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ONE MEDLOCK STREET CONTAMINATED LAND DESK STUDY

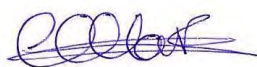


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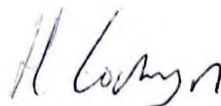
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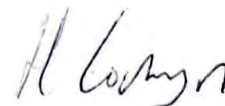
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1. INTRODUCTION

Ramboll UK Ltd (Ramboll) has been appointed by Premier Inn Hotels and Dominvs Group as Multi-Disciplinary Engineer for the development of new residential and office buildings at the existing Premier Inn Site at Medlock Street, Manchester.

Part of this commission is to undertake a Contaminated Land Desk Study in support of the planning application.

1.1. Development Proposals

The demolition of the existing hotel building and structures and the development of the site for office uses (Use Class E), flexible office/community use (Use Class E/F1/F2) and purpose-built student accommodation (Sui Generis) comprising two separate buildings, along with associated ancillary internal and external amenity space, hard and soft landscaping and associated highway works.

1.2. Objectives

The objective of a contaminated land desk study is to provide a preliminary risk assessment identifying potential risks and constraints associated with the ground and groundwater conditions, and any contamination which may be present.

1.3. Scope of Works

The scope of this study is as follows:

- Review desk-based information sources including site history, geology, hydrogeology, hydrology, environmental and regulatory information, radon and ground gas, and unexploded ordnance;
- Review any relevant previous ground investigation reports;
- Establish a contaminated land Conceptual Site Model and undertake a Preliminary Risk Assessment;
- Provide recommendations for a ground investigation to inform the design and construction of the development, and to provide sufficient information to enable potential risks from contaminated land to be established.

1.4. Previous Ground Investigations

No previous ground investigation information has been made available at the time of writing this report.

1.5. Limitations

This report has been prepared for Premier Inn Hotels Ltd and Dominvs Group and shall not be relied upon by any third party unless that party has been granted a contractual right to rely on this report for the purpose for which it was prepared.

This report has been prepared in general accordance with current UK guidance.

The findings and opinions in this report are based upon information derived from a variety of information sources. Ramboll believe these information sources to be reliable. Information from the public register was largely derived from the Envirocheck environmental database; information sources for this database include the Environment Agency, the Coal Authority and other statutory authorities.

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This review has been prepared on the basis of the above information. Ramboll cannot accept any liability for the accuracy or otherwise of any information derived from third party sources.

It should be noted that some of the aspects considered in this study are subject to change with time. Therefore, if the development is delayed or postponed for a significant period, a review should be completed to confirm that no changes have taken place, either at the site or within relevant legislation. The risk assessment detailed in the report is based on the end use specified; if this end use is changed then this risk assessment must be reviewed and amended as appropriate.

References to possible asbestos containing material made within this report do not constitute an asbestos survey. Ramboll are not asbestos specialists and cannot provide specific asbestos risk assessment advice, it is recommended that the Client appoints an asbestos consultant to advise on any matters relating to asbestos.

This report addresses contaminated land issues only. No intrusive ground investigation works were undertaken as part of this study.

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2. SITE DETAILS

2.1. Site Location

The site is located in Manchester City Centre at National Grid Reference 383630, 397190. The site is approximately 0.94 Ha (2.32 acres) in area and is roughly square in shape. A Site Location Plan is presented as **Figure 1**.

2.2. Site Description

A site walkover survey was undertaken by a representative from Ramboll on 18th of April 2019. It is understood that no significant changes have occurred on site since this date. A selection of representative walkover photographs are attached in **Appendix A**. A Site Layout Plan is presented in **Figure 2**.

The site is accessible via River Street at the northern boundary of the site, which comes off Mancunian Way Ring Road.

The site comprises of a five-storey elongated building operated by Premier Inn Hotel (in the east and south east of the site), adjoining car park (in the centre and the west) and vegetation in the south of the site. An electricity sub-station is located within the building, at the northern site boundary. In addition, there are six air-conditioning units located around the entrance of the hotel.

Limited areas of soft landscaping have been noted in the car park, comprising of trees and bushes. At the time of the site walkover, a storage container and a waste skip were noted in the south of the site. Litter was observed in the south of the car park. Some localised car oil staining was noted in the car park.

The site is largely covered with concrete hardstanding which appeared to be in good condition. In areas of pedestrian walkways and around the building, concrete slabs were noted. Drainage runs were observed in the car park and appeared to be in a good condition. Manhole covers and lamp posts were observed around the hotel building and the car park, indicating presence of various utilities below the site.

The southern site boundary is vegetated with grass, shrubs and trees. This area sits approximately 1.3m higher than the car park, and due to a brick wall separating the two, can be accessed from the south. There is a high-mast lighting pole and electric cabinet located at the southern tip of the site.

The site is bound to the north and west by a two-metre high brick wall with metal palisade (which also separates the vegetation area and the car park to the south of the site). The building acts as a boundary of the site to the east.

2.3. Surrounding Land Use

The site lies within an area characterised by suburban residential development, but including mixed use of residential, educational, commercial and open space.

The site is bound to the:

- North by semi-detached residential apartments and offices;
- East by Medlock Street with the First Street Development of mixed office and residential use beyond;
- South by Mancunian Way and residential housing beyond; and
- West by construction site with a high rise building in construction, with former industrial warehousing beyond which is currently used as a car park.

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2.4. Topography

The site is generally flat, however there is a distinct level difference on the northern boundary at the corner of River Street and Medlock Street.

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3. SITE HISTORY

The site history has been derived from the 1:500, 1:1,250, 1:10,560 and 1:10,000 scale historical Ordnance Survey maps provided in the Envirocheck report included within **Appendix B**. A summary of the main features has been provided in Table 3.1 below. Potentially contaminative historic land uses are highlighted in ***bold italics***.

Table 3.1: Summary Site History

Date	Significant Land Uses and Changes in Use	
	On Site	Off-site
1848, 1851	The site is shown as terraced housing with Hibbert Street, Clegg Street and Duke Street running north east to south west with the Globe Inn in the SE corner of the site and the George Inn in the NW corner of the site.	The surrounding land is predominantly residential and industrial with terraced housing east, south and west and <i>Medlock Street Glass Works</i> approx.70m N along with <i>Brewery, Store house, reservoir</i> and Stables at the same location. George Street Methodist Chapel is shown adjacent to the south western site boundary. There is <i>Medlock Street Dye Works</i> shown approx. 50m NE with a meander of the River Medlock immediately beyond; <i>Cotton Mill</i> approx. 100m NE; <i>Manchester Gas Works</i> approx. 150m NE; <i>Cambridge Street Works with gasometer, tanks and boiler houses</i> approx.200m NE.
1891, 1894-1896	-	A school is noted approx. 20m NW of the site. The <i>Medlock Street Dye Works, Cotton Mill and Manchester Gas works</i> are no longer present, the area is shown as part of <i>Gaythorne Gas Works</i> with <i>6 large gasometers, railway sidings, Chimneys and tanks</i> which is shown approx. 20m NE. The Medlock Street Glass Works is shown as <i>Victoria Foundry</i> . The <i>reservoir is no longer present</i> . St Marks Church is very close to the former reservoir approx. 200m NE of the site with <i>tramway</i> immediately beyond the church.
1908,1923,	The western area of the site is shown as a school.	Cambridge Street Works is shown as <i>Cambridge Street Rubber Works</i> approx. 200m NE. Housing clearance is shown approx. 150m east.
1932	The centre of the site is shown on the 1:10,000 map is shown to have been cleared. However, housing is still present on the 1:2,500 map. Therefore, a discrepancy of the time of the clearance.	The land immediately E of Medlock Street is shown on the 1:10,000 map as cleared and vacant. However, on the 1:2,500 map terraced housing is present onsite. Therefore, a discrepancy of the time of the clearance.
1938	The school is still present in the western area of the site, and the Globe Inn in the SE corner of the site, however, everything else has been <i>demolished</i> and appears vacant.	The area immediately W, SW and S of the site has been cleared with a <i>Fire Station</i> approx. 180m SW.
1948-1950, 1951, 1954, 1956,	-	Cambridge Street Rubber Works is now shown as <i>Dunlop Rubber Works</i> and has extended up to Medlock Street approx. 20m E of the site. <i>Two Timber Yards, two Printing Works, Victoria Engineering Works, and electrical wire and tape works and saw mill</i> noted immediately N of the site. <i>Industrial buildings</i> shown adjacent to the W shown as <i>PO telephones Depot</i> in 1956. The school (approx. 20m N) is now shown as an <i>Auto-Engineering Works</i> and St Marks Church (approx. 200m N) is no longer shown. There are various industrial works noted within 300m of the site to the

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Date	Significant Land Uses and Changes in Use	
	On Site	Off-site
		SE and S including engineering works, clothing factory, coal yard, printing works, chain factory and Gaythorn Works (food production) .
1969, 1972	The site is vacant apart from the former school in the W now shown as John Dalton College of Technology.	Mancunian Way has been constructed immediately south of the site. There are only three out of the six gasometers shown at Gaythorn Gas Works.
1980, 1985	The building onsite is now shown as Manchester Polytechnics (Gaythorn House).	Gaythorn Gas Works is now shown to have two gas holders and shown as a gas holder station and depot .
1987, 1989, 1990	-	Gaythorn Gas Works no longer shown, the majority of site is shown as a car park .
1992, 1994	-	<i>Gaythorn Gas Works has been redeveloped</i> and a building in the centre of the site shown as the British Council with associated car parking and soft landscaping. Offices are shown in the area of former industrial buildings immediately N of the site.
1999	The site is completely vacant.	Land immediately N on River Street has been cleared of buildings.
2000	Aerial photography shows the site to be a construction site with the building layout as shown today.	Land immediately east and west are shown as car parks . Land immediately N is shown as a construction site for what appears to be residential apartments.
Present	Hotel shown with associated car parking and soft landscaping.	Site immediately W is vacant.

Notes:

- No significant changes in use

Potentially contaminative historic land uses are highlighted in **bold italics**.

In summary, the following potential historic contamination sources have been identified:

On site

- **Demolition of housing and public houses:** potential for underground structures still present onsite.
- **Construction and Demolition of School/Manchester Polytechnic Building:** potential for underground structures still present onsite, and
- **Construction of Hotel and associated car parking**

Off-site

- **Glass Works, Brewery, Infilled Reservoir, Victoria Works (foundry then later engineering works), saw mills, printing works, timber yards, electrical wire and tape works immediately N of the site.**
- **Auto-Engineering Works** approx. 20m N
- **Medlock Street Dye Works** approx. 50m NE
- **Cotton Mill** approx. 100m NE
- **Manchester Gas Works**, approx. 150m NE
- **Gaythorn Gas Works** approx. 20m NE
- **Cambridge Street Rubber Works** approx. 200m NE
- **Dunlop Rubber Works** approx. 20m E
- **Tramway** approx. 200m NW
- **Various industrial buildings including engineering works, clothing factory, coal yard, printing works, chain factory and Gaythorn Works (food production)** within 300m

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- **Various car parks** within 100m of the site
- **Depot** immediately W of site
- **Construction and demolition of various buildings, works and depots etc** over time within 100m of the site.

3.1. Unexploded Ordnance

The Zetica Regional UXB Risk Map for Manchester shows the site to be located in an area of moderate risk from unexploded ordnance.

A separate UXO risk assessment report was commissioned to inform risks during ground investigation and development. This is provided in Alpha associates 2019, 'Detailed Unexploded Ordnance (UXO) Threat & Risk Assessment'. This concluded a rating of High risk for the site and stated: 'This site requires further action to reduce risks to ALARP [as low as reasonably possible] during intrusive activities'.

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4. ENVIRONMENTAL SETTING

The information provided within this section is based primarily on information from the following sources:

- British Geological Survey (BGS): <https://www.bgs.ac.uk/>;
- Environment Agency (EA): <http://maps.environment-agency.gov.uk>;
- Coal Authority: <http://mapapps2.bgs.ac.uk/coalauthority/home.html>;
- Public Health England: <http://www.ukradon.org/>;
- Natural England: <http://www.magic.gov.uk/>;
- Envirocheck report.

4.1. Published Geology, Hydrogeology and Hydrology

Published information is summarised in Tables 4.1- 4.3 below.

Table 4.1: Geological Features

Feature	Details
Geology	BGS Sheet 85 shows the geology to be Glaciofluvial Sheet Deposits overlying the Chester Formation of Sandstone. Although not shown on the BGS maps, Made Ground is likely to be identified onsite due to previous developments of the site. The Glaciofluvial Sheet Deposits are described by the BGS as "Sand And Gravel. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions (UGF)". The underlying Chester Formation is described by the BGS as "Sandstone. Sedimentary Bedrock formed approximately 247 to 250 million years ago in the Triassic Period. Local environment previously dominated by rivers". From previous knowledge of sites very close to this, the underlying sandstone bedrock is highly weathered in some locations. There are several borehole logs noted on the BGS website for the site, however these are confidential (SJ89NW4070, SJ89NW4071, SJ89NW4072, SJ89NW4073, SJ89NW4074, SJ89NW4075, and SJ89NW4076). The nearest available historical borehole log (SJ89NE116), approximately 100m north of the site, obtained from the BGS website (http://scans.bgs.ac.uk/sobi_scans/boreholes/1042258/images/12295467.html) show ground conditions to comprise stone, clay and sand underlain by Sand and ballast, which is underlain by Sandstone. The borehole records are presented in Appendix C.
Geohazards	The Envirocheck report states that the site is at very low or no risk from the following ground stability hazards: • Collapsible Ground • Compressible Ground • Ground Dissolution • Running Sand • Shrinking or Swelling Clay • Landslides No assessment of the validity of these risk classifications has been made at this stage.
Radon	The property is not in a radon affected area, as less than 1% of homes are above the action level No radon protective measures are therefore necessary in the construction of new dwellings or extensions
Ground gas	There is potential for ground gas to be generated from Made Ground and any organic material associated with the superficial deposits at the site.
Mineral extraction	The site is not within an area potentially affected by past coal mining activities. However, the site is in an area where reserves of coal exist and could be worked at some time in the

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Feature	Details
	future. A coal mining report has been obtained for the site and is included within Appendix D. The site is not within a brine compensation area. There are no BGS recorded mineral sites within 1km of the site.

Table 4.2: Hydrogeological Features

Feature	Details
Aquifers	The underlying Glaciofluvial sheet deposits are classified as a Secondary A Aquifer. The underlying Chester Formation is classified as a Principal Aquifer. The groundwater vulnerability is designated as high.
Groundwater depth	Unknown
Groundwater quality	Unknown
Groundwater abstractions and Source Protection Zones	The site is approx. 110m E from a Zone 3 of a groundwater source protection zone (SPZ) defined to protect water supply abstractions. The Envirocheck report has records of 4 groundwater abstractions within 1km of the site. The closest being 400m S for Manchester Metropolitan University for heat pump and general use.

Table 4.3: Hydrological Features

Feature	Details
Surface water features	The nearest surface water feature is the River Medlock which is culverted approx. 180m north of the site. The Envirocheck report states Corn Brook is approx. 220m S of the site.
River Quality	River Medlock is shown as River Quality E. Corn Brook is shown as River Quality C.
Surface water abstractions	None active within 1km of the site.
Drainage features	None
Flooding	Not in flood risk zone. There are two small areas on the site which are shown as a low risk from surface water flooding.

4.2. Environmental Records

Environmental permits, licences, consent provide an indication of potentially contaminative activities in the local area. Potentially sensitive sites in the area are considered as potential receptors. The key environmental records are summarised in Table 4.4.

Table 4.4: Environmental Records

Records	Details
Discharge Consents	The Envirocheck report lists 30No. discharge consents within 500m of the site, the closest of which is for United Utilities Water Ltd approx. 110m NE of the site for <i>Storm Sewage Overflow</i> into an unknown receiving water.
Pollution incidents	The closest incident is noted to be approx. 80mW on Mancunian Way for a chemical Irgasol in to the drains on 7 th September 1998, causing a minor

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Records	Details
	(Category 3) incident. There are a further three incidents noted within 500m of the site, all minor (Category 3) incidents.
Landfill and waste sites	None within 250m of the site
Regulated activities	There are 6No. Local Authority Pollution Prevention and Control records within 1km of the site with only 3No. authorised or permitted. The closest authorised record is 335m NW for Tom Garner Motors for the respraying of motor vehicles.
Contemporary Trade Directory Entries	There are 51No. entries within 500m of the site. However, only 7No. are active entries, the closest being 150m NE for Auto-traders car customisation and conversion specialists. The other entries are for printers, car dealers and garage services, gas suppliers, pest and vermin control, tyre dealers, furniture equipment and mirror sales, pattern makers, textile manufacturers, photographic processors, printers, book binders, china and glassware manufacturers and repairs, mechanical engineers.
Fuel Station Entries	There are four records of fuel stations within 1km of the site. However, only one is active, approx. 850m S for Asda.
Potentially Sensitive Sites	None within 1km of the site
Enforcement and Prohibition notices	Manchester Children's hospital were in breach of their conditions regarding the accumulation of radioactive wastes, 4 th August 1995.
Registered Radioactive Substances	There are 20no. records within 1km of the site. However, these relate to only five locations. The closest being approx. 380m E of the site for The John Dalton Building, Manchester Metropolitan University.

4.3. Previous Ground Investigation

No previous ground investigation reports have been made available to Ramboll at the time of writing this report.

The planning conditions for the current site use (055877/FO/CITY3/99) did not require a site investigation. However, the BGS borehole locations show several boreholes onsite, presumable for the construction of the existing hotel and car park. These records are confidential and so Ramboll has not been able to view them.

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5. GROUND CONTAMINATION – RISK EVALUATION

5.1. Conceptual Site Model

The information presented in the previous sections of this report has been collated and evaluated to develop an preliminary conceptual model for the site. Further details of the legislative context and background to assessment methodologies are provided in **Appendix E**.

5.1.1. Potential Sources

The potential contamination sources are summarised in Table 5.1.

Table 5.1: Potential Sources

Source	Key Potential Contaminants
ON SITE	
Former buildings and dwellings	Metals, hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), asbestos-containing materials (ACMs), pH
Made Ground	Metals, hydrocarbons, ACMs, PAHs, pH, ground gas
Ground gases from either Made Ground or natural superficial deposits	Ground gas
Car parking onsite	Hydrocarbons, PAHs, metals
OFF SITE	
Gas Works including gasometers	Hydrocarbons, ACMs, PAHs, metals, cyanide, phenols, pH, semi volatile organic compounds (SVOCs), volatile organic compounds (VOCs)
Infilled reservoir	ACMs, hydrocarbons, metals, PAHs, ground gas
Industrial land uses including engineering works, timber yards, glass works, saw mills, cotton mill, rubber works, depots, warehouses, car parking	Pesticides, herbicides, hydrocarbons, ACMs, nitrates, ammonia, metals, pH, ground gas, SVOCs, VOCs.

There is also a potential for UXO on site, this is being considered further through commission of a separate UXO risk report and is not considered further herein.

5.1.2. Receptors

The site-specific receptors that could potentially be affected by the contamination hazards are summarised in Table 5.2.

Table 5.2: Potential Receptors

Receptor	Details
ON SITE	
Site development workers	Site development workers are likely to come into direct contact with the underlying ground conditions during the redevelopment; they may be exposed to ground gases or vapours when working in confined spaces, or to dust or fibres during excavation and stockpiling activities, <i>etc.</i>
Future site users	Future site users (<i>e.g.</i> office workers, residents) may come into direct contact with the underlying ground conditions in areas of soft landscaping <i>etc.</i> ; ground gases may accumulate in void spaces and migrate inside buildings; future site users may also be exposed to dusts or fibres in areas of soft landscaping, <i>etc.</i>

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Receptor	Details
Adjacent site users	Adjacent site users (e.g., residential properties in the vicinity of the site, office workers in the vicinity of the site, members of the public passing the site) may be exposed to wind-blown dusts or fibres.
Underlying aquifer	Superficial deposits classified as a Secondary A Aquifer; Bedrock aquifer classified as Principal Aquifer.
Construction materials	Buildings materials used below ground, e.g., foundations and services.
Flora/fauna	There is likely to be limited soft landscaping areas associated with this development.
OFF SITE	
Local watercourses	The River Medlock is shown approximately 180m N of the site.
Adjacent site users and structure	Housing, offices, car parks.

5.1.3. Pathways

In order for the potential contaminants to pose a risk to the identified receptors, there has to be a viable pathway for the contaminant. The potential pathways are summarised in Table 5.3.

Table 5.3: Potential Pathways

Receptor	Pathway	Comments
Human health, fauna	Direct contact with contaminated soils	This is likely to be a key pathway for site development workers. The site is likely to have limited soft landscaping area for the site users to come into contact with any underlying soils.
Human health and fauna	Inhalation of dusts, vapours and fibres	Inhalation of dusts, vapours or fibres is likely to be possible in areas of soft landscaping, or during the construction process to adjacent site users. Any organic material or hydrocarbon impacts identified in soils and groundwater have the potential to generate ground gases which have the potential to migrate and build-up in particular in buildings and confined spaces.
Flora	Direct contact with impacted soils and root uptake	As there are limited areas of soft landscaping proposed it is unlikely that this is a key pathway.
Water environment	Leaching and vertical migration of soil impacts to groundwater	As the site is currently mainly hardstanding for car parking with minimal soft landscaping, and the development proposal are to include hardstanding over the majority of the site, there is little potential for rainfall infiltration, leaching and contaminant migration at the site.
Water environment	Migration of contaminants via groundwater to surface water courses and underlying aquifer	The geology is likely to comprise Glaciofluvial Sheet Deposits over the Chester Formation. The site is in an area of high groundwater vulnerability. Glaciofluvial Sheet Deposits and Chester Formation are likely to be significantly permeable.
Buildings and structures	Damage to building materials or services through direct contact with contaminants or through contaminant migration	Aggressive ground conditions or contaminants such as hydrocarbons may affect subsurface construction materials and in particular water supply pipes. Sulphate concentrations will affect the concrete classification required.

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5.2. Qualitative Risk Assessment

Potential pollutant linkages are identified using the source-pathway-receptor framework detailed above. An assessment of the potential significance of each linkage is then made by consideration of the likely magnitude and mobility of the source, the sensitivity of the receptor and nature of the migration/exposure pathways. A visual representation of the Conceptual Site Model is presented as **Figure 3**.

This qualitative hazard assessment has been undertaken in accordance with NHBC and Environment Agency, 2008. Further details of which are provided in **Appendix E** including definition of risk categories.

Table 5.4 summarises the pollutant linkages and risk ratings associated with the proposed development.

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Table 5.4: Preliminary Risk Assessment

Hazard / Pollutant	Pathway	Receptor	Potential Severity	Probability of Risk	Level of Risk
Potential asbestos-containing materials (ACMs) in Made Ground	Inhalation/ingestion of fibres/dusts Dermal contact	Site development workers	Severe	Likely	HIGH *
		Future site users	Severe	Low Likelihood	MODERATE
		Adjacent site users	Severe	Low Likelihood	MODERATE
Potential metals, hydrocarbons, PAHs, pH from previous site use	Dermal contact Ingestion/inhalation of soils/dusts	Site development workers	Medium	Likely	MODERATE
		Future site users	Medium	Unlikely	LOW
		Adjacent site users	Medium	Unlikely	LOW
	Leaching and migration	Aquifer and surface watercourses	Medium	Likely	MODERATE
	Direct contact	Building materials	Mild	Likely	LOW / MODERATE
Ground gases	Ground gas migration	Site development workers	Severe	Low Likelihood	MODERATE
		Future site users	Severe	Low Likelihood	MODERATE
Potential impact to site from migration of mobile contaminants (e.g., PAHs, hydrocarbons, VOCs, SVOCs) from off-site sources (gas works, rubber works, printing works, timber yards, saw mills, engineering works etc)	Groundwater or ground gas migration	Site development workers Future site users	Medium	Low Likelihood	LOW / MODERATE

Notes:

Assessment completed assuming site in current condition; should site levels be altered during development, a reassessment would be required;

Assessment completed assuming no remediation/mitigation in place;

Should the development proposals alter significantly a review of this risk assessment may be required; in particular if wider or new areas of soft landscaping / open areas are planned;

* Given the use of appropriate PPE and on-site health and safety precautions, risk to site development workers would be reduced to low.

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5.3. Summary of Potentially Significant Pollutant Linkages

Table 5.5 below summarises the pollutant linkages requiring further consideration through intrusive site investigation works.

Table 5.5: Potential Pollutant Linkages Requiring Further Investigation

Hazard / Pollutant	Pathway	Receptor	Level of Risk
Potential ACMs in Made Ground	Inhalation/ingestion of fibres/dusts Dermal contact	Site development workers	HIGH *
		Future site users	MODERATE
		Adjacent site users	MODERATE
Potential metals, hydrocarbons, PAHs, pH from previous site use	Dermal contact Ingestion/inhalation of soils/dusts	Site development workers	MODERATE
	Leaching and migration	Aquifer and surface watercourses	MODERATE
	Direct Contact	Building materials	LOW/MODERATE
Ground gases	Ground gas Migration	Site development workers	MODERATE
		Future site users	MODERATE
Potential impact to site from migration of mobile contaminants (e.g., PAHs, hydrocarbons, VOCs, SVOCs) from off-site sources	Groundwater or ground gas migration	Site development workers Future site users	LOW/MODERATE

6. CONCLUSIONS

The site lies within a largely residential and commercial area within Manchester City Centre.

The site was historically occupied by terraced housing and two public houses with later a school in the west of the site. The houses and one of the public houses were cleared around 1938. The site remained the same until around 2000 when the site was redeveloped as hotel and car park which is still present today. The area to the north and east were heavily industrialised with various mills and works such as Rubber works and Gas works to the east, timber yard, saw mill and engineering works to the north.

Previous and current uses of the land lead to a low to moderate risk of potential soil and /or groundwater contamination at the site. The site lies in an area of moderate environmental sensitivity with residential, office, construction site land uses adjacent, and underlying geological strata classified as Secondary and Principal aquifers. The site is not in an area affected by past coal mining activities. However, coal reserves exist and could be extracted in the future

A previous site investigation was undertaken for the existing Premier Inn. However, this has not been made available to date. From BGS records there are 8 boreholes which are shown to be confidential.

There is a moderate risk from UXO and a separate UXO risk assessment report has been commissioned to assess risks for intrusive ground investigation and development purposes.

A ground investigation will be required to quantify the ground conditions and allow further assessment of risks from the potential ground contamination sources identified.

7. RECOMMENDATIONS

It is recommended that a Phase 2 intrusive ground investigation is undertaken. This would be used to obtain information on geotechnical and contaminated land conditions at the site, to inform the design and construction of the proposed development, and to identify any mitigation measures or remediation that may be required to reduce the potential risks from ground contamination. Information on contamination is also likely to be required as part of the planning process for the future proposed development of the site.

It is recommended that the geotechnical and contaminated land investigation is combined to reduce costs associated with undertaking these works separately.

The objectives of the intrusive ground investigation would be to:

- Confirm the ground profile;
- Confirm the presence, depth and direction of shallow groundwater flow;
- Characterise the underlying soil, gas and shallow groundwater quality;
- Obtain soil and rock properties for foundation design;
- Assess possible soil waste classifications (should it be necessary to remove material off-site);
- Confirm and develop the conceptual model and the risks associated with contamination.

The scope of the ground investigation will include the following:

- Windowless sampler boreholes to determine shallow ground conditions;
- Boreholes to determine deeper ground conditions;
- *In situ* testing to determine geotechnical parameters of the soils and rocks on site;
- Installation of monitoring wells in exploratory holes for ground gas and groundwater monitoring and sampling;
- Recovery of soil and groundwater samples for chemical testing;
- Recovery of soil samples (and rock if required) for geotechnical laboratory testing;
- Ground gas and groundwater level monitoring;
- Factual reporting; and
- Interpretative Reporting.

If unexpected ground conditions or significant contamination are encountered during the intrusive ground investigation, it may be necessary to extend this investigation or undertake additional ground investigation but the intention would be to avoid this if possible.

The risk from ground gas will need to be confirmed through installation of monitoring wells and a programme of ground gas monitoring comprising six rounds over two months to meet the requirements of current UK ground gas guidance.

The findings of this Desk Study and the recommendations for ground investigation should be discussed with the Contaminated Land Officer prior to undertaking the ground investigation. It is likely that the Local Authority will require, through planning, that any mitigation or remediation works at the site are fully validated and recorded so that a Verification Report can be compiled. This could also involve the preparation of a Remediation Strategy and a Verification Plan following the ground investigation.

8. REFERENCES

British Geological Survey (BGS) 1:50,000 scale geological mapping (Solid and Drift editions);

BGS website (www.bgs.ac.uk).

BS 10175; 2011+ A1:2013 Investigation of Potentially Contaminated Sites- Code of Practice

BS EN1997-1:2004 Eurocode 7: Geotechnical design —Part 1: General rules

BS EN1997-2 Eurocode 7: Geotechnical design — Part 2: Ground investigation and testing.

CIRIA C552 (2001) Contaminated land risk assessment, a guide to good practice.

Environment Agency (2004) Model procedures for the management of land contamination. Contaminated land report 11.

Environment Agency (EA) website (www.environment-agency.gov.uk);

Google Maps (2012) www.google.com

NHBC and Environment Agency 2008. Guidance for the Safe Development of Housing on Land Affected by Contamination. R&D Publication 66: 2008

Radon risk maps - <http://www.ukradon.org>

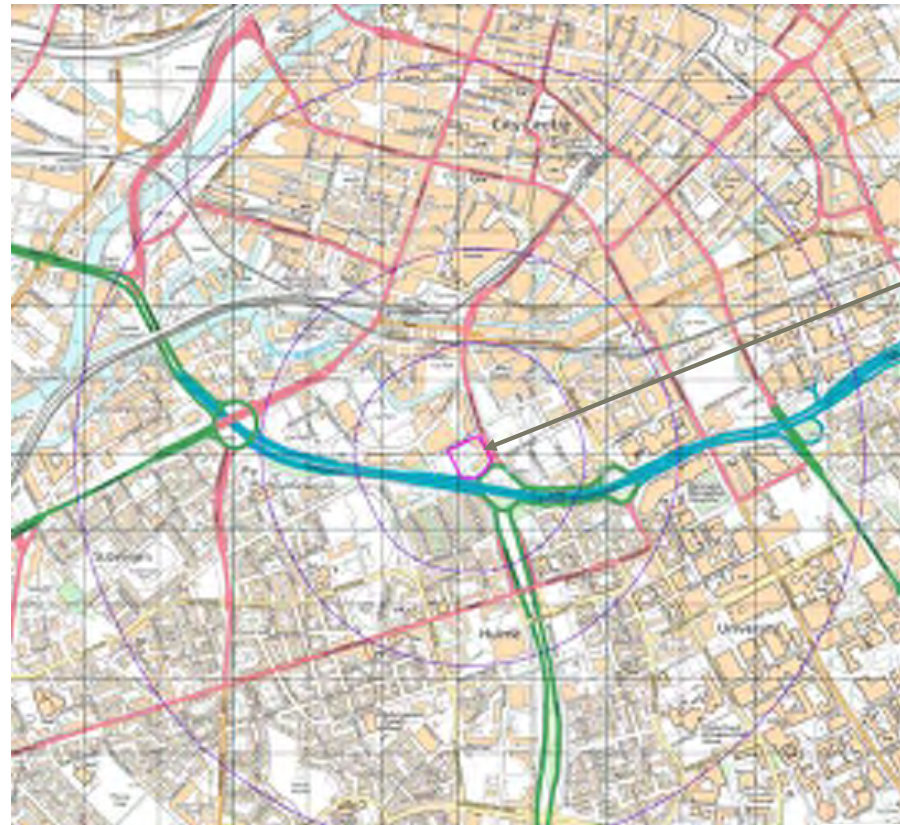
Zetica Unexploded Ordnance (UXO) Risk Map.

**ONE MEDLOCK STREET
CONTAMINATED LAND DESK STUDY**



FIGURES AND DRAWINGS

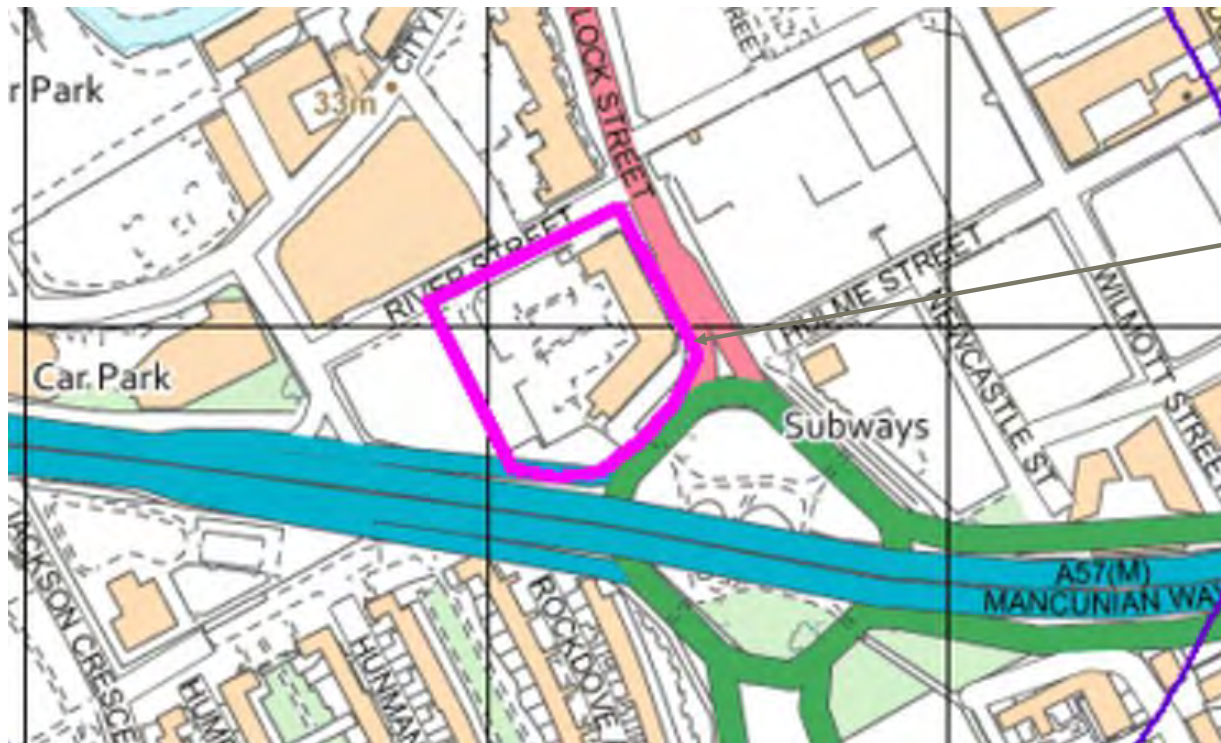
FIGURE 1
SITE LOCATION PLAN



**Site
Location**

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10,000 scale (mountain, moorland and river estuary areas).

FIGURE 2
SITE LAYOUT PLAN



**Site
Location**

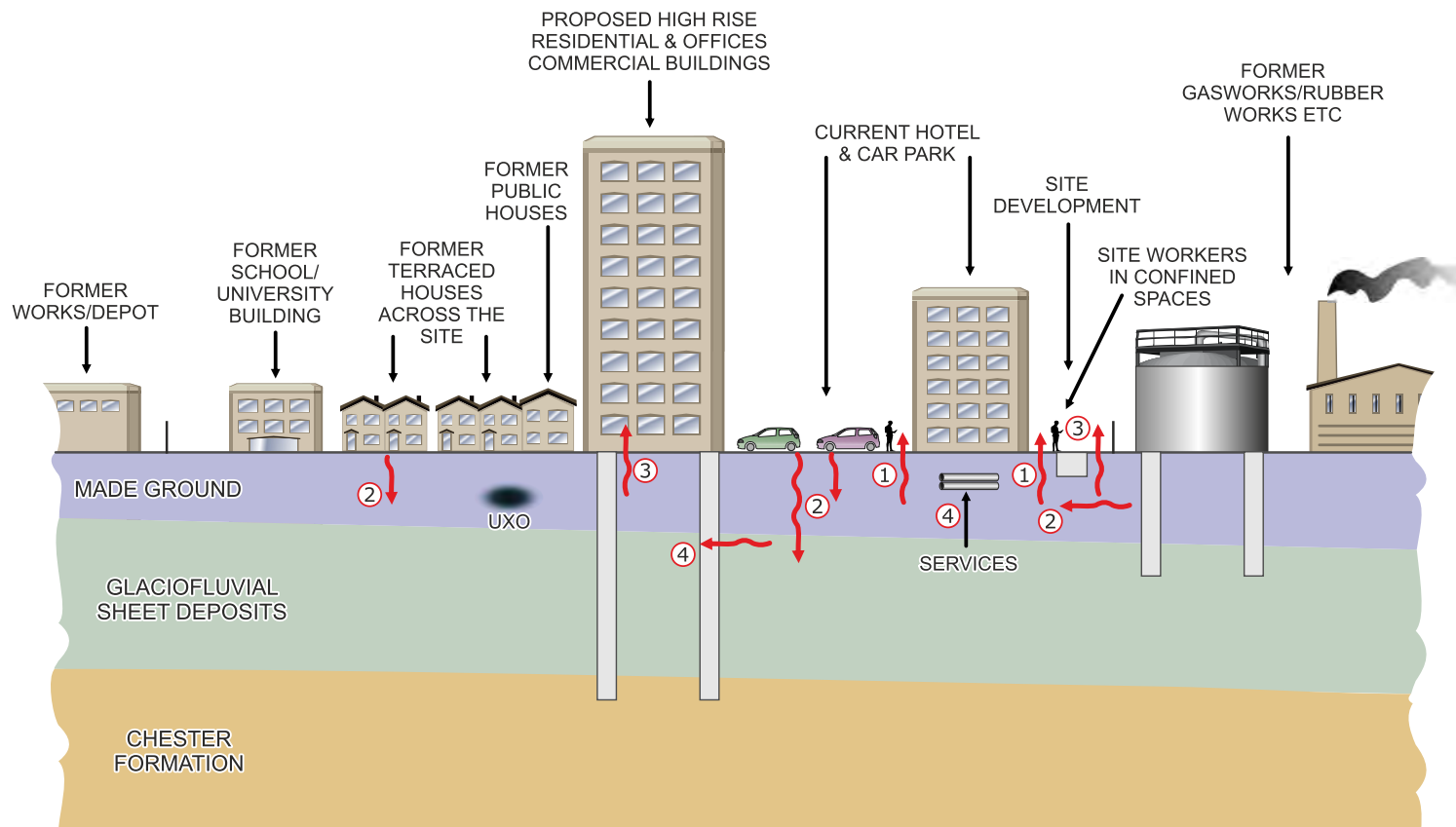
VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10,000 scale (mountain, moorland and river estuary areas).



West

SITE

East



Potential Pathways

- ① Inhalation / Ingestion / Dermal Contact of Dust & Fibres.
- ② Leaching & Migration, Lateral & Vertical of Contamination.
- ③ Ground Gas Migration.
- ④ Direct Contact with Services and Underground Structures.

Figure Title

Figure 3: Conceptual Site Model

Project Name

River Street,
Manchester, M15 5GQ

Project Number

1620005811

Figure No.

3

Date

April 2019

Prepared By

BVK

Scale

Not to scale

Issue

1

Client

Ask Real Estate Ltd

RAMBOLL

APPENDIX A SITE WALKOVER NOTES AND PHOTOGRAPHS

PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER

Photographic Record		Action / Comment
		
Photograph 1 		Photograph showing the entrance to the site off River Street. Photograph taken facing south-east.
Photograph 2 		Photograph showing the north boundary, facing the north-east.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 3 	Photograph of the hotel sitting at a higher elevation. Photograph taken facing south-east.
Photograph 4 	View of the underground subway off-site at the eastern corner of the site.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 5 	View of south-east boundary, facing the north-east.
Photograph 6 	Photograph taken facing west.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 7 	Vegetated part of the site in the south. Photograph taken facing the north-west.
Photograph 8 	High-mast lighting pole with an electric cabinet located at the southern tip of the site. Photograph taken facing north-west.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 9 	The entrance to the site is via the car park operated by Premier Inn. Photograph taken facing south-east.
Photograph 10 	View of the car park and hotel. Photograph taken facing the north-east.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 11  A photograph showing a car park area. In the foreground, there is a brick wall and a black metal fence. Several cars are parked in the lot. In the background, there are several buildings, including a tall, modern glass skyscraper and a multi-story brick building with many windows. The sky is overcast.	View of the car park taken facing the north-west.
Photograph 12  A photograph showing a car park area. In the foreground, there is a paved area with some parked cars. In the background, there are several buildings, including a tall, modern glass skyscraper and a multi-story brick building with many windows. The sky is overcast.	View of the car park facing the north.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 13  A photograph showing a paved car park area. In the background, there are several parked cars, including a red one and a blue one. A tall, thin black lamppost stands in the foreground. To the right, there is a brick wall with a black metal fence on top. The sky is overcast.	View of the car park towards the south-east.
Photograph 14  A photograph of a Premier Inn hotel building. The building is multi-storied with a mix of red brick and light-colored panels. The entrance is on the left side of the frame. A paved road or parking area is in the foreground, with several cars parked. A tree is visible on the right side of the image. The sky is overcast.	View of the hotel with the entrance (left) facing south-east.

PHOTOGRAPHIC RECORD OF SITE VISIT PREMIER INN, MANCHESTER

Page 8 of 11

Photograph 15



Drainage run along the hotel. Photograph taken facing the north-west.

Photograph 16



Door leading to the Premier Inn yard which holds, amongst other things, cylinders with "hazardous to the environment" hazard symbol. Photograph taken facing the south-east.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 17 	View along the fencing to the south of the site which separates the vegetation from the car park. Photograph taken facing south-west.
Photograph 18 	View of the car park facing the north-west.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 19 	View of the electrical sub-station (right) and outdoor waste collection point (left). Photograph taken facing the north.
Photograph 20 	View of the car park facing south.

**PHOTOGRAPHIC RECORD OF SITE VISIT
PREMIER INN, MANCHESTER**

Photograph 21  A photograph showing a narrow alleyway between a chain-link fence on the left and a brick wall on the right. The ground is covered with fallen leaves and some scattered rubbish, including a white plastic bottle and some crumpled paper. A large tree with green leaves is visible behind the brick wall.	Rubbish at the south of the site. Photograph taken facing the south-east.
Photograph 22  A photograph of a car park area. In the foreground, there is a paved area with large rectangular stones. Several cars are parked in the background, including a red car, a white van, and a dark blue car. In the distance, there is a multi-story building under construction with visible scaffolding and a bridge structure above it.	View of the car park towards the west.

**PREMIER INN SITE, MANCHESTER
CONTAMINATED LAND DESK STUDY**

APPENDIX B ENVIROCHECK REPORT



Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

199235460_1_1

Customer Reference:

Premier Inn Redevelopment

National Grid Reference:

383630, 397190

Slice:

A

Site Area (Ha):

0.85

Search Buffer (m):

1000

Site Details:

Flat 27, River Street Tower

2

River Street

MANCHESTER

M15 5GQ

Client Details:

Ms T Carey

Ramboll UK Ltd

Carlton House

Ringwood Road

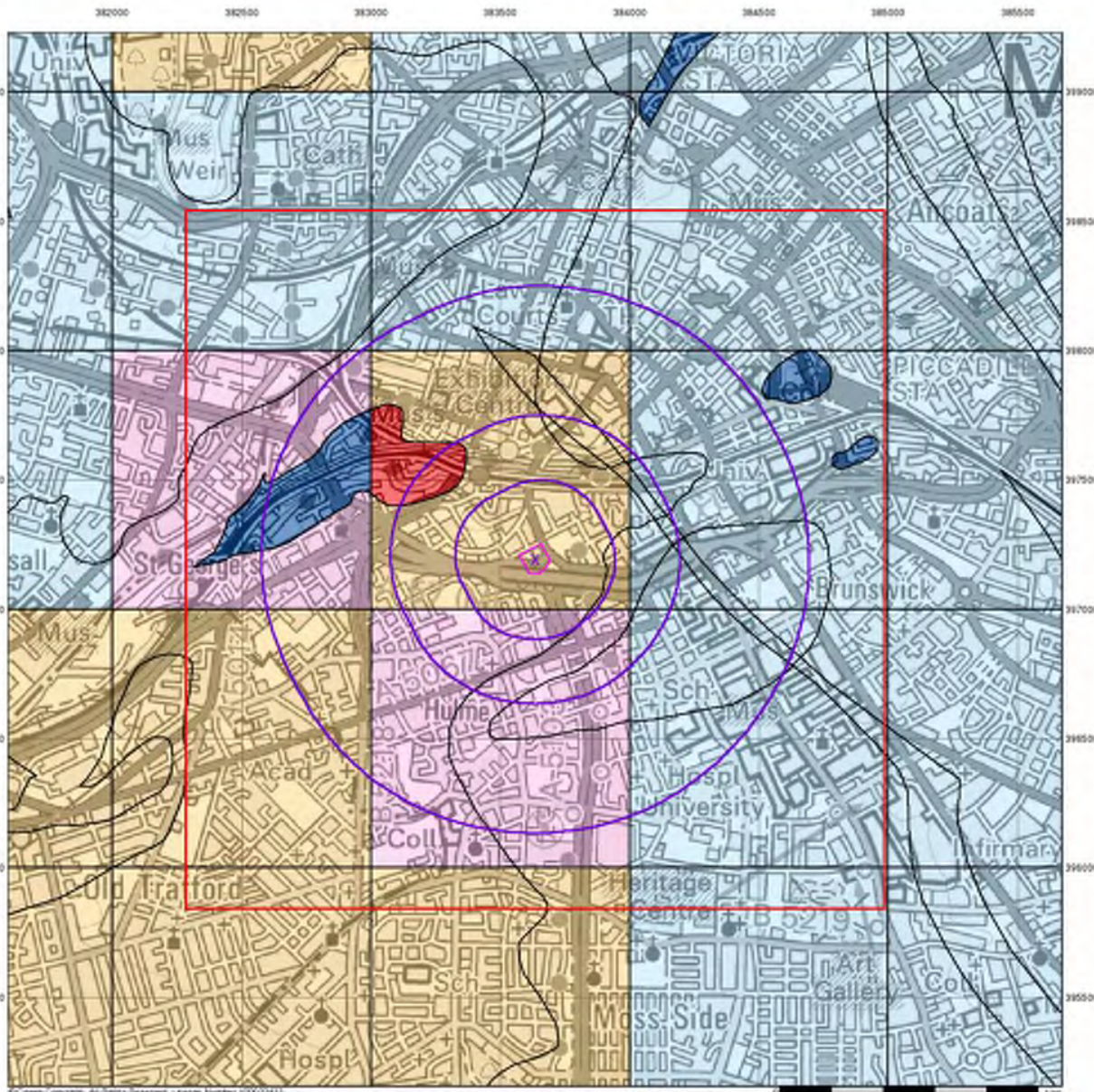
Woodlands

Southampton

SO40 7HT

Prepared For:

Caroline Clark



Groundwater Vulnerability

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Bedrock Aquifers

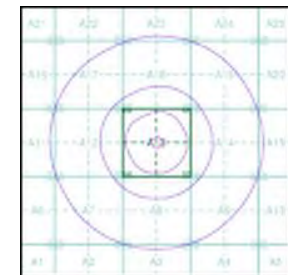
- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

Superficial Aquifers

- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

- Unproductive Aquifer
- Soluble Rock

Site Sensitivity Context Map - Slice A



Order Details

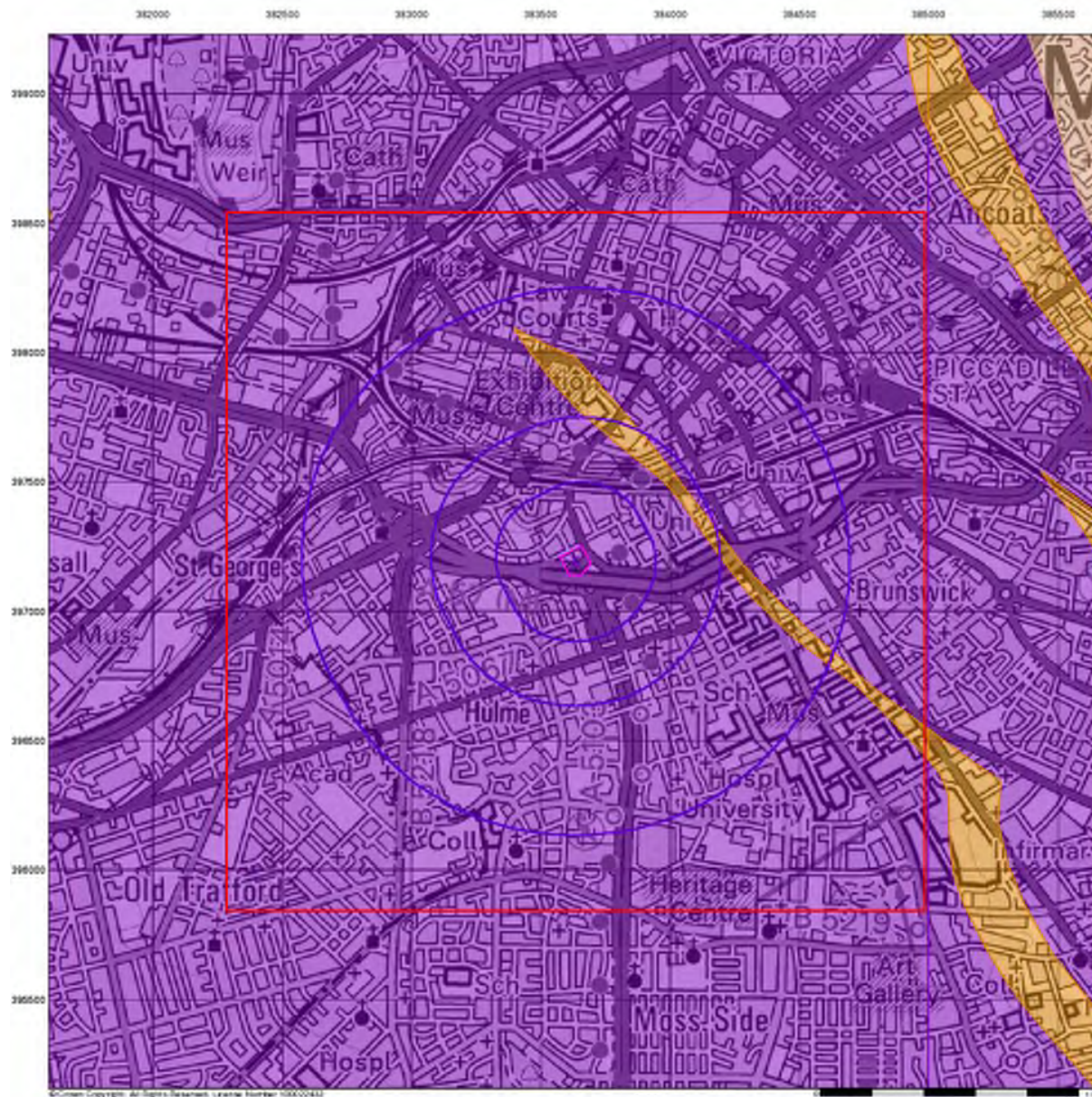
Order Number: 199235460_1.1
 Customer Ref: Premier Inn Redevelopment
 National Grid Reference: 383630, 397190
 Slice: A
 Site Area (Ha): 0.85
 Search Buffer (m): 1000

Site Details

Flat 27, River Street Tower, 2, River Street, MANCHESTER, M15 5GQ



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



Bedrock Aquifer Designation

General

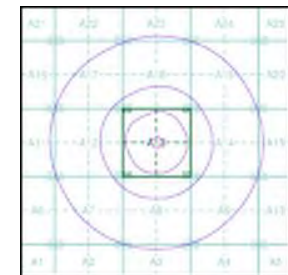
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

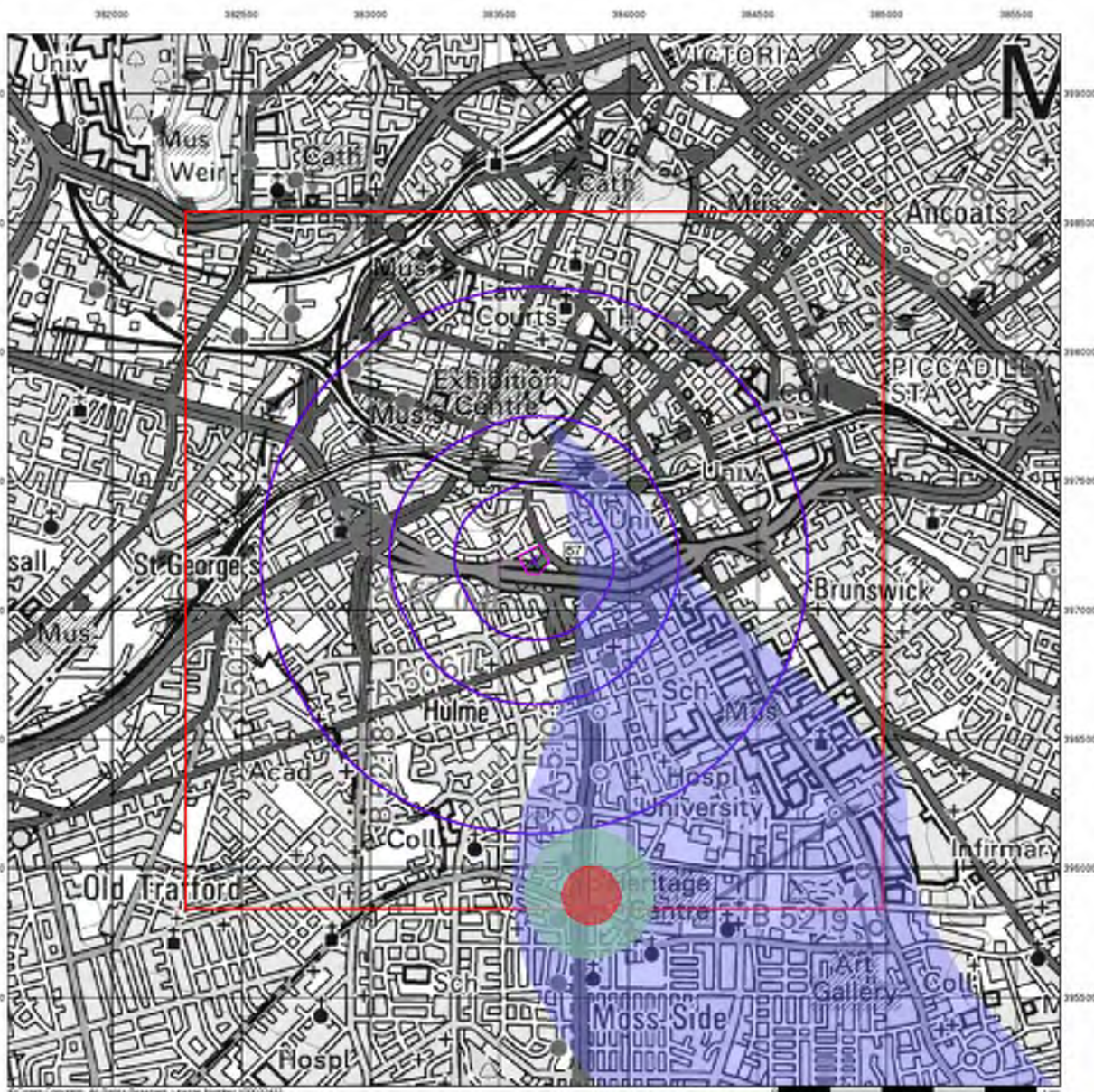
Order Number: 199235460_1.1
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Source Protection Zones

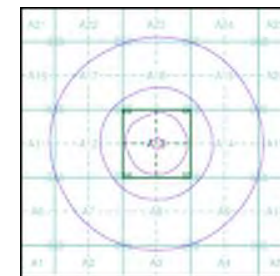
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



Order Details

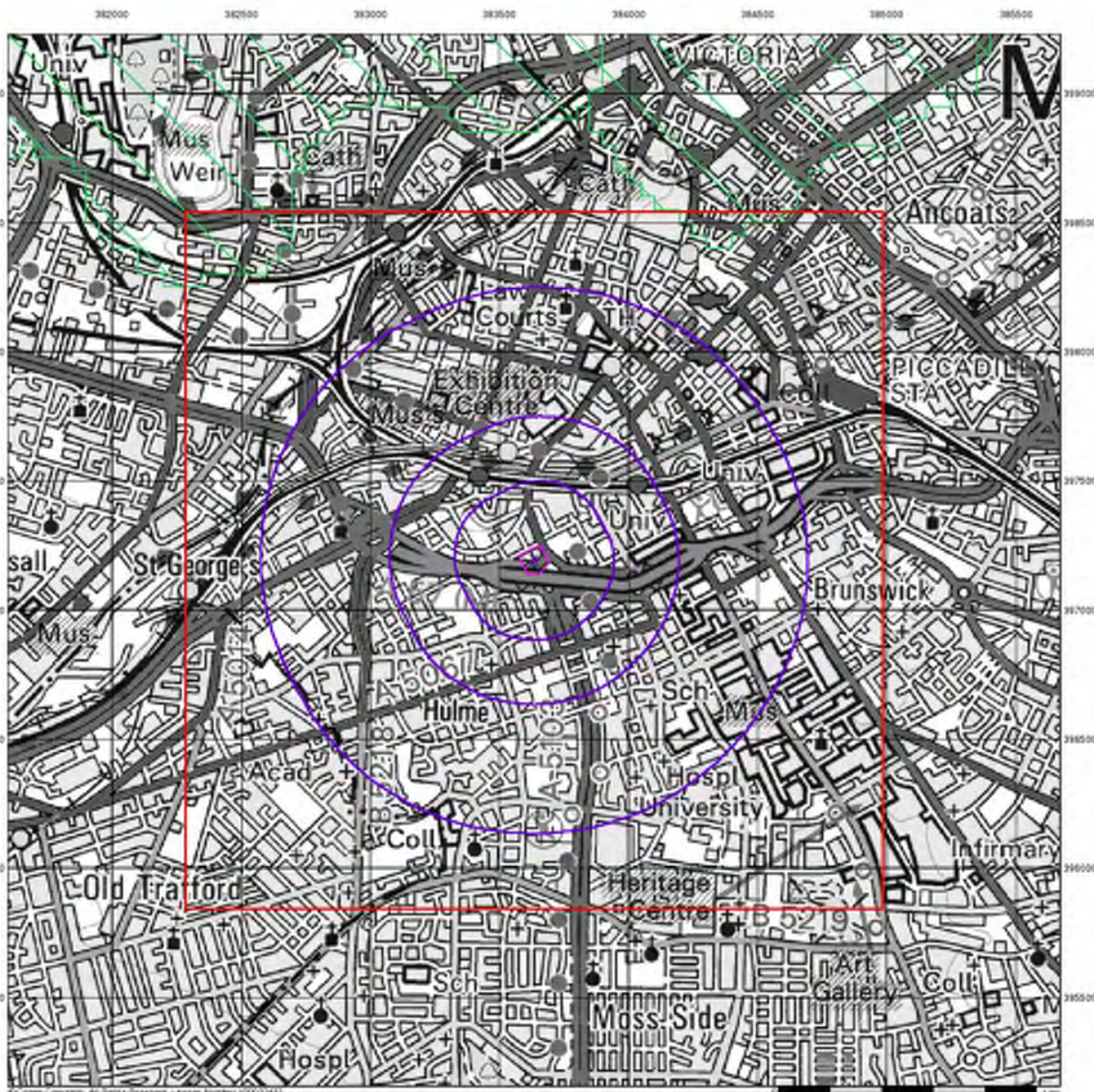
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Sensitive Land Uses

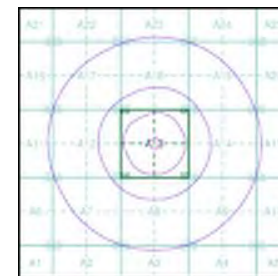
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

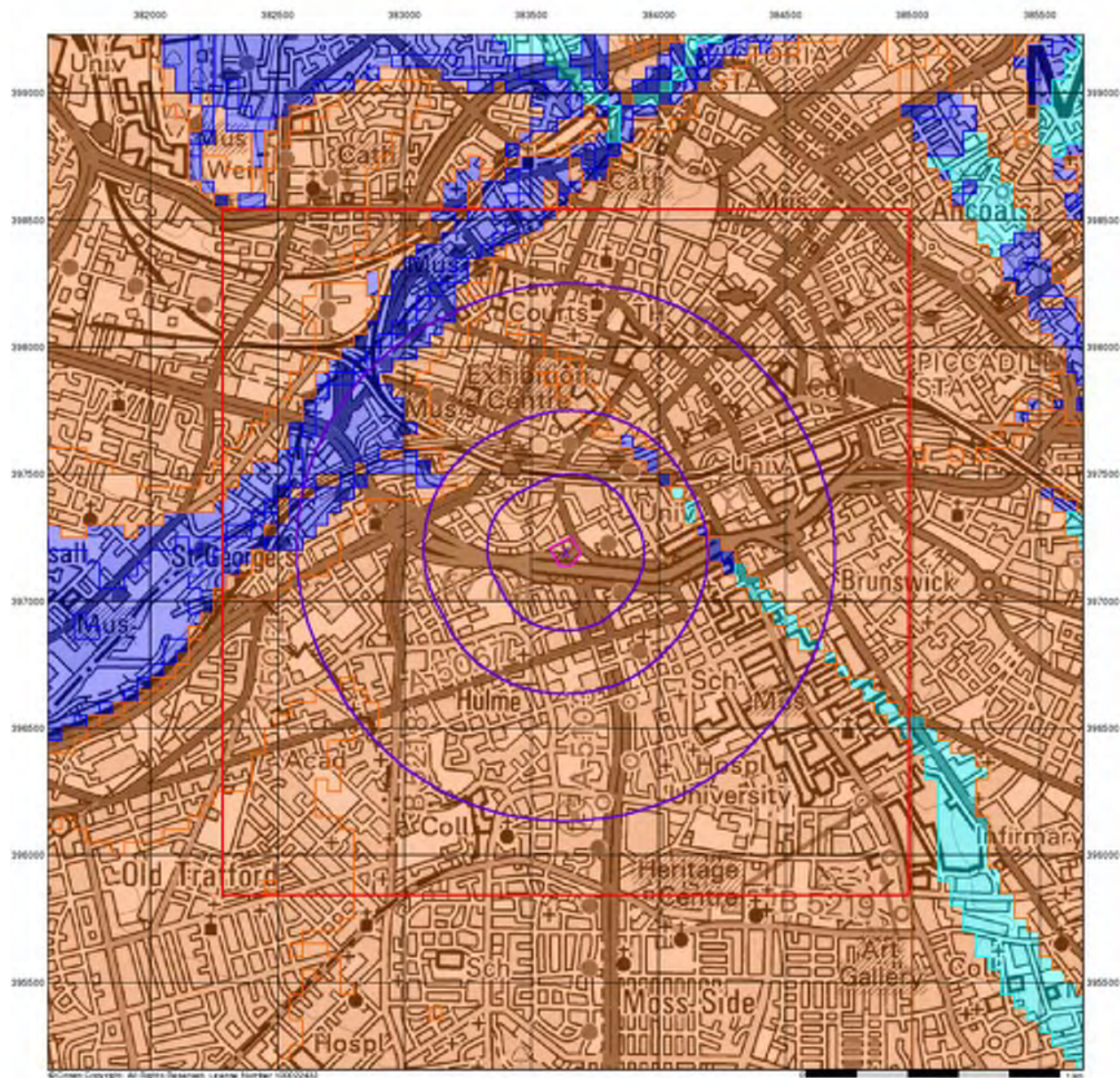
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BGS Flood GFS Data

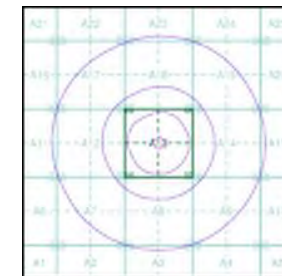
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

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 Customer Ref: Premier Inn Redevelopment
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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	GFSD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CHES	Chester Formation	Sandstone	Not Supplied - Olenekian
	WLSF	Wilmslow Sandstone Formation	Sandstone	Not Supplied - Early Triassic
	MM	Manchester Marls Formation	Mudstone	Not Supplied - GUADALUPIAN
	CS	Collyhurst Sandstone Formation	Sandstone	Not Supplied - Cisuralian
	HA	Halesowen Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	GML	Great Mine Limestone	Limestone	Not Supplied - Westphalian
	HTS	Holt Town Sandstone Bed	Sandstone	Not Supplied - Westphalian
	PUCM	Pennine Upper Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	ETM	Etruria Formation	Sandstone and Mudstone	Not Supplied - Westphalian
		Faults		



Geology 1:50,000 Maps

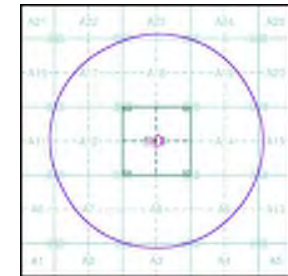
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1
Map Sheet No:	085
Map Name:	Manchester
Map Date:	2010
Bedrock Geology:	Available
Superficial Geology:	Not Available
Artificial Geology:	Not Available
Faults:	Not Supplied
Landslip:	Not Available
Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A



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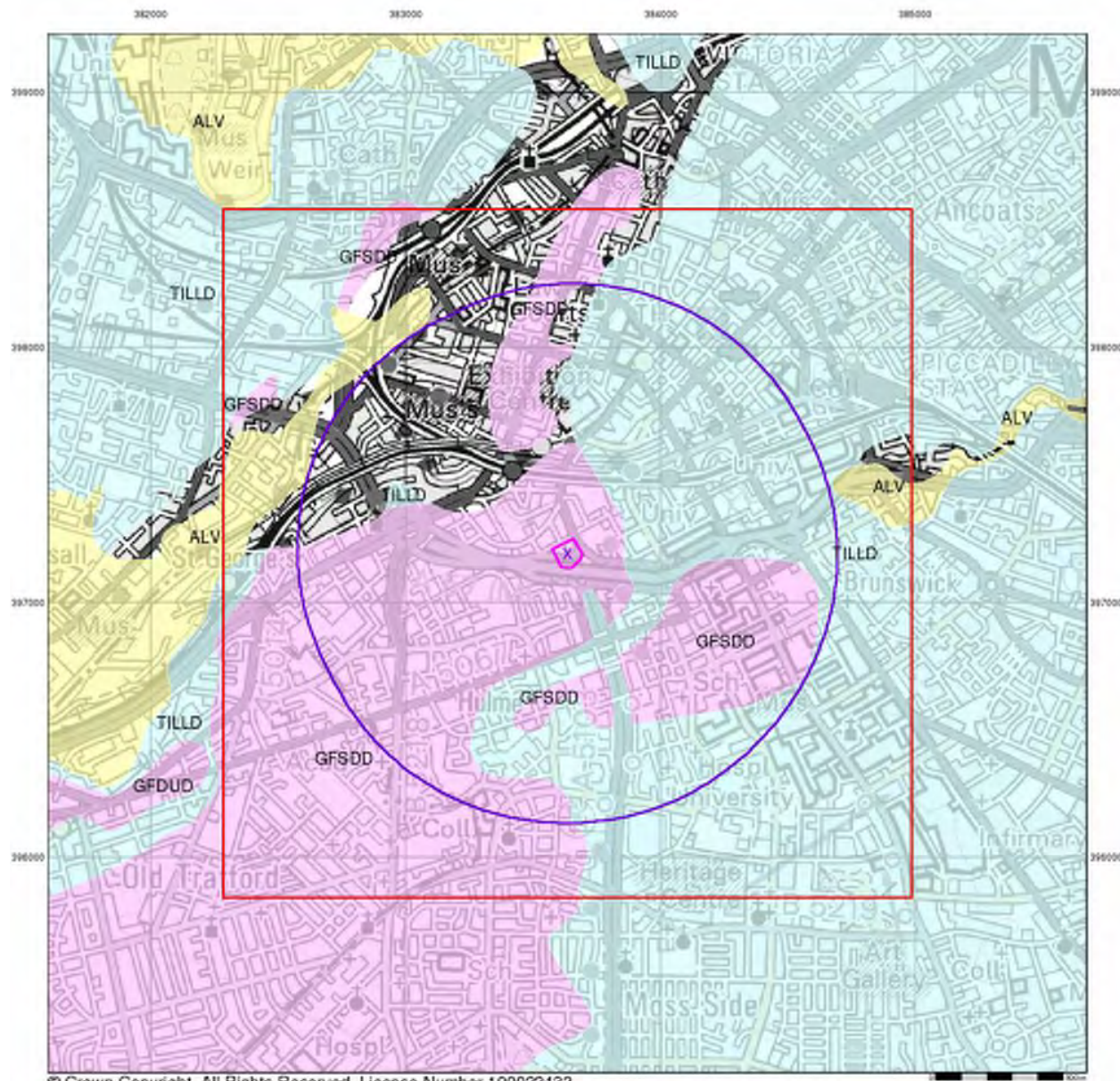
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Customer Reference:	Premier Inn Redevelopment
National Grid Reference:	383630, 397190
Slice:	A
Site Area (Ha):	0.85
Search Buffer (m):	1000

Site Details:

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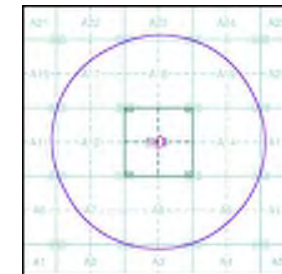
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A

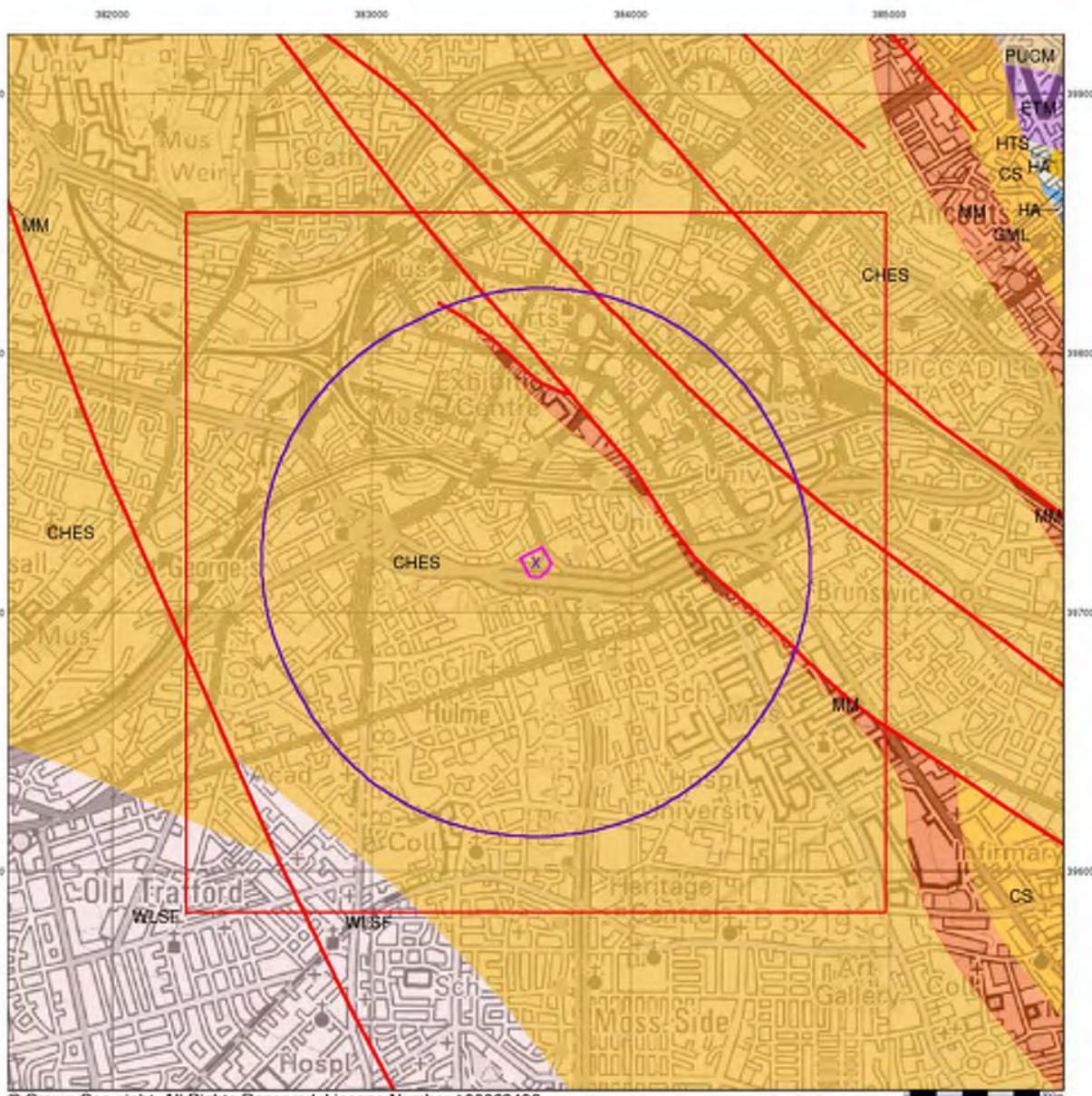


Order Details:

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Customer Reference: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details:

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Bedrock and Faults

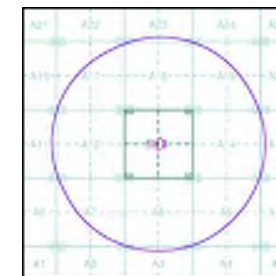
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

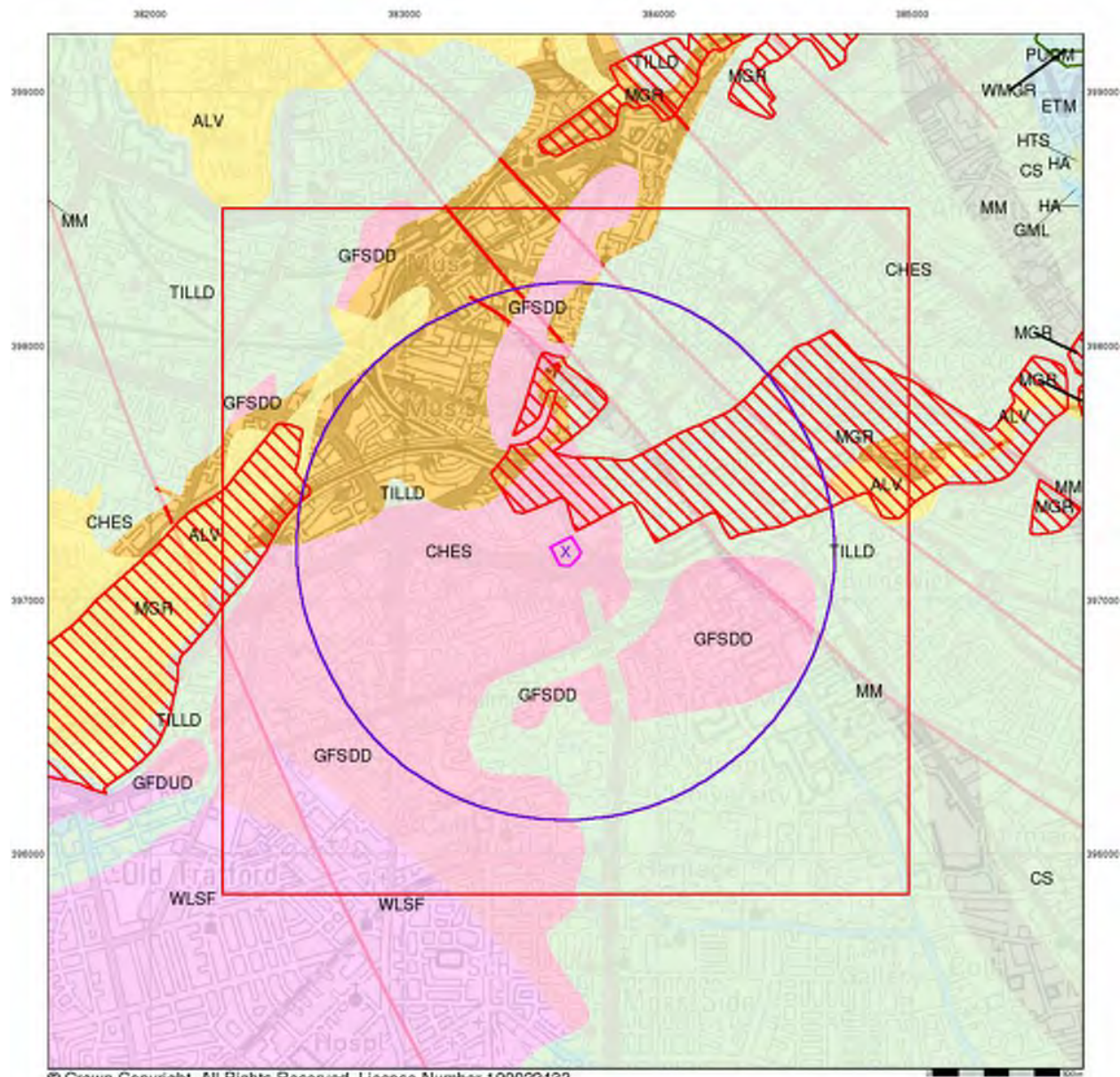
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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

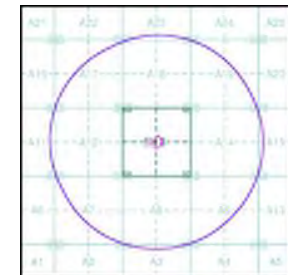
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 199235460_1.1
Customer Reference: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details:

Flat 27, River Street Tower, 2, River Street, MANCHESTER, M15 5GQ



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Lancashire And Furness Published 1851

Source map scale - 1:1,056

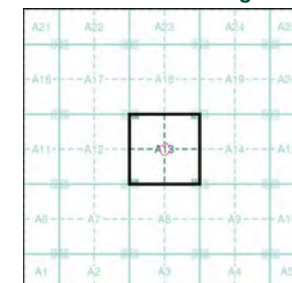
The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the 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)

000_00_033
1851
1:1,056
000_00_038
1851
1:1,056

Historical Town Plan - Segment A13



Order Details

Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 0

Site Details

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Lancashire And Furness

Published 1891

Source map scale - 1:500

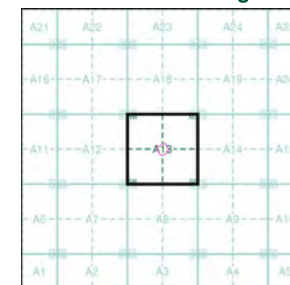
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to complement the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped 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)

104_10_013	104_10_014	104_10_015
1891	1891	1891
1:500	1:500	1:500
104_10_018	104_10_019	104_10_020
1891	1891	1891
1:500	1:500	1:500
104_10_023	104_10_024	104_10_025
1891	1891	1891
1:500	1:500	1:500

Historical Town Plan - Segment A13



Order Details

Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 0

Site Details

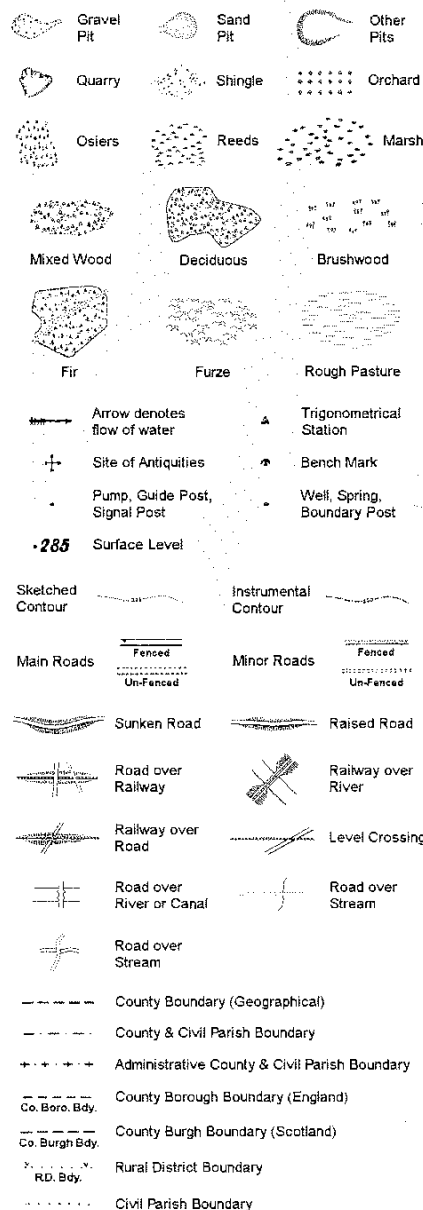
Flat 27, River Street Tower, 2, River Street, MANCHESTER, M15 5GQ



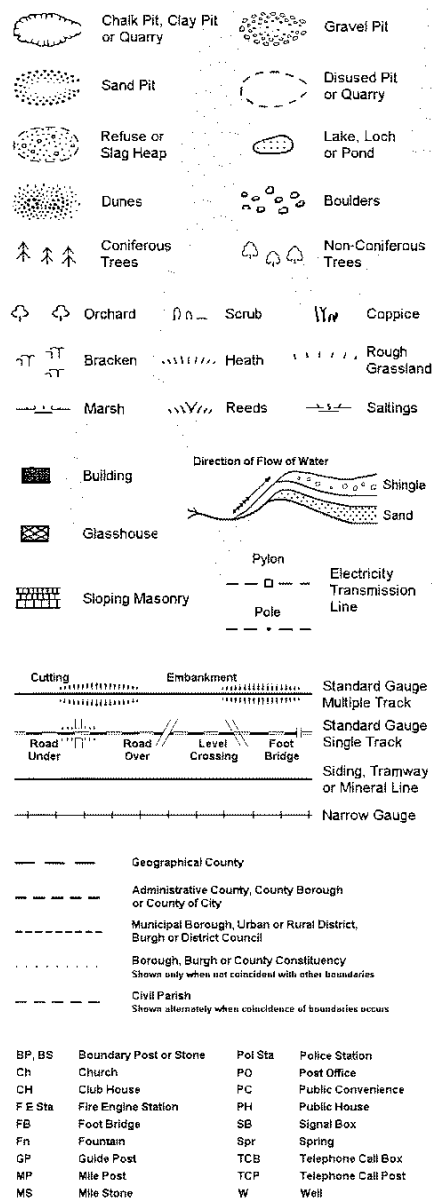
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Historical Mapping Legends

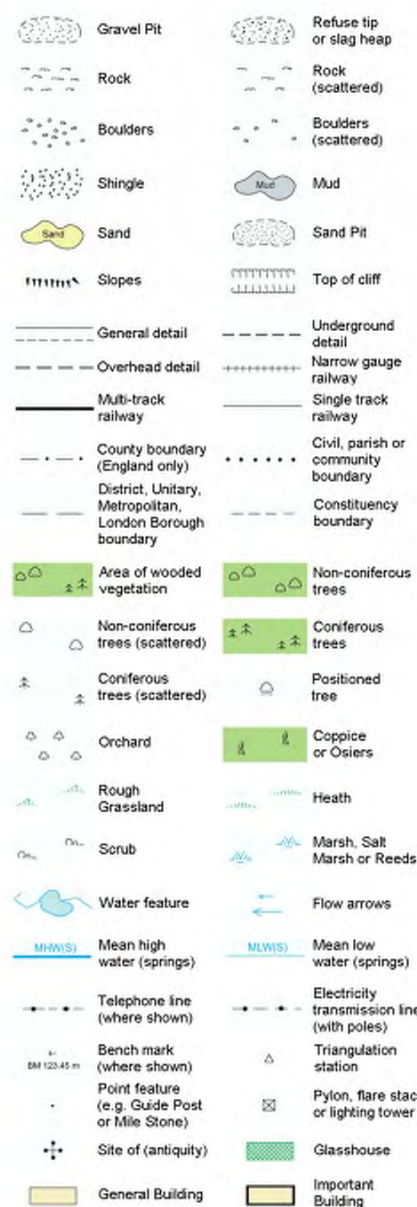
Ordnance Survey County Series 1:10,560



Ordnance Survey Plan 1:10,000



1:10,000 Raster Mapping

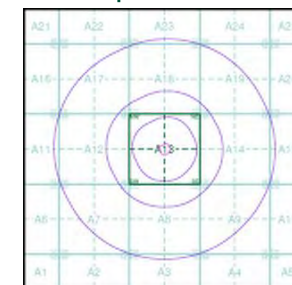


RAMBOLL

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1848	3
Cheshire	1:10,560	1882	4
Lancashire And Furness	1:10,560	1894 - 1896	5
Cheshire	1:10,560	1899	6
Lancashire And Furness	1:10,560	1909	7
Cheshire	1:10,560	1911	8
Lancashire And Furness	1:10,560	1923	9
Lancashire And Furness	1:10,560	1931 - 1933	10
Lancashire And Furness	1:10,560	1938	11
Cheshire	1:10,560	1938	12
Ordnance Survey Plan	1:10,000	1956	13
Ordnance Survey Plan	1:10,000	1972	14
Manchester	1:25,000	1975	15
Ordnance Survey Plan	1:10,000	1980	16
Ordnance Survey Plan	1:10,000	1985	17
Ordnance Survey Plan	1:10,000	1989	18
Ordnance Survey Plan	1:10,000	1994	19
10K Raster Mapping	1:10,000	1999	20
10K Raster Mapping	1:10,000	2006	21
VectorMap Local	1:10,000	2019	22

Historical Map - Slice A



Order Details

Order Number: 199235460_1_1
 Customer Ref: Premier Inn Redevelopment
 National Grid Reference: 383630, 397190
 Slice: A
 Site Area (Ha): 0.85
 Search Buffer (m): 1000

Site Details

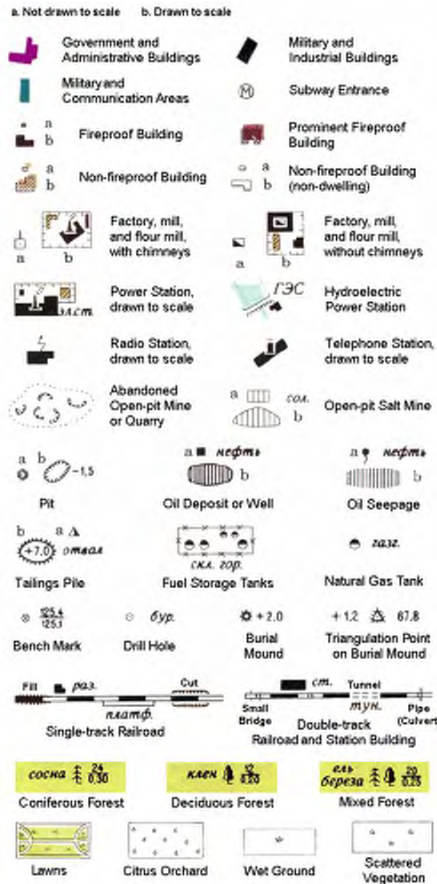
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Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

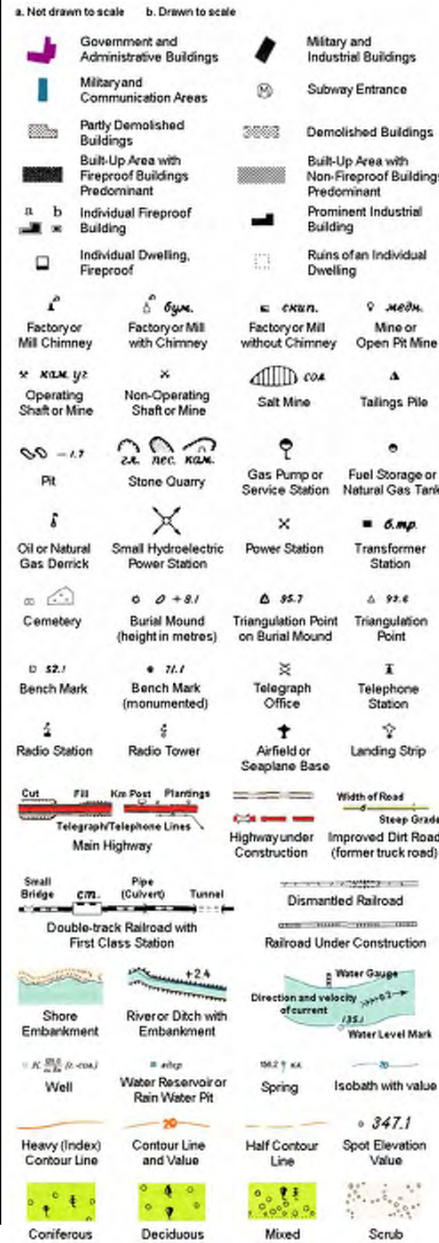


243.8 Values for prominent elevations
86.0 Numbers for spot elevations, depth soundings, contour lines, etc.
0.2 Velocity of the current, width of river bed, depth of river
120 120 120 Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	Ъ (-)
Д д (D)	Л л (L)	У у (U)	Ы (Y)
Е е (E)	М м (M)	Ф ф (F)	Ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping



Key to Numbers on Mapping

SJ89_Manchester

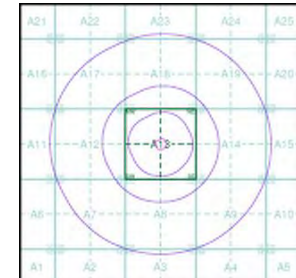
No.	Description
1	Airfield/Airport
6	Railway Station
66	Factory (Gas)

RAMBOLL

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1848	3
Cheshire	1:10,560	1882	4
Lancashire And Furness	1:10,560	1894 - 1896	5
Cheshire	1:10,560	1899	6
Lancashire And Furness	1:10,560	1909	7
Cheshire	1:10,560	1911	8
Lancashire And Furness	1:10,560	1923	9
Lancashire And Furness	1:10,560	1931 - 1933	10
Lancashire And Furness	1:10,560	1938	11
Cheshire	1:10,560	1938	12
Ordnance Survey Plan	1:10,000	1956	13
Ordnance Survey Plan	1:10,000	1972	14
Manchester	1:25,000	1975	15
Ordnance Survey Plan	1:10,000	1980	16
Ordnance Survey Plan	1:10,000	1985	17
Ordnance Survey Plan	1:10,000	1989	18
Ordnance Survey Plan	1:10,000	1994	19
10K Raster Mapping	1:10,000	1999	20
10K Raster Mapping	1:10,000	2006	21
VectorMap Local	1:10,000	2019	22

Russian Map - Slice A



Order Details

Order Number: 199235460_1_1
 Customer Ref: Premier Inn Redevelopment
 National Grid Reference: 383630, 397190
 Slice: A
 Site Area (Ha): 0.85
 Search Buffer (m): 1000

Site Details

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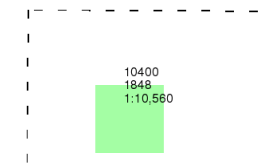
Lancashire And Furness

Published 1848

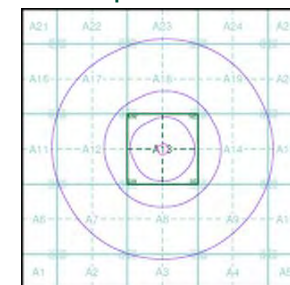
Source map scale - 1:10,560

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

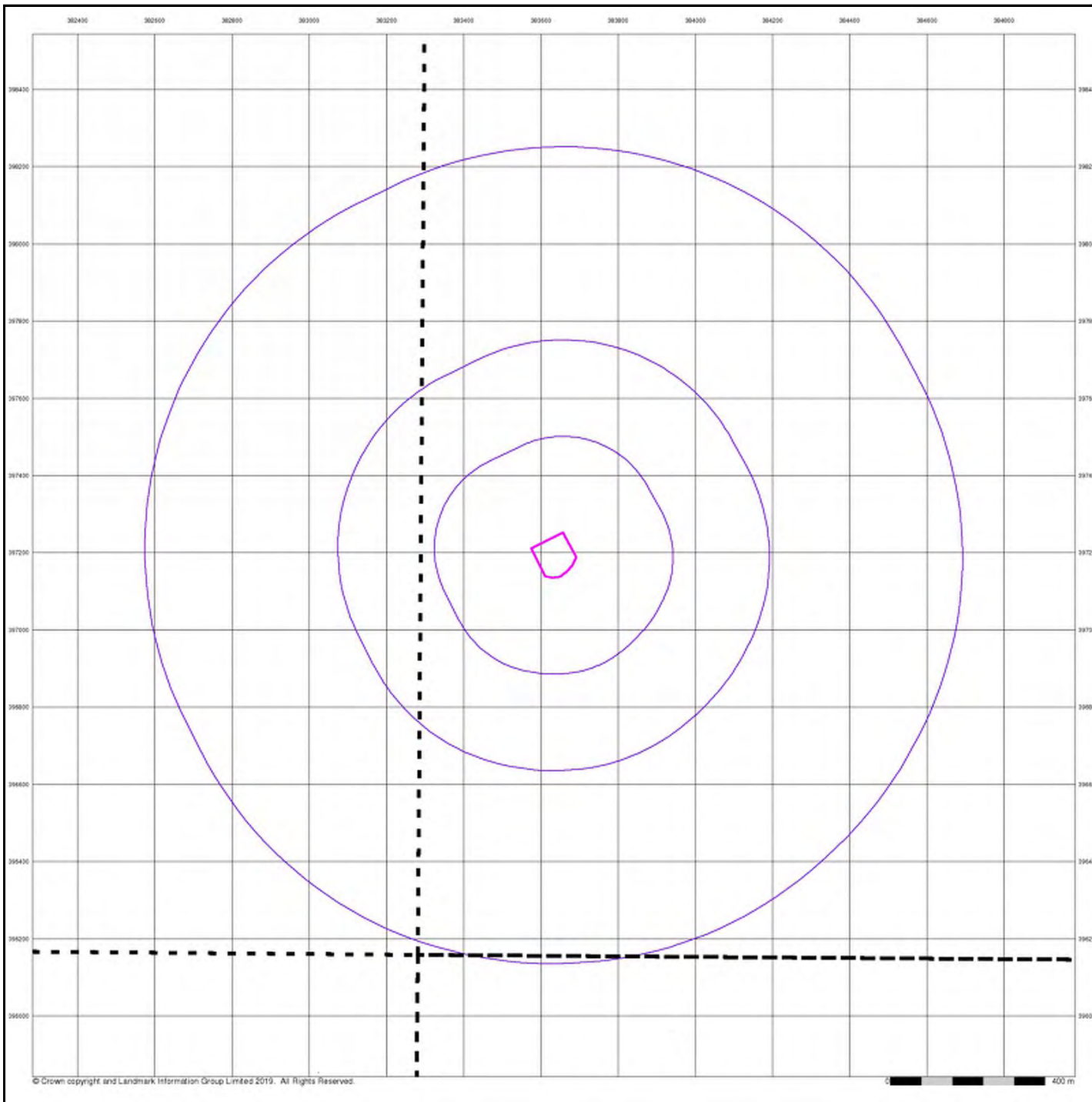
Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

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Cheshire

Published 1882

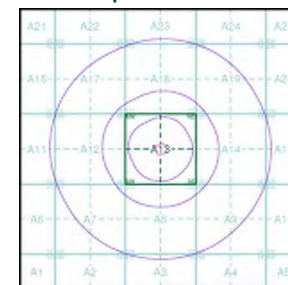
Source map scale - 1:10,560

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)

	003A00 1882 1:10,560	
I		
00900 1882 1:10,560		01000 1882 1:10,560

Historical Map - Slice A



Order Details

Order Number: 199235460_1_1
 Customer Ref: Premier Inn Redevelopment
 National Grid Reference: 383630, 397190
 Slice: A
 Site Area (Ha): 0.85
 Search Buffer (m): 1000

Site Details

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Lancashire And Furness

Published 1894 - 1896

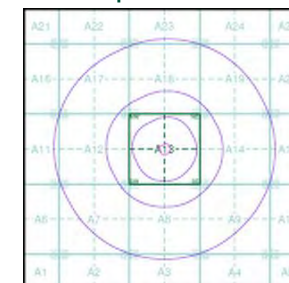
Source map scale - 1:10,560

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)

104NW 1894 1:10,560	104NE 1894 1:10,560
104SW 1896 1:10,560	104SE 1894 1:10,560

Historical Map - Slice A



Order Details

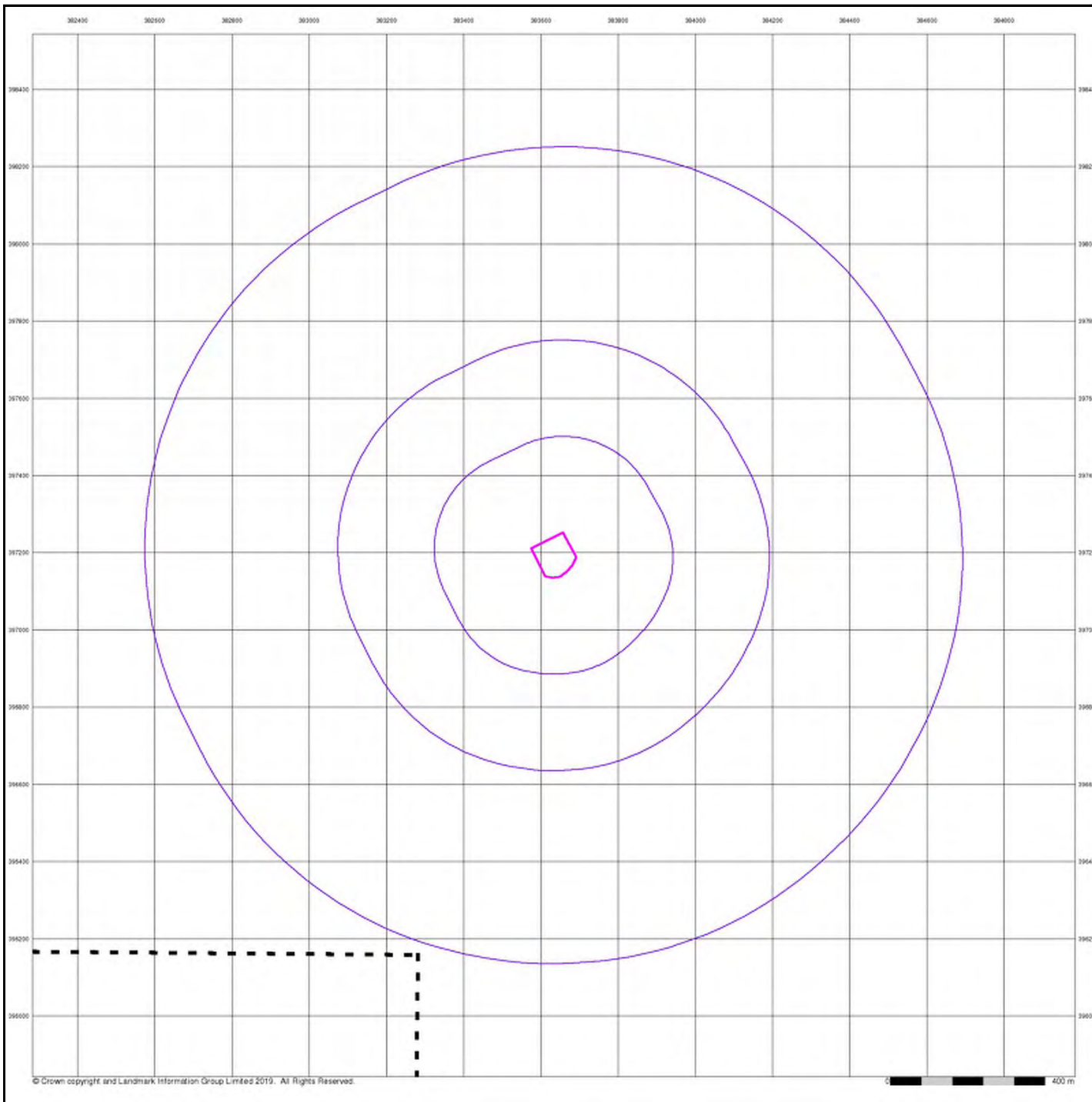
Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

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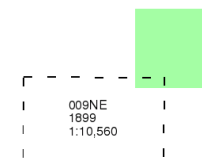
Cheshire

Published 1899

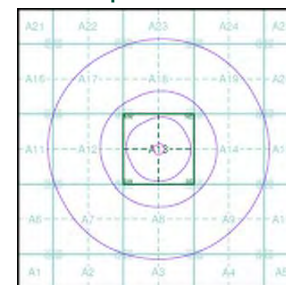
Source map scale - 1:10,560

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: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

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Lancashire And Furness

Published 1909

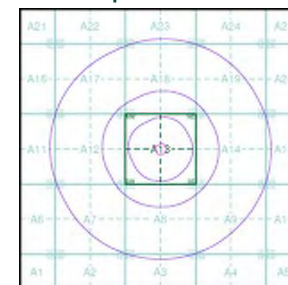
Source map scale - 1:10,560

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)

104NW 1909 1:10,560	104NE 1909 1:10,560
104SW 1909 1:10,560	104SE 1909 1:10,560

Historical Map - Slice A



Order Details

Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

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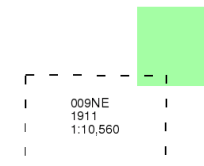
Cheshire

Published 1911

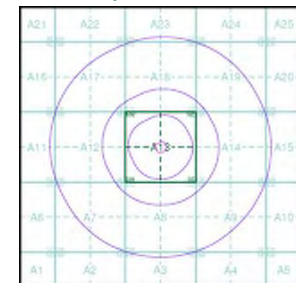
Source map scale - 1:10,560

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: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

Flat 27, River Street Tower, 2, River Street, MANCHESTER, M15 5GQ



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Lancashire And Furness

Published 1923

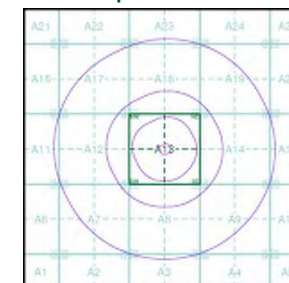
Source map scale - 1:10,560

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)

104NW 1923 1:10,560	104NE 1923 1:10,560
104SW 1923 1:10,560	104SE 1923 1:10,560

Historical Map - Slice A



Order Details

Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

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Lancashire And Furness

Published 1931 - 1933

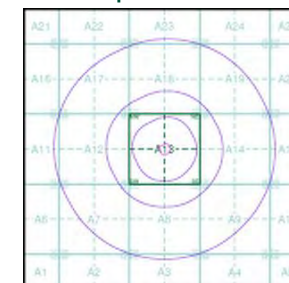
Source map scale - 1:10,560

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)

104NW 1931 1:10,560	104NE 1932 1:10,560
104SW 1932 1:10,560	104SE 1933 1:10,560

Historical Map - Slice A



Order Details

Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

Flat 27, River Street Tower, 2, River Street, MANCHESTER, M15 5GQ

Landmark
INFORMATION GROUP

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Lancashire And Furness

Published 1938

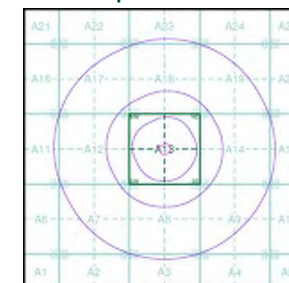
Source map scale - 1:10,560

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)

104NW 1938 1:10,560	104NE 1938 1:10,560
104SW 1938 1:10,560	104SE 1938 1:10,560

Historical Map - Slice A



Order Details

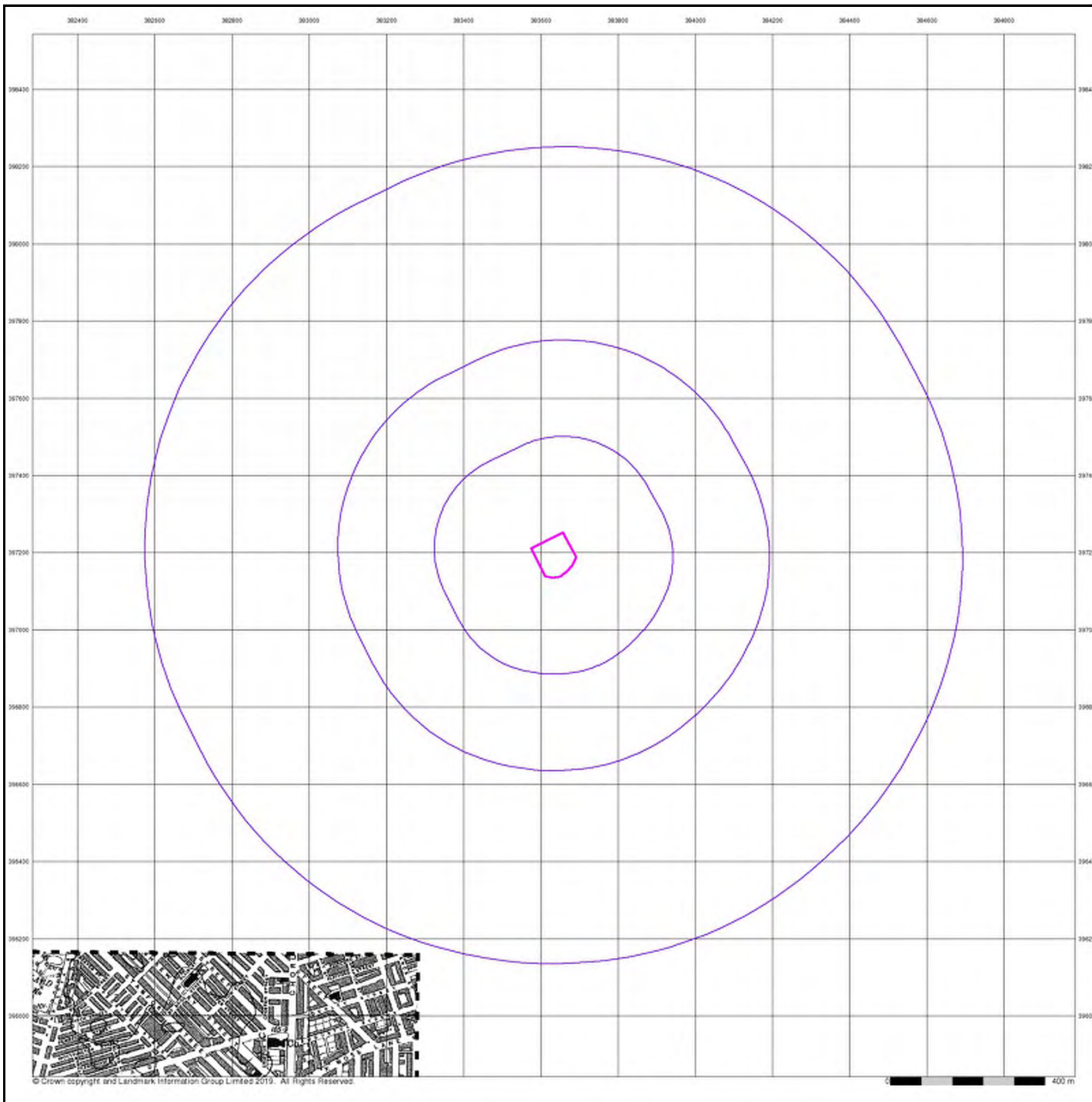
Order Number: 199235460_1_1
Customer Ref: Premier Inn Redevelopment
National Grid Reference: 383630, 397190
Slice: A
Site Area (Ha): 0.85
Search Buffer (m): 1000

Site Details

Flat 27, River Street Tower, 2, River Street, MANCHESTER, M15 5GQ



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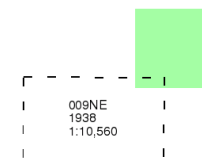
Cheshire

Published 1938

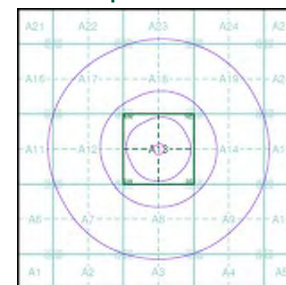
Source map scale - 1:10,560

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: 199235460_1_1
 Customer Ref: Premier Inn Redevelopment
 National Grid Reference: 383630, 397190
 Slice: A
 Site Area (Ha): 0.85
 Search Buffer (m): 1000

Site Details

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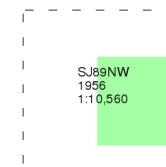
Ordnance Survey Plan

Published 1956

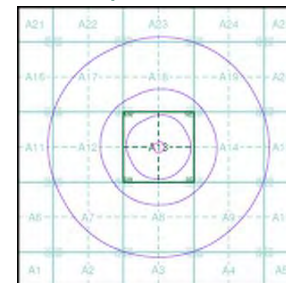
Source map scale - 1:10,000

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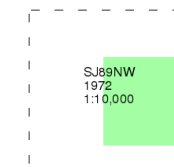
Ordnance Survey Plan

Published 1972

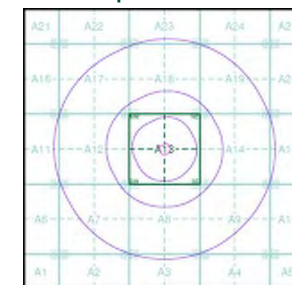
Source map scale - 1:10,000

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Manchester

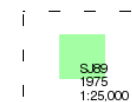
Published 1975

Source map scale - 1:25,000

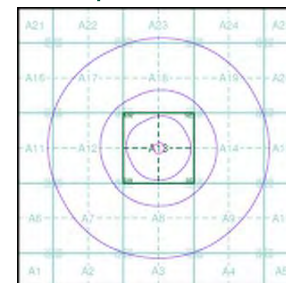
These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)



Russian Map - Slice A



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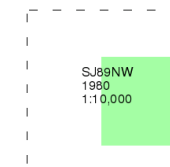
Ordnance Survey Plan

Published 1980

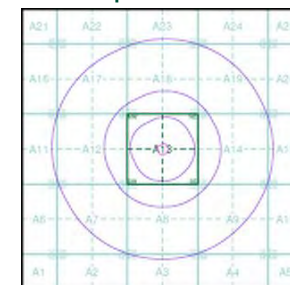
Source map scale - 1:10,000

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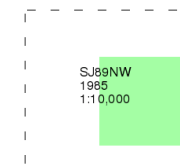
Ordnance Survey Plan

Published 1985

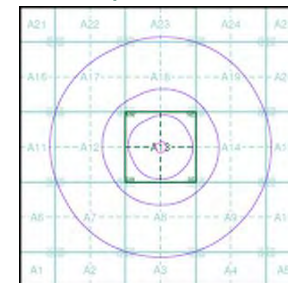
Source map scale - 1:10,000

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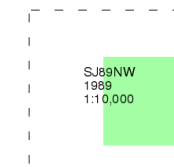
Ordnance Survey Plan

Published 1989

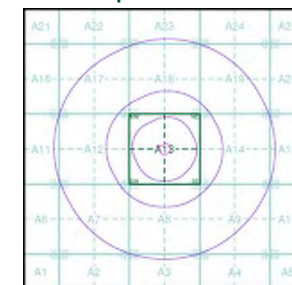
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