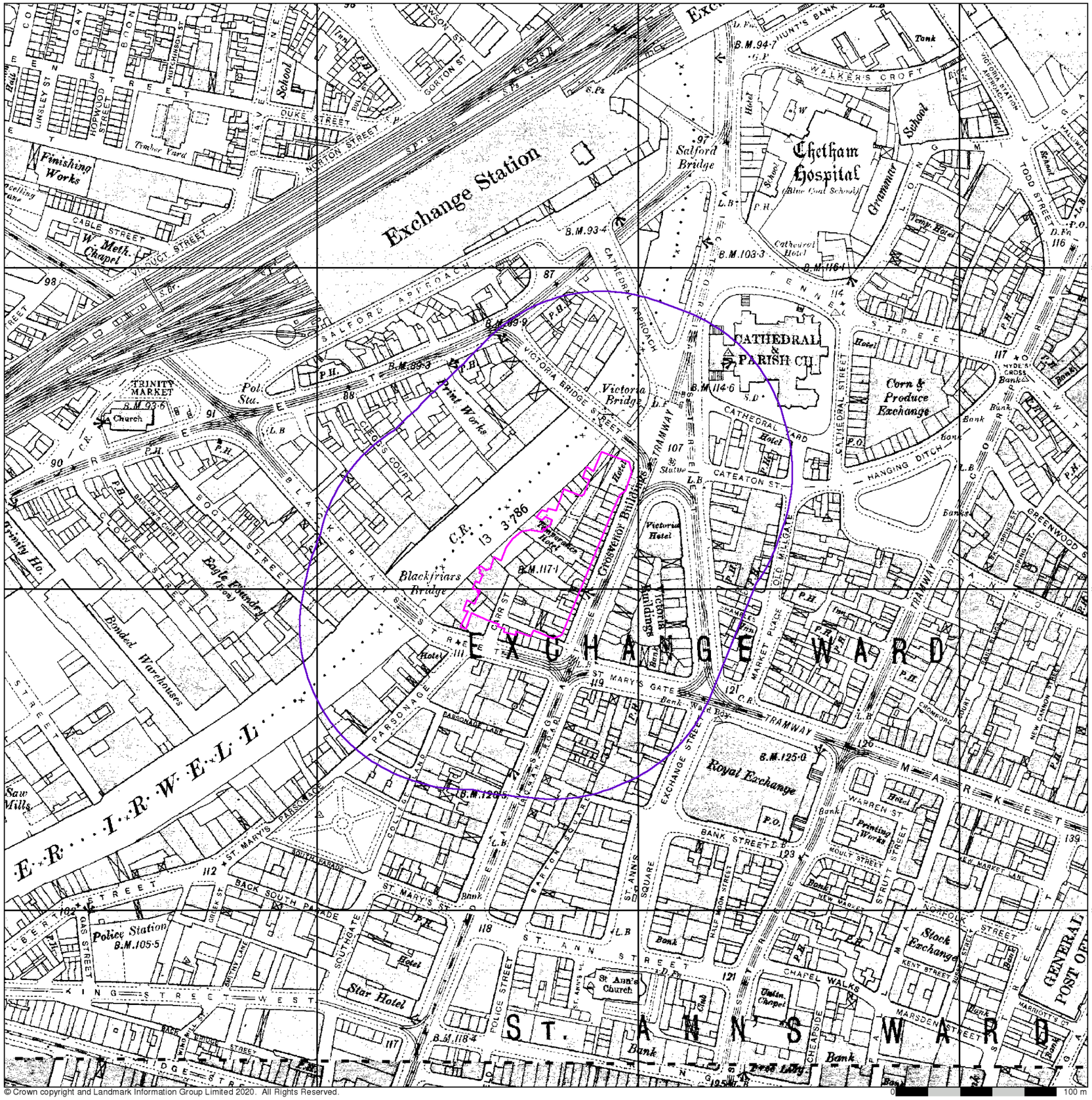


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## Lancashire And Furness

## Published 1908

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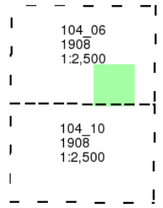


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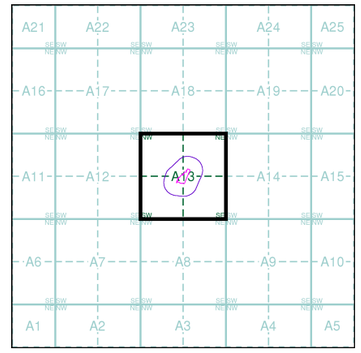


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| Site Area (Ha): | 0.53 |
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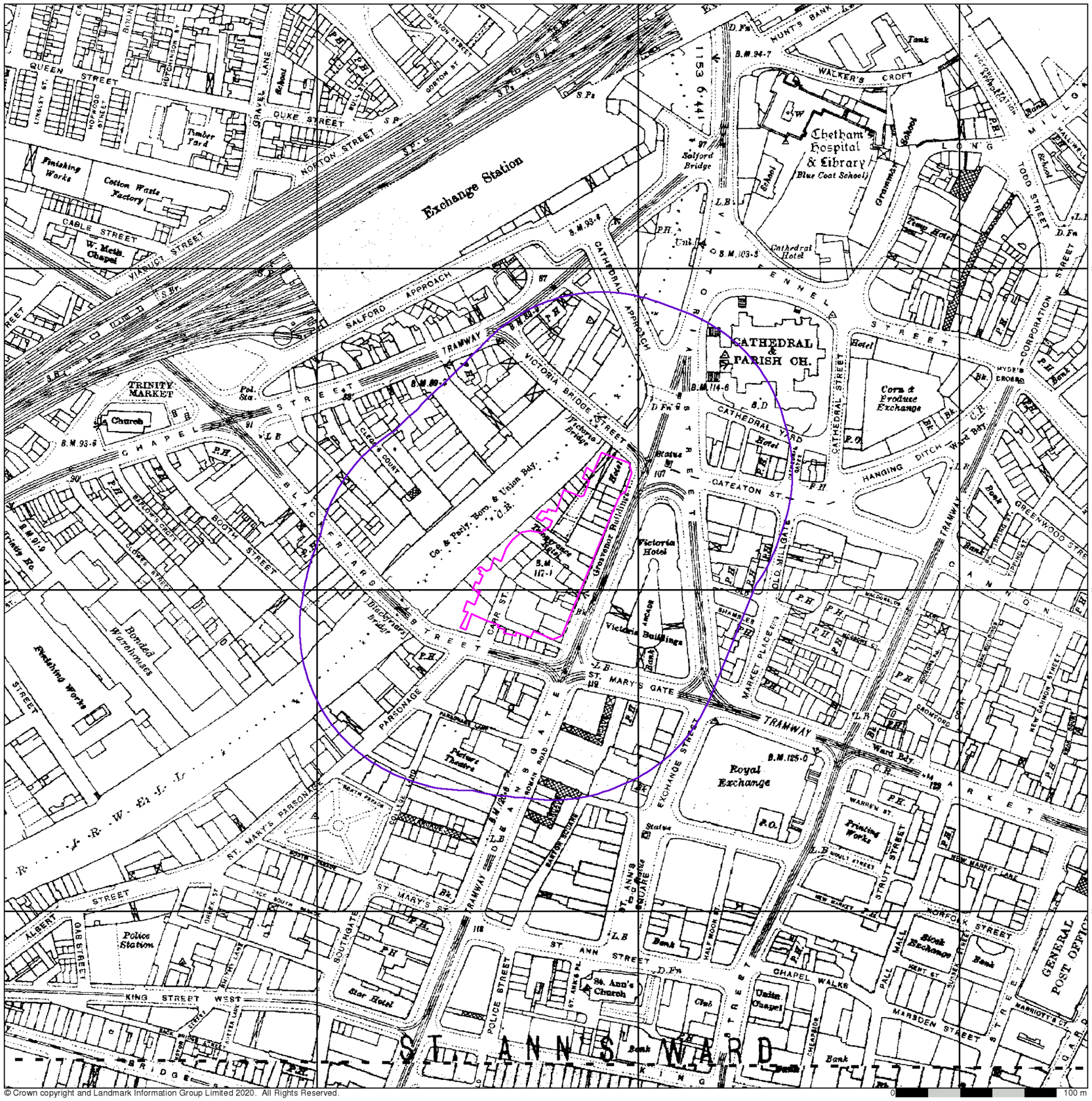


# Lancashire And Furness

## Published 1932 - 1933

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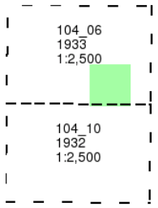


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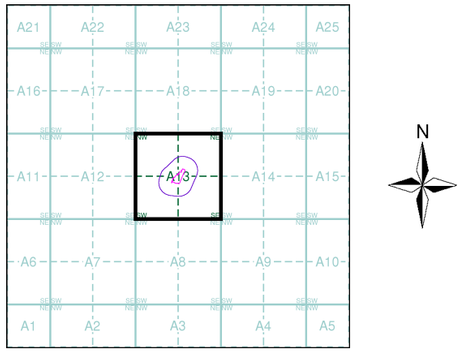


## Order Details

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| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
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| Search Buffer (m): | 100 |

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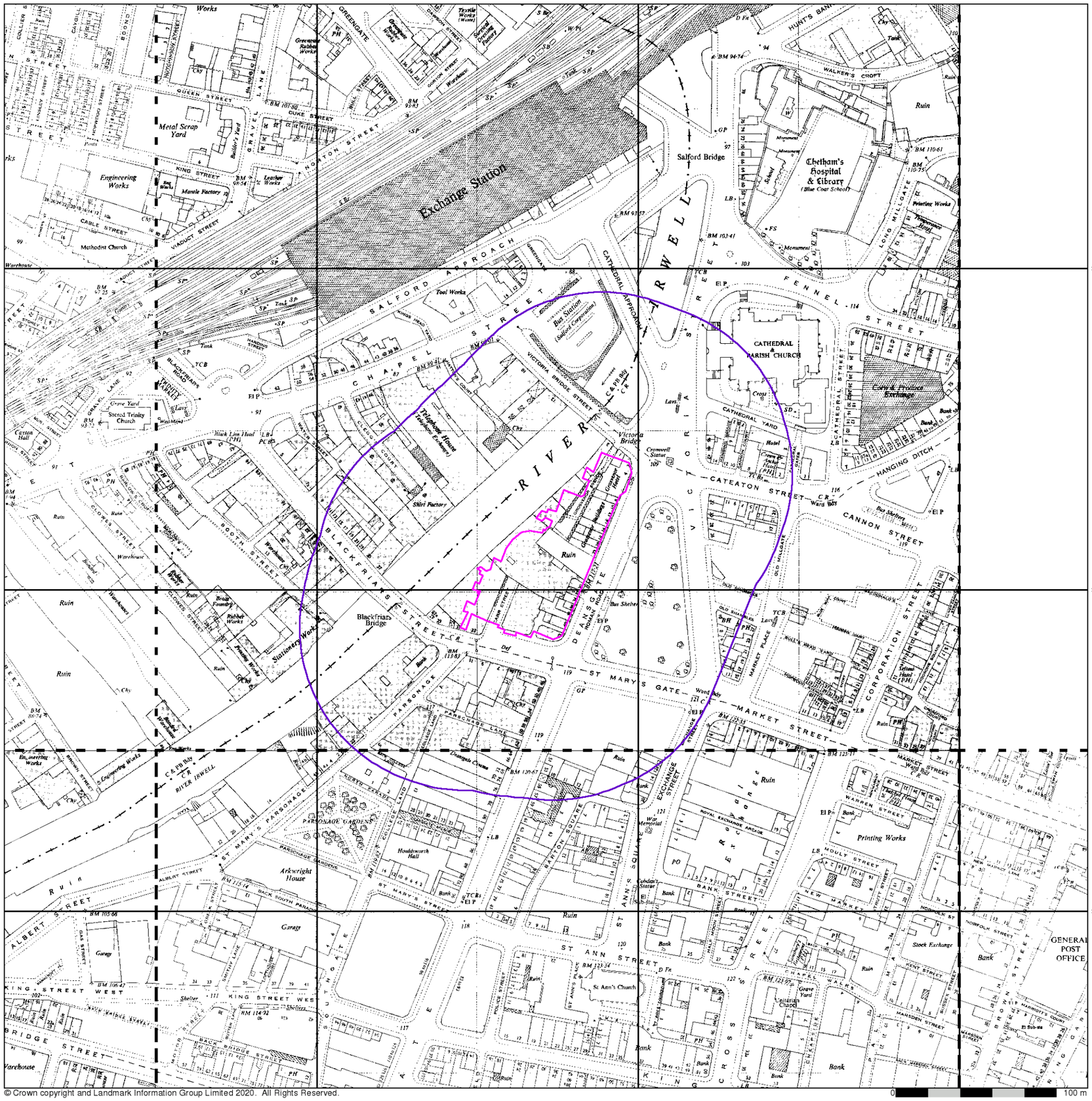


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## Ordnance Survey Plan

## Published 1948 - 1949

## Source map scale - 1:1,250

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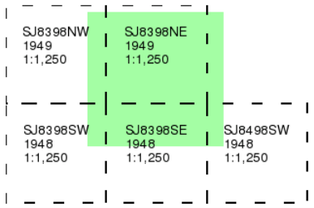
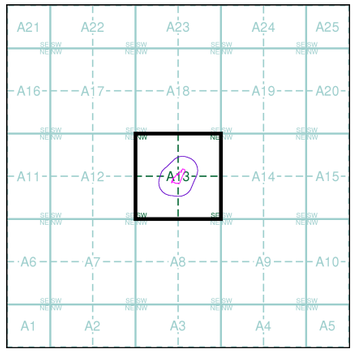
## Map Name(s) and Date(s)




## Historical Map - Segment A13

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## Order Details

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|---|---|
| Order Number: | 248697096_1_1 |
| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

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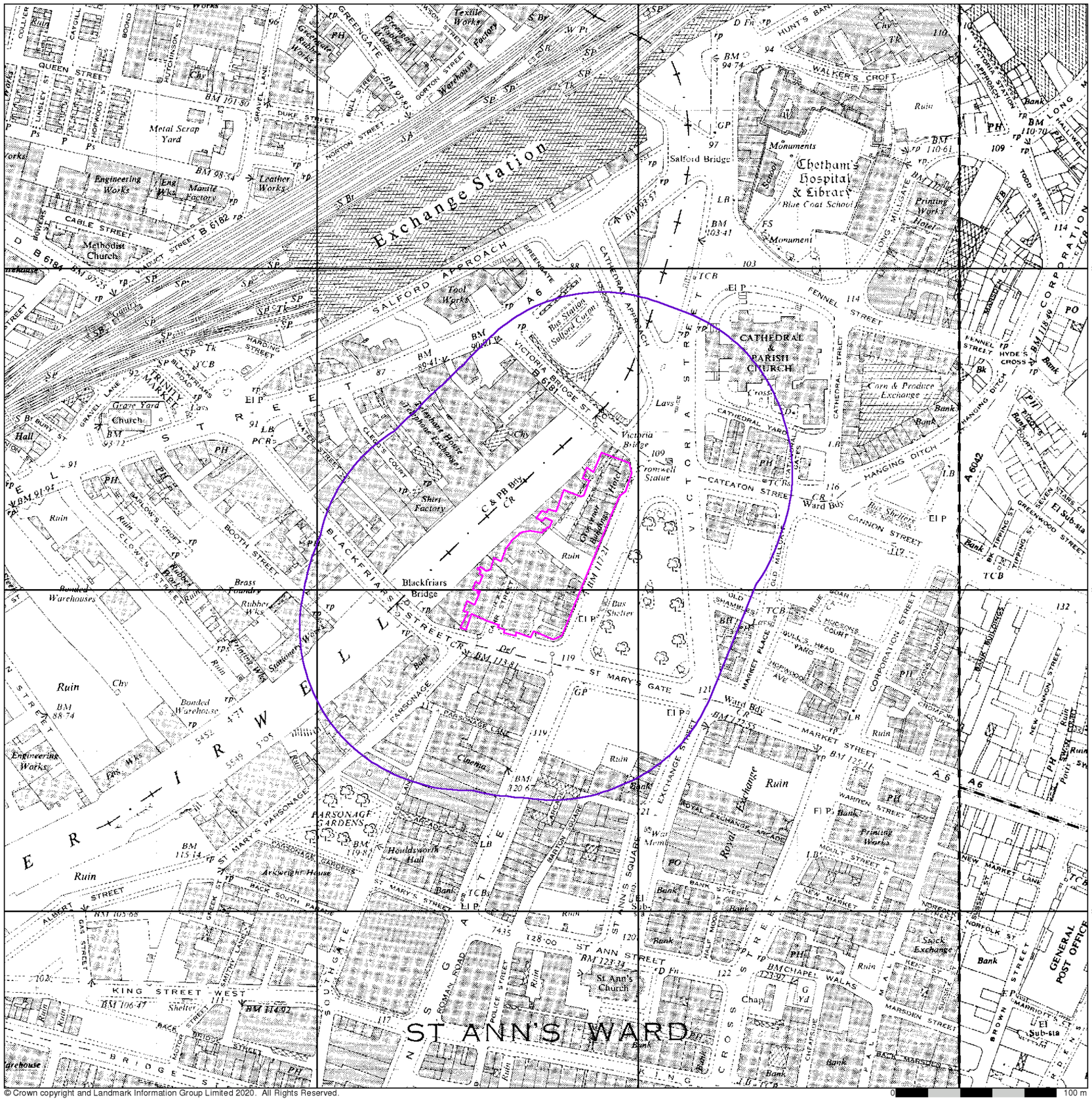


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## Ordnance Survey Plan

## Published 1951

## Source map scale - 1:2,500

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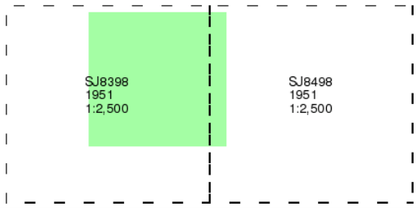
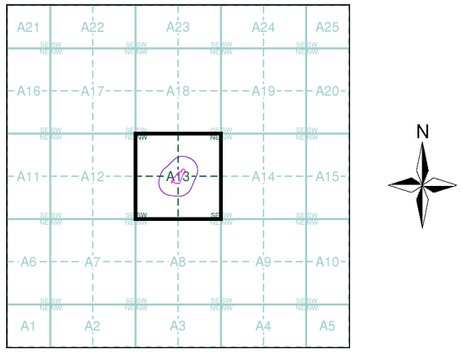
## Map Name(s) and Date(s)




## Historical Map - Segment A13




## Order Details

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|---|---|
| Order Number: | 248697096_1_1 |
| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

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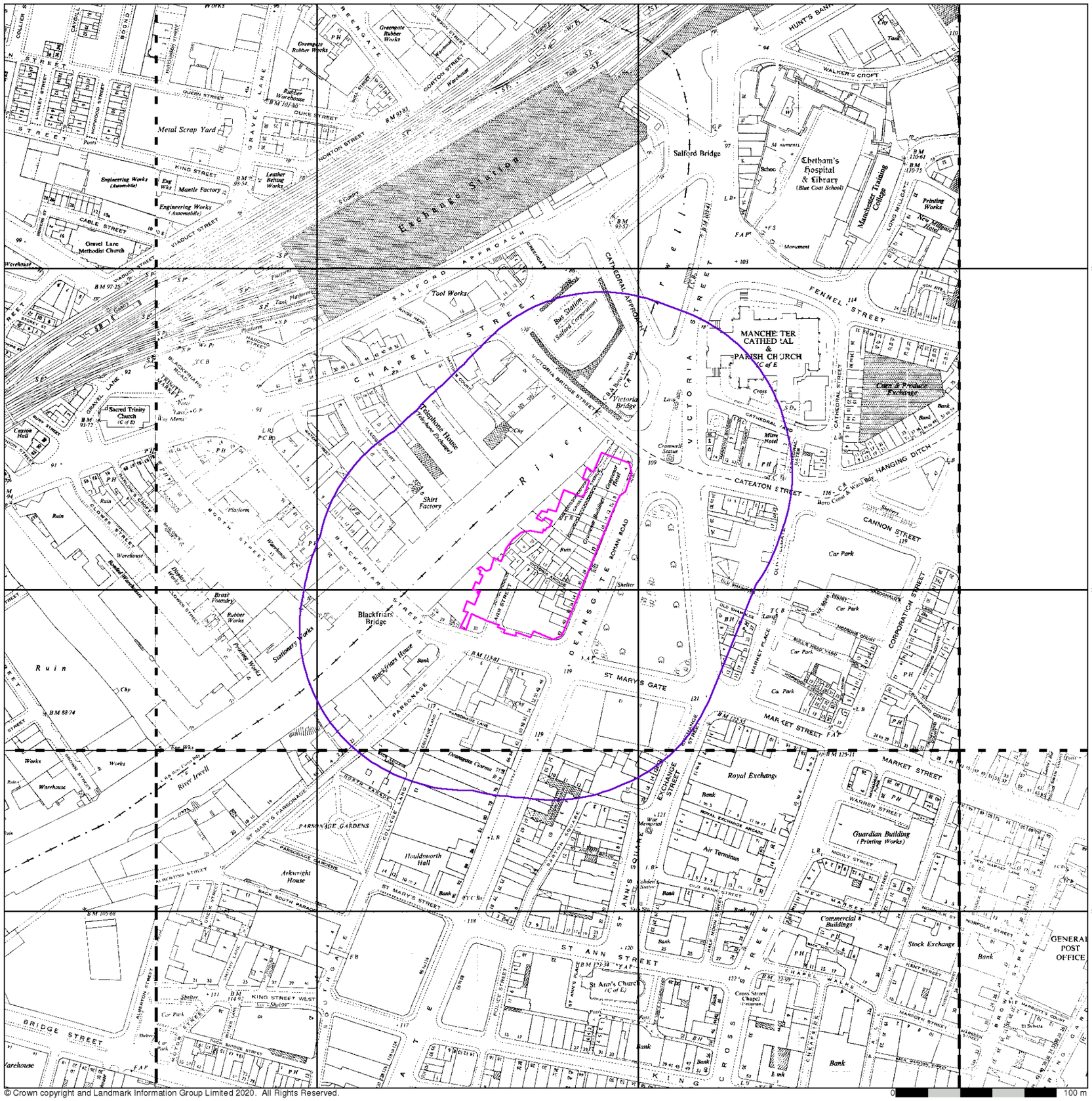


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## Ordnance Survey Plan

## Published 1951 - 1957

## Source map scale - 1:1,250

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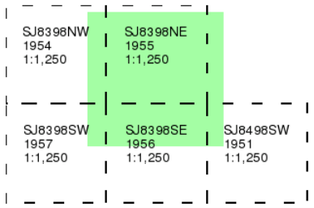
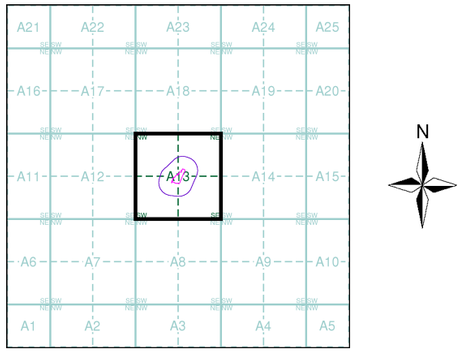



## Historical Map - Segment A13




## Order Details

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| Order Number: | 248697096_1_1 |
| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

## Site Details

Renaissance, Deansgate, MANCHESTER, M3 2FE

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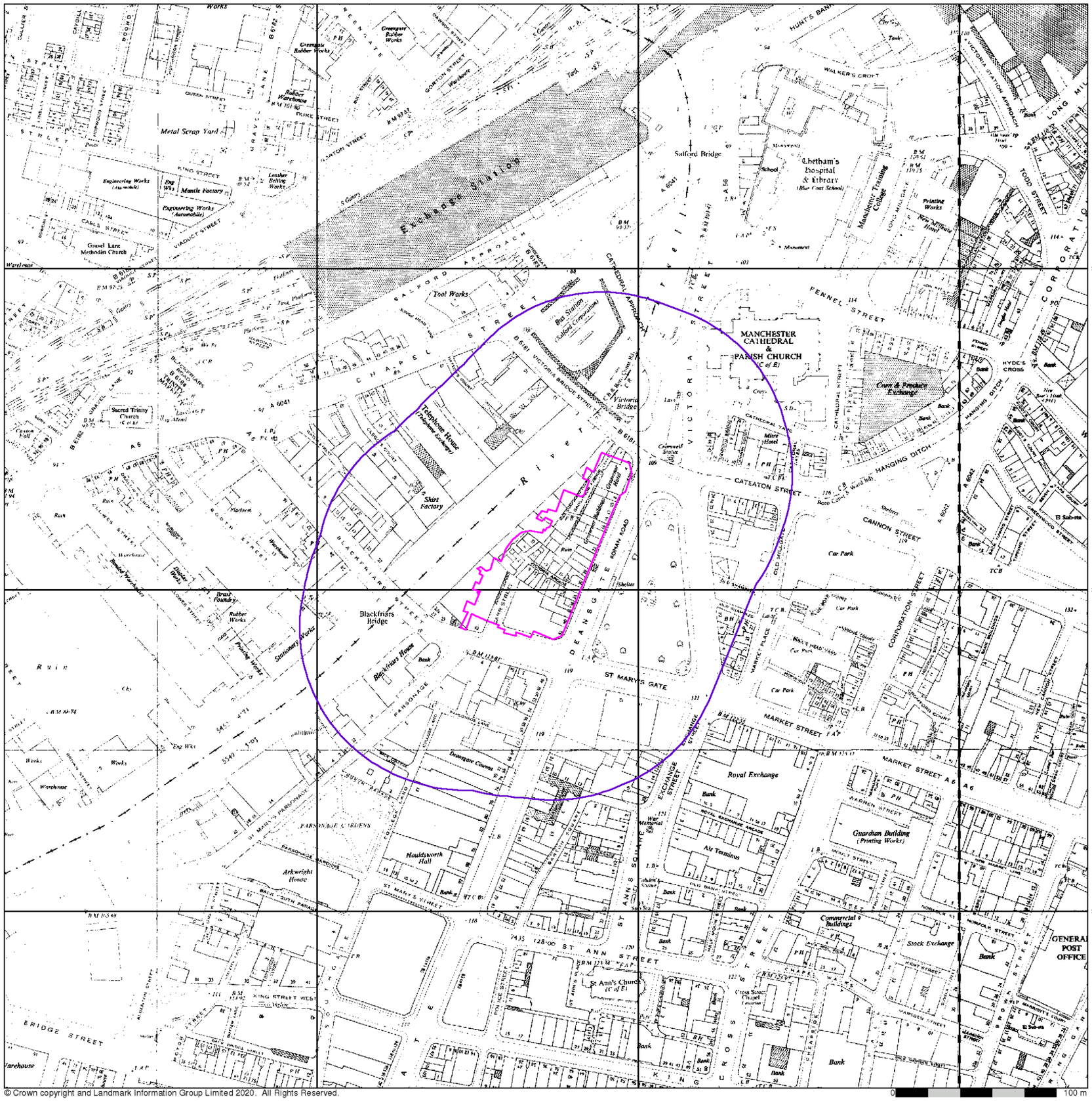


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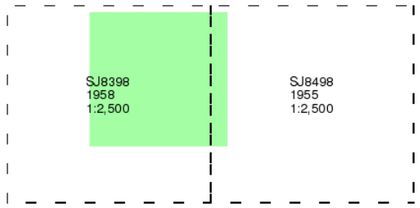
## Ordnance Survey Plan

## Published 1955 - 1958

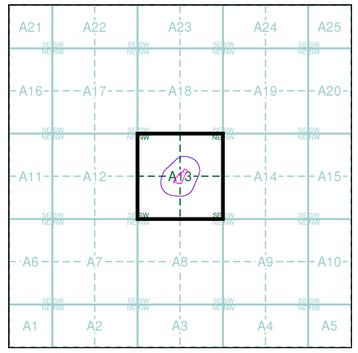
## Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

## Map Name(s) and Date(s)




## Historical Map - Segment A13




## Order Details

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| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

## Site Details

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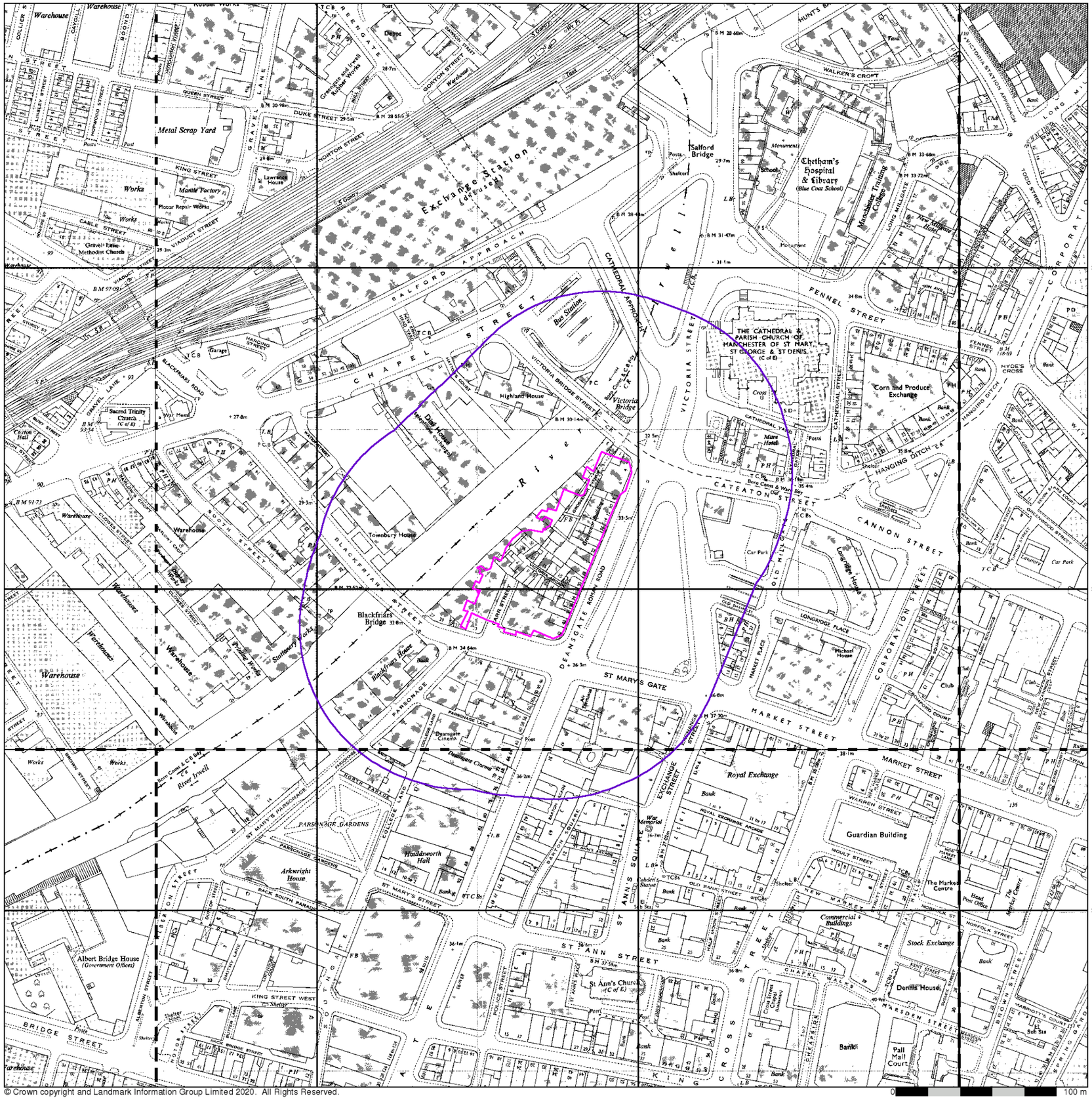


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## Ordnance Survey Plan

## Published 1962 - 1970

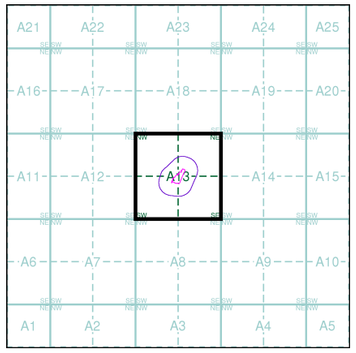
## Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

## Map Name(s) and Date(s)

| | | |
|---|---|---|
| SJ8398NW 1962 1:1,250 | SJ8398NE 1970 1:1,250 | SJ8498NW 1963 1:1,250 |
| SJ8398SW 1962 1:1,250 | SJ8398SE 1970 1:1,250 | SJ8498SW 1968 1:1,250 |

## Historical Map - Segment A13

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| Order Number: | 248697096_1_1 |
| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

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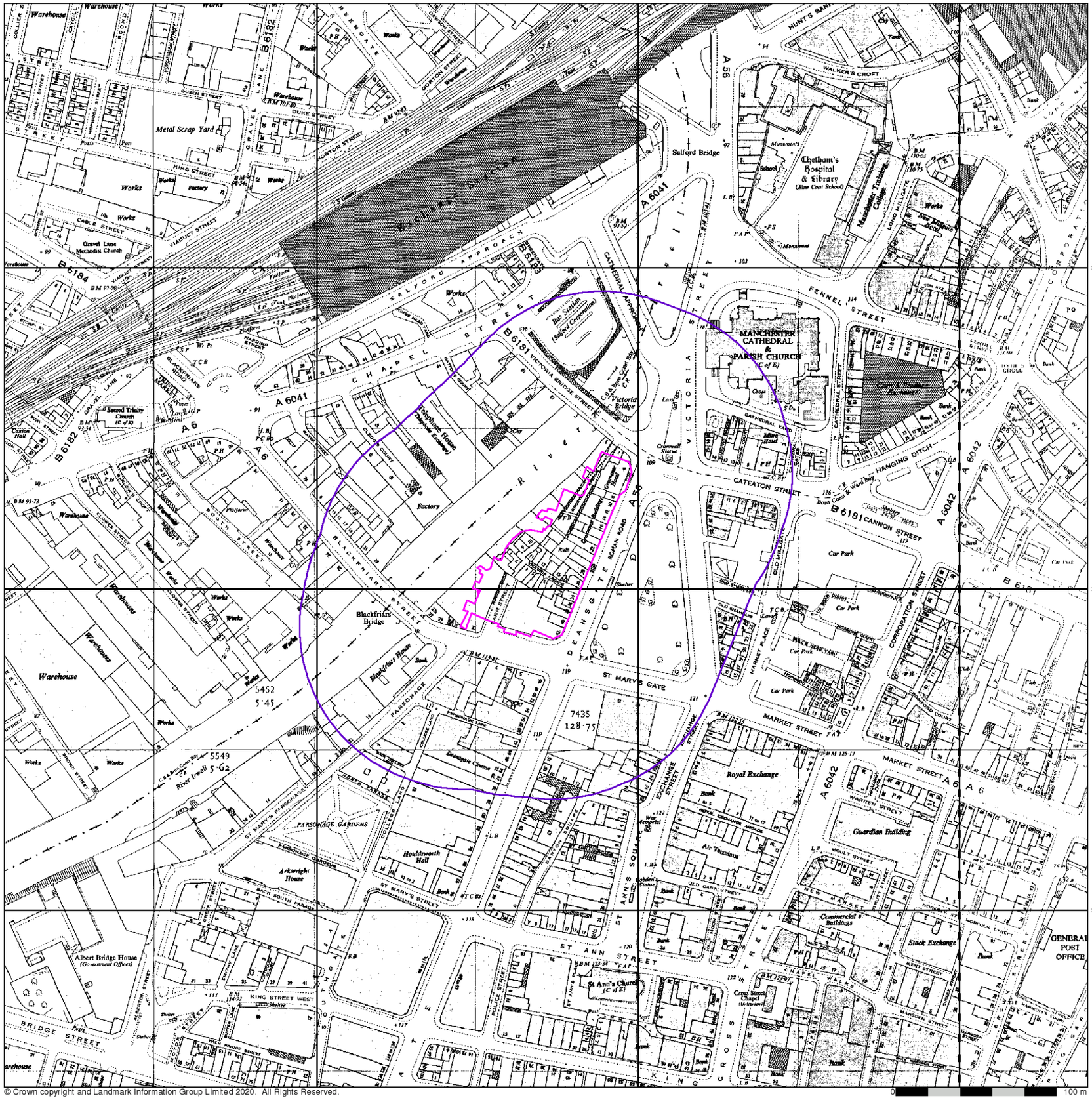
383600
383800
384000
398800
398600
398400
Metal Scrap Yard
Works
Warehouse
Gravel Lane Methodist Church
Salford Bridge
Chetham's Hospital & Library
(Blue Coat School)
Manchester Training College
MANCHESTER CATHEDRAL & PARISH CHURCH
(C of E)
Victoria Bridge
Bus Station (Salford Corporation)
Blackfriars Bridge
Blackfriars House
Royal Exchange
Exchange Street
Air Terminus
Guardian Building
Commercial Buildings
Stock Exchange
GENERAL POST OFFICE
Car Park
Houldsworth Hall
Arkwright House
PARSONAGE GARDENS
Albert Bridge House
(Government Offices)
St Ann's Church
(C of E)
Cross Street Chapel
River Irwell
River Irk
5452
5·45
5549
5·62
7435
128·75
A 6041
A 6
A 56
A 6042
B 6184
B 6182
B 6181
B 6183
CHAPEL STREET
VICTORIA STREET
FENNEL STREET
CATEATON STREET
CANNON STREET
HANGING DITCH
DEANSGATE
ST MARY'S GATE
MARKET STREET
ST ANN'S SQUARE
ST ANN STREET
KING STREET WEST
BRIDGE STREET
WALKER'S CROFT
HUNT'S BANK
CORPORATION STREET
WARREN STREET
OLD MILLGATE
SALFORD APPROACH
CATHEDRAL APPROACH
VICTORIA BRIDGE STREET
BLACKFRIARS STREET
PARSONAGE
ST MARY'S PARSONAGE
ST MARY'S STREET
QUEEN STREET
DUKE STREET
KING STREET
CABLE STREET
VIADUCT STREET
GRAVEL LANE
BLACKFRIARS ROAD
BOOTH STREET
CLOVER STREET
ROCHDALE ROAD
ROMAN ROAD
MARKET PLACE
MARKET STREET FAT
EXCHANGE STREET
OLD BANK STREET
MOSLEY STREET
NORFOLK STREET
ANNY STREET
MANSFIELD STREET
CHAPEL WALKS
KING STREET
CROSS STREET
POLICE STREET
ST ANN'S PLACE
CHEAPSIDE
MARSDEN STREET
BACK SOUTH PARADE
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BRIDGE STREET
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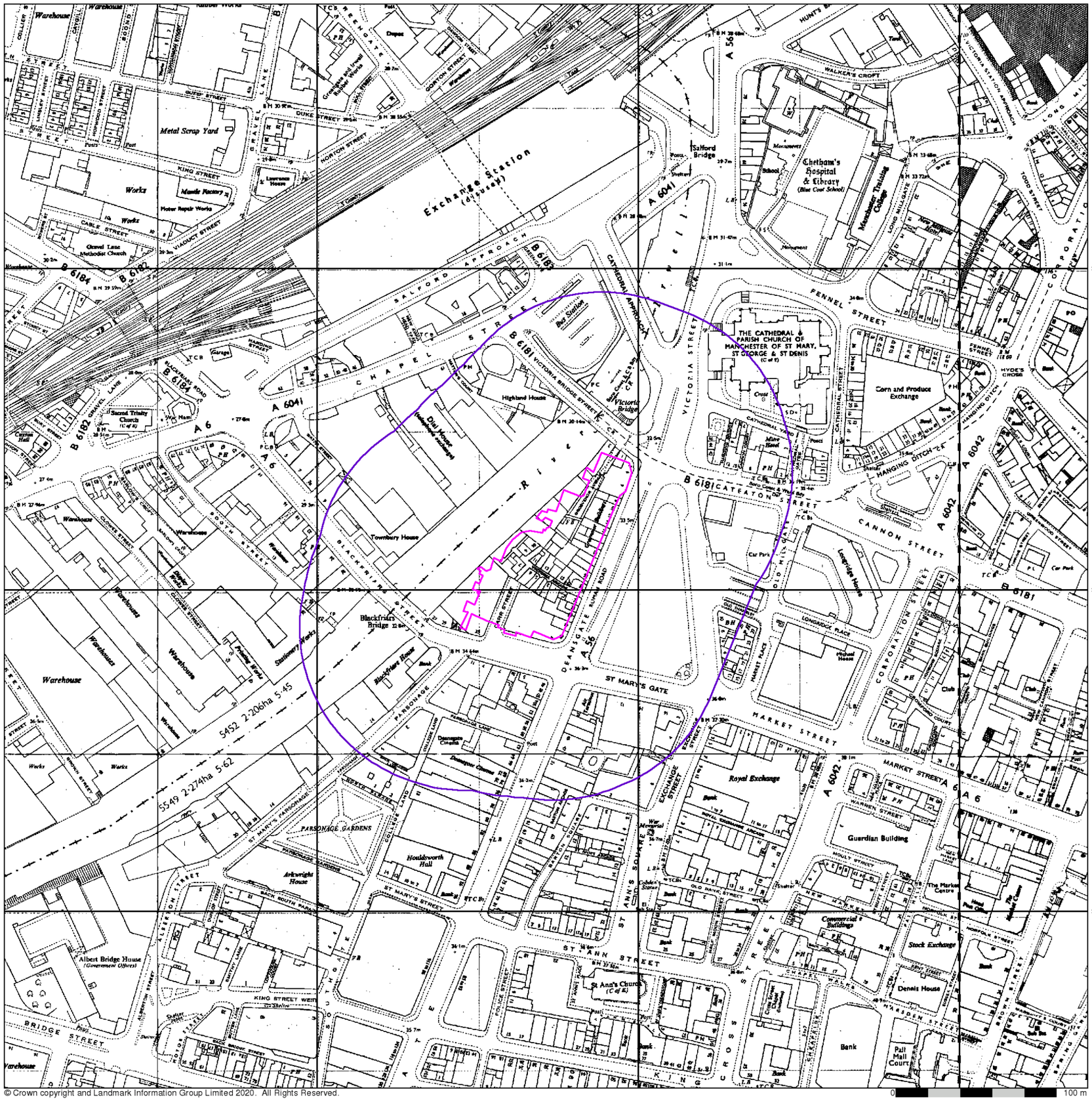
Car Park
Warehouse
Works

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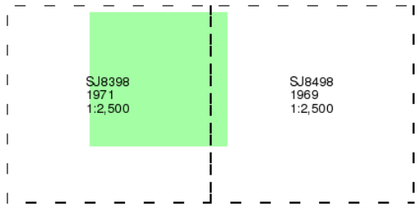
## Ordnance Survey Plan

## Published 1969 - 1971

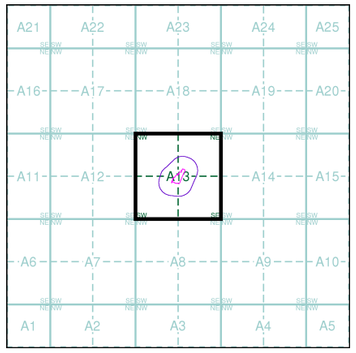
## Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

## Map Name(s) and Date(s)




## Historical Map - Segment A13




## Order Details

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| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

## Site Details

Renaissance, Deansgate, MANCHESTER, M3 2FE

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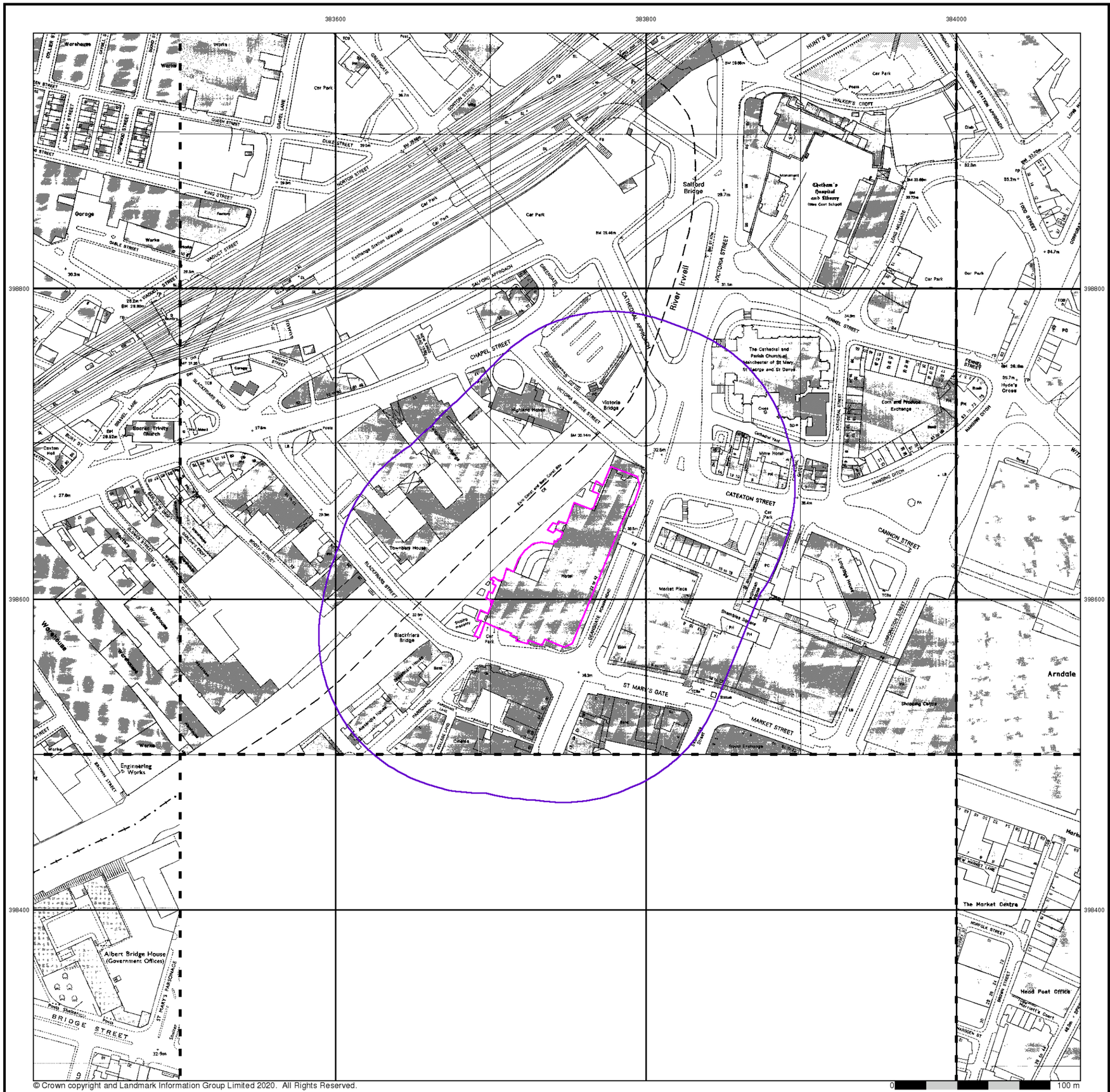
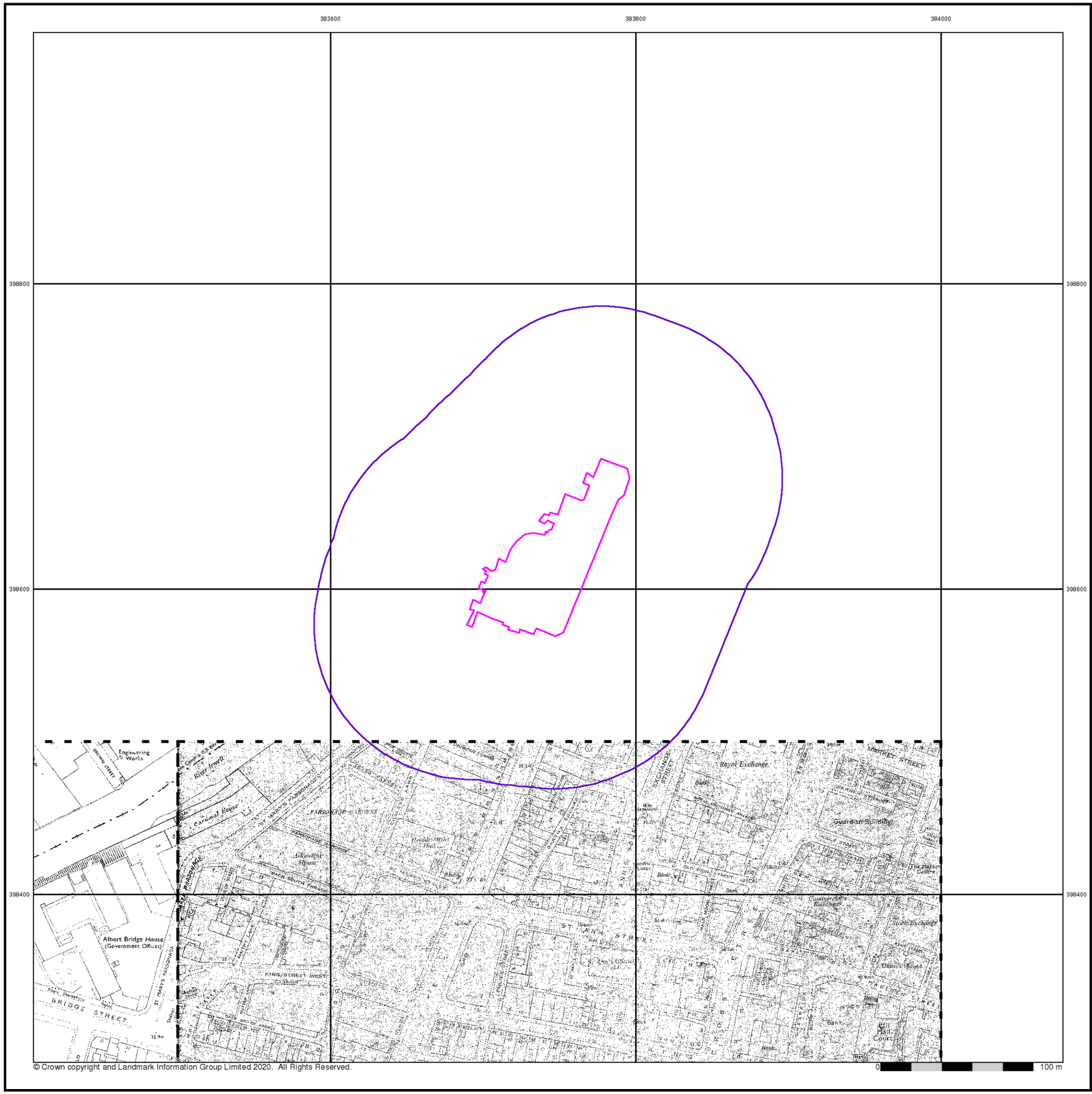

383600
383800
384000
398800
398600
398400
River Irwell
Salford Bridge
Victoria Bridge
Blackfriars Bridge
Victoria Station (Upper)
Exchange Station (Lower)
Car Park
Works
Warehouse
Garage
Sacred Trinity Church
Cathedral and Parish Church of Manchester or St Mary, St George and St Denys
Corn and Produce Exchange
Mitre Hotel
Town Hall
Market Place
Shambles Square
Shopping Centre
Arndale
The Market Centre
Head Post Office
Hyde's Cross
Hanging Ditch
Cathedral Yard
Chapel Walks
Cheetham's Hospital and Library
Town Hall Extension
Engineering Works
Albert Bridge House (Government Offices)
Travelodge
Hotel
Cateaton Street
Cannon Street
Market Street
St Mary's Gate
Victoria Bridge Street
Chapel Street
Deansgate
Blackfriars Road
Bridge Street
Fennel Street
Victoria Station Approach
Salford Approach
Cathedral Approach
Hunt's Bank
Walker's Croft
Long Millgate
Corporation Street
Norfolk Street
Brown Street
Dantzic Street
Dukes Brow
Duke Street
King Street
Queen Street
Gaskell Street
Lower Mosley Street
Bridgewater Street
Liverpool Road
Water Street
Deansgate Approach
Cross Street
Blackfriars Street
Spring Gardens
Peter Street
Lloyd Street
Cromford Court
Hardman Street
Spinning Fields
Quay Street
Gartside Street
Great Ancoats Street
Oldham Road
Rochdale Road
Miller Street
Dantzic Street
Shudehill
Thomas Street
Tonman Street
Todd Street
Dolphin Street
Greengate
Gravel Lane
Norton Street
Viaduct Street
Lower Mosley Street
Hanging Ditch
Cathedral Street
Chapel Walks
Parsonage
St Mary's Parsonage
Hunt's Bank
Victoria Station Approach
Long Millgate
Todd Street

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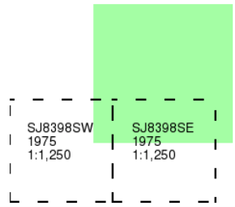
## Supply of Unpublished Survey Information

### Published 1975

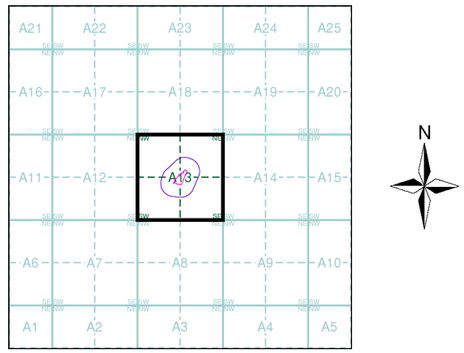
### Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

## Map Name(s) and Date(s)




## Historical Map - Segment A13




## Order Details

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| Order Number: | 248697096_1_1 |
| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

## Site Details

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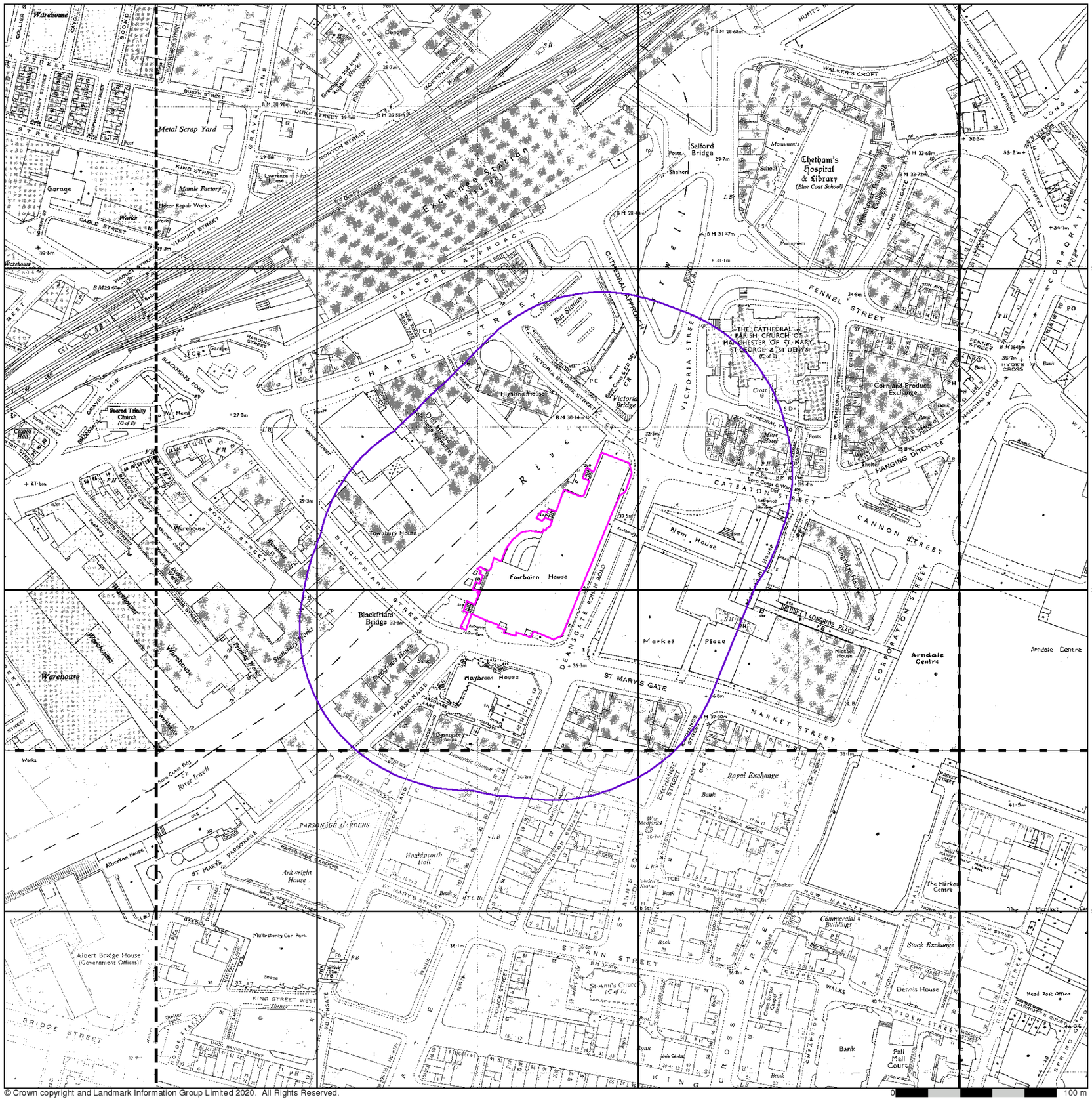
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398600
398400
Exchange Station
Metal Scrap Yard
Mantle Factory
Salford Bridge
Chetham's Hospital & Library
(Blue Coat School)
Millennium Technology College
THE CATHEDRAL & PARISH CHURCH OF MANCHESTER OF ST. MARY, ST. GEORGE & ST. DENYS
Corn and Produce Exchange
Bus Station
Victoria Bridge
Highland House
Old House
Townbury House
Fairbairn House
Blackfriars Bridge
Maybrook House
Deansgate Cinema
Market Place
Arndale Centre
Royal Exchange
Commercial Buildings
Stock Exchange
Dennis House
Bank
Pall Mall Court
St. Ann's Church
Houghtwright Hall
Arkwright House
Albert Bridge House (Government Offices)
Alberton House
Sacred Trinity Church
Caxton Hall
Warehouse
Garage
Works
Printing Works
Station Works
River Irwell
River Tib
Victoria Station
Victoria Street
Chapel Street
Salford Approach
Cathedral Approach
Fennel Street
Cateaton Street
Cannon Street
Corporation Street
Market Street
St Mary's Gate
Deansgate
Exchange Street
St Ann's Square
St Ann Street
King Street
Blackfriars Road
Bridge Street
Parsonage Gardens
Hanging Ditch
Hyde's Cross
Walker's Croft
Victoria Mayfon Approach
Long Millgate
Todd Street
Queen Street
Duke Street
Norton Street
King Street
Cable Street
Viaduct Street
Gravel Lane
Blackfriars Street
Deansgate Bridge Road
Longridge Place
Marsden Street
Chapel Walks
Cross Street
Corporation Street
Market Place
Arndale Centre
Dennis House
Head Post Office
Mulberry Car Park
Shops
Bus Station
Bus Stop
Bank
Shelter
Posts
Monuments
School
Ponumen
Tanks
Depot
Lawrence House
Greenacre Rail Travel Repair Works
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Warehouse
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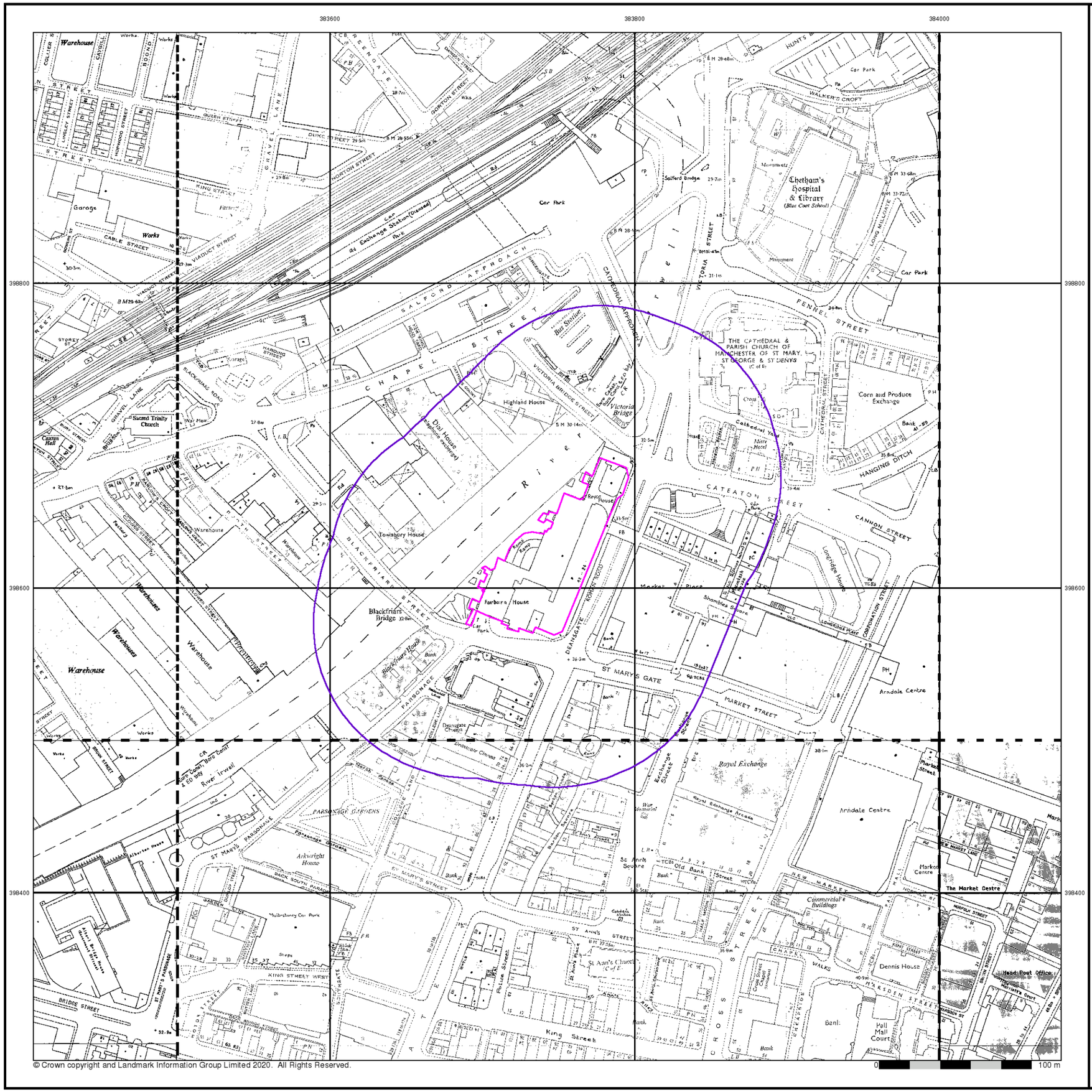
Printing Works
Station Works
Bus Stop
Bus Stop & Shelter
Bus Stop & Shelter
Bus Stop & Shelter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Chetham's Hospital & Library
(Blue Coat School)
Victoria Bridge
Highland House
Dial House
Townbury House
Fairbairn House
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Blackfriars House
Deansgate Cinema
Royal Exchange
Arndale Centre
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Sacred Trinity Church
Arkwright House
Commercial Buildings
Dennis House
Head Post Office
The Market Centre
River Irwell
CHAPEL STREET
SALFORD APPROACH
CATHEDRAL APPROACH
VICTORIA BRIDGE STREET
FENNEL STREET
CATEATON STREET
CANNON STREET
HANGING DITCH
DEANSGATE
ST MARYS GATE
MARKET STREET
PARSONAGE
PARSONAGE GARDENS
ST MARYS PARSONAGE
ST MARY'S STREET
ST ANN'S STREET
KING STREET
KING STREET WEST
BRIDGE STREET
MARSDEN STREET
CHAPEL WALKS
NEW MARKET STREET
Warehouse
Works
Garage
Car Park
Exchange Station (Disused)
Bus Station
Market Hotel
Cathedral Yard
Shambles Square
Longridge House
Royal Exchange Arcade
Exchange Street
Market Place
St Ann's Square
St Ann's Church (C of E)
Old Bank
Hall Mall Court
Banl.
Bank
Market Street
Deansgate
Victoria Street
Salford Bridge
Monuments
Monument
Walker's Croft
Long Millgate
Cathedral Street
Corporation Street
Longridge Place
Hunts Bank
Chapel Walks
Cross Street
Hanging Ditch
Cannon Street
Blackfriars Road
Gravel Lane
Hardman Street
Sackville Street
Princess Street
Whitworth Street
Oldham Road
Rochdale Road
Great Ancoats Street
Ashton New Road
Miller Street
Dantzic Street
Corporation Street
Longridge Place
Shambles Square
Market Place
Cross Street
Chapel Walks
Marsden Street
New Market Street
Norfolk Street
Brown Street
Hanging Ditch
Cathedral Street
Cannon Street
Corporation Street
Longridge Place
Hunts Bank
Walker's Croft
Long Millgate
Victoria Street
Fennel Street
Cateaton Street
Chapel Street
Salford Approach
Cathedral Approach
Victoria Bridge Street
Deansgate
St Mary's Gate
Market Street
Parsonage
Parsonage Gardens
St Mary's Parsonage
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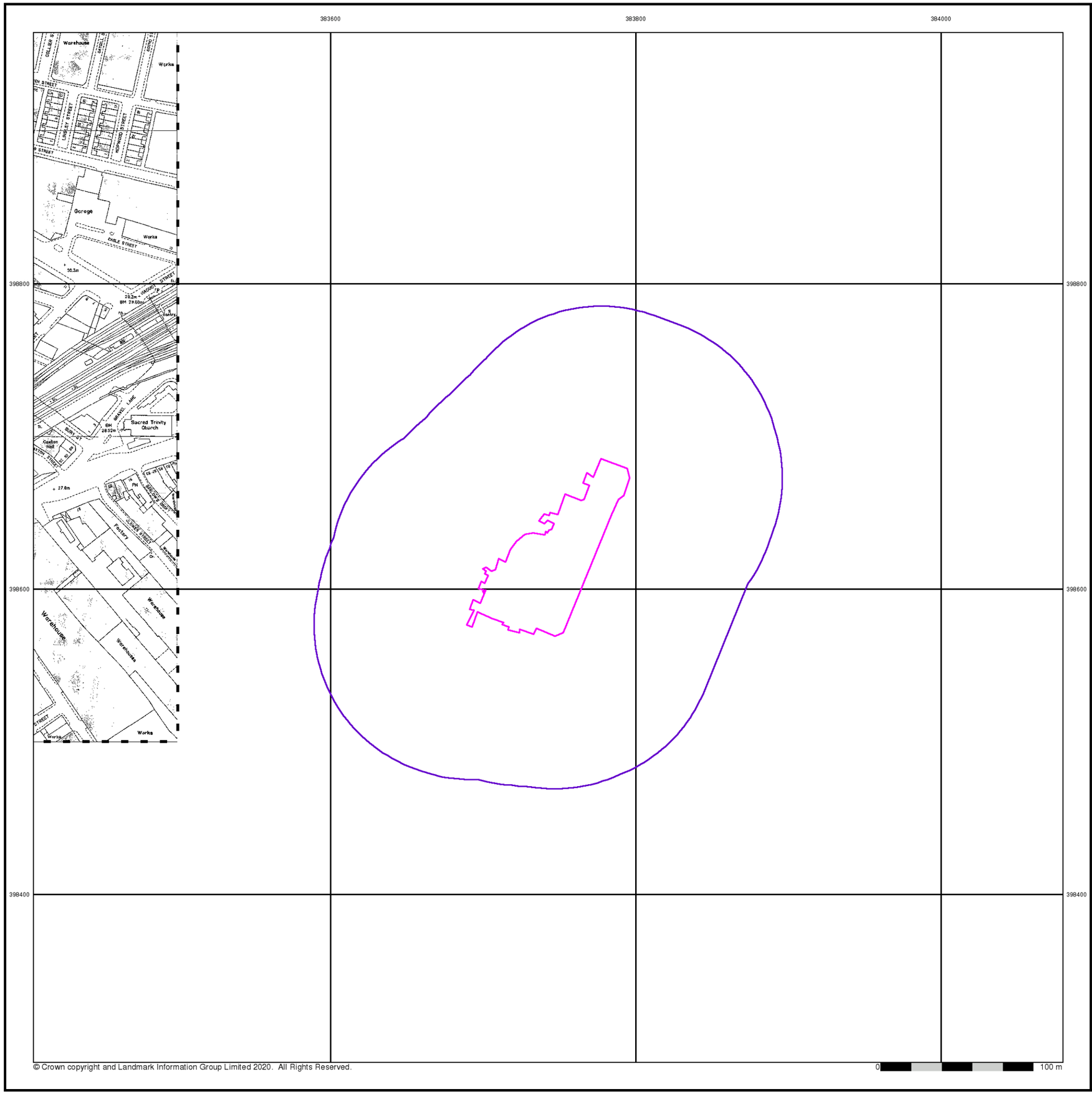


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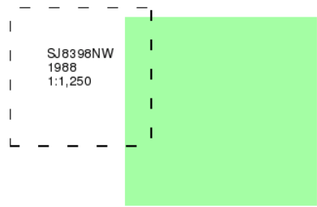
## Additional SIMs

**Published 1988**

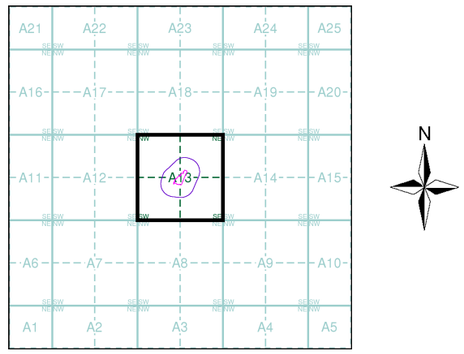
**Source map scale - 1:1,250**

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

## Map Name(s) and Date(s)




## Historical Map - Segment A13




## Order Details

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| Order Number: | 248697096_1_1 |
| Customer Ref: | 14261-EF-A |
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| Slice: | A |
| Site Area (Ha): | 0.53 |
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## Site Details

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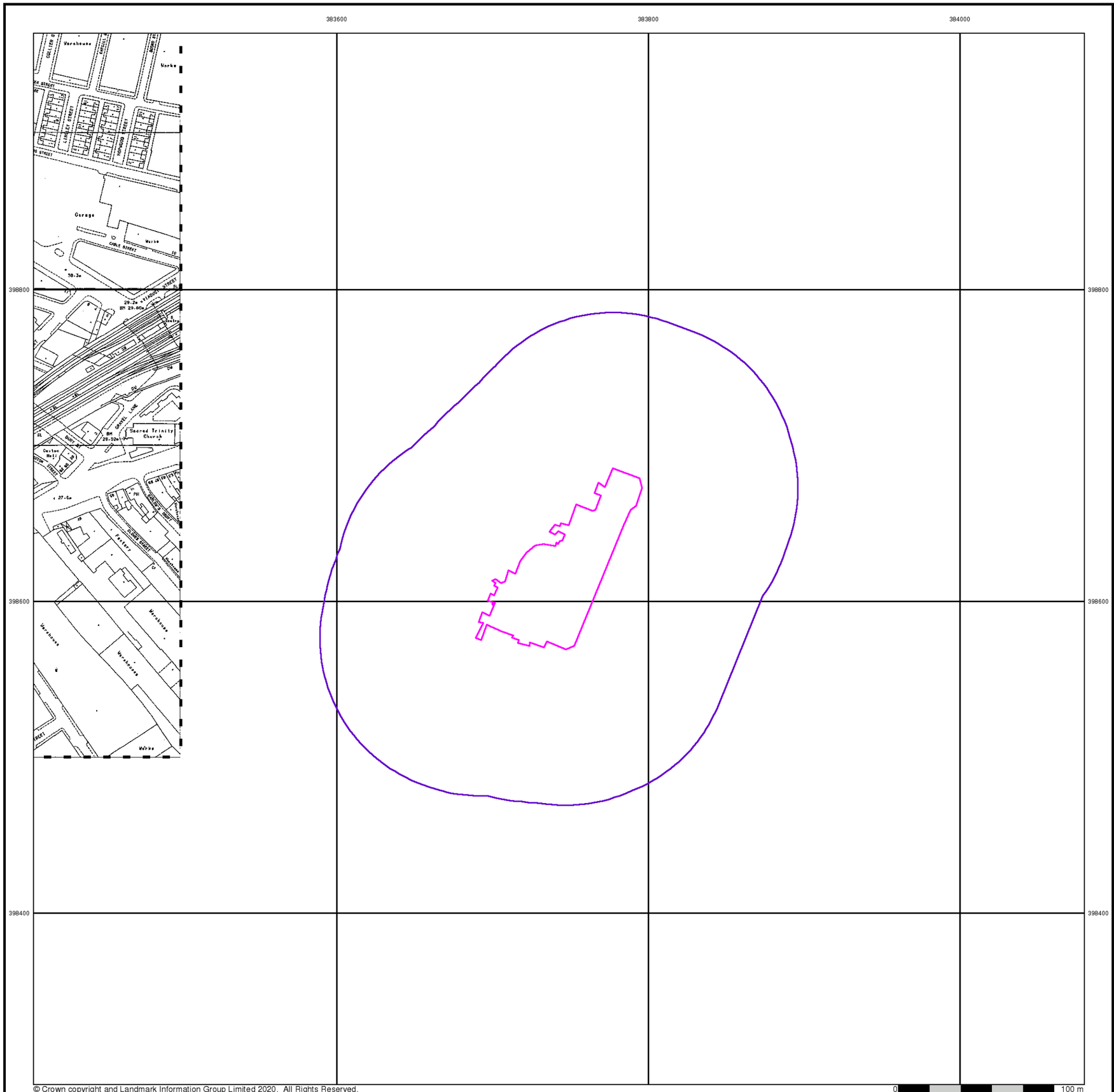


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## Additional SIMs

**Published 1990**

**Source map scale - 1:1,250**

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

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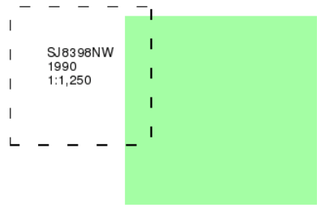
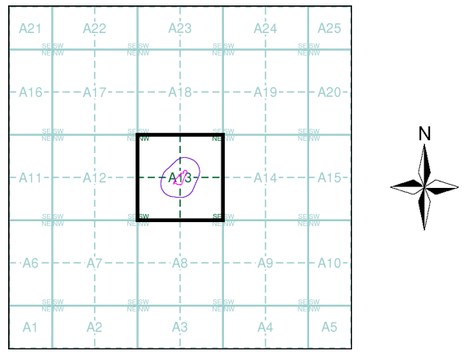



## Historical Map - Segment A13

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| Slice: | A |
| Site Area (Ha): | 0.53 |
| Search Buffer (m): | 100 |

## Site Details

Renaissance, Deansgate, MANCHESTER, M3 2FE

Landmark INFORMATION GROUP

Tel: 0844 844 9952
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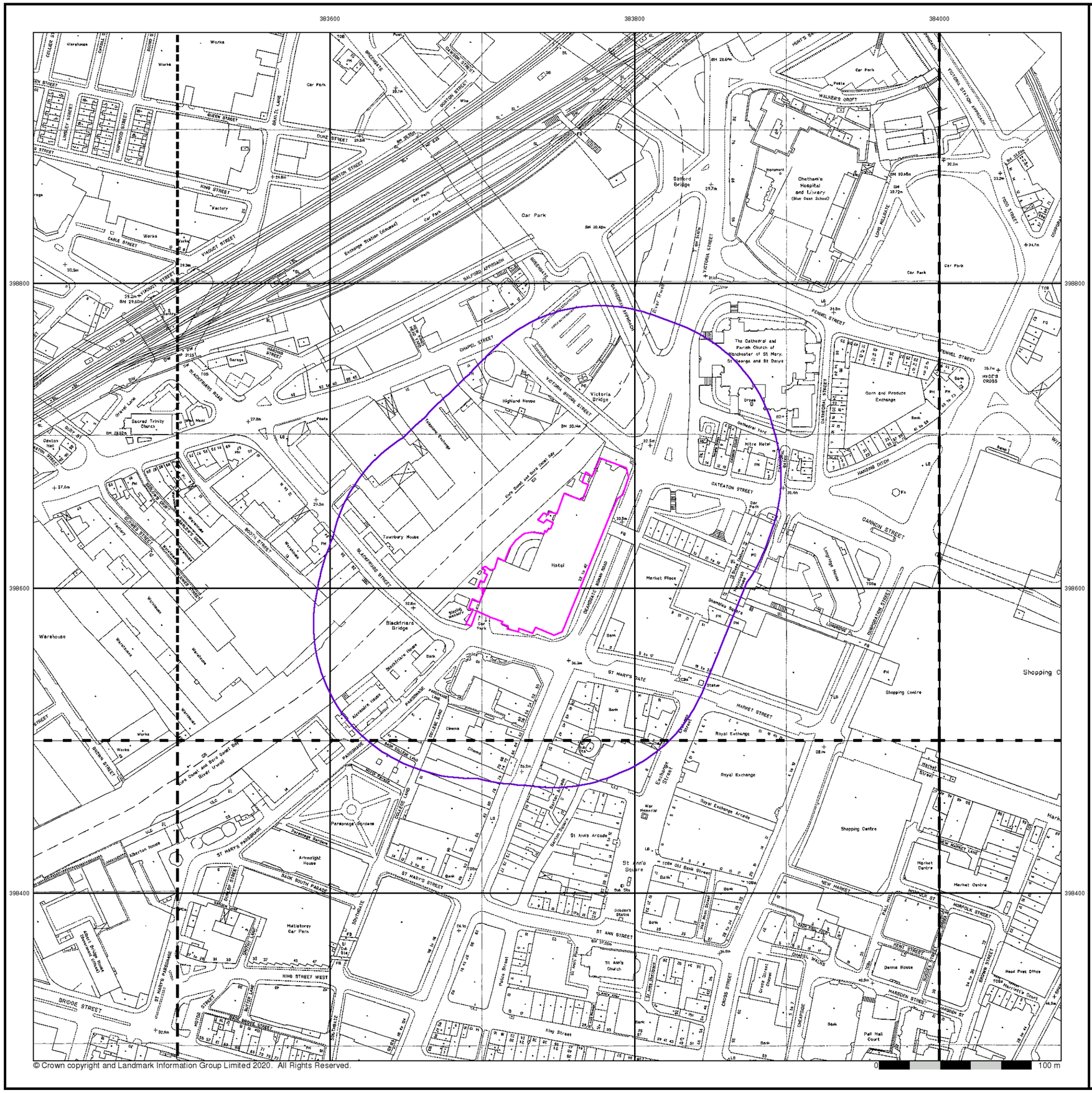


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# Large-Scale National Grid Data

## Published 1992

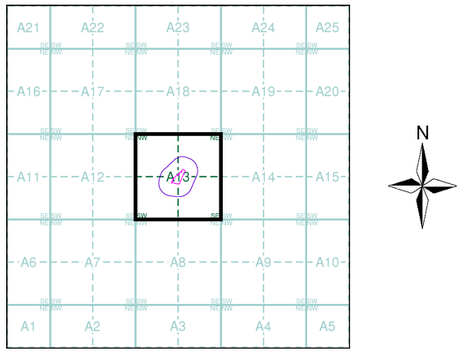
## Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

## Map Name(s) and Date(s)

| | | |
|---|---|---|
| SJ8398NW 1992 1:1,250 | SJ8398NE 1992 1:1,250 | SJ8498NW 1992 1:1,250 |
| SJ8398SW 1992 1:1,250 | SJ8398SE 1992 1:1,250 | SJ8498SW 1992 1:1,250 |

## Historical Map - Segment A13




## Order Details

| | |
|---|---|
| Order Number: | 248697096_1_1 |
| Customer Ref: | 14261-EF-A |
| National Grid Reference: | 383750, 398620 |
| Slice: | A |
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| Search Buffer (m): | 100 |

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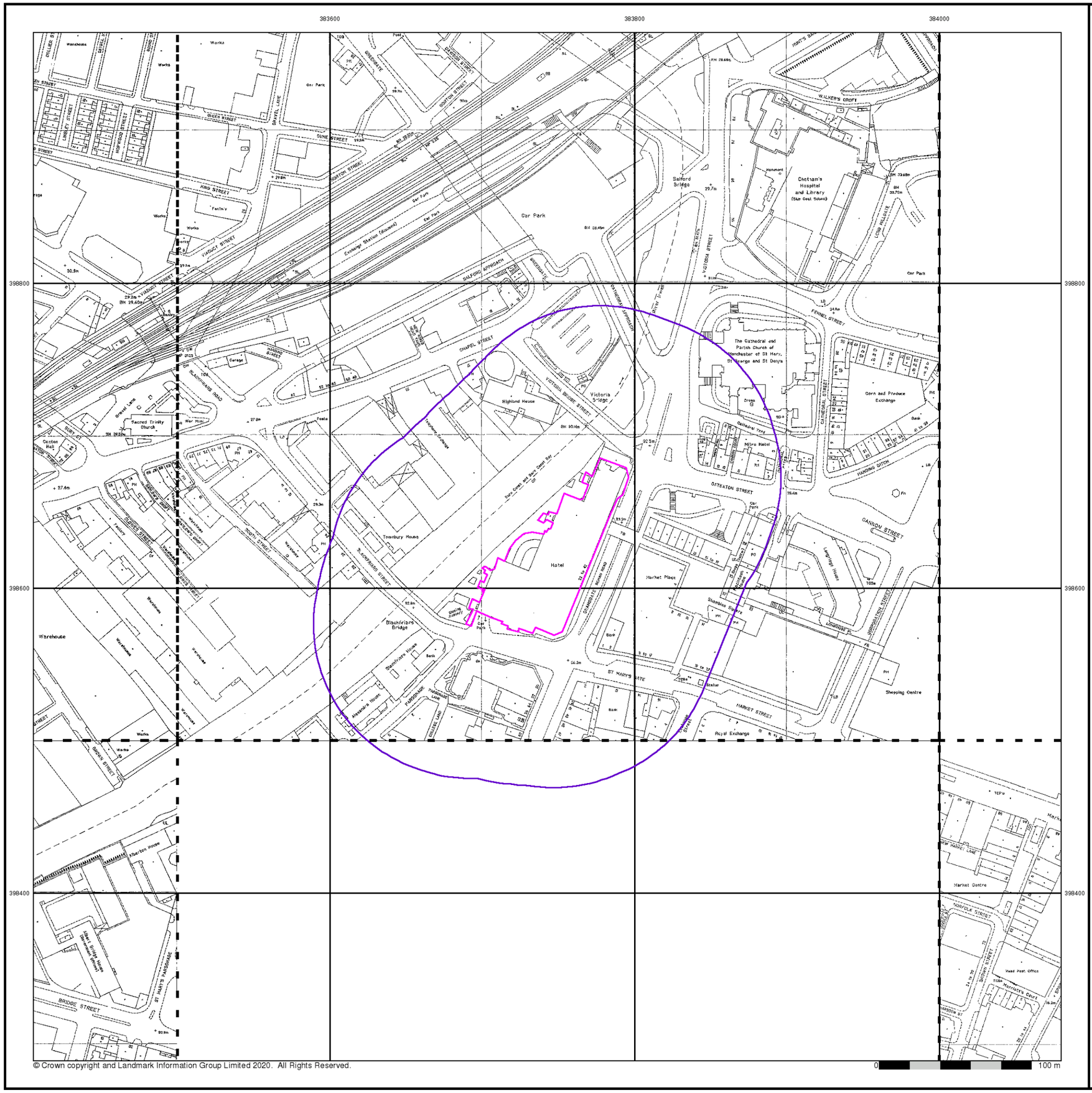
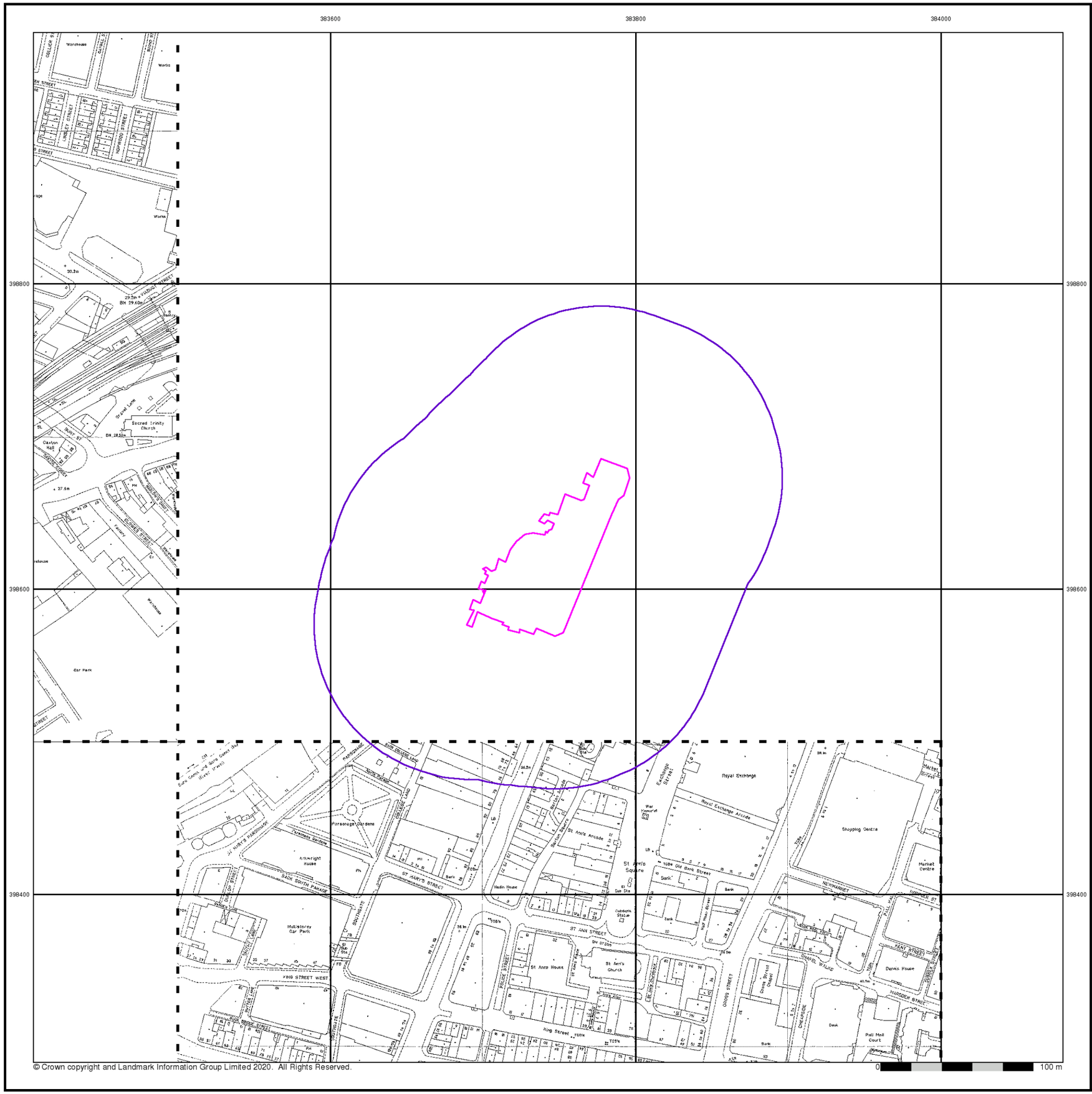

383600
383800
384000
398800
398600
398400
Car Park
Salford Bridge
Chetham's Hospital and Library
The Cathedral and Parish Church of Manchester of St Mary, St George and St Denys
Victoria Bridge
Highland House
Townbury House
Hotel
Market Place
Shopping Centre
Royal Exchange
Blackfriars Bridge
Sacred Trinity Church
Warehouse
Market Centre
Head Post Office
Corn and Produce Exchange
Mitre Hotel
Sheridan House
Albert House
Alexandra House
Blackfriars House
Bank
Bridge Street
Deansgate
Victoria Street
Chapel Street
Oxford Street
Cathedral Street
Hanging Ditch
Cannon Street
Market Street
St Mary's Gate
Fennel Street
Walker's Croft
Dantzic Street
Corporation Street
Norfolk Street
Brown Street
Parsonage
Blackfriars Road
Viaduct Street
Queen Street
Dunne Street
Gaskell Street
Lower Mosley Street
Lower Ormond Street
Lower Byrom Street
Lower Ashley Street
Lower Ashley Street
Lower Ashley

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## Large-Scale National Grid Data

**Published 1995**

**Source map scale - 1:1,250**

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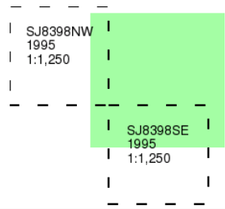
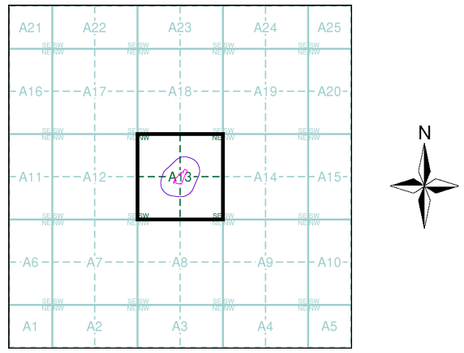



## Historical Map - Segment A13

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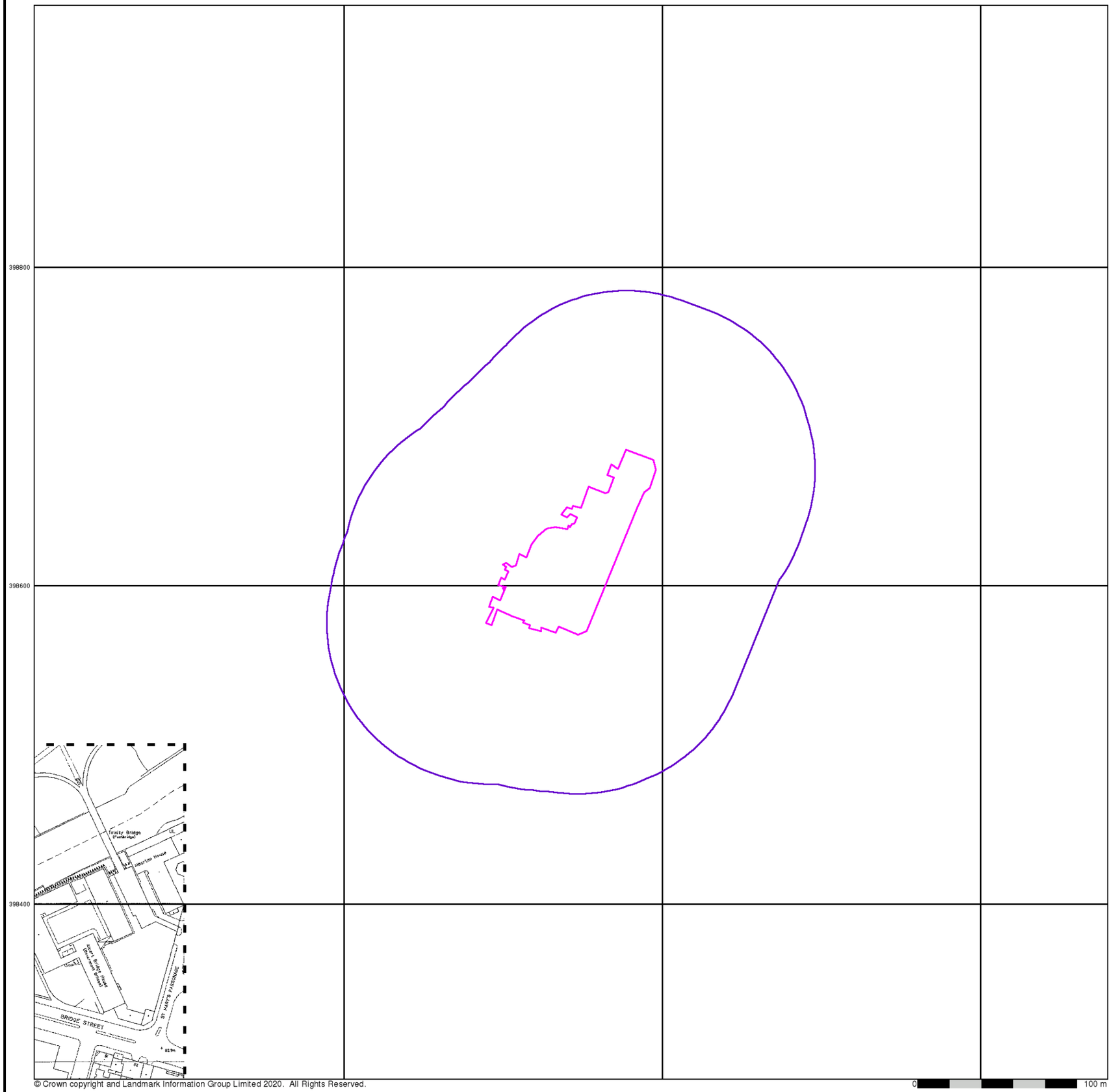


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## Large-Scale National Grid Data

**Published 1996**

**Source map scale - 1:1,250**

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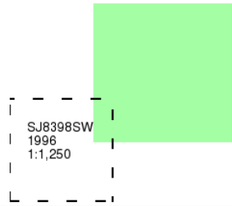
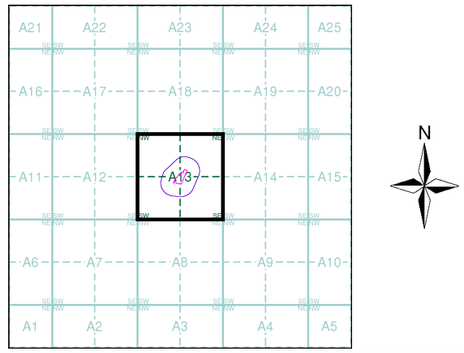



## Historical Map - Segment A13

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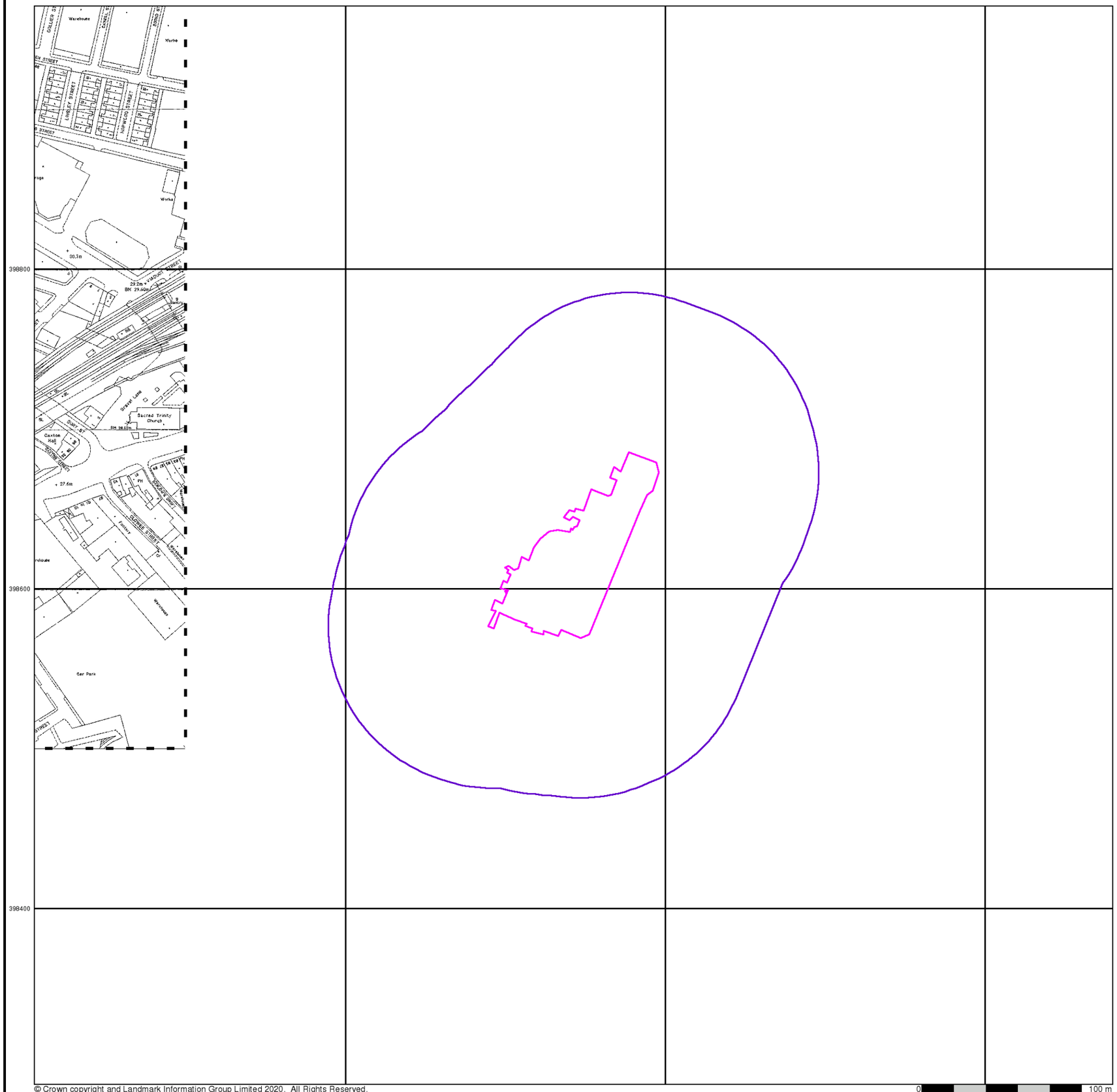


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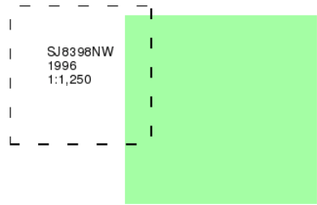
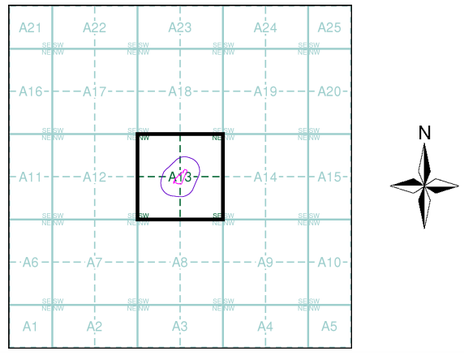



## Historical Map - Segment A13

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