



**PHASE 1 ENVIRONMENTAL SITE
ASSESSMENT REPORT**

**VARLEY STREET
MANCHESTER
M40 8EF**

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Date: 2nd March 2022



EnviroSolution Ltd Document Verification

Site Address	Varley Street, Manchester, M40 8EF		
Report Title	Phase 1 Environmental Site Assessment Report		
Job Number	CL101	Document Ref.	CL101
Date Issued	2 nd March 2022	Report Version	1
Prepared by	Tom Craig	Signature	
Checked by	Gemma Lucas	Signature	



Executive Summary

The preliminary environmental site assessment indicates that the site can be classified as moderate risk in terms of contamination and the risks to the identified receptors (e.g. human health, controlled waters, buildings) following redevelopment is considered to be moderate.

This classification is due to the potential for Made Ground to be present within the shallow soils at the site associated with the historical land use as a timber yard and the demolition of former buildings on site. Contaminants such as heavy metals, PAHs, hydrocarbons and asbestos could be present within the Made Ground. There is also the potential for ground gases (i.e. carbon dioxide and methane to be present) in the ground beneath the site associated with any organic/putrescible material that may be present within the Made Ground deposits.

Furthermore, there may also be the potential for ground gases to be present associated with the mine shafts located within the site boundary which will act as a preferential pathway for mine gases at depth to reach the surface.

It is recommended a Phase 2 intrusive ground investigation is undertaken prior to site redevelopment to obtain additional information on the ground conditions and the contamination status. The investigation should be carried out by qualified and competent persons. The scope of works for the investigation will need to be submitted and approved by the local authority prior to the commencement of the Phase 2 intrusive works.

Disclaimer

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1 Introduction

1.1 Background

EnviroSolution Ltd was commissioned to undertake a Phase 1 Environmental Site Assessment at a site located at Varley Street in Manchester. This report was commissioned to provide information on the likely contamination status at the site. It is understood that this work is to investigate the feasibility of an educational development at the site including up to two schools including playing fields and car parking.

1.2 Objectives

The objective of the preliminary environmental site assessment was:

1. To provide a summary of the environmental setting and historical land use of the site and immediate surrounding area.
2. To obtain information on the ground conditions present beneath the site.
3. To develop an updated conceptual site model and complete a generic quantitative risk assessment to identify any environmental risks and liabilities associated with ground conditions at the site.

1.3 Scope of Work

To achieve the objectives, the following scope of work was completed:

1. A desk-based study of the site comprising a review of available environmental information for the site such as geological and hydrogeological data and historical land use information.
2. A site walkover survey to assess on site ground conditions.
3. Assessment of potential hazards and constraints during construction and longer term.

This work has been devised to generally comply with the relevant principles and requirements of the following legislation and guidance:

- Part IIA of the Environmental Protection Act, 1990 and Section 57 of the Environmental Act 1995;
- Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, April 2012);
- National Planning Policy Framework (Ministry of Housing, Communities and Local Government, February 2019);
- BS10175: 2011 +A2:2017 "Investigation of Potentially Contaminated Sites- Code of Practice"; and
- Environment Agency (2020) Land Contamination Risk Management Report LCRM "How to assess and manage the risks from land contamination".

1.4 Information Sources

Historical Ordnance Survey maps have been obtained from historical records, ranging from 1848 to 2021. These maps provide high quality information on historical site use.

The British Geological Survey Geoindex database has been used to provide information on geo-environmental aspects of the site and the immediate surrounding area such as geological, hydrogeological and hydrological data.

The Environment Agency website (www.gov.uk/government/organisations/environment-agency) and Magic website (www.magic.gov.uk) was also used to obtain environmental information.

Industry Profiles produced by the Department of the Environment were utilised to obtain information on processes, materials and wastes associated potential contaminative land uses near the site.

Readily available information sources have been used to produce this desk-based study. Additional information may be requested by the Local Planning Authority (e.g. local authority environmental information request).

2 The Site

2.1 Site Location

The site is located at Varley Street, Manchester, M40 8EF. The British National Grid Reference for the approximate site centre is GR: 386125 399605.

The site location is shown on **Figure 1** in **Appendix A**.

2.2 Site Description

The site description is aided by the completion of a site walkover survey conducted by EnviroSolution on the 21st of January 2022. The site photographs are included in **Appendix B**.

The site is irregular in shape and covers an approximate area of 22,200 square metres. The site is currently a vacant plot of waste land formerly used as a school playing field. A tarmac games court is located in the central area of the site. The land to the northeast of this is rough grassland. The land to the southwest of this is tarmacadam hardstanding.

Sporadic trees are present along the perimeter of the site but are more clustered along the eastern and southern boundaries.

The proposed development area is generally flat with little change in topographic level. Vehicle access is gained from Sawley Street via a break in the fence or along Nelson Street via a double gate. A metal fence separates the western quarter of the site from the former playing field.

The site boundaries consist of metal fencing and chain link fencing on all sides.

The site is bounded by residential properties to the north and commercial properties to the west, south and east.

There are no active petrol filling stations within a 250m radius of the site.

The existing site plan is shown on **Figure 2** which is included in **Appendix A**.

2.3 Development Proposals

It is understood that the development plans could include the construction of up to two schools with associated vehicle parking, play areas and playing fields.

Currently, no formal development plans have been provided.

2.4 Site History

The development site and surrounding area has been reviewed with reference to historical Ordnance Survey (OS) maps. The history of the site and immediate surrounding area is summarised in Table 1. Copies of the historical OS maps are included in **Appendix C**. A search buffer of 250m has been used.

Table 1 - Historic Mapping Review

Date	Scale	On Site	Off Site
1848	1:10,560	The site is undeveloped and lies within an open field. Coal pit located in western portion of the site.	Chemical works 130m south and 160m southwest of the site.
1893	1:2,500	Eastern half of the site is developed with residential terraced housing.	Large residential development directly north of the site. Chemical works 10m south of the site. Floor cloth works 10m south of the site. Chemical works 60m south and 130m south of the site. Glass works 60m west of the site. Iron foundry 90m east of the site. Engineering works 105m north of the site. Tannery 200m north of the site. Railway line 250m north of the site.
1908	1:2,500	Timber yard built in eastern extent of the site. School built along western boundary.	Iron foundry 60m south. Brass foundry 200m south of the site. Soap and colour works 150m east of the site.
1922	1:2,500	No significant change.	Smelting works 10m south of the site.
1948	1:2,500	Travelling crane on site along northern boundary. Timber yard extending southwest within the boundary. Day nursery built along south-western boundary.	Iron foundry 20m north of the site. Soap works converted to asbestos works 150m east of the site. Rubber works 10m south of the site. Tar distillery 60m southwest of the site. Cabinet works 165m north of the site. Cotton mills 190m southwest of the site.
1965	1:2,500	Buildings demolished and site used as a playing field.	Chemical and rubber works converted to warehouses and depot 10m south of the site.
1978	1:2,500	No significant change.	Engineering works adjacent to the eastern boundary. Chemical works and iron foundries labelled as works. Tar distilleries demolished.
1986	1:2,500	No significant change.	No significant change.
2021	1:2,500	Site disused as a school playing field. School demolished.	Works demolished 130m south of the site.

3 Environmental Setting

3.1 Geology

The BGS geological mapping (Geoindex and BGS Sheet 85 Manchester) show that the site is directly underlain by diamicton which is of Quaternary age. Diamicton generally consists of unsorted clays, silts, sands and gravels.

The underlying bedrock consists of the Pennine Upper Coal Measures Formation which is of Carboniferous age. The Pennine Upper Coal Measures Formation generally consists of interbedded grey mudstones and siltstones with pale grey sandstones and numerous coal seams but no mudstones containing marine fossils. According to the BGS geological sheet, the bedrock has a regional dip of about 18° towards the southwest – **See Appendix D**.

The nearest geological fault is located 670m northwest of the site.

Two BGS borehole records (ref: SJ89NE195 and SJ89NE194) have been obtained from BGS online records, relating to locations within the southwest of the site. The boreholes show about 2m of Made Ground overlying thick deposits of diamicton consisting of generally stiff clays with occasional lenses of sand. A 4m thick layer of sand is recorded at a depth of 12m bgl. Bedrock was recorded at depths of between 25.0m and 27.5m bgl.

A copy of the geological maps is included in **Appendix D**. A copy of the BGS borehole logs is included in **Appendix E**.

3.2 Radon

The site lies within the lowest band of radon potential where it is estimated that less than 1% of the properties are above the action level (low probability). Radon protective measures are not deemed necessary for the development.

3.3 Coal Mining Activity

The site falls within a coal mining area described as having minable coal deposits and partially intersects a 'Development High Risk Area' for coal mining as defined by the Coal Authority. As such, it is considered that any future development at the site could be at risk from coal mining related hazards.

The Coal Authority Interactive Viewer map shows that the site is intersected by two seams of coal, of which one has been known to have been worked. Additionally, two mine shafts are located in the south-western corner of the site.

It is recommended that a detailed Coal Mining Risk Assessment is completed for the site.

A copy of the coal mining summary map is included in **Appendix F**.

3.4 Hydrogeology

The superficial diamicton deposits are designated as a Secondary (Undifferentiated) Aquifer. This is defined as: cases where it has not been possible to assign A or B to a soil unit due to the inherent heterogeneity.

The Pennine Upper Coal Measures Formation is designated as a Secondary A Aquifer. This is defined as: permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

There is a single record of a groundwater abstraction licence held within a 1km radius of the site. The license is held 360m east of the site for construction purposes.

The site is not located within Source Protection Zone.

A copy of the hydrogeological maps is included in **Appendix G**.

3.5 Hydrology

There are no significant surface water features (rivers, lakes, reservoirs) located within a 1km radius of the site.

Rochdale Canal is located 110m south of the site.

3.6 Flood Risk

The site lies within a Flood Zone 1, land assessed as having less than a 1 in 1,000 annual probability of river flooding in any year (low probability).

3.7 Waste Management Facilities

There are 5 no. records of historic landfill sites located within a 1km radius of the site. The landfill site information is summarised below.

Table 2 - Historic Landfill Summary

Landfill Sites	Operation Dates	Waste Type	Distance From Site
Bradford Road Works	1979 – 1983	Inert, Industrial, Special	595m SE
New Viaduct Street	No Information	No Information	620m S
Cambrian Street Depot	1985 – 1990	Inert	670m S
Fitzgeorge Street	No Information	No Information	780m NW
Sand Street	No Information	No Information	950m W

There are no records of currently authorised landfill sites located within a 1km radius of the site.

There are 6 no. records of sites operating under an environmental permit for waste operations located within a 1km radius of the site. The waste operations permits are summarised in Table 3 below:

Table 3 – Waste Operations Summary

License Holder	Site Type	Distance from Site
Biffa Waste Services Limited	Transfer station taking no-biodegradable waste	250m N
P R Junior Limited	Inert & Excavation WTS with treatment	340m NE
European Metal Recycling Ltd	Metal recycling site	440m NE
Bensons For Skips	Household, commercial and industrial waste transfer station	450m NE
Recon Packaging Ltd	Material recycling treatment facility	790m E
Mauser	Material recycling treatment facility	790m E

A copy of the historic landfill map is included in **Appendix H**.

3.8 Environmental Permits, Incidents and Registers

There are several records of site operating under an environmental permit for discharges to water and groundwater located within a 1kmr radius if the site. The nearest is held by United Utilities Water Ltd 280m east of the site.

There is a single record of a site operating under an environmental installation permit located within a 1km radius of the site. The permit is held by Princes Ltd 600m east of the site for animal vegetable and food.

There is a single record of a historic environmental pollution events within 1km of the site. The event occurred 420m northeast of the site in 2004. The event was caused by fly tipping of organic chemical wastes.

3.9 Designated Environmentally Sensitive Sites

There is a single record of a designated environmentally sensitive site located within a 1km radius of the site. A Nitrate Vulnerable Zone is located 400m north of the site.

A copy of the environmental designations map is included in **Appendix I**.

4 Preliminary Conceptual Site Model

4.1 Introduction

In order to assess the environmental risks present, a preliminary conceptual model has been developed for the site. This model has been developed using best practice guidelines in conjunction with the current assessment framework taking into account the development proposals. This preliminary conceptual model is based on the gathered desk based information (e.g. historical OS data and data sourced from the EA, Geoindex and Magic databases).

The conceptual site model is a representation of the hypothesised relationships between sources, pathways and receptors which allows the identification of potential pollutant linkages and whether these linkages have the potential to comprise significant harm and/or pollution of controlled waters in relation to the site. This model comprises three elements:

Source – the key pollutant hazards associated with the site

Receptor – the key targets at risk from the sources

Pathway – the means by which the contaminant can cause harm to the receptor

If all three elements are present, then a potential pollutant linkage exists, and this may require further assessment.

4.2 Potential Contamination Sources

Historically, the site has been developed with residential housing, a school and a timber yard since as far back as the 1890s. The majority of the site was cleared by the 1950s and then used as a playing field for an adjacent school and this was then disused following the demolition of the school in the 2000s. Given the former on site development, there is the potential for Made Ground to be present within the shallow soils at the site. The Made Ground could contain contaminants such as heavy metals, polyaromatic hydrocarbons (PAHs), hydrocarbons, solvents and asbestos. Additionally, if the Made Ground contains significant putrescible material, there is the potential for ground gases (i.e. carbon dioxide and methane) to be present, however, nearby boreholes do not indicate a high putrescible content within the Made Ground.

Additionally, a number of off-site land uses have been identified in the surrounding area. The land uses and their associated contaminants are summarised in Table 4 below:

Table 4 – Off-Site Land Use Summary

Land Use	Potential Contaminants
Rubber Works	Solvents, PAHs
Iron Foundry	Heavy metals, PAHs, solvents, sulphates, phenols
Chemical Works	Heavy metals, PAHs, solvents

Land Use	Potential Contaminants
Railway Line	Heavy metals, PAHs, solvents
Tar Distillery	Hydrocarbons, phenols
Soap and Colour Works	Heavy metals, PAHs, solvents, acids, sulphates
Engineering Works	Heavy metals, PAHs, solvents
Furniture Works	Heavy metals, PAHs, solvents, paints
Warehouse/ Depot	Heavy metals, PAHs, solvents
Glass Works	Heavy metals, PAHs
Tannery	Anthrax, solvents, heavy metals
Cotton Mill	Heavy metals, PAHs, solvents, pesticides
Asbestos Works	Asbestos, solvents

The majority of the above land uses can be discounted as credible sources of contamination due to the presence of low permeability superficial deposits underlying the area which will limit the migration of contaminants to the site. However, the depositing of waste materials at the site from these processes cannot be ruled out.

It is considered that the substantial thickness of superficial deposits which are present underlying the sit and surrounding area will act as an impermeable barrier, preventing the migration of mine gases from recorded mine workings beneath the site to the surface. However, a recorded mine shaft is located within the south-western corner of the site which will provide a preferential pathway.

Several historic landfill sites have been identified in the surrounding area. The landfill sites can be discounted as potential sources of ground gas due to the distance from site (>595m). Additionally, the presence of low permeability diamicton will limit the migration of any ground gas to the site from off-site sources.

4.3 Receptors

The potential receptors considered to be at risk from soil and groundwater contamination associated with the site are summarised in Table 5 below:

Table 5 - Receptor Description

Receptor	Details
Human (On Site)	- Construction workers - Future site users - Site visitors
Human (Off Site)	- Adjacent site users
Controlled Waters	- Secondary undifferentiated Aquifer - Secondary A Aquifer - Rochdale Canal - Groundwater Abstraction
Building/ construction materials	- Foundations and buried services

4.4 Pathways

The potential exposure pathways linking contamination with the receptors identified above are summarised in Table 6 below:

Table 6 - Exposure Pathways Summary

Receptor	Details of Exposure Pathway
Human (on-site)	- Direct ingestion of contaminated soil/groundwater - Dermal contact with soil/groundwater
Human (off-site)	- Inhalation of fibres and particulates
Controlled waters	- Vertical and lateral migration of dissolved phase contaminants via preferential pathways to groundwater aquifers - Lateral migration and surface water run-off to water courses
Building/construction	- Buried materials/services - Contact with contaminated soil and/or groundwater

4.5 Potential Pollution Linkages

4.5.1 Human Health

It is understood that the development plans could include the construction of up to two new schools. Plans include areas for vehicle parking and soft landscaping.

The presence of buildings and hardstanding would eliminate the risk of exposure, via the dermal contact and ingestion pathways to future site users to any ground contamination that may remain in these areas following development.

There could be a potential risk of exposure to any ground contamination that remains following redevelopment in the proposed areas of soft landscaping, to future site users, via all possible exposure pathways.

Any ground gases (i.e. methane and carbon dioxide) and vapours that are present within the soils beneath the site could potentially ingress into the buildings through preferential pathways (e.g. service entry points). Therefore, there would be a risk of exposure via inhalation to future site users.

There is the potential for construction workers and adjacent land users to be exposed to soil and groundwater contamination during site redevelopment. However, the use of appropriate

PPE and the adoption of suitable Health and Safety methods will help to reduce the risks posed to human health during this work.

4.5.2 Controlled Waters

Geological maps indicate that the site is underlain by superficial diamicton deposits which are designated as a Secondary Undifferentiated Aquifer. Nearby borehole records show that the diamicton generally comprises stiff clay which will act as a barrier, limiting the migration of contaminants to the underlying aquifer or off-site receptors.

The site does not lie within a Source Protection Zone and there is a single record of a groundwater abstraction license held within a 1km radius of the site. The license is not for potable water.

The Rochdale Canal is located 110m from the site boundary. It is considered that this can be discounted as a feasible receptor due to the distance and presence of low permeability clay soils and clay lining of the canal.

Overall, the risk to controlled waters is deemed to be negligible.

4.5.3 Building/Construction Materials/Buried Services

The presence of any soil and groundwater contaminants beneath the site could potentially impact on construction materials for the new development, such as below ground structures and services. Concrete foundations are particularly sensitive to aggressive ground conditions, i.e. sulphate attack.

If ground gases and vapour are present in the soil beneath the site, then there would be the potential risk of ingress into the new property which could present a risk of explosion.

4.6 Preliminary Hazard Assessment

A preliminary hazard assessment is presented in Table 7. The preliminary hazard assessment is a qualitative assessment of the risks posed by each potential pollutant linkage described above and is used to identify the requirement for additional work (e.g. intrusive ground investigation).

Table 7 – Preliminary Hazard Assessment

Source 1	Pathway	Receptor	Likelihood	Effect	Risk	Assessment
Contaminated soil	Ingestion (via soil dust), inhalation (via soil dust and vapours), ingestion through dirty hands, dermal contact with soil/water.	Future site users Adjacent site users Construction workers	3	3	Moderate	On-site contamination identified.
Contaminated soil groundwater	Direct contact	Buildings/services	3	3	Moderate	On-site source potential identified. Foundations and services in contact with potentially contaminated soils.
Contaminated groundwater	Downward or lateral migration	Secondary Undifferentiated Aquifer Secondary A Aquifer Rochdale Canal Groundwater Abstraction	1	3	Low	Source potential identified. Superficial deposits act as an impermeable barrier. The site is not located within a Source Protection Zone.
Ground gas / vapours	Inhalation, ingress into buildings	Buildings / services Future site users Adjacent site users Construction workers	3	3	Moderate	Made Ground not thought to contain significant putrescible material. Superficial deposits act as an impermeable barrier to off-site sources. Mine shaft identified within the site boundary could provide a preferential pathway to gas migration. Site located within a low probability area for radon.

Using Risk Matrix (Table 8) Degree of Risk (R) = Likelihood (L) x Effect (E)

Table 8 - Risk Matrix, Degree of Risk (R) = Likelihood (L) x Effect (E)

Likelihood	Description	Probability	Effect (E)	Description
5	Almost certain	>70%		
4	Probable	50-70%	4	Severe
3	Likely	30-50%	3	Medium
2	Unlikely	10-30%	2	Mild
1	Negligible	<10%	1	Minor
Risk (R)	Risk Level	Action		
1-5	Low	None required		
6-10	Moderate	Further assessment via Phase 2 intrusive ground investigation.		
>10	High	Further assessment via Phase 2 intrusive ground investigation.		

5 Conclusions and Recommendations

The preliminary environmental site assessment indicates that the site can be classified as moderate risk in terms of contamination and the risks to the identified receptors (e.g. human health, controlled waters, buildings) following redevelopment is considered to be moderate.

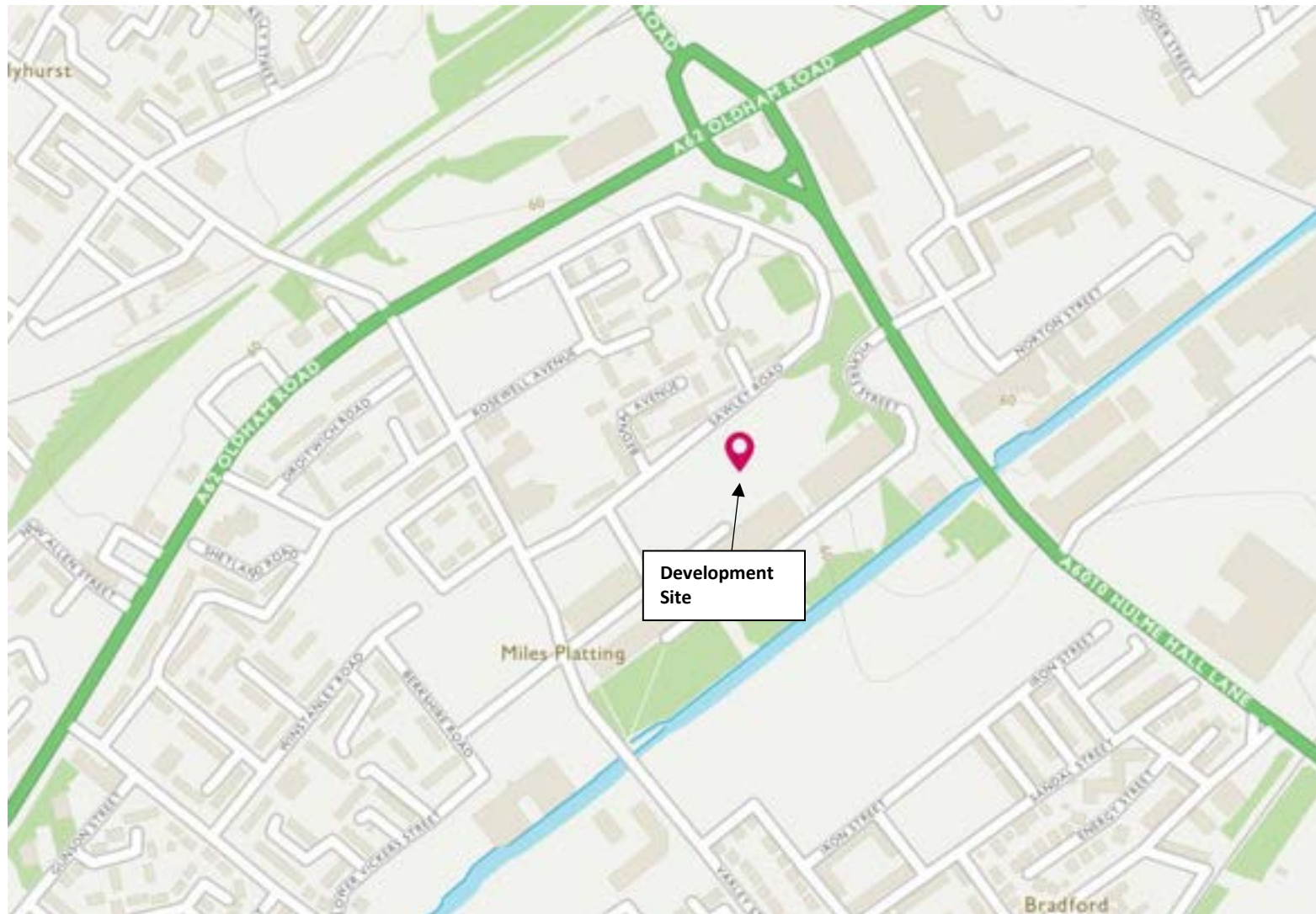
This classification is due to the potential for Made Ground to be present within the shallow soils at the site associated with the historical land use as a timber yard and the demolition of former buildings on site. Contaminants such as heavy metals, PAHs, hydrocarbons and asbestos could be present within the Made Ground. There is also the potential for ground gases (i.e. carbon dioxide and methane to be present) in the ground beneath the site associated with any organic/putrescible material that may be present within the Made Ground deposits.

Furthermore, there may also be the potential for ground gases to be present associated with the mine shafts located within the site boundary which will act as a preferential pathway for mine gases at depth to reach the surface.

It is recommended a Phase 2 intrusive ground investigation is undertaken prior to site redevelopment to obtain additional information on the ground conditions and the contamination status. The investigation should be carried out by qualified and competent persons. The scope of works for the investigation will need to be submitted and approved by the local authority prior to the commencement of the Phase 2 intrusive works.

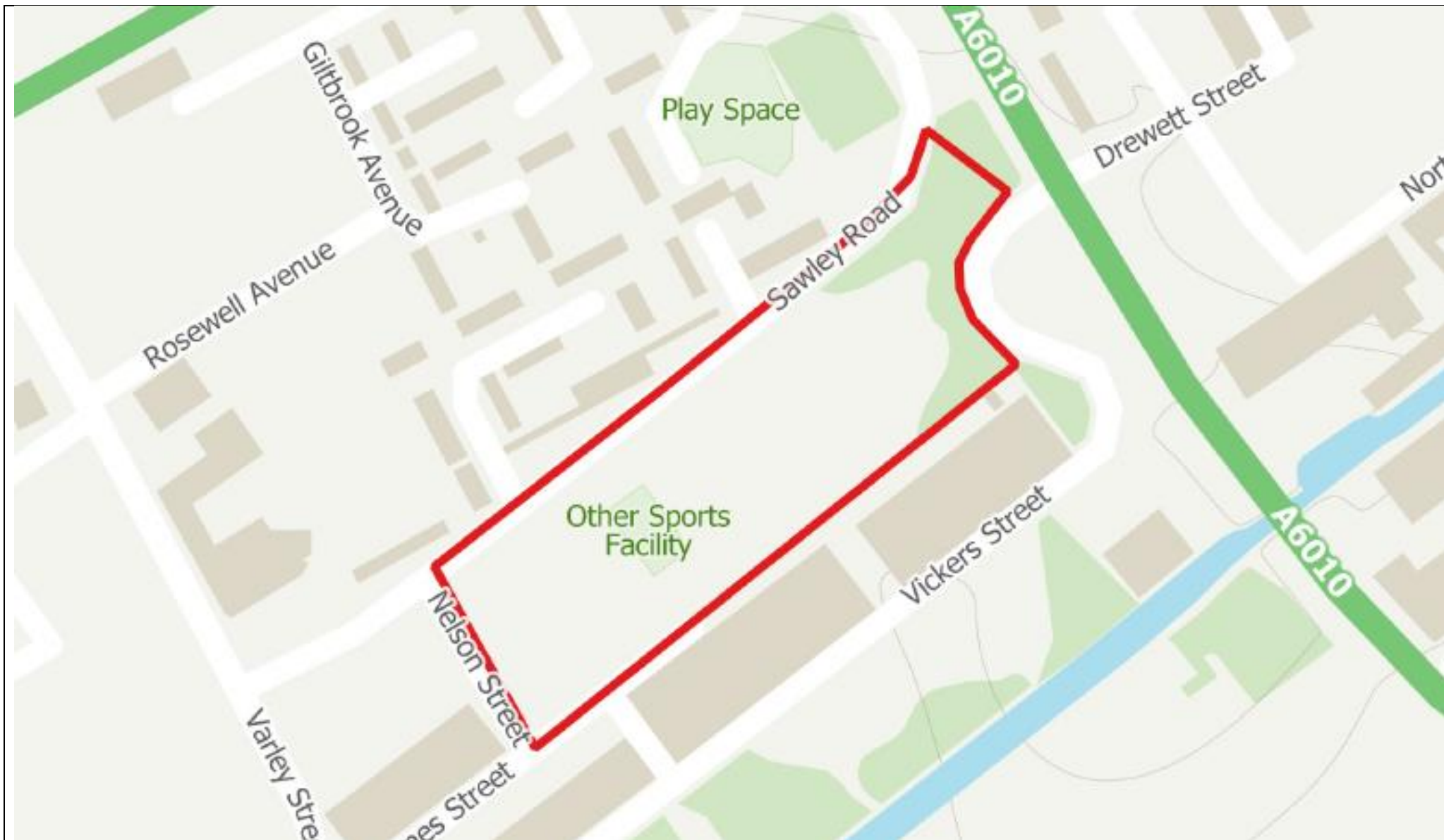
APPENDICES

Appendix A – Site Location and Site Plan



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Site Location Map



Appendix B – Site Photographs



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View of site looking north



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View of site looking south



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North-western corner of the site



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View of site looking west showing
games court



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Current site entrance along Sawley Street



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Chain link fence boundary along Sawley Street



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View of site looking north



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View of northern site boundary and entrance



enviro|solution

Site entrance along Nelson Street



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View of westerns site boundary looking
north



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Northern site boundary



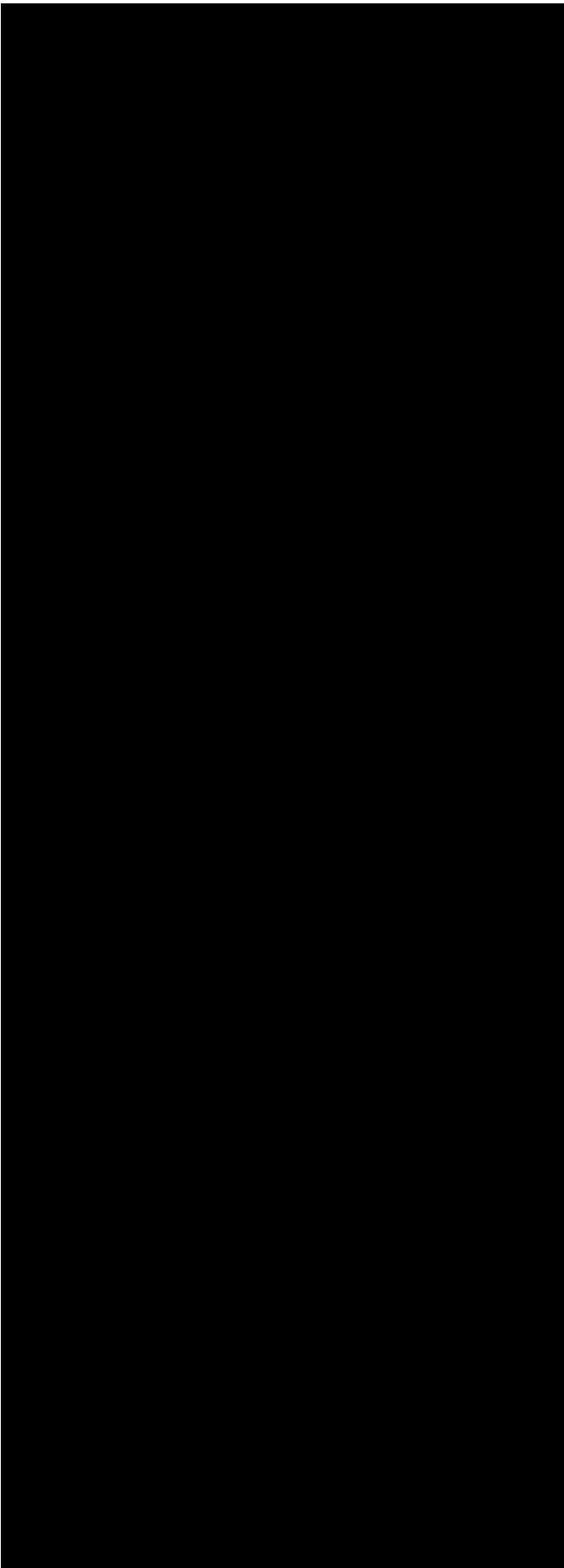
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Southern site boundary looking northeast

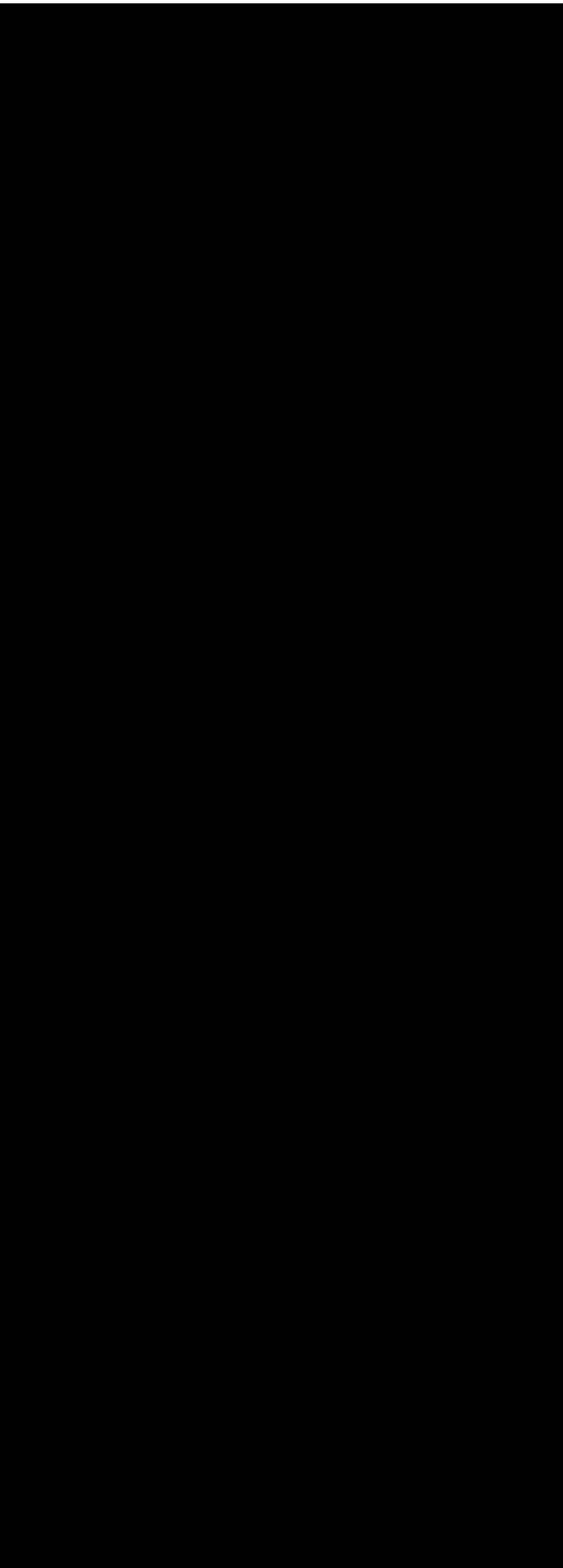
Appendix C - Historical Maps

Historical Mapping Legends

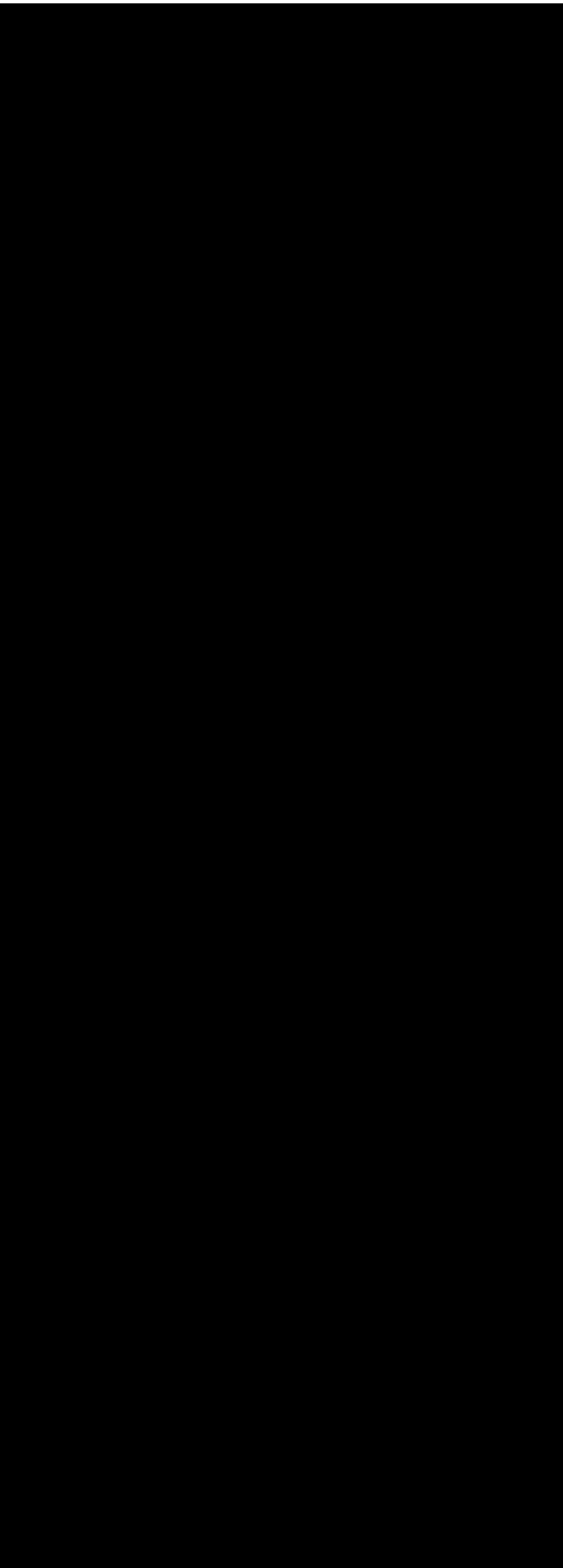
Ordnance Survey County Series and
Ordnance Survey Plan 1:2,500



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



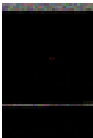
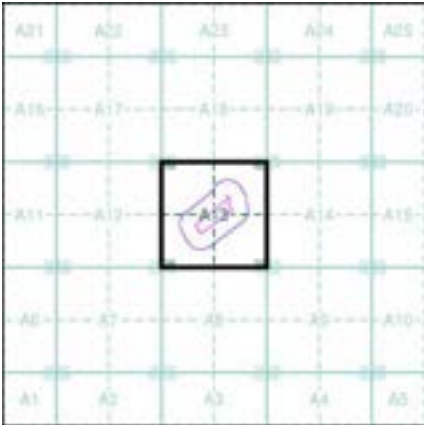
Large-Scale National Grid Data 1:2,500 and
1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1893	2
Lancashire And Furness	1:2,500	1908	3
Lancashire And Furness	1:2,500	1922 - 1931	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
Ordnance Survey Plan	1:2,500	1954 - 1970	8
Ordnance Survey Plan	1:1,250	1965 - 1971	9
Ordnance Survey Plan	1:2,500	1966	10
Ordnance Survey Plan	1:1,250	1970 - 1981	11
Additional SIMs	1:1,250	1978 - 1984	12
Additional SIMs	1:1,250	1981 - 1991	13
Additional SIMs	1:1,250	1986 - 1991	14
Ordnance Survey Plan	1:1,250	1988 - 1990	15
Additional SIMs	1:1,250	1991	16
Large-Scale National Grid Data	1:1,250	1992	17
Large-Scale National Grid Data	1:1,250	1994 - 1995	18
Large-Scale National Grid Data	1:1,250	1995	19

Historical Map - Segment A13



Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Lancashire And Furness

Published 1893

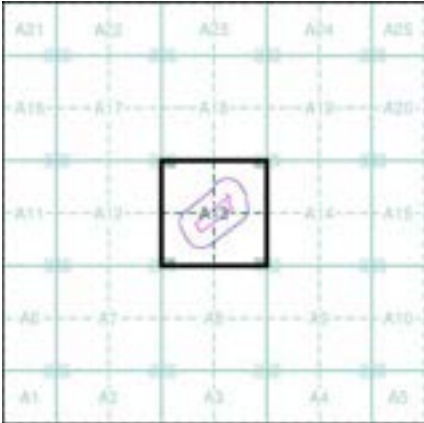
Source map scale - 1:2,500

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: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

Lancashire And Furness

Published 1908

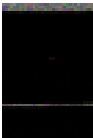
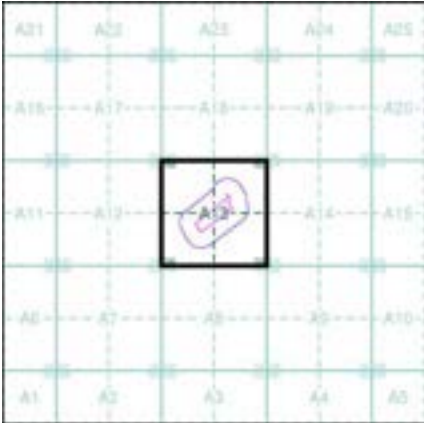
Source map scale - 1:2,500

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: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

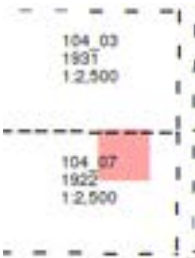
Lancashire And Furness

Published 1922 - 1931

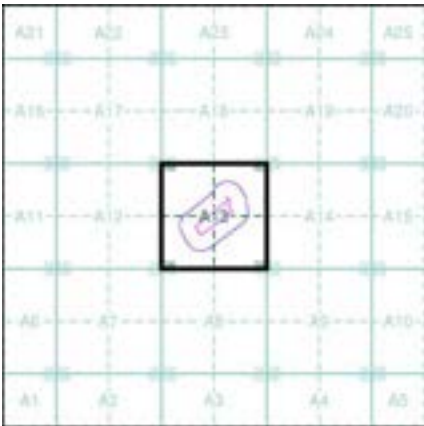
Source map scale - 1:2,500

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: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

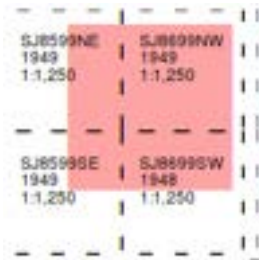
Ordnance Survey Plan

Published 1948 - 1949

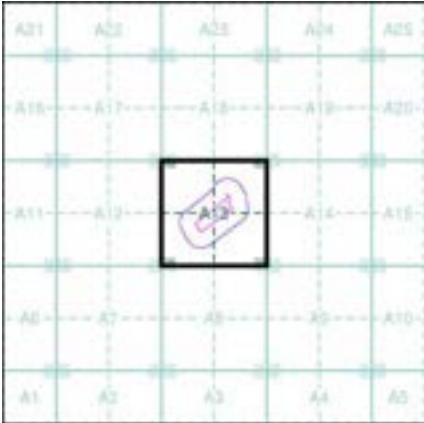
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

Order Number:291982299_1_1

Customer Ref:ES020322

National Grid Reference:386120, 399600

Slice:A

Site Area (Ha):1.83

Search Buffer (m):100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

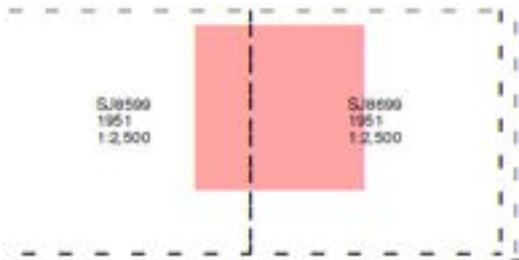
Ordnance Survey Plan

Published 1951

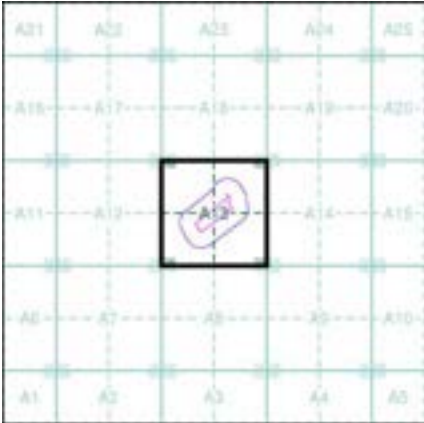
Source map scale - 1:2,500

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:291982299_1_1

Customer Ref:ES020322

National Grid Reference:386120, 399600

Slice:A

Site Area (Ha):1.83

Search Buffer (m):100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

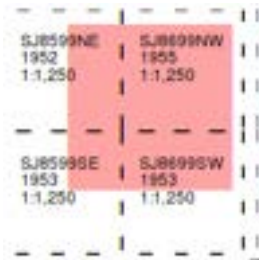
Ordnance Survey Plan

Published 1952 - 1955

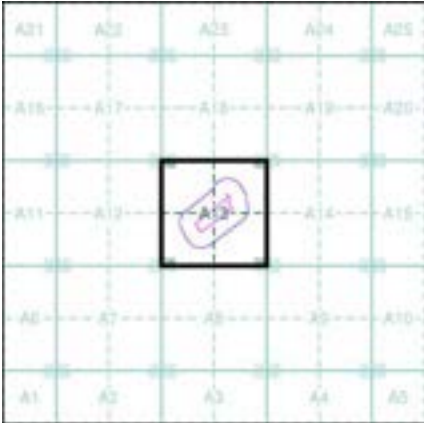
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

Order Number:291982299_1_1

Customer Ref:ES020322

National Grid Reference:386120, 399600

Slice:A

Site Area (Ha):1.83

Search Buffer (m):100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

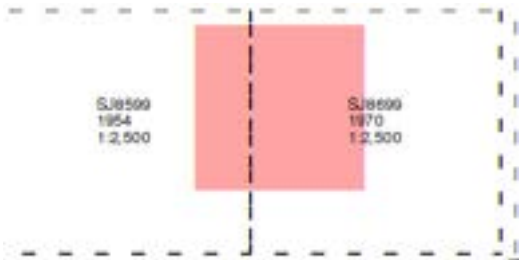
Ordnance Survey Plan

Published 1954 - 1970

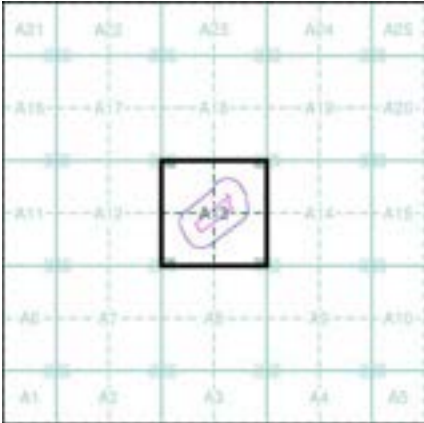
Source map scale - 1:2,500

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: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

Ordnance Survey Plan

Published 1965 - 1971

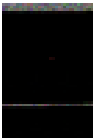
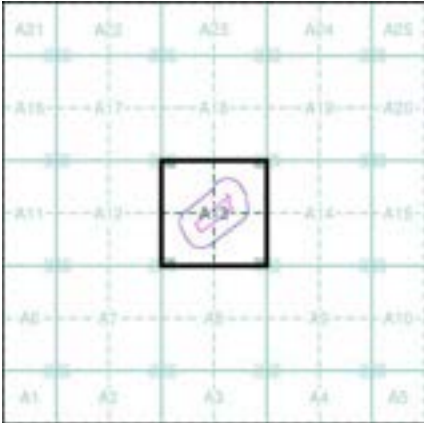
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

Order Number:291982299_1_1

Customer Ref:ES020322

National Grid Reference:386120, 399600

Slice:A

Site Area (Ha):1.83

Search Buffer (m):100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

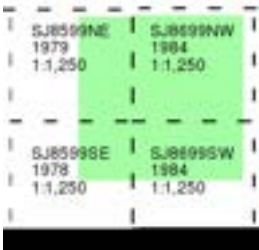
Additional SIMs

Published 1978 - 1984

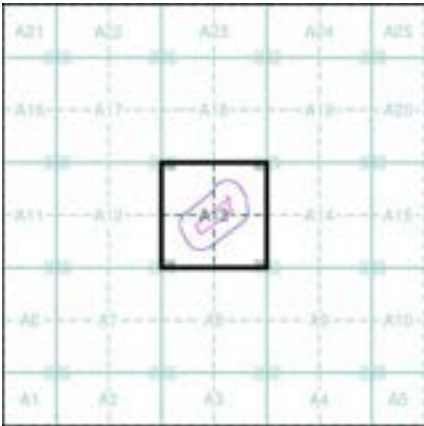
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

Additional SIMs

Published 1986 - 1991

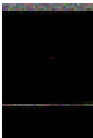
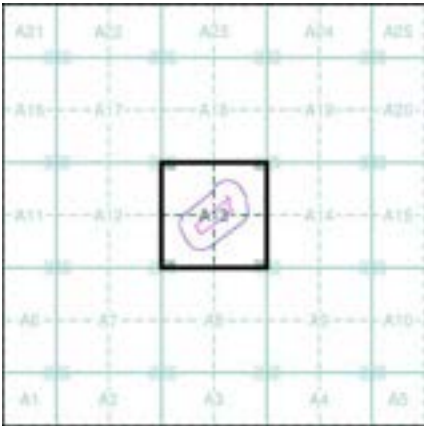
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

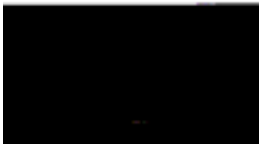
Large-Scale National Grid Data

Published 1992

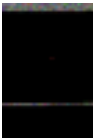
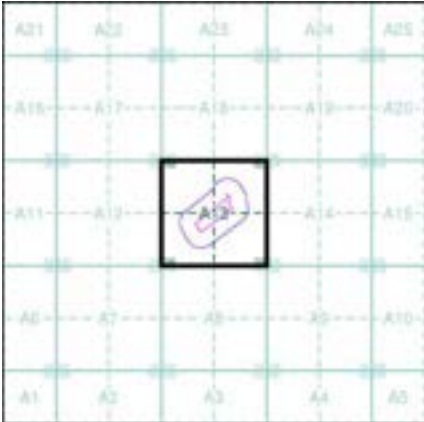
Source map scale - 1:1,250

'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)



Historical Map - Segment A13



Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

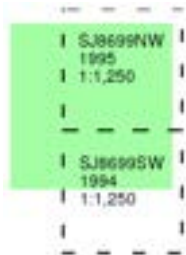
Large-Scale National Grid Data

Published 1994 - 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)



Historical Map - Segment A13



Order Details

Order Number:291982299_1_1

Customer Ref:ES020322

National Grid Reference:386120, 399600

Slice:A

Site Area (Ha):1.83

Search Buffer (m):100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

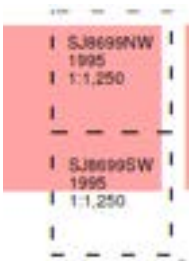
Large-Scale National Grid Data

Published 1995

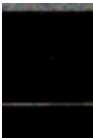
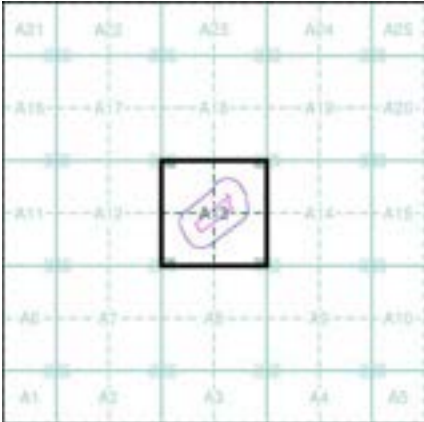
Source map scale - 1:1,250

'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)



Historical Map - Segment A13



Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 100

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

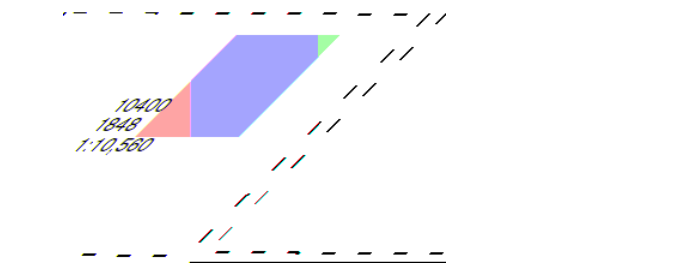
Lancashire And Furness

Published 1848

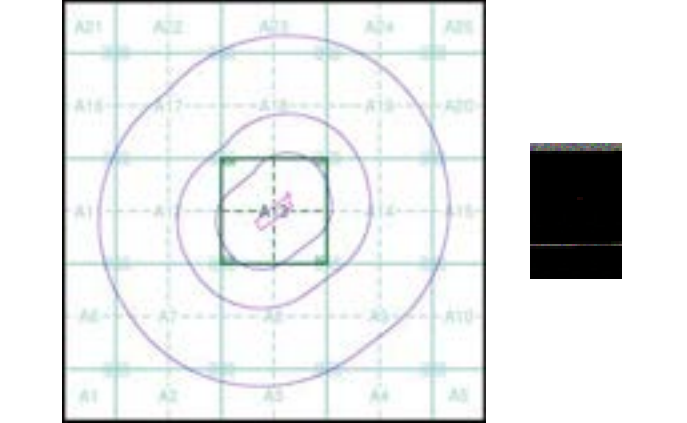
Source map scale - 1:10,560

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

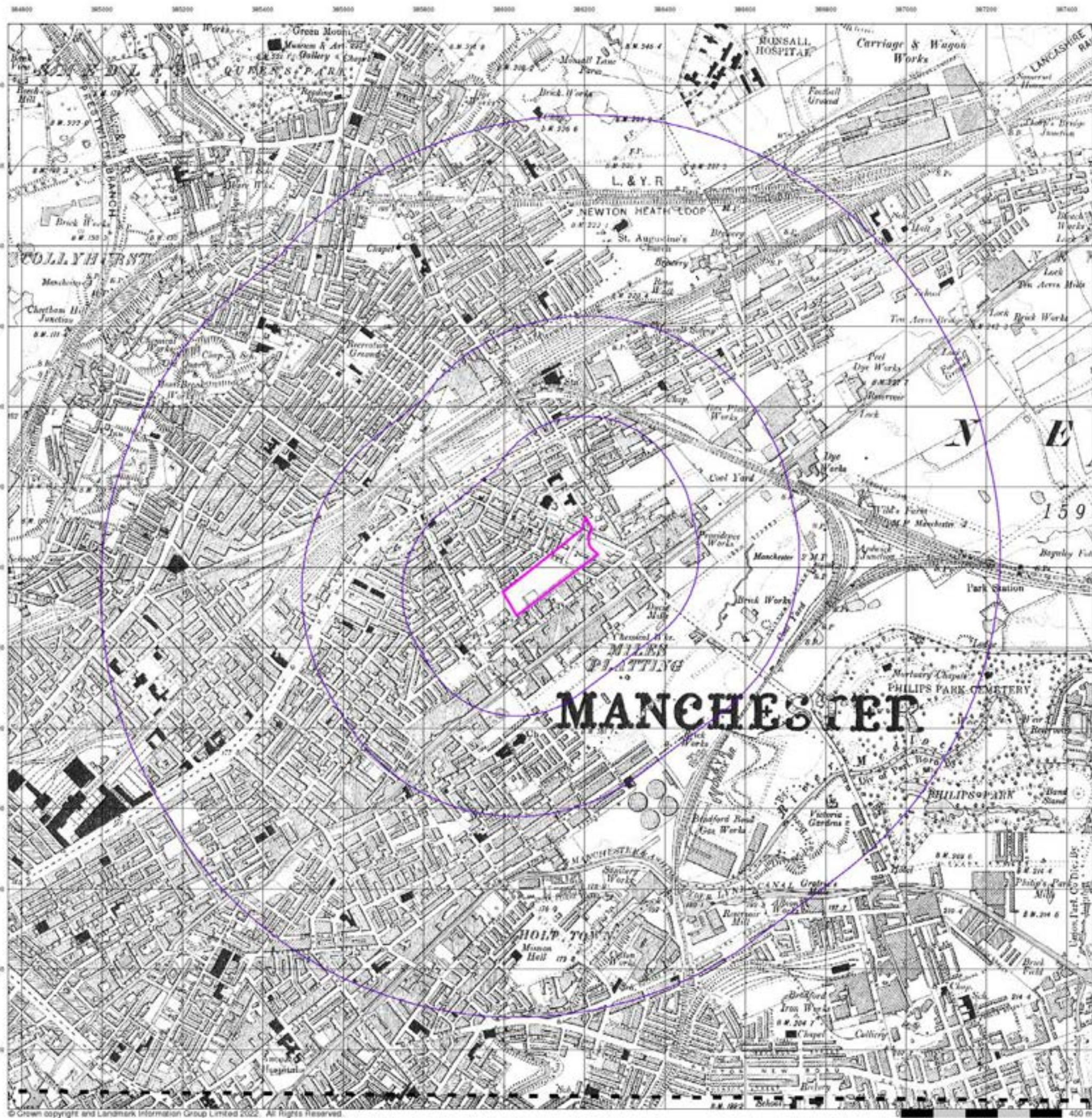


Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
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Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



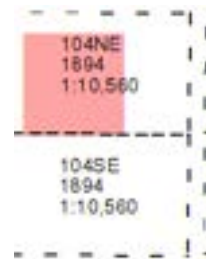
Lancashire And Furness

Published 1894

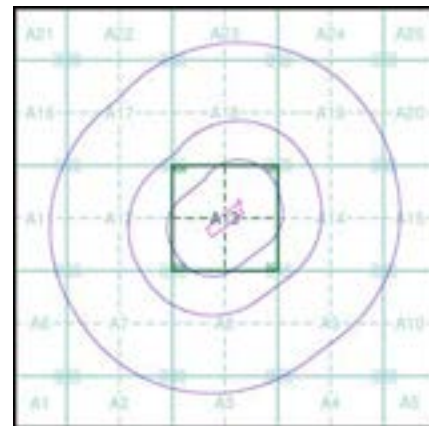
Source map scale - 1:10,560

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

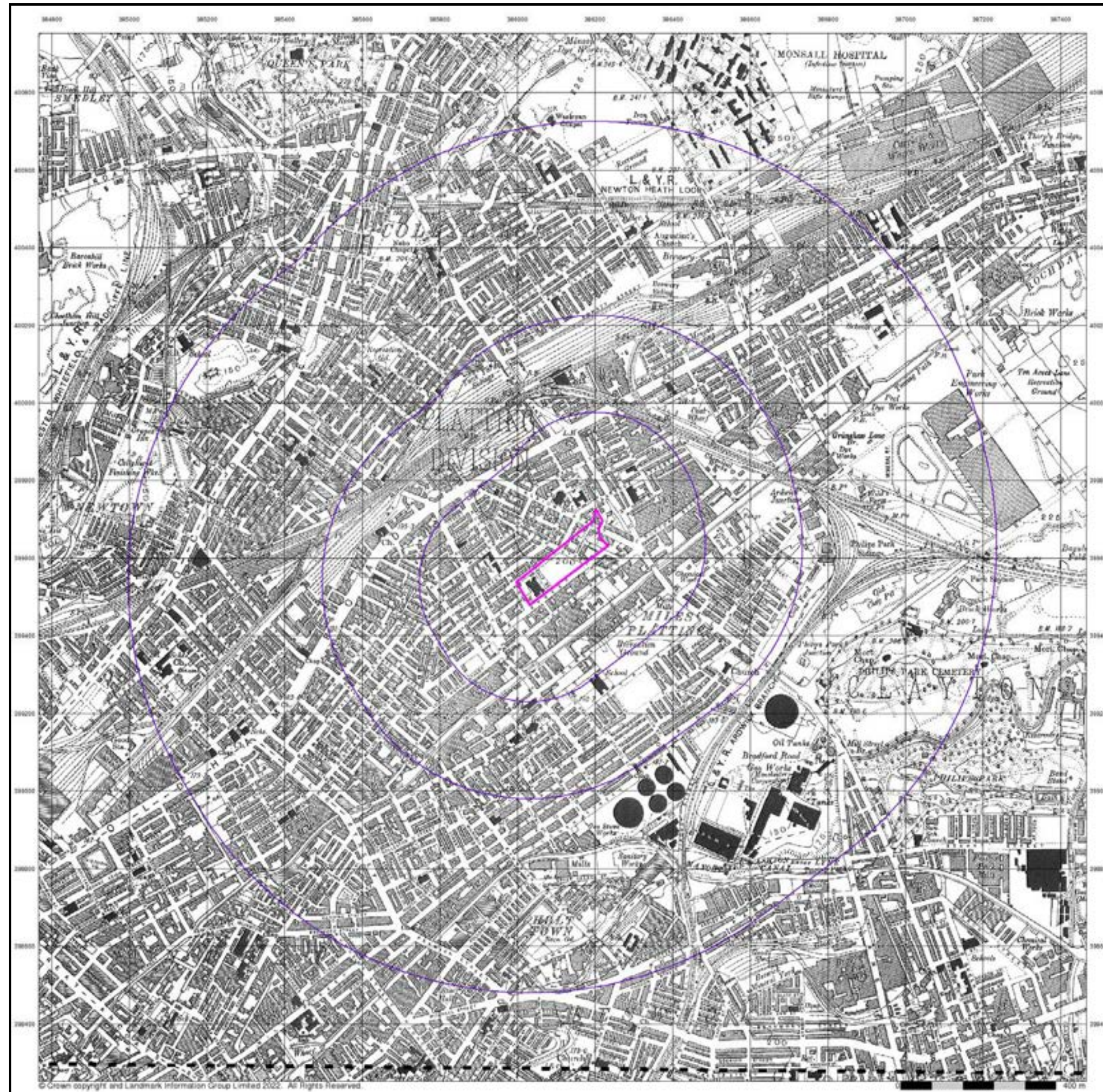


Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



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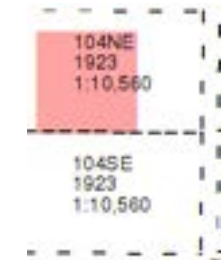
Lancashire And Furness

Published 1923

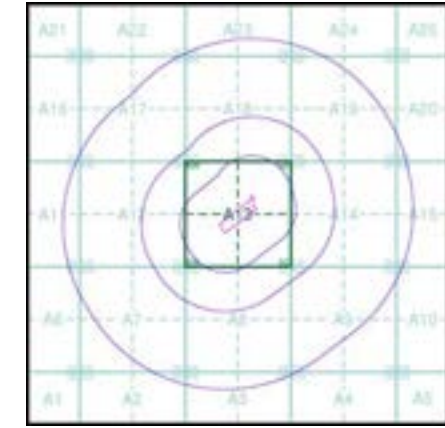
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



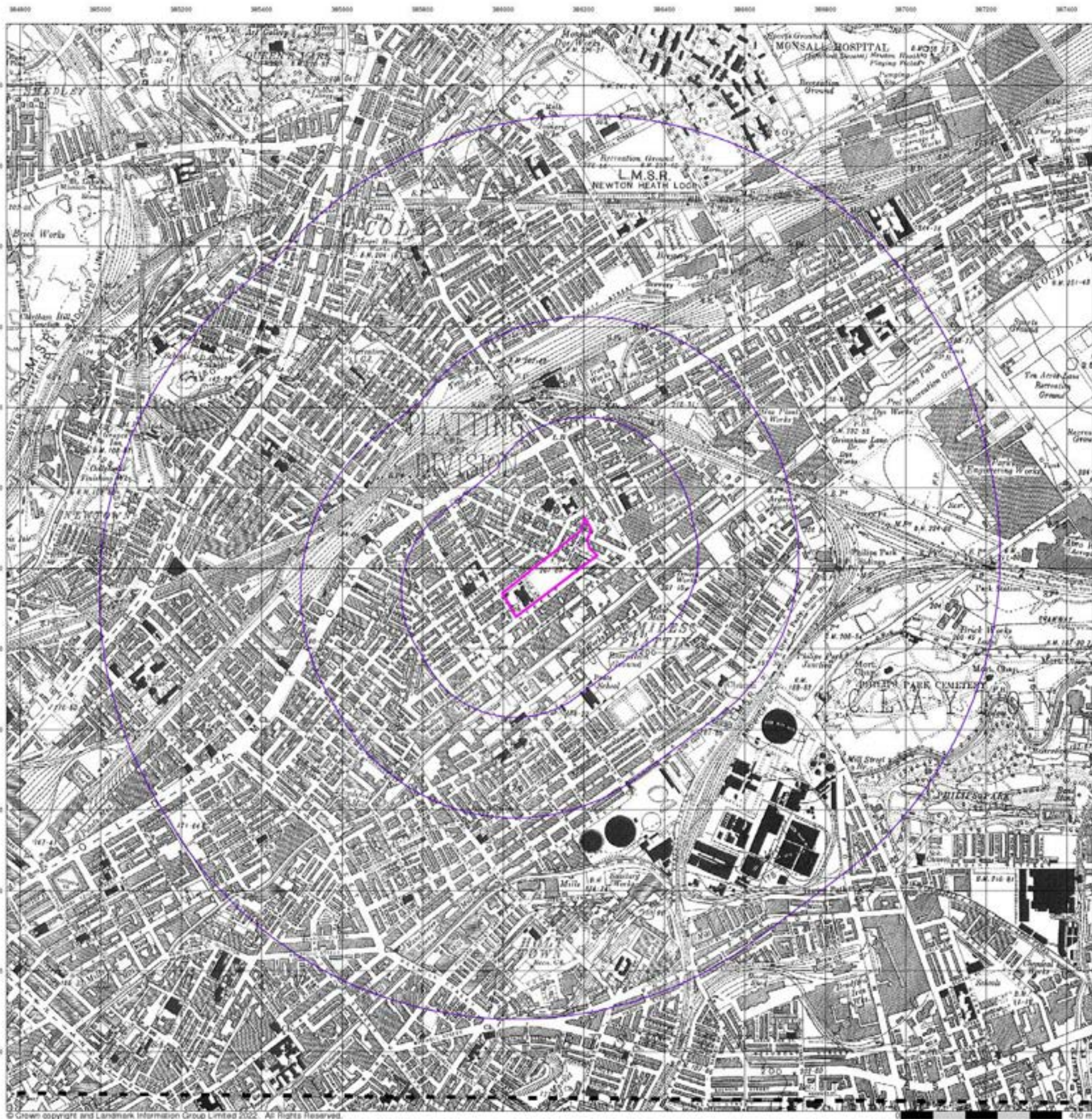
Historical Map - Slice A



Order Details	
Order Number:	291982299_1_1
Customer Ref:	ES020322
National Grid Reference:	386120, 399600
Slice:	A
Site Area (Ha):	1.83
Search Buffer (m):	1000

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



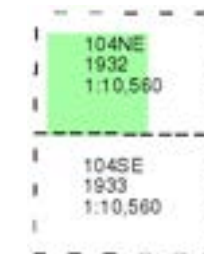
Lancashire And Furness

Published 1932 - 1933

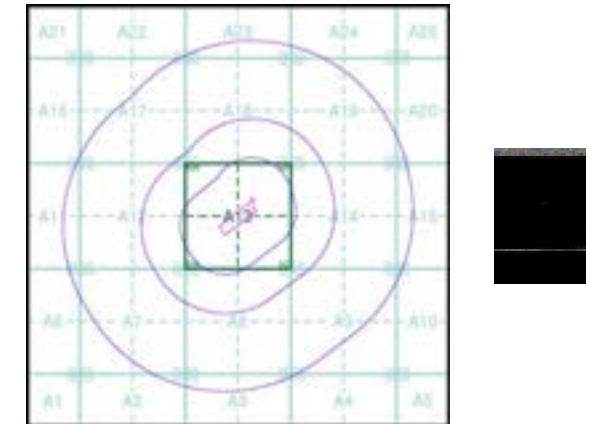
Source map scale - 1:10,560

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

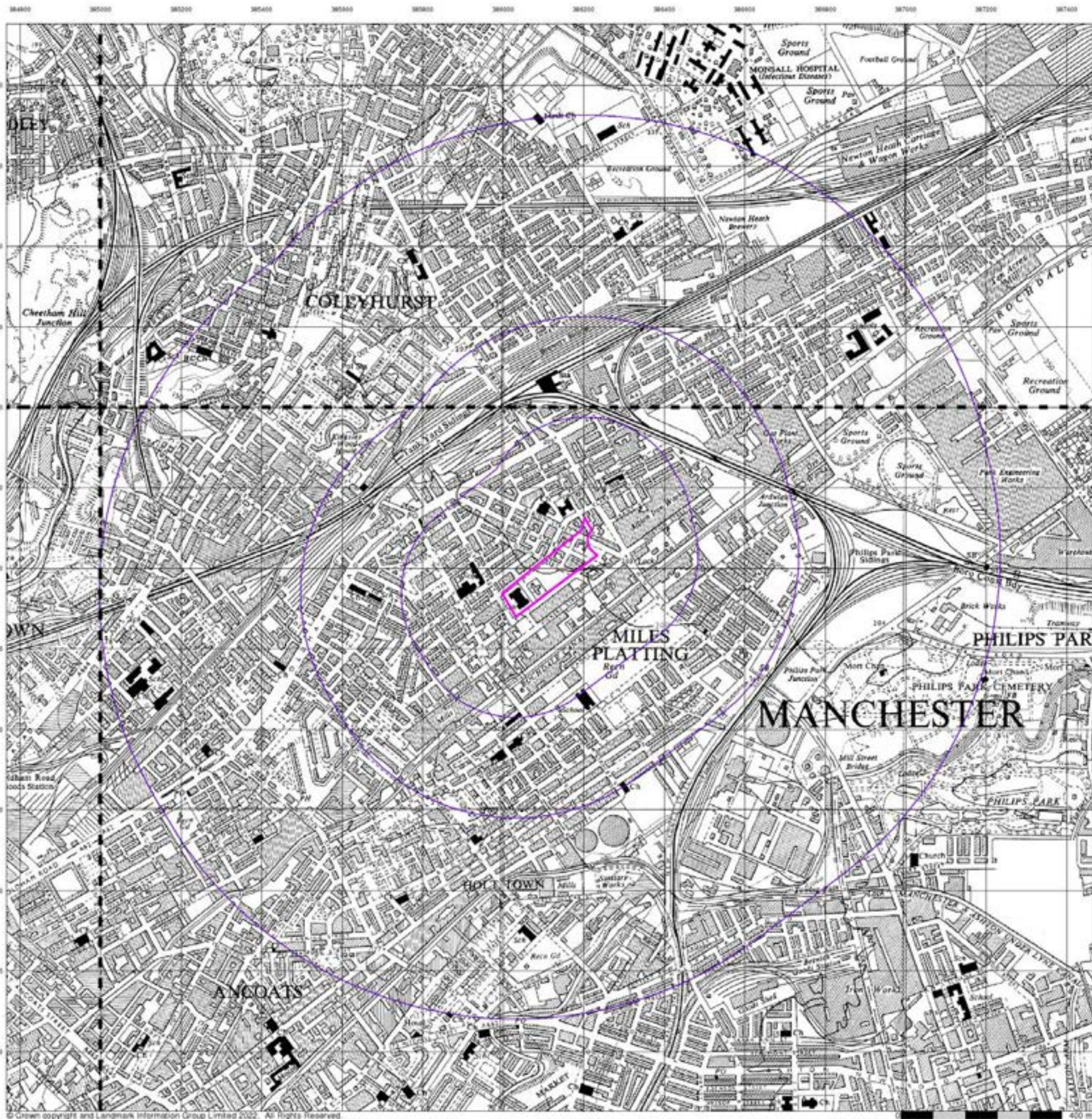


Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



Ordnance Survey Plan

Published 1956

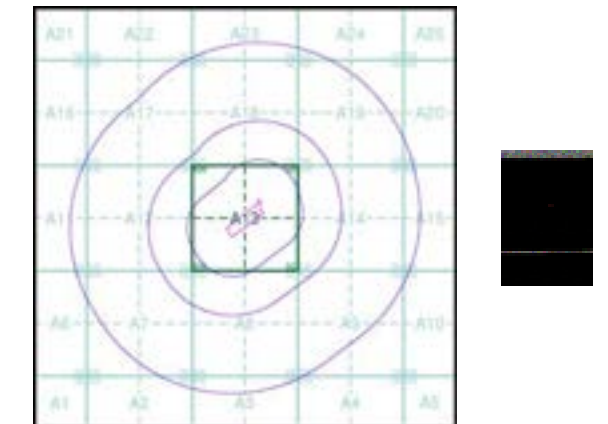
Source map scale - 1:10,000

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SD80SW 1956 1:10,560	SD80SE 1956 1:10,560
SJ89NW 1956 1:10,560	SJ89NE 1956 1:10,560

Historical Map - Slice A

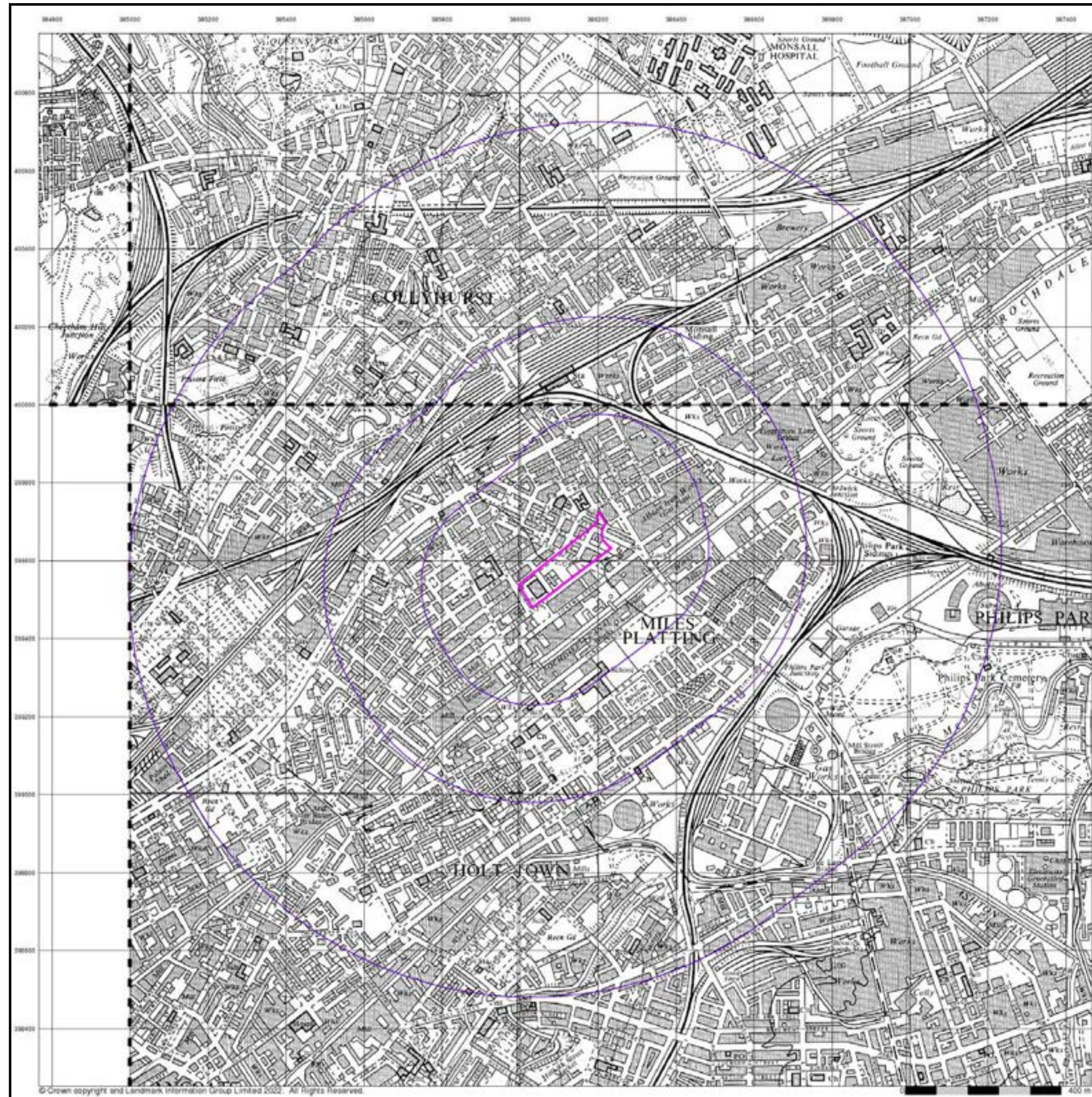


Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details

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Ordnance Survey Plan

Published 1966 - 1968

Source map scale - 1:10,000

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SD80SW
1968
1:10,560

SD80SE
1966
1:10,560

SJ89NE
1968
1:10,560

Historical Map - Slice A

Order Details

Order Number:

291982299_1_1

Customer Ref:

ES020322

National Grid Reference:

386120, 399600

Slice:

A

Site Area (Ha):

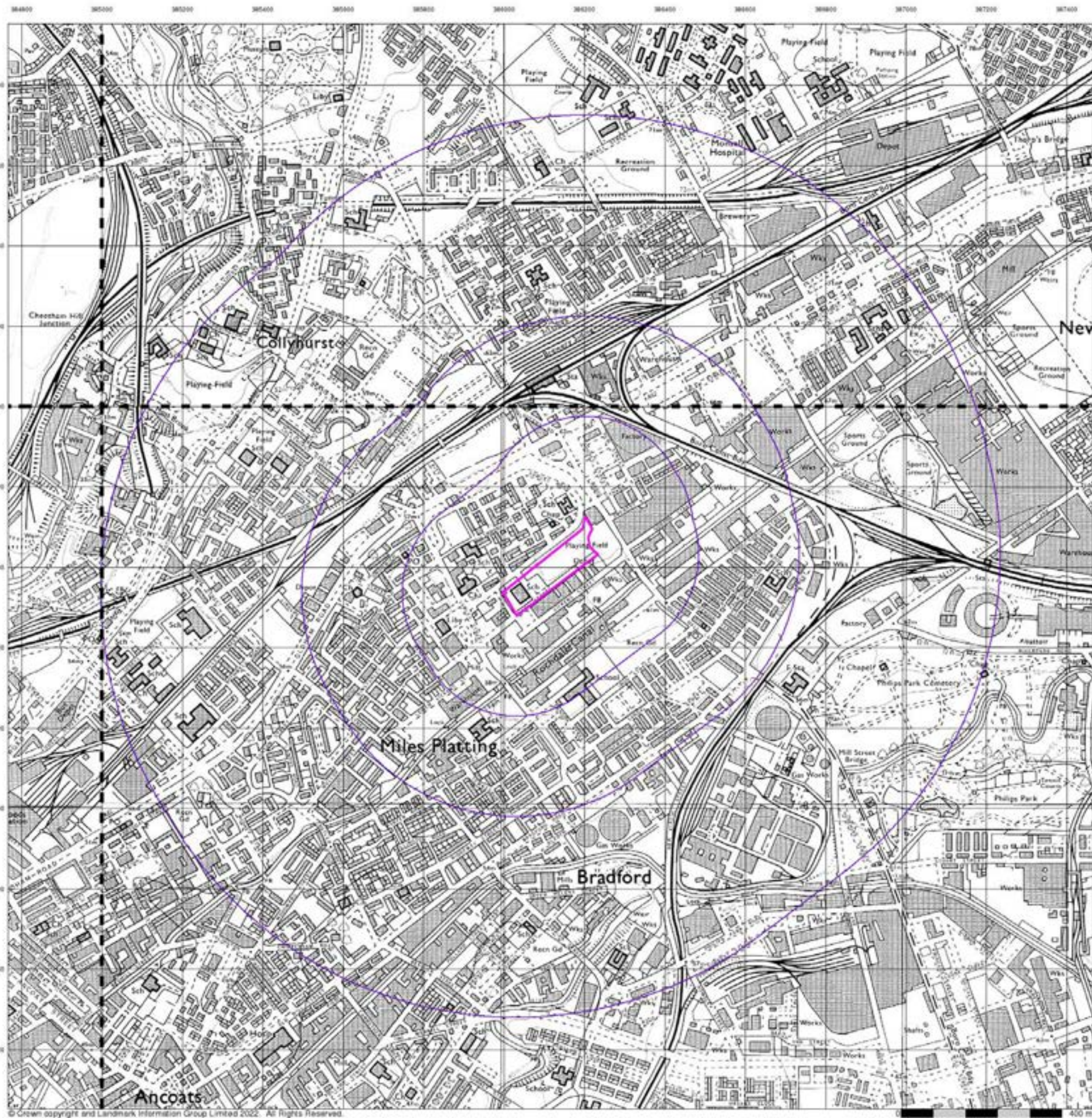
1.83

Search Buffer (m):

1000

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



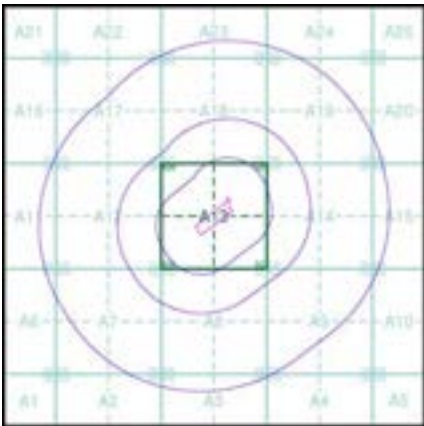
Ordnance Survey Plan
Published 1980 - 1986
Source map scale - 1:10,000

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

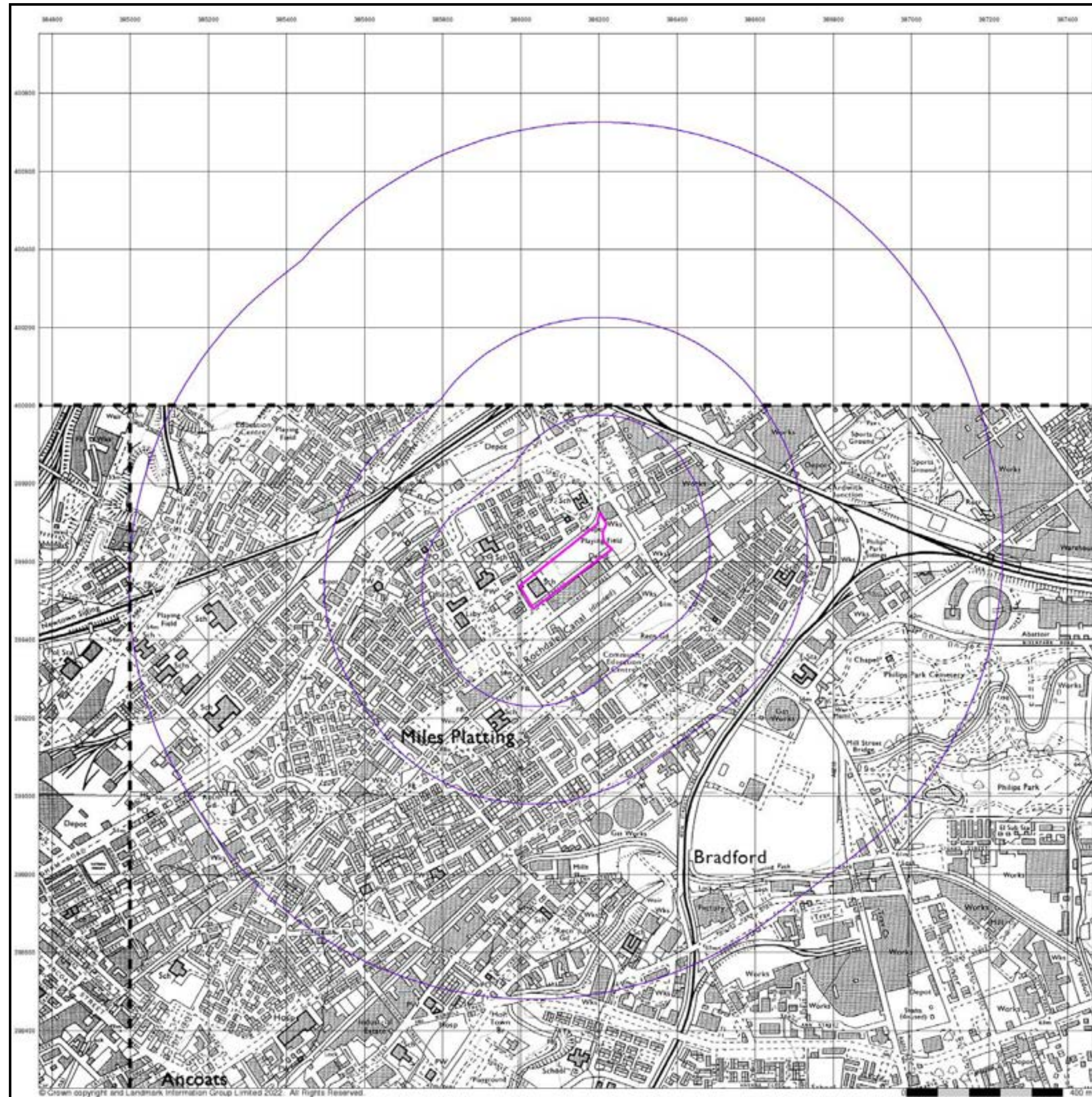
SD80SW 1986 1:10,000	SD80SE 1982 1:10,000
SJ89NW 1980 1:10,000	SJ89NE 1981 1:10,000

Historical Map - Slice A



Order Details
Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details
Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



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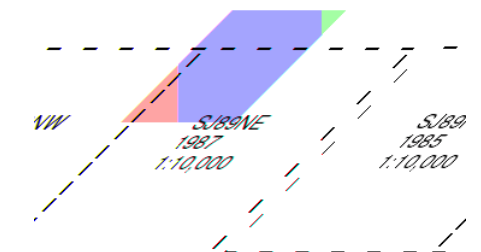
Ordnance Survey Plan

Published 1985 - 1987

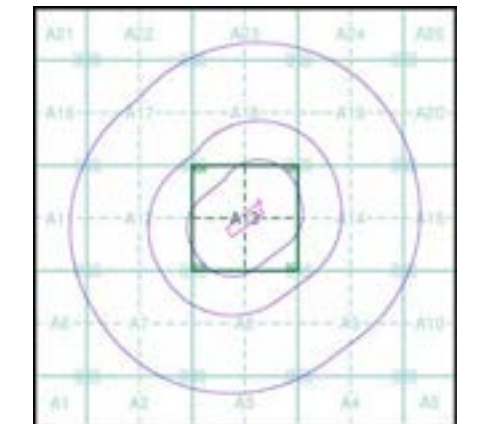
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF



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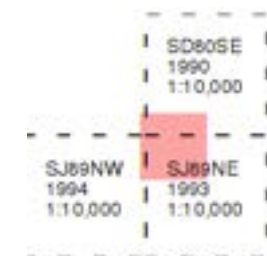
Ordnance Survey Plan

Published 1990 - 1994

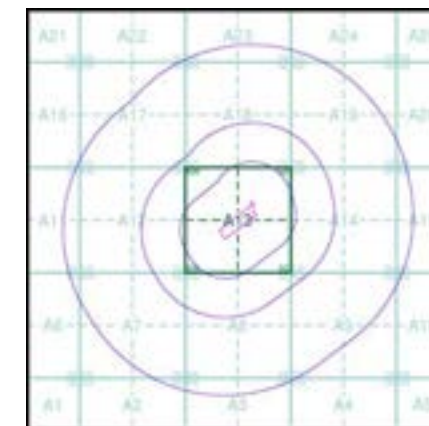
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Map Name(s) and Date(s)



Historical Map - Slice A

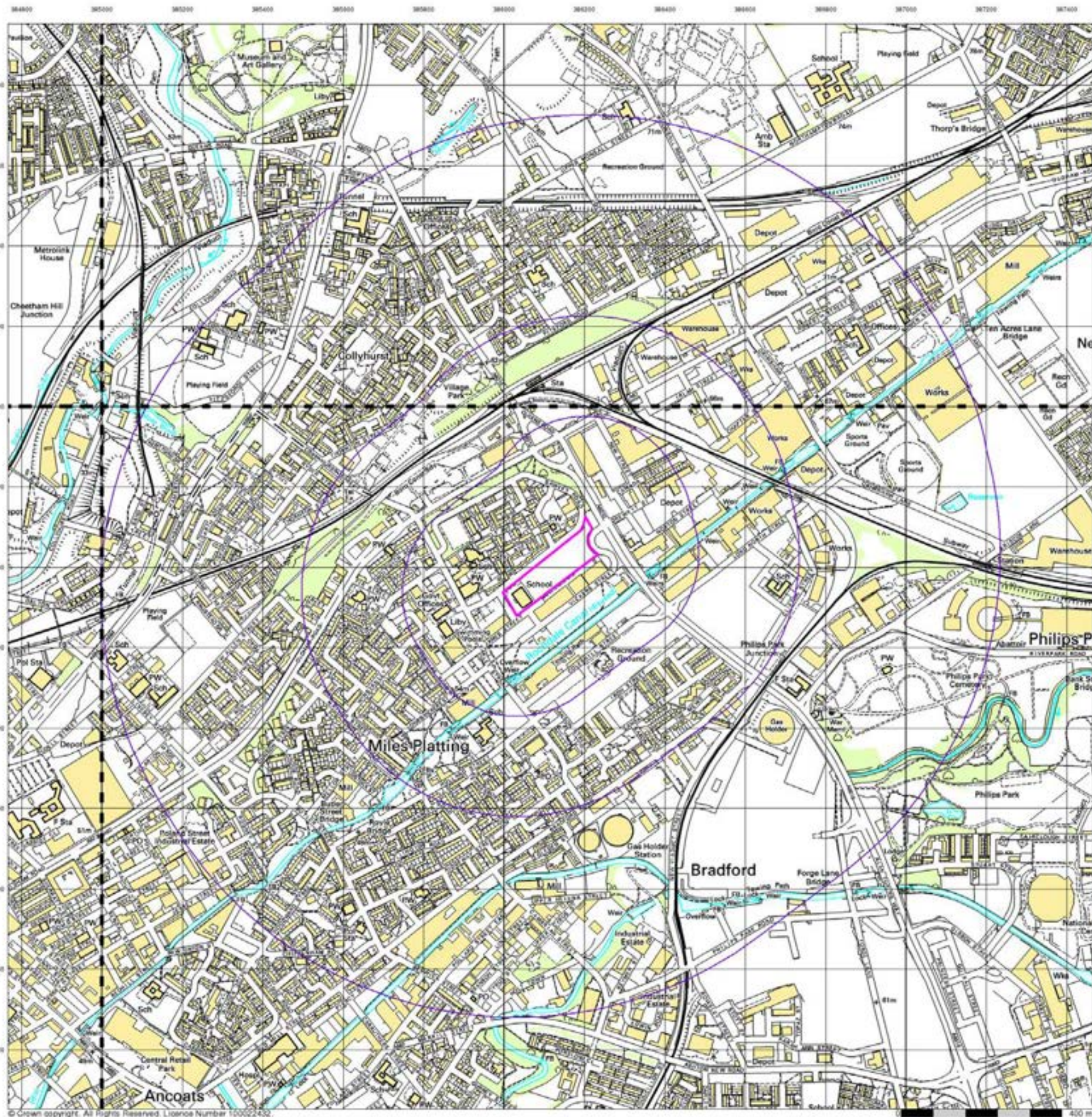


Order Details

Order Number: 291982299_1_1
Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details

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Envirocheck®

LANDMARK INFORMATION GROUP®

10k Raster Mapping

Published 1999

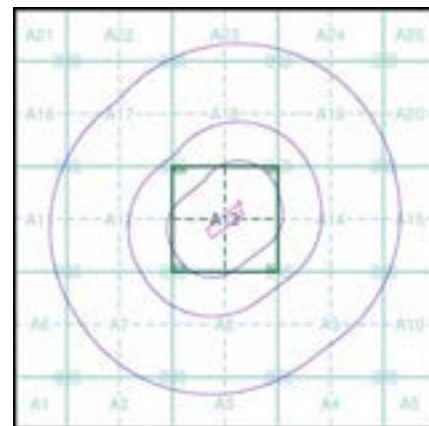
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SD80SW	SD80SE
1999	1999
1:10,000	1:10,000
SJ89NW	SJ89NE
1999	1999
1:10,000	1:10,000

Historical Map - Slice A



Order Details

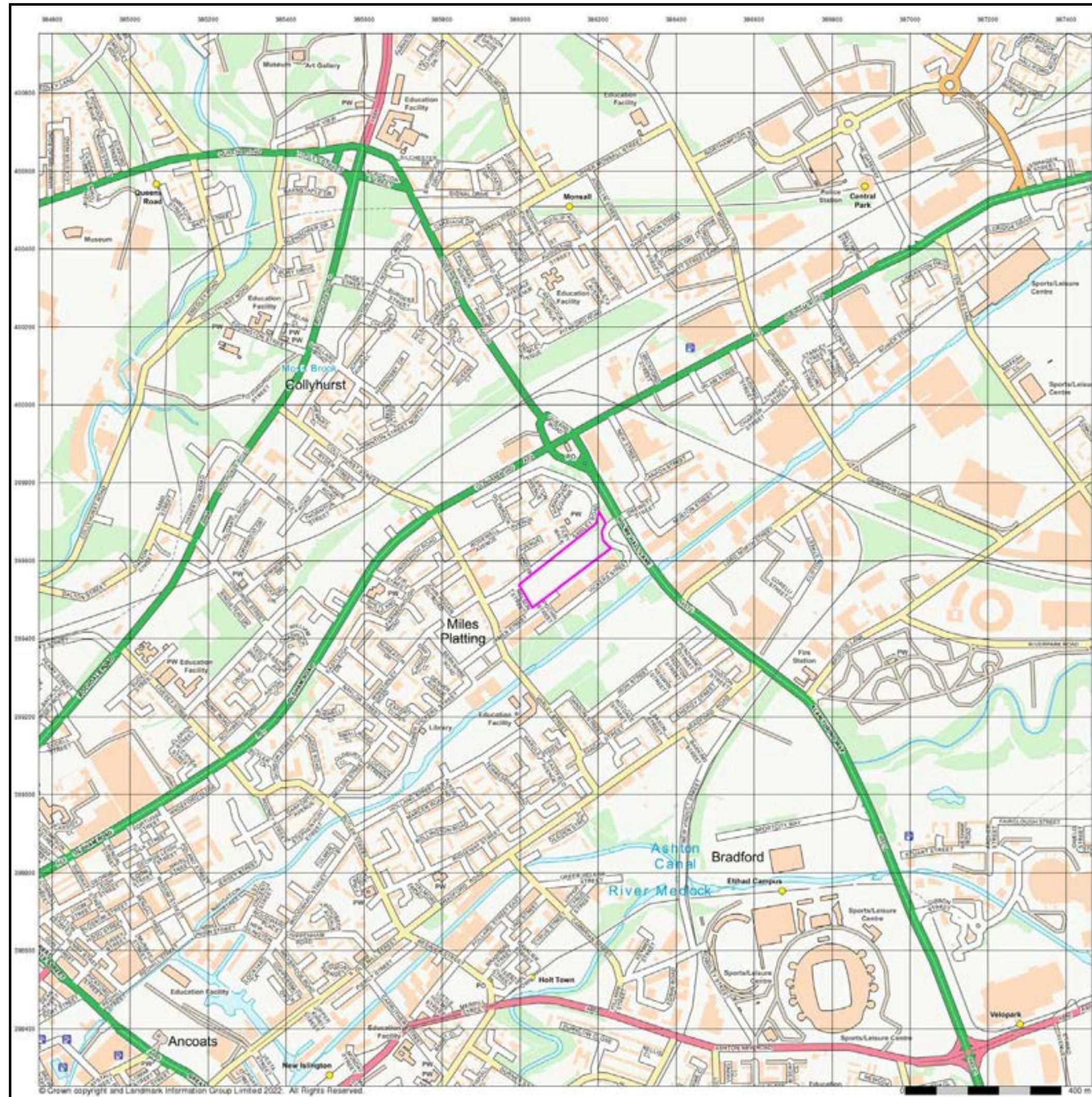
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 Customer Ref: ES020322
 National Grid Reference: 386120, 399600
 Slice: A
 Site Area (Ha): 1.83
 Search Buffer (m): 1000

Site Details

Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

Landmark
 LANDMARK INFORMATION GROUP

Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



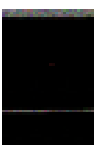
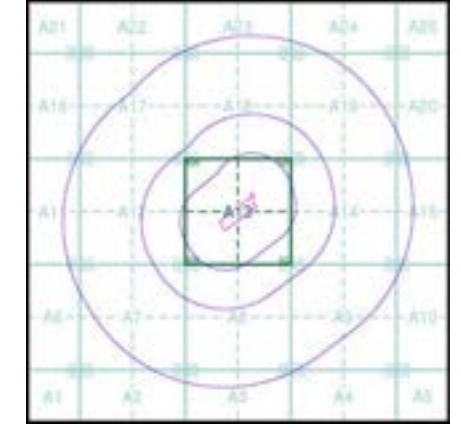
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Street View
Published 2022
Source map scale - 1:10,000
Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)



Street View Map - Slice A

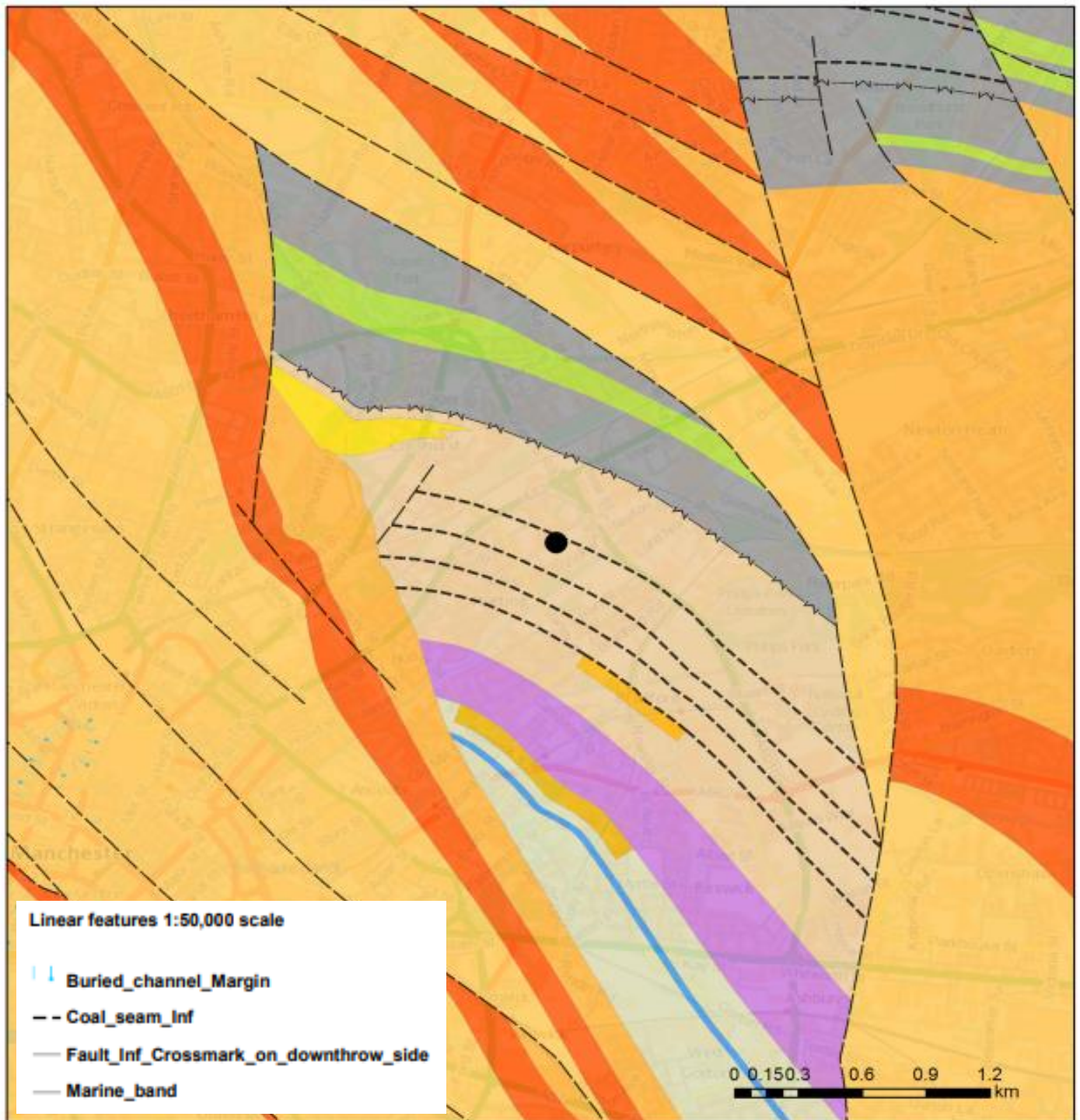


Order Details
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Customer Ref: ES020322
National Grid Reference: 386120, 399600
Slice: A
Site Area (Ha): 1.83
Search Buffer (m): 1000

Site Details
Saville Whittle, Vickers Street, MANCHESTER, M40 8EF

Appendix D – Geological Maps

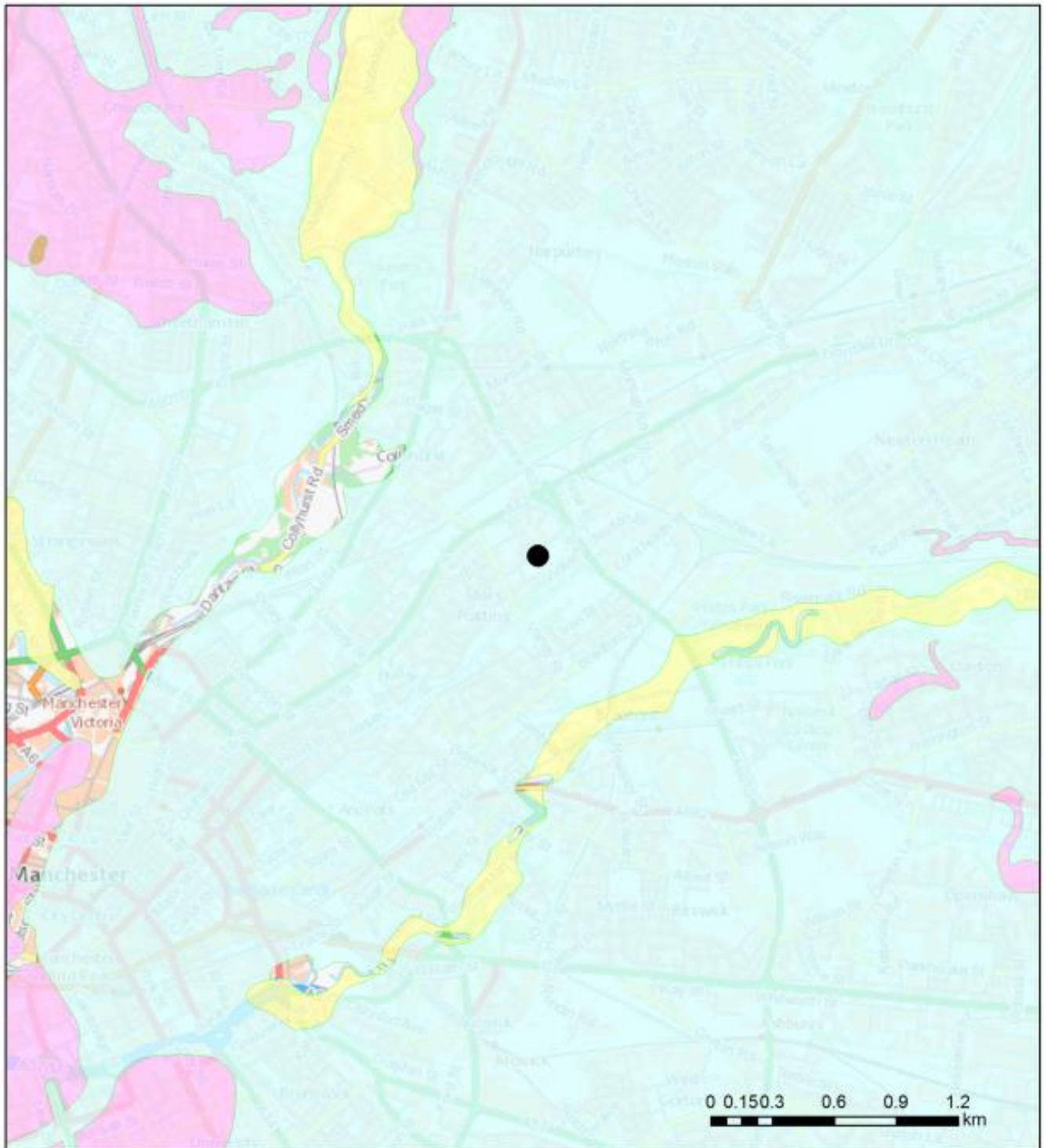
Bedrock Geology



Bedrock geology 1:50,000 scale

- GREAT MINE LIMESTONE - LIMESTONE
- ETRURIA FORMATION - SANDSTONE AND MUDSTONE
- HALESOWEN FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE
- PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE
- PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE
- CHESTER FORMATION - SANDSTONE
- COLLYHURST SANDSTONE FORMATION - SANDSTONE
- NEWTON HEATH SANDSTONE - SANDSTONE
- WORSLEY DELF ROCK - SANDSTONE
- OPENGAW SANDSTONE - SANDSTONE
- MANCHESTER MARLS FORMATION - MUDSTONE
- HOLT TOWN SANDSTONE RED - SANDSTONE

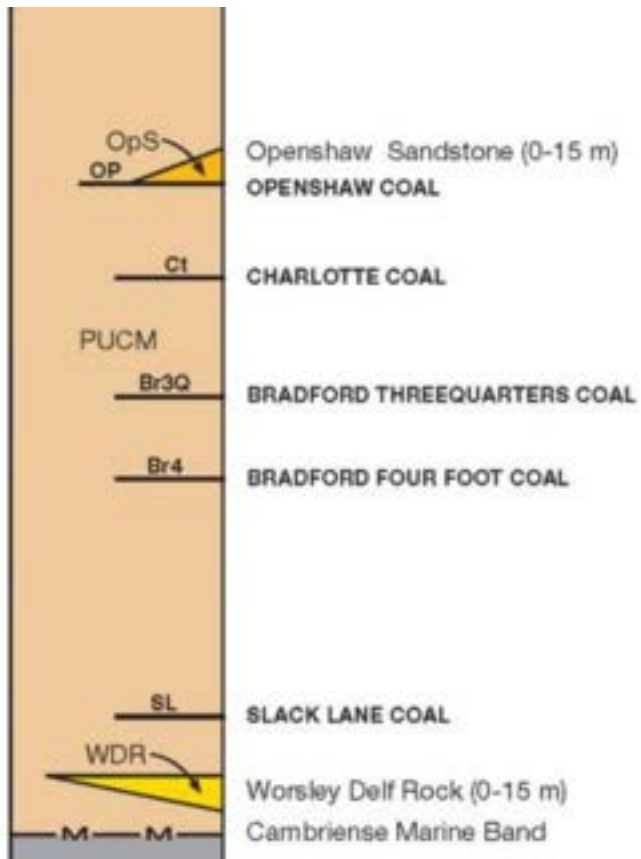
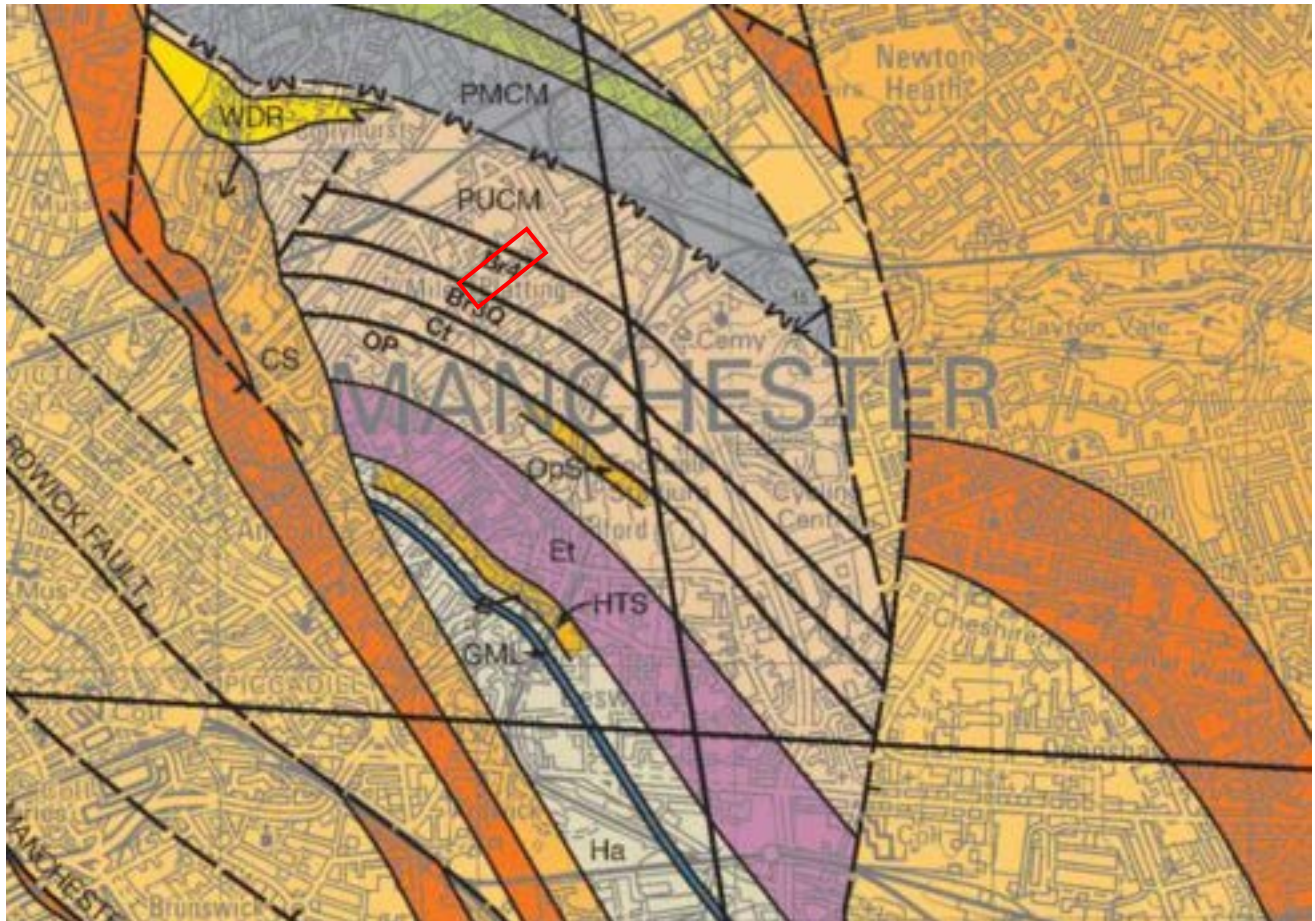
Superficial Geology



Superficial deposits 1:50,000 scale

- GLACIOFLUVIAL DEPOSITS, DEVENSIAN - SAND AND GRAVEL
- TILL, DEVENSIAN - DIAMICTON
- HUMMOCKY (MOUNDY) GLACIAL DEPOSITS, DEVENSIAN - SAND AND GRAVEL
- ALLUVIUM - CLAY, SILT, SAND AND GRAVEL
- RIVER TERRACE DEPOSITS, 1 - SAND AND GRAVEL
- PEAT - PEAT

BGS Geological Survey 1:50,000 Series England and Wales Sheet 85, Manchester



Appendix E – BGS Borehole Logs

SJ89NE195

BOREHOLE LOG

SJ 89 NE / 195

Sit. NELSON STREET PRIMARY SCHOOL.

Job No. 51 569.

Client City Architect - Manchester.

Date Aug / Sept 1974.

Borehole No. 3 (Sheet 1.)

Diameter 8" & 3"

Ground Level Existing.

Scale 1/8th" = 1'-0"

Description	Depth	Legend	Sample	'94' Value	Shrink Strength	Water Levels
			Depth (m)			
Tarmac & concrete	0'-6"		0.18			
Fill - compact brick & ash.	6'-0"		1.83			
Stiff boulder clay with sandstone pieces.	9'-0"		2.74			
Stiff boulder clay with occasional pockets of silty sand.	38'-0"		11.58			
Compact coarse brown sand.	53'-0"		16.15			
Continued on Sheet 2.						

BOREHOLE LOG

SJ 89 NE / 195

Site NELSON STREET PRIMARY SCHOOL

Job No. S.I. 569.

City Architect - Manchester

Date

Borehole No. 3 (Sheet 2.)

Diameter

Ground Level

Scale $\frac{1}{8}'' = 1'-0''$

Description	Depth	Legend	Sample	'N' Value	Shear Strength	Water Levels
	53'-0"		dep R (m) 16.15			
Compact dry clayey silt	58'-0"		17.68			
Stiff brown boulder clay	65'-0"		19.81			
Compact clayey silt with stiff silty clay lenses	72'-0"		21.95			
Very stiff boulder clay	77'-0"		23.47			
Hard dry sandy clay	82'-0"		24.99			
Very compact broken shattered coal (no cavities)	87'-0"		26.52			
Hard clay shale with compact sand seams	90'-0"		27.43			
Hard clay shale with occasional bands of gritstone	100'-0"		30.48			
Continued on sheet 3.						

SJ 89 NE/195

Cont.

Cont.

Diameter ____

Ground Level

Scale

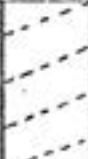
Description	Depth	Legend	Sample	'N' Value	Shear Strength	Water Content
			depth (m)			
	100'-0"		30-48			
Very compact dry silt.	108'-0"		32-42			
Hard gritstone with coal traces.	112'-0"		34-44			
Coal seam.	113'-6"		34-50			
Hard gritstone.	119'-0"		36-47			
Hard - Sandstone.	120'-0"		36-58			

NORTHERN FOUNDATIONS LIMITED

SJ 89 NE/194

BOREHOLE LOG

Site NELSON STREET PRIMARY SCHOOL Job No. SI. 569.
 Client City Architect - Manchester. Date Aug. 1974.
 Borehole No. 1. (sheet 1) Diameter 6"
 Ground Level Existing Scale 1/8" = 1'-0"
 Side plan - see 1218/74/225' engineering

Description	Depth	Legend	Sample	'N' Value	Shear Strength	Water Levels
			depth (m)			
Fill: tarmac overlying ash & brick rubble.	8'-0"		2-44			
Firm plastic boulder clay	9'-0"		2-74			
Boulder clay varying stiff to very stiff.	38'-0"		11-5P			
Compact dry sand.	52'-6"		16-16			
Boulder clay varying stiff to very stiff.	56'-0"		17-07			

Continued on sheet 2.

BOREHOLE LOG

5589 NE/194

Site NELSON STREET PRIMARY SCHOOL

Job No. _____

Client _____

Date _____

Borehole No. 1 (Sheet 2)

Diameter _____

Ground Level _____

Scale _____

Description	Depth	Legend	Sample	'N' Value	Shear Strength	Water Levels
			depth (m)			
	56'-0"		17.07			
Very stiff boulder clay.	58'-0"		17.68			
Compact dry clayey sand.	62'-0"		18.90			
very stiff sandy boulder clay.	71'-0"		21.64			
Very compact dry clayey sand.	90'-0"		27.43			
Hard blue shale.	94'-0"		28.65			
Hard blue shale with coal traces.	97'-0"		29.57			
coal	100'-0"		30.48			
						No ground water.

Appendix F – Coal Mining Summary Map



Bedrock Aquifer



Legend

Aquifer Designation Map (Bedrock) (England)

- Principal
- Secondary A
- Secondary B
- Secondary
(undifferentiated)
- Unproductive

Projection = OSGB36

xmin = 370200

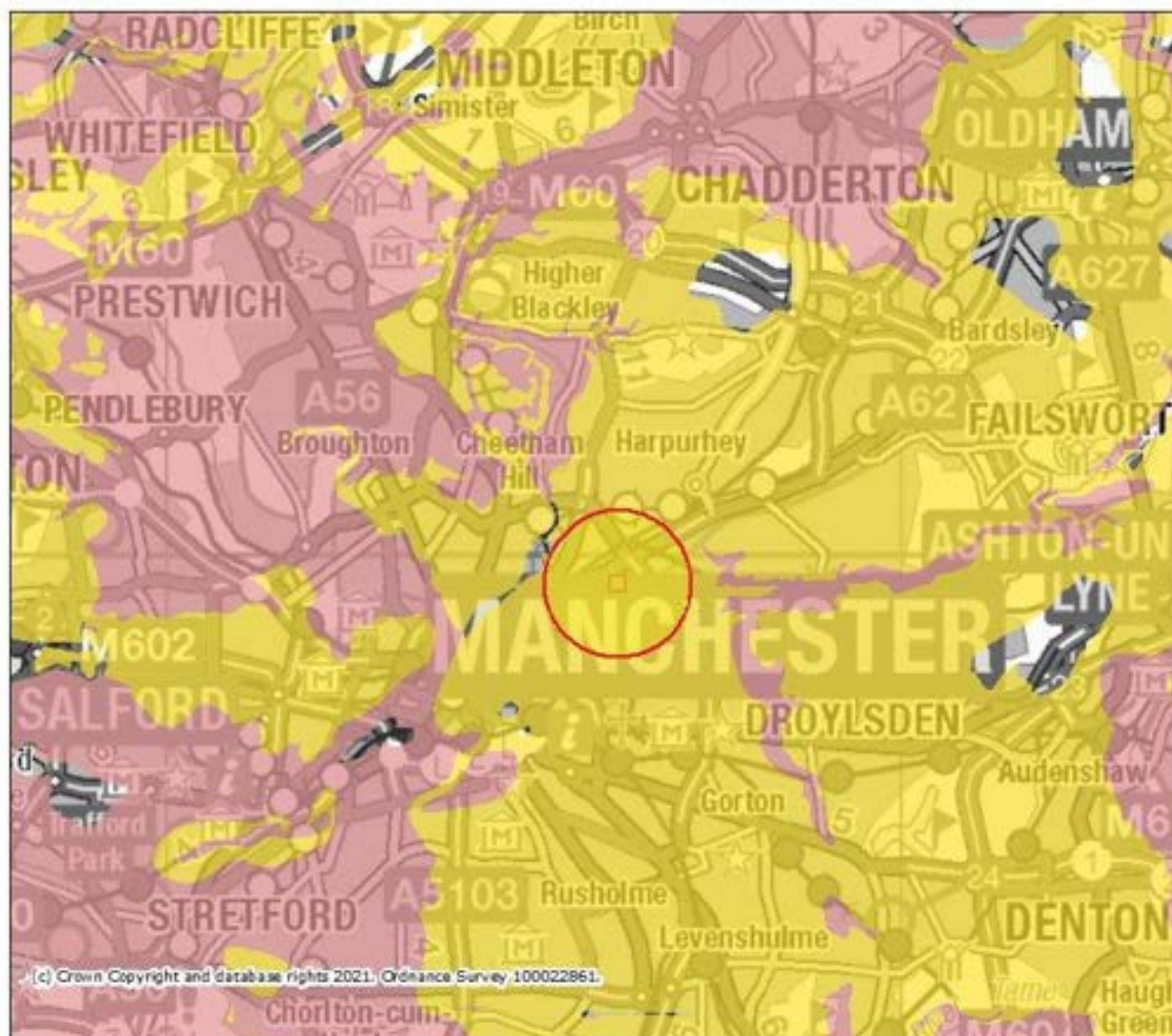
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ymax = 408000

Map produced by MAGiC on 1 February, 2022.

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**Legend****Aquifer Designation Map
(Superficial Drift) (England)**

- Principal
- Secondary A
- Secondary B
- Secondary (undifferentiated)
- Unknown (lakes+landslip)
- Unproductive

Projection = OSGB36

xmin = 370200

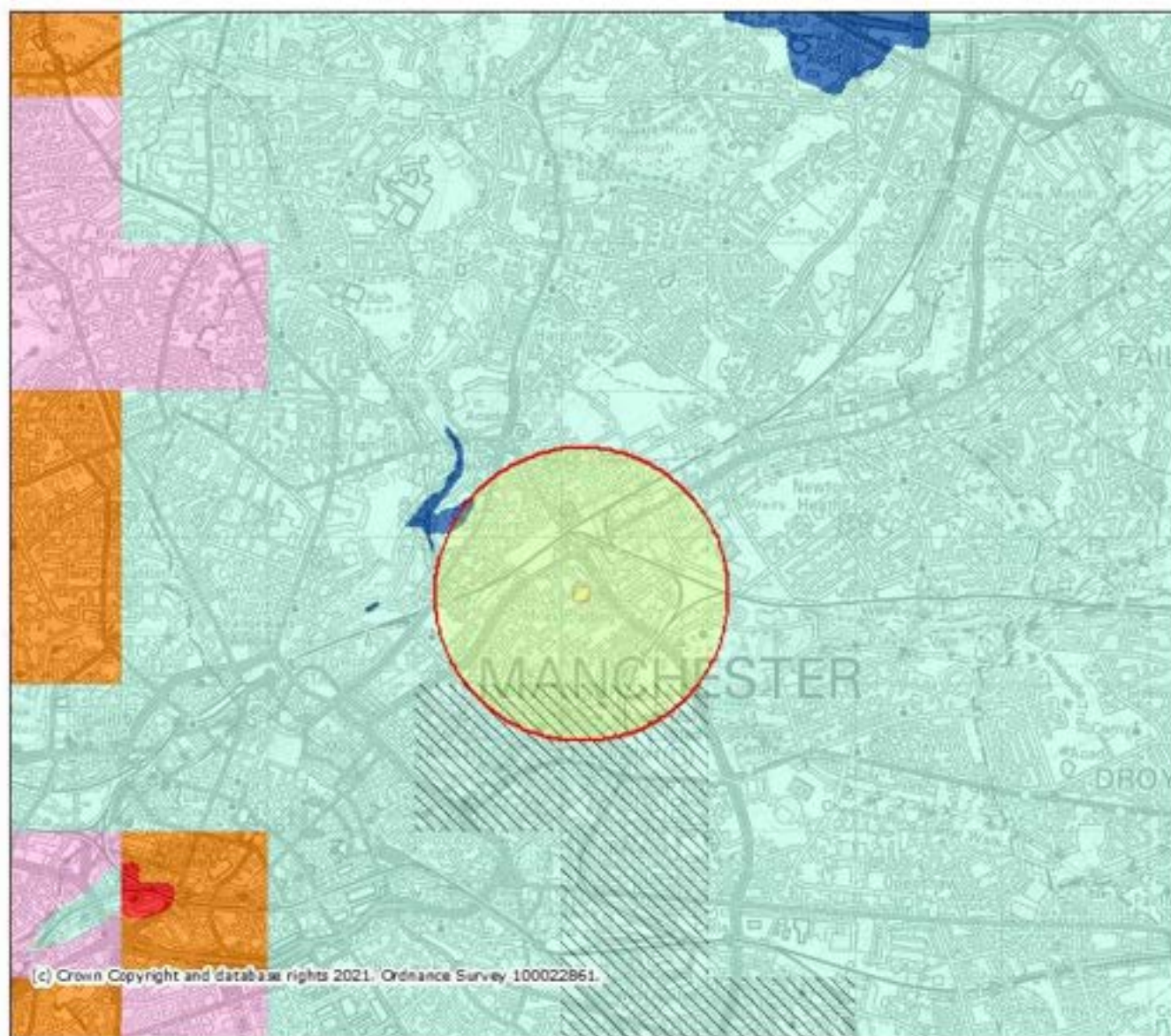
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Map produced by MAGiC on 1 February, 2022.

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**Legend****Groundwater
Vulnerability Map
(England)**

Local Information

Soluble Rock Risk

High

Medium - High

Medium

Medium - Low

Low

Unproductive

Projection = OSGB36

xmin = 378400

ymin = 396300

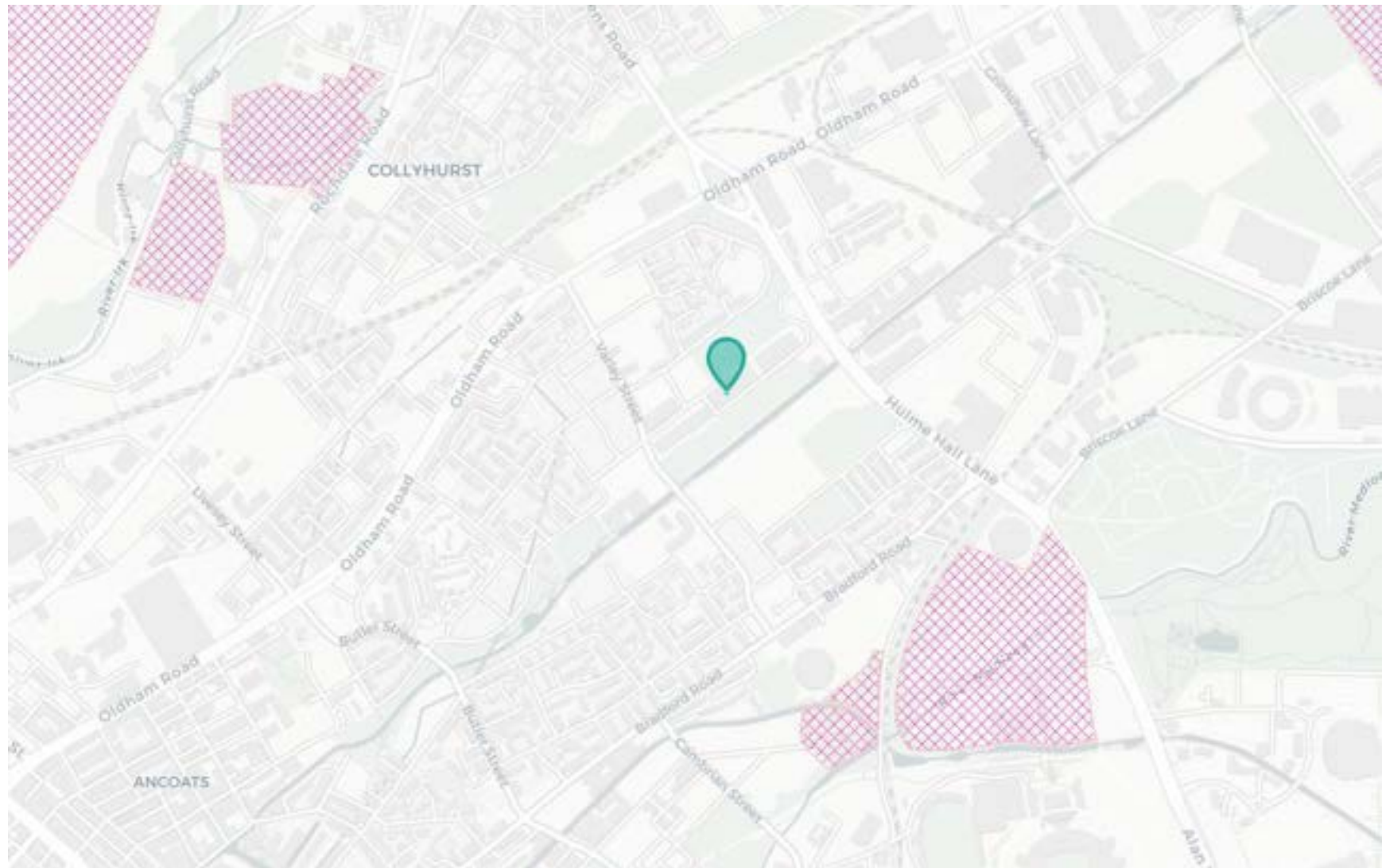
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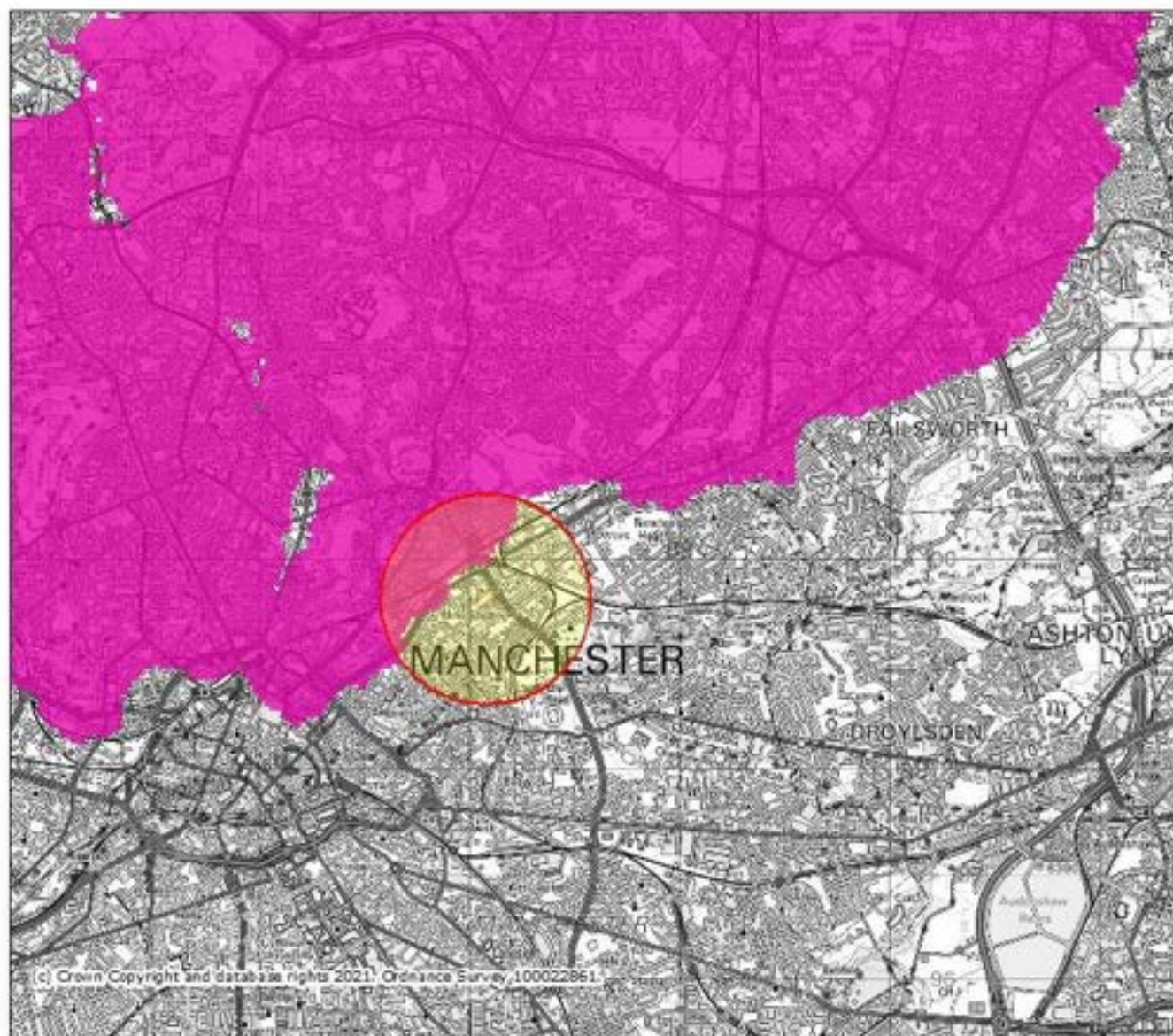
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Map produced by MAGIC on 1 February, 2022.

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Appendix H – Historic Landfill Map





Legend

- Nitrate Vulnerable Zones
- 2017 Designations (England)