

Duke Street Mill, Rochdale

Phase 1 Preliminary Risk Assessment

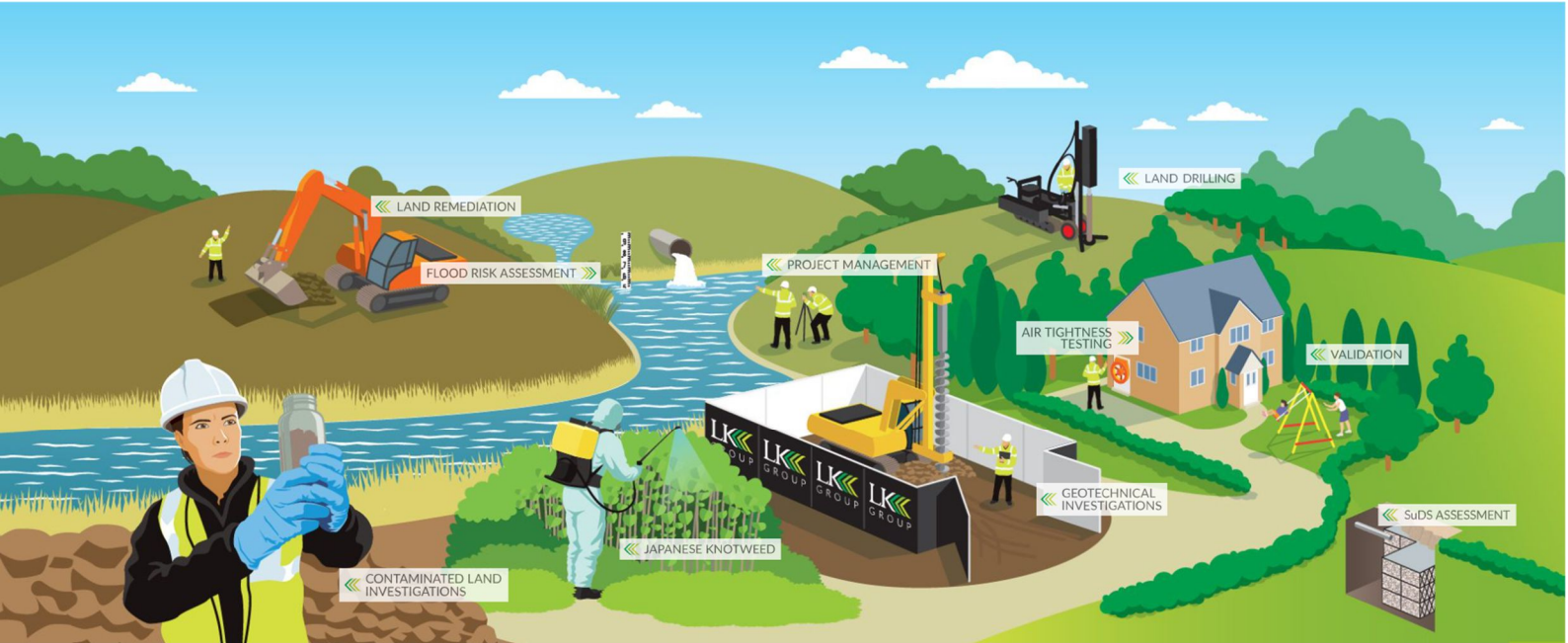
Job Number: LKC 24 1109

Date: October 2024

Client: Allied Property Group Ltd



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1. Introduction

LK Consult Ltd (LKC) has been commissioned to carry out a Phase 1 Preliminary Risk Assessment (PRA) for Duke Street Mill, Rochdale.

In accordance with current guidance (including LCRM¹ and the National Planning Policy Framework (NPPF)²), the PRA will include a site reconnaissance, site history, geology, hydrogeology, hydrology, mineral search, and a landfill search. Information gathered from the desk study and site reconnaissance will be used to develop a contamination conceptual model for the site.

Based on the findings of this report, an appropriate site investigation can be derived, if required.

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary plan. Figure 2 indicates the proposed development.

Location	Site is west of Duke Street, south of Princess Street, east of Whitehall Street and north of Queen Street. Centred at National Grid Reference 389767E, 413945N.
Area	c 1,955m ² .
Topography	c. 143 metres above ordnance datum (AOD). Site external areas slope gradually down to the south.
Current Site Use	Site currently comprises vacant mill building with and external hardstood area. A 2 storey vacant office building (former public house) is present in the south west corner of the site but is currently not part of the proposed development scheme.
Proposed Development	Residential apartments (64no units) including amenity space.

Table 1-1: Summary of site details.

2. Historical Review

In compiling the site history, LKC consulted Envirocheck historical mapping (Appendix A)

Table 2-1 summarises features on site. Table 2-2 summarises potentially contaminative land uses within approximately 50m and potentially infilled features within approximate 250m.

Site Features	Location on Site	Dates Present		Comments
		From	To	
Residential dwellings	Whole Site	1851	1969	3 rows of assumed dwellings present on 1851 mapping. By 1891 mapping the majority have been replaced by the cotton mill. Dwellings remain on the northeast corner (replaced by extension to cotton mill on 1930 mapping) and along the western boundary (no longer annotated on 1972 mapping).
Cotton Mill	Whole Site	1892	Present	Cotton mill extends to the east covering Kershaw Place on 1930 mapping. No longer annotated as mill on 1999 mapping.
Mount Pleasant Inn	SW	1851	Present	No longer annotated as a public house on 1972 mapping.
1no. Chimney	W	1892	1910	Chimney no longer present on 1930 mapping.
Works	NW	1959	1960	Works no longer annotated on 1972 mapping.
Electricity Sub Station	W	1972	Present	Electricity sub-station no longer annotated on 1999 mapping.

Table 2-1: Summary of site features. Dates are based on available historical map editions.

Surrounding Area Features	Distance (m)	Direction	Dates Present		Comments
			From	To	
Clay pit with associated brick field	179	NE	1851	Only	No longer present on 1892 mapping.
Reservoir	70	E	1851	1929	Reservoir no longer present on 1931 mapping.
	75	E	1851	1938	No longer present on 1960 mapping.
Phoenix Iron and brass Foundry / Works	45	SE	1851	1988	Annotated as brass & iron works on 1892 mapping. Annotated as works on 1959 mapping, building extended to the south-east across Rope Street. No longer annotated as works and no longer present on 1988 mapping.
Works	10	SE	1851	1972	Annotated as boiler house on 1851 mapping only. Annotated as warehouse on 1910 mapping, no longer annotated or present as warehouse on 1972.
	15	NW	1851	Present	Residential housing demolished and works building extended to the south. No longer annotated as works on 1977 mapping. Annotated as warehouse on 1981 mapping. No longer annotated as warehouse on 1999 mapping.
	15	N	1930	Present	Annotated as boiler works on 1892 mapping. Residential houses to the south demolished, works building extended to the south. Works building to the north annotated as garages on 1960 mapping. Works building annotated as warehouse on 1972 mapping. Works annotated to the north on 1981 mapping. Works and garage no longer annotated on 1999 mapping.
	15	E	1960	Present	No longer annotated as works on 1956 mapping. Annotated as warehouse on 1972 mapping. Residential dwellings demolished and warehouse

					extended to the north on 1968 mapping.
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Table 2-2: Summary of potentially contaminative features within 50m and potentially infilled features within 250m. Dates are based on available historical map editions.

Environmental Setting

A summary of environmental settings is presented in Table 3-1, based on a review of available environmental data.

Categories ^(data sources)			Details
Geology ^{1, 2}	Artificial Ground		No BGS recorded artificial ground.
	Superficial Deposits		Till Devensian (Diamicton).
	Bedrock		Milnrow Sandstone.
	BGS Logs (100m)		BH Ref: SD81SE556, 48m S: No strata information provided.
Hydro-geology ¹	Aquifer Designation	Superficial	Secondary Undifferentiated Aquifer.
		Bedrock	Secondary A Aquifer.
	Source Protection Zone (SPZ)		Site not within an SPZ.
	Groundwater Abstractions (100m)		36m SE, cooling, 2no wells and 1no borehole, Holcroft Casting & Forging.
Hydrology ¹	Surface Watercourses (100m)		None.
	Flooding Risk ^{1, 3}		Flood Zone 1.
	Surface Water Abstractions (100m)		None.
	Discharge Consents (onsite)		None.
	Pollution Incidents (onsite)		None.
Minerals & Mining ^{1,4}	Coal Mining		Within a Coal Reporting Area. Not within a Development High Risk Area.
	Surface Mineral Extractions (250m)		142m NE – Green Hayes Clay Pit, Commodity: Common Clay and Shale, Status: Ceased.
	Non-Coal Mining Area		No hazard.
Ground Stability ¹	Collapsible Ground		Very low hazard.
	Compressible Ground		No hazard.
	Ground Dissolution		No hazard.
	Landslide		Very low hazard.
	Running Sand		Very low hazard.
	Shrinking / Swelling Clay		Very low hazard.
Landfill Sites (250m) ¹	Known / Registered		None.
	Potentially Infilled Land (non-water and water), based on Envirocheck Report		4no. features: 129 E, 146m N, 167m NW, 248m W.
	Potentially Infilled Sites, based on LKC historical review		2no. features: See Table 2-1 and Table 2-2.
Radon Potential ¹			<1% of homes above Action Level. No protective measures are necessary in the construction of new dwellings or extensions.
Designated Sites (50m) ¹			None.
Contemporary Trade Directory (50m) ¹			Onsite, Soft furnishings – Manufacturers (J H Cunliffe & Company Ltd. Onsite, Soft furnishing – Manufacturers (Bolton Textiles). Onsite, Textiles Manufacturing 16m NW, Petrol filling stations 23m NE, Fishing & Angling Equipment – Manufacturers & Distributors. 45m N, Car Dealers.
Fuel Station Entries (50m) ¹			None.

Categories ^(data sources)		Details
Unexploded Ordnance Risk (UXO) – Zetica Risk Map	Zetica Risk Map ⁵	Bomb Risk: Low. Strategic Targets: None identified within 100m.
	Pre-Desk Study Assessment	A detailed desk study, whilst always prudent, is not considered essential in this instance.
Potable Water Supply ⁵	Extract from Water Mains map shows mains around the site comprise PE pipe laid within a cast iron sleeve. Private connections are shown from Queen Street and from Princess Street.	

Table 2-3: Summary of the environmental setting.

Notes: Distance in brackets is the distance from site that features are included. Where no distance given, features relate to onsite only.

Data Sources:

1 Envirocheck Report (Appendix A & B).

2 <http://mapapps2.bgs.ac.uk/geoindex/home.html>

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

4 The Coal Authority Web Mapping Services (WMS) / <http://coal.decc.gov.uk/en/coal/cms/publications/data/map/map.aspx>.

5 Zetica UXO Unexploded Bomb Risk Map (Appendix D).

6 United Utilities Water Distribution Plan (Appendix E).

3. Site Reconnaissance

A site reconnaissance was carried out on 1st October 2024.

Relevant features identified on site are summarised below:

- The majority of the site is occupied by the building footprint of Duke Street Mill. The northwest quadrant of the site comprises a hardstood tarmac parking area demarked by palisade fencing to Whitehall Street and Princess Street. An unmarked electricity substation with a small cobbled area to the front access is present. There is evidence of localised repair to the tarmac.
- A two storey office building (former public house) is present to the southwest corner of the mill building. This appeared to be unused.
- The mill building is of brick and stone and comprises four storeys. Former chimney and lift shafts are present and extend higher than the main mill building. Evidence of former building use such as the engine house and lifting beams were noted.
- A wall plate was noted on the assumed former engine house.
- The northern and northeastern elevations of the mill building are fronted in brick and pavement level iron grids and lightwells are present. On the central northern elevation lintels and the very top part of bricked up windows are visible at pavement level. The iron grids are considered to reflect the basement area.
- With the ground floor of the mill evidence of storage was noted. There was no evidence of staining to the floor.
- A biomass boiler³ was noted on the ground floor in the western part of the building.
- Access to the basement was possible via a locked door and stairs. Upon opening the basement doors a strong “draft” was noted. This is conjectured to be due to the lift shafts which have openings to the basement and extend above the level of the roof. The drafting / ventilation effects are due to the “stack” effect.
- No evidence of staining was noted in the basement or on the ground floors.
- No heating oil tanks were observed on site.
- A sprinkler system with an apparent cast iron feed was noted inside the northern elevation.

The surrounding area comprises a car park and retail area to the south, housing to the west and northwest, retail outlets for carpets and tools to the north and composite tube manufacture to the east.

Site photographs are provided in Table 4-1.



Photograph 1: View SW of site from the NW. Behind palisade fencing (L-R) substation, former engine house and former public house building. .



Photograph 2: Substation.



Photograph 3: Repair to car park. Former public house building visible.



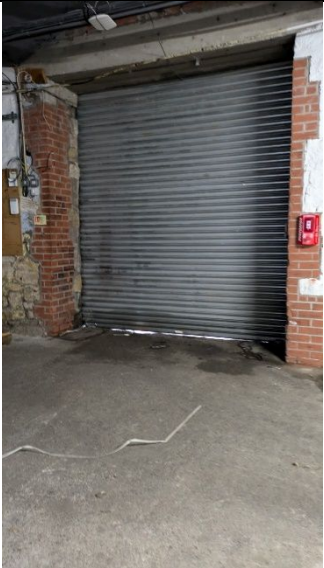
Photograph 4: View of western elevation. Shaft / lift feature which is higher than the 4th storey is visible centre of photo.



Photograph 5: View N of the former engine house (proposed entrance area) from Queen Street. Former public house to left of photo. Flue visible.



Photograph 6: View SW of eastern elevation from Duke Street. No evidence of cellar / lightwells below stone fronted section .

	
	
Photograph 7: View towards NE corner taken from same point as Photo 6. Pavement level metal grids / lightwells at pavement level.	Photograph 8: Bricked up windows to basement below lightwells.
Photograph 9: View E along northern elevation. Lintels and former windows to basement with some lightwells infilled and tarmacked.	Photograph 10: Access from car park.

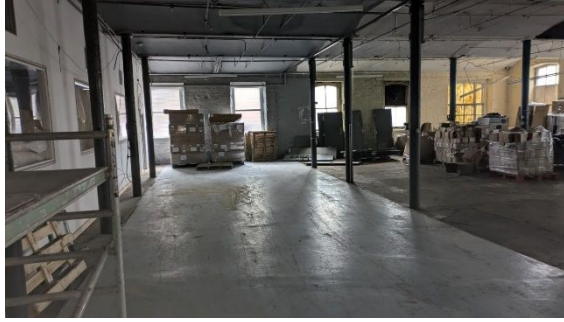
	
Photograph 11: Ground floor storage.	Photograph 12: Ground floor biomass boiler.
	
Photograph 13: Lift in basement.	Photograph 14: Columns and stone floor in basement.
	
Photograph 15: Sprinkler System.	Photograph 16: Sprinkler System.

Table 3-1: Site photographs.

4. Preliminary Conceptual Model

4.1. Introduction

The aim of the conceptual model is to provide a preliminary assessment of the likelihood of a pollutant linkage for each potential combination of contaminant, pathway, and receptor. A conceptual model can be used to make an informed decision on the contamination risks associated with the site and whether further site investigation work is required.

The sections below are therefore divided into potential contaminant, potential pathway and potential receptor as described in LCRM⁴, on the premise that, if there is no pollutant linkage, then there will be no risk to the receptor. The final section provides an assessment of the potential pollutant linkages that may still be present on the site if redevelopment were to occur.

4.2. Potential Contaminants

Potential viable contamination sources are detailed in Table 5-1. These are split into onsite sources, offsite sources and underlying geology.

Potential Source	Contaminants
On site	
Deep made ground below some or all of the site (e.g., former cellars).	Demolition rubble, ash, and clinker: asbestos, heavy metals, sulphates, PAHs ⁵ . Possible low generation rates of hazardous gas (principally methane and carbon dioxide).
Demolished buildings	Asbestos containing material (ACM).
Car park	Oils, lubricants, petroleum hydrocarbons. Not considered a significant source given small size and no evidence of surface staining.
Cotton mill / Works	Metals, inorganic compounds, solvents, organic compounds, lubricants, petroleum hydrocarbons. Asbestos may have been used within the building as insulation and lagging or as roofing and cladding ⁶ .
Electricity substation (pre 1980s)	Polychlorinated Biphenyl (PCBs) and transistor oils.
Chimney and engine house	PAHs, fuels, ash, clinker, heavy metals.
Surrounding Area	
Surrounding land uses (Works, Iron foundry, fuel stations)	Metals, inorganic compounds, chlorinated organic solvents, organic compounds, lubricants, fuels, ash, PAHs, sulphates. Not considered a viable source given distance from the site.
Landfills / offsite potentially infilled features within 250m	Given size, distance and age of features, there is not considered to be a source of hazardous gas (principally carbon dioxide and methane).
Underlying Geology	
Radon Affected Area	<1% of homes above Action Level. No protective measures are necessary in the construction of new dwellings or extensions. Basement area will not be used for residential use and will remain ventilated. No further consideration required.
Superficial / Bedrock	Till Devensian (Diamicton). over Milnrow sandstone. No significant contamination sources identified.

Table 4-1: Potential contamination sources.

4.3. Potential Receptors

Potential receptors are detailed in Table 5-2.

Receptors	
Human health	Future site users (including residents, visitors, and site workers). As the proposed development is for residential without plant uptake, the most sensitive receptors (children) have been included in this assessment.
Controlled waters	Secondary A Aquifer.
Buildings.	
Potable water pipes – however these appear to be sleeved within cast iron.	

Table 4-2: Potential receptors.

4.4. Potential Pathways

Potential pathways are detailed in Table 5-3.

Pathways		
Soil	Human health ⁷ (residential land use: apartments with possible shared landscaping)	Ingestion of soil. Ingestion of soil-derived indoor dust. Dermal contact with soil. Dermal contact with soil-derived indoor dust. Inhalation of soil-derived outdoor dust. Inhalation of soil-derived indoor dust. Inhalation of vapours outside. Inhalation of vapours inside. Omitted as no private gardens: ingestion of contaminated home-grown produce and ingestion of soil attached to home-grown produce.
Soil	Windblown dust and fibres to adjacent receptors.	
Soil	Direct contact with receptors (services).	
Groundwater	Infiltration into the ground, through potentially contaminated material (contamination possibly going into solution).	
Groundwater and gas	Migration through potentially permeable strata and preferential pathways. Superficial (Till) likely to be low permeability. Bedrock (sandstone) likely to be relatively permeable.	
Gas	Migration into buildings (e.g., via services) and accumulation of gases in confined spaces (potentially causing explosion if methane is present).	

Table 4-3: Potential pathways.

4.5. Preliminary Contamination Conceptual Model

The Preliminary Contamination Conceptual Model is illustrated in Table 5-4.

Generic potential pollutant linkages are described along with an assessment of the risk based upon guidance on probabilities and consequences outlined in CIRIA C552⁸.

In order to assess the potential risk for each pollutant linkage, an assessment of the magnitude of the potential consequence (severity) of the risk occurring and the magnitude of the probability (likelihood) of the risk occurring has been considered and classified. This is based on the guidance provided in CIRIA C552 and further details including a risk matrix is provided in Appendix E.

The probability is based on the site history, site reconnaissance, environmental setting, pathways, and receptors.

Reasonable worst-case consequence has been assumed at this stage.

Where LKC identified a low to very low risk, targeted or low-density intrusive investigation work, a watching brief (during construction work) or no investigation work will be recommended. This will be dependent on the nature of the site and the proposed development.

Where the risk falls into the moderate/low risk, LKC will undertake an assessment to establish what further work will be required.

Where LKC identifies a moderate or higher risk, intrusive investigation work or precautionary remediation is recommended.

Recommendations are discussed further in Section 7.

Due to the minor consequence associated with the phytotoxic effect to flora (i.e., loss of plants in a landscaping scheme), the overall risk for the majority of sites will be very low to low. Where soils contain significant concentrations of heavy metals, in general there will other pollutant linkages (i.e., the risk to human health) that will trigger the requirement for remediation (e.g., a clean environmental cover system). As such the risk to flora associated with phytotoxic contaminants will not be considered further.

The risk to buildings associated with elevated sulphate will be considered as part of the geotechnical assessment and will not be included in the contamination risk assessment.

It should be noted that there may be risk from short term exposure from contaminated soil to site workers. The Preliminary Contamination Conceptual Model deals with long term exposure to key receptors. Acute risks can be easily mitigated by good environmental management of the site during site works. Standard health and safety precautions (as per HSE guidance⁹) should be adopted by all workers involved with site enabling and construction works. Therefore, this receptor is not considered in the contamination conceptual model.

PL	Contaminants of Concern (source)	Pathway	Receptor	Probability	Consequence	Risk
1	Asbestos, PAHs, metals (made ground, works, cotton mill, chimney)	Dermal contact. Inhalation of soil, fibres, and dust. Ingestion of soils, dust Windblown dust.	Future site users.	Likely	Medium	Moderate (in proposed amenity area only)
	Solvents, organic compounds, lubricants, petroleum hydrocarbons (cotton mill).					
	Polychlorinated Biphenyl (PCBs) and transistor oils (Electricity substation pre-1980's).					
2	Petroleum hydrocarbons, solvents, naphthalene (made ground, cotton mill outside of basement area).	Inhalation of vapours. Migration via preferential pathways – however, substantial floor thickness likely present.	Future site users.	Unlikely	Medium	Low
3	Hazardous gas: methane, carbon dioxide (Deep made ground - outside of basement footprint area).	Migration via preferential pathways – however, substantial floor thickness likely present. Inhalation of gas. Explosion in confined spaces.	Future site users. Buildings. Offsite receptors.	Unlikely	Severe	Moderate / Low
4	PAHs, metals, petroleum hydrocarbons, solvents (made ground, cotton mill).	Surface run-off. Migration via permeable strata and preferential pathways. Perched waters migration.	Groundwater	Unlikely	Medium	Low
5	Naphthalene, petroleum hydrocarbons, solvents (made ground, cotton mill).	Permeation of pipes (likely to be cast iron sleeved). Ingestion of tainted water supply.	Future site users. Water pipes.	Unlikely	Medium	Low

Table 4-4: Preliminary Contamination Conceptual Model.

Notes: PL = Pollutant Linkage. Contaminant of Concern (CoC) - See Table 5-1 for contamination sources. See Section 7 for recommendations.

5. Preliminary Geotechnical Risk Assessment

Table 6-1 summarises the possible geotechnical constraints of the site, based on the site history, environmental settings and site reconnaissance. LKC understand the building stability is being addressed by a structural engineer.

Coal Mining	Site is not within a Development High Risk Area. No further assessment required.
Envirocheck Ground Stability Hazards	No to low hazard identified.
Made Ground	Unknown depth and constituent of made ground across the site. Possible in-ground structures from previous developments. Structural engineer to consider foundation stability.
Superficial	Unknown strength of soils.
Bedrock	Unknown depth to bedrock.
Groundwater	Unknown depth and variability of groundwater.
Plasticity	Clay indicated on site. Due consideration to be given by Structural Engineer should any trees be planted.
Road / Pavement Design	Unknown CBR values for footpath and road design.

Table 5-1: Summary of geotechnical constraints.

6. Summary Conclusions and Recommendations

6.1. Summary Conclusions

Table 7-1 summarises the site details, historical review, environmental settings and site reconnaissance.

Current Site Use & Pertinent Features	Site currently comprises vacant mill building. A two-storey office building, formerly a public house, is located in the southwest corner and appears unused.
Proposed Development	Residential apartments (64no units) including amenity space.
Main Historical Features	Onsite: Residential dwellings, cotton mill, Chimney, Road, Works, electricity substation. Surrounding Area: Reservoir, works, iron foundry.
Geology / Hydrogeology	Artificial: No BGS recorded artificial. Superficial: Till Devensian (Diamicton). Secondary Undifferentiated Aquifer. Bedrock: Milnrow Sandstone (sandstone). Secondary A Aquifer.
Site Reconnaissance	The site is largely occupied by the mill building, with a tarmac parking area in the northwest quadrant and an unmarked electricity substation. The four-storey mill building is made of brick and stone, with former chimney and lift shafts extending above it. Evidence of its past use includes an engine house and lifting beams. The northern and northeastern elevations feature brickwork, iron grids, and lightwells. The central northern elevation shows lintels and bricked-up windows at pavement level. The ground floor was used for storage and there was no evidence of staining. A biomass boiler is present in the western part. The basement, accessible via a locked door, has a strong draft likely due to the lift shaft and former chimney. No heating oil tanks were observed. A sprinkler system with a cast iron feed is noted on the northern elevation.
Landfill / Infilled ground	Potentially infilled ground identified.

Table 6-1: Summary of site details, historical review, environmental settings and site reconnaissance.

A preliminary contamination conceptual model has been produced by LKC, which is summarised in Table 7-2.

Pollutant Linkage	Contaminants	Risk
PL1: Contaminants posing a risk to receptors via dermal contact, ingestion and inhalation (of soil, dust, fibres).	Asbestos, PAHs, metals solvents, petroleum hydrocarbons, lubricants, solvents, oils, PCBs.	Moderate (in proposed amenity area only)
PL2: Volatile contaminants posing a risk to receptors via the inhalation of vapours.	Petroleum hydrocarbons, naphthalene, solvents.	Low
PL3: Gas posing a risk to buildings and receptors via the migration of gas into building causing explosion and asphyxiation.	Hazardous Gas.	Moderate / Low
PL4: Mobile contamination posing a risk to controlled waters via migration through permeable strata.	PAHs, metals, petroleum hydrocarbons, solvents.	Low

PL5: Organic contaminants posing a risk to receptors.	Petroleum hydrocarbons, naphthalene, solvents.	Low
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Table 6-2: Summary risk table.

A preliminary geotechnical assessment has been carried out by LKC. Table 7-3 summarises the geotechnical constraints.

Coal Mining	Site is not within a Development High Risk Area. No further assessment required.
Envirocheck Ground Stability Hazards	No to low hazard identified.
Made Ground	Unknown depth and constituent of made ground across the site. Possible in-ground structures from previous developments. Structural engineer to consider foundation stability.
Superficial	Unknown strength of soils.
Bedrock	Unknown depth to bedrock.
Groundwater	Unknown depth and variability of groundwater.
Plasticity	Clay indicated on site. Due consideration to be given by Structural Engineer should any trees be planted.
Road / Pavement Design	Unknown CBR values for footpath and road design.

Table 7-3: Summary of geotechnical constraints.

Based upon the available information, LKC conclude there is a potential contamination risk and therefore further assessment and / or precautionary remediation is recommended. Any geotechnical risk shall be considered by the appointed structural engineer.

6.2. Recommendations

Recommendations are provided in Table 7-4.

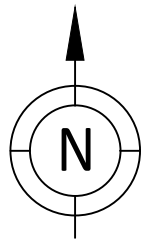
Contamination Status	There is sufficient information on the potential contaminative status of the site to allow conditional approval of a planning application, based on the proposed end use detailed in the PRA.
PL 1	At this stage the layout of the proposed amenity area has yet to be finalised. Where any soft landscaping is proposed then an Environmental Cover System shall be deployed. This shall comprise a minimum 450mm depth of suitable chemically validated subsoil and topsoil (a greater depth may be required for tree pits), with a proprietary separation geotextile placed at the base of the cover soils. The remedial works shall be detailed in a Site Verification Report. This will include photographic evidence of the correct soil depth and placement of the geotextile and details of the chemical validation of the imported soil. Should the area be fully hardstood then no specific remediation will be required and photographic evidence of the completed hardstood area will be provide within the Site Verification Report.
PL 5	It would be prudent to confirm the construction of the incoming potable water supply pipes as cast iron or PE laid in a cast iron sleeve.

Table 6-3: Recommendations.

Figures



Client: Allied Property Group Ltd				Title: Site Location & Boundary Plan			LK CONSULT
Site: Duke Street Mill, Rochdale				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4		Figure: 1	
Job No.: LKC 24 1109	Drawn By: LGD	Checked By: CC	Drawn: Oct 2024	Revision:			



KEY



Site Boundary

accommodation schedule

28No studio

12No 1-bed

24No 2-bed

Total 64No units

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

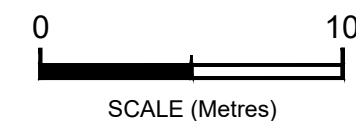


Client:
Allied Property Group Ltd

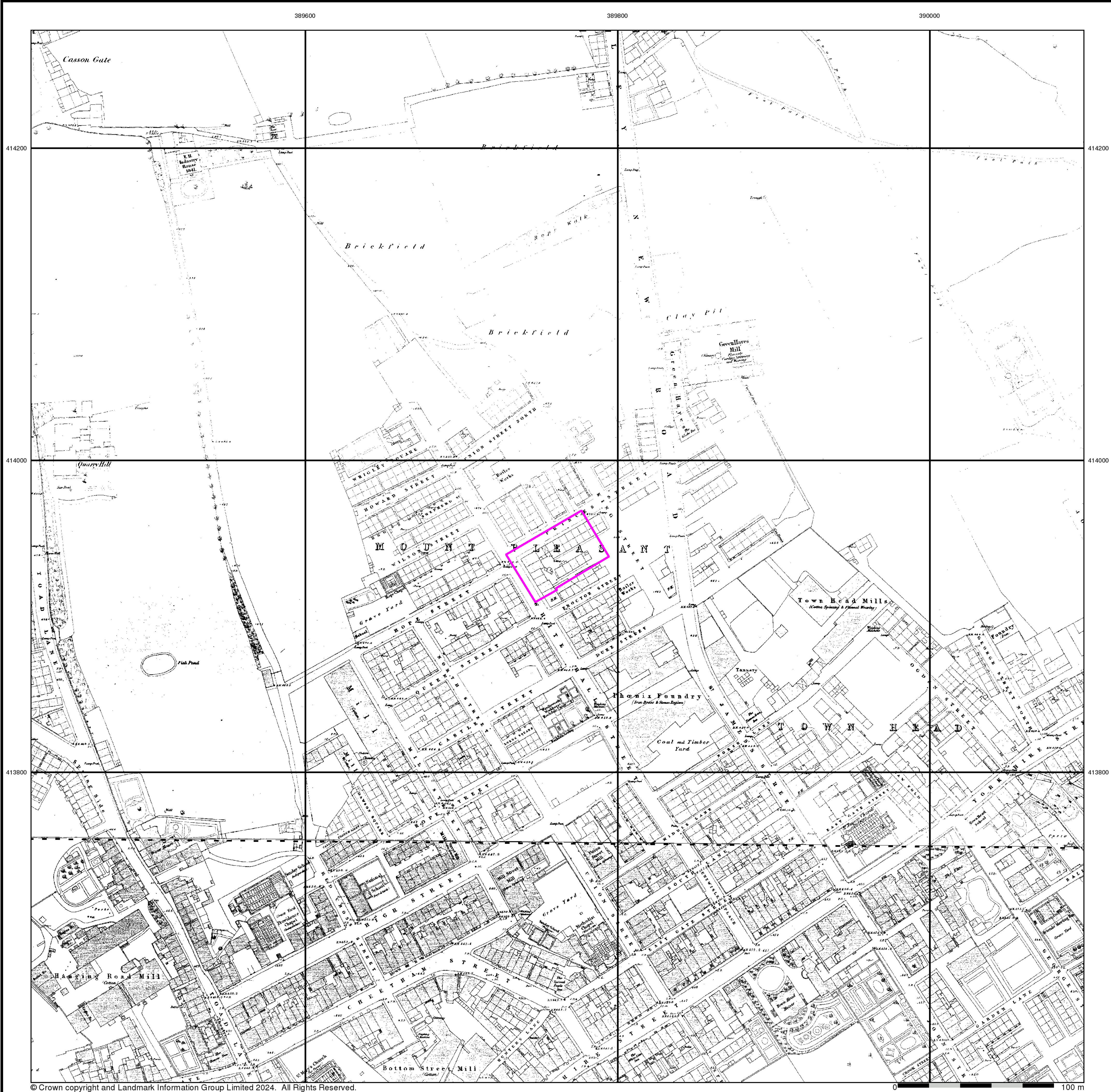
Site:
Duke Street Mill, Rochdale

Title:
Proposed Development Plan

Job No.: LKC241109	Scale (See Scale Bar): 1:250 @ A3	Figure: 2	Revision:
Drawn By: AC	Checked By: LD	Drawn: Oct 2024	



Appendix A – Historical Maps

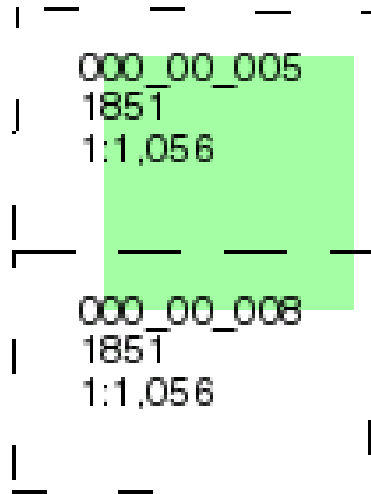


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Source map scale - 1:1,056

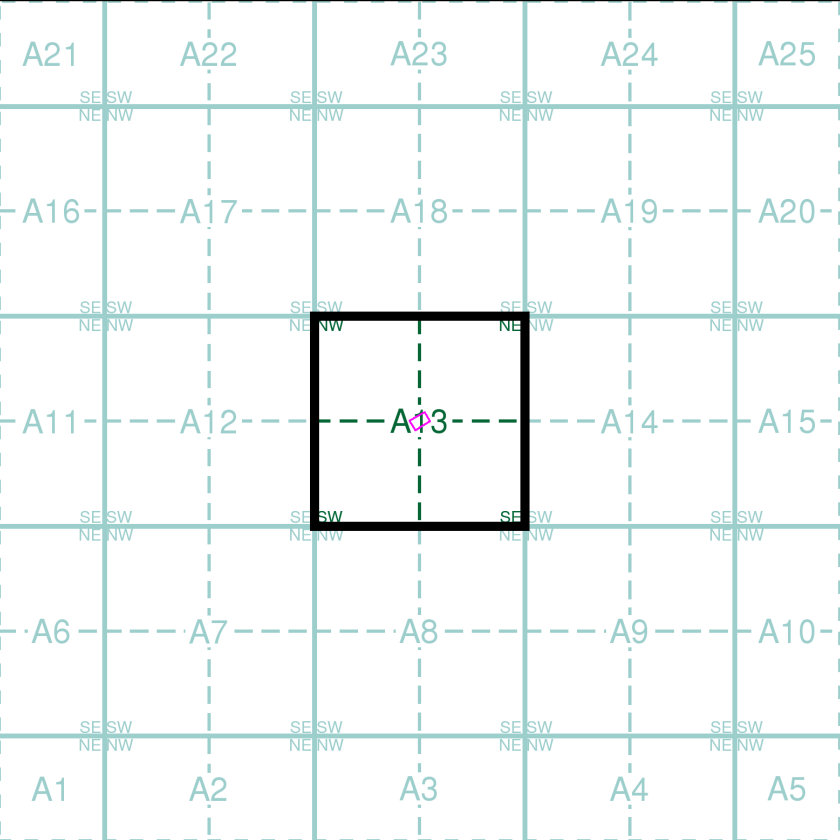
The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the Ordnance Survey and a 'skeleton' survey of the capital, showing little more than streets, street names, frontages and altitudes, was undertaken between 1848 and 1850. The majority of the 1:1056 surveys were later replaced by 1:500 surveys; although almost all the remainder were revised at this scale, sometimes more than once before 1895. The type of detail shown on the 1:1056 scale is broadly similar to that on 1:500; the apparent omission of minor details such as sewer access points and street lights may be as much a reflection of the generally earlier date of these plans, as of the specification of the map.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)



Historical Town Plan - Segment A13

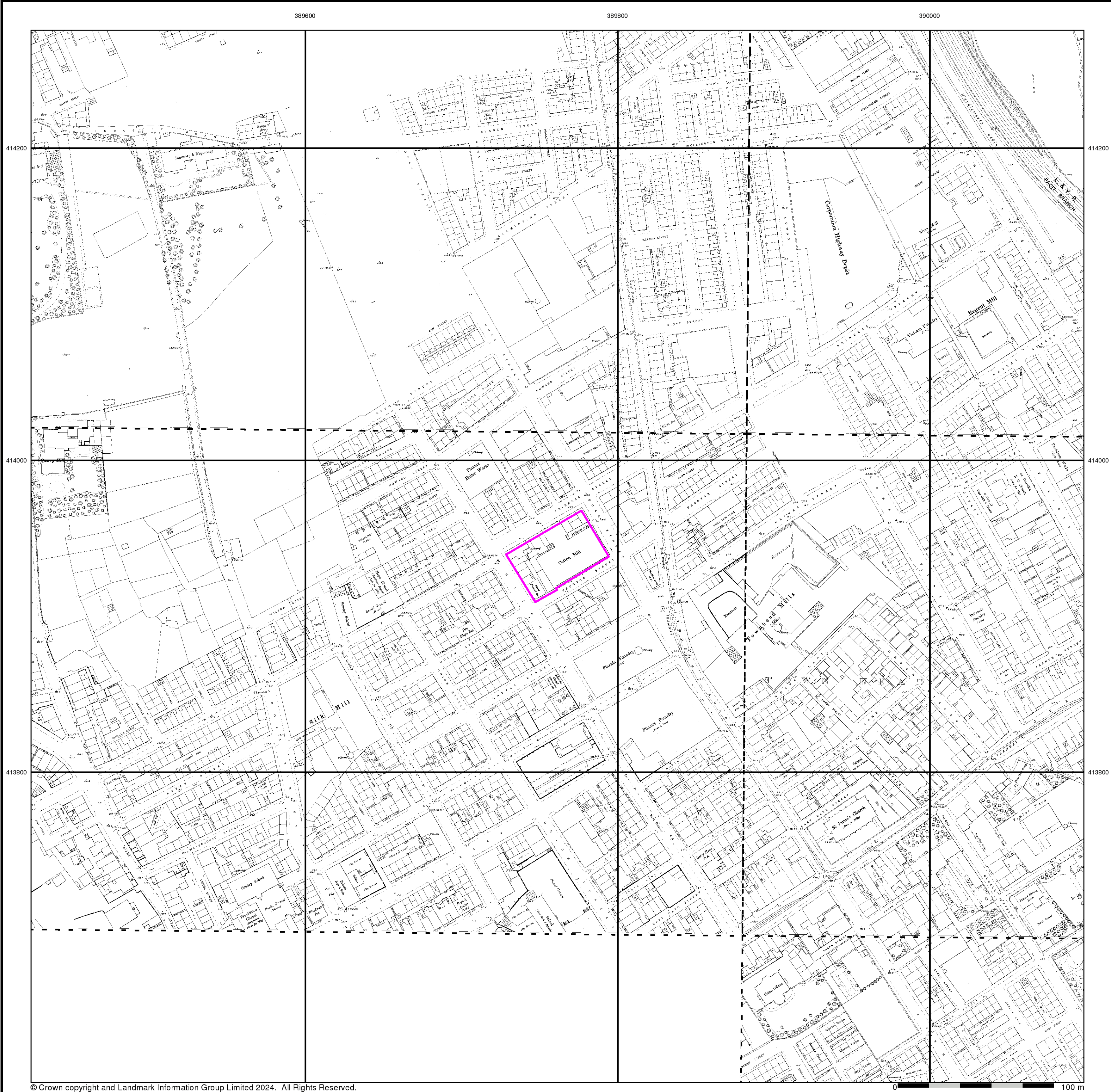


Order Details

Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 0

Site Details

Duke Street Mill, Wardleworth, Rochdale, Greater Manchester, OL12 0HE



LK
GROUP
Lancashire And Furness
Published 1891 - 1892
Source map scale - 1:500

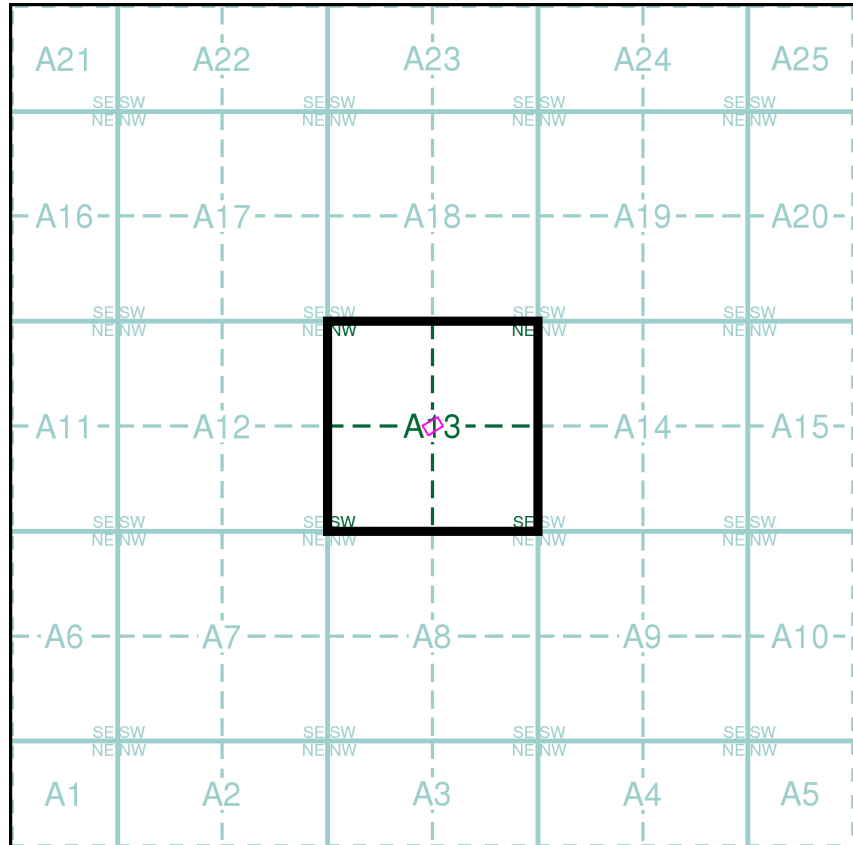
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to complement the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped more than once at this scale, and none have been since 1910. The 1:500 scale gives particular emphasis to such features as lamp posts, man holes, arched passages and minor building projections. Also often featured are divisions between tenements, interior ground floor layouts of public buildings, and on earlier plans, the functions of the various parts of larger industrial premises are also indicated. Content of the plans does vary however, from one town to the next in terms of, for example, the completeness of railway tracks and the coverage of public buildings.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)

089_01_001	089_01_002
1892	1892
1:500	1:500
089_01_006	089_01_007
1892	1892
1:500	1:500
089_01_012	
1891	
1:500	

Historical Town Plan - Segment A13



Order Details

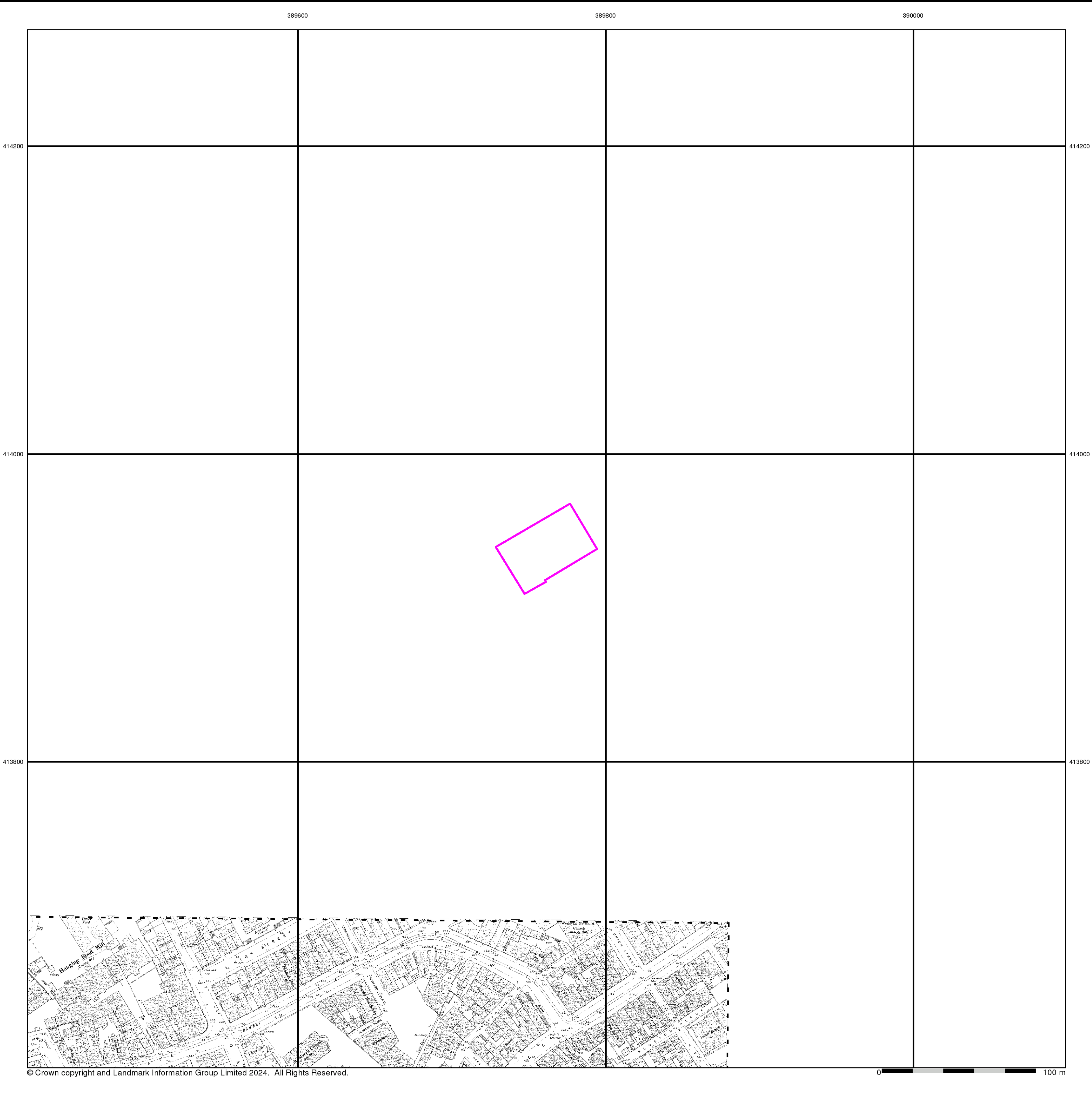
Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 0

Site Details

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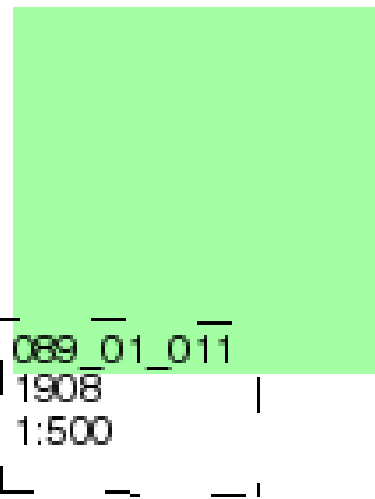


LK GROUP
Lancashire And Furness
Published 1908
Source map scale - 1:500

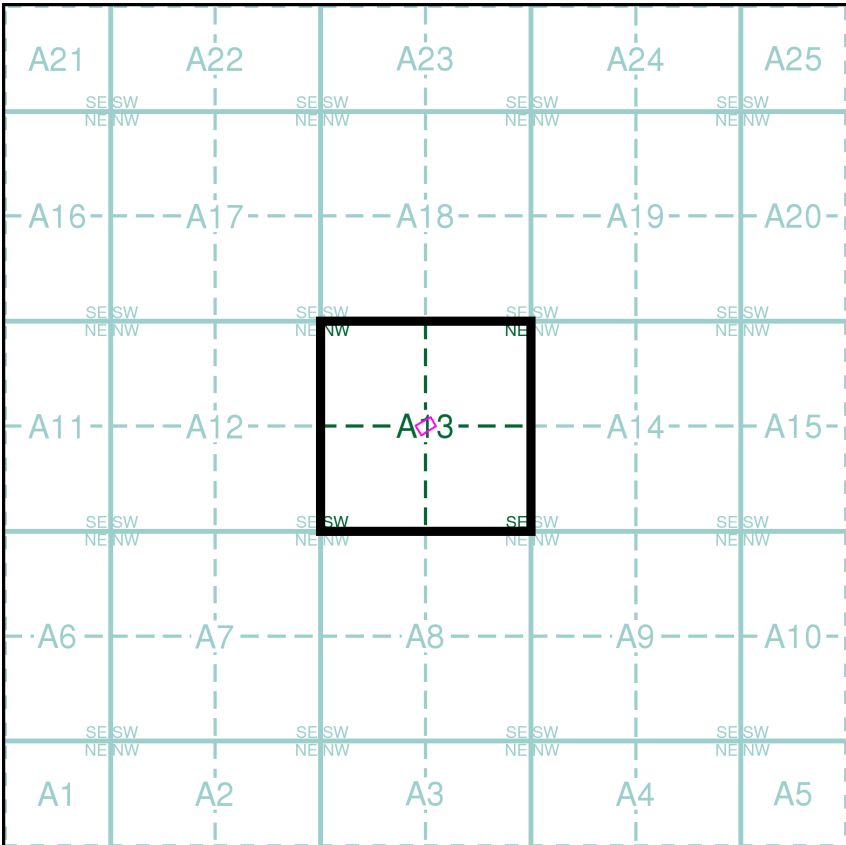
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to compliment the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped more than once at this scale, and none have been since 1910. The 1:500 scale gives particular emphasis to such features as lamp posts, man holes, arched passages and minor building projections. Also often featured are divisions between tenements, interior ground floor layouts of public buildings, and on earlier plans, the functions of the various parts of larger industrial premises are also indicated. Content of the plans does vary however, from one town to the next in terms of, for example, the completeness of railway tracks and the coverage of public buildings.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)



Historical Town Plan - Segment A13



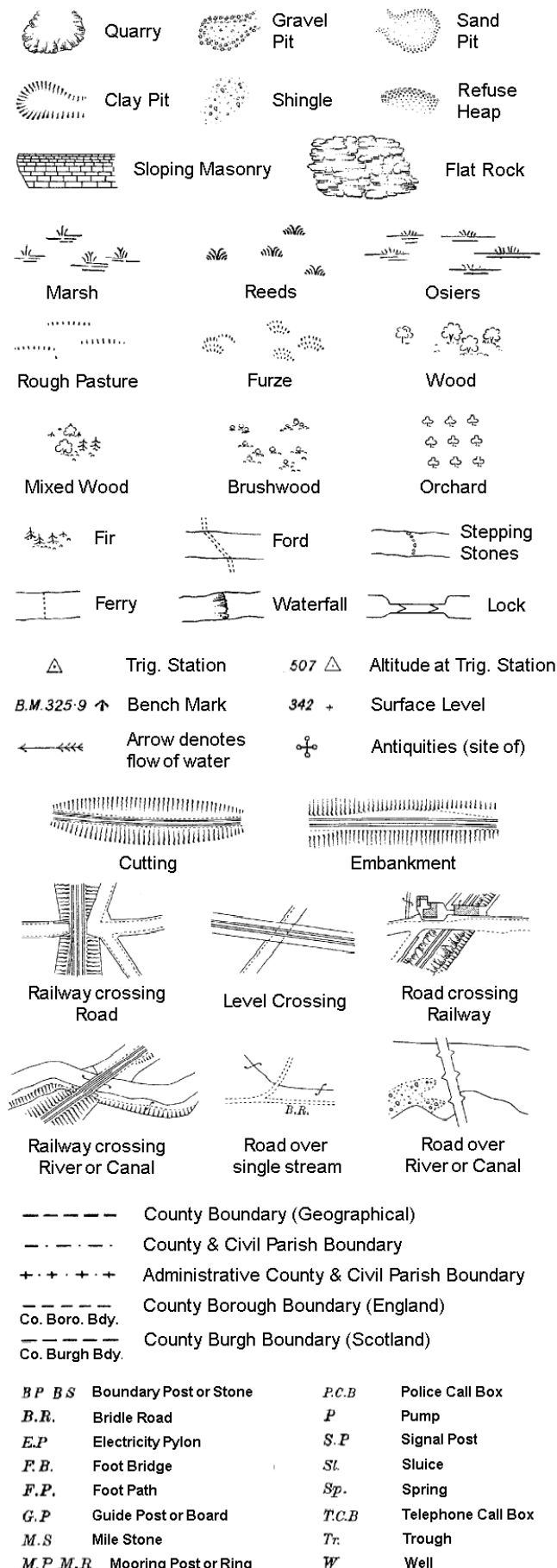
Order Details
Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 0

Site Details
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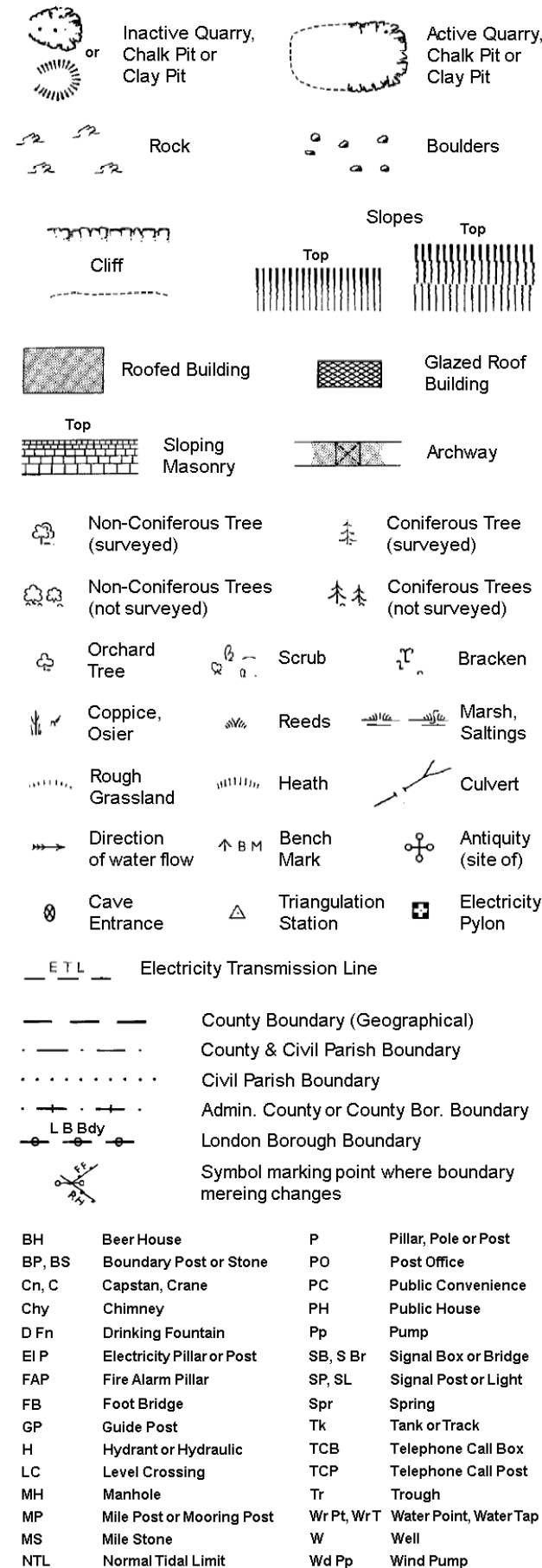
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Historical Mapping Legends

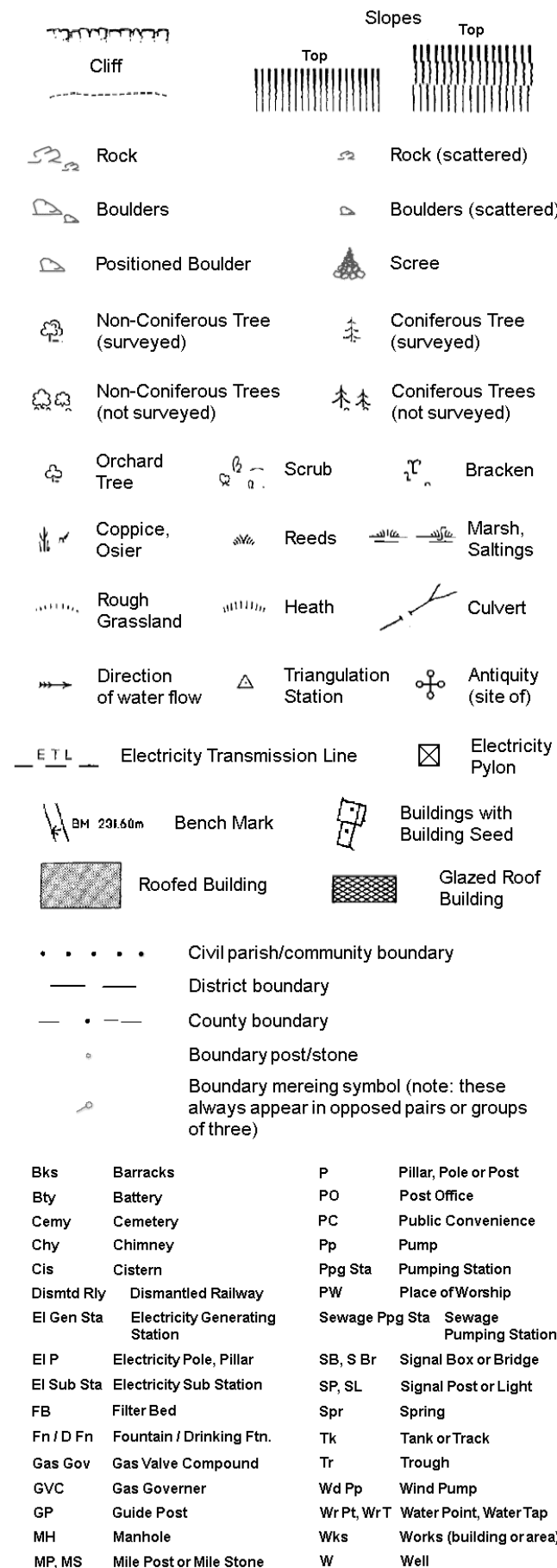
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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

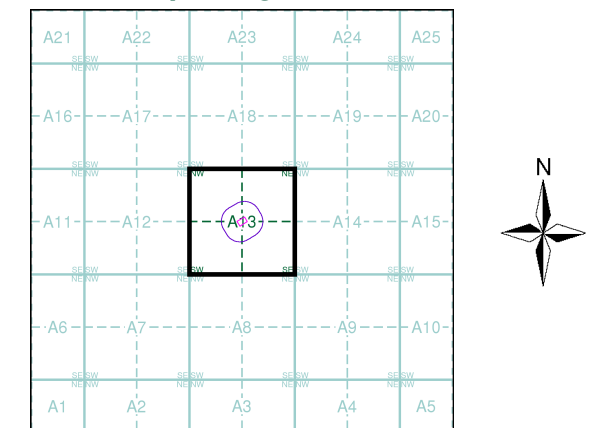


GROUP

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1893	2
Lancashire And Furness	1:2,500	1910	3
Lancashire And Furness	1:2,500	1930	4
Ordnance Survey Plan	1:1,250	1958 - 1959	5
Ordnance Survey Plan	1:2,500	1959 - 1961	6
Ordnance Survey Plan	1:1,250	1967 - 1982	7
Ordnance Survey Plan	1:1,250	1972 - 1990	8
Supply of Unpublished Survey Information	1:1,250	1974 - 1975	9
Supply of Unpublished Survey Information	1:1,250	1975	10
Additional SIMs	1:1,250	1977 - 1987	11
Additional SIMs	1:1,250	1981 - 1990	12
Additional SIMs	1:1,250	1988	13
Large-Scale National Grid Data	1:1,250	1992	14
Large-Scale National Grid Data	1:1,250	1993 - 1995	15
Large-Scale National Grid Data	1:1,250	1996	16
Large-Scale National Grid Data	1:1,250	1996	17
Historical Aerial Photography	1:2,500	2000	18

Historical Map - Segment A13



Order Details

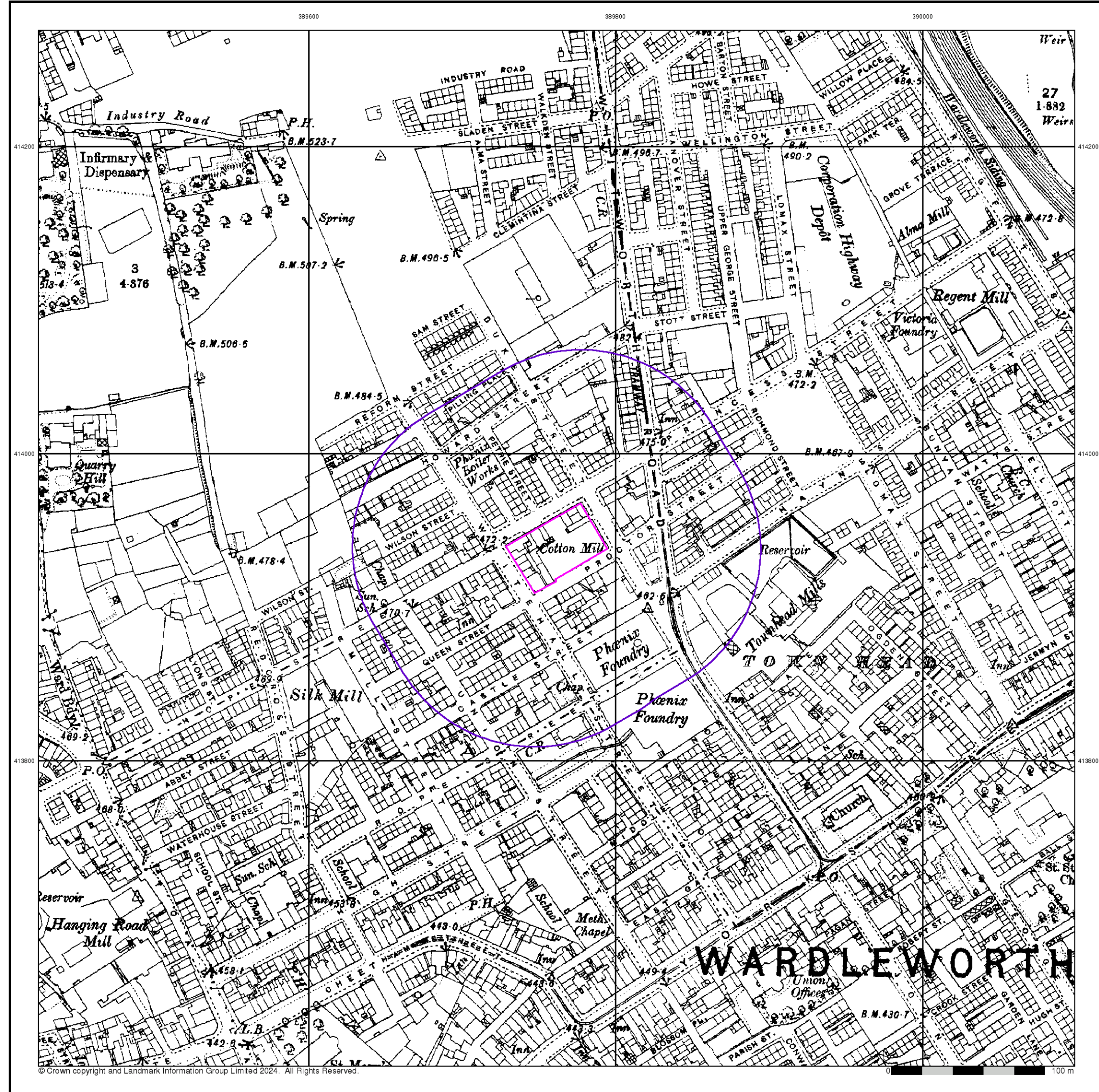
Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

Site Details

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LK

GROUP

Lancashire And Furness

Published 1893

Source map scale - 1:2,500

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Map Name(s) and Date(s)

089_01
1893
1:2,500

Historical Map - Segment A13

A21A22A23A24A25

A16A17A18A19A20

A11A12A13A14A15

A6A7A8A9A10

A1A2A3A4A5

N

Order Details

Order Number:

360274193_1_1

Customer Ref:

LKC 24 1109

National Grid Reference:

389760, 413940

Slice:

A

Site Area (Ha):

0.2

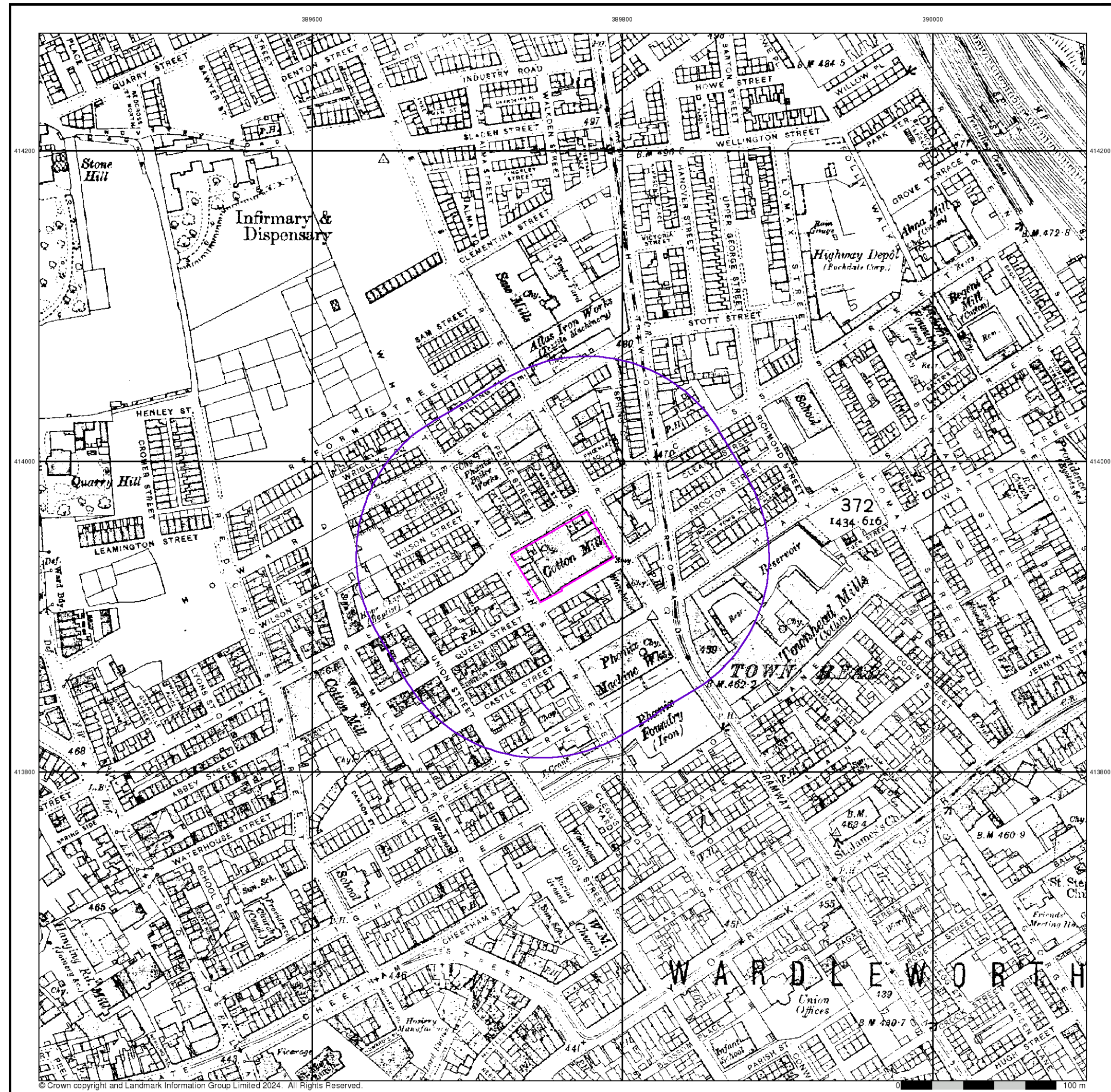
Search Buffer (m):

100

Site Details

Duke Street Mill, Wardleworth, Rochdale, Greater Manchester,

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LK GROUP

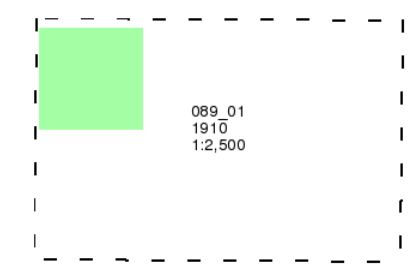
Lancashire And Furness

Published 1910

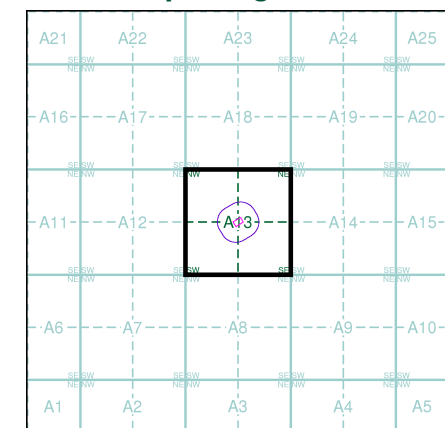
Source map scale - 1:2,500

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

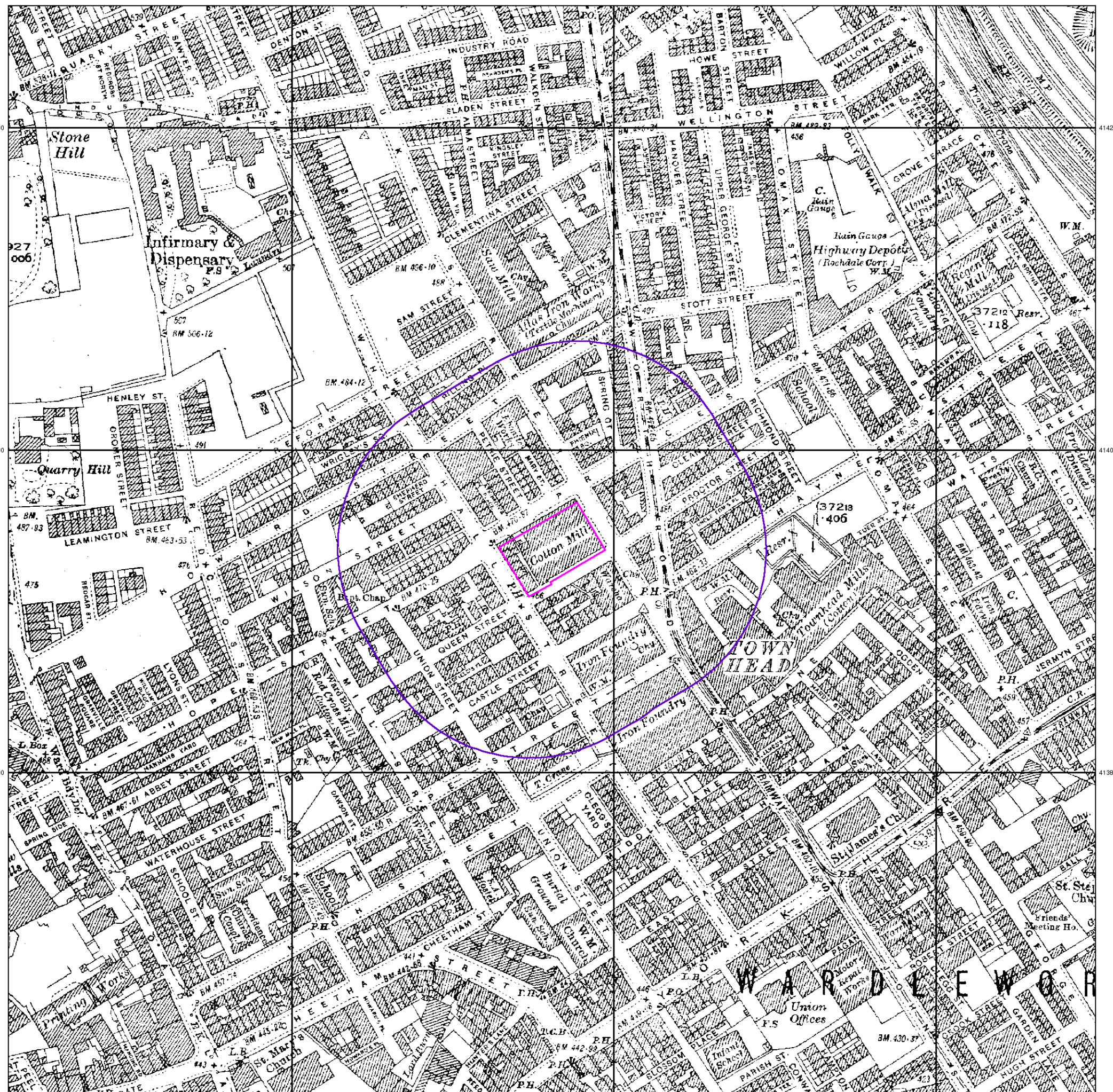


Order Details

Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

Site Details

Duke Street Mill, Wardleworth, Rochdale, Greater Manchester, OL12 0HE



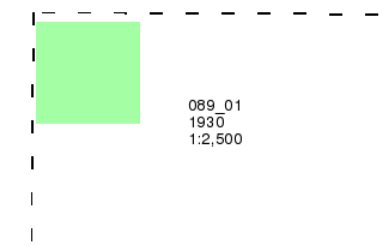
LK GROUP

Lancashire And Furness

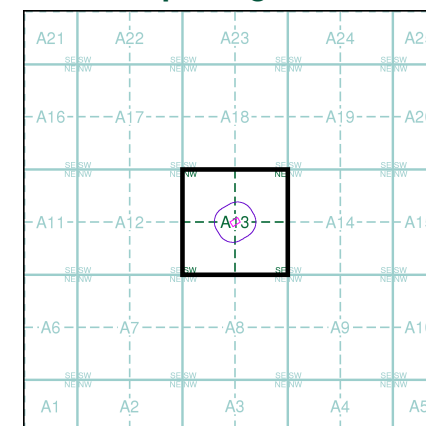
Published 1930
Source map scale - 1:2,500

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

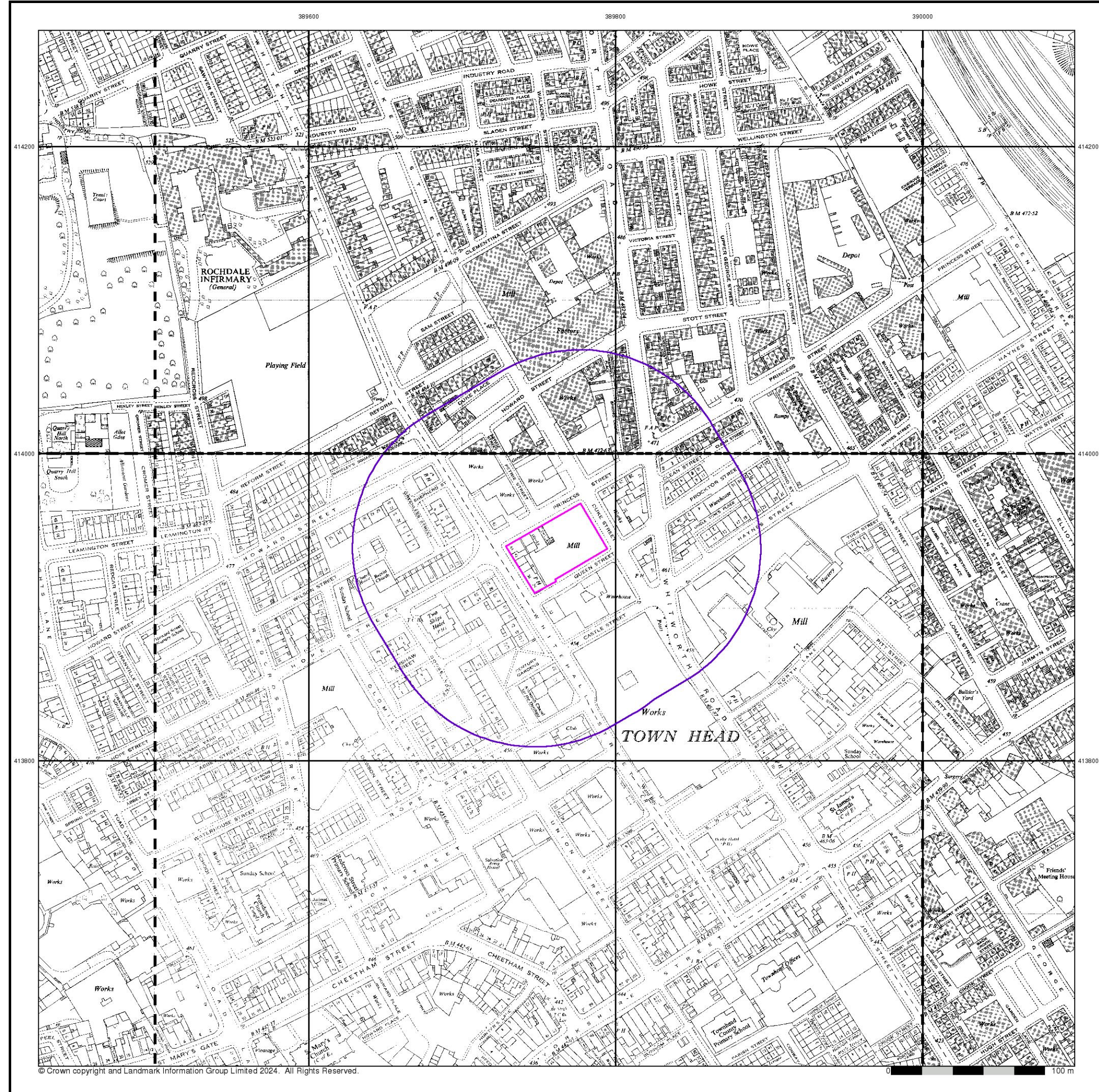
Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

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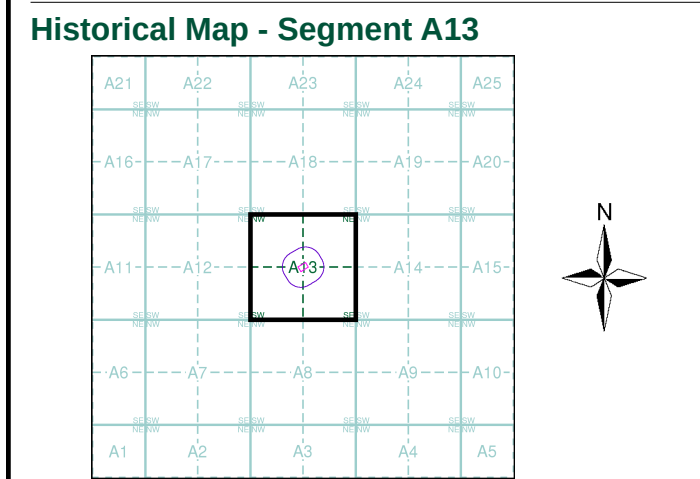
Ordinance Survey Plan

Published 1958 - 1959

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)		
SD8914SW	SD8914SE	SD9014SW
1959	1959	1959
1:1,250	1:1,250	1:1,250
SD8913NW	SD8913NE	SD9013NW
1959	1959	1958
1:1,250	1:1,250	1:1,250



Order Details

Order Number:

360274193_1_1

Customer Ref:

LKC 24 1109

National Grid Reference:

389760, 413940

Slice:

A

Site Area (Ha):

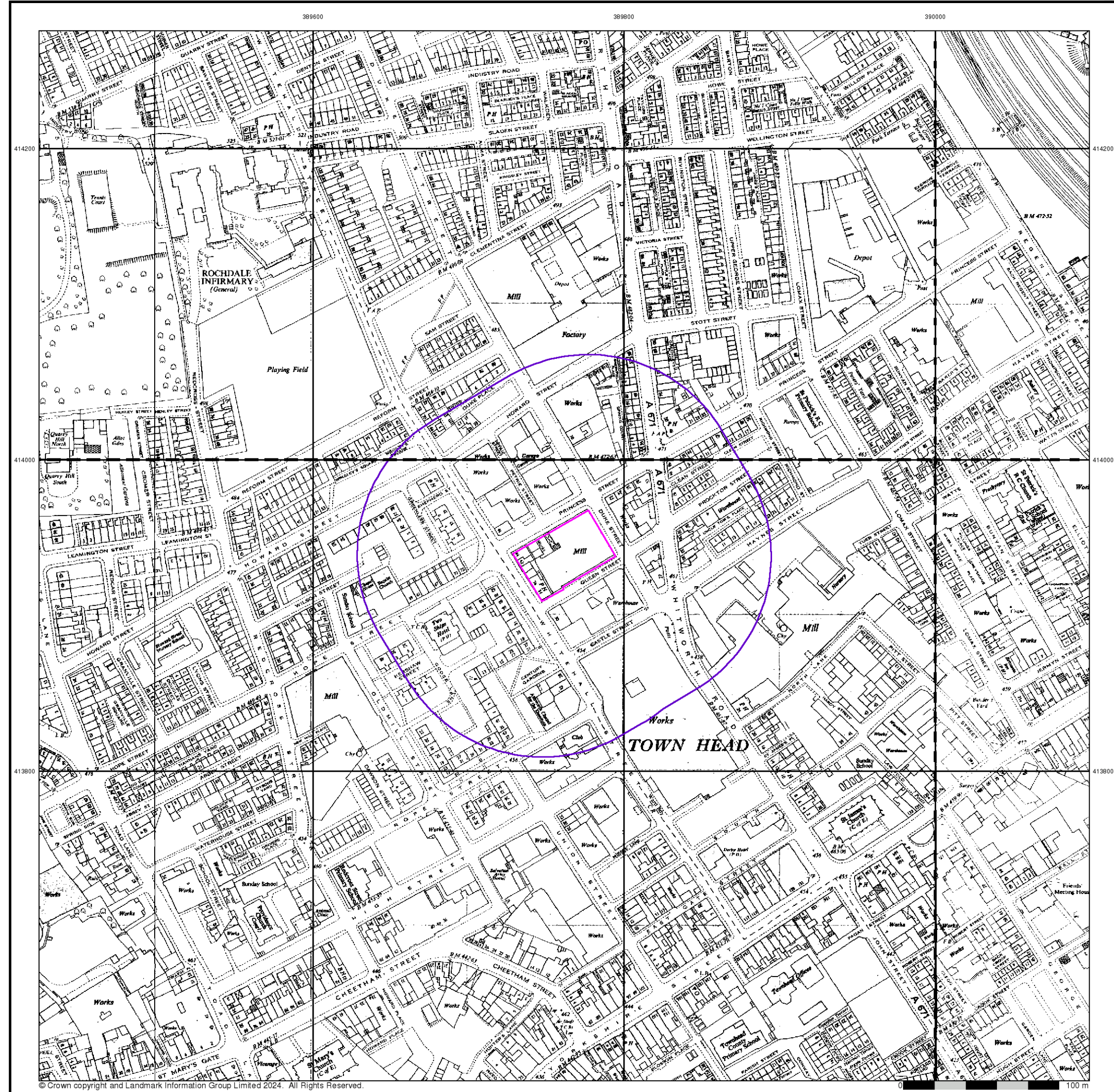
0.2

Search Buffer (m):

100

Site Details

Duke Street Mill, Wardleworth, Rochdale, Greater Manchester, OL12 0HE



Ordnance Survey Plan

Published 1959 - 1961

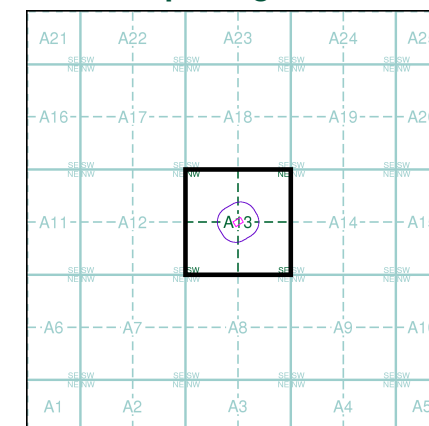
Source map scale - 1:2,500

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)

SD8914 1960 12,500	SD9014 1961 12,500
SD8913 1960 12,500	SD9013 1959 12,500

Historical Map - Segment A13



Order Details

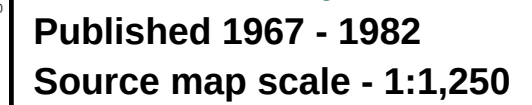
Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

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Map Name(s) and Date(s)

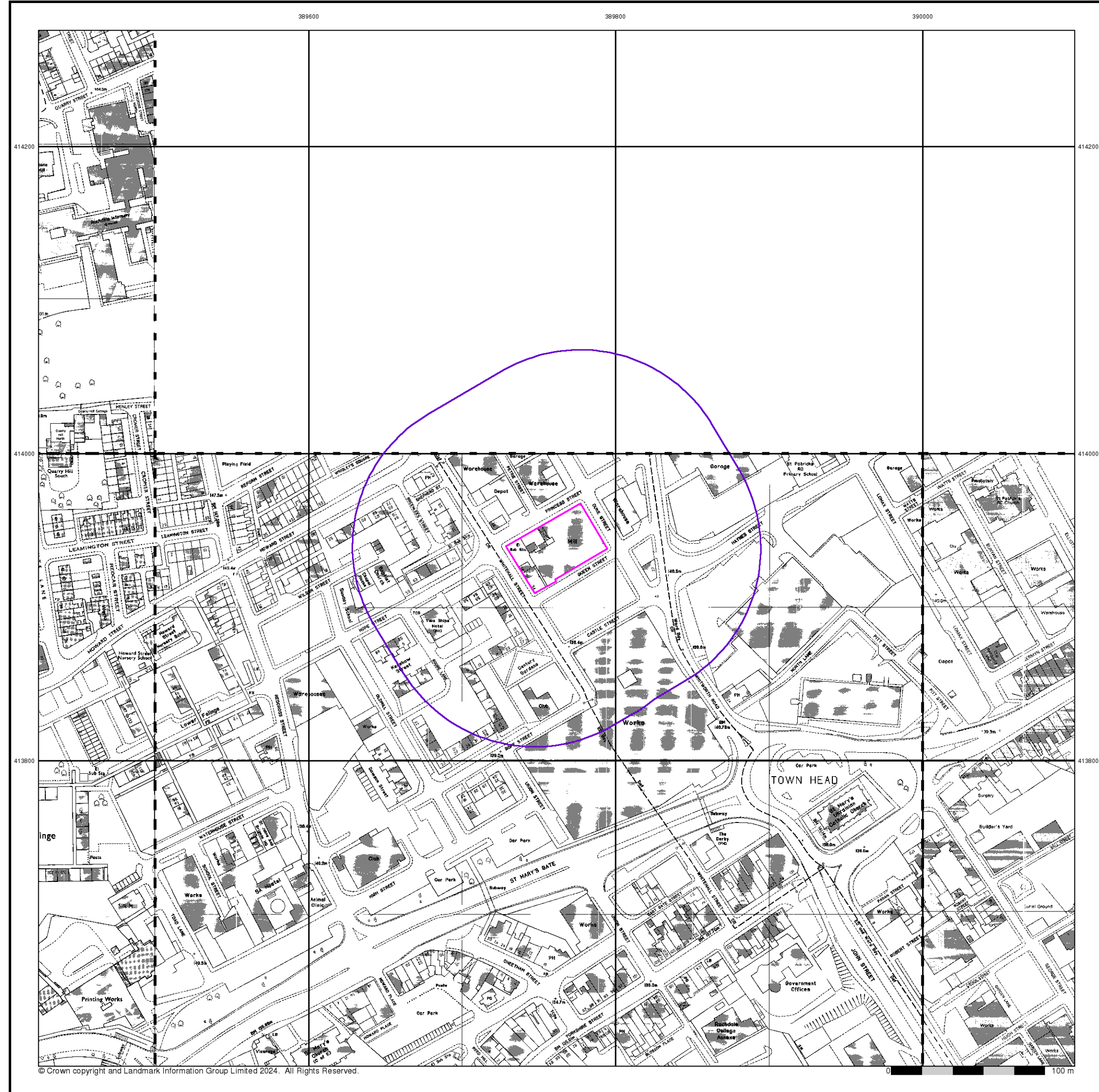
SD8914SW 1968 1:1,250	SD8914SE 1982 1:1,250	SD9014SW 1976 1:1,250
SD8913NW 1967 1:1,250	SD8913NE 1972 1:1,250	SD9013NW 1975 1:1,250



Order Number:	360274193_1_1
Customer Ref:	LKC 24 1109
National Grid Reference:	389760, 413940
Slice:	A
Site Area (Ha):	0.2
Search Buffer (m):	100

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LK GROUP

Ordnance Survey Plan

Published 1972 - 1990

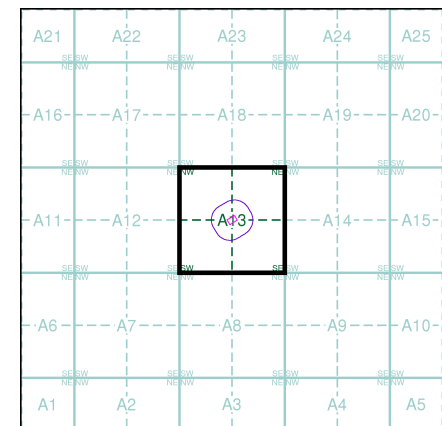
Source map scale - 1:1,250

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)

SD8914SW		
1990		
1:1,250		
SD8913NW	SD8913NE	SD9013NW
1972	1985	1989
1:1,250	1:1,250	1:1,250

Historical Map - Segment A13



Order Details

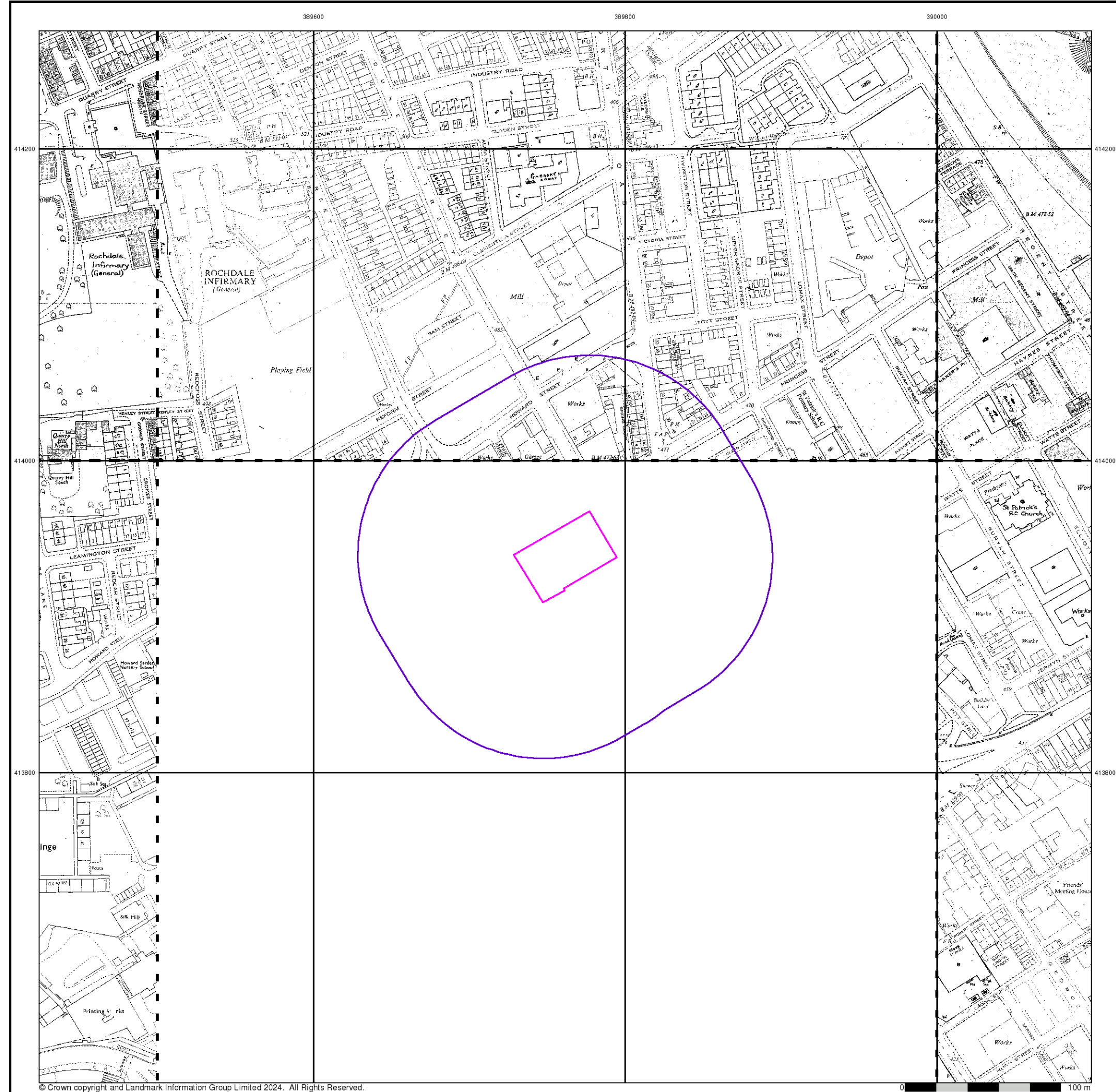
Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

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Supply of Unpublished Survey Information

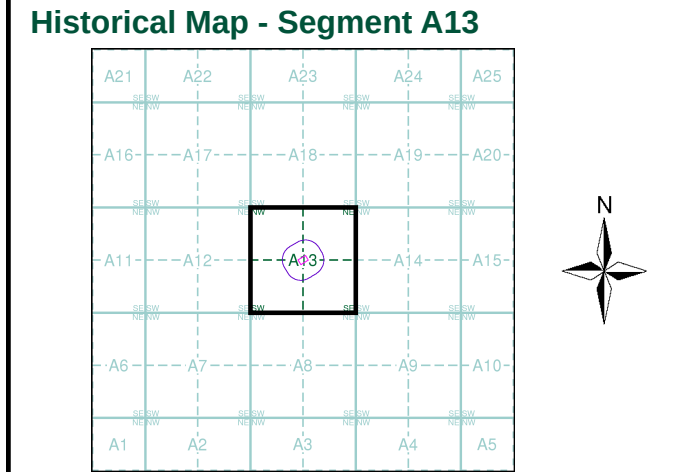
Published 1974 - 1975

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)

SD8914SW	SD8914SE	SD9014SW
1974	1974	1974
1:1,250	1:1,250	1:1,250
SD8913NW		SD9013NW
1975		1974
1:1,250		1:1,250



Order Details

Order Number: 360274193_1_1

Customer Ref: LKC 24 1109

National Grid Reference: 389760, 413940

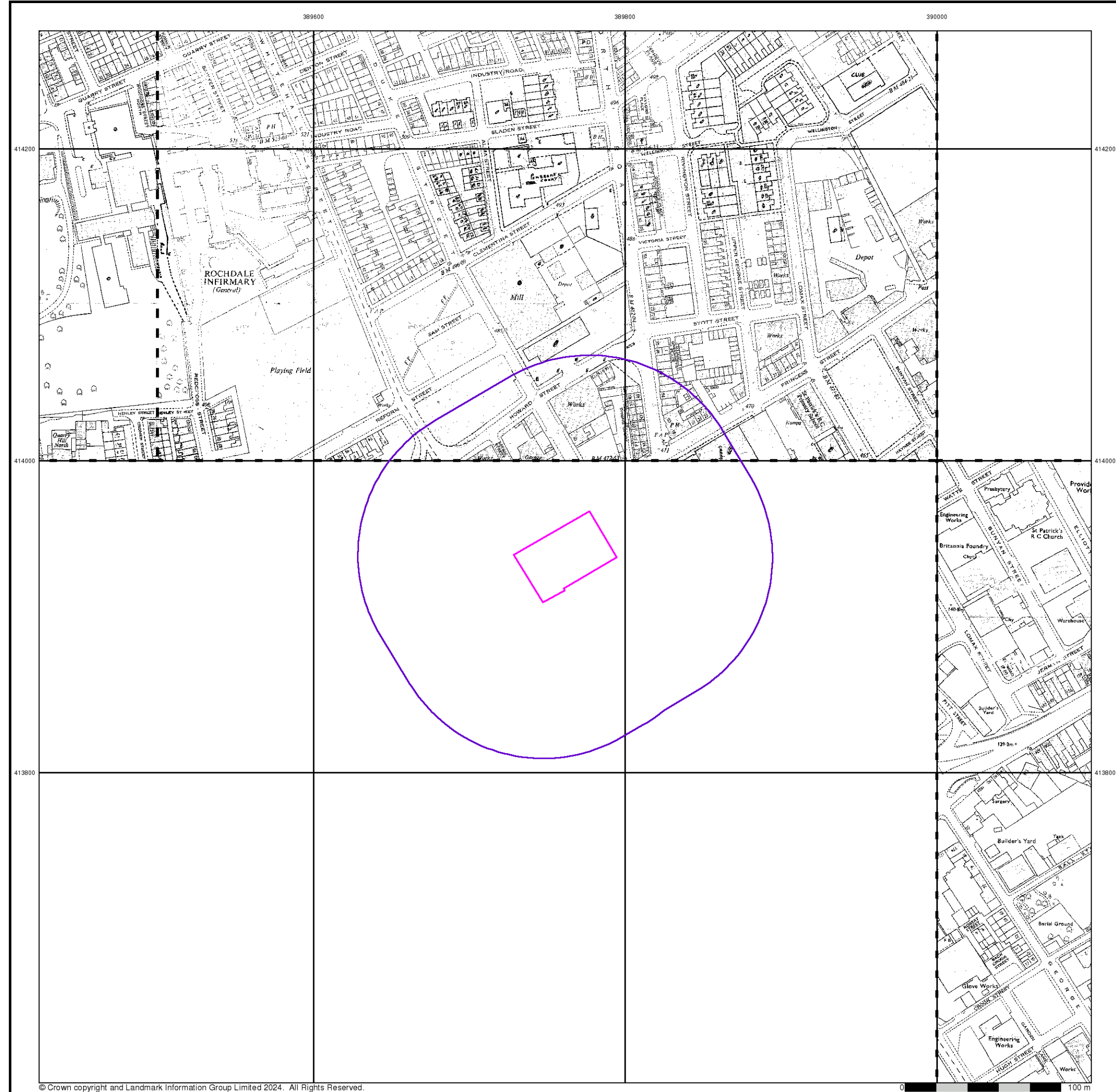
Slice: A

Site Area (Ha): 0.2

Search Buffer (m): 100

Site Details

Duke Street Mill, Wardleworth, Rochdale, Greater Manchester, OL12 0HE





Supply of Unpublished Survey Information

Published 1975

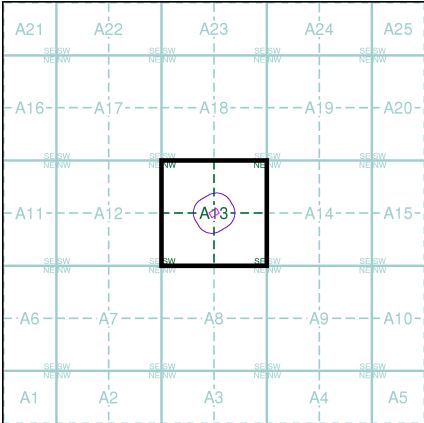
Source map scale - 1:1,250

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)

SD8914SW 1975 1:1,250	SD8914SE 1975 1:1,250
	SD9013NW 1975 1:1,250

Historical Map - Segment A13



Order Details

Order Number:	360274193_1_1
Customer Ref:	LKC 24 1109
National Grid Reference:	389760, 413940
Slice:	A
Site Area (Ha):	0.2
Search Buffer (m):	100

Site Details

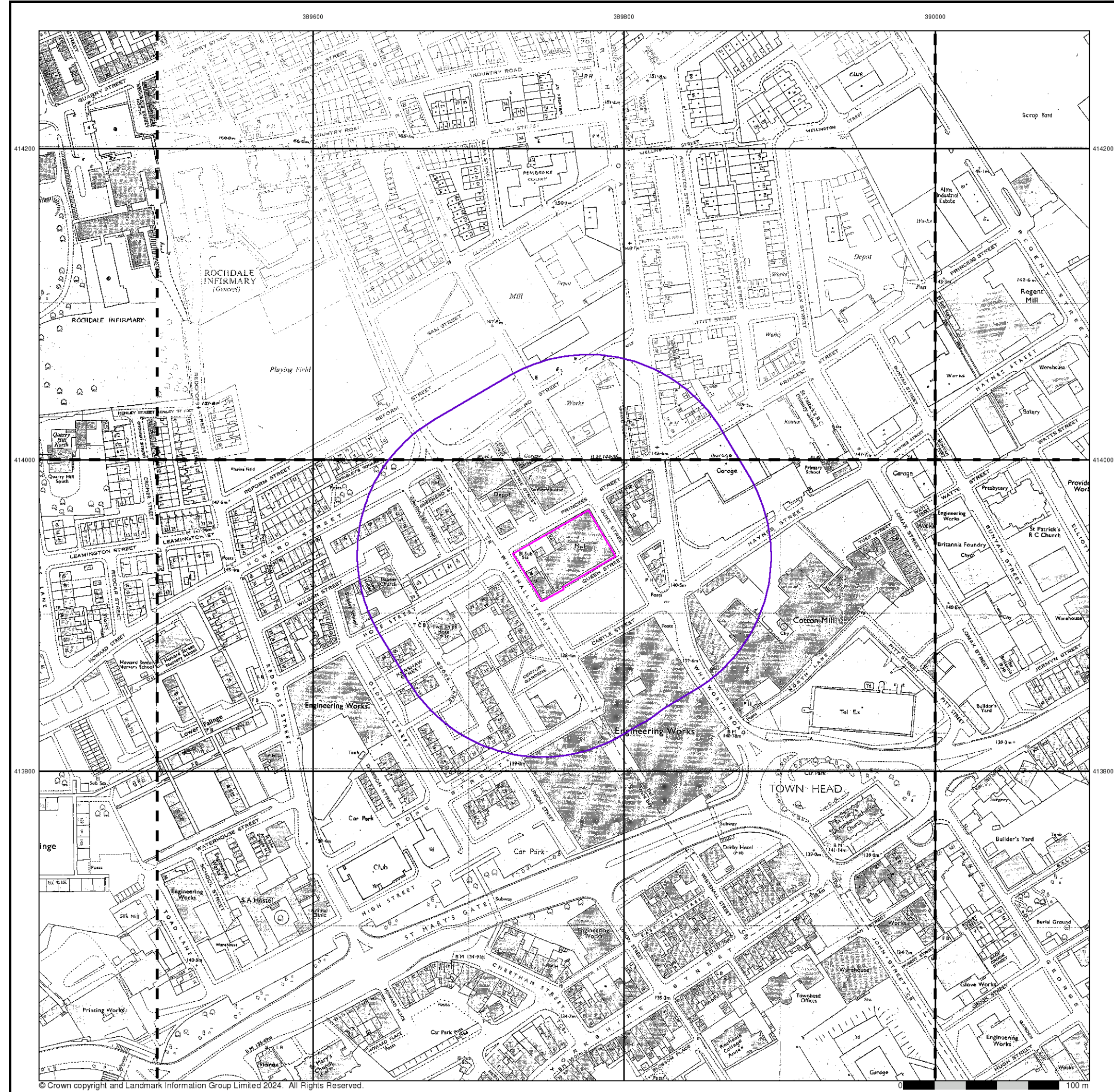
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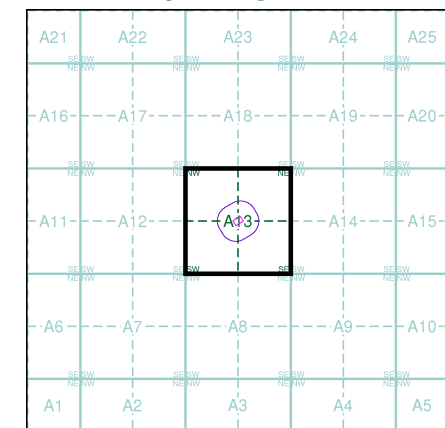
Published 1977 - 1987
Source map scale - 1:1,250

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)

SD8914SW 1979 1:1,250	SD8914SE 1977 1:1,250	SD9014SW 1987 1:1,250
SD8913NW 1985 1:1,250	SD8913NE 1977 1:1,250	SD9013NW 1983 1:1,250

Historical Map - Segment A13



Order Details

Order Number: 360274193_1_1
Customer Ref: LKC 24 1109
National Grid Reference: 389760, 413940
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

Site Details

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