



e3p

Phase I Geoenvironmental Site Assessment

Manchester Life, Back of Ancoats Phase 1 –
Ancoats Mobility Hub

Reference:18-868- R1-1



PHASE I GEOENVIRONMENTAL SITE ASSESSMENT

Manchester Life, Back of Ancoats Phase 1 – Ancoats Mobility Hub

Prepared for:

Manchester Life Strategic Development Company Limited

Report Ref: 14-868-r1

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EXECUTIVE SUMMARY

Site Address	Poland Street Industrial Estate, Poland Street, MANCHESTER, M4 6AZ (Land bound by Poland Street to the west, the City Court Trading Estate to the south, Crown Industrial Estate to the north and Ancoats Green to the east)	
Grid Reference	E385170, N398900.	
Site Area	0.33Ha.	
Proposed Development	It is understood that the client intends to deliver a mobility hub development of up to 8 storeys including 150 cycle parking spaces, 408 car parking spaces, a ground floor retail unit and a delivery hub.	
Current Site Use	The subject site is a rectangular shaped parcel of land located to the northeast of Manchester and the Site is currently occupied by low-rise, multi-tenanted industrial estate units and hardstanding. The Site can be accessed by pedestrians and vehicles via Poland Street. Security fencing runs along the eastern boundary where the Site meets Ancoats Green.	
Site History	The site was formerly occupied by terraced housing prior to 1891, when then redeveloped into Street Main Gas Department. The site then underwent numerous alterations and extensions and was relabeled as Corporation Yard. In 1980, the site was cleared and replaced by the Poland Street Industrial Estate which has remained present to date.	
Environmental Setting	Drift Geology	Glacial Till – Sand, Gravel and Clay.
	Bedrock Geology	Manchester Marls Formation – Mudstone.
	Faults	Two unnamed faults are recorded ca 50 m to the east and ca 50 m to the west.
	Hydrogeology	Secondary undifferentiated aquifer (drift) overlying secondary B bedrock aquifer. No groundwater abstractions recorded in the vicinity of the site.
	Hydrology	The Rochdale Canal is recorded approximately 250 m south of the site.
	Flood Risk	Unaffected by flooding from rivers.
Utility Locations	A formal drainage survey has been completed by Hill Cannon (ref: 20-050/DR/AMSCP Flood Risk Assessment and Drainage Strategy (Rev B), dated April 2021.	
Landfill Sites and Ground Gases	No landfill sites (current or historic) are recorded within 500 m of the site. The site and surrounding land have undergone several phases of development, including the infilling of a former canal adjacent to the site. Made Ground associated with the historic development may produce hazardous ground gases such as methane and carbon dioxide.	
Radon	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.	
Coal Mining/Land Stability	E3P has concluded that the subject site is classified as low risk from potential shallow coal mining risks and is not located within a development high-risk area.	



	No significant land stability hazards identified within commercially available datasets.
Hazardous Installations	No hazardous installations that could potentially prejudice the proposed construction have been identified within influencing distance of the subject site.
Initial Conceptual Site Model	Contaminant Sources ✚ Made Ground (historical on-site and adjacent industrial land uses including a corporation yard) – Heavy metals, polycyclic aromatic hydrocarbons, total petroleum hydrocarbons, asbestos containing materials and hazardous ground gases Pathways ✚ Direct contact and ingestion ✚ Volatilisation/indoor explosion ✚ Vapour inhalation ✚ Dust inhalation Receptors ✚ Future site users (proposed commercial end-users and construction workers) ✚ Buildings
Recommendations	✚ A detailed Phase II intrusive Geo-Environmental Ground Investigation should be undertaken to confirm the findings of the initial conceptual site model and engineer a development solution. ✚ An intrusive asbestos survey of the existing onsite structures will be required.



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DRAWING LIST

14-868—001 - Site Location Plan
14-868—002 - Proposed Development Plan
14-868—003 - Historical Features Plan
14-868—004 - Site Features Plan



1. INTRODUCTION

1.1. BACKGROUND

E3P Ltd has been commissioned by Manchester Life Strategic Development Company Limited to undertake a Phase I Geoenvironmental Site Assessment for Unit 7, Poland Street Industrial Estate, Manchester, M4 6AZ.

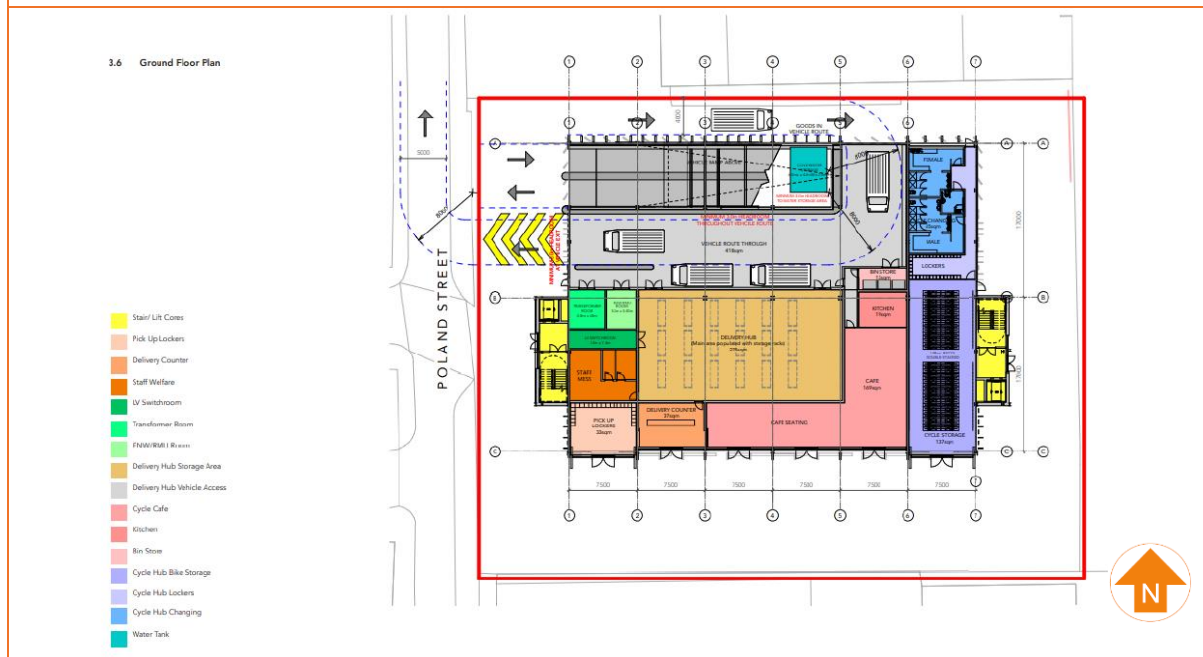
This report is required to determine potential contaminated land liabilities and geotechnical constraints as part of a proposed site redevelopment

1.2. PROPOSED DEVELOPMENT

E3P understands that the proposed will comprise a mobility hub development of up to 8 storeys including 150 cycle parking spaces, 408 car parking spaces, a ground floor retail unit and a delivery hub.

A snapshot of the proposed development layout is indicated in Figure 1.1.

FIGURE 1.1 SNAPSHOT OF PROPOSED DEVELOPMENT



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 *Land Contamination: Risk Management (LCRM) (2019)*.
- ✿ 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. SOURCES OF INFORMATION

Background information was sought from the following sources:

- ✿ Envirocheck Search;
- ✿ Historical mapping dated 1848 to 2021. A selection of historical maps are reproduced in Appendix V;
- ✿ 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;
- ✿ Groundsure IO database;
- ✿ <https://zeticauxo.com/downloads-and-resources/risk-maps/>; and,
- ✿ <https://flood-map-for-planning.service.gov.uk>.

1.5. LIMITATIONS

The limitations of this report are presented in Appendix I.



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

Site Address	Unit 7, Poland Street Industrial Estate, Poland Street, Manchester, M4 6AZ.
National Grid Reference	E 385170, N 398900.
Site Area	0.33 Ha.

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

A site location map is presented in Appendix III as Drawing 14-868-001

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 2.1. Access to the twelve structures was not available.

TABLE 2.1 SITE DESCRIPTION

Occupancy/Use	The subject site is currently occupied by 12 units within an industrial estate. Site tenants include a Community Equipment Store, H2O Ltd, Zenobia Media Production and House of Ethnic Foods Ltd. Externally to the units, the site is surfaced with associated hardstanding and three storage containers and two skips were observed.	
Surface Cover (%)	Buildings	40%
	Hardstand	55%
	Soft Cover	5%
Structures	The units are of brick and metal clad portal frame construction and are located on the northern, southern and western site boundaries.	
Access	Pedestrian and vehicular access can be gained from the west of the site via Poland Street.	
Slope	The site is generally level.	
Retaining Structures	No retaining walls were recorded on site.	
Vegetation/Ecology	Sporadic peripheral semi-mature and mature trees are located on the eastern and western site boundaries.	
Hazardous Material Storage	No above-ground storage tanks (ASTs) or underground storage tanks (USTs) were observed at the site during the preliminary site walkover.	
Asbestos-Containing Material (ACM)	No evidence of ACM was noted across the site during the site walkover.	
Polychlorinated Biphenyls (PCBs)	There is no equipment identified that 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 been completed by Hill Cannon (ref: 20-050/DR/AMSCP Flood Risk Assessment and Drainage Strategy (Rev B), dated April 2021.	



2.3. SURROUNDING AREA

The surrounding area land uses are summarised in Table 2.2.

TABLE 2.2 SURROUNDING LAND USES

DIRECTION	LAND USE
North	Crown industrial estate with the A62 beyond.
East	Ancoats Green Park with residential units beyond.
South	City Court Trading Estate.
West	George Leigh Street with car parking and industrial units.

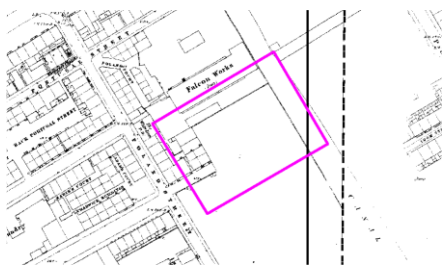
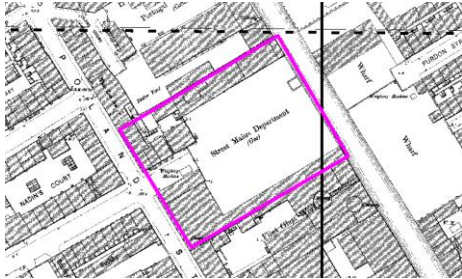
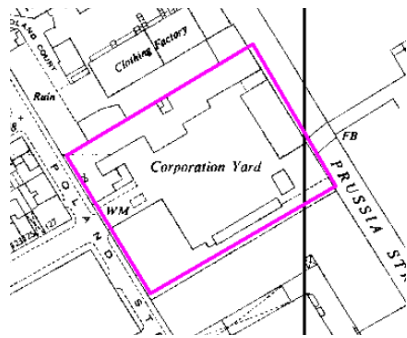


3. SITE HISTORY

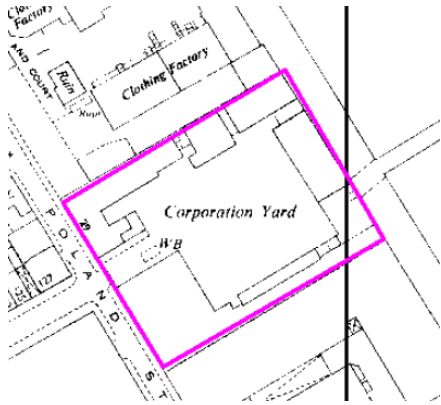
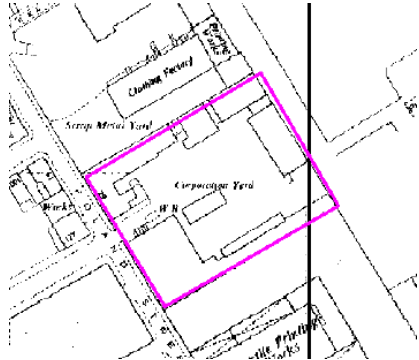
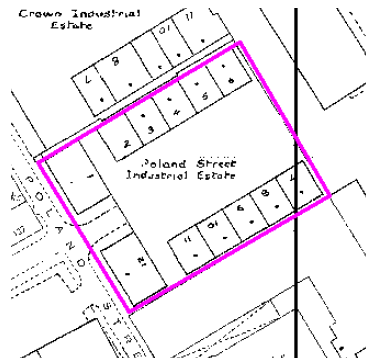
3.1. ON-SITE HISTORICAL DEVELOPMENT

A review of historical mapping and historical aerial imagery pertinent to the site is summarised in Table 3.1. In addition, historical site features are presented on Drawing No 14-868-002 in Appendix III.

TABLE 3.1 HISTORICAL DEVELOPMENT

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1848 1:10,560	The majority of the site is undeveloped; however, several terraced properties including The White Lion Public House are located in the north-western area of the site. A canal is located along the eastern site boundary with the Falcon Works adjacent to the northern site boundary. <i>(Note: the boundary is slightly off-centred eastwards)</i>	
1891 1:2,500	The subject site is recorded as Street Mains Department (Gas), with several additional structures recorded and a weighing machine. A chimney is recorded in the southwest of the site.	
1948-1949 1:1,250	The subject site is now recorded as Corporation Yard. Numerous extensions are recorded to the peripheral structures with the addition of three additional structures in the south-eastern area. A footbridge over the canal is located in the south-eastern area.	

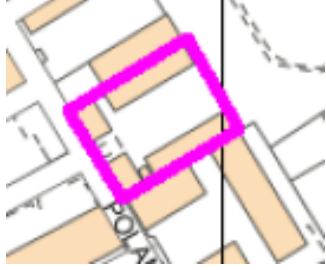


MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1952-1955 1:1,250	Further alterations to the structures are recorded.	
1966-1969 1:2,500	An additional structure is recorded in the centre of the site.	
1980-1986 1:10,000	The site has been substantially altered or redeveloped and is recorded as Poland Street Industrial Estate	
2000 1:10,000	No significant changes are recorded at the subject site.	

Unit 7 Poland Street Industrial Estate

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MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
2021 1:10,000	No significant changes are 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 HISTORICAL DEVELOPMENT

SURROUNDING FEATURE	DISTANCE	DATES	DIRECTION
Falcon Works (Iron) <i>Then recorded as Portugal Street Mill (Cotton) and Timber Yard</i> <i>Then recorded as a clothing factory</i> <i>Then recorded as Crown Industrial Estate</i>	0m	Pre 1850 – Pre 1891 Pre 1891 – Pre 1980 Pre 1980 – Present	North
Prussia Street Canal <i>Then road</i>	0m	Pre 1850 – Pre 1938 Pre 1938 – Present	East
Flint Glass Works	0m	Pre 1891 – Present	North
Depository <i>Factories</i>	10m	Pre 1948 – Pre 1986 Pre 1986 - Present	West
Gibraltar Works (Iron) <i>Then Bus depot</i> <i>Then unlabelled building</i>	50m	Pre 1850 – 1909 Pre 1909 – 1975 Pre 1975 – Present	West
Manchester Glass Bottle Works <i>Then unrecorded</i>	75m	Pre 1850 – Pre 1891	Northwest
Iron Foundry <i>Then German Street Mills (Cotton)</i> <i>Then unlabelled building</i>	100m	Pre 1850 – Pre 1891 Pre 1891 – Pre 1956 Pre 1956 – Pre 2003	West
Butler Street Mill <i>Then: Marked as a cotton mill</i>	100m	Pre 1850 – Pre 1891	East
Rodney Street Mill <i>Then: Marked as a cotton mill</i>	100m	Pre 1850 – Pre 1891	East
Flint Glass Works <i>Could vary from Cotton Mill but the building does not change</i>	150m	Pre 1891 – Present	North
Cable Mills (Furnishing) <i>Could vary from Cable Mill but the building does not change</i>	150m	Pre 1891 – 1999	North
Paint Works <i>Then: Warehouse</i>	200m	Pre 1948 – 1955 Pre 1955 – Present	West
Coal Wharf <i>Then Phoenix Iron Works</i>	200m	Pre 1850 – Pre 1891 Pre 1850 – Pre 2003	South
Spindle Works	250m	Pre 1850 – 1999	South
The Lancashire and Yorkshire Railway	250m	Pre 1850 – 1891 Pre 1896 – 1985	North
Bee Hive Mill (Cotton) <i>Could vary from Cotton Mill but the building does not change</i>	250m	Pre 1850 – Present	South



3.3. PLANNING HISTORY

E3P has undertaken a review of online planning records held by Manchester City Council and no environmentally pertinent information is available for the site.

3.4. PREVIOUS REPORTS

There are no previous reports associated with the site have been identified or made available to E3P. However, a Ground Investigation Report (ref: 12703-HYD-GI-RP-GE-0001) completed by Hydrock in January 2020 for land at Bengal Street has been identified c.50m west of the site the findings of which are summarised below:

- ✚ Made Ground was recorded to depths of 2.00-4.90mbgl with ash noted overlying firmer to stiff glacial clays to depths of 24.00mbgl. Weathered sandstone was proven between depths of 24.00-30.00mbgl.
- ✚ Groundwater was noted at depths between 2.20-3.00mbgl.
- ✚ Heavy metal, PAH and asbestos contamination was recorded within on-site deposits.
- ✚ The ground gas characteristic situation was identified as CS1
- ✚ A specialist UXO assessment was required which determined a medium onsite risk and outlined basic precautions to be taken to ensure that the project can proceed in a safe manner.
- ✚ No unacceptable coal mining risk was determined to be present



4. ENVIRONMENTAL SETTING

4.1. GEOLOGY AND HYDROGEOLOGY

The British Geological Survey (BGS) map (Sheet 85) for the site, (1:50,000, Solid and Drift editions) and online records indicate 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	Till, Devensian	Clay, Sand & Gravel	Secondary undifferentiated
Solid	Manchester Marls Formation	Mudstone	Secondary B aquifer

TABLE 4.2 SUMMARY OF BGS BOREHOLE RECORDS

LOCATION	DEPTH	MADE GROUND	DRIFT	SOLID
100 m NW	12 m	4.27m – Very loose clayey ash and cinder	Firm laminated sandy CLAY 4.27m+	Not encountered
68m N	12 m	2.00m – clayey ash and cinder	Very stiff sandy laminated CLAY 2.00m+	Not encountered

TABLE 4.3 FAULTING

LOCATION	DESCRIPTION
50m - East	Unnamed – Down-throwing SW
50m - West	Unnamed – Down-throwing NE

The Envirocheck report indicates that the site is not located within a groundwater source protection zone.

There are no groundwater/potable abstractions recorded within 1 km of the site. Though one abstraction license is recorded from Ashton Canal for general cooling within the distillers.

Based on the local topography, the location of surface watercourses it is considered likely that shallow groundwater, if present, will flow in a southerly direction, following the topographical gradient towards the Rochdale Canal to the south. However, it is considered likely that this feature is not within hydraulic connectivity with the surrounding land.

4.2. GEOTECHNICAL DATA

Geotechnical data presented within a commercially available environmental database is summarised in Table 4.4.

TABLE 4.4 SUMMARY OF GEOTECHNICAL DATA

HAZARD	DESIGNATION
Shrink-Swell Clay	Very low risk
Landslides	Very low risk
Ground Dissolution	No hazard
Compressible Ground	No hazard
Collapsible Deposits	Very low risk
Running Sand	Very low risk



4.3. COAL MINING RISK ASSESSMENT

4.3.1. COAL MINING

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

The Coal Authority operates a risk-based approach to the assessment of potential instability issues associated with future development of land located within the pre-defined Coal Authority Consultation Areas. This risk-based approach sub-divides the potential risk into 'Low & 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 Coal Authority categorically state:

*"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 are 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).

4.3.2. 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 Coal Authority has no knowledge of extensive workings throughout the UK Coal Fields where shallow workings are present at a depth which could result in a subsidence event in the future (through successive cavitation) associated with failure of the support mechanism.

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



4.3.3. COAL MINING RISK ASSESSMENT

This Risk Assessment comprises a desk-based review of all available information on the coal mining issues.

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 (<30m)	No	Low
Recorded Underground Coal Mining at Shallow Depth (>30m)	No	Low
Unrecorded Underground Coal Mining at Shallow Depth (<30m)	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

Based on the above, a low risk from legacy coal mining issues has been identified. No further assessment is deemed to be required.

4.4. 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.

4.5. PRELIMINARY GEOTECHNICAL ASSESSMENT

Based on the desk-study information, the following geotechnical assessment (overleaf) has been made:

- Given that the site has been developed previously, there may be Made Ground fill deposits and relict foundations.
- The existing buildings will require demolition with all existing foundations grubbed out. Basement/cellar features associated with existing/previous on-site buildings may remain on-site;
- An investigation will be required in order to assess the underlying Made Ground and natural deposits and undertake in-situ geotechnical testing to determine the likely foundation solution;



- ✳ The formerly adjacent canal feature may have buried retaining wall features and the condition and characterisation of these features may need to be confirmed;
- ✳ It is considered that in the order of 2-5m of Made Ground is likely present on-site and, given the likely loads of the proposed high rise structure this would suggest that an engineered pile foundation solution will be required.

4.6. HYDROLOGY

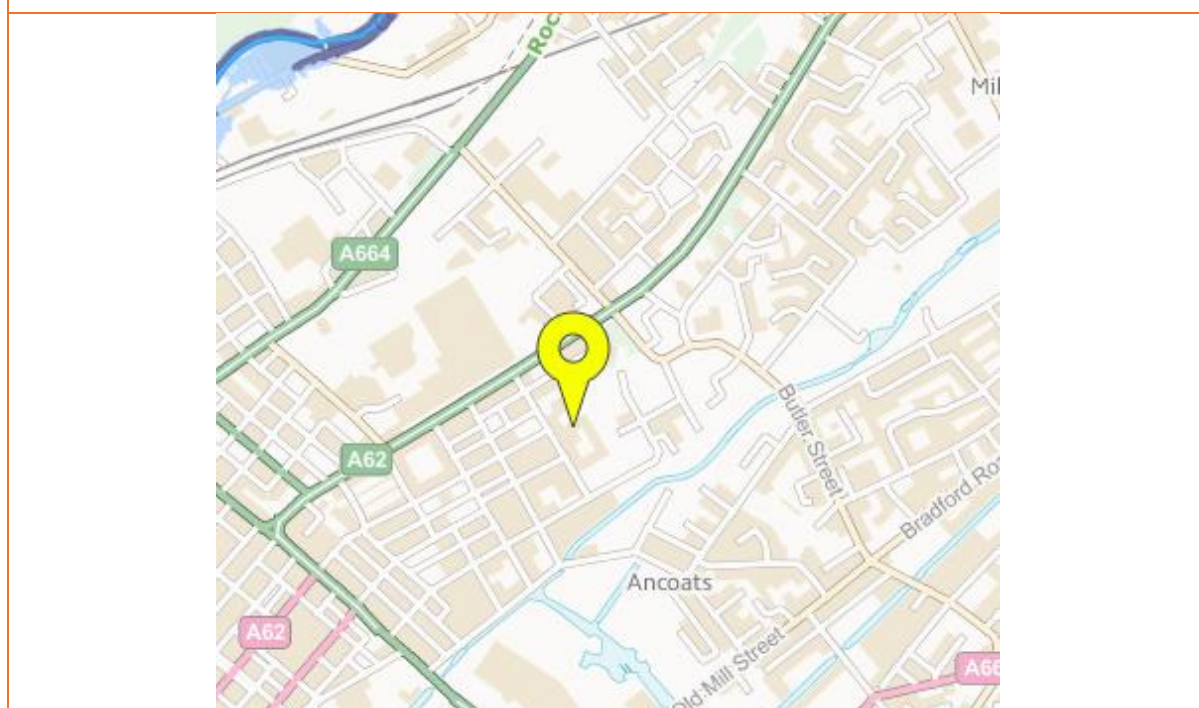
Surface water features within 250 m of the subject site are summarised in Table 4.6.

TABLE 4.6 SURFACE WATER FEATURES

SURFACE WATER FEATURE	QUALITY	DISTANCE (m)	DIRECTION
Unnamed	Unknown	148 m	South East

The site is predominantly 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 Environment Agency (EA) Flood Risk Map for the site is presented in Figure 4.1.

FIGURE 4.1 EA FLOOD RISK MAP



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

4.7. INDUSTRIAL LAND USES

The site is located within a predominantly industrial area and subsequently, there are numerous industrial land uses in the surrounding area. Active uses within 250 m of the subject site are listed overleaf in Table 4.7.

TABLE 4.7. INDUSTRIAL LAND USE



LAND USE	DISTANCE
Builders Merchants	154 m N
Garage Services	142 m W
Catering	139 m SE
Frozen Food Processors	73 m N
Manufacturers and Wholesalers	20 m SW
Garage Services	76 m N

4.8. SENSITIVE LAND USES

The site is located in a heavily built-up area comprising both residential and commercial properties. The nearest residential properties are approximately 100 m west of the site. Ancoats Green is also situated approximately 50 m to the east of the subject site.

4.9. SITE SENSITIVITY ASSESSMENT

The site is assessed to be located within a “Low-Moderate” sensitivity setting as discussed within Table 4.8.

TABLE 4.8 SITE SENSITIVITY ASSESSMENT

SENSITIVITY PROFILE	DISCUSSION	RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	N/A	LOW
Distance to the Closest Groundwater Abstraction Point	None recorded within 1km of the site.	LOW
Aquifer Classification in Superficial Drift Deposits	Secondary Undifferentiated	LOW
Aquifer Classification in Bedrock	Secondary B Aquifer	LOW
Is the Site Underlain by Low-Permeability Drift to Depths in Excess of 10 m?	Information from surrounding BGS boreholes and planning records suggest drift to be in the order of 23 m comprising low permeability cohesive drift.	LOW
Is the Site Located Within 50 m of a Surface Watercourse?	No surface water features recorded within 50 m of the site.	LOW
Sensitive Land Uses	High rise residential properties within 100 m of the site	LOW
OVERALL SITE ENVIRONMENTAL SENSITIVITY		LOW



5. CONSULTATIONS

5.1. LANDFILL SITES AND WASTE TREATMENT SITES

There are no records of existing or former landfills within 500 m of the site.

A previous waste management facility for end-of-life vehicles was active between 2004-2010 located 359 m to the west.

5.2. 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

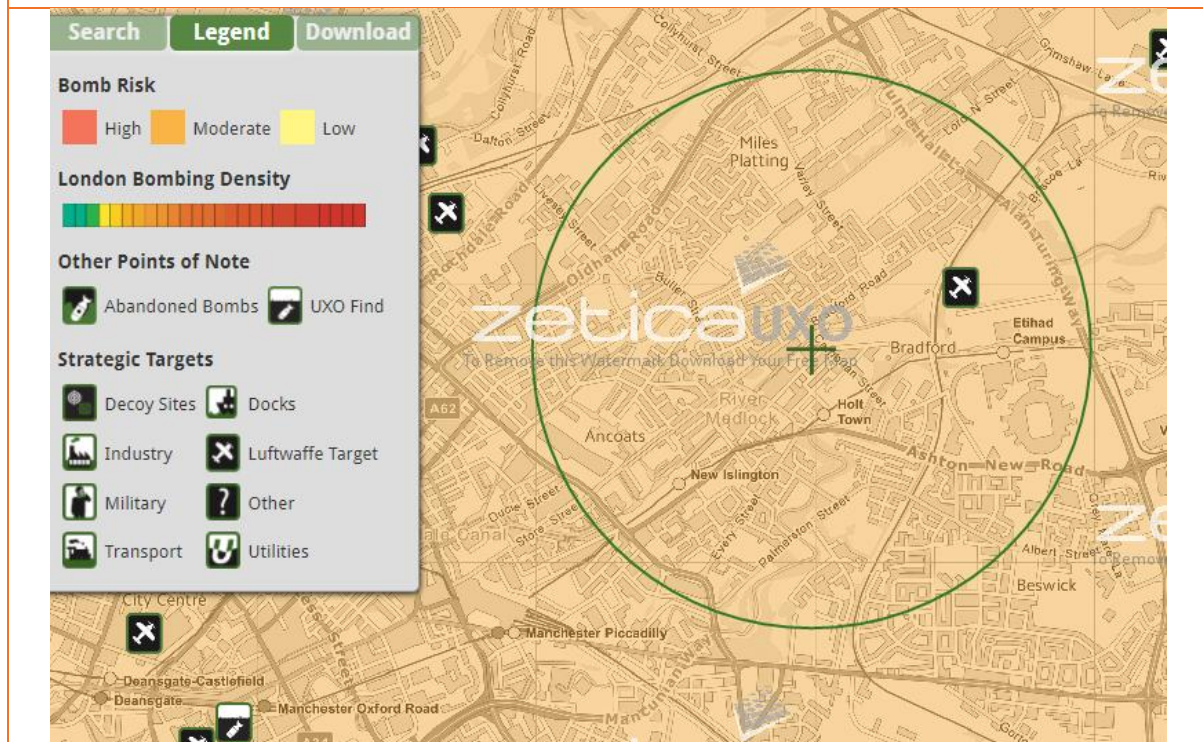
RECORD	ENTRIES WITHIN 250 m	DETAILS
Contaminated Land Register Entries and Notices	0	None Identified
Authorised Industrial Processes (IPC/IPPC/LAPPC)	2	Both licences are for the extraction of non-ferrous metal from scrap revoked in 1992.
Fuel Stations Entries	0	None Identified
Licensed Radioactive Substances	1	Licence for the use of radioactive materials, 1991-present.
Enforcements, Prohibitions or Prosecutions	0	None Identified
Discharge Consents	0	None Identified
Pollution Incidents	1	Air pollution notice dated July 1998 due to failure to minimise furnace emissions and monitoring of particulates.
Consents Issued Under the Planning (Hazardous Substances) Act 1990	0	None Identified
Control of Major Accident Hazard (COMAH) Sites	0	None Identified

5.1. UNEXPLODED ORDNANCE

The regional unexploded bomb risk map from Zetica (2014) indicates that the site is in an area at moderate risk from possible unexploded ordnance (UXO) resulting from the Second World War. The Zetica UXO Risk Map is presented in Figure 5.1 (overleaf).



FIGURE 5.1 ZETICA UXO RISK MAP



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

A UXO risk assessment has been undertaken by Safe Lane Global for the site (report ref: 8852 RA 17th March 2020). This report confirmed the risk to the site from UXOs to be low to medium and mitigation measures are required.



6. INITIAL CONCEPTUAL SITE MODEL

In accordance with EA LCRM (2019) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), E3P has developed an initial conceptual site model (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

SOURCE	PATHWAY	RECEPTOR
Human Health		
Heavy metals, non-volatile PAHs associated with onsite industrial activities and existing Made Ground deposits	Dermal Contact and Ingestion	Construction workers Commercial End Users
Discussion: On-site Made Ground deposits associated with existing and historic development are considered to represent a potential source of Heavy metal, non-volatile PAH contamination. If present, heavy metals, non-volatile PAHs may pose a short-term risk to site users who may come into contact with impacted soils within landscaped areas. However, risks are considered low given the presence of predominantly hardstanding impermeable surfaces within the proposed development. If impacted soils are identified within landscaped areas then localised remediation or an appropriate cover system comprising a capillary break layer and clean sub-soil and top-soil may be required. Based on the available information the potential risk at present is considered to be low.		
Volatile hydrocarbon compounds associated with onsite Made Ground, and former adjacent canal	Volatilisation/Accumulation Vapour-Inhalation	Construction Workers Commercial End Users
Discussion: The existing and historic subject site usage is considered to be a potential source of hydrocarbon contamination, the lighter, more volatile fraction of which may generate hydrocarbon vapours that could pose a risk to end-users through indoor air inhalation. Future site users may come into contact with impacted soil in landscaped areas and/ or via indoor inhalation of vapours if present. The existing commercial site usage comprising largely impermeable hardstanding surface reduces the potential for exposure via direct contact and inhalation of indoor vapours. If present and a potential risk is determined, localised remediation comprising the delineation, excavation and removal of impacted materials is recommended to be undertaken to mitigate potential risks.		
Asbestos Containing Materials (ACM) within onsite Made Ground and existing site structures	Fibre / Dust Inhalation	Construction Workers Commercial End Users Adjacent Site Users
Discussion: No ACM was identified during the external site walkover; however, access to the structures was not granted and ACM may therefore be present within the fabric of existing structures given their age. Onsite Made Ground arising from the existing onsite and adjacent development may contain ACM. ACM poses a risk through fibre and dust inhalation and if present may pose a risk to existing site users and construction workers/third-party property should dust be generated during any onsite works.		



SOURCE	PATHWAY	RECEPTOR
Given the presence of hardstanding surfaces within the proposed development, ACM within onsite Made Ground deposits are considered largely mitigated with the removal of the source-receptor pathway. However, should ACM be present within any soft landscaped areas potential risks can be mitigated through the development of a detailed enabling works strategy following guidance and protocol specified within the Control of Asbestos Regulations (2012) and industry best practice as detailed in CIRIA733 (Asbestos in Soil and Made Ground: A guide to understanding risk). Intrusive pre-demolition asbestos will be required within all existing onsite structures to investigate the presence of ACM and outline suitable management measures required to be put in place during demolition works.		
Hazardous Ground Gases		
Methane and carbon dioxide associated with onsite and adjacent Made Ground and decomposable organic deposits associated with formerly adjacent canal	Inhalation. Accumulation.	Construction Workers Commercial End Users
Discussion: The presence of potentially significant thicknesses of Made Ground onsite associated with the present and historic developments, potentially significant thicknesses of Made Ground adjacent to the site associated with nearby historic industrial developments including the backfilling of the former canal and decomposable organic materials are all considered to be possible sources of hazardous ground gases. Methane and carbon dioxide gases represent hazards from both explosions and asphyxiation respectively and present a significant hazard to any intrusive site works. The proposed end-use somewhat reduces the sensitivity of the site, however, an assessment of the ground gas regime will likely be required.		
Controlled Waters		
Mobile Hydrocarbon/chlorinated solvent compounds within onsite Made Ground associated with current and historic site uses and former weigh bridge.	Vertical Migration	Secondary B and Secondary Undifferentiated Aquifer strata
Discussion: The existing and historic subject site usage is considered to be a potential source of soluble and mobile contaminants. However, risks to the underlying aquifer are considered largely reduced given the low sensitivity of the receptor-given the secondary B aquifer status and the lack of recorded groundwater abstractions in the vicinity of the site. Additionally, the site is underlain by c.20 m of low likely low permeability cohesive deposits which will reduce the potential for vertical and lateral migration. No further assessment is considered necessary.		
Ecology		
None Identified	N/A	N/A
Discussion: No significant receptors have been identified at the subject site. In the absence of any onsite receptors, there are not considered to be any plausible contaminant source receptor pathways.		



7. CONCLUSIONS AND RECOMMENDATIONS

7.1. SITE SUMMARY

Current Site Use	The site is bounded by Poland Street to the west, the City Court Trading Estate to the south, Crown Industrial Estate to the north and Ancoats Green to the east. The site can be accessed by pedestrians and vehicles via Poland Street. The site is currently occupied by low-rise, multi-tenanted industrial estate units and hardstanding. The site can be accessed by pedestrians and vehicles via Poland Street. Security fencing runs along the eastern boundary where the site meets Ancoats Green.
Historical Site Use	The site was formerly occupied by terraced properties prior to 1891, when used as a Street Main Gas Department. This use saw numerous alterations and extensions and relabeled as a Corporation Yard. In 1980, the site was cleared and replaced by the Poland Street Industrial Estate which has remained present to date. Formerly a canal was present along the eastern boundary of the site.
Site Sensitivity	Site sensitivity is to be considered low

7.2. CONTAMINATED LAND ASSESSMENT

Human Health	Onsite and adjacent Made Ground deposits associated with existing and historic development are considered to represent a potential source of heavy metal, PAH, TPH, asbestos contamination.. ACM is also considered likely to be present within the fabric of the existing onsite structures.
Controlled Waters	The existing and historic subject site usage is considered to be a potential source of soluble and mobile contaminants. A weighbridge was formerly recorded within the central area which is considered to represent a potential source of hydrocarbon contamination. Furthermore, a canal was formerly recorded adjacent to the eastern site boundary which was noted to have been infilled and is considered a potential source of mobile contamination which may impact the site. However, risks to the underlying aquifer are considered somewhat reduced given the low sensitivity of the receptor, the presence of impermeable hardstanding surfaces within development proposals and the presence of c.20 m of low likely low permeability cohesive deposits underlying the site.
Ground Gas	The presence of potentially significant thicknesses of Made Ground on-site associated with the present and historic developments, potentially significant thicknesses of Made Ground adjacent to the site associated with nearby historic industrial developments including the backfilling of the former canal and decomposable organic materials are all considered to be possible sources of hazardous ground gases. The proposed end-use somewhat reduces the sensitivity of the site, however, an assessment of the ground gas regime will likely be required.
Potable Water	Based on existing information, it is considered that barrier pipe may be needed for water supply pipes.



7.3. COAL MINING

Coal Mining	E3P has concluded that the subject site is classified as low risk from potential coal mining risks and is not located within the Coal Authority development high risk area.
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7.4. GEOTECHNICAL ASSESSMENT

Geological	The underlying superficial deposits are likely to comprise firm to stiff clays of significant thickness overlying mudstone. Borehole records in the vicinity of the site suggest c.5m of Made Ground overlying firm to stiff clays to depth of c.23mbgl. in turn overlying a weathered sandstone.
UXO Risk	T A UXO risk assessment has been undertaken by Safe Lane Global for the site (report ref: 8852 RA 17 th March 2020). This report confirmed the risk to the site from UXOs to be low to medium and mitigation measures are required.
Civil and Structural	The presence of existing and historic structures may result in the presence of buried obstructions which will be required to be grubbed out prior to redevelopment. The presence of a formerly adjacent Canal to the east may result in the presence of greater thicknesses of material towards the eastern site boundary. Buried retaining wall features may also be present associated with this assumed backfilled structure
Abnormal Foundations	Given the proposed development and the likely presence of Made Ground deposits in the order of 2-5mbgl. An engineered foundation solution will likely be required.

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



Unit 7 Poland Street Industrial Estate

Phase I Geoenvironmental Site Assessment

May 2021

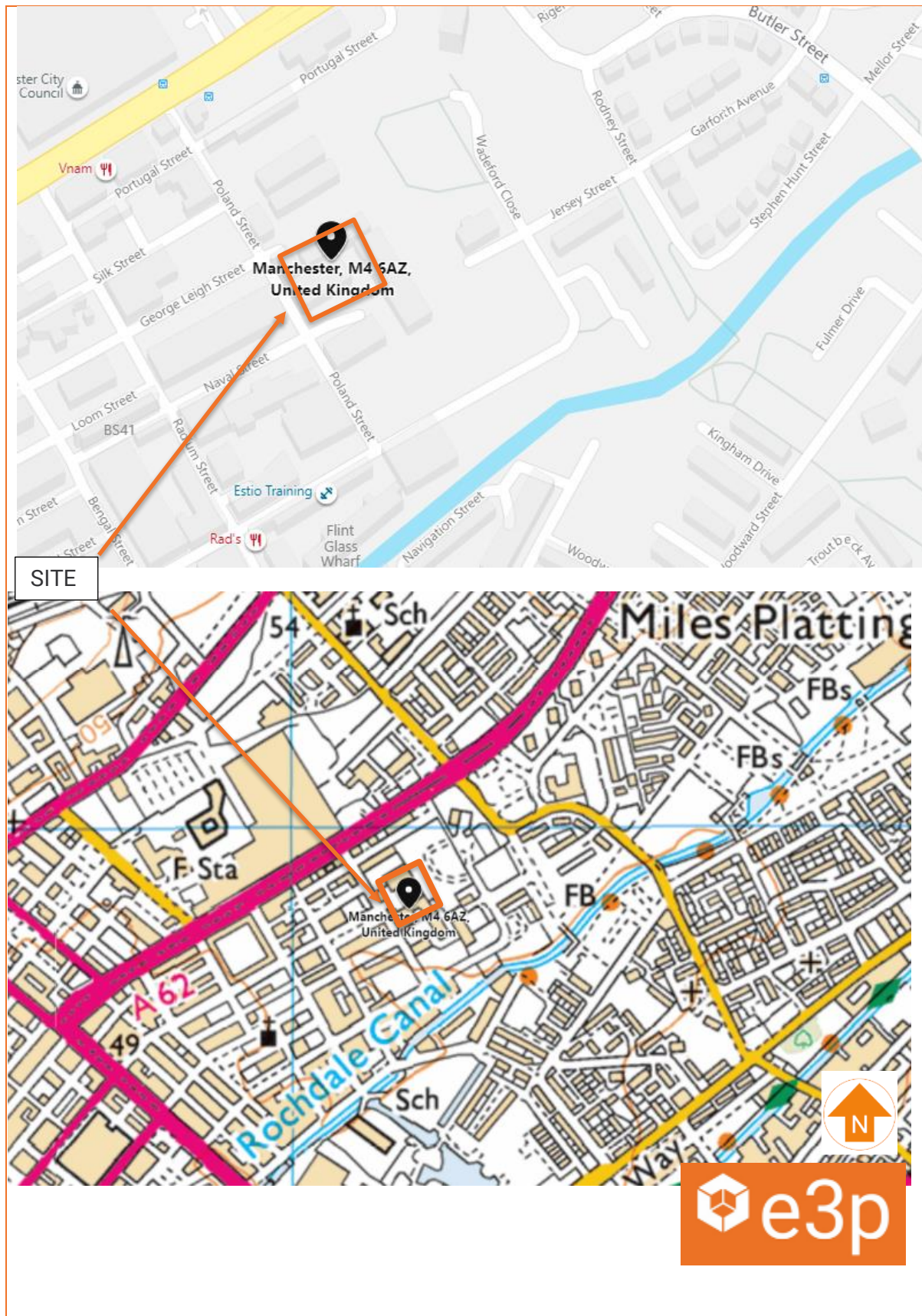
m	Metres	ppm	Parts per million
km	Kilometres	mg/m³	Milligram per metre cubed
% v/v	Percent volume in air	m bgl bgl	Metres below ground level
mb	Millibars (atmospheric pressure)	m bcl	Metre below cover level
l/hr	Litres per hour	mAOD	Metres above ordnance datum (sea level)
µg/l	Micrograms per litre (parts per billion)	kN/m²	Kilonewtons per metre squared
ppb	Parts per billion	µm	Micrometre
mg/kg	Milligrams per kilogram (parts per million)	SSRT	Site Specific Remediation Target
PSD	Particle Size Distribution	DD	Dry Density
CL:AIRE	Contaminated Land: Applications in Real Environments	Mc	Moisture Content
ρ	Bulk Density	GPR	Ground Penetrating Radar
NDP	Nuclear Density Probe	FFL	Finished Floor Level
LEL	Lower Explosive Limit	UKWIR	UK Water Industry Research
CIRIA	Construction Industry Research and Information Association	LOD	Limit of Detection



APPENDIX III

DRAWINGS

DRAWING 21-909-001 – SITE LOCATION PLAN





Historical Features

- Former Buildings
- Former Buildings
- Current Buildings
- Corporation Yard

Notes:

P1	REVA	08.04.2021	LM	SE
Phase	Issue	Date	Drawn	Checked

Client:

MACE

Job Title:

Ancoats MSCP

Job No:

14-868

Drawing No:

003

Date:

08.04.2021

Scale:

NTS

e3p

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APPENDIX IV PHOTOGRAPHS

PLATE 1 LOOKING NORTH ON THE SITE



PLATE 2 STORAGE CONTAINERS



PLATE 3 ON SITE SKIPS

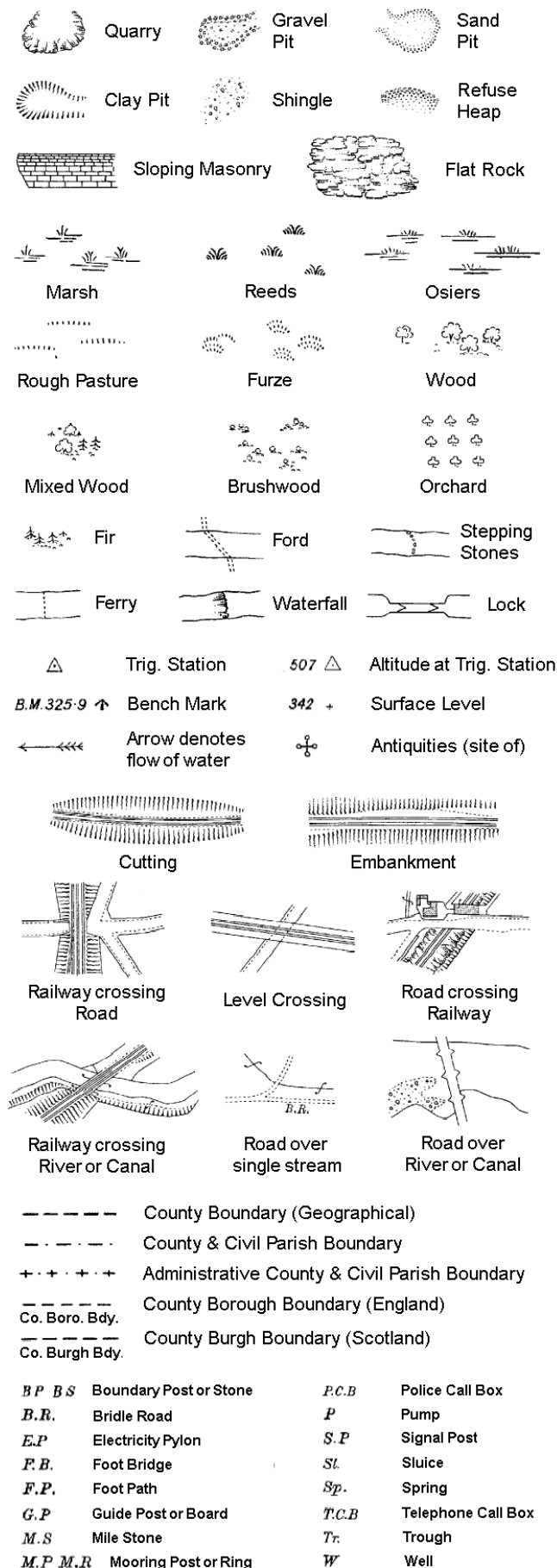


APPENDIX V

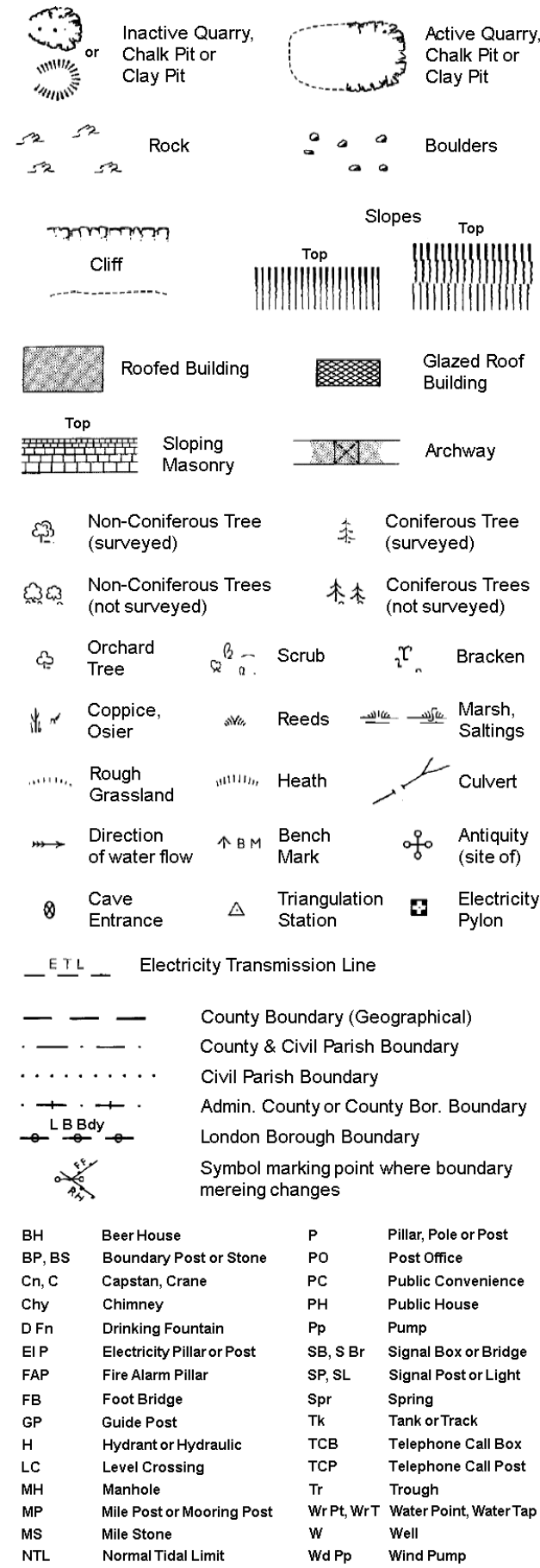
HISTORICAL MAPS

Historical Mapping Legends

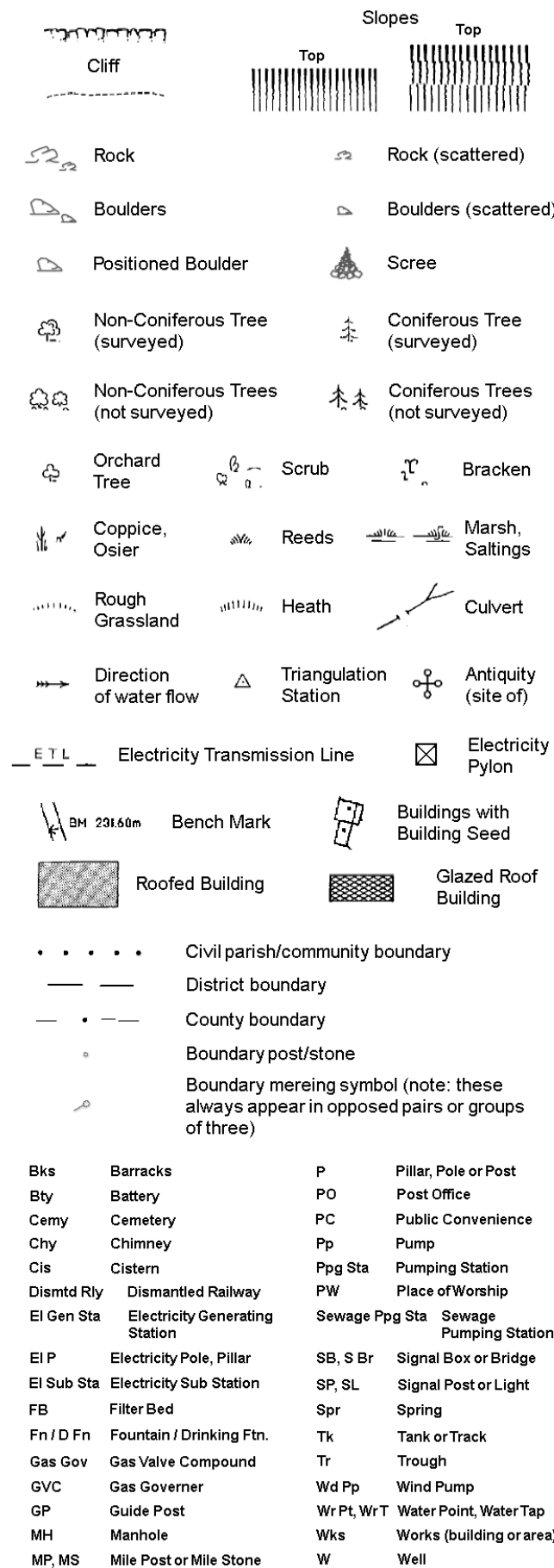
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Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



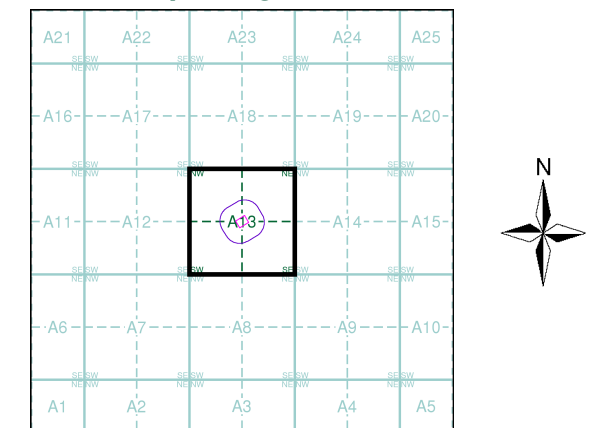
Large-Scale National Grid Data 1:2,500 and 1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
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Lancashire And Furness	1:2,500	1908	3
Lancashire And Furness	1:2,500	1922	4
Ordnance Survey Plan	1:1,250	1948 - 1949	5
Ordnance Survey Plan	1:2,500	1951	6
Ordnance Survey Plan	1:1,250	1952 - 1955	7
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Ordnance Survey Plan	1:1,250	1958 - 1965	9
Ordnance Survey Plan	1:2,500	1959 - 1966	10
Ordnance Survey Plan	1:2,500	1966 - 1969	11
Ordnance Survey Plan	1:1,250	1968 - 1986	12
Supply of Unpublished Survey Information	1:1,250	1973	13
Additional SIMs	1:1,250	1978 - 1984	14
Additional SIMs	1:1,250	1981 - 1986	15
Additional SIMs	1:1,250	1986	16
Ordnance Survey Plan	1:1,250	1988 - 1989	17
Additional SIMs	1:1,250	1991	18
Large-Scale National Grid Data	1:1,250	1992	19
Large-Scale National Grid Data	1:1,250	1993 - 1995	20
Large-Scale National Grid Data	1:1,250	1994	21
Large-Scale National Grid Data	1:1,250	1996	22
Historical Aerial Photography	1:2,500	2000	23

Historical Map - Segment A13



Order Details

Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details

Unit 7, Poland Street Industrial Estate, Poland Street,
MANCHESTER, M4 6AZ



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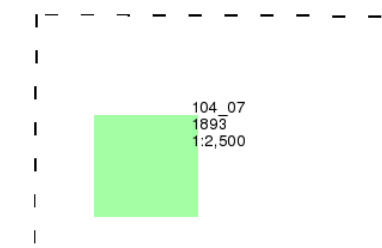
Lancashire And Furness

Published 1893

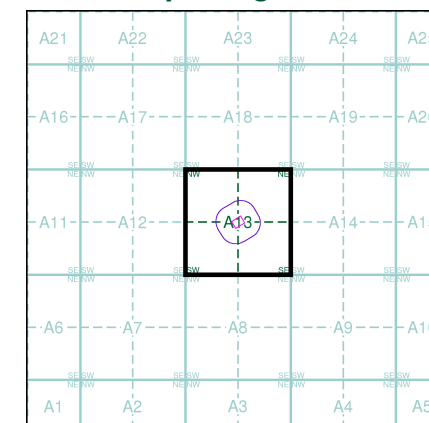
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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Customer Ref: 14-868
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dham Road Goods Station

Wholesale
Potato Market

Street Mains
Department
(Gas)

42
361



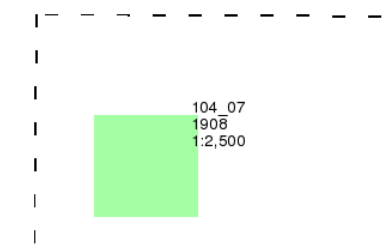
Lancashire And Furness

Published 1908

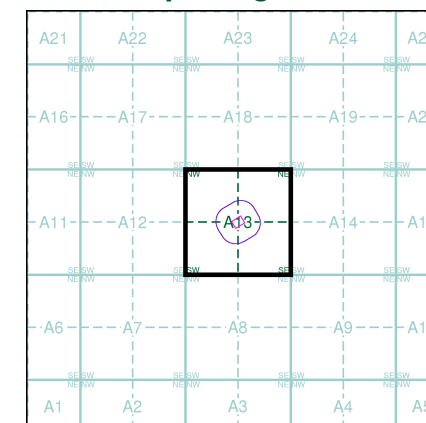
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Map Name(s) and Date(s)



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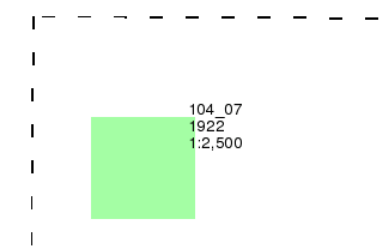
Lancashire And Furness

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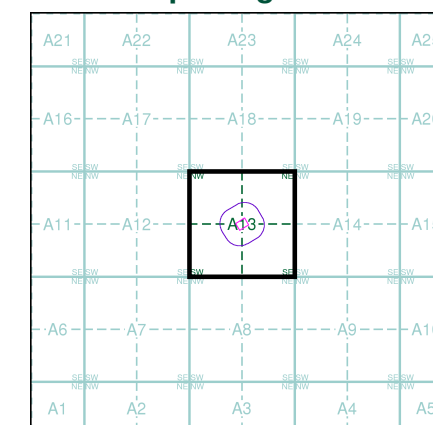
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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Ordnance Survey Plan

Published 1948 - 1949

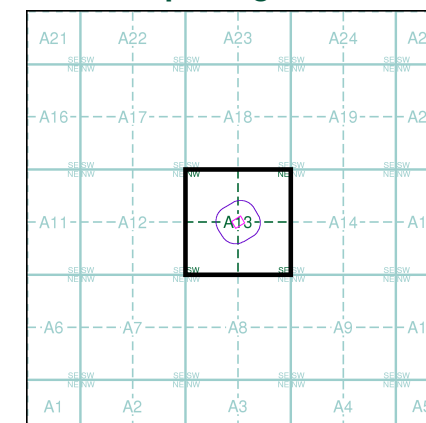
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Map Name(s) and Date(s)

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SJ8498NE 1948 1:1,250	SJ8598NW 1948 1:1,250	SJ8598NE 1949 1:1,250

Historical Map - Segment A13



Order Details

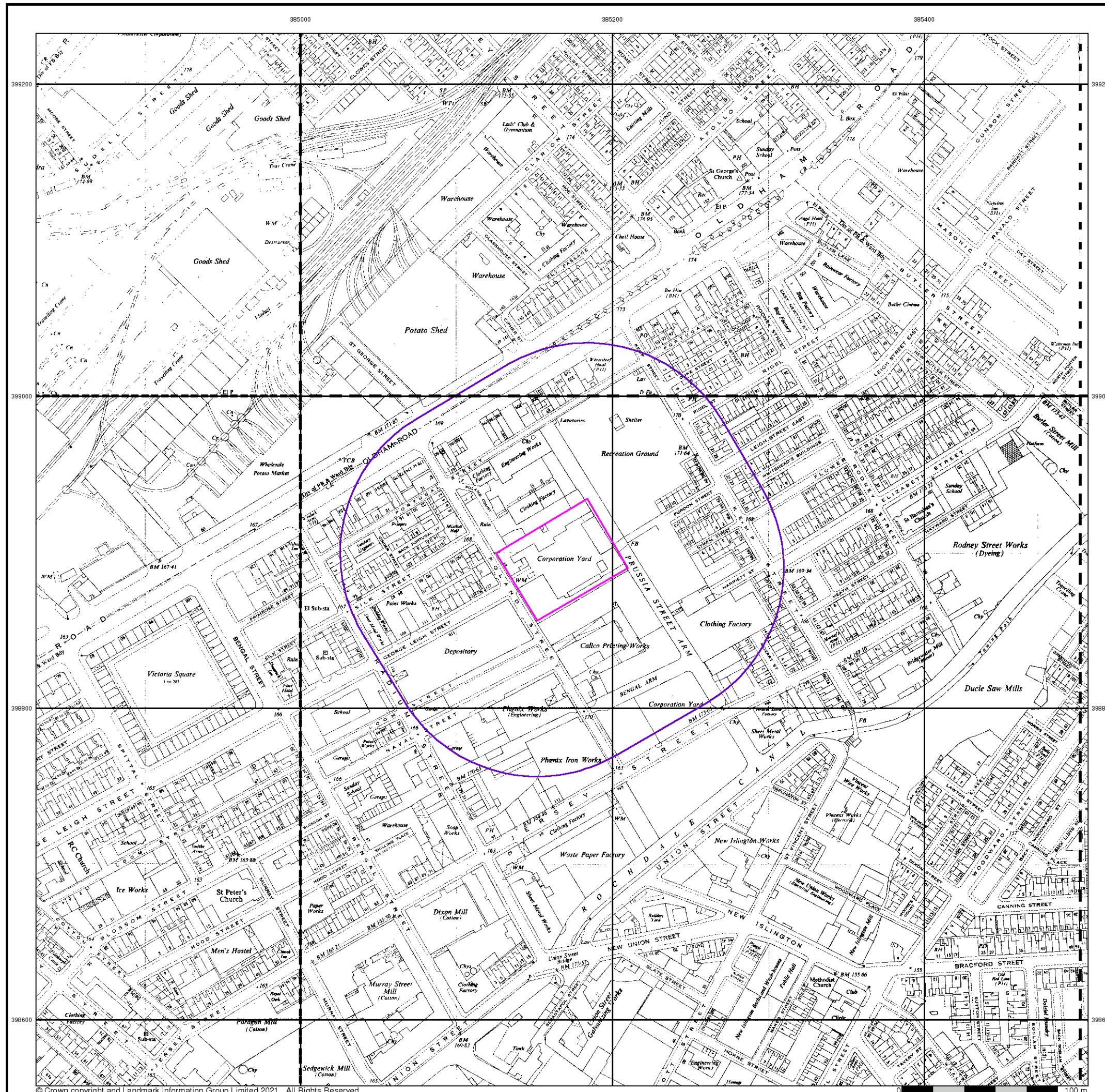
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Site Details

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Ordnance Survey Plan

Published 1951

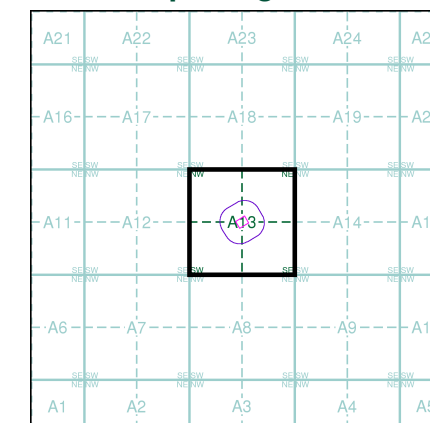
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Historical Map - Segment A13



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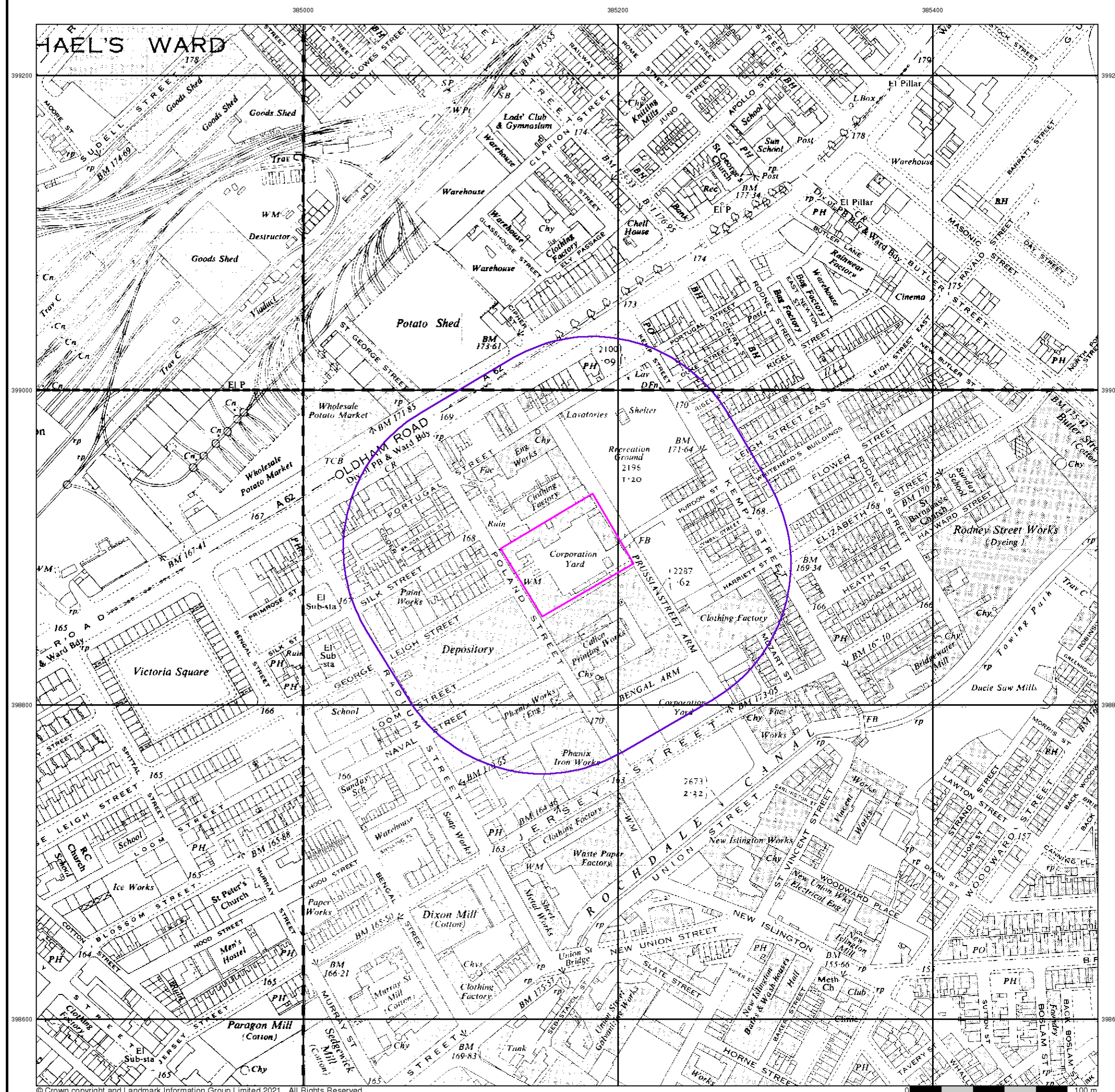
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Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details

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INFORMATION GROUP

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Ordnance Survey Plan

Published 1952 - 1955

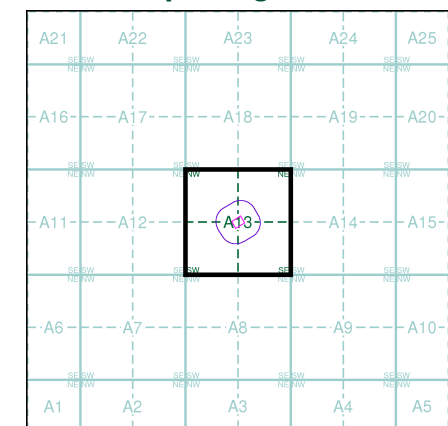
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Map Name(s) and Date(s)

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Historical Map - Segment A13



Order Details

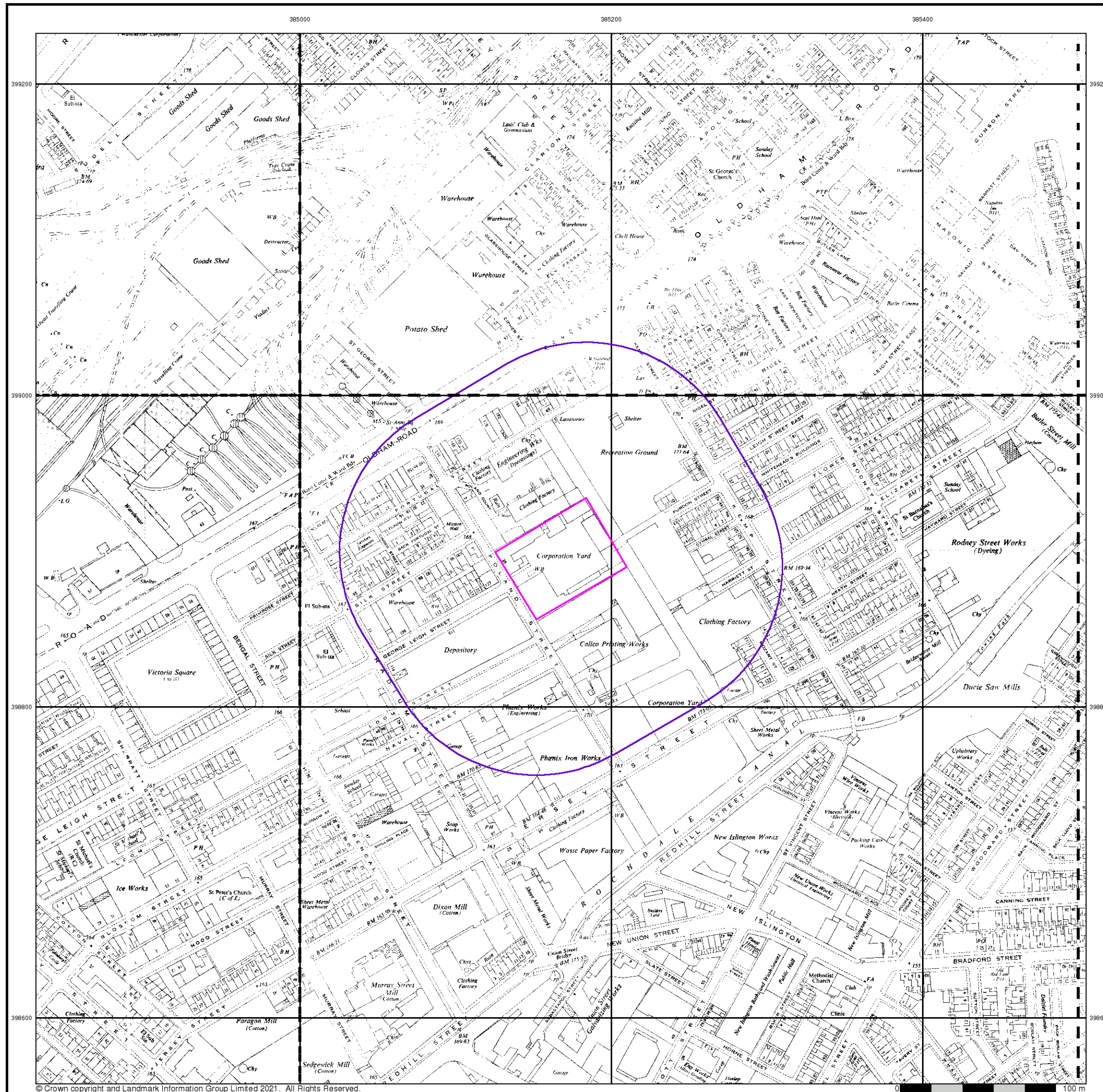
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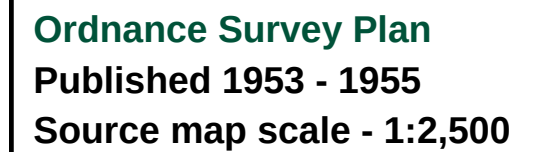
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Map Name(s) and Date(s)

SJ8499	1953	12,500	SJ8599	1954	12,500
SJ8498	1953	12,500	SJ8598	1953	12,500

A 5x5 grid of cells labeled A1 to A25. The cells are arranged in 5 rows and 5 columns. The columns are labeled A1, A2, A3, A4, A5 from left to right. The rows are labeled A1, A6, A11, A16, A21 from bottom to top. Cell A13 is highlighted with a thick black border and a purple circle.



Order Number:	276029752_1_1
Customer Ref:	14-868
National Grid Reference:	385170, 398900
Slice:	A
Site Area (Ha):	0.35
Search Buffer (m):	100

Unit 7, Poland Street Industrial Estate, Poland Street,
MANCHESTER, M4 6AZ

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Ordnance Survey Plan

Published 1958 - 1965

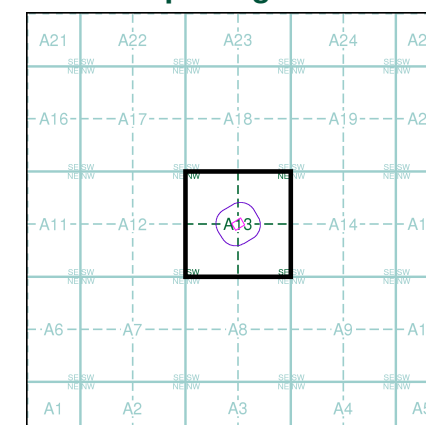
Source map scale - 1:1,250

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)

SJ8499SE 1958 1:1,250	SJ8599SW 1960 1:1,250	SJ8599SE 1965 1:1,250
SJ8498NE 1963 1:1,250	SJ8598NW 1963 1:1,250	SJ8598NE 1963 1:1,250

Historical Map - Segment A13



Order Details

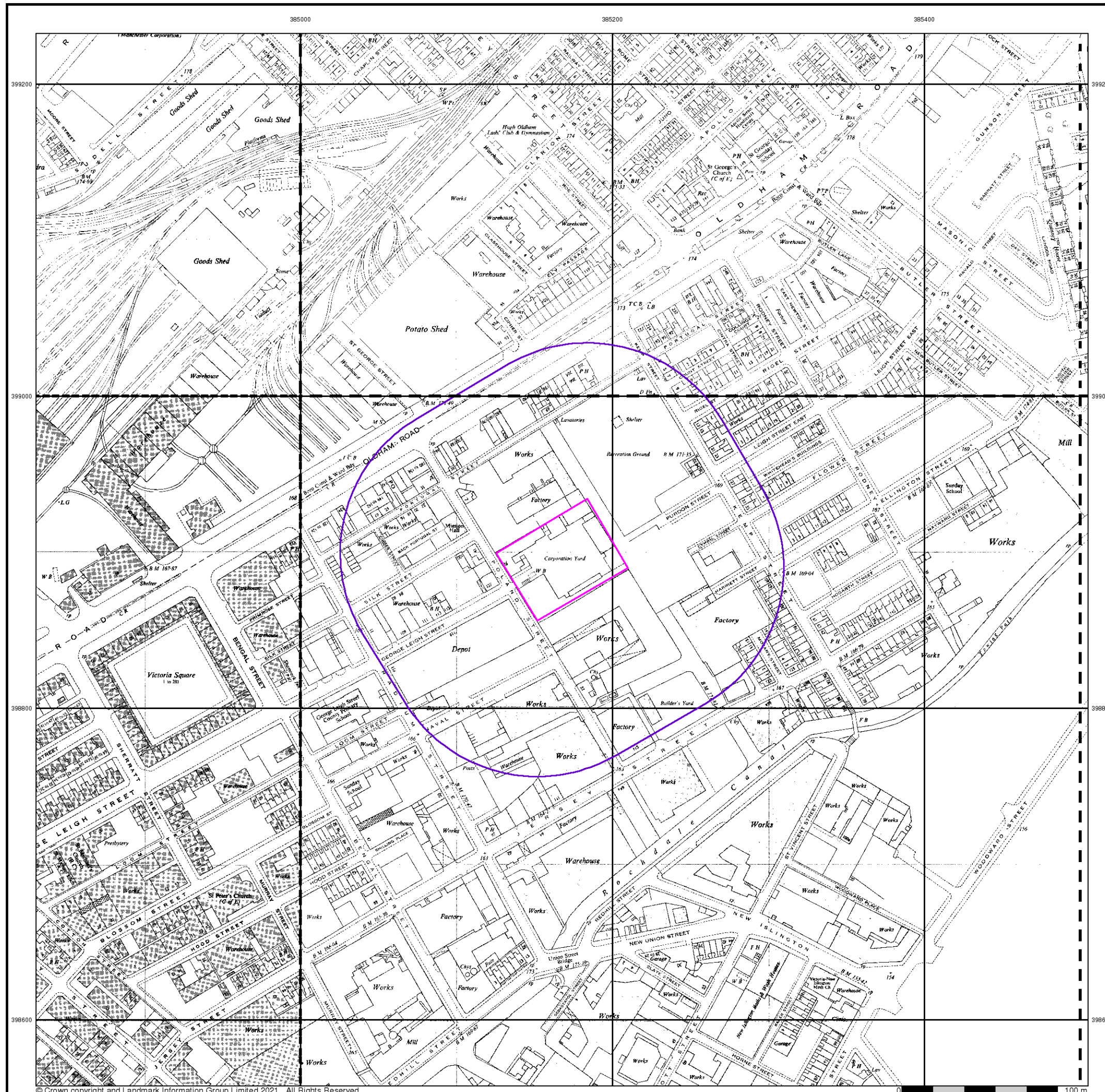
Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details

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Ordnance Survey Plan

Published 1959 - 1966

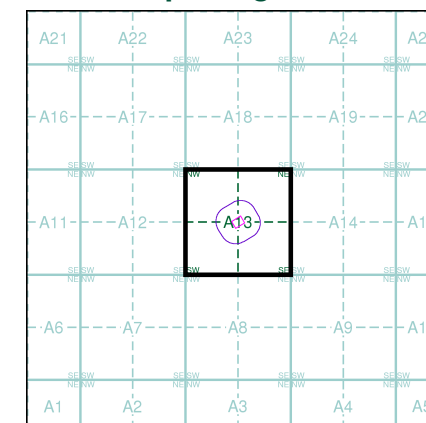
Source map scale - 1:2,500

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)

SJ8499	SJ8599
1959	1966
12,500	12,500
SJ8498	SJ8598
1965	1965
12,500	12,500

Historical Map - Segment A13



Order Details

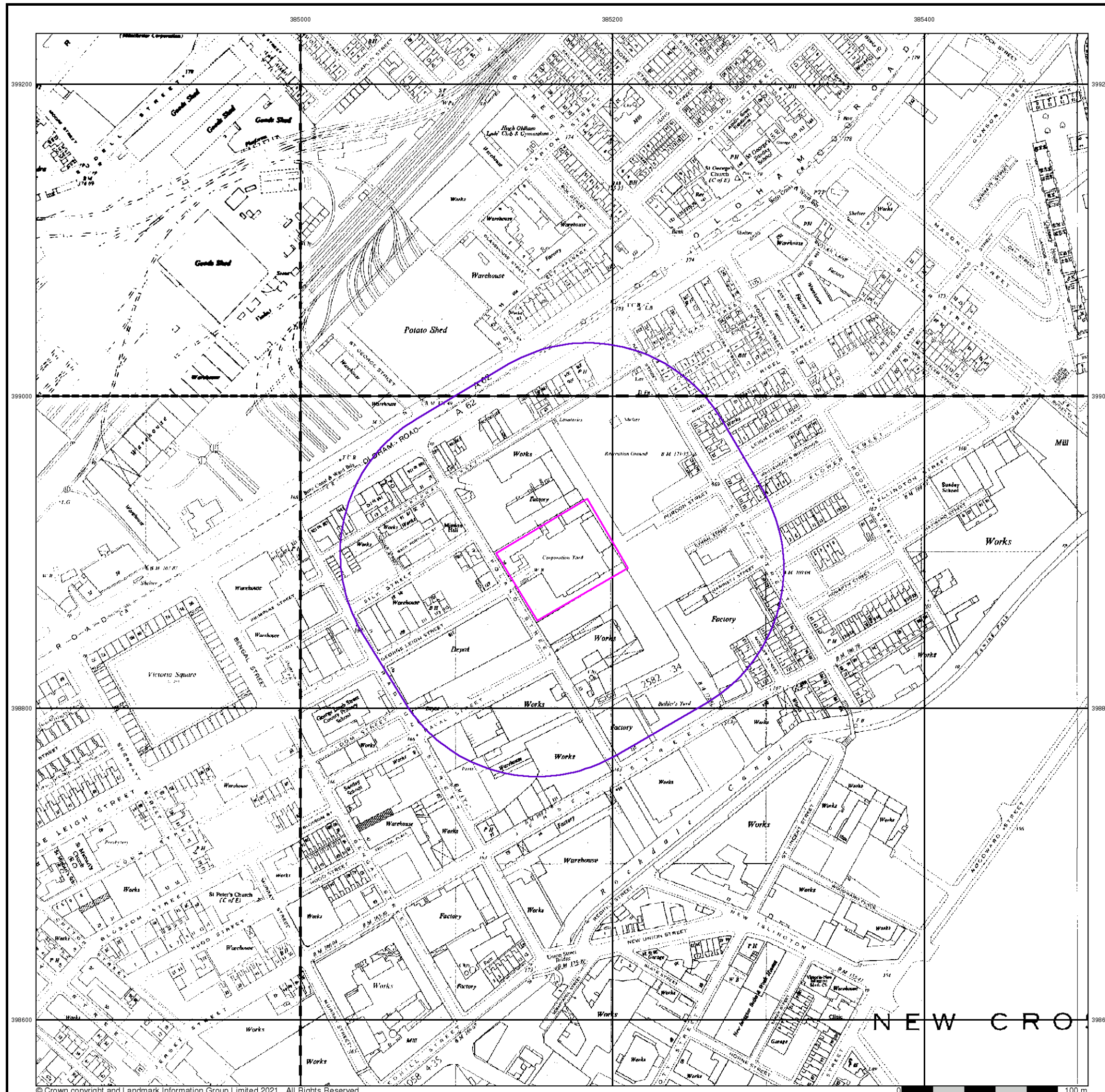
Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details

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Ordnance Survey Plan

Published 1966 - 1969

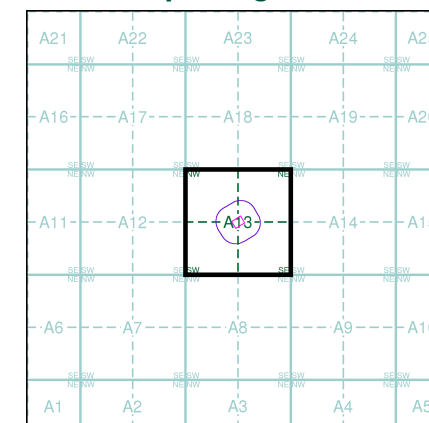
Source map scale - 1:2,500

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)

SJ8499	1966	12,500
SJ8498	1969	12,500
SJ8598	1969	12,500

Historical Map - Segment A13



Order Details

Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details

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Ordnance Survey Plan

Published 1968 - 1986

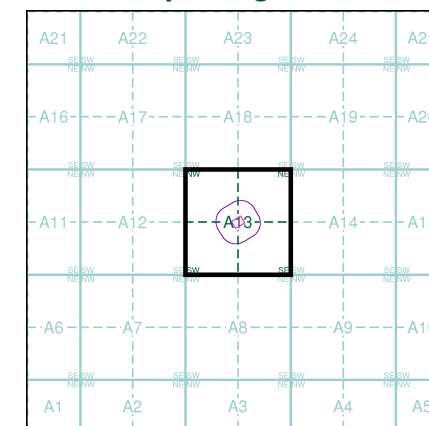
Source map scale - 1:1,250

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)

SJ8499SE 1970 1:1,250	SJ8599SW 1970 1:1,250	SJ8599SE 1981 1:1,250
SJ8498NE 1986 1:1,250	SJ8598NW 1968 1:1,250	SJ8598NE 1968 1:1,250

Historical Map - Segment A13



Order Details

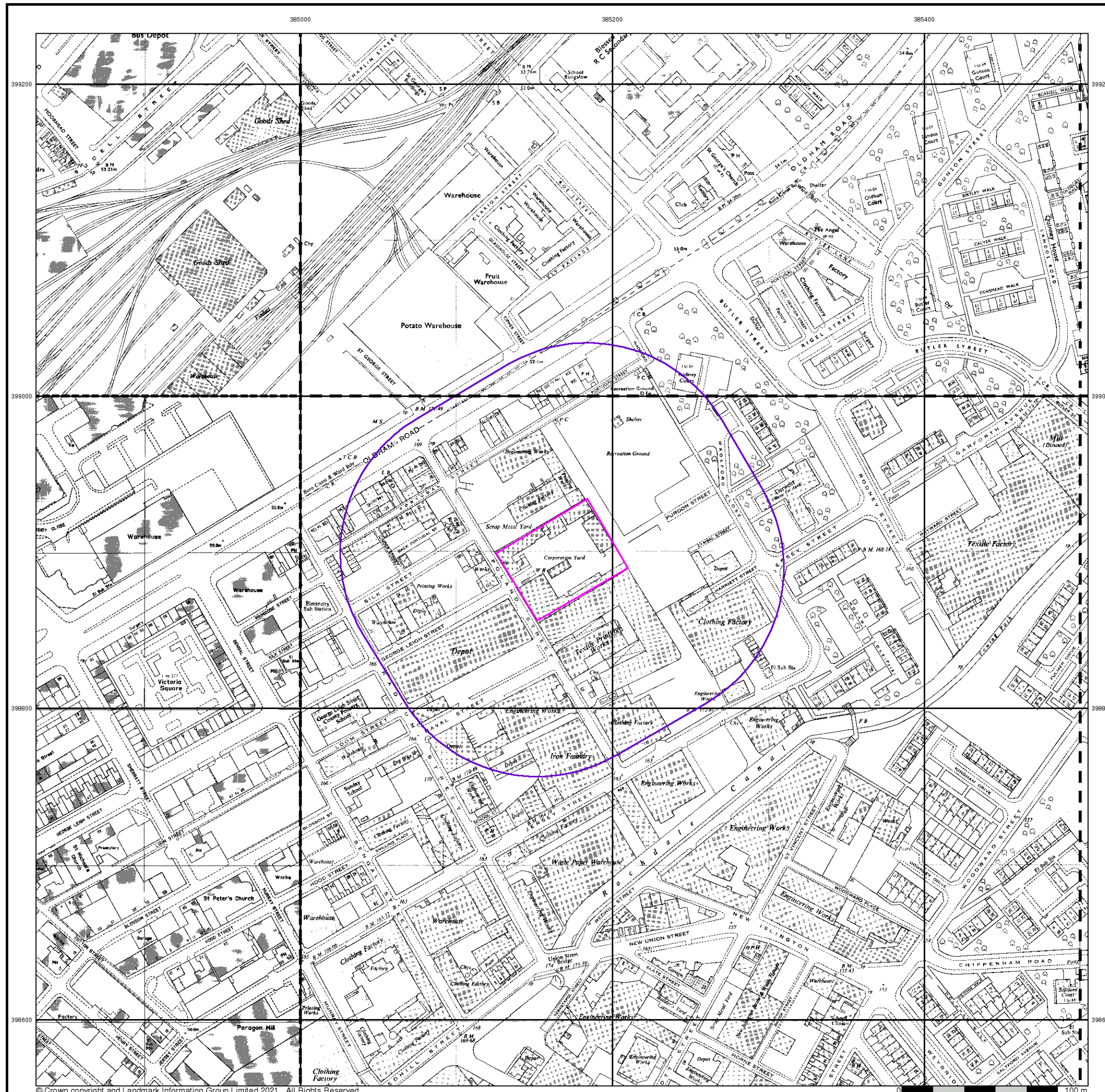
Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

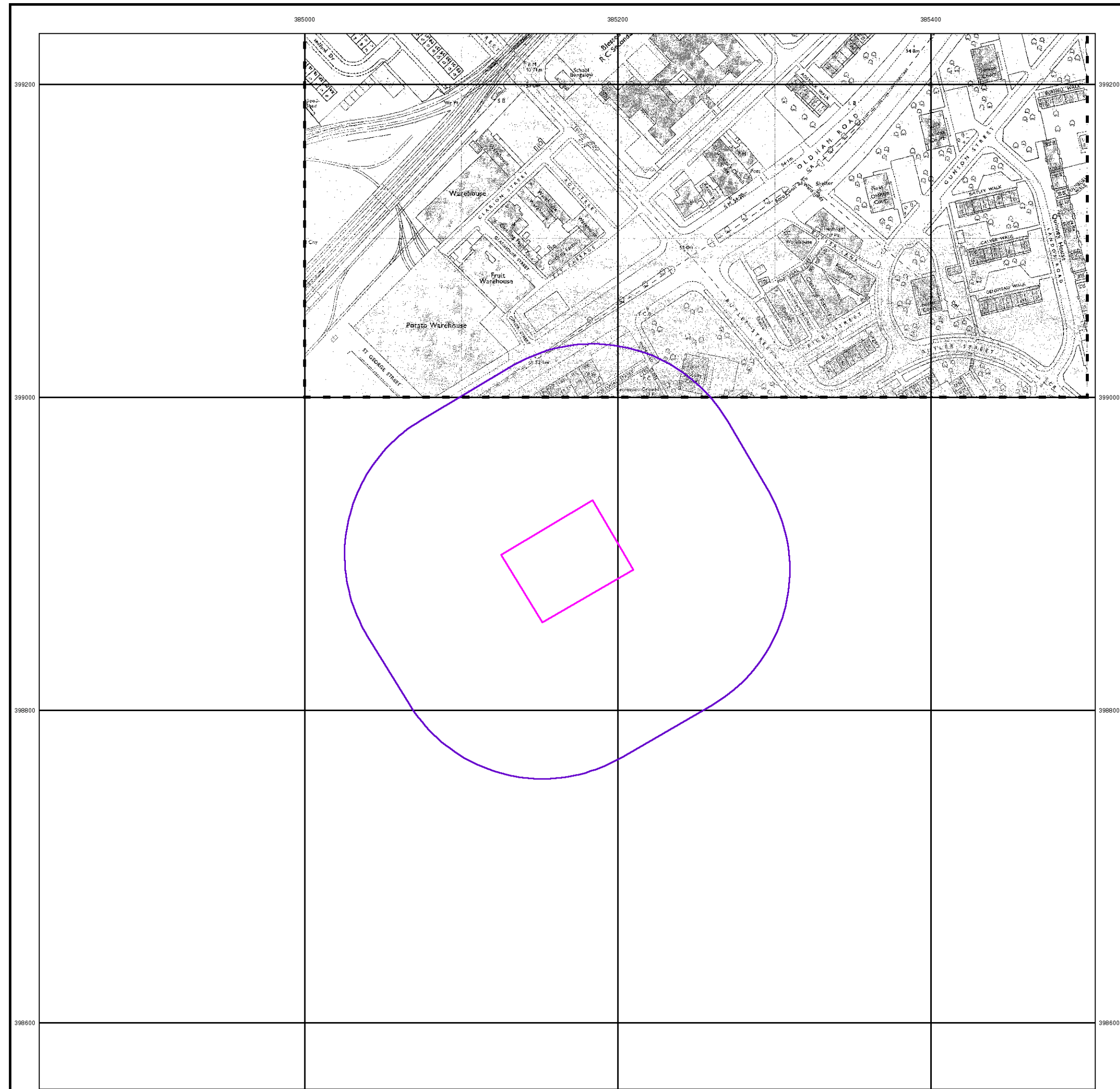
Site Details

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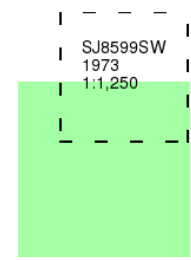
Supply of Unpublished Survey Information

Published 1973

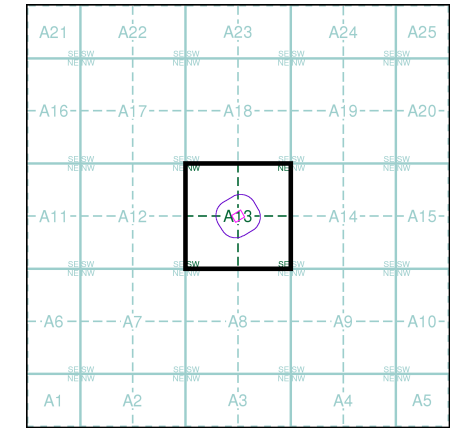
Source map scale - 1:1,250

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

Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details

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Additional SIMs

Published 1978 - 1984

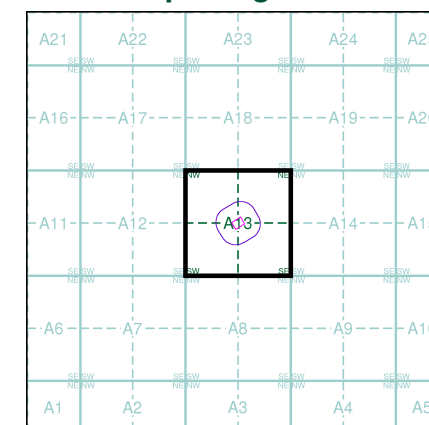
Source map scale - 1:1,250

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)

SJ8499SE	SJ8599SW	SJ8599SE
1978	1980	1978
1:1,250	1:1,250	1:1,250
SJ8498NE	SJ8598NW	
1984	1978	
1:1,250	1:1,250	

Historical Map - Segment A13



Order Details

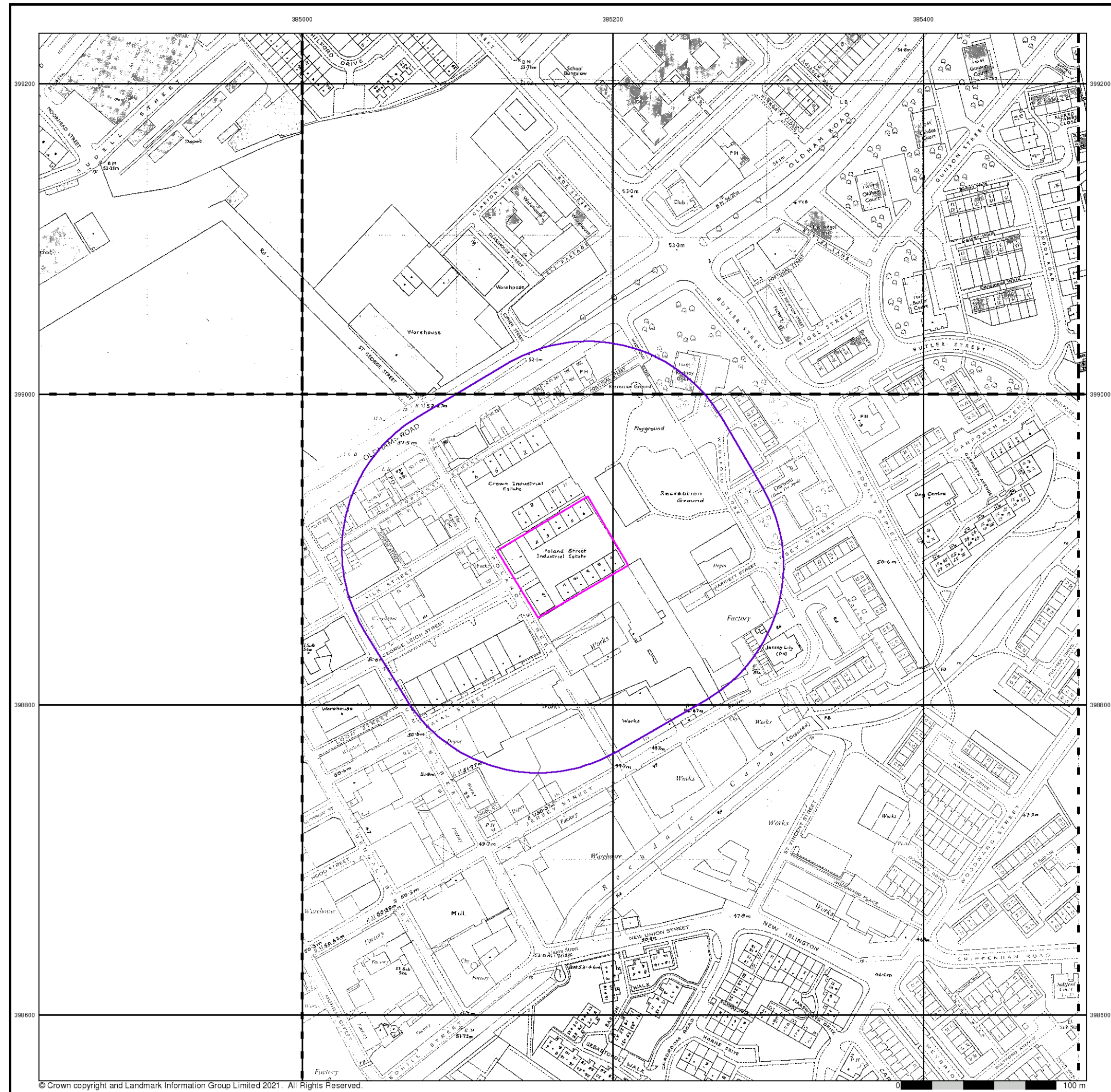
Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

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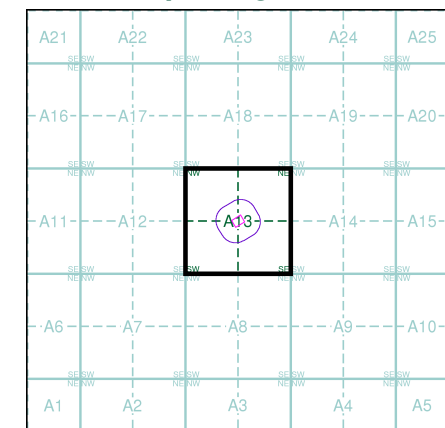
Additional SIMs
Published 1981 - 1986
Source map scale - 1:1,250

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)

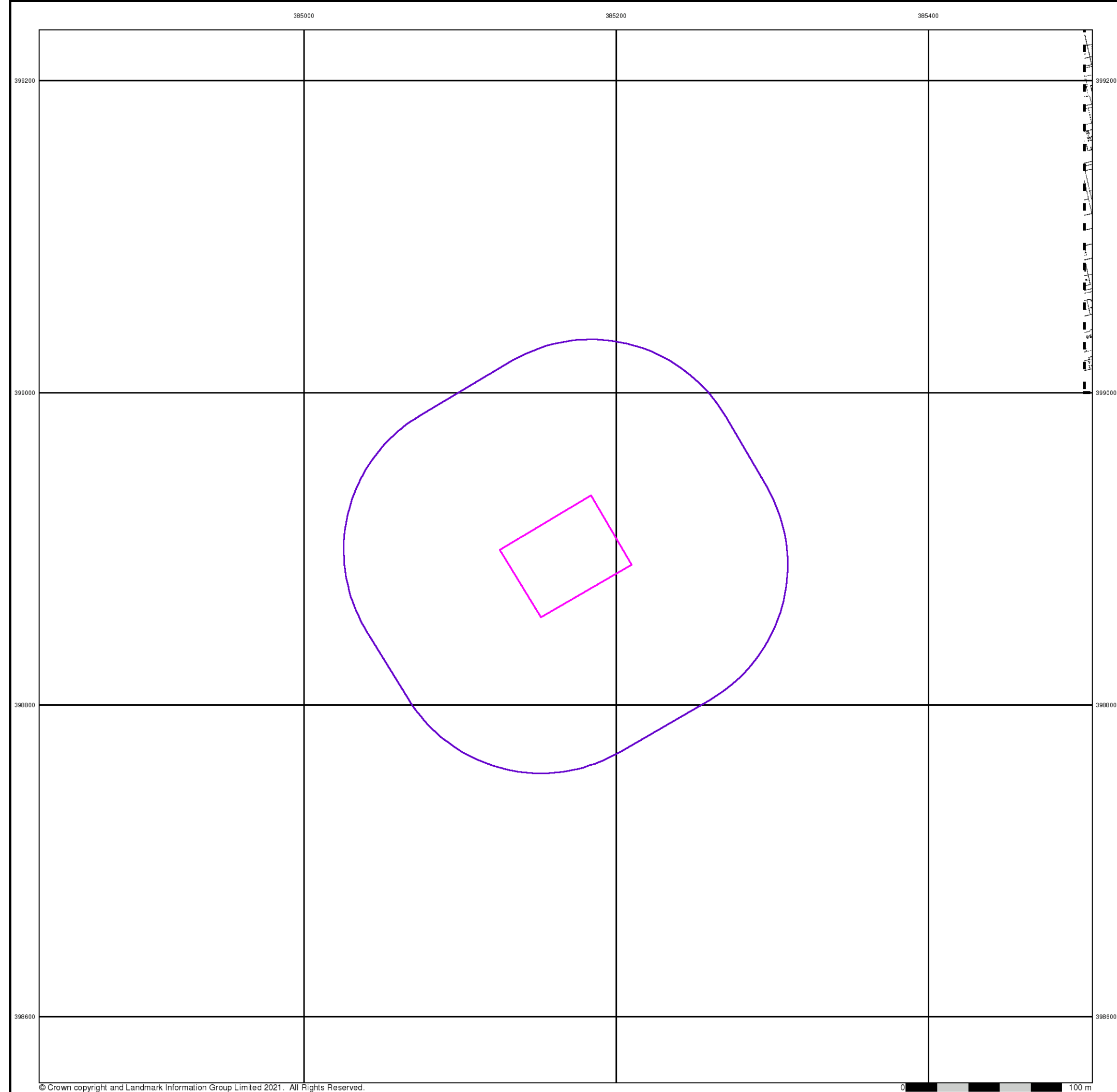
SJ8499SE 1984 1:1,250	SJ8599SW 1986 1:1,250	SJ8599SE 1981 1:1,250
SJ8598NW 1983 1:1,250		

Historical Map - Segment A13



Order Details
Order Number: 276029752_1_1
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National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details
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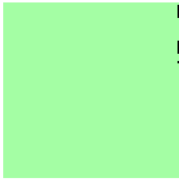
Additional SIMs

Published 1986

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)

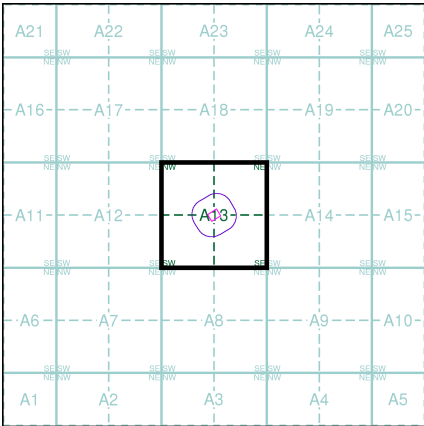


SJ8599SE

1986

1:1,250

Historical Map - Segment A13



Order Details

Order Number:	276029752_1_1
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Site Area (Ha):	0.35
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Ordnance Survey Plan

Published 1988 - 1989

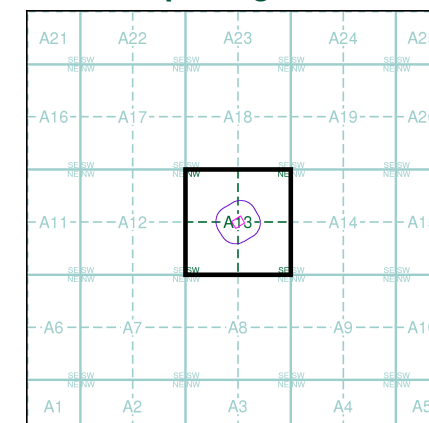
Source map scale - 1:1,250

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)

SJ8499SE 1989 1:1,250	SJ8599SW 1988 1:1,250	SJ8599SE 1988 1:1,250
SJ8598NW 1988 1:1,250		
SJ8598NE 1989 1:1,250		

Historical Map - Segment A13



Order Details

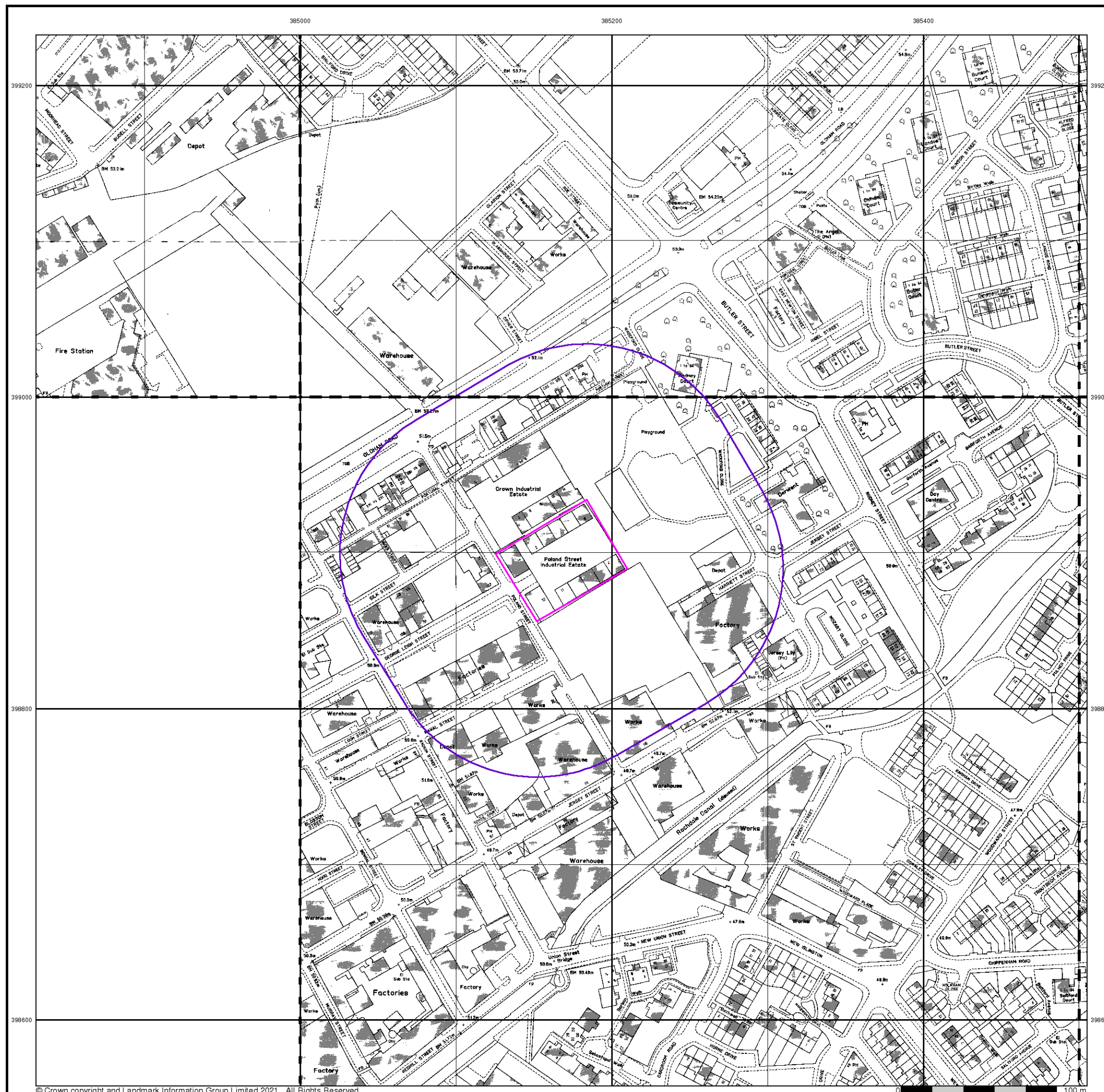
Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

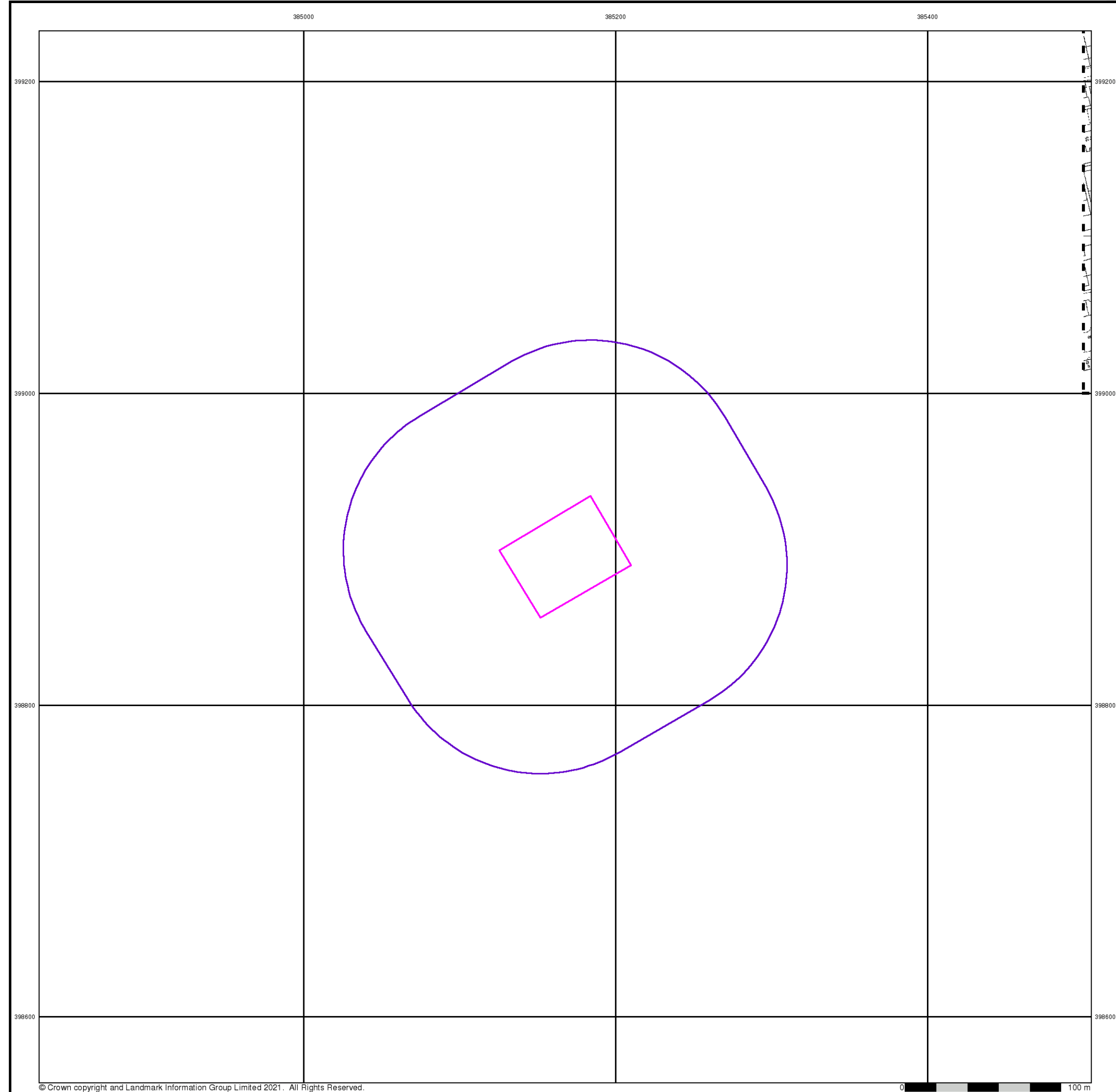
Site Details

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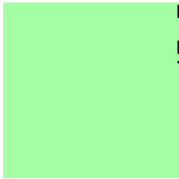
Additional SIMs

Published 1991

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)

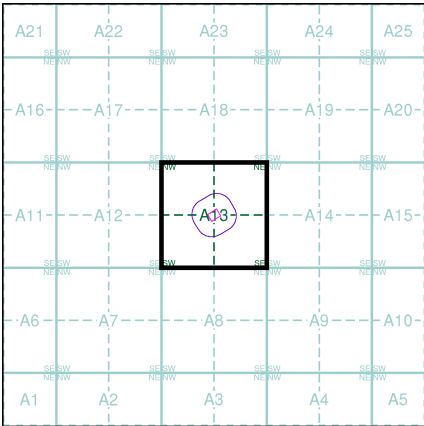


SJ8599SE

1991

1:1,250

Historical Map - Segment A13



Order Details

Order Number:	276029752_1_1
Customer Ref:	14-868
National Grid Reference:	385170, 398900
Slice:	A
Site Area (Ha):	0.35
Search Buffer (m):	100

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Unit 7, Poland Street Industrial Estate, Poland Street,
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Large-Scale National Grid Data

Published 1992

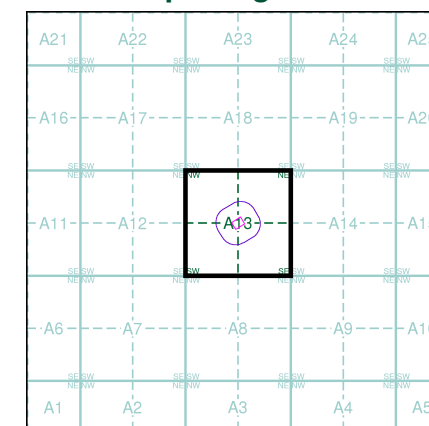
Source map scale - 1:1,250

'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)

SJ8499SE 1992 1:1,250	SJ8599SW 1992 1:1,250	SJ8599SE 1992 1:1,250
SJ8498NE 1992 1:1,250	SJ8598NW 1992 1:1,250	SJ8598NE 1992 1:1,250

Historical Map - Segment A13



Order Details

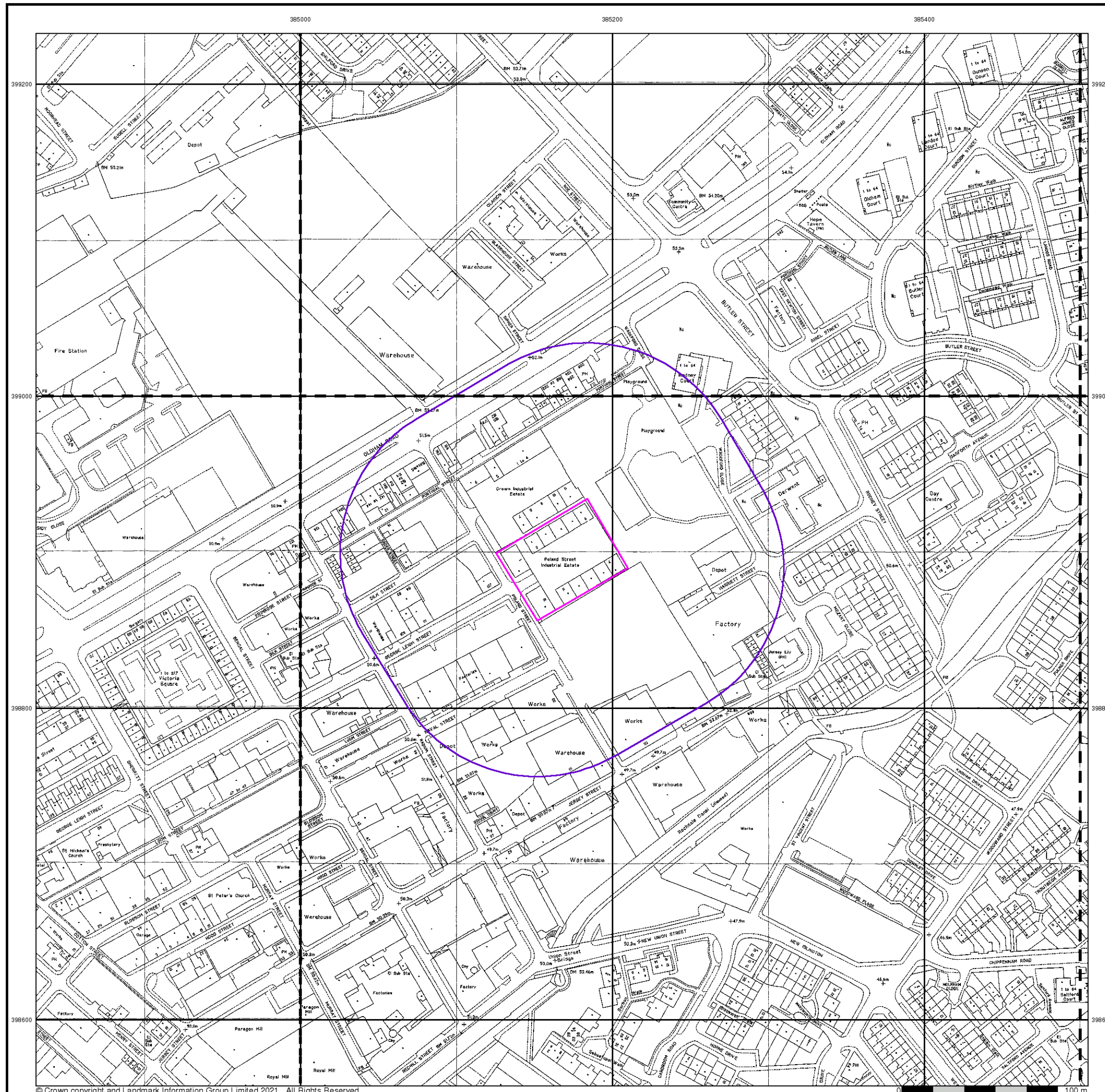
Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

Site Details

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Large-Scale National Grid Data

Published 1993 - 1995

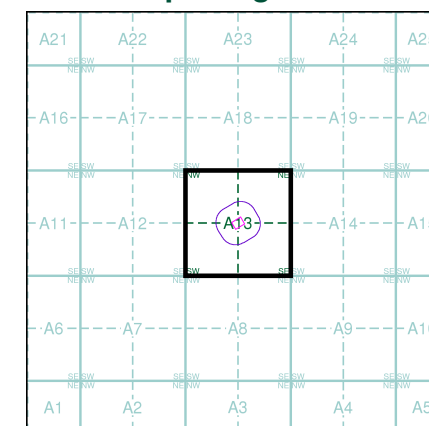
Source map scale - 1:1,250

'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)

SJ8499SE	SJ8599SW	
1993	1993	
1:1,250	1:1,250	
SJ8498NE	SJ8598NW	SJ8598NE
1994	1994	1994
1:1,250	1:1,250	1:1,250

Historical Map - Segment A13



Order Details

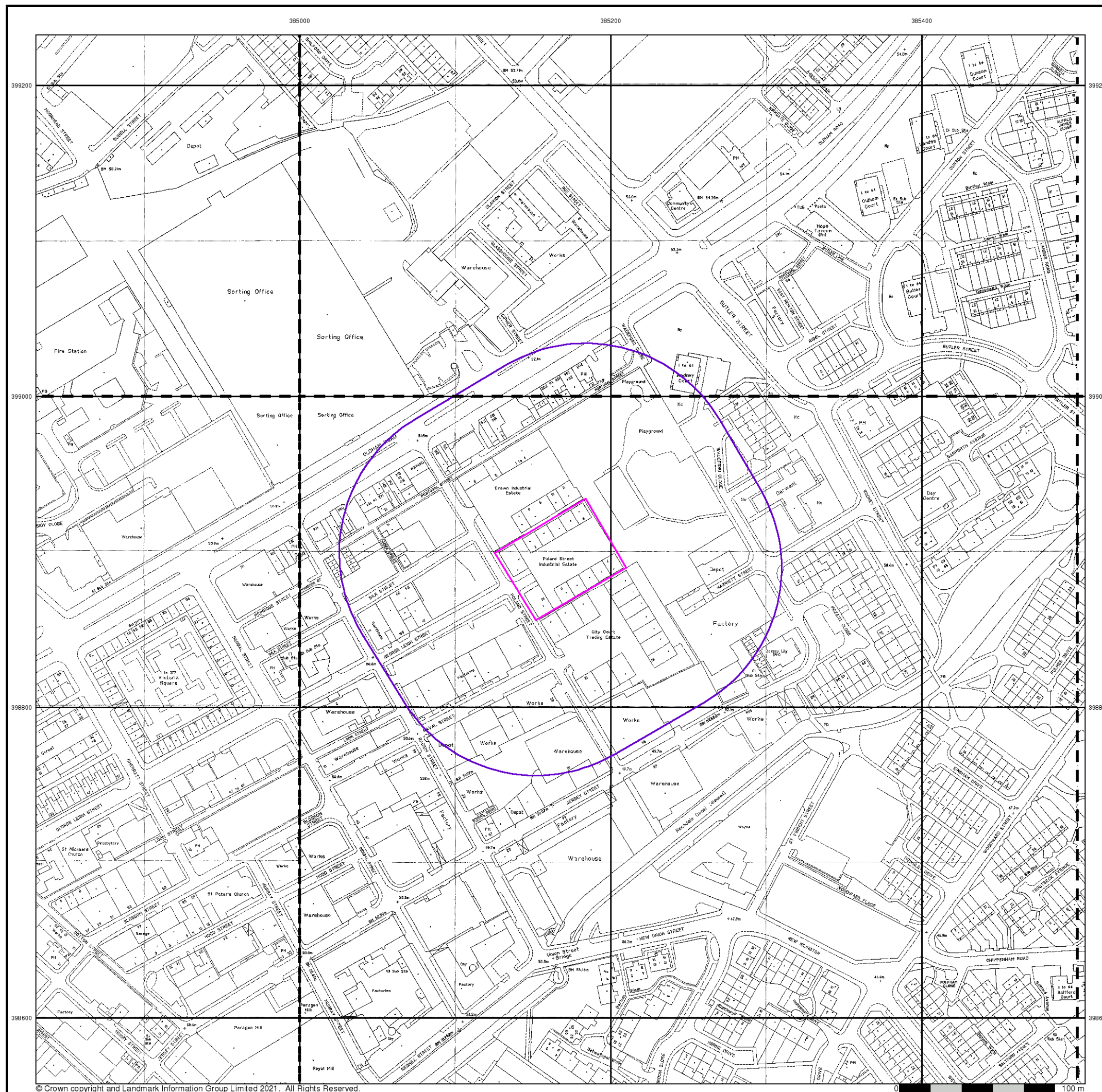
Order Number: 276029752_1_1
Customer Ref: 14-868
National Grid Reference: 385170, 398900
Slice: A
Site Area (Ha): 0.35
Search Buffer (m): 100

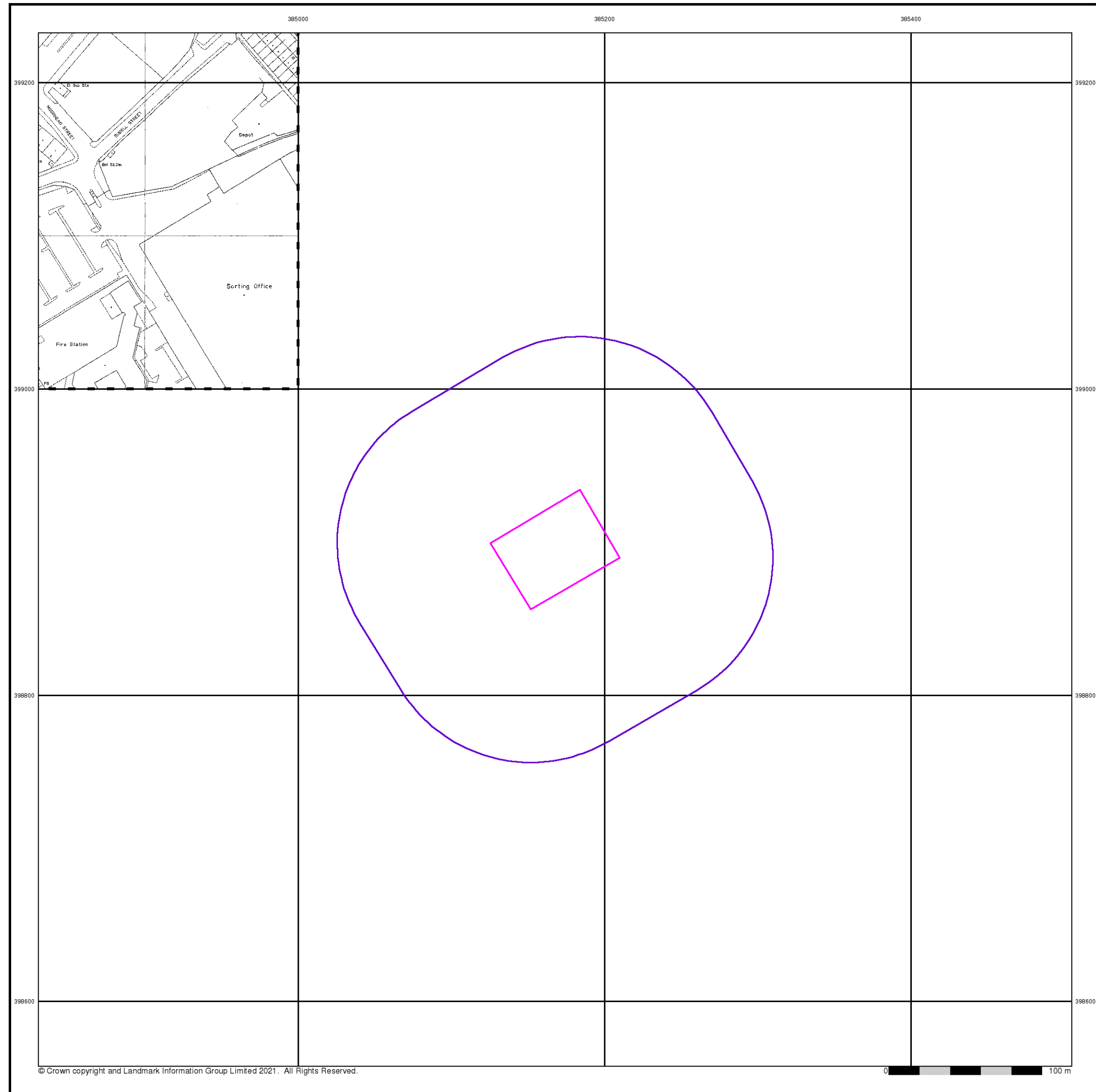
Site Details

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Large-Scale National Grid Data

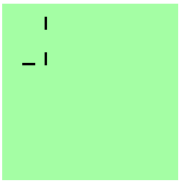
Published 1994

Source map scale - 1:1,250

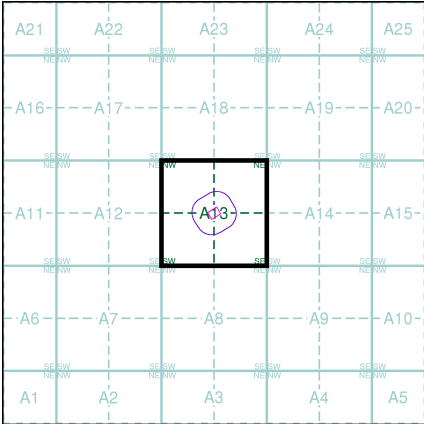
'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

Map Name(s) and Date(s)

SJ8499SE
1994
1:1,250



Historical Map - Segment A13



Order Details

Order Number:	276029752_1_1
Customer Ref:	14-868
National Grid Reference:	385170, 398900
Slice:	A
Site Area (Ha):	0.35
Search Buffer (m):	100

Site Details

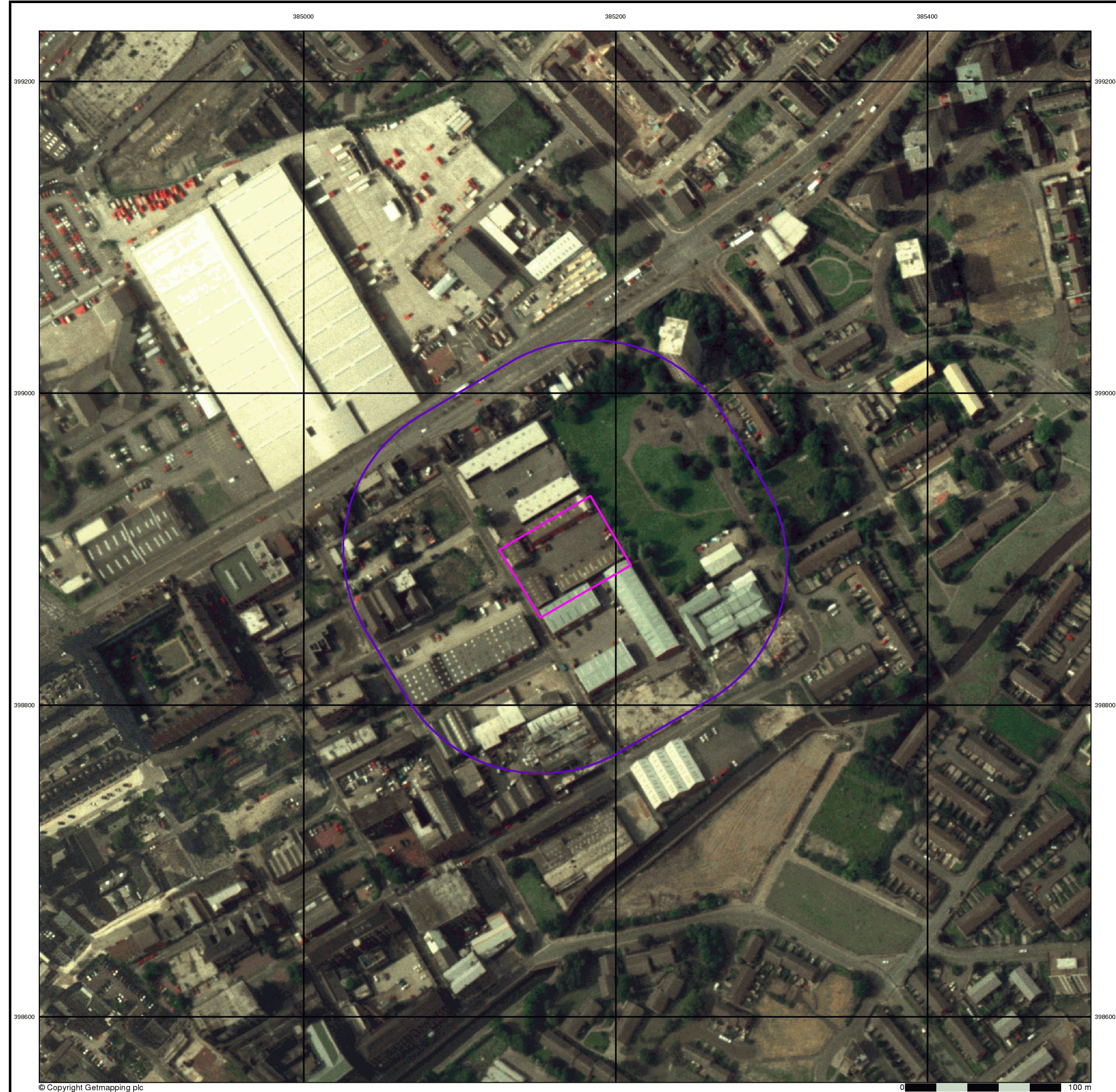
Unit 7, Poland Street Industrial Estate, Poland Street,
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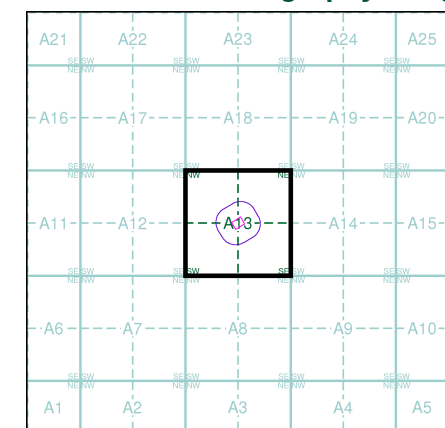


Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

Order Number: 276029752_1_1
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