1 NQ – Tariff Street Manchester

Marco Living 2 Ltd & Axis-Re Ltd

Remediation Method Statement

143404/04

January 2024







FAIRHURST

CONTROL SHEET

CLIENT: **Marco Living 2 Ltd & Axis-Re Ltd**

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1.0 INTRODUCTION

Fairhurst have been appointed by Marco Living 2 Ltd & Axis-Re Ltd to prepare a Remediation Strategy Method Statement in support of the discharge of planning conditions associated with the proposed development of two residential blocks.

The site is located between Tariff Street and Port Street, c.1km east of Manchester City centre, at grid reference 384790, 398380 (postcode: M1 2FJ).

The location of the site is shown on the map appended in Appendix 1. At present the existing site is utilised as a car park which is owned by the client and managed by The Parking Space.

Fairhurst have previously produced a desk based Geo-environmental, Geotechnical Phase 1 Desk Study (Ref 1: 143404/01, dated: November 2022) and a Ground Investigation Report (Ref 2: 143404-R2-Rev 1, dated June 2023) for the site.

The purpose of the Remediation Strategy Method Statement is as follows;

- To confirm the absence of widespread and high concentration contaminants at the site which could represent a risk to receptors
- To detail the method of implementation and validation of the earthworks
- To set out the audit information required to validate the works.

2.0 BACKGROUND INFORMATION

Detailed information on the site conditions are given in the site investigation. (Ref.2).

2.1 Site Location and Layout

The site is located between Tariff Street and Port Street, in Manchester, at grid reference 384790, 398380 (postcode: M1 2FJ). The site is approximately 0.3ha (0.74 acres) in size and the location of the site is shown on the drawing which is attached to this report in Appendix 1.

The site currently comprises of hard standing associated with the clearance of former warehouse development. At present the site is utilised as a car park owned by the client and managed by The Parking Space.

Available Ordnance Survey plans and open-source LIDAR data from the Environment Agency indicates that ground level it relatively flat and situated at an elevation between 54mAOD and 56mAOD. However, a topographical survey of the site shows a number of retaining walls are present.

2.2 Historical Land Use

A review of the historical plans dating back to 1893, which are presented in Appendix B of the desk study report, indicate that the site is located in an area that has been predominantly industrial in nature and comprises of historical factory units, chimneys, a canal wharf, warehouses and garages.

The site initially consisted of various warehouse buildings and a canal as part of a wharf in 1893. The canal in the north of the site linked to the nearby Rochdale Canal. In the following years from 1922 to 1932, the canal was infilled with an unknown material and replaced with a

garage, paint works, and furniture warehouse. By 1951, the furniture warehouse was removed and between 1963 and 1981, Hills Service Garage was divided into two units. From 1983 to 1990, the site had two main buildings with a shared wall and hardstanding. These buildings were demolished between 1990 and 1992. Since then, there have been no significant changes to the site.

In 1893, the land surrounding the site consisted of residential and industrial units connected to the wharf, with a rail line to the south, with additional buildings developed around the wharf by 1908. Between 1922 and 1932, new outbuildings were constructed to the east, with additional units and chimneys to the north and south. A machine tool warehouse was recorded in 1948 to the east of the site, with some of the outbuildings having been demolished. Between 1990 and 1992, remaining structures to the east of the site were combined into one. Since 1992, no significant changes have taken place, and the structures on the eastern side remain combined.

2.3 Ground Conditions

A brief summary of the geological and hydrogeological situation of the site, based on the Desk Study, is provided below.

Made Ground

The historical plans show extensive development from the 1890's including multiple iterations of buildings and a now infilled canal basin, which linked to the adjacent Rochdale canal. As such, the presence of Made Ground associated with the historical development and the infilled canal is to be expected. BGS borehole records from the neighbouring sites suggest that the canal infill may comprise of ash, cinder and stone and, it is anticipated that in the vicinity of the backfilled canal deeper Made Ground will be present.

Superficial Geology

The BGS drift geology map (sheet 85 - Manchester) and BGS online viewer (GeoIndex Onshore) suggest that Glacial Till is present across the site and is anticipated to comprise sandy and or gravelly Clay. Local BGS borehole records suggests that stiff brownish grey clay is present to c.26m depth.

Solid Geology

The BGS drift geology map (sheet 85 - Manchester) and BGS online viewer (GeoIndex Onshore) also indicates that the entire site is underlain by deposits from the Chester Formation which typically comprises a red sandstone. Examining the nearby BGS borehole records, it is anticipated that the Chester Formation should be encountered at a depth of around 26m.

2.4 Controlled Waters

The Environment Agency classifies the superficial deposits as a Secondary undifferentiated aquifer. It is also possible that localised pockets of perched water may exist within the Made Ground deposits anticipated at the site. Furthermore perched water may be present within the infilled former canal basin.

The Chester Formation is defined as a Principal aquifer by the Environment Agency.

Groundwater vulnerability beneath the site is classified as low risk due to the protection afforded by the overlying Glacial Till, as such the site is not within a groundwater source protection zone or Nitrate Vulnerable Zone. There are three groundwater abstraction points within 1km of the site, however these are not for a potable use.

Whilst there are no onsite surface water features the Rochdale canal is present c40m southeast of the site. The Envirocheck report suggests that there are areas of controlled waters in the southern and eastern part of the site and that there are a number of discharge consents located around the site.

2.5 Contamination Issues

There are several retained level changes within the site boundary. As such, the site is expected to be underlain by a variable thickness of Made Ground deposits, likely comprising of demolition rubble and canal infill.

Whilst the Made Ground is unlikely to contain significant putrescible waste, it could still be a potential source of hazardous gas. If proven as a gas source, it is likely gas productions would be at a low concentration and emission rate.

The Envirocheck report indicates that there are infilled (water) areas on site in the location of a historical canal and that there are areas of potentially infilled land (water) located within 500m of the site.

A site conceptual model has been formulated based on the data recovered as part of the desk study and site investigation. The conceptual model presents the viable source, pathway, and receptor contamination linkage for the site and is set out in the following sections. The principles of environmental risk assessment are presented in Appendix 2. The significance of the viable linkages has been evaluated by carrying out a qualitative risk assessment.

Based on the initial conceptual site model (CSM), Phase 1 Desk Study, and site investigation the majority of identified potentially complete pollutant linkages were given a risk rating of moderate/low or low. The following potential pollution sources were identified:

- Made Ground associated with the demolition of former buildings is anticipated and whilst these materials are unlikely to represent a significant source of contamination, localised and low-level contamination may be present as organic compounds, inorganic compounds, or hazardous gas;
- The presence of the former Hill service garage has the potential to be a source for hydrocarbon, PAH, heavy metal and solvent contamination;
- The presence of the former paint works has the potential to be a source for solvent contamination;
- The presence of former warehouses has the potential to be a site for hydrocarbon, PAH, heavy metal and solvent contamination depending on the materials stored;
- The historical use as a furniture warehouse has the potential to be a source of localised and low level contamination of organic compounds, inorganic compounds or hazardous gas;
- Potential ground gases and hydrocarbons may be present at localised low concentrations associated with the current use of the development site as a car park;

- Given the age and nature of the former buildings on site, these are expected to have contained Asbestos containing materials (ACM's) and the presence of asbestos, buried on site or within the Made Ground soil fabric, cannot be discounted; and
- Potential ground gases and hydrocarbons may be present at low concentrations and emission rates associated with general made ground, canal infill material and specific historical land uses on site.

2.6 Refined Pollution Linkages

Based on the results of the site investigation and the identified site conditions the following environmental sources, pathway, receptors have been identified;

Sources of Contamination

- Contamination associated with organic odours in the made ground.
- Elevated PAH
- Asbestos within the made ground soil matrix and potentially buried on site and/or within the existing structures.
- Historical land use
- Ground gases

Pathways

- Ingestion.
- Skin contact.
- Inhalation.
- Direct contact by buried structures.
- Leaching of soluble contamination into groundwater.
- Saturated zone flow through Aquifer.
- Accumulation of potentially explosive gases within confined spaces.
- Construction pathways.

Receptors

- End Users.
- Construction Workers.
- Main Groundwater Body (Principle Aquifer).
- Buried Structures and Services.
- Landscaping.

Quantitative Risk Assessment

Based on the Conceptual Site Model (CSM) an Environmental Risk Assessment (ERA) was undertaken. The Environmental Risk Assessment was based on a simple matrix taken from CIRIA C552 (Rudland et al., 2001) 'Contaminated Land Risk Assessment – A Guide to Good Practice' which provides a consistent basis for decision-making. The probability and consequences of complete pollution pathways are defined according to parameters relevant to the situation and risk assessment.

The following Pollution Linkages Tables (Table 2 and 3) indicate the level of risk associated with the identified contaminant sources and is based on the combination of consequence and probability. Tables 5, 6, 7, and 8 in **Appendix B** provide a Risk Matrix, together with a Classification of Consequence, Probability, and Risk.

Table 2 – Refined On Site Pollution Linkages

Source	Potential Contaminants	Potential Pathway	Potential Receptors	Assessment	Potential Severity	Potential Probability	Risk Class
Historical land use as infilled Canal	Metals TPH PAH Sulphate pH Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	Made Ground onsite containing elevated concentrations of lead and arsenic as well as elevated B(a)P to be present on site and this contamination may present a potential risk of harm to end users. There is a potential risk to construction workers, however, this risk can be mitigated using appropriate PPE. Foundations and services (including water pipes) could be affected by aggressive ground conditions or contamination. It is considered a very low risk to the local water environment from contamination associated with the Made Ground if present.	Minor	Unlikely	Low
			Construction workers		Minor	Unlikely	Low
			Adjacent land users		Medium	Unlikely	Low
		Direct contact	Buried structures and services		Medium	Unlikely	Low
		Migration/leaching of mobile contaminants	Groundwater		Medium	Unlikely	Low
Made Ground	Metals TPH PAH Sulphate pH Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users		Minor	Unlikely	Very Low
			Construction workers		Mild	Likely	Moderate
			Adjacent land users		Mild	Unlikely	Very Low
		Direct contact	Buried structures and services		Mild	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Mild	Unlikely	Very Low
			Surface water		Mild	Unlikely	Very Low
Historical land uses as: Garage, Paint works, Furniture warehouse	Metals TPH PAH Sulphate pH VOCs & SVOCs Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	Historical land uses have the potential to be a source of contamination. The risk to future site users is Very Low and the risk to construction workers is Moderate/Low. In order to reduce this level of risk to low, construction workers must adopt appropriate health and safety measures and PPE during works.	Minor	Unlikely	Very Low
			Construction workers		Medium	Likely	Moderate /Low
			Adjacent land users		Minor	Unlikely	Very Low
		Direct contact	Buried structures and services		Minor	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Mild	Unlikely	Very Low
			Surface water		Mild	Unlikely	Very Low
Current land use as a Car Park	TPH PAH	Ingestion, inhalation, dermal contact, direct contact	Future site users	Hydrocarbons present at low concentrations and emission rates associated with the current use of the development site as a car park. The risk to future site users and construction workers is considered to be Low. In order to reduce this level of risk to low,	Medium	Unlikely	Low
			Construction workers		Medium	Unlikely	Low
			Adjacent land users		Medium	Unlikely	Low
		Direct contact	Buried structures and services		Medium	Unlikely	Low
		Migration/leaching	Groundwater		Medium	Unlikely	Low

Source	Potential Contaminants	Potential Pathway	Potential Receptors	Assessment	Potential Severity	Potential Probability	Risk Class
		of mobile contaminants	Surface water	construction workers must adopt appropriate health and safety measures and PPE during works.	Medium	Unlikely	Low
Asbestos (buried onsite or within the Made ground soil fabric)	Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	Chrysotile asbestos was encountered in one sample of granular made ground. Further asbestos may be present in burial pits or Made Ground, posing a risk to future site users and construction workers. Construction workers should adhere to proper health and safety measures and personal protective equipment (PPE).	Severe	Low	Moderate
			Construction workers		Severe	High	Very High
Ground Gas (Made Ground and canal infill)	Hazardous Gas (CO_2, CH_4, VOCs, SVOCs)	Inhalation	Future site users	Based on monitoring to date the potential for ground gas is very low. The current use of the development site as a car park may also result in low concentrations and emission rates of ground gases and hydrocarbons. There is risk to future site users and construction workers. To mitigate this risk construction workers must follow appropriate health and safety measures and use personal protective equipment (PPE).	Medium	Unlikely	Low
			Construction workers		Medium	Low	High
			Adjacent land users		Medium	Unlikely	Low
Fly Tipped Material	Metals TPH PAH Asbestos	Dermal contact	Future site users	Any fly tipped material on site can be collected and disposed of. There is a potential risk to construction workers, however, this risk can be mitigated using appropriate PPE.	Minor	Unlikely	Very Low
			Construction workers		Minor	Unlikely	Very Low
			Adjacent land users		Minor	Unlikely	Very Low

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide To Good Practice, 2001
KEY: **Consequence**: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor
Probability: Hi = High likelihood, Li = Likely, Lw = Low Likelihood, Ul = Unlikely
Risk: VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low

Given the presence of Made Ground deposits across the site, the historical nature and development, and localised asbestos containing material and elevated heavy metals (arsenic and lead) localised contaminant hotspots may be encountered during the development works.
Further, the elevated hydrocarbons, TPH and PAH's (due to the former car workshop/garage and within the former canal channel/wharf) indicates contaminant hotspots may be present associated with these sources.

The following general remedial works are expected:

- Provision of clean covers to landscape/garden areas as 150mm of topsoil over 300mm of subsoil;
- Soil gas protection measures as a solid floor slab with basic gas membrane with sealed joints and penetrations;
- Standard protection to buried water service pipes and sewer joints; and
- Concrete design in accordance with BRE digest.

Although not encountered during the works the following risks items may be present:

- Localised buried asbestos;
- Localised buried tanks;
- Localised "hotspots" of soil contaminants as hydrocarbons;
- If encountered these contaminants will require delineation, assessment through an updated risk assessment and if increased risks are identified the material may require removal.

3.0 GENERAL SITE OPERATIONS

3.1 General

The remediation strategy for this site is based on the proposed development, the ground conditions identified detailed in the site investigation reports (Ref.1, 2 & 3 and **Appendix E**) and the risk assessment is summarised in **Section 2.0**.

3.2 Security and Fencing

Prior to commencement of the works appropriate fencing and warning signs should be installed to delineate the works.

3.3 Geotechnical Constraints

The site is subject to a number of constraints. These include the following;

- Deep and variable made ground (proven to 2.50m deep).
- Potential obstructions associated with historical and existing foundations and sub structures.
- Contaminant hotspots or asbestos in the soil matrix or buried on site cannot be discounted
- Services present beneath the site.
- Boundary retention.

3.4 Earthworks

In order to facilitate the proposed final floor levels some earthworks will be required.

The following materials are likely to be generated during general earthworks and excavation for drainage and foundations;

- Made ground as cohesive and granular fill with fragments of concrete, coal/charcoal, mudstone, sandstone, limestone, brick, slate, tile, plastic, clinker and glass – suitable for reuse as low quality fill beneath car park. Due to the localised presence of asbestos and organic odours this material must be confined beneath hard covers or clean covers.
- Superficial deposits for reuse as low quality fill.
- Crushed and processed hard materials – subject to geotechnical testing material likely to be suitable as capping material.

Earthworks material may be subject to water and handling damage. The reuse of earthworks material should be undertaken in accordance with an approved specification in order to ensure materials are suitable for reuse.

An earthworks specification for the reuse of materials on site is included in **Appendix C**.

3.5 Imported Materials

Where imported materials to raise site levels or as subsoil/topsoil are required these materials should not be sourced from areas of known former contaminative use. Chemical analysis shall be undertaken to assess and validate the suitability of imported materials prior to acceptance on site.

3.6 Crushing

Hardstanding and buried artificial hard materials should be excavated and crushed for reuse as suitable fill if possible. Site won materials are to be used within the proposed development as detailed in **Appendix C**.

3.7 Stockpiling

Where earthworks stockpiles are required, these stockpiles shall be located on areas of the site which have been prepared so as to minimise mixing of both the stockpiled and the underlying materials, and to prevent run off from entering the existing surface water system. This may be achieved by the use of impermeable liners, trenches and bunds where necessary.

Made ground materials should be stockpiled separately from natural deposits.

3.8 Wheel Wash

Sweeping and cleaning of the site entrance and public highway(s) is to be carried out where necessary, depending on weather and site conditions, and as required by the Local Authority.

3.9 Pollution Control

During the works appropriate measures and precautions are to be implemented to prevent pollution of surface waters being caused by runoff and siltation.

3.10 Dust and Odour Control

Dust generation during the development of the site will arise as a result of excavation, stockpiling, loading and haulage and is not expected to be problematic except during periods of extended dry weather. Dust control by water spray shall be implemented as necessary.

3.11 Noise and Nuisance

Site plant shall be operated and site operations shall be carried out in such a manner to minimise nuisance and to limit, as far as practicable, noise emissions from the site. Noise emissions shall, as a minimum, be in accordance with local authority requirements or planning conditions.

3.12 Programme of Works

A development programme is detailed separately within the appointed contractor's Development Programme.

4.0 ENVIRONMENTAL SITE REMEDIATION STRATEGY

4.1 Environmental Site Reclamation Works

4.1.1 Site Clearance

The following site clearance shall be undertaken on the site;

- Asbestos survey and safe removal of any ACM from existing buildings.
- Demolition of selected existing buildings.
- Strip of hard and localised soft landscaping.
- Reusable materials shall be either processed on site or recycled off-site
- Surplus arisings of materials for off site disposal to landfill shall be characterised and chemically tested as required by the Hazardous Waste Directive and disposal landfill. Materials disposed of to landfill may have enhanced disposal costs.

4.1.2 General Measures

The following general measures should be implemented during construction:

- Construction workers should undertake soil gas and VOC monitoring prior to and during man entry of below ground voids.
- Construction workers should adopt appropriate health and safety measures to prevent contact with soils and waters.
- Surface water control measures should be adopted during construction to limit runoff and infiltration through exposed made ground horizons and to limit siltation of the surface drainage system and runoff entering surface drainage.
- Dust suppression measures should be adopted during all earthworks to mitigate associated risks.

4.1.3 Hardstanding and Relic Structures

The site currently comprises former warehousing and an infilled canal with the hardstanding used for associated car parking. This existing and historical development indicates that hardstanding, foundations and potential below ground structures are likely to be present.

Where encountered during the site works, hard standing and relic structures are to be broken out to a minimum of 1.5m below the proposed ground level or completely where new foundations, drainage, service or substructures are proposed.

Metals, plastic and wood materials are to be removed from site and either recycled or disposed of to landfill.

The presence of standing and perched groundwater should be anticipated in these excavations

Asbestos

Localised asbestos fibres have been identified by the site investigations in the soil matrix. However, in view of the widespread historical and former built development on site the presence of more widespread asbestos in the soil matrix or buried on site cannot be discounted. If encountered asbestos materials will have enhanced disposal costs.

4.1.4 Minimum Measures to Mitigate Risk to Human Health-End Users

Localised organic odours and asbestos were identified within the made ground while Arsenic, Benzo(a)Pyrene, Indeno(123cd)pyrene and Benzo(bk)fluroanthene and elevated sulphate concentrations were identified within the groundwater during the site investigations. However, as the site will be under hard cover and clean cover, there is no direct pathway between the made ground and groundwater and the end user. As such, the risk to end-users posed by this contamination is considered to be **Low** and no active remedial measures are currently required during preparatory earthworks with respect to end users.

4.1.5 Minimum Measures to Mitigate Risk to Controlled Waters

Arsenic, Benzo(a)Pyrene, Indeno(123cd)pyrene and Benzo(bk)fluroanthene and elevated sulphate were recorded within the groundwater in accordance with drinking water standards and environmental quality standards (freshwater) for controlled waters in England and Wales (**Appendix A**). However, due to the absence of receptors and the presence of impermeable clay beneath the site the risk to offsite groundwaters is considered to be **Low**.

In order to adopt a precautionary approach the following minimum measures should be implemented during the preparatory earthworks to maintain a **Low** risk to controlled waters;

- On completion of the site strip, a visual inspection and validation testing on a 25m grid should be undertaken by an Environmental Engineer to identify evidence of any further areas of unknown contamination.
- Additional contaminated materials encountered during these works should be removed and disposed of to landfill. After completion of these works validation testing and auditing should be undertaken to confirm the successful removal of contaminants.
- Imported materials for bulk fill and materials generated on site during earthworks and reprocessing of hard covers shall be validated as suitable prior to reuse. The results shall be compared against the assessment criteria in **Appendix A**.

- Testing / assessment of any perched groundwater encountered below the site to determine the requirement of any treatment prior to disposal if required.

4.1.7 Validation of Materials

Validation works will be required in the following circumstances;

- To validate the absence of additional contaminants during the site strip and earthworks operations.
- Where on site earthworks materials are excavated for later reuse on site.
- Where materials are imported for use as bulk fill on site.
- Where topsoil and subsoil materials are imported for use as clean covers.
- Where contaminated materials have to be removed, it is necessary to validate the residual materials as acceptable to remain in situ.
- Where unexpected tanks or buried structures are encountered and are removed

The following method of validation for **site won** soil materials is proposed;

- Validation testing following site strip down to formation level shall be undertaken on a 25m grid pattern to confirm absence of contaminants. Where materials fail, a risk assessment will be conducted to assess the risk to human health and groundwater receptors. If a risk is identified a further 6 No. samples shall be undertaken to identify the extent of the contamination for removal.
- Where contaminants are found to still be above assessment level a risk assessment shall be undertaken to confirm the risk to human health and groundwater receptors. Additional materials may need to be removed and/or remediated should the risk be considered to be significant.
- Validation testing for the reuse of site won materials will be undertaken at a minimum rate of 1 (No.) sample per 1000m^3.
- Where tanks or other hotspots of contamination area encountered and removed a minimum of 6 validation tests will be undertaken to validate the removal of any associated contaminated material. The validation of the material shall be carried out in accordance with Section 4.3, taken from the Manchester City Council Planning and Contaminated Land Technical Guidance, February 2021.

In accordance with Section 6 (Cover Systems) from the Manchester City Council Planning and Contaminated Land Technical Guidance, February 2021 the following sampling frequencies are to be undertaken for imported or site won fill materials;

Table 4 – Sampling and Testing Frequency (From Section 6.3 Sampling Ratios – Table 2).

Type	Number of Samples	Testing Schedule	Assessment Criteria
Virgin Quarried Stone.	3 depending on the type of stone utilised, to confirm the inert nature of the material.	Standard metals/metalloids (As,Cd,Cr,CRVi, Cu, Hg, Ni, Pb, Se, Zn).	Assessment Criteria in **Appendix A.**
Crushed Hardcore, Stone, Brick (including crushed existing	Minimum of 3 or 1 per 200m^3 (whichever is greater).	Standard Metals/metalloids (As above)	

hardstanding).		PAH (16USEPA speciation) Asbestos.	
Greenfield/manufactured Soils.	Minimum of 3 or 1 per 200m^3 (whichever is greater).	Standard Metals/metalloids (As above) PAH (16USEPA speciation) Asbestos.	
Brownfield/Screened Soils (including site won made ground that is to be re used).	Minimum of 3 or 1 per 50m^3 (whichever is greater).	Standard Metals/metalloids (As above) PAH (16USEPA speciation) TPH (CWG banded) Asbestos.	

4.3 Landscape Clean Cover

In order to provide a rooting zone and to prevent direct contact by end users to made ground as in with Section 6.1 of the Manchester City Council Planning and Contaminated Land Technical Guidance, February 2021. The strata beneath the landscape strips should include the following construction;

- A minimum 450mm clean cover should be incorporated into soft landscaping areas to provide a suitable rooting zone for proposed planting and incorporating a basal geotextile separator layer.
- All materials are to be validated as clean, inert and free from man made debris in accordance with Section 4.1.7.

The topsoil clean cover will be imported topsoil/subsoil which should be from a 'Greenfield' source and will be tested at the frequency set out in Section 4.1.7.

Contaminant concentrations for imported topsoil will be reviewed in relation to Assessment Criteria in **Appendix A** to confirm that contaminants are below assessment level.

The thickness of clean cover to the area of landscaping will be validated in accordance with the Manchester City Council Planning and Contaminated Land Technical Guidance, February 2021 as detailed below;

- Digital photographs to be taken of the formation level.
- Thickness of capping layer to be verified via hand dug exploratory holes. Digital photographs to be taken of excavation.
- Digital photographs of soft landscaped area post capping to be taken.
- All data to be included within the Validation Report which will include digital photographs titled with location of soft landscape area.

4.4 Gas Protection Measures for Built Development

Based on the site investigations (Ref.1 - 4) the following potential sources of soil gas have been identified;

- Made Ground as granular fill - **Low** soil gas generating potential.
- Superficial deposits – **Very Low** soil gas generating potential.
- Bedrock– **Very Low** soil gas generating potential.

The proposed development, residential, is classified as an increased sensitivity development.

The results of the soil gas monitoring are summarised below;

- Carbon dioxide of up to 6.3%.
- Methane of up to 2.0%.
- Maximum flow rate of 0.0l/h.
- The worst Case Gas Screening Value in all standpipes was 0.0l/h.

A GSV of 0.0 would classify the site as Characteristic Situation 1.

In view of the made ground beneath the site and as a precaution gas protection measures are required with Characteristic Situation 2 and in accordance with BS8485 and CIRIA C665.

The following gas protection measures should be implemented:

- Concrete floor slab.
- An impermeable, reinforced gas barrier membrane 2000g.
- All joints and penetrations sealed.

4.5 Installation of Infrastructure Services

The advice of service providers should be obtained to ensure that appropriate measures are taken to protect services from contamination and aggressive ground conditions.

Buried concrete and services should be designed in accordance with the guidance given in BRE Special publication No. 1 (Ref.6). Groundwater testing during the Earth, Environmental and Geotechnical site investigations (Ref.2 - 4) has indicated a design sulphate DS-2 and ACEC Class AC-2 within the made ground and DS-2 AC-2 within the superficial deposits.

4.6 Regulator Approval

On completion of the remedial works a Validation Report should be submitted to Manchester City Council for approval and formal discharge of the relevant planning conditions attached to the development.

5.0 WASTE DISPOSAL

5.1 Code of Practice

The Contractor and all persons employed by them shall carry out their duties under Section 34(7) of the Environmental Protection Act 1990 for the disposal of waste in accordance with the "Environmental Protection Act 1990, Waste Management, the Duty of Care, A Code of Practice, December 1991" published by HMSO.

5.2 Responsibility for Waste under the Duty of Care

Immediately upon the excavation of any solid, liquid or gaseous waste, the Contractor shall become the "PRODUCER OF THE WASTE" and "CURRENT HOLDER OF THE WASTE" under the above regulations.

5.3 Records

The Contractor shall comply with his duty to make and keep all records required under the above Act and Duty of Care regulations. The Contractor shall make all such records available to the Environment Agency (the Agency).

The Contractor shall operate a **Controlled Waste Transfer Note** documentation system as required under the above Duty of Care regulations for the transfer of all wastes out of the contractor's possession.

The Contractor shall agree the format of ALL the above records and notes with the Agency prior to commencing the Works.

5.4 Approval of Disposal Facilities

Before using any disposal facility the Contractor shall provide documentary evidence to the Environmental Engineer that the site is licensed and able to accept materials from the site. Only those licensed disposal sites approved by the Environmental Engineer shall be used.

5.5 Waste Disposal and Characterisation

The Contractor is required to use suitable licensed disposal sites for the disposal of all liquid and solid wastes from the Site. When required the contractor shall provide copies of all relevant documentation and proofs of delivery from each disposal site.

The requirements of current legislation and of the Environment Agency shall be fully complied with when exporting material from the site.

Liquid waste (should it be produced) shall not be mixed with any other material and shall be disposed off site in its original liquid state to a Licensed liquid disposal site, or foul sewer if contaminant concentrations are acceptable to the Drainage Authority.

It is the responsibility of the Waste producer (Contractor) to adequately characterise waste materials in accordance with the Hazardous Waste Directive prior to off site disposal.

Site won waste material which is designated for off site disposal must comply with the following criteria;

- Waste should be characterised prior to disposal.
- It is the waste producer's responsibility to ensure compliance with the requirements of Landfill Directive/Transfer notes.
- Note; albeit the site investigation has not identified significant ground, gas or groundwater contaminants which represent an unacceptable risk to receptors and would require off site disposal the presence of hotspot contaminants cannot be discounted. These materials and general made ground from the site are expected to attract enhanced disposal costs.

5.6 Transportation

The contractor shall only use registered carriers to transport waste off the site to the licensed disposal site. The contractor shall provide directly to the environmental engineer a copy of the registration certificate for each of the carriers that he intends to employ, certifying that the carrier is currently registered on the environment agency register of waste carriers before the carrier commences the transportation of any materials off site. No removal of wastes off site by the

carrier will be authorised by the environmental engineer until a valid certificate has been received by the environmental engineer.

6.0 HEALTH AND SAFETY

The works are to be undertaken in accordance with the CDM Regulation 2007. The remediation contractor will have duties of Designer and Contractor under these regulations.

Health and safety measures and working practices shall be adopted in accordance with the Health and Safety Executive Publication "Protection of Workers and the General Public during the Development of Contaminated Land".

All site workers will be clearly informed by formal notice about the health and safety risks from potential hydrocarbon and other potential contaminated waste materials if found on site. Site workers carrying out excavation works in areas that may be expected to contain soils or liquids contaminated by such waste materials shall wear appropriate health and safety PPE, and shall be trained in the procedures to be adopted if such materials are encountered in the works.

7.0 RECLAMATION AND AUDIT PROCEDURE

The Main Contractor shall appoint an Environmental Engineer who will be responsible for auditing site remediation and earthworks operations. The responsibilities of the Environmental Engineer will be as detailed in the following sections.

The Environmental Engineer will be responsible for ensuring that reclamation works on site are carried out in accordance with the Method Statement.

The Environmental Engineer will liaise with the Regulatory and Statutory Authorities on environmental matters, as required, to ensure their satisfaction with the site works, and compliance with all planning consent conditions, licensing, etc requirements.

The Environmental Engineer will inspect the excavated and stockpiled material and the cut and prepared ground surfaces, as stated in the Method Statement, to provide a visual assessment of the materials encountered.

The Environmental Engineer will carry out or arrange the necessary sampling and laboratory analyses of material handled during the work in order to ensure compliance with the Method Statement.

The Environmental Engineer will co-ordinate in-situ and laboratory testing, if unknown relic underground structures and tanks are encountered.

The Environmental Engineer shall provide technical supervision of the remediation works (if required). This will comprise a visiting presence during the site strip and re-profiling works.

The Environmental Engineer will review documentary records to be provided by the Main Contractor of the reclamation procedures carried out. This documentary evidence documented by the Main Contractor will include:

- Site diary.
- Plans and records for all investigation and remediation associated with any relic tanks.
- Plans and records of depths, lateral extent and nature of contaminated materials encountered.

- Plans and records of in-situ and laboratory testing carried associate with underground structures, tanks, or contaminated soils.
- Plans and records of the re-use of site excavated fill materials reinstated on site.
- Plans and records of any “imported” fill materials reinstated on site.
- Plans and records of the natural soil arisings reinstated on site.
- Plans and records of fly tipped or crushed concrete materials reinstated on site.
- Plans and records of lateral extent and thicknesses of the clean cover installed over site.
- Documentation for all wastes if disposed of to landfill.
- Plans and records of the fill materials reinstated on site. Plans and records of the lateral extent and thicknesses of the clean cover installed in landscaped areas.
- Plans and records of the “as built” construction details for the gas protection measures installed.
- Documentation of all licences, consents, permits etc issued by the Statutory and Regulatory Authorities, and evidence of compliance with any requirements of the above.

8.0 CERTIFICATION OF RECLAMATION

Certification of reclamation works will be produced on completion of the remediation programme. This will be based upon the information determined from the ground investigation reports, the reclamation procedures implemented and the documentary evidence provided by the Contractor and Environmental Engineer.

The certification of the reclamation works will include a summary of the following:

1. Conditions on site prior to reclamation works.
2. The proposed method of reclamation as agreed with the Statutory Authorities.
3. A review of the actual works undertaken, and a certificate that the reclamation was carried out in accordance with the method of reclamation agreed with the Statutory Authorities.

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2. Phase I Desk Study Report, 1 NQ Tariff Street, Ref. 143404/01-Rev C, November 2022.
3. Factual Geo-Environmental Report, Tariff Street, Manchester, Ref. GRO-22079-4613
4. CIRIA C665 Assessing risks posed by hazardous ground gases to buildings (2007).
5. BS8485:2015+A1:2019, Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
6. BRE Special Digest No. 1:2005 (3rd Edition), Concrete in Aggressive Ground, 2005.
7. Environment Agency, 'Using Soil Guideline Values', SC050021/SGV.
8. Environment Agency, 2004, Remedial Targets Methodology.
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10. Ground Gas Handbook by Geoff Card, Sarah Haines and Steve Wilson dated 2009.
11. Waste Management Licensing Regulations.
12. CL:AIRE Waste Code of Practice.
13. CIRIA Report C733 Asbestos in Soils and Made Ground: A guide to understanding and managing risk. Dated 2014.
14. Manchester City Council, Planning & Contaminated Land, Technical Guidance, February 2021.

APPENDIX A

Assessment Criteria for Commercial SSV's

GAC values for controlled waters in England and Wales

SOIL ASSESSMENT CRITERIA FOR HUMAN HEALTH RISK ASSESSMENT

Parameter	Residential		Commercial	Allotment	Public Open Space near Residential land (POSresi)	Public Park Land (POSpark)	Source	Model
	With Home Grown Produce	Without Home Grown Produce						
	1-6% SOM (mg kg^{-1})	1-6% SOM (mg kg^{-1})	1-6% SOM (mg kg^{-1})	1-6% SOM (mg kg^{-1})	1-6% SOM (mg kg^{-1})	1-6% SOM (mg kg^{-1})		
Metals/Metalloids (a)								
Antimony	Not Derived	550	7,500	Not Derived	-	-	CL:AIRE	CLEA v1.06
Arsenic (inorganic)	37	40	640	43	79	170	LQM/CIEH S4ULs	CLEA v1.071
Barium	Not Derived	1,300	22,000	Not Derived	-	-	CL:AIRE	CLEA v1.06
Beryllium	1.7	1.7	12	35	2.2	63	LQM/CIEH S4ULs	CLEA v1.071
Boron	290	11,000	240,000	45	21,000	46,000	LQM/CIEH S4ULs	CLEA v1.071
Cadmium (d)	11	85	190	1.9	120	560	LQM/CIEH S4ULs	CLEA v1.071
Chromium (III)	910	910	8,600	18,000	1,500	33,000	LQM/CIEH S4ULs	CLEA v1.071
Chromium (VI) (e)	6	6	33	1.8	7.7	220	LQM/CIEH S4ULs	CLEA v1.071
Copper	2,400	7,100	68,000	520	12,000	44,000	LQM/CIEH S4ULs	CLEA v1.071
Lead (f)	200	310	2,330	80	630	1,300	DEFRA C4SL	CLEA
Mercury (Methyl)	11	15	320	6	40	68	LQM/CIEH S4ULs	CLEA v1.071
Molybdenum	Not Derived	670	17,000	Not Derived	-	-	CL:AIRE	CLEA v1.06
Nickel	130	180	980	53	230	800	LQM/CIEH S4ULs	CLEA v1.071
Selenium	250	430	12,000	88	1,100	1,800	LQM/CIEH S4ULs	CLEA v1.071
Vanadium	410	1,200	9,000	91	2,000	5,000	LQM/CIEH S4ULs	CLEA v1.071
Zinc	3,700	40,000	730,000	620	81,000	170,000	LQM/CIEH S4ULs	CLEA v1.071
Other Inorganics								
Asbestos	Non Detection	Non Detection	Non Detection	Non Detection	Non Detection	Non Detection		
Free Cyanide	34	34	34	34	34	34	ATKINS ATRISK SSV	CLEA v1.04

Parameter	Residential						Commercial (mg kg^{-1})			Allotment (mg kg^{-1})			Public Open Space near Residential land (POSresi) (mg kg^{-1})			Public Park Land (POSpark) (mg kg^{-1})			Source	Model
	With Home Grown Produce (mg kg^{-1})			Without Home Grown Produce (mg kg^{-1})																
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM		
Organics																				
Biphenyl	66	160	360	220	500	980	18,000	33,000	48,000	14	35	83	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Organometals																				
Tributyl tin oxide	0.25	0.59	1.3	1.4	3.1	5.7	130	180	200	0.042	0.1	0.24	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
PAHs																				
Acenaphthene	210	510	1,100	3,000	4,700	6,000	84,000	97,000	100,000	34	85	200	15,000	15,000	15,000	29,000	30,000	30,000	LQM/CIEH S4ULs	CLEA v1.071
Acenaphthylene	170	420	920	2,900	4,600	6,000	83,000	97,000	100,000	28	69	160	15,000	15,000	15,000	29,000	30,000	30,000	LQM/CIEH S4ULs	CLEA v1.071
Anthracene	2,400	5,400	11,000	31,000	35,000	37,000	520,000	540,000	540,000	380	950	2,200	74,000	74,000	74,000	150,000	150,000	150,000	LQM/CIEH S4ULs	CLEA v1.071
Benzo(a)anthracene	7.2	11	13	11	14	15	170	170	180	2.9	6.5	13	29	29	29	49	56	62	LQM/CIEH S4ULs	CLEA v1.071
Benzo(a)pyrene	2.2	2.7	3.0	3.2	3.2	3.2	35	35	36	0.97	2	3.5	5.7	5.7	5.7	11	12	13	LQM/CIEH S4ULs	CLEA v1.071
Benzo(b)fluoranthene	2.6	3.3	3.7	3.9	4.0	4.0	44	44	45	0.99	2.1	3.9	7.1	7.2	7.2	13	15	16	LQM/CIEH S4ULs	CLEA v1.071
Benzo(g,h,i)perylene	320	340	350	360	360	360	3,900	4,000	4,000	290	470	640	640	640	640	1,400	1,500	1,600	LQM/CIEH S4ULs	CLEA v1.071
Benzo(k)fluoranthene	77	93	100	110	110	110	1,200	1,200	1,200	37	75	130	190	190	190	370	410	440	LQM/CIEH S4ULs	CLEA v1.071
Chrysene	15	22	27	30	31	32	350	350	350	4.1	9.4	19	57	57	57	93	110	120	LQM/CIEH S4ULs	CLEA v1.071
Dibenz(a,h)anthracene	0.24	0.28	0.30	0.31	0.32	0.32	3.5	3.6	3.6	0.14	0.27	0.43	0.57	0.57	0.58	1.1	1.3	1.4	LQM/CIEH S4ULs	CLEA v1.071
Fluoranthene	280	560	890	1,500	1,600	1,600	23,000	23,000	23,000	52	130	290	3,100	3,100	3,100	6,300	6,300	6,400	LQM/CIEH S4ULs	CLEA v1.071
Fluorene	170	400	860	2,800	3,800	4,500	63,000	68,000	71,000	27	67	160	9,900	9,900	9,900	20,000	20,000	20,000	LQM/CIEH S4ULs	CLEA v1.071
Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	500	510	510	9.5	21	39	82	82	82	150	170	180	LQM/CIEH S4ULs	CLEA v1.071
Naphthalene	2.3	5.6	13	2.3	5.6	13	190	460	1,100	4.1	10	24	4,900	4,900	4,900	1,200	1,900	3,000	LQM/CIEH S4ULs	CLEA v1.071
Phenanthrene	95	220	440	1,300	1,500	1,500	22,000	22,000	23,000	15	38	90	3,100	3,100	3,100	6,200	6,200	6,300	LQM/CIEH S4ULs	CLEA v1.071
Pyrene	620	1,200	2,000	3,700	3,800	3,800	54,000	54,000	54,000	110	270	620	7,400	7,400	7,400	15,000	15,000	15,000	LQM/CIEH S4ULs	CLEA v1.071
Coal Tar (Bap as surrogate marker)	0.79	0.98	1.1	1.2	1.2	1.2	15	15	15	0.32	0.67	1.2	2.2	2.2	2.2	4.4	4.7	4.8	LQM/CIEH S4ULs	CLEA v1.071
TPHs																				
Aliphatic EC 5-6	42	78	160	42	78	160	3,200	5,900	12,000	730	1,700	3,900	570,000	590,000	600,000	95,000	130,000	180,000	LQM/CIEH S4ULs	CLEA v1.071
Aliphatic EC >6-8	100	230	530	100	230	530	7,800	17,000	40,000	2,300	5,600	13,000	600,000	610,000	620,000	150,000	220,000	320,000	LQM/CIEH S4ULs	CLEA v1.071
Aliphatic EC >8-10	27	65	150	27	65	150	2,000	4,800	11,000	320	770	1,700	13,000	13,000	13,000	14,000	18,000	21,000	LQM/CIEH S4ULs	CLEA v1.071
Aliphatic EC >10-12	130	330	760	130	330	770	9,700	23,000	47,000	2,200	4,400	7,300	13,000	13,000	13,000	21,000	23,000	24,000	LQM/CIEH S4ULs	CLEA v1.071
Aliphatic EC >12-16	1100	2,400	4,300	1100	2,400	4,400	59,000	82,000	90,000	11,000	13,000	13,000	13,000	13,000	13,000	25,000	25,000	26,000	LQM/CIEH S4ULs	CLEA v1.071
Aliphatic EC >16-35	65,000	92,000	110,000	65,000	92,000	110,000	1,600,000	1,700,000	1,800,000	260,000	270,000	270,000	250,000	250,000	250,000	450,000	480,000	490,000	LQM/CIEH S4ULs	CLEA v1.071
Aliphatic EC >35-44	65,000	92,000	110,000	65,000	92,000	110,000	1,600,000	1,700,000	1,800,000	260,000	270,000	270,000	250,000	250,000	250,000	450,000	480,000	490,000	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >5-7 (benzene)	70	140	300	370	690	1400	26,000	46,000	86,000	13	27	57	56,000	56,000	56,000	76,000	84,000	92,000	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >7-8 (toluene)	130	290	660	860	1800	3,900	56,000	110,000	180,000	22	51	120	56,000	56,000	56,000	87,000	95,000	100,000	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >8-10	34	83	190	47	110	270	3,500	8,100	17,000	8.6	21	51	5,000	5,000	5,000	7,200	8,500	9,300	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >10-12	74	180	380	250	590	1200	16,000	28,000	34,000	13	31	74	5,000	5,000	5,000	9,200	9,700	10,000	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >12-16	140	330	660	1,800	2,300	2,500	36,000	37,000	38,000	23	57	130	5,100	5,100	5,000	10,000	10,000	10,000	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >16-21	260	540	930	1,900	1,900	1,900	28,000	28,000	28,000	46	110	260	3,800	3,800	3,800	7,600	7,700	7,800	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >21-35	1,100	1,500	1,700	1,900	1,900	1,900	28,000	28,000	28,000	370	820	1,600	3,800	3,800	3,800	7,800	7,800	7,900	LQM/CIEH S4ULs	CLEA v1.071
Aromatic EC >35-44	1,100	1,500	1,700	1,900	1,900	1,900	28,000	28,000	28,000	370	820	1,600	3,800	3,800	3,800	7,800	7,800	7,900	LQM/CIEH S4ULs	CLEA v1.071
Aliphatic + Aromatic EC >44-70	1,600	1,800	1,900	1,900	1,900	1,900	28,000	28,000	28,000	1,200	2,100	3,000	3,800	3,800	3,800	7,800	7,800	7,900	LQM/CIEH S4ULs	CLEA v1.071
BTEX																				
Benzene	0.087	0.17	0.37	0.38	0.7	1.4	27	47	90	0.017	0.034	0.075	72	72	73	90	100	110	LQM/CIEH S4ULs	CLEA v1.071
Toluene	130	290	660	880	1,900	3,900	56,000	110,000	180,000	22	51	120	56,000	56,000	56,000	87,000	95,000	100,000	LQM/CIEH S4ULs	CLEA v1.071
Ethylbenzene	47	110	260	83	190	440	5,700	13,000	27,000	16	39	91	24,000	24,000	25,000	17,000	22,000	27,000	LQM/CIEH S4ULs	CLEA v1.071
o-xylene	60	140	330	88	210	480	6,600	15,000	33,000	28	67	160	41,000	42,000	43,000	17,000	24,000	33,000	LQM/CIEH S4ULs	CLEA v1.071
m-xylene	59	140	320	82	190	450	6,200	14,000	31,000	31	74	170	41,000	42,000	43,000	17,000	24,000	32,000	LQM/CIEH S4ULs	CLEA v1.071
p-xylene	56	130	310	79	180	430	5,900	14,000	30,000	29	69	160	41,000	42,000	43,000	17,000	23,000	31,000	LQM/CIEH S4ULs	CLEA v1.071
Chloroalkanes & Alkenes																				
1,1-Dichloroethane	2.4	3.9	7.4	2.5	4.1	7.7	280	450	850	9.2	17	35	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
1,2 Dichloroethane	0.0071	0.011	0.019	0.0092	0.013	0.023	0.67	0.97	1.7	0.0046	0.0083	0.016	29	29	29	21	24	28	LQM/CIEH S4ULs	CLEA v1.071
1,1-Dichloroethene	0.23	0.4	0.82	0.23	0.41	0.82	26	46	92	2.8	5.6	12	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
1,1,1 Trichloroethane	8.8	18	39	9	18	40	660	1,300	3,000	48	110	240	140,000	140,000	140,000	57,000	76,000	100,000	LQM/CIEH S4ULs	CLEA v1.071
1,1,2 Trichloroethane	0.6	1.2	2.7	0.88	1.8	3.9	94	190	400	0.28	0.61	1.4	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
1,1,2,2 Tetrachloroethane	1.6	3.4	7.5	3.9	8	17	270	550	1,100	0.41	0.89	2	1,400	1,400	1,400	1,800	2,100	2,300	LQM/CIEH S4ULs	CLEA v1.071
1,1,1,2 Tetrachloroethane	1.2	2.8	6.4	1.5	3.5	8.2	110	250	560	0.79	1.9	4.4	1,400	1,400	1,400	1,500	1,800	2,100	LQM/CIEH S4ULs	CLEA v1.071
Tetrachloroethene	0.18	0.39	0.9	0.18	0.4	0.92	19	42	95	0.65	1.5	3.6	1,400	1,400	1,400	810	1,100	1,500	LQM/CIEH S4ULs	CLEA v1.071
Tetrachloromethane (Carbon tetrachloride)	0.026	0.056	0.13	0.026	0.056	0.13	2.9	6.3	14.0	0.45	1	2.4	890	920	950	190	270	400	LQM/CIEH S4ULs	CLEA v1.071
Trichloroethene	0.016	0.034	0.075	0.017	0.036	0.08	1.2	2.6	5.7	0.041	0.091	0.21	120	120	120	70	91	120	LQM/CIEH S4ULs	CLEA v1.071
Trichloromethane (chloroform)	0.91	1.7	3.4	1.2	2.1	4.2	99	170	350	0.42	0.83	1.7	2,500	2,500	2,500	2,600	2,800	3,100	LQM/CIEH S4ULs	CLEA v1.071
Chloroethane (vinyl chloride)	0.00064	0.00087	0.0014	0.00077	0.0010	0.0015	0.059	0.077	0.12	0.00055	0.0010	0.0018	3.5	3.5	3.5	4.8	5	5.4	LQM/CIEH S4ULs	CLEA v1.071
Explosives																				
2,4,6 Trinitrotoluene (TNT)	1.6	3.7	8.1	65	66	66	1,000	1,000	1,000	0.24	0.58	1.4	130	130	130	260	270	270	LQM/CIEH S4ULs	CLEA v1.071
RDX	120	250	540	13,000	13,000	13,000	210,000	210,000	210,000	17	38	85	26,000	26,000	27,000	49,000	51,000	53,000	LQM/CIEH S4ULs	CLEA v1.071
HMX	5.7	13	26	6,700	6,700	6,700	110,000	110,000	110,000	0.86	1.90	3.90	13,000	13,000	13,000	23,000	23,000	24,000	LQM/CIEH S4ULs	CLEA v1.071
Pesticides																				
Aldrin	5.7	6.6	7.1	7.3	7.4	7.5	170	170	170	3.2	6.1	9.6	18	18	18	30	31	31	LQM/CIEH S4ULs	CLEA v1.071
Dieldrin	0.97	2	3.5	7	7.3	7.4	170	170	170	0.17	0.41	0.96	18	18	18	30	30	31	LQM/CIEH S4ULs	CLEA v1.071
Atrazine	3.3	7.6	17.4	610	620	620	9,300	9,400	9,400	0.5	1.2	2.7	1,200	1,200	1,200	2,300	2,400	2,400	LQM/CIEH S4ULs	CLEA v1.071
Dichlorvos	0.032	0.066	0.14	6.4	6.5	6.6	140	140	140	0.0049	0.01	0.022	16	16	16	26	26	27	LQM/CIEH S4ULs	CLEA v1.071
Alpha-Endosulfan	7.4	18	41	160	280	410	5,600	7,400	8,400	1.2	2.9	6.8	1,200	1,200	1,200	2,400	2,400	2,500	LQM/CIEH S4ULs	CLEA v1.071
Beta-Endosulfan	7	17	39	190	320	440	6,300	7,800	8,700	1.1	2.7	6.4	1,200	1,200	1,200	2,400	2,400	2,500	LQM/CIEH S4ULs	CLEA v1.071
Alpha-Hexachlorocyclohexane	0.23	0.55	1.2	6.9	9.2	11	170	180	180	0.035	0.087	0.21	24	24	24	47	48	48	LQM/CIEH S4ULs	CLEA v1.071
Beta-Hexachlorocyclohexane	0.085	0.2	0.46	3.7	3.8	3.8	65	65	65	0.013	0.032	0.077	8.1	8.1	8.1	15	15	16	LQM/CIEH S4ULs	CLEA v1.071
Gamma-Hexachlorocyclohexane	0.06	0.14	0.33	2.9	3.3	3.5	67	69	70	0.0092	0.023	0.054	8.2	8.2	8.2	14	15	15	LQM/CIEH S4ULs	CLEA v1.071
Chlorobenzenes																				
Chlorobenzene	0.46	1	2.4	0.46	1	2.4	56	130	290	5.9	14	32	11,000	13,000	14,000	1,300	2,000	2,900	LQM/CIEH S4ULs	CLEA v1.071
1,2 Dichlorobenzene	23	55	130	24	57	130	2,000	4,800	11,000	94	230	540	90,000	95,000	98,000	24,000	36,000	51,000	LQM/CIEH S4ULs	CLEA v1.071
1,3 Dichlorobenzene	0.4	1	2.3	0.44	1.1	2.5	30	73	170	0.25	0.6	1.5	300	300	300	390	440	470	LQM/CIEH S4ULs	CLEA v1.071
1,4 Dichlorobenzene	61	150	350	61	150	350	4,400	10,000	25,000	15	37	88	17,000	17,000	17,000	36,000	36,000	36,000	LQM/CIEH S4ULs	CLEA v1.071
1,2,3 Trichlorobenzene	1.5	3.6	8.6	1.5	3.7	8.8	102	250	590	4.7	12	28	1,800	1,800	1,800	770	1,100	1,600	LQM/CIEH S4ULs	CLEA v1.071
1,2,4 Trichlorobenzene	2.6	6.4	15	2.6	6.4	15	220	530	1,300	55	140	320	15,000	17,000	19,000	1,700	2,600	4,000	LQM/CIEH S4ULs	CLEA v1.071
1,3,5 Trichlorobenzene	0.33	0.81	1.9	0.33	0.81	1.9	23	55	130	4.7	12	28	1,700	1,700	1,800	380	580	860	LQM/CIEH S4ULs	CLEA v1.071
1,2,3,4 Tetrachlorobenzene	15	36	78	24	56	120	1,700	3,080	4,400	4.4	11	26	830	830	830	1,500	1,600	1,600	LQM/CIEH S4ULs	CLEA v1.071
1,2,3,5 Tetrachlorobenzene	0.66	1.6	3.7	0.75	1.9	4.3	49	120	240	0.38	0.9	2.2	78	79	79	110	120	130	LQM/CIEH S4ULs	CLEA v1.071
1,2,4,5 Tetrachlorobenzene	0.33	0.77	1.6	0.73	1.7	3.5	42	72	96	0.06	0.16	0.37	13	13	13	25	26	26	LQM/CIEH S4ULs	CLEA v1.071
Pentachlorobenzene	5.8	12	22	19	30	38	640	770	830	1.2	3.1	7	100	100	100	190	190	190	LQM/CIEH S4ULs	CLEA v1.071
Hexachlorobenzene	1.8	3.3	4.9	4.1	5.7	6.7	110	120	120	0.47	1.1	2.5	16	16	16	30	30	30	LQM/CIEH S4ULs	CLEA v1.071
Phenols																				
Phenol	120	200	380	440	690	1,200	440	690	1,300	23	42	83	440	690	1,300	440	690	1,300	LQM/CIEH S4ULs	CLEA v1.071
Chlorophenol (4 congeners)	0.87	2	4.5	94	150	210	3,500	4,000	4,300	0.13	0.3	0.7	620	620	620	1,100	1,100	1,100	LQM/CIEH S4ULs	CLEA v1.071
Pentachlorophenol	0.22	0.52	1.2	27	29	31	400	400	400	0.03	0.08	0.19	60	60	60	110	120	120	LQM/CIEH S4ULs	CLEA v1.071
Other (Unchlorinated)																				
Methyl tert-butyl ether (MTBE)	49	84	160	73	120	220	7,900	13,000	24,000	23	44	90	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Carbon disulphide	0.14	0.29	0.62	0.14	0.29	0.62	11	22	47	4.8	10	23	11,000	11,000	12,000	1,300	1,900	2,700	LQM/CIEH S4ULs	CLEA v1.071
Hexachlorobutadiene	0.29	0.7	1.6	0.32	0.78	1.8	31	66	120	0.25	0.61	1.4	25	25	25	48	50	51	LQM/CIEH S4ULs	CLEA v1.071
Styrene	8.1	19	43	35	78	170	3,300	6,500	11,000	12	3.7	8.7	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Dioxins, Furans and Dioxin-like PCBs																				
PCDDs, PCDFs and dioxin-like PCB's (Sum)	0.008	0.008	0.008	0.008	0.008	0.008	0.24	0.24	0.24	0.008	0.008	0.008	-	-	-	-	-	-	EA SGV	CLEA v1.05
VOC																				
1,2-Dichloropropane	0.024	0.042	0.084	0.024	0.042	0.085	3	6	12	0.62	1.2	2.6	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Bromoform	2.8	5.9	13	5.2	11	23	760	1,500	3,100	0.95	2.1	4.6	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
1,2,4-Trimethylbenzene	0.35	0.85	2	0.41	0.99	2.3	42	99	220	0.38	0.93	2.2	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Chloromethane	0.0083	0.0098	0.013	0.0085	0.0099	0.013	1	1	2	0.066	0.13	0.23	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Dichloromethane	0.58	0.98	1.7	2.1	2.8	4.5	270	360	560	0.1	0.19	0.34	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Bromodichloromethane	0.016	0.03	0.061	0.019	0.034	0.07	2	4	8	0.016	0.032	0.068	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Trans 1,2 Dichloroethene	0.19	0.34	0.7	0.19	0.35	0.71	22	40	81	0.93	1.9	4	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Cis 1,2 Dichloroethene	0.11	0.19	0.37	0.12	0.2	0.39	14	24	47	0.26	0.5	1	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Isopropylbenzene	11	27	64	12	28	67	1,400	3,300	7,700	32	79	190	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
SVOCs																				
2,4-Dimethylphenol	19	43	97	210	410	730	16,000	24,000	30,000	3.1	7.2	17	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
2,4-Dinitrotoluene	1.5	3.2	7.2	170	170	170	3,700	3,700	3,800	0.22	0.49	1.1	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
2,6-Dinitrotoluene	0.78	1.7	3.9	78	84	87	1,900	1,900	1,900	0.12	0.27	0.61	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
2-Chloronaphthalene	3.7	9.2	22	3.8	9.3	22	390	960	2,200	40	98	230	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Diethyl Phthalate	120	260	570	1800	3500	6300	150,000	220,000	290,000	19	41	94	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Bis (2-ethylhexyl) phthalate	280	610	1100	2700	2800	2800	85,000	86,000	86,000	47	120	280	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Propylbenzene	34	82	190	40	97	230	4,100	9,700	21,000	34	83	200	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Bromobenzene	0.87	2	4.7	0.91	2.1	4.9	97	220	520	3.2	7.6	18	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Hexachloroethane	0.2	0.48	1.1	0.22	0.54	1.3	22	53	120	0.27	0.67	1.6	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Total Cresols (2-, 3- and 4-methylphenol)	80	180	400	3700	5400	6900	160,000	180,000	180,000	12	27	63	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Butyl benzyl phthalate	1400	3300	7200	42000	44000	44000	940,000	940,000	950,000	220	550	1300	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Di-n-butyl phthalate	13	31	67	450	450	450	15,000	15,000	15,000	2	5	12	-	-	-	-	-	-	CL:AIRE	CLEA v1.06
Di-n-octyl phthalate	2300	2800	3100	3400	3400	3400	89,000	89,000	89,000	940	2100	3900	-	-	-	-	-	-	CL:AIRE	CLEA v1.06

Determinand		Pre 2016 Acceptance Criteria						2021 Scottish Acceptance Criteria						Ref Loc Loc Depth Mat Mat
		Surface Waters (Fresh)	Source	Surface Waters (Marine)	Source	Ground Waters	Source	Surface Waters (Fresh)	Source	Surface Waters (Marine)	Source	Ground Waters	Source	
Metals														
Aluminium	ug/l	-	-	-	-	200	UK DWS	15	EA/SNIFFER 1998	15	EA/SNIFFER 1998	200	UK DWS	
Antimony	ug/l	-	-	-	-	5.0	EU DWS	-	-	-	-	5.0	WS(WQ)(Scot)Regs 2001	
Arsenic	ug/l	50	Annex G EQS	25	Annex G EQS	10	EU DWS	50	SRBD Directions 2014*	25	SRBD Directions 2014*	10	WS(WQ)(Scot)Regs 2001	
Barium	ug/l	-	-	-	-	700	WHO DW	-	-	-	-	700	WHO DW	
Beryllium	ug/l	-	-	-	-	4.0	US EPA	-	-	-	-	4.0	US EPA	
Boron (water soluble)	ug/l	2,000	Annex G EQS	7,000	Annex G EQS	1,000	EU DWS	2,000	HMSO (1998)	7,000	HMSO (1998)	1,000	WS(WQ)(Scot)Regs 2001	
Cadmium	ug/l	0.08 - 0.25	EU standard	0.20	EU standard	5.0	EU DWS	0.08-0.25 [b]	SRBD Directions 2015*	0.20	SRBD Directions 2015*	5.0	WS(WQ)(Scot)Regs 2001	
Chromium (III)	ug/l	4.7	Proposed UKTAG	-	-	50	EU DWS	4.7	SRBD Directions 2014*			50	WS(WQ)(Scot)Regs 2001	
Chromium (VI) - hexavalent	ug/l	3.40	Proposed UKTAG	0.60	Proposed UKTAG	-	-	3.4	SRBD Directions 2014*	0.60	SRBD Directions 2014*	-	-	
Cobalt	ug/l	-	-	-	-	-	-	3.0	DETR (1998)	3.0	DETR (1998)	-	-	
Copper	ug/l	1.0 - 28	Annex G EQS	5.0	Annex G EQS	2,000	EU DWS	1 (bio) [c]	SRBD Directions 2014*	3.76 [d]	SRBD Directions 2014*	2,000	WS(WQ)(Scot)Regs 2001	
Iron	ug/l	1,000	Annex G EQS	1,000	Annex G EQS	200	EU DWS	1,000	SRBD Directions 2014*	1,000	SRBD Directions 2014*	(200) [n]	WS(WQ)(Scot)Regs 2001	
Lead	ug/l	7.2	EU standard	7.2	EU standard	10	EU DWS	1.2 (bio) [c]	SRBD Directions 2015*	1.3	SRBD Directions 2015*	10	WS(WQ)(Scot)Regs 2001	
Manganese	ug/l	-	-	-	-	50	UK DWS	123 (bio) [c]	SRBD Directions 2014*			(50) [n]	WS(WQ)(Scot)Regs 2001	
Mercury (Elemental)	ug/l													
Mercury (inorganic)	ug/l	0.05	EU standard	0.05	EU standard	1.0	EU DWS	0.07 [e]	SRBD Directions 2015*	0.07 [e]	SRBD Directions 2015*	1.0	WS(WQ)(Scot)Regs 2001	
Mercury (methyl)	ug/l													
Molybdenum	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	ug/l	20	EU standard	20	EU standard	20	EU DWS	4 (bio) [c]	SRBD Directions 2015*	8.6	SRBD Directions 2015*	(20) [n]	WS(WQ)(Scot)Regs 2001	
Selenium	ug/l	-	-	-	-	10	EU DWS	-	-	-	-	10	WS(WQ)(Scot)Regs 2001	
Silver	ug/l	0.05	Annex G EQS	0.05	Annex G EQS	10	UK DWS	0.05	DoE (1996)	0.50	DoE (1996)	100	WHO DW	
Tin	ug/l	25	Annex G EQS	10	Annex G EQS	-	-	25	DoE (1989)	10	DoE (1989)	-	-	
Vanadium	ug/l	20	Annex G EQS	100	Annex G EQS	-	-	20 - 60 [f]	HMSO (1989)	100	HMSO (1989)	-	-	
Zinc	ug/l	8.0 - 125	Annex G EQS	40	Annex G EQS	3,000	WHO taste threshold	11.9 (bio) [c]	SRBD Directions 2014*	7.9	SRBD Directions 2014*	(3000) [n]	WHO taste threshold	
Inorganics														
Ammonia	ug/l	200	Proposed UKTAG	21	Proposed UKTAG	500	UK DWS	[g]	SRBD Directions 2014*	21.00	SRBD Directions 2014*	500 (ammonium)	WS(WQ)(Scot)Regs 2001	
Bromate	ug/l	-	-	-	-	10	UK DWS	-	-	-	-	10	WS(WQ)(Scot)Regs 2001	
Chloride	ug/l	-	-	-	-	-	-	-	-	-	-	(250,000) [n] [o]	WHO DW	
Chlorine	ug/l	2.0	Proposed UKTAG	1.0	Proposed UKTAG	5,000	WHO	2.00	SRBD Directions 2014*			5,000	WHO DW	
Cyanide Complex	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide Free	ug/l	1.0	Annex G EQS	1.0	Annex G EQS	50	EU DWS	1.0	SRBD Directions 2014*	1.0	SRBD Directions 2014*	-	-	
Cyanide Total	ug/l	-	-	-	-	-	-	-	-	-	-	50 (total)	WS(WQ)(Scot)Regs 2001	
Fluoride	ug/l	-	-	-	-	-	-	1000+ [p]	SRBD Directions 2014*			1,500	WS(WQ)(Scot)Regs 2001	
Nitrate	ug/l	-	-	-	-	50,000	EU DWS	-	-	-	-	50,000	WS(WQ)(Scot)Regs 2001	
Nitrite	ug/l	-	-	-	-			-	-	-	-	500	WS(WQ)(Scot)Regs 2001	
Hydrogen Sulphide	ug/l	-	-	-	-			0.25	DoE (1993)			-	-	
pH	-	6.0 - 9.0	Annex G EQS	-	-	6.5 - 8.5	US EPA (SDWR)	-	-	-	-	-	-	
Sulphate Acid Soluble (SO4)	%	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphate Total (SO4)	ug/l	-	-	-	-	-	-	400,000.00	EA (1999)			(500,000) n	WHO DW	
Sulphate Water Soluble (SO4)	mg/l	-	-	-	-	250	UK DWS	-	-	-	-	-	-	
Sulphide	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Thiocyanate	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Total Sulphur as S	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	
TPHs														
Aliphatic EC >5-6 (benzene)	ug/l	20	Ethylbenzene EQS used as surrogate	20	Ethylbenzene EQS used as surrogate	300	WHO DWS for C8-C16					(15,000) [h] [q]	WHO DWS for C8-16 [n]	
Aliphatic EC >6-8 (toluene)	ug/l	20	Ethylbenzene EQS used as surrogate	20	Ethylbenzene EQS used as surrogate	300	WHO DWS for C8-C16							
Aliphatic EC >8-10	ug/l	20	Ethylbenzene EQS used as surrogate	20	Ethylbenzene EQS used as surrogate	300	WHO DWS	20.00	ethylbenzene EQS as a surrogate [i]	20.00	ethylbenzene EQS as a surrogate [i]			
Aliphatic EC >10-12	ug/l	20	Ethylbenzene EQS used as surrogate	20	Ethylbenzene EQS used as surrogate	300	WHO DWS					300 [h]	WHO DWS	
Aliphatic EC >12-16	ug/l	20	Ethylbenzene EQS used as surrogate	20	Ethylbenzene EQS used as surrogate	300	WHO DWS							
Aliphatic EC >16-21	ug/l	NV	TPHCWG	NV	TPHCWG	NV	TPHCWG	Effectively Insoluble	-	Effectively Insoluble	-	Effectively Insoluble	-	
Aliphatic EC >21-35	ug/l	NV	TPHCWG	NV	TPHCWG	NV	TPHCWG	Effectively Insoluble	-	Effectively Insoluble	-	Effectively Insoluble	-	
Aliphatic EC >35-44	ug/l	NV	TPHCWG	NV	TPHCWG	NV	TPHCWG	Effectively Insoluble	-	Effectively Insoluble	-	Effectively Insoluble	-	
Aliphatic EC >5-44	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Aromatic EC >5-7	ug/l	10	Benzene EQS	8.0	Benzene EQS	1.0	UK DWS for benzene	10	benzene EQS	8.0	benzene EQS	1.0 [h]	UK DWS for benzene	
Aromatic EC >7-8	ug/l	50	Toluene EQS	40	Toluene EQS	700	WHO DWS for toluene	74	toluene EQS	74	toluene EQS	700 [h]	WHO DWS for toluene	
Aromatic EC >8-10	ug/l	20	Ethylbenzene EQS as a surrogate	20	Ethylbenzene EQS as a surrogate	300	WHO DWS for ethyl benzene					300 [h]	WHO DWS for ethylbenzene	
Aromatic EC >10-12	ug/l	20	Ethylbenzene EQS as a surrogate	20	Ethylbenzene EQS as a surrogate	100	WHO DWS					90 [h]	WHO DWS	
Aromatic EC >12-16	ug/l	20	Ethylbenzene EQS as a surrogate	20	Ethylbenzene EQS as a surrogate	100	WHO DWS	20	ethylbenzene EQS as a surrogate [i]	20	ethylbenzene EQS as a surrogate [i]			
Aromatic EC >16-21	ug/l	20	Ethylbenzene EQS as a surrogate	20	Ethylbenzene EQS as a surrogate	90	WHO DWS					90 [h]	WHO DWS	
Aromatic EC >21-35	ug/l	20	Ethylbenzene EQS as a surrogate	20	Ethylbenzene EQS as a surrogate	90	WHO DWS							
Aromatic EC >35-44	ug/l	20	Ethylbenzene EQS as a surrogate	20	Ethylbenzene EQS as a surrogate	90	WHO DWS	Effectively Insoluble	-	Effectively Insoluble	-	Effectively Insoluble	-	
Aromatic EC >5-44	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Aliphatic + Aromatic EC >44-70	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
PAHs														
Acenaphthene	ug/l	NV	-	NV	-	-	-	-	-	-	-	-	-	
Acenaphthylene	ug/l	NV	-	NV	-	-	-	-	-	-	-	-	-	
Anthracene	ug/l	0.10	EU standard	0.10	EU standard	-	-	0.10	SRBD Directions 2015*	0.10	SRBD Directions 2015*	-	-	
Benzo(a)anthracene	ug/l	0.05	Benzo(a)pyrene threshold	0.05	Benzo(a)pyrene threshold	-	-	-	-	-	-	-	-	
Benzo(a)pyrene	ug/l	0.05	EU standard	0.05	EU standard	0.01	EU DWS	0.00017 [j]	SRBD Directions 2015*	0.00017 [j]	SRBD Directions 2015*	0.01	WS(WQ)(Scot)Regs 2001	
Benzo(b)fluoranthene	ug/l	0.03 sum	EU standard	0.03 sum	EU standard		EU DWS	-	-	-	-			
Benzo(k)fluoranthene	ug/l		EU standard		EU standard	0.10 sum	EU DWS	-	-	-	-	0.10 (sum)	WS(WQ)(Scot)Regs 2001	
Benzo(ghi)perylene	ug/l	0.002 sum	EU standard	0.002 sum	EU standard		EU DWS	-	-	-	-			
Indeno(123-cd)pyrene	ug/l		EU standard		EU standard		EU DWS	-	-	-	-			
Chrysene	ug/l	NV	-	NV	-	-	-	-	-	-	-	-	-	
Dibenzo(ah)anthracene	ug/l	0.05	Benzo(a)pyrene threshold	0.05	Benzo(a)pyrene threshold	-	-	-	-	-	-	-	-	
Fluoranthene	ug/l	0.10	EU standard	0.10	EU standard	-	-	0.0063	SRBD Directions 2015*	0.0063	SRBD Directions 2015*	-	-	
Fluorene	ug/l	NV	-	NV	-	-	-	-	-	-	-	-	-	
Naphthalene	ug/l	2.40	EU standard	1.20	EU standard	-		2.0	SRBD Directions 2015*	2.0	SRBD Directions 2015*	-	-	
Phenanthrene	ug/l	NV	-	NV	-	-	-	-	-	-	-	-	-	
Pyrene	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Styrene	ug/l	-	-	-	-	-	-	50	EA (1995)	50	EA (1995)	20	WHO DW	
PAH (total)	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
BTEX														
Benzene	ug/l	10	Annex G EQS	8	Annex G EQS	1.0	UK DWS	10	SRBD Directions 2015*	8.0	SRBD Directions 2015*	1.0	WS(WQ)(Scot)Regs 2001	
Toluene	ug/l	74	Proposed UKTAG	74	Proposed UKTAG	700.0	WHO DW	74	SRBD Directions 2014*	74	SRBD Directions 2014*	700	WHO DW	
Ethylbenzene	ug/l	20	Annex G EQS	20	Annex G EQS	300	WHO DW	20	EA/SNIFFER 2001	20	EA/SNIFFER 2001	300	WHO DW	
o-xylene	ug/l													
m-xylene	ug/l	30	Annex G EQS	30	Annex G EQS	500	WHO DW	30	Annex G EQS (old)	30	Annex G EQS (old)	500	WHO DW	
p-xylene	ug/l													
Phenols														
Phenol	ug/l	7.7	Proposed UKTAG	7.7	Proposed UKTAG	-	-	7.7	SRBD Directions 2014*	7.7	SRBD Directions 2014*	-	-	
Chlorophenol (4 congeners)	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Pentachlorophenol	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Organometals														
Dibutyl Tin	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Monobutyl Tin	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Tributyltin (oxide)	ug/l	0.0002	EU standard	0.0002	EU standard	-	-	0.0002	SRBD Directions 2015*	0.0002	SRBD Directions 2015*	-	-	
Triphenyltin	ug/l	0.020	Annex G EQS	0.008	Annex G EQS	-	-	0.02	Annex G EQS (old)	0.008	Annex G EQS (old)	-	-	
Other (Unchlorinated)														
Methyl tert-butyl ether (MTBE)	ug/l	15	EA report MTBE	-	-	15	EA report MTBE	-	-	-	-	-	-	
Carbon disulphide	ug/l	-	-	-	-	-	-	-	-	-	-	-	-	
Hexachlorobutadiene	ug/l	50	Annex G EQS	50	Annex G EQS	20	WHO DW	-	-	-	-	-	-	
Chlorinated Hydrocarbons														
1,1,1-Trichloroethane	ug/l	-	-	-	-	-	-	100	Annex G EQS (old)	100	Annex G EQS (old)	200	US EPA	
1,1,2-Trichloroethane	ug/l	-	-	-	-	-	-	400	Annex G EQS (old)	300	Annex G EQS (old)	5.0	US EPA	
1,1-dichloroethene (-ethylene)	ug/l	-	-	-	-	-	-	-	-	-	-	7.0	US EPA	
cis -1,2-dichloroethene (-ethylene)	ug/l	-	-	-	-	-	-	-	-	-	-	70 [r]	US EPA	
trans -1,2 dichloroethene (-ethylene)	ug/l	-	-	-	-	-	-	-	-	-	-	50	WHO	
1,2-dichlorobenzene	ug/l	-	-	-	-	-	-	20	DETR (1998)	20	DETR (1998)	600	US EPA	
1,4-dichlorobenzene	ug/l	-	-	-	-	-	-					80	US EPA	
1,2-dichloroethane	ug/l	-	-	-	-	-	-	10	SRBD Directions 2015*	10	SRBD Directions 2015*	3.0	WS(WQ)(Scot)Regs 2001	
1,2-dichloropropane	ug/l	-	-	-	-	-	-	-	-	-	-	5.0	US EPA	
C10-C13 chloroalkanes	ug/l	-	-	-	-	-	-	0.40	SRBD Directions 2015*	0.40	SRBD Directions 2015*	-	-	
Carbon tetrachloride	ug/l	-	-	-	-	-	-	12	SRBD Directions 2015*	12	SRBD Directions 2015*	3.0	WS(WQ)(Scot)Regs 2001	
Chlorobenzene	ug/l	-	-	-	-	-	-	-	-	-	-	100	WS(WQ)(Scot)Regs 2001	
Chloronitrotoluenes (all)	ug/l	-	-	-	-	-	-	10	Annex G EQS (old)	10	Annex G EQS (old)	-	-	
Dichloromethane	ug/l	-	-	-	-	-	-	20	SRBD Directions 2015*	20	SRBD Directions 2015*	5.0	US EPA	
Hexachlorobenzene	ug/l	-	-	-	-	-	-	0.05 [e]	SRBD Directions 2015*	0.05 [e]	SRBD Directions 2015*	0.10	WS(WQ)(Scot)Regs 2001	
Hexachlorobutadiene	ug/l	-	-	-	-	-	-	0.60 [e]	SRBD Directions 2015*	0.60 [e]	SRBD Directions 2015*	0.10	WS(WQ)(Scot)Regs 2001	
Hexachlorocyclohexane	ug/l	-	-	-	-	-	-	0.02	EU standard	0.002	EU standard	-	-	
Pentachlorobenzene	ug/l	-	-	-	-	-	-	0.007	SRBD Directions 2015*	0.0007	SRBD Directions 2015*	-	-	
Tetrachloroethane	ug/l	-	-	-	-	-	-	140	SRBD Directions 2014*	-	-	-	-	
Tetrachloroethene (-ethylene)	ug/l	-	-	-	-	-	-	10	SRBD Directions 2015*	10	SRBD Directions 2015*	10	WS(WQ)(Scot)Regs 2001	
Tetrachloromethane	ug/l	-	-	-	-	-	-	-	-	-	-	3.0	WS(WQ)(Scot)Regs 2001	
Trichlorobenzene	ug/l	-	-	-	-	-	-	0.40 (sum)	SRBD Directions 2015*	0.40 (sum)	SRBD Directions 2015*	70 *(1,2,4-TCE)*	US EPA	
Trichloroethene (-ethylene)	ug/l	-	-	-	-	-	-	10	SRBD Directions 2015*	10	SRBD Directions 2015*	10	WS(WQ)(Scot)Regs 2001	
Trichloromethane (chloroform)	ug/l	-	-	-	-	-	-	2.5	SRBD Directions 2015*	2.5	SRBD Directions 2015*	-	-	
Vinyl chloride (chloromethane)	ug/l	-	-	-	-	-	-	-	-	-	-	0.50	WS(WQ)(Scot)Regs 2001	
Chlorinated Phenols														
2,4-dichlorophenol	ug/l	-	-	-	-	-	-	4.2	SRBD Directions 2014*	0.042	SRBD Directions 2014*	-	-	
2,4,6-trichlorophenol	ug/l	-	-	-	-	-	-	-	-	-	-	200	WHO DW	
Chlorophenol	ug/l	-	-	-	-	-	-	50	Annex G EQS (old)	50	Annex G EQS (old)	-	-	
4-Chloro-3-methylphenol	ug/l	-	-	-	-	-	-	40	Annex G EQS (old)	40	Annex G EQS (old)	-	-	
Pentachlorophenol	ug/l	-	-	-	-	-	-	0.40	SRBD Directions 2015*	0.40	SRBD Directions 2015*	0.10	WS(WQ)(Scot)Regs 2001	
Other Halogenated Organic Chemicals														
1,2-dibromoethane	ug/l	-	-	-	-	-	-	-	-	-	-	400	WHO DW	
Brominated diphylether	ug/l	-	-	-	-	-	-	0.14 [e]	SRBD Directions 2015*	0.014 [e]	SRBD Directions 2015*	-	-	
Other organic Chemicals														
Phenol	ug/l	-	-	-	-	-	-	7.7	SRBD Directions 2014*	7.7	SRBD Directions 2014*	-	-	
Biphenyl	ug/l	-	-	-	-	-	-	25	Annex G EQS (old)	25	Annex G EQS (old)	-	-	
Benzyl butyl phthalate	ug/l	-	-	-	-	-	-	7.5	SRBD Directions 2014*	0.75	SRBD Directions 2014*	-	-	
Di(2-ethylhexyl)phthalate	ug/l	-	-	-	-	-	-	1.3	SRBD Directions 2015*	1.3	SRBD Directions 2015*	6.0	US EPA	
Dibutylphthalate	ug/l	-	-	-	-	-	-	8.0	DETR (1998)	8.0	DETR (1998)	-	-	
Diethylphthalate	ug/l	-	-	-	-	-	-	200	DETR (1998)	200	DETR (1998)	-	-	
Dimethylphthalate	ug/l	-	-	-	-	-	-	800	DETR (1998)	800	DETR (1998)	-	-	
Methylphenol	ug/l	-	-	-	-	-	-	100	EA [k]	100	EA [k]	-	-	
Nonylphenol	ug/l	-	-	-	-	-	-	0.30	SRBD Directions 2015*	0.30	SRBD Directions 2015*	-	-	
Octylphenol	ug/l	-	-	-	-	-	-	0.10	SRBD Directions 2015*	0.01	SRBD Directions 2015*	-	-	
Formaldehyde	ug/l	-	-	-	-	-	-	5.0	DoE (1993)	-	-	-	-	
Acrylamide	ug/l	-	-	-	-	-	-	-	-	-	-	0.10	WS(WQ)(Scot)Regs 2001	
PESTICIDES – n.b. this is not a complete list														
2,4-D	ug/l	-	-	-	-	-	-	0.30	SRBD Directions 2014*	0.30	SRBD Directions 2014*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Alachlor	ug/l	-	-	-	-	-	-	0.30	SRBD Directions 2015*	0.30	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Aldrin	ug/l	-	-	-	-	-	-	see cyclodiene pest's	-	-	-	0	WS(WQ)(Scot)Regs 2001	
Atrazine	ug/l	-	-	-	-	-	-	0.60	SRBD Directions 2015*	0.60	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Bentazone	ug/l	-	-	-	-	-	-	500	Annex G EQS (old)	500	Annex G EQS (old)	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Carbofuran	ug/l	-	-	-	-	-	-	-	-	-	-	7	WHO DW	
Chlorfenvinphos	ug/l	-	-	-	-	-	-	0.10	SRBD Directions 2015*	0.10	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Chlorotoluron	ug/l	-	-	-	-	-	-	2.0	EA (1996)	2.0	EA (1996)	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Chlorpyrifos	ug/l	-	-	-	-	-	-	0.03	SRBD Directions 2015*	0.03	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Cyclodiene pesticides (sum) [l]	ug/l	-	-	-	-	-	-	0.01	SRBD Directions 2015*	0.01	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Cypermethrin	ug/l	-	-	-	-	-	-	0.00008 [m]	SRBD Directions 2015*	0.000008 [m]	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
DDT	ug/l	-	-	-	-	-	-	0.025	SRBD Directions 2015*	0.025	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Dieldrin	ug/l	-	-	-	-	-	-	see cyclodiene pest's	-	-	-	0	WS(WQ)(Scot)Regs 2001	
para-para-DDT	ug/l	-	-	-	-	-	-	0.01	SRBD Directions 2015*	0.01	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Diazinon	ug/l	-	-	-	-	-	-	0.01	SRBD Directions 2014*	0.01	SRBD Directions 2014*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Dichlorvos	ug/l	-	-	-	-	-	-	0.0006	SRBD Directions 2015*	0.00006	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Dimethoate	ug/l	-	-	-	-	-	-	0.48	SRBD Directions 2014*	0.48	SRBD Directions 2014*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Diuron	ug/l	-	-	-	-	-	-	0.20	SRBD Directions 2015*	0.20	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Endosulfan	ug/l	-	-	-	-	-	-	0.005	SRBD Directions 2015*	0.0005	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Fenitrothion	ug/l	-	-	-	-	-	-	0.01	Annex G EQS (old)	0.01	Annex G EQS (old)	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Glyphosate	ug/l	-	-	-	-	-	-	196	SRBD Directions 2014*	196	SRBD Directions 2014*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Heptachlor	ug/l	-	-	-	-	-	-	0.0000002	SRBD Directions 2015*	0.000001	SRBD Directions 2015*	0	WS(WQ)(Scot)Regs 2001	
Isoproturon	ug/l	-	-	-	-	-	-	0.30	SRBD Directions 2015*	0.30	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Lindane (HCH)	ug/l	-	-	-	-	-	-	0.02	SRBD Directions 2015*	0.002	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Linuron	ug/l	-	-	-	-	-	-	0.50	SRBD Directions 2014*	0.50	SRBD Directions 2014*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Malathion	ug/l	-	-	-	-	-	-	0.01	Annex G EQS (old)	0.02	Annex G EQS (old)	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Mecoprop	ug/l	-	-	-	-	-	-	18	SRBD Directions 2014*	18	SRBD Directions 2014*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Permethrin	ug/l	-	-	-	-	-	-	0.001	SRBD Directions 2014*	0.0002	SRBD Directions 2014*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Simazine	ug/l	-	-	-	-	-	-	1.0	SRBD Directions 2015*	1.0	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
Trifluralin	ug/l	-	-	-	-	-	-	0.03	SRBD Directions 2015*	0.03	SRBD Directions 2015*	0.10 [s]	WS(WQ)(Scot)Regs 2001	
'Total' pesticides	ug/l	-	-	-	-	-	-	-	-	-	-	0.10 [s]	WS(WQ)(Scot)Regs 2001	

APPENDIX B

Risk Matrix

Table 5 – Risk Classification Matrix

		Consequence			
		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High (Hi)	Very high risk	High Risk	Moderate Risk	Moderate/low risk
	Likely (Li)	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood (Lw)	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely (Ul)	Moderate/low risk	Low risk	Very low risk	Very low risk

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

Table 6 – Classification of Consequence

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem or organisation forming part of such ecosystem (note: the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health ("significant harm" as defined in DETR, 2000). Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution). A significant change in a particular ecosystem or organism forming part of such ecosystem, (note: the definitions of ecological systems within Draft Circular on Contaminated Land, DETR, 2000).	Concentration of a contaminant from site exceeds the generic or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of a species within a designated nature reserve. Lesser toxic and asphyxiate effects of carbon dioxide
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ("significant harm" as defined in the Draft Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discoloration of concrete.

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

Table 7 – Classification of Probability

Probability Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

Table 8 - Classification of Risk and Likely Action Required

Very high risk (Vh)	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High risk (Hi)	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer-term.
Moderate risk (Md)	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer-term.
Low risk (Lw)	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very low risk (Vl)	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

APPENDIX C

General Specification for Earthworks

1.0 GENERAL SPECIFICATION FOR EARTHWORKS DURING SITE REMEDIATION

1.1 INTRODUCTION

As part of the development earthworks will be carried out to re-profile the site to a suitable development platform and to remove foundations, and obstructions. The development platform will be reinstated with site won materials.

To ensure that a reasonable standard of backfilling is achieved it is proposed that the earthworks are undertaken in accordance with the SHW series 600 earthworks specification and all associated clauses. The use of lime and cement stabilised materials may be utilised to control moisture content and generate a suitable standard of materials for reuse beneath pavement structures.

The aim of adopting these earthworks standards is to ensure that the general reinstatement of fill materials is undertaken in a controlled manner to provide a finished surface which will be stable, will not be subject to excessive settlement or contain near surface obstructions to excavations, and will be trafficable to plant.
Excavations may encountered perched waters which may be persistent. The contractor should undertake temporary works control measures to account for this in their operations to control this water and mitigate damage to earthworks materials. This groundwater may contain silt and other water contaminants and require disposal offsite.

1.2 CLASSIFICATION OF MATERIALS

1.2.1 Earthworks materials shall be categorised into one of the following classifications.

i. Acceptable material; material which meets with the requirements of **Table 6/1**, **Appendix C**.

ii. Unacceptable material; material which either does not meet the requirements of **Table 6/1** or contains the following materials or constituents:

   a. Peat, organic soils and organic perishable materials (e.g. wood, straw, sawdust and paper).

   b. Materials in a frozen condition.

   c. Clays of liquid limit >90 or plasticity index >65.

   d. Combustible materials.

   e. Hazardous Waste materials having hazardous chemicals (hydrocarbons) or physical properties requiring special measures for excavation, storage, transportation, deposition and disposal.

iii. All materials placed within 450mm of finished foundation must be non frost susceptible in accordance with SHW series 600 Clause 602.19

1.3 USE OF FILL MATERIALS

1.3.1 The tests and rate of testing to be carried out by the Contractor in order to assess suitability shall be as detailed in **Table 6/1**.

1.3.2 Maximum particle size of any fill material shall be no more than two thirds of the compacted layer thickness. In addition cobbles, having an equivalent diameter of more than 150mm, shall not be placed within the engineered fill.

1.4 COMPACTION OF FILLS

The method of compaction shall be adopted as required for the Class of fill in **Table 6/1** using the plant and methods appropriate to the Class of fill and the site conditions; as detailed in **Table 6/4**.

Plant and methods not included in Table 6/4 shall only be used providing the Contractor demonstrates at site trials that the state of compaction is achieved by the alternative method equivalent to that obtained using the specified.

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)				Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and tested in accordance with:	Acceptable limits within:					
									Lower	Upper				
GENERAL GRANULAR FILL	1	A	-	Well graded granular material	General Fill	Any material, or combination of materials, other than material designated as Class 3 in the Contract. Recycled aggregate	(i) Grading	BS 1377: Part 2	Tab 6/2	Tab 6/2	Tab 6/4 Method 2	1	A	-
							(ii) Uniformity coefficient	See Note 5	10	-				
							(iii) mc	BS 1377: Part 2	App 6/1	App 6/1				
							(iv) MCV	Clause 632	App 6/1	App 6/1				

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes) (continued)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)				Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and tested in accordance with:	Acceptable limits within:					
									Lower	Upper				
GENERAL COHESIVE FILL	2	A	-	Wet cohesive material	General Fill	Any material, or combination of materials, other than material designated as Class 3 in the Contract	(i) Grading	BS 1377: Part 2	Tab 6/2	Tab 6/2	Table 6/4 Method 1; except (i) for materials with liquid limit greater than 50, determined by BS 1377; Part 2, only tamping rollers or grid rollers shall be used.	2	A	-
							(ii) plastic limit (PL)	BS 1377: Part 2	-	-				
							(iii) mc	BS 1377: Part 2	PL -4%	App 6/1				
							(iv) MCV	Clause 632	App 6/1	App 6/1				
							(v) Undrained shear strength of remould material	Clause 633	App 6/1	App 6/1				
	2	B	-	Dry cohesive material	General Fill	Any material or combination of materials, other than chalk	(i) Grading	BS 1377: Part 2	Tab 6/2	Tab 6/2	Tab 6/4 Method 2	2	B	-
							(ii) Plastic Limit (PL)	BS 1377: Part 2	-	-				
							(iii) mc	BS 1377: Part 2	-	PL -4%				
							(iv) MCV	Clause 632	App 6/1	App 6/1				
							(v) Undrained shear strength of remould material	Clause 633	App 6/1	App 6/1				
	2	C	-	Stony cohesive material	General Fill	Any material, or combination of materials, other than chalk	(i) Grading	BS 1377: Part 2	Tab 6/2	Tab 6/2	Tab 6/4 Method 2	2	C	-
							(ii) Plastic Limit (PL)	BS 1377: Part 2	-	-				
							(iii) mc	BS 1377: Part 2	App 6/1	App 6/1				
							(iV) MCV	Clause 632	App 6/1	-				

FAIRHURST

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes) (continued)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)				Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and tested in accordance with:	Acceptable limits within:					
									Lower	Upper				
LANDSCAPE FILL	4	-	-	Various	Fill to Landscape Areas and Clean Cover Materials	Any "clean" materials	(i) Grading	BS 1377 : Part 2	App 6/1	App 6/1	See Clause 620 and App 6/1	4	-	-
							(ii) mc	BS 1377 : Part 2	-	App 6/1				
							(iii) MCV	Clause 632	App 6/1	App 6/1				
							(iv) Chemical Properties Where Used as Clean Cover	App 6/1	-	Tab 6/6				
TOPSOIL	5	A	-	Topsoil, or turf existing on site	Topsoiling	Topsoil or turf designated as Class 5A in the contract	(i) Grading	Clause 618	-	Clause 618	No requirement	5	A	-
							(i) Chemical Properties where used as Clean Cover	Appendix 6/1 (MCERTS)	-	Tab 6/6				
	5	B	-	Imported Topsoil	Topsoiling	General purpose grade complying with BS 3882	(i) Chemical Properties where used as clean cover	Appendix 6/1 (MCERTS)	-	Tab 6/8	No requirement	5	B	-

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes) (continued)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)				Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and Tested in accordance with:	Acceptable limits within:					
									Lower	Upper				
SELECTED GRANULAR FILL	6	F	2	Selected Granular Material (coarse grading)	Capping	Any material or combination of materials, other than burnt colliery spoil and argillaceous rock. Recycled aggregate.	(i) Grading	BS 1377: Part 2	Tab 6/2	Tab 6/2	Tab6/4 Method 6	6	F	2
							(ii) Optimum mc	BS 1377: Part 4 (vibrating hammer method)	-	-				
							(iii) mc	BS 1377: Part 2	Optimum mc – 2%	Optimum mc				
							(ii) Los Angeles Coefficient	Clause 635	-	50				
	6	F	5	Selected Granular Material (fine grading)	Capping	Unbound mixtures complying with BS EN 13285 Any material or combination of materials – including recycled aggregate, but excluding unburnt colliery spoil, argillaceous rock, chalk, recycled bituminous planings and granulated asphalt	Size Designation and Overall Grading Category	BS EN 13285 – 0/80 and G_E	Tab 6/5	Tab 6/5	Tab6/4 Method 6	6	F	5
							Maximum Fines and Oversize Categories	BS EN 13285 – UF_{12} and OC_{75}	Tab 6/5	Table 6				
							Los Angeles Coefficient	BS EN 13242 – LA_{50}	-	50				
							Volume Stability of Blast Furnace Slag	BS EN 13242 – free from dicalcium silicate and iron disintegration	-	-				
							Volume Stability of Steel (BOF) and (EAF) Slag	BS EN 13242 – V_5	-	-				
							Laboratory Dry Density and optimum water content	BS EN 13285 – clause 5.3 – declared values	-	-				
							Water Content	BS EN 1097 – 5	OWC - 2%	OWC				
							Chemical Properties	Appendix 6/1 (MCERTS)	-	Tab 6/7				

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes) (continued)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)				Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and Tested in accordance with:	Acceptable limits within:					
									Lower	Upper				
SELECTED GRANULAR FI LL	6	N	-	Selected well graded granular material	Fill to structures	Natural gravel, natural sand, crushed gravel, crushed rock, crushed concrete, slag, well burnt colliery spoil or any combination thereof. None of these constituents shall include any argillaceous rock. Recycled aggregate except recycled asphalt. Where material is imported onto site which is not 'as dug' it shall be aggregate conforming to BS EN 13242 from one or more of the following source codes, see Notes 8, 9 and 10: P (natural aggregates – except shale, siltstone or slate, see Note 7); A2 (crushed concrete) A3 (crushed bricks, masonry) D2 (air cooled blast furnace slag) G1 (red coal shale).	(i) Grading	BS 1377: Part 2 (On-site)	Tab 6/2	Tab 6/2	End product 95% of maximum dry density of BS 1377: Part 4 (vibrating hammer method)	6	N	-
								BS EN 933-2 (Imported onto site)	Tab 6/5	Tab 6/5				
							(ii) uniformity coefficient	See Note 5	10	-				
							(iii) Los Angeles coefficient	Clause 635		40				
							(iv) undrained shear parameters (c and ϕ)	Clause 633	App 6/1	-				
							(v) effective angle of internal friction (ϕ') and effective cohesion (c')	Clause 636	App 6/1	-				
							(vi) permeability	Clause 640 App 6/	Clause 640 App 6/	-				
							(vii) mc	(vii) BS 1377: Part 2 see note 4	App 6/1	App 6/1				
							(viii) MCV	Clause 632	App 6/1	App 6/1				
							(ix) slope stability test (where required in App 6/6)	Clause 610	App 6/6					

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes) (continued)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)				Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and Tested in Accordance With:	Acceptable Limits Within:					
									Lower	Upper				
SELECTED GRANULAR FILL	6	R	-	Selected granular material	For Stabilisation with Lime and Cement to Form Capping (Class 9F)	Any material, or combination of materials other than unburnt colliery spoil and argillaceous rock	(i) Grading	BS 1377: Part 2 (On Site)	Tab 6/2	Tab 6/2	Not Applicable	6	R	-
								BS EN 933-2 (Off Site)	Tab 6/5	Tab 6/5				
							(ii) mc	BS 1377: Part 2	App 6/1	-				
							(iii) Liquid Limit	BS 1377: Part 2	-	45				
							(iv) Plasticity Index	BS 1377: Part 2	-	20				
							(v) Organic Matter	BS 1377: Part 3	-	App 6/1				
							(vi) Water soluble (WS) Sulphate Content	TRL Report 447, Test No. 1	-	3000 mg/l as SO_4				
							(vii) Oxidisable Sulphides (OS) Content	TRL Report 447, Tests No. 2 and 4	-	0.6% as SO_4				
							(viii) Total Potential Sulphate (TPS) Content	TRL Report 447, Test No. 4	-	1.2% as SO_4				

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes) (continued)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)				Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and Tested in Accordance With:	Acceptable Limits Within:					
									Lower	Upper				
SELECTED COHESIVE FILL	7	A	-	Selected Cohesive materials	Fill to structures	Any material or combination of materials, other than argillaceous rock and materials designated as Class 3 in the Contract. If chalk is used it shall form 100% of constituents. (Properties (i) and (iii) shall not apply to chalk.) (Properties (vii) and (viii) may be increased to 54% and 31% respectively for Lias Clay only and subject to the requirements of contract specific Appendix 6/6)	(i) Grading	BS1377: Part 2	Tab 6/2	Tab 6/2	End product: 100% of maximum dry density of BS 1377 : Part 4 (2.5 kg rammer method) or a dry density corresponding to 5% air voids at field mc whichever is lower	7	A	-
							(ii) mc	BS1377: Part 2 See Note 4	App 6/1	App 6/1				
							(iii) MCV	Clause 632	App 6/1	App 6/1				
							(iv) undrained shear parameters (c and ϕ)	Clause 633	App 6/1	App 6/1				
							(v) effective angle of internal friction (ϕ') and effective cohesion (c')	Clause 636	App 6/1	App 6/1				
							(vi) IDD of chalk	Clause 634	App 6/1	App 6/1				
							(vii) liquid limit	BS 1377: Part 2	-	45				
							(viii) plasticity index	BS 1377: Part 2	-	25				

Table 6/1: Acceptable Earthworks Materials: Classification and Compaction Requirements (See Footnotes) (continued)

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability in Clause 601 and Testing in Clause 631)			Compaction Requirements in Clause 612	Class		
							Property (See Exceptions in Previous Column)	Defined and Tested in accordance with:	Acceptable limits within: Lower	Acceptable limits within: Upper				
STABILISED FILL	9	D		Lime Stabilised cohesive material	Capping	Class 7E with addition of lime according to Clause 615	(i) Pulverisation	BS 1924: Part 2	30%		Table 6/4 Method 7	9	D	-
							(ii) MCV immediately before compaction	Clause 632	App 6/1	App 6/1				
							(iii) bearing ratio	BS 1924: Part 2	App 6/1	App 6/1				
							(iv) mc	BS 1924: Part 2	App 6/1	App 6/1				
	9	F	-	Lime and Cement Stabilised Well Graded Granular Material	Capping	Class 6R with addition of lime and cement according to Clause 643	(i) Pulverisation	BS 1924: Part 2	60%	-	Table 6/4 Method 7			
							(ii) bearing ratio	BS 1924: Part 2	App 6/1	-				
							(iii) mc	BS 1924: Part 2	App 6/1	App 6/1				

Footnotes to Table 6/1:

1. App = Appendix
2. Tab = Table
3. Where in the Acceptable Limits column reference is made to App 6/1, only those properties having limits ascribed to them in Appendix 6/1 shall apply. Where Appendix 6/1 gives limits for other properties not listed in this Table such limits shall also apply.
4. Where BS 1377: Part 2 is specified for mc, this shall mean BS 1377: Part 2 or BS 812: Part 3 as appropriate.
5. Uniformity coefficient is defined as the ratio of the particle diameters D60 to D10 on the particle size distribution curve, where -
   D60 = particle diameter at which 60% of the soil weight is finer
   D10 = particle diameter at which 10% of the soil weight is finer.

Table 6/2: Grading Requirements for Acceptable Site-Won Earthworks Materials

Percentage by Mass Passing the Test Sieve Shown																				
Class	Size (mm)		Size (mm) BS Series													Size (microns) BS Series					Class
	500	300	125	90	75	37.5	28	20	14	10	6.3	5	3.35	2	1.18	600	300	150	63	2	
1A		100	95-100																<15		1A
2A-B			100											80-100					15-100		2A-B
2C			100											15-80					15-80		2C
4A-B			100																		4A-B
6F2 / 6F5			100	80-100	65-100	45-100				15-60		10-45				0-25			0-12		6F2
6N					100														<15		6N
7A					100														15-100		7A

Table 6: Grading Requirements for Acceptable Imported Earthworks Materials for Class 6F5

Percentage by Mass Passing the Test Sieve Shown																
Class	Size (mm) BS EN Series												Size (microns) BS EN Series			Class
	125	80	63	40	31.5	20	16	10	8	4	2	1	500	125	63	
6F5	100	75-99		50-90		30-75		15-60			0-35				0-12	6F5

TABLE 6/4: Method Compaction for Earthworks Materials: Plant and Methods (Method 1 to Method 6) (This Table is to be read in conjunction with sub-Clause 612.10)

Type of Compaction Plant	Ref No.	Category	Method 1		Method 2		Method 3		Method 4		Method 5		Method 6		
			D	N#	D	N#	D	N#	D	N#	D	N#	N for D=110mm	N for D=150mm	N for D=250mm
Vibratory Roller		**Mass per metre width of vibratory roll:**													
	1	over 270kg up to 450kg	unsuitable		75	16	150	16	unsuitable		unsuitable		unsuitable	unsuitable	unsuitable
	2	over 450kg up to 700kg	unsuitable		75	12	150	12	unsuitable		unsuitable		unsuitable	unsuitable	unsuitable
	3	over 700kg up to 1300kg	100	12	125	10	150	6	125	10	unsuitable		16	unsuitable	unsuitable
	4	over 1300kg up to 1800kg	125	8	150	8	200	10*	175	4	unsuitable		6	16	unsuitable
	5	over 1800kg up to 2300kg	150	4	150	4	225	12*	unsuitable		unsuitable		4	6	12
	6	over 2300kg up to 2900kg	175	4	175	4	250	10*	unsuitable		400	5	3	5	11
	7	over 2900kg up to 3600kg	200	4	200	4	275	8*	unsuitable		500	5	3	5	10
	8	over 3600kg up to 4300kg	225	4	225	4	300	8*	unsuitable		600	5	2	4	8
	9	over 4300kg up to 5000kg	250	4	250	4	300	6*	unsuitable		700	5	2	4	7
	10	over 5000kg	275	4	275	4	300	4*	unsuitable		800	5	2	3	6
Vibrating Plate Compactor		**Mass per m^2 of base plate:**													
	1	over 880 kg up to 1100 kg	unsuitable		unsuitable		75	6	unsuitable		unsuitable		unsuitable	unsuitable	unsuitable
	2	over 1100 kg up to 1200 kg	unsuitable		75	10	100	6	75	10	unsuitable		unsuitable	unsuitable	unsuitable
	3	over 1200 kg up to 1400 kg	unsuitable		75	6	150	6	150	8	unsuitable		unsuitable	unsuitable	unsuitable
	4	over 1400 kg up to 1800 kg	100	6	125	6	150	4	unsuitable		unsuitable		8	unsuitable	unsuitable
	5	over 1800 kg up to 2100 kg	150	6	150	5	200	4	unsuitable		unsuitable		5	8	unsuitable
	6	over 2100 kg	200	6	200	5	250	4	unsuitable		unsuitable		3	6	12
Vibro-tamper		**Mass:**													
	1	over 50 kg up to 65 kg	100	3	100	3	150	3	125	3	unsuitable		4	8	unsuitable
	2	over 65 kg up to 75 kg	125	3	125	3	200	3	150	3	unsuitable		3	6	12
	3	over 75 kg up to 100 kg	150	3	150	3	225	3	175	3	unsuitable		2	4	10
	4	over 100 kg	225	3	200	3	225	3	250	3	unsuitable		2	4	10
Power Rammer		**Mass:**													
	1	100 kg up to 500 kg	150	4	150	6	unsuitable		200	4	unsuitable		5	8	unsuitable
	2	over 500 kg	275	8	275	12	unsuitable		400	4	unsuitable		5	8	14
Dropping-weight Compactor		**Mass of rammer over 500kg weight drop:**													
	1	over 1 m up to 2 m	600	4	600	8	450	8	unsuitable		unsuitable		unsuitable	unsuitable	unsuitable
	2	over 2 m	600	2	600	8	unsuitable		unsuitable		unsuitable		unsuitable	unsuitable	unsuitable

TABLE 6/4: Method Compaction for Earthworks Materials: Plant and Method (Method 7)
(This Table is to be read in conjunction with sub-Clause 612.10)

Type of Compaction Plant	Ref No.	Category	Method 7	
			N for D=150mm	N for D = 250mm
Smooth Wheeled Roller (or vibratory roller operating without vibration)		**Mass per metre width of roll:**		
	1	over 2100 kg up to 2700 kg	unsuitable	unsuitable
	2	over 2700 kg up to 5400 kg	unsuitable	unsuitable
	3	over 5400 kg	12	unsuitable
Grid Roller		**Mass per meter width of roll:**		
	1	over 2700 kg up to 5400 kg	unsuitable	unsuitable
	2	over 5400 kg up to 8000 kg	16	unsuitable
	3	over 8000 kg	8	unsuitable
Deadweight tamping roller		**Mass per metre width of roll:**		
	1	over 4000 kg up to 6000 kg	4	8
	2	over 6000 kg	3	6
Pneumatic-tyred roller		**Mass per wheel:**		
	1	over 1000 kg up to 1500 kg	unsuitable	unsuitable
	2	over 1500 kg up to 2000 kg	12	unsuitable
	3	over 2000 kg up to 2500 kg	6	unsuitable
	4	over 2500 kg up to 4000 kg	5	unsuitable
	5	over 4000 kg up to 6000 kg		16
	6	over 6000 kg up to 8000 kg	unsuitable	8
	7	over 8000 kg up to 12000 kg	unsuitable	4
	8	over 12000 kg	unsuitable	4
Vibratory tamping roller		**Mass per metre width of vibrating roll:**		
	1	over 700 kg up to 1300 kg	unsuitable	unsuitable
	2	over 1300 kg up to 1800 kg	unsuitable	unsuitable
	3	over 1800 kg up to 2300 kg	16	unsuitable
	4	over 2300 kg up to 2900 kg	12	unsuitable
	5	over 2900 kg up to 3600 kg	10	unsuitable
	6	over 3600 kg up to 4300 kg	8	16
	7	over 4300 kg up to 5000 kg	7	14
	8	over 5000 kg	6	12
Vibratory roller		**Mass per metre width of vibrating roll:**		
	1	over 270 kg up to 450 kg	unsuitable	unsuitable
	2	over 450 kg up to 700 kg	unsuitable	unsuitable
	3	over 700 kg up to 1300 kg	unsuitable	unsuitable
	4	over 1300 kg up to 1800 kg	unsuitable	unsuitable
	5	over 1800 kg up to 2300 kg	12	unsuitable
	6	over 2300 kg up to 2900 kg	10	unsuitable
	7	over 2900 kg up to 3600 kg	10	unsuitable
	8	over 3600 kg up to 4300 kg	8	unsuitable
	9	over 4300 kg up to 5000 kg	8	unsuitable
	10	over 5000 kg	6	12
Vibratory Plate compactor		**Mass per m^2 of base plate:**		
	1	over 880 kg up to 1100 kg	unsuitable	unsuitable
	2	over 1100 kg up to 1200 kg	unsuitable	unsuitable
	3	over 1200 kg up to 1400 kg	unsuitable	unsuitable
	4	over 1400 kg up to 1800 kg	10	unsuitable
	5	over 1800 kg up to 2100 kg	8	unsuitable
	6	over 2100 kg	6	unsuitable
Vibro-tamper		**Mass:**		
	1	over 50 kg up to 65 kg	unsuitable	unsuitable
	2	over 65 kg up to 75 kg	unsuitable	unsuitable
	3	over 75 kg up to 100 kg	unsuitable	unsuitable
	4	over 100 kg	8	unsuitable
Power rammer		**Mass:**		
	1	100 kg up to 500 kg	8	unsuitable
	2	over 500 kg	6	10
Dropping weight compactor		**Mass of rammer over 500kg height drop:**		
	1	over 1 m up to 2 m	unsuitable	unsuitable
	2	over 2 m	unsuitable	unsuitable

As Advised by Engineer

APPENDIX D

Drawings and Historical Maps

Architects Proposed Site Plan

Historical Maps

PORT STREET

PLANNING APPROVED DEVELOPMENT

TARIFF STREET

LOADING ONLY

DISABLED

DISABLED

DISABLED

DISABLED

Port Street

Tariff Street

Car Park

ENTRANCE LOBBY 99 SQ.M F.F.L. 47.695 S.S.L. 47.695

RETAIL UNIT 83 SQ.M F.F.L. 47.695 S.S.L. 47.625

RETAIL / COMMERCIAL 77.1 SQ.M F.F.L. 48.695 S.S.L. 48.695

ENTRANCE LOBBY 44.6 SQ.M F.F.L. 48.695 S.S.L. 48.695

REFUSE STORE 01 28 BINS

REFUSE STORE 02 24 BINS

REFUSE STORE 14 BINS

PARCEL STORE 17 SQ.M

PARCEL STORE +1.9 SQ.M

MANAGEMENT 10 SQ.M

STAFF 22 SQ.M

PRIVATE 6 SQ.M

CLEANERS CUPD

SWITCH ROOM

DUAL SUBSTATION

RESIDENTS COMMUNAL GARDEN

PRIVATE RESIDENT'S TERRACE

ACCESS & CYCLE RAMP

MAINTENANCE ACCESS

SECURE GATE

WATER

00.01 2 BED 3P 63.9 sq.m

00.02 2 BED 3P 67.4 sq.m

00.03 2 BED 4P 83.3 sq.m

00.04 2 BED 3P 63.9 sq.m

00.05 2 BED 3P 68.3 sq.m

00.06 1 BED 1P 42.5 sq.m

00.07 1 BED 1P 47.3 sq.m

00.08 2 BED 3P 66.6 sq.m M4(2)

00.09 2 BED 3P 63.5 sq.m

00.10 1 BED 1P 49.6 sq.m

00.11 1 BED 1P 40.0 sq.m

00.12 2 BED 3P 62.9sq.m

00.13 2 BED 3P 63.3 sq.m

GENERAL NOTES:

ALL DIMENSIONS ARE TO BE CHECKED ON SITE WITH ANY DISCREPANCIES REPORTED TO THE ARCHITECT PRIOR TO THE WORKS BEING CARRIED OUT.

ALL WORKS ARE TO BE IN ACCORDANCE WITH THE PLANNING APPROVAL AND ANY SUBSEQUENT APPROVED LOCAL AUTHORITY PLANNING CORRESPONDENCE INCLUDING DRAWINGS, DOCUMENTS AND REPORTS.

ALL WORKS ARE TO COMPLY WITH THE BUILDING REGULATIONS, BRITISH STANDARDS, CODE OF PRACTICE, AND ANY LOCAL STATUTORY REQUIREMENTS.

ALL WORKS ARE TO COMPLY WITH CURRENT HEALTH AND SAFETY LEGISLATION, H.S.E. RECOMMENDATIONS/GUIDANCE AND THE CURRENT C.D.M. REGULATIONS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH LEACH RHODES WALKER ARCHITECTS GENERAL ARRANGEMENT DRAWINGS, TOGETHER WITH RELEVANT DETAILED DRAWINGS AND SPECIFICATIONS.

FOR ALL STRUCTURAL WORKS REFER TO THE STRUCTURAL ENGINEERS INFORMATION.

FOR ALL MECHANICAL AND ELECTRICAL WORKS REFER TO THE MECHANICAL AND ELECTRICAL ENGINEERS INFORMATION.

FOR ALL ABOVE GROUND DRAINAGE WORKS REFER TO THE PUBLIC HEALTH ENGINEERS INFORMATION.

ALL PRODUCTS SPECIFIED ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS, SPECIFICATION AND DETAILS.

rev	description	drwn	auth	date
P02	POST STAGE 3+ GA AMENDMENTS	TG	TG	14.08.23
P01	FIRST ISSUE	TG	TG	29.06.23

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CLIENT: AXIS-RE

PROJECT: BLOCK 1NQ AND CLEMENTS MANCHESTER

DOCUMENT NAME: 8198-LRW-ZZ-00-DR-A-90-101

DESCRIPTION: PROPOSED SITE SETTING OUT

REVISION	SCALE
P02	1:100@ A0

LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8198	29/06/23	TG	TG

N

FAIRHURST

Envirocheck® Report:

Historical Data Report Datasheet

Order Details:

Order Number:
302490219_1_1

Customer Reference:
143404

National Grid Reference:
384790, 398380

Slice:
A

Site Area (Ha):
0.47

Search Buffer (m):
1000

Site Details:

Flat 1, Burlington House
22
Tariff Street
MANCHESTER
M1 2DN

Client Details:

Mr J Blacker
Fairhurst Group LLP
51a St Pauls Street
Leeds
LS1 2TE

FAIRHURST

Contents

Report Section	Page Number
Summary	-
Historical Building Plans Information	1
Historical Land Use Information	7
Historical Tanks and Energy Facilities	13
Historical Map List	14
Useful Contacts and Further Information	16

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Building Plans Information					
Areas Cleared Due To Enemy Action	pg 1			1	18
Above Ground Fuel Tanks (100m)	pg 1		2	n/a	n/a
Asbestos (100m)	pg 2	9	36	n/a	n/a
Benzene/Benzole/Naphtha, Naphthalene/Kerosene (100m)				n/a	n/a
Electricity Generation (100m)				n/a	n/a
Electricity Sub-Stations (100m)	pg 4		3	n/a	n/a
Gas Industry (100m)				n/a	n/a
Gas Storage (100m)				n/a	n/a
Gas Use (100m)	pg 4	1	9	n/a	n/a
Oil Industry (100m)				n/a	n/a
Oil Storage (100m)				n/a	n/a
Oil Use (100m)	pg 4		3	n/a	n/a
Paint based Oils (100m)				n/a	n/a
Paraffin (100m)				n/a	n/a
Petrol and Diesel Industry (100m)				n/a	n/a
Petrol and Diesel Storage (100m)				n/a	n/a
Petrol and Diesel Use (100m)				n/a	n/a
Potential Fuel Gas (100m)				n/a	n/a
Potential Fuel Oil (100m)				n/a	n/a
Potential Fuel Use (100m)				n/a	n/a
Potential Petrol and Diesel (100m)				n/a	n/a
Potential Tanks (100m)				n/a	n/a
Potentially Fuel-related Tanks (100m)	pg 4		2	n/a	n/a
Underground Fuel Tanks (100m)	pg 5	9	13	n/a	n/a
Historical Land Use Information					
Former Marshes					
Historical Flood Liabilities					
Potentially Contaminative Industrial Uses (Past Land Use)	pg 7		11	16	63
Potentially Infilled Land (Non-Water)	pg 11				1
Potentially Infilled Land (Water)	pg 11	1	5	12	14

FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Tanks and Energy Facilities					
Electrical Sub Station Facilities (100m)				n/a	n/a
Electricity Industry Facilities (100m)				n/a	n/a
Gas Industry Facilities (100m)				n/a	n/a
Gas Monitoring Facilities (100m)				n/a	n/a
Miscellaneous Power Facilities (100m)				n/a	n/a
Oil Industry Facilities (100m)				n/a	n/a
Petroleum Storage Facilities (100m)				n/a	n/a
Potential Tanks (100m)	pg 13	2	6	n/a	n/a
Tanks (100m)	pg 13		2	n/a	n/a

FAIRHURST

Historical Building Plans Information

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_233_1962_geo1	A18SW (N)	429	1	384661 398836
2	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	580	1	384444 398896
3	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A18SW (NW)	592	1	384466 398923
4	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	596	1	384379 398874
5	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	624	1	384332 398873
6	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	642	1	384401 398943
7	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A18SW (N)	653	1	384563 399039
8	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_228_1962_geo1	A17SE (NW)	655	1	384355 398930
9	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A18SW (N)	664	1	384545 399044
10	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_346_1968_geo1	A8SE (S)	670	1	384921 397699
11	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_346_1962_geo1	A8SE (S)	670	1	384921 397699
12	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	684	1	384446 399018
13	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 082_018_1970_geo1	A7NE (SW)	776	1	384132 397880
14	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 082_018_1962_geo1	A7NE (SW)	776	1	384132 397880
15	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_344_1962_geo1	A8SW (S)	812	1	384717 397536
16	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_344_1962_geo1	A8SW (S)	823	1	384698 397526
17	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_344_1962_geo1	A8SW (S)	831	1	384685 397519
18	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_343_1962_geo1	A8SW (S)	872	1	384625 397484
19	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 082_002_1962_geo1	A12NW (W)	907	1	383835 398550
20	**Above Ground Fuel Tanks** Map Text: Oil Tank Plan Name: 082_007_1970_geo1	A13SW (SW)	74	1	384683 398319
20	**Above Ground Fuel Tanks** Map Text: Oil Tank Plan Name: 082_007_1962_geo1	A13SW (SW)	75	1	384683 398318

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1928_geo1	A13NE (E)	0	1	384822 398393
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1928_geo1	A13NE (NE)	0	1	384799 398405
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (E)	0	1	384822 398392
21	**Asbestos** Map Text: ASB Clad Plan Name: 083_223_1962_geo1	A13NW (NW)	0	1	384782 398387
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SW (SW)	0	1	384787 398382
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (SE)	0	1	384795 398369
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (E)	7	1	384853 398370
21	**Asbestos** Map Text: ASB Clad Plan Name: 083_223_1962_geo1	A13NE (NE)	12	1	384840 398408
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	15	1	384808 398426
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	29	1	384854 398418
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	33	1	384854 398424
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	34	1	384849 398427
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	37	1	384832 398438
22	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NW (NW)	0	1	384756 398399
22	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SW (W)	0	1	384761 398379
22	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SW (S)	0	1	384779 398361
22	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	34	1	384745 398440
22	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	41	1	384737 398443
23	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (E)	27	1	384877 398371
23	**Asbestos** Map Text: Wd & ASB Lined Plan Name: 083_223_1962_geo1	A13SE (E)	28	1	384873 398361
23	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (SE)	31	1	384867 398350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (SE)	33	1	384866 398346
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1962_geo1	A13SW (W)	31	1	384712 398356
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1962_geo1	A13SW (SW)	31	1	384715 398351
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (SW)	31	1	384715 398351
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (W)	31	1	384712 398356
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (W)	36	1	384709 398352
25	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	42	1	384738 398446
25	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	48	1	384737 398451
25	**Asbestos** Map Text: ASB Lined Ceiling Plan Name: 083_231_1962_geo1	A13NW (NW)	64	1	384743 398473
25	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	64	1	384728 398465
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (N)	48	1	384788 398474
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	51	1	384791 398476
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	91	1	384813 398513
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	93	1	384811 398516
27	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	49	1	384815 398466
27	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	52	1	384847 398447
27	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	56	1	384820 398471
28	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (S)	83	1	384740 398265
29	**Asbestos** Map Text: ASB Clad Plan Name: 083_223_1962_geo1	A13NE (E)	87	1	384935 398405
29	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (E)	89	1	384940 398383
29	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (E)	99	1	384950 398391

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SE (S)	90	1	384804 398273
30	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SE (S)	93	1	384806 398270
31	**Asbestos** Map Text: ASB Ceil Plan Name: 082_007_1970_geo1	A13SW (SW)	100	1	384682 398276
32	**Electricity Sub-Stations** Map Text: Elec Sub Statn Plan Name: 082_007_1970_geo1	A13SW (SW)	27	1	384749 398320
33	**Electricity Sub-Stations** Map Text: Elec Sub Statn Plan Name: 082_007_1970_geo1	A13SW (SW)	77	1	384679 398319
33	**Electricity Sub-Stations** Map Text: Elec Sub Statn Plan Name: 082_007_1962_geo1	A13SW (SW)	78	1	384679 398319
34	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13SE (SE)	0	1	384802 398374
35	**Gas Use** Map Text: (Gas Eng) Plan Name: 082_007_1917_geo1	A13SW (SW)	61	1	384691 398332
35	**Gas Use** Map Text: Gas Eng Plan Name: 082_007_1917_geo1	A13SW (SW)	87	1	384681 398297
35	**Gas Use** Map Text: Gas Eng Plan Name: 082_007_1917_geo1	A13SW (SW)	95	1	384681 398284
36	**Gas Use** Map Text: Gas Heater Plan Name: 082_006_1970_geo1	A13NW (W)	86	1	384650 398426
36	**Gas Use** Map Text: Gas Heater Plan Name: 082_006_1960_geo1	A13NW (W)	87	1	384649 398428
36	**Gas Use** Map Text: Gas Heater Plan Name: 082_006_1962_geo1	A13NW (W)	87	1	384649 398427
37	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13NE (E)	92	1	384938 398411
37	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13SE (E)	93	1	384944 398385
37	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13SE (E)	94	1	384946 398378
38	**Oil Use** Map Text: Oil Fuel Heater Plan Name: 083_231_1962_geo1	A13NW (NW)	41	1	384700 398421
39	**Oil Use** Map Text: Oil Fuel Heaters Plan Name: 082_007_1970_geo1	A13SW (SW)	69	1	384685 398326
39	**Oil Use** Map Text: Oil Fuel Heaters Plan Name: 082_007_1962_geo1	A13SW (SW)	70	1	384685 398326
40	**Potentially Fuel-related Tanks** Map Text: Tank Plan Name: 083_223_1928_geo1	A13NE (NE)	35	1	384857 398423
41	**Potentially Fuel-related Tanks** Map Text: Tank Plan Name: 083_223_1928_geo1	A13SE (E)	76	1	384916 398340

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13NW (N)	0	1	384777 398417
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1962_geo1	A13NW (N)	0	1	384777 398416
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13NW (NW)	0	1	384766 398398
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13NW (W)	0	1	384760 398395
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13SW (SW)	0	1	384783 398370
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1962_geo1	A13SW (W)	0	1	384762 398381
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_231_1931_geo1	A13NW (NW)	14	1	384754 398422
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_231_1962_geo1	A13NE (N)	24	1	384797 398448
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_231_1931_geo1	A13NE (N)	29	1	384794 398454
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13SE (E)	0	1	384816 398386
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13NE (E)	0	1	384814 398387
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1962_geo1	A13NE (NE)	9	1	384827 398403
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13NE (NE)	11	1	384827 398406
44	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13SW (SW)	0	1	384777 398366
45	**Underground Fuel Tanks** Map Text: Sunk Oil Tank Plan Name: 083_231_1962_geo1	A13NW (NW)	47	1	384694 398424
46	**Underground Fuel Tanks** Map Text: Sunk Petrol & Oil Tanks Plan Name: 083_223_1962_geo1	A13NE (NE)	55	1	384842 398453
46	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13NE (NE)	62	1	384848 398458
47	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1962_geo1	A13SW (S)	71	1	384780 398281
47	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1936_geo1	A13SW (S)	72	1	384782 398281
48	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1970_geo1	A13SW (W)	91	1	384656 398333
48	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1936_geo1	A13SW (W)	92	1	384655 398332

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1962_geo1	A13SW (W)	92	1	384655 398332

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A13SE (S)	84	1	384809 398282
49	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A13SE (S)	129	1	384821 398237
50	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13SE (SE)	90	1	384848 398274
51	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1895 - 1956	A13SW (S)	142	1	384749 398205
52	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1993	A13NE (E)	167	1	385002 398454
53	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13NE (NE)	177	1	384941 398540
54	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A13SE (SE)	209	1	384895 398164
55	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Natural and man-made textile manufacture and products Date of Mapping: 1909 - 1923	A13SE (SE)	210	1	384984 398214
56	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1993	A13SE (S)	211	1	384837 398154
57	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Sawmilling, planing & impregnation [i.e. treatment of timber] Date of Mapping: 1923	A13NE (NE)	212	1	385020 398508
58	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Metal casting/foundries Date of Mapping: 1895	A13SE (SE)	225	1	384982 398192
59	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13NE (NE)	263	1	385046 398556
60	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13SE (SE)	324	1	385066 398136
61	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13NE (NE)	339	1	385106 398602
62	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1923	A13SW (SW)	341	1	384533 398085
63	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13SE (SE)	352	1	385068 398099
64	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8NW (SW)	398	1	384573 397992
65	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Coal storage and depot Date of Mapping: 1848	A14NW (NE)	399	1	385199 398576
66	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A14SW (SE)	403	1	385166 398127
67	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1956	A18SE (N)	433	1	384845 398855
68	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8NW (S)	438	1	384607 397934

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
69	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14NW (E)	469	1	385319 398414
70	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1993	A8NE (SE)	474	1	384996 397917
71	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A8NW (SW)	478	1	384527 397925
72	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1923	A14SW (SE)	483	1	385281 398157
73	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Glass & glass products exc. flat glass [manufacture] Date of Mapping: 1848	A19SW (NE)	488	1	385190 398731
74	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14SW (E)	497	1	385336 398267
75	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A18SE (N)	502	1	384932 398907
76	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Glass & glass products exc. flat glass [manufacture] Date of Mapping: 1923	A14NW (E)	518	1	385359 398480
77	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1894 - 1993	A14SW (E)	526	1	385378 398382
78	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1895	A8NW (SW)	555	1	384517 397844
79	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1994	A7NE (SW)	557	1	384375 397937
80	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8NW (S)	561	1	384590 397809
81	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A19SW (NE)	573	1	385130 398888
82	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14SW (E)	577	1	385403 398209
83	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895 - 1993	A14SW (SE)	587	1	385382 398126
84	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1909 - 1923	A14SW (E)	601	1	385451 398332
85	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1993	A8NE (S)	604	1	384941 397770
86	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1956	A9NW (SE)	609	1	385265 397931
87	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848	A8NE (S)	617	1	385038 397781
88	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Machinery: engines, building and general industrial [manufacture] Date of Mapping: 1923	A14NE (E)	623	1	385472 398442
89	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1993	A19SW (NE)	626	1	385264 398852

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
90	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1956	A18SE (N)	629	1	384958 399031
91	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1994	A12NE (W)	642	1	384119 398595
92	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A19SW (NE)	644	1	385361 398773
93	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1993	A14SE (E)	647	1	385483 398234
94	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923 - 1993	A14SE (E)	670	1	385521 398353
95	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	671	1	384706 397677
96	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	709	1	384629 397649
97	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1993	A9NW (SE)	714	1	385295 397817
98	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Metal casting/foundries Date of Mapping: 1895	A8SW (S)	729	1	384594 397636
99	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A19SW (NE)	733	1	385424 398836
100	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1994	A18NW (N)	739	1	384669 399155
101	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Glass & glass products exc. flat glass [manufacture] Date of Mapping: 1848	A18NE (NE)	744	1	385119 399092
102	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923 - 1993	A8SE (S)	767	1	385055 397629
103	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14NE (E)	786	1	385625 398524
104	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Gas manufacture & distribution Date of Mapping: 1848 - 1956	A18NW (N)	790	1	384603 399194
105	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Natural and man-made textile manufacture and products Date of Mapping: 1848	A8SE (S)	803	1	384953 397570
105	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895 - 1923	A8SE (S)	819	1	384937 397550
106	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	805	1	384614 397554
107	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1993	A9SW (SE)	817	1	385246 397658
108	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SE (S)	827	1	384892 397531
109	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1994	A17SW (NW)	832	1	384095 398930

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
110	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895 - 1956	A9NE (SE)	844	1	385493 397830
111	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Dyes & pigments [manufacture] Date of Mapping: 1848	A8SE (S)	855	1	385010 397528
111	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SE (S)	862	1	385004 397519
112	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923 - 1956	A9NE (SE)	859	1	385517 397835
113	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1993	A19NW (N)	871	1	385135 399224
114	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	886	1	384602 397473
115	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Dyes & pigments [manufacture] Date of Mapping: 1848	A9SW (SE)	894	1	385158 397530
116	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1956	A9NE (SE)	898	1	385605 397889
117	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1938	A7SE (SW)	909	1	384247 397592
118	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14NE (E)	918	1	385733 398635
119	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Brewing & malting Date of Mapping: 1923	A9SW (SE)	918	1	385241 397540
120	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895	A8SW (S)	925	1	384539 397446
121	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1994	A17NE (N)	928	1	384446 399289
122	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1990	A17NE (N)	930	1	384447 399291
123	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1894 - 1993	A19SE (NE)	937	1	385544 399011
124	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Metal casting/foundries Date of Mapping: 1909 - 1956	A17NE (N)	938	1	384427 399292
125	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1956	A14NE (E)	938	1	385788 398439
126	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Cemetery or Graveyard Date of Mapping: 1848	A17SW (NW)	939	1	384035 399025
127	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	942	1	384480 397445
128	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1956 - 1994	A18NW (N)	948	1	384570 399349
129	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1894 - 1956	A18NW (N)	949	1	384684 399369

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
130	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Rubber natural products manufacture Date of Mapping: 1923	A18NW (N)	950	1	384572 399351
131	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1994	A17NE (NW)	961	1	384192 399188
132	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Natural and man-made textile manufacture and products Date of Mapping: 1848	A19SE (NE)	963	1	385572 399018
133	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Clay bricks & tiles [manufacture] Date of Mapping: 1848	A14NE (E)	971	1	385793 398617
134	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848	A17NW (NW)	972	1	384101 399133
135	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Rubber natural products manufacture Date of Mapping: 1923	A9NE (SE)	992	1	385702 397868
136	**Potentially Infilled Land (Non-Water)** Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1993	A14NE (E)	971	1	385793 398617
137	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A13NW (NW)	0	1	384784 398392
138	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13NE (NE)	29	1	384851 398421
139	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A13SE (SE)	63	1	384826 398301
140	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A13NE (E)	63	1	384915 398387
141	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A13SE (E)	117	1	384966 398354
142	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A13SE (E)	120	1	384965 398341
143	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A13NE (E)	281	1	385121 398460
144	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14NW (E)	301	1	385135 398482
145	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A14NW (E)	307	1	385139 398485
146	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13NE (NE)	319	1	385100 398580
147	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A13SE (SE)	360	1	385063 398085
148	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14NW (NE)	361	1	385173 398545
149	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13SE (SE)	364	1	385116 398129
150	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A14SW (SE)	383	1	385172 398168

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
151	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A18SE (NE)	386	1	385039 398724
152	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A8NW (SW)	399	1	384499 398038
153	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A14SW (E)	418	1	385269 398351
154	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A8NW (SW)	493	1	384489 397930
155	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14SW (E)	530	1	385381 398361
156	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A14SW (E)	535	1	385357 398203
157	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A19SW (NE)	558	1	385208 398812
158	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14SW (E)	569	1	385419 398336
159	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A19SW (NE)	586	1	385288 398769
160	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A19SW (NE)	628	1	385207 398902
161	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A8SW (S)	696	1	384624 397663
162	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A18NW (N)	743	1	384558 399132
163	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A7NE (SW)	816	1	384136 397812
164	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A7NE (SW)	827	1	384134 397798
165	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A19SE (NE)	830	1	385497 398902
166	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A8SW (S)	833	1	384779 397515
167	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A8SE (S)	858	1	384836 397493
168	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A7NW (SW)	877	1	384046 397827

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1948	A13NE (NE)	0	1	384810 398401
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NE (NE)	0	1	384793 398389
169	**Potential Tanks** Scale of Mapping: 1:2,500 Date of Mapping: 1955 - 1965	A13NE (NE)	2	1	384816 398406
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1954	A13NE (NE)	2	1	384816 398406
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NE (NE)	18	1	384830 398414
170	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NW (N)	30	1	384787 398456
171	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NE (NE)	51	1	384862 398439
172	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13SE (E)	82	1	384930 398356
173	**Tanks** Scale of Mapping: 1:2,500 Date of Mapping: 1955 - 1965	A13NE (NE)	37	1	384857 398426
173	**Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1954	A13NE (NE)	37	1	384857 398426

The following plans have been analysed for Historical Building Plans Information:

Plan Name:	Town:	Published Date:	Last Pasted Date:
083_223_1928_geo1	Manchester Vol 2	1928	1928
083_223_1962_geo1	Manchester Vol 2	1928	1962
083_231_1931_geo1	Manchester Vol 2	1931	1931
083_231_1962_geo1	Manchester Vol 2	1931	1962
082_007_1917_geo1	Manchester Vol 1	1886	1917
082_007_1936_geo1	Manchester Vol 1	1936	1936
082_007_1962_geo1	Manchester Vol 1	1936	1962
082_007_1970_geo1	Manchester Vol 1	1936	1970
081_206_1889_geo1	Manchester Carriers	1889	1889
082_006_1962_geo1	Manchester Vol 1	1960	1962
082_006_1917_geo1	Manchester Vol 1	1886	1917
082_006_1970_geo1	Manchester Vol 1	1960	1970
082_006_1960_geo1	Manchester Vol 1	1960	1960
083_220_1928_geo1	Manchester Vol 2	1928	1928
083_220_1962_geo1	Manchester Vol 2	1928	1962
083_235_1927_geo1	Manchester Vol 2	1927	1927
083_235_1962_geo1	Manchester Vol 2	1927	1962

The following mapping has been analysed for Historical Land Use Information:

1:10,560	Mapsheet	Published Date
Lancashire And Furness	104_00	1848
Cheshire	003A_00	1882
Lancashire And Furness	104_NE	1894
Lancashire And Furness	104_NW	1895
Lancashire And Furness	104_SE	1895
Lancashire And Furness	104_SW	1896
Lancashire And Furness	104_NE	1909
Lancashire And Furness	104_NW	1909
Lancashire And Furness	104_SE	1909
Lancashire And Furness	104_SW	1909
Lancashire And Furness	104_NE	1923
Lancashire And Furness	104_NW	1923
Lancashire And Furness	104_SE	1923
Lancashire And Furness	104_SW	1938
Ordnance Survey Plan	SJ89NE	1956
Ordnance Survey Plan	SJ89NW	1956
1:10,000	**Mapsheet**	**Published Date**
Ordnance Survey Plan	SJ89NE	1993
Ordnance Survey Plan	SJ89NW	1994

The following mapping has been analysed for Historical Tanks and Energy Facilities:

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	SJ8498	1951
Ordnance Survey Plan	SJ8598	1951
Ordnance Survey Plan	SJ8598	1953
Ordnance Survey Plan	SJ8498	1955
Ordnance Survey Plan	SJ8498	1965
Ordnance Survey Plan	SJ8598	1965
Ordnance Survey Plan	SJ8498	1969
Ordnance Survey Plan	SJ8598	1969
1:1,250	**Mapsheet**	**Published Date**
Ordnance Survey Plan	SJ8498NE	1948
Ordnance Survey Plan	SJ8498SE	1948
Ordnance Survey Plan	SJ8498SW	1948
Ordnance Survey Plan	SJ8598NW	1948
Ordnance Survey Plan	SJ8498SW	1951
Ordnance Survey Plan	SJ8598NW	1952
Ordnance Survey Plan	SJ8498NE	1953
Ordnance Survey Plan	SJ8498SE	1954
Ordnance Survey Plan	SJ8598SW	1955
Ordnance Survey Plan	SJ8498NE	1963
Ordnance Survey Plan	SJ8498NW	1963
Ordnance Survey Plan	SJ8598NW	1963
Ordnance Survey Plan	SJ8498SW	1968
Ordnance Survey Plan	SJ8598NW	1968
Ordnance Survey Plan	SJ8498SE	1971
Ordnance Survey Plan	SJ8598SW	1981
Ordnance Survey Plan	SJ8498NE	1986
Ordnance Survey Plan	SJ8498NW	1986
Ordnance Survey Plan	SJ8498SW	1986
Ordnance Survey Plan	SJ8598NW	1988
Ordnance Survey Plan	SJ8598SW	1989

FAIRHURST

Useful Contacts and Further Information

Contact	Name and Address	Contact Details
1	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk

Historical Building Plans Information

This data set contains potentially contaminative features such as asbestos, petrol, oil and tanks captured from Historical Building Plans. The Historical Building Plans were produced by the London-based firm Charles E. Goad Ltd. as fire insurance plans, dating back to 1885. The firm ceased production of fire insurance plans in 1970. Most of the important towns and cities of the British Isles are covered. Historical Building Plans are usually at the scales of 1:480 (1 inch to 40 feet) for the British Isles. They were updated every 5-6 years by means of revision sheets designed to be pasted on to the original plans.

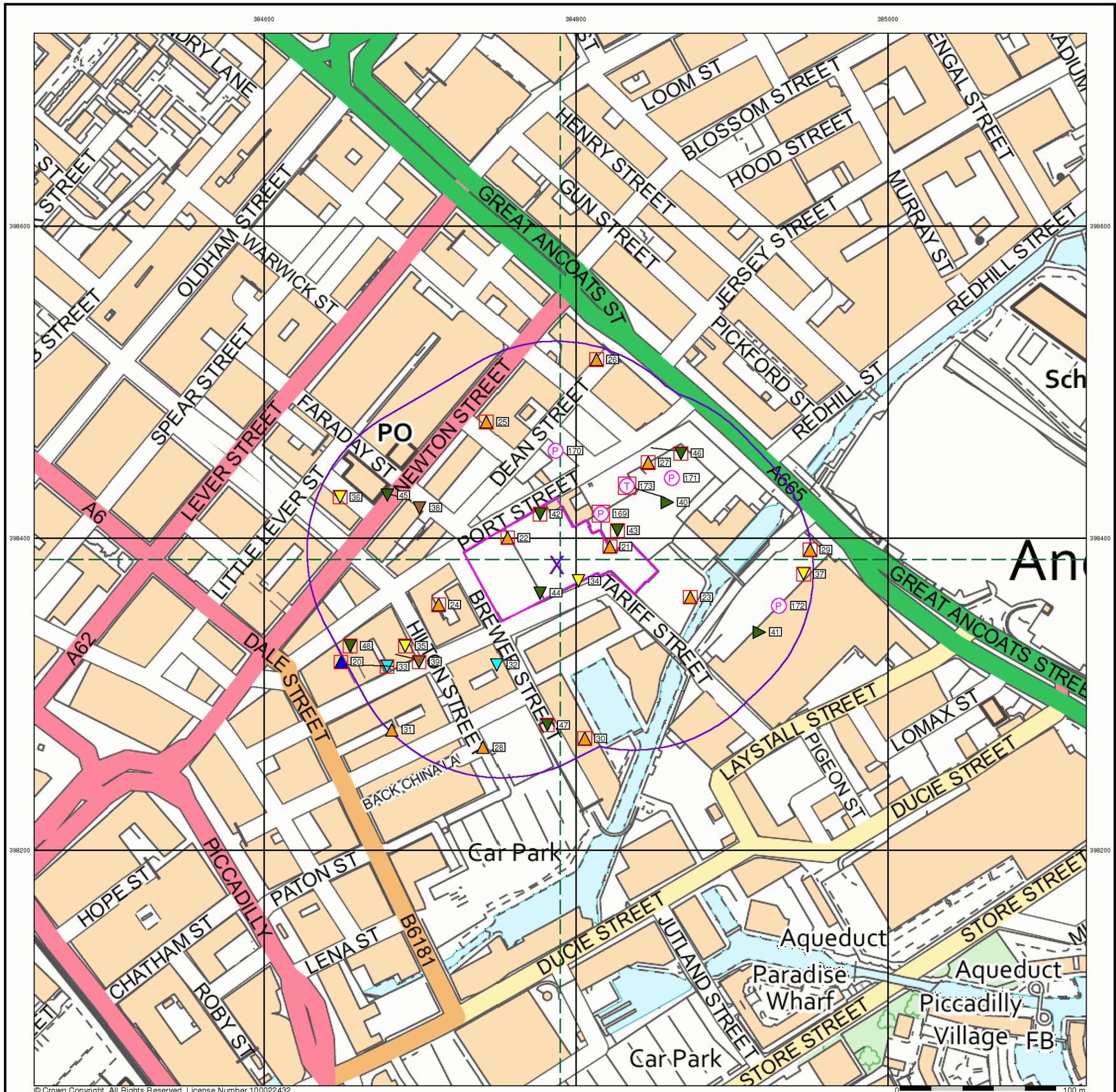
It should be noted that Historical Building Plans are only available for certain major towns and cities and in some cases there may only be partial coverage of the search area. It cannot therefore be assumed that the absence of responses under the Historical Building Plans section of this report indicates that no hazards exist. Please check the Historical Building Plans Map List table in the Historical Map List section of this report to establish if Historical Building Plans are available for this search area.

Historical Land Use Information

Landmark's Historical Land Use Data is the result of combined analysis of historical map data captured at 1:10,560 and 1:10,000. A unique comprehensive database of Historic Land Use from the 1840's to 1996 it includes 67 different types of potentially contaminated past industrial land use. This entailed analysing over 60,000 maps and is drawn from at least four, and up to six historical map editions. In addition a seventh layer was also created, known as the land use layer, containing areas of infilled land which are plotted via comparison between two or more map editions.

Historical Tanks and Energy Facilities

In addition to HLUD, additional analysis uncovered some of the most dangerous sources of contamination (past and present tanks, petrol storage, oil, gas, electricity, miscellaneous facilities). This data set covers over 390,000 Historical Tanks and Energy facilities in Great Britain and was captured from post war 1:2500 and 1:1250 Ordnance Survey historical mapping covering a period from 1943 to 1996.



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FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

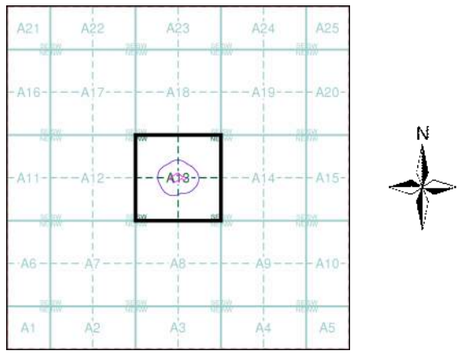
Historical Building Plans

- Area Cleared due to Enemy Action
- Asbestos
- Above Ground Fuel Tanks
- Benzene/Benzole/Naphtha, Naphthalene/Kerosene
- Electricity Generation
- Electricity Sub-Stations
- Gas Industry
- Gas Storage
- Gas Use
- Oil Industry
- Oil Storage
- Oil Use
- Paint based Oils
- Paraffin
- Petrol and Diesel Industry
- Petrol and Diesel Storage
- Petrol and Diesel Use
- Potential Fuel Gas
- Potential Fuel Oil
- Potential Fuel Use
- Potential Petrol and Diesel
- Potential Tanks
- Potentially Fuel-related Tanks
- Underground Fuel Tanks

Historical Tanks and Energy Facilities

- Electrical Sub Station Facility
- Electricity Industry Facility
- Gas Industry Facility
- Gas Monitoring Facility
- Miscellaneous Power Facility
- Oil Industry Facility
- Petroleum Storage Facility
- Potential Tank
- Tank

Historical Data Report - Segment A13



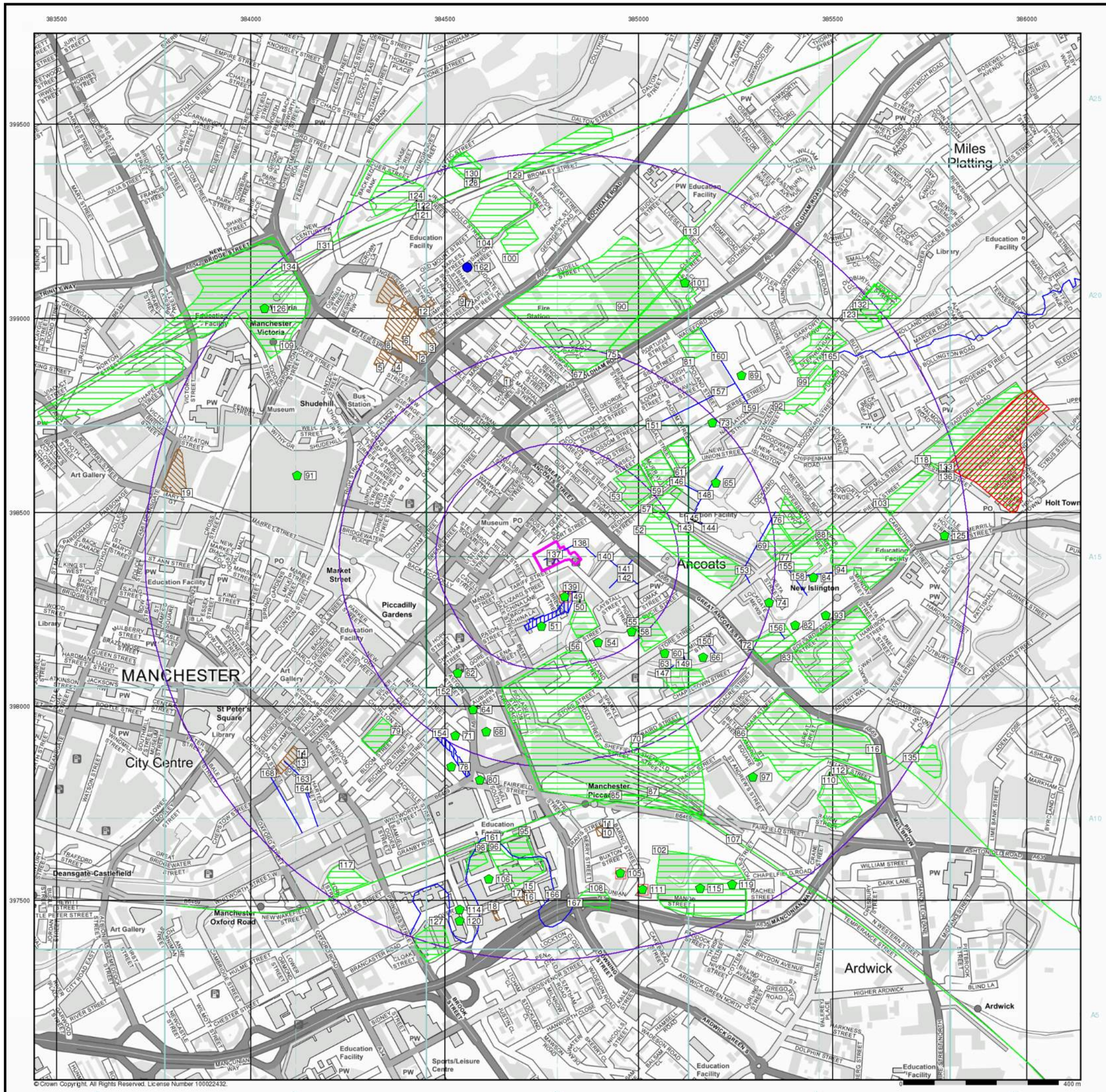
Order Details

Order Number:	302490219_1_1
Customer Ref:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Plot Buffer (m):	100

Site Details

Flat 1, Burlington House, 22, Tariff Street, MANCHESTER, M1 2DN

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



FAIRHURST

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

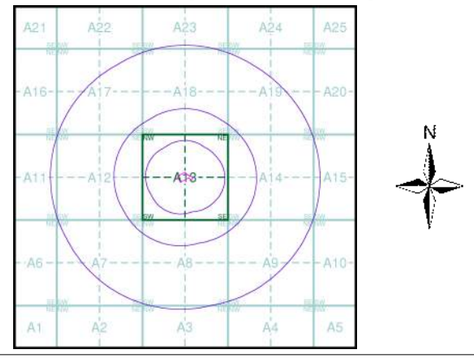
Historical Building Plans

Area Cleared due to Enemy Action

Historical Land Use

- Former Marsh
- Historical Flood Liability
- Historical Flood Liability (Location)
- Potentially Contaminative Industrial Use (Past Land Use)
- Potentially Contaminative Industrial Use (Past Land Use) (Linear)
- Potentially Contaminative Industrial Use (Past Land Use) (Location)
- Potentially Infilled Land (Non-Water)
- Potentially Infilled Land (Non-Water) (Linear)
- Potentially Infilled Land (Non-Water) (Location)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water) (Linear)
- Potentially Infilled Land (Water) (Location)

Historical Data Report - Slice Map A



Order Details

Order Number:	302490219_1_1
Customer Ref:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	1000

Site Details

Flat 1, Burlington House, 22, Tariff Street, MANCHESTER, M1 2DN

Landmark INFORMATION GROUP

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

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

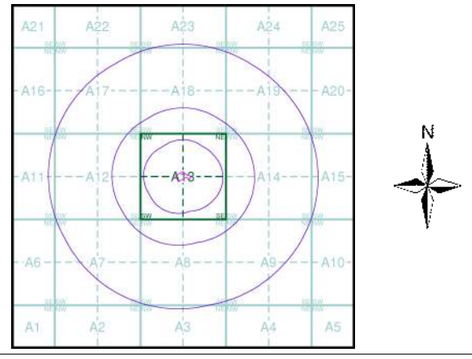
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

FAIRHURST

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
Lancashire And Furness	1:10,560	1909	6
Lancashire And Furness	1:10,560	1923	7
Lancashire And Furness	1:10,560	1931 - 1933	8
Lancashire And Furness	1:10,560	1938	9
Ordnance Survey Plan	1:10,000	1956	10
Ordnance Survey Plan	1:10,000	1968	11
Ordnance Survey Plan	1:10,000	1972	12
Manchester	1:25,000	1975	13
Ordnance Survey Plan	1:10,000	1980 - 1981	14
Ordnance Survey Plan	1:10,000	1985 - 1987	15
Ordnance Survey Plan	1:10,000	1989	16
Ordnance Survey Plan	1:10,000	1993 - 1994	17
10K Raster Mapping	1:10,000	1999	18
10K Raster Mapping	1:10,000	2006	19
VectorMap Local	1:10,000	2021	20

Historical Map - Slice A



Order Details

Order Number: 302490219_1_1
Customer Ref: 143404
National Grid Reference: 384790, 398380
Slice: A
Site Area (Ha): 0.47
Search Buffer (m): 1000

Site Details

Flat 1, Burlington House, 22, Tariff Street, MANCHESTER, M1 2DN

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Russian Military Mapping Legends

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

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Fireproof Building
- Prominent Fireproof Building
- Non-fireproof Building
- Non-fireproof Building (non-dwelling)
- Factory, mill, and flour mill, with chimneys
- Factory, mill, and flour mill, without chimneys
- Power Station, drawn to scale
- Hydroelectric Power Station
- Radio Station, drawn to scale
- Telephone Station, drawn to scale
- Abandoned Open-pit Mine or Quarry
- Open-pit Salt Mine
- Pit
- Oil Deposit or Well
- Oil Seepage
- Tailings Pile
- Fuel Storage Tanks
- Natural Gas Tank
- Bench Mark
- Drill Hole
- Burial Mound
- Triangulation Point on Burial Mound
- Single-track Railroad
- Double-track Railroad and Station Building
- Coniferous Forest
- Deciduous Forest
- Mixed Forest
- Lawns
- Citrus Orchard
- Wet Ground
- Scattered Vegetation

243,8 — Values for prominent elevations

186.0 — Numbers for spot elevations, depth soundings, contour lines, etc.

0,2 — Velocity of the current, width of river bed, depth of river

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

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Partly Demolished Buildings
- Demolished Buildings
- Built-Up Area with Fireproof Buildings Predominant
- Built-Up Area with Non-Fireproof Buildings Predominant
- Individual Fireproof Building
- Prominent Industrial Building
- Individual Dwelling, Fireproof
- Ruins of an Individual Dwelling
- Factory or Mill Chimney
- Factory or Mill with Chimney (*бум.*)
- Factory or Mill without Chimney (*скип.*)
- Mine or Open Pit Mine (*медн.*)
- Operating Shaft or Mine (*кам. уг.*)
- Non-Operating Shaft or Mine
- Salt Mine (*сол.*)
- Tailings Pile
- Pit (– 1.7)
- Stone Quarry (*гл. пес. кам.*)
- Gas Pump or Service Station
- Fuel Storage or Natural Gas Tank
- Oil or Natural Gas Derrick
- Small Hydroelectric Power Station
- Power Station
- Transformer Station (*б.тр.*)
- Cemetery
- Burial Mound (height in metres) (+ 8.1)
- Triangulation Point on Burial Mound (95.7)
- Triangulation Point (92.6)
- Bench Mark (52.1)
- Bench Mark (monumented) (71.1)
- Telegraph Office
- Telephone Station
- Radio Station
- Radio Tower
- Airfield or Seaplane Base
- Landing Strip
- Main Highway (Cut, Fill, Km Post, Plantings, Telegraph/Telephone Lines)
- Highway under Construction
- Improved Dirt Road (former truck road) (Width of Road, Steep Grade)
- Double-track Railroad with First Class Station (Small Bridge, Pipe (Culvert), Tunnel)
- Dismantled Railroad
- Railroad Under Construction
- Shore Embankment
- River or Ditch with Embankment (+2.4)
- Direction and velocity of current (Water Gauge, Water Level Mark)
- Well (К.)
- Water Reservoir or Rain Water Pit (вдхр.)
- Spring (156.2 кл.)
- Isobath with value (20)
- Heavy (Index) Contour Line
- Contour Line and Value (20)
- Half Contour Line
- Spot Elevation Value (347.1)
- Coniferous
- Deciduous
- Mixed
- Scrub

Key to Numbers on Mapping

SJ89_Manchester

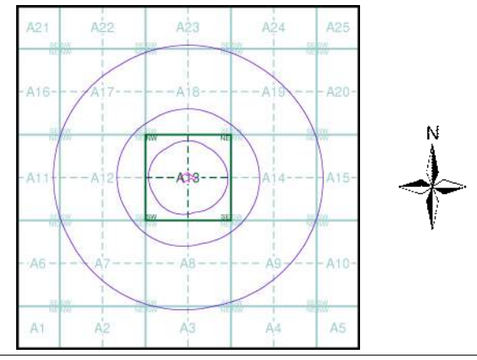
No.	Description
63	Factory (Gas)
168	Post Office
169	Post Office
194	Railway Station (Freight)

FAIRHURST

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1848	3
Cheshire	1:10,560	1882	4
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Ordnance Survey Plan	1:10,000	1993 - 1994	17
10K Raster Mapping	1:10,000	1999	18
10K Raster Mapping	1:10,000	2006	19
VectorMap Local	1:10,000	2021	20

Russian Map - Slice A



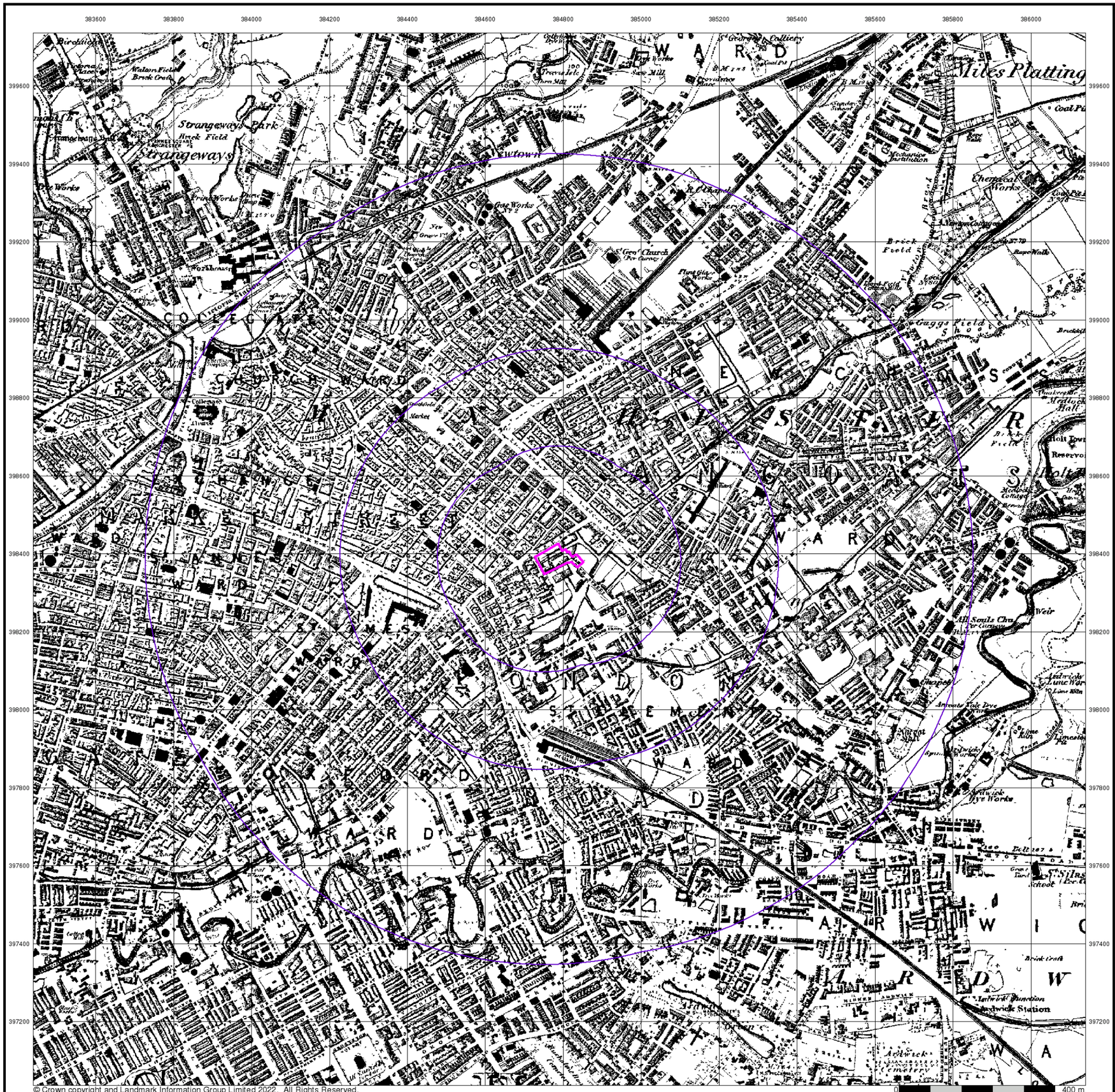
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Customer Ref: 143404
National Grid Reference: 384790, 398380
Slice: A
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Site Details

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FAIRHURST

Lancashire And Furness

Published 1848

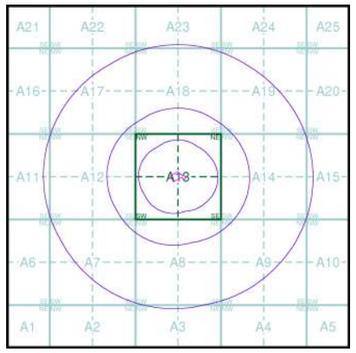
Source map scale - 1:10,560

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)

10400
1848
1:10,560

Historical Map - Slice A



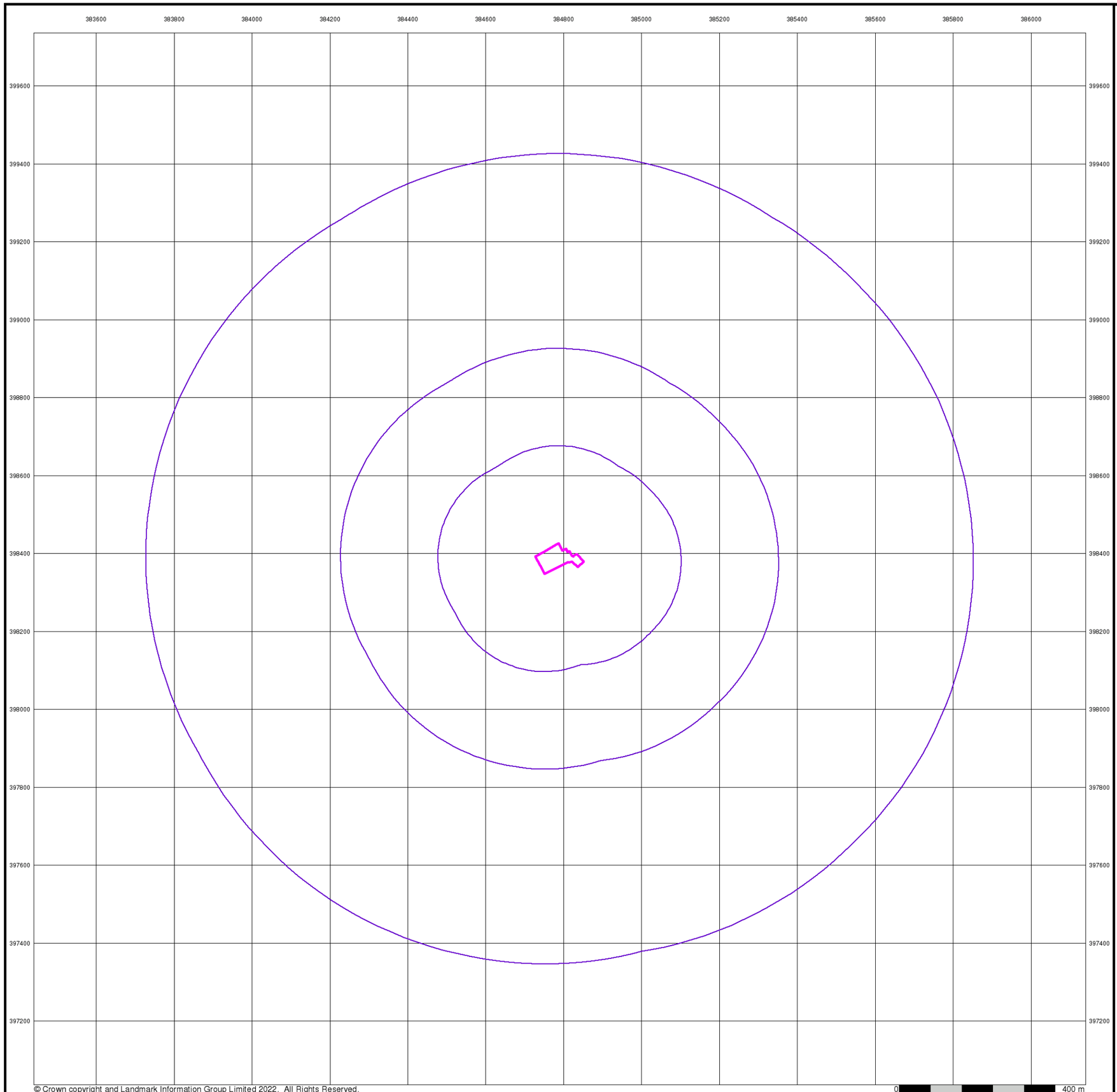
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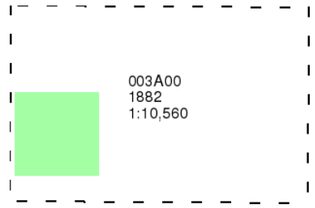
Cheshire

Published 1882

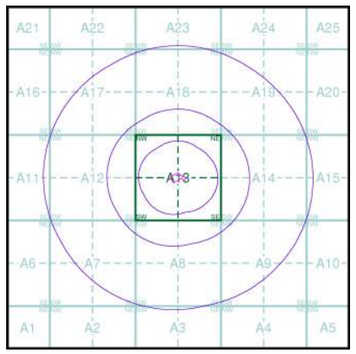
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

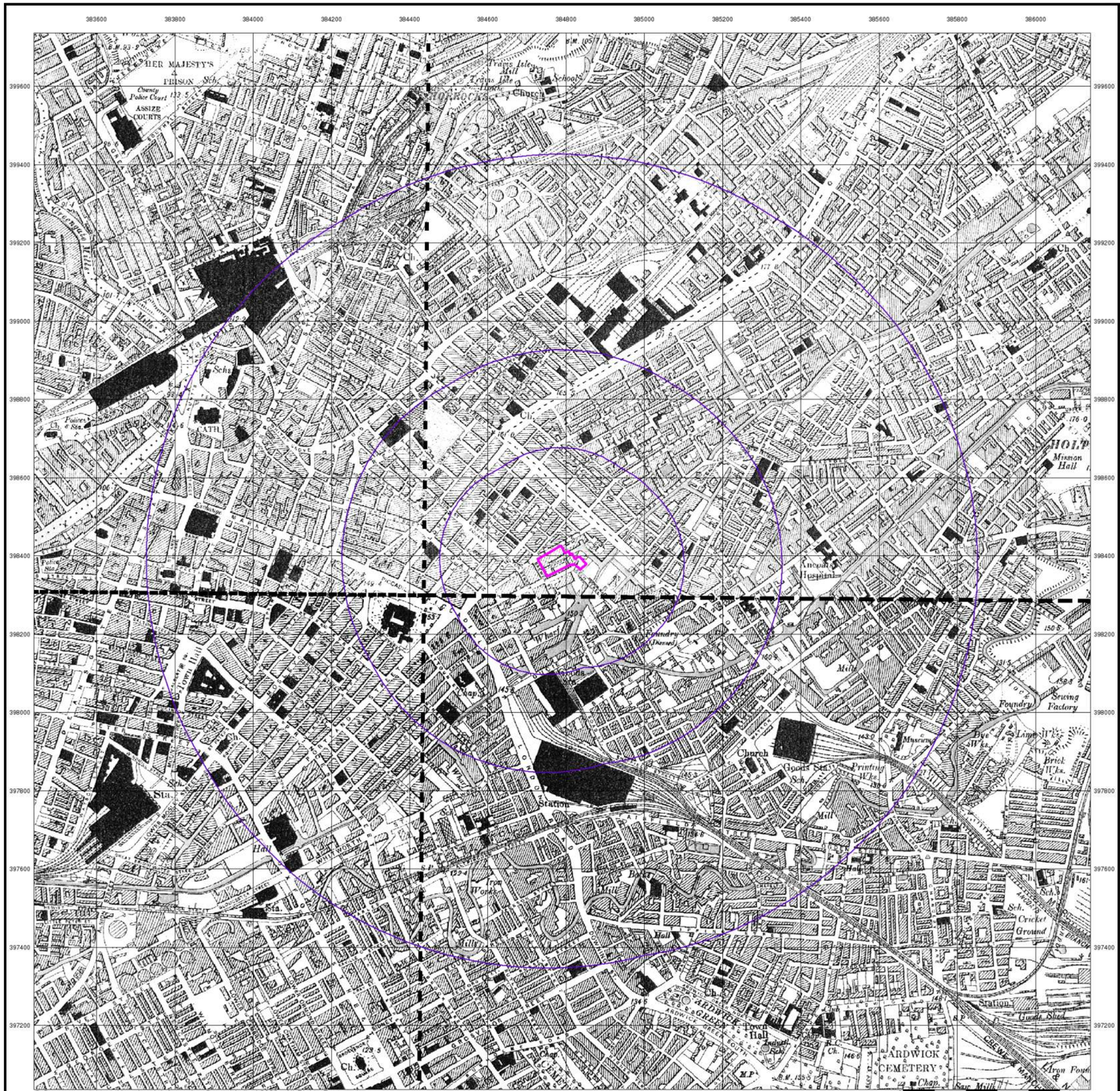
Order Number:	302490219_1_1
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Slice:	A
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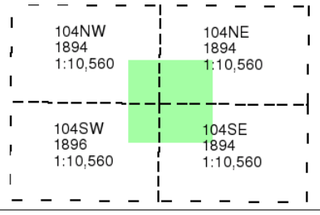
Lancashire And Furness

Published 1894 - 1896

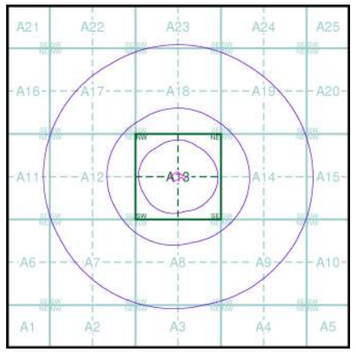
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

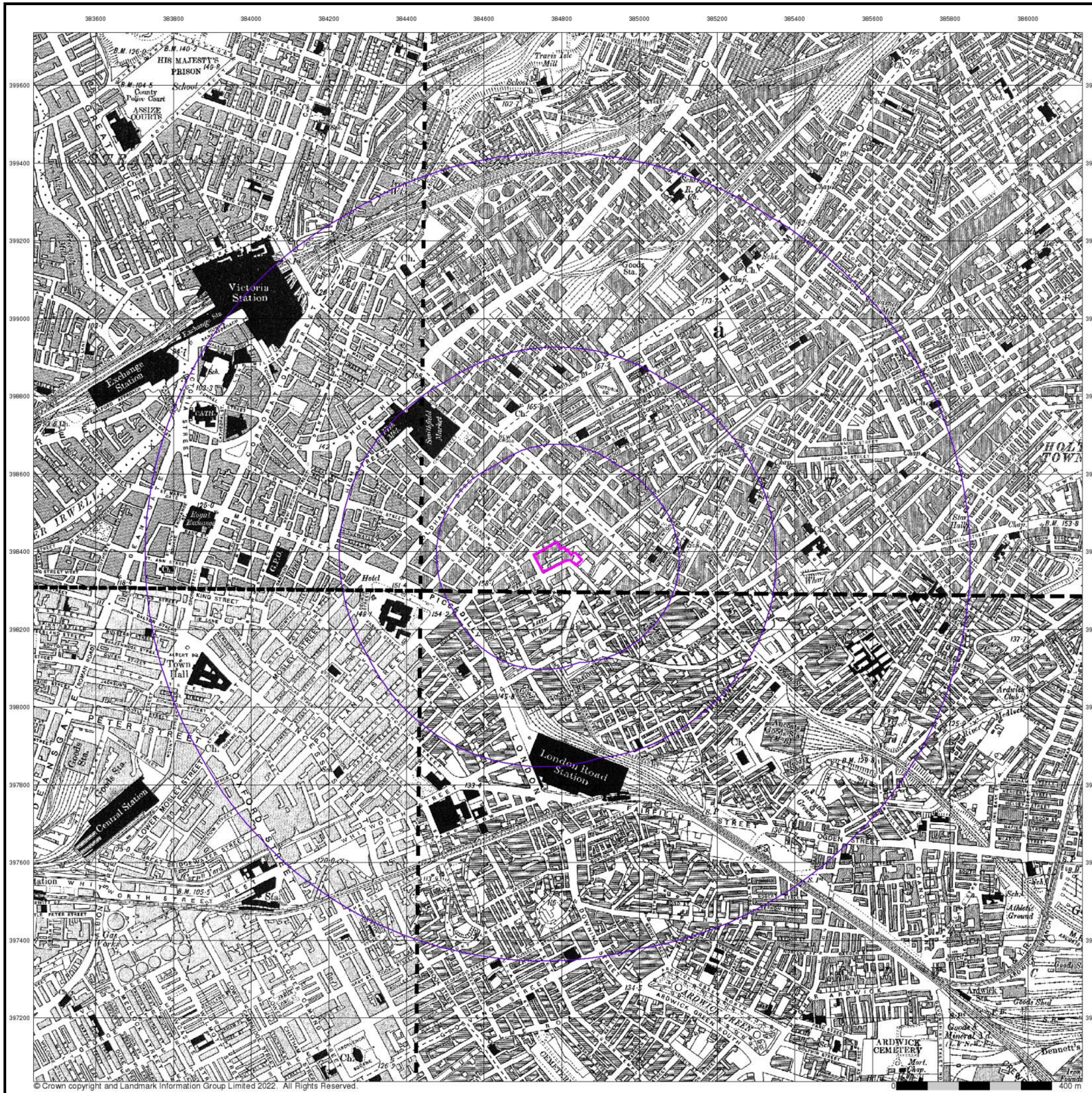
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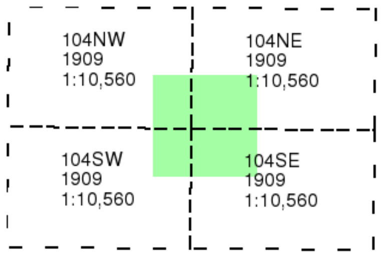
Lancashire And Furness

Published 1909

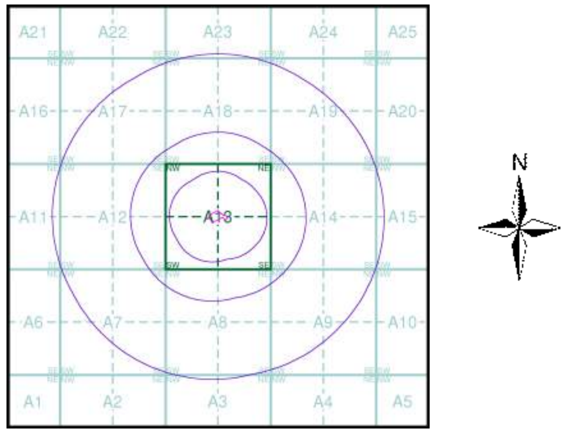
Source map scale - 1:10,560

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)



Historical Map - Slice A



Order Details

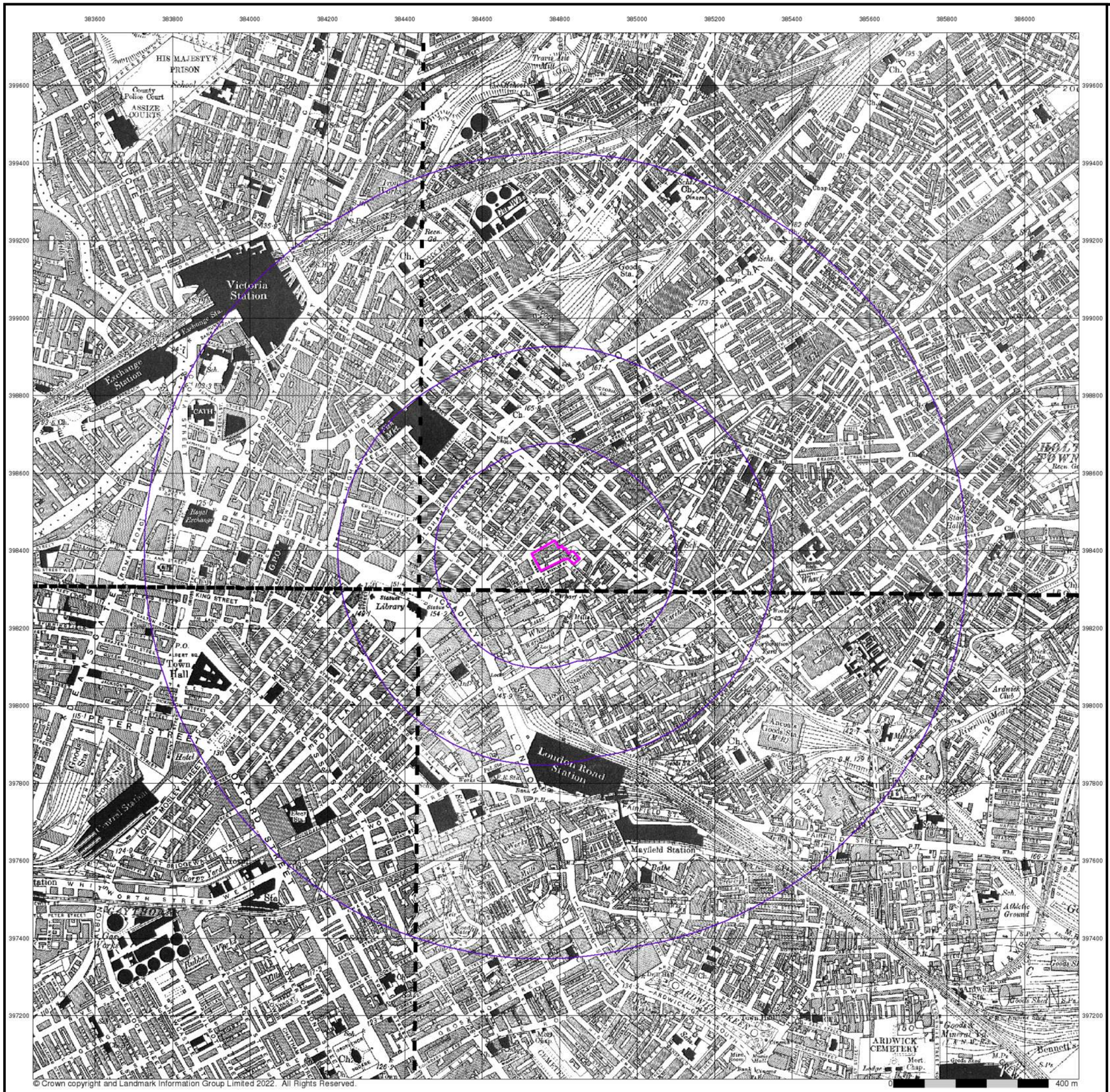
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National Grid Reference:	384790, 398380
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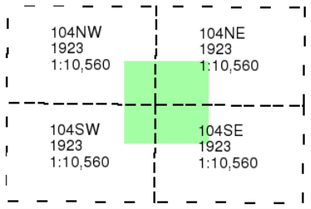
Lancashire And Furness

Published 1923

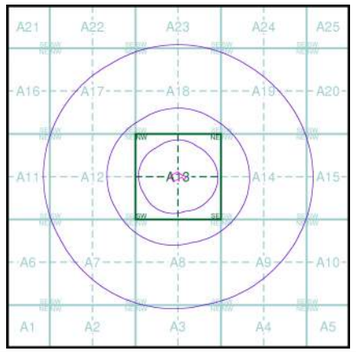
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



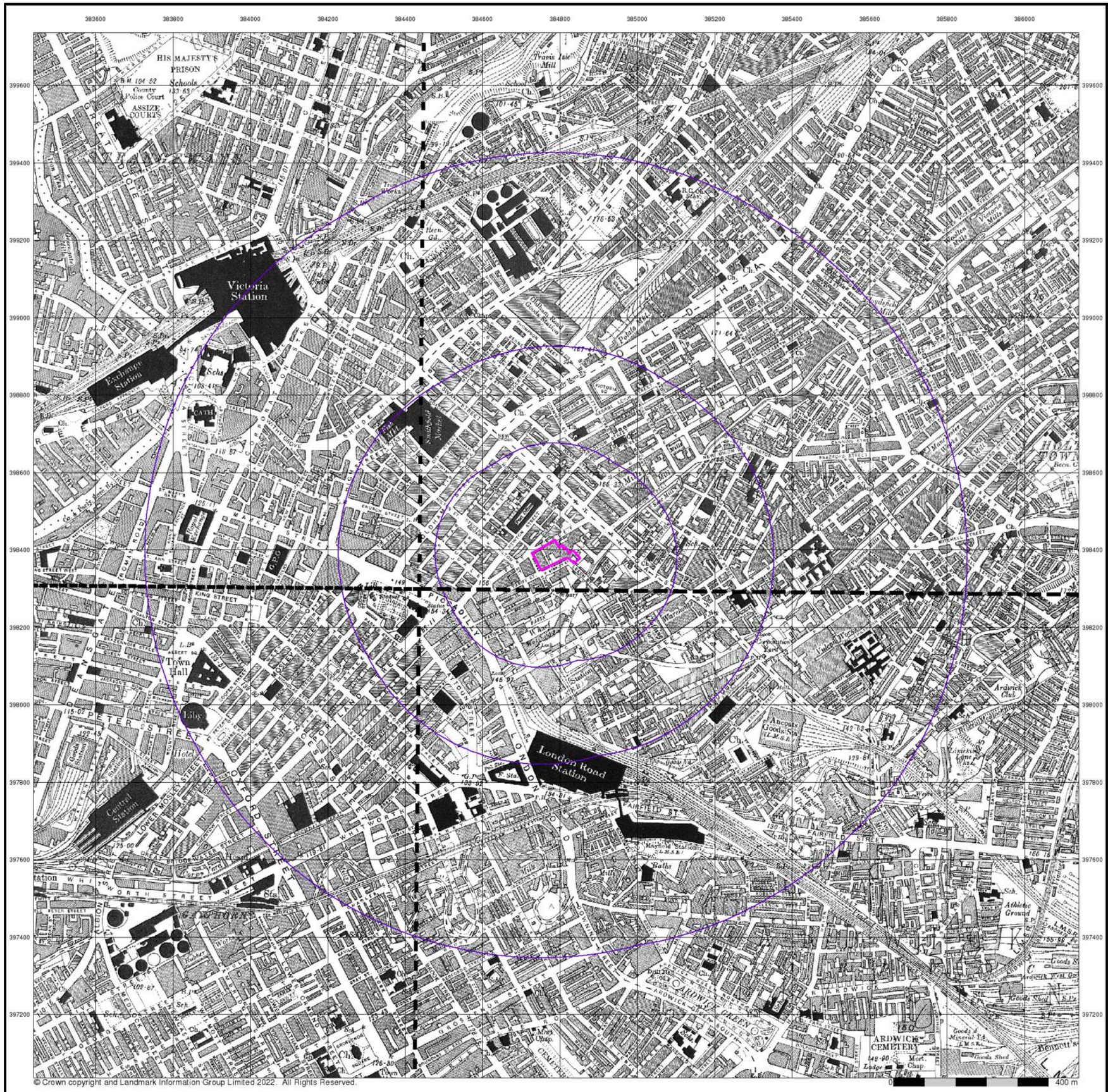
Order Details

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Customer Ref:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
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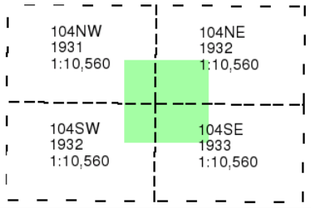
Lancashire And Furness

Published 1931 - 1933

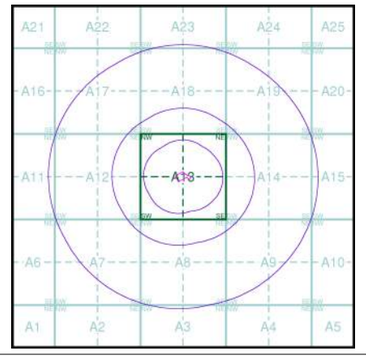
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



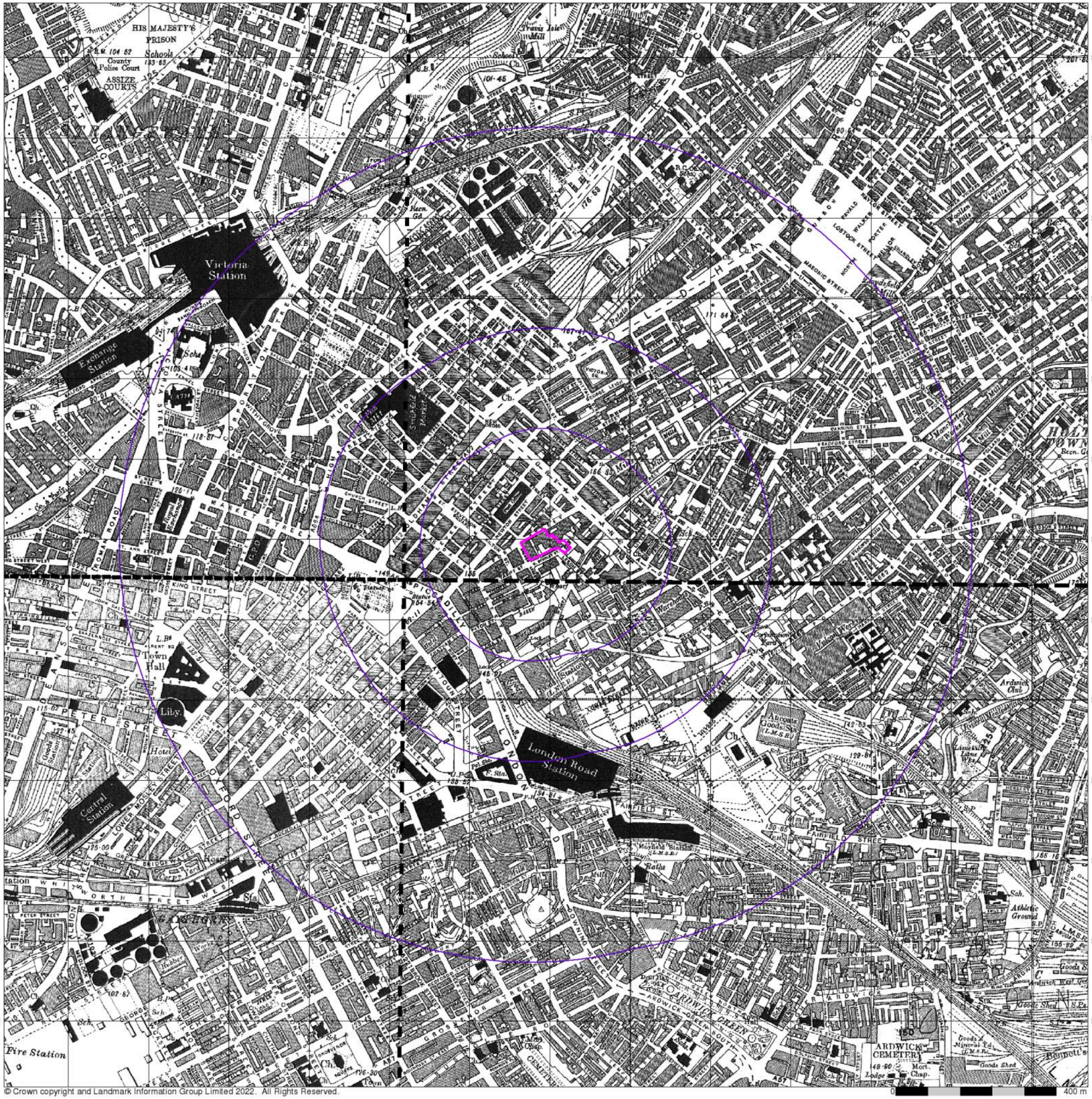
Order Details

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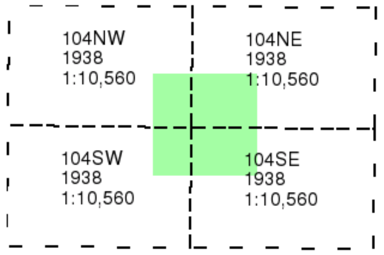
Lancashire And Furness

Published 1938

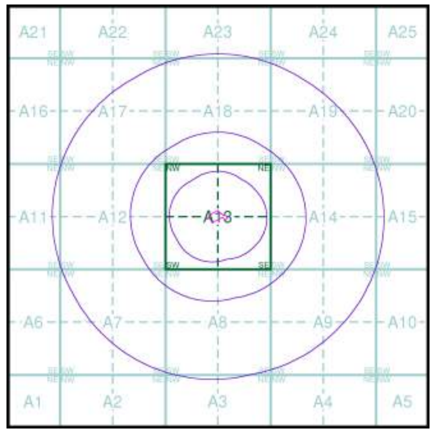
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

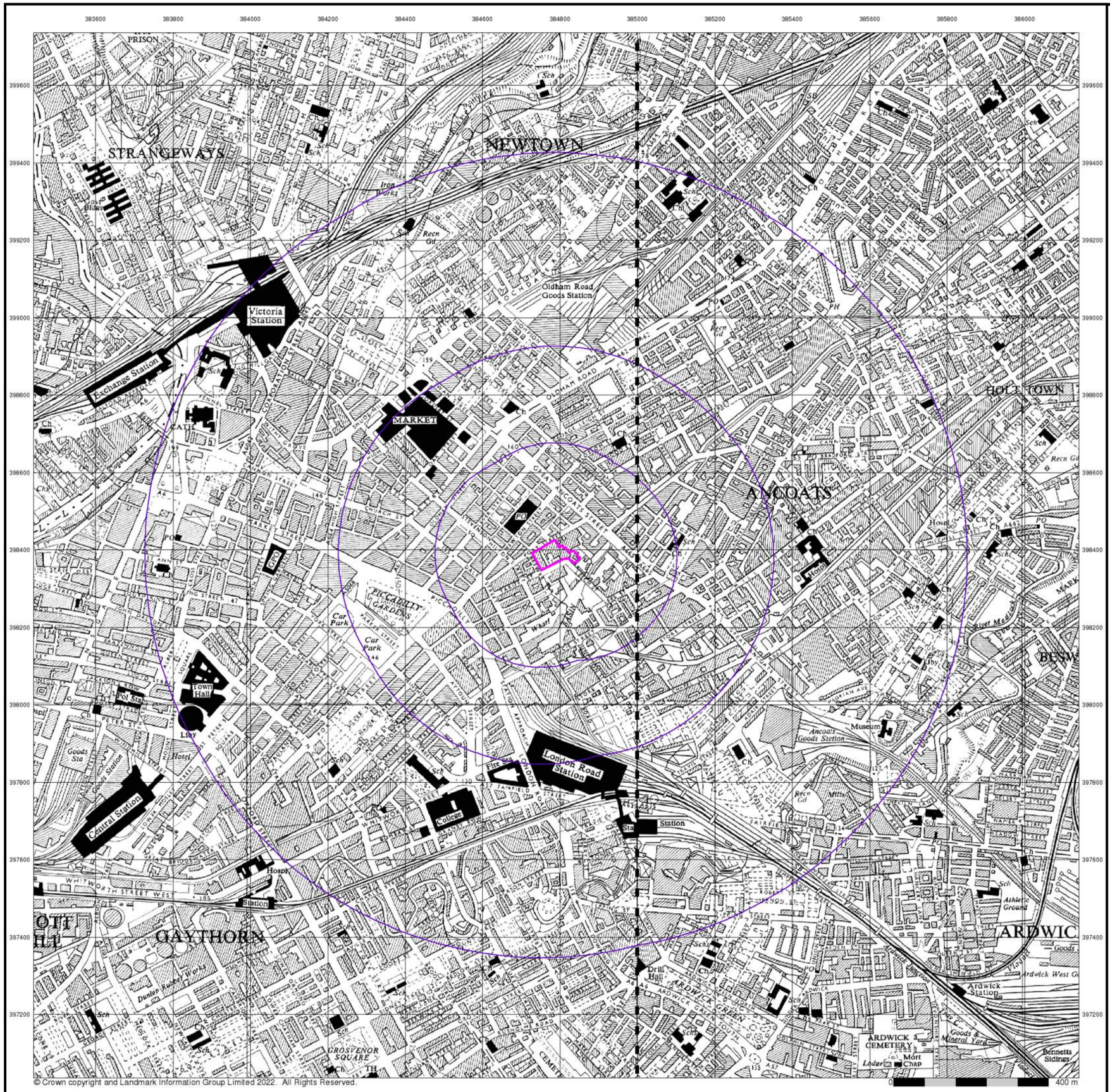
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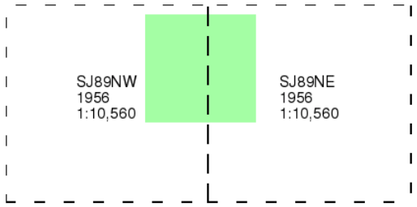
Ordnance Survey Plan

Published 1956

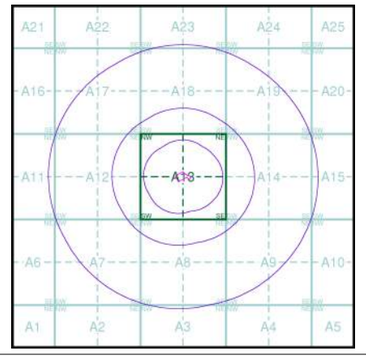
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



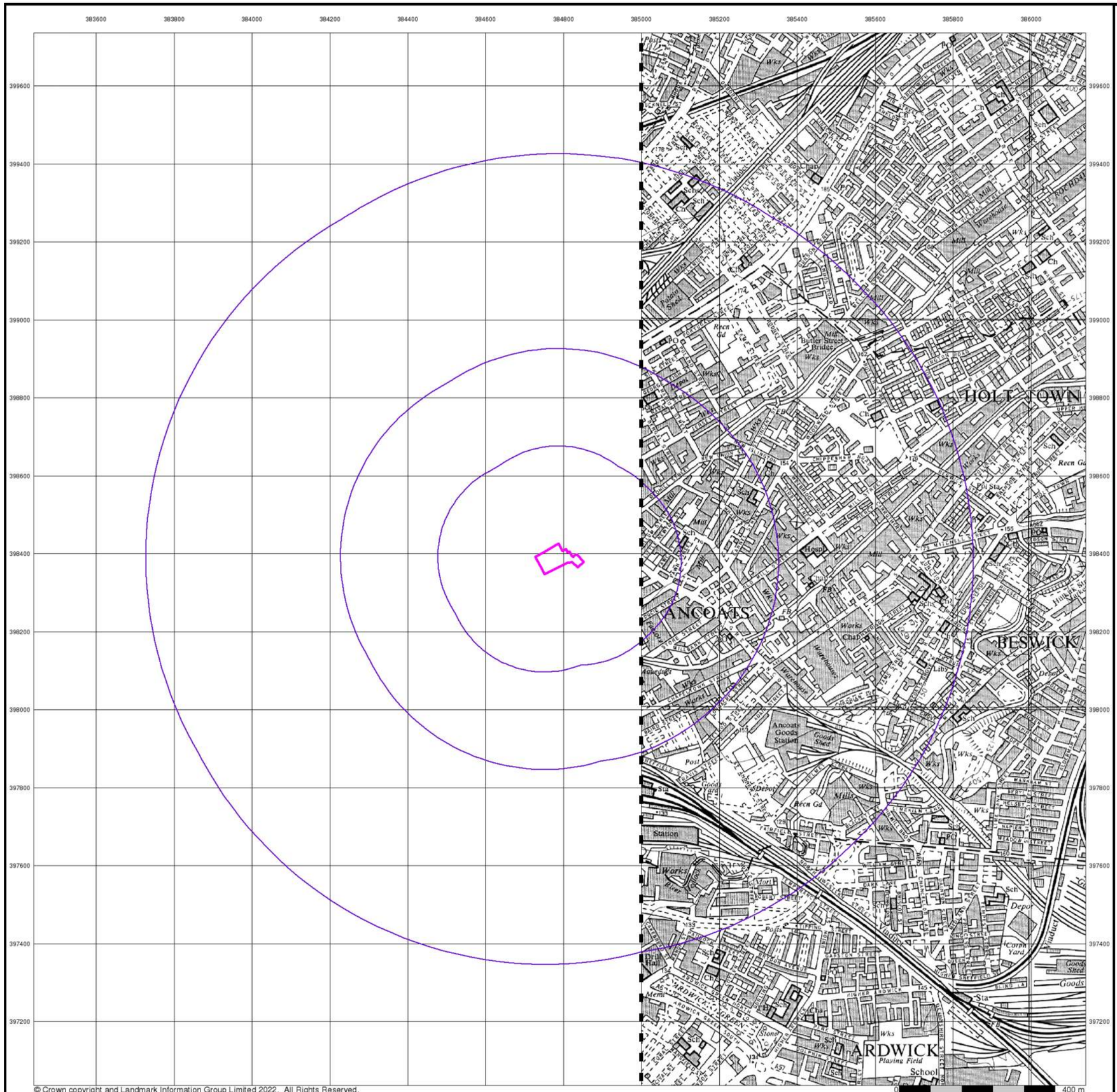
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Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	1000

Site Details

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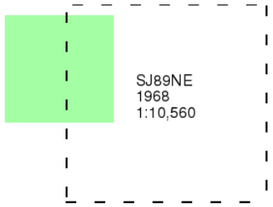
Ordnance Survey Plan

Published 1968

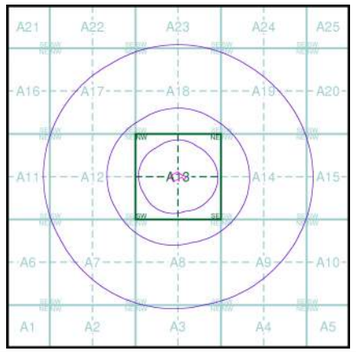
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

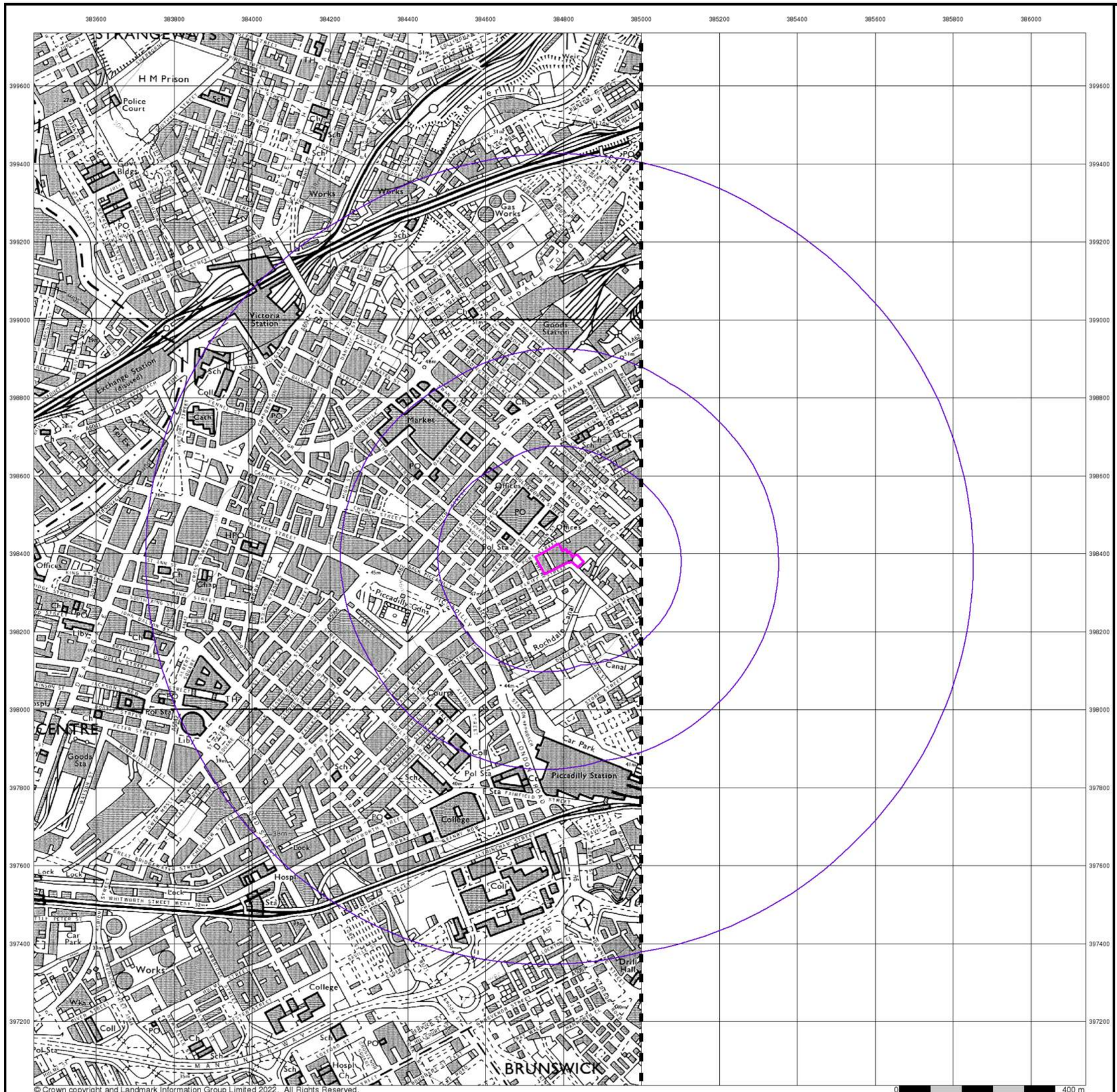
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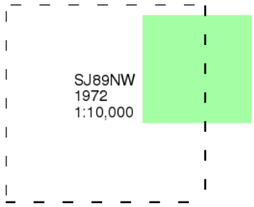
Ordnance Survey Plan

Published 1972

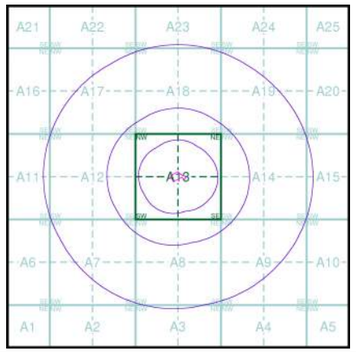
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Map Name(s) and Date(s)



Historical Map - Slice A



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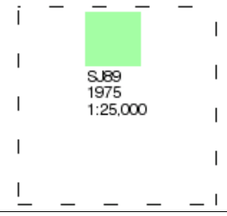
Manchester

Published 1975

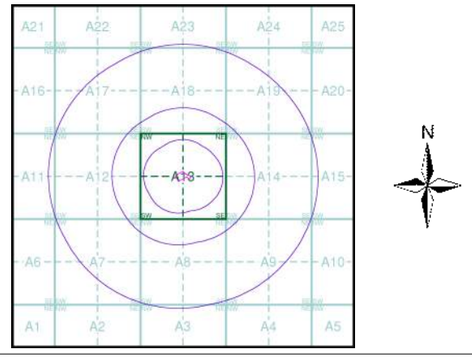
Source map scale - 1:25,000

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



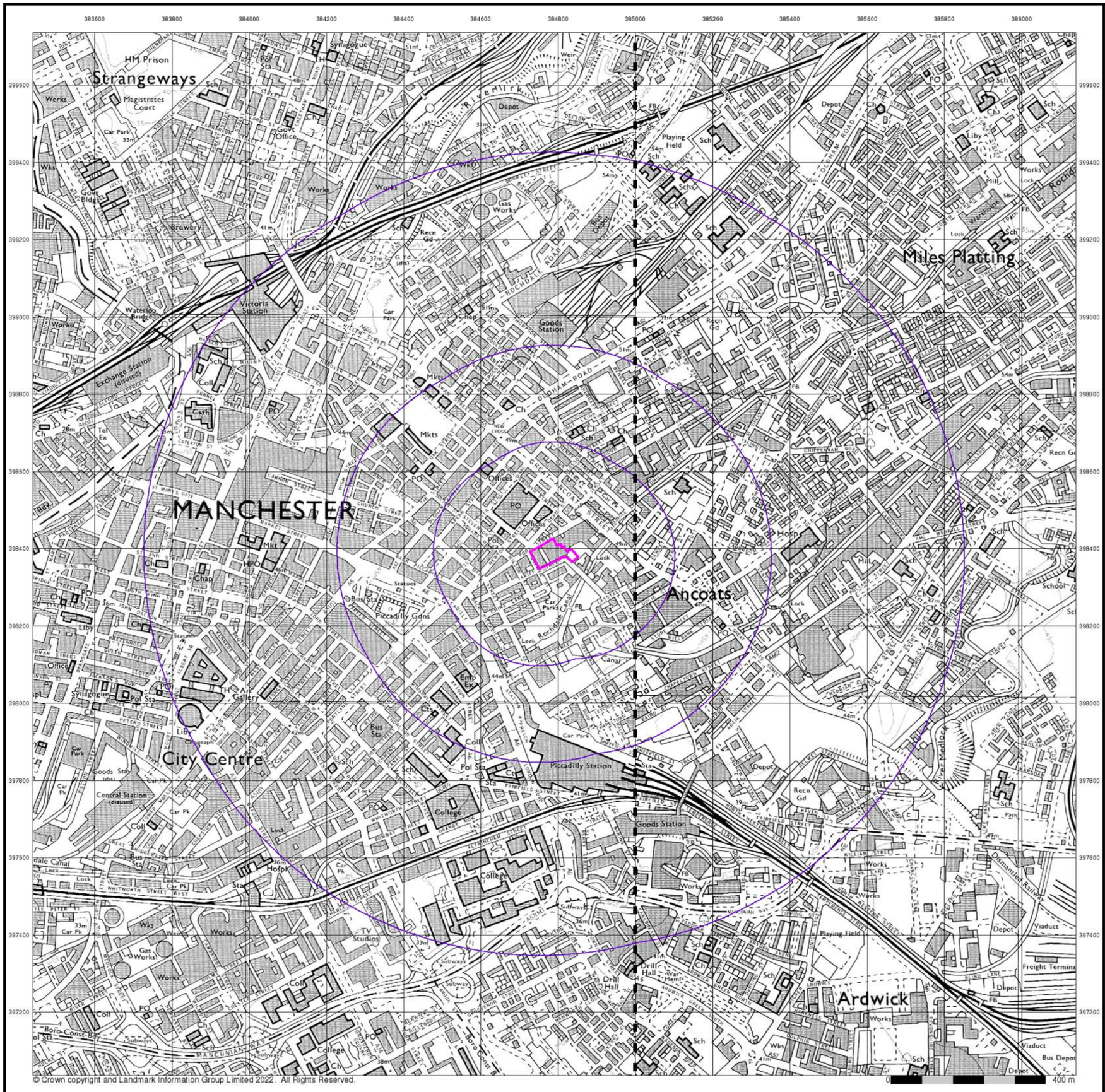
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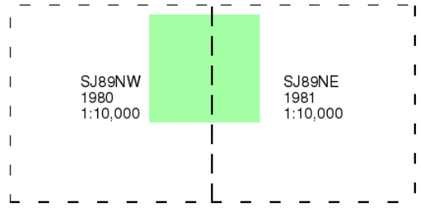
Ordnance Survey Plan

Published 1980 - 1981

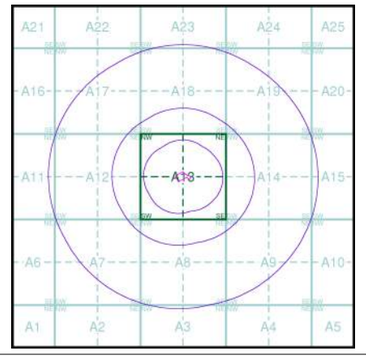
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

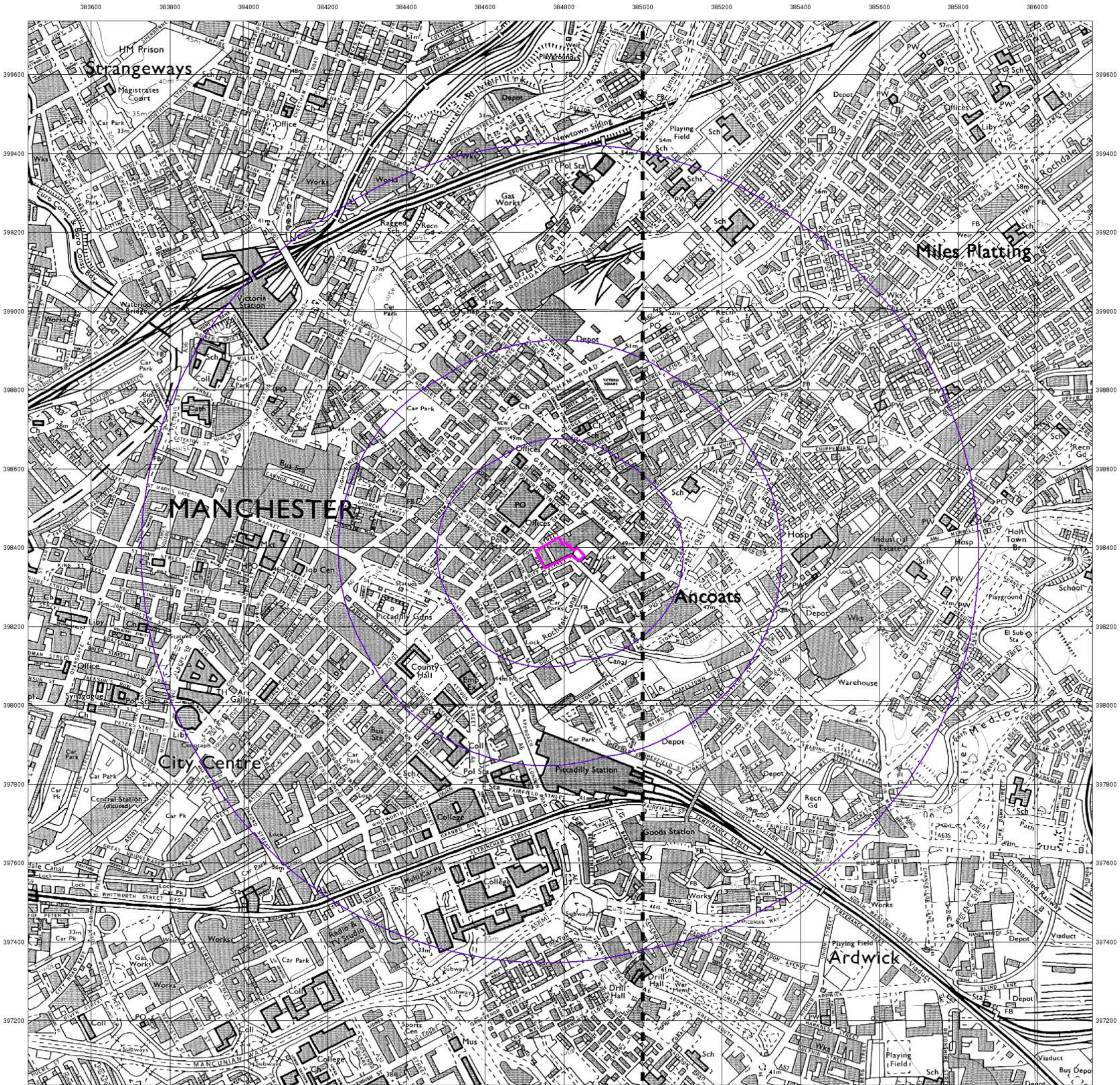
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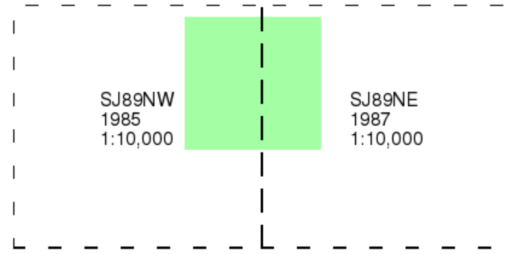
Ordnance Survey Plan

Published 1985 - 1987

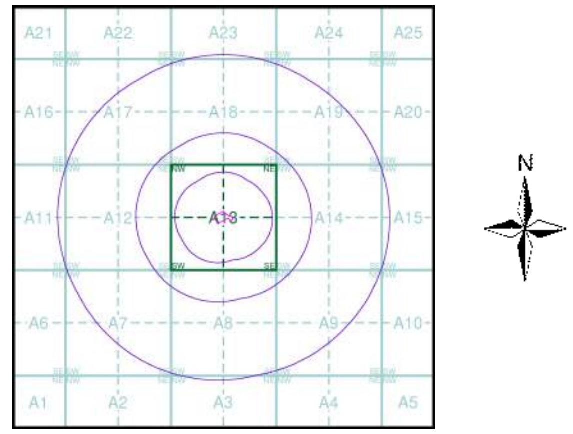
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



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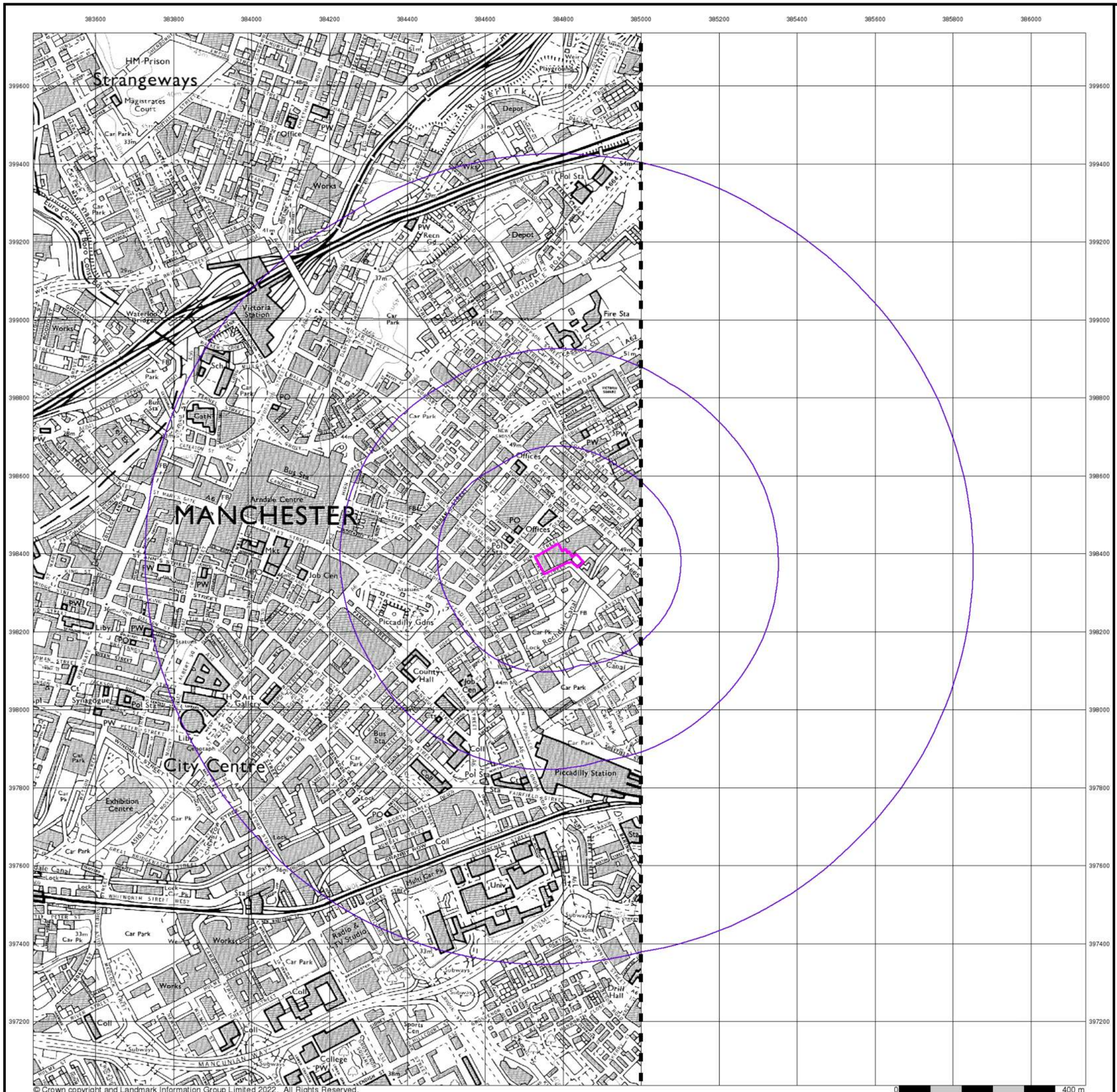
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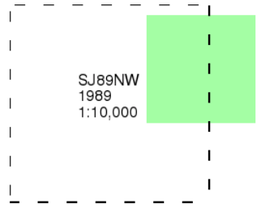
Ordnance Survey Plan

Published 1989

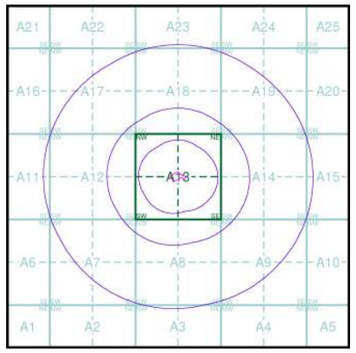
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



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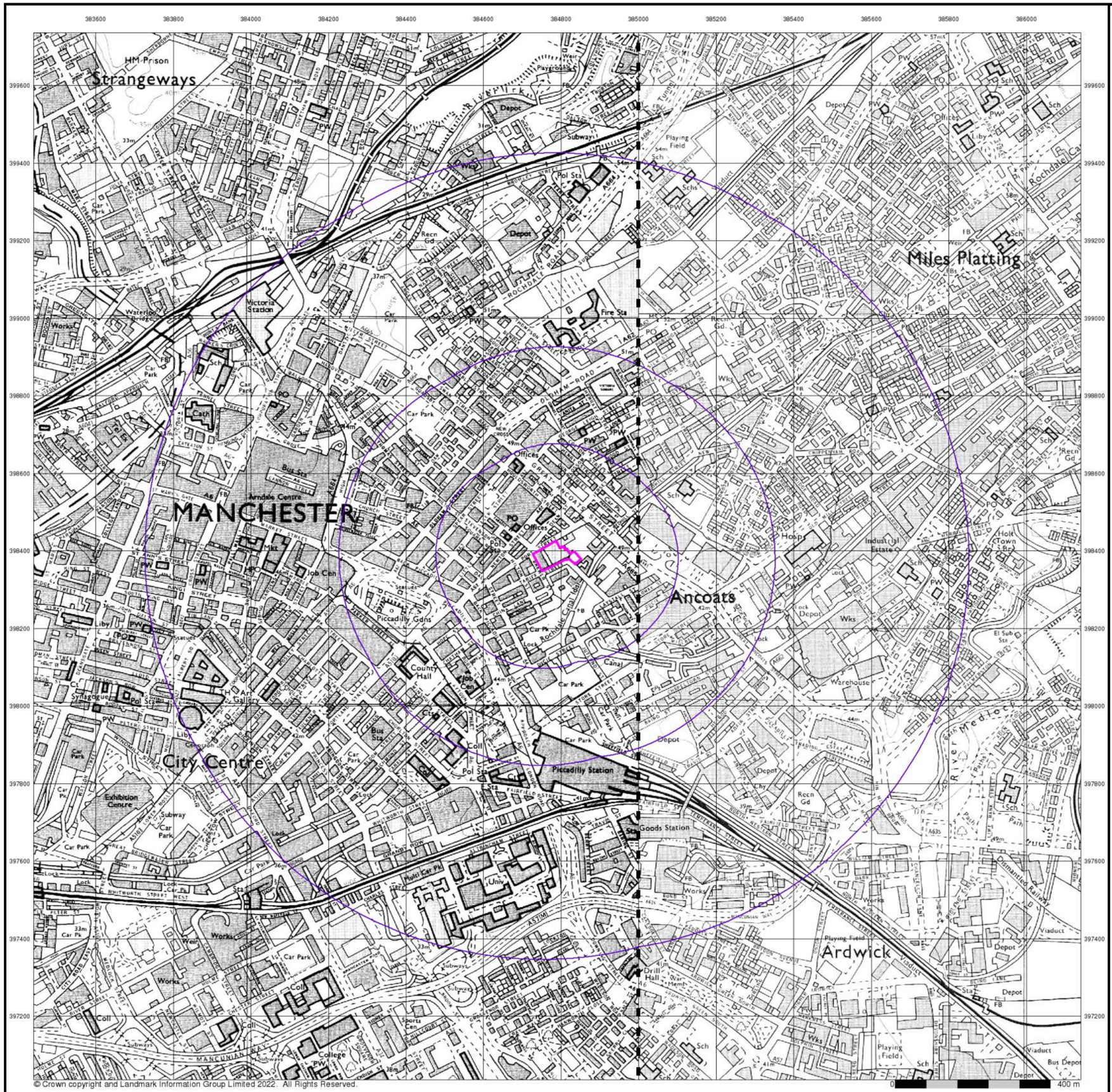
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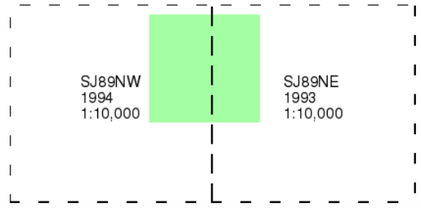
Ordnance Survey Plan

Published 1993 - 1994

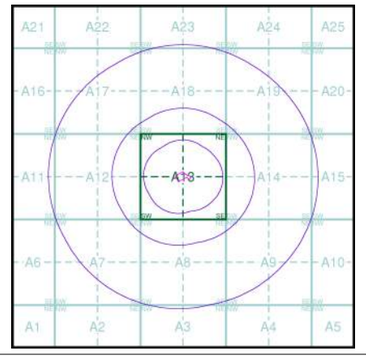
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Map Name(s) and Date(s)



Historical Map - Slice A



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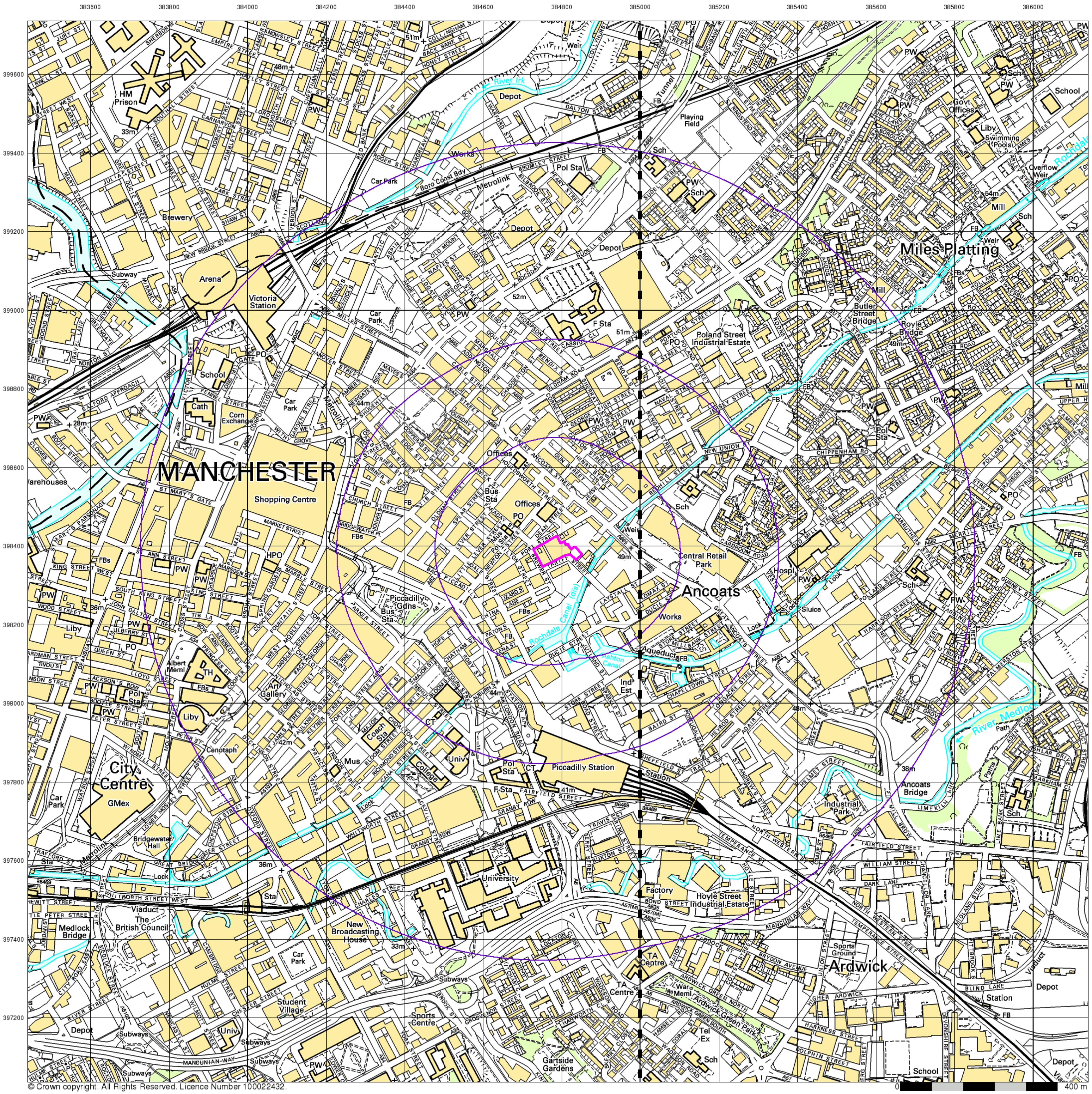
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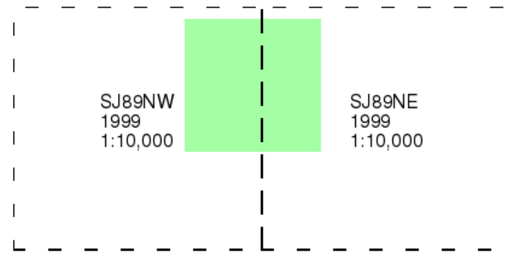
10k Raster Mapping

Published 1999

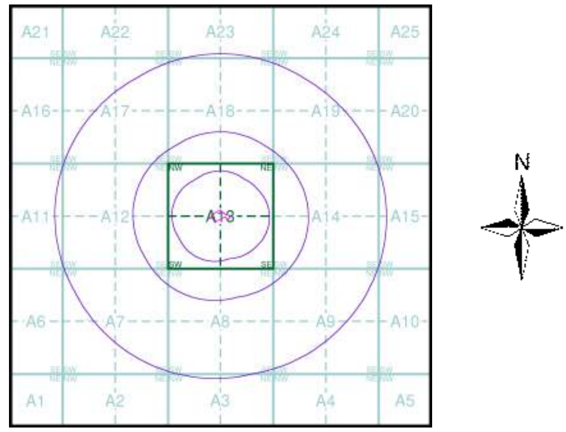
Source map scale - 1:10,000

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)



Historical Map - Slice A



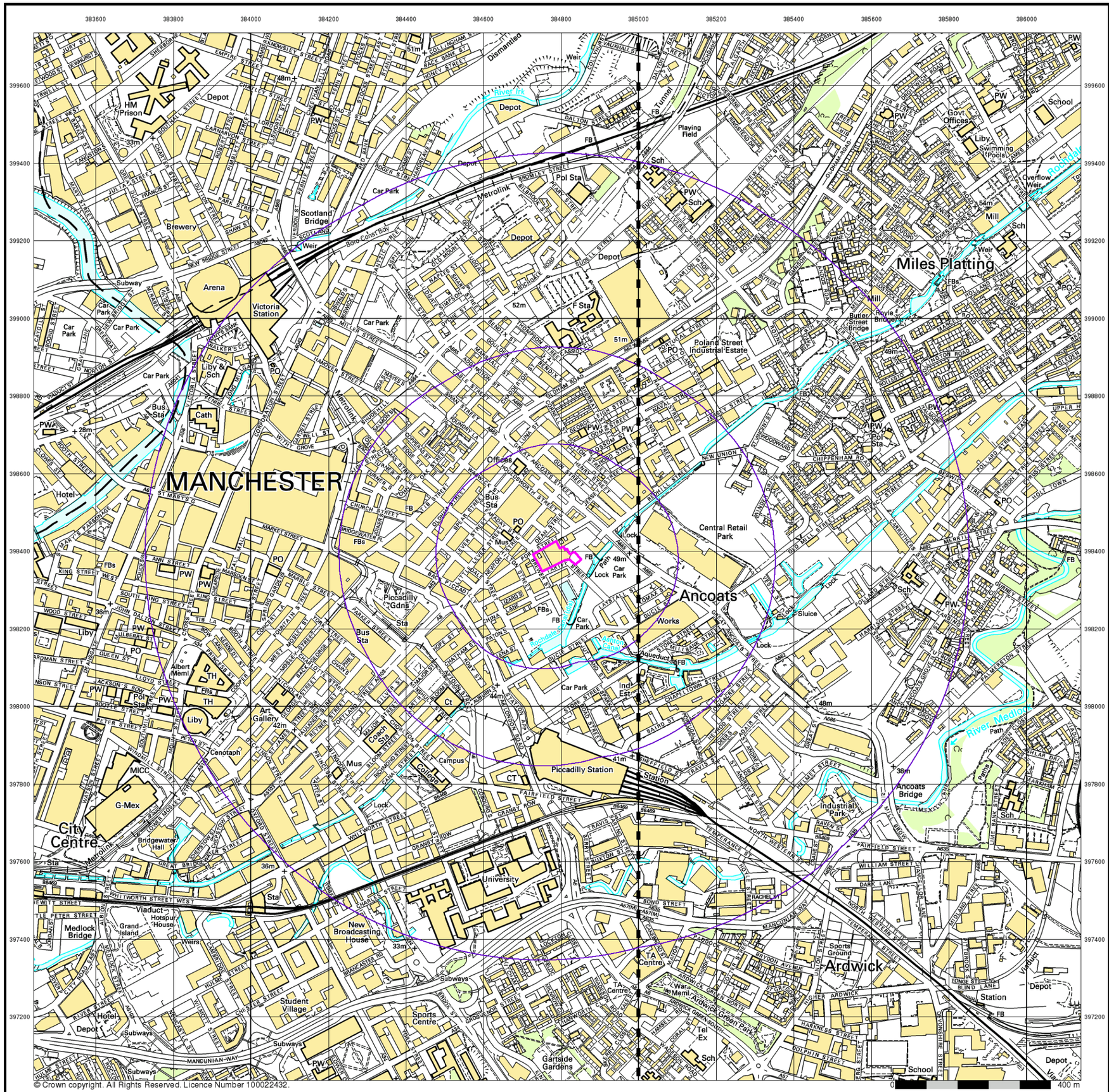
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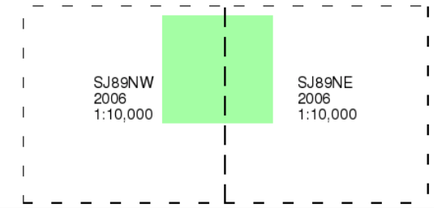
10k Raster Mapping

Published 2006

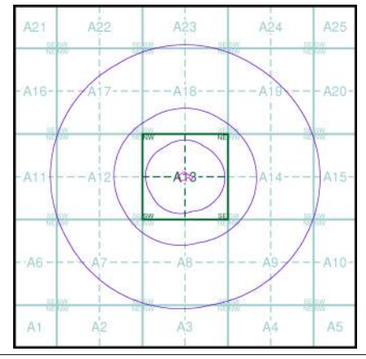
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Historical Map - Slice A



Order Details

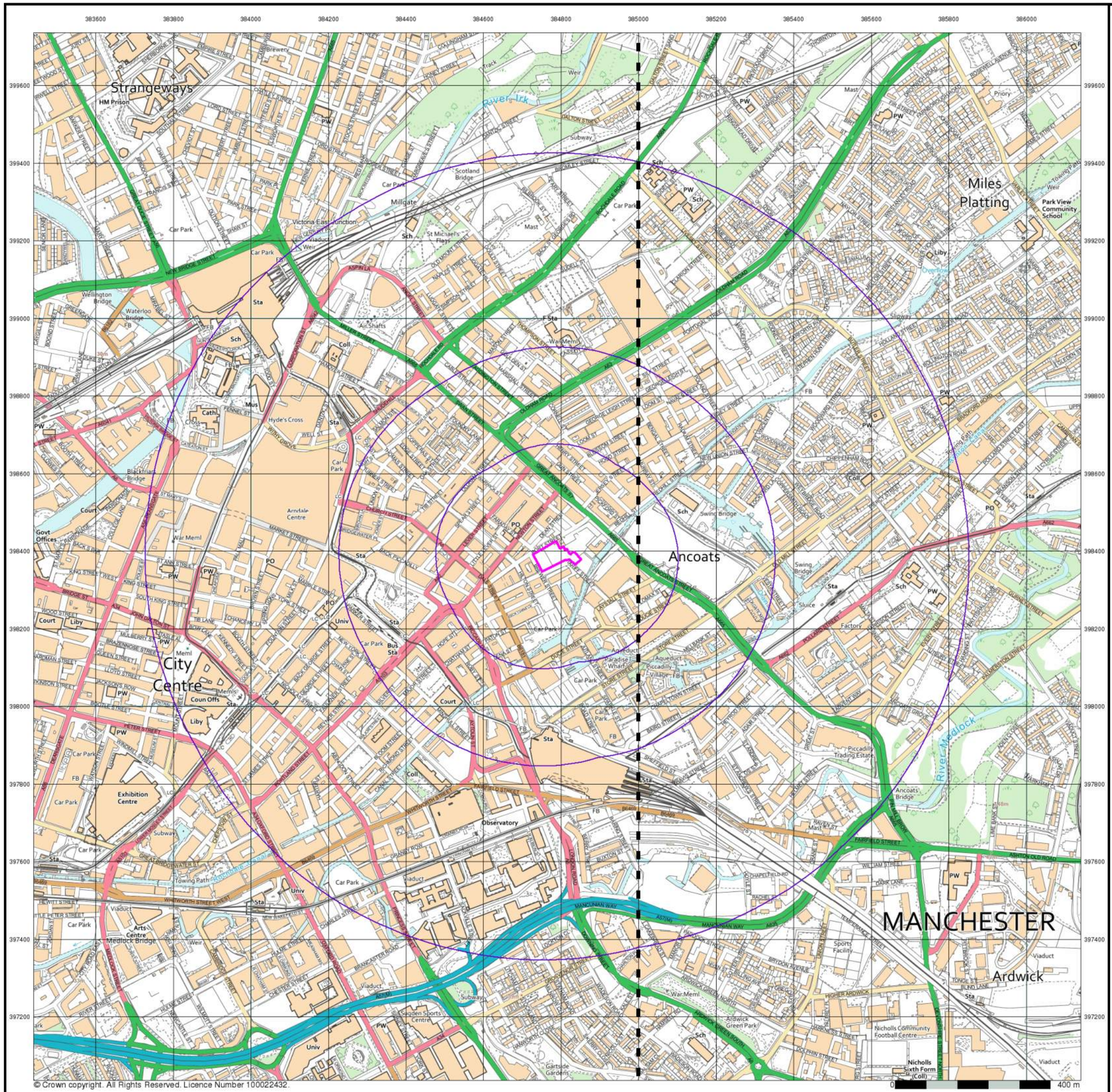
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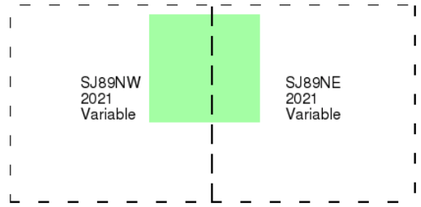
VectorMap Local

Published 2021

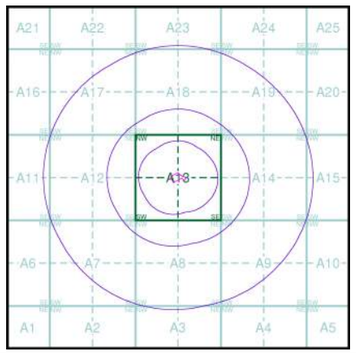
Source map scale - 1:10,000

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).

Map Name(s) and Date(s)



Historical Map - Slice A



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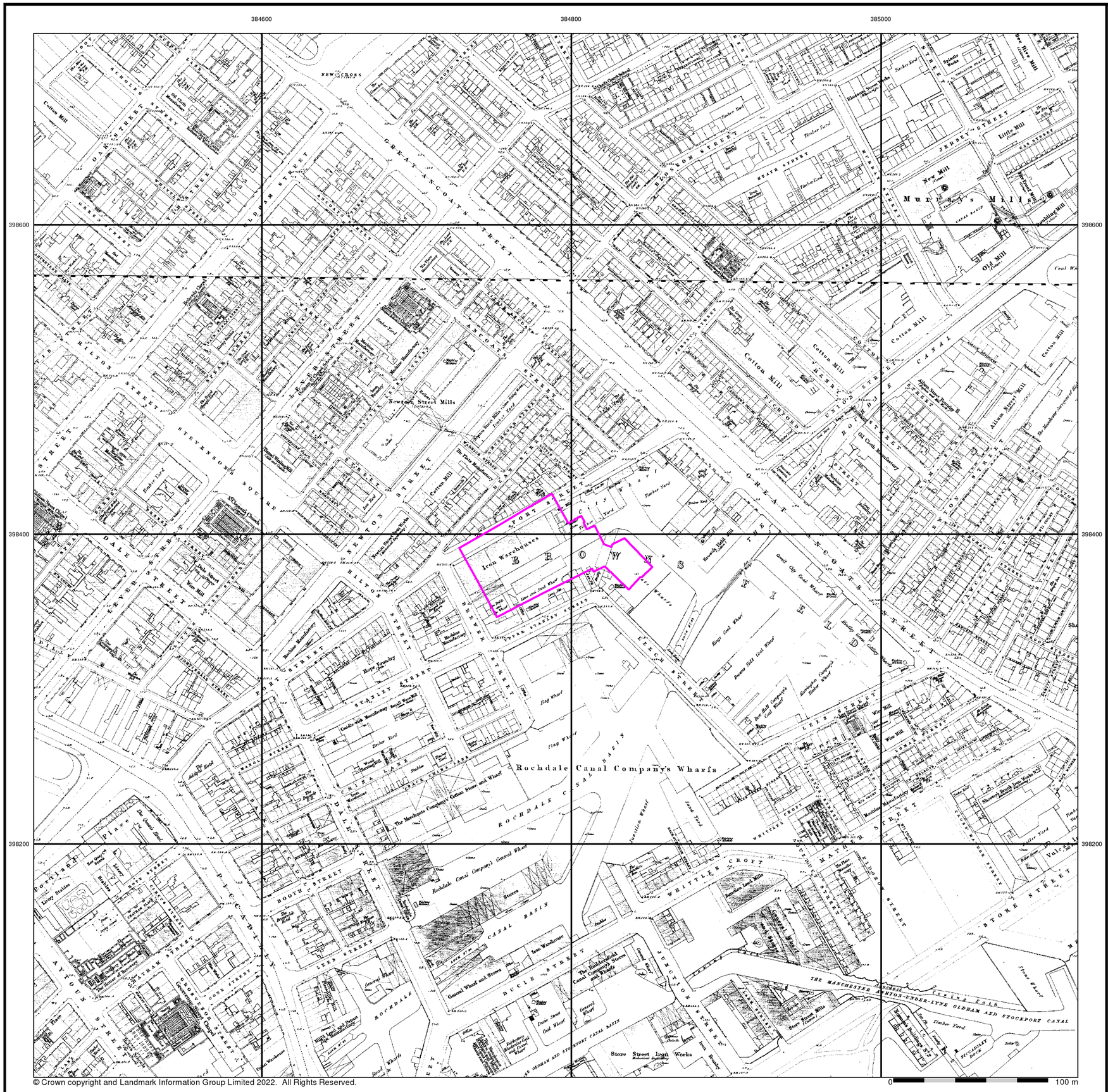
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Lancashire And Furness

Published 1850 - 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.

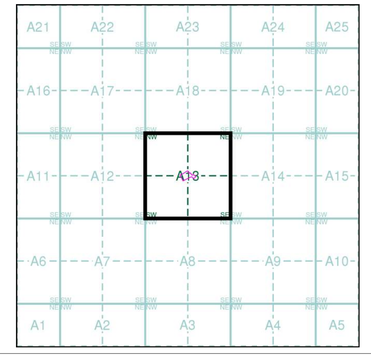
Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)

000_00_024
1850
1:1,056

000_00_029
1851
1:1,056

Historical Town Plan - Segment A13



Order Details

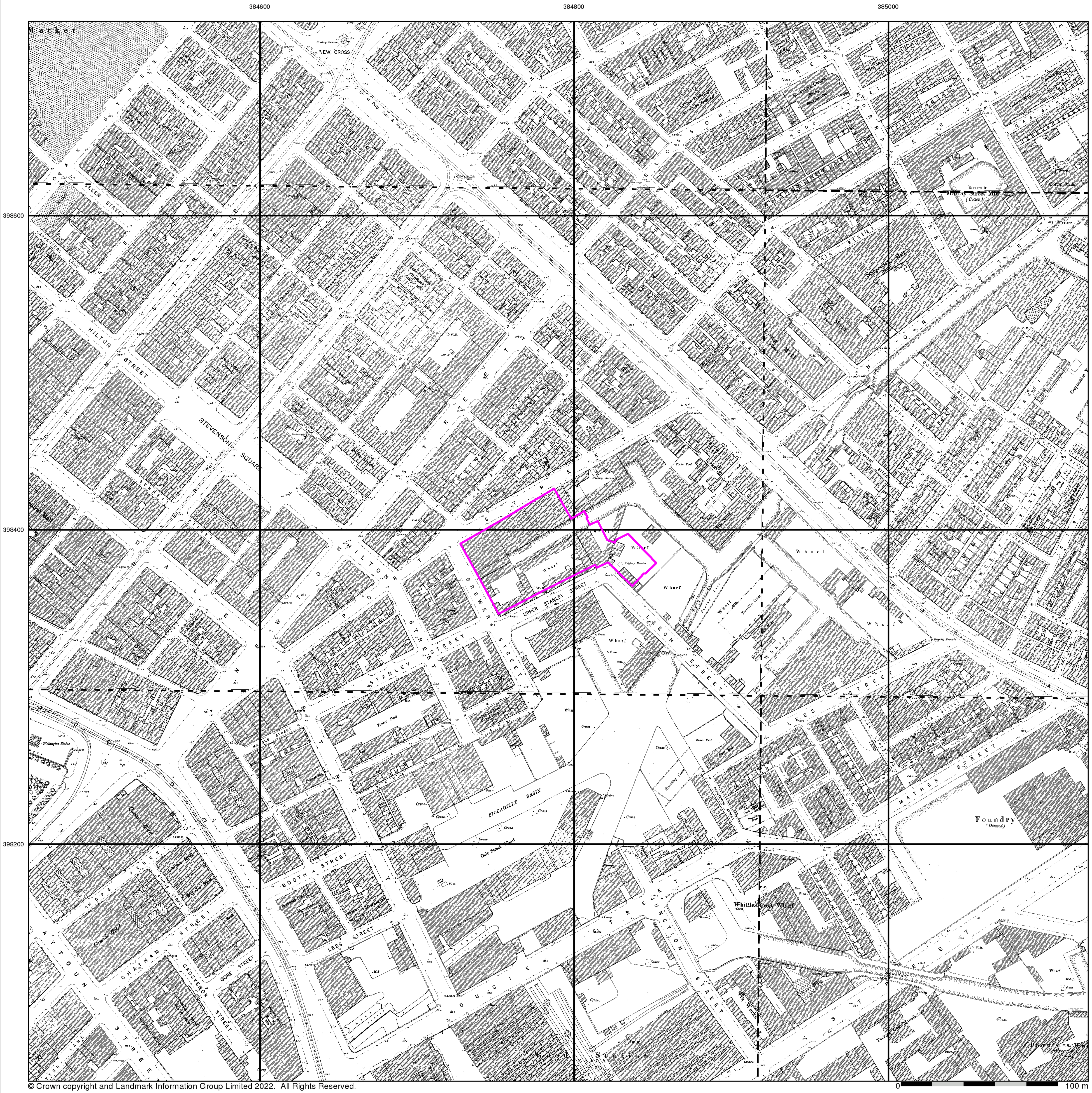
Order Number:	302490219_1_1
Customer Ref:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	0

Site Details

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FAIRHURST

Lancashire And Furness

Published 1891

Source map scale - 1:500

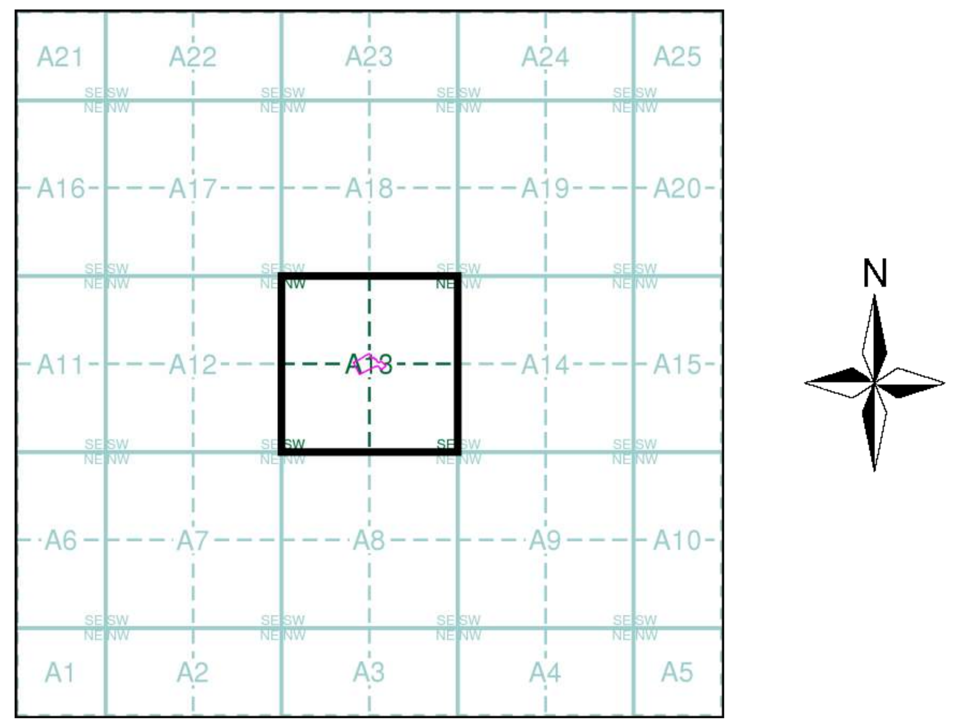
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to compliment the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped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

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

Map Name(s) and Date(s)

104_07_016 1891 1:500	104_07_017 1891 1:500
104_07_021 1891 1:500	104_07_022 1891 1:500
104_11_001 1891 1:500	104_11_002 1891 1:500

Historical Town Plan - Segment A13



Order Details

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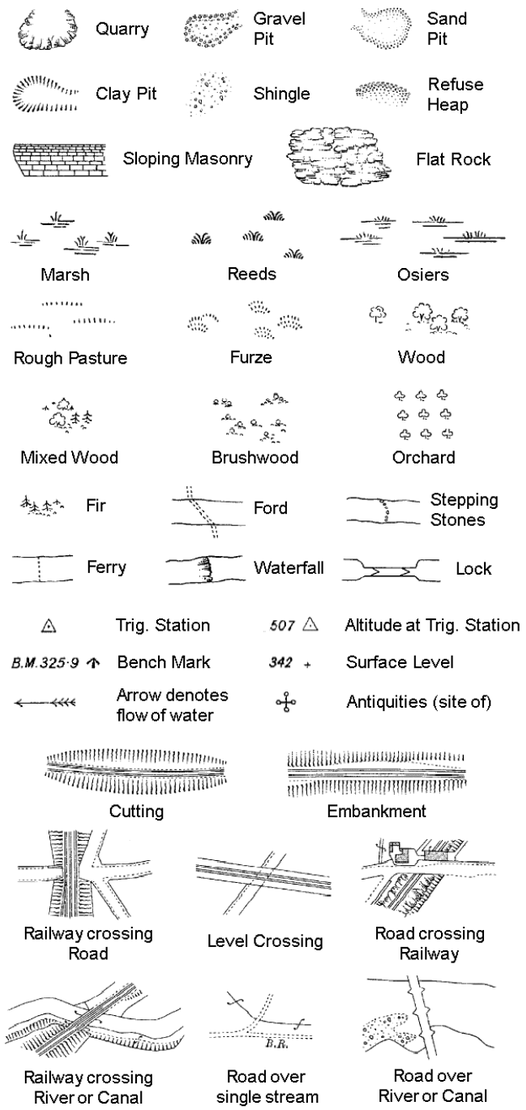
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Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

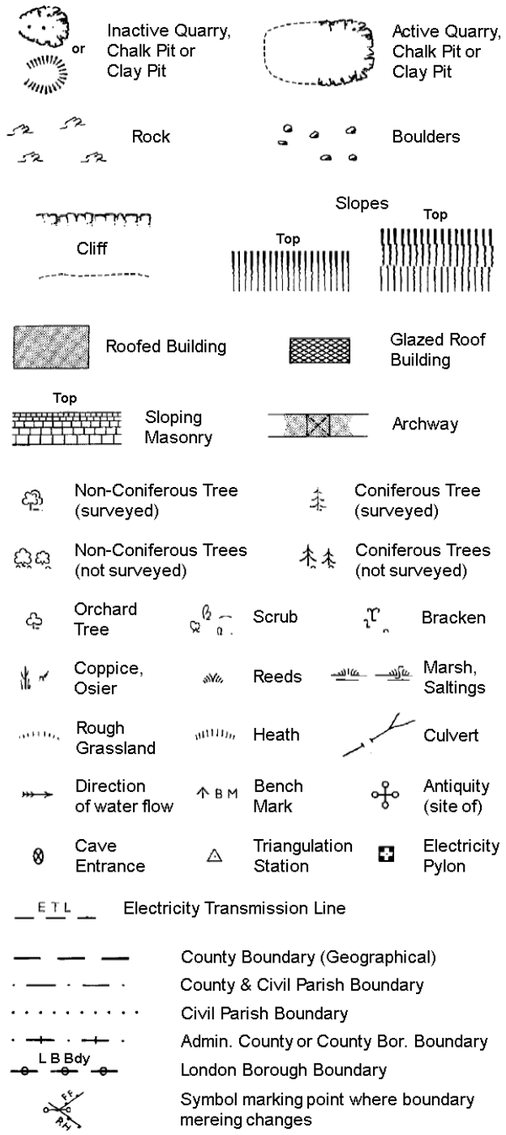
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

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

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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

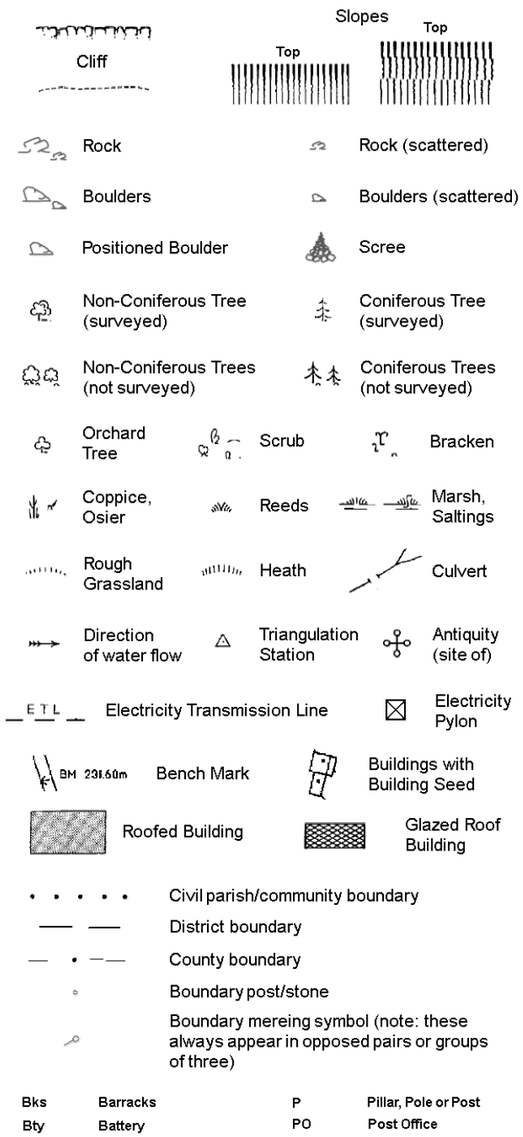
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

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

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



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

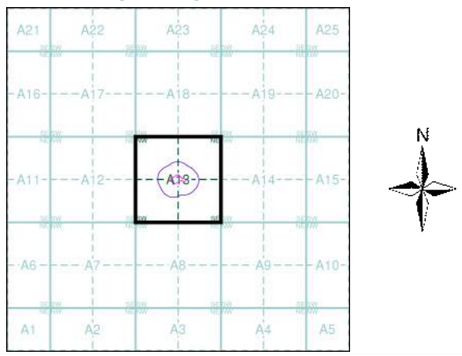
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity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

FAIRHURST

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 - 1932	4
Ordnance Survey Plan	1:1,250	1948	5
Ordnance Survey Plan	1:2,500	1951	6
Ordnance Survey Plan	1:1,250	1951 - 1955	7
Ordnance Survey Plan	1:2,500	1953 - 1955	8
Ordnance Survey Plan	1:1,250	1963 - 1981	9
Ordnance Survey Plan	1:2,500	1965	10
Ordnance Survey Plan	1:1,250	1968 - 1989	11
Ordnance Survey Plan	1:2,500	1969	12
Supply of Unpublished Survey Information	1:1,250	1974	13
Additional SIMs	1:1,250	1978 - 1985	14
Additional SIMs	1:1,250	1983 - 1990	15
Ordnance Survey Plan	1:1,250	1988	16
Additional SIMs	1:1,250	1991	17
Large-Scale National Grid Data	1:1,250	1992	18
Additional SIMs	1:1,250	1992	19
Large-Scale National Grid Data	1:1,250	1994 - 1995	20
Large-Scale National Grid Data	1:1,250	1996	21
Historical Aerial Photography	1:2,500	2000	22

Historical Map - Segment A13



Order Details

Order Number:	302490219_1_1
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National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	100

Site Details

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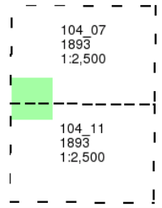
Lancashire And Furness

Published 1893

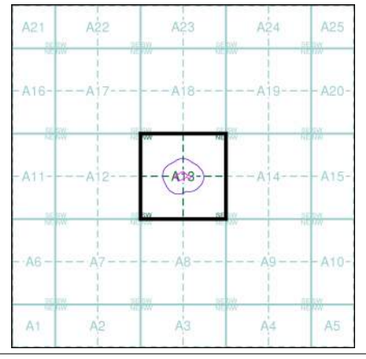
Source map scale - 1:2,500

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



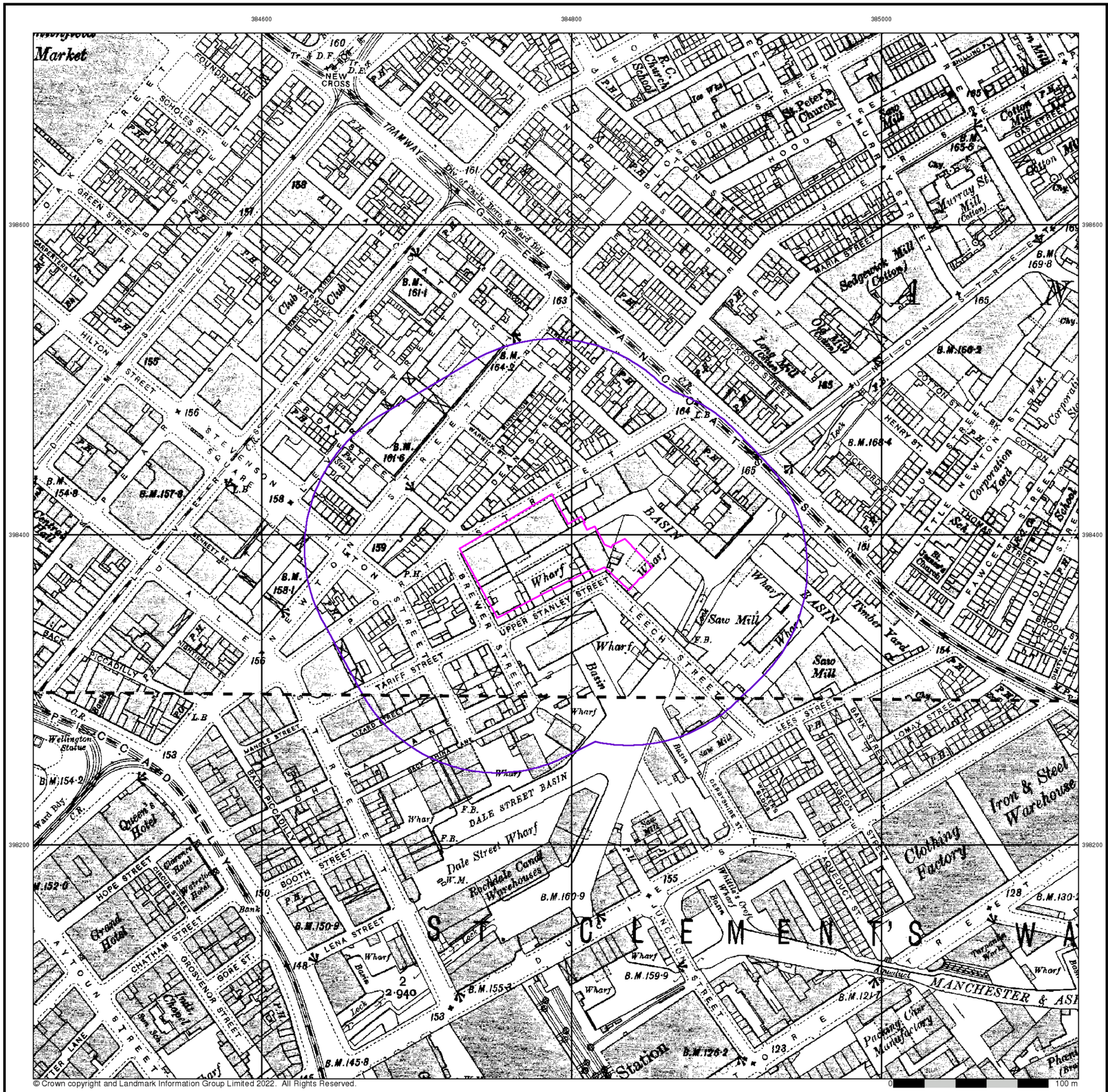
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FAIRHURST

Lancashire And Furness

Published 1908

Source map scale - 1:2,500

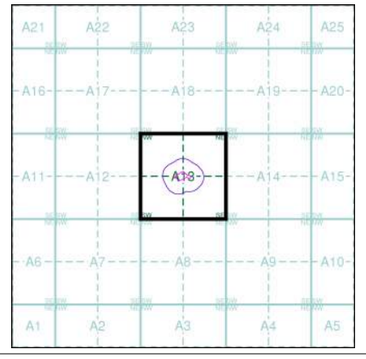
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

104_07
1908
1:2,500

104_11
1908
1:2,500

Historical Map - Segment A13



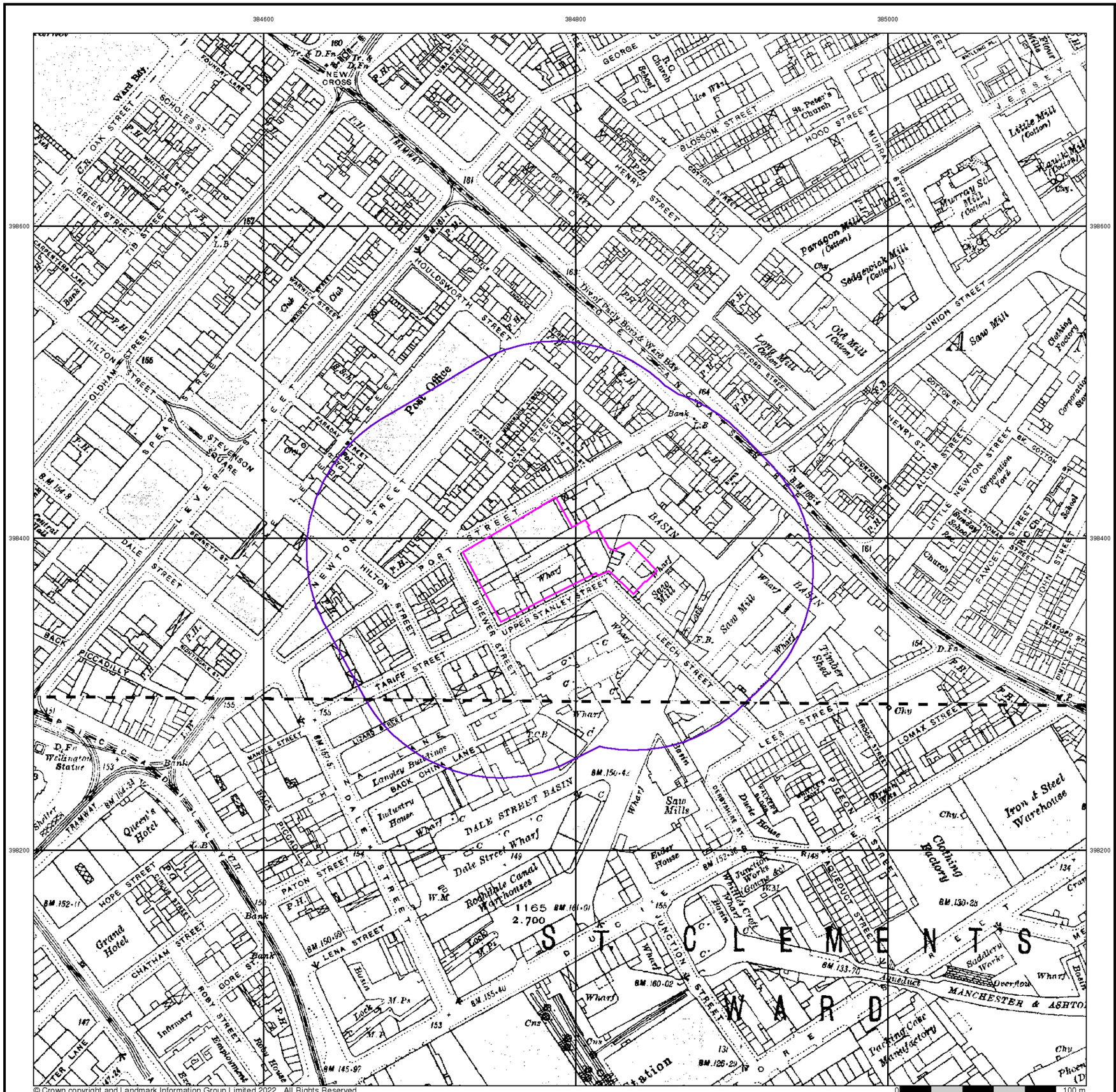
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FAIRHURST

Lancashire And Furness

Published 1922 - 1932

Source map scale - 1:2,500

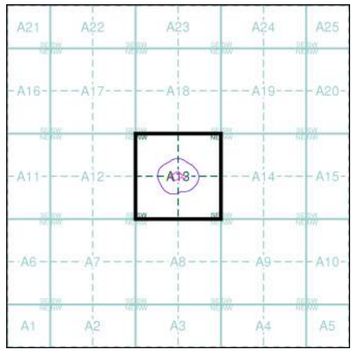
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

104_07
1922
1:2,500

104_11
1932
1:2,500

Historical Map - Segment A13



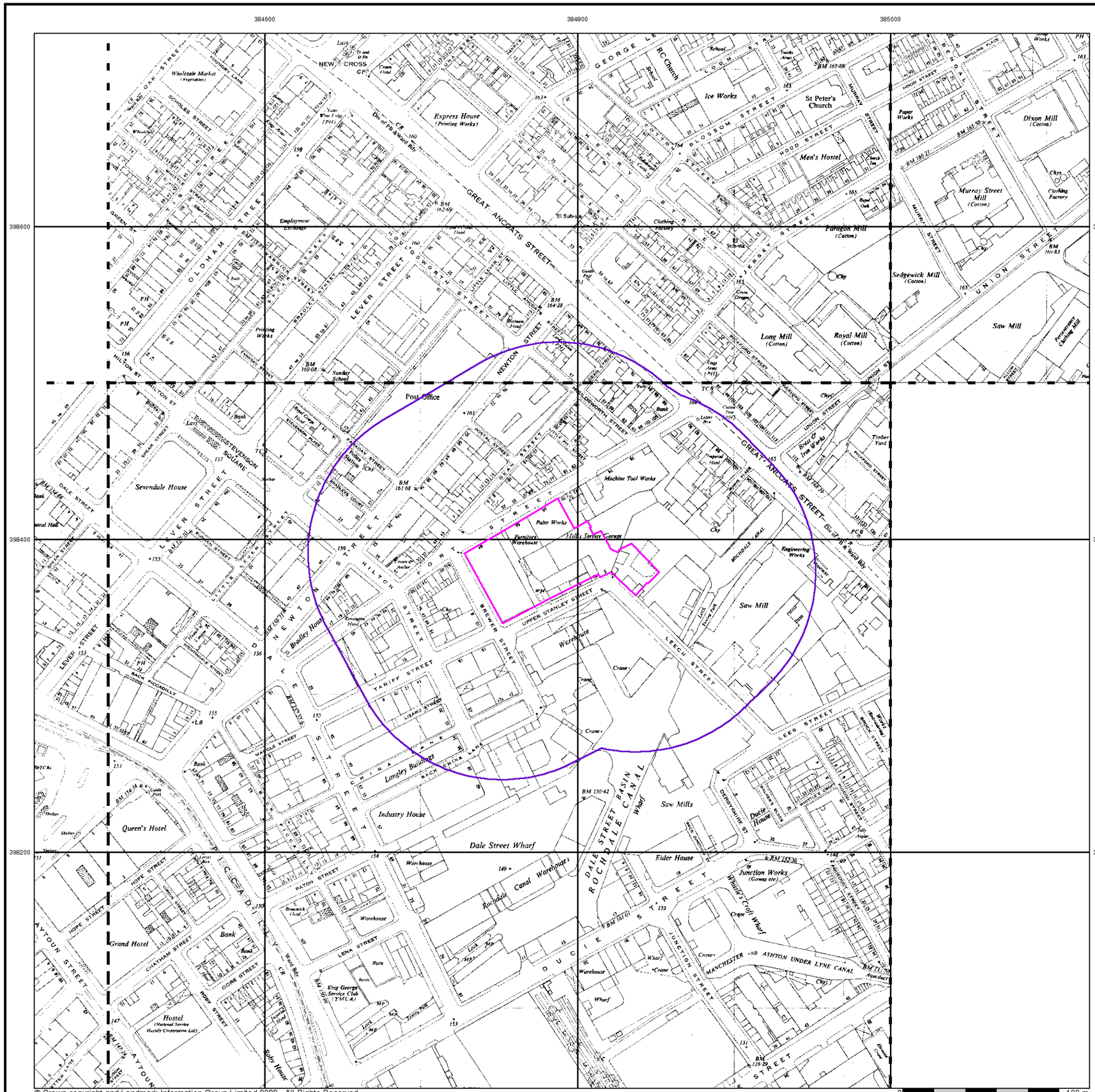
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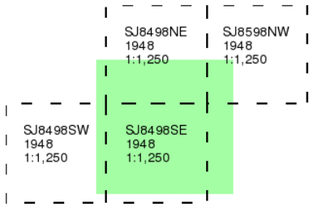
Ordnance Survey Plan

Published 1948

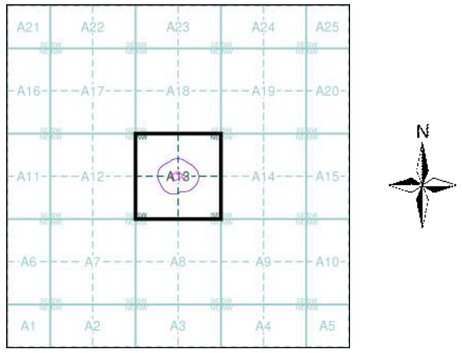
Source map scale - 1:1,250

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



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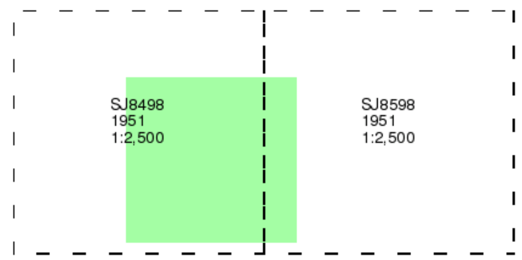
Ordnance Survey Plan

Published 1951

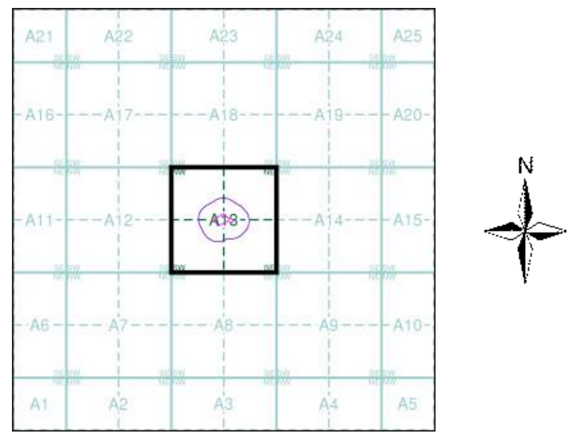
Source map scale - 1:2,500

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Map Name(s) and Date(s)



Historical Map - Segment A13

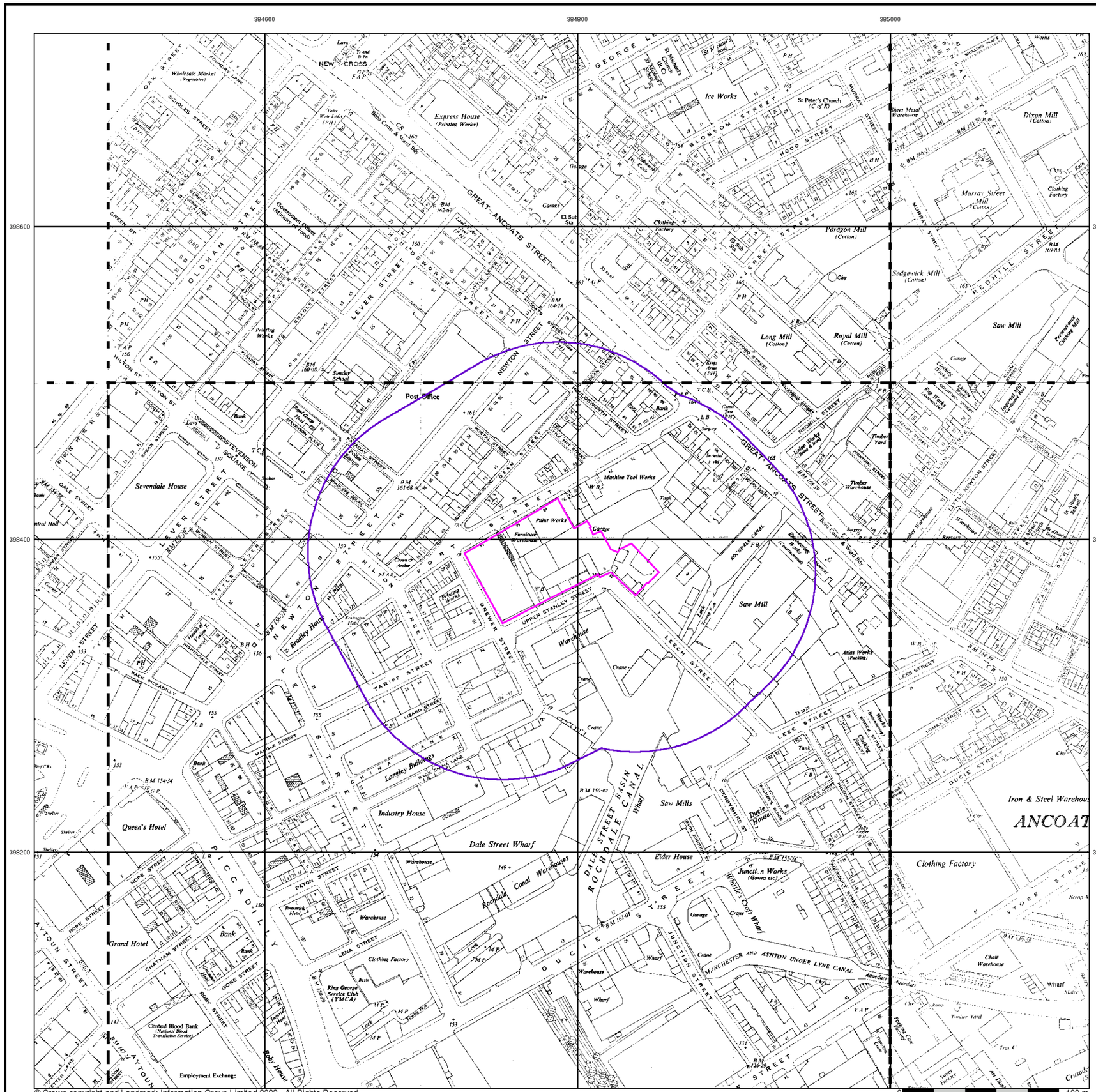


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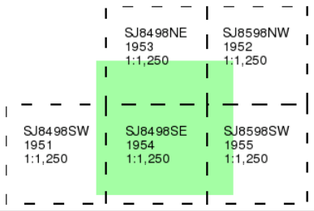
Ordnance Survey Plan

Published 1951 - 1955

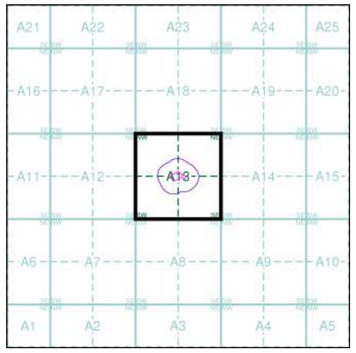
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



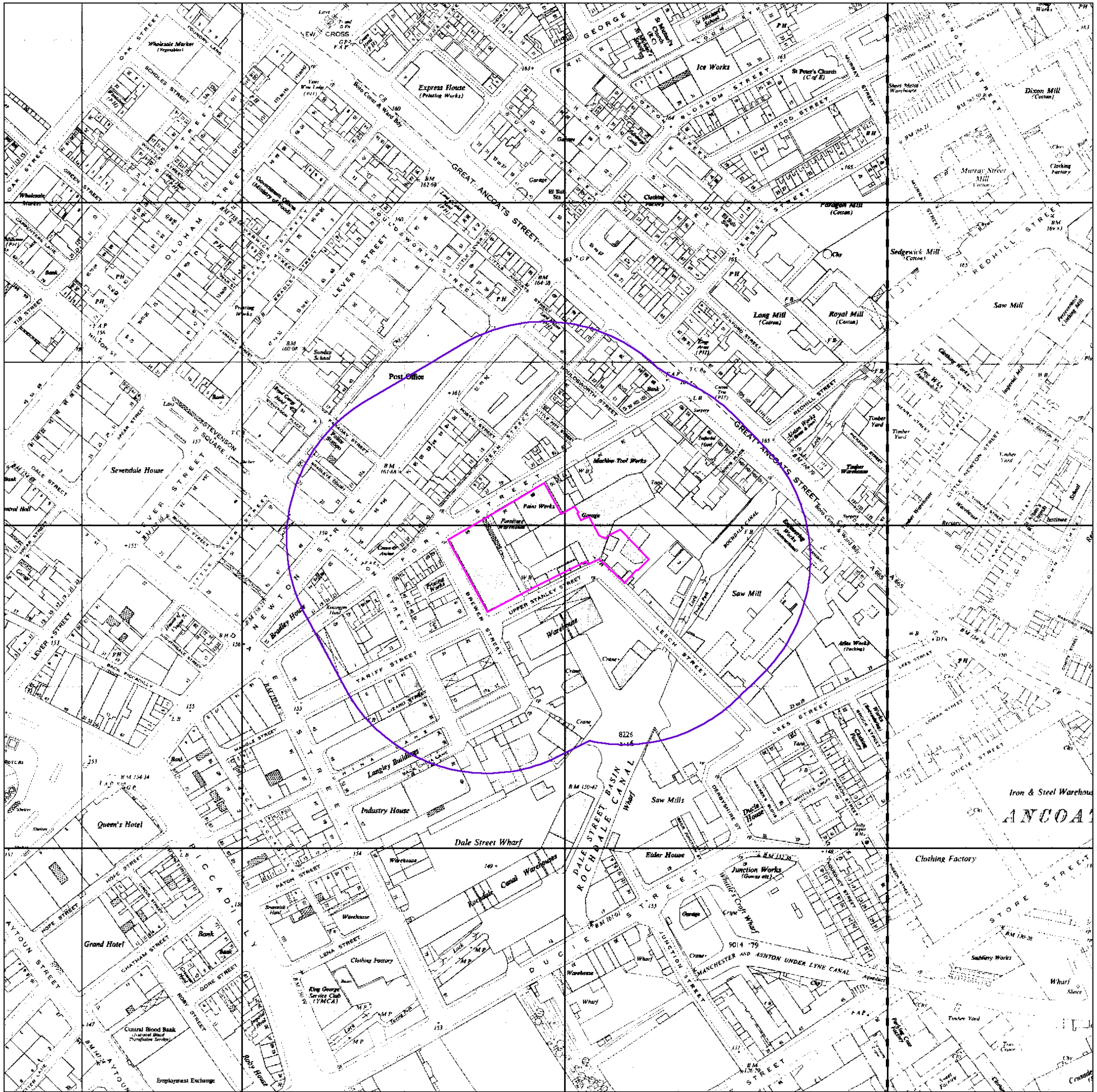
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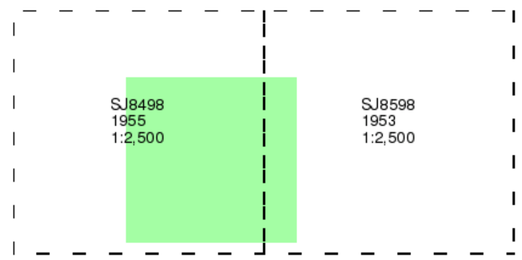
Ordnance Survey Plan

Published 1953 - 1955

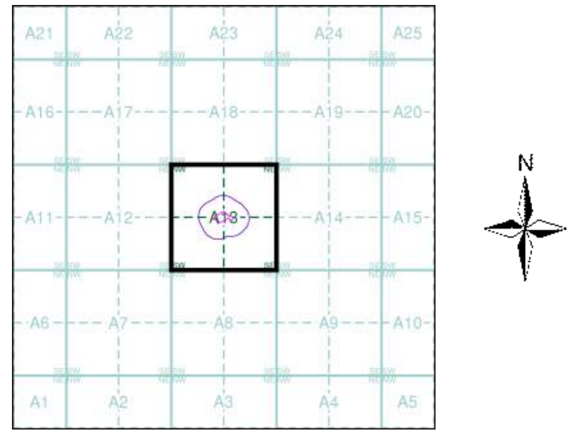
Source map scale - 1:2,500

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



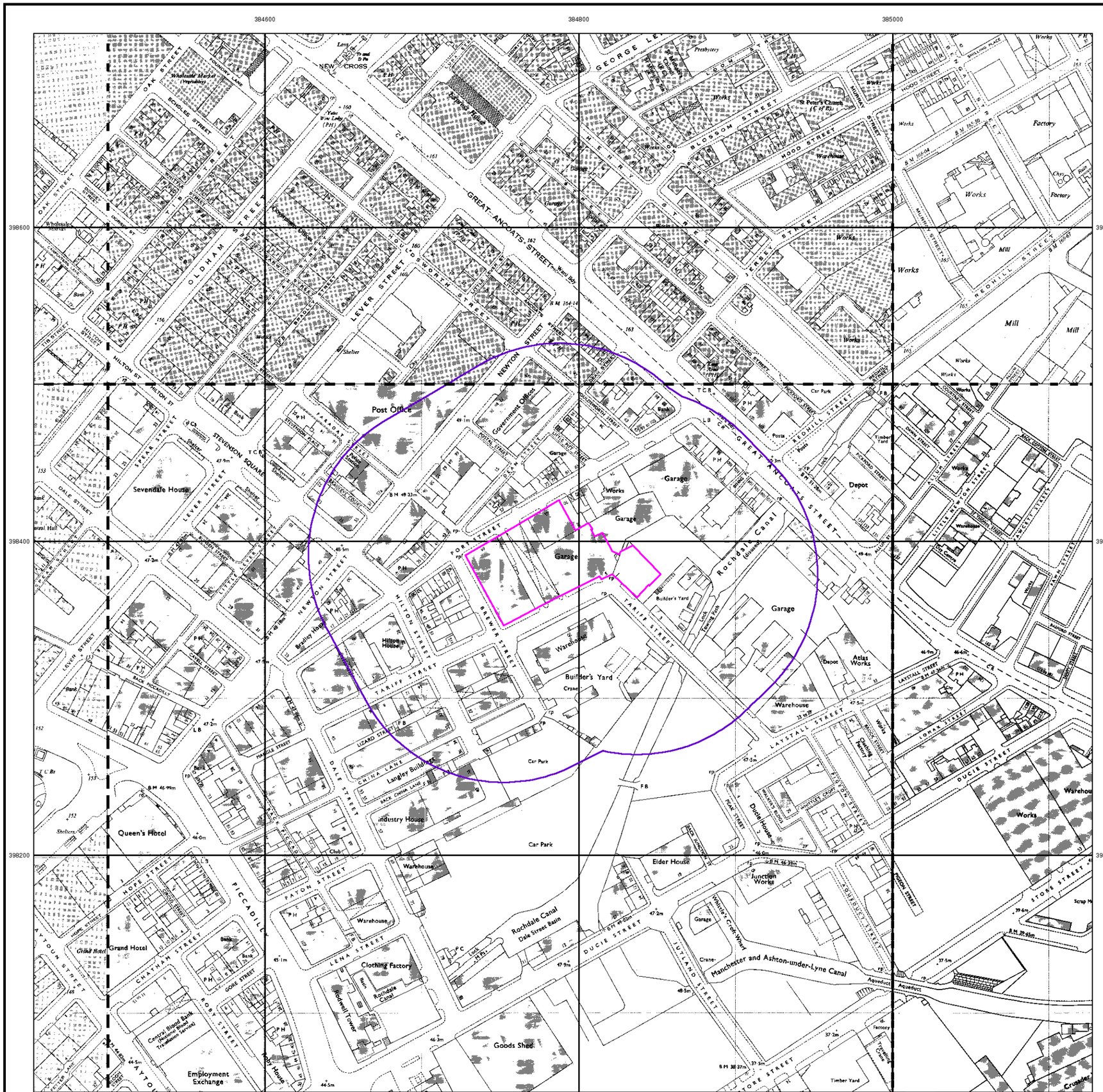
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FAIRHURST

Ordnance Survey Plan

Published 1963 - 1981

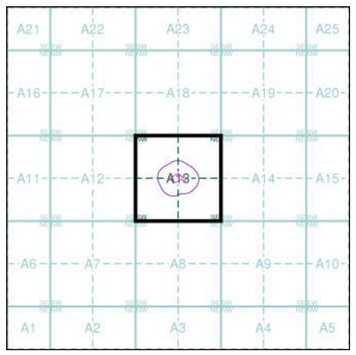
Source map scale - 1:1,250

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Map Name(s) and Date(s)

SJ8498NW 1963 1:1,250	SJ8498NE 1963 1:1,250	SJ8598NW 1963 1:1,250
SJ8498SW 1968 1:1,250	SJ8498SE 1971 1:1,250	SJ8598SW 1981 1:1,250

Historical Map - Segment A13



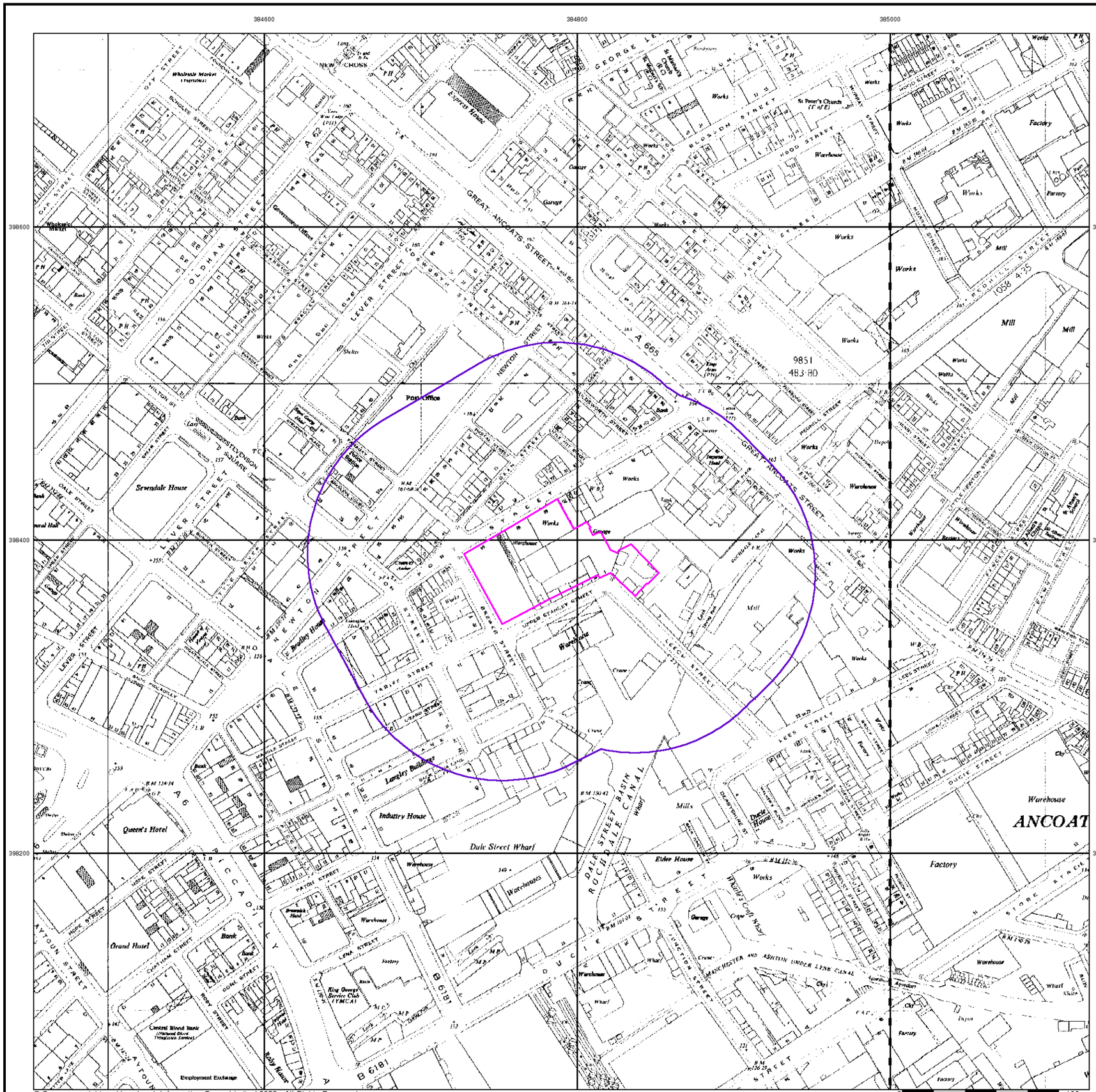
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Customer Ref:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	100

Site Details

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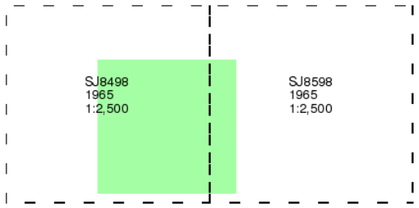
Ordnance Survey Plan

Published 1965

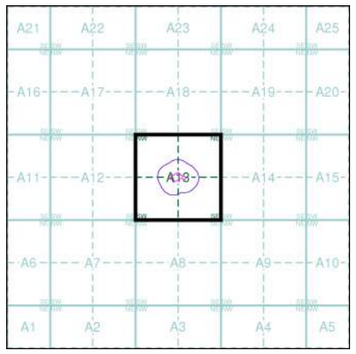
Source map scale - 1:2,500

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



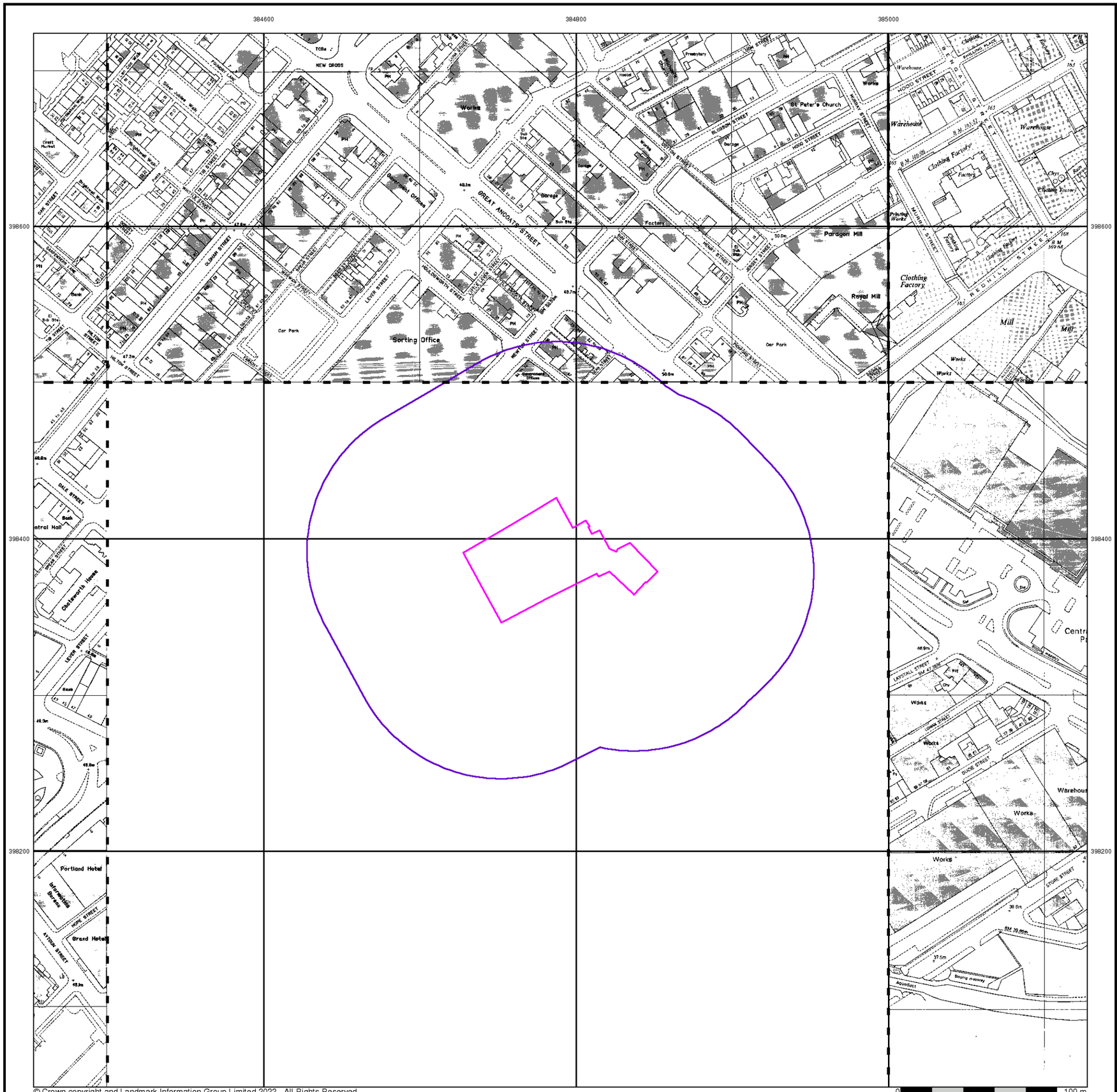
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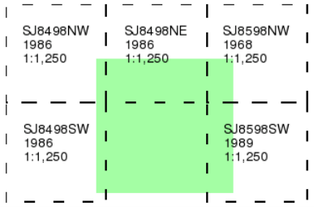
Ordnance Survey Plan

Published 1968 - 1989

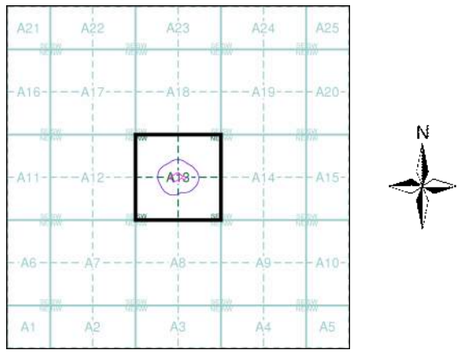
Source map scale - 1:1,250

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

Map Name(s) and Date(s)



Historical Map - Segment A13



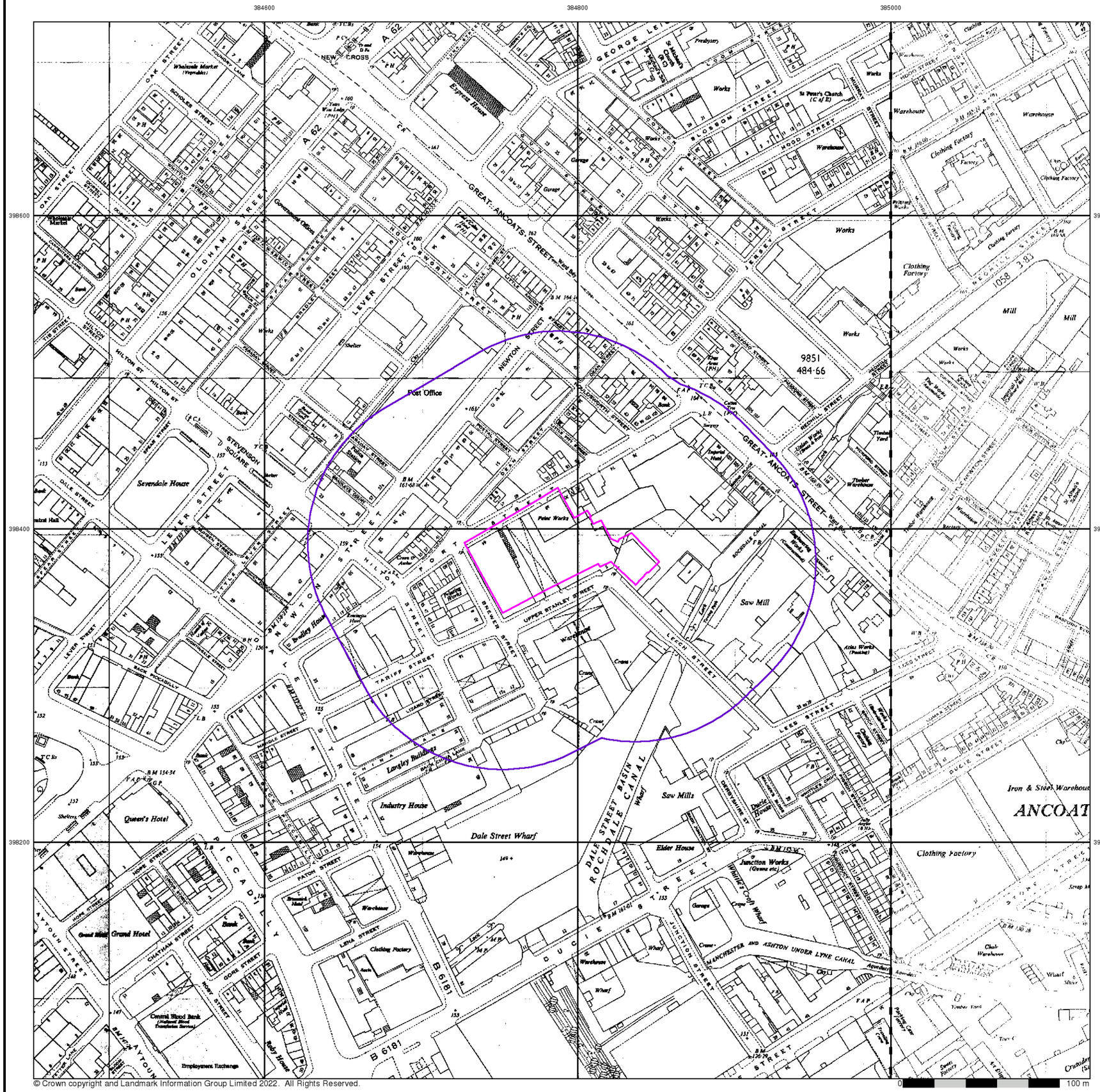
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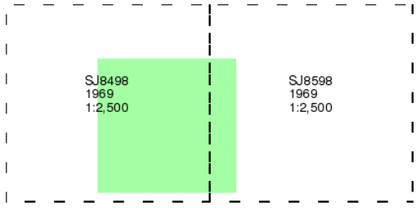
Ordnance Survey Plan

Published 1969

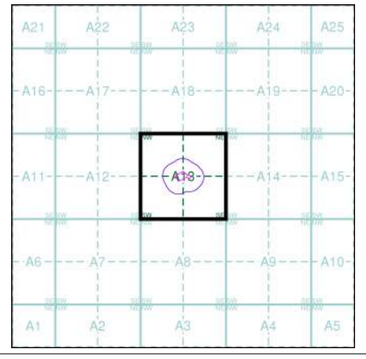
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



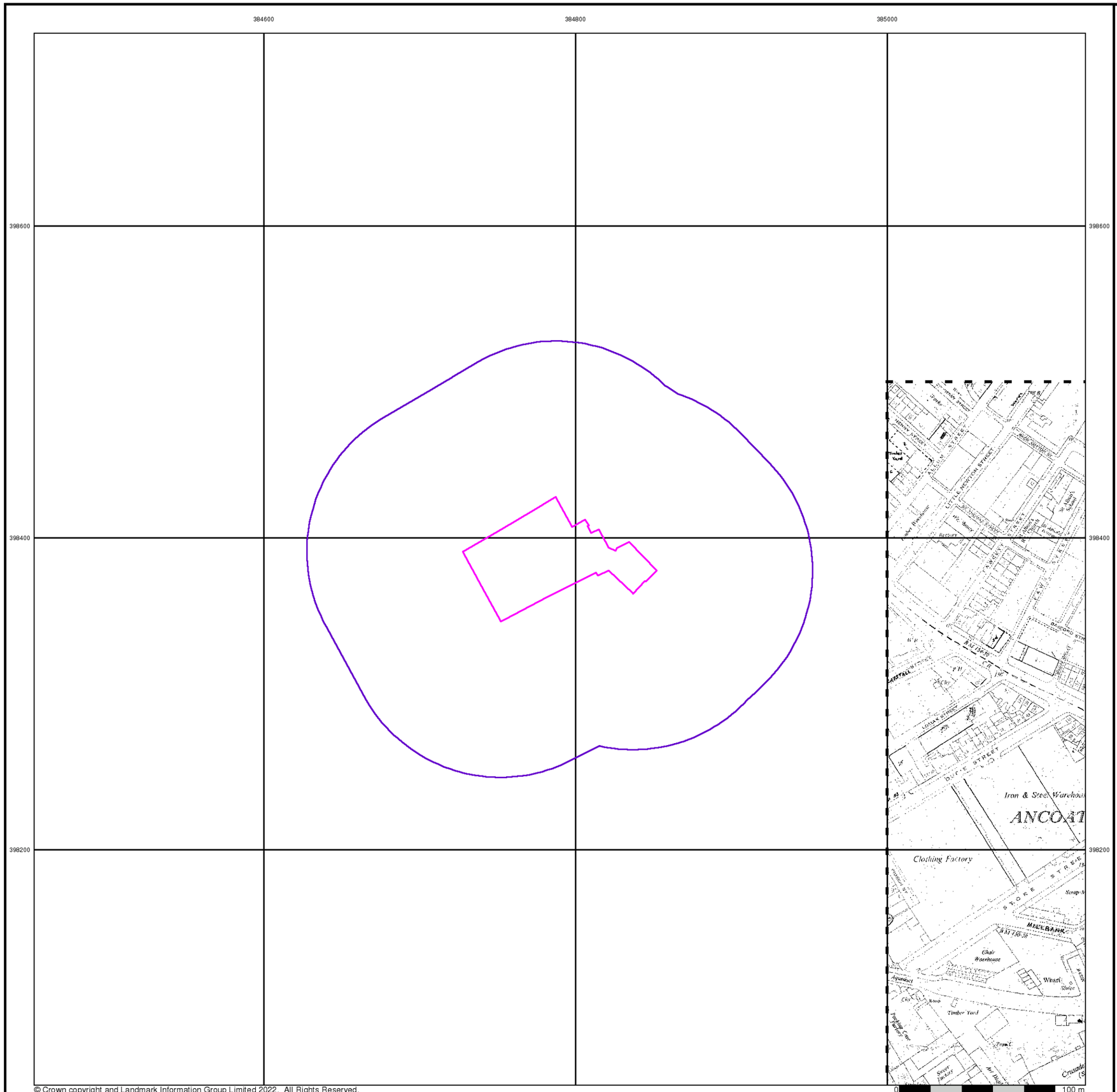
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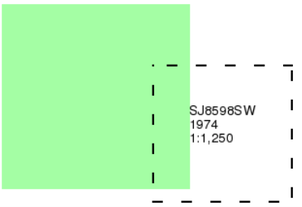
Supply of Unpublished Survey Information

Published 1974

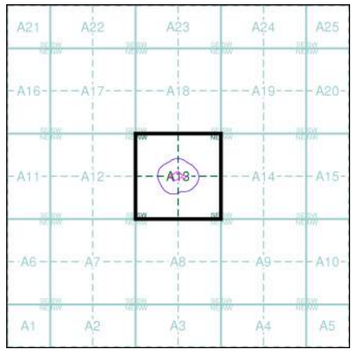
Source map scale - 1:1,250

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

Map Name(s) and Date(s)



Historical Map - Segment A13



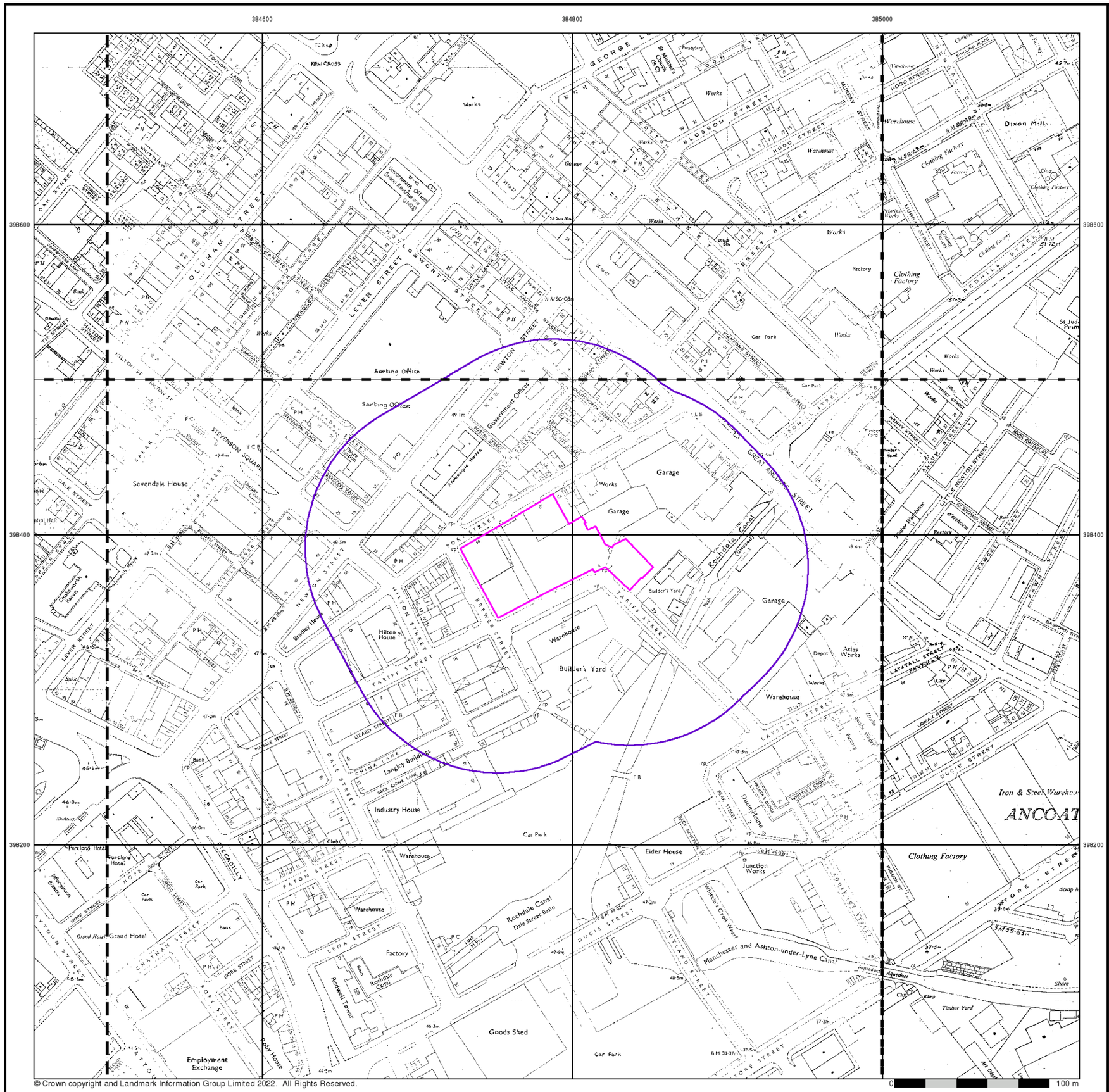
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Additional SIMs

Published 1978 - 1985

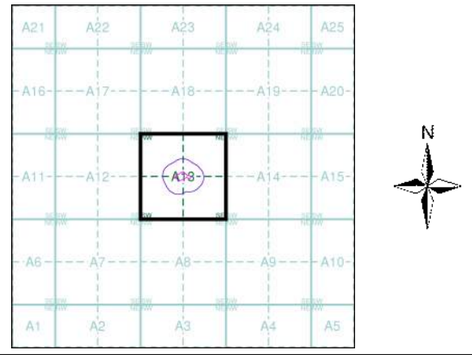
Source map scale - 1:1,250

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)

SJ8498NW 1980 1:1,250	SJ8498NE 1984 1:1,250	SJ8598NW 1978 1:1,250
SJ8498SW 1980 1:1,250	SJ8498SE 1985 1:1,250	SJ8598SW 1978 1:1,250

Historical Map - Segment A13



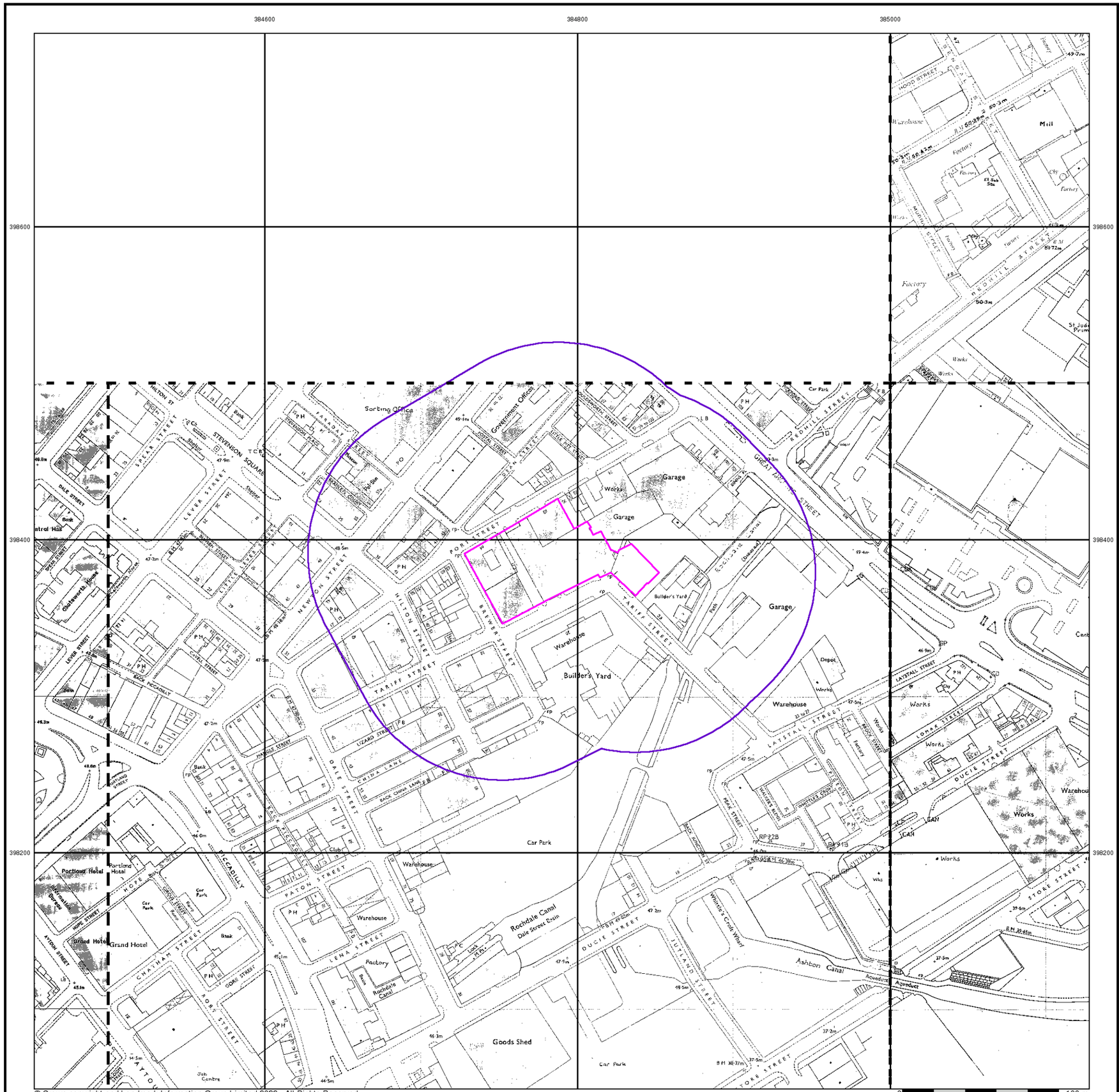
Order Details

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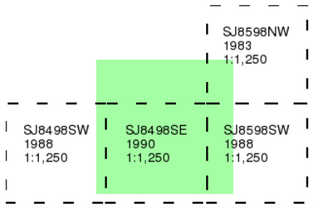
Additional SIMs

Published 1983 - 1990

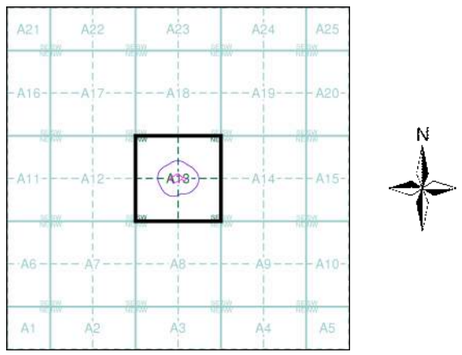
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

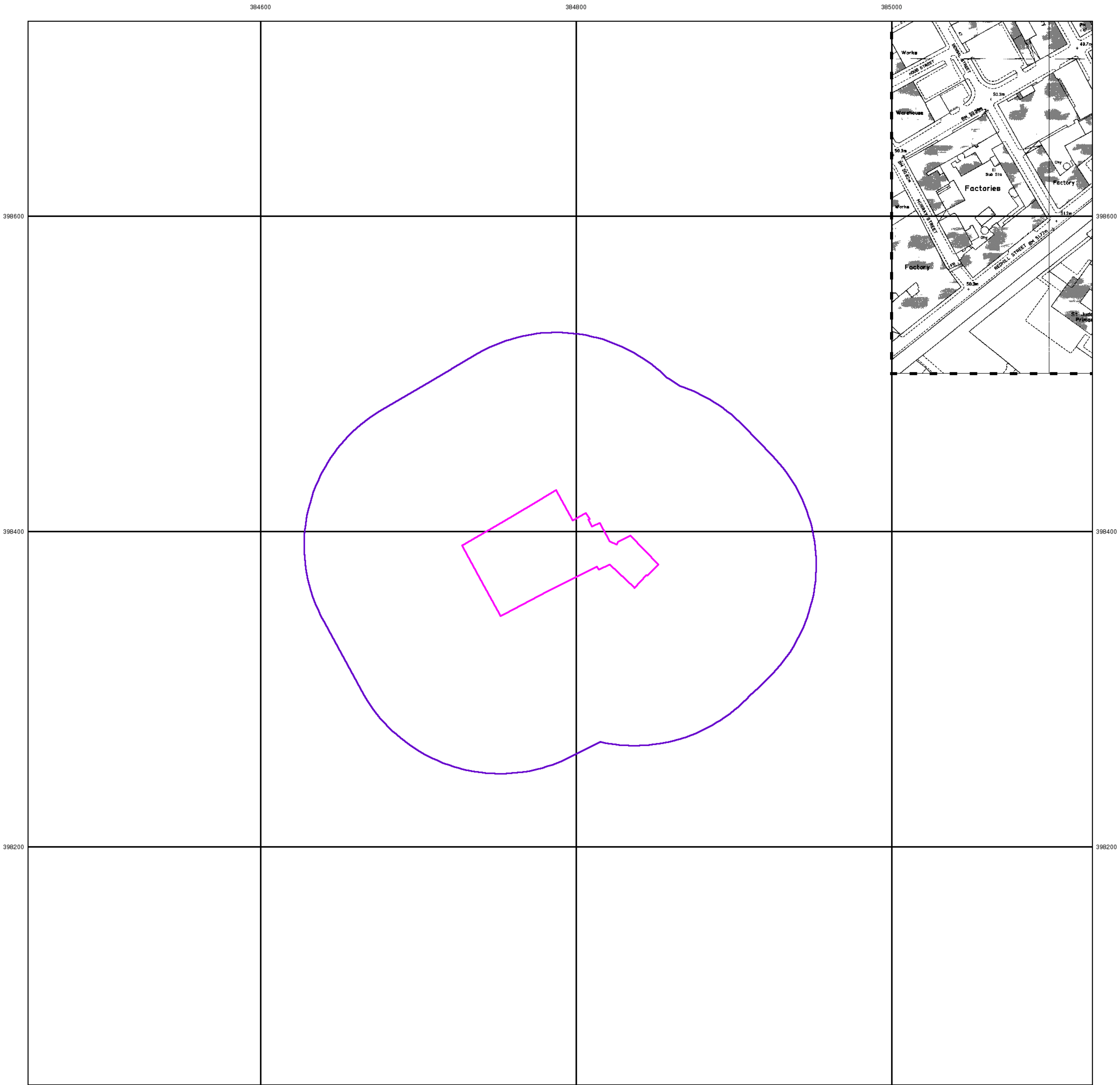
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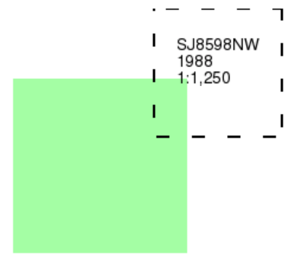
Ordnance Survey Plan

Published 1988

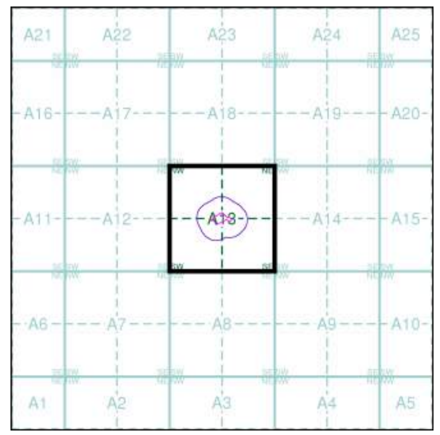
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13





Order Details

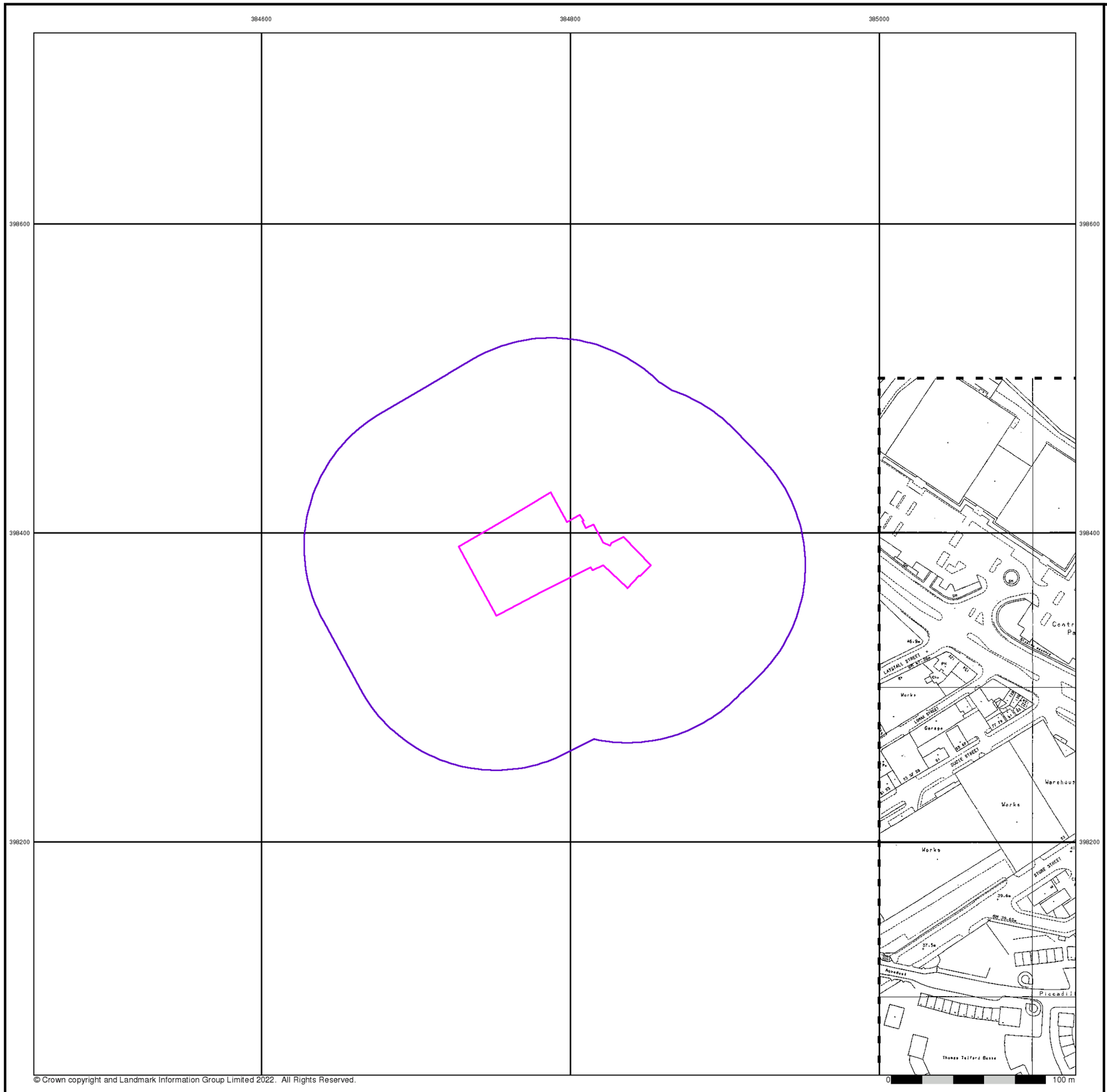
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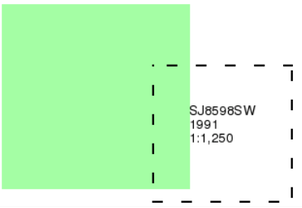
Additional SIMs

Published 1991

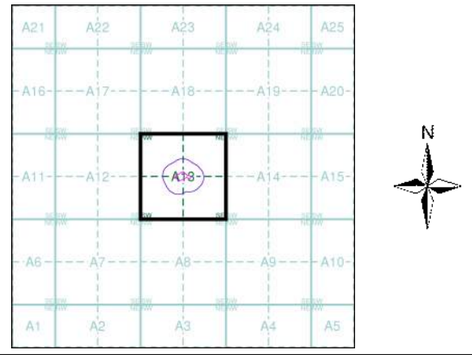
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

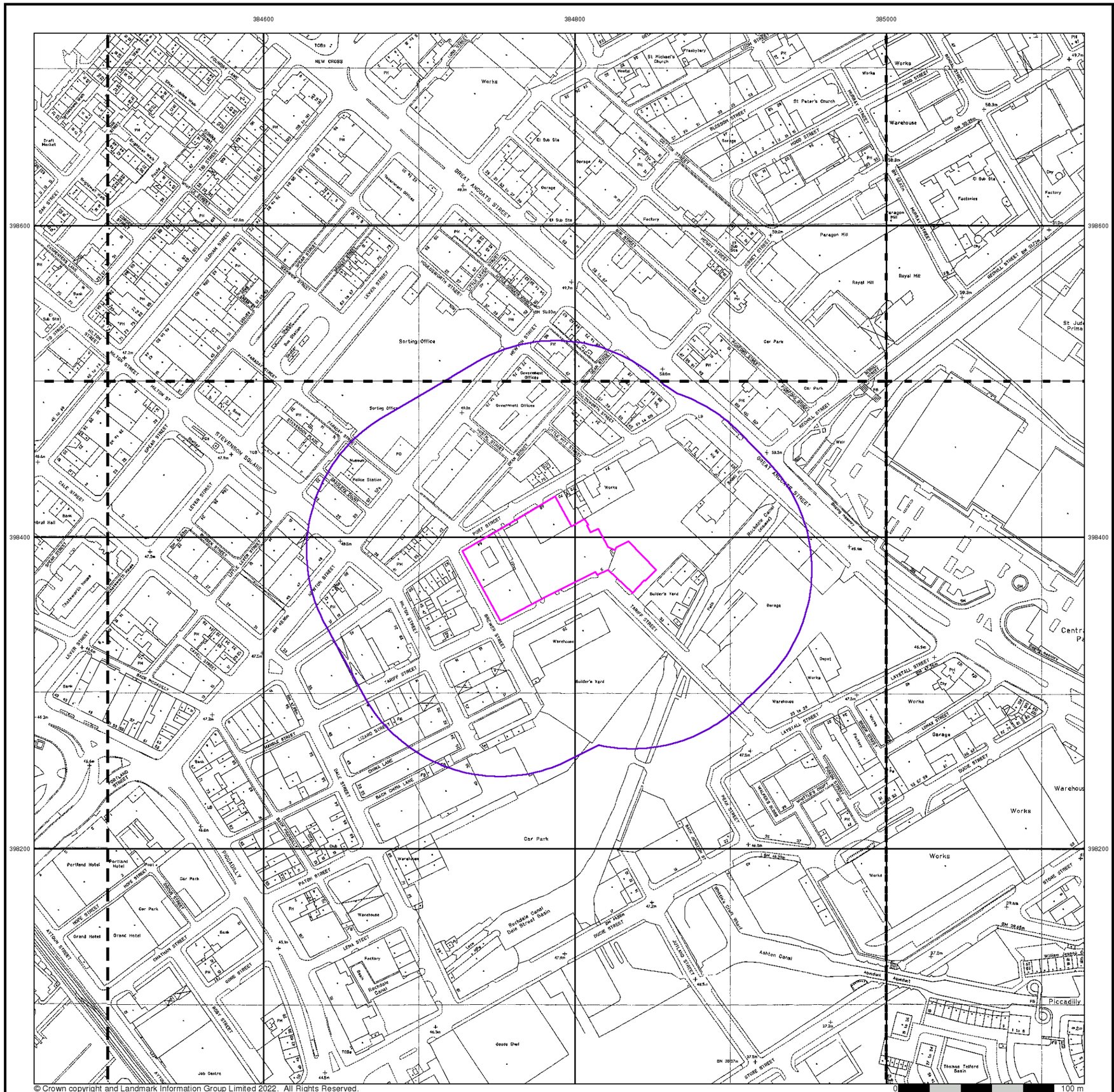
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Large-Scale National Grid Data

Published 1992

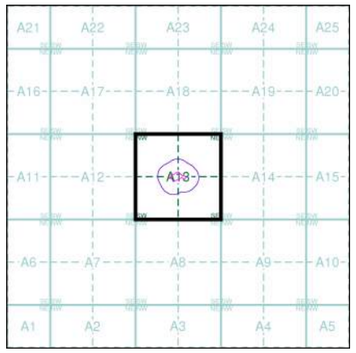
Source map scale - 1:1,250

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

Map Name(s) and Date(s)

SJ8498NW 1992 1:1,250	SJ8498NE 1992 1:1,250	SJ8598NW 1992 1:1,250
SJ8498SW 1992 1:1,250	SJ8498SE 1992 1:1,250	SJ8598SW 1992 1:1,250

Historical Map - Segment A13



Order Details

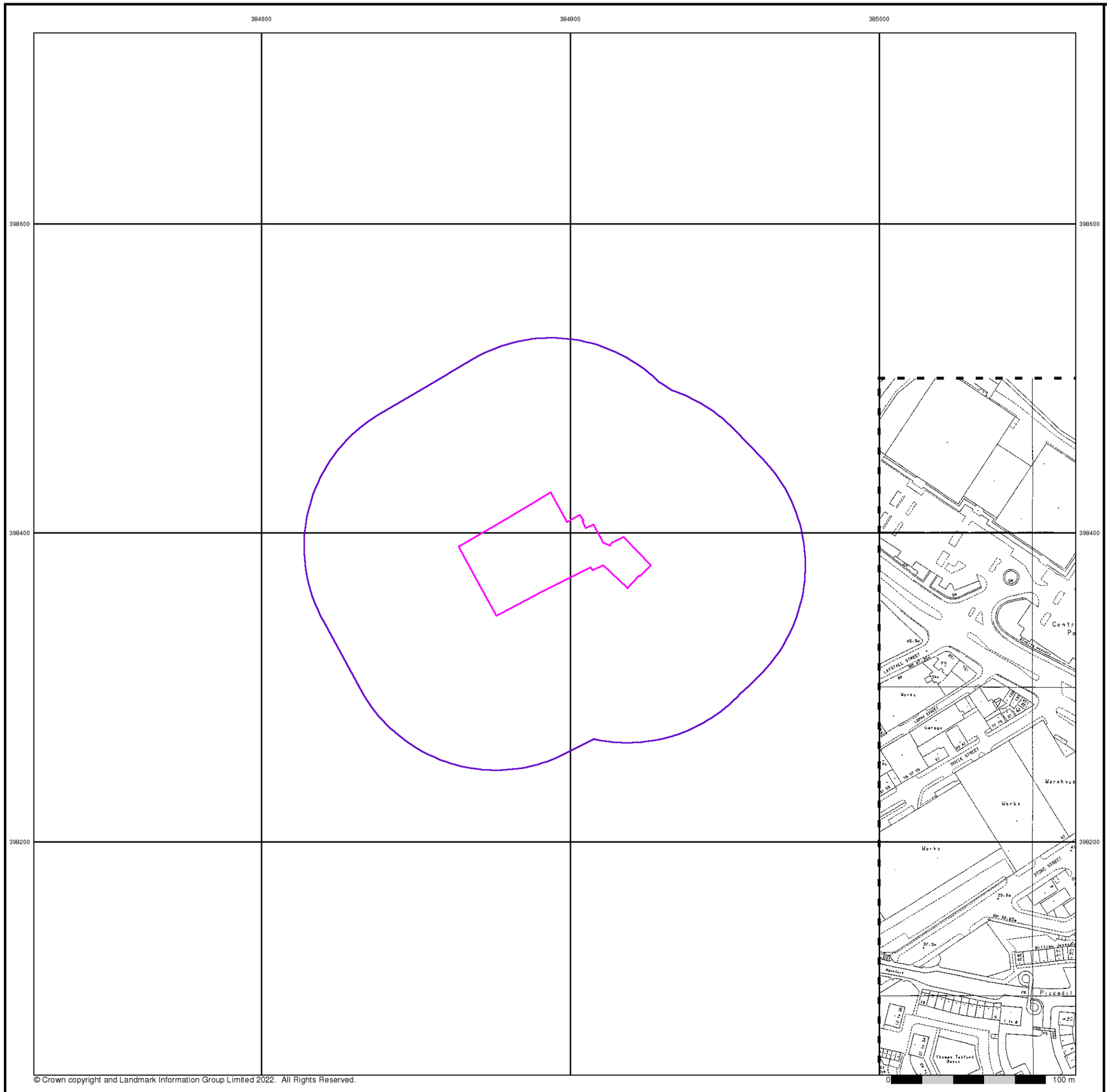
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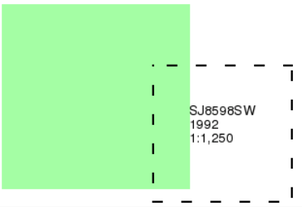
Additional SIMs

Published 1992

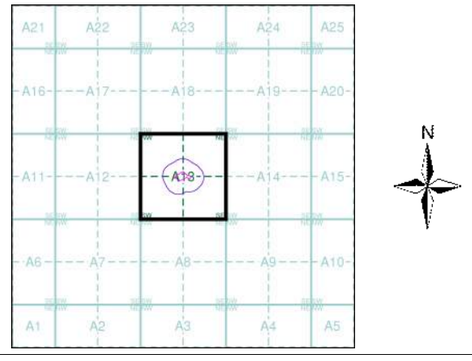
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

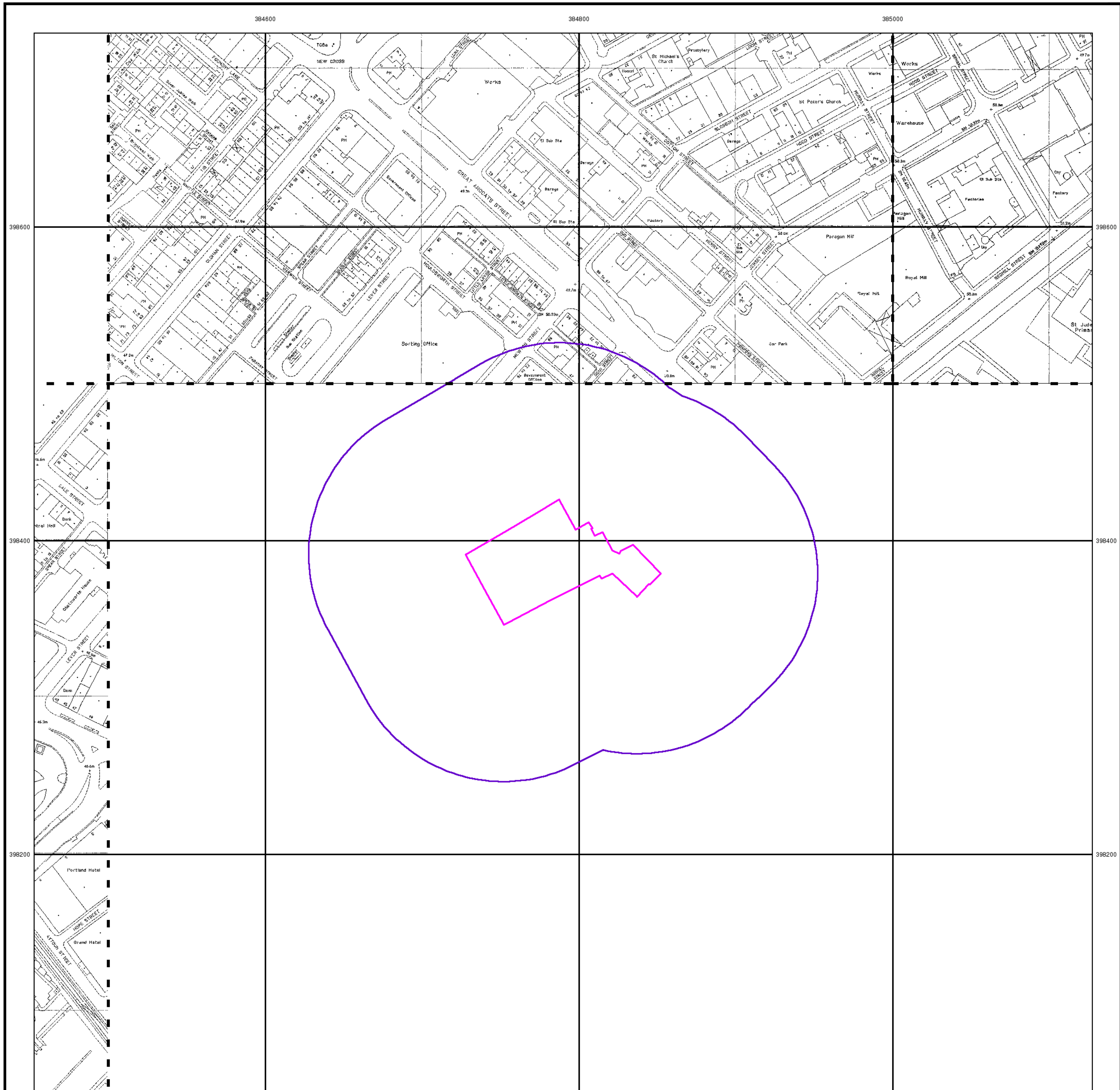
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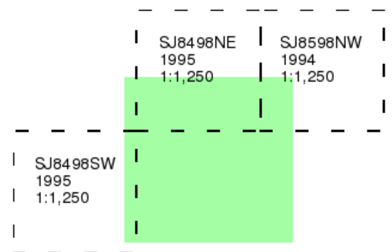
Large-Scale National Grid Data

Published 1994 - 1995

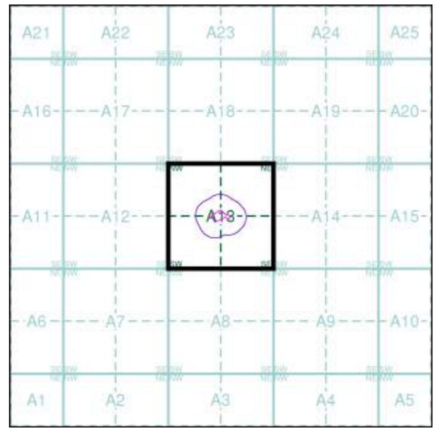
Source map scale - 1:1,250

'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

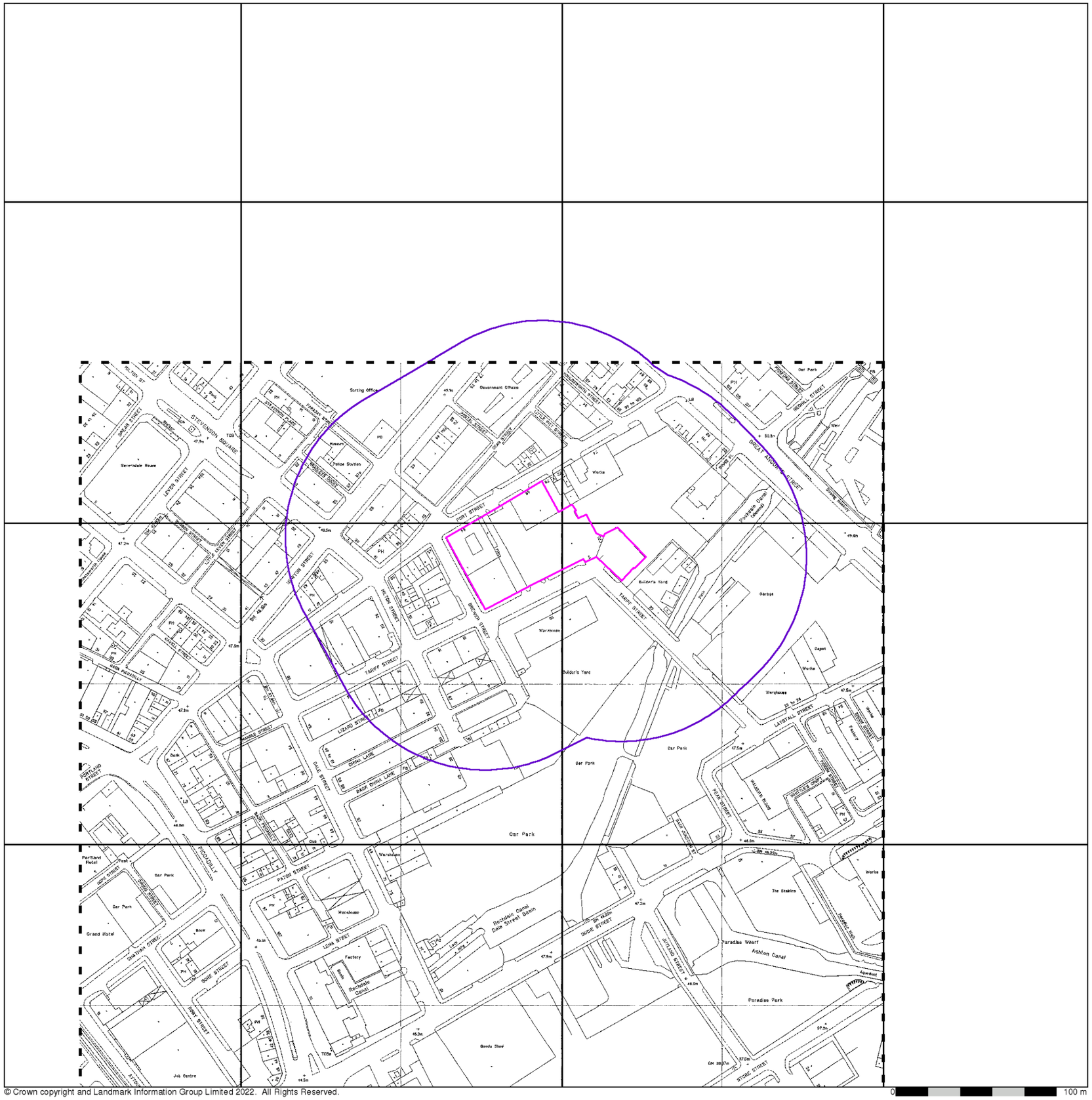
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Large-Scale National Grid Data

Published 1996

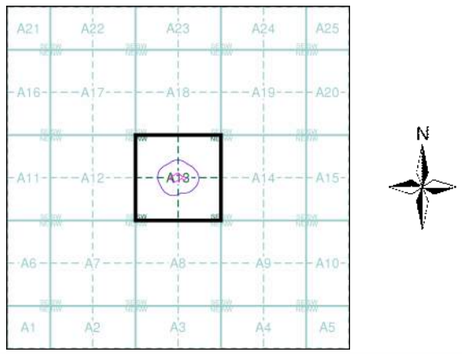
Source map scale - 1:1,250

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Map Name(s) and Date(s)

SJ8498SE
1996
1:1,250

Historical Map - Segment A13



Order Details

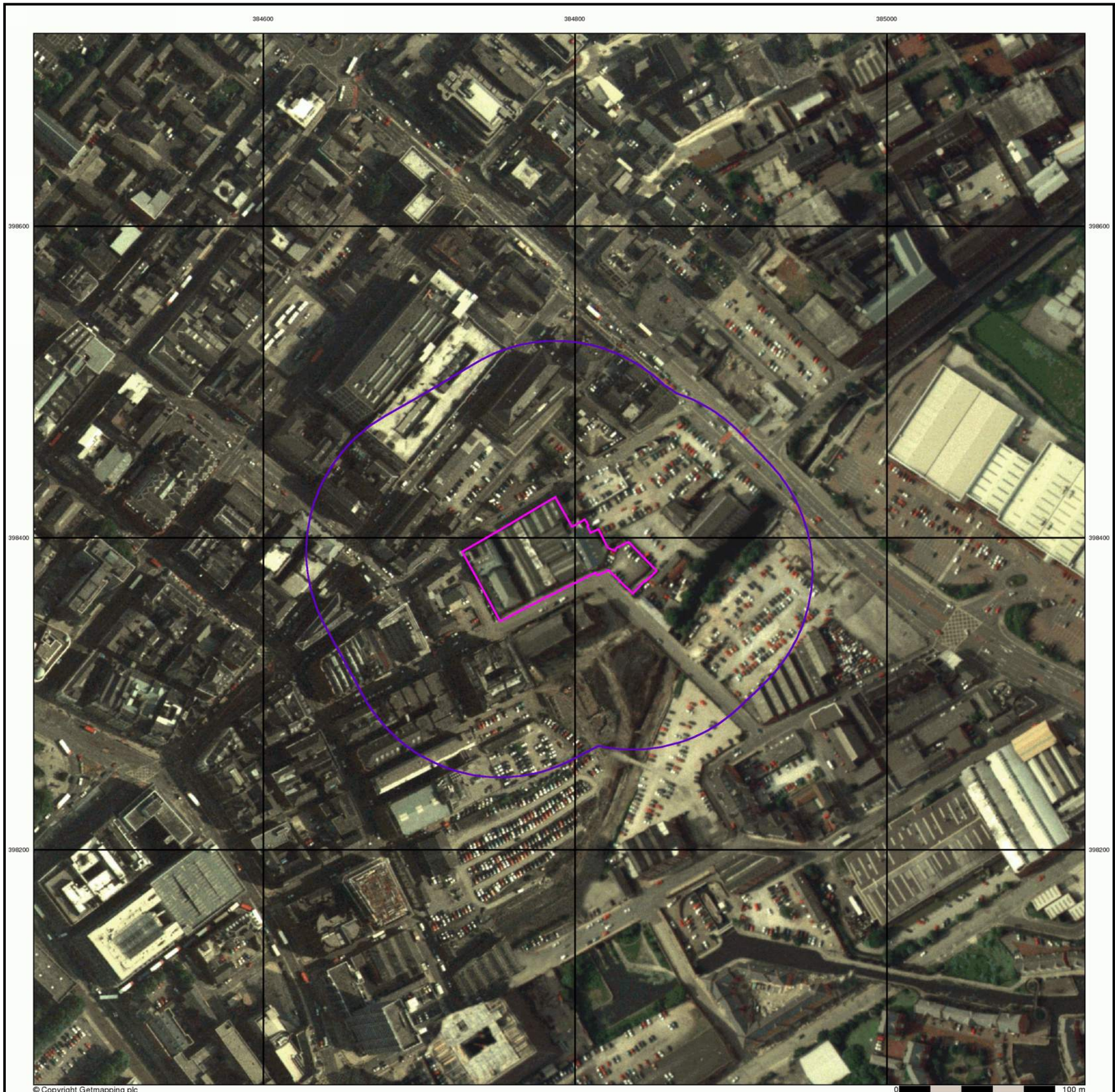
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Site Details

Flat 1, Burlington House, 22, Tariff Street, MANCHESTER, M1 2DN

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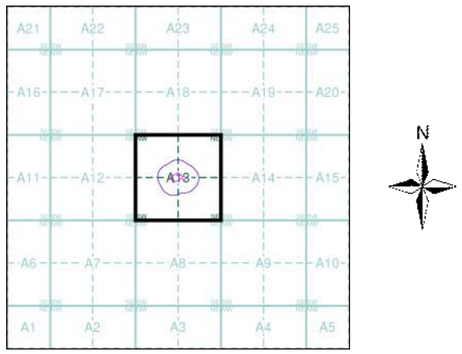
FAIRHURST

Historical Aerial Photography

Published 2000

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

Historical Aerial Photography - Segment A13



Order Details

Order Number:	302490219_1_1
Customer Ref:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	100

Site Details

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FAIRHURST

Envirocheck® Report:

Historical Data Report Datasheet

Order Details:

Order Number:
302490219_1_1

Customer Reference:
143404

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Slice:
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Site Area (Ha):
0.47

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Site Details:

Flat 1, Burlington House
22
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MANCHESTER
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Client Details:

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FAIRHURST

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Report Section	Page Number
Summary	-
Historical Building Plans Information	1
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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Building Plans Information					
Areas Cleared Due To Enemy Action	pg 1			1	18
Above Ground Fuel Tanks (100m)	pg 1		2	n/a	n/a
Asbestos (100m)	pg 2	9	36	n/a	n/a
Benzene/Benzole/Naphtha, Naphthalene/Kerosene (100m)				n/a	n/a
Electricity Generation (100m)				n/a	n/a
Electricity Sub-Stations (100m)	pg 4		3	n/a	n/a
Gas Industry (100m)				n/a	n/a
Gas Storage (100m)				n/a	n/a
Gas Use (100m)	pg 4	1	9	n/a	n/a
Oil Industry (100m)				n/a	n/a
Oil Storage (100m)				n/a	n/a
Oil Use (100m)	pg 4		3	n/a	n/a
Paint based Oils (100m)				n/a	n/a
Paraffin (100m)				n/a	n/a
Petrol and Diesel Industry (100m)				n/a	n/a
Petrol and Diesel Storage (100m)				n/a	n/a
Petrol and Diesel Use (100m)				n/a	n/a
Potential Fuel Gas (100m)				n/a	n/a
Potential Fuel Oil (100m)				n/a	n/a
Potential Fuel Use (100m)				n/a	n/a
Potential Petrol and Diesel (100m)				n/a	n/a
Potential Tanks (100m)				n/a	n/a
Potentially Fuel-related Tanks (100m)	pg 4		2	n/a	n/a
Underground Fuel Tanks (100m)	pg 5	9	13	n/a	n/a
Historical Land Use Information					
Former Marshes					
Historical Flood Liabilities					
Potentially Contaminative Industrial Uses (Past Land Use)	pg 7		11	16	63
Potentially Infilled Land (Non-Water)	pg 11				1
Potentially Infilled Land (Water)	pg 11	1	5	12	14

FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Tanks and Energy Facilities					
Electrical Sub Station Facilities (100m)				n/a	n/a
Electricity Industry Facilities (100m)				n/a	n/a
Gas Industry Facilities (100m)				n/a	n/a
Gas Monitoring Facilities (100m)				n/a	n/a
Miscellaneous Power Facilities (100m)				n/a	n/a
Oil Industry Facilities (100m)				n/a	n/a
Petroleum Storage Facilities (100m)				n/a	n/a
Potential Tanks (100m)	pg 13	2	6	n/a	n/a
Tanks (100m)	pg 13		2	n/a	n/a

FAIRHURST

Historical Building Plans Information

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_233_1962_geo1	A18SW (N)	429	1	384661 398836
2	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	580	1	384444 398896
3	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A18SW (NW)	592	1	384466 398923
4	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	596	1	384379 398874
5	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	624	1	384332 398873
6	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	642	1	384401 398943
7	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A18SW (N)	653	1	384563 399039
8	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_228_1962_geo1	A17SE (NW)	655	1	384355 398930
9	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A18SW (N)	664	1	384545 399044
10	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_346_1968_geo1	A8SE (S)	670	1	384921 397699
11	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_346_1962_geo1	A8SE (S)	670	1	384921 397699
12	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 083_232_1962_geo1	A17SE (NW)	684	1	384446 399018
13	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 082_018_1970_geo1	A7NE (SW)	776	1	384132 397880
14	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 082_018_1962_geo1	A7NE (SW)	776	1	384132 397880
15	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_344_1962_geo1	A8SW (S)	812	1	384717 397536
16	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_344_1962_geo1	A8SW (S)	823	1	384698 397526
17	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_344_1962_geo1	A8SW (S)	831	1	384685 397519
18	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 084_343_1962_geo1	A8SW (S)	872	1	384625 397484
19	**Areas Cleared Due To Enemy Action** Use: Areas Cleared Due To Enemy Action Plan Name: 082_002_1962_geo1	A12NW (W)	907	1	383835 398550
20	**Above Ground Fuel Tanks** Map Text: Oil Tank Plan Name: 082_007_1970_geo1	A13SW (SW)	74	1	384683 398319
20	**Above Ground Fuel Tanks** Map Text: Oil Tank Plan Name: 082_007_1962_geo1	A13SW (SW)	75	1	384683 398318

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1928_geo1	A13NE (E)	0	1	384822 398393
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1928_geo1	A13NE (NE)	0	1	384799 398405
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (E)	0	1	384822 398392
21	**Asbestos** Map Text: ASB Clad Plan Name: 083_223_1962_geo1	A13NW (NW)	0	1	384782 398387
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SW (SW)	0	1	384787 398382
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (SE)	0	1	384795 398369
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (E)	7	1	384853 398370
21	**Asbestos** Map Text: ASB Clad Plan Name: 083_223_1962_geo1	A13NE (NE)	12	1	384840 398408
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	15	1	384808 398426
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	29	1	384854 398418
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	33	1	384854 398424
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	34	1	384849 398427
21	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	37	1	384832 398438
22	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NW (NW)	0	1	384756 398399
22	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SW (W)	0	1	384761 398379
22	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SW (S)	0	1	384779 398361
22	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	34	1	384745 398440
22	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	41	1	384737 398443
23	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (E)	27	1	384877 398371
23	**Asbestos** Map Text: Wd & ASB Lined Plan Name: 083_223_1962_geo1	A13SE (E)	28	1	384873 398361
23	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (SE)	31	1	384867 398350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (SE)	33	1	384866 398346
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1962_geo1	A13SW (W)	31	1	384712 398356
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1962_geo1	A13SW (SW)	31	1	384715 398351
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (SW)	31	1	384715 398351
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (W)	31	1	384712 398356
24	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (W)	36	1	384709 398352
25	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	42	1	384738 398446
25	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	48	1	384737 398451
25	**Asbestos** Map Text: ASB Lined Ceiling Plan Name: 083_231_1962_geo1	A13NW (NW)	64	1	384743 398473
25	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (NW)	64	1	384728 398465
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NW (N)	48	1	384788 398474
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	51	1	384791 398476
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	91	1	384813 398513
26	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	93	1	384811 398516
27	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	49	1	384815 398466
27	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (NE)	52	1	384847 398447
27	**Asbestos** Map Text: ASB Plan Name: 083_231_1962_geo1	A13NE (N)	56	1	384820 398471
28	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SW (S)	83	1	384740 398265
29	**Asbestos** Map Text: ASB Clad Plan Name: 083_223_1962_geo1	A13NE (E)	87	1	384935 398405
29	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13SE (E)	89	1	384940 398383
29	**Asbestos** Map Text: ASB Plan Name: 083_223_1962_geo1	A13NE (E)	99	1	384950 398391

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SE (S)	90	1	384804 398273
30	**Asbestos** Map Text: ASB Plan Name: 082_007_1970_geo1	A13SE (S)	93	1	384806 398270
31	**Asbestos** Map Text: ASB Ceil Plan Name: 082_007_1970_geo1	A13SW (SW)	100	1	384682 398276
32	**Electricity Sub-Stations** Map Text: Elec Sub Statn Plan Name: 082_007_1970_geo1	A13SW (SW)	27	1	384749 398320
33	**Electricity Sub-Stations** Map Text: Elec Sub Statn Plan Name: 082_007_1970_geo1	A13SW (SW)	77	1	384679 398319
33	**Electricity Sub-Stations** Map Text: Elec Sub Statn Plan Name: 082_007_1962_geo1	A13SW (SW)	78	1	384679 398319
34	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13SE (SE)	0	1	384802 398374
35	**Gas Use** Map Text: (Gas Eng) Plan Name: 082_007_1917_geo1	A13SW (SW)	61	1	384691 398332
35	**Gas Use** Map Text: Gas Eng Plan Name: 082_007_1917_geo1	A13SW (SW)	87	1	384681 398297
35	**Gas Use** Map Text: Gas Eng Plan Name: 082_007_1917_geo1	A13SW (SW)	95	1	384681 398284
36	**Gas Use** Map Text: Gas Heater Plan Name: 082_006_1970_geo1	A13NW (W)	86	1	384650 398426
36	**Gas Use** Map Text: Gas Heater Plan Name: 082_006_1960_geo1	A13NW (W)	87	1	384649 398428
36	**Gas Use** Map Text: Gas Heater Plan Name: 082_006_1962_geo1	A13NW (W)	87	1	384649 398427
37	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13NE (E)	92	1	384938 398411
37	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13SE (E)	93	1	384944 398385
37	**Gas Use** Map Text: (G.E.) Plan Name: 083_223_1928_geo1	A13SE (E)	94	1	384946 398378
38	**Oil Use** Map Text: Oil Fuel Heater Plan Name: 083_231_1962_geo1	A13NW (NW)	41	1	384700 398421
39	**Oil Use** Map Text: Oil Fuel Heaters Plan Name: 082_007_1970_geo1	A13SW (SW)	69	1	384685 398326
39	**Oil Use** Map Text: Oil Fuel Heaters Plan Name: 082_007_1962_geo1	A13SW (SW)	70	1	384685 398326
40	**Potentially Fuel-related Tanks** Map Text: Tank Plan Name: 083_223_1928_geo1	A13NE (NE)	35	1	384857 398423
41	**Potentially Fuel-related Tanks** Map Text: Tank Plan Name: 083_223_1928_geo1	A13SE (E)	76	1	384916 398340

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13NW (N)	0	1	384777 398417
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1962_geo1	A13NW (N)	0	1	384777 398416
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13NW (NW)	0	1	384766 398398
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13NW (W)	0	1	384760 398395
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13SW (SW)	0	1	384783 398370
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1962_geo1	A13SW (W)	0	1	384762 398381
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_231_1931_geo1	A13NW (NW)	14	1	384754 398422
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_231_1962_geo1	A13NE (N)	24	1	384797 398448
42	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_231_1931_geo1	A13NE (N)	29	1	384794 398454
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13SE (E)	0	1	384816 398386
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13NE (E)	0	1	384814 398387
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1962_geo1	A13NE (NE)	9	1	384827 398403
43	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13NE (NE)	11	1	384827 398406
44	**Underground Fuel Tanks** Map Text: Sunk Petrol Tanks Plan Name: 083_223_1962_geo1	A13SW (SW)	0	1	384777 398366
45	**Underground Fuel Tanks** Map Text: Sunk Oil Tank Plan Name: 083_231_1962_geo1	A13NW (NW)	47	1	384694 398424
46	**Underground Fuel Tanks** Map Text: Sunk Petrol & Oil Tanks Plan Name: 083_223_1962_geo1	A13NE (NE)	55	1	384842 398453
46	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 083_223_1928_geo1	A13NE (NE)	62	1	384848 398458
47	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1962_geo1	A13SW (S)	71	1	384780 398281
47	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1936_geo1	A13SW (S)	72	1	384782 398281
48	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1970_geo1	A13SW (W)	91	1	384656 398333
48	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1936_geo1	A13SW (W)	92	1	384655 398332

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	**Underground Fuel Tanks** Map Text: Sunk Petrol Tank Plan Name: 082_007_1962_geo1	A13SW (W)	92	1	384655 398332

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A13SE (S)	84	1	384809 398282
49	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A13SE (S)	129	1	384821 398237
50	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13SE (SE)	90	1	384848 398274
51	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1895 - 1956	A13SW (S)	142	1	384749 398205
52	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1993	A13NE (E)	167	1	385002 398454
53	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13NE (NE)	177	1	384941 398540
54	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A13SE (SE)	209	1	384895 398164
55	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Natural and man-made textile manufacture and products Date of Mapping: 1909 - 1923	A13SE (SE)	210	1	384984 398214
56	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1993	A13SE (S)	211	1	384837 398154
57	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Sawmilling, planing & impregnation [i.e. treatment of timber] Date of Mapping: 1923	A13NE (NE)	212	1	385020 398508
58	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Metal casting/foundries Date of Mapping: 1895	A13SE (SE)	225	1	384982 398192
59	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13NE (NE)	263	1	385046 398556
60	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13SE (SE)	324	1	385066 398136
61	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13NE (NE)	339	1	385106 398602
62	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1923	A13SW (SW)	341	1	384533 398085
63	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A13SE (SE)	352	1	385068 398099
64	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8NW (SW)	398	1	384573 397992
65	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Coal storage and depot Date of Mapping: 1848	A14NW (NE)	399	1	385199 398576
66	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A14SW (SE)	403	1	385166 398127
67	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1956	A18SE (N)	433	1	384845 398855
68	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8NW (S)	438	1	384607 397934

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
69	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14NW (E)	469	1	385319 398414
70	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1993	A8NE (SE)	474	1	384996 397917
71	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1923	A8NW (SW)	478	1	384527 397925
72	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1923	A14SW (SE)	483	1	385281 398157
73	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Glass & glass products exc. flat glass [manufacture] Date of Mapping: 1848	A19SW (NE)	488	1	385190 398731
74	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14SW (E)	497	1	385336 398267
75	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A18SE (N)	502	1	384932 398907
76	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Glass & glass products exc. flat glass [manufacture] Date of Mapping: 1923	A14NW (E)	518	1	385359 398480
77	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1894 - 1993	A14SW (E)	526	1	385378 398382
78	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1895	A8NW (SW)	555	1	384517 397844
79	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1994	A7NE (SW)	557	1	384375 397937
80	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8NW (S)	561	1	384590 397809
81	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A19SW (NE)	573	1	385130 398888
82	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14SW (E)	577	1	385403 398209
83	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895 - 1993	A14SW (SE)	587	1	385382 398126
84	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Transport support & cargo handling Date of Mapping: 1909 - 1923	A14SW (E)	601	1	385451 398332
85	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1993	A8NE (S)	604	1	384941 397770
86	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1956	A9NW (SE)	609	1	385265 397931
87	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848	A8NE (S)	617	1	385038 397781
88	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Machinery: engines, building and general industrial [manufacture] Date of Mapping: 1923	A14NE (E)	623	1	385472 398442
89	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1993	A19SW (NE)	626	1	385264 398852

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
90	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1956	A18SE (N)	629	1	384958 399031
91	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1994	A12NE (W)	642	1	384119 398595
92	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A19SW (NE)	644	1	385361 398773
93	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1993	A14SE (E)	647	1	385483 398234
94	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923 - 1993	A14SE (E)	670	1	385521 398353
95	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	671	1	384706 397677
96	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	709	1	384629 397649
97	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1993	A9NW (SE)	714	1	385295 397817
98	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Metal casting/foundries Date of Mapping: 1895	A8SW (S)	729	1	384594 397636
99	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A19SW (NE)	733	1	385424 398836
100	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Road haulage Date of Mapping: 1994	A18NW (N)	739	1	384669 399155
101	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Glass & glass products exc. flat glass [manufacture] Date of Mapping: 1848	A18NE (NE)	744	1	385119 399092
102	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923 - 1993	A8SE (S)	767	1	385055 397629
103	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14NE (E)	786	1	385625 398524
104	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Gas manufacture & distribution Date of Mapping: 1848 - 1956	A18NW (N)	790	1	384603 399194
105	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Natural and man-made textile manufacture and products Date of Mapping: 1848	A8SE (S)	803	1	384953 397570
105	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895 - 1923	A8SE (S)	819	1	384937 397550
106	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	805	1	384614 397554
107	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1993	A9SW (SE)	817	1	385246 397658
108	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SE (S)	827	1	384892 397531
109	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1994	A17SW (NW)	832	1	384095 398930

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
110	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895 - 1956	A9NE (SE)	844	1	385493 397830
111	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Dyes & pigments [manufacture] Date of Mapping: 1848	A8SE (S)	855	1	385010 397528
111	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SE (S)	862	1	385004 397519
112	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923 - 1956	A9NE (SE)	859	1	385517 397835
113	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1993	A19NW (N)	871	1	385135 399224
114	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	886	1	384602 397473
115	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Dyes & pigments [manufacture] Date of Mapping: 1848	A9SW (SE)	894	1	385158 397530
116	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1956	A9NE (SE)	898	1	385605 397889
117	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1938	A7SE (SW)	909	1	384247 397592
118	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A14NE (E)	918	1	385733 398635
119	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Brewing & malting Date of Mapping: 1923	A9SW (SE)	918	1	385241 397540
120	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1895	A8SW (S)	925	1	384539 397446
121	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1994	A17NE (N)	928	1	384446 399289
122	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848 - 1990	A17NE (N)	930	1	384447 399291
123	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1894 - 1993	A19SE (NE)	937	1	385544 399011
124	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Metal casting/foundries Date of Mapping: 1909 - 1956	A17NE (N)	938	1	384427 399292
125	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1956	A14NE (E)	938	1	385788 398439
126	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Cemetery or Graveyard Date of Mapping: 1848	A17SW (NW)	939	1	384035 399025
127	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1923	A8SW (S)	942	1	384480 397445
128	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Factory or works - use not specified Date of Mapping: 1956 - 1994	A18NW (N)	948	1	384570 399349
129	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1894 - 1956	A18NW (N)	949	1	384684 399369

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
130	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Rubber natural products manufacture Date of Mapping: 1923	A18NW (N)	950	1	384572 399351
131	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1895 - 1994	A17NE (NW)	961	1	384192 399188
132	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Natural and man-made textile manufacture and products Date of Mapping: 1848	A19SE (NE)	963	1	385572 399018
133	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Clay bricks & tiles [manufacture] Date of Mapping: 1848	A14NE (E)	971	1	385793 398617
134	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Railways Date of Mapping: 1848	A17NW (NW)	972	1	384101 399133
135	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Rubber natural products manufacture Date of Mapping: 1923	A9NE (SE)	992	1	385702 397868
136	**Potentially Infilled Land (Non-Water)** Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1993	A14NE (E)	971	1	385793 398617
137	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A13NW (NW)	0	1	384784 398392
138	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13NE (NE)	29	1	384851 398421
139	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A13SE (SE)	63	1	384826 398301
140	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A13NE (E)	63	1	384915 398387
141	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A13SE (E)	117	1	384966 398354
142	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A13SE (E)	120	1	384965 398341
143	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A13NE (E)	281	1	385121 398460
144	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14NW (E)	301	1	385135 398482
145	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A14NW (E)	307	1	385139 398485
146	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13NE (NE)	319	1	385100 398580
147	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A13SE (SE)	360	1	385063 398085
148	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14NW (NE)	361	1	385173 398545
149	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13SE (SE)	364	1	385116 398129
150	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A14SW (SE)	383	1	385172 398168

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
151	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A18SE (NE)	386	1	385039 398724
152	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A8NW (SW)	399	1	384499 398038
153	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A14SW (E)	418	1	385269 398351
154	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A8NW (SW)	493	1	384489 397930
155	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14SW (E)	530	1	385381 398361
156	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A14SW (E)	535	1	385357 398203
157	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A19SW (NE)	558	1	385208 398812
158	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A14SW (E)	569	1	385419 398336
159	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A19SW (NE)	586	1	385288 398769
160	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A19SW (NE)	628	1	385207 398902
161	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A8SW (S)	696	1	384624 397663
162	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A18NW (N)	743	1	384558 399132
163	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A7NE (SW)	816	1	384136 397812
164	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A7NE (SW)	827	1	384134 397798
165	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A19SE (NE)	830	1	385497 398902
166	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1923	A8SW (S)	833	1	384779 397515
167	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A8SE (S)	858	1	384836 397493
168	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1848	A7NW (SW)	877	1	384046 397827

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1948	A13NE (NE)	0	1	384810 398401
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NE (NE)	0	1	384793 398389
169	**Potential Tanks** Scale of Mapping: 1:2,500 Date of Mapping: 1955 - 1965	A13NE (NE)	2	1	384816 398406
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1954	A13NE (NE)	2	1	384816 398406
169	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NE (NE)	18	1	384830 398414
170	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NW (N)	30	1	384787 398456
171	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13NE (NE)	51	1	384862 398439
172	**Potential Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1971	A13SE (E)	82	1	384930 398356
173	**Tanks** Scale of Mapping: 1:2,500 Date of Mapping: 1955 - 1965	A13NE (NE)	37	1	384857 398426
173	**Tanks** Scale of Mapping: 1:1,250 Date of Mapping: 1954	A13NE (NE)	37	1	384857 398426

The following plans have been analysed for Historical Building Plans Information:

Plan Name:	Town:	Published Date:	Last Pasted Date:
083_223_1928_geo1	Manchester Vol 2	1928	1928
083_223_1962_geo1	Manchester Vol 2	1928	1962
083_231_1931_geo1	Manchester Vol 2	1931	1931
083_231_1962_geo1	Manchester Vol 2	1931	1962
082_007_1917_geo1	Manchester Vol 1	1886	1917
082_007_1936_geo1	Manchester Vol 1	1936	1936
082_007_1962_geo1	Manchester Vol 1	1936	1962
082_007_1970_geo1	Manchester Vol 1	1936	1970
081_206_1889_geo1	Manchester Carriers	1889	1889
082_006_1962_geo1	Manchester Vol 1	1960	1962
082_006_1917_geo1	Manchester Vol 1	1886	1917
082_006_1970_geo1	Manchester Vol 1	1960	1970
082_006_1960_geo1	Manchester Vol 1	1960	1960
083_220_1928_geo1	Manchester Vol 2	1928	1928
083_220_1962_geo1	Manchester Vol 2	1928	1962
083_235_1927_geo1	Manchester Vol 2	1927	1927
083_235_1962_geo1	Manchester Vol 2	1927	1962

The following mapping has been analysed for Historical Land Use Information:

1:10,560	Mapsheet	Published Date
Lancashire And Furness	104_00	1848
Cheshire	003A_00	1882
Lancashire And Furness	104_NE	1894
Lancashire And Furness	104_NW	1895
Lancashire And Furness	104_SE	1895
Lancashire And Furness	104_SW	1896
Lancashire And Furness	104_NE	1909
Lancashire And Furness	104_NW	1909
Lancashire And Furness	104_SE	1909
Lancashire And Furness	104_SW	1909
Lancashire And Furness	104_NE	1923
Lancashire And Furness	104_NW	1923
Lancashire And Furness	104_SE	1923
Lancashire And Furness	104_SW	1938
Ordnance Survey Plan	SJ89NE	1956
Ordnance Survey Plan	SJ89NW	1956
1:10,000	**Mapsheet**	**Published Date**
Ordnance Survey Plan	SJ89NE	1993
Ordnance Survey Plan	SJ89NW	1994

The following mapping has been analysed for Historical Tanks and Energy Facilities:

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	SJ8498	1951
Ordnance Survey Plan	SJ8598	1951
Ordnance Survey Plan	SJ8598	1953
Ordnance Survey Plan	SJ8498	1955
Ordnance Survey Plan	SJ8498	1965
Ordnance Survey Plan	SJ8598	1965
Ordnance Survey Plan	SJ8498	1969
Ordnance Survey Plan	SJ8598	1969
1:1,250	**Mapsheet**	**Published Date**
Ordnance Survey Plan	SJ8498NE	1948
Ordnance Survey Plan	SJ8498SE	1948
Ordnance Survey Plan	SJ8498SW	1948
Ordnance Survey Plan	SJ8598NW	1948
Ordnance Survey Plan	SJ8498SW	1951
Ordnance Survey Plan	SJ8598NW	1952
Ordnance Survey Plan	SJ8498NE	1953
Ordnance Survey Plan	SJ8498SE	1954
Ordnance Survey Plan	SJ8598SW	1955
Ordnance Survey Plan	SJ8498NE	1963
Ordnance Survey Plan	SJ8498NW	1963
Ordnance Survey Plan	SJ8598NW	1963
Ordnance Survey Plan	SJ8498SW	1968
Ordnance Survey Plan	SJ8598NW	1968
Ordnance Survey Plan	SJ8498SE	1971
Ordnance Survey Plan	SJ8598SW	1981
Ordnance Survey Plan	SJ8498NE	1986
Ordnance Survey Plan	SJ8498NW	1986
Ordnance Survey Plan	SJ8498SW	1986
Ordnance Survey Plan	SJ8598NW	1988
Ordnance Survey Plan	SJ8598SW	1989

FAIRHURST

Useful Contacts and Further Information

Contact	Name and Address	Contact Details
1	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk

Historical Building Plans Information

This data set contains potentially contaminative features such as asbestos, petrol, oil and tanks captured from Historical Building Plans. The Historical Building Plans were produced by the London-based firm Charles E. Goad Ltd. as fire insurance plans, dating back to 1885. The firm ceased production of fire insurance plans in 1970. Most of the important towns and cities of the British Isles are covered. Historical Building Plans are usually at the scales of 1:480 (1 inch to 40 feet) for the British Isles. They were updated every 5-6 years by means of revision sheets designed to be pasted on to the original plans.

It should be noted that Historical Building Plans are only available for certain major towns and cities and in some cases there may only be partial coverage of the search area. It cannot therefore be assumed that the absence of responses under the Historical Building Plans section of this report indicates that no hazards exist. Please check the Historical Building Plans Map List table in the Historical Map List section of this report to establish if Historical Building Plans are available for this search area.

Historical Land Use Information

Landmark's Historical Land Use Data is the result of combined analysis of historical map data captured at 1:10,560 and 1:10,000. A unique comprehensive database of Historic Land Use from the 1840's to 1996 it includes 67 different types of potentially contaminated past industrial land use. This entailed analysing over 60,000 maps and is drawn from at least four, and up to six historical map editions. In addition a seventh layer was also created, known as the land use layer, containing areas of infilled land which are plotted via comparison between two or more map editions.

Historical Tanks and Energy Facilities

In addition to HLUD, additional analysis uncovered some of the most dangerous sources of contamination (past and present tanks, petrol storage, oil, gas, electricity, miscellaneous facilities). This data set covers over 390,000 Historical Tanks and Energy facilities in Great Britain and was captured from post war 1:2500 and 1:1250 Ordnance Survey historical mapping covering a period from 1943 to 1996.

APPENDIX E

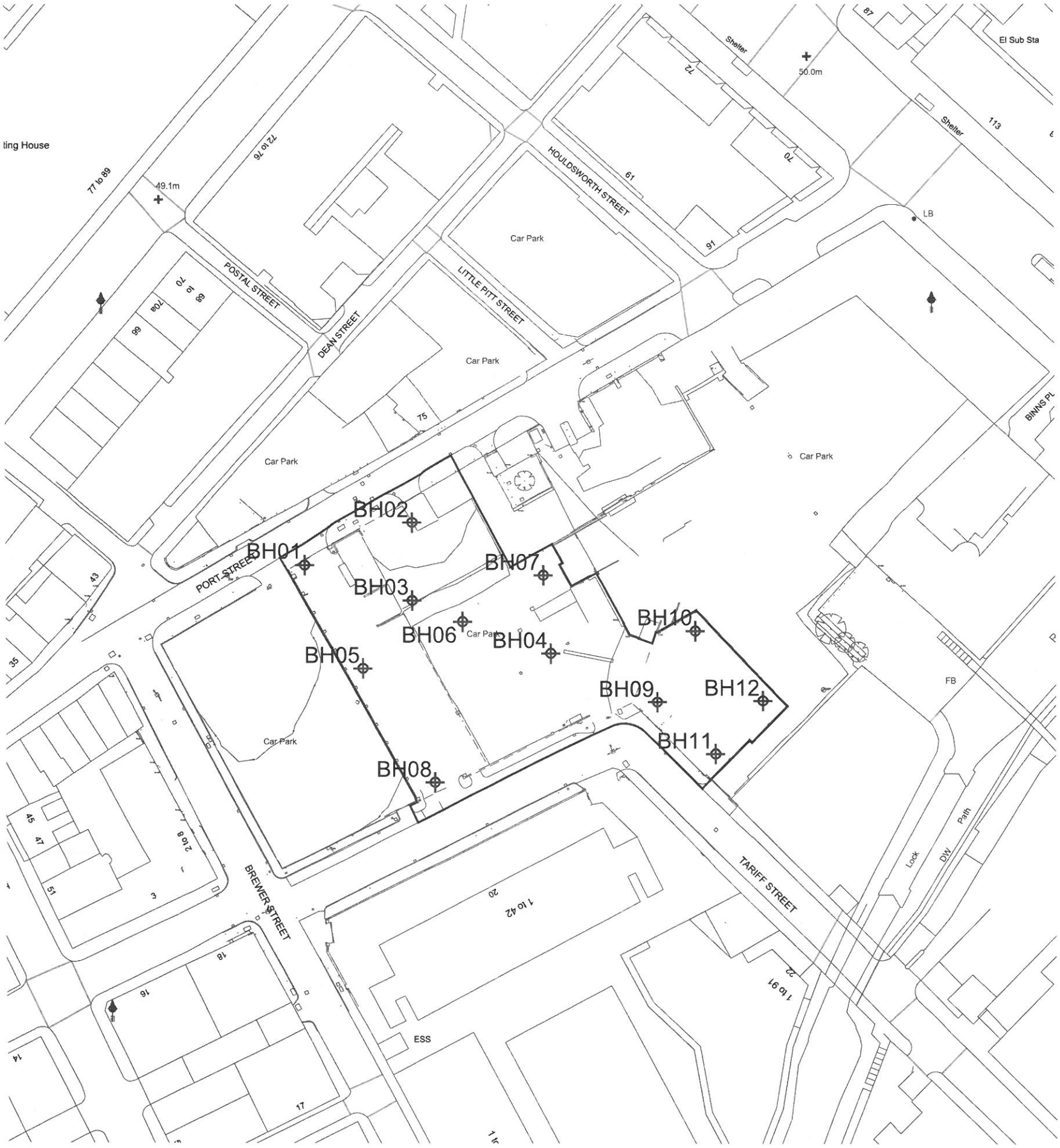
Site Investigation Data

May 2023 Exploratory Hole Plan

Borehole and Trial Pit Logs

Gas Monitoring Results

Laboratory Testing Results



Application Boundary

N

rev	description	drwn	auth	date
P04	PLANNING	KM	CJG	28.11.22

DO NOT SCALE OFF THIS DRAWING

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CLIENT
AXIS-RE / MARCO LIVING

PROJECT
1NQ
MANCHESTER

DOCUMENT NAME
8198-LRW-ZZ-00-DR-A-00-010

DESCRIPTION
SITE EDGED RED
APPLICATION BOUNDARY

REVISION	SCALE
P04	1:1250@ A4

LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8198	01.11.22	KM	CJG

File:c:\8198 1nFS\Drawings\Archive\DR Drawing\ZZ- Concept Design Models\rvt\20191\Detached\8198-LRW-ZZ-00-DR-A-00-010_P04_Site Edged Red Application Boundary

PURPOSE OF ISSUE
PLANNING ● BUILDING REGS ○ TENDER ○ PRELIM./COMMENT ● APPROVAL ○ CONSTRUCTION ○

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH01**

Sheet 1 of 4

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398397.50 - 384762.80	Hole Type CP
Location: MANCHESTER		Level: 48.40	Scale 1:50
Client: FAIRHURST		Dates: 02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	48.30		MADE GROUND: Light grey reinforced concrete
					0.20	48.20		MADE GROUND: Brick and concrete fragments.
					0.35	48.05		MADE GROUND: Light grey reinforced concrete
		0.50	ES					MADE GROUND: Dark grey brown clayey sandy angular to subangular fine to medium gravel of brick, flint, coke, clinker concrete and slate. Sand is medium to coarse. Moderate hydrocarbon odour.
		1.00	ES		1.00	47.40		
		1.20		N=2 (1,0/1,0,0,1)				MADE GROUND: Soft to firm dark grey slightly gravelly slightly sandy reworked clay. Gravel is subangular to rounded fine to coarse of mixed lithologies including flint and brick. Strong hydrocarbon odour. Sand is fine to coarse.
		1.20 - 1.65	D					
		2.00	ES		2.00	46.40		MADE GROUND: Firm dark grey slightly sandy gravelly silty clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete, clinker and flint.
	▼	2.00		N=2 (1,0/1,0,1,0)				
		2.00 - 2.45	D					
		3.00		N=14 (1,1/2,3,4,5)	3.00	45.40		Firm to stiff brown mottled grey slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithologies including flint.
		3.00 - 3.45	D					
		3.00 - 3.50	B					
		3.20	ES					
		4.00		N=15 (1,2/3,3,4,5)				
		4.00 - 4.45	D					
		5.00		N=14 (1,2/2,3,4,5)				
		5.00 - 5.45	D					
		6.00		N=16 (2,3/3,4,4,5)				
		6.00 - 6.45	D					
	▽	7.50		N=21 (4,4/5,5,5,6)	7.50	40.90		Grey brown slightly silty clayey gravelly fine SAND. Gravel is subangular to rounded fine to medium of flint and occasional coal fragments.
		7.50 - 7.95	D					
		7.50 - 8.00	B					
		8.00	ES		8.00	40.40		Firm slightly gravelly silty very sandy laminated CLAY. Sand is fine. Gravel is subangular to rounded fine to medium of flint.
		8.50 - 9.00	B					
		9.00		N=18 (3,4/4,4,5,5)				
		9.00 - 9.45	D					

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. Groundwater encountered at 7.5m bgl, rising to 2.2m bgl after 20 minutes. 4. SPT refusals recorded at 15.0m bgl, 18.0m bgl 19.5m bgl and from 22.5m bgl. 5. SPT refusal on Sandstone bedrock recorded at 26.2m bgl. 6. Chiselling undertaken on Sandstone bedrock for 30 minutes. 7. SPT refusal recorded at 26.25m bgl. 8. Rotary open hole follow on undertaken from 26.25m bgl. 9. Monitoring standpipe installed to 9m bgl: 6.5m plain, 2.5m slotted as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH01** Sheet 2 of 4

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398397.50 - 384762.80	Hole Type CP
Location: MANCHESTER		Level: 48.40	Scale 1:50
Client: FAIRHURST		Dates: 02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50		N=17 (2,2/3,4,5,5)				
		10.50 - 10.95	D					
					11.00	37.40		Brown gravelly clayey fine to medium SAND. Gravel is subangular to rounded fine of flint and coal fragments.
		12.00		N=17 (2,3/3,4,5,5)				
		12.00 - 12.45	D					
		13.00	ES		12.90	35.50		Soft brown slightly gravelly silty very sandy CLAY. Sand is fine to medium. Gravel is subangular to rounded fine of flint and coal fragments.
		13.50		N=16 (2,3/3,4,5,4)				
		13.50 - 13.95	D					
		15.00		N=50 (8,10/50 for 225mm)	15.00	33.40		Firm to stiff brown gravelly very sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of mixed lithologies including flint.
		15.00 - 15.45	D					
		15.00 - 15.50	B					
		16.50		N=38 (3,3/4,8,10,16)	16.50	31.90		Brown slightly clayey slightly gravelly silty fine to medium SAND. Gravel is subrounded to rounded fine of mixed lithologies including chert.
		16.50 - 16.95	D					
		16.50 - 17.00	B					
		18.00	ES					
		18.00		N=50 (5,5/50 for 200mm)				
		18.00 - 18.45	D					
		19.50		N=50 (5,7/50 for 190mm)				
		19.50 - 19.95	D					

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. Groundwater encountered at 7.5m bgl, rising to 2.2m bgl after 20 minutes. 4. SPT refusals recorded at 15.0m bgl, 18.0m bgl 19.5m bgl and from 22.5m bgl. 5. SPT refusal on Sandstone bedrock recorded at 26.2m bgl. 6. Chiselling undertaken on Sandstone bedrock for 30 minutes. 7. SPT refusal recorded at 26.25m bgl. 8. Rotary open hole follow on undertaken from 26.25m bgl. 9. Monitoring standpipe installed to 9m bgl: 6.5m plain, 2.5m slotted as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH01**

Sheet 3 of 4

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398397.50 - 384762.80	Hole Type CP
Location: MANCHESTER		Level: 48.40	Scale 1:50
Client: FAIRHURST		Dates: 02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		21.00		N=22 (3,4/4,6,6,6)					21
		21.00 - 21.45	B						
		21.80	B						22
		22.50		N=50 (6,7/50 for 140mm)					
		22.50 - 22.95	D						
		23.00	ES						23
		24.00		N=50 (8,10/50 for 150mm)					24
		24.00 - 24.45	B						
									25
		25.50		N=50 (8,8/50 for 200mm)					
		25.50 - 25.95	B						
		25.80	B						
		26.00 - 26.05	D						26
		26.05	D		26.20	22.20			
		26.20		N=50 (25 for 50mm/50 for 30mm)	26.25	22.15		Weak red fine to medium grained SANDSTONE weathered recovered as sandy angular to subangular fine to coarse gravel. Sand is fine to coarse.	
		26.25		N=50 (25 for 40mm/50 for 25mm)				Moderately strong red fine to medium grained SANDSTONE.	
		26.50		N=50 (25 for 19mm/50 for 30mm)					27
		27.50		N=50 (25 for 22mm/50 for 20mm)					
									28
		29.00		N=50 (25 for 10mm/50 for 25mm)					29
									30

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. Groundwater encountered at 7.5m bgl, rising to 2.2m bgl after 20 minutes. 4. SPT refusals recorded at 15.0m bgl, 18.0m bgl 19.5m bgl and from 22.5m bgl. 5. SPT refusal on Sandstone bedrock recorded at 26.2m bgl. 6. Chiselling undertaken on Sandstone bedrock for 30 minutes. 7. SPT refusal recorded at 26.25m bgl. 8. Rotary open hole follow on undertaken from 26.25m bgl. 9. Monitoring standpipe installed to 9m bgl: 6.5m plain, 2.5m slotted as instructed.

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **BH01** Sheet 4 of 4

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398397.50 - 384762.80	Hole Type CP
Location: MANCHESTER		Level: 48.40	Scale 1:50
Client: FAIRHURST		Dates: 02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		30.00		N=50 (25 for 7mm/50 for 20mm)				
		31.00		N=50 (25 for 10mm/50 for 30mm)				
					32.00	16.40		End of borehole at 32.00 m

31 32 33 34 35 36 37 38 39 40

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. Groundwater encountered at 7.5m bgl, rising to 2.2m bgl after 20 minutes. 4. SPT refusals recorded at 15.0m bgl, 18.0m bgl 19.5m bgl and from 22.5m bgl. 5. SPT refusal on Sandstone bedrock recorded at 26.2m bgl. 6. Chiselling undertaken on Sandstone bedrock for 30 minutes. 7. SPT refusal recorded at 26.25m bgl. 8. Rotary open hole follow on undertaken from 26.25m bgl. 9. Monitoring standpipe installed to 9m bgl: 6.5m plain, 2.5m slotted as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH02**

Sheet 1 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398411.97 - 384775.54	Hole Type CP
Location: MANCHESTER		Level: 48.84	Scale 1:50
Client: FAIRHURST		Dates: 18/05/2023 - 20/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.20	48.64		MADE GROUND: Tarmac and concrete fragments.
		0.50	ES		0.50	48.34		MADE GROUND: Dark brown gravelly sand. Gravel is subangular to subrounded fine to medium of mixed lithologies including concrete. sand is fine to medium.
		1.20		N=13 (2,2/3,3,3,4)				MADE GROUND: Light brown sandy gravel. Gravel is angular to subrounded fine to coarse of mixed lithologies including brick and concrete. sand is medium to coarse.
		1.20 - 1.65	D					
	▼	1.70	ES		1.70	47.14		MADE GROUND: Grey brown soft gravelly clay. Gravel is angular to subrounded fine to coarse of mixed lithologies including brick and sandstone.
		2.00		N=13 (3,3/3,3,4,3)				
		2.00 - 2.45	D					
		2.00 - 2.50	B		2.30	46.54		MADE GROUND: Very soft black sandy gravelly silty clay. Gravel is angular to subrounded fine to coarse of mixed lithologies including brick. Sand is fine to medium.
		2.30	ES					
		3.00 - 3.45	U		3.00	45.84		Stiff brown gravelly CLAY. Gravel is subrounded fine of mixed lithologies including sandstone.
		3.50	D					
		3.50	ES					
		4.00		N=13 (2,2/3,3,3,4)				
		4.00 - 4.45	D					
		4.00 - 4.50	B					
		5.00		N=14 (3,3/3,3,4,4)				
		5.00 - 5.45	D					
		6.00	ES		6.00	42.84		Firm brown sandy gravelly CLAY with bands of fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including flint and siltstone. Sand is fine to coarse.
		6.00 - 6.45	B					
		6.00 - 6.45	U					
		6.50	D					
		7.50		N=16 (3,3/4,4,4,4)				
		7.50 - 7.95	D					
		8.00	D					
		9.00		N=15 (2,3/3,4,4,4)				
		9.00 - 9.45	D					
		9.00 - 9.50	B					
		10.00	ES					

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. Groundwater encountered at 2m rising to 1.8m after 20 minutes. 4. Chiselling between 14.8m bgl and 15.2m bgl for 2 hours. 5. SPT refusals recorded from 15.0m bgl. 6. SPT refusal recorded at 26.5m bgl on Sandstone bedrock. 7. Chiselling undertaken for 30 minutes on Sandstone bedrock. 8. SPT refusal recorded at 26.7m bgl 6. Borehole backfilled as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH02**

Sheet 2 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398411.97 - 384775.54	Hole Type CP
Location: MANCHESTER		Level: 48.84	Scale 1:50
Client: FAIRHURST		Dates: 18/05/2023 - 20/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50 - 10.95	U					*Becoming firm to stiff from 10.5m bgl.*
		11.00	D					
		12.00		N=18 (3,4/4,4,5,5)				
		12.00 - 12.45	D					
		12.00 - 12.50	B					
		12.50	D		12.50	36.34		Brown very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of mixed lithologies including flint and siltstone.
		13.50 - 13.95	U		13.50	35.34		Very stiff brown gravelly sandy CLAY with moderate cobble content of sandstone. Gravel is angular to subangular fine to medium of mixed lithologies including flint and sandstone. . Sand is fine to coarse.
		13.50 - 14.00	B					
		15.00	ES					*Sandstone boulder encountered between 14.8m bgl and 15.2m bgl.*
		15.00		N=50 (25 for 40mm/50 for 60mm)				
		15.00 - 15.45	D					
		16.50 - 16.95	U					
		17.00	D					
		17.00 - 17.50	B					
		18.00		N=50 (25 for 50mm/50 for 40mm)				
		18.50 - 18.95	D		18.50	30.34		Very Dense brown very gravelly fine to medium SAND. Gravel is subrounded to rounded fine to coarse of mixed lithologies including sandstone and siltstone.
		19.50		N=50 (25 for 85mm/50 for 95mm)				
		19.50 - 19.95	D					
		19.50 - 20.00	B					

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. Groundwater encountered at 2m rising to 1.8m after 20 minutes. 4. Chiselling between 14.8m bgl and 15.2m bgl for 2 hours. 5. SPT refusals recorded from 15.0m bgl. 6. SPT refusal recorded at 26.5m bgl on Sandstone bedrock. 7. Chiselling undertaken for 30 minutes on Sandstone bedrock. 8. SPT refusal recorded at 26.7m bgl 6. Borehole backfilled as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH02**

Sheet 3 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398411.97 - 384775.54	Hole Type CP
Location: MANCHESTER		Level: 48.84	Scale 1:50
Client: FAIRHURST		Dates: 18/05/2023 - 20/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		20.00	ES					
		21.00		N=50 (25 for 90mm/50 for 95mm)				
		21.00 - 21.45	D					
					22.00	26.84		
		22.50		N=50 (25 for 80mm/50 for 100mm)				Very dense brown gravelly medium to coarse SAND. Gravel is subrounded to rounded fine to coarse of mixed lithologies including sandstone, siltstone quartzite and flint.
		22.50 - 22.95	D					
		22.50 - 23.00	B					
		24.00		N=50 (25 for 85mm/50 for 125mm)				
		24.00 - 24.45	D					
		25.00	ES					
		25.50		N=50 (25 for 90mm/50 for 125mm)				
		25.50 - 25.95	D					
					26.20	22.64		Weak dark red medium grained residually weathered SANDSTONE recovered as sandy angular to subangular medium to coarse gravel. Sand is medium to coarse.
		26.50		N=50 (25 for 40mm/50 for 30mm)				
		26.50 - 26.70	D					
		26.70	D		26.95	21.89		End of borehole at 26.95 m
		26.70		N=50 (25 for 40mm/50 for 25mm)				

21 22 23 24 25 26 27 28 29 30

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. Groundwater encountered at 2m rising to 1.8m after 20 minutes. 4. Chiselling between 14.8m bgl and 15.2m bgl for 2 hours. 5. SPT refusals recorded from 15.0m bgl. 6. SPT refusal recorded at 26.5m bgl on Sandstone bedrock. 7. Chiselling undertaken for 30 minutes on Sandstone bedrock. 8. SPT refusal recorded at 26.7m bgl 6. Borehole backfilled as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH03**

Sheet 1 of 1

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398399.49 - 384776.33	Hole Type CP
Location: MANCHESTER		Level: 48.13	Scale 1:50
Client: FAIRHURST		Dates: 18/05/2023 - 18/05/2023	Logged By KJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.20	47.93		MADE GOUND: Tarmac and concrete.
					0.80	47.33		MADE GROUND: Brown very gravelly sand. Gravel is subangular to subrounded coarse to medium of mixed lithologies including sandstone and brick. sand is fine to medium.
		1.00	ES					MADE GROUND: Dark brown gravelly silty sand. Gravel is angular to subangular medium to coarse of mixed lithologies including brick and sandstone. Sand is fine to medium.
		1.20		N=9 (1,2/2,4,2,1)				
		1.20 - 1.65	D					
		2.00		N=6 (1,0/0,2,2,2)				
		2.00 - 2.45	D					
		2.00 - 2.50	B					
					2.80	45.33		Stiff brown grey gravelly CLAY. Gravel is subangular to subrounded medium to coarse of mixed lithologies including chert.
		3.00	ES					
		3.00		N=15 (2,3/3,4,4,4)				
		3.00 - 3.45	D					
		4.00 - 4.45	U					
		4.50	D					
		5.00		N=17 (2,3/4,4,4,5)				
		5.00 - 5.45	D					
					5.45	42.68		End of borehole at 5.45 m

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. No groundwater encountered. 4. Borehole backfilled as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH04**

Sheet 1 of 1

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398388.97 - 384803.85	Hole Type CP
Location: MANCHESTER		Level: 47.59	Scale 1:50
Client: FAIRHURST		Dates: 15/05/2023 - 15/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.30	47.29		MADE GROUND: Light grey concrete.
		0.50	ES		0.50	47.09		MADE GROUND: Light brown grey very gravelly medium sand. Gravel is angular to subangular fine to coarse of mixed lithologies including concrete and quartzite.
		1.00	ES					MADE GROUND: Soft to firm dark brown sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithologies including concrete. Sand is fine to medium.
		1.20		N=15 (2,3/3,4,4,4)				
		1.20 - 1.65	D		1.50	46.09		Firm brown mottled grey gravelly silty CLAY. Gravel is angular to subangular fine to medium of mixed lithologies including siltstone.
		2.00		N=15 (2,2/3,4,4,4)				
		2.00 - 2.45	D					
		2.00 - 2.50	B					
		3.00 - 3.45	U					
		3.50	D					
		3.50	ES					
		4.00		N=15 (2,2/2,4,4,5)				
		4.00 - 4.45	D					
		4.00 - 4.50	B					
		5.00		N=14 (3,3/3,3,4,4)				
		5.00 - 5.45	D					
					5.45	42.14		End of borehole at 5.45 m

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. Groundwater encountered at 1.0m bgl, rising to 0.8m bgl after 20 minutes. 4. Standpipe installed to 2.0m: 0.5m plain, 1.5m slotted.

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **BH05**

Sheet 1 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398387.87 - 384769.02	Hole Type CP
Location: MANCHESTER		Level: 47.95	Scale 1:50
Client: FAIRHURST		Dates: 15/05/2023 - 15/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Light grey concrete.
		0.30	ES		0.30	47.65		
		0.50	D		0.50	47.45		MADE GROUND: Light brown gravelly medium to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including limestone.
	▼	0.50	ES		0.80	47.15		
		1.00	ES					MADE GROUND: Dark brown gravelly sandy clay. Gravel is angular to subangular fine to coarse of mixed lithologies including concrete and sandstone.
		1.20		N=9 (1,2/2,2,3,2)				
		1.20 - 1.65	B					
					1.70	46.25		MADE GROUND: dark brown gravelly sandy silty clay. Gravel angular to subangular fine to medium of mixed lithologies including brick glass. sand medium to coarse
		2.00	ES					
		2.00		N=2 (1,0/1,0,0,1)				
		2.00 - 2.45	B					MADE GROUND: Soft dark grey black slightly gravelly slightly sandy very silty clay. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies including glass and brick.
		2.00 - 2.45	D					
		3.00	ES		3.00	44.95		*Moderate hydrocarbin odour and slight sheen identified at 2.0m bgl.*
		3.00		N=6 (1,1/1,1,2,2)				
		3.00 - 3.45	B					MADE GROUND: soft to firm brown sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone, sand is fine to medium.
		3.00 - 3.45	D					
		4.00		N=6 (1,1/1,2,1,2)	4.00	43.95		
		4.00 - 4.45	B					Soft brown gravelly CLAY. Gravel is subangular to subrounded medium to coarse of mixed lithologies including sandstone.
		4.00 - 4.45	D					
		4.60	ES		4.60	43.35		
		5.00 - 5.45	U					Soft dark brown sandy gravelly CLAY. Gravel is medium to fine subangular to subrounded of mixed lithologies including limestone. sand is fine to medium.
		5.50	B					
		6.00		N=0 (0,0/0,0,0,0)				
		6.00 - 6.45	B					
		6.00 - 6.45	D					
		7.50 - 7.95	U					
		8.00	D					
		8.10	D		8.10	39.85		firm dark brown gravelly CLAY. Gravel is medium to coarse subangular to subrounded of mixed lithologies including sandstone.
		9.00	ES					
		9.00		N=30 (2,3/4,6,8,12)				
		9.00 - 9.45	B					
		9.00 - 9.45	D					
								Continued on next sheet

1 2 3 4 5 6 7 8 9 10

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. Groundwater encountered at 0.8m bgl. 4. SPT refusals recorded from 13.5m bgl. 5. SPT refusal on Sandstone bedrock recorded at 24.6m bgl. 6. Chiselling undertaken on Sandstone bedrock for 30 minutes. 7. SPT refusal recorded at 24.9m bgl. 8. Standpipe installed to 4.5m: 0.5m plain, 4.0m slotted.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH05**

Sheet 2 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398387.87 - 384769.02	Hole Type CP
Location: MANCHESTER		Level: 47.95	Scale 1:50
Client: FAIRHURST		Dates: 15/05/2023 - 15/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50		N=27 (2,3/3,4,7,13)				
		10.50 - 10.95	B					
		10.50 - 10.95	D					
		12.00		N=30 (2,3/5,5,8,12)				
		12.00 - 12.45	B					
		12.00 - 12.45	D					
		13.50	ES		13.50	34.45		
		13.50		N=50 (3,10/50 for 115mm)				Stiff very sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of mixed lithologies including sandstone. sand is fine to medium.
		13.50 - 13.95	B					
		13.50 - 13.95	D					
		15.00		N=50 (8,17/50 for 115mm)				
		15.00 - 15.45	B					
		15.00 - 15.45	D					
		16.50		N=50 (25 for 25mm/50 for 125mm)				
		16.50 - 16.95	B					
		16.50 - 16.95	D					
		17.00	ES					
		18.00		N=50 (25 for 95mm/50 for 115mm)	18.00	29.95		Dense sandy subangular to subrounded fine to coarse GRAVEL of mixed lithologies including sandstone with moderate cobble content of sandstone. Sand is fine to coarse.
		18.00 - 18.45	D					
		19.50	D					
		19.50		N=50 (25 for 80mm/50 for 95mm)				

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. Groundwater encountered at 0.8m bgl. 4. SPT refusals recorded from 13.5m bgl. 5. SPT refusal on Sandstone bedrock recorded at 24.6m bgl. 6. Chiselling undertaken on Sandstone bedrock for 30 minutes. 7. SPT refusal recorded at 24.9m bgl. 8. Standpipe installed to 4.5m: 0.5m plain, 4.0m slotted.

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **BH05** Sheet 3 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398387.87 - 384769.02	Hole Type CP
Location: MANCHESTER		Level: 47.95	Scale 1:50
Client: FAIRHURST		Dates: 15/05/2023 - 15/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		21.00		N=50 (25 for 125mm/50 for 125mm)				
		21.00 - 21.45	D					
		22.00	ES		22.00	25.95		Stiff brown sandy cobbly gravelly CLAY. Gravel is subangular to subrounded fine to coarse. sand is fine to coarse.
		22.50		N=50 (25 for 105mm/50 for 200mm)				
		22.50 - 22.95	D					
		24.00		N=50 (25 for 95mm/50 for 100mm)	24.00	23.95		Very dense sandy subangular to subrounded, medium to coarse GRAVEL of mixed lithologies including sandstone. sand is fine to medium.
		24.00 - 24.45	D					
		24.60	D		24.60	23.35		Weak red SANDSTONE residually weathered recovered as very dense sandy angular to subangular fine to coarse gravel. sand is medium to coarse.
		24.60		N=50 (25 for 5mm/50 for 55mm)	24.90	23.05		End of borehole at 24.90 m
		24.90	D					
		24.90		N=50 (25 for 2mm/50 for 40mm)				

21 22 23 24 25 26 27 28 29 30

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. Groundwater encountered at 0.8m bgl. 4. SPT refusals recorded from 13.5m bgl. 5. SPT refusal on Sandstone bedrock recorded at 24.6m bgl. 6. Chiselling undertaken on Sandstone bedrock for 30 minutes. 7. SPT refusal recorded at 24.9m bgl. 8. Standpipe installed to 4.5m: 0.5m plain, 4.0m slotted.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH06**

Sheet 1 of 1

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398399.15 - 384787.92	Hole Type CP
Location: MANCHESTER		Level: 47.59	Scale 1:50
Client: FAIRHURST		Dates: 18/05/2023 - 18/05/2023	Logged By KJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	47.29		MADE GROUND: Concrete
					0.70	46.89		MADE GROUND: Brick and concrete fragments.
		1.20		N=0 (1,0/0,0,0,0)				MADE GROUND: Brown very gravelly sand. Gravel is angular to subangular medium to coarse of mixed lithologies including brick, concrete and glass.
		1.20 - 1.65	D		1.50	46.09		
		2.00	ES					MADE GROUND: Dark brown Black very gravelly sandy silty clay. gravel is angular to subangular fine to medium of mixed lithologies including brick. sand is fine to medium.
		2.00		N=0 (1,0/0,0,0,0)				
		2.00 - 2.45	D					
		2.00 - 2.50	B					
		3.00 - 3.45	U					
		3.50	D		3.50	44.09		MADE GROUND: Stiff browny red gravelly clay. Gravel is angular to subangular fine to medium of mixed lithologies including sandstone and brick.
		4.00	ES		4.00	43.59		Firm grey brown gravelly CLAY. Gravel is subangular to subrounded fine to medium of mixed lithologies including sandstone.
		4.00		N=10 (2,2/2,2,3,3)				
		4.00 - 4.45	D					
		4.00 - 4.50	B					
		5.00		N=12 (2,2/2,3,3,4)				
		5.00 - 5.45	D					
					5.45	42.14		End of borehole at 5.45 m

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. Groundwater encountered at 1.0m bgl, rising to 0.6m bgl after 20 minutes. 4. Borehole backfilled as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH07**

Sheet 1 of 1

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398406.60 - 384800.95	Hole Type CP
Location: MANCHESTER		Level: 47.65	Scale 1:50
Client: FAIRHURST		Dates: 17/05/2023 - 17/05/2023	Logged By KJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	47.35		MADE GROUND: CONCRETE
					0.70	46.95		MADE GROUND: Brown very gravelly sand. Gravel is angular to subangular medium to coarse of mixed lithologies including brick and sandstone. sand is medium to coarse.
		1.20		N=0 (1,0/0,0,0,0)				MADE GROUND: Brown sandy gravelly clay. Gravel subangular to subrounded coarse to medium of mixed lithologies including brick and sandstone. sand is fine to medium.
		1.20 - 1.65	D					
		1.50	ES		1.50	46.15		MADE GROUND: Firm brown gravelly clay. Gravel is angular to sub angular medium to coarse of mixed lithologies including brick and limestone.
		2.00		N=0 (1,0/0,0,0,0)				
		2.00 - 2.45	D					
		3.00 - 3.45	U		3.00	44.65		Soft brown very sandy gravelly CLAY. Gravel is angular to subangular fine to medium of mixed lithologies including sandstone. sand is fine.
		3.50	D					
		3.80	ES					
		4.00		N=13 (1,2/2,2,4,5)				
		4.00 - 4.45	D					
		4.00 - 4.50	B					
		5.00		N=12 (2,2/2,3,3,4)				
		5.00 - 5.45	D					
		6.50 - 6.95	U					
		7.00	D		7.00	40.65		End of borehole at 7.00 m

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. Groundwater encountered at 1.0m bgl, rising to 0.6m bgl after 20 minutes. 4. Monitoring standpipe installed to 3.5m bgl: 1m plain, 2.5m slotted.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH08**

Sheet 1 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398368.72 - 384780.04	Hole Type CP
Location: MANCHESTER		Level: 47.92	Scale 1:50
Client: FAIRHURST		Dates: 10/05/2023 - 10/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.10	47.82		MADE GROUND: Concrete
					0.20	47.72		MADE GROUND: Brick and concrete fragments.
		0.50	D		0.45	47.47		MADE GROUND: Concrete.
		0.50	ES		0.48	47.44		MADE GROUND: Asphalt.
		1.00	ES					MADE GROUND: Grey to dark grey mottled orange slightly silty clayey very sandy angular to subangular fine to coarse gravel of mixed lithologies including brick, coke, clinker, asphalt, sandstone, glass and slate. Sand is fine to coarse.
		1.20		N=3 (1,0/0,1,1,1)				
		1.20 - 1.65	D					
					1.60	46.32		MADE GROUND: Very soft dark grey sandy silty gravelly reworked clay. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of mixed lithologies including brick, coke, clinker, asphalt, sandstone, glass and slate.
		2.00	ES					
		2.00		N=2 (1,0/1,0,1,0)				
		2.00 - 2.45	B					
		2.00 - 2.45	D					
		3.00	ES					
		3.00		N=13 (2,2/3,3,3,4)	3.20	44.72		
		3.00 - 3.45	B					Firm brown mottled grey slightly gravelly CLAY with lenses of orange silt. Gravel is angular to subangular fine to coarse of mixed lithologies including flint.
		3.00 - 3.45	D					
		4.00	ES					
		4.00		N=12 (2,2/2,3,3,4)				
		4.00 - 4.45	B					
		4.00 - 4.45	D					
		5.00	ES					
		5.00		N=13 (2,2/3,3,3,4)				
		5.00 - 5.45	B					
		5.00 - 5.45	D					
		5.80	D		5.80	42.12		
		6.00	ES					Firm to stiff grey brown thinly laminated slightly gravelly silty CLAY. Gravel is angular to subangular fine to mixed lithologies.
		6.00		N=10 (1,2/2,2,3,3)				
		6.00 - 6.45	B					
		6.00 - 6.45	D					
		7.50 - 7.95	U					
		8.00	D					
		9.00		N=12 (2,2/3,3,3,3)				
		9.00 - 9.45	B					
		9.00 - 9.45	D					
								Becoming firm from 9.5m bgl.

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. Chiselling undertaken between 19.1m bgl and 19.2m bgl for 1 hour. 5. Chiselling undertaken between 22.6m bgl and 22.8m bgl for 1 hour. 6. Chiselling undertaken between 26.9m bgl and 27.0m bgl for 40 minutes. 7. SPT refusal recorded at 27.7m bgl on Sandstone bedrock. 8. Chiselling undertaken on Sandstone bedrock for 30 minutes. 9. SPT refusal recorded at 27.9m bgl. 10. Monitoring standpipe installed to 5.8m bgl: 2.8m plain, 3m slotted.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH08**

Sheet 2 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398368.72 - 384780.04	Hole Type CP
Location: MANCHESTER		Level: 47.92	Scale 1:50
Client: FAIRHURST		Dates: 10/05/2023 - 10/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50 - 10.95	U		10.50	37.42		Stiff to very stiff brown mottled grey gravelly silty very sandy CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse of mixed lithologies including flint.
		11.00	D					
		11.00	ES					
		12.00		N=45 (6,7/8,11,12,14)				
		12.00 - 12.45	B					
		12.00 - 12.45	D					
		12.00 - 12.45	D					
		13.50		N=46 (6,7/9,10,13,14)				
		13.50 - 13.95	B					
		13.50 - 13.95	D					
		15.00		N=50 (7,7/50 for 235mm)				
		15.00 - 15.45	B					
		15.00 - 15.45	D					
		16.00	ES					
		16.50		N=50 (8,9/50 for 210mm)	16.30	31.62		Brown medium to coarse slightly silty clayey gravelly SAND. Gravel is subrounded to rounded fine to medium of mixed lithologies including flint and quartzite.
		16.50 - 16.95	B					
		16.50 - 16.95	D					
		18.00		N=50 (8,9/50 for 200mm)				
		18.00 - 18.45	B					
		18.00 - 18.45	D					
		19.50		N=50 (25 for 95mm/50 for 105mm)	19.00	28.92		Interbedded brown slightly gravelly fine to coarse SAND and firm sandy CLAY with high cobble content of quartzite and siltstone. Gravel is subangular to rounded fine to coarse of mixed lithologies including flint, quartzite and siltstone. *Siltstone cobble encountered between 19.1m bgl and 19.2m*
		19.50 - 19.95	B					
		19.50 - 19.95	D					

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. Chiselling undertaken between 19.1m bgl and 19.2m bgl for 1 hour. 5. Chiselling undertaken between 22.6m bgl and 22.8m bgl for 1 hour. 6. Chiselling undertaken between 26.9m bgl and 27.0m bgl for 40 minutes. 7. SPT refusal recorded at 27.7m bgl on Sandstone bedrock. 8. Chiselling undertaken on Sandstone bedrock for 30 minutes. 9. SPT refusal recorded at 27.9m bgl. 10. Monitoring standpipe installed to 5.8m bgl: 2.8m plain, 3m slotted.

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **BH08** Sheet 3 of 3

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398368.72 - 384780.04	Hole Type CP
Location: MANCHESTER		Level: 47.92	Scale 1:50
Client: FAIRHURST		Dates: 10/05/2023 - 10/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								bgl.
		21.00		N=50 (25 for 115mm/50 for 125mm)				
		21.00 - 21.45	B					
		22.50		N=50 (25 for 115mm/50 for 115mm)				Flint cobble encountered between 22.6m bgl and 22.8m bgl.
		22.50 - 22.95	B					
		24.00		N=50 (12,13/50 for 125mm)				
		24.00 - 24.45	B					
		25.50		N=50 (12,13/50 for 165mm)				
		25.50 - 25.95	B					
		27.00		N=50 (25 for 100mm/50 for 210mm)	27.20	20.72		
		27.00 - 27.45	B					Weak red SANDSTONE residually weatehred recovered as very dense sandy angular to subangular medium to coarse gravel.
		27.70	D					
		27.70		N=50 (25 for 50mm/50 for 40mm)	27.90	20.02		
		27.90	D					End of borehole at 27.90 m
		27.90		N=50 (25 for 10mm/50 for 30mm)				

21 22 23 24 25 26 27 28 29 30

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. Chiselling undertaken between 19.1m bgl and 19.2m bgl for 1 hour. 5. Chiselling undertaken between 22.6m bgl and 22.8m bgl for 1 hour. 6. Chiselling undertaken between 26.9m bgl and 27.0m bgl for 40 minutes. 7. SPT refusal recorded at 27.7m bgl on Sandstone bedrock. 8. Chiselling undertaken on Sandstone bedrock for 30 minutes. 9. SPT refusal recorded at 27.9m bgl. 10. Monitoring standpipe installed to 5.8m bgl: 2.8m plain, 3m slotted.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH09**

Sheet 1 of 1

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398406.67 - 384801.00	Hole Type CP
Location: MANCHESTER		Level: 47.69	Scale 1:50
Client: FAIRHURST		Dates: 09/05/2023 - 09/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	D		0.10	47.59		MADE GROUND: Black tarmac.
		0.20	ES					MADE GROUND: Dark grey very sandy silty angular to subangular fine to coarse gravel of mixed lithologies including brick, sandstone, glass, limestone and clinker with moderate cobble content of sandstone.
		0.50	ES					
		1.00	B					
		1.00	ES					
		1.50		N=9 (1,1/2,2,2,3)				
		1.50 - 1.95	D					
		1.50 - 2.00	B					
		2.00	ES					
		2.20	D					
		2.50		N=10 (2,1/1,2,3,4)				
		2.50 - 2.95	D					
		2.50 - 3.00	B					
		3.00	ES					
					3.10	44.59		MADE GROUND: Soft dark grey dark brown slightly silty sandy gravelly clay with frequent fragments of timber. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and concrete. Sand is fine.
		3.50 - 3.95	U		3.50	44.19		Firm to stiff brown sandy silty CLAY. Sand is fine.
		4.00	D					
		4.00	ES					
		4.50		N=19 (3,3/3,4,5,7)				
		4.50 - 4.95	D					
		4.50 - 5.00	B					
		5.00	ES		5.00	42.69		End of borehole at 5.00 m

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. Borehole backfilled as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH10**

Sheet 1 of 2

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398393.75 - 384833.39	Hole Type CP
Location: MANCHESTER		Level: 48.07	Scale 1:50
Client: FAIRHURST		Dates: 11/05/2023 - 11/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.35	47.72		MADE GROUND: Black tarmac.
		0.40	D					MADE GROUND: Dark grey silty sandy angular to subangular fine to coarse gravel of brick, asphalt, glass, sandstone, coke and clinker.
		0.50	ES					
		1.00	B					
		1.00	ES		1.20	46.87		
		1.50		N=12 (3,2/2,3,3,4)				MADE GROUND: Soft to firm dark grey mottled brown orange sandy gravelly clay. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of mixed lithologies including brick, coal, clinker and flint. (Reworked).
		1.50 - 1.95	D					
		1.50 - 2.00	B		1.80	46.27		
		2.00	ES					Firm to stiff brown mottled grey slightly gravelly thinly laminated CLAY with grey veins of silt. Gravel is subrounded to rounded fine of flint.
		2.20	D					
		2.50		N=15 (2,3/4,3,4,4)				
		2.50 - 2.95	D					
		2.50 - 3.00	B					
		3.00	ES					
		3.50 - 3.95	U					
		4.00	D					
		4.00	ES					
		4.50		N=17 (2,3/4,4,4,5)				
		4.50 - 4.95	D					
		5.00	ES					
		5.20	D					
		5.50		N=19 (3,4/4,5,5,5)				*Becomes soft to firm from 5.4m bgl.*
		5.50 - 5.95	D					
		5.50 - 6.00	B					
		6.00	ES					
		6.50	D					
		7.00		N=23 (1,3/5,5,6,7)				
		7.00 - 7.45	D					
		8.00	D					
		8.50		N=25 (4,5/6,6,6,7)				
		8.50 - 8.95	D					
		8.50 - 9.00	B					
								Becomes firm to stiff from 9.4m bgl.
		10.00	D					

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. No groundwater encountered. 4. SPT refusal recorded at 13.5m bgl. 5. SPT refusals recorded at 18.0m bgl on large boulder. 6. 2.5 hours chiselling undertaken. 7. SPT refusal recorded at 18.1m bgl. 8. Borehole terminated as instructed and standpipe installed to 18m: 14.5m plain, 3.5m slotted.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH10**

Sheet 2 of 2

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398393.75 - 384833.39	Hole Type CP
Location: MANCHESTER		Level: 48.07	Scale 1:50
Client: FAIRHURST		Dates: 11/05/2023 - 11/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50 - 10.95	U					
		11.00	D					
		11.00	ES					
		12.00		N=28 (5,4/5,6,8,9)				
		12.00 - 12.45	D					
		12.00 - 12.50	B					
		13.00	D					
		13.50		N=50 (6,8/50 for 150mm)				
		13.50 - 13.95	D					
		14.50	D					
		15.00		N=39 (4,5/7,7,7,18)	15.00	33.07		Brown silty clayey gravelly fine to coarse SAND. Gravel is angular to subrounded of mixed lithologies including flint and quartzite.
		15.00 - 15.95	D					
		16.00	D					
		16.00	ES					
		16.50		N=31 (6,5/6,8,8,9)				
		16.50 - 16.95	D					
		17.50	D					
		18.00	D					
		18.00		N=50 (25 for 8mm/50 for 0mm)	18.10	29.97		*Boulder encountered at 18.1m bgl.*
		18.10	D					End of borehole at 18.10 m
		18.10		N=50 (25 for 0mm/50 for 0mm)				

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.2m bgl. 3. No groundwater encountered. 4. SPT refusal recorded at 13.5m bgl. 5. SPT refusals recorded at 18.0m bgl on large boulder. 6. 2.5 hours chiselling undertaken. 7. SPT refusal recorded at 18.1m bgl. 8. Borehole terminated as instructed and standpipe installed to 18m: 14.5m plain, 3.5m slotted.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH11**

Sheet 1 of 1

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398372.23 - 384839.75	Hole Type CP
Location: MANCHESTER		Level: 48.15	Scale 1:50
Client: FAIRHURST		Dates: 05/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	D		0.15	48.00		MADE GROUND: Dark grey tarmac.
		0.20	ES					MADE GROUND: Soft dark grey sandy gravelly clay. Sand is fine to coarse. Gravel is angular to rounded fine to medium of mixed lithologies including brick, glass, flint and slate.
		0.40	B					
		0.50	ES					
		1.00	D					
		1.00	ES					
		1.50		N=15 (2,3/3,4,4,4)				
		1.50 - 1.95	D					
		1.50 - 2.00	B					
		2.00	ES					
		2.20	D					
		2.50		N=18 (4,3/4,4,5,5)				
		2.50 - 2.95	D		2.70	45.45		Firm to stiff slightly sandy gravelly silty thinly laminated CLAY. Sand is fine. Gravel is subangular to sounded fine to medium of mixed lithologies including siltstone.
		2.50 - 3.00	B					
		3.00	ES					
		3.50 - 3.95	U					
		4.00	D					
		4.00	ES					
		4.50		N=20 (2,3/4,5,5,6)				
		4.50 - 4.95	D					
		4.50 - 5.00	B					
		5.00	ES		5.00	43.15		End of borehole at 5.00 m

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. Borehole backfilled as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH12**

Sheet 1 of 4

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398379.56 - 384846.97	Hole Type CP
Location: MANCHESTER		Level: 48.06	Scale 1:50
Client: FAIRHURST		Dates: 02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	D		0.15	47.91		MADE GROUND: Dark grey orange very gravelly fine to coarse SAND of red brick dust. Gravel is angular to subrounded fine to medium of mixed lithologies coke, clinker, glass and occasional flint.
		0.20	ES					
		0.50	B					
		0.50	ES					
		1.00	ES					MADE GROUND: Dark grey mottled brown orange very sandy angular to subangular fine to coarse gravel of mixed lithologies including brick, coke, clinker, concrete and limestone. Sand is fine to coarse of potash, brick fragments and silica.
		1.10	D		1.20	46.86		
		1.20	B					
		1.50	ES					
		1.50		N=27 (6,5/6,6,7,8)				
		1.50 - 1.95	D					Firm to stiff brown mottled grey thinly laminated CLAY with occasional angular fine gravel of flint.
		2.50		N=24 (4,5/5,6,6,7)				*Increasing gravel content from 2.5m bgl.*
		2.50 - 2.95	D					
		3.50		N=28 (3,5/6,7,7,8)				
		3.50 - 3.95	D					
		4.50		N=27 (4,4/6,7,7,7)	4.50	43.56		
		4.50 - 4.95	D					Stiff brown slightly gravelly CLAY. Gravel is subangular to rounded fine to medium of mixed lithologies inlcuding flint.
		5.50		N=24 (5,4/5,5,6,8)				
		5.50 - 5.95	D					
		6.00 - 6.45	U					
		6.50	ES					
		7.00		N=32 (6,6/7,8,8,9)				
		7.00 - 7.45	D					
		8.50		N=27 (5,5/5,7,7,8)				
		8.50 - 8.95	D					

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. SPT refusals recorded from 23.5m bgl. 5. Chiselling undertaken between 24.0m bgl and 24.2m bgl for 1 hour. 6. Chiselling undertaken between 24.2m bgl and 24.8m bgl for 5 hours. 7. SPT refusal on Sandstone bedrock recorded at 26.3m bgl. 8. Chiselling undertaken on Sandstone bedrock for 30 minutes. 9. SPT refusal recorded at 26.8m bgl. 10. Rotary open hole follow on undertaken from 26.8m bgl. 11. Monitoring standpipe installed to 5m bgl: 1.5m plain, 3.5m slotted as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH12**

Sheet 2 of 4

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398379.56 - 384846.97	Hole Type CP
Location: MANCHESTER		Level: 48.06	Scale 1:50
Client: FAIRHURST		Dates: 02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.00		N=49 (6,9/11,12,12,14)					
		10.00 - 10.45	D						
		10.00 - 10.50	B						
					11.00	37.06		Brown slightly gravelly silty clayey fine to medium SAND. Gravel is subangular to rounded fine to medium of mixed lithologies including flint.	11
		11.50	ES						
		11.50		N=21 (4,4/5,5,5,6)					
		11.50 - 11.95	D						
		12.00 - 12.50	B						12
		13.00		N=24 (6,5/5,6,6,7)	12.90	35.16		Firm to stiff silty gravelly very sandy CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of mixed lithologies of flint and coal.	13
		13.00 - 13.45	D						
									14
		14.50		N=30 (7,7/6,7,8,9)					
		14.50 - 14.95	D						
		14.50 - 15.00	B						
									15
		15.50	D						
		16.00		N=44 (8,10/9,10,11,14)					16
		16.00 - 16.45	D						
		16.00 - 16.50	B						
		16.50	ES						
		17.00	D						17
		17.50 - 17.95	U						
		18.00	D						18
		19.00		N=47 (4,6/10,12,12,13)	18.90	29.16		Dense brown very gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse of quartzite and flint.	19
		19.00 - 19.45	D						
		19.00 - 19.50	B						
		20.00	D						20

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. SPT refusals recorded from 23.5m bgl. 5. Chiselling undertaken between 24.0m bgl and 24.2m bgl for 1 hour. 6. Chiselling undertaken between 24.2m bgl and 24.8m bgl for 5 hours. 7. SPT refusal on Sandstone bedrock recorded at 26.3m bgl. 8. Chiselling undertaken on Sandstone bedrock for 30 minutes. 9. SPT refusal recorded at 26.8m bgl. 10. Rotary open hole follow on undertaken from 26.8m bgl. 11. Monitoring standpipe installed to 5m bgl: 1.5m plain, 3.5m slotted as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH12**

Sheet 3 of 4

Project Name: TARIFF STREET	Project No. GRO-22079	Co-ords: 398379.56 - 384846.97	Hole Type CP
Location: MANCHESTER		Level: 48.06	Scale 1:50
Client: FAIRHURST		Dates: 02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		20.50		N=33 (6,6/7,9,8,9)				
		20.50 - 20.95	D					
		20.50 - 21.00	B					
					21.00	27.06		Dense brown very gravelly fine to coarse SAND with moderate to high cobble content of siltstone. Gravel is subangular to rounded fine to coarse of quartzite and flint.
		21.50	D					
		21.50	ES					
		22.00		N=44 (7,8/8,10,11,15)				
		22.00 - 22.95	B					
		23.00	D					
		23.50		N=50 (16,9/50 for 116mm)				
		23.50 - 23.95	B					
		24.20	D					*Chert cobble encountered between 24.0m bgl and 24.2m bgl.*
		24.20		N=50 (25 for 0mm/50 for 0mm)				*Sandstone boulder encountered between 24.2m bgl and 24.8m bgl.*
		24.20 - 24.90	B					
					24.80	23.26		Very dense sandy angular to subangular fine to coarse GRAVEL of mixed lithologies including sandstone and moderate cobble content of sandstone. Sand is medium to coarse.
		25.00		N=50 (25 for 100mm/50 for 105mm)				
		25.00 - 25.45	B					
		25.50	D					
		26.30	D		26.30	21.76		Weak red fine to medium grained SANDSTONE residually weathered recovered as dense sandy angular to subangular gravel. Sand is fine to medium.
		26.30		N=50 (25 for 33mm/50 for 19mm)				
		26.80	D		26.80	21.26		Moderately strong red fine to medium grained SANDSTONE.
		26.80		N=50 (25 for 20mm/50 for 16mm)				
		27.00		N=50 (25 for 20mm/50 for 35mm)				
		28.00		N=50 (25 for 15mm/50 for 20mm)				
		29.00		N=50 (25 for 10mm/50 for 15mm)				

Continued on next sheet

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. SPT refusals recorded from 23.5m bgl. 5. Chiselling undertaken between 24.0m bgl and 24.2m bgl for 1 hour. 6. Chiselling undertaken between 24.2m bgl and 24.8m bgl for 5 hours. 7. SPT refusal on Sandstone bedrock recorded at 26.3m bgl. 8. Chiselling undertaken on Sandstone bedrock for 30 minutes. 9. SPT refusal recorded at 26.8m bgl. 10. Rotary open hole follow on undertaken from 26.8m bgl. 11. Monitoring standpipe installed to 5m bgl: 1.5m plain, 3.5m slotted as instructed.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **BH12** Sheet 4 of 4

Project Name:	TARIFF STREET	Project No. GRO-22079	Co-ords:	398379.56 - 384846.97	Hole Type CP
Location:	MANCHESTER		Level:	48.06	Scale 1:50
Client:	FAIRHURST		Dates:	02/05/2023 - 05/05/2023	Logged By JKP

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		30.00		N=50 (25 for 5mm/50 for 10mm)				
		31.00		N=50 (25 for 5mm/50 for 8mm)				
		32.00		N=50 (25 for 2mm/50 for 4mm)	32.00	16.06		End of borehole at 32.00 m

31 32 33 34 35 36 37 38 39 40

Remarks

1. Location cleared for utilities using a GPR survey. 2. Hand excavated inspection pit undertaken to 1.20m bgl. 3. No groundwater encountered. 4. SPT refusals recorded from 23.5m bgl. 5. Chiselling undertaken between 24.0m bgl and 24.2m bgl for 1 hour. 6. Chiselling undertaken between 24.2m bgl and 24.8m bgl for 5 hours. 7. SPT refusal on Sandstone bedrock recorded at 26.3m bgl. 8. Chiselling undertaken on Sandstone bedrock for 30 minutes. 9. SPT refusal recorded at 26.8m bgl. 10. Rotary open hole follow on undertaken from 26.8m bgl. 11. Monitoring standpipe installed to 5m bgl: 1.5m plain, 3.5m slotted as instructed.

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:	*TARIFF STREET, MANCHESTER*				***ENGINEER:***	*Jack Perkins*						
CLIENT:	*FAIRHURST*				***DATE:***	*5-6/6/23*						
JOB NO:	*GRO-22079*											
Pressure Trend:	*Falling*	***Weather:***	*Sunny*			***Equipment:***	*GFM 436*					
Ambient:	O_2 (%v/v)	CH_4 (%v/v)	CO_2 (%v/v)	LEL	H_2S (ppm)	CO (ppm)						
Start	20.7	0.0	0.0	0.0	0.0	0.0						
Finish	20.7	0.0	0.0	0.0	0.0	0.0						

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
BH01	0.0	0.0	0.00	0.0	0.0	0.0	1.8	0.9	14.3	17.9	0.0	0.0	0.0	0.0	0.0018	0.0000	1016	4.4	N	N/A	N/A	2.44
BH04	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.3	20.6	0.0	0.0	0.0	0.0	0.0000	0.0000	1016	1.3	N	N/A	N/A	0.93
BH05	0.0	0.0	0.00	0.0	0.0	0.0	3.2	1.3	2.2	14.4	0.0	0.0	0.0	0.0	0.0032	0.0000	1016	2.0	N	N/A	N/A	0.91
BH07	0.0	0.0	0.00	0.0	0.0	0.0	0.6	0.4	19.2	19.9	0.0	0.0	0.0	0.0	0.0006	0.0000	1016	3.5	N	N/A	N/A	0.76
BH08	0.0	0.0	0.00	0.0	0.0	0.0	1.4	0.5	16.9	19.7	0.0	0.0	0.0	0.0	0.0014	0.0000	1016	1.4	N	N/A	N/A	3.83
BH10	0.0	0.0	0.00	2.0	0.7	40.0	3.9	1.7	0.3	12.0	0.0	0.0	0.0	0.0	0.0039	0.0020	1017	1.0	N	N/A	N/A	NGW
BH12	0.0	0.0	0.00	0.0	0.0	0.0	6.3	4.8	2.0	5.5	0.0	0.0	0.0	0.0	0.0063	0.0000	1017	1.1	N	N/A	N/A	NGW
Notes:																						

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:	*TARIFF STREET, MANCHESTER*				***ENGINEER:***	*Jack Perkins*						
CLIENT:	*FAIRHURST*				***DATE:***	*05/07/2023*						
JOB NO:	*GRO-22079*											
Pressure Trend:	*Steady*	***Weather:***	*Raining*			***Equipment:***	*GFM 436*					

Ambient:	O_2 (%v/v)	CH_4 (%v/v)	CO_2 (%v/v)	LEL	H_2S (ppm)	CO (ppm)
Start	20.7	0.0	0.0	0.0	0.0	0.0
Finish	20.7	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
BH01	0.0	0.0	0.00	0.0	0.0	0.0	1.9	1.5	11.0	13.9	0.0	0.0	0.0	0.0	0.0019	0.0000	1000	-	N	N/A	N/A	2.29
BH04	0.0	0.0	0.00	0.0	0.0	0.0	0.3	0.3	18.6	18.8	0.0	0.0	0.0	0.0	0.0003	0.0000	1000	-	N	N/A	N/A	0.79
BH05	0.0	0.0	0.00	0.0	0.0	0.0	1.3	1.1	2.8	12.8	0.0	0.0	0.0	0.0	0.0013	0.0000	1000	-	N	N/A	N/A	0.81
BH07	0.0	0.0	0.00	0.0	0.0	0.0	0.7	0.6	19.2	19.2	0.0	0.0	0.0	0.0	0.0007	0.0000	1000	-	N	N/A	N/A	0.73
BH08	0.0	0.0	0.00	0.0	0.0	0.0	0.5	0.3	19.8	20.1	0.0	0.0	0.0	0.0	0.0005	0.0000	1000	-	N	N/A	N/A	1.78
BH10	0.0	0.0	0.00	0.0	0.0	0.0	1.8	0.9	1.6	10.4	0.0	0.0	0.0	0.0	0.0018	0.0000	1001	-	N	N/A	N/A	NGW
BH12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: BH12 covered by car.

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Attention :	James Doyle
Date :	19th June, 2023
Your reference :	GRO-22079
Our reference :	Test Report 23/7158 Batch 1
Location :	Tariff Street
Date samples received :	5th May, 2023
Status :	Final Report
Issue :	2

Nineteen samples were received for analysis on 5th May, 2023 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Element Materials Technology Environmental UK Limited
Registered in England and Wales
Registered Office: 3rd Floor Davidson Building, 5 Southampton Street, London WC2E 7HA
Company Registration No: 11371415

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tariff Street
Contact: James Doyle
EMT Job No: 23/7158

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-3	4-6	10-12	25-27	28-30						LOD/LOR	Units	Method No.
Sample ID	BH01	BH01	BH01	BH12	BH12								
Depth	0.50	1.00	3.20	0.50	1.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	02/05/2023	02/05/2023	02/05/2023	02/05/2023	02/05/2023								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023								
Arsenic #	-	16.7	-	19.3	-						<0.5	mg/kg	TM30/PM15
Cadmium #	-	<0.1	-	<0.1	-						<0.1	mg/kg	TM30/PM15
Chromium #	-	48.3	-	48.9	-						<0.5	mg/kg	TM30/PM15
Copper #	-	104	-	51	-						<1	mg/kg	TM30/PM15
Lead #	-	106	-	120	-						<5	mg/kg	TM30/PM15
Mercury #	-	0.3	-	0.5	-						<0.1	mg/kg	TM30/PM15
Nickel #	-	35.6	-	30.0	-						<0.7	mg/kg	TM30/PM15
Selenium #	-	<1	-	<1	-						<1	mg/kg	TM30/PM15
Sulphur as S	-	0.15	-	0.10	-						<0.01	%	TM30/PM15
Total Sulphate as SO4 #	-	1186	-	636	-						<50	mg/kg	TM50/PM29
Water Soluble Boron #	-	3.4	-	1.7	-						<0.1	mg/kg	TM74/PM32
Zinc #	-	84	-	82	-						<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM4/PM8
Fluorene #	-	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	0.06	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Anthracene #	-	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Pyrene #	-	<0.03	<0.03	<0.03	<0.03						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	<0.06	<0.06	<0.06	<0.06						<0.06	mg/kg	TM4/PM8
Chrysene #	-	<0.02	<0.02	<0.02	<0.02						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	<0.07	<0.07	<0.07	<0.07						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	<0.04	<0.04	<0.04	<0.04						<0.04	mg/kg	TM4/PM8
Coronene	-	<0.04	-	-	<0.04						<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	<0.6	<0.6	<0.6	-						<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	<0.64	-	-	<0.64						<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	<0.05	<0.05	<0.05	<0.05						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	<0.02	<0.02	<0.02	<0.02						<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	99	103	103	95						<0	%	TM4/PM8
EPH (C8-C40) (EH_1D_Total) #	-	-	-	274	-						<30	mg/kg	TM5/PM8
EPH >C8-C10 (EH_1D_Total) #	-	-	<5	-	-						<5	mg/kg	TM5/PM8
EPH >C10-C12 (EH_1D_Total) #	-	-	<10	-	-						<10	mg/kg	TM5/PM8
EPH >C12-C16 (EH_1D_Total) #	-	-	<10	-	-						<10	mg/kg	TM5/PM8
EPH >C16-C21 (EH_1D_Total) #	-	-	27	-	-						<10	mg/kg	TM5/PM8
EPH >C21-C35 (EH_1D_Total) #	-	-	97	-	-						<10	mg/kg	TM5/PM8
EPH >C35-C40 (EH_1D_Total)	-	-	16	-	-						<10	mg/kg	TM5/PM8
EPH >C8-C40 (EH_1D_Total)	-	-	140	-	-						<30	mg/kg	TM5/PM8

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tariff Street
Contact: James Doyle
EMT Job No: 23/7158

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-3	4-6	10-12	25-27	28-30						LOD/LOR	Units	Method No.
Sample ID	BH01	BH01	BH01	BH12	BH12								
Depth	0.50	1.00	3.20	0.50	1.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	02/05/2023	02/05/2023	02/05/2023	02/05/2023	02/05/2023								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023								
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	<30	-	-	<30						<30	mg/kg	TM5/PM8/PM16
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	-	<0.1	-	-	-						<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	-	0.6	-	-	-						<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	0.9	-	-	-						<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	-	6.4	-	-	-						<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	-	<4	-	-	-						<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	-	<7	-	-	-						<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	-	<7	-	-	-						<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	-	<19	-	-	-						<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	-	<0.1	-	-	-						<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-	<0.1	-	-	-						<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	-	<0.1	-	-	-						<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-	<0.2	-	-	-						<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-	<4	-	-	-						<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-	<7	-	-	-						<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-	<7	-	-	-						<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR) #	-	<19	-	-	-						<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35) (EH+HS_CU_1D_Total)	-	<38	-	-	-						<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	-	51	-	-	<5						<5	ug/kg	TM36/PM12
Benzene #	-	26	-	-	<5						<5	ug/kg	TM36/PM12
Toluene #	-	<5	-	-	<5						<5	ug/kg	TM36/PM12
Ethylbenzene #	-	10	-	-	<5						<5	ug/kg	TM36/PM12
m/p-Xylene #	-	14	-	-	<5						<5	ug/kg	TM36/PM12
o-Xylene #	-	<5	-	-	<5						<5	ug/kg	TM36/PM12
PCB 28 #	-	<5	-	-	<5						<5	ug/kg	TM17/PM8
PCB 52 #	-	<5	-	-	<5						<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	-	-	<5						<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	-	-	<5						<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	-	-	<5						<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	-	-	<5						<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	-	-	<5						<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	-	-	<35						<35	ug/kg	TM17/PM8
Total Phenols HPLC	-	<0.15	-	<0.15	-						<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	-	25.3	21.4	26.1	34.0						<0.1	%	PM4/PM0
Hexavalent Chromium #	-	<0.3	-	<0.3	-						<0.3	mg/kg	TM38/PM20

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tariff Street
Contact: James Doyle
EMT Job No: 23/7158

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	10-12	25-27	28-30						LOD/LOR	Units	Method No.
Sample ID	BH01	BH01	BH01	BH12	BH12								
Depth	0.50	1.00	3.20	0.50	1.00								
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T								
Sample Date	02/05/2023	02/05/2023	02/05/2023	02/05/2023	02/05/2023								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023								
Sulphate as SO4 (2:1 Ext) #	-	0.3298	-	0.1335	-						<0.0015	g/l	TM38/PM20
Free Cyanide	-	<0.5	-	<0.5	-						<0.5	mg/kg	TM89/PM45
Total Cyanide #	-	<0.5	-	<0.5	-						<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	5.83	1.06	-	3.58						<0.02	%	TM21/PM24
Organic Matter	-	10.1	-	11.5	-						<0.2	%	TM21/PM24
Sulphide	-	<10	-	<10	-						<10	mg/kg	TM107/PM45
Thiocyanate	-	<0.6	-	1.8	-						<0.6	mg/kg	TM107/PM45
ANC at pH4	-	0.42	-	-	0.39						<0.03	mol/kg	TM77/PM0
ANC at pH7	-	0.11	-	-	0.11						<0.03	mol/kg	TM77/PM0
Loss on Ignition #	-	7.0	-	-	6.6						<1.0	%	TM22/PM0
pH #	-	8.13	-	7.15	7.85						<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	-	-	-	NAD							None	Subcontracted

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	24.6
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	80.3
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**23/7158**			
Sample No	**30**			
Client Sample No	**BH12**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**1.00**			
Sample Date	**02/05/2023**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	3.58	3	5	6
Loss on Ignition (%)	6.6	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	<0.64	100	-	-
pH (pH Units)	7.85	-	>6	-
ANC to pH 7 (mol/kg)	0.11	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.39	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0027	0.027	0.5	2	25
Barium	0.087	0.87	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.023	0.23	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.003	0.03	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	0.4	4	800	15000	25000
Fluoride	0.6	6	10	150	500
Sulphate as SO4	41.0	410	1000	20000	50000
Total Dissolved Solids	190	1900	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	6	60	500	800	1000

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All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	47.2
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	67.9
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**23/7158**			
Sample No	**6**			
Client Sample No	**BH01**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**1.00**			
Sample Date	**02/05/2023**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	5.83	3	5	6
Loss on Ignition (%)	7.0	-	-	10
Sum of BTEX (mg/kg)	0.050	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	<0.64	100	-	-
pH (pH Units)	8.13	-	>6	-
ANC to pH 7 (mol/kg)	0.11	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.42	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0065	0.065	0.5	2	25
Barium	0.101	1.01	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.041	0.41	0.5	10	30
Nickel	0.002	0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.005	0.05	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	2.6	26	800	15000	25000
Fluoride	0.6	6	10	150	500
Sulphate as SO4	220.3	2204	1000	20000	50000
Total Dissolved Solids	496	4963	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	7	70	500	800	1000

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Groundtech Consulting Limited

Reference: GRO-22079

Location: Tariff Street

Contact: James Doyle

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
23/7158	1	BH01	1.00	4-6	Cyanide, EPH, GRO, PAH, PCB, Tot SO4	Sample holding time exceeded
23/7158	1	BH01	3.20	10-12	EPH, PAH	Sample holding time exceeded
23/7158	1	BH12	0.50	25-27	Cyanide, EPH, PAH, Tot SO4	Sample holding time exceeded
23/7158	1	BH12	1.00	28-30	GRO, PAH, PCB	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/7158

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/7158

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

EMT Job No: 23/7158

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

EMT Job No: 23/7158

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes

EMT Job No: 23/7158

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma – Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	
Subcontracted	See attached subcontractor report for accreditation status and provider.					AR	

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Groundtech Consulting Limited
PO Box 499
Manchester
United Kingdom
M28 8EE

Attention :	Jamie Parr
Date :	5th June, 2023
Your reference :	GR022079
Our reference :	Test Report 23/7490 Batch 1
Location :	Tariff Street
Date samples received :	12th May, 2023
Status :	Final Report
Issue :	1

Twenty seven samples were received for analysis on 12th May, 2023 of which seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Groundtech Consulting Limited
Reference: GR022079
Location: Tariff Street
Contact: Jamie Parr
EMT Job No: 23/7490

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	4-6	10-12	25-27	40-42	46-48	64-66	70-72				LOD/LOR	Units	Method No.
Sample ID	BH08	BH08	BH09	BH10	BH10	BH11	BH11						
Depth	1.00	3.00	1.00	0.20	1.00	0.50	2.00						
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	10/05/2023	10/05/2023	09/05/2023	10/05/2023	10/05/2023	05/05/2023	05/05/2023						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	12/05/2023	12/05/2023	12/05/2023	12/05/2023	12/05/2023	12/05/2023	12/05/2023						
Arsenic #	-	10.1	8.5	-	28.1	-	13.4				<0.5	mg/kg	TM30/PM15
Cadmium #	-	<0.1	0.8	-	7.9	-	<0.1				<0.1	mg/kg	TM30/PM15
Chromium #	-	44.5	411.6 AA	-	48.0	-	44.4				<0.5	mg/kg	TM30/PM15
Copper #	-	57	66	-	119	-	62				<1	mg/kg	TM30/PM15
Lead #	-	27	204	-	384	-	160				<5	mg/kg	TM30/PM15
Mercury #	-	<0.1	<0.1	-	0.3	-	0.2				<0.1	mg/kg	TM30/PM15
Nickel #	-	35.2	28.0	-	38.7	-	33.2				<0.7	mg/kg	TM30/PM15
Selenium #	-	<1	2	-	<1	-	<1				<1	mg/kg	TM30/PM15
Zinc #	-	75	96	-	805	-	83				<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	<0.04	0.46 AB	3.68 AB	4.11 AB	-	0.07				<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	<0.03	<0.30 AB	1.79 AB	1.80 AB	-	<0.03				<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	<0.05	1.75 AB	1.31 AB	1.17 AB	-	<0.05				<0.05	mg/kg	TM4/PM8
Fluorene #	-	<0.04	1.45 AB	1.51 AB	1.45 AB	-	<0.04				<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	0.07	11.69 AB	16.38 AB	14.60 AB	-	0.14				<0.03	mg/kg	TM4/PM8
Anthracene #	-	<0.04	3.27 AB	4.98 AB	4.47 AB	-	<0.04				<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	0.05	15.57 AB	30.82 AB	31.02 AB	-	0.16				<0.03	mg/kg	TM4/PM8
Pyrene #	-	0.04	13.49 AB	29.02 AB	30.08 AB	-	0.19				<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	<0.06	5.90 AB	15.03 AB	14.92 AB	-	0.12				<0.06	mg/kg	TM4/PM8
Chrysene #	-	0.04	6.15 AB	17.90 AB	17.17 AB	-	0.15				<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	<0.07	9.47 AB	30.85 AB	29.63 AB	-	0.21				<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	<0.04	4.29 AB	14.64 AB	14.32 AB	-	0.11				<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	<0.04	4.57 AB	13.75 AB	12.89 AB	-	0.10				<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	<0.04	<0.40 AB	1.57 AB	1.57 AB	-	<0.04				<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	<0.04	4.26 AB	12.99 AB	12.96 AB	-	0.11				<0.04	mg/kg	TM4/PM8
Coronene	-	<0.04	-	2.42 AB	-	-	-				<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	<0.6	82.3 AB	-	192.2 AB	-	1.4				<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	<0.64	-	198.64 AB	-	-	-				<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	<0.05	6.82 AB	22.21 AB	21.33 AB	-	0.15				<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	<0.02	2.65 AB	8.64 AB	8.30 AB	-	0.06				<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	83	93 AB	95 AB	94 AB	-	102				<0	%	TM4/PM8
EPH (C8-C40) (EH_1D_Total) #	250	-	3032	-	3652	-	312				<30	mg/kg	TM5/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	<30	-	-	-	-	-				<30	mg/kg	TM5/PM8/PM16
MTBE #	-	<5 SV	-	-	-	-	-				<5	ug/kg	TM36/PM12
Benzene #	-	<5 SV	-	-	-	-	-				<5	ug/kg	TM36/PM12
Toluene #	-	<5 SV	-	-	-	-	-				<5	ug/kg	TM36/PM12
Ethylbenzene #	-	<5 SV	-	-	-	-	-				<5	ug/kg	TM36/PM12
m/p-Xylene #	-	<5 SV	-	-	-	-	-				<5	ug/kg	TM36/PM12
o-Xylene #	-	<5 SV	-	-	-	-	-				<5	ug/kg	TM36/PM12
PCB 28 #	-	<5	-	-	-	-	-				<5	ug/kg	TM17/PM8

Client Name: Groundtech Consulting Limited
Reference: GR022079
Location: Tariff Street
Contact: Jamie Parr
EMT Job No: 23/7490

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	4-6	10-12	25-27	40-42	46-48	64-66	70-72				LOD/LOR	Units	Method No.
Sample ID	BH08	BH08	BH09	BH10	BH10	BH11	BH11						
Depth	1.00	3.00	1.00	0.20	1.00	0.50	2.00						
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	10/05/2023	10/05/2023	09/05/2023	10/05/2023	10/05/2023	05/05/2023	05/05/2023						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	12/05/2023	12/05/2023	12/05/2023	12/05/2023	12/05/2023	12/05/2023	12/05/2023						
PCB 52 #	-	<5	-	-	-	-	-				<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	-	-	-	-	-				<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	-	-	-	-	-				<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	-	-	-	-	-				<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	-	-	-	-	-				<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	-	-	-	-	-				<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	-	-	-	-	-				<35	ug/kg	TM17/PM8
Total Phenols HPLC	-	<0.15	<0.15	-	<0.15	-	<0.15				<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	20.4	24.4	6.2	22.0	16.3	-	24.2				<0.1	%	PM4/PM0
Hexavalent Chromium #	-	<0.3	<0.3	-	<0.3	-	<0.3				<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	0.1376	0.0434	-	0.1119	-	0.1090				<0.0015	g/l	TM38/PM20
Total Cyanide #	-	<0.5	<0.5	-	<0.5	-	<0.5				<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	1.49	-	-	-	-	-				<0.02	%	TM21/PM24
Organic Matter	-	2.6	6.0	-	15.4	-	6.2				<0.2	%	TM21/PM24
ANC at pH4	-	0.11	-	-	-	-	-				<0.03	mol/kg	TM77/PM0
ANC at pH7	-	0.14	-	-	-	-	-				<0.03	mol/kg	TM77/PM0
Loss on Ignition #	-	2.5	-	-	-	-	-				<1.0	%	TM22/PM0
pH #	-	8.48	8.86	-	7.99	-	8.18				<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	-	NAD	-	Chrysotile	NAD	-					None	Subcontracted

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	29.6
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	77.2
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**23/7490**			
Sample No	**12**			
Client Sample No	**BH08**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**3.00**			
Sample Date	**10/05/2023**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	1.49	3	5	6
Loss on Ignition (%)	2.5	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	<0.64	100	-	-
pH (pH Units)	8.48	-	>6	-
ANC to pH 7 (mol/kg)	0.14	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.11	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0038	0.038	0.5	2	25
Barium	0.044	0.44	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	0.010	0.10	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.018	0.18	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.004	0.04	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	1.6	16	800	15000	25000
Fluoride	0.8	8	10	150	500
Sulphate as SO4	28.3	283	1000	20000	50000
Total Dissolved Solids	132	1319	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	3	30	500	800	1000

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Groundtech Consulting Limited

Reference: GR022079

Location: Tariff Street

Contact: Jamie Parr

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
23/7490	1	BH08	1.00	4-6	EPH	Sample holding time exceeded
23/7490	1	BH08	3.00	10-12	Cyanide, GRO, PAH, PCB	Sample holding time exceeded
23/7490	1	BH09	1.00	25-27	Cyanide, EPH, PAH	Sample holding time exceeded
23/7490	1	BH10	0.20	40-42	PAH	Sample holding time exceeded
23/7490	1	BH10	1.00	46-48	Cyanide, EPH, PAH	Sample holding time exceeded
23/7490	1	BH11	2.00	70-72	Cyanide, EPH, PAH	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/7490

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	x10 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/7490

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes

EMT Job No: 23/7490

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No

EMT Job No: 23/7490

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma – Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	
Subcontracted	See attached subcontractor report for accreditation status and provider.					AR	

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Manchester
United Kingdom
M28 8EE

Attention :	Jamie Parr
Date :	5th June, 2023
Your reference :	GRO-22079
Our reference :	Test Report 23/7732 Batch 1
Location :	Tariff Street
Date samples received :	17th May, 2023
Status :	Final Report
Issue :	1

Twenty one samples were received for analysis on 17th May, 2023 of which four were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Phil Sommerton BSc
Senior Project Manager

Element Materials Technology Environmental UK Limited
Registered in England and Wales
Registered Office: 3rd Floor Davidson Building, 5 Southampton Street, London WC2E 7HA
Company Registration No: 11371415

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tariff Street
Contact: Jamie Parr
EMT Job No: 23/7732

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	7-9	22-24	36-38	54-56							LOD/LOR	Units	Method No.
Sample ID	BH04	BH05	BH07	BH10									
Depth	1.00	2.00	1.50	6.00									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	15/05/2023	15/05/2023	15/05/2023	11/05/2023									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	17/05/2023	17/05/2023	17/05/2023	17/05/2023									
Arsenic #	11.8	142.2	34.6	-							<0.5	mg/kg	TM30/PM15
Cadmium #	0.7	3.3	1.1	-							<0.1	mg/kg	TM30/PM15
Chromium #	36.4	56.2	51.1	-							<0.5	mg/kg	TM30/PM15
Copper #	29	647 AA	186	-							<1	mg/kg	TM30/PM15
Lead #	171	779	370	-							<5	mg/kg	TM30/PM15
Mercury #	<0.1	2.8	1.2	-							<0.1	mg/kg	TM30/PM15
Nickel #	25.6	72.1	39.8	-							<0.7	mg/kg	TM30/PM15
Selenium #	<1	4	<1	-							<1	mg/kg	TM30/PM15
Zinc #	86	1965	807	-							<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	2.36	1.33	<0.04							<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	0.85	0.63	<0.03							<0.03	mg/kg	TM4/PM8
Acenaphthene #	0.07	5.54	3.43	<0.05							<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	5.06	2.51	<0.04							<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.57	12.09	18.13	0.07							<0.03	mg/kg	TM4/PM8
Anthracene #	0.18	5.81	5.43	<0.04							<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.84	63.33	30.35	0.08							<0.03	mg/kg	TM4/PM8
Pyrene #	0.72	49.70	24.90	0.07							<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.35	16.48	10.60	<0.06							<0.06	mg/kg	TM4/PM8
Chrysene #	0.40	17.14	11.29	<0.02							<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.58	20.70	15.51	<0.07							<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.35	8.96	6.60	<0.04							<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.24	7.47	5.76	<0.04							<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	0.90	0.72	<0.04							<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.23	7.30	5.69	<0.04							<0.04	mg/kg	TM4/PM8
Coronene	-	-	-	<0.04							<0.04	mg/kg	TM4/PM8
PAH 16 Total	4.5	223.7	142.9	-							<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	-	-	<0.64							<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.42	14.90	11.17	<0.05							<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.16	5.80	4.34	<0.02							<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	92	100	77							<0	%	TM4/PM8
EPH (C8-C40) (EH_1D_Total) #	216	3802	1583	-							<30	mg/kg	TM5/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tariff Street
Contact: Jamie Parr
EMT Job No: 23/7732

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	7-9	22-24	36-38	54-56							LOD/LOR	Units	Method No.
Sample ID	BH04	BH05	BH07	BH10									
Depth	1.00	2.00	1.50	6.00									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	15/05/2023	15/05/2023	15/05/2023	11/05/2023									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	17/05/2023	17/05/2023	17/05/2023	17/05/2023									
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	-	<0.1 SV	-	-							<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL)#	-	<0.1 SV	-	-							<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	<0.1 SV	-	-							<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	-	<0.2	-	-							<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	-	15	-	-							<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	-	173	-	-							<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	-	2095	-	-							<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	-	2283	-	-							<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	-	<0.1 SV	-	-							<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	-	<0.1 SV	-	-							<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	-	<0.1 SV	-	-							<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	-	3.5	-	-							<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	-	70	-	-							<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	-	899	-	-							<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	-	2077	-	-							<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR)#	-	3050	-	-							<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35) (EH+HS_CU_1D_Total)	-	5333	-	-							<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE#	-	<5 SV	-	-							<5	ug/kg	TM36/PM12
Benzene#	-	<5 SV	-	-							<5	ug/kg	TM36/PM12
Toluene#	-	<5 SV	-	-							<5	ug/kg	TM36/PM12
Ethylbenzene#	-	<5 SV	-	-							<5	ug/kg	TM36/PM12
m/p-Xylene#	-	10 SV	-	-							<5	ug/kg	TM36/PM12
o-Xylene#	-	<5 SV	-	-							<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	-							<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	21.4	67.5	40.2	18.8							<0.1	%	PM4/PM0
Hexavalent Chromium#	<0.3	<0.3	<0.3	-							<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext)#	0.2607	0.2002	0.2620	-							<0.0015	g/l	TM38/PM20
Total Cyanide#	<0.5	56.1	44.0	-							<0.5	mg/kg	TM89/PM45
Organic Matter	3.8	16.2	13.6	-							<0.2	%	TM21/PM24
pH#	8.45	8.44	8.17	-							<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	-	NAD	-								None	Subcontracted

Please see attached notes for all abbreviations and acronyms

Client Name: Groundtech Consulting Limited

Reference: GRO-22079

Location: Tariff Street

Contact: Jamie Parr

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
23/7732	1	BH04	1.00	7-9	PAH	Sample holding time exceeded
23/7732	1	BH05	2.00	22-24	PAH	Sample holding time exceeded
23/7732	1	BH07	1.50	36-38	PAH	Sample holding time exceeded
23/7732	1	BH10	6.00	54-56	PAH	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/7732

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/7732

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes

Please include all sections of this report if it is reproduced

EMT Job No: 23/7732

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
Subcontracted	See attached subcontractor report for accreditation status and provider.					AR	

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Groundtech Consulting Limited
PO Box 499
Manchester
United Kingdom
M28 8EE

Attention :	Jamie Parr
Date :	28th June, 2023
Your reference :	GRO-22079
Our reference :	Test Report 23/8362 Batch 1
Location :	Tarriff Street
Date samples received :	25th May, 2023
Status :	Final Report
Issue :	2

Sixteen samples were received for analysis on 25th May, 2023 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tarriff Street
Contact: Jamie Parr
EMT Job No: 23/8362

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-3	10-12	34-35	36-38	42-44						LOD/LOR	Units	Method No.
Sample ID	BH02	BH02	BH03	BH03	BH06								
Depth	0.20	2.30	1.00	3.00	2.00								
COC No / misc													
Containers	V J T	V J T	J T	V J T	V J T								
Sample Date	18/05/2023	18/05/2023	19/05/2023	19/05/2023	16/05/2023								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	25/05/2023	25/05/2023	25/05/2023	25/05/2023	25/05/2023								
Arsenic #	-	23.6	-	15.7	91.9						<0.5	mg/kg	TM30/PM15
Cadmium #	-	<0.1	-	<0.1	4.2						<0.1	mg/kg	TM30/PM15
Chromium #	-	33.0	-	48.2	58.0						<0.5	mg/kg	TM30/PM15
Copper #	-	87	-	51	463 AA						<1	mg/kg	TM30/PM15
Lead #	-	128	-	125	908						<5	mg/kg	TM30/PM15
Mercury #	-	0.7	-	0.3	3.0						<0.1	mg/kg	TM30/PM15
Nickel #	-	30.3	-	25.2	75.9						<0.7	mg/kg	TM30/PM15
Selenium #	-	1	-	<1	2						<1	mg/kg	TM30/PM15
Zinc #	-	91	-	121	2471						<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	0.08	-	1.89 AB	0.74						<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	<0.03	-	0.87 AB	0.34						<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	<0.05	-	2.07 AB	1.54						<0.05	mg/kg	TM4/PM8
Fluorene #	-	<0.04	-	2.08 AB	1.40						<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	0.19	-	14.39 AB	4.42						<0.03	mg/kg	TM4/PM8
Anthracene #	-	0.05	-	4.93 AB	1.84						<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	0.22	-	31.51 AB	18.55						<0.03	mg/kg	TM4/PM8
Pyrene #	-	0.19	-	27.38 AB	14.92						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	0.14	-	12.96 AB	4.64						<0.06	mg/kg	TM4/PM8
Chrysene #	-	0.16	-	14.22 AB	5.11						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	0.22	-	28.06 AB	6.06						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	0.10	-	12.74 AB	3.73						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	0.08	-	13.90 AB	2.04						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	<0.04	-	1.50 AB	0.46						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	0.10	-	12.33 AB	2.33						<0.04	mg/kg	TM4/PM8
Coronene	-	-	-	-	0.42						<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	1.5	-	180.8 AB	68.1						<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	-	-	-	68.54						<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	0.16	-	20.20 AB	4.36						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	0.06	-	7.86 AB	1.70						<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	96	-	93 AB	94						<0	%	TM4/PM8
EPH (C8-C40) (EH_1D_Total) #	-	472	-	519	7015						<30	mg/kg	TM5/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	-	-	-	1910						<30	mg/kg	TM5/PM8/PM16
MTBE #	-	-	-	-	<5 SV						<5	ug/kg	TM36/PM12
Benzene #	-	-	-	-	<5 SV						<5	ug/kg	TM36/PM12
Toluene #	-	-	-	-	<5 SV						<5	ug/kg	TM36/PM12
Ethylbenzene #	-	-	-	-	<5 SV						<5	ug/kg	TM36/PM12
m/p-Xylene #	-	-	-	-	8 SV						<5	ug/kg	TM36/PM12
o-Xylene #	-	-	-	-	<5 SV						<5	ug/kg	TM36/PM12
PCB 28 #	-	-	-	-	<5						<5	ug/kg	TM17/PM8

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tarriff Street
Contact: Jamie Parr
EMT Job No: 23/8362

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	10-12	34-35	36-38	42-44						LOD/LOR	Units	Method No.
Sample ID	BH02	BH02	BH03	BH03	BH06								
Depth	0.20	2.30	1.00	3.00	2.00								
COC No / misc													
Containers	V J T	V J T	J T	V J T	V J T								
Sample Date	18/05/2023	18/05/2023	19/05/2023	19/05/2023	16/05/2023								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	25/05/2023	25/05/2023	25/05/2023	25/05/2023	25/05/2023								
PCB 52 #	-	-	-	-	<5						<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	<5						<5	ug/kg	TM17/PM8
PCB 118 #	-	-	-	-	<5						<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	<5						<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	<5						<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	<5						<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	<35						<35	ug/kg	TM17/PM8
Total Phenols HPLC	-	<0.15	-	<0.15	<0.15						<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	-	29.2	-	20.9	68.8						<0.1	%	PM4/PM0
Hexavalent Chromium #	-	<0.3	-	<0.3	<0.3						<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	0.2421	-	0.7182	0.4542						<0.0015	g/l	TM38/PM20
Total Cyanide #	-	<0.5	-	1.1	54.0						<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	-	-	-	10.35						<0.02	%	TM21/PM24
Organic Matter	-	10.8	-	8.7	17.8						<0.2	%	TM21/PM24
ANC at pH4	-	-	-	-	1.17						<0.03	mol/kg	TM77/PM0
ANC at pH7	-	-	-	-	<0.03						<0.03	mol/kg	TM77/PM0
Loss on Ignition #	-	-	-	-	12.1						<1.0	%	TM22/PM0
pH #	-	8.05	-	7.85	7.76						<0.01	pH units	TM73/PM11
Asbestos Type*	NAD	-	NAD	-	-							None	Subcontracted

Please see attached notes for all abbreviations and acronyms

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All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	63.1
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	61.3
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**23/8362**			
Sample No	**44**			
Client Sample No	**BH06**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**2.00**			
Sample Date	**16/05/2023**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	10.35	3	5	6
Loss on Ignition (%)	12.1	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	1910	500	-	-
PAH Sum of 17(mg/kg)	68.54	100	-	-
pH (pH Units)	7.76	-	>6	-
ANC to pH 7 (mol/kg)	<0.03	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	1.17	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0232	0.232	0.5	2	25
Barium	0.155	1.55	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.028	0.28	0.5	10	30
Nickel	0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.002	<0.02	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	7.2	72	800	15000	25000
Fluoride	<0.3	<3	10	150	500
Sulphate as SO4	20.7	207	1000	20000	50000
Total Dissolved Solids	182	1820	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	9	90	500	800	1000

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Groundtech Consulting Limited
Reference: GRO-22079
Location: Tarriff Street
Contact: Jamie Parr

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/8362	1	BH02	0.50	6	Simon Postlewhite	26/06/2023	**General Description (Bulk Analysis)**	Brown soil/stones
					Simon Postlewhite	26/06/2023	**Asbestos Fibres**	NAD
					Simon Postlewhite	26/06/2023	**Asbestos ACM**	NAD
					Simon Postlewhite	26/06/2023	**Asbestos Type**	NAD

Client Name: Groundtech Consulting Limited

Reference: GRO-22079

Location: Tarriff Street

Contact: Jamie Parr

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
23/8362	1	BH06	2.00	42-44	Cr VI, Cyanide, EPH, GRO, LOI, Metals, PAH, PCB, pH, Sulphate, TOC	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/8362

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	x10 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/8362

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes

EMT Job No: 23/8362

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	

EMT Job No: 23/8362

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma – Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	
Subcontracted	See attached subcontractor report for accreditation status and provider.					AR	

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Groundtech Consulting Limited
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Manchester
United Kingdom
M28 8EE

Attention :	Jamie Perkins
Date :	26th July, 2023
Your reference :	GR0-22079
Our reference :	Test Report 23/11126 Batch 1
Location :	Tariff Street
Date samples received :	7th July, 2023
Status :	Final Report
Issue :	1

Five samples were received for analysis on 7th July, 2023 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Groundtech Consulting Limited
Reference: GR0-22079
Location: Tariff Street
Contact: Jamie Perkins
EMT Job No: 23/11126

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12	13-15							
Sample ID	BH01	BH04	BH05	BH07	BH08							
Depth												
COC No / misc												
Containers	V P G	V P G	V P G	V P G	V P G							
Sample Date	05/07/2023	05/07/2023	05/07/2023	05/07/2023	05/07/2023							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1							
Date of Receipt	07/07/2023	07/07/2023	07/07/2023	07/07/2023	07/07/2023							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Arsenic #	12.7	4.7	4.2	5.6	7.3						<2.5	ug/l	TM30/PM14
Dissolved Boron	179	128	377	374	193						<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5	<1.5						<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7	<7						<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	<5						<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	<1						<1	ug/l	TM30/PM14
Dissolved Nickel #	3	<2	<2	<2	<2						<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	<3						<3	ug/l	TM30/PM14
Dissolved Zinc #	5	7	8	39	14						<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	0.2	<0.1	0.6	<0.1	0.2						<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	0.006	<0.005	<0.005	<0.005						<0.005	ug/l	TM4/PM30
Acenaphthene #	0.024	0.008	0.232	1.158	0.013						<0.005	ug/l	TM4/PM30
Fluorene #	0.014	<0.005	0.058	0.396	0.008						<0.005	ug/l	TM4/PM30
Phenanthrene #	0.027	0.032	0.110	1.265	0.026						<0.005	ug/l	TM4/PM30
Anthracene #	0.029	0.007	0.027	0.241	<0.005						<0.005	ug/l	TM4/PM30
Fluoranthene #	0.016	0.134	0.264	1.259	0.014						<0.005	ug/l	TM4/PM30
Pyrene #	0.018	0.137	0.222	1.013	0.016						<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.006	0.062	0.074	0.351	0.007						<0.005	ug/l	TM4/PM30
Chrysene #	0.005	0.077	0.084	0.405	0.005						<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	0.192	0.111	0.528	0.008						<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	0.093	0.056	0.304	<0.005						<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	0.066	0.029	0.167	<0.005						<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	0.012	0.008	0.031	<0.005						<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	0.073	0.031	0.168	<0.005						<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.339	0.899	1.906	7.286	0.297						<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	0.138	0.080	0.380	<0.008						<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	0.054	0.031	0.148	<0.008						<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	83	80	86	77	85						<0	%	TM4/PM30
MTBE #	<5	-	<5	-	<5						<5	ug/l	TM36/PM12
Benzene #	<5	-	<5	-	<5						<5	ug/l	TM36/PM12
Toluene #	<5	-	<5	-	<5						<5	ug/l	TM36/PM12
Ethylbenzene #	<5	-	<5	-	<5						<5	ug/l	TM36/PM12
m/p-Xylene #	<5	-	<5	-	<5						<5	ug/l	TM36/PM12
o-Xylene #	<5	-	13	-	<5						<5	ug/l	TM36/PM12

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: GR0-22079
Location: Tariff Street
Contact: Jamie Perkins
EMT Job No: 23/11126

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-3	4-6	7-9	10-12	13-15							
Sample ID	BH01	BH04	BH05	BH07	BH08							
Depth												
COC No / misc												
Containers	V P G	V P G	V P G	V P G	V P G							
Sample Date	05/07/2023	05/07/2023	05/07/2023	05/07/2023	05/07/2023							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1							
Date of Receipt	07/07/2023	07/07/2023	07/07/2023	07/07/2023	07/07/2023							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	-	<10	-	<10						<10	ug/l	TM36/PM12
>C6-C8 #	<10	-	<10	-	<10						<10	ug/l	TM36/PM12
>C8-C10 #	12	-	<10	-	<10						<10	ug/l	TM36/PM12
>C10-C12 #	<5	-	<5	-	<5						<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	-	<10	-	<10						<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	-	<10	-	<10						<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	-	<10	-	<10						<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	12	-	<10	-	<10						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<10	-	<10	-	<10						<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	-	<10	-	<10						<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	-	17	-	<10						<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	-	<5	-	<5						<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	-	<10	-	<10						<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	-	<10	-	<10						<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	-	<10	-	<10						<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	-	17	-	<10						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	12	-	17	-	<10						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total Phenols HPLC	<0.15	-	<0.15	-	<0.15						<0.15	mg/l	TM26/PM0
Sulphate as SO4 #	296.3	243.9	666.8	507.6	110.3						<0.5	mg/l	TM38/PM0
Total Cyanide #	<0.01	-	0.02	-	<0.01						<0.01	mg/l	TM89/PM0
Hexavalent Chromium	<6	<6	<6	<6	<6						<6	ug/l	TM38/PM0
Sulphide	<0.01	-	<0.01	-	<0.01						<0.01	mg/l	TM107/PM0
pH #	8.26	8.05	7.87	7.51	7.77						<0.01	pH units	TM73/PM0
Total Organic Carbon #	11	6	16	4	<2						<2	mg/l	TM60/PM0

Client Name: Groundtech Consulting Limited

Reference: GR0-22079

Location: Tariff Street

Contact: Jamie Perkins

Matrix : Liquid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
23/11126	1	BH01		1-3	No Interpretation Possible
23/11126	1	BH05		7-9	No Interpretation Possible
23/11126	1	BH08		13-15	No Interpretation Possible

Client Name: Groundtech Consulting Limited
Reference: GR0-22079
Location: Tariff Street
Contact: Jamie Perkins

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/11126						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/11126

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/11126

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.				

EMT Job No: 23/11126

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				









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