Appendix 2.1

EIA Scoping Report

Deloitte.

Real Estate

The Factory
Environmental Impact Assessment (EIA) Scoping Report

July 2016

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1 Introduction

1.1 This Environmental Impact Assessment (EIA) Scoping Report has been prepared on behalf of Manchester City Council (hereafter referred to as the "Applicant") in respect of the proposed development of the Factory, a performance space and cultural venue, with associated retail, leisure, office, back of house, public realm and access arrangements that will be the home of Manchester International Festival and located within the St. John's Masterplan area to the south of Manchester City Centre. .

1.2 The proposals relate to an area located within the south western part of the St. John's Masterplan area, on a site broadly bounded by the River Irwell, Grape Street, the Bonded Warehouse, Stage 2 and the Grade II Listed Colonnaded Railway Viaduct

1.3 The site is approximately 1.45 ha and is currently occupied by surface car parking, the Starlight theatre (at upper level), Water Street, Princes Bridge and the Grade II Listed Colonnaded Railway Viaduct over River Irwell leading to Lower Byrom Street Warehouse (in part).

1.4 In summary, the proposal involves the demolition of the Starlight theatre, together with works to the Grade II Listed Colonnaded Railway Viaduct, to facilitate the development of up to 14,417 sq. m. of leisure-led development comprising two flexible auditorium spaces to be used for theatre, music, dance, art and other performance-related events and potentially conferences (Sui Generis) and associated facilities, including retail and restaurant use (Use Class A1 and A3), office, administrative and back of house function (Use Class B1), training and educational facilities (Use Class D1), servicing and access arrangements, circulation and external landscaped areas.

1.5 This Scoping Report is submitted in order to assist the Local Planning Authority (LPA) with the adoption of a Scoping Opinion under Regulation 13 of the Town and Country Planning (EIA) (England) Regulations 2011 (as amended[1]) (the "EIA Regulations").

1.6 The term "Proposed Development" used within this report refers to all stages of demolition, construction and the operation of the development.

1.7 As required by Regulation 13, paragraph 2, the remainder of this report provides a brief description of the nature and purpose of the development and of its possible effects on the environment.

1.8 A plan sufficient to identify the land is enclosed at Appendix 1.

EIA Requirements

1.9 The EIA process is the mechanism by which development proposals are appraised in relation to environmental criteria as well as socio-economic, engineering and technical considerations. The EIA process defines the context of the proposed development and examines the issues considered pertinent.

1.10 The purpose of the EIA is to establish both the nature of the development and the environment within which it is likely to take place in order to identify likely significant effects on the environment that may arise. This is also undertaken by comparing the existing situation at the start of the work (baseline) with the situation once the proposals are in place.

1.11 The Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2011 (as amended) require that any proposed development falling within the description of a 'Schedule 2 development' within the meaning of the Regulations, will be subject to an EIA where such development is likely to have 'significant' effects on the environment by virtue of such factors as its nature, size or location (Regulation 2(b)).

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[1] The Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2015

1.12 The proposed development falls under the category of "Infrastructure Projects – Urban Development Projects" (Schedule 2, 10, (b)) as described in the Regulations. The applicable threshold above which EIA is more likely to be required is 0.5 hectare (ha).The indicative thresholds and criteria state that:

> "In addition to the physical scale of such developments, consideration should be given to the potential increase in traffic, emissions and noise. EIA is unlikely to be required for the redevelopment of land unless the new development is on a significantly greater scale than the previous use, or the types of impact are of a markedly different nature or there is a high level of contamination".

1.13 The EIA Regulations (as amended[2]) state that the Proposed Development may be considered to be Schedule 2 development under Category 10 'Infrastructure Projects,' of the EIA Regulations.

1.14 The proposed development involves a change within an existing urban area, therefore Schedule 2, sub-section 13 (b) also applies. This refers back to thresholds listed in sub-section 10 (b).

1.15 Sub-section 10 (b) relates to 'Urban development projects', and states that development should be screened for the need for EIA if: (i) the development includes more than 1 hectare of urban development which is not dwellinghouse development; (ii) the development includes more than 150 dwellinghouses; or, (iii) the overall area of development exceeds 5 hectares.

1.16 The proposals do not include dwellinghouses and therefore the threshold set out in Part (ii) of the above does not apply. However, the Proposed Development covers an area of approximately 1.45 ha and therefore exceeds the 1.0 hectare threshold set out in Part (i) Schedule 2 10 (b) of the EIA Regulations. It has therefore been identified that an EIA should be carried out in relation to certain topic areas where there is likely to be a significant effect on the environment given the proposed scale of the Proposed Development and quantum of floorspace that is proposed in addition to the proximity to sensitive receptors, in particular the group of Grade I and II Listed Buildings and Structures within the MSI complex.

Purpose of the Scoping Report

1.17 The process of identifying likely significant effects on the environment which should be addressed by the EIA is termed 'scoping' and the results are presented as a Scoping Report.

1.18 Regulation 13 of the EIA Regulations sets out the requirements for obtaining a scoping opinion from the relevant planning authority.

1.19 This Scoping Report sets out the framework within which the Environmental Statement (ES) will be produced and the topic areas and information that will be contained within the document. It is submitted to Manchester City Council (MCC) along with a request for its Scoping Opinion in addition to statutory consultees and other organisations who are invited to express their views on the proposed scope of the EIA, or suggest additional issues which may be considered to be of significance.

1.20 The Local Planning Authority is required to respond to a formal request for a Scoping Opinion within five weeks of registering receipt.

The EIA Team

1.21 The EIA team, as set out in the Table 1.1, will be co-ordinated and led by Deloitte Real Estate on behalf of the Applicant.

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[2] The Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2015

1.22 Sustainability issues are an integral part of the design process and will also be considered throughout the EIA. Further standalone reports explaining the approach to sustainability policy objectives will accompany the application for Planning Permission.

Table 1.1: EIA Technical Team

Topic	Assessment Carried Out By
Air Quality	Hilson Moran
Ground Conditions and Contamination	Buro Happold
Noise and Vibration	Arup
Flood Risk and Drainage	RoC
Historic Environment	Heritage Architecture
Townscape and Visual Impact	Chris Burnett Associates
Transport	Vectos
Wind	Urban Microclimate

1.23 The remainder of this report is structured as follows:

- Section 2 provides a description of the site and the proposed development.
- Section 3 identifies the relevant planning policy context.
- Section 4 identifies the proposed scope and structure of the Environmental Statement (ES). It also details those to be consulted and explains the areas that are proposed to be scoped out of the EIA.
- Section 5 provides details of the proposed EIA methodology to be used in assessing the scheme.
- Section 6 sets out the key environmental issues that will be addressed by the EIA.

2 Site Description and Proposed Development

Site Context

2.1 The Factory forms part of the St. John's Masterplan area in Manchester City Centre. St. John's comprises the former ITV Quay Street estate in Manchester City Centre. The site was acquired in March 2014 by Manchester Quays Limited (MQL), a joint venture between Allied London and Manchester City Council, and is the subject of long term regeneration proposals that involve both conversion of existing buildings and redevelopment of other plots to create a new neighbourhood of the City.

2.2 The redevelopment of the site is supported by the St. John's Masterplan and Strategic Regeneration Framework (SRF), which were formally adopted by Manchester City Council's Executive Committee in February 2015

Site Description

2.3 The proposals relate to an area located within the south western part of the St. John's Masterplan, on a site broadly bounded by the River Irwell and surface car parking (currently in use for construction of the Ordsall Chord) to the west, Grape Street and the Bonded Warehouse to the east, the MSI complex, including the 1830 Warehouse (Grade I Listed) to the south and Water Street and surface car parking to the north.

2.4 The site is approximately 1.45 ha and is currently occupied by surface car parking, the Starlight theatre (formerly in use by ITV for filming and events), Water Street and the Grade II Listed Colonnaded Railway Viaduct (in part), which was also in use by ITV for filming and storage. A site location plan is contained within Appendix 1 of this report.

2.5 The area around the Site is defined by a mix of leisure, commercial and residential uses including Spinningfields to the north, the Great Northern Warehouse and Deansgate to the east and MSI to the south. It is also situated 750m from the Deansgate / Castlefield Metrolink stop and a range of bus and Metroshuttle services.

2.6 Nearby and on site listed buildings include the Colonnaded Railway Viaduct (Grade II Listed) and the 1830 Warehouse (Grade I Listed) as mentioned, as well as the former Liverpool Road Station Master's House (Grade I Listed) and the Railway Bridge over the River Irwell (Grade I Listed) to the south, the Museum of Science and Industry Warehouse to the east (Grade II Listed). A full list of nearby heritage assets is outlined within later sections of this report. In addition to nearby listed buildings, the site is located with the Castlefield Conservation area and approximately 500m to the west of the St John Street Conservation Area.

Highways and connectivity

2.7 The locational characteristics of the Site support the opportunity for the future Development to be well connected into its surrounds. These characteristics and opportunities are summarised below.

- The Site is within walking distance of a number of key services and facilities as a virtue of being within Manchester City Centre. A 1km walk from the Site covers much of the City Centre, which includes many food outlets, bars, restaurants, leisure and retail facilities.

- The Site is located in a Strategic Regeneration Framework Area known as St Johns, which has been developed over an extended period of time by Manchester Quays Limited (a joint venture between Manchester City Council and Allied London Properties) to guide the creation of a new residential-led, mixed-use neighbourhood, to be known as 'St. Johns', over the next 10 years.

2.8 It is also considered that the location is highly accessible by public transport. There are a wide range of options available within close proximity to the Site, making it one of the most accessible locations in Manchester City Centre. Sustainable transport options include the Deansgate Metrolink stop, situated 750m from the proposed development to the east, which also provides local and regional bus services nearby and Deansgate Rail Station, which provides local, regional and national train services. Similarly, Salford Central Station is located approximately 850m to the north of the site, providing further connections to the public transport network.

2.9 Further details of the extensive amount of investment currently underway and committed across Manchester City Centre are outlined below within the "Regeneration Context" section.

Regeneration Context

St. John's

2.10 In February 2015 Manchester City Council's Executive Committee endorsed The St. John's Strategic Regeneration Framework, noting that the site offers a remarkable and immediate opportunity to lead the next phases of regeneration of Manchester City Centre and deliver "best in class" residential-led mixed use development. At approximately 13 acres, and vested in a single ownership, it presents a critical mass of land, readily available to deliver comprehensive redevelopment.

2.11 The Masterplan proposals will ultimately guide the delivery of a new residential-led mixed-use, sustainable City Centre neighbourhood which is accessible, has a distinctive sense of place and offers life and vitality at all times through the year, day and night. They address the following key areas:

- To deliver a best-in-class City Centre neighbourhood; a place to live, work and play; a place for enterprise and innovation; for culture, entertainment and leisure; a unique proposition for Manchester that will raise its international profile and set it apart from its peer cities.
- Development that is fully integrated both functionally and physically with the City Centre and adjoining city centre neighbourhoods.
- To re-establish Manchester's tight-knit urban grain and create a meandering network of public spaces and complementary range of uses.
- A form of development that retains and reutilises the site's key heritage assets and integrates those features into the new urban form.
- A series of existing and new public landscaped spaces will be created that support a new network of routes and linkages which connect the different parts of the site to its neighbours and the River Irwell, as well as anchoring the major buildings.
- A scale of building form that in height and plan extends the scale of the St. Johns Street district across the site. To the west of the site, adjacent to the River Irwell, there is the potential to introduce taller, elegant residential buildings.
- Potential for the site to accommodate 2-3 arts and cultural buildings.

2.12 During December 2014, a statement by Chancellor George Osbourne confirmed Government funding for a £78 million theatre and arts venue in Manchester, with the St. John's Masterplan identified as the preferred location for the development. Following an international design competition, Dutch architectural practice

OMA was commissioned in November 2015 to design the new cultural and arts venue, to be known as the Factory.

Water Street

2.13 In October 2011, Manchester City Council's Executive Committee approved a Strategic Regeneration Framework (SRF) for an area of Castlefield adjoining Water Street. The area covered by the SRF included land to the east of Water Street known as Castlefield Industrial Estate and beyond that an area known as Potato Wharf adjacent to the Cheshire Lines Viaduct. This part of the SRF area is bordered by the Cheshire Lines Viaduct and has since been partially developed for residential uses. The remainder of this area was in use as a concrete batching plant.

2.14 The SRF suggests how the area could have been transformed into a mixed-use hub to maximise regeneration benefits for Castlefield and enhance the amenity and accessibility to adjoining communities, whilst complementing the City Council's wider regeneration objectives.

2.15 Five years since the adoption of the previous Water Street SRF, it has been considered that there is a need to review and update the strategy for the area based on the City's updated strategic policy context and regeneration priorities for the area, an updated planning and development context in terms of committed development and adopted frameworks on adjoining sites, as well as a significantly different market and economic context which demands an updated delivery strategy for the comprehensive regeneration of the site.

2.16 As a consequence, the update currently underway is focused on a revised and complementary strategy for the Castlefield Industrial Estate area of the site, to facilitate the delivery of a high quality residential neighbourhood and associated complementary uses including car parking.

2.17 Importantly, the SRF Study area also has the ability to support the emerging proposals for the Factory through the provision of car parking that would be able to provide visitor spaces for the venue. The ambition for the delivery of this car park will be reflected in the principles contained in the updated Water Street SRF document.

Middlewood Locks

2.18 Middlewood Locks is a new 24 acre mixed use opportunity in an attractive waterside setting centred around 3 canal basins situated to the north of the Site on the opposite side of the River Irwell. Drawing upon the canal-side location and an extensive public realm will complement the development to provide a unique sense of place and attractive environment in which to live, do business and relax.

2.19 The scheme has been master planned with outline consent approval to provide over 2,000 new homes and 500,000 sq. ft. of 'Grade A' office space which will be complemented by hotel, retail and leisure opportunities (LPA Reference: 14/65793/OUT). The first phase of residential development has been approved by Salford City Council through a Reserved Matters application and ground works and site set up commenced in June 2016 (LPA Reference: 15/67135/REM).

Salford Central

2.20 Salford Central is a 50.4 hectare area focused around Chapel Street and Salford Central Station, also located to the north of the Study Area. The adopted Development Framework for the area seeks to guide comprehensive regeneration with the aim of diversifying its economic base and encouraging new activity through the creation of new high quality commercial and residential properties, leisure uses, dramatic public spaces and new connections to the heart of the City Centre.

2.21 Salford City Council granted Planning Permission for the mixed use redevelopment of 18 hectares in 2010, including up to 197,010 sq. m. of office space, 24,255 sq. m. of commercial spaces and up to 849 new dwellings.

2.22 Delivery is intended to be phased over a 10 to 15 year timeframe. The scheme seeks to build on the success of Spinningfields and to extend the Regional Centre into an under-used part of Salford. Developments completed to date include the New Bailey office building, a multi-storey car park, new hotels and a number of successful residential schemes along Chapel Street.

Transport Investment

2.23 There is major committed investment in public transport infrastructure coming forward that will serve to further enhance the accessibility of this area and the city centre as a whole, providing an important foundation and opportunity for its further, accelerated economic growth during the next cycle. Major investment includes:

- An expanded Metrolink network will deliver new and enhanced connections across the City, including the recently opened service to Manchester Airport and extension to the Trafford Centre. St Peter's Square is already a main hub within the City's expanding Metrolink network. In 2017, the City's Second City Crossing is scheduled to open. This will substantially increase the capacity of the network (an extra 45 trams per hour running through St Peter's Square).
- The proposed Second City Crossing will run through St Peter's Square, and will provide new linkages between Deansgate-Castlefield Metrolink stop and the northern edge of the City Centre at Corporation Street. It will provide passengers with the ability to easily interchange between tram services from all parts of Manchester and also provide additional capacity on the network to support further proposed extensions.
- The Northern Hub is a Network Rail project that will deliver £530m of targeted investment to transform Northern England's rail network and improve connectivity. A key proposal is the Ordsall Chord, a new viaduct to connect Manchester's Victoria, Oxford Road and Piccadilly Stations, and Salford Central Station, enabling faster, more frequent services to run across the North of England, which commenced construction in Q1 2016. Other improved services as a result of the investment will include two new fast trains per hour between Manchester Victoria and Liverpool; six trains an hour between Leeds and Manchester (as opposed to four now); a reduction in journey time of 10 minutes between Leeds and Manchester; a reduction in journey time of 10-15 minutes between Liverpool and Manchester; a new direct service through Manchester City Centre to Manchester Airport, and faster journey times to Hull, Newcastle and the North East.
- The Bus Priority Package will deliver both the Leigh-Salford-Manchester busway and the Cross City Bus schemes, improving bus travel to and across the City Centre for communities to the north, west and south of Greater Manchester including Leigh, Atherton, Middleton and Parrs Wood. The Package will provide easier access to new and existing job opportunities, education and health facilities along Oxford Road and the City Centre and increase the number of passengers able to travel to their destination in one journey without having to change buses.
- More than 8 miles of bus lanes will be provided along existing roads, and some sections of road, for example on Oxford Road, will be closed to general traffic. During the day there will be at least four buses an hour between Leigh and Manchester, and four buses an hour between Atherton and Manchester, meaning there will be a minimum of eight buses an hour between Tyldesley and Manchester along the guided busway between Leigh and Ellenbrook.

2.24 From a wider planning and regeneration point of view, redevelopment of the site is a key opportunity to create a building that provides an appropriate contextual response to this prominent site within Manchester City Centre that capitalises the city's substantial investment in transport infrastructure, situated in equidistance from both Deansgate and Salford Central Stations.

Regeneration Summary

2.25 In light of the clear drive towards a number of residential, commercial and mixed use schemes through both long-term strategic visions and short-term delivery of nearby schemes currently on site, The Factory presents a truly unique opportunity to deliver a world-class cultural scheme situated in the heart of some of Manchester's key regeneration areas.

2.26 It is therefore the intention of the project team to facilitate the delivery of the development to not only provide a quality development in the context of its immediate surrounds but also to allow it to integrate within the long-term strategic work in adjacent areas and the city as a whole.

2.27 The Site is also clearly well served by the existing and proposed sustainable public transport connections in a range of different modes including bus, Metrolink, Metroshuttle, rail and can also be supported by capacity within existing multi-storey car parks, including at New Bailey, Great Northern and Spinningfields. Proposals are also being developed for a dedicated public car park on the Water Street site, which would provide a well-designed car parking facility less than a 5 minute walk to the Site.

Planning History

2.28 A planning history search for the Site has been undertaken using Manchester City Council's Public Access system. The results of the search have indicated that there have been a number of Planning Permissions granted on the subject site, predominantly relating to its previous occupation by ITV:

Table 2.1 - Planning History of the Site.

No.	Application Reference	Address	Description of Development	Date Approved
1	029238	Pineapple Public House, Water Street	Use of site as a coach drop-off and coach and car park after demolition of existing public house	July 1987
2	029036	Granada T.V. Centre Land bounded by River Irwell, Princes Bridge, former Grape Street and Liverpool Road	Creation of visitors facilities for public tour of part of existing T.V. centre	June 1987
3	029246	Former railway viaduct, adjacent to Water Street, opposite Princes Bridge	Erection of a building for use in association with Granada Tours, including a 400 seat auditorium, exhibition space, tour tram boarding point and New York set	July 1987
4	038206	Granada Studio Tours, Water Street	Change of use and extension to the Woodmill workshop to form a theatre	January 1991

5	051396/FO/CITY3/97	Granada Studio Tours, Water Street	Erection of a monorail	April 1997
6	079854/FO/2006/C3	Rag And Bone Site Land Bounded By Water Street Hampson Street And The River Irwell City	Change of use of existing railway viaduct arches to office (Class B1) use with associated external elevational alterations and landscaping of external areas to provide ancillary external car parking, servicing, cycle parking and refuse storage	November 2007
7	089044/AO/2009/C1	Water Street Manchester	Erection of 15 no. promotional banners on lamp post along Water Street	April 2009
8	105185/FO/2014/C1	Former Granada Studios 37 Quay Street	Temporary public car parking and associated works for 18 months commencing 1 June 2014 to provide 179 spaces off Quay Street and 70 spaces off Water Street	

The Development Proposals

2.29 A breakdown of the key development parameters is provided below in Table 2.2.

Table 2.2: Proposed development parameters

Proposed Development	Quantum
Proposed site area	1.45 ha
Proposed development	Demolition of the building known as the ‘Starlight Theatre’, a workshop associated with former Granada HQ Building and Studios and parts of the perimeter wall, together with works to the Grade II Listed Colonnaded Railway Viaduct to facilitate the development of up to 14,417 sq. m. of leisure-led development comprising two flexible auditorium spaces to be used for theatre, music, dance, art and other performance-related events and potentially conferences (Sui Generis) and associated facilities, including retail and restaurant use (Use Class A1 and A3), office, administrative and back of house function (Use Class B1), training and educational facilities (Use Class D1), servicing and access arrangements, circulation and external landscaped areas.
Proposed development footprint	0.5 ha
Proposed height (approximate)	Up to 64m A.O.D
Proposed commercial floorspace (approximate)	Up to 14,417 sq. m. (GIA)

Proposed Development	Quantum
Proposed units	N/A

Note: all areas, dimensions, boundaries and layouts are indicative and are subject to measured survey and confirmation.

3 Planning Policy

Planning Policy Context

National Planning Policy Framework (NPPF)

3.1 Paragraph 14 of the NPPF identifies that a presumption in favour of sustainable development is at the heart of National Planning Policy and that it should be seen as a golden thread through plan-making and decision-taking.

3.2 At Paragraph 9, the document states that pursuing sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life, including (but not limited to):

- making it easier for jobs to be created in cities, towns and villages;
- moving from a net loss of bio-diversity to achieving net gains for nature;
- replacing poor design with better design;
- improving the conditions in which people live, work, travel and take leisure; and
- widening the choice of high quality homes.

Manchester Core Strategy

3.3 Manchester Core Strategy was adopted on 11 July 2012. It sets the overall strategic direction for planning for Manchester over the plan period from 2012 to 2027. The policies of the Core Strategy establish where major development and other forms of investment should be located so as to be sustainable, meet local needs and take full advantage of opportunities to promote sustainable growth.

3.4 **Policy SP1** (Spatial Principles) of the Core Strategy contains the key spatial principles which will guide the strategic development of Manchester to 2027. The policy states that the Regional Centre of Manchester will be the focus for economic and commercial development, retail, leisure and cultural activity, alongside high quality city living. The proposals will clearly add to the focus of commercial, leisure and cultural activity in the city centre and promote the concept of high quality city living.

3.5 The Core Development principles within SP1 state that development in all parts of the City should contribute to creating well-designed places that enhance or create character, make a positive contribution to the wellbeing of residents, consider the needs of all members of the community and protect and enhance the built and natural environment while improving access to jobs, services, education and open space by providing good access to sustainable transport provision and should reuse previously developed land wherever possible. The development would reuse previously developed land to dramatically improve the built environment and local character through providing a facility that offers benefits to all residents of Manchester by providing access to jobs and services through sustainable transport options.

3.6 **Policy EC3** promotes the development of employment generating uses within the Regional Centre and suggests that the area is an appropriate location for large scale leisure uses for which the City Centre sites are unsuitable. The location of the proposals within the Regional Centre provides a unique opportunity to deliver a large scale leisure facility in a highly accessible location.

3.7 **Policy CC4** states that the City Centre will be the focus for culture and leisure in the City Region and that development which improves facilities for visitors and Manchester residents will be promoted. The delivery of a new world-class cultural facility within the City Centre will dramatically enhance the culture and leisure offer of Manchester for both visitors and tourists.

3.8 **Policy CC9** outlines how development in Manchester City Centre should preserve or enhance the heritage assets that have been identified, including listed buildings, conservation areas and scheduled ancient monuments. Located in the Castlefield Conservation Area and a number of Listed Buildings on and adjacent to the Site, due consideration will be given toward the heritage impact of the scheme.

3.9 **Policy CC10** suggests that development will be supported that increases the diversity of activity in the City Centre, which the delivery of the new world-class cultural facility will clearly support.

3.10 **Policy EN1** notes that all development in Manchester will be expected to follow the seven principles of urban design and have regard to the strategic character area in which the development is located. The site can be identified within the City Centre Character Area in which developers will be expected to consider the City's heritage and continue the rich pattern of activity in the core area. In addition, while there will be opportunities to create landmark buildings, developments should also contribute positively to the experience of all at street level.

3.11 **Policy EN2** gives guidance on how support for how tall buildings should be generated. Tall buildings are defined as buildings which are substantially taller than their neighbourhoods and/or which significantly change the skyline. They must be of excellent design quality, appropriately located, contribute to sustainability, is a place making landmark building and will bring significant regeneration benefits. It will be necessary for the applicant/developer to demonstrate that proposals for tall buildings are viable and deliverable. Impact on micro-climate must also be mitigated to ensure an attractive, pedestrian friendly local environment.

3.12 **Policy EN3** states that the Council will encourage development that is complementary to and takes advantage of the distinct historic and heritage features. New development must be designed to support the Council in preserving or where possible, enhancing the character, setting and accessibility of areas and buildings of acknowledged importance. This is of particular relevance to the site given the location of the heritage asset situated within the defined boundary and the effect that the proposed development will have on the Castlefield Conservation Area.

3.13 **Policy EN4** concerns reducing CO2 emissions by enabling low and zero carbon development and states that where possible, new development and retrofit projects must be located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies. The use of building materials with low embodied carbon in new development and refurbishment schemes is also sought.

3.14 **Policy EN6** sets out requirements that residential development of 1,000 sq. m. or more will be expected to meet a 15% increase of efficiency in Part L of Building Regulations (2010), or provide a CHP/district heating anchor. This should be demonstrated through an energy statement or as part of the Design and Access Statement.

3.15 **Policy EN8** requires all new development to be adaptable to climate change in terms of design, layout, siting and function of buildings and external spaces.

3.16 **Policy T2** established that the Council will actively manage the pattern of development to ensure that new development is located to ensure good access to the City’s main economic drivers and is easily accessible by walking, cycling and public transport, connecting residents to jobs, centres, health, leisure, open space and educational opportunities.

4 Scope, Structure and Consultation

Scope

4.1 The intention of this Scoping Report is to inform the LPA on which technical disciplines are considered pertinent to the proposals and the scope of assessment required in order for any likely significant effects on the environment to be addressed as part of the EIA process.

4.2 The Report thus far has taken account of the proposed development activities, knowledge of the Site and the relevant planning policies on a National and Local level.

4.3 The information presented in the ES will be provided in accordance with Schedule 4 of the EIA Regulations and will include:

- A description of the development proposals;
- An outline of the main alternatives studied;
- A description of the aspects of the environment likely to be significantly affected by the proposals;
- A description of the likely significant effects of the development on the environment;
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment;
- A non-technical summary; and
- An indication of any difficulties encountered by the applicant in compiling the required information.

4.4 The introductory chapters of the ES will provide the following information:

- An introduction to the ES in a legislative and site specific context;
- Description of the site and proposals;
- Alternatives considered and project design evolution;
- EIA methodology;
- Construction methodology and programme;
- ES structure; and
- Details of the EIA project team.

4.5 The geographical coverage of the EIA will be determined by a number of factors including:

- The physical extent of work;
- The nature of the baseline environment, including the location of sensitive receptors;
- The distance over which effects will be significant; and
- The presence and type of “pathways” along which impacts may be spread.

Issues to be Scoped Out of the EIA

4.6 It is considered that the following disciplines will not give rise to likely significant effects on the environment and would therefore not require inclusion in the Environmental Statement. An explanation for each discipline is given below.

Socio-Economic

4.7 The Proposed Development is for a new performance space and cultural venue, with associated retail, leisure, office, back of house, public realm and access arrangements, in accordance with adopted planning policy and proposed uses planned for the St. John's Masterplan area. The socio-economic effects will be considered in detail as part of the supporting planning justification for the Proposed Development.

Ecology and Nature Conservation

4.8 The Site will be assessed for its ecological significance and biodiversity as it is anticipated that, based on our understanding of the wider area, the Site is of low ecological importance and therefore it is considered that an ES chapter is not required and this topic area can be scoped out of the EIA.

4.9 An Ecological Assessment and Bat Survey will be prepared and submitted with the planning application to identify any potential ecological features, protected species and habitats, including those relating to the River Irwell, which will identify mitigation measures to deal with any issues identified.

Telecommunications

4.10 Tall buildings and structures could disrupt wireless services by physically blocking the signal or reflecting signals from the sides of the structure. However, in the United Kingdom, TV signals switched over to digital during 2012 and are less susceptible to interference.

4.11 The Proposed Development is not considered to significantly disrupt telecommunications infrastructure and therefore significant effects are not considered likely. On this basis, it is considered that the assessment of electronic interference can be scoped out of the EIA, however, a TV Reception Survey will be conducted in order to inform the design and identify and mitigate potential impacts on telecommunications infrastructure and will be submitted with the application.

Daylight and Sunlight

4.12 The Site has no existing nearby habitable rooms and therefore the impact of the Proposed Development will be negligible in regard to residential receptors. It is therefore considered that a Daylight and Sunlight Assessment is not required to be assessed as part of the ES. A Daylight and Sunlight Assessment will be undertaken for the Proposed Development and submitted as a standalone technical report with the planning application. The assessment will consider the Proposed Development in relation to existing and proposed public space.

Archaeology

4.13 A preliminary review of the sensitivity of potential below-ground archaeological remains within the Site area has been conducted by Salford Archaeology; it concluded that archaeology could be scoped out of the EIA.

4.14 The preliminary review identifies that four sites of potential archaeological interest are located within, or partially within, the Site. Potential minor and intermediate effects upon below-ground remains are identified; however archaeological mitigation in the form of intrusive site investigation would reduce the significance of this potential impact as the identified on-site archaeological assets are considered to merit preservation by record, rather than preservation in-situ.

4.15 A detailed desk-based assessment of the archaeological resource at the Site is to be produced to inform and support the planning application, which will require a record to be made of any such buried remains in advance of or during development. This is expected to be a requirement to be attached as a condition to any future planning permission.

4.16 Considering the above, a dedicated ES chapter on the below-ground historic environment is not considered to be necessary. The principal rationale for this conclusion is that the predicted impacts are unlikely to be significant and may be controlled through best practice methods and a planning condition. Therefore, it is considered that archaeology can be scoped out of the EIA.

Application Documents

4.17 It is proposed that the following standalone technical assessments (not required to be submitted as part of the EIA based on the analysis provided above) will be submitted in support of the planning application:

Table 4.2 – Supporting Documents

Supporting Documents	
Design and Access Statement	**Crime Impact Statement**
Planning Statement	**Television Reception Survey**
Statement of Community Consultation	**Ventilation Strategy**
Environmental Standards Statement	**Event Management and Future Maintenance Strategy for the Proposals**
Energy Statement	**Sunlight and Daylight Assessment**
Travel Plan	**Lighting Strategy**
Archaeological Desk Based Assessment	**Waste Management and Servicing Strategy**
Ecological Assessment and Bat Survey	

Cumulative Effects Assessment

4.18 An assessment of the cumulative effect of the proposals will be included within the ES.

4.19 Full details of the developments to be included within the cumulative assessment are included within a table at Appendix 2.

Stakeholder and Community Engagement

4.20 A process of stakeholder consultation has already commenced with regard to the Proposed Development. Members of the project team have met with senior officers from the Local Planning Authority to discuss the Proposed Development.

4.21 Further consultation will take place in respect of the proposals whilst they are being prepared for the planning application submission. This will take the form of correspondence, meetings and an exhibition where details of the proposals will be displayed. Stakeholders, Councillors and other interested parties will be invited to provide their comments in relation to the Proposed Development.

4.22 The proposals will be presented and discussed with Historic England, Places Matter Design Review and Greater Manchester Police Design for Security Officers.

4.23 A Statement of Community Consultation will be submitted with the application and will provide further details of the consultation undertaken.

5 EIA Methodology

5.1 The EIA will assess both the construction and operational phases of the Proposed Development.

5.2 The ES will comprise three volumes, the first of which will set out the findings with respect to each of the environmental disciplines that have been examined as part of the EIA. Volume 2 will include all the supporting documents and technical appendices relating to the chapters. Volume 3 will comprise of a Non-Technical Summary (NTS).

5.3 Each ES chapter will follow the headings set out below to ensure the final document is transparent, consistent and accessible:

- Introduction.
- Policy Context.
- Assessment Methodology and Significance Criteria.
- Baseline Conditions.
- Identification and Evaluation of Key Effects.
- Mitigation Measures.
- Cumulative Effects.
- Residual Effects.
- Summary.

5.4 Each chapter sub-heading is explained in further detail below.

Introduction

5.5 This section will introduce the assessment discipline and the purpose for which it is being undertaken.

Policy Context

5.6 This section will include a summary of national, regional and local policies of relevance to the environmental discipline and assessment. Relevant legislation will be summarised where applicable.

Assessment Methodology and Significance Criteria

5.7 This section will provide an explanation of methods used in undertaking the technical study with reference to published standards, guidelines and best practice. The application of significance criteria will also be discussed.

5.8 It will also outline any difficulties encountered in compiling the required information.

Baseline Conditions

5.9 This will include a description of the environment as it is currently and as it is expected to change given the project were not to proceed (i.e. ‘do-nothing’ scenario). The method used to obtain this information will be clearly identified. Baseline data will be collected in such a way that the importance of the particular subject area to be affected can be placed in its context and surroundings so that the effects of the proposed changes can be predicted.

Identification and Evaluation of Likely Significant Effects

5.10 This section will identify the likely significant effects on the environment resulting from the Proposed Development. The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the effects can be positive or negative. The criteria to be used in carrying out this process are detailed below.

Prediction of Impact Magnitude

5.11 The methodology for determining the scale or magnitude of change caused by the impact is set out below.

Table 5.1: Methodology for Assessing Magnitude of Change

Magnitude of Change	Criteria for assessing magnitude of change caused by an impact
Major	Total loss or major/substantial alteration to key elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Minor	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernable/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

Prediction of Receptor Sensitivity

5.12 The sensitivity of a receptor is based on the relative importance of the receptor using the scale set out below.

Table 5.2: Methodology for Determining Sensitivity

Sensitivity	Examples of receptor
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or local importance.

Assessment of Effect Significance

5.13 Effect significance will be calculated using the matrix in Table 5.3. This illustrates the interaction between impact magnitude and receptor sensitivity.

Table 5.3: Effect Significance Matrix

Magnitude	Sensitivity		
	High	Moderate	Low
Major	Major Adverse/Beneficial	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial
Moderate	Major - Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial
Minor	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

Mitigation Measures

5.14 Mitigation will be considered for adverse effects and specific mitigation measures will be recommended where practicable. Mitigation measures considered may include modification of the project, compensation and the provision of alternative solutions as well as pollution control. The extent of the mitigation measures and how these will be effective will be discussed. Where the effectiveness is uncertain or depends upon assumptions about operating procedures, data will be introduced to justify the acceptance of these assumptions.

5.15 Clear details of when and how the mitigation measures were carried out, or will be carried out, are to be given within the Environmental Statement. When certainty of impact magnitude and/or effectiveness of mitigation over time exist, monitoring programmes will be proposed to enable subsequent adjustment of mitigation measures, as necessary.

5.16 The opportunity for enhancement measures will also be considered where appropriate.

Cumulative Effects

5.17 Two types of cumulative effect will be assessed:

- *Type 1* - Cumulative effects are the interactions between effects of the demolition and redevelopment works on a single receptor.
- *Type 2* - Cumulative effects are those that arise from incremental changes caused by other past, present or reasonably foreseeable actions together with the demolition and redevelopment works.

5.18 The cumulative effects of the Proposed Development and the identified committed developments will be assessed. A list of known committed developments is set out in the table at Appendix 2. The Council are requested to review and comment on this list in their Scoping Opinion.

Residual Effects

5.19 The residual effects, i.e. the effects of the Proposed Development assuming implementation of proposed mitigation, will be determined. The residual effects represent the overall likely significant effect of the development on the environment having taken account of practicable/available mitigation measures.

6 Environmental Statement Chapters

6.1 Under each section topic, a summary of the content of the section, the methodology and scope of assessment is given. Where relevant, the assumptions of the assessment are described. Current relevant legislation or recognised guidance for individual assessments will be adhered to, where necessary.

Historic Environment

Introduction

6.2 An assessment of the likely significant environmental effects to the above ground historic built environment of the Site and the surrounding area for the demolition, construction and operation stages of the Proposed Development will be prepared by Stephen Levrant Heritage Architecture Ltd (SLHA).

6.3 A Heritage Statement which assesses the significance and setting of heritage assets within the Study Area will be included as an appendix to the chapter. Appendix 4 of this report contains a plan of suggested viewpoints from which to assess the impact of the proposals on nearby designated heritage assets.

Baseline Conditions

6.4 Baseline information will be obtained for the Application Site and the surrounding area within a 250m radius of the site boundary (the ‘Study Area’). In order to define the Study Area, a number of different factors have been taken into consideration. These include:

- the nature and scope of the Proposed Development;
- the proximity of heritage assets to the Proposed Development;
- The degree of inter-visibility between the heritage assets and the Site taking into consideration, for instance, changes in topography as well as interposing townscape and landscape features; and
- The sensitivity of the relevant heritage assets and their setting.

6.5 All designated and non-designated heritage assets within the Study Area will be identified and these will be shown on a Heritage Asset Plan, included as an appendix to the Chapter.

Desk Based Research

6.6 Desk based research as part of the assessment of significance will be compiled from the following sources:

- National Monuments Record (Historic England);
- National Heritage List for England (Historic England);
- England’s Places, the Architectural Red Box Collection (Historic England);
- Britain From Above (Historic England);
- Greater Manchester Archaeological Advisory Service;
- Greater Manchester Historic Environment Record;
- Historic Ordnance Survey Mapping;
- Manchester City Council;
- Detailed visual site inspection; and

- Other published sources of information are referred to where relevant.

6.7 The Application Site contains 1 Listed structure situated within a Conservation Area (denoted with *) and there are a number of Listed Buildings and Conservation Areas within 250m of the site, these are as follows:

- The Grade I Listed Stephenson's Bridge;
- The Grade I Listed Liverpool Road Station building;
- The Grade I Listed 1830 Warehouse;
- The Grade II Listed 1830 viaduct;
- The Grade II Listed Water Street Bridge;
- The Grade II Listed 1845 brick bridge;
- The Grade II Listed Girder Bridge;
- The Grade II Listed Zig-Zag Viaduct;
- The Grade II Listed Castlefield Viaduct;
- The Grade II Listed Victoria and Albert Warehouse;
- The Grade II Listed Colonnaded Railway viaduct*;
- The Grade II Listed Great John Street Hotel;
- The Grade II Listed MOSI Power Hall;
- The Grade II Listed MOSI Warehouse;
- The Grade II Listed Commercial Hotel, Liverpool Road;
- The Grade II Listed 123 Liverpool Road;
- The Grade II Listed Pair of culvert arches over River Medlock and associated overflow channel;
- The Grade II Listed Giants Basin;
- The Grade II Manchester South Junction and Altrincham Railway Viaduct;
- Castlefield Conservation Area*; and
- St Johns Conservation Area.

6.8 From reviewing the National Heritage List for England there are no World Heritage Sites, Scheduled Ancient Monuments, Registered Parks and Gardens or Registered Battlefields within the Study Area.

6.9 The baseline assessment will be undertaken using a combination of desk-based study, research and fieldwork to identify and assess the heritage significance of the heritage asset receptors. This will also establish the way in which their settings and the Application Site contribute to the heritage significance of these assets.

Method of Assessment / Approach

6.10 The aim of the assessment is to:

- Identify all known designated and non-designated heritage assets that may be affected by the Proposed Development and evaluate the significance/value of the heritage assets;
- Outline any likely environmental effects of the Proposed Development and the heritage asset receptors likely to be affected, assessing the magnitude of impacts;
- Assess the effects of the Proposed Development upon those heritage asset receptors, categorising the scale of effect against significance/value;
- Identify, where relevant, any mitigation measures and assess the likely residual impact after such mitigation on the identified heritage asset receptors; and

- Carry out an overall assessment of the cumulative impact of the Proposed Development in association with other schemes, on the overall significance of the heritage assets.

6.11 The assessment will appraise the physical impact on the listed building and the potential visual impact of the Proposed Development upon the setting of identified heritage assets.

6.12 This assessment will be carried out in light of the statutory duty of The Planning (Listed Buildings and Conservation Areas) Act 1990, relevant policies of the National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG) for the historic environment. The assessment will also be carried out in accordance with Historic England's advice notes on Significance and Setting (2015). Assessing Significance of Effect

6.13 In the absence of specific prescribed criteria for establishing the relative value or importance of heritage asset receptors, guidance on assessing the value and importance of heritage significance in views will be taken from Historic England's guidance: Seeing the History in the View: A Method for Assessing Heritage Significance within Views (2011). Whilst this document is aimed at assessing the impact of development on views, it provides an agreed framework for determining the significance/value of heritage assets.

6.14 To identify the magnitude of impact on a built heritage asset, and therefore identify the significance of effect (magnitude of impact against value), an assessment will be undertaken which identifies the significance/value of the heritage asset (the sensitivity of the receptor). The following table is taken from Historic England's guidance: Seeing the History in the View:

Table 6.1: Value/Importance of Individual Heritage Assets

Value/ Importance	Definition
High	The asset will normally be a World Heritage Site, Grade I or II* listed building, scheduled monument, Grade I or II* historic park and garden or historic battlefield which is a central focus of the view and whose significance is well represented in the view. The Viewing Place (and/or Assessment Point) is a good place to view the asset or the only place from which to view that particular asset.
Medium	The asset will normally be a Grade II listed building, Grade II historic park and garden, conservation area, locally listed building or other locally identified heritage resource which is a central focus of the view and whose significance is well represented in the view. The Viewing Place (and/or Assessment Point) is a good place to view the asset and may be the only place from which to view that particular asset. The asset may also be a World Heritage Site, grade I or II* listed building, scheduled monument, Grade I or II* historic park and garden or historic battlefield which does not form a main focus of the view but whose significance is still well represented in the view. In this case the Viewing Place (and/or Assessment Point) may be a good, but not the best or only place to view the heritage asset.
Low	The asset may be a Grade II listed building, Grade II historic park and garden, conservation area, locally listed building or other locally identified heritage resource which does not form a main focus of the view but whose significance is still well represented in the view. In this case the Viewing Place (and/or Assessment Point) may not be the best or only place to view the heritage asset.

Value/Importance and Significance of Receptor

6.15 The sensitivity of a heritage asset is defined on the basis of the above table (Table 6.1), and is also informed by an understanding and assessment of the significance of the asset. As aforementioned, guidance on the assessment of setting and contribution to significance is taken from Historic England Advice Note on Setting (2015)3.

Magnitude of Effect

6.16 The magnitude of effect of the Proposed Development in terms of scale, position in a view or design is described in accordance with Table 6.2 below, taken from Historic England's guidance: *Seeing the History in the View (2011).*

Table 6.2: The Magnitude of Impact of Proposals on Heritage Assets

Magnitude of Impact	Definition
Major beneficial	The development **considerably enhances** the heritage values of the heritage assets or the ability to appreciate those values.
Moderate beneficial	The development enhances to a **clearly discernible** extent the heritage values of the heritage assets or the ability to appreciate those values.
Slight beneficial	The development enhances to a **minor extent** the heritage values of the heritage assets or the ability to appreciate those values.
Imperceptible/None	The development does **not affect** the heritage assets or the ability to appreciate those values.
Major adverse	The development erodes to a **minor extent** the heritage values of the heritage assets or the ability to appreciate those values.
Moderate adverse	The development erodes to a **clearly discernible** extent the heritage values of the heritage assets or the ability to appreciate those values.
Major adverse	The development **severely erodes** the heritage values of the heritage assets or the ability to appreciate those values.

Significance of Effect

6.17 The matrix shown in Table 6.3 from Historic England's guidance: *Seeing the History in the View (2011)* combines the two measures of magnitude and sensitivity to provide a measure of the significance of effect. The significance of effect will be assessed for both the construction and operation phases of the Proposed Development.

Table 6.3: Magnitude of Impact against Value

Value / Importance of Asset	Magnitude of Impact			
	Major	Moderate	Slight	Negligible/Neutral
High	Major effect	Major effect	Moderate effect	Negligible effect
Medium	Major effect	Moderate effect	Minor effect	Negligible effect
Low	Moderate effect	Minor effect	Negligible effect	Negligible effect

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[3] Historic England (2015), Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets

6.18 An effect is deemed to be ‘significant’ (in EIA) terms if it has a major beneficial or major adverse effect.

Summary of Assessment Scope

6.19 The Built Heritage Chapter will assess the effect of the Proposed Development on designated and non-designated built heritage assets, both within the Application Site and within a 250m study area. The effect of the Proposed Development on these assets will be assessed for both the construction and operation phases of development. A Heritage Assessment that evaluates the significance and setting of all identified assets will be appended to the Chapter, together with a Heritage Asset Plan.

Townscape and Visual Impact

6.20 This chapter will look at the impacts of the Proposed Development on townscape character, views and people (visual receptors).

6.21 Potential impacts are likely to include:

- Impacts of the Proposed Development on the physical characteristics of the Site and its surroundings and on townscape character;
- Impacts of the Proposed Development on regionally and locally important views and the reasons for which these view are designated; and
- Impacts of the Proposed Development on people (visual receptors) in the surrounding areas.

Baseline Conditions

6.22 Baselines information regarding the townscape character of the Site and surrounding area will be gathered through a combination of desktop study of all relevant studies, character assessments and Conservation Area appraisals with reference to Manchester City Council’s Core Strategy City Centre Character Areas in particular. Field work will augment, illustrate and consolidate descriptions of the existing townscape and visual character and provide a historic context.

6.23 Information on views will be gathered during extensive fieldwork and photography carried out as part of the Representative View Study which is an integral part of the assessment of visual impact. Relevant visual receptors will be identified and categorised.

6.24 The baselines information will be used to gauge the nature, magnitude and effect of the Proposed Development on townscape character, views and people.

Method of Assessment

6.25 The Institute of Environmental Management and Assessment (IEMA) / Landscape Institute ‘Guidelines for Landscape and Visual Impact Assessment’ (3rd Ed., 2013) will be used as the principal source of guidance for the methodology for this assessment. The Historic England Advice Note (no.4) on Tall Buildings, which supersedes the 2007 guidance, will also be used as relevant guidance.

6.26 A number of ‘representative viewpoints’ will be selected to inform the assessment of the effect of the Proposed Development on townscape character, views and people in more detail and on a comprehensive basis, taking in short, medium and long range views from publically accessible viewpoints. An appraisal of the sensitivity of receptors will accompany this process. Indicative representative viewpoints are included within Appendix 5, which will be agreed through consultation with Manchester City Council.

6.27 Magnitude of change to the resource / receptors identified in the baseline will be assessed using guidance drawn from IEMA guidelines.

6.28 Significance of effect will also be assessed using guidance contained in IEMA third edition, which now places a greater emphasis on professional judgement in measuring the sensitivity of the affected receptor against the magnitude of change that the affected townscape resource or visual receptor experiences.

6.29 The Townscape and Visual Impact Assessment will be accompanied by wireline images of the Proposed Development superimposed onto baseline photographs and also a series of Accurate Verified Representations (AVRs) from selected viewpoints. The Landscape Institute's Advice Note 01/11 'Photography and Photomontage in Landscape and Visual Impact Assessment' will be used to inform the methods for production of visualisations.

6.30 Assessments will be made for the baseline year of 2016 during demolition and construction and on completion.

Summary of Assessment Scope

6.31 Table 6.4 summarises the townscape and visual receptors identified for inclusion in the assessment and whether they have been scoped in to be assessed in the ES.

Table 6.4 - Townscape and Visual Impact Assessment Scope

Receptor	Impact	Potential Effect
Representative views from the surrounding townscape	Visual impacts on typical views	Large-scale change which introduces a positive, neutral or discordant change to the view.
Townscape Character	Townscape impacts	Addition of new elements or features that will influence the character and distinctiveness of the townscape.
People	Townscape and visual impacts on people	Effects on people who are most sensitive and least sensitive to changes in the view.

Traffic and Transport

Introduction

6.32 This chapter of the ES will consider whether the Proposed Development has the potential to create significant effects on the environment in relation to traffic and transportation.

6.33 Potential environmental impacts may arise during both the demolition and construction and operational phases through vehicle trips that might arrive at the Site and from any new transport infrastructure.

6.34 An environmental impact can arise through the extra vehicle trips that might arrive at a site and from any new transport infrastructure. The potential implications that may arise from additional traffic are described in the Institute of Environmental Assessment (IEA) Guidelines for the Environmental Assessment of Road Traffic (1993) and, based upon this, the proposed scope of the assessment will include:

- Severance;
- Driver Delay;
- Pedestrian Amenity;
- Accidents and Safety;
- Hazardous Loads; and
- Dust and Dirt.

6.35 The potential environmental implications that could arise in relation to Noise and Vibration, Visual Impact, Air Quality, Ecology and Heritage matters will be dealt with in the relevant sections of the ES and this Scoping Report.

6.36 The development of the Site will replace part of the former use by ITV / Granada Studios and a surface car park, which both previously generated traffic from both the employees on Site, service and broadcast vehicles and those working in the City Centre. Consideration will therefore be given to the net change in vehicle movements relative to the Site in its previous operational usage.

6.37 The Proposed Development comprises the creation of a new cultural facility and will therefore result in changes to travel demand patterns. This will result in changes to traffic flows in the area which will have consequent environmental impacts and it is these impacts which the EIA will seek to quantify and assess. Due to the somewhat restrictive nature of the Site, particularly in the context of the development of the immediately adjacent area, it is envisaged that the majority of car parking spaces will be provided for off-site at a nearby location.

6.38 In scoping the extent of the assessment, the IEA Guidelines suggest that ‘two broad rules of thumb could be used as a screening process to delimit the scale and extent of the assessment. These are:

6.39 **Rule 1:** Include highway links where traffic flows will increase by more than 30% or the number of heavy goods vehicles will increase by more than 30%.

6.40 **Rule 2:** include any other specifically sensitive area where traffic flows have increased by 10% or more.

6.41 The areas that are considered sensitive are defined in the assessment section below.

6.42 The assessment of the Site will include consideration of the potential movements to, from and within the Proposed Development by a range of modes, including:

- Vehicle movements;
- Public transport: Bus, Metroshuttle, Train and Metrolink;
- Pedestrian and cyclist movements;
- Access for servicing; and
- Car parking.

6.43 The impact of demolition and construction traffic on the local and wider highway network will be considered, including the routing of construction traffic, effects on pedestrian routes and access to the Site.

6.44 The study area for the assessment will be the area which is modelled in the TfGM highway model of Manchester. The coverage of the model is shown at Appendix 6 and it covers much of the city centre and neighbouring Salford.

Baseline Conditions

6.45 The Site previously housed an area used previously by ITV as a studio and a surface car park. Existing baseline traffic flows and highway operation will be quantified using the TfGM SATURN traffic model. This model which has been previously been validated and calibrated according to Department for Transport (DfT) guidance and has formed the basis for MCC’s traffic forecasting for the region for many years. This model includes data for the former Granada Estate and those traffic flows will be retained for the baseline assessment. The traffic model will show the baseline level of traffic queues and delays.

6.46 The baseline assessment year is taken as 2017. At this year there is a consistent baseline position where it would be possible to test the implications of new highway improvements on Regent Road and the situation prior to occupation. A future assessment will also be undertaken in 2032, 15 years ahead, to consider the highway operation in the future.

6.47 The Baseline Assessment will also consider the personal injury traffic accident statistics over the last 3 years as obtained from recorded 'STATS 19' data recorded by police attended accidents and provided by TfGM.

Method of Assessment

6.48 The method to assess the traffic and transport implications of the Proposed Development is in accordance with national and local planning policy. Notably, this assessment is undertaken in consultation and agreement with Manchester City Council and TfGM Highways' officers. As the traffic model is operated by MCC/TfGM, the inputs to the assessment will be agreed by the highway authority.

6.49 Environmental implications of the Proposed Development will be established by determining the net change in traffic from the new development compared to its historical and current uses.

6.50 The forecast of new development trips is made using the TRICS (version 7) database of trips attracted to the standard land uses. The distribution of that traffic over the wider network is made by the DEVTRIPS programme which is used by TfGM to predict the origins and destinations of traffic within the SATURN model.

6.51 The traffic flow forecasts will be presented for AM and PM peak hours and off-peak periods. The off-peak model will form the basis for testing a large cultural event. These traffic flows will also include the proportion of HGVs and factors will be applied to derive 18 hour AAWT and 24 hour AADT flows which are required for the Noise and Air Quality Assessments.

6.52 The key assessment will be a comparison of the future traffic levels forecast with the development and the baseline assessment. That assessment will consider the full development of the St. John's Area as well as other committed developments in the area (see Appendix 2).

6.53 The highway links that are considered worthy of further assessment will be identified using the IEA thresholds guidance as described previously. The areas that will be subject to further assessment are therefore those that experience a change in flows greater than 30%. Where there are sensitive locations then a change in traffic flow of 10% would merit further analysis.

6.54 In this location the potential sensitive locations are considered to be:

- Nearby Residential Properties
- Vulnerable Road Users
    - Pedestrians
    - Cyclists

Methodology for Determining Sensitivity

6.55 The sensitivity of a receptor is based on the relative importance of the receptor using the scale in Table 6.5.

Table 6.5 - Sensitivity of receptors

Sensitivity	Examples of Receptor
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character or is of international or national importance.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character or is of low or local importance.

Methodology for Determining Impact Magnitude

6.56 Having determined the locations where there is a significant change in traffic flow, the Environmental Assessment will quantify the magnitude of that impact.

6.57 Impact magnitude will be determined according to the criteria as described in Table 6.6.

Table 6.6 - Criteria for Assessing Magnitude

Magnitude of Impact	Criteria for Assessing Impact
Major	Total loss or major/substantial alteration to key elements/features of the baseline (pre-demolition) conditions such that the post-demolition character/composition/attributes will be fundamentally changed.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post-demolition character/composition/attributes of the baseline will be materially changed.
Minor	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-demolition circumstances/situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable approximating a ‘no change’ situation.

6.58 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the impacts can be positive or negative.

6.59 The Significance criteria will take account of the following factors:

- The value of the resource (international, national, regional and local level importance);
- The magnitude of the impact;
- The duration involved;
- The reversibility of the effect; and
- The number and sensitivity of receptors.

6.60 Impact significance is determined in line with The Impact Significance Matrix set out in Table 6.7.

Table 6.7 - Significance of Impact

Sensitivity of Receptor	Magnitude of Impact			
	Major	**Moderate**	**Slight**	**Negligible/Neutral**
High	Major effect	Major effect	Moderate effect	Negligible effect
Medium	Major effect	Moderate effect	Minor effect	Negligible effect
Low	Moderate effect	Minor effect	Negligible effect	Negligible effect

Mitigation Measures

6.61 Any adverse impact should be considered for mitigation. The mitigation measures will be set out and would identify how effective they might be together with supporting evidence. The mitigation measures will be evaluated and monitored over time through the Travel Plan submitted with the application, which would have an ongoing remit to monitor and influence travel behaviour to deliver good environmental outcomes.

Cumulative Effects

6.62 The cumulative impacts of other committed developments will be considered in the modelling process. Where there are several impacts on a receptor, the combined effects will also be considered.

Residual Effects

6.63 Following mitigation, the remaining impact on identified receptors will be estimated.

Summary of Assessment Scope

6.64 The Traffic and Transport implications of the Proposed Development will be summarised. This summary will briefly describe in a non-technical language; the assessment scope, the key findings; and an account of the main mitigation measures that shall be undertaken as part of the proposed development to offset any adverse short or long-term impacts or effects.

6.65 The proposed scope of the assessment is set out Table 6.8 below.

Table 6.8 - Scope of Assessment

Receptor	Impact	Potential Effect
During Construction		**Short Term effects**
Local Residents	Hazardous loads, dust and dirt, pedestrian amenity.	Increased fear and intimidation, reduced amenity, potential increased road safety risk.
Pedestrians	Hazardous loads, dust and dirt, pedestrian amenity.	Increased fear and intimidation, reduced amenity, potential increased road safety risk.
Cyclists	Hazardous loads, dust and dirt, pedestrian amenity.	Increased fear and intimidation, reduced amenity, potential increased road safety risk.
During Operation		**Long Term Effects**
Local Residents	Severance, driver delay, pedestrian amenity, highway safety.	Reduced opportunities to cross and increased delay crossing the highway. Increased fear and intimidation and increased risk of accidents.
Pedestrians	Pedestrian amenity, highway safety, severance.	Reduced opportunities to cross and increased delay crossing the highway, increased fear and intimidation, increased risk of accidents.
Cyclists	Highway safety.	Increased risk to cycle users and increased fear and intimidation.

Water Resources, Drainage and Flood risk

Introduction

6.66 An assessment of the impacts of the Proposed Development on the water environment at the Site and its surrounding area will be undertaken. In particular, it will consider the potential effects on drainage and flood risk, as well as wastewater arising and surface and ground water quality.

Baseline Conditions

6.67 The methodology used to assess the baseline conditions will consider:

- The flood zone classification and its compatibility with the development usages;
- The limitation and or constraint that the flood level imposes on the development proposals;
- The current site drainage strategy; and
- The limitations imposed based on current legislation (Manchester City Council's SFRA) and the requirements of the statutory authority (United Utilities).

6.68 The baseline section of the ES will determine the existing conditions in relation to flooding and flood risk, drainage and water quality; it will therefore include the following actions:

- Determination of the existing flooding classification based on the available online EA flood map data.
- Provision of flood level information and the extended EA hydrological model developed for the River Irwell. The method of determining and including climate change within hydraulic model was amended in Feb 2016. As such detailed information on levels for the River Irwell will not be available until August 2016. As such and with agreement from MCC we will review the site based on the previous flood level information and the results of discussions with MCC over what is practicably achievable.
- Assessment of all existing flood risk sources and their likely impacts.
- Review of the existing hydrogeology, namely aquifer classification and ground permeability.
- Determination of the existing drainage strategy for the development site.

Method of Assessment

Flooding and Flood Risk

6.69 This assessment will involve a review of the Proposed Development in terms of both compatibility with the National Planning Policy Framework (NPPF), the associated Planning Policy Guidance (PPG) and the requirement of Manchester City Council's Strategic Flood Risk Assessment (SFRA), 2011. The determination of the flood zone classification will inform the compatible types of development and also any additional constraints that are likely to be placed on the development including the potential to impact on the setting of floor levels. This is a quantitative assessment based on known flooding levels and the existing site topography being combined to determine flood zoning.

Water Quality

6.70 This assessment will evaluate the potential impacts of the Proposed Development both during construction in line with the requirements of CIRIA C741 'Environmental Good Practice on Site Guide (4th Edition, 2015) and also during the general occupation and use of the Proposed Development in line with the requirements of Pollution Prevention Guideline 3. Existing Water Quality information is obtained from the available Landmark site information and is denoted as a letter under the GQA Designation scale with 'A' defined as Good and 'F' defined as Bad. This qualitative assessment based on the perceived impacts of the development which cannot be qualified.

Drainage

6.71 This involves analysis of the existing Site drainage conditions and determination of the existing flows from the Proposed Development as a whole in line with the requirements of United Utilities (UU).

6.72 In reviewing the existing drainage for the scheme it is the intention for the surface water disposal regime to change significantly, such that the majority of the sites surface water is removed from the sewer network and disposed of into the River Irwell. As such, through discussions with MCC there will no requirement to restrict flows should this be the case. Limiting factors on the outfall will be as per those imposed by the Manchester Ship Canal with regard to discharge velocity. The requirements of UU and the fact that the Site is designated as being located within a Critical Drainage Network.

Significance

6.73 Significance will be determined in line with both the Magnitude of Impact and Sensitivity as outlined in Section 4, based on quantitative indicators where appropriate and the use of qualitative professional judgement.

6.74 In preparing the Flood Risk Assessment and Drainage Strategy for the Site, impact is noted as being low, medium or high. The equivalent terminology within the Environmental Statement will be Negligible, Minor or Moderate.

6.75 In all but the assessment of watercourses, the impact of the Proposed Development can be determined quantitatively using the following Methodology:

- Major – Inability of the existing drainage network to accept the revised flow. The type of development is not compatible with the flood zoning (construction within a functional floodplain) and the sequential test is failed and the exception test cannot be complied with because of safe access and egress issues.
- Moderate – the existing drainage network has the ability to accept the revised flows generated by the development, but there is a requirement for considerable flow restrictions and therefore attenuation. The sequential flooding test is failed but the exception test can be complied with.
- Minor – the existing drainage network has the ability to accept the revised flows from the development in line with the requirements of Manchester City Council’s Strategic Flood Risk Assessment. The sequential flood test is passed.
- Negligible – the existing scenario in terms of flow rates remains as current, with no requirement for flow restriction or attenuation. The sequential flood test is passed.

Summary of Assessment Scope

6.76 In summary, the assessment scope for Water Resources, Flood Risk and Drainage is as follows:

- Wastewater arising from the development and the ability of the existing adjacent sewer network to convey the increased foul water flows.
- Flood risk to the development from Pluvial, Fluvial, Surface Water, Ground Water, Sewers and other sources (namely breach scenarios from existing upstream reservoirs) including risk to third parties from:
  - Loss of storage
  - Impedance of flood flow paths
  - Catchment Area analysis and the potential reduction in flows.
- Impacts to surface and ground water from construction operations and techniques including potential pollution control.
- Impacts to groundwater flow from basement(s) impeding existing flow routes.
- Depending on the preferred drainage strategy either:

  - Appropriate attenuation and restricted flow control for surface water when discharging to the sewer network; or

- The provision of a series of appropriately designed outfall to the River Irwell to maintain the flow velocity within acceptable limits as defined by the Manchester Ship Canal Authority.

6.77 Table 6.9 summarises the assessment scope.

Table 6.9 - Summary of assessment scope for Flood Risk and Drainage

Receptor	Impact	Potential Effect
Surface Watercourse	Increase in water level due to increased surface water flow from the Proposed Development	Potential increase in flooding extents and floor water depth downstream
Surface Watercourse	Increased in water level due to a change in drainage strategy. Flows removed from the existing adopted sewer network and re-routed into the watercourse	Potential increase in flooding extends and flood water depth downstream
Surface Watercourse	Pollution from contaminated surface water run-off during construction	Reduction in the habitat quality along the affected length of the watercourse
Ground Water	Contamination of the groundwater through specific construction methods and associated construction materials	Migration of pollution from the Site into the adjacent watercourse with the potential to reduce the habitat quality along the affected length of the watercourse
Public and Private Sewer	Increase in both foul and surface water flows from the Site entering the existing adopted sewer network	Potential increase in flood risk both upstream and downstream of the Site. Caused by increased flows entering a sewers network which is already operating either at or over capacity

Wind Microclimate

Introduction

6.78 Although of modest height, the Proposed Development will introduce a relatively large structure, with potential to create accelerated pedestrian level winds. It will also introduce outdoors spaces, where recreational activities will be more sensitive to wind conditions and will potentially require purposeful design of the landscaping scheme. A wind microclimate assessment will therefore be carried out to assess the suitability of conditions for planned pedestrian activities within the Site and surrounding area.

6.79 This chapter of the ES will seek to address the potential wind microclimate impacts of demolition, construction and operation of the Proposed Development. Wind impact will be assessed in accordance with industry standard criteria and, where appropriate, through comparison with the baseline wind conditions created by the surrounding urban environment. Any significant impacts to existing and proposed sensitive receptors (e.g. walking, standing or sitting pedestrians) will be identified and subsequent mitigation measures will be proposed.

Baseline Conditions

6.80 Based on wind climate statistics from Manchester Airport, winds from the southerly quadrant are prevalent. Light to moderate winds from the south and south-south-east are most common, whilst stronger winds more frequently blow from the south-south-west. Winds from the west-south-west and west also occur frequently, and extreme wind speeds (relevant to pedestrian safety) are most likely to blow from this direction. Northerly winds are generally light and rare, though cold north-easterly winds are common during spring. Wind speeds are generally higher during winter and lower during summer.

6.81 The existing site is sheltered at low level from prevailing southerly winds and, in the absence of any dominant structures with respect to wind, conditions are expected to be suitable for recreational activities including at least short periods of standing or sitting. These conditions would be suitable for pedestrian ingress/egress at entrances, waiting or meeting points and general recreational uses. Most of the site is further expected to be suitable for long periods of outdoor sitting, such as for a picnic, during at least summer.

Method of Assessment / Scope

6.82 The wind microclimate assessment will comprise an experience-based desk study. The study will provide an expert qualitative review of expected pedestrian level wind conditions, based on consideration of the massing and exposure of the Proposed Development in conjunction with long-term wind statistics applicable to the Site and the industry standard Lawson criteria for pedestrian comfort and safety.

6.83 The following scenarios will be assessed:

- Existing conditions (baseline);
- Proposed Development with existing surrounds; and
- Proposed Development with cumulative schemes.

6.84 The cumulative schemes (see Appendix 2) will include phases of the wider development not included within the Site and consented future developments of the scale and proximity to the Site with potential for cumulative effects with the Proposed Development.

6.85 The significance of any effects will be assessed based on the suitability of wind conditions in each area against the current or planned pedestrian activities, with the sensitivity of receptors considered high. Effects on pedestrian safety would generally be considered of major significance, with marginal exceedances of the safety criteria considered moderate. Effects on pedestrian comfort would be considered moderate to minor. Any effect that does not alter the suitability of wind conditions with respect to current or planned activities would be considered negligible.

6.86 Where required, mitigation measures will be developed and will form a guide for detailed design of the landscaping scheme to ensure suitable residual conditions for planned pedestrian activities in and around the Site.

Potential Effects

6.87 Despite the benign existing conditions, a structure of the scale of the Proposed Development would be exposed at mid-to-upper levels to prevailing southerly winds and, in the context of existing surrounding conditions, to stronger west-south-westerly winds. The modest height would limit the potential for downdraughts, but channelling of these winds along the building frontage and around the corners would be expected to occur.

6.88 With the potential introduction of sensitive pedestrian activities, including recreational activities, meeting points and entrances, purposeful development of the landscaping proposals may be required to help ensure suitable wind conditions for proposed activities.

Summary of Assessment Scope

6.89 Due to the high amounts of pedestrian footfall to be generated by the proposals and the potential for the Proposed Development to create accelerated pedestrian level winds, a wind microclimate assessment will be carried out. Where required, mitigation measures will be developed to help ensure an acceptable residual effect in terms of suitability of conditions for planned pedestrian activities in and around the Site. A summary of the scope of assessment is provided below in Table 6.10.

Table 6.10 - Scope of Assessment for Wind Microclimate

Receptor	Impact	Potential Effect
Pedestrians	Introduction of buildings with the potential to create accelerated pedestrian level winds.	Unsuitable wind conditions for planned pedestrian activities requiring wind mitigation measures to ensure acceptable residual effects.
Pedestrians	Introduction of recreational activities, sensitive to pedestrian level wind conditions.	Unsuitable wind conditions for planned pedestrian activities requiring wind mitigation measures to ensure acceptable residual effects.
Pedestrians	Increased shelter to surrounding area.	Enhancement of wind conditions to be suitable for surrounding activities.
Pedestrians	Acceleration of pedestrian level winds in surrounding area.	Creation of unsuitable wind conditions for existing or future activities in surrounding area, requiring wind mitigation measures to ensure acceptable residual effects.

Noise & Vibration

Introduction

6.90 This chapter will address the potential noise and vibration impacts of construction and operation of the Proposed Development. Noise impacts will be assessed in accordance with published guidance and, where appropriate, through comparison with the baseline background noise levels generated by current local noise sources, including road traffic. Vibration impacts will be assessed by comparing predicted levels against published absolute standards. Any significant impacts to existing and proposed sensitive receptors (e.g. residential buildings) will be identified and subsequent mitigation measures will be proposed. Where mitigation measures are proposed, the anticipated residual impacts will also be identified.

6.91 The nearby sensitive premises (NSP) are indicated in ***Figure 6.1*** and consist of residential buildings in Liverpool Road and Lower Byrom Street and the Castlefield Hotel, also in Liverpool Road. Facilities within the Museum of Science and Industry site will be assessed separately to establish those that are sensitive to noise and/or vibration.

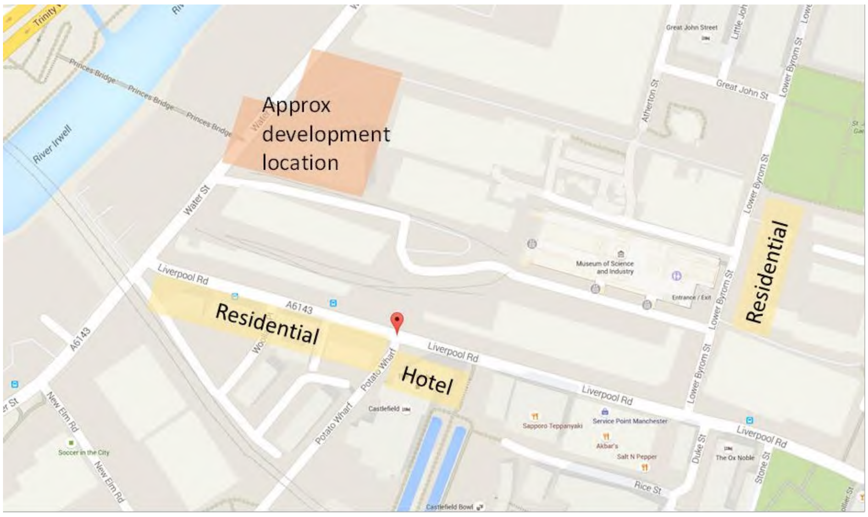


Figure 6.1 – Nearest Noise Sensitive Premises (NSPs) (©2016 Google)

Methodology of Assessment / Scope

6.92 The assessment will consider national policies and relevant local policy documents where applicable including:

- The requirements of Manchester City Council: Planning & Noise Technical Guidance, 2014
- World Health Organisation ‘Guidelines for Community Noise’, 1999

- National Planning Policy Framework (NPPF), 2012
- Noise Policy Statement for England (NPSE), 2010
- BS 5228:2014 – Code of practice for noise and vibration control on construction and open sites
- BS 7385-2:1993 – Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration
- BS 6472-1:2014 – Guide to evaluation of human exposure to vibration in buildings: Vibration sources other than blasting
- BS 4142:2014 – Methods for rating and assessing industrial and commercial sound
- BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings
- BS 7445-2:1991 – Description and measurement of environmental noise: guide to the acquisition of data pertinent to land use
- Calculation of Road Traffic Noise, Department of Transport, 1988
- ANC Guidelines: Measurement and Assessment of Groundborne Noise and Vibration, 2012
- IEMA Guidelines for Environmental Noise Impact Assessment, 2014.

6.93 The existing baseline conditions at and around the Site have been determined through a noise survey to advise the building envelope design. The noise assessment will make use of baseline data measured previously at locations 1, 2 and 3 as shown in ***Figure 6.2***. Measurements were made over a two week period from Tuesday 26 January 2016 to Tuesday 9 February 2016. Noise levels were measured over consecutive time interval of 5 minutes throughout the period. The main noise source was distant road traffic, particularly from Trinity Way.

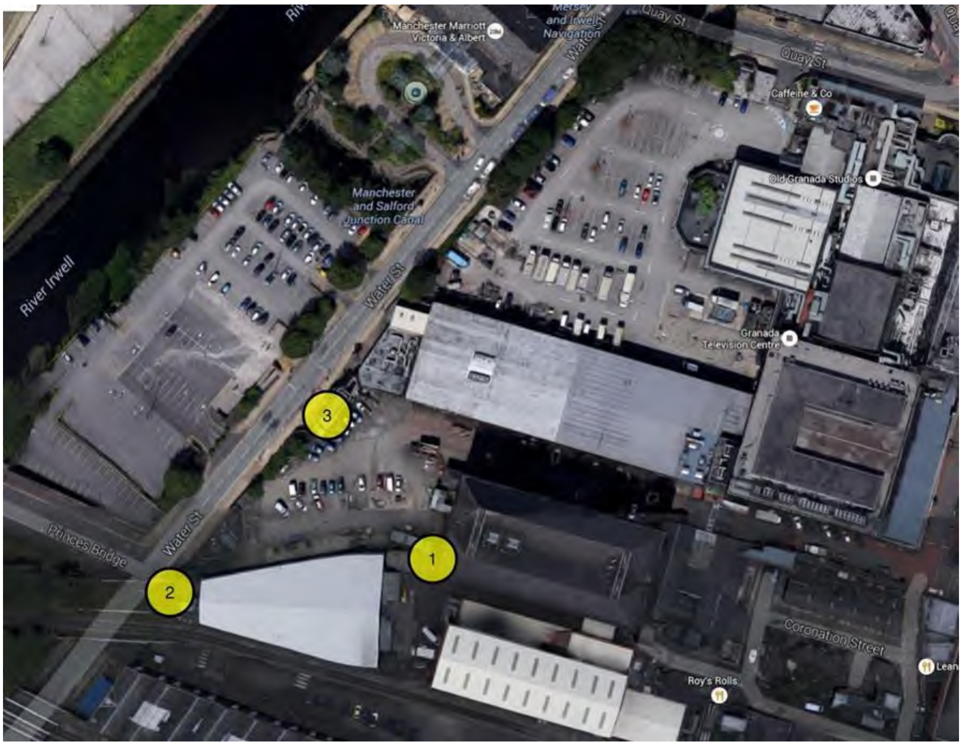

Manchester Marriott Victoria & Albert
Mersey and Irwell Navigation
Quay St
Quay St
Caffeine & Co
Old Granada Studios
Manchester and Salford Junction Canal
River Irwell
Water St
Granada Television Centre
3
Princes Bridge
Water St
1
2
Coronation Street
Roy's Rolls

Figure 6.2 – Noise measurement locations (aerial imagery ©2016 Google)

6.94 These measurements will be supplemented by additional short term attended measurements at the residential buildings in Liverpool Road and Lower Byrom Street.

6.95 The potential effects of the Implemented and Proposed Development on the surrounding area, and in particular on nearby noise sensitive premises, will be assessed by calculation and where required, by 3D noise modelling with respect to the relevant criteria.

6.96 The construction noise and vibration assessment will be based on the guidance given in BS 5228:2014, BS 7385-2:1993 and BS 6472-1:2014.

6.97 Effects of construction noise and vibration on the Museum of Science and Industry (MOSI) will be considered through consultation with MSI staff.

Significance Criteria

6.98 The thresholds for determining potentially significant effects at dwellings from construction noise will be derived using the ABC method described in Annex E of BS5228-1:2014, which is based on the ambient noise levels. Construction traffic, including site access/egress points, will be included in the assessment. Ambient noise levels will be established from the baseline noise survey. For non-residential receptors, significant effects will be evaluated on a receptor-by-receptor basis using impact criteria appropriate for the particular use of the receptor. The assessment of significance will be determined by evaluating the predicted construction noise against these thresholds along with other factors, such as the number of receptors impacted, the duration of the impact and the individual receptors' sensitivities.

6.99 Significance will also be considered in Government policy terms according to requirements of the Noise Policy Statement for England to define the lowest observed adverse effect level (LOAEL) and the significant observed adverse effect level (SOAEL). The effect levels in Table 6.11 will be applied for residential buildings.

Effect level	Time	Façade noise level
LOAEL	Day	65dB$L_{Aeq,daytime}$
	Evening	55dB$L_{Aeq,1hr}$
	Night	45dB$L_{Aeq,1hr}$
SOAEL	Day	75dB$L_{Aeq,daytime}$
	Evening	65dB$L_{Aeq,1hr}$
	Night	55dB$L_{Aeq,1hr}$

Table 6.11 – Significance criteria for assessing construction noise in terms of government policy

6.100 The overall significance of construction vibration will be assessed using professional judgement by considering the criteria in Table 6.2 and other factors, including the number of properties affected, the duration for which the impact is predicted, and the degree by which the assessment criteria are exceeded. If potentially significant impacts are predicted, these will be assessed further in terms of the vibration dose value (VDV) defined in BS6472-1:2014.

Table 6.12 – Significance criteria for assessing construction vibration impacts on people.

Impact Category	Vibration Levels	Potential Significance
Negligible	Peak particle velocity (PPV) less than 0.14 mm/s.	Not significant
Minor Adverse	PPV regularly exceeding 0.14 mm/s, but less than 0.3 mm/s.	Potentially significant
Moderate Adverse	PPV regularly exceeding 0.3 mm/s, but less than 1.0 mm/s.	Potentially significant
Major Adverse	PPV regularly exceeding 1.0 mm/s.	Potentially significant

6.101 Criteria for assessment of the risk of building damage due to construction vibration are set out in Table 6.13.

Table 6.13: Significance criteria for assessing construction vibration impacts on residential buildings

Category of building	Peak particle velocity (PPV) at building foundation	
	Transient vibration[1]	Continuous vibration[2]
Potentially vulnerable buildings[3]	≥6 mm/s	**≥3 mm/s**
Structurally sound buildings	≥12 mm/s	**≥6 mm/s**

Notes:

1. **Transient vibration relative to building response such as impulsive vibration from percussive piling.**
2. **Continuous vibration relative to building response such as vibrating rollers.**
3. **Criteria for aged buildings may need to be lower if the buildings are structurally unsound but criteria should not be set lower simply because a building is important or historic (listed).**

6.102 Risks of damage to exhibits and structures within MOSI will require individual assessment.

6.103 Noise emissions from events within the Factory will be controlled through design of the building envelope to not cause a significant effect at any existing residential building or at any residential building currently proposed in the immediate vicinity. Predicted noise emissions will be assessed in terms of the overall (LAeq) noise level and will also consider low frequency sound in the 63Hz and 125Hz frequency bands.

6.104 Significance criteria for building services noise will be determined using MCC's guidance and the background noise level obtained from the baseline noise survey data. The assessment will be based on a rating noise level (LAeq) of at least 5 dB below the typical background noise level (LA90) at the nearest noise sensitive location.

6.105 Control of noise emissions from the building to comply with the above criteria will ensure that there are no significant effects in terms of Government policy.

6.106 Changes in overall road traffic flows during operation of the Factory will be small. Noise level changes will be calculated using CRTN and assessed following the guidance in Highways Agency's (now Highways England) Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 7, HD213/11 – Revision 1. A level difference of 3dB(A) in road traffic noise will be used to indicate the possibility of a potentially significant effect.

6.107 Noise from patrons approaching and leaving events will be assessed qualitatively.

Summary of Assessment Scope

6.108 The key considerations associated with the noise and vibration impact of the development are summarised in Table 6.14. The impact from each of these on each of the nearby noise sensitive premises discussed above will be considered in the noise and vibration chapter of the ES.

Table 6.14: Summary of Assessment Scope for Noise and Vibration

Receptor	Impact	Potential Effect	Scoped In / Out
Existing and proposed nearby dwellings	Noise and vibration impact of temporary construction activities, including construction traffic site access	Temporary effects on human activity and health (e.g. annoyance, speech communication, sleep disturbance).	✓
	Noise impact of temporary construction traffic	Temporary effects on human activity and health (e.g. annoyance, speech communication, sleep disturbance).	✓

Receptor	Impact	Potential Effect	Scoped In / Out
	Noise impact of changes in road traffic levels due to the new development	Permanent effects on human activity and health (e.g. annoyance, speech communication, sleep disturbance).	✓
	Noise impact of new external fixed plant items associated with the development	Permanent effects on human activity and health (e.g. annoyance, speech communication, sleep disturbance).	✓
	Noise impact from events within the development	Permanent effects on human activity and health (e.g. annoyance, speech communication, sleep disturbance).	✓
	Noise impact associated with patrons approaching and leaving events	Permanent effects on human activity and health (e.g. annoyance, speech communication, sleep disturbance).	✓
	Cumulative noise impact in conjunction with other developments in the area	Permanent effects on human activity and health (e.g. annoyance, speech communication, sleep disturbance).	✓
MOSI	Noise and vibration impact of temporary construction activities, including construction traffic site access	Temporary effects on the amenity of visitors and staff. Permanent effects due to damage to exhibits and structures.	✓ ✓

Air Quality

Introduction

6.109 The EIA will assess the potential emissions to air and the effects on surrounding air quality and climate that may arise during the demolition, construction, and operational phases of the proposed development.

6.110 The proposed development may introduce air quality impacts during both demolition and construction and operational phases. The following key air quality issues will be addressed:

- Identification of development constraints in relation to air quality;
- Effects upon roadside residents along the route identified for construction vehicles including heavy goods vehicles (HGVs);
- Likelihood of suspended and re-suspended fugitive dust emissions from demolition and construction activities and HGV movements;
- Effect of increased operational traffic movements on nitrogen dioxide (NO_2) and particulate matter (PM_{10}) concentrations; and
- Consideration of the effect on air quality of the proposed development’s operational processes.

Establishing the Baseline

6.111 The application site’s central city location means that air quality is mainly influenced by emissions from road transport. Consequently, the primary influences on air quality at the application site will be the elevated background concentrations on the adjacent roads and throughout Manchester.

6.112 MCC has declared an Air Quality Management Area (AQMA) for nitrogen dioxide (NO_2) and particulate matter (PM_{10}), covering Major Roads within the Borough. MCC’s air quality assessment work has shown that concentrations in many parts of the Borough exceed the standards for these pollutants. In particular, emissions from road traffic have caused elevated concentrations close to busy and congested roads.

6.113 Current planning policy guidance supports the need to consider air quality as a material consideration in any application where a change might occur in an AQMA as a consequence of the development proposals, or where proposals introduce new exposure in areas of existing poor air quality.

6.114 There are no industrial pollution sources in the immediate vicinity of the application site that will affect air quality.

Potential Effects

Demolition and Construction Phase

6.115 During the demolition and construction phase, activities on the application site could give rise to dust, which, if transported beyond the application site boundary, could have an adverse effect on local air quality. Dust is comprised of particles typically in the size range of 20-80µm in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials.

6.116 Dust can cause nuisance when settled particles show up as deposits on clean surfaces such as cars and window ledges.

Operational Phase

6.117 Two main potential sources of air pollution are identified, these include vehicle exhaust emissions resulting from traffic on existing roads or generated by the proposed development, and emissions from any proposed Combined Heat and Power (CHP) plant. Both of these sources have the potential to affect local pollution levels, both within and surrounding the application site.

6.118 The pollutants of greatest concern in respect of the impact on public health, which are found in the exhaust emissions of combustion sources, are nitrogen dioxide (NO_2), particulate matter (PM_{10}), carbon monoxide (CO) and benzene. Of these pollutants, NO_2 and PM_{10} are present in the highest concentrations relative to air quality standards.

6.119 At very high concentrations, NO_2 can irritate the airways of the lungs, increasing the symptoms of those suffering from respiratory diseases. PM_{10} particles can be carried deep into the lungs, and at very high concentrations can cause inflammation and a worsening of heart and lung diseases. Standards set in regulations reflect the effect of these pollutants to human health.

Assessment Methodology

6.120 The following issues will be considered within the assessment:

- The baseline conditions in relation to air quality at the application site and the surrounding area;
- The processes of construction and the potential for dust nuisance to occur; and
- Future air quality at the application site and the impact the proposed development will have on air quality once it is operational (traffic emissions).

6.121 Air quality data from the monitoring stations closest to the application site and information from DEFRA's UK AIR (Air Information Resource) will be collected and reviewed. This data, in addition to the 2014 monitoring data will be used to provide information on the background air quality at the application site and to validate the modelled predictions.

6.122 A desk study to confirm the locations of any local areas which would be sensitive to a change in local air quality resulting from the proposed development shall be undertaken.

6.123 The traffic flow data collected for the proposed development will be reviewed.

Demolition and Construction Phase

6.124 A qualitative assessment of the effects on local air quality from dust emissions during demolition and construction will be undertaken following guidance published by the Institute of Air Quality Management (IAQM).

6.125 The study area to be considered in the assessment of demolition and construction impacts includes areas within 350m of the application site boundary.

Operational Phase

6.126 A detailed assessment of the effects of road traffic emissions from both existing traffic and that associated with the proposed development will be undertaken. This will use computerised dispersion modelling to predict concentrations of NO_2 and PM_{10} at sensitive receptors.

6.127 Modelling will be carried out following Government guidance and using an appropriate model. Dispersion modelling calculations will be verified using data from nearby roadside monitoring station, or other appropriate monitoring locations with agreement from MCC.

6.128 An assessment of the effects of emissions of products of combustion from any proposed CHP plant will be undertaken by dispersion modelling.

6.129 Model predicted concentrations will be compared to the current statutory standards and objectives and guidance provided by the IAQM and Environmental Protection UK.

Indicative Mitigation & Enhancement Measures

6.130 The following are some indicative examples of the measures that will be inherent in the design to limit the effects of poor air quality. Further examples of indicative mitigation and enhancement measures are subsequently provided.

- Specification of low NOx plant and abatement;
- Consider ventilation with intakes located furthest from potential sources of pollution;
- Improved building insulation (above current regulations); and
- Use of vegetation such as green walls and roofs.

6.131 Other mitigation and enhancement measures required not related to the building design might include:

- Use of a Construction and Environmental Management Plan (CEMP) to limit dust generation during the construction phase;
- Development of Travel Plans;
- Provision of alternative fuels - electric charging points;
- Arrangements for deliveries to the site and removals from the site, covering specification of types of vehicles and hours of operation, design of delivery areas and specifications for lorry parking and turning spaces.

Summary of Assessment Scope

6.132 Table 6.15 below summarises the Air Quality assessment scope.

Receptor	Impact	Potential Effect
Pedestrians during construction	Dust from construction	Potential exceedance of air quality standards for fine particulate matter.

Receptor	Impact	Potential Effect
Pedestrians during operation	Traffic pollution (NO2 / PM10/ PM2.5)	Potential creation of unacceptable levels of air pollution
Residential dwellings and commercial buildings during construction.	Dust from construction	Potential dust nuisance at nearby dwellings and commercial properties relating to the exceedance of air quality standards for fine particulate matter
Residential dwellings and commercial buildings during operation.	Traffic pollution (NO2 / PM10/ PM2.5)	Creation of unacceptable levels of pollution at nearby dwellings and commercial properties.

Figure 6.15 - Summary of Assessment Scope for Air Quality

Ground Conditions and Contamination

Introduction

6.133 This section of the EIA Scoping Report outlines the proposed approach to the ground conditions assessment to accompany the ES.

6.134 In the UK the assessment of risk from ground contamination follows the Source - Pathway - Receptor approach. If one of these three elements is absent, it is considered that there is no risk of harm. On a site where there is no history of contaminative land uses with no sources of any significance, any contamination is likely to be very minor (in terms of concentration and nature and likely to be very localised). In such a case, the relevant receptors are likely to be restricted to human receptors (construction workers, residents, visitors and neighbours) and the buildings or below ground infrastructure. Any water resource receptors, in the form of groundwater within the vicinity of the site and any surface water courses or water bodies will also be consider

Baseline Conditions

6.135 A Phase I Desk Study Report (Buro Happold report entitled 034933 The Factory, Manchester Ground Engineering Desk Study Report dated June 2016) is currently being produced for the development site. Based on the Desk Study assessment, the likelihood of potential ground contamination affecting the proposed development was considered to be of moderate risk. The potential contamination Source-Pathway-Receptor linkages identified as part of the Desk Study should be investigated as part of the site specific ground investigation and laboratory testing.

6.136 Based on the current development proposal, the Phase I Desk Study Report concludes that the baseline condition has a number of potential sources of contamination and thus a moderate risk of ground contamination. There may be a potential risk of harm to both human and environmental receptors requiring further assessment and in this case it is proposed that a full land quality assessment is scoped in to the ES. Scheme specific ground investigations together with groundwater and ground gas monitoring data will need to be completed in accordance with the current development proposals.

Method of Assessment

Baseline assessment

6.137 This will include a review and summary of all available data and any previous investigation work undertaken on site to date.

Effect prediction and assessment of effect significance

6.138 A conceptual model of the site that describes the environmental features of the site together with the expected interaction of potential contamination sources with the environment will be developed. This will be done by undertaking a Source – Pathway – Receptor assessment of the site:

- Sources - potential or known contaminant sources e.g. historic site land uses.
- Pathways - mechanisms/systems thorough which exposure to a contaminant could occur e.g. direct contact or migration through air, over land or via permeable ground etc.
- Receptors - sensitive environmental receptors that could be adversely affected by a contaminant. e.g. site occupiers, groundwater resources, ecological resources.

6.139 Where a source, relevant pathway and receptor are present a “contaminant linkage” is created whereby there is a circumstance through which some level of environmental harm could occur which has to be assessed and mitigation measures identified as appropriate.

6.140 The methodology for effect prediction is based on assessing both the magnitude of the changes expected and the sensitivity of the receptors. Criteria for assessing the significance of potential human and environmental effects will be based on a qualitative assessment of the magnitude of the effect, or how far the effect deviates from the baseline condition, and the receptor sensitivity.

6.141 So for example a large magnitude of effect would be considered to be:

- A short term (acute) or long term (chronic) adverse effect on human health equivalent to “significant harm” as defined by the Environmental Protection Act 1990).
- A persistent and extensive pollution of water resource or ecosystem equivalent to Category 1 pollution incident (major pollution release).
- Catastrophic damage to crops, buildings or infrastructure.
- Receptors are considered to have varying degrees of sensitivity to contamination potentially present beneath the site based on potential effects and the integrity of any site specific exposure pathways. The significance of ground conditions effects are influenced by this receptor sensitivity.

6.142 So for example, receptors of high sensitivity are considered to be:

- Occupying human receptors (on site or on neighbouring sites) occupying land in residential with gardens land use, or using allotments, children’s play areas etc.
- Construction worker human receptors engaged in extensive earthworks.
- Significant environmental receptors such as a major aquifer of regional importance that is used for potable water supply, a highly ecologically sensitive watercourse or water bodies, a nationally or internationally designated ecological site, or a buildings of high historic or local importance.

6.143 The assessment of ‘effect magnitude and sensitivity’ of the receptor are thus used to qualitatively assess the ‘effect significance’ of the proposed development. Effects have the potential to be either adverse or beneficial. For example, the development may remove a source of contamination or may break a pathway that currently links a source to a receptor (ground contamination relies on a Source, Pathway and Receptor to be present).

6.144 The significance of the effect depends upon the sensitivity of the receptor and the ways in which the development can provide a Pathway to the Receptor. The significance of an effect also takes account of the timescales involved, i.e. short-term (less than three years duration), medium-term (between three and 10 years duration) or long term (in excess of 10 years duration) in addition to the extent of the area affected.

Summary of Assessment Scope

6.145 Assessment will consider potential ground contamination impacts associated with construction of the development as well as potential operational impacts.

6.146 The ground contamination chapter will address issues relating to existing ground conditions at the development site, with the aim of ensuring that suitable and safe conditions are achieved in the redevelopment of the various end-uses of the proposed development.

6.147 The assessment will take full consideration of the conceptual model of the site [the potential sources of contamination, the receptors that could be affected and the pathways that could link these sources to the receptors]. For the purposes of this chapter, ground conditions include issues associated with the geological, hydrogeological and hydrological regimes, including the soil gasses and vapours, chemicals within ground mass below the site, within the surface water bodies on and adjacent to the site and within groundwater beneath the site.

6.148 A range of effects associated with the design, construction and operation of the proposed development will be considered, including potential ground contamination. The assessment shall be carried out with reference to the relevant sections of the NPPF (March 2015) and local planning guidance, relevant British Standards, CIRIA C665 and other relevant good practice guidance.

6.149 The assessment will consider land affected by contamination which may affect, or be affected by, the construction (including demolition and remediation activities) and subsequent operation of the proposed development. Demolition, remediation and construction schemes can have an impact on and from the geology, soils, groundwater, surface waters and ecology of the area.

6.150 Constraints could also be imposed on the construction of the proposed development as a result of existing ground conditions. Effects may be adverse or beneficial. The assessment methodology is designed to identify both in addition to identifying ways in which to minimise adverse effects and to maximise beneficial effects. There is also an opportunity for environmental gain through any remediation carried out as an integral element of the redevelopment, where the proposed works impinge on residual contaminated land which otherwise would remain un-remediated.

Table 6.16 - Summary of Assessment Scope for Ground Conditions

Receptor	Impact	Potential Effect	Scoped In / Out
Human Health – current site users	Release of contaminants / ground gas during construction	Exposure pathways to contamination in Made Ground - oral ingestion of soil, dermal contact of soil, soil dust inhalation. Migration of ground gas.	Scoped in
Human health – off-site public	Release of contaminants / ground gas during construction	Outdoor inhalation of site dust. Migration of ground gas .	Scoped in
Environment – Chester Pebble Beds (Sherwood Sandstone – Principal Aquifer)	Release of contaminants during construction	Vertical migration of leachate from on-site Made Ground. Spillage from fuel in car parks/construction plant/storage areas.	Scoped in
Environment – River Irwell/Manchester & Salford Junction Canal	Release of contaminants during construction	Vertical migration of leachate from on-site Made Ground.	Scoped in

Receptor	Impact	Potential Effect	Scoped In / Out
(disused)/Bridgewater Canal		Spillage from fuel in car parks/construction plant/storage areas.	
Environment – onsite vegetation (green space)	Release of contaminants during construction	Plant uptake of phytotoxic metals from Made Ground.	Scoped in
Property – onsite property	Release of contaminants / ground gas during construction	Soil dust inhalation. Migration of ground gas.	Scoped in
Property – offsite property	Release of contaminants / ground gas during construction	Migration of site derived dust during construction. Migration of ground gas .	Scoped in

Climate Change

6.151 The Proposed Development’s effects on climate change and climatic factors for individual topics will be considered within the relevant chapters of the ES.

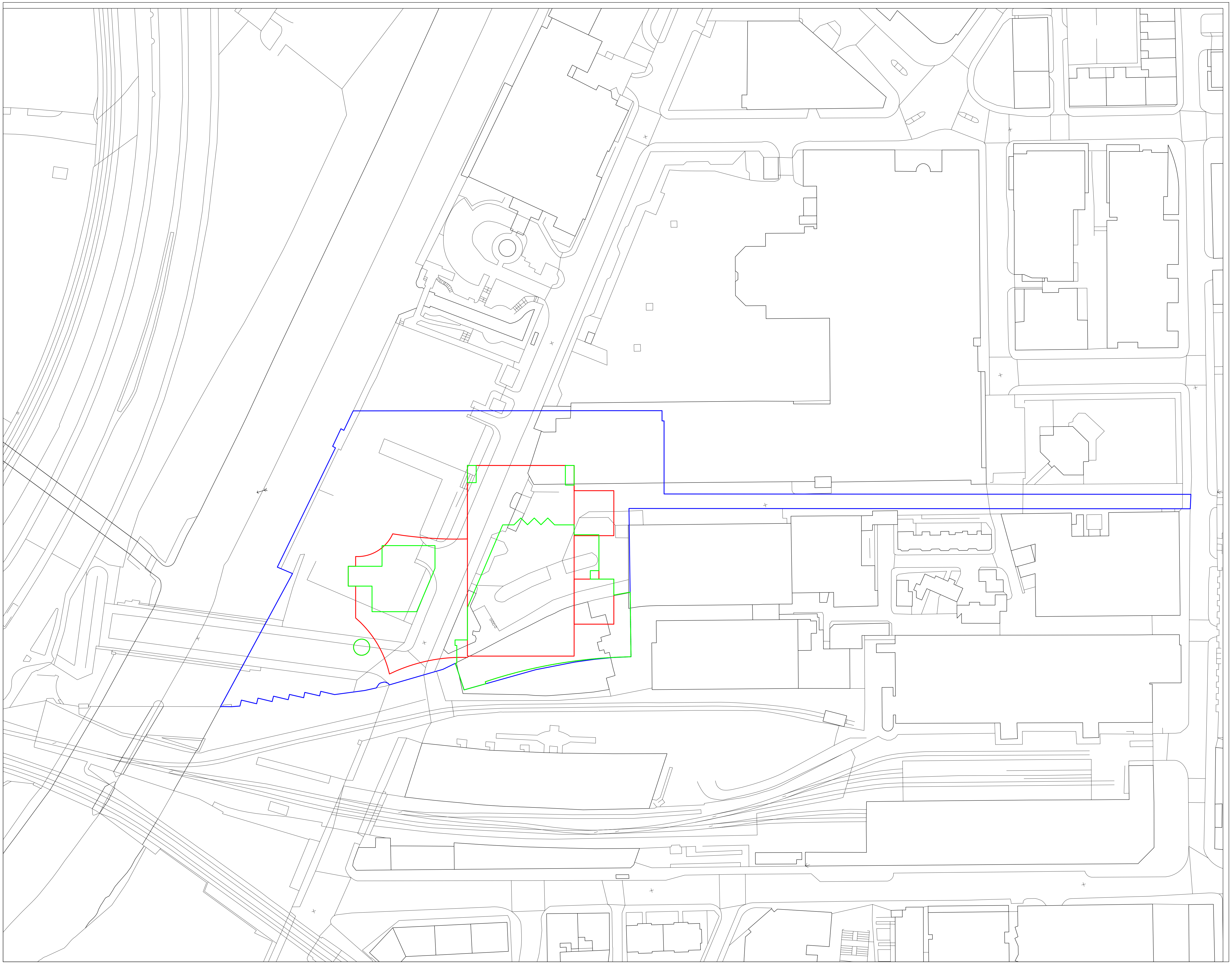
Mitigation Summary

6.152 A summary of environmental effects, mitigation measures and residual effects will be presented as a matrix at the back of the ES.

Cumulative Effects

6.153 Where relevant, the ES chapters will discuss the Type 1 effects (i.e. interaction of effects resulting from the Proposed Development). An assessment of the Type 2 effects (i.e. from the Proposed Development combined with the committed developments and reasonable foreseeable schemes identified in Appendix 2) will be included within each of the ES technical chapters.

Appendix 1 – Site Location Plan



PROJECT

FACTORY MANCHESTER

CLIENT

ARCHITECT

LOCAL ARCHITECT

ENGINEER

LOCAL ENGINEER

COST CONSULTANT

ACOUSTIC ENGINEER

LANDSCAPE ARCHITECT

SCENOGRAPHY

🟦 Area including indicative area for construction

🟥 Building Footprint at Roof

🟩 Building Footprint at GF

Total area:
1.45ha

Footprint at GF:
3528m2

Footprint at Roof:
5479m2

Overall Height (AOD):
62320mm

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01	08-04-2016	STAGE 2 SUBMISSION
00	25-03-2016	STAGE 2 DESIGN FREEZE
REVISION	DATE	DESCRIPTION

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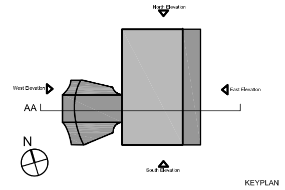


KEYPLAN

AUTHOR -	REVIEWED BY -	APPROVED BY -

TITLE

Red Line Boundary for Planning

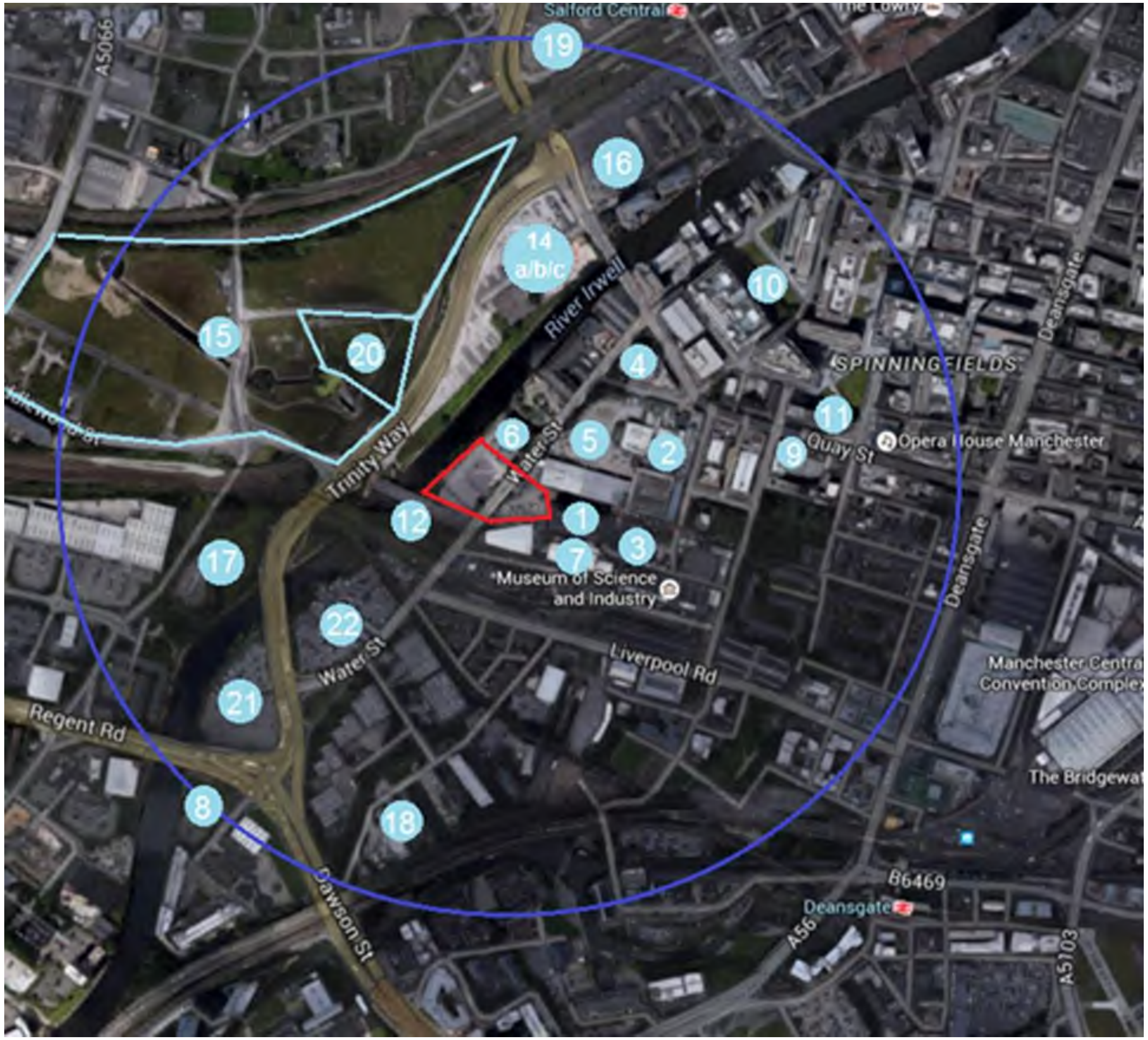
STATUS

REVISION

-	1 : 1250	A3	01
PROJ. NR.	SCALE	FORMAT	

SHEET NR.

Appendix 2 – Schemes Considered for Cumulative Assessment



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River Irwell
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SPINNINGFIELDS
Deansgate
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Opera House Manchester
Quay St
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Water St
Trinity Way
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Museum of Science and Industry
Deansgate
22
Water St
Liverpool Rd
Manchester Central Convention Complex
21
Regent Rd
The Bridgewat
8
18
B6469
Deansgate
A56
Dawson St
A5103

Reference	Address	Description	Approved	On Site?
St Johns Applications				
1. 'Bonded Warehouse'	*Bounded by Water Street, Museum of Science and Industry and the old Granada Studios.*	Demolition of outbuildings, adjoining former stables building and external fire escape to facilitate the conversion and refurbishment of the lower ground, upper ground and first floors of the Bonded Warehouse for retail (use class A1), restaurant (use class A3), bar (use class A4) or continued office (use class B1) use; and refurbishment of the second, third and fourth floors for continued office use (use class B1); along with the installation of roof plant and enclosure, minor external alterations to facilitate new entrances, creation of three external lightwells for external seating, façade lighting, landscaping and cycle parking	21 October 2015	No
2. 'Manchester Grande'	*Bounded by Water Street, Museum of Science and Industry and the old Granada Studios.*	Conversion of the existing Granada HQ Building and studios into a hotel and event space; demolition of the four storey annexe building and erection of a new eight storey building providing managed workspace and a rooftop pool; demolition of Studio 8 and the creation of a new pedestrian link; demolition of associated administration buildings and workshop space; creation of a new public walkway to provide access to the event space; use of the existing Breeze Studio Gardens as a managed public space; use of the existing area of surface car parking as a temporary surface car park together with creation of a new vehicle access from Water Street.	21 October 2015	No
3. 'Village Phase 1'	*Bounded by Lower Byrom Street, Museum of Science and Industry and*	Works would comprise comprehensive redevelopment of the Site to create a mixed use development of 5 to storeys including approximately 60 residential units, plus a community centre,	21 October 2015	No

Reference	Address	Description	Approved	On Site?
	the old Granada Studios.	energy centre, retail units and workspace for small businesses.		
4. 'St Johns Place'	*Bounded by Water Street, Quay Street and New Quay Street.*	Demolition of the existing Globe & Simpson and Albert Shed buildings; erection of new buildings, including a tower element (of up to 52 storeys), for residential and hotel use, together with associated public realm and car parking.	Submitted June 2016.	No
5. Village 2	*Bounded by Water Street, the Bonded Warehouse and the old Granada Studios.*	Residential-led, mixed use development incorporating workspaces, retail, leisure, restaurant, bar uses as well as community facilities, public realm and green space and car parking. The proposals include a tall building of 40 storeys.	To be submitted September 2016.	No
6. Riverside	*Bounded by the River Irwell, Water Street, and the proposed Factory site.*	Two residential buildings of circa 34 storeys.	To be submitted late 2016.	No
7. Energy Centre	*Bounded by Museum of Science and Industry and the old Granada Studios.*	A gas-powered combined heat and power facility, which will sit largely within the existing Stage 2 Building and will provide heat and power for development across the St. John's Masterplan.	Submitted June 2016.	No
8. 105611/FO/2014/C1 Link	1 Water Street Manchester M3 4JU8	28 storey building with 307 units, ground floor commercial units and two levels of basement car parking, landscape and public realm works	31 October 2014	Yes
9. 107281/FO/2014/C1 Link	Astley House & Byrom House 23 Quay Street Manchester M3 4AS	Demolition of Astley House and Byrom House and redevelopment of the site for the erection of a building up to 16 storeys in height, comprising offices (class B1) on the upper floors, restaurants and cafes (Class A3) on the ground floor, basement car and cycle parking, and related highways, access, servicing, landscaping, and associated works.	2 July 2015	No
10. 103505/FO/2013/C1	2-3 Hardman Boulevard Spinningfields Manchester M3 3AQ	Erection of a new office building comprising offices (Class B1), ground floor restaurant (Class A3), a gym (Class D2), basement car	30 Dec 2013	Yes

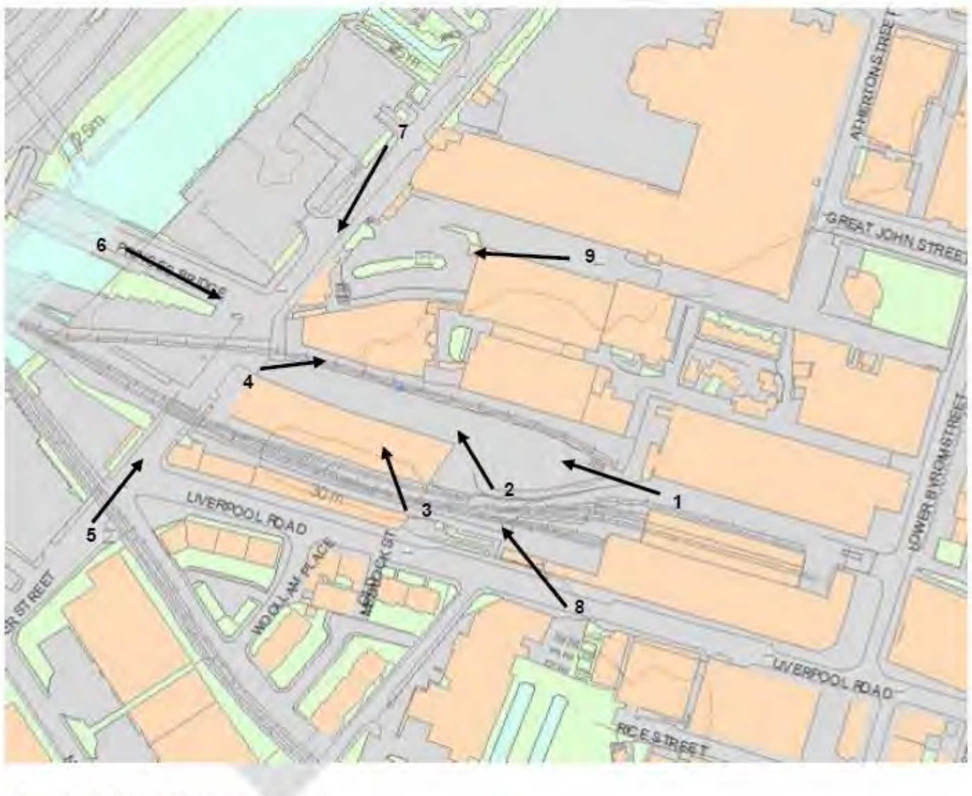
Reference	Address	Description	Approved	On Site?
Link	(known as 'XYZ Building')	parking, cycle parking provision, related highways, access, servicing, landscaping, roof top plant and associated works.		
11. 104702/FO/2014/C1 (Minor amendment application reference 108126/JO/2015/C1 subsequently approved) Link	Quay House Quay Street Manchester M3 3JE (known as '1 Spinningfields')	Demolition of Quay House and redevelopment of the site for the erection of a 21 storey building comprising offices (class B1) on the upper floors, with a restaurant (Class A3) at Level 18, retail (Class A1), restaurant and cafe uses (Class A3) at ground floor, basement car and cycle parking, and related highways, access, servicing, landscaping, roof top plant and associated works.	13 May 2014 / 22 May 2015	Yes
12. 103615/LO/2013/C1 Link	Girder Bridge leading to railway viaduct over River Irwell, leading to Lower Byrom Street Warehouse (that part in Manchester)	Demolition of iron Girder Bridge including brick and stone abutments on the Manchester side and retention of the central iron column and stone pier within the River Irwell.	Application Pending	No
13. 13/63267/DCO	Ordsall Chord Transport and Works Act West Of Manchester City Centre Between Existing Railway Structures In The Vicinity Of The Museum Of Science And Industry And Trinity Way.	Construction of a new elevated chord railway linking the Bolton Lines railway near Castlefield Centre with the Chat Moss Lines railway near Salford Central station to provide a direct link between Manchester Piccadilly, Oxford Road and Victoria Rail Stations, and associated Listed Building Consents. The Transport and Works Act Order was made in March 2015 and construction commenced during Spring 2015. Operation of the Ordsall Chord is scheduled to commence in December 2017.	Order Granted 25 Mar 2015	Yes
14a. 15/66404/REM	Land Adjacent To Premier Inn South Of Stanley Street Salford	Details of reserved matters for access, appearance, landscaping, layout and scale for development of Plot A5 for erection of an 11-storey building to provide 90 apartments (use class C3); together with associated ancillary facilities, servicing, access, parking, landscaping and public realm, pursuant to outline planning permission 09/57950/EIAHYB	16 Jul 2015	Yes
14b. 15/67019/REM	Land Adjacent To Plot A5 Of Salford Central Masterplan Stanley Street	Details of reserved matters application for access, appearance, landscaping, layout and scale for development of Plot A6 for erection of a 16-storey building to provide 135 apartments (use	03 December 2015	Yes

Reference	Address	Description	Approved	On Site?
	Salford	class C3); together with associated ancillary facilities, servicing, access, parking, landscaping and public realm, pursuant to outline planning permission 09/57950/EIAHYB		
14c. 16/68325/OUT	Land Surrounding Stanley Street Bound By Trinity Way, Irwell Street And River Irwell M3 5DA	Outline application for the comprehensive phased regeneration of Zone A/C of the Salford Central masterplan area for a residential led (maximum 843 dwellings) mixed use development including tall building (up to 100 metres / 33 storeys) and ground floor commercial units with potential for offices, retail, food and drink, entertainment and leisure uses (Use Classes A1, A2, A3, A4, A5, B1 and D1) together with associated car parking, landscaping and infrastructure.	Submitted 04 June 2016. Awaiting determination.	No
15. 06/52762/OUT (subsequently extended by 13/64081/OUTEIA and varied by 14/65457/OUTEIA) **Reserved Matters application: 15/67135/REM** Link	Middlewood Locks (Salford City Council)	Outline application (access only) for mixed use development comprising 142,697 sq m residential use (Class C1 and C3); 67,773 sq m commercial use (Class B1); and 27,191 sq m leisure/retail use (Class A1, A2, A3, A4 and D2) together with associated uses, car parking, landscaping and infrastructure. Reserved Matters: *"Details of reserved matters application for the landscaping of plot O, along the Manchester, Bolton and Bury Canal and the appearance, landscaping, layout and scale of development of plots F, I, J for the erection of buildings ranging in height from 6 to 9 storeys to provide 571 apartments (use class C3) and 1,407sq.m of commercial floorspace (use classes A1, A2, A3, D1); together with associated ancillary facilities, servicing, access, parking, landscaping and public realm, pursuant to outline planning permission 14/65457/OUTEIA."*	21 Nov 2014 (Time Extension Approval). *Reserved Matters approved 15 Dec 2015.*	Yes *(Reserved Matters approved element only)*
16. 09/57950/EIAHYB (and subsequent reserved matters / variation applications) Link	Salford Central (Salford City Council)	Outline application for a comprehensive phased regeneration of Salford Central, including selective demolition, for a mixed-use development of new, improved, altered and replacement buildings, for offices/commercial use (use classes A2 and B1, maximum 197,010sq.m), retail, food and drink and entertainment (use classes	21 Jan 2010 (Original Permission)	Yes

Reference	Address	Description	Approved	On Site?
		A1, A3, A4 and A5, maximum 24,255sq.m), leisure (class D1), hotels (class C1 maximum 140 and 250 bedrooms) and residential use (maximum 849 dwellings) together with associated car parking, landscaping and infrastructure. Detailed application for highway and associated works to Chapel Street (between Oldfield Rd and Trinity Way) and the laying out of public space at Stanley Street.		
17. 14/64851/FUL Link	Land At Wilburn Street Salford	Mixed-use development comprising of 491 residential units, in four buildings from 8 to 21 storeys high , 670m2 of Shops, Financial and Professional Services units, Business, together with associated car parking and landscaping	30 Jan 2015	Yes
18. 109335/FO/2015/C1	Land at Potato Wharf, Castlefield, Manchester (Potato Wharf Blocks 3 and 4)	Residential development comprising 191 apartments overs two eight storey blocks, as an extension to the existing Potato Wharf development. Block 3 comprises 112 units, with a combination of 1 and 2 bedrooms, plus one 2 bed townhouse; Block 4 comprises 79 units, with a combination of 1 and 2 bedrooms.	3 November 2015	No
19. 15/66415/FUL	Land Bounded By Gore Street, Trinity Way And Chapel Street Salford	Demolition of existing building and redevelopment of site to provide: three residential buildings ranging from 13 to 22 storeys comprising 364 apartments (Use Class C3) sitting on a two storey podium containing commercial and retail floorspace (872 sq.m) (Use Classes A1, A2, A3, A4, A5 and/or B1), car parking (107 spaces) and related servicing and plant; eleven townhouses; new access and landscaping and associated works.	Awaiting Decision (Validated 18 May 2015)	No
20. 14/65793/OUT	Land At Middlewood Basin Off East Ordsall Lane Salford M5	Mixed use development including residential (C3) and commercial uses (B1, A1, A2, A3, A4, A5) together with ancillary car parking and public realm/landscaping.	15 May 2015	No
21. -	Part of the St. John's Masterplan-Trinity Islands Scheme	Five residential towers from 20 to 30 storeys in height, incorporating two ground plus 3 storey podium elements with car parking and amenity space at lower level. Circa 1,200 residential units, with a mix of 1, 2 and 3 bedrooms. Approximately 650 car		No

Reference	Address	Description	Approved	On Site?
		parking spaces. The podium elements will also include educational, retail and gym uses, together with cycle parking		
22. **-**	Part of the St. John's Masterplan- Trinity Islands Scheme	As above		No

Appendix 3 – Heritage Viewpoints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PRINCES BRIDGE
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LOWER BYROM STREET
2
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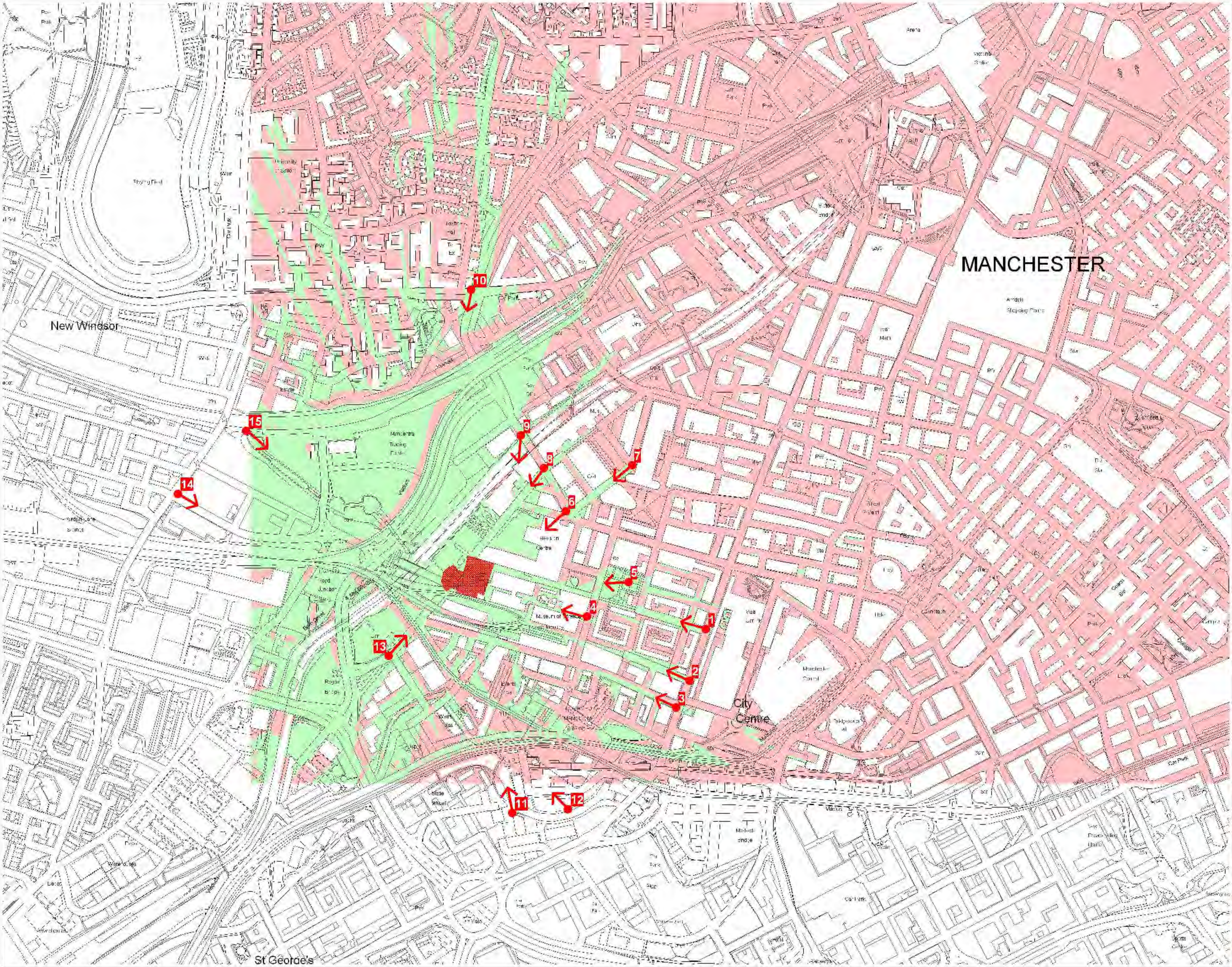
LIVERPOOL ROAD
5
R STREET
WOOLLAM PLACE
8
LIVERPOOL ROAD
RICE STREET

Figure 5: Propsoed key views

View 1: MOSI Power Hall	**View 2:** MOSI lower level courtyard	**View 3**: MOSI Station Platform
View 4: MOSI 1830 Warehouse west	**View 5:** Water Street south side looking north – listed bridges	**View 6:** Princess Bridge
View 7: Water Street north side looking south	**View 8:** Liverpool Road MOSI	**View 9:** Grape Street/ Bonded Warehouse

Appendix 4 – Townscape Viewpoints


MANCHESTER
New Windsor
City Centre
St George's
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Museum of

Key

🟥	development site
●	viewpoint
🟩	building visible
🟥	building not visible
☐	OS Local Vector building footprints and/or DSM no data values

(NB Viewshed analysis is calculated from the top of the building to locations 1.6m above the DSM data taking into account a normal earth surface curvature correction.)

250
500
metres

Date	Details	Revision

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CHRIS BURNETT

Client **Manchester City Council**

Project **The Factory, Manchester, TVIA**

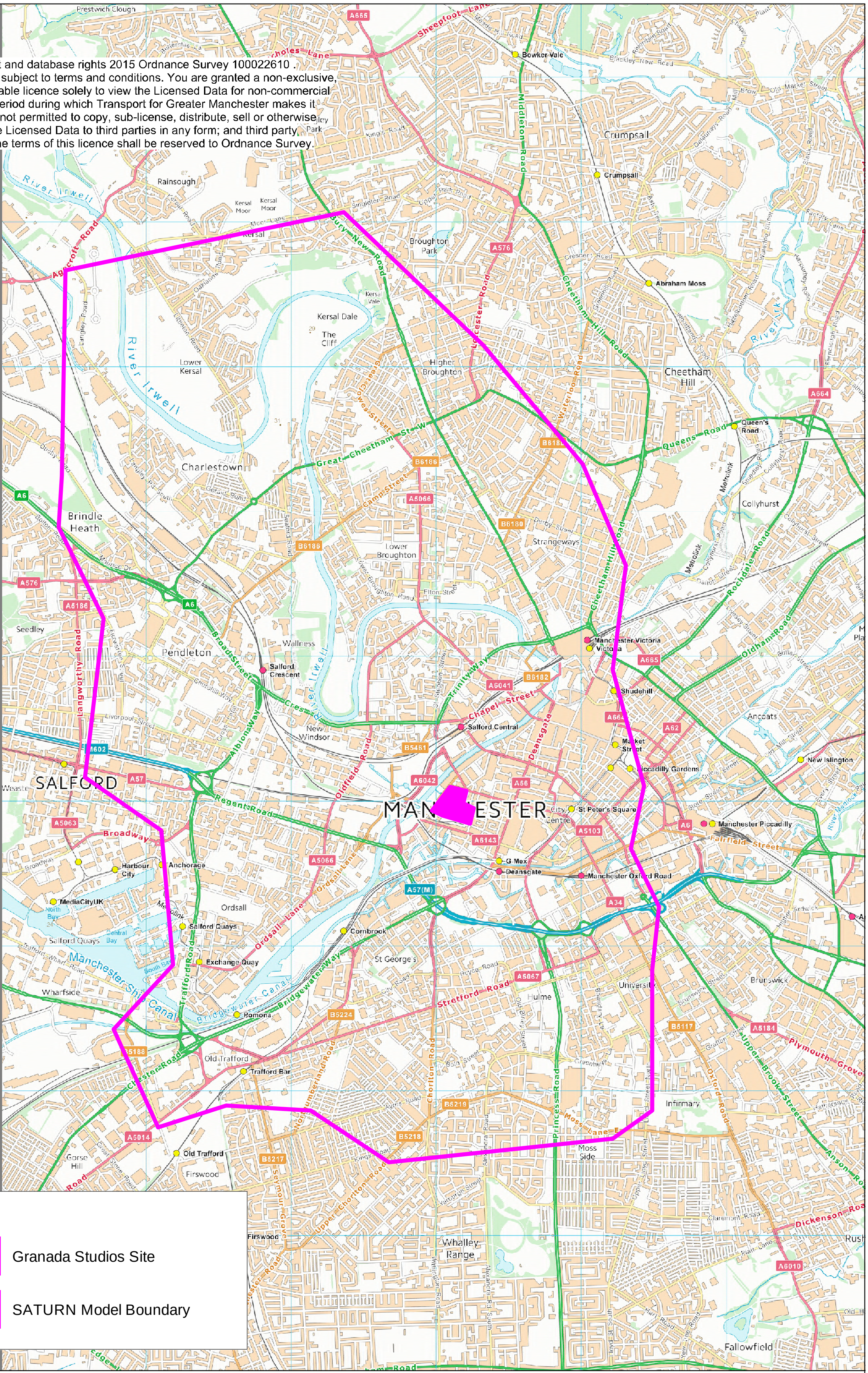
Title **Viewpoint Map and Viewshed Analysis**

Scale **1:750 @ A3**

Date	Drawn	Checked
04/05/16	JHD	CB

Reference **TFTVIA16.03** Revision

Appendix 5 – Transport Model



Prestwich Clough
Bowker Vale
Crumpsall
Rainsough
Kersal Moor
Kersal
Broughton Park
Abraham Moss
Kersal Dale
The Cliff
Lower Kersal
Higher Broughton
Cheetham Hill
Queen's Road
Charlestown
Brindle Heath
Collyhurst
Lower Broughton
Strangeways
Seedley
Pendleton
Wallness
Salford Crescent
Manchester Victoria
Victoria
Shudehill
Salford Central
New Windsor
Ancoats
Market Street
Piccadilly Gardens
New Islington
SALFORD
MANCHESTER
City Centre
St Peter's Square
Manchester Piccadilly
Harbour City
Anchorage
MediaCityUK
Ordsall
Salford Quays
G-Mex
Deansgate
Manchester Oxford Road
Cornbrook
Exchange Quay
St George's
Hulme
Wharfside
Pomona
Old Trafford
Trafford Bar
University
Brunswick
Infirmary
Gorse Hill
Firswood
Moss Side
Whalley Range
Fallowfield
River Irwell
Manchester Ship Canal
Bridgewater Canal
Great Cheetham Street West
Cheetham Hill Road
Bury New Road
Middleton Road
Leicester Road
Waterloo Road
Regent Road
Broadway
Trafford Road
Chester Road
Stretford Road
Princess Road
Oxford Road
Upper Brook Street
Rochdale Road
Oldham Road
Queens Road
Langworthy Road
Chapel Street
Trinity Way
Deansgate
Oldfield Road
Ordsall Lane
Bridgewater Way
Albion Way
Broad Street
Plymouth Grove
Dickenson Road
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Key

■ Granada Studios Site

□ SATURN Model Boundary

St John's Masterplan - SATURN Model Coverage

Transport for Greater Manchester 2 Piccadilly Place, Manchester, M1 3BG	Drawn By : SN	Date : May 2015
	Scale : NTS	Report : 123 Figure : 1

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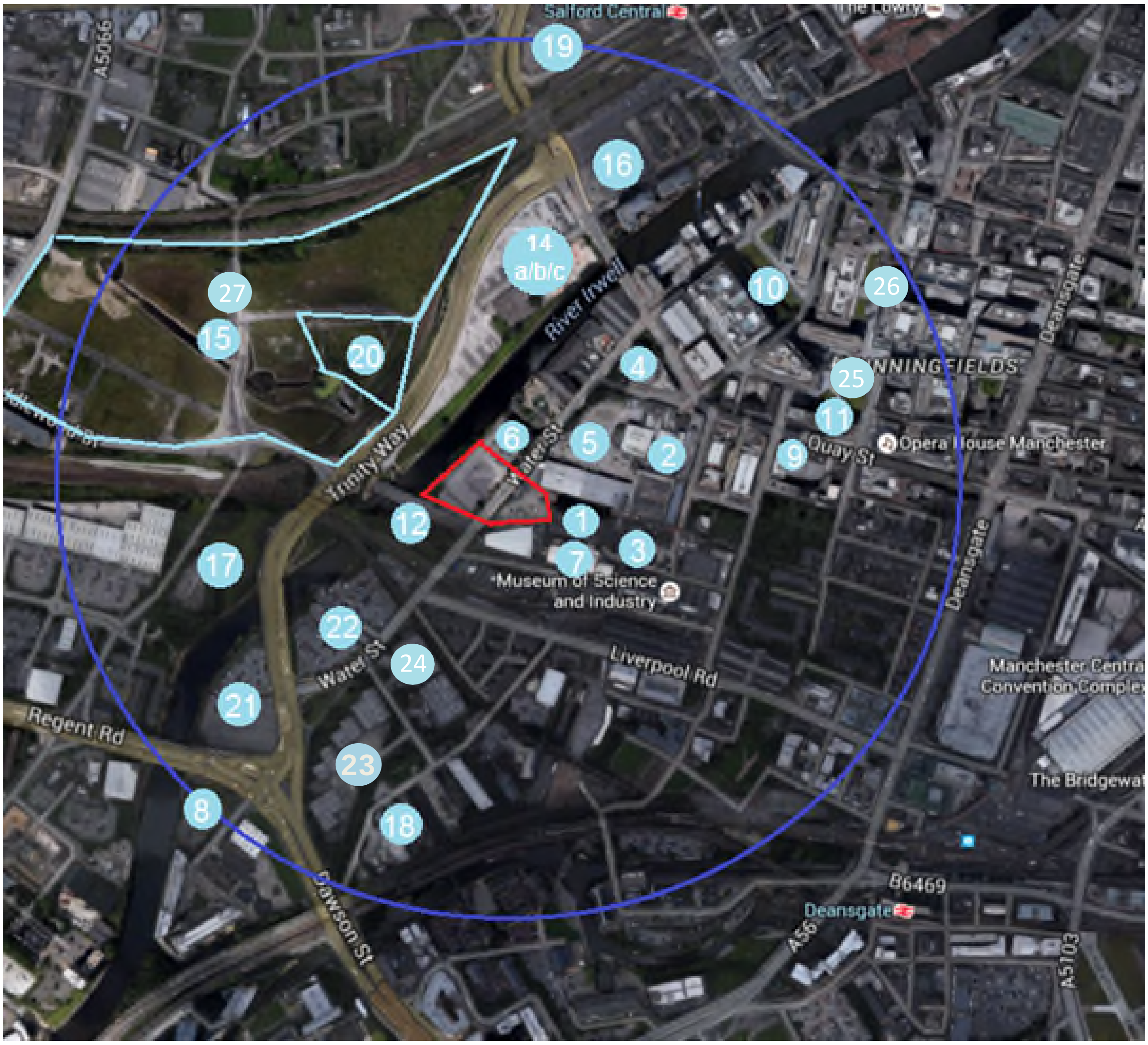
Appendix 2.2

List of Committed Developments



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The Lowry
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SPINNINGFIELDS
Deansgate
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Opera House Manchester
Quay St
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Water St
Trinity Way
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Museum of Science and Industry
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Water St
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Liverpool Rd
Manchester Central Convention Complex
21
Regent Rd
23
The Bridgewater
8
18
B6469
Deansgate
A56
A5103
Trinity Way

Factory – EIA Committed Development (September 2017)

Reference	Address	Description	Approved	On Site?
St. Johns Applications				
1. Bonded Warehouse	*Bounded by Water Street, Museum of Science and Industry and the old Granada Studios.*	Demolition of outbuildings, adjoining former stables building and external fire escape to facilitate the conversion and refurbishment of the lower ground, upper ground and first floors of the	21 October 2015	No

Reference	Address	Description	Approved	On Site?
		Bonded Warehouse for retail (use class A1), restaurant (use class A3), bar (use class A4) or continued office (use class B1) use; and refurbishment of the second, third and fourth floors for continued office use (use class B1); along with the installation of roof plant and enclosure, minor external alterations to facilitate new entrances, creation of three external lightwells for external seating, façade lighting, landscaping and cycle parking		
2. Manchester Grande (OGS)	*Bounded by Water Street, Museum of Science and Industry and the old Granada Studios.*	Conversion of the existing Granada HQ Building and studios into a hotel and event space; demolition of the four storey annexe building and erection of a new eight storey building providing managed workspace and a rooftop pool;	21 October 2015	No

Reference	Address	Description	Approved	On Site?
		demolition of Studio 8 and the creation of a new pedestrian link; demolition of associated administration buildings and workshop space; creation of a new public walkway to provide access to the event space; use of the existing Breeze Studio Gardens as a managed public space; use of the existing area of surface car parking as a temporary surface car park together with creation of a new vehicle access from Water Street.		
3. Village Phase 1 (South Village)	*Bounded by Lower Byrom Street, Museum of Science and Industry and the old Granada Studios.*	Works would comprise comprehensive redevelopment of the Site to create a mixed use development of 5 to storeys including approximately 60 residential units, plus a community centre, energy centre, retail units and workspace for small businesses.	21 October 2015	No

Reference	Address	Description	Approved	On Site?
4. St Johns Place	*Bounded by Water Street, Quay Street and New Quay Street.*	Demolition of the existing Globe & Simpson and Albert Shed buildings; erection of new buildings, including a tower element (of up to 52 storeys), for residential and hotel use, together with associated public realm and car parking.	October 2016	No
5. T1 / Central Village (formerly Village Phase 2)	Land Bounded By Water Street And The V&A Hotel To The West, The Bonded Warehouse And Railway Viaducts To The South, Atherton Street & Granada House To The East And Quay Street & The Globe & Simpson Building To The North Manchester	Demolition of existing buildings and structures to enable construction of a 36 storey residential building (Class C3) with retail uses at ground floor (Classes A1/A2/A3/A4), an 8 storey mixed use building comprising workspace (B1), with retail uses (Classes A1/A2/A3/A4) and residential live/work uses, and two levels of basement parking for 465 cars and cycle hub storage, together with new public realm,	09 March 2017	No

Reference	Address	Description	Approved	On Site?
		landscaping, provision of external seating areas, access and other associated works.		
6. T2 (Formerly Riverside)	Land Bounded By River Irwell Canal Basin To The North, Water Street To The East, Princes Bridge To The South & The River Irwell To The West Manchester	Demolition of existing buildings and structures to enable construction of 36 storey residential tower (Class C3) with retail uses at lower floors (Classes A1, A2, A3 and A4), new public realm, landscaping including the first phase of Riverside Park and Walkway, provision of external seating areas, car and cycle parking, access arrangements and other associated works.	09 March 2017	No
7. Energy Centre **110914/FO/2015/C1**	*Bounded by Museum of Science and Industry and the old Granada Studios.*	A gas-powered combined heat and power facility, which will sit largely within the existing Stage 2 Building and will provide heat and power for development across the St.	Submitted June 2016	No; the application was withdrawn in September 2016. The proposed Energy Centre has

Reference	Address	Description	Approved	On Site?
		John's Masterplan.		relocated to OGS.
8. 105611/FO/2014/ C1	1 Water Street Manchester M3 4JU8	28 storey building with 307 units, ground floor commercial units and two levels of basement car parking, landscape and public realm works	31 October 2014	Yes
9. 107281/FO/2014/ C1	Astley House & Byrom House 23 Quay Street Manchester M3 4AS	Demolition of Astley House and Byrom House and redevelopment of the site for the erection of a building up to 16 storeys in height, comprising offices (class B1) on the upper floors, restaurants and cafes (Class A3) on the ground floor, basement car and cycle parking, and related highways, access, servicing, landscaping, and associated works.	2 July 2015	No
10. XYZ Building **103505/FO/2013/ C1**	2-3 Hardman Boulevard Spinningfields Manchester M3 3AQ (known as	Erection of a new office building comprising offices (Class B1), ground floor restaurant (Class A3), a gym	30 Dec 2013	Yes

Reference	Address	Description	Approved	On Site?
	'XYZ Building')	(Class D2), basement car parking, cycle parking provision, related highways, access, servicing, landscaping, roof top plant and associated works.		
11. 104702/FO/2014/ C1 (Minor amendment application reference 108126/JO/2015/ C1 subsequently approved)	Quay House Quay Street Manchester M3 3JE (known as '1 Spinningfields ')	Demolition of Quay House and redevelopment of the site for the erection of a 21 storey building comprising offices (class B1) on the upper floors, with a restaurant (Class A3) at Level 18, retail (Class A1), restaurant and cafe uses (Class A3) at ground floor, basement car and cycle parking, and related highways, access, servicing, landscaping, roof top plant and associated works.	13 May 2014 / 22 May 2015	Yes
12. 103615/LO/2013/ C1	Girder Bridge leading to railway viaduct over River Irwell, leading to Lower Byrom Street Warehouse	Demolition of iron Girder Bridge including brick and stone abutments on the Manchester side and retention of the central iron	Application Pending	No

Reference	Address	Description	Approved	On Site?
	(that part in Manchester)	column and stone pier within the River Irwell.		
13. **13/63267/DCO**	Ordsall Chord Transport and Works Act West Of Manchester City Centre Between Existing Railway Structures In The Vicinity Of The Museum Of Science And Industry And Trinity Way	Construction of a new elevated chord railway linking the Bolton Lines railway near Castlefield Centre with the Chat Moss Lines railway near Salford Central station to provide a direct link between Manchester Piccadilly, Oxford Road and Victoria Rail Stations, and associated Listed Building Consents. The Transport and Works Act Order was made in March 2015 and construction commenced during Spring 2015. Operation of the Ordsall Chord is scheduled to commence in December 2017.	Order Granted 25 Mar 2015	Yes
14a. **15/66404/REM**	Land Adjacent To Premier Inn South Of Stanley Street Salford	Details of reserved matters for access, appearance, landscaping, layout and scale for development of Plot A5 for erection of an 11-storey	16 July 2015	Yes

Reference	Address	Description	Approved	On Site?
		building to provide 90 apartments (use class C3); together with associated ancillary facilities, servicing, access, parking, landscaping and public realm, pursuant to outline planning permission 09/57950/EIAHYB		
14b. 15/67019/REM	Land Adjacent To Plot A5 Of Salford Central Masterplan Stanley Street Salford	Details of reserved matters application for access, appearance, landscaping, layout and scale for development of Plot A6 for erection of a 16-storey building to provide 135 apartments (use class C3); together with associated ancillary facilities, servicing, access, parking, landscaping and public realm, pursuant to outline planning permission 09/57950/EIAHYB	3 December 2015	Yes

Reference	Address	Description	Approved	On Site?
14c. 16/68325/OUT	Land Surrounding Stanley Street Bound By Trinity Way, Irwell Street And River Irwell M3 5DA	Outline application for the comprehensive phased regeneration of Zone A/C of the Salford Central masterplan area for a residential led (maximum 843 dwellings) mixed use development including tall building (up to 100 metres / 33 storeys) and ground floor commercial units with potential for offices, retail, food and drink, entertainment and leisure uses (Use Classes A1, A2, A3, A4, A5, B1 and D1) together with associated car parking, landscaping and infrastructure.	25 May 2017	Yes
15. 06/52762/OUT (subsequently extended by 13/64081/OUTEIA and varied by 14/65457/OUTEIA)	Middlewood Locks (Salford City Council)	Outline application (access only) for mixed use development comprising 142,697 sq m residential use (Class C1 and C3); 67,773 sq m commercial use (Class B1); and 27,191 sq m	21 Nov 2014 (Time Extension Approval). Reserved Matters approved	Yes

Reference	Address	Description	Approved	On Site?
		leisure/retail use (Class A1, A2, A3, A4 and D2) together with associated uses, car parking, landscaping and infrastructure.		
16. 09/57950/EIAHYB (and subsequent reserved matters / variation applications)	Salford Central (Salford City Council)	Outline application for a comprehensive phased regeneration of Salford Central, including selective demolition, for a mixed-use development of new, improved, altered and replacement buildings, for offices/commercial use (use classes A2 and B1, maximum 197,010sq.m), retail, food and drink and entertainment (use classes A1, A3, A4 and A5, maximum 24,255sq.m), leisure (class D1), hotels (class C1 maximum 140 and 250 bedrooms) and residential use (maximum 849 dwellings) together with associated car parking,	21 Jan 2010 (Original Permission)	Yes

Reference	Address	Description	Approved	On Site?
		landscaping and infrastructure. Detailed application for highway and associated works to Chapel Street (between Oldfield Rd and Trinity Way) and the laying out of public space at Stanley Street.		
17. 14/64851/FUL	Land At Wilburn Street Salford	Mixed-use development comprising of 491 residential units, in four buildings from 8 to 21 storeys high , 670m2 of Shops, Financial and Professional Services units, Business, together with associated car parking and landscaping	30 Jan 2015	Yes
18. 114999/FO/2017	Land at Potato Wharf, Castlefield, Manchester (Potato Wharf Blocks 3 and 4)	Residential development comprising 191 apartments overs two eight storey blocks, as an extension to the existing Potato Wharf development. Block 3 comprises 112 units, with a combination of 1 and 2 bedrooms, plus one 2 bed townhouse;	27 April 2017	No

Reference	Address	Description	Approved	On Site?
		Block 4 comprises 79 units, with a combination of 1 and 2 bedrooms.		
19. 15/66415/FUL	Land Bounded By Gore Street, Trinity Way And Chapel Street Salford	Demolition of existing building and redevelopment of site to provide: three residential buildings ranging from 13 to 22 storeys comprising 364 apartments (Use Class C3) sitting on a two storey podium containing commercial and retail floorspace (872 sq.m) (Use Classes A1, A2, A3, A4, A5 and/or B1), car parking (107 spaces) and related servicing and plant; eleven townhouses; new access and landscaping and associated works.	25 August 2017	Yes
20. 14/65793/OUT	Land At Middlewood Basin Off East Ordsall Lane Salford M5	Mixed use development including residential (C3) and commercial uses (B1, A1, A2, A3, A4, A5) together with ancillary car parking and	15 May 2015	Yes

Reference	Address	Description	Approved	On Site?
		public realm /landscaping.		
21. **115107/FO/2017**	Part of the St. John's Masterplan- Trinity Islands Scheme Land Bounded By The River Irwell To The North & West, Water Street To The East And The A6402 & A57 To The South Manchester	Construction of a mixed use development comprising two podiums of three storeys and five residential (Class C3) towers of 26, 26, 37, 41 and 67 storeys (including podium heights) connected by a new pedestrian bridge. Retail, commercial, leisure (gym and boat club) and community uses (community gallery and events space)(Use Classes A1, A2, A3, A4 or D2), workspace facilities (Class B1) and an educational facility (Class D1) within the lower floors and podium level together with new riverside walkway, public realm and landscaping (including podium level parks). Two levels of parking for 581 cars and 2,532 bicycles	Resolution to grant Planning Permission (27 July 2017)	No

Reference	Address	Description	Approved	On Site?
		and 200 cycle spaces within the public realm areas.		
22. -	Part of the St. John's Masterplan-Trinity Islands Scheme	As above	Resolution to grant Planning Permission (27 July 2017)	No
23. **N/a**	Castlefield Industrial Estate, Water Street	Masterplan establishing the principles for redevelopment of the former industrial estate to provide between 800-900 residential units and up to 1,050 car parking spaces.	Masterplan endorsed by Manchester City Council in January 2017.	No
24. **116810/FO/2017**	Land at New Elm Road and Water Street	Construction of a six storey self-storage warehouse (Use Class B8), access, parking and public realm works.	28 September 2017	No
25. **117430/FO/2017**	Hardman Square, Spinningfields	Redevelopment of Hardman Square to comprise the construction of one four storey building for bar / restaurant uses (Use Classes A3 and A4) and two kiosk units for retail or storage use (Sui Generis), redevelopment of	Submitted 1 September 2017; awaiting determination.	Yes

Reference	Address	Description	Approved	On Site?
		public realm including public art, related access, servicing and associated works (re-submission of Planning Permission Ref. 113679/FO/2016.		
26. **115836/FO/2017**	The Oast House, Crown Square	Extension to the existing Oast House building (Use Class A3/A4) to provide store, kitchen and refuse area and the redevelopment of Crown Square to include 2 No. F&B pavilions, 1 No. events stage, 7 No. canopies and the hard landscaping of the site.	Submitted 17 May 2017; awaiting determination.	No
27. **17/70319/FUL**	Land to the north of Middlewood Locks and East of Oldfield Road, Salford (Middlewood Locks)	Erection of two storey Middlewood Locks marketing suite and associated landscaping for a temporary period of five years.	18 September 2017	Yes

MANCHESTER
CITY COUNCIL

Julie Roscoe
Head of Planning, Building
Control and Licensing

Growth and Neighbourhoods
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Mr John Cooper
Deloitte Real Estate
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Contact: Angela Leckie
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5th January 2017

Our reference: AL/Factory EIA

Your reference:

Dear Mr Cooper

TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (ENGLAND) REGULATIONS 2017

FORMAL SCREENING REQUEST FOR ENVIRONMENTAL IMPACT ASSESSMENT 'SCREENING' UNDER PART 2 REGULATION 6

Erection of a new flexible arts and events space comprising a range of activities including theatre, music, dance, art, other performance and non-performance related events, exhibitions and conferences (Sui Generis) with ancillary facilities including retail exhibitions and conferences (Sui Generis) with ancillary facilities including retail and bar uses (Use Classes A1 and A3), offices, administrative and back of house functions (Use Class B1), training and educational facilities (Use Class D1), servicing and access arrangements, highways works, creation of new public realm, cycle parking and provision of new plant and associated works. Demolition of the Starlight Theatre, existing workshop and other structures and perimeter wall, removal of four existing trees and alterations to the Grade II listed Colonnaded Railway Viaduct.

PROPOSED DEVELOPMENT Site bounded by River Irwell and surface car park, to the west, Grape Street and Bonded Warehouse to the east, the MSI complex to the south and Water Street and surface car parking to the north.

SCREENING OPINION ADOPTED BY MANCHESTER CITY COUNCIL

Thank you for your letter dated 6th October 2017 in respect of your request for a screening opinion at the above site.

In coming to a formal opinion on whether an Environmental Impact Assessment (EIA) is required to support the proposed development, Manchester City Council, as Local Planning Authority, has taken into account the supporting information contained within your letter, site location plan and supporting appendices.

I have now had a chance to consider your screening request and I outline my response below.

The proposal type is listed in category 10 (b) Urban Development Projects of Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017 as it includes more than 1 hectare of urban development which is not a dwelling house(1.80 hectares) and therefore defined as a development likely to have significant effects on the environment by virtue of factors such as its nature, size or location.

Your letter of the 6th October 2017 sets out the reasons why you believe an EIA is not required to support the proposed development.

Within the Planning Policy Guidance (PPG), general considerations relating to the need for an EIA for Schedule 2 developments is identified within paragraph 18 of the guidance. This references the selection criteria in relation to Schedule 3 of the Regulations. This criteria which must be taken into account in determining whether a development is likely to have significant effects on the environment. The criteria is as follows:

I. Characteristics of Development (e.g. its size, use of natural resources, quantities of pollution and waste generated);
II. Location of Development (e.g. environmental sensitivity of geographical areas);
III. Characteristics of the potential impact (e.g. its magnitude and duration).

Below is a consideration as to whether an EIA is required to support a planning application for the above development.

CONTEXT AND PROPOSED DEVELOPMENT

The development site is approximately 1.80 ha and is bounded by River Irwell and surface car park, to the west, Grape Street and Bonded Warehouse to the east, the MSI complex to the south and Water Street and surface car parking to the north.

The surrounding area consists of a variety of mixed use developments including office, hotel, residential, retail and leisure space. The closest residential accommodation is Rossetti Place on Quay Street, townhouses on Liverpool Road and Apartments at St John's Gardens but it is considered that the proposal would be complementary to the existing residential community and is unlikely to result in any significant adverse impact. The proposal would result in an improved environment within the application site and would provide benefits for the wider area.

The site is currently contains to the east, the Bonded Warehouse and Grape Street. The Museum of Science and Industry (MSI) complex is south east and includes the 1830 Warehouse (Grade I listed) and Cast Iron Viaduct (Grade II). Hampson Street, Water Street and Liverpool Road are to the south. West is the River Irwell and the boundary with the City of Salford. To the north is the Manchester and Salford Junction Canal, Marriott Hotel and Water Street. Further north is Quay Street and Spinningfields.

The Site is currently occupied by a surface level car park along with part of the the Grade II listed Colonnaded Railway Viaduct and is in the Castlefield Conservation Area. There are several listed buildings nearby. These include buildings associated with the world's first passenger railway line and station including the 1830 Warehouse (Grade I), former Liverpool Road Station Masters House (Grade I listed), Stephenson's Bridge (Grade I) and 1830 Viaduct (Grade II), as well as the Zig-zag viaduct (Grade II) and cast iron viaduct (Grade II). The Bonded Warehouse is a non-designated heritage asset.

Until 2014 the site was part of ITV's Granada Studios when it was acquired as part of a larger site by Manchester Quays Limited, a joint venture between Manchester City Council and Allied London. It is part of the St John's Masterplan area where a Strategic Regeneration Framework (SRF) has been approved which seeks to transform the area into a new residential, cultural and creative neighbourhood. An updated SRF is being submitted to the Council Executive on 11 January 2017.

The development site would be accessed off the existing road network. The heart of the city centre is a short walk from the development where access to a range of shops and amenities can be found together public transport interchanges.

There are a number of development plots in the immediate area which lie within the St Johns SRF Area. Some have recently received planning permission. The developments are listed in the above letter from Deloittes dated 6th October 2017.

The above demonstrates the Area offers a range of buildings and is part of significant ongoing change and redevelopment as part of the regeneration strategy for the area.

The proposed development consists of the redevelopment of the site to erect a new flexible arts and events space comprising a range of activities including theatre, music, dance, art, other performance and non-performance related events, exhibitions and conferences (Sui Generis) with ancillary facilities including retail exhibitions and conferences (Sui Generis) with ancillary facilities including retail and bar uses (Use Classes A1 and A3), offices, administrative and back of house functions (Use Class B1), training and educational facilities (Use Class D1), servicing and access arrangements, highways works, creation of new public realm, cycle parking and provision of new plant and associated works. Demolition of the Starlight Theatre, existing workshop and other structures and perimeter wall, removal of four existing trees and alterations to the Grade II listed Colonnaded Railway Viaduct.

It is considered that the potential impacts from a development of this nature are as follows:

- Socio economic;
- Visual;
- Wind;
- Heritage;
- Ecology;
- Traffic;
- Air quality;
- Land contamination;
- Impacts on water quality, Flood Risk and drainage; and
- Noise/dust/emissions from construction and operations of the development;

This screening opinion relates to an amended previous approval (application ref no 114294/VO/2016), which was accompanied by and Environmental Statement (Oct

2016 EIA). The intention is that the same Statement will be submitted in support of the revised application and the principle purpose of this screening opinion is to determine if any update to the EIA is required if the proposed amendments are considered to a significant effect on the environment beyond the extent identified in the conclusions of the Oct 2016 EIA.

Design adjustments to the Original Scheme have been proposed in relation to the following:

- Reduction in scale and seating capacity of the theatre;
- Alteration in the design of the theatre to become more faceted;
- Redesign of the dedicated internal orchestra pit;
- Truck lifts to become external to the theatre;
- Glazing to the north and south elevations of the warehouse to be removed and replaced with articulation through a trapezoidal profile; and,
- Finessing of internal circulation arrangements and layout.

The description of development and site red line boundary plan remain unchanged from the Original Scheme.

ASSESSMENT

As detailed above, an assessment will now take place based on the three criteria within Schedule 3 of the regulations. As there is a requirement to submit a new application for Planning Permission to facilitate the design changes
and the original planning application was supported by a focused EIA, for the purposes of the EIA Regulations it is necessary to carry out an EIA Screening Exercise to obtain confirmation from the Local Planning Authority as to whether any of the information provided within the October 2016 EIA needs to be
updated as a result of the proposed amendments. An update to the EIA would only be required in the case where the proposed amendments are considered to have a significant effect on the environment beyond the extent identified in the conclusions of the October 2016 EIA.

This EIA Screening is being undertaken following a change to the EIA Regulations that came into force on 16 May 2017. The 2017 EIA Regulations introduced changes to the EIA Screening process, as well as the
wording of Schedule 4, which sets out the information for inclusion in Environmental Statements.

Consideration has therefore been given through this EIA Screening exercise to the following requirements and factors, which have been updated through the 2017 EIA Regulations:

- The requirement for use of competent experts in preparation Environmental Statements.

The October 2016 EIA was co-ordinated by Deloitte, an 'EIA Quality Mark' registrant with the Institute of Environmental Management and Assessment (IEMA). Table 2 summarises the expertise of the authors of the technical chapters of the 2016 EIA.

- The requirement for developers to provide a description of any features and / or measures envisaged to avoid or prevent what otherwise might have been significant adverse effects on the environment through the EIA Screening process.

For the purposes of Regulation 4(2) condition of the following additional factors that might be significantly affected by the development is required to be considered by this Screening Opinion: Human Health, Biodiversity, Land and Climate.

A review of the committed developments assessed as part of the 2016 EIA has been completed and the cumulative impact of 5 additional committed developments along with that of the changed status of some schemes identified as committed developments is to be considered within this screening opinion.

Characteristics of Development

Size of Development

The planning application is for the demolition of the Starlight theatre and other buildings and structures (formerly part of ITV Granada Studios), the restoration and reuse of the Grade II Listed Colonnaded Railway Viaduct and a new building with an approx. 3,115 sq m footprint max height 38.6 (back of house towers). The building would be a flexible performing arts space known as The Factory Manchester and could potentially become the permanent home for the Manchester International Festival.

Factory would have four main parts: the theatre; the warehouse; back of house towers and; the foyer. There would also be associated facilities such as retail, bar and cloakrooms, potential temporary or pop-up food and drink offer and support space, offices and dressing rooms. Two new public spaces called Factory Square and Festival Square would be created around the new building.

The maximum capacity would be approx. 7,090. This is made up of 1,520 (sitting) or 2,090 (standing or sitting) in the theatre and 5,000 (standing) in the warehouse. The building would have the capability to use these elements together or separately.

Given the size of the building proposed this will represent a dense form of development. The replacement of the surface car park with a building of this density and height will represent a change in form and character of the development site. However, this is unlikely to result in any significant visual or amenity impacts that would warrant consideration by an EIA given the overall character and scale of development in the local area, which is of a dense urban form, of differing building heights, on the edge of the City Centre.

It is noted from the supporting information that there will need to be some upgrading works of local infrastructure, including the opening up of Grape Street, it is not considered that this work will involve any major modification to the local area or highway network that would warrant consideration by an EIA.

On this basis, whilst a proposal of this scale and nature will have some impacts (as a result of the density of the proposal) it is considered that this will not be of more than local significance and will not be of a scale to warrant consideration by an EIA.

Cumulation with other development

A screening opinion should be adopted on its own merits, and on the basis of what is being proposed, however, in judging whether the effects of a development are likely to be significant, regard should be had to the possible cumulative effects with any existing or approved development.

The development site forms part of a wider neighbourhood development strategy to regenerate the St John's area. The revised 2017 strategy identifies a number of key sites which will come forward for development along with existing sites that have already received planning permission or have commenced.

This development, along with others, could result in a number of large scale development being brought forward at the same time in close proximity to each other. Indeed, I note from your supporting information that at the demolition and construction phases cumulative impacts from construction traffic, noise and air quality could become apparent. Although this will result in some impacts, these are not considered to be of more than local significance and will be short term and will largely be confined to the construction phase of the development. These impacts will be able to be managed and coordinated.

In terms of the operational phases of the development, it is considered that the impacts will be less significant and will be similar in nature to the surrounding area.

Review of Matters Scoped out of October 2016 EIA

Socio-economic, ecology and nature conservation, telecommunications, daylight and sunlight, archaeology,arboriculture and odour were scoped out of the original EIA and it is not considered that the proposed amendments to the scheme will trigger additional significant environmental effects that would warrant these matters being considered.

Consideration of additional factors for inclusion as required by Regulation *4 (2)*
consideration has been given to these factors by reference to the guidance provided within the Screening Matrix provided at National Planning Practice Guidance:018

Human Health – it is not considered that there will be any risk of major accidents or that the project will present a risk to population and human health during construction, operation or decommissioning of the proposed development, given the nature of the proposals as a flexible arts'
space within a City Centre location on previously developed land. The construction period will be managed in accordance with a Construction Environment Management Plan to mitigate any potential risk of impact.

Potential effects on human health have been considered in relation to noise, air quality, flood risk and water resources, and ground conditions through the relevant technical chapters of the 2016 EIA. No significant adverse effects were identified.

The proposed development is expected to have a beneficial impact in respect of mental and social health, as it will provide a new arts and cultural facility for Manchester and beyond, with a range of performance types and ticket options. On this basis the information required is therefore provided within the 2016 EIA and is unchanged.

Biodiversity – the site was assessed for its ecological significance and biodiversity. An Ecological Assessment and Bat Survey was prepared by ERAP in October 2016 and submitted with the original planning application as a standalone technical document to identify any potential ecological features,
protected species or habitats. The report confirmed that the site is of low ecological importance and that the proposals will have no adverse effect on statutory or non-statutory designated sites for nature conservation. No habitats within the site are Priority Habitat. No sign of protected species were detected within the site. As such, it is not considered that biodiversity would be significantly affected by the proposed

development. Ecology and Nature conservation was scoped out of the 2016 EIA and for the reasons outlined above Biodiversity it is accepted that this can be scoped out as an EIA topic for the revised application.

Land – the site forms part of the St. John's Masterplan on the former ITV Quay Street estate in Manchester City Centre and is previously developed land. It is currently used on an ad hoc basis for filming and storage use. The area around the site is defined by a mix of leisure, commercial and residential uses; the St. John's Masterplan will introduce new leisure, commercial and residential floorspace, and a series of Planning Permissions have been granted between 2015 and 2017 to support the redevelopment of the wider site. It is not considered that the existing or proposed land uses would be significantly affected by the proposed development as the uses are considered to be compatible, City Centre uses.

The 2016 EIA considers the potential effects arising from the interaction of these land uses through technical assessments, for example in relation to noise and transport. The future St. John's development is considered as part of the 2016 EIA as it is identified within the list of committed developments. On this basis the information required is therefore provided within the 2016 EIA and is unchanged.

Climate – the site is not susceptible to earthquakes, subsidence, landslides, erosion or extreme / adverse climatic conditions that could cause the project to present environmental problems. The 2016 EIA considered the likely significant effects of the proposed development in respect of wind microclimate and concluded that there would be a negligible effect with regard to pedestrian safety and a generally negligible to no worse than localised minor adverse effect with regard to pedestrian comfort. The conclusions are unchanged from the 2016 EIA and for these reasons it is accepted that this can be scoped out as an EIA topic for the revised application.

Review of Matters Scoped out of October 2016 EIA

The conclusions of each of the technical EIA consultants that their approved Environmental Statement (ES) Chapters are not expected to materially change as a result of the proposed amendments are generally accepted and no amendments to these sections of the original ES are required. In terms of Wind Microclimate however this needs to be updated to include analysis in relation to the potential for slight additional localised effects.

Mitigation of Significant Adverse Effects

It is accepted that the proposed amendments to the scheme do not alter the mitigation measures proposed and the effects identified within the 2016 EIA.

Paragraph 58 of Appendix 2 of the NPPG (Screening Checklist)

Paragraph 58, contained within appendix 2 of the NPPG, provides a screening checklist as to which types of cases in which an EIA is more likely to be required for particular types of developments.

This goes on to state that an EIA is unlikely to be required for the redevelopment of land unless the new development is on a significant greater scale than the previous use, or the types of impact are of a markedly different nature or there is a high level of contamination.

For sites which have not previously been intensively developed the following criteria is relevant:

(i) area of the scheme is more than 5 hectares; or
(ii) it would provide a total of more than 10,000 m^2 of new commercial floorspace; or
(iii) the development would have significant urbanising effects in a previously non-urbanised area (e.g. a new development of more than 1,000 dwellings).

Given that the site has been previously development, with low density buildings, there will be a change in the scale of activities taking place at the site and their nature. However, the site is in need of redevelopment and is located in an area where significant change and redevelopment is expected to take place. Whilst the site is contaminated it is not considered to be of low to moderate risk in this regard.

CONCLUSION

This response is based on the letter of the 6th October 2017 from Mr John Cooper of Deliotte Real Estate.

It is the opinion of the City Council, as Local Planning Authority, that judged that the amendments to the proposals are not significant and would not to warrant any amendments to the 2016 ES other than as identified above.

This screening opinion relates to the requirements of an Environmental Impact Assessment only and does not imply or confer any approval of such a proposal.

I trust this information is of some assistance to you. Should you require anything further please do not hesitate to contact Angela Leckie.

Yours sincerely

Julie Roscoe

Head of Planning, Building Control and Licensing

Appendix 6.1

TVIA: Maps

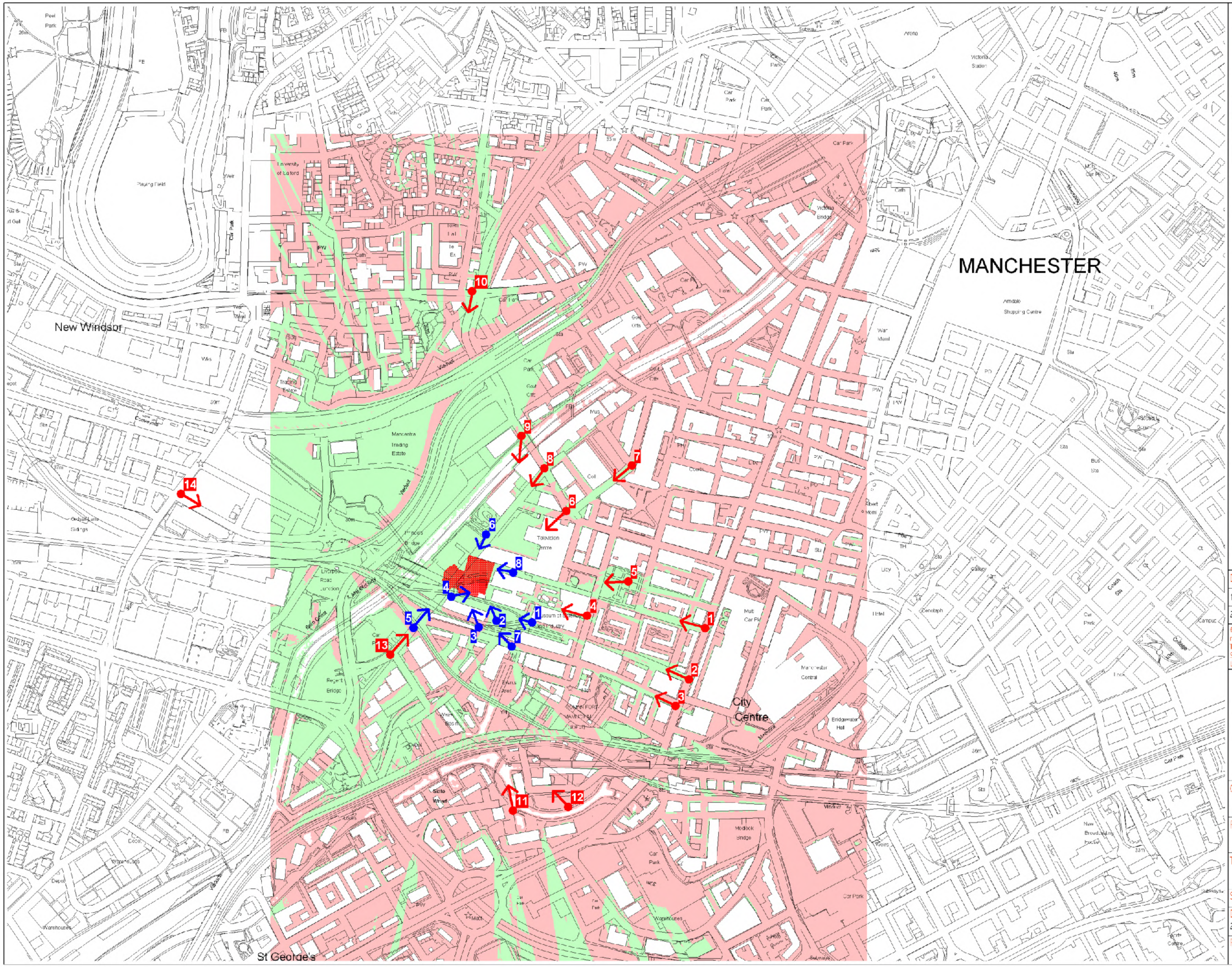
1830 WAREHOUSE
CRAVINGS

THE FACTORY

Townscape and Visual Impact Assessment: MAPS

APPENDIX 6.1

Chris Burnett Associates
26 08 16



Key

🟥 development site

● 1 viewpoint

● 1 heritage viewpoint

🟩 building visible

🟥 building not visible

☐ OS Local Vector building footprints and/or DSM no data values

(NB Viewshed analysis is calculated from the top of the building to locations 1.6m above the DSM data taking into account a normal earth surface curvature correction.)

Date	Details	Revision
18/08/16	Amendment to viewshed extents & omission of viewpoint location 15.	-01
26/08/16	Addition of heritage viewpoint locations.	-02

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Client **Manchester City Council**

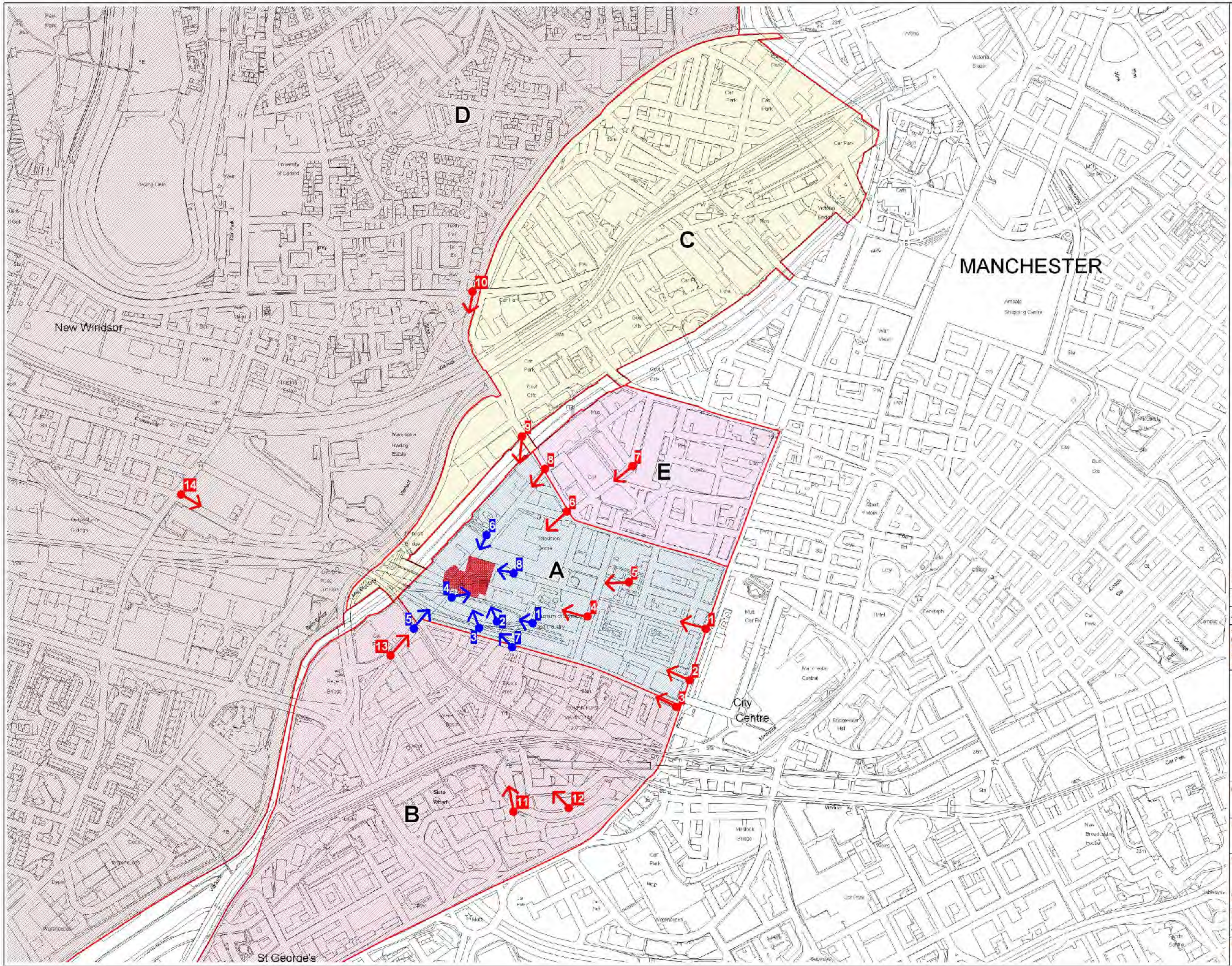
Project **The Factory, Manchester, TVIA**

Title **Fig. 6.1. Viewpoint Locations & Viewshed Analysis**

Scale **1:7,500 @ A3**

Date	Drawn	Checked
26/08/16	JHD	CB

Reference **TFTVIA16.03** Revision **-02**


Key
development site
viewpoint
heritage viewpoint
A - Left Bank
B - Castlefield
C - Chapel Street
D - Salford
E - Spinningfields
D
C
B
A
E
MANCHESTER
New Windsor
City Centre
St George's
1
2
3
4
5
6
7
8
9
10
11
12
13
14
0.0
75.0
150.0
metres

Date	Details	Revision
18/08/16	Omission of viewpoint location 15	-01
26/08/16	Addition of heritage viewpoint locations	-02

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Client **Manchester City Council**

Project **The Factory, Manchester, TVIA**

Title **Fig. 6.2. Viewpoint Locations & City Centre Zones**

Scale **1:7,500 @ A3**

Date	Drawn	Checked
26/08/16	JHD	CB

Reference **TFTVIA16.04**
Revision **-02**

Appendix 6.2

Baseline Viewpoint and Townscape Photographs

1830 WAREHOUSE

THE FACTORY

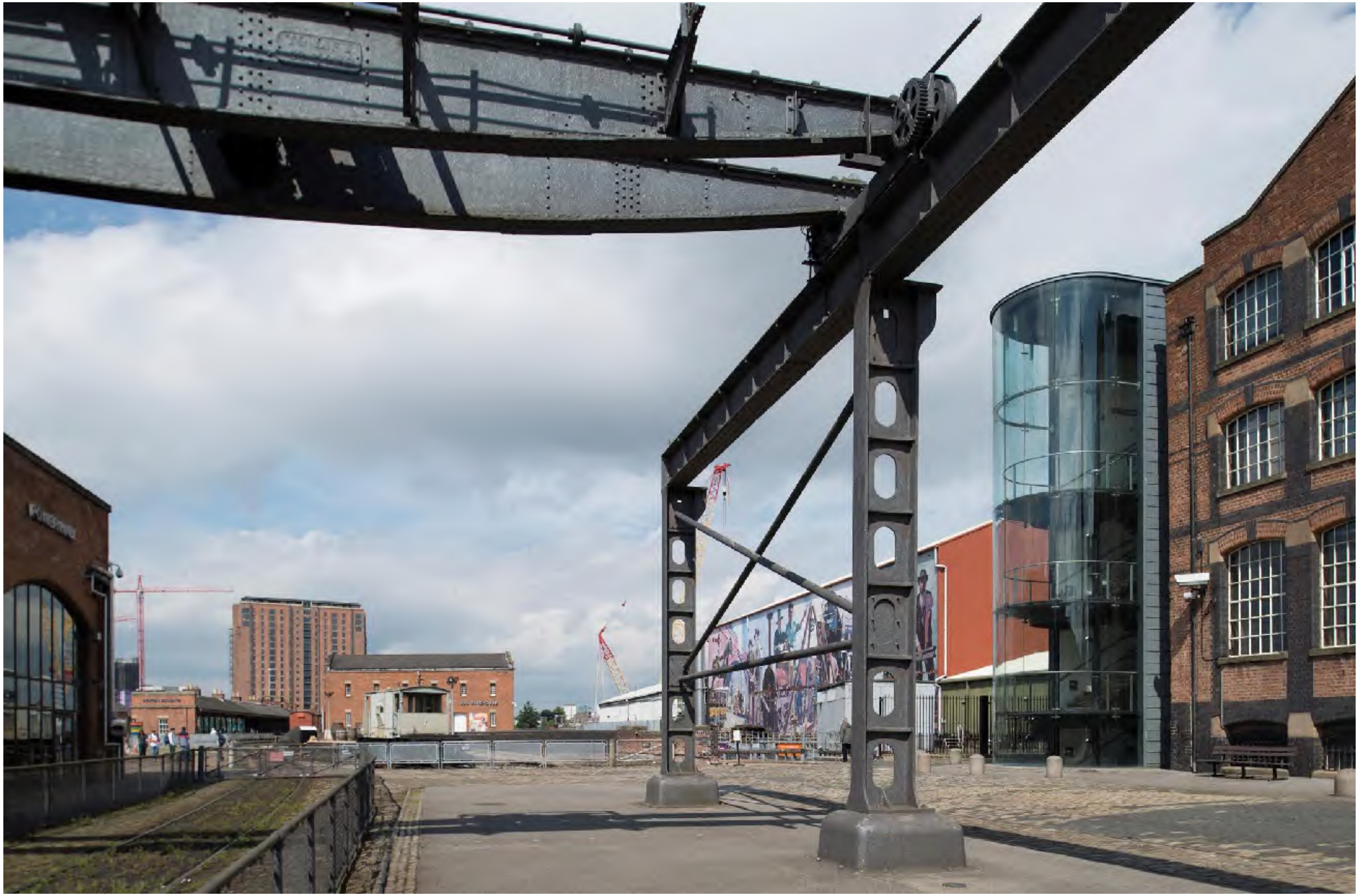
Townscape and Visual Impact Assessment: VIEWPOINT PHOTOS

Appendix 6.2

Chris Burnett Associates

14 09 16

HERITAGE VIEWS



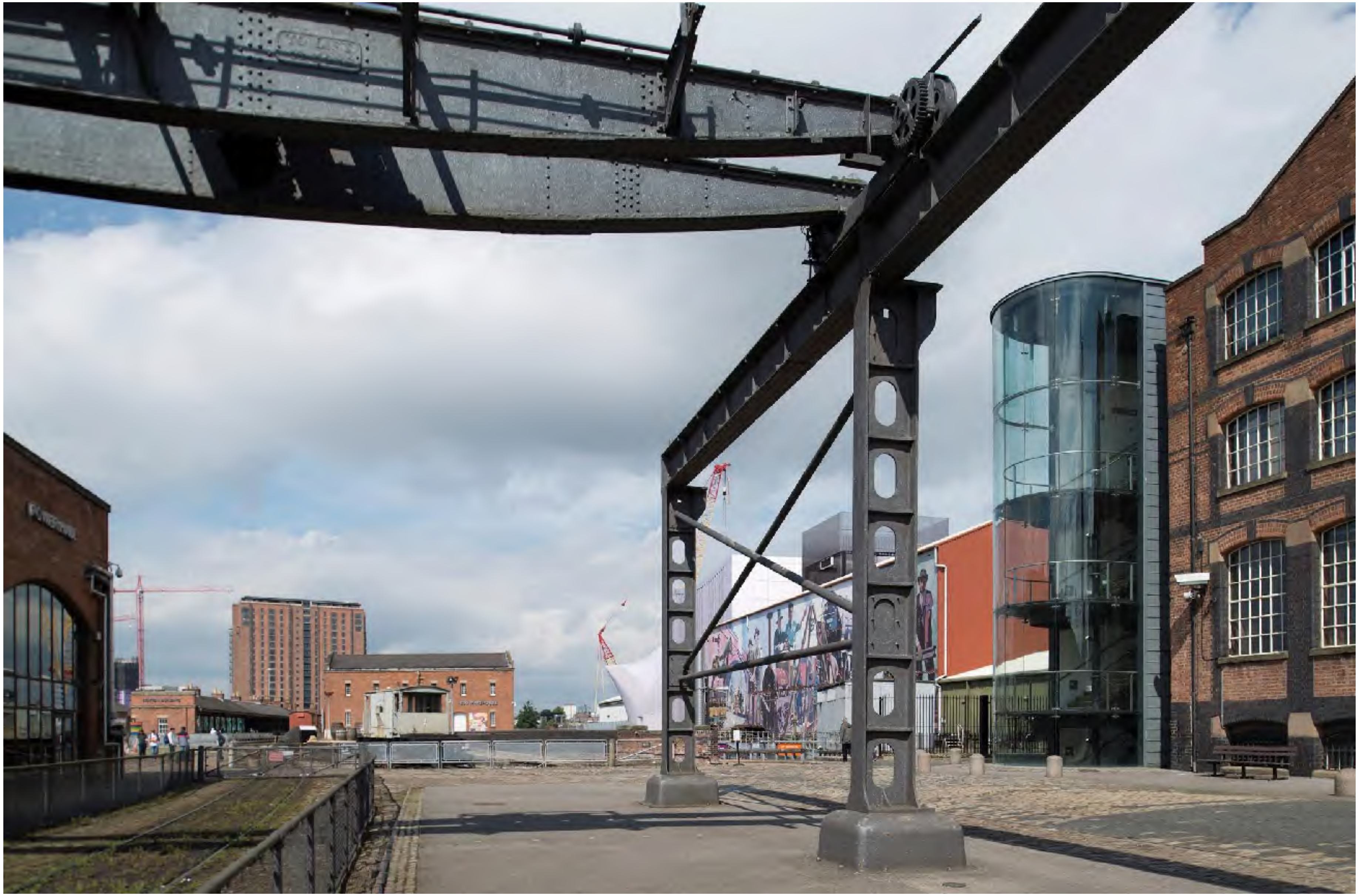
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H1
Baseline



PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

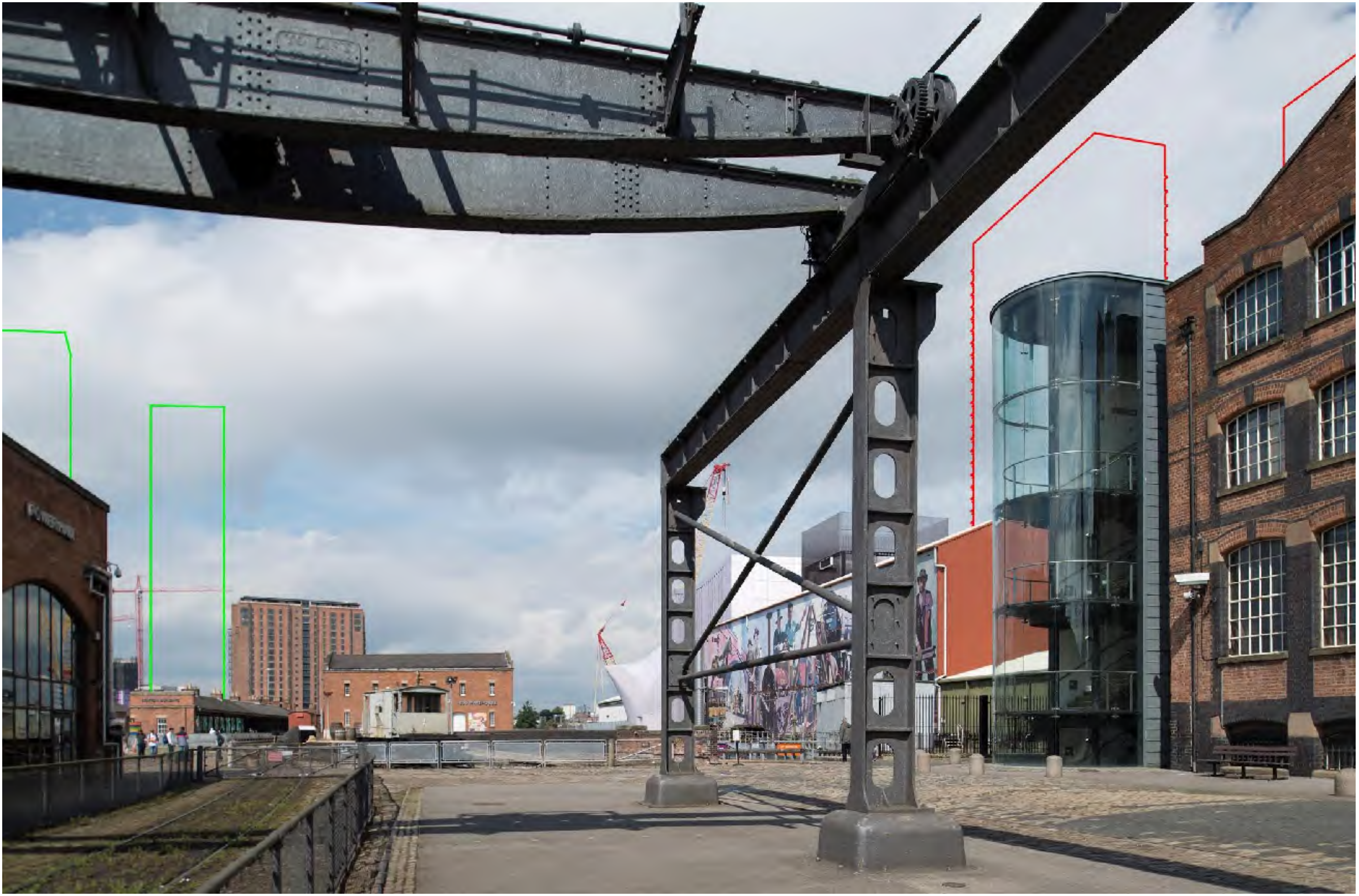
CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H1
Proposed

CUMULATIVE VIEWS KEY

- Trinity
- St Johns
- OGS
- South Village
- Owen Street
- Byrom House
- Renaker
- 1 Spinningfields



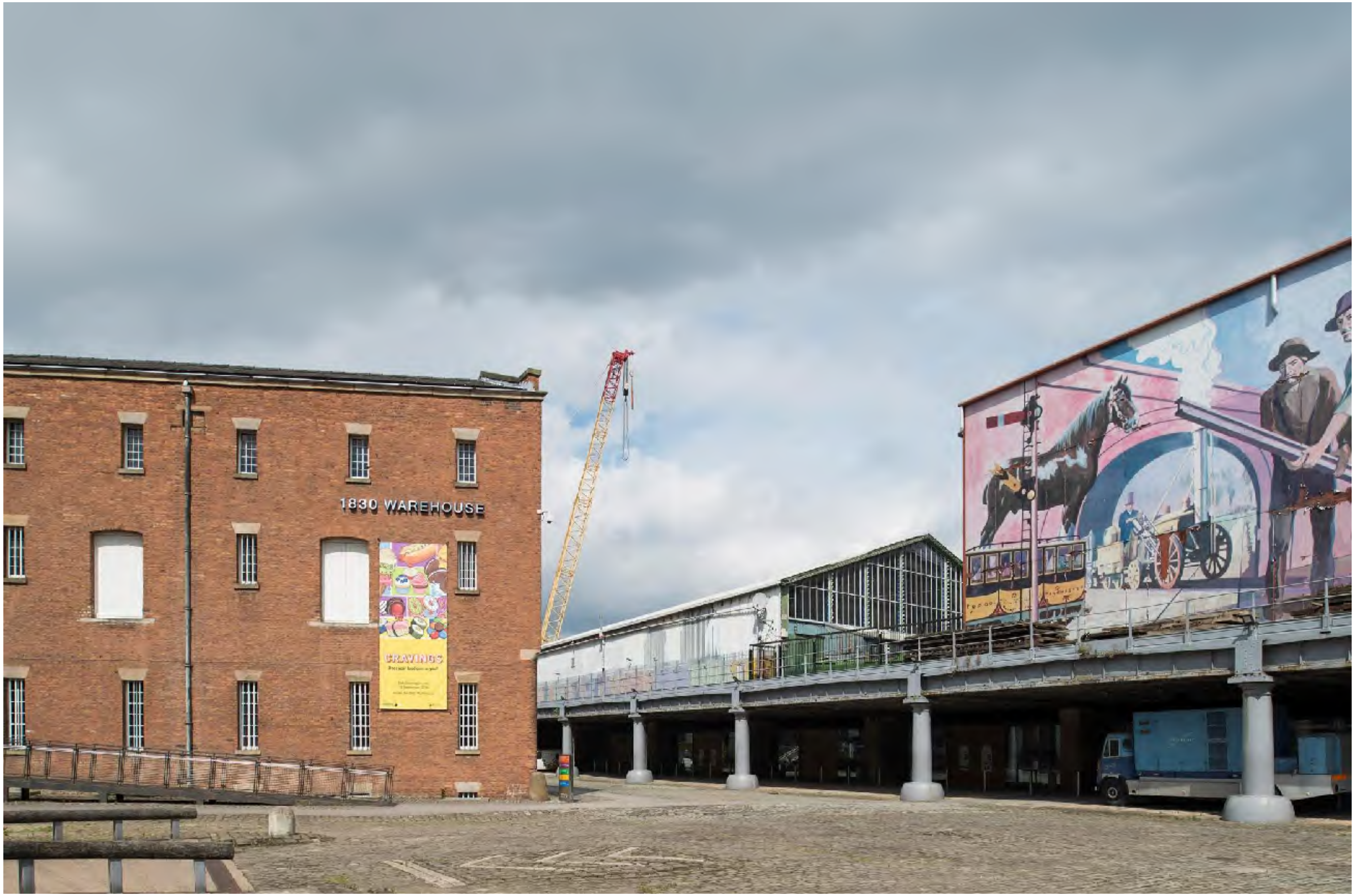
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H1
Cumulative



PHOTOGRAPH INFORMATION:

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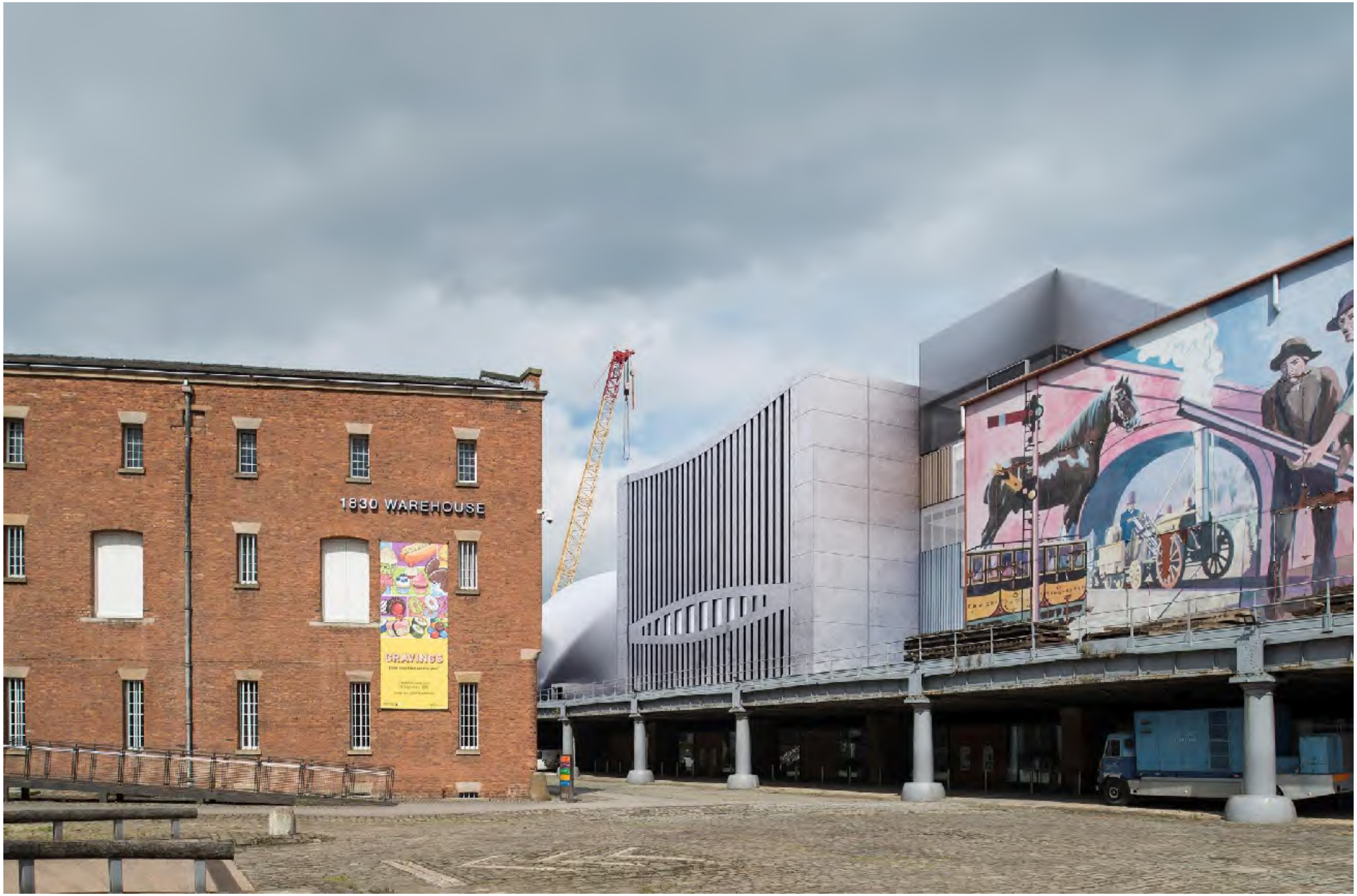
VIEWPOINT H2
Baseline



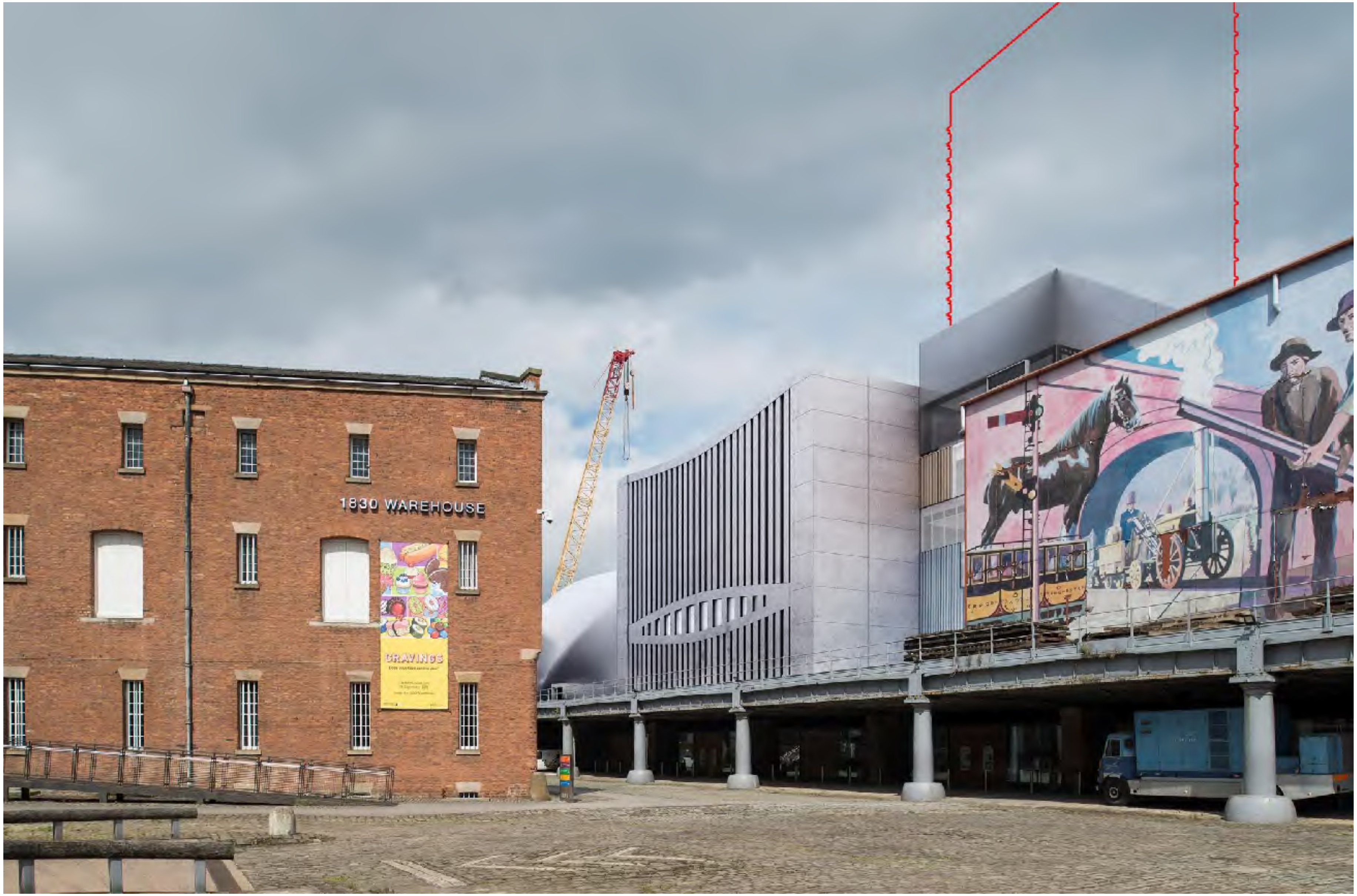
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H2
Proposed



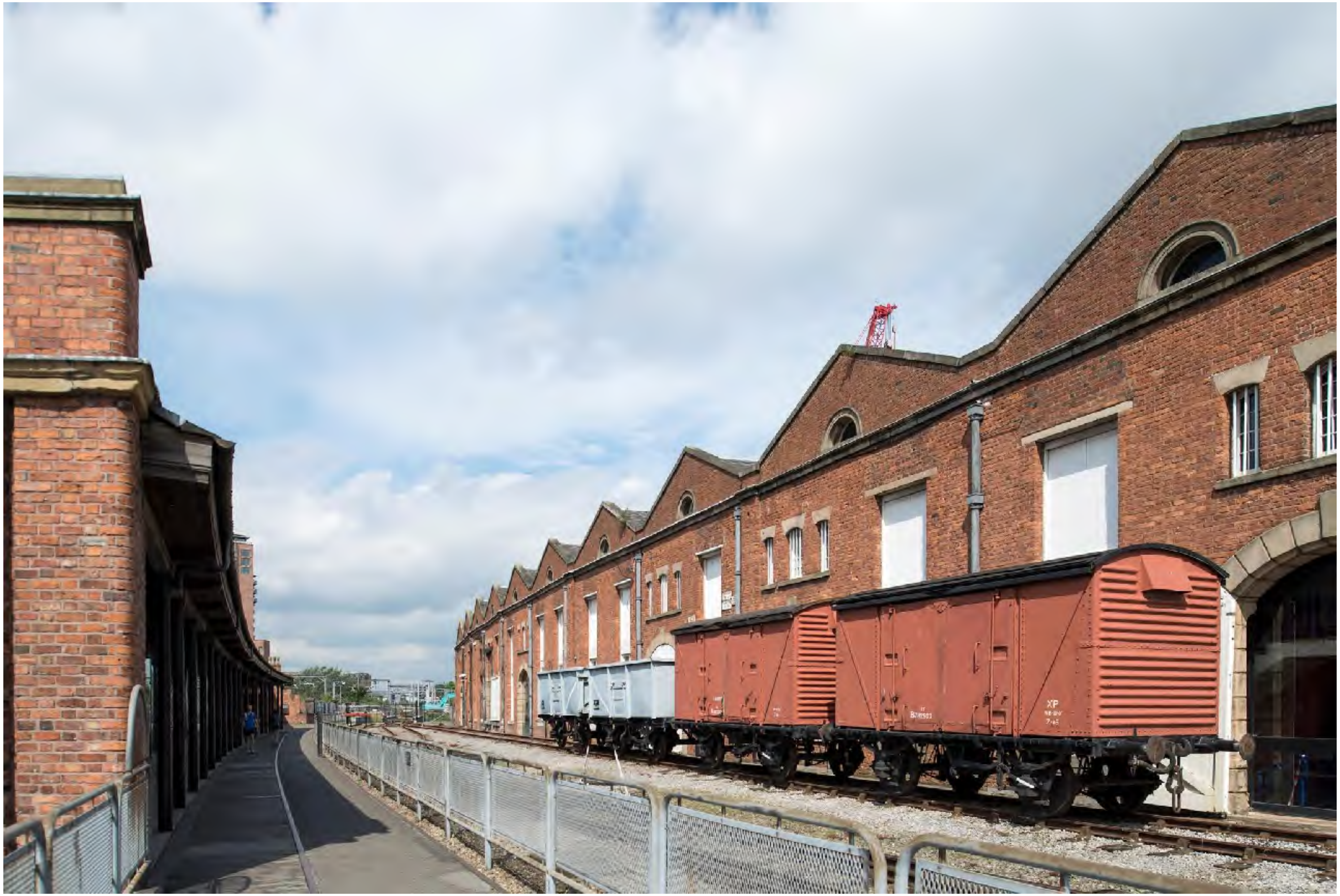
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H2
Cumulative



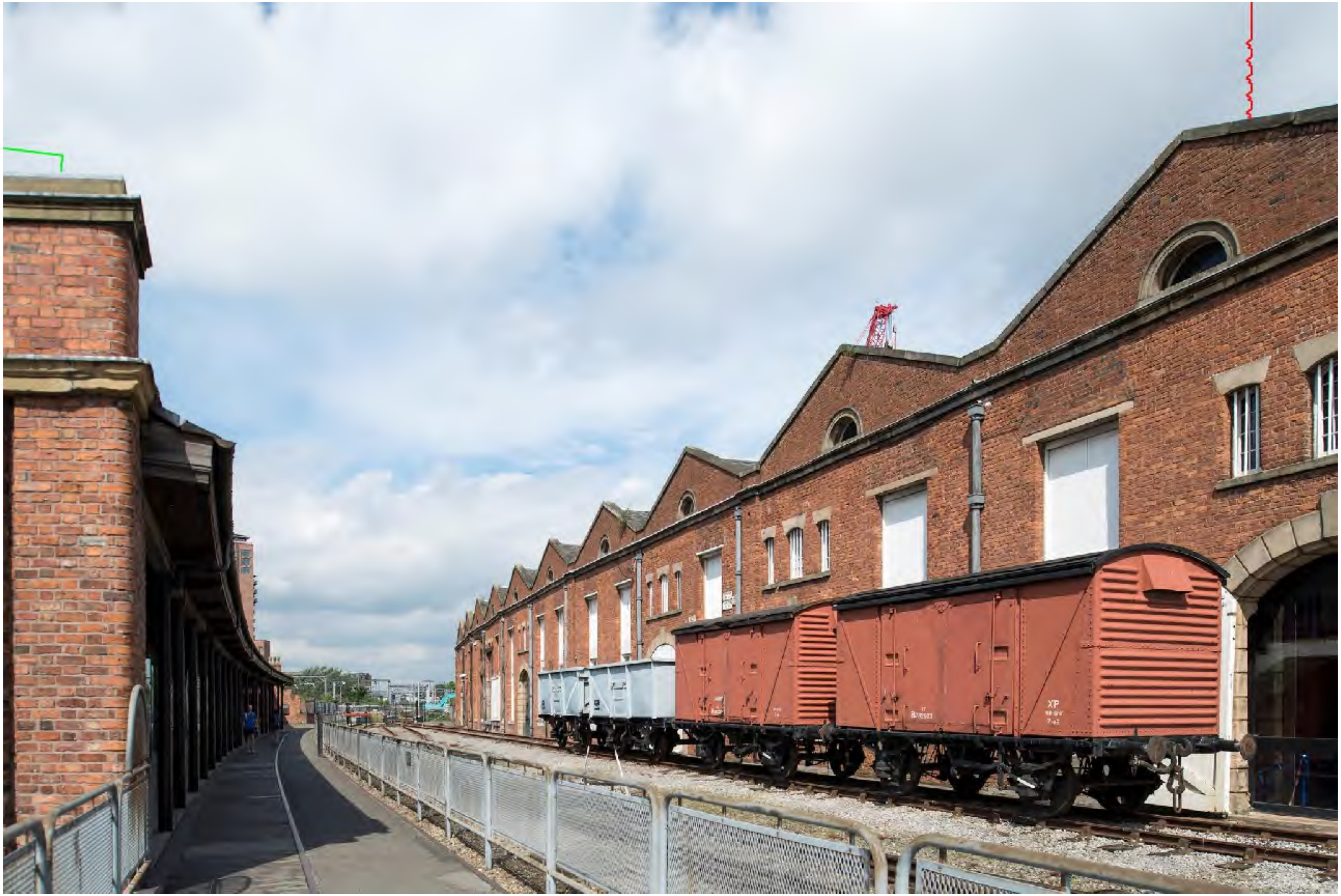
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H3
Baseline



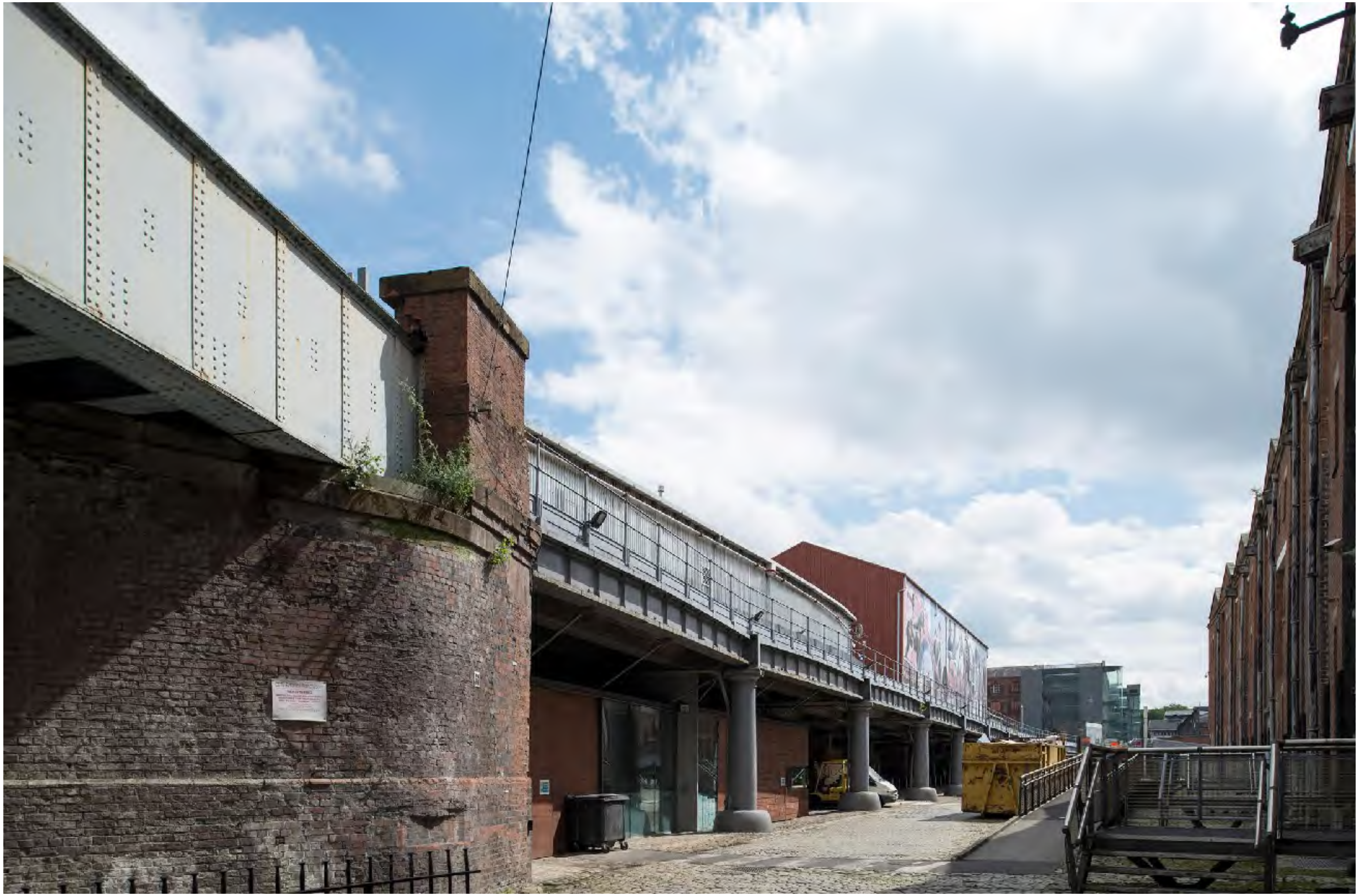
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H3
Proposed



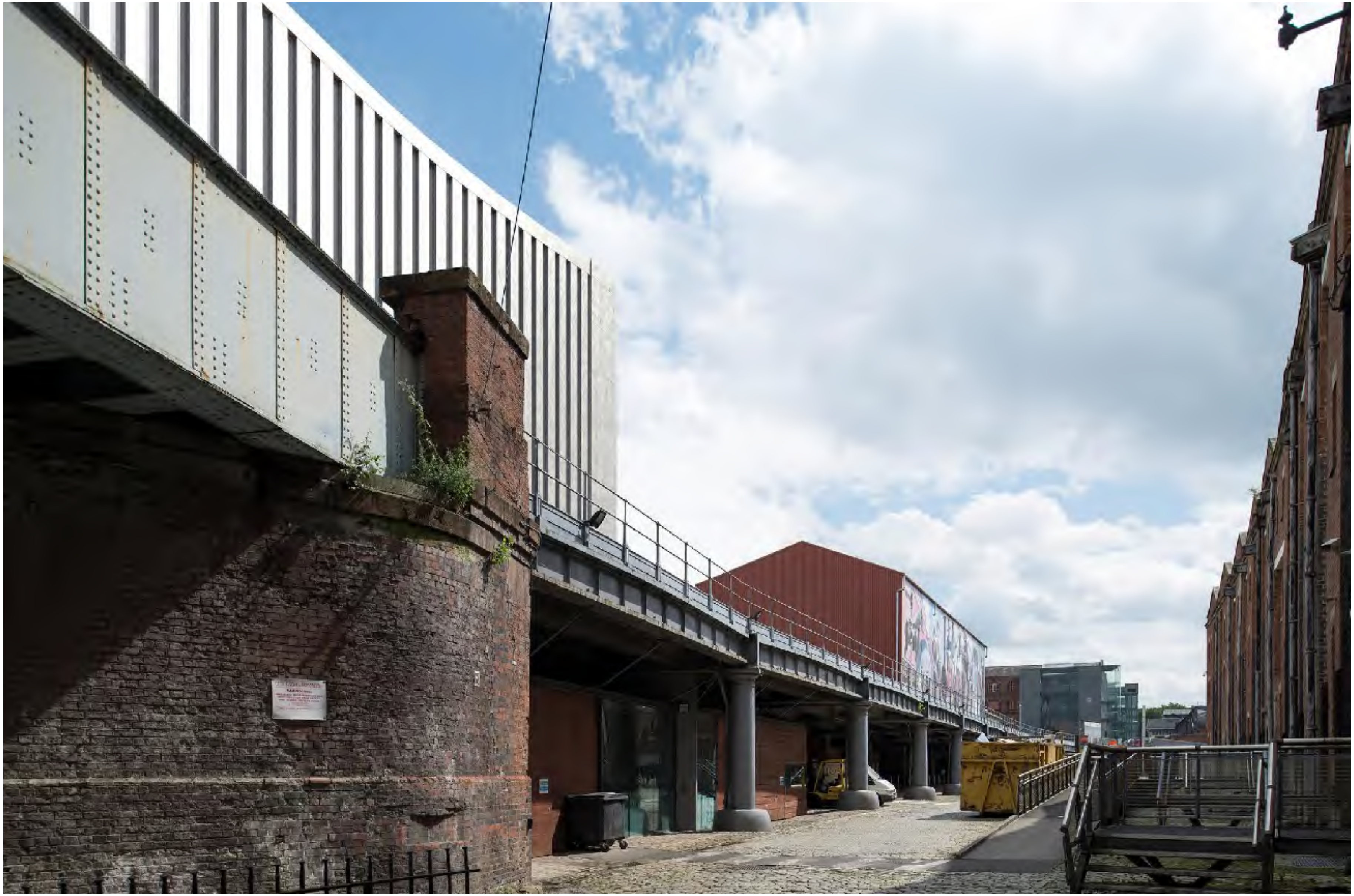
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H4
Baseline



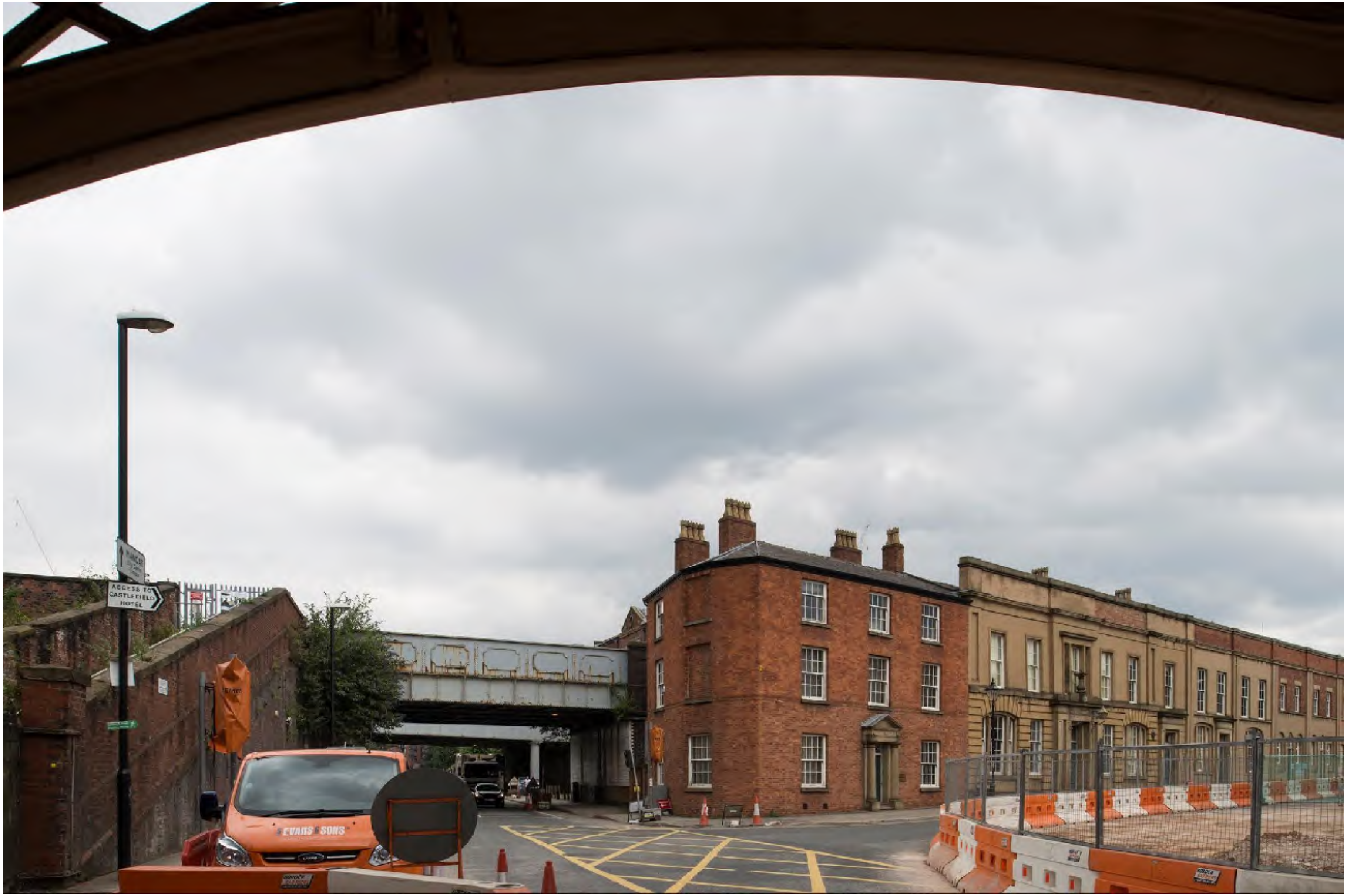
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H4
Proposed



PHOTOGRAPH INFORMATION:

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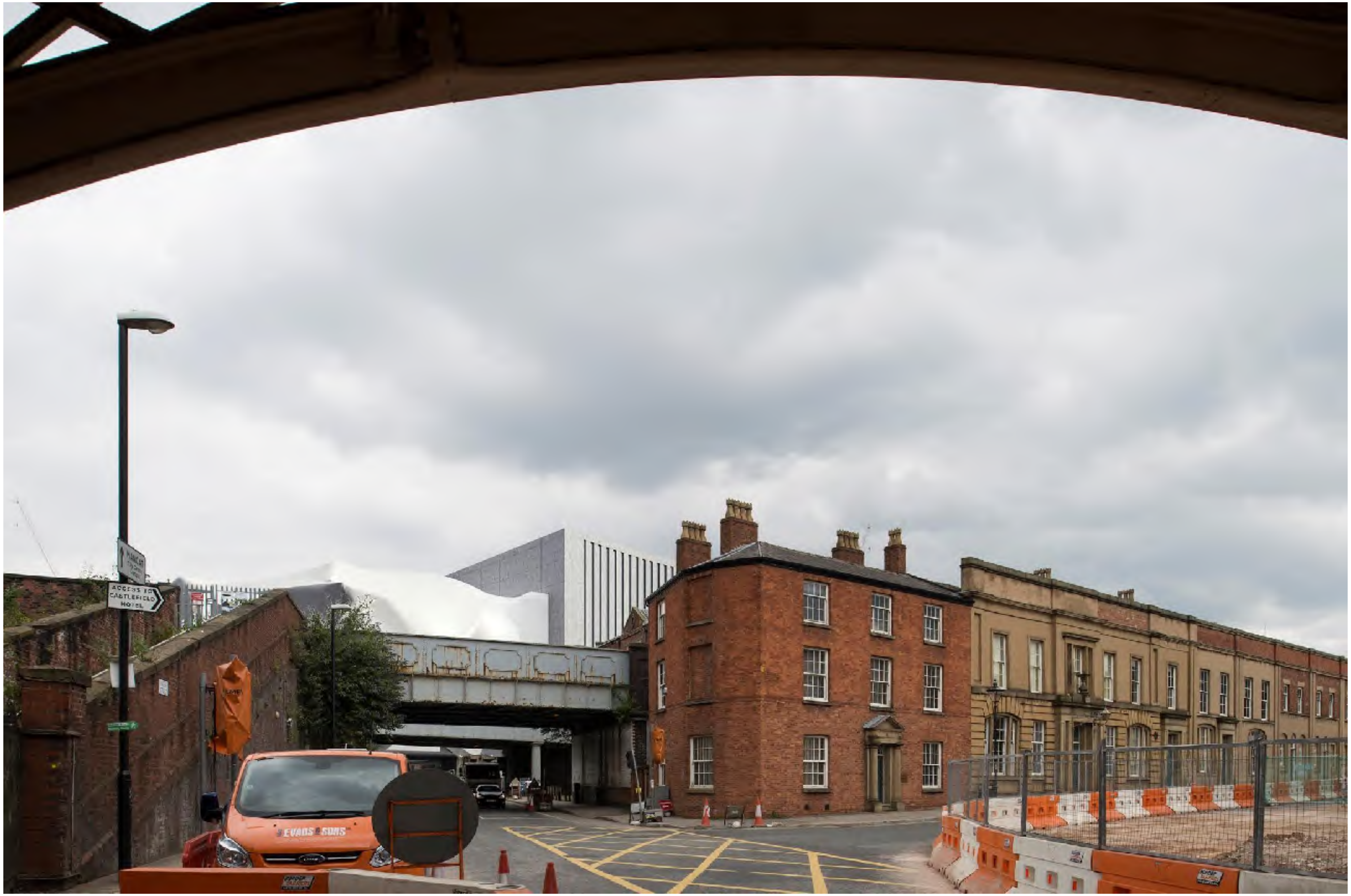
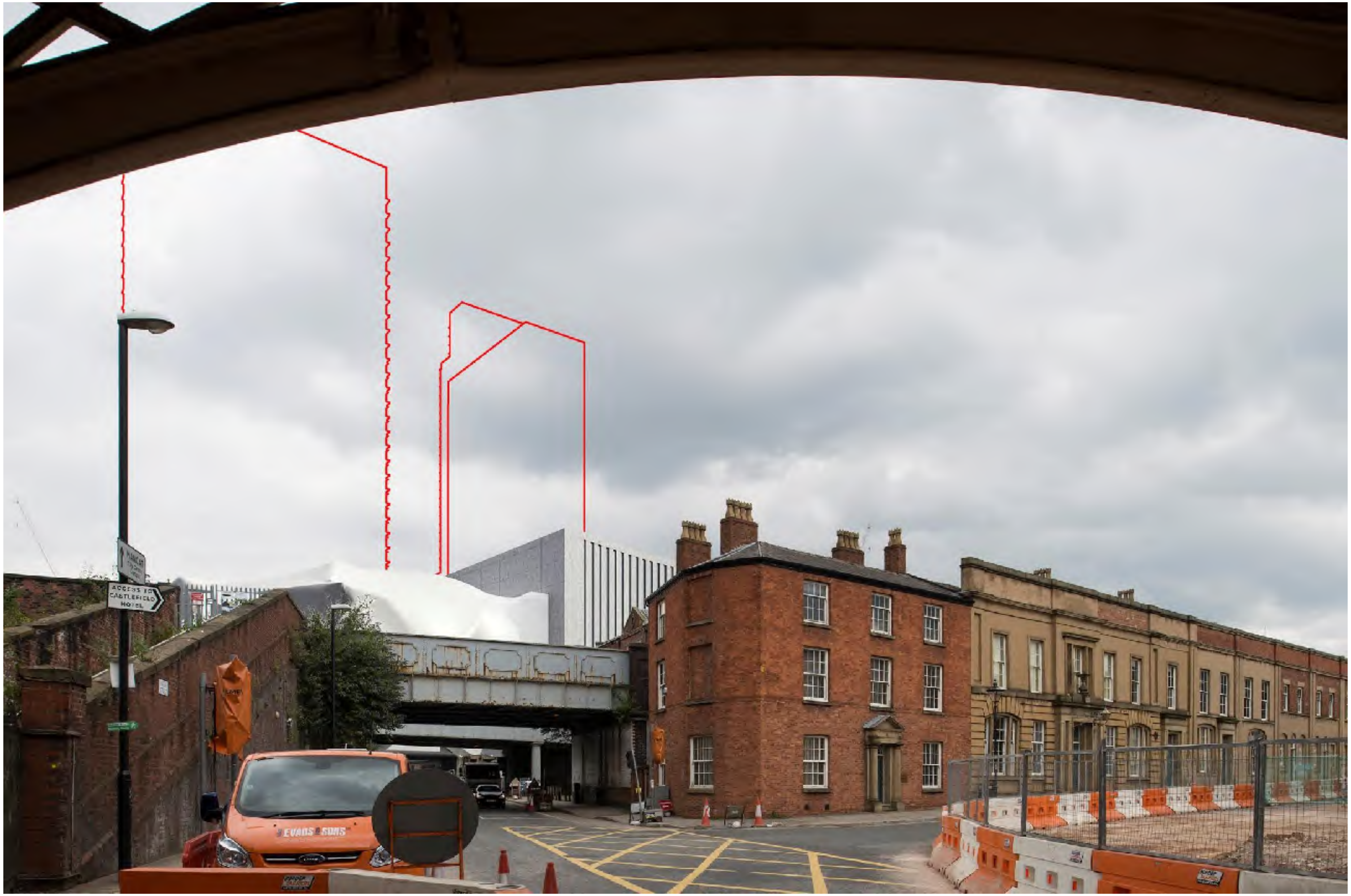
VIEWPOINT H5
Baseline


ACCESS TO CASTLEFIELD HOTEL
EVANS & SONS

PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

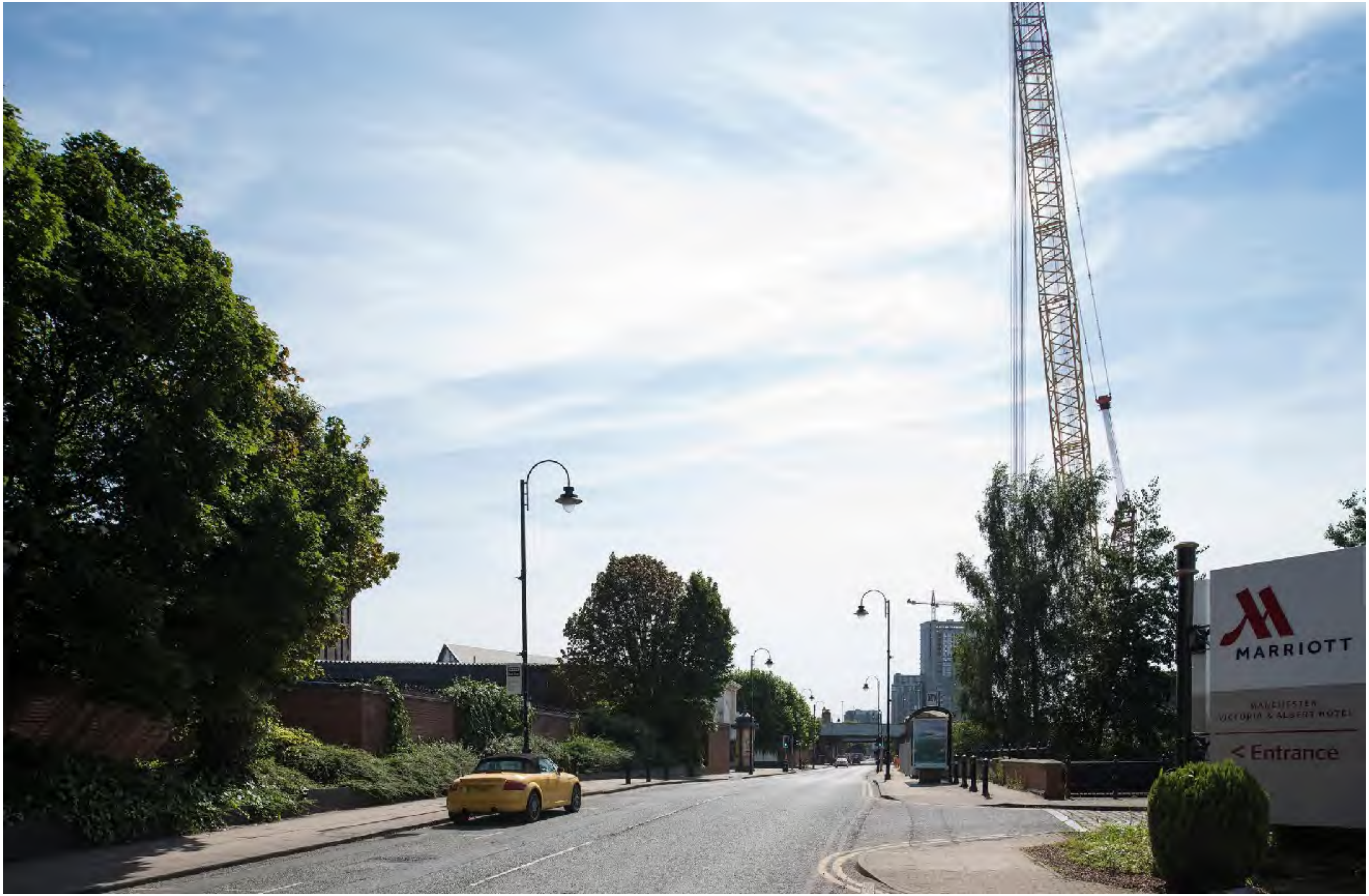
VIEWPOINT H5
Proposed


ACCESS TO CASTLEFIELD HOTEL
EVANS & SONS

PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

VIEWPOINT H5
Cumulative


MARRIOTT
MANCHESTER
VICTORIA & ALBERT HOTEL
< Entrance

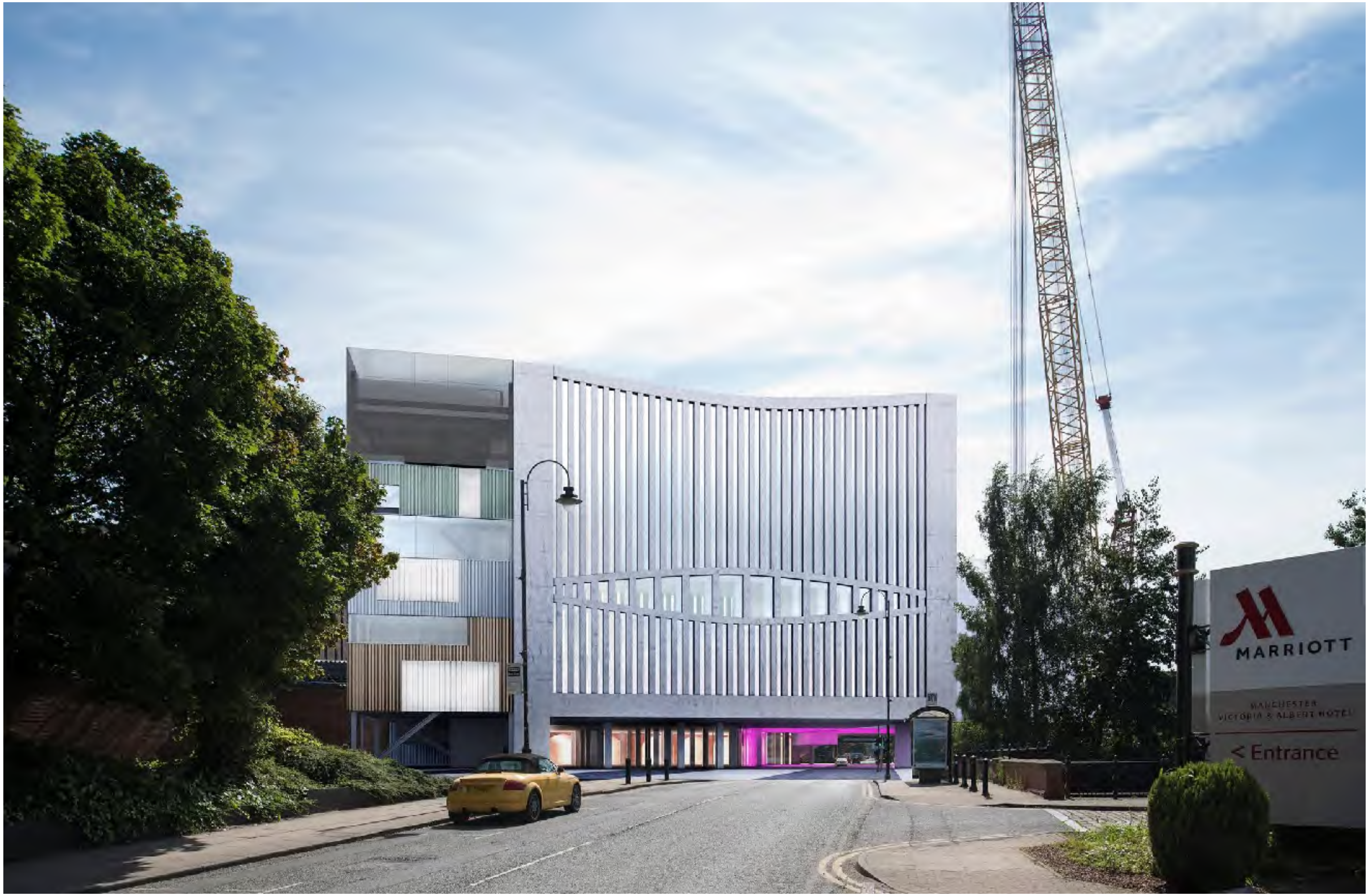
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H6
Baseline


MARRIOTT
MANCHESTER
VICTORIA & ALBERT HOTEL
< Entrance

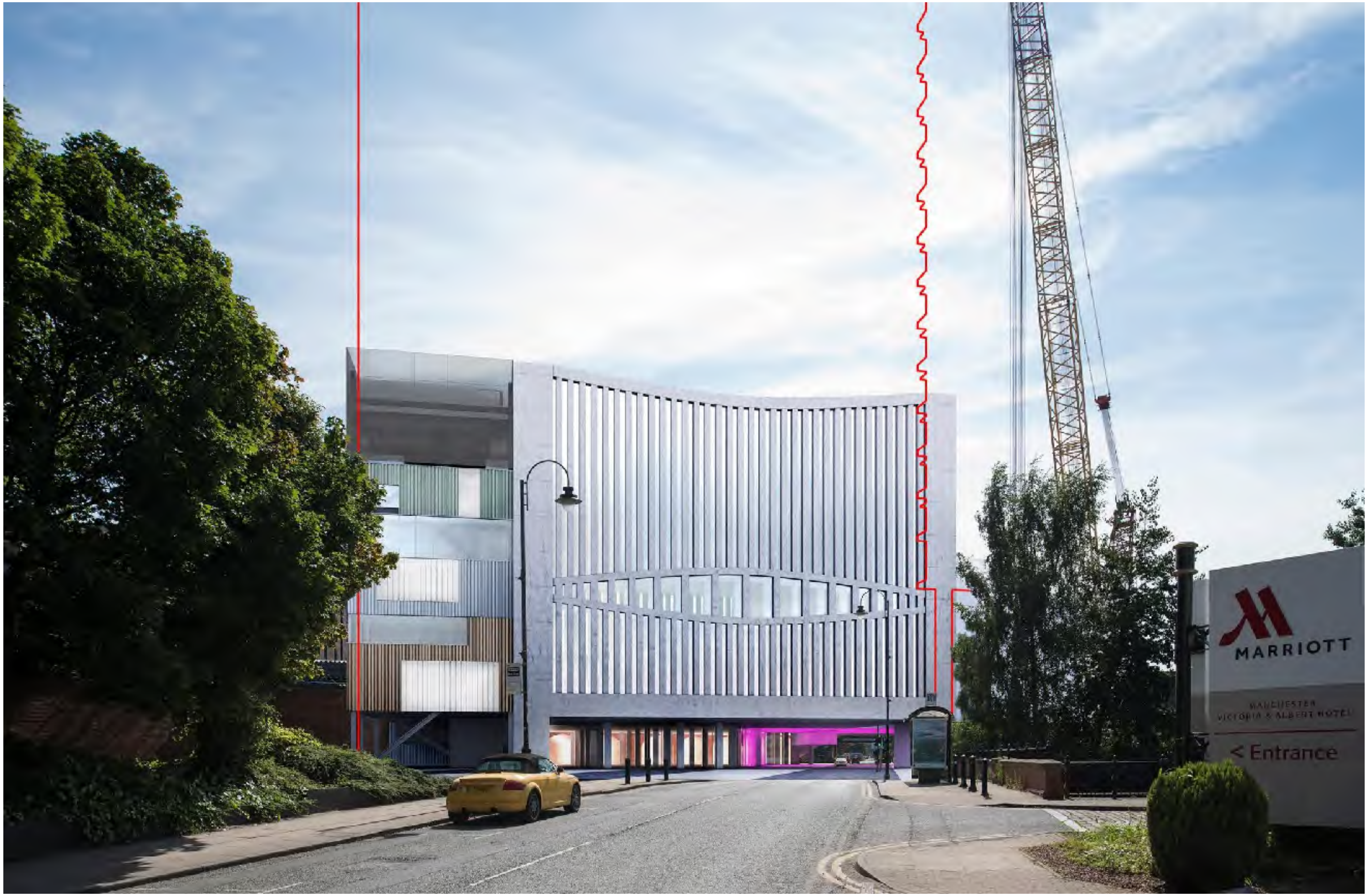
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H6
Proposed


MARRIOTT
MANCHESTER
VICTORIA & ALBERT HOTEL
< Entrance

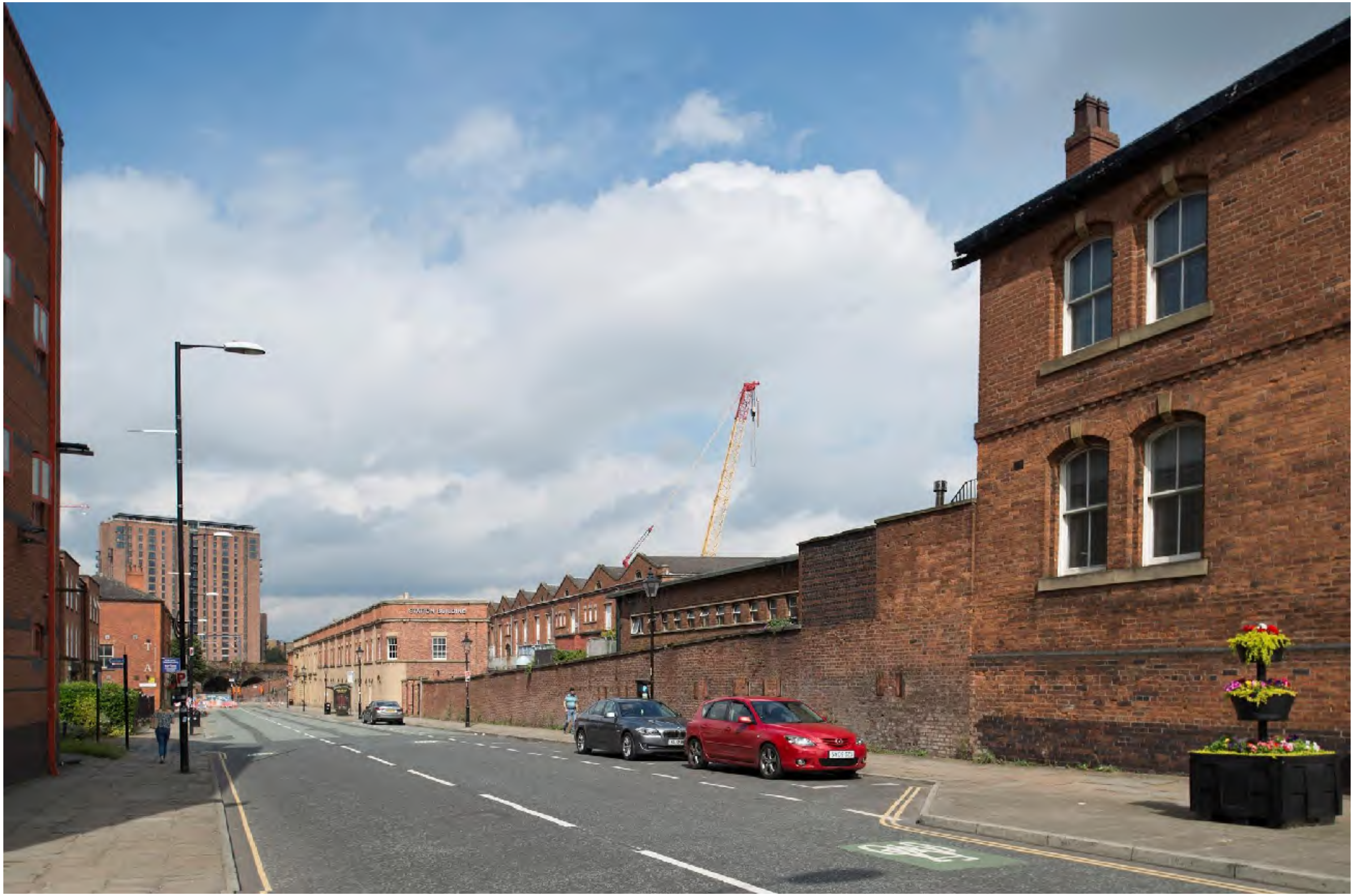
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H6
Cumulative



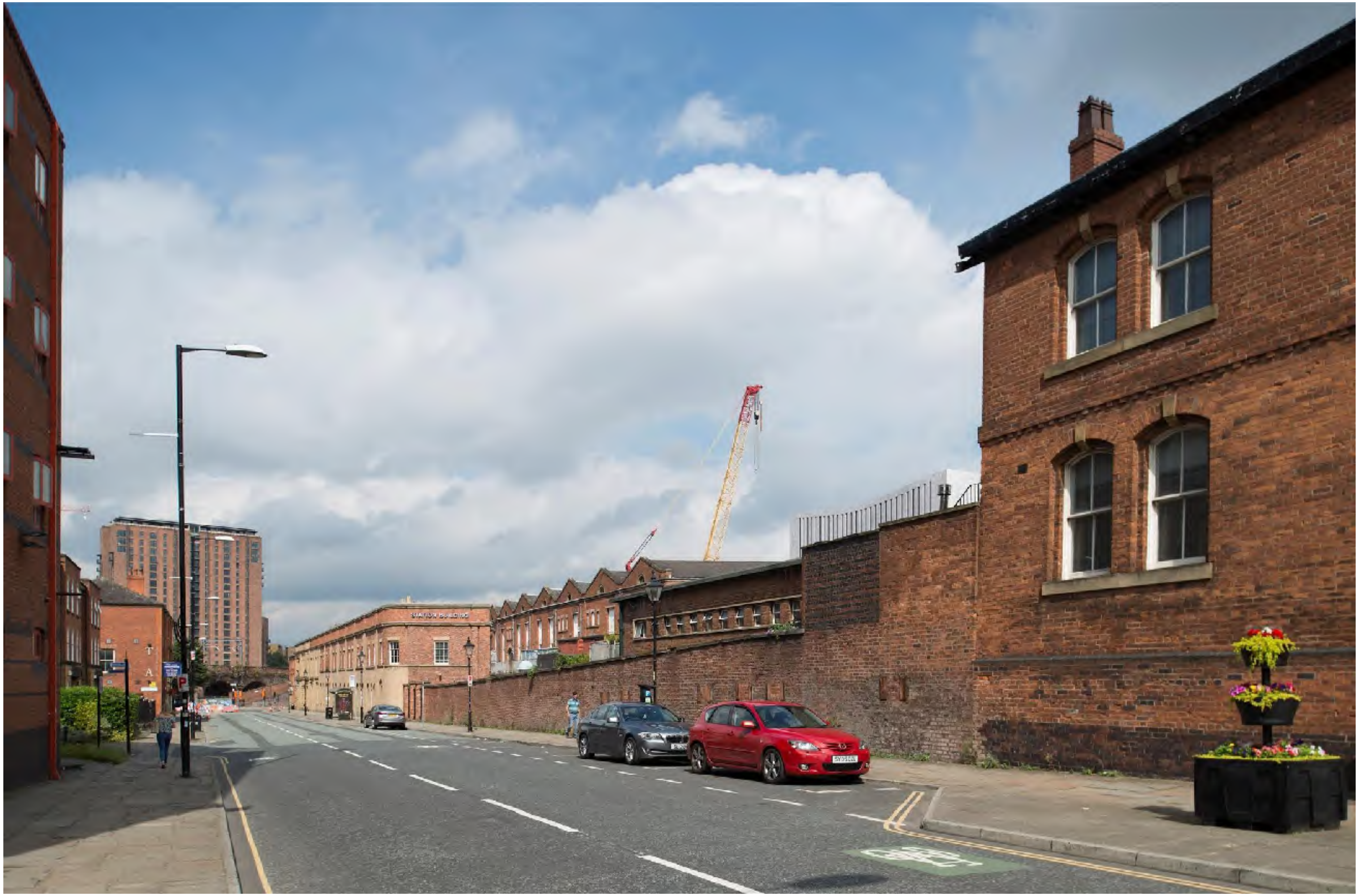
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H7
Baseline



PHOTOGRAPH INFORMATION:

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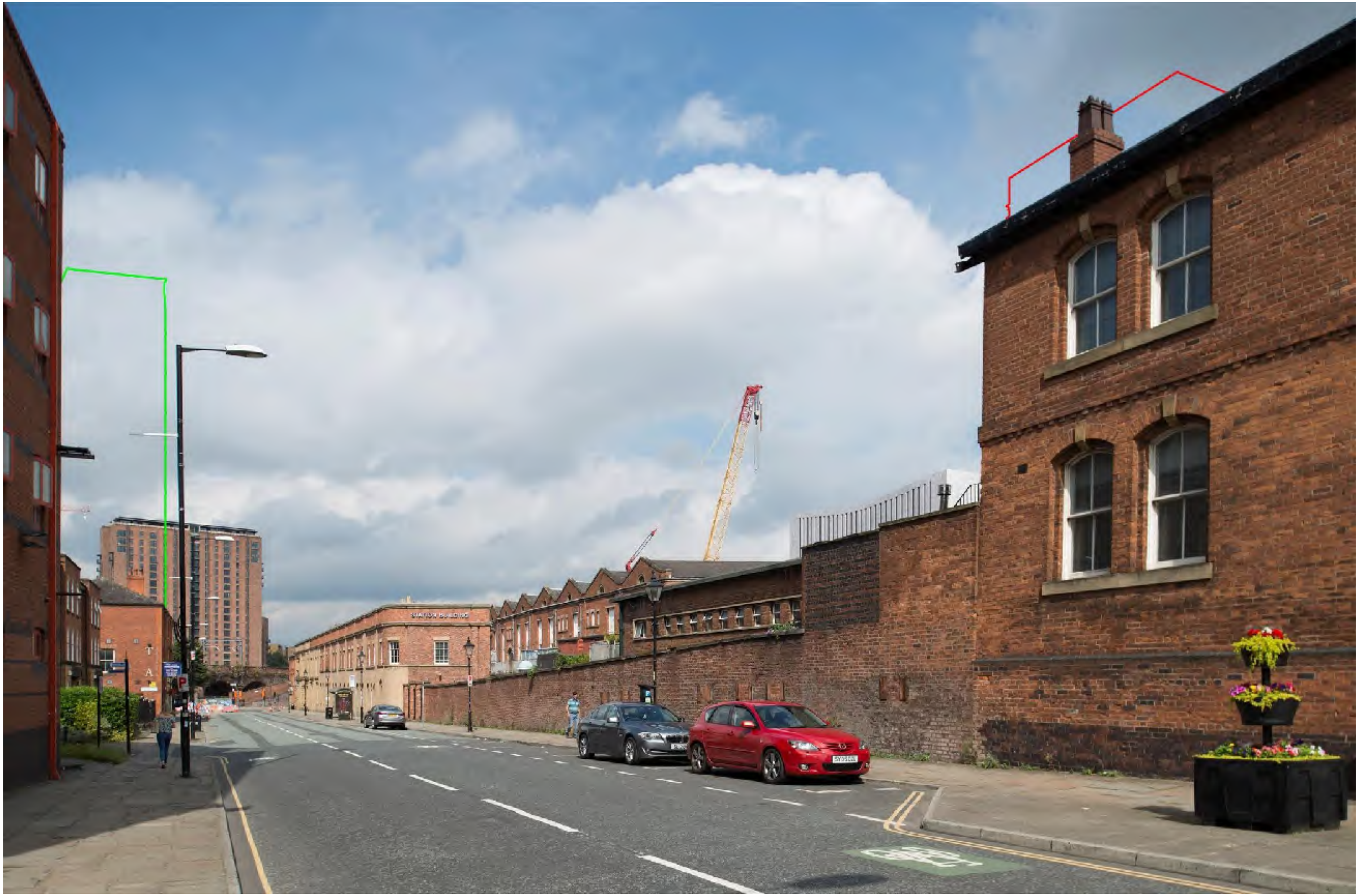
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H7
Proposed



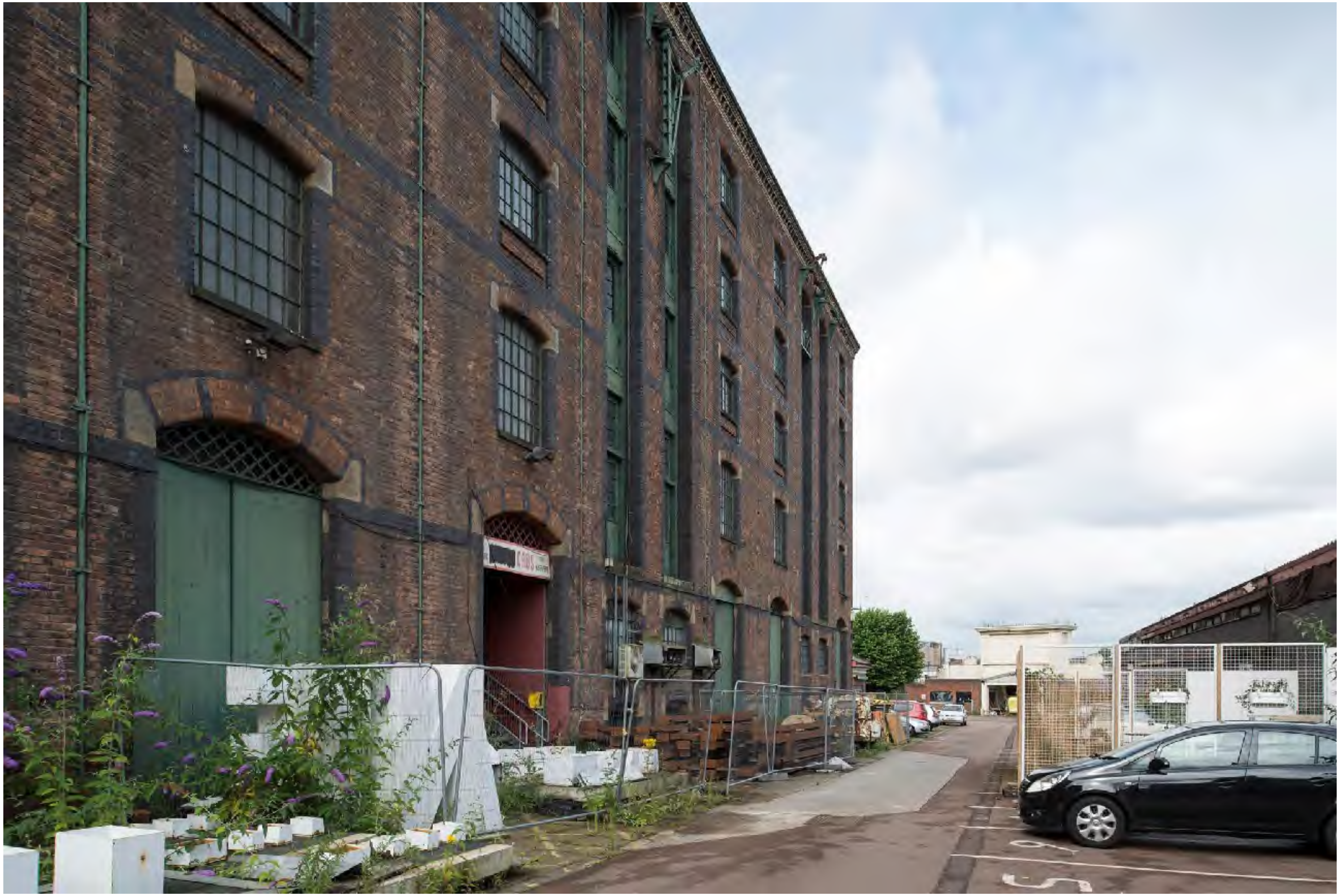
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINTH7
Cumulative



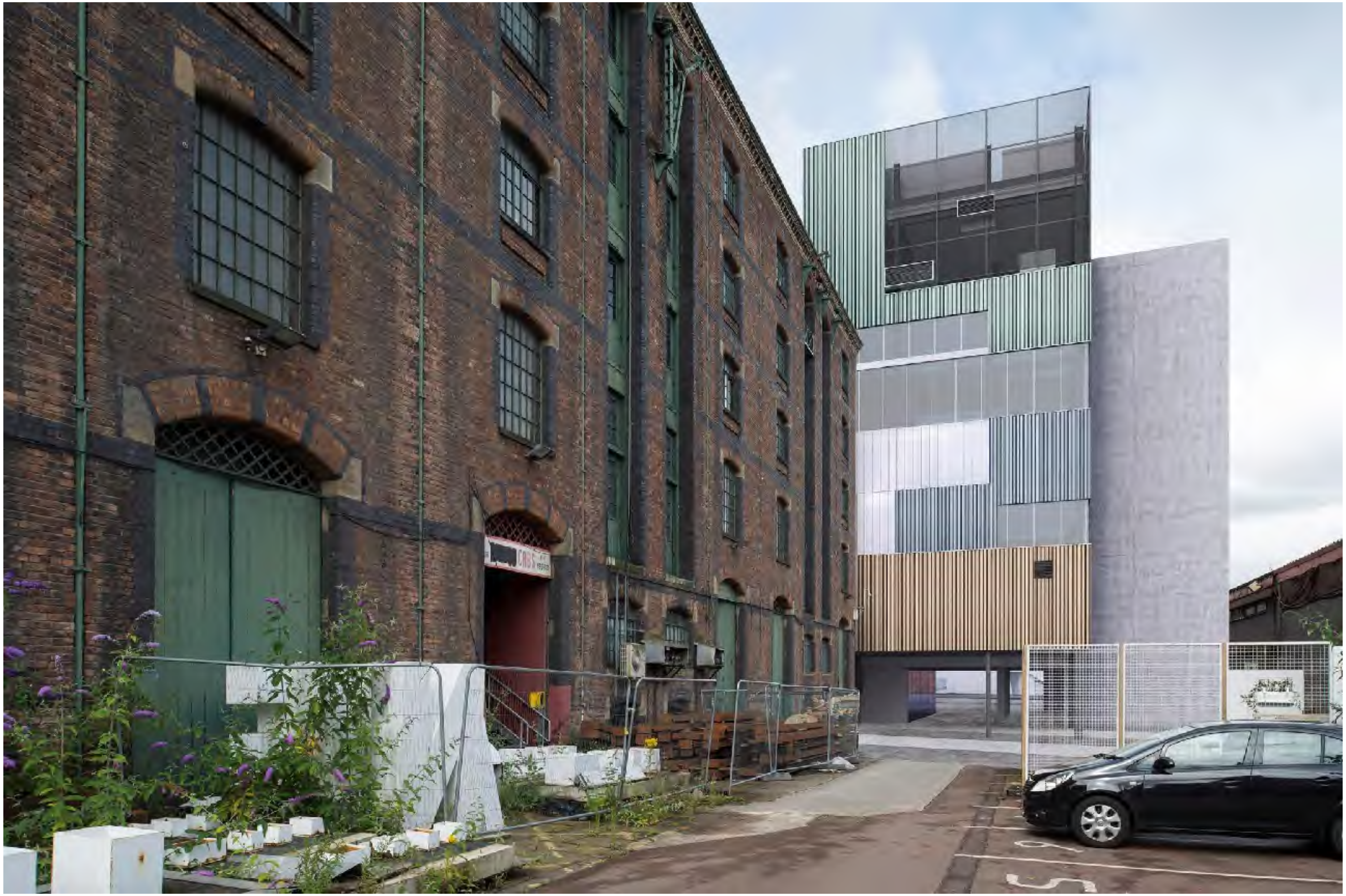
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINTH8
Baseline



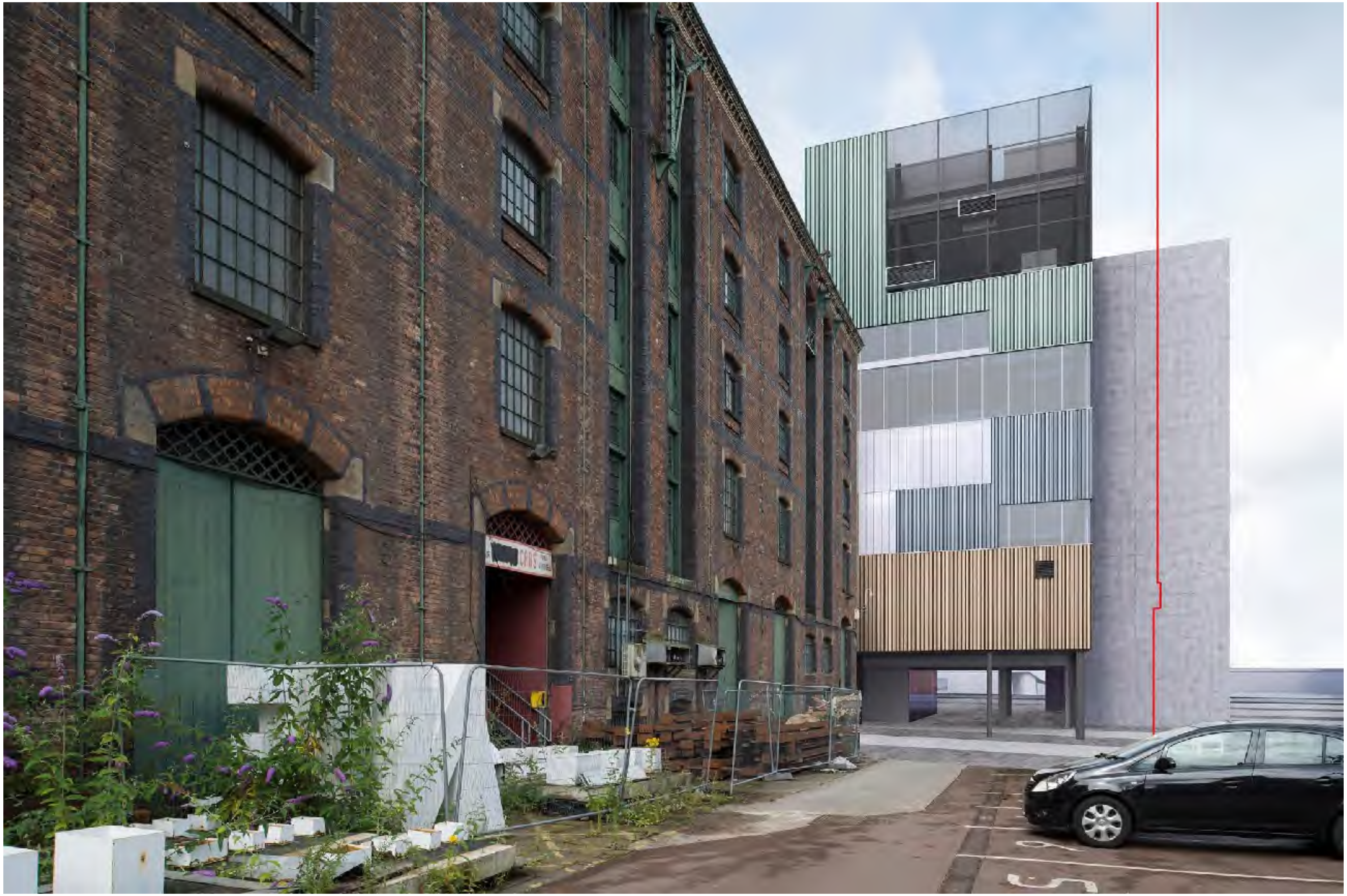
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H8
Proposed



PHOTOGRAPH INFORMATION:

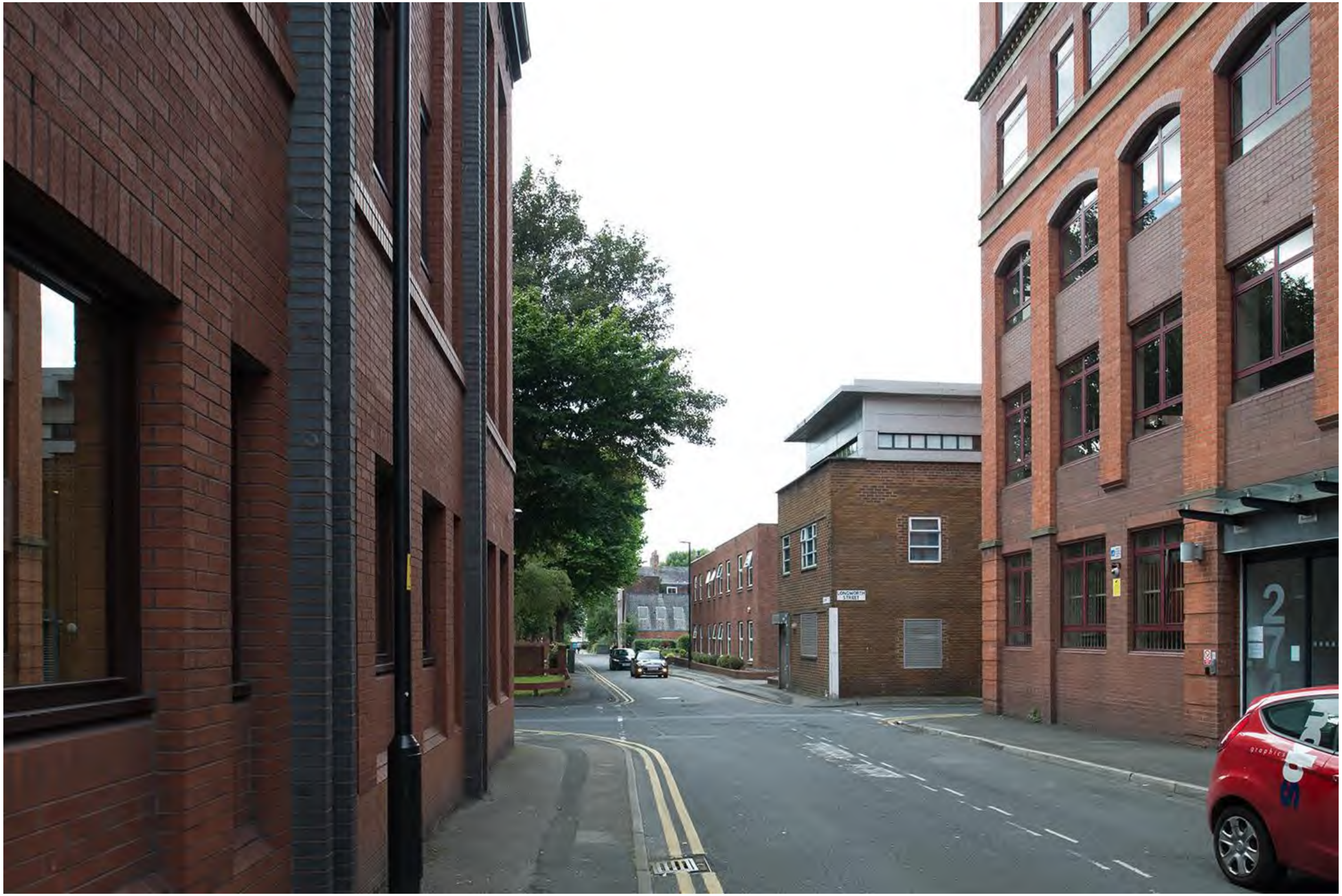
OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H8
Cumulative

TOWNSCAPE VIEWS



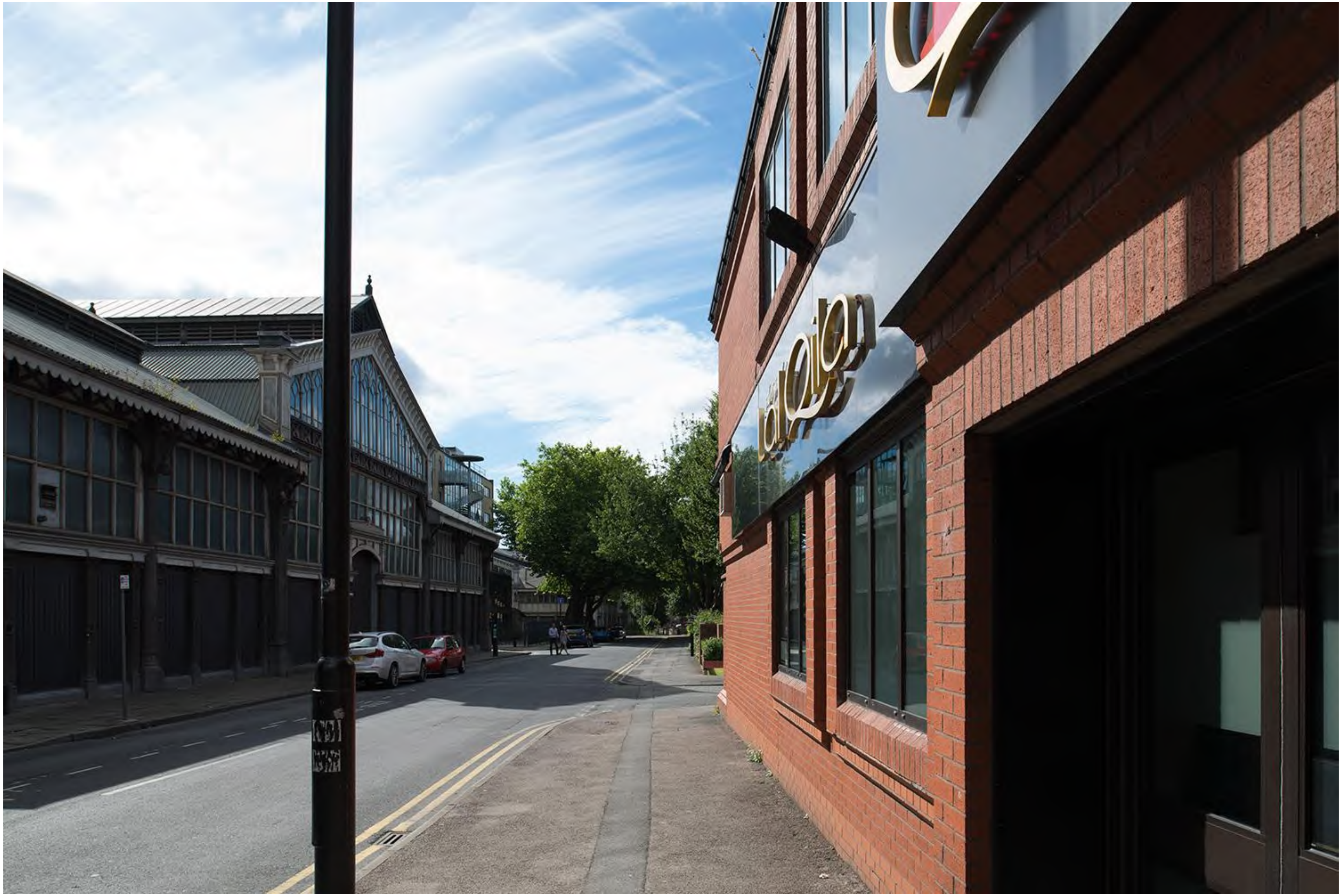
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 1
Camp Street



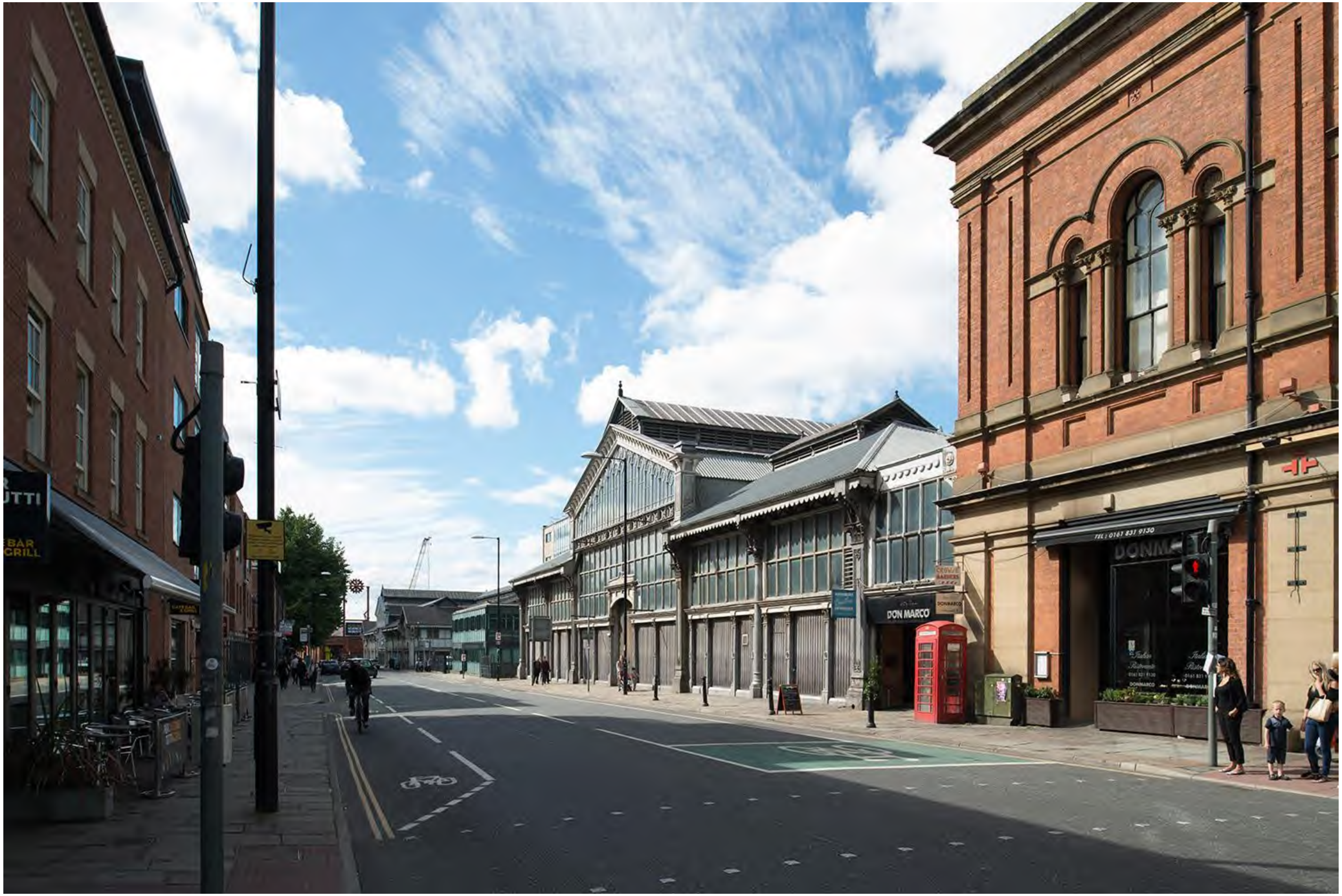
PHOTOGRAPH INFORMATION:

OS co-ords : 382852/397997 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 25mm Field of view : 48 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 2
Tonman Street


DON MARCO
DONMARCO
TEL: 0161 831 9130

PHOTOGRAPH INFORMATION:

OS co-ords : 382882/397869 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 25mm Field of view : 48 degrees

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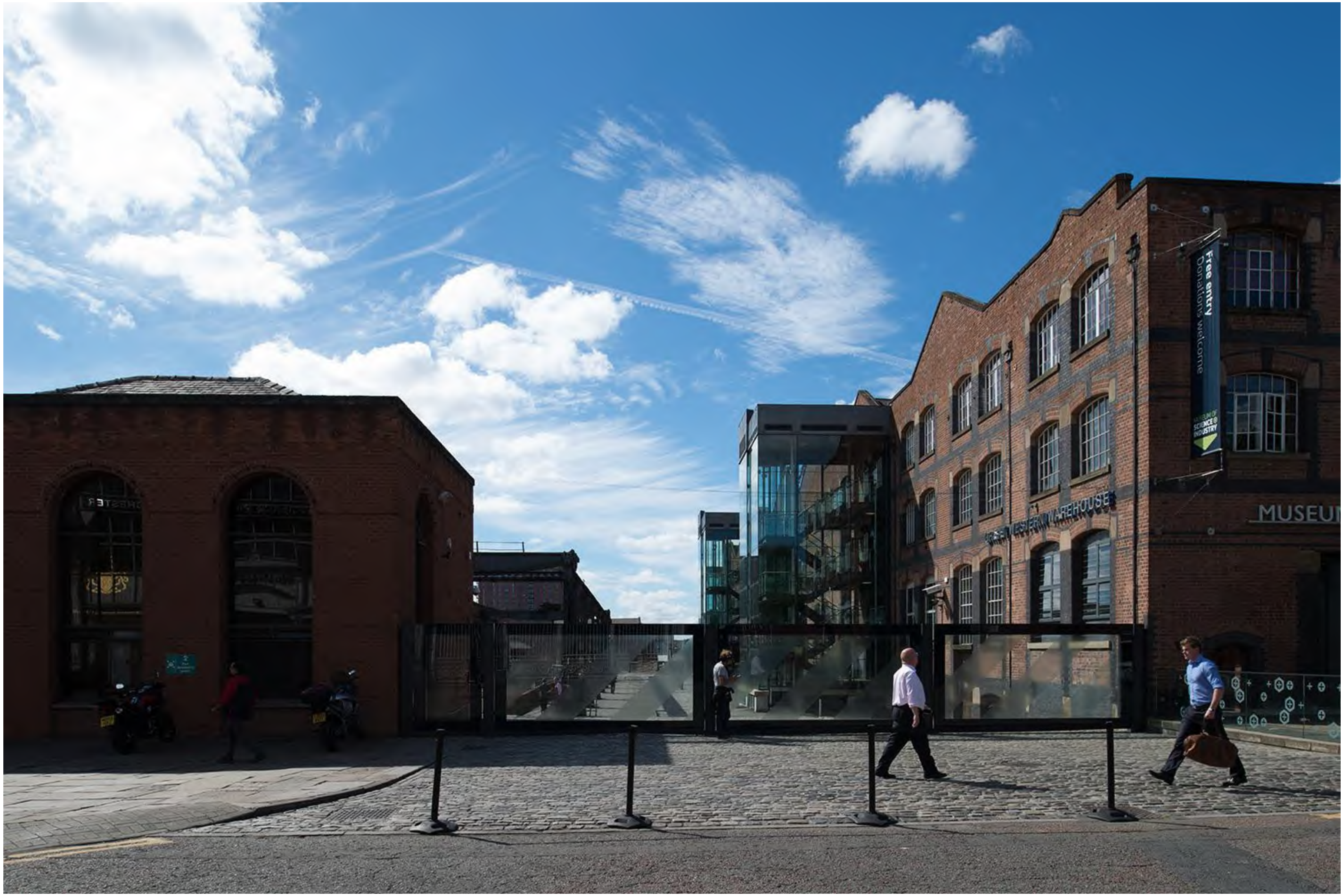
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 3
Liverpool Road


Free entry
Donations welcome
GREAT WESTERN WAREHOUSE
MUSEUM

PHOTOGRAPH INFORMATION:

OS co-ords : 382772/397719 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 25mm Field of view : 48 degrees

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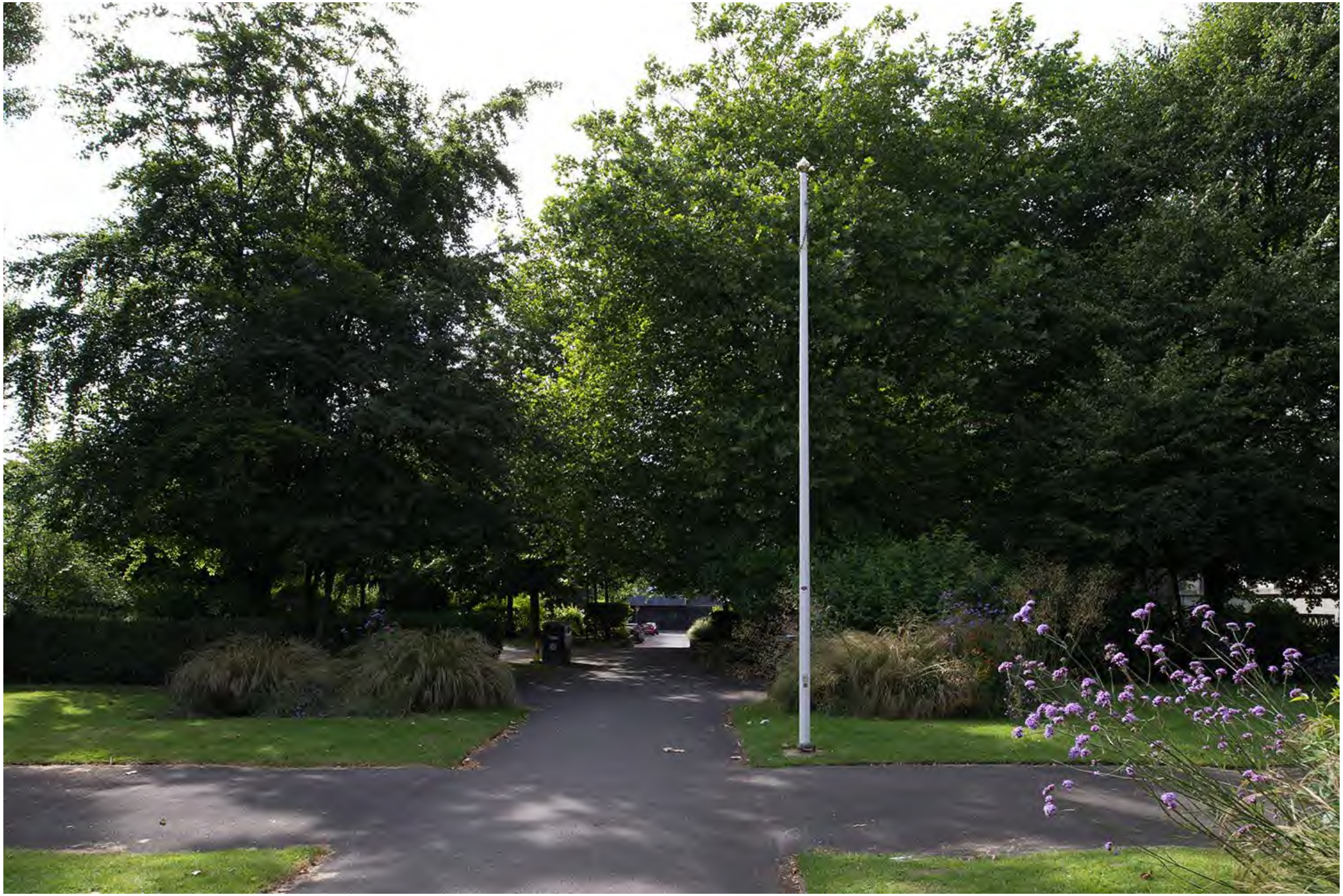
THE FACTORY Townscape and Visual Impact Assessment

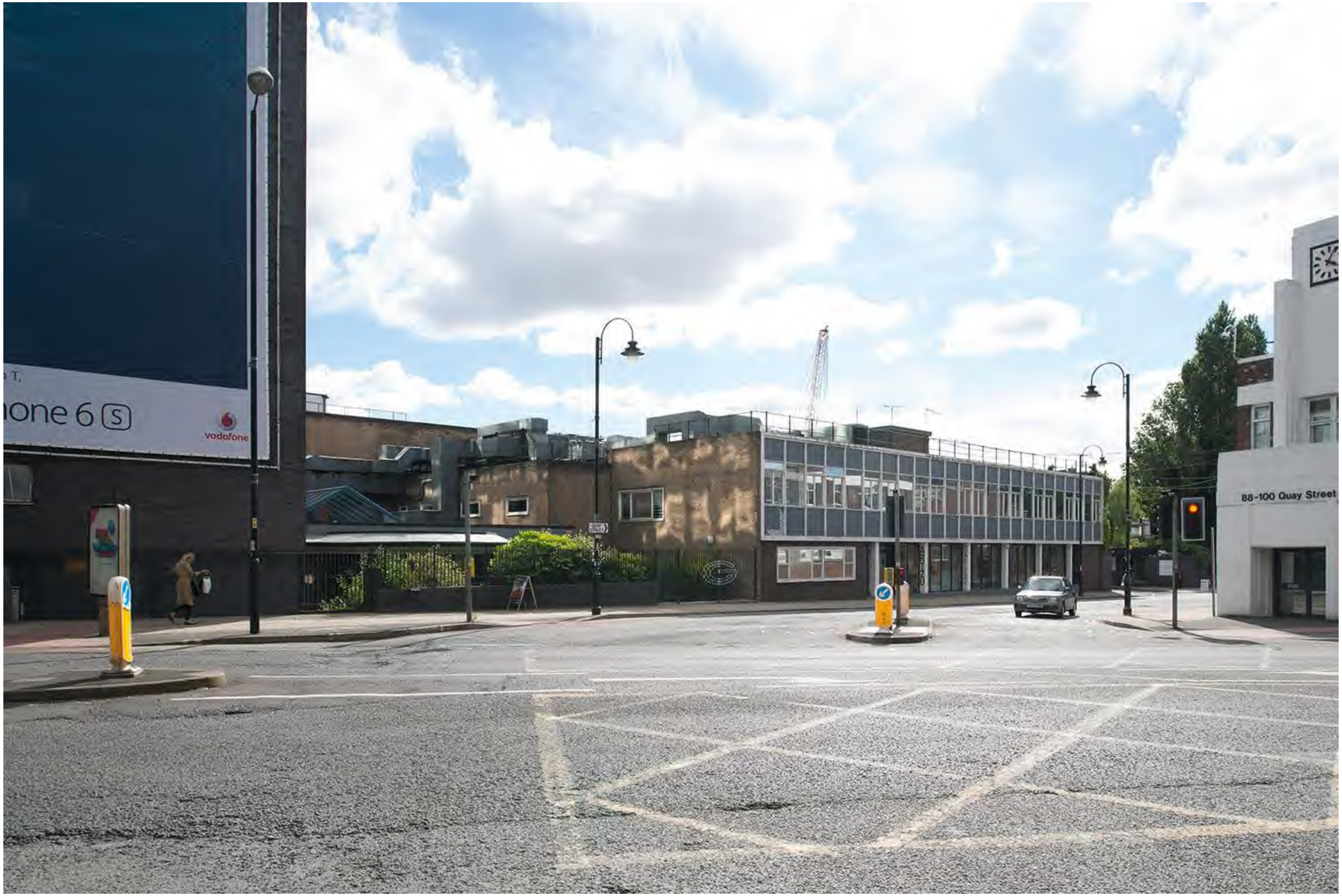
VIEWPOINT 4
MOSI



PHOTOGRAPH INFORMATION:

OS co-ords : 382602/397713 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 25mm Field of view : 48 degrees

VIEWPOINT 5
St John's Gardens


one 6 S
vodafone
88-100 Quay Street

PHOTOGRAPH INFORMATION:

OS co-ords : 382711/397680 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 23mm Field of view : 51 degrees

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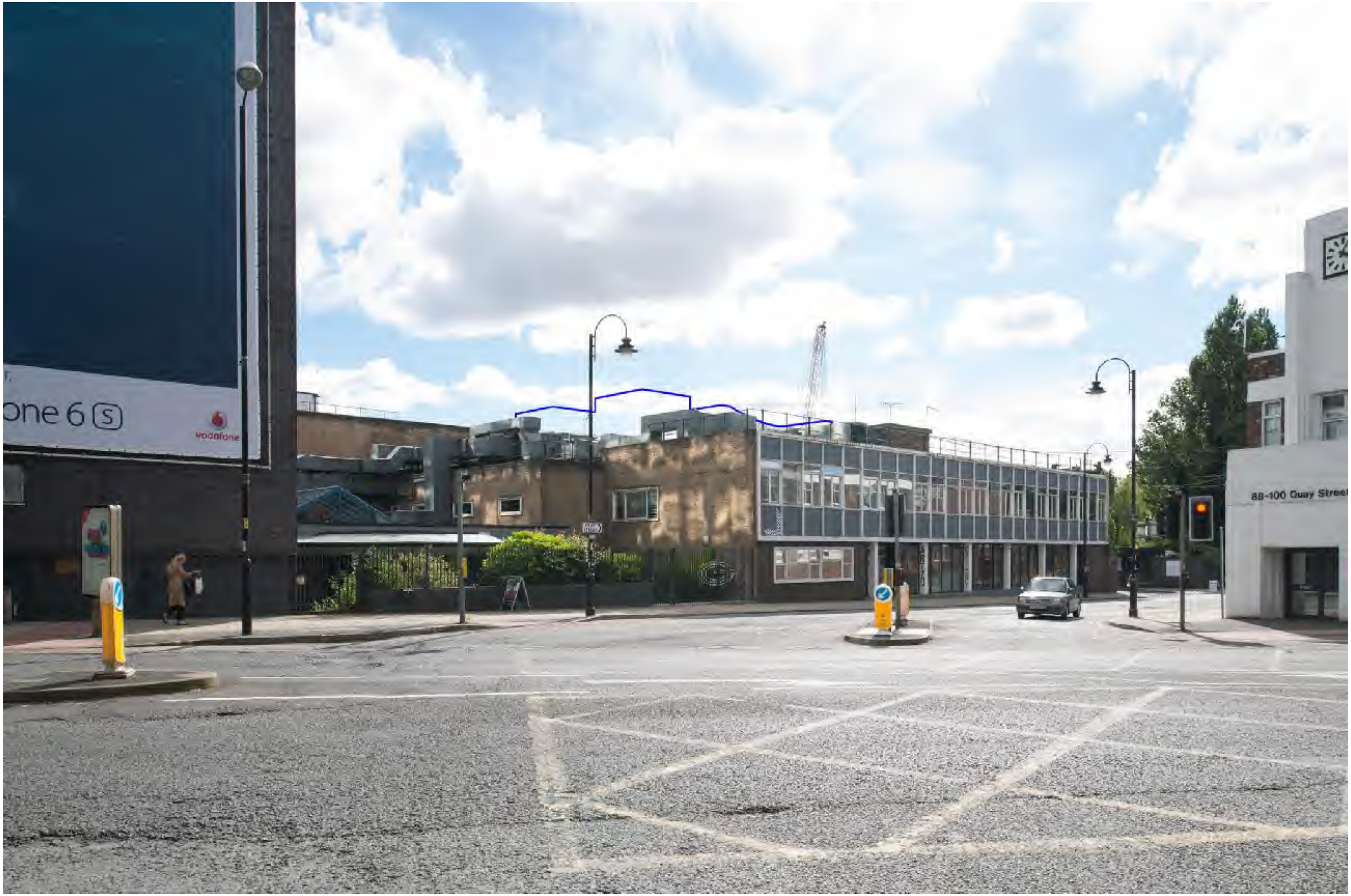
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 6
Quay Street


one 6 S
vodafone
88-100 Quay Street

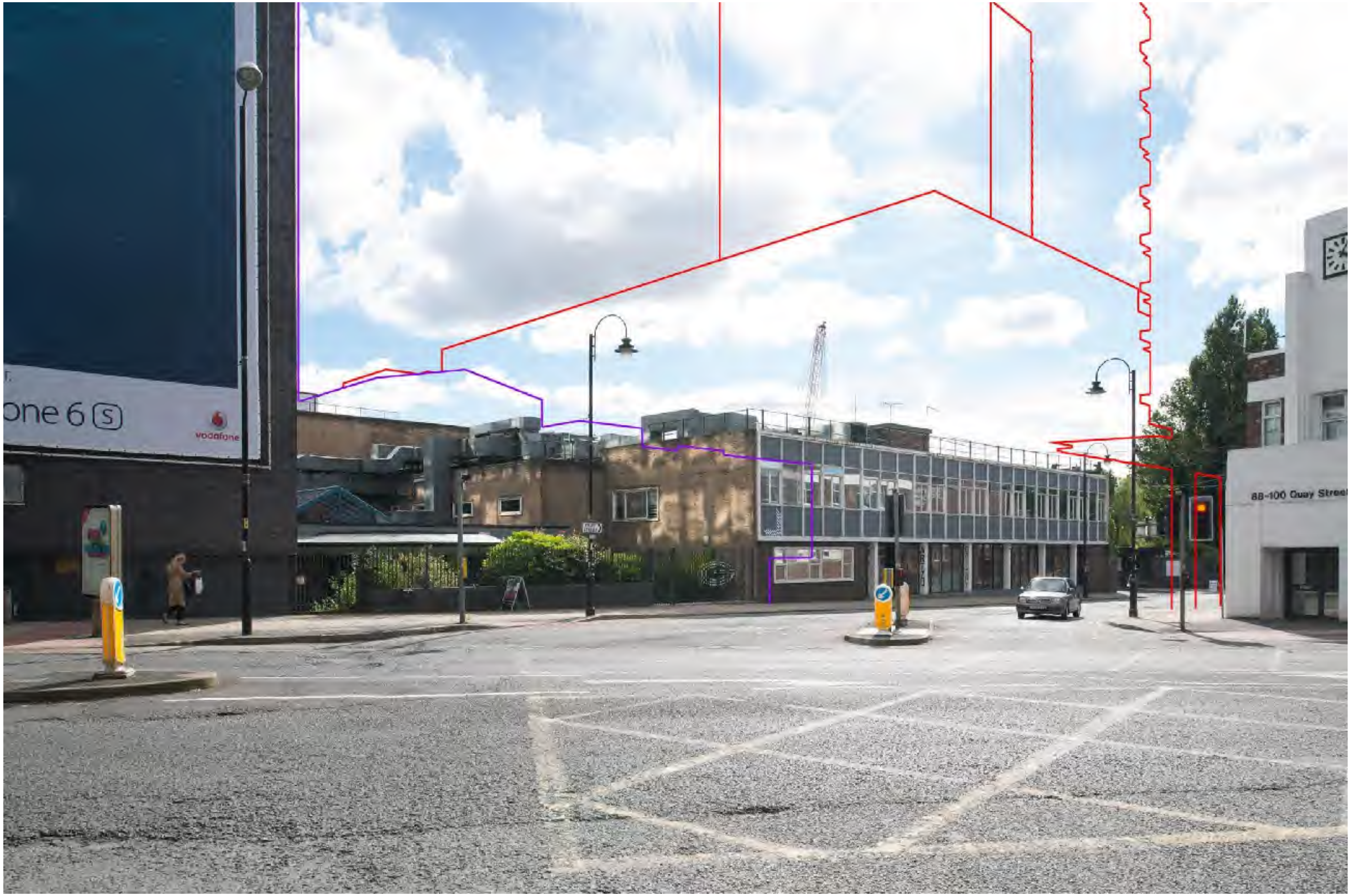
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 6
Proposed



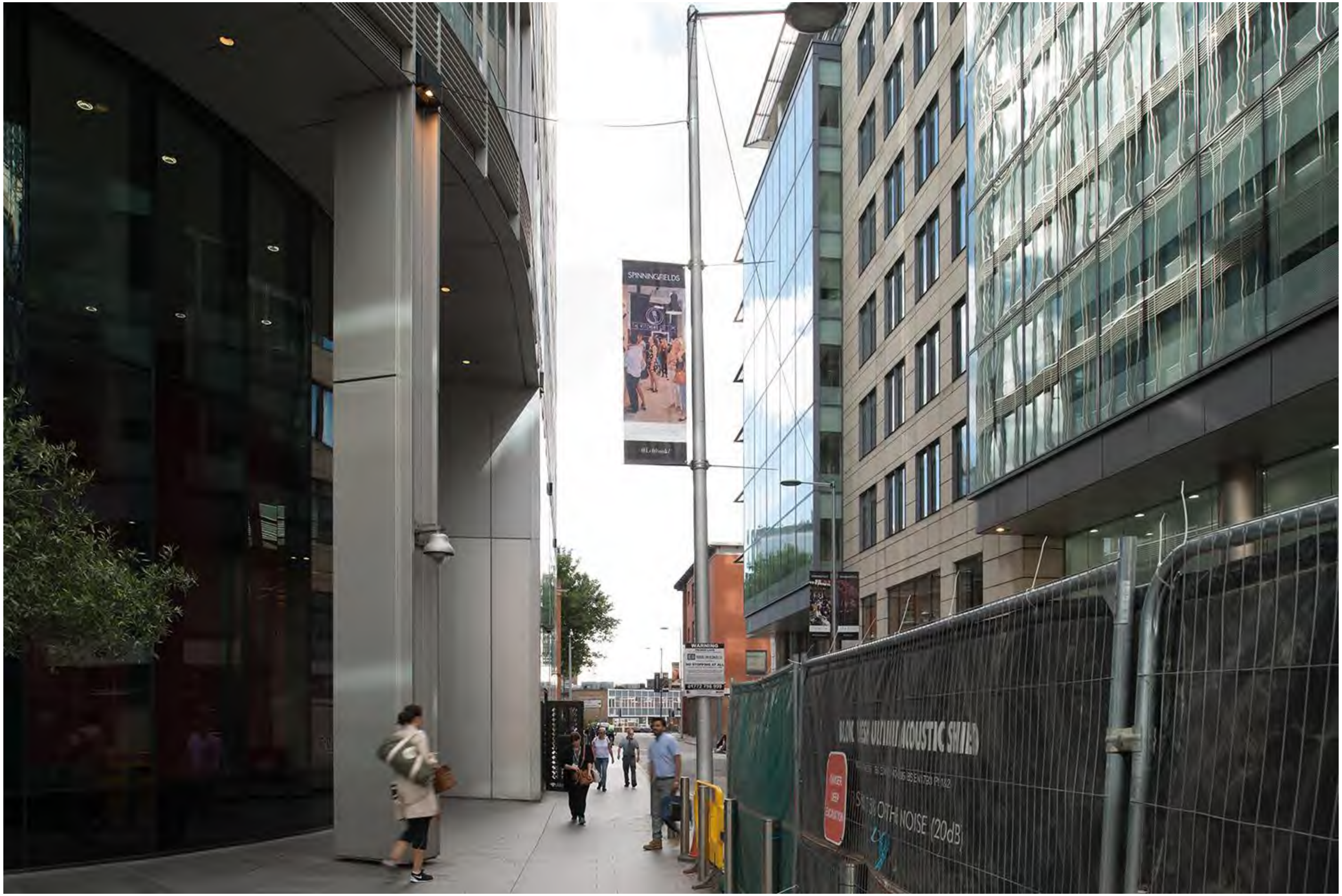
CUMULATIVE VIEWS KEY

- Factory
- Trinity
- St Johns
- OGS
- South Village
- Owen Street
- Byrom House
- Renaker
- 1 Spinningfields

PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

VIEWPOINT 6
Cumulative


SPINNINGFIELDS
ACOUSTIC SHIELD
NOISE (20dB)

PHOTOGRAPH INFORMATION:

OS co-ords : 383501397815 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 27mm Field of view : 44 degrees

VIEWPOINT 7
Gartside Street

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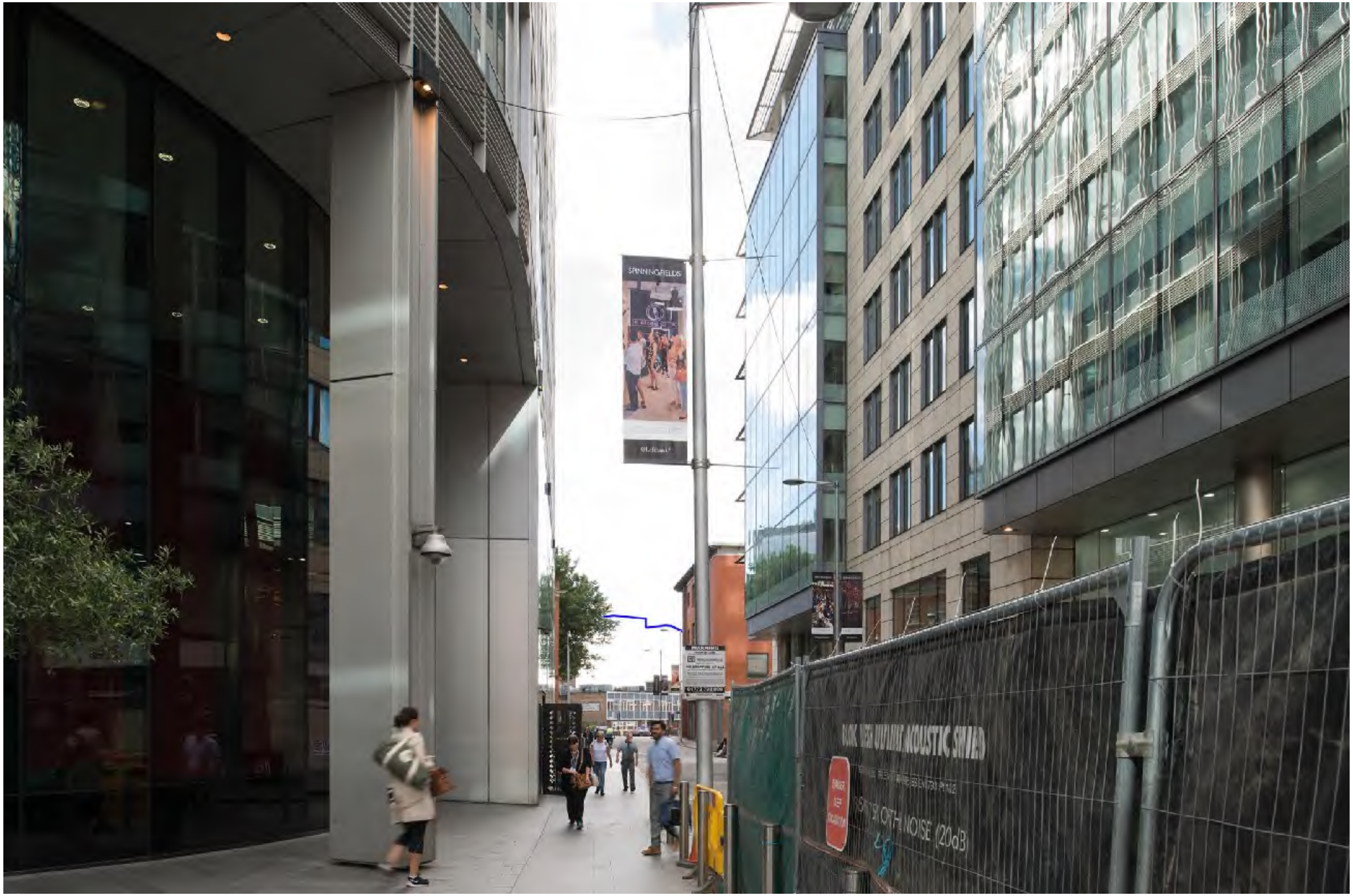
THE FACTORY Townscape and Visual Impact Assessment


SPINNINGFIELDS
WARNING
SITE STOP
ACOUSTIC SHIELD
NOISE (20dB)

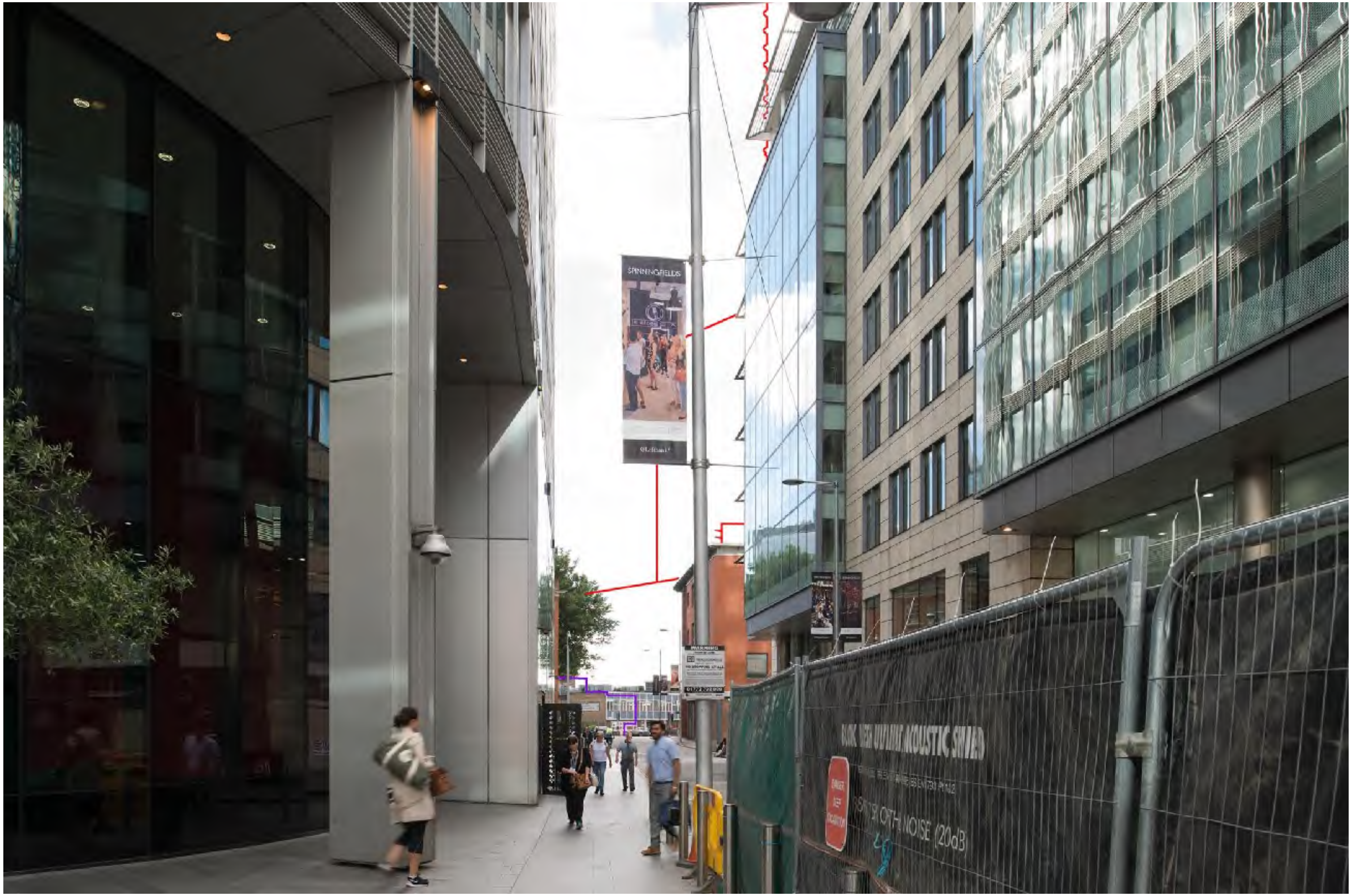
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 7
Proposed


SPINNINGFIELDS
ACOUSTIC SHIELD
NOISE (20dB)

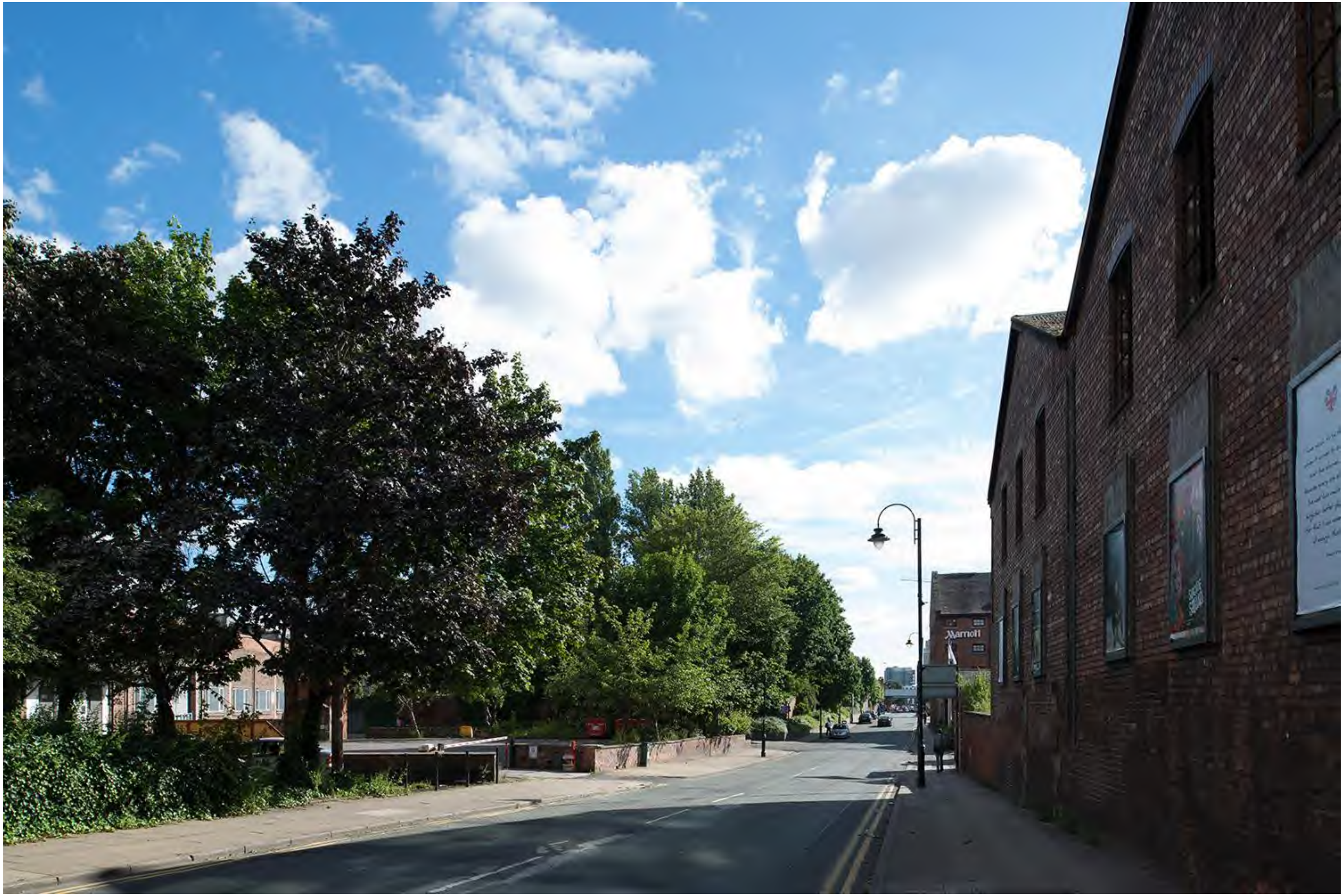
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 7
Cumulative



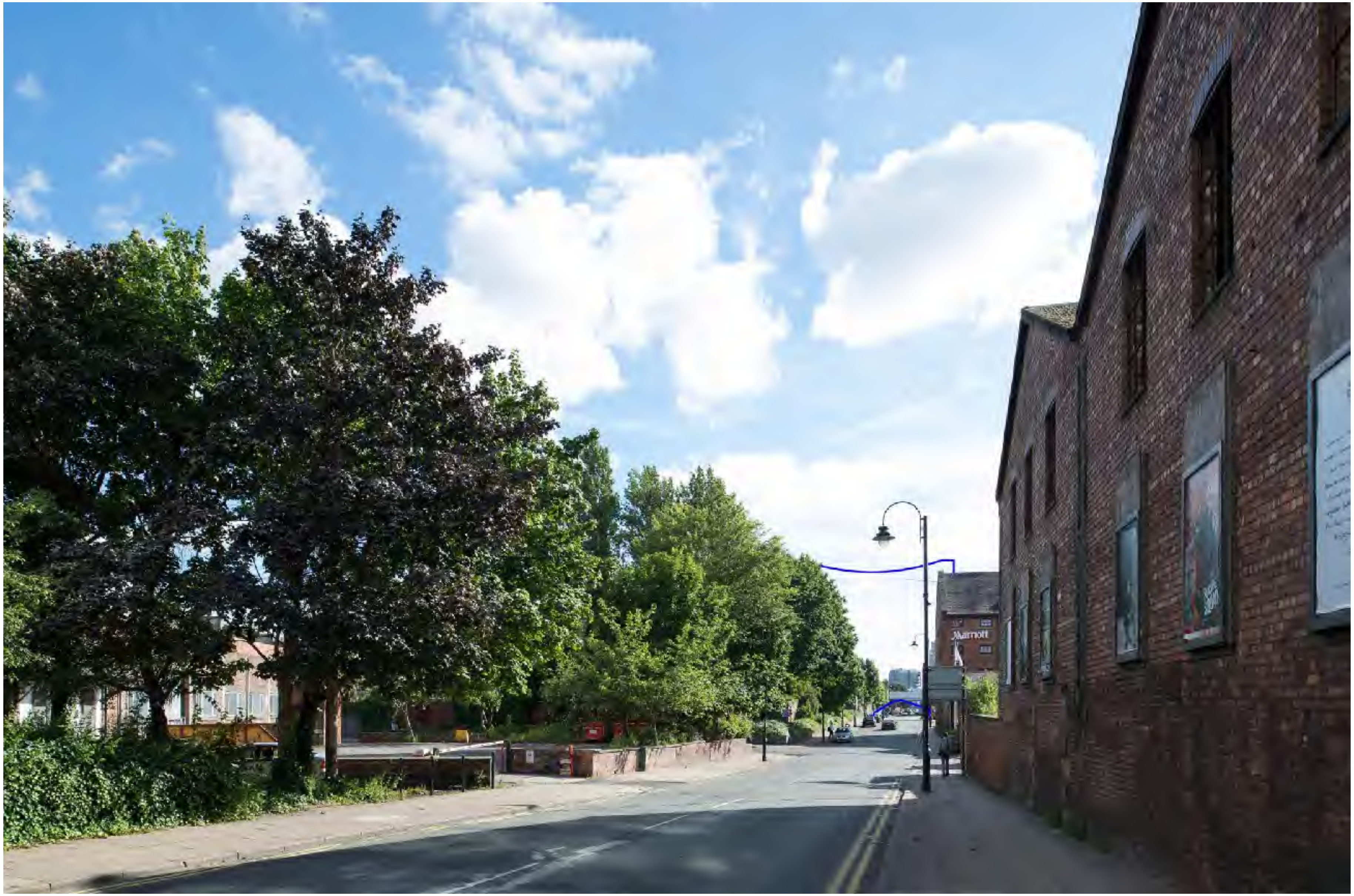
PHOTOGRAPH INFORMATION:

OS co-ords : 383232/397765 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 29mm Field of view : 42 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 8
Water Street



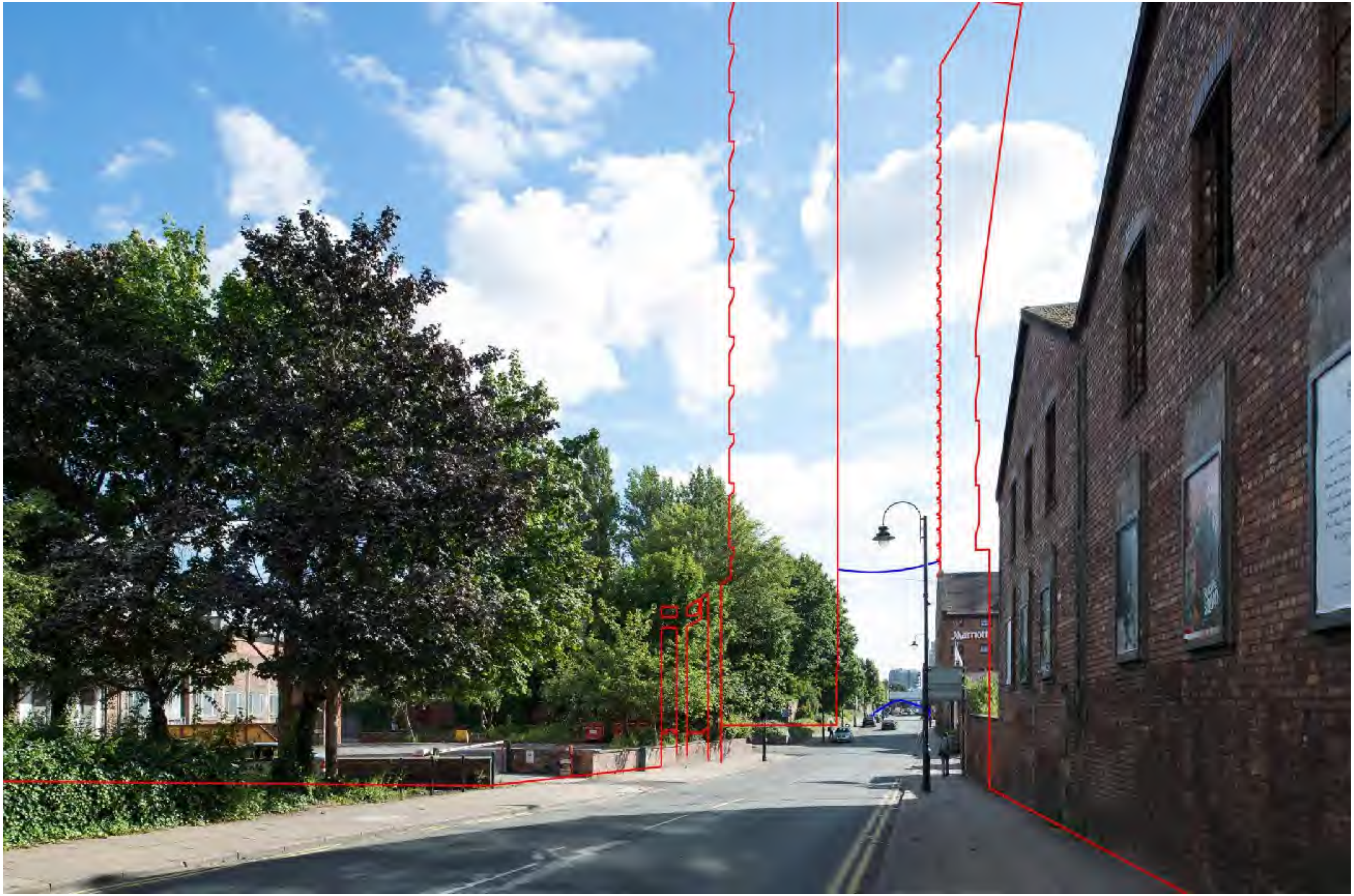
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 8
Proposed



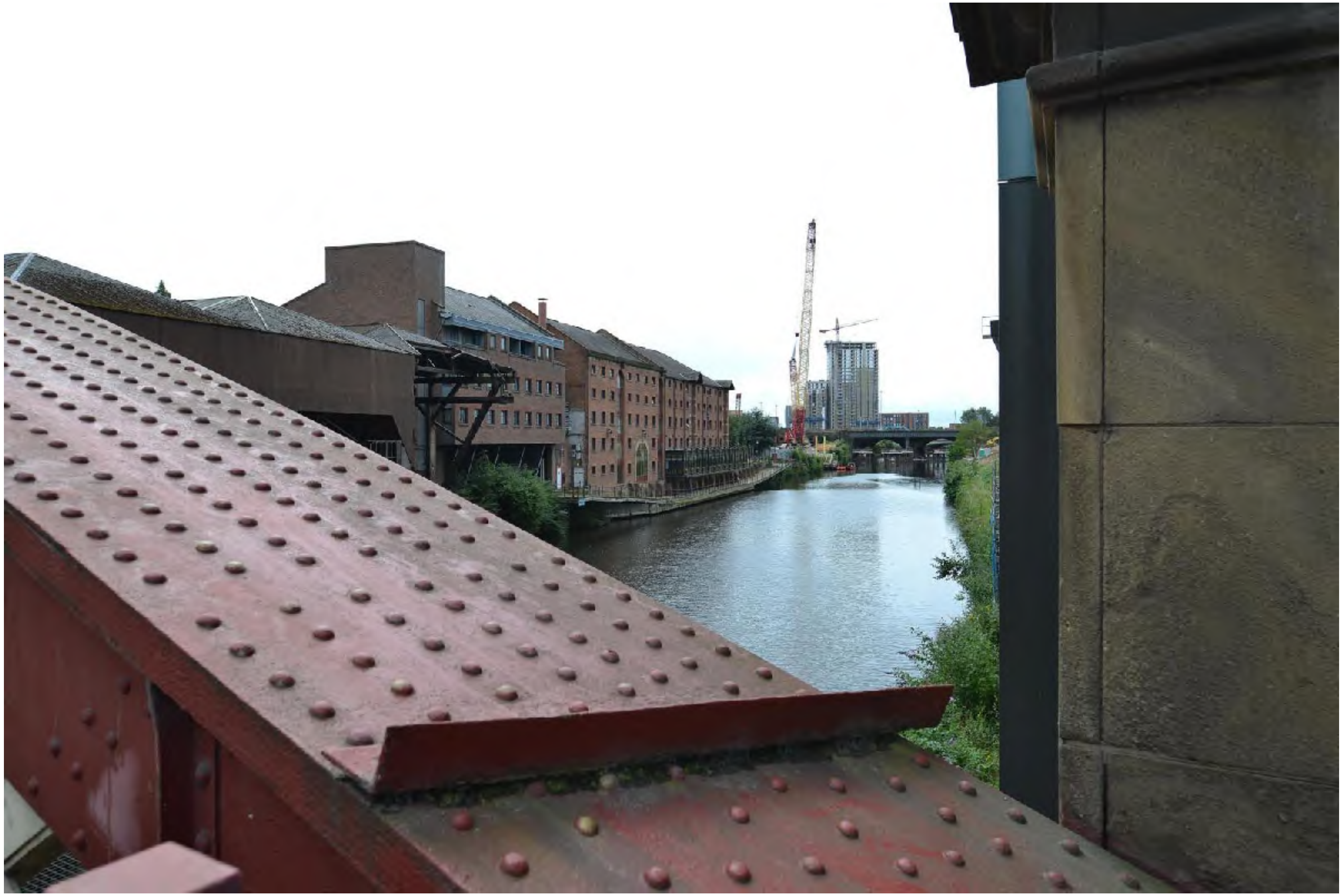
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 8
Cumulative



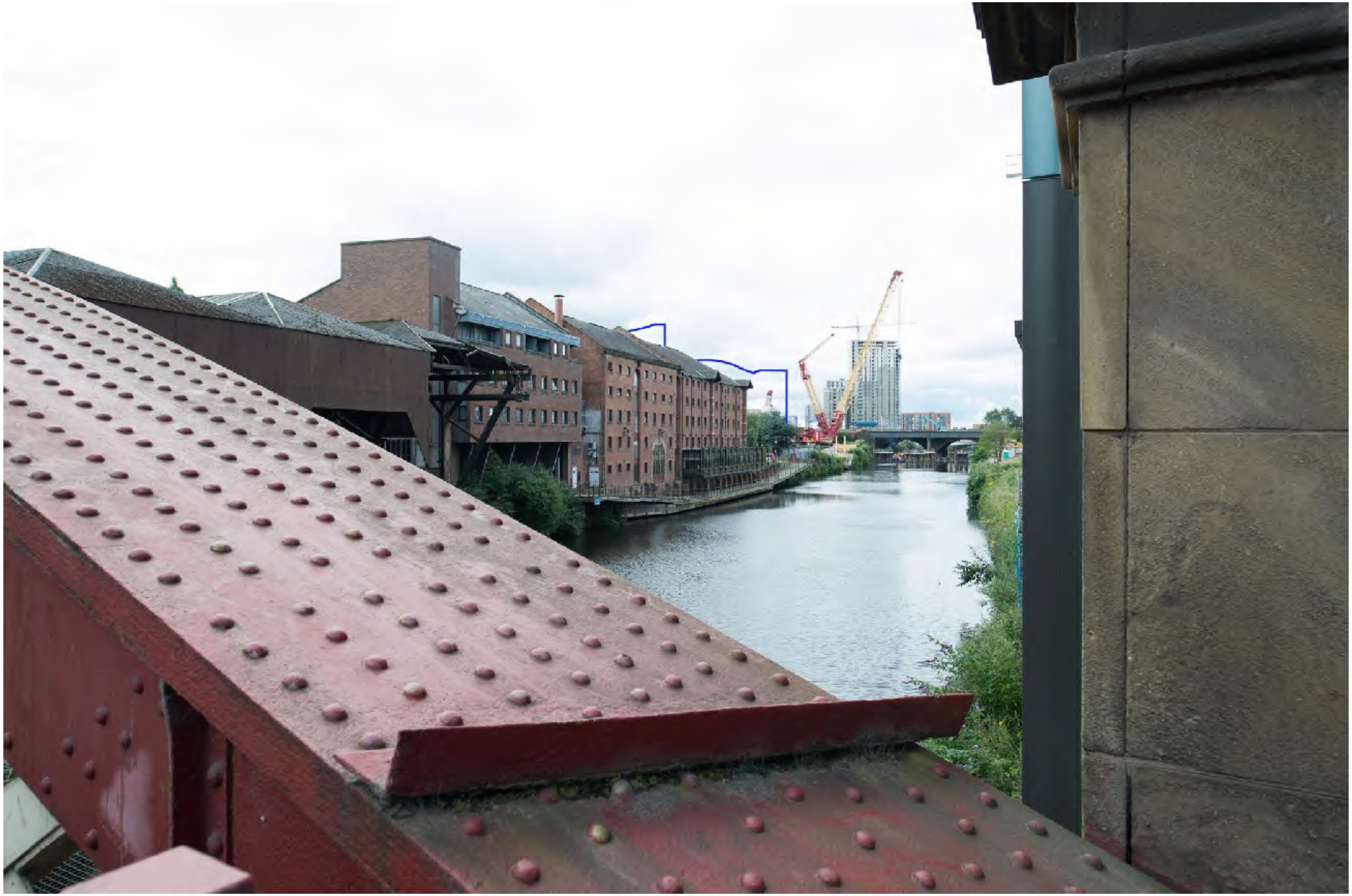
PHOTOGRAPH INFORMATION:

OS co-ords : 383230/397760 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 29mm Field of view : 42 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 9
Irwell Street
Bridge



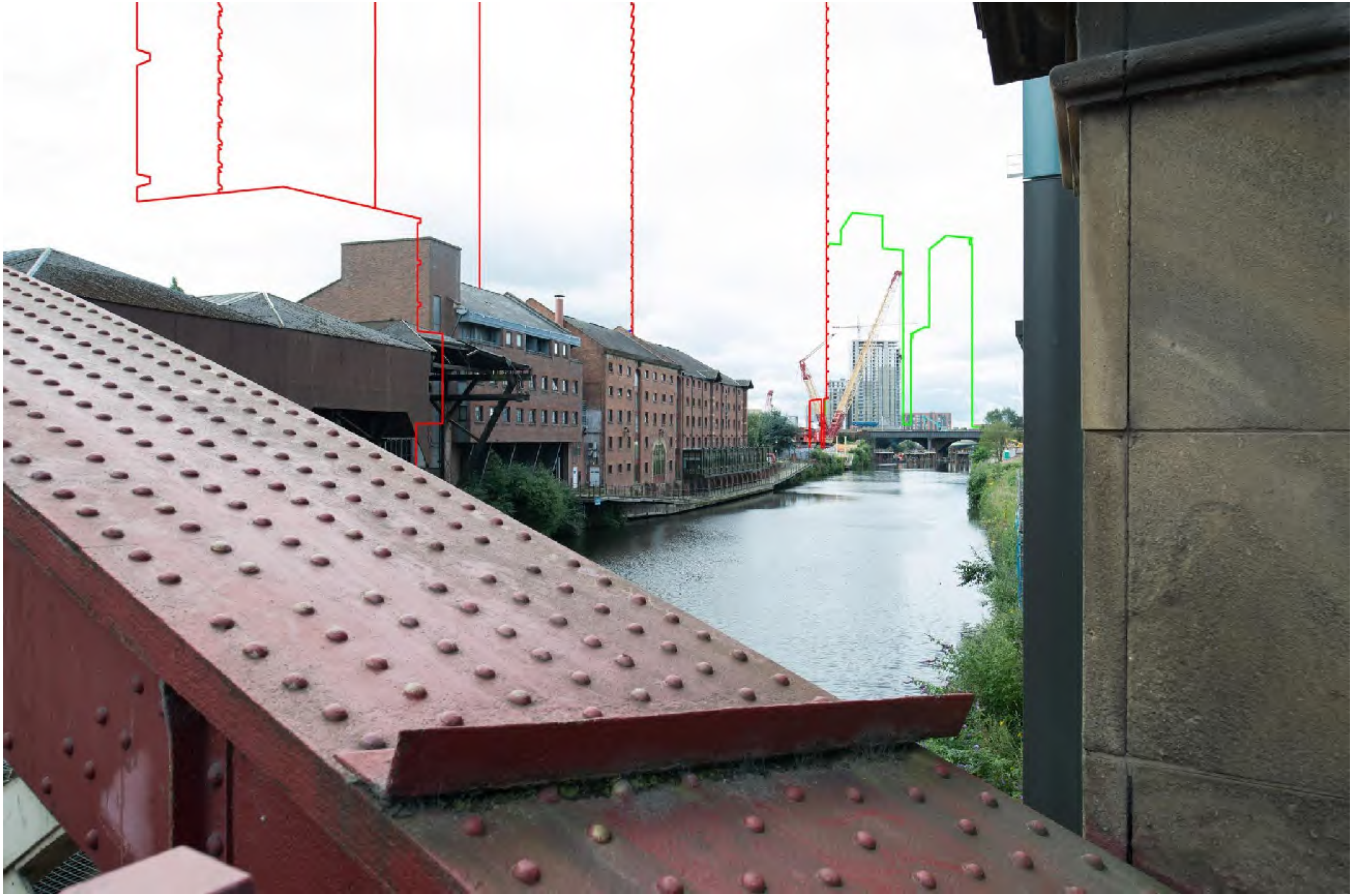
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 9
Proposed



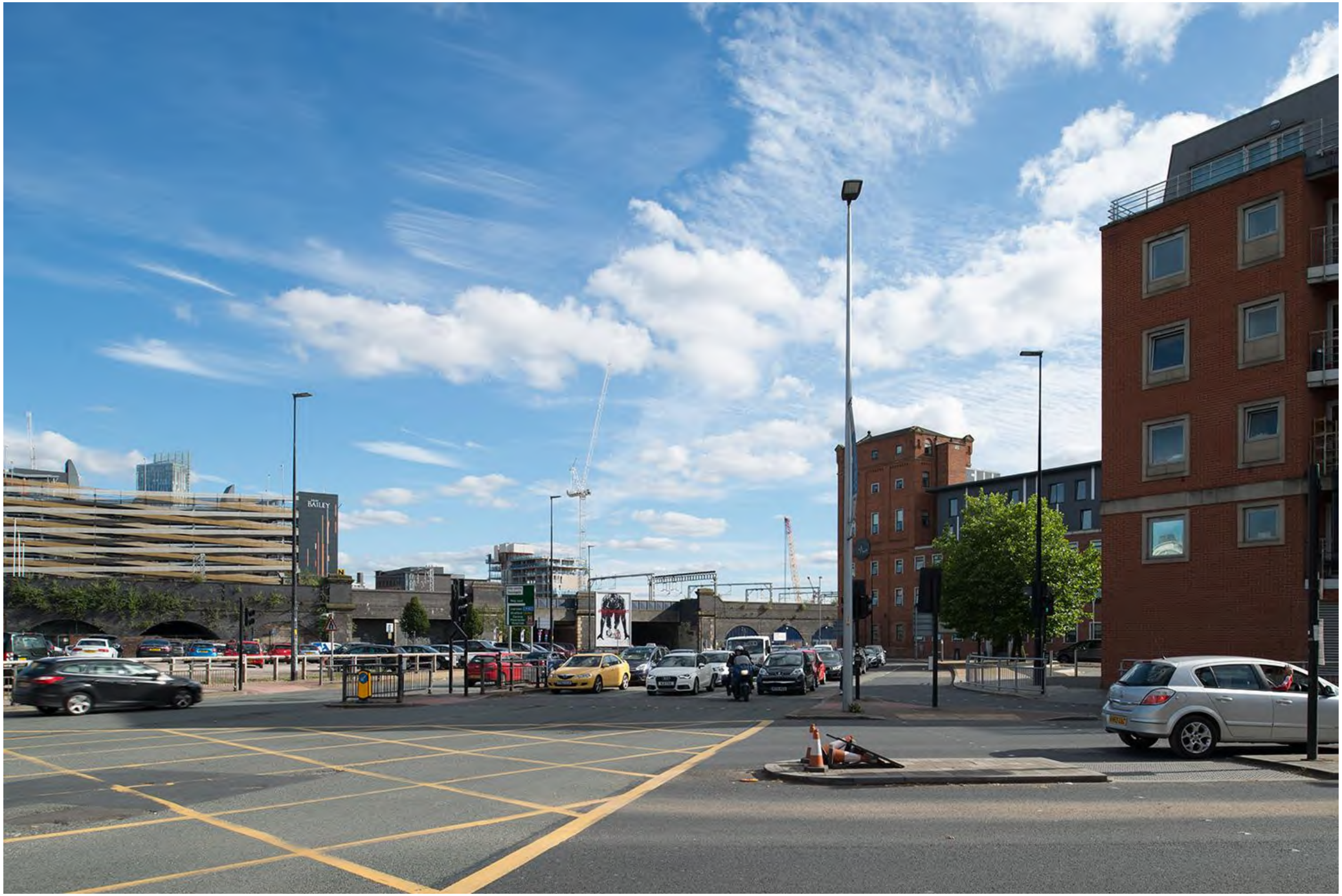
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 9
Cumulative



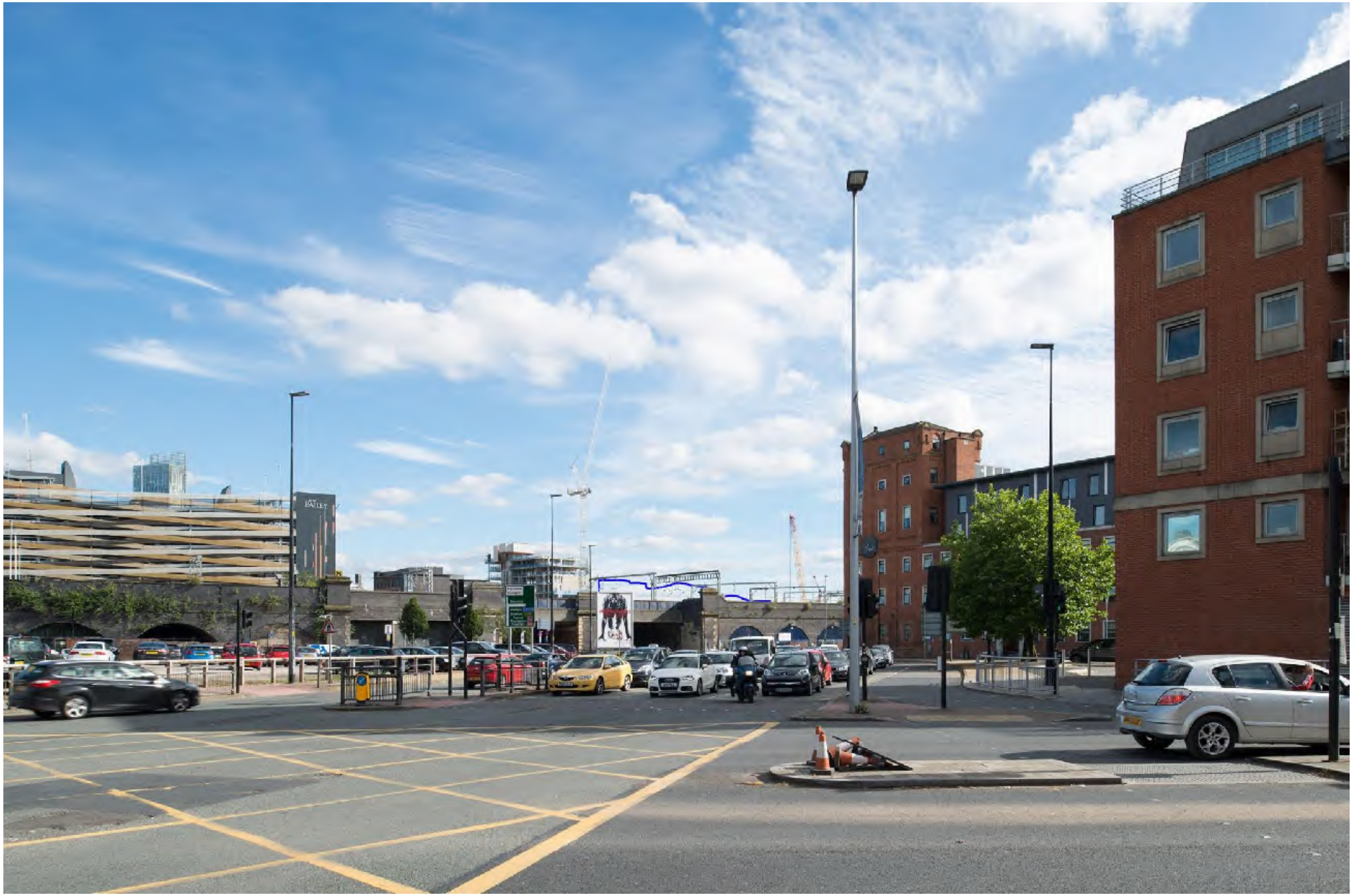
PHOTOGRAPH INFORMATION:

OS co-ords : 383528/397993 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 29mm Field of view : 42 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 10
Trinity Way



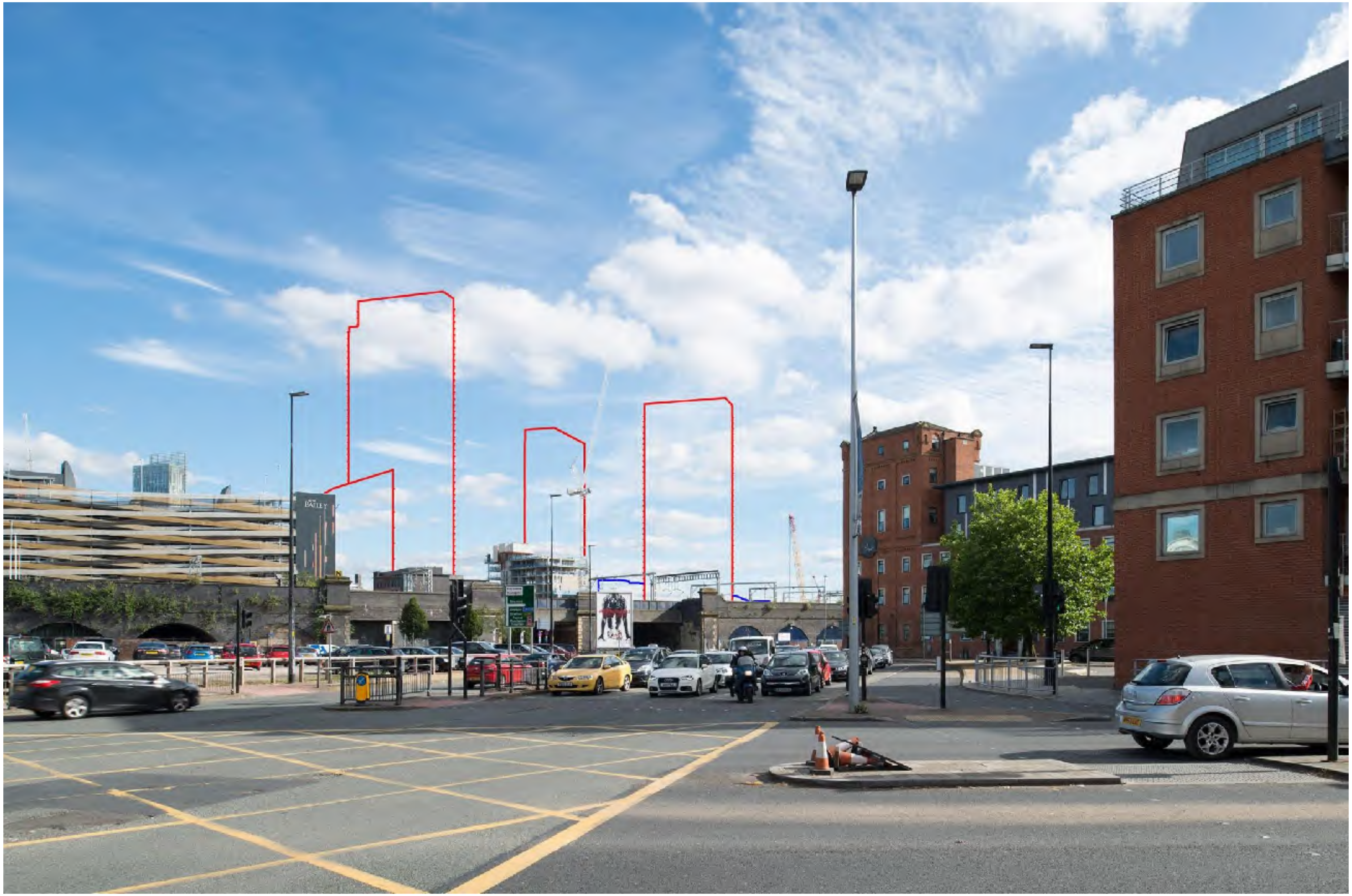
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 10
Proposed



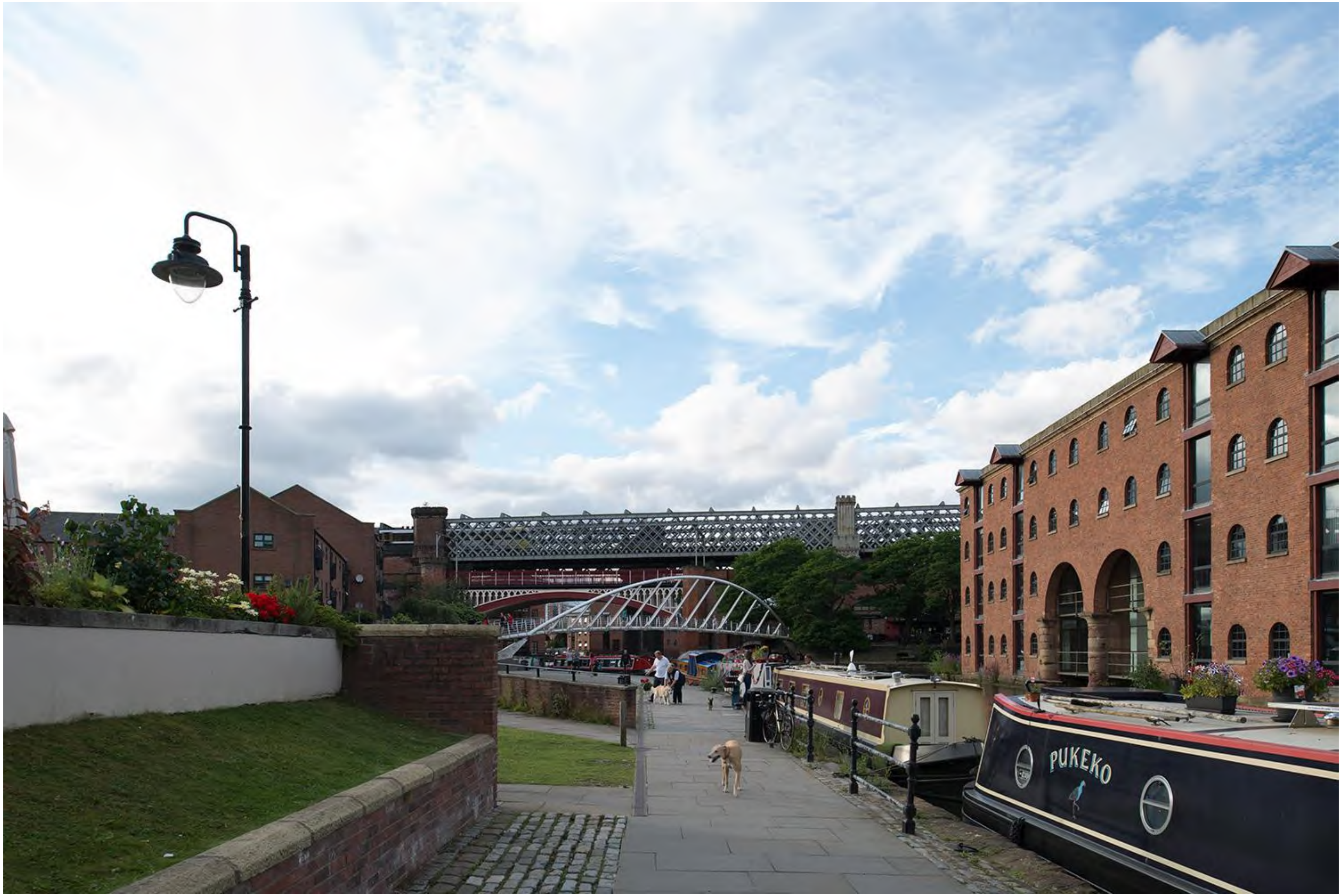
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

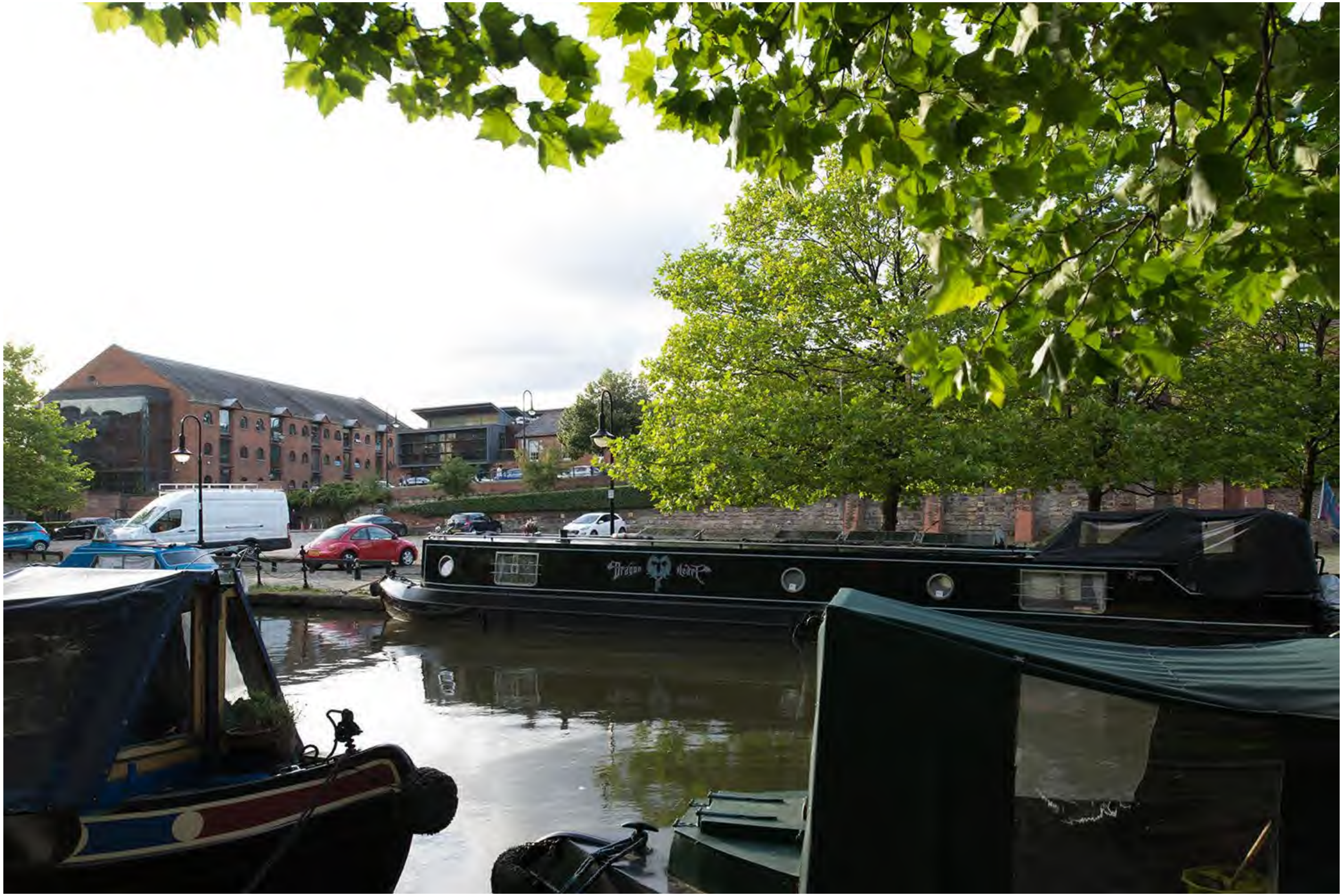
VIEWPOINT 10
Cumulative



PHOTOGRAPH INFORMATION:

OS co-ords : 383334/398179 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 29mm Field of view : 42 degrees

VIEWPOINT 11
Castlefield



PHOTOGRAPH INFORMATION:

OS co-ords : 383376/398325 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 29mm Field of view : 42 degrees

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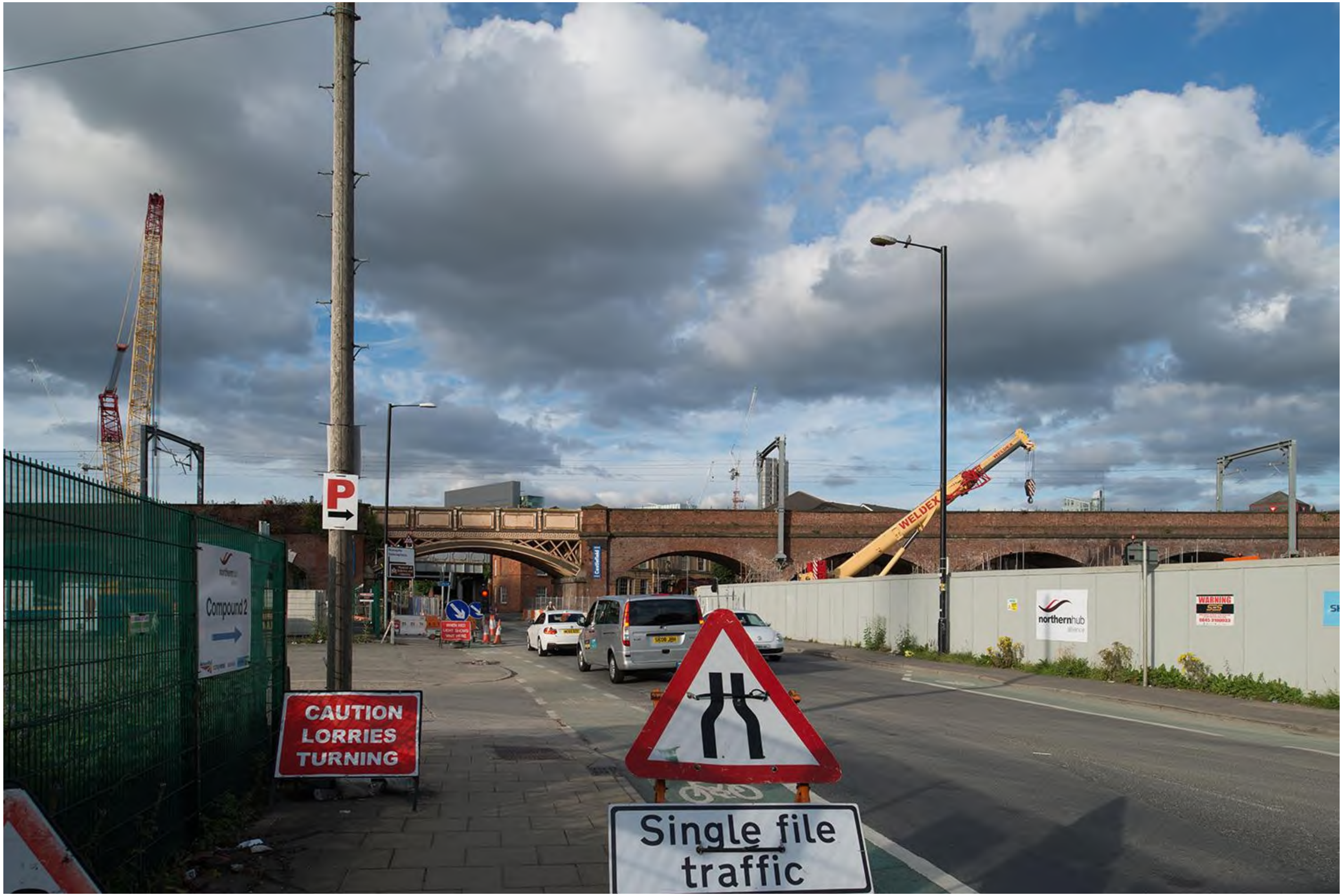
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 12
Castlefield


P
Compound 2
CAUTION LORRIES TURNING
Single file traffic
WELDEX
northernhub
WARNING

PHOTOGRAPH INFORMATION:

OS co-ords : 383284/398377 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 23mm Field of view : 51 degrees

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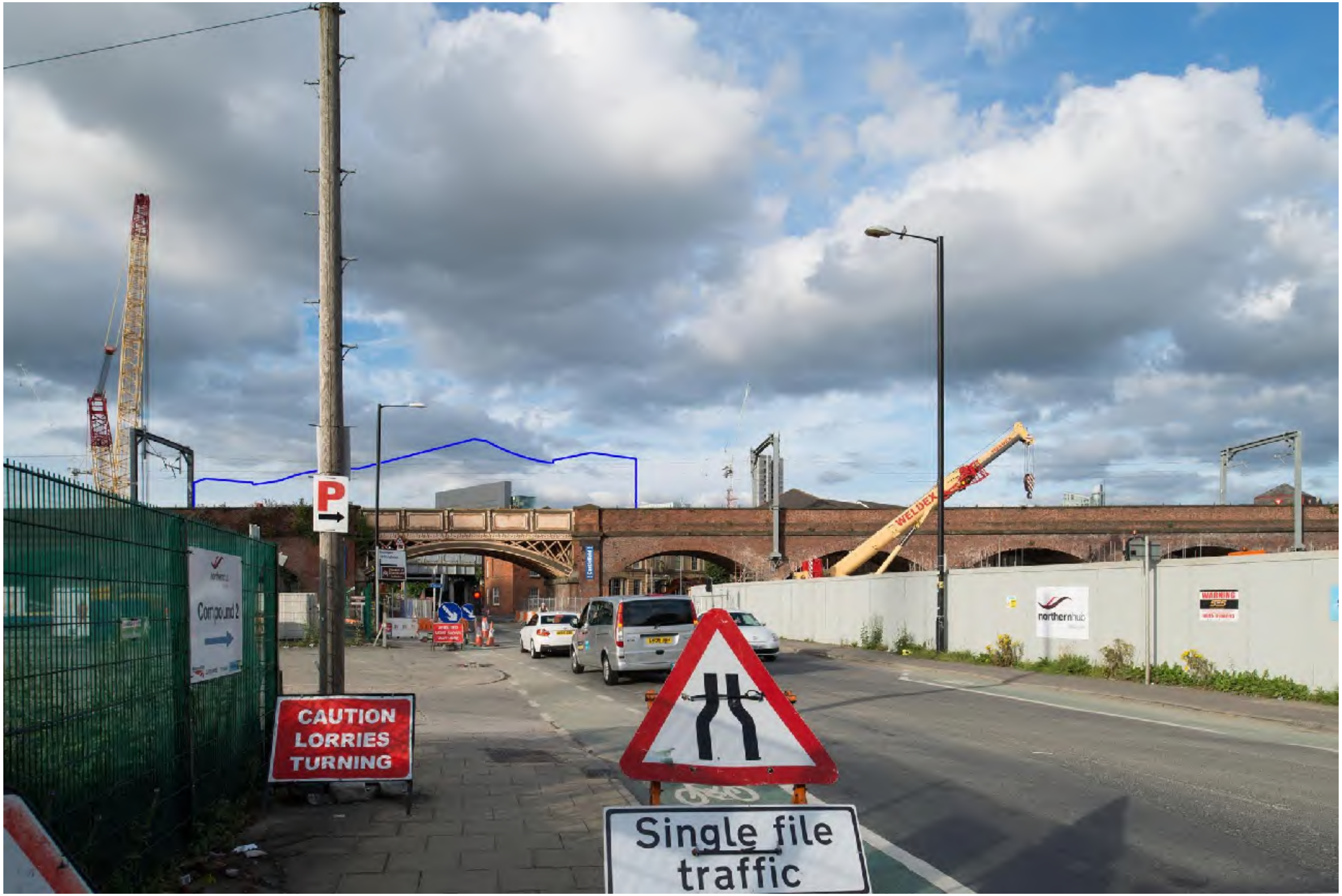
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 13
Water Street



P
CAUTION LORRIES TURNING
Single file traffic
Compound 2
WELDEX
northernhub

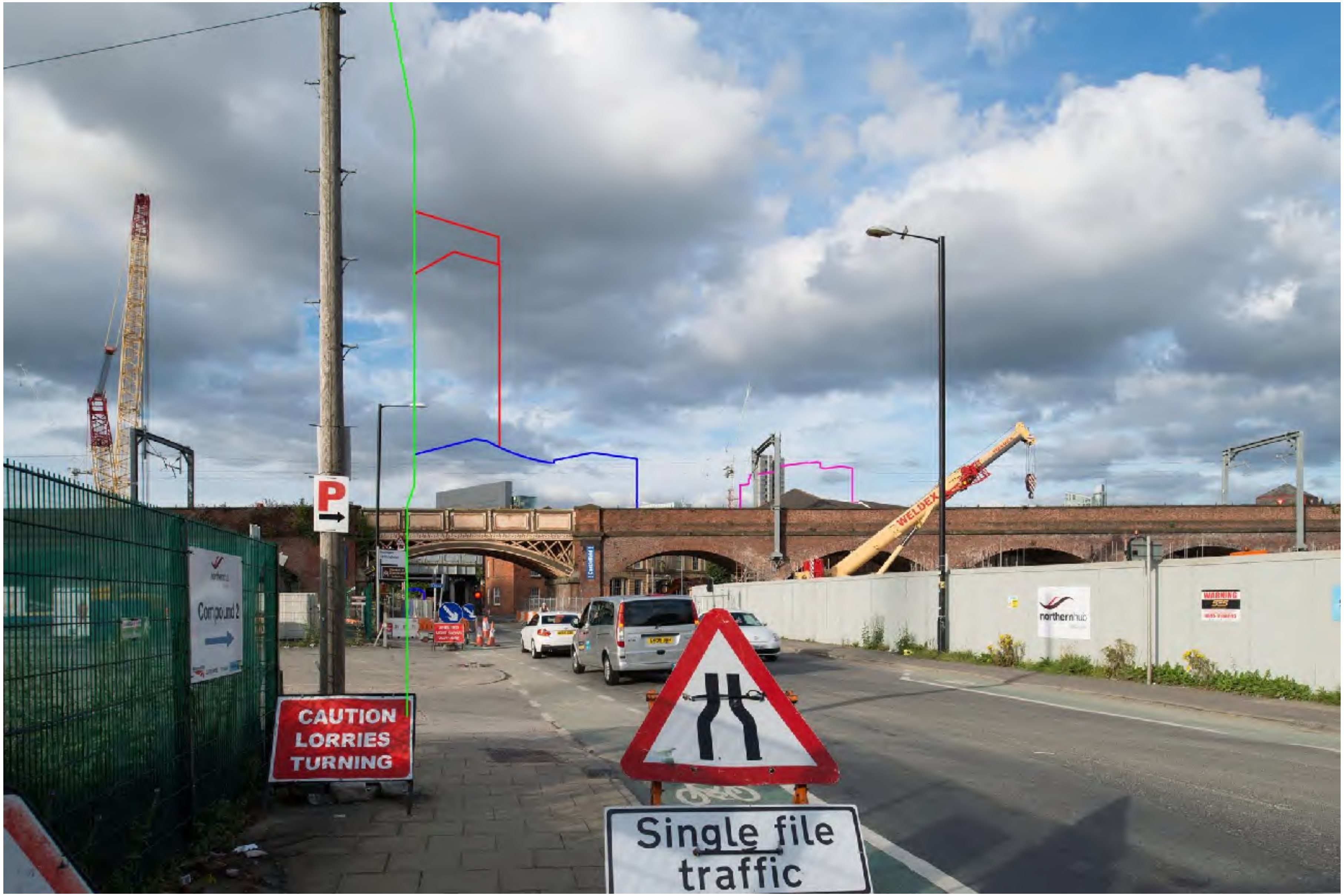
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 13
Proposed


P
Compound 2
CAUTION LORRIES TURNING
Single file traffic
WELDEX
northernhub
WARNING

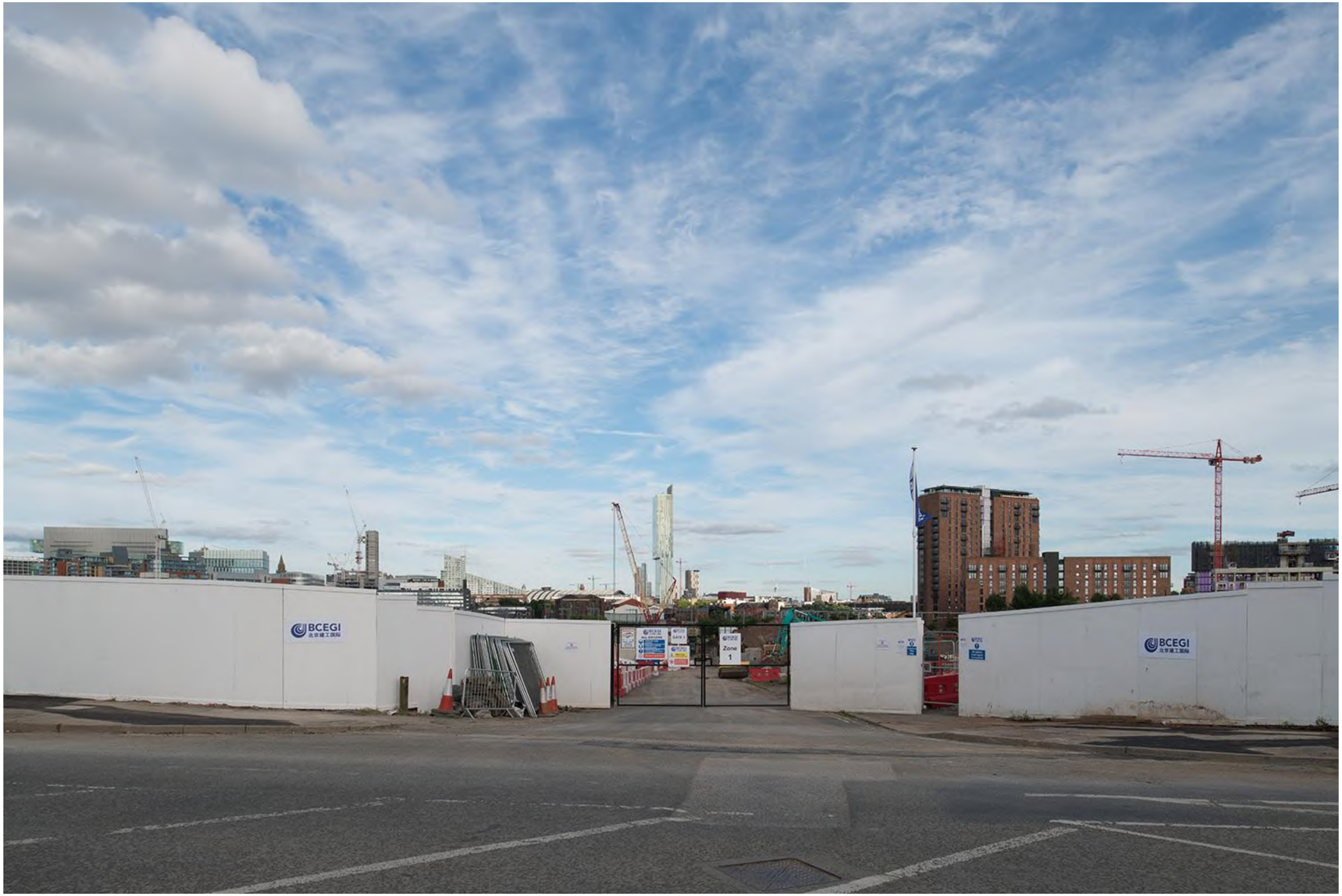
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 13
Cumulative



BCEGI
北京建工国际
Zone 1
BCEGI
北京建工国际

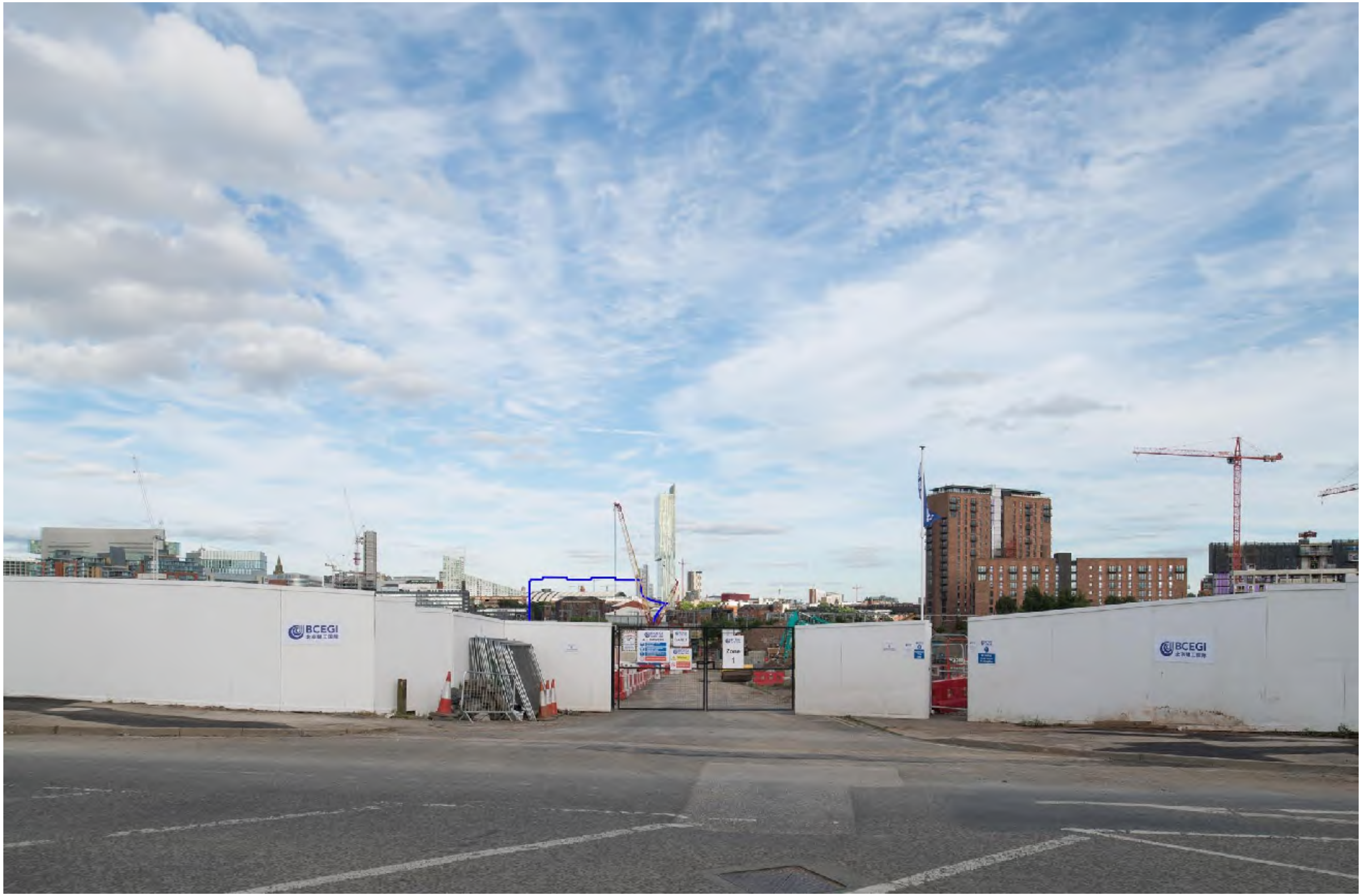
PHOTOGRAPH INFORMATION:

OS co-ords : 383209/398309 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 24mm Field of view 49 degrees

VIEWPOINT 14
Oldfield Road

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment



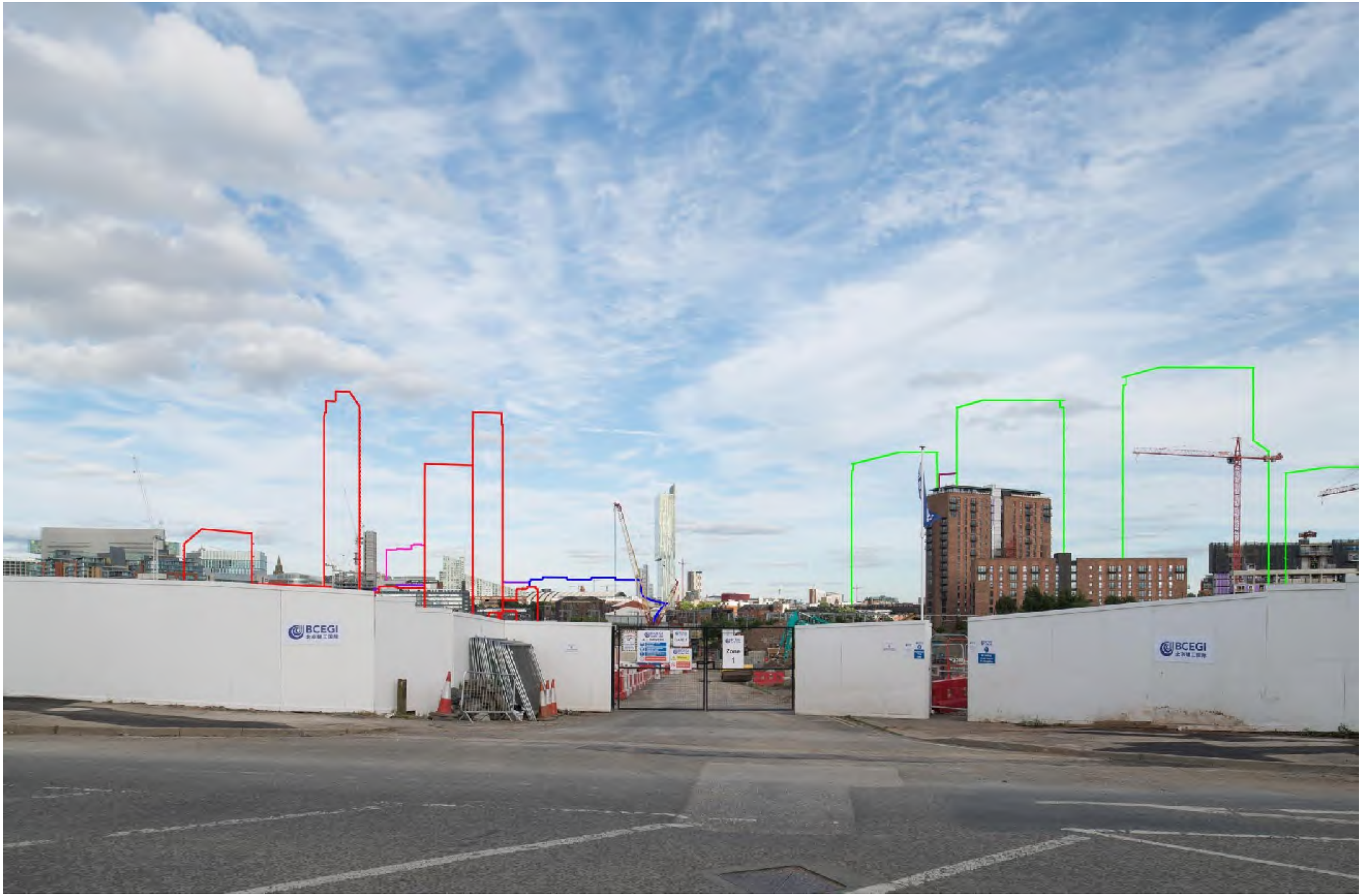
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 14
Proposed



PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 14 0916

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 14
Cumulative

1830 WAREHOUSE
CRAVINGS

THE FACTORY

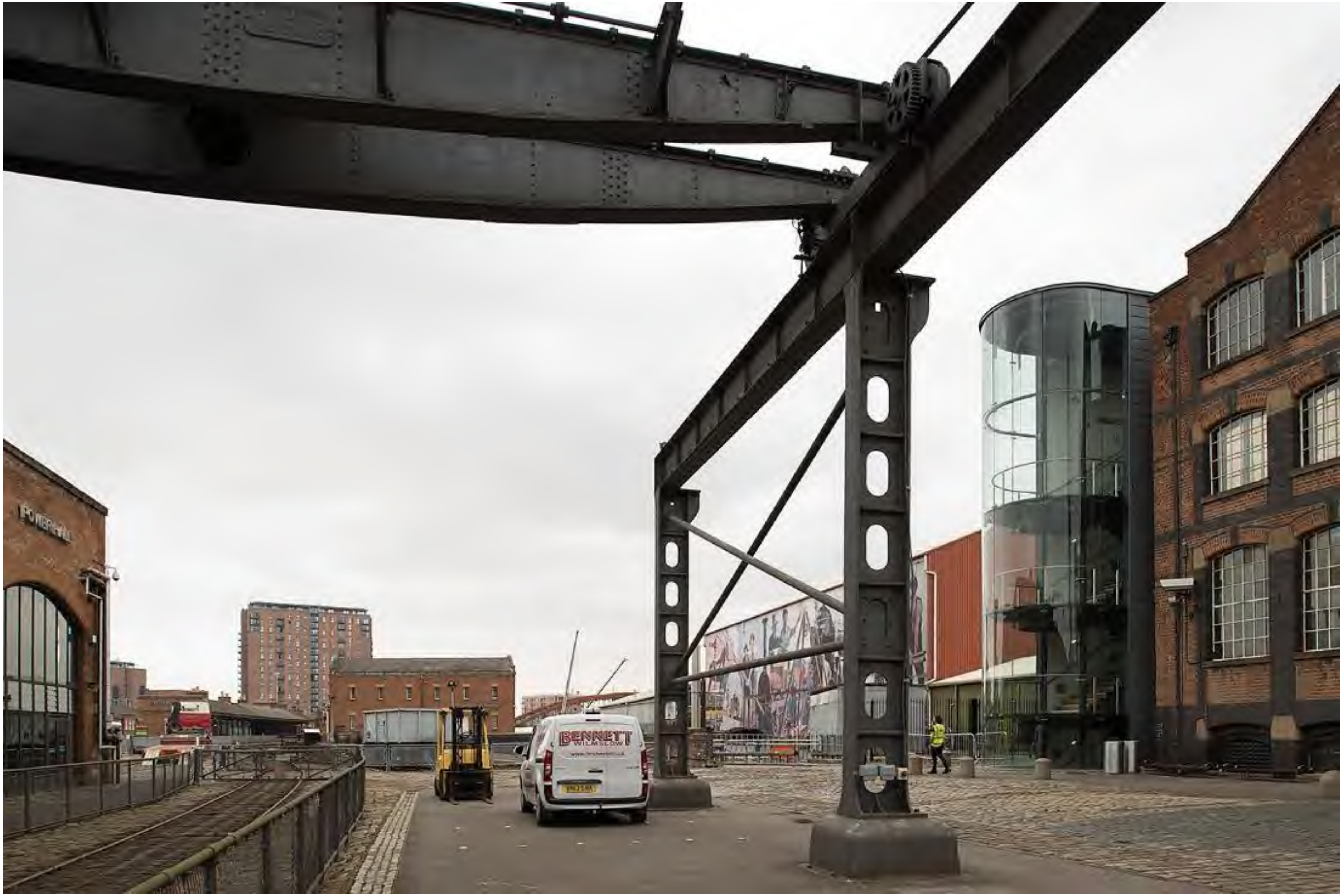
Townscape and Visual Impact Assessment: VIEWPOINT PHOTOS

Appendix 6.2

Chris Burnett Associates

16 04 18

HERITAGE VIEWS


POWERHALL
BENNETT
WILMSLOW

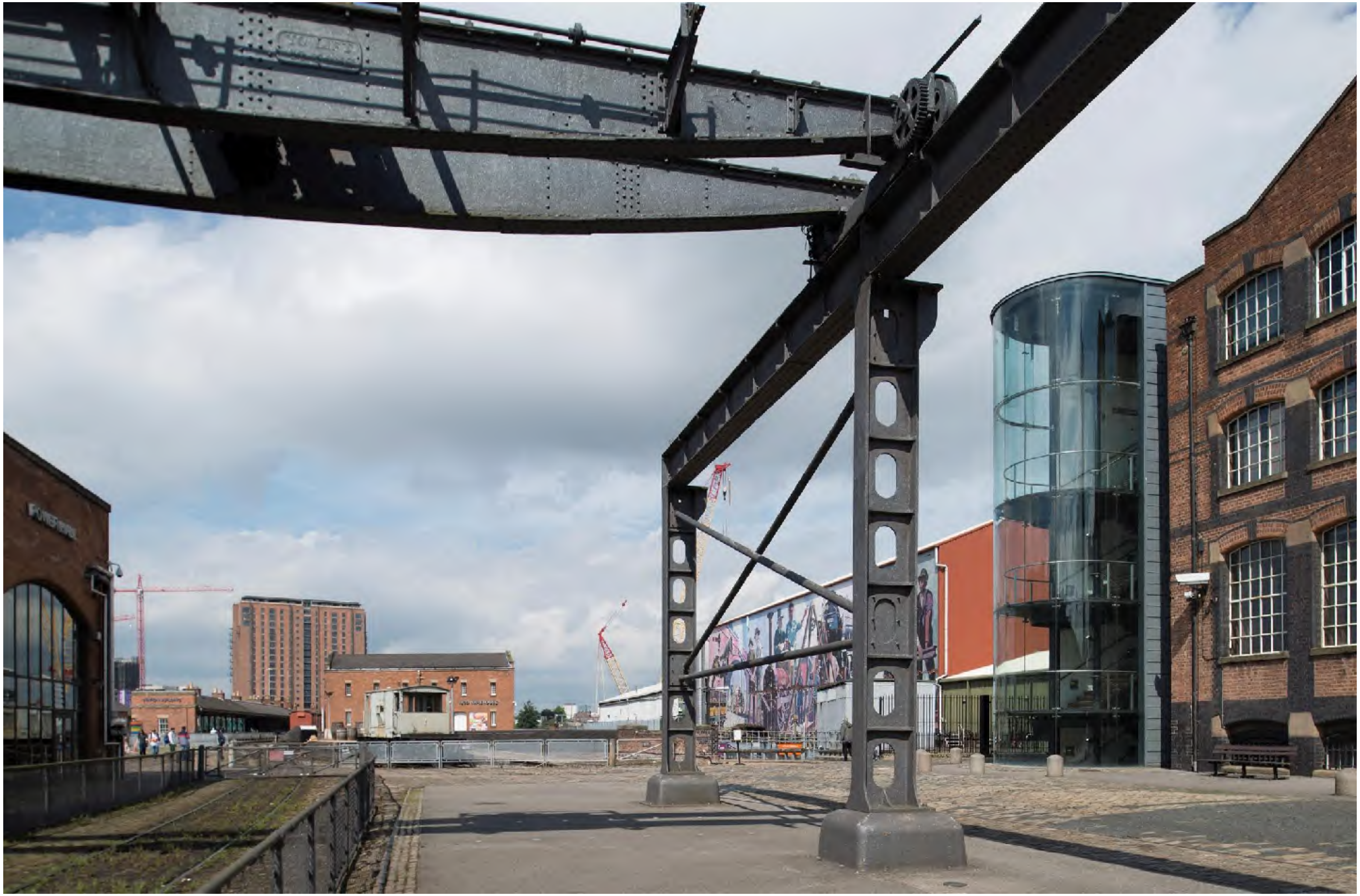
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H1
Baseline 2017



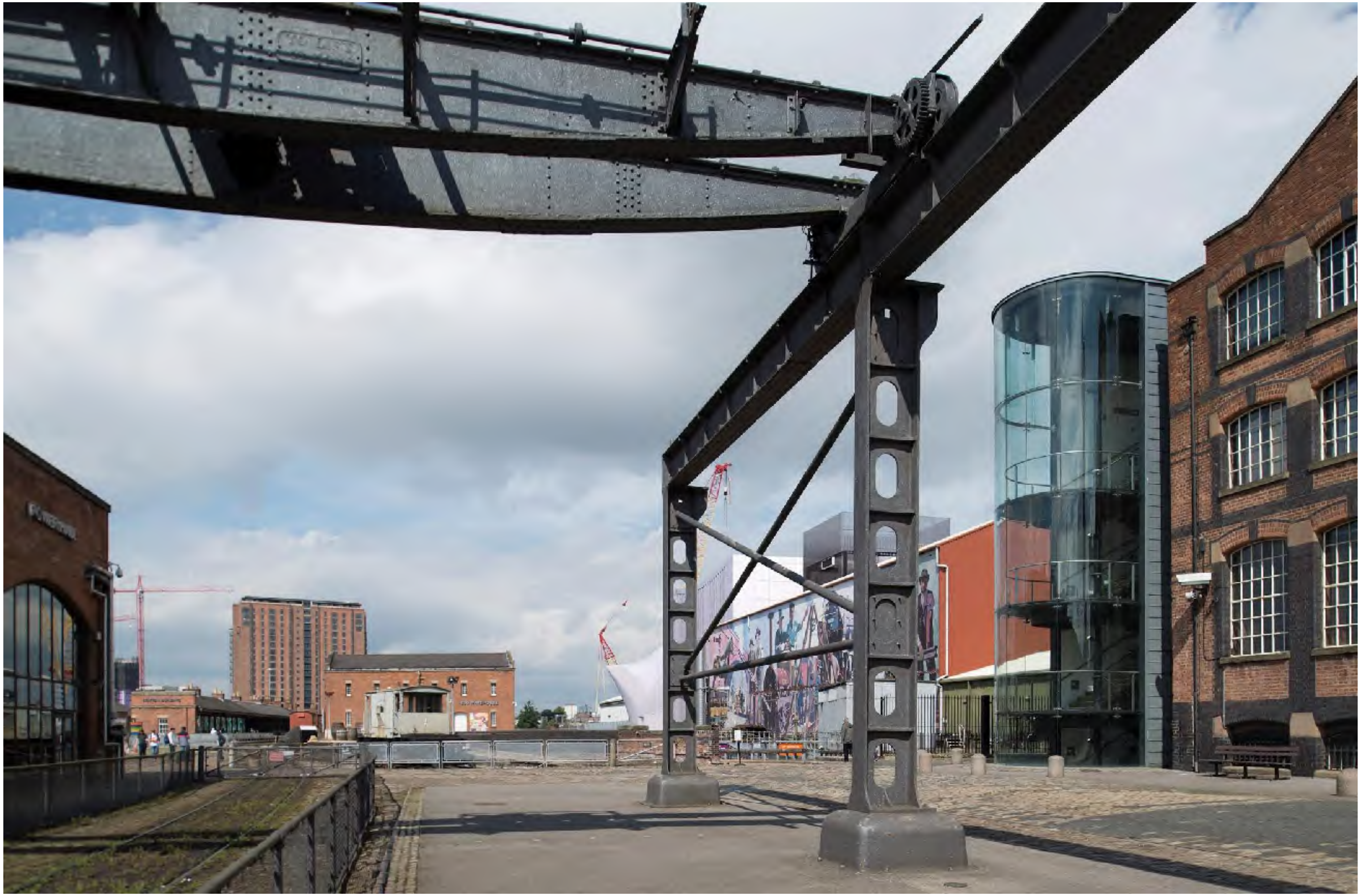
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H1
Baseline 2016



PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

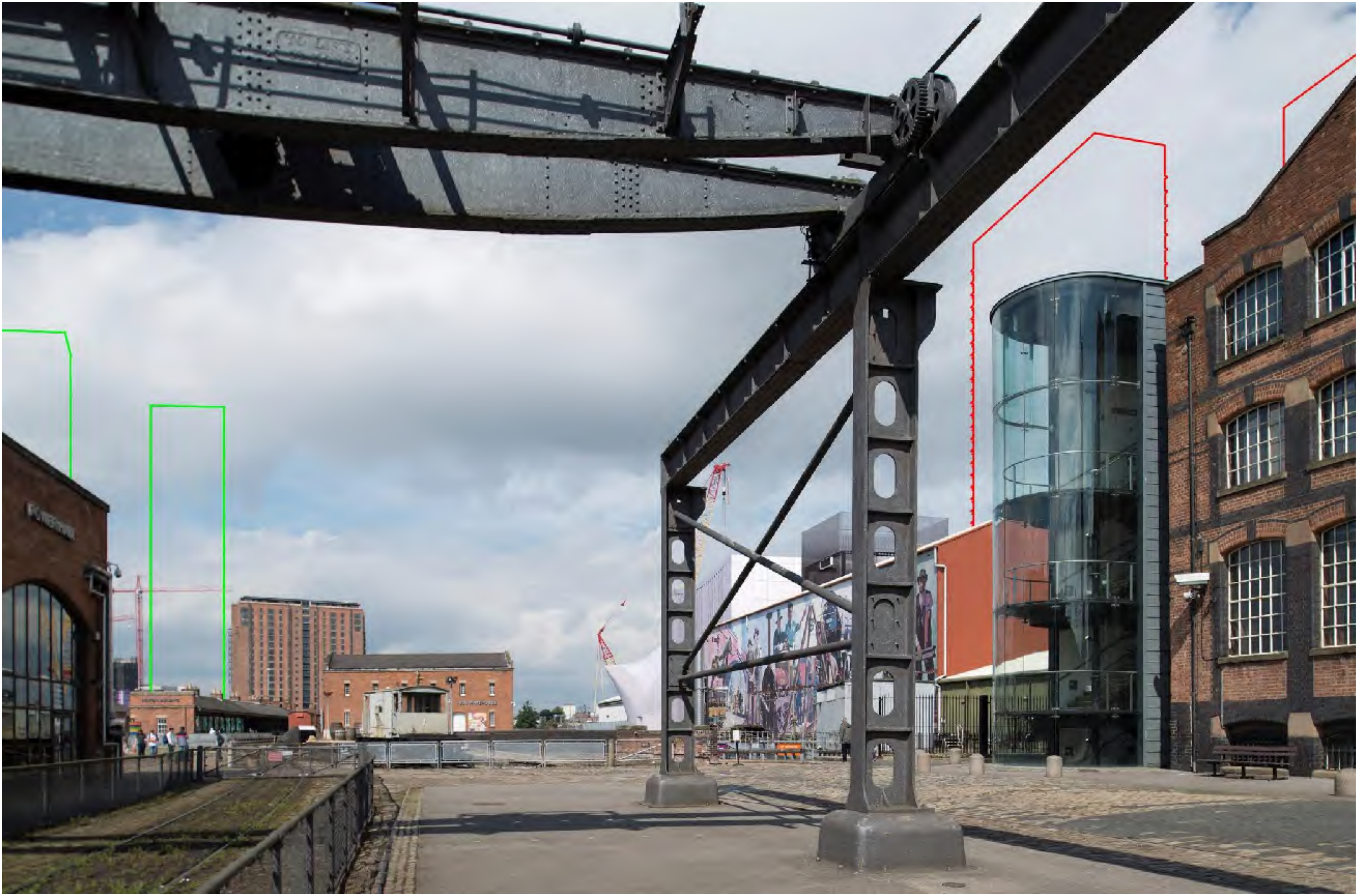
CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H1
Proposed

CUMULATIVE VIEWS KEY

- — Trinity
- — St Johns
- — OGS
- — South Village
- — Owen Street
- — Byrom House
- — Renaker
- — 1 Spinningfields



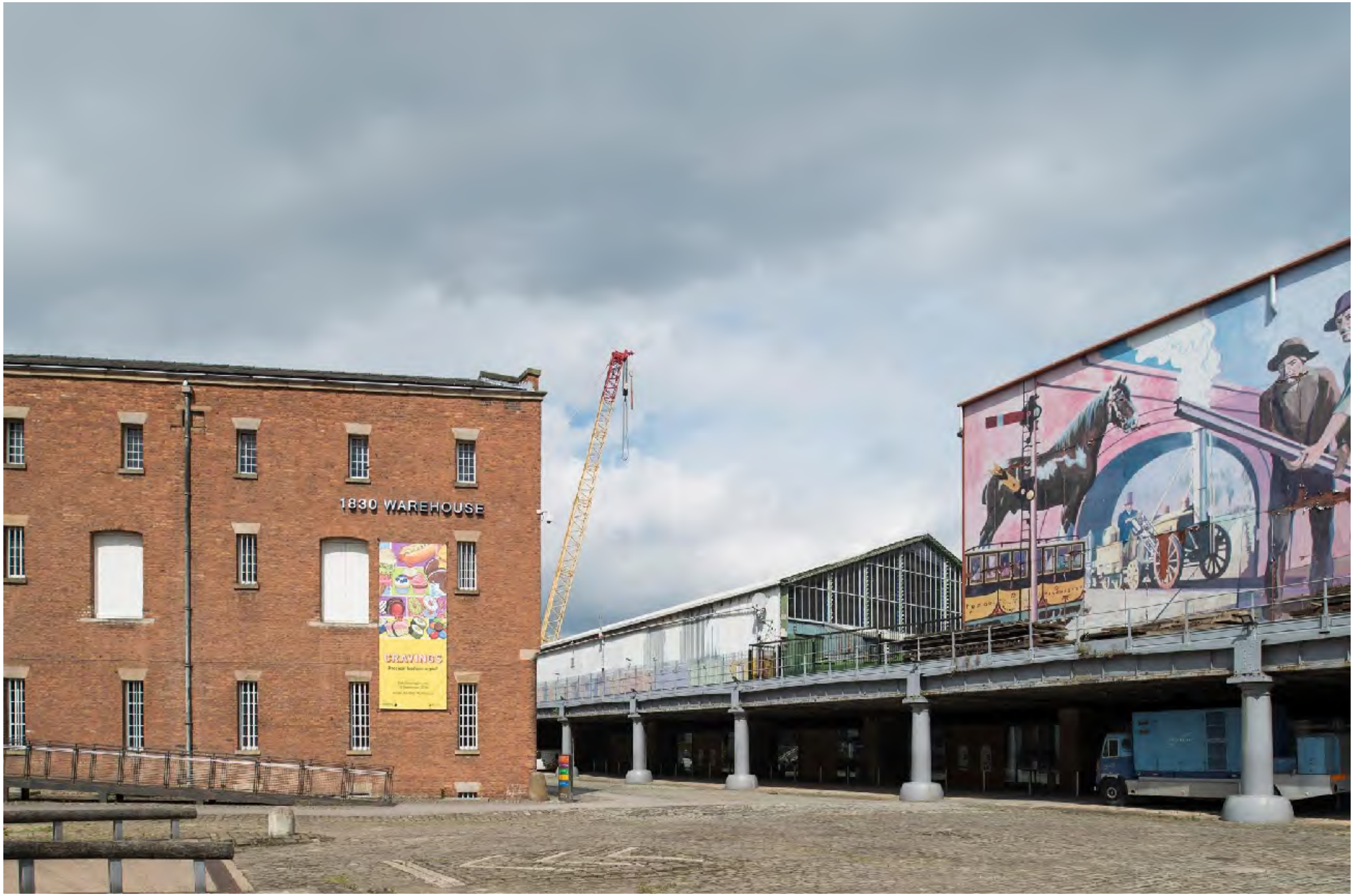
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H1
Cumulative



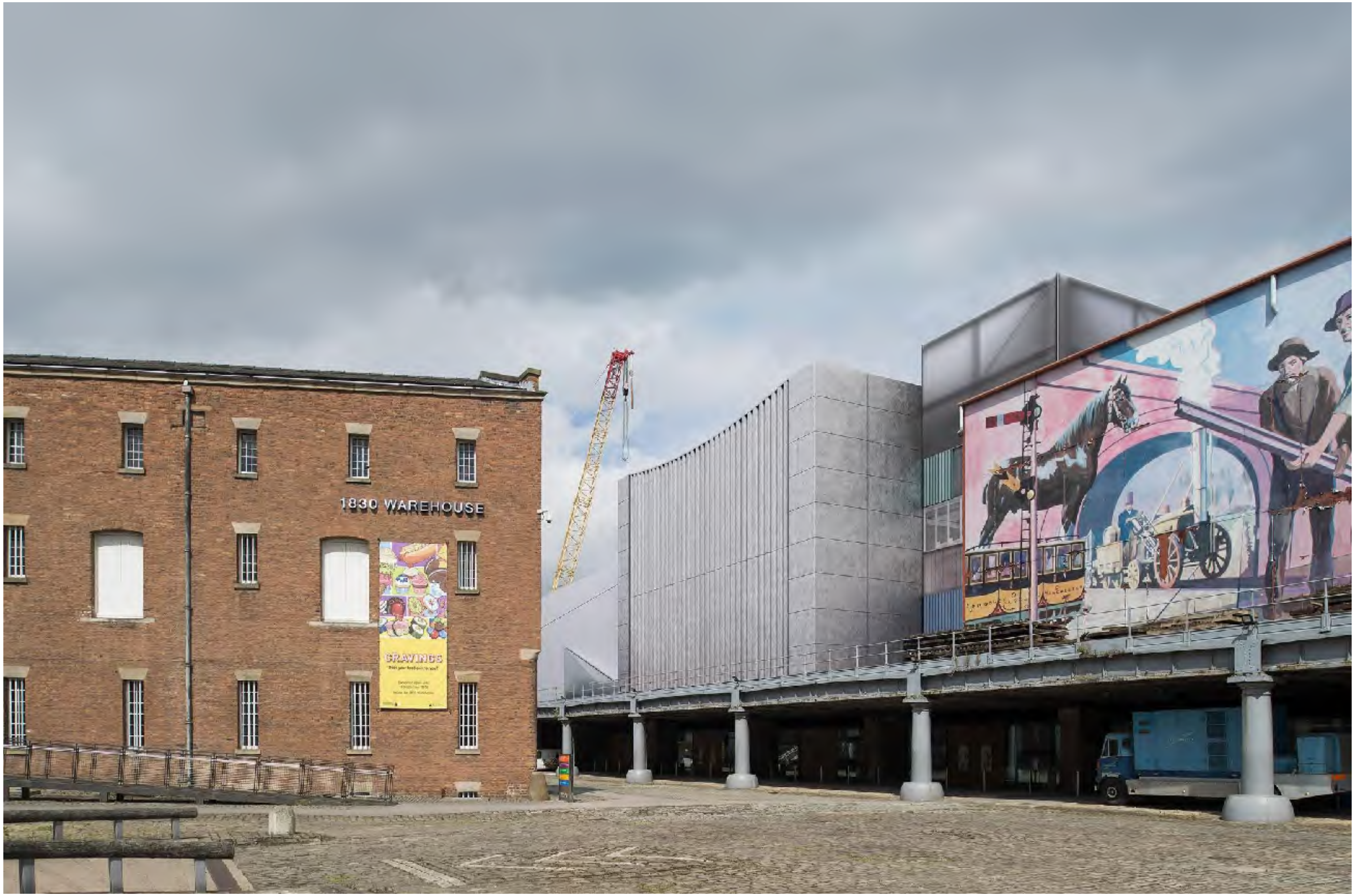
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H2
Baseline 2016



PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

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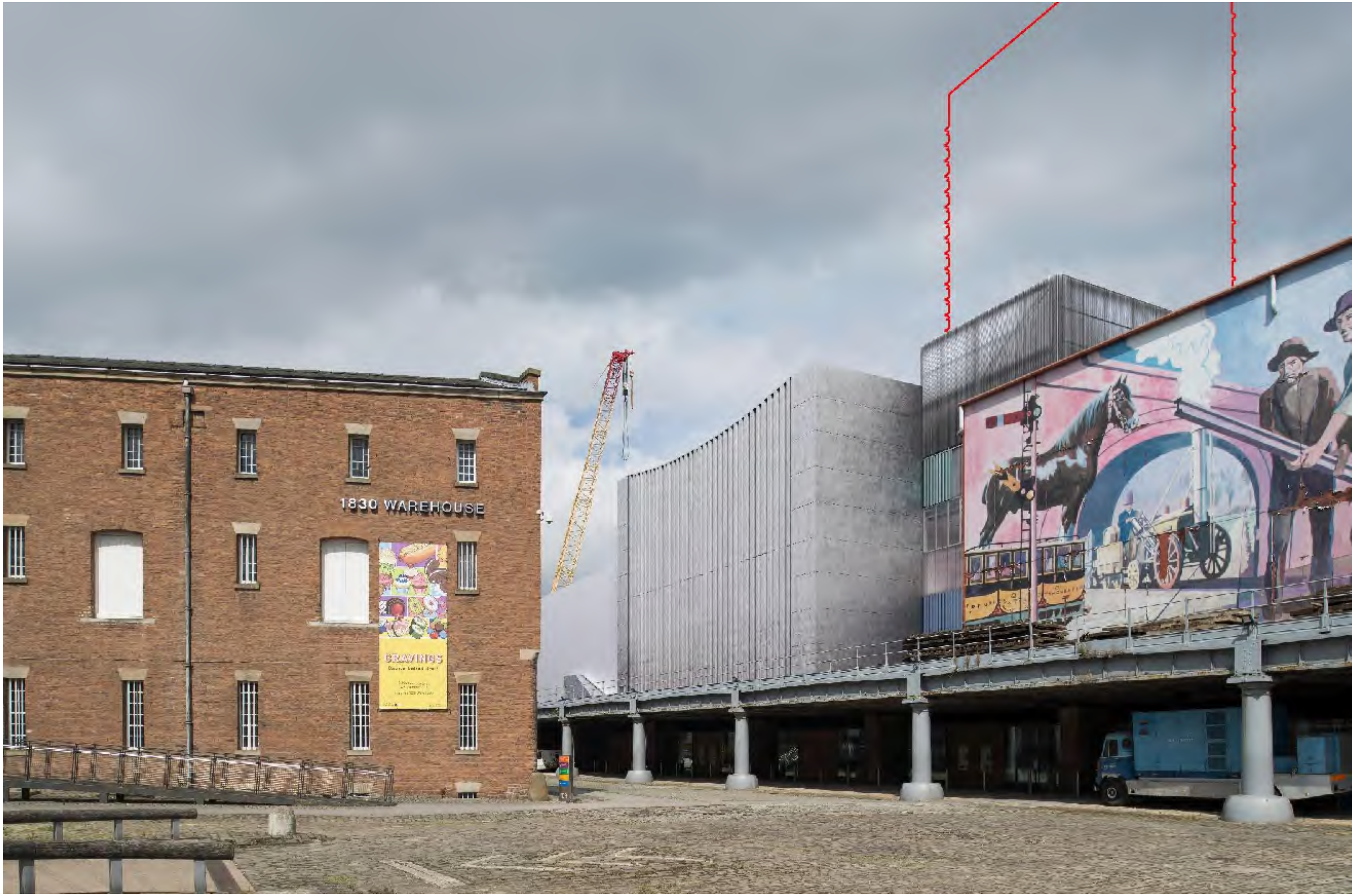
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H2
Proposed 2018



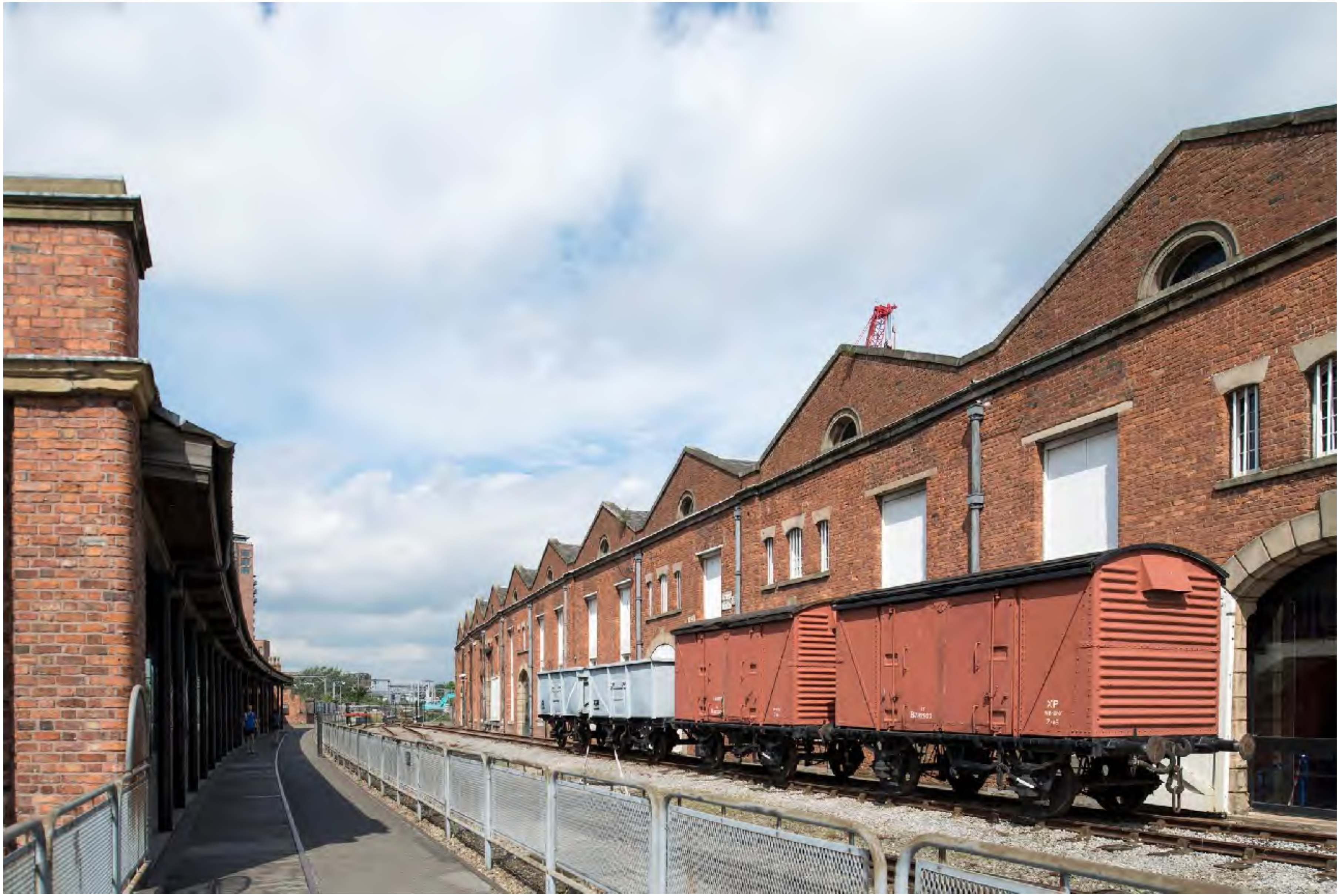
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H2
Cumulative



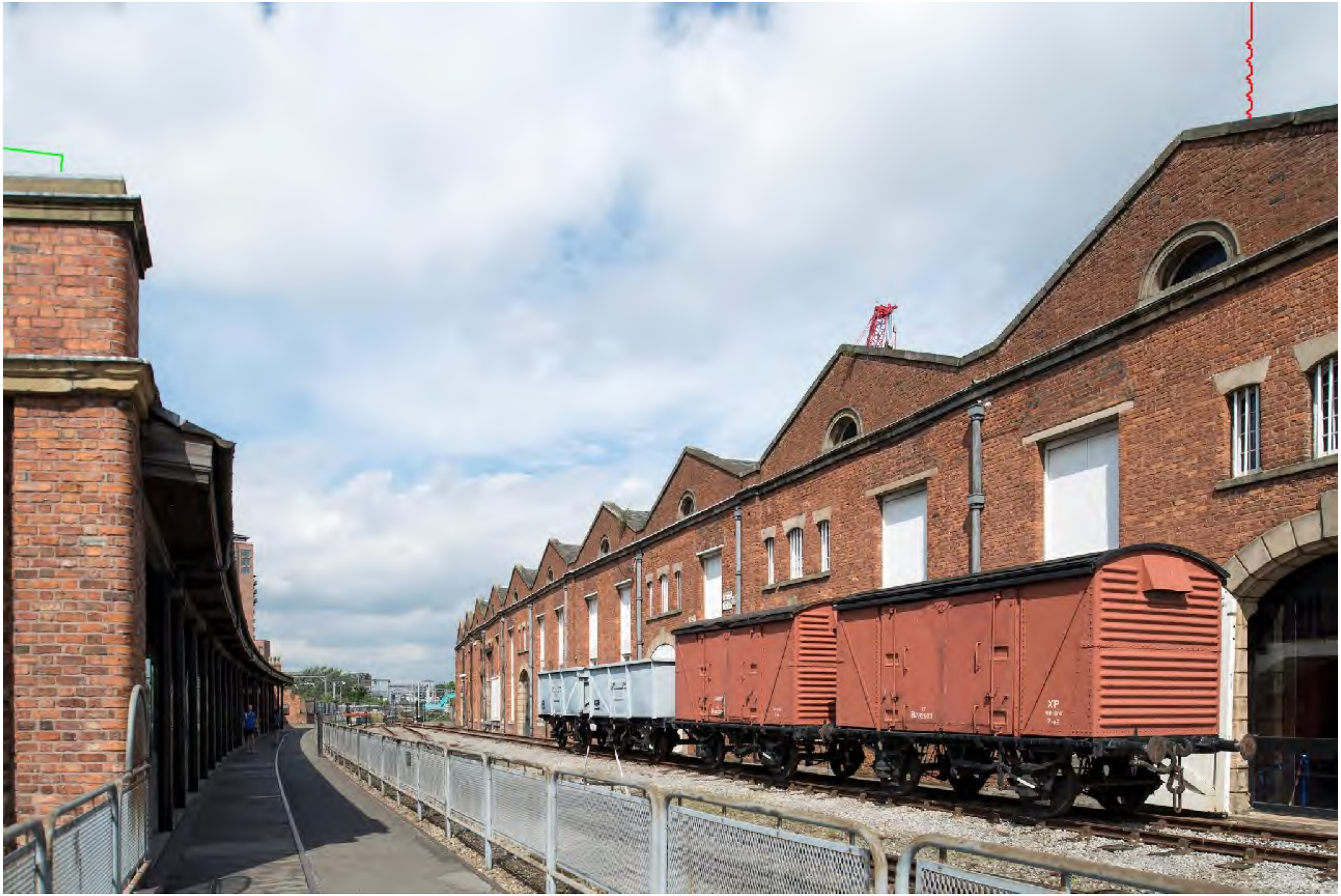
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H3
Baseline 2016



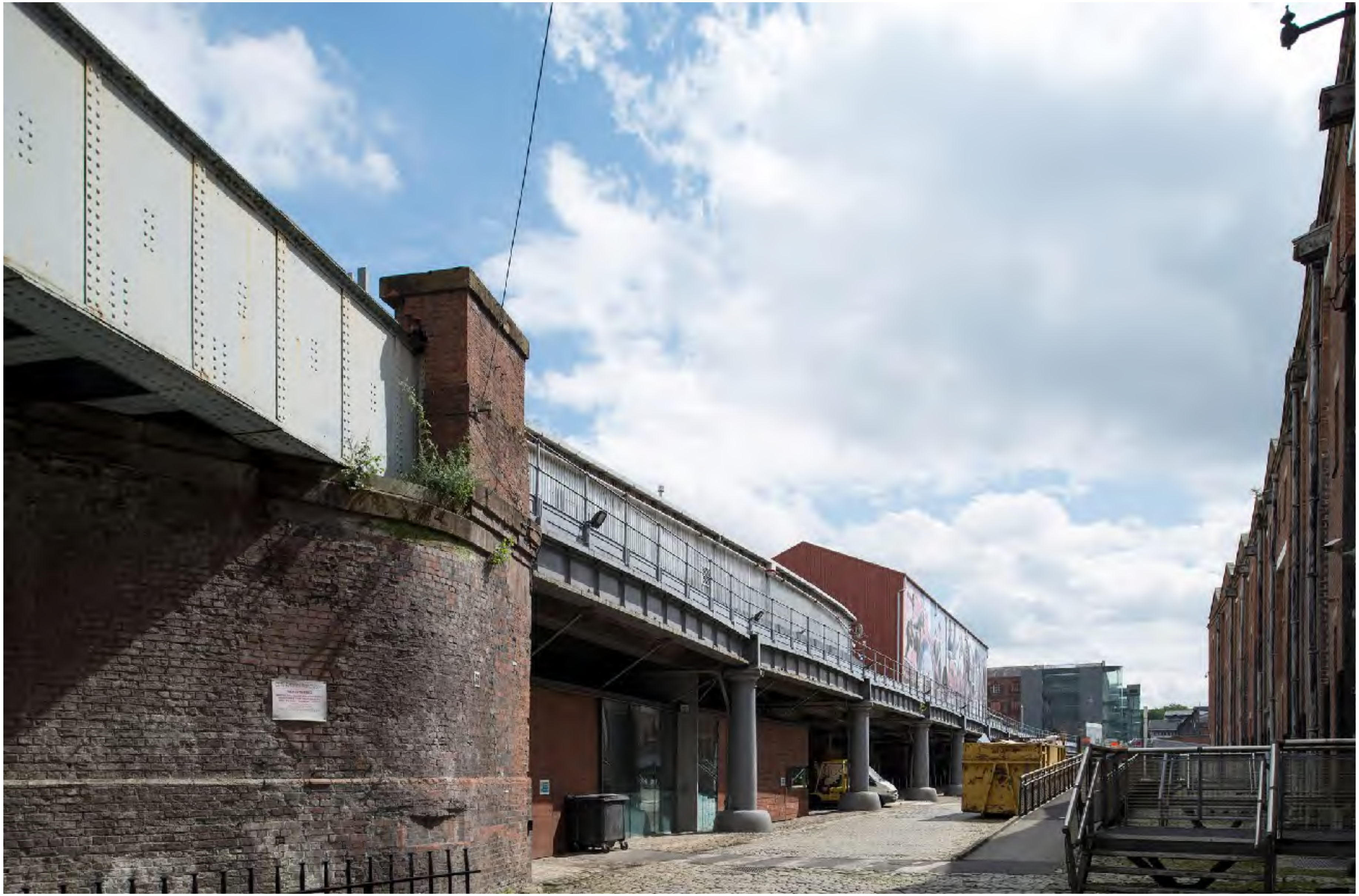
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H3
Proposed



PHOTOGRAPH INFORMATION:

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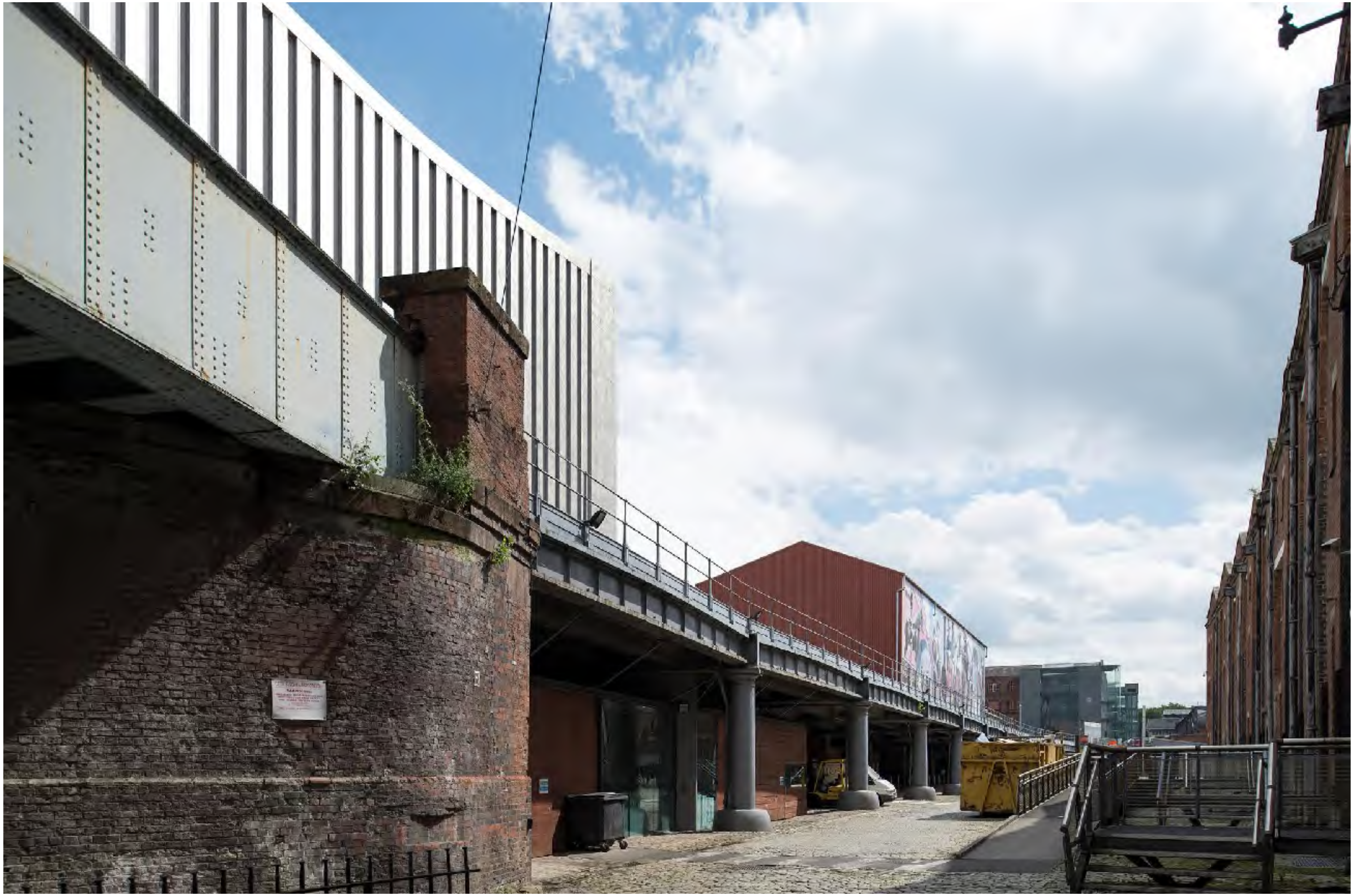
VIEWPOINT H4
Baseline 2016



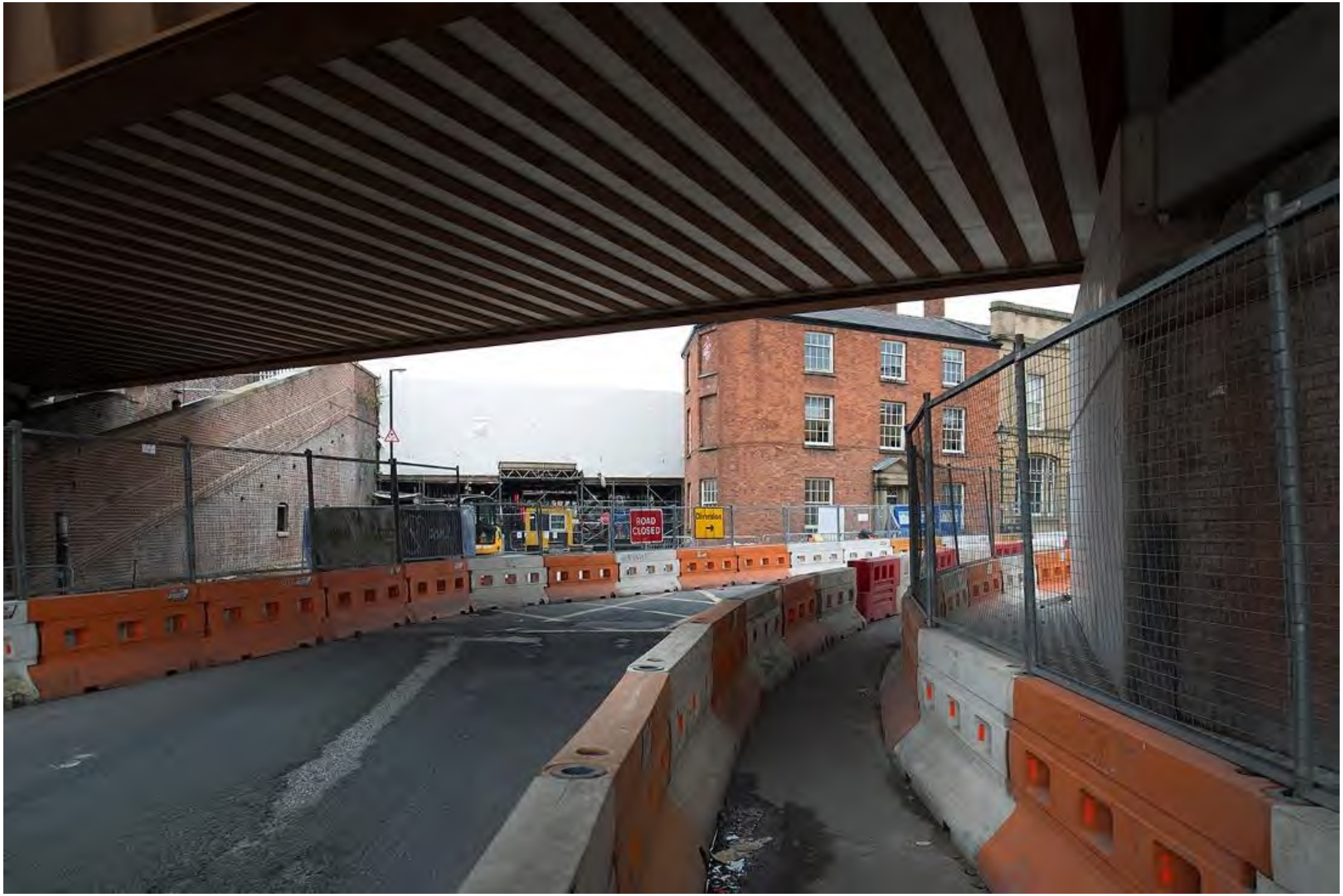
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H4
Proposed



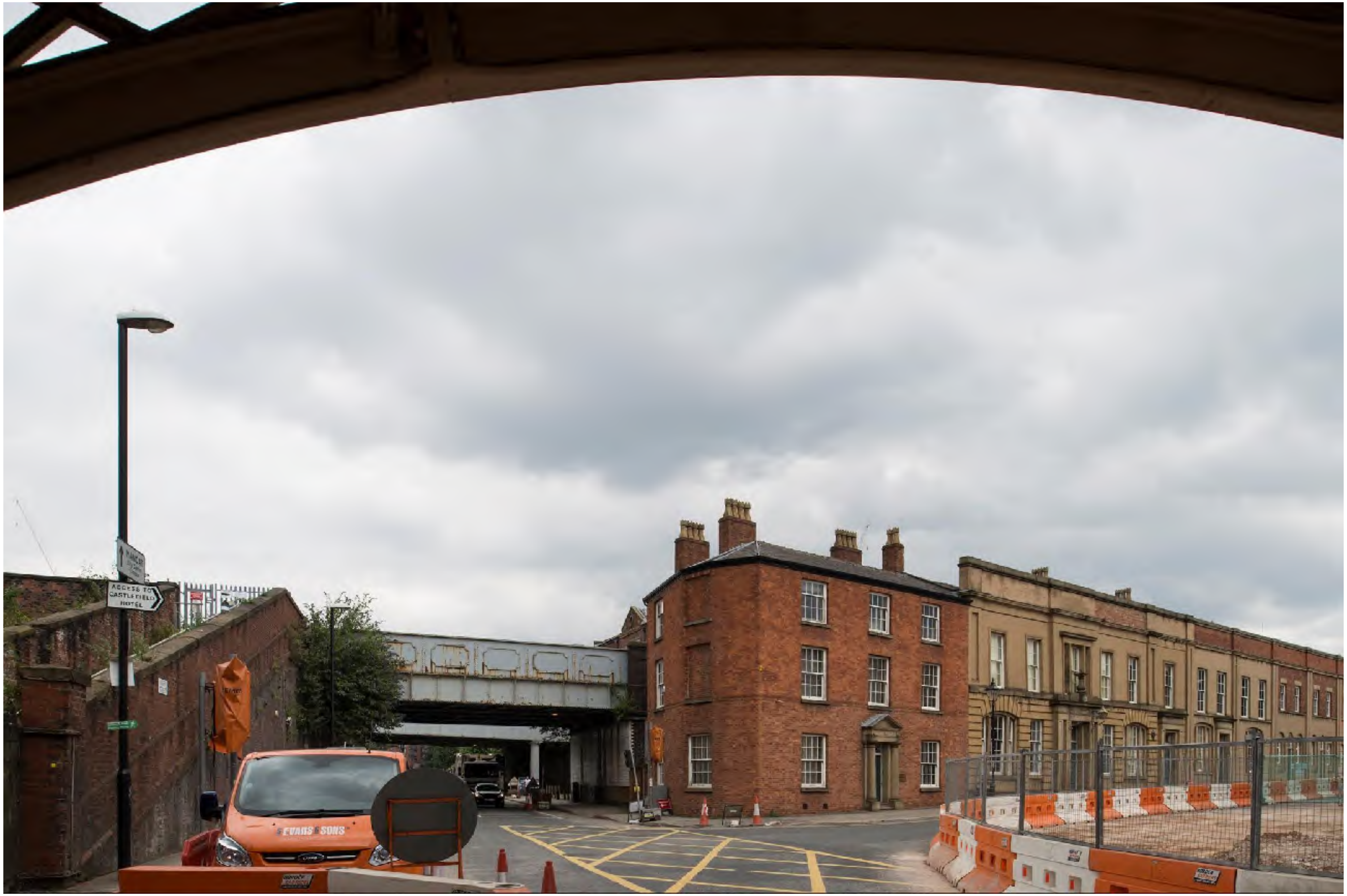
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H5
Baseline 2017


ACCESS TO CASTLEFIELD HOTEL
EVANS & SONS

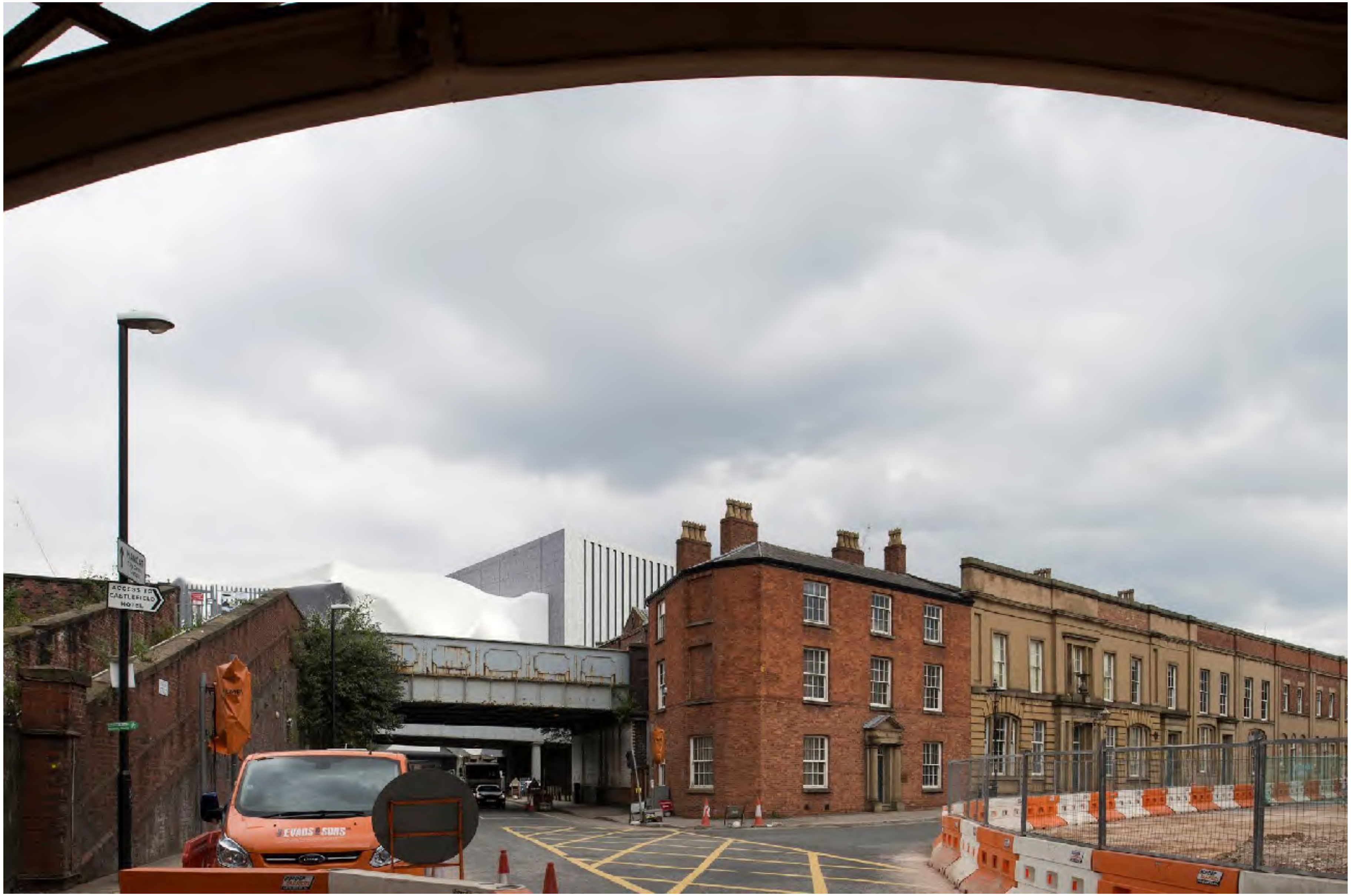
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H5
Baseline 2016


ACCESS TO
CASTLEFIELD
HOTEL
EVANS & SONS

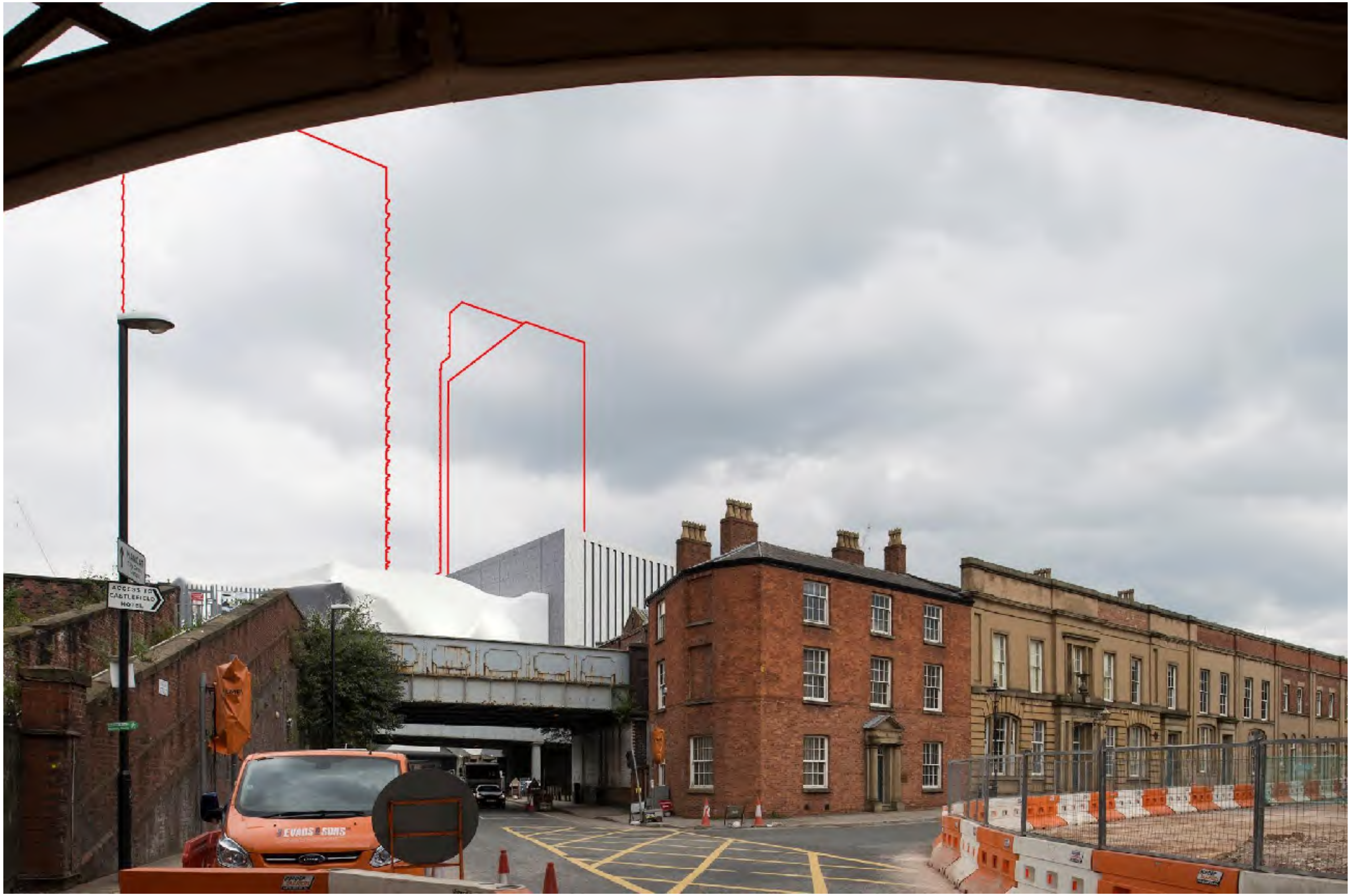
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

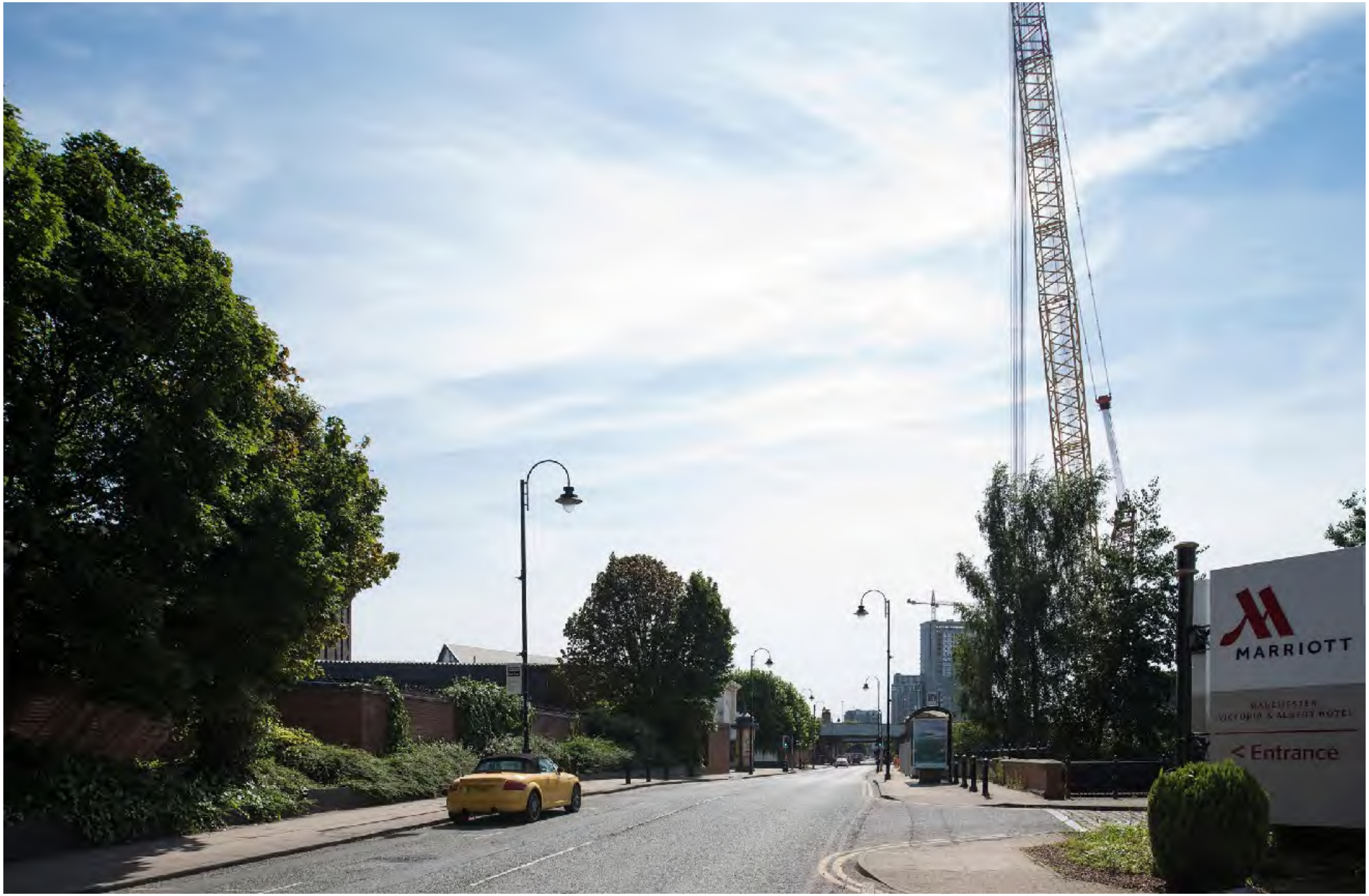
VIEWPOINT H5
Proposed


ACCESS TO CASTLEFIELD HOTEL
EVANS & SONS

PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

VIEWPOINT H5
Cumulative



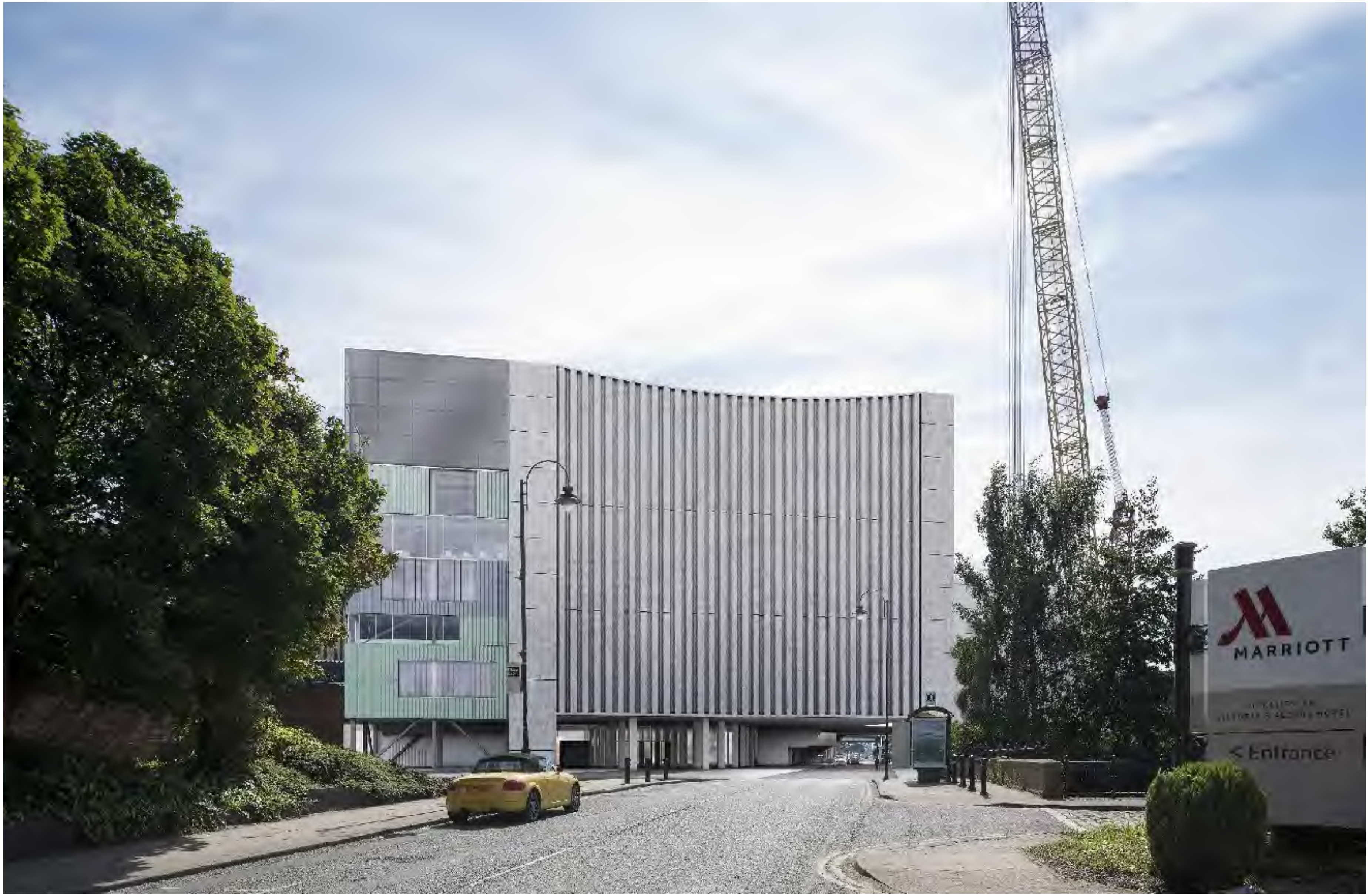
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H6
Baseline 2016



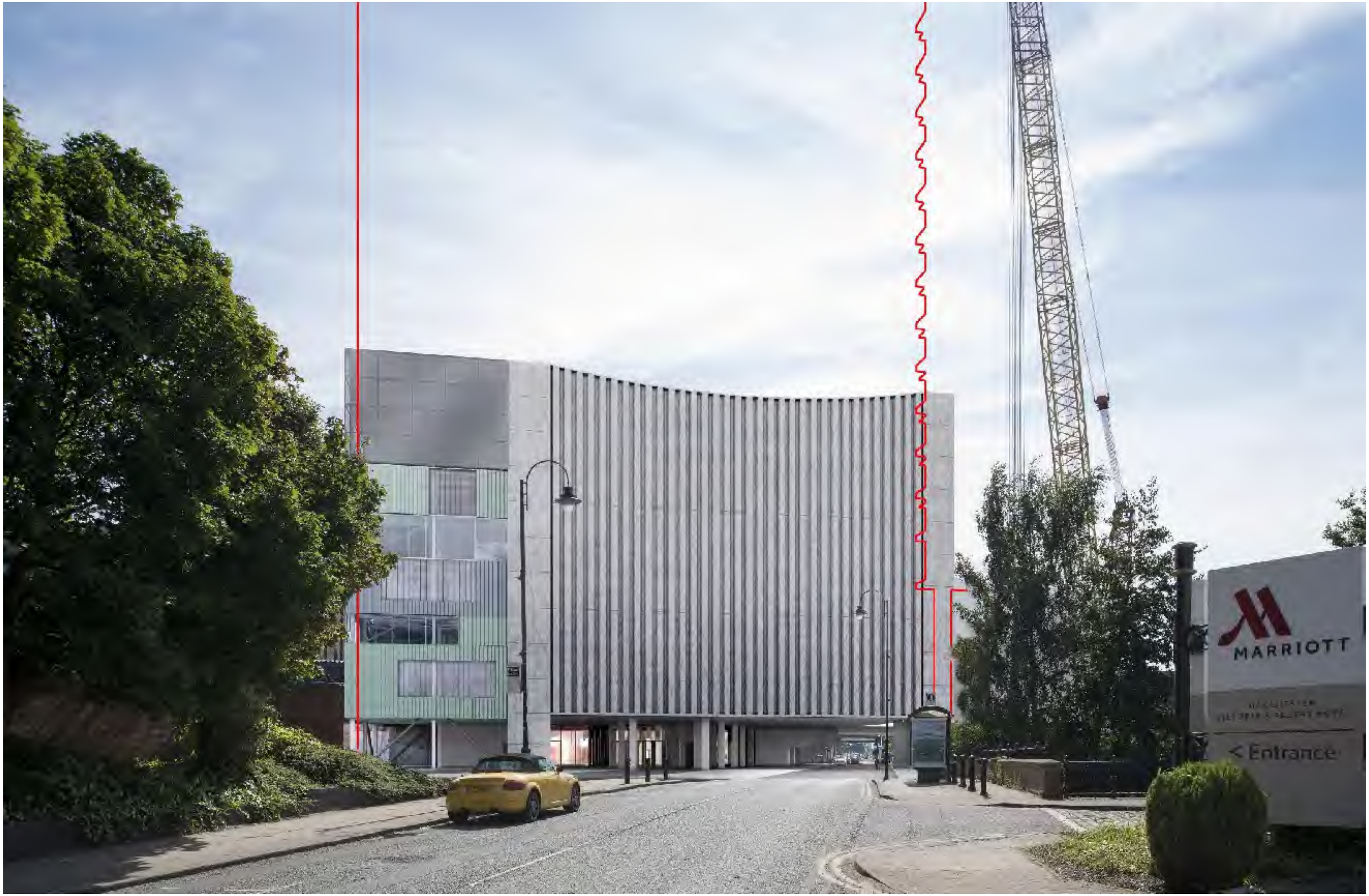
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

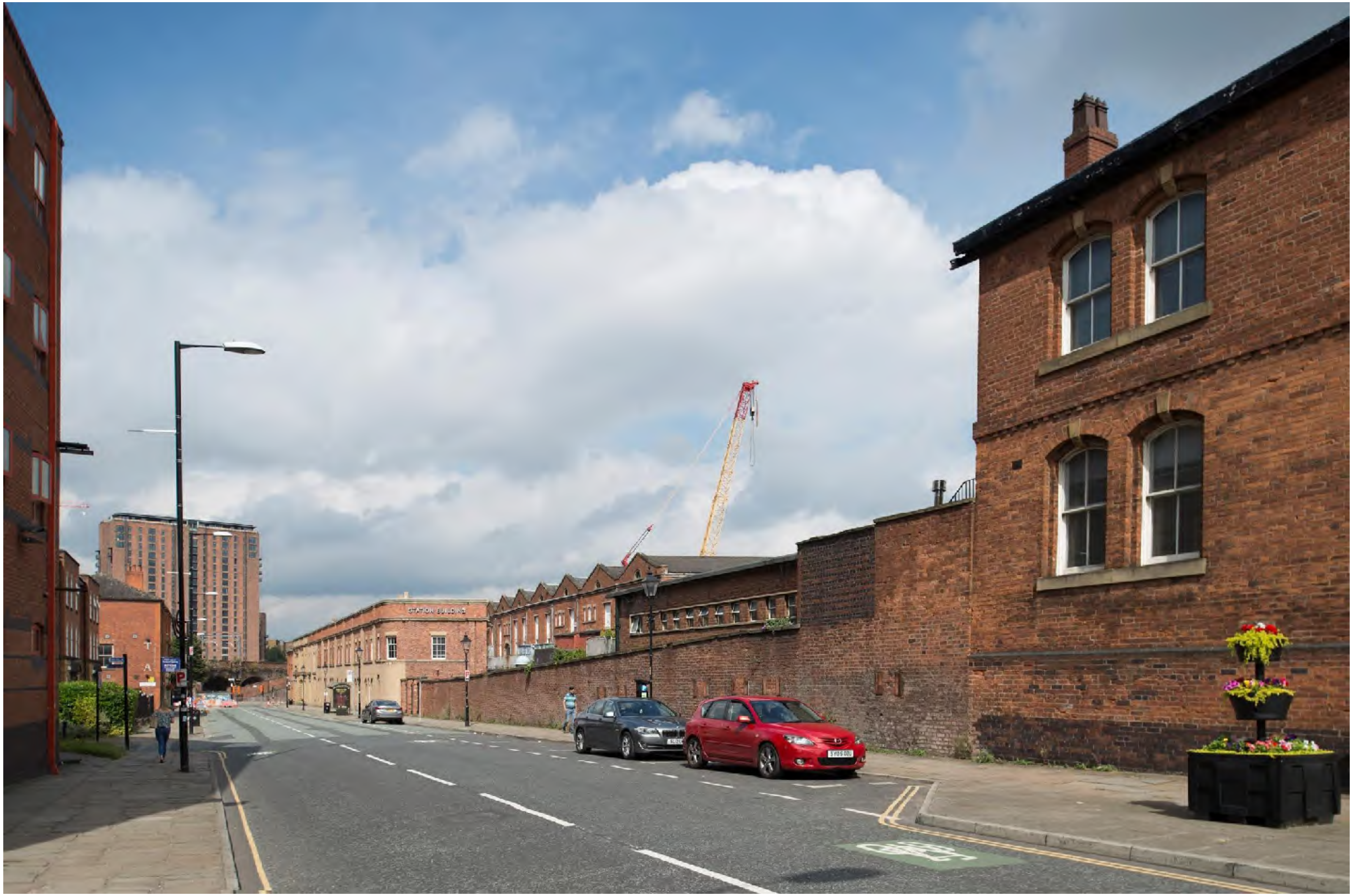
VIEWPOINT H6
Proposed 2018



PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

VIEWPOINT H6
Cumulative



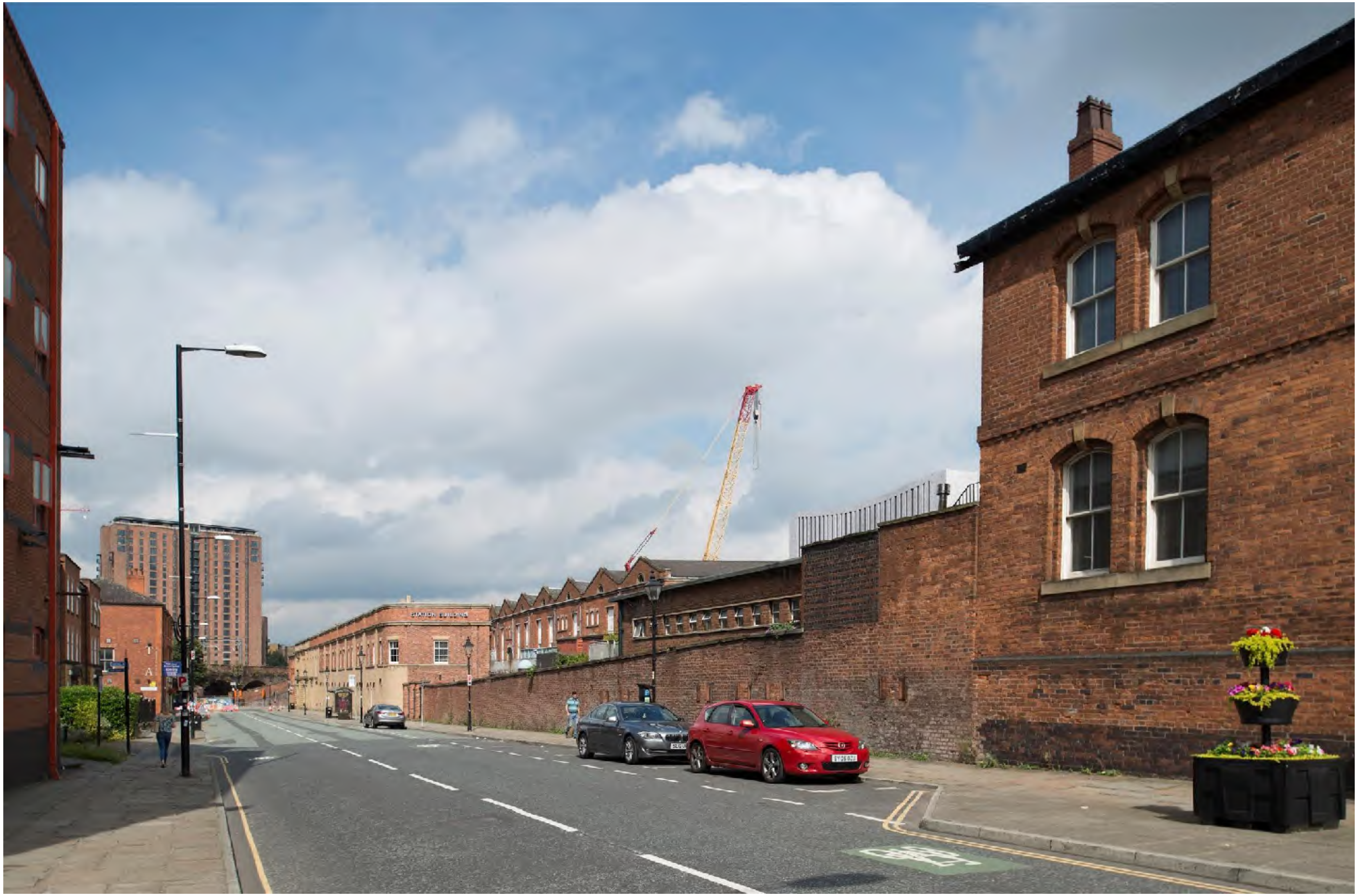
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H7
Baseline 2016



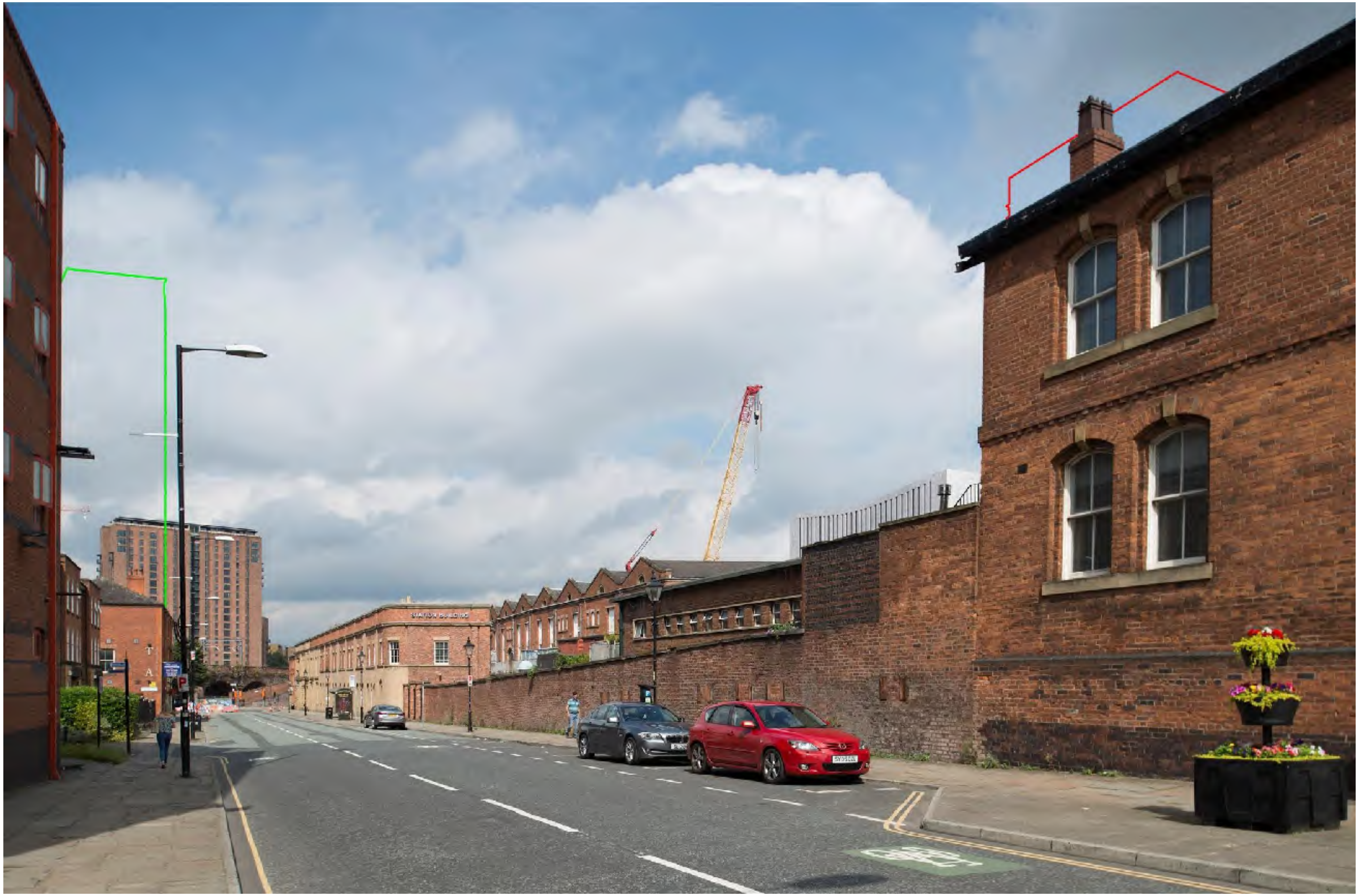
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H7
Proposed



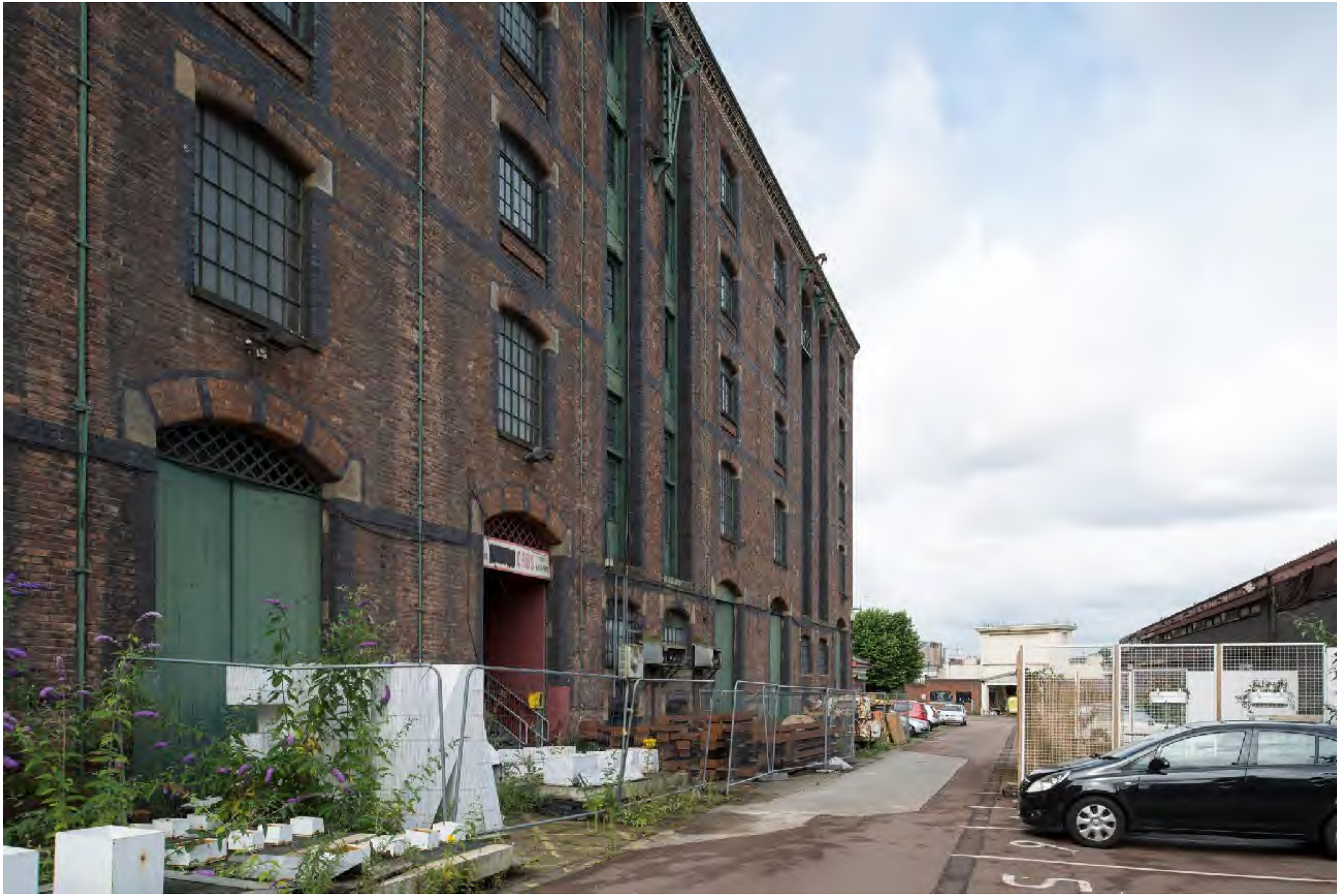
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINTH7
Cumulative



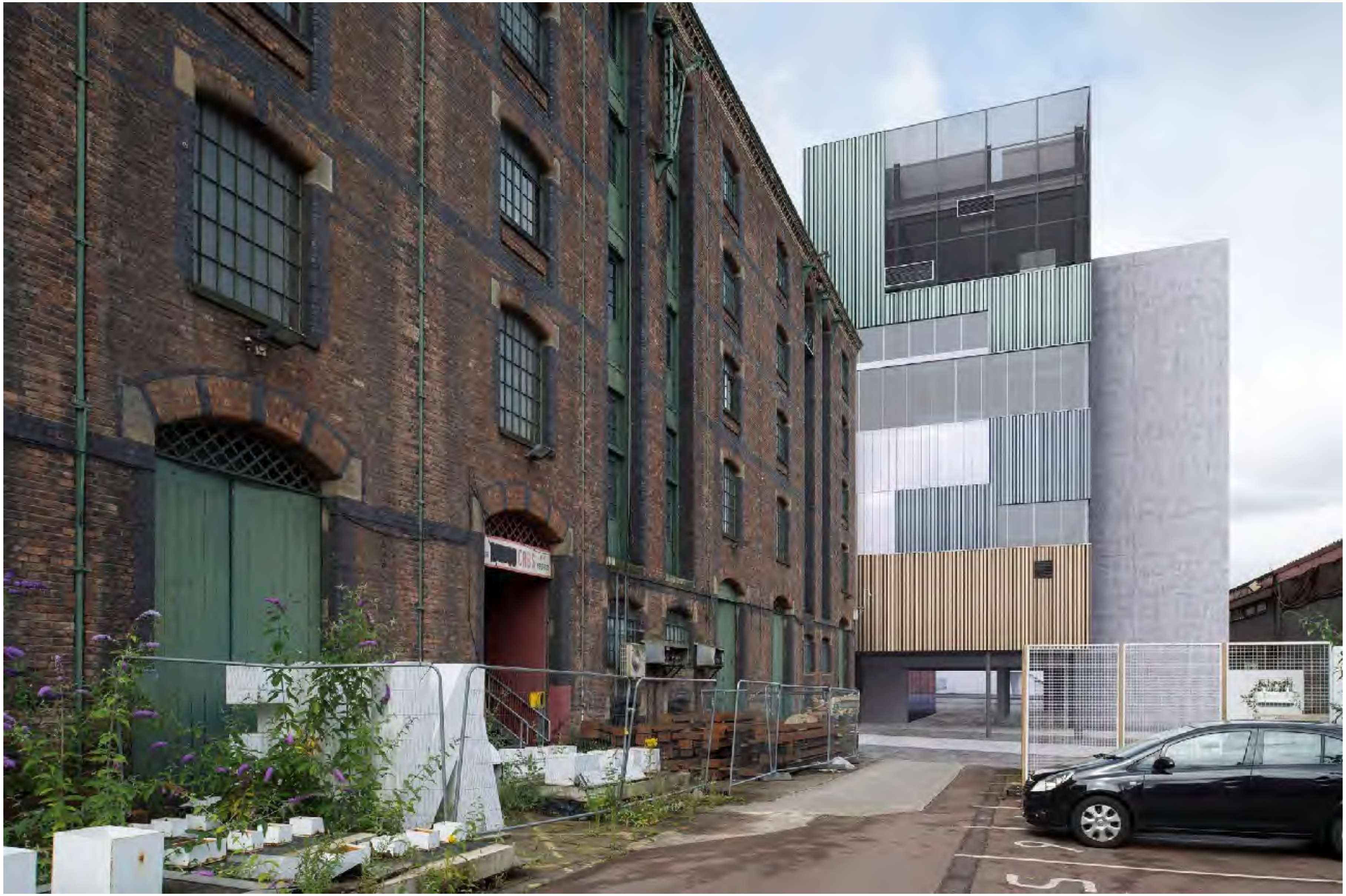
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINTH8
Baseline 2016



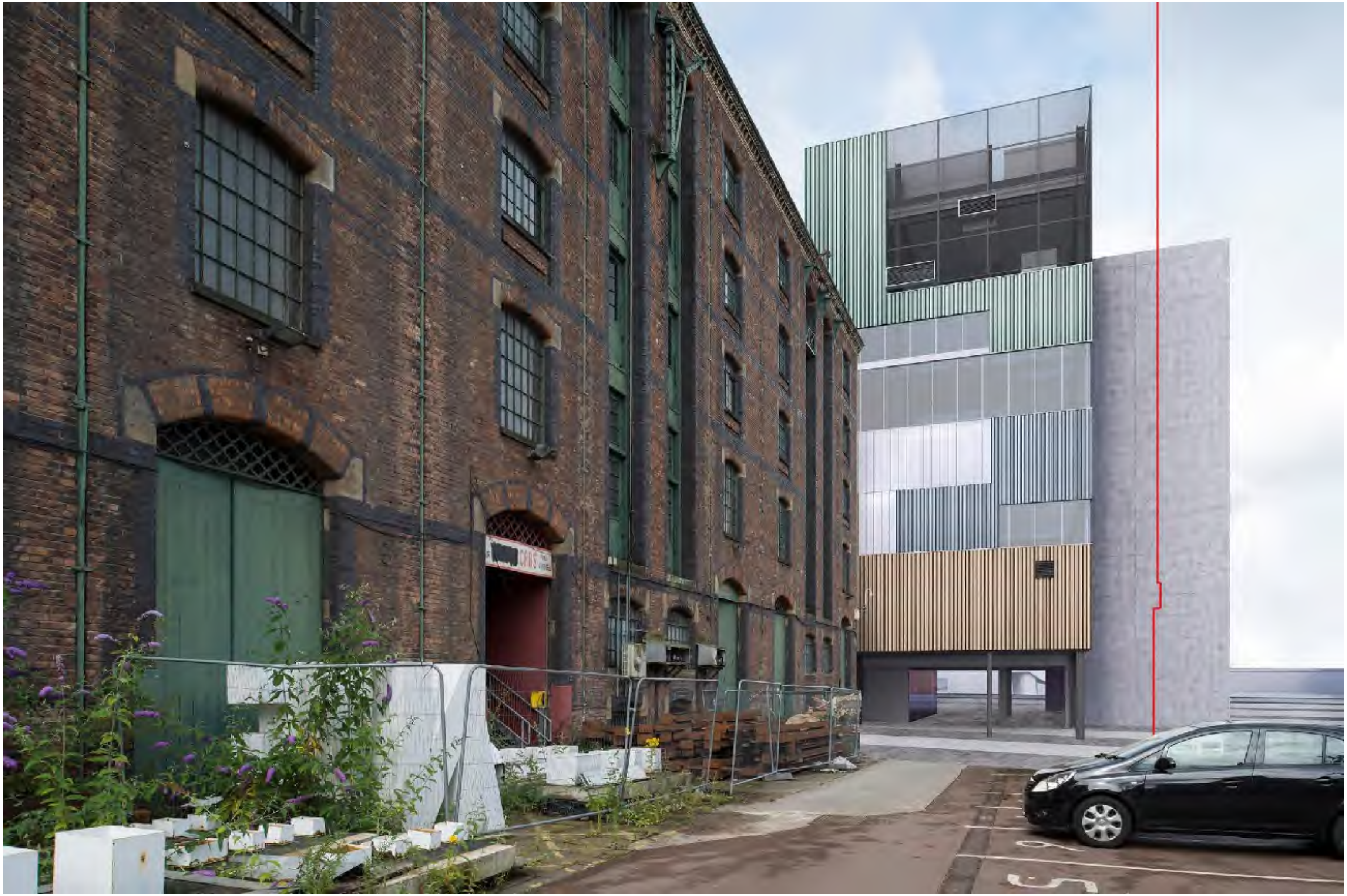
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H8
Proposed



PHOTOGRAPH INFORMATION:

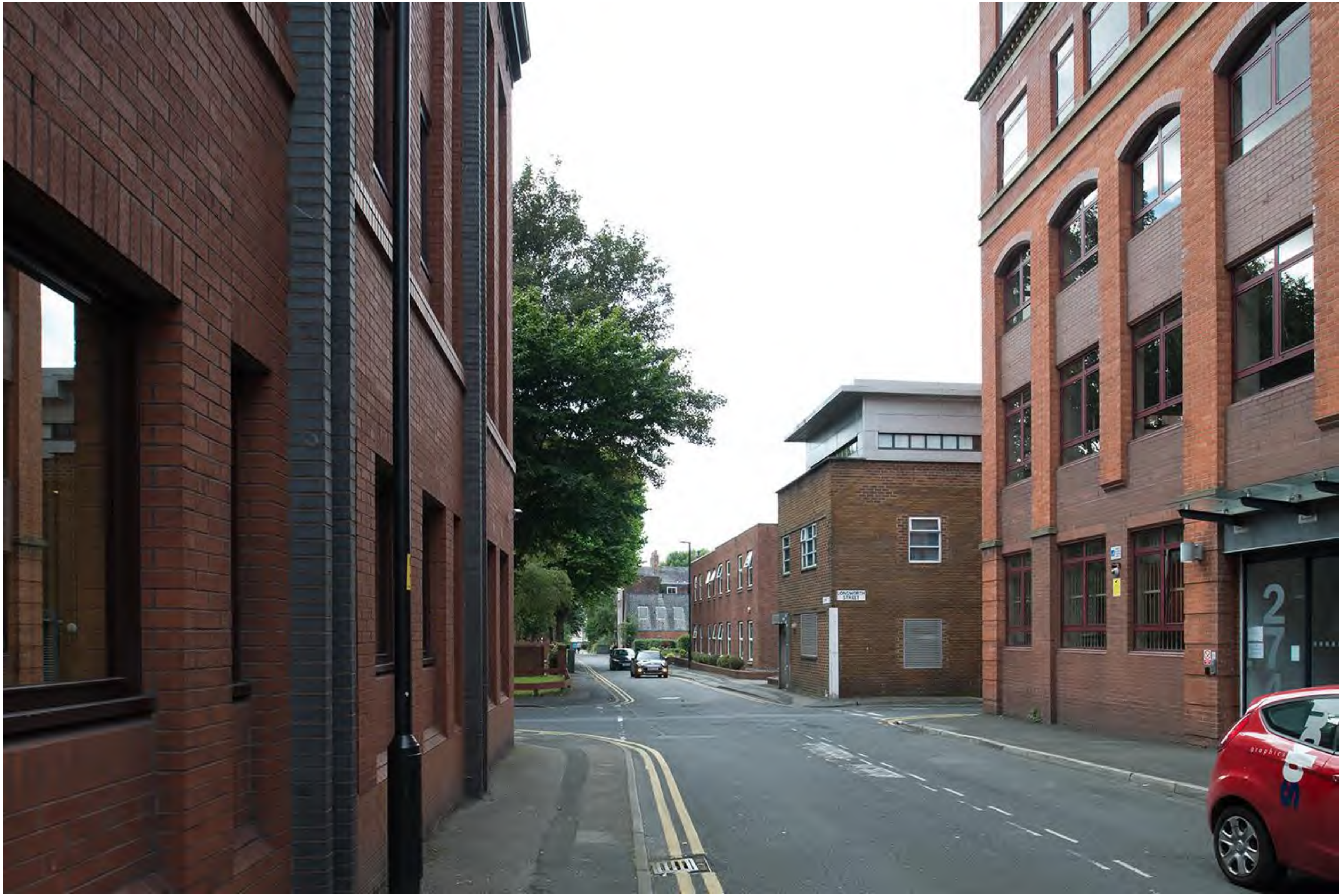
OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT H8
Cumulative

TOWNSCAPE VIEWS



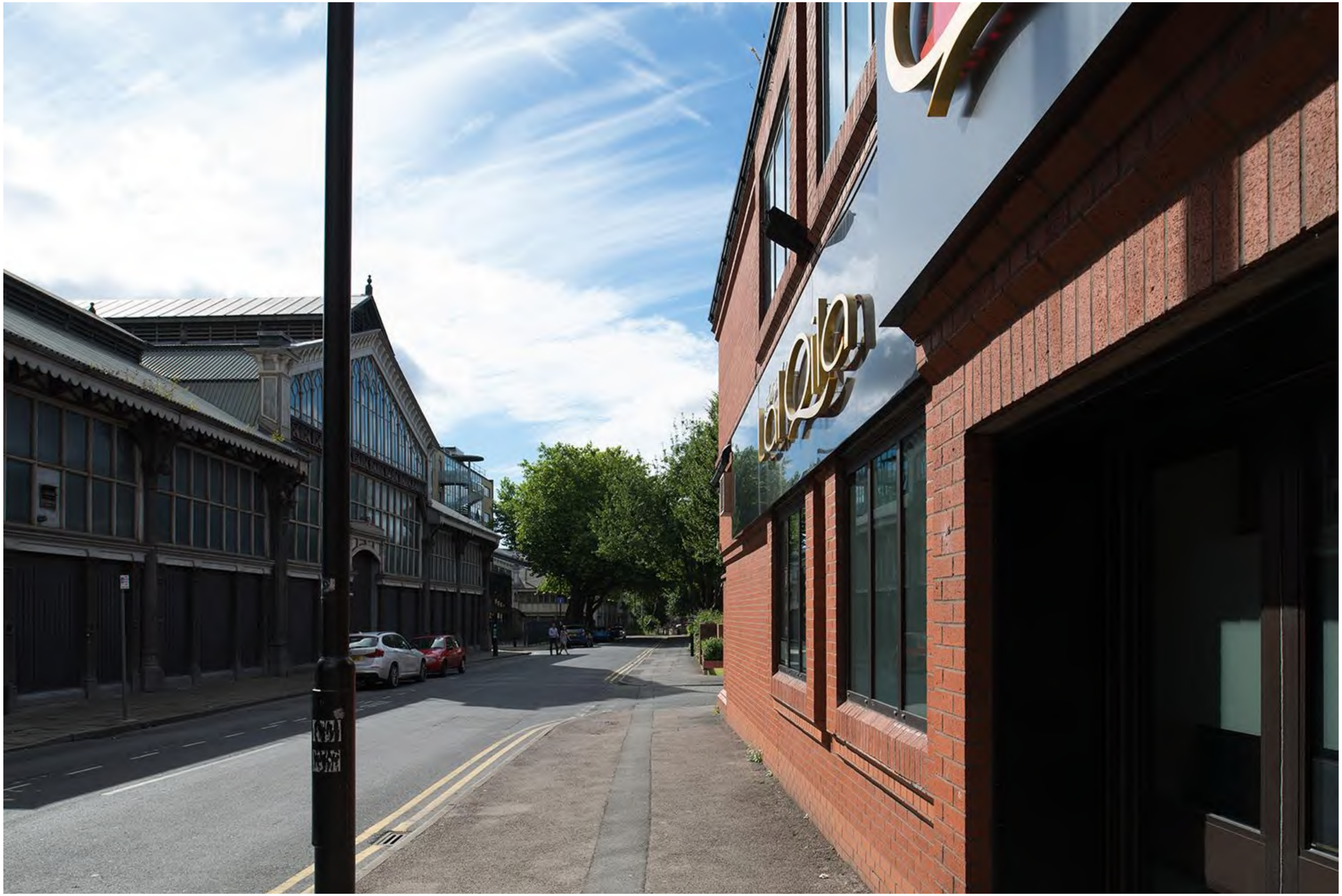
PHOTOGRAPH INFORMATION:

OS co-ords : 383280/397960 Ht above ground : 1.7 m Camera and lens : Nikon D800E Focal length : 24 mm Field of view : 73.6 degrees

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 1
Camp Street 2016



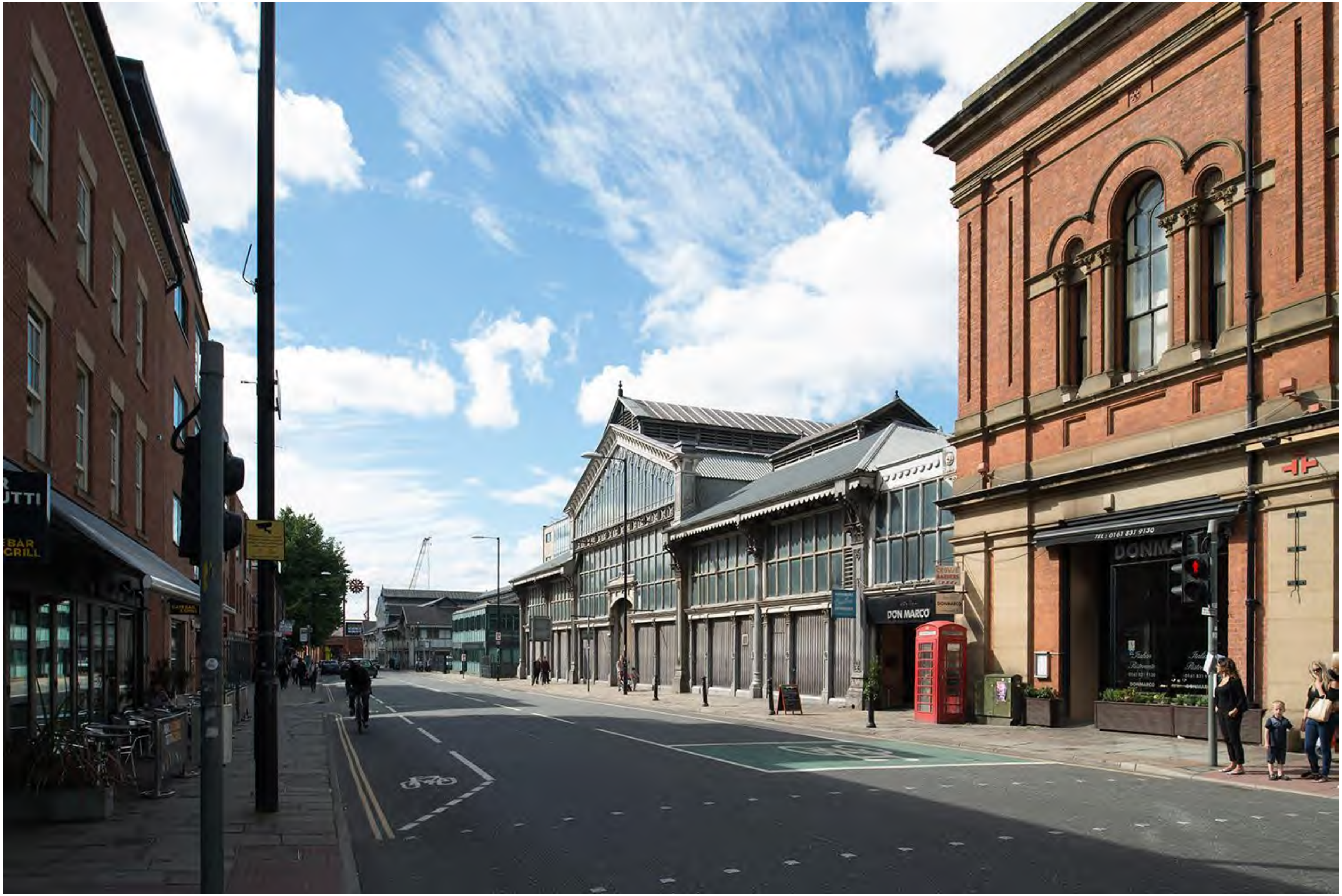
PHOTOGRAPH INFORMATION:

OS co-ords : 382852/397997 Ht above ground : 1.7 m Camera and lens : Canon EOS 600D Focal length : 25mm Field of view : 48 degrees

VIEWPOINT 2
Tonman Street
2016

CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment



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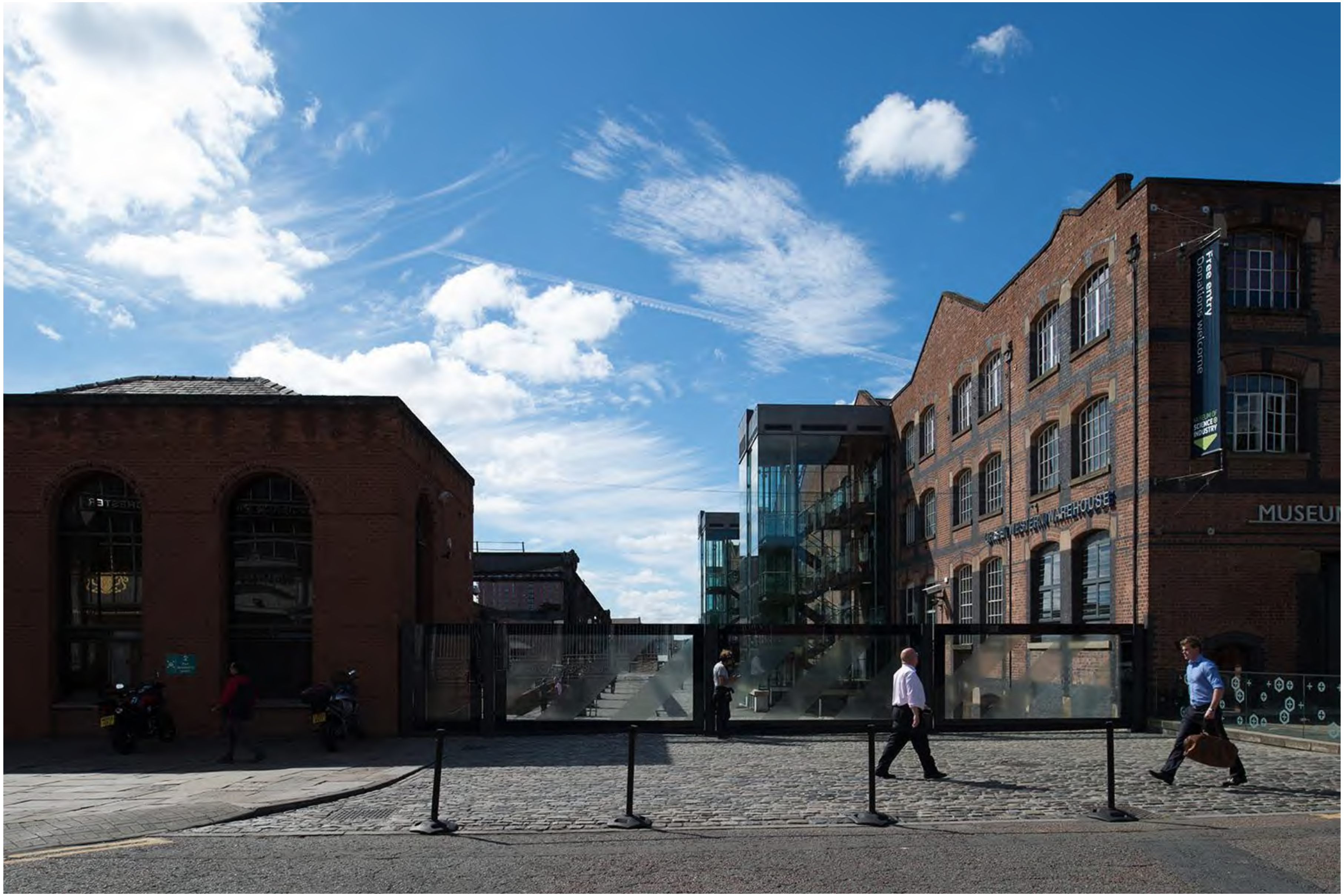
CHRIS BURNETT ASSOCIATES 21 09 17

THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 3
Liverpool Road
2016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Donations welcome
MUSEUM OF SCIENCE & INDUSTRY
GREAT WESTERN WAREHOUSE
MUSEUM

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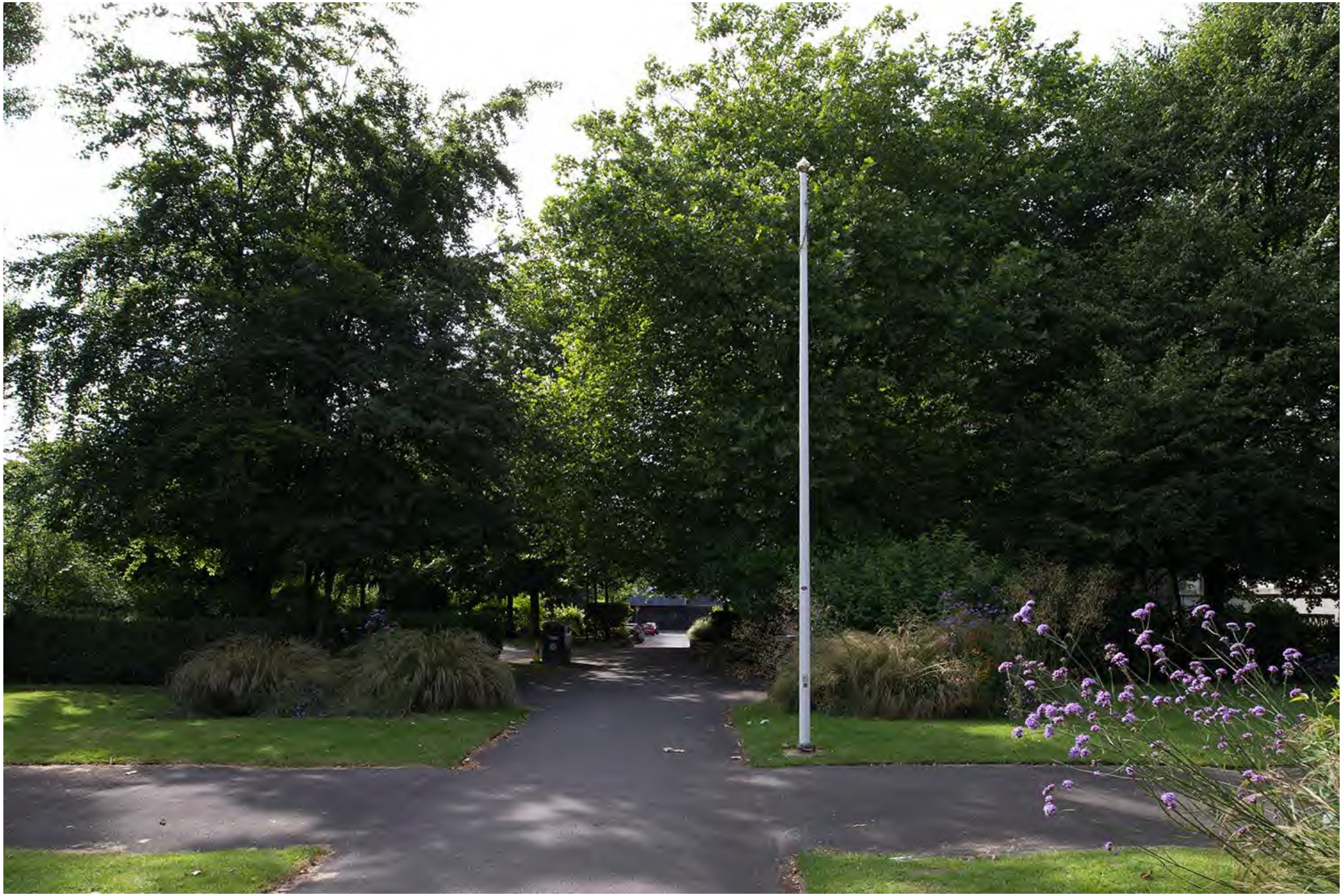
VIEWPOINT 4
MOSI 2016



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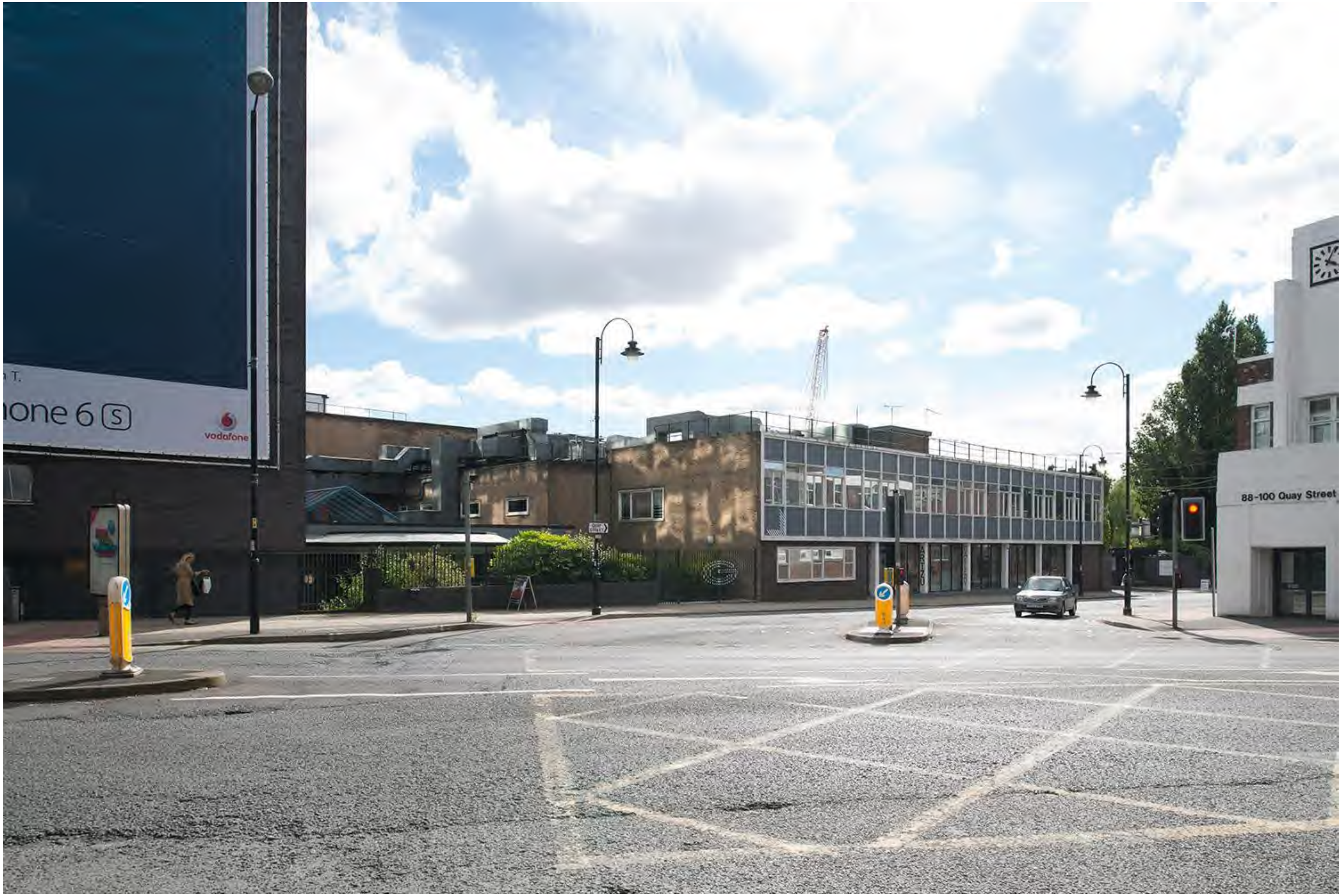
VIEWPOINT 5
St John's Gardens
2017


one 6 S
vodafone
88-100 Quay Street

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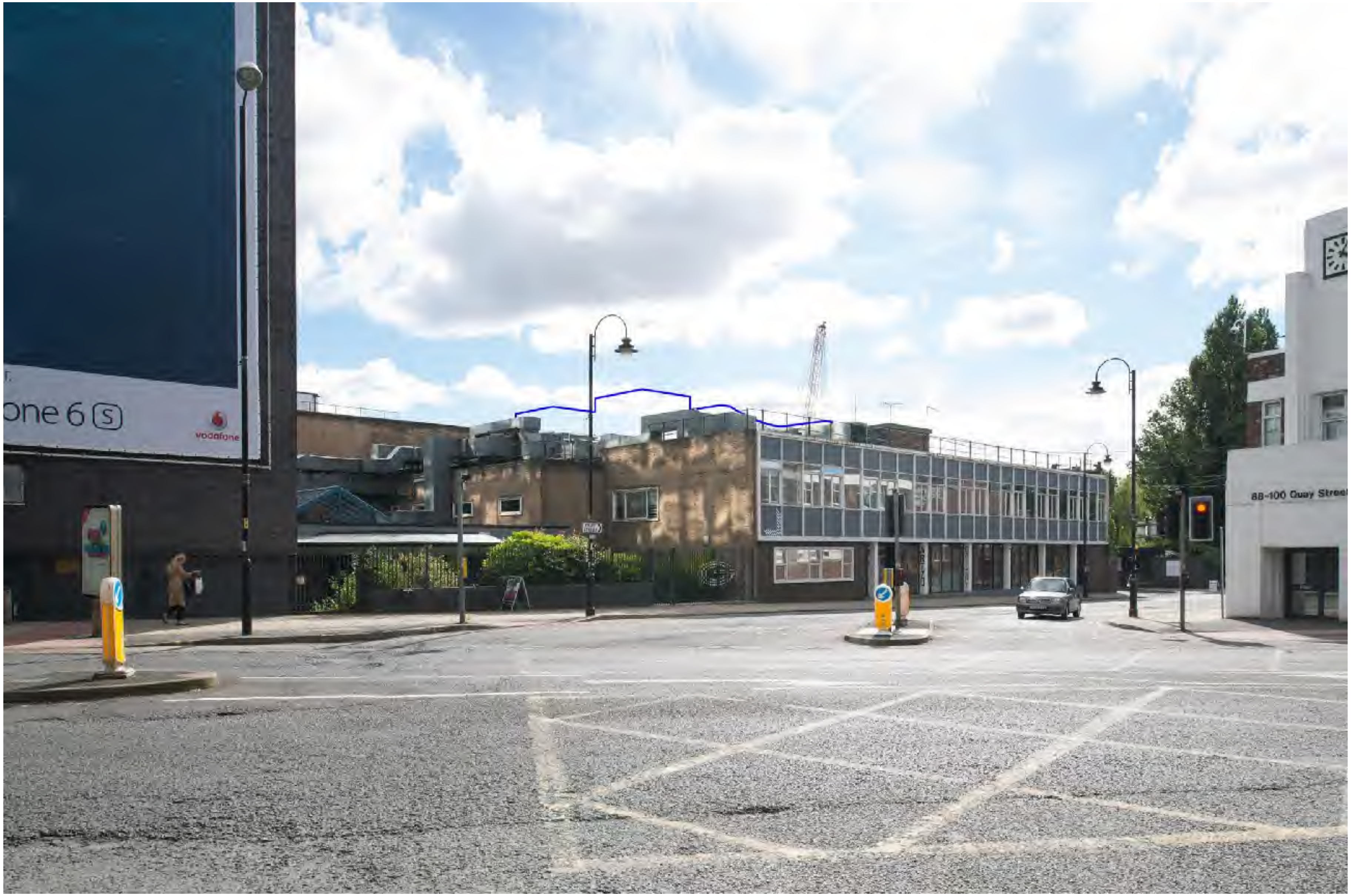
VIEWPOINT 6
Quay Street 2016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vodafone
88-100 Quay Street

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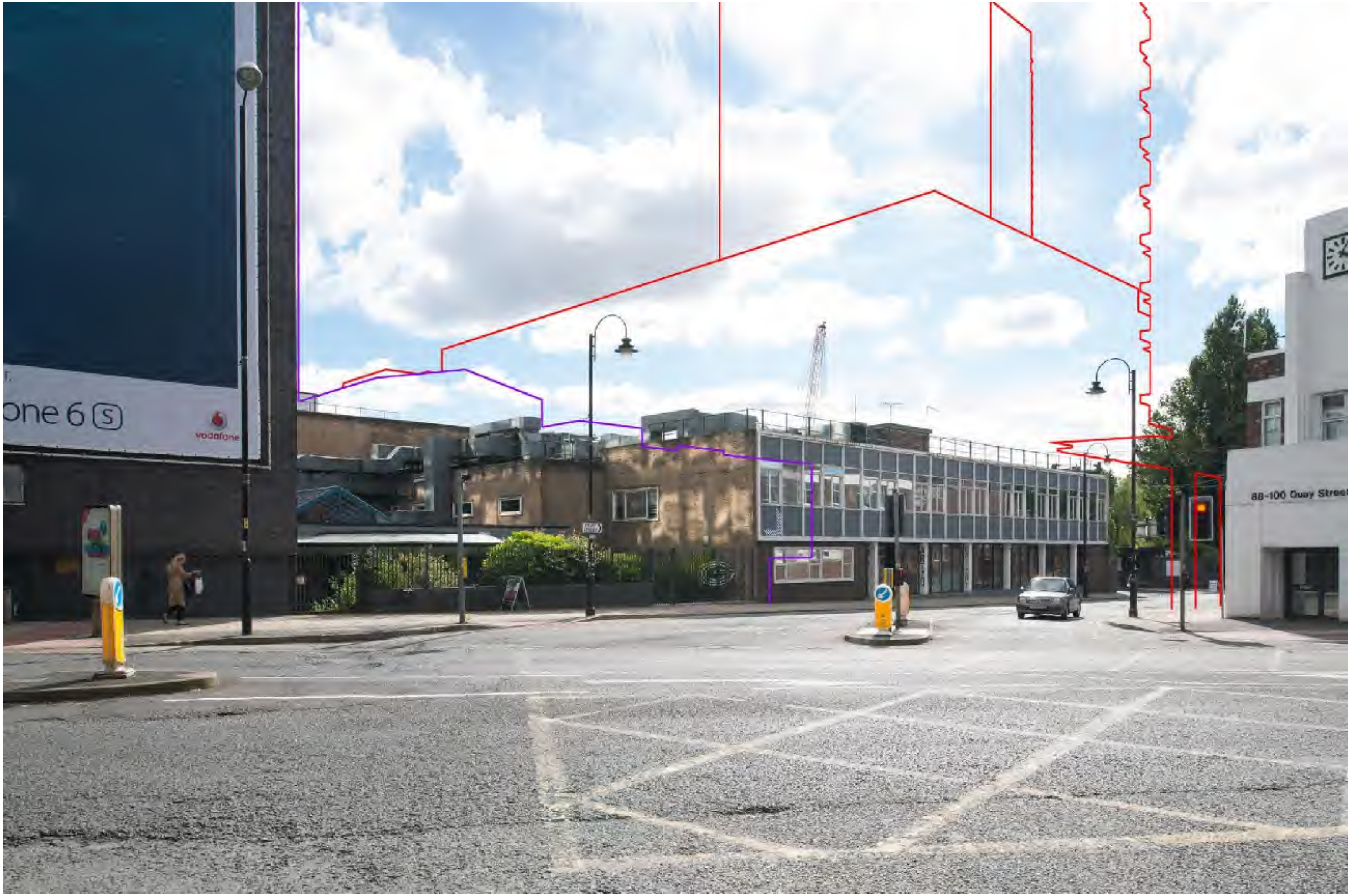
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 6
Proposed

CUMULATIVE VIEWS KEY

- Factory
- Trinity
- St Johns
- OGS
- South Village
- Owen Street
- Byrom House
- Renaker
- 1 Spinningfields



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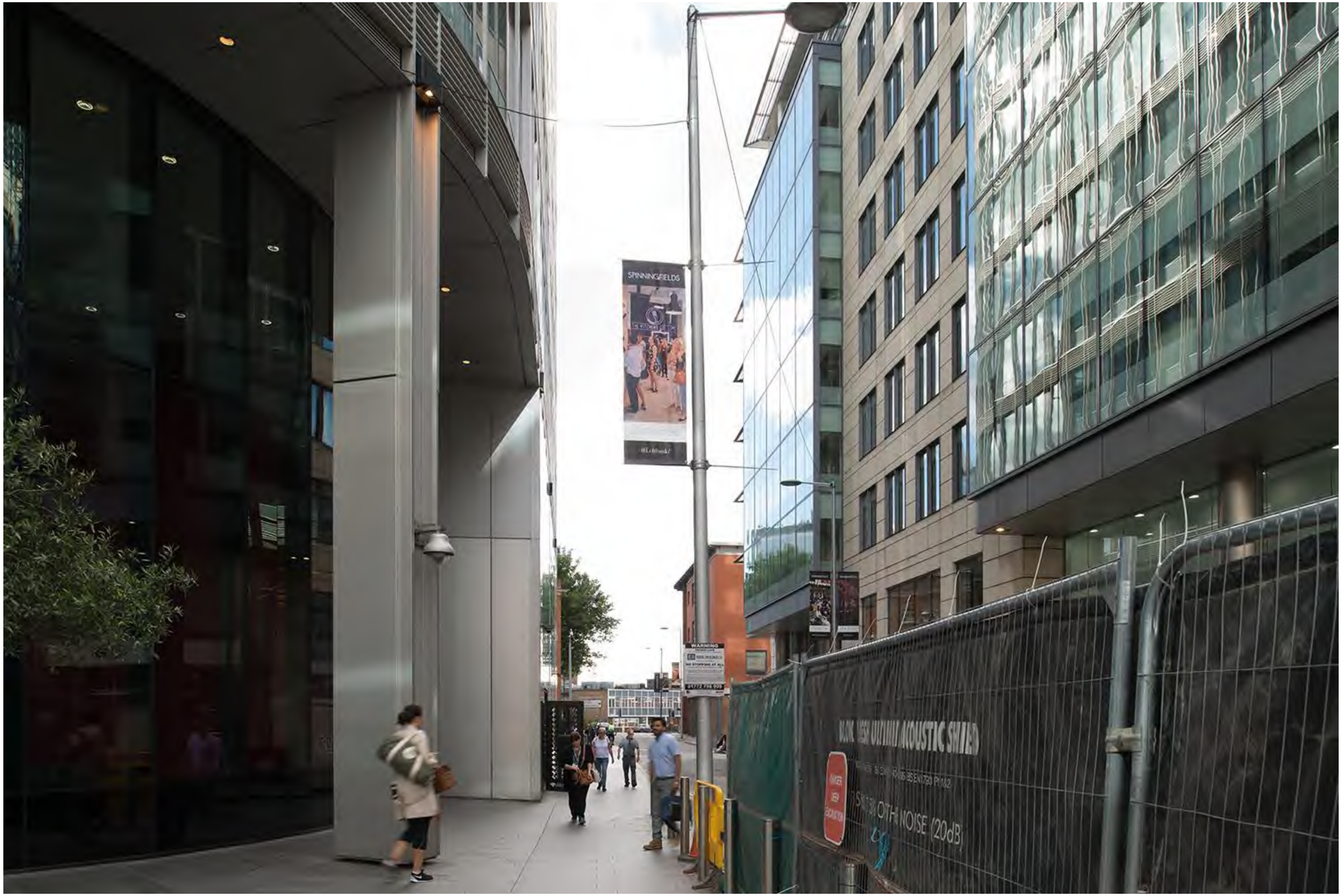
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 6
Cumulative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WARNING
ACOUSTIC SHIELD

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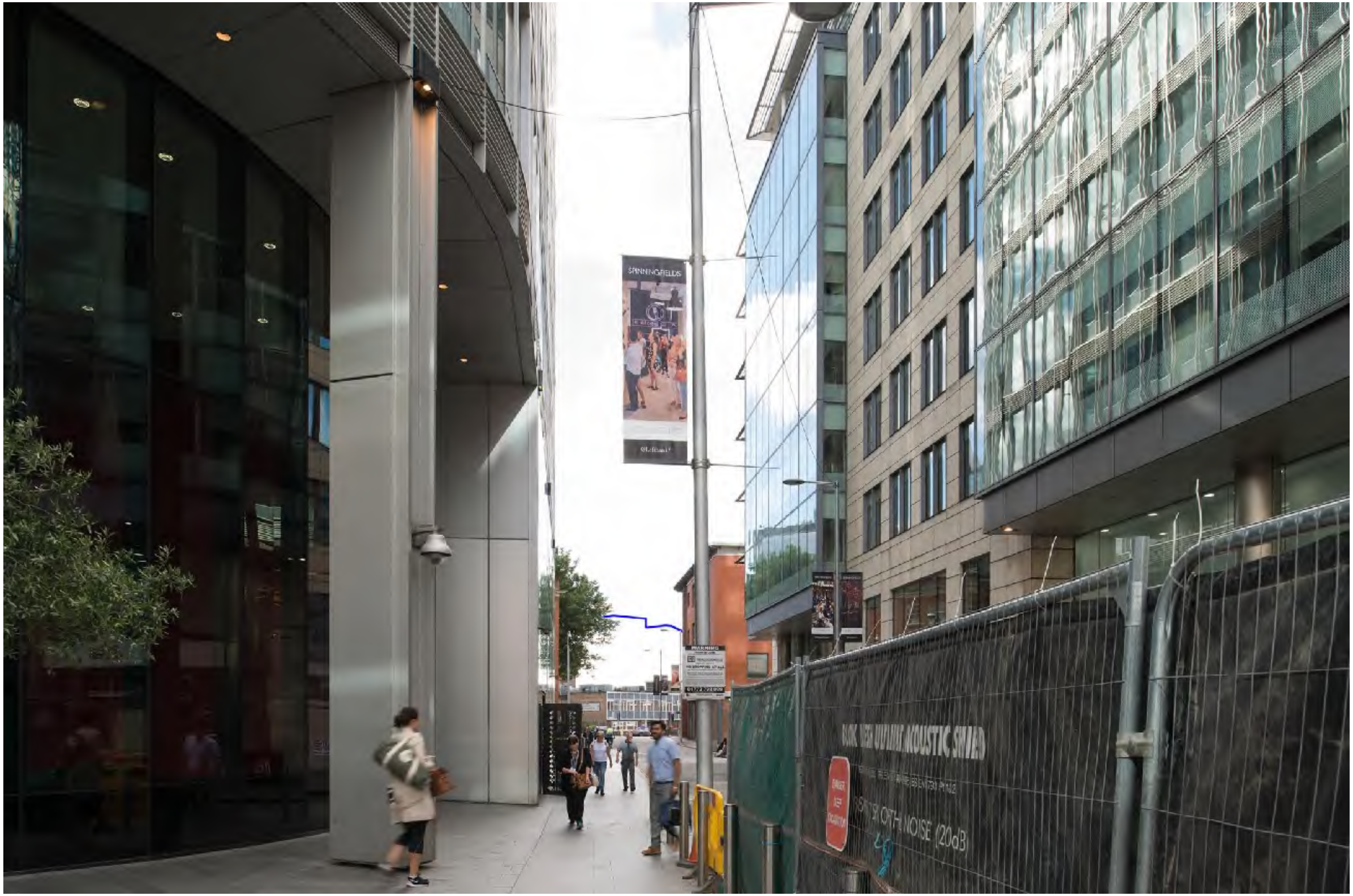
VIEWPOINT 7
Gartside Street
2016


SPINNINGFIELDS
ACOUSTIC SHIELD
NOISE (20dB)

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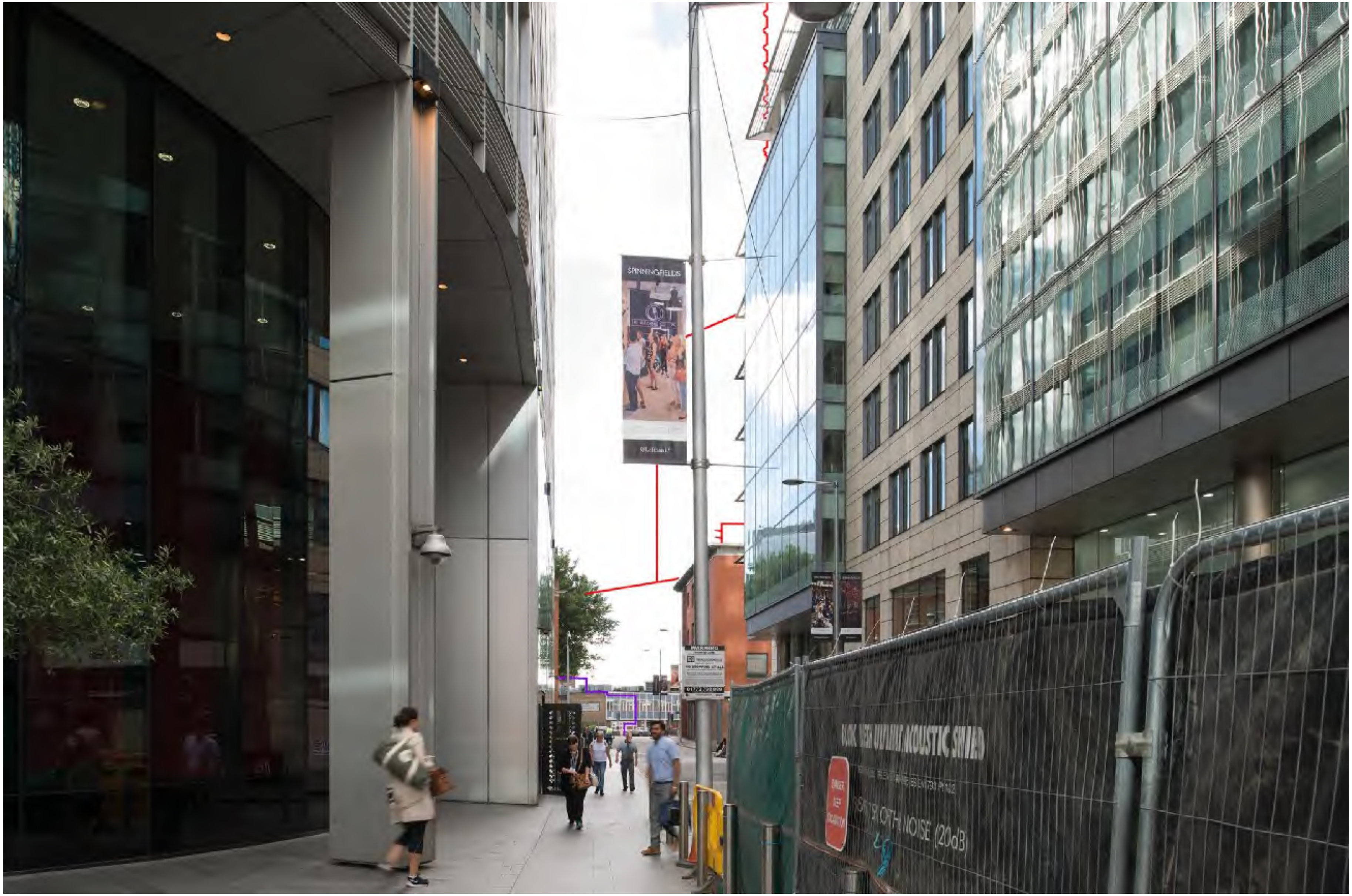
VIEWPOINT 7
Proposed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ACOUSTIC SHROUD
NOISE (20dB)

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VIEWPOINT 7
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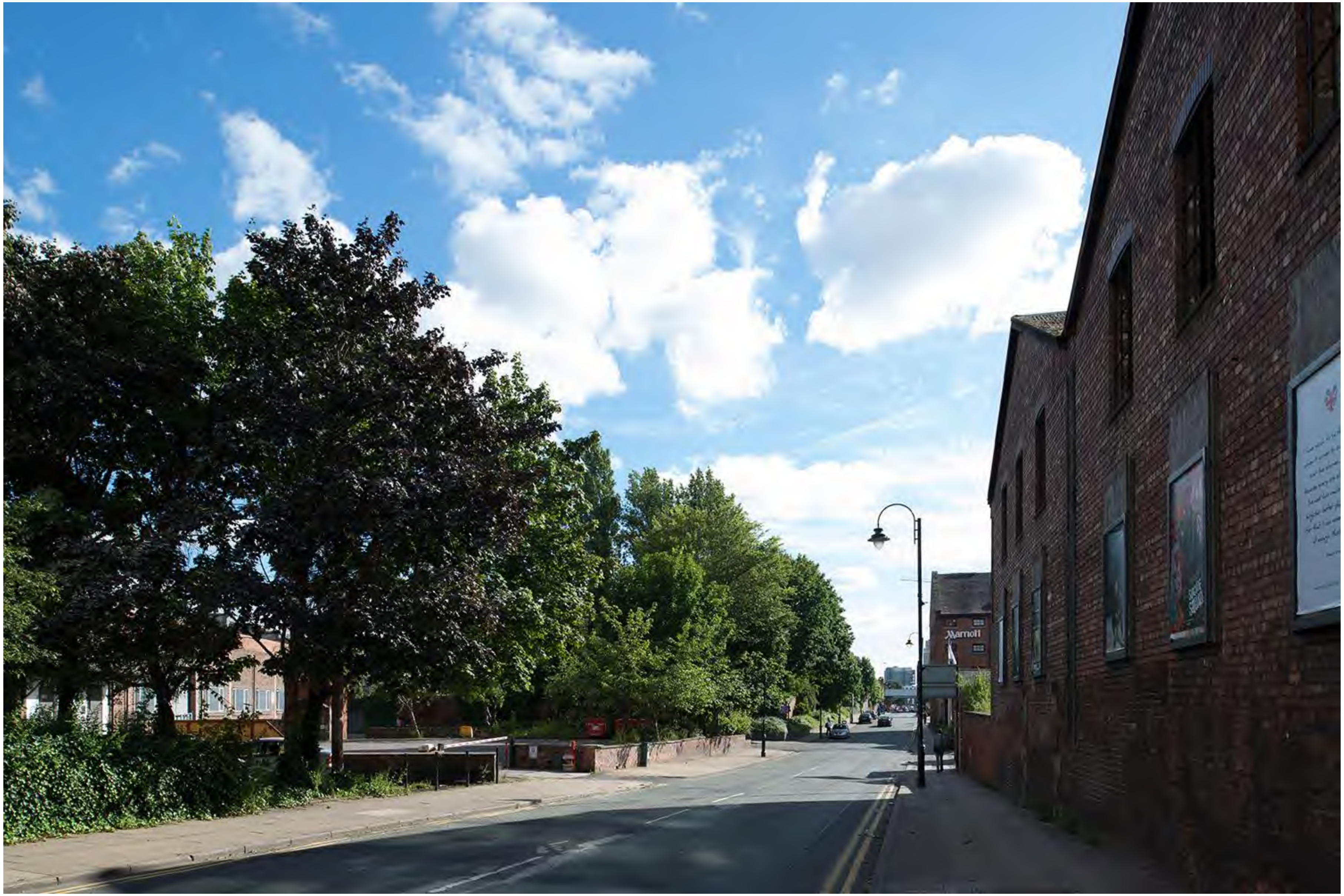

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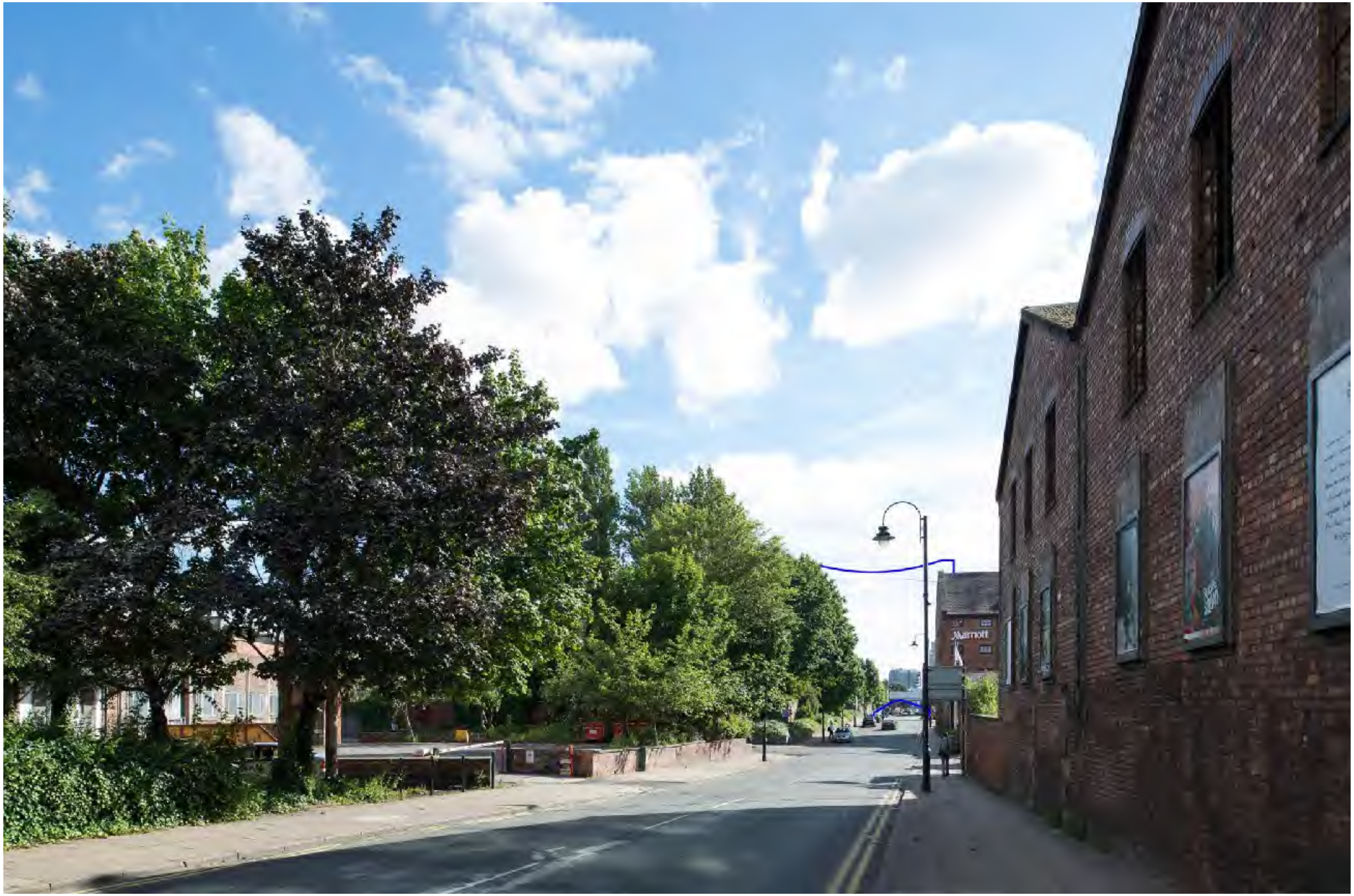
VIEWPOINT 8
Water Street 2016



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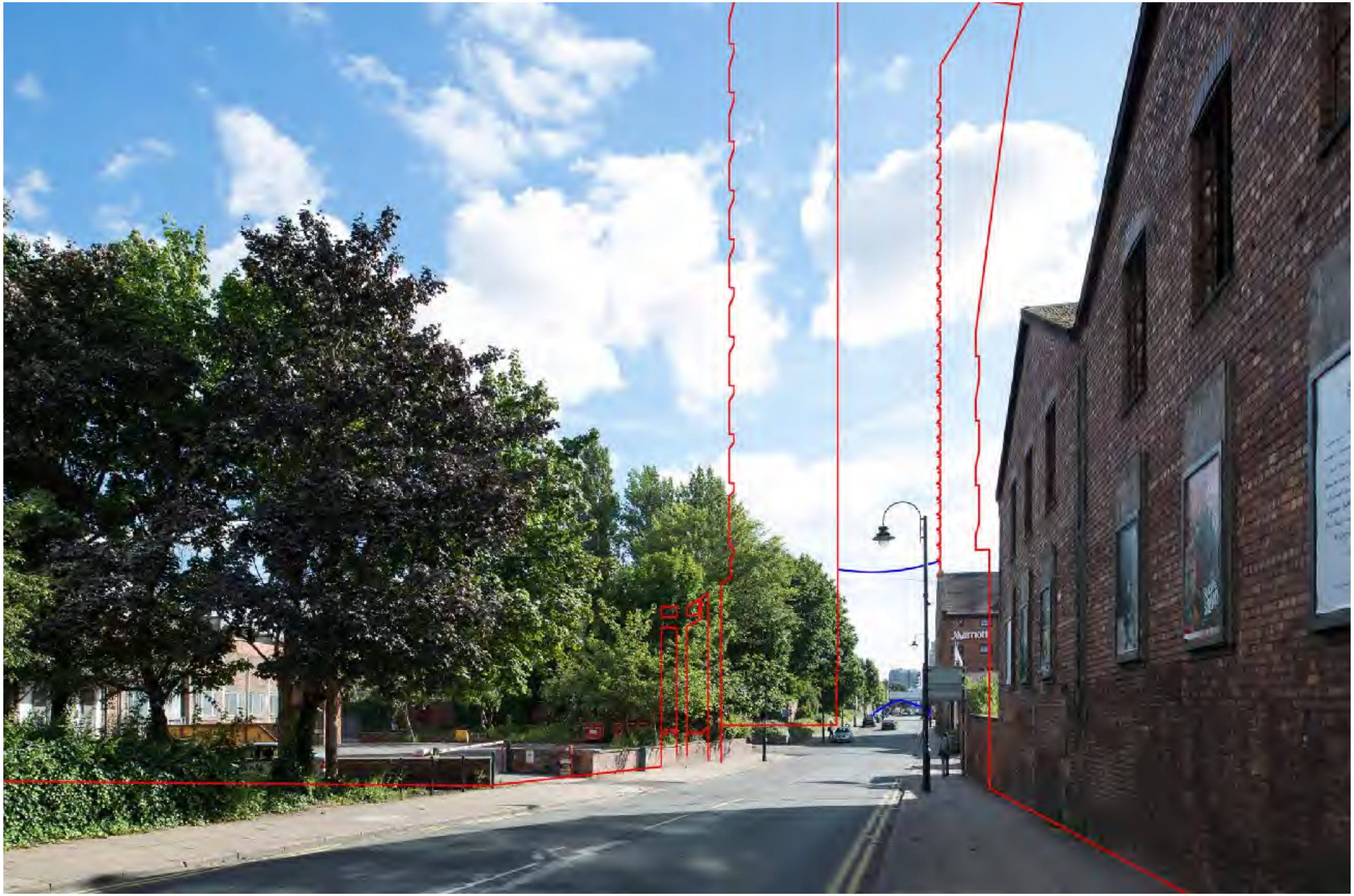
VIEWPOINT 8
Proposed



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VIEWPOINT 8
Cumulative

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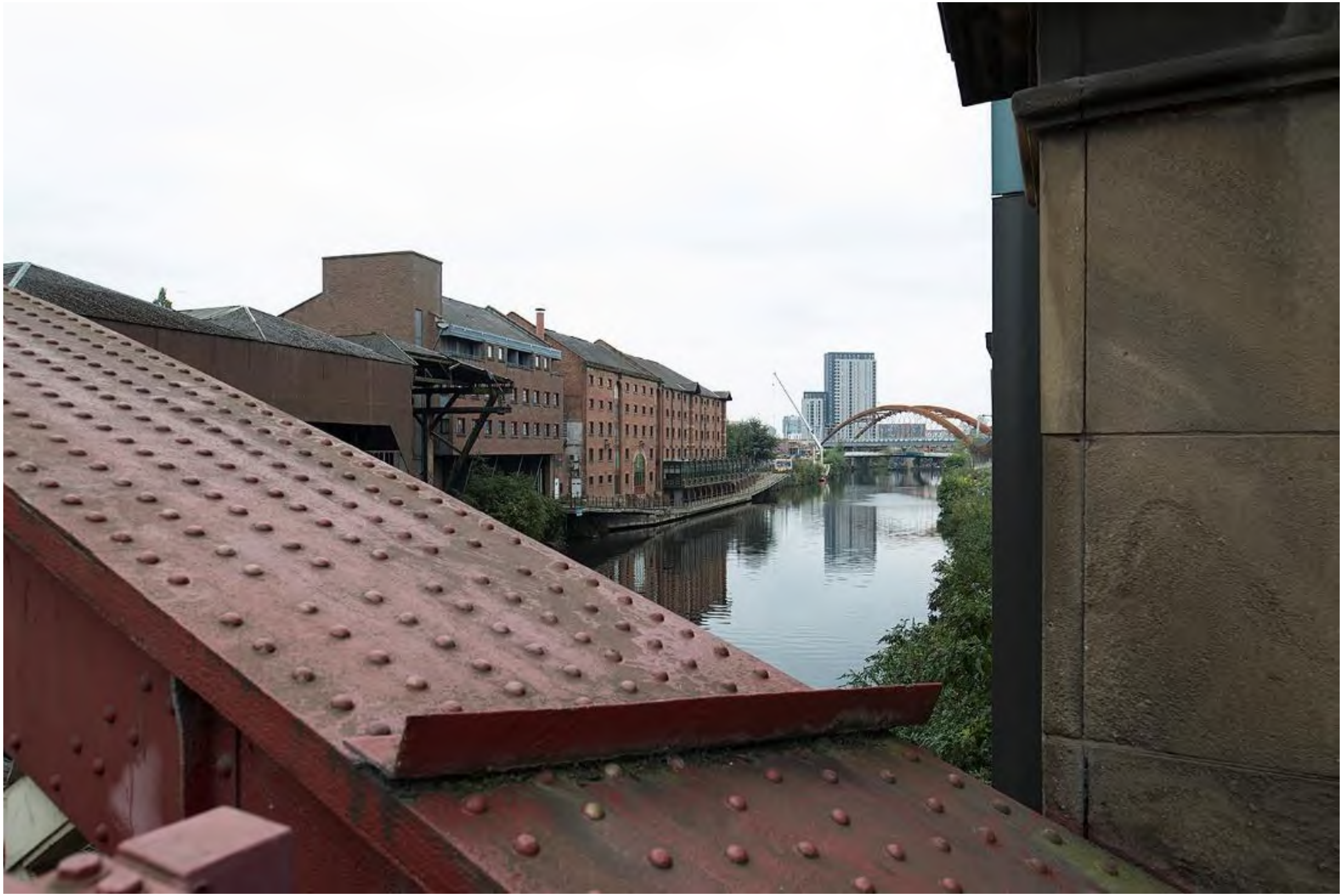
THE FACTORY Townscape and Visual Impact Assessment



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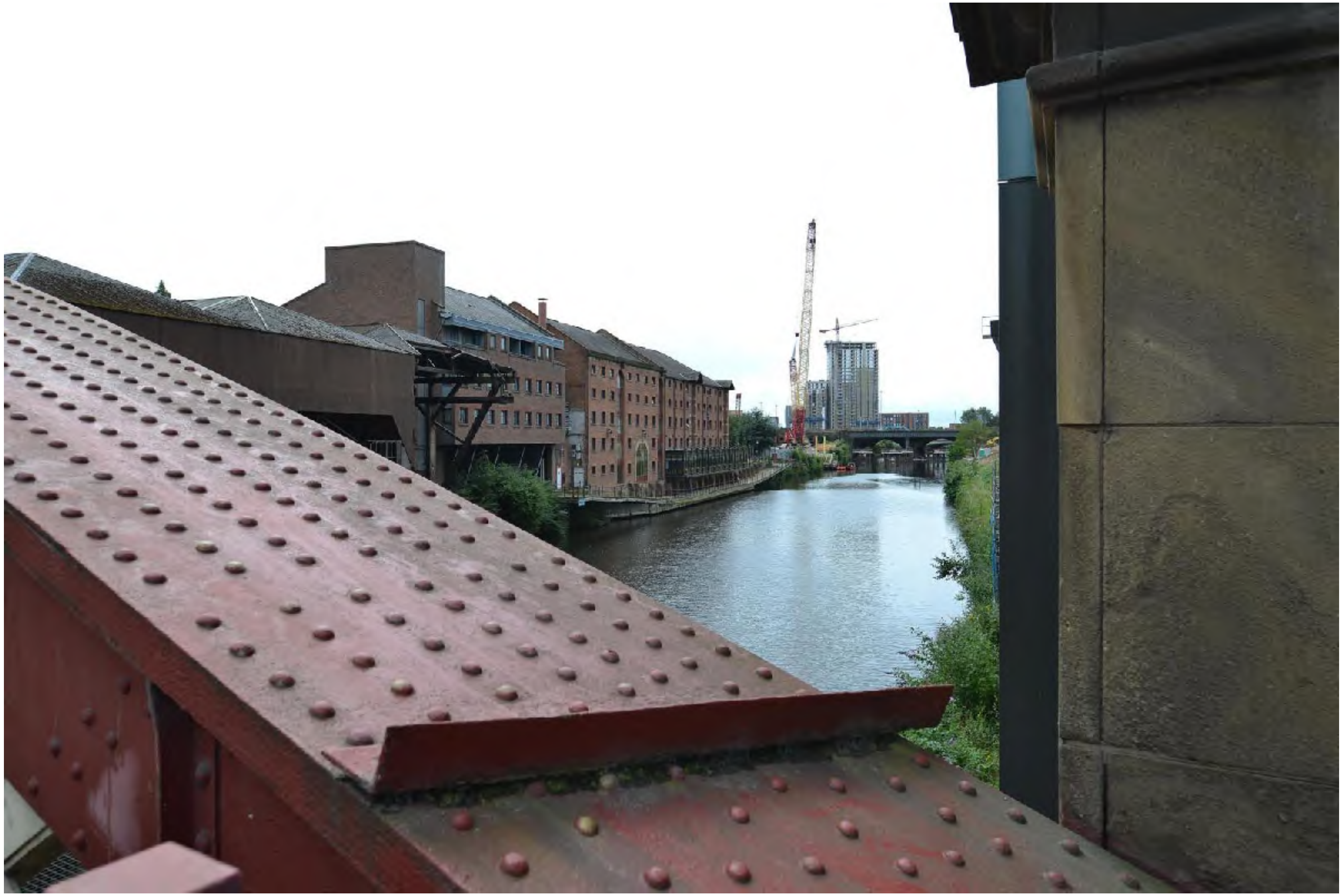
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 9
Irwell Street
Bridge 2017



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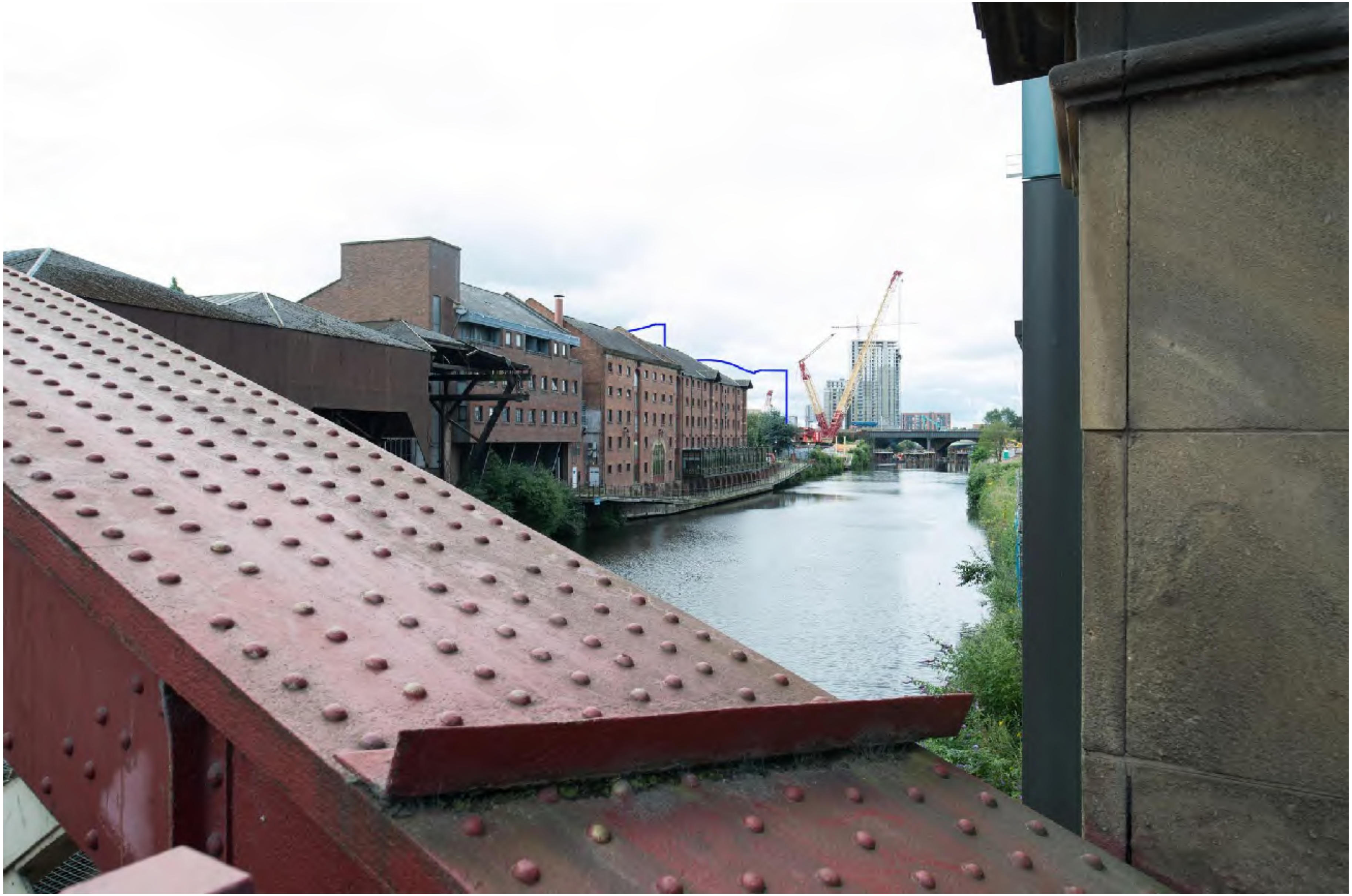
VIEWPOINT 9
Irwell Street
Bridge 2016



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VIEWPOINT 9
Proposed

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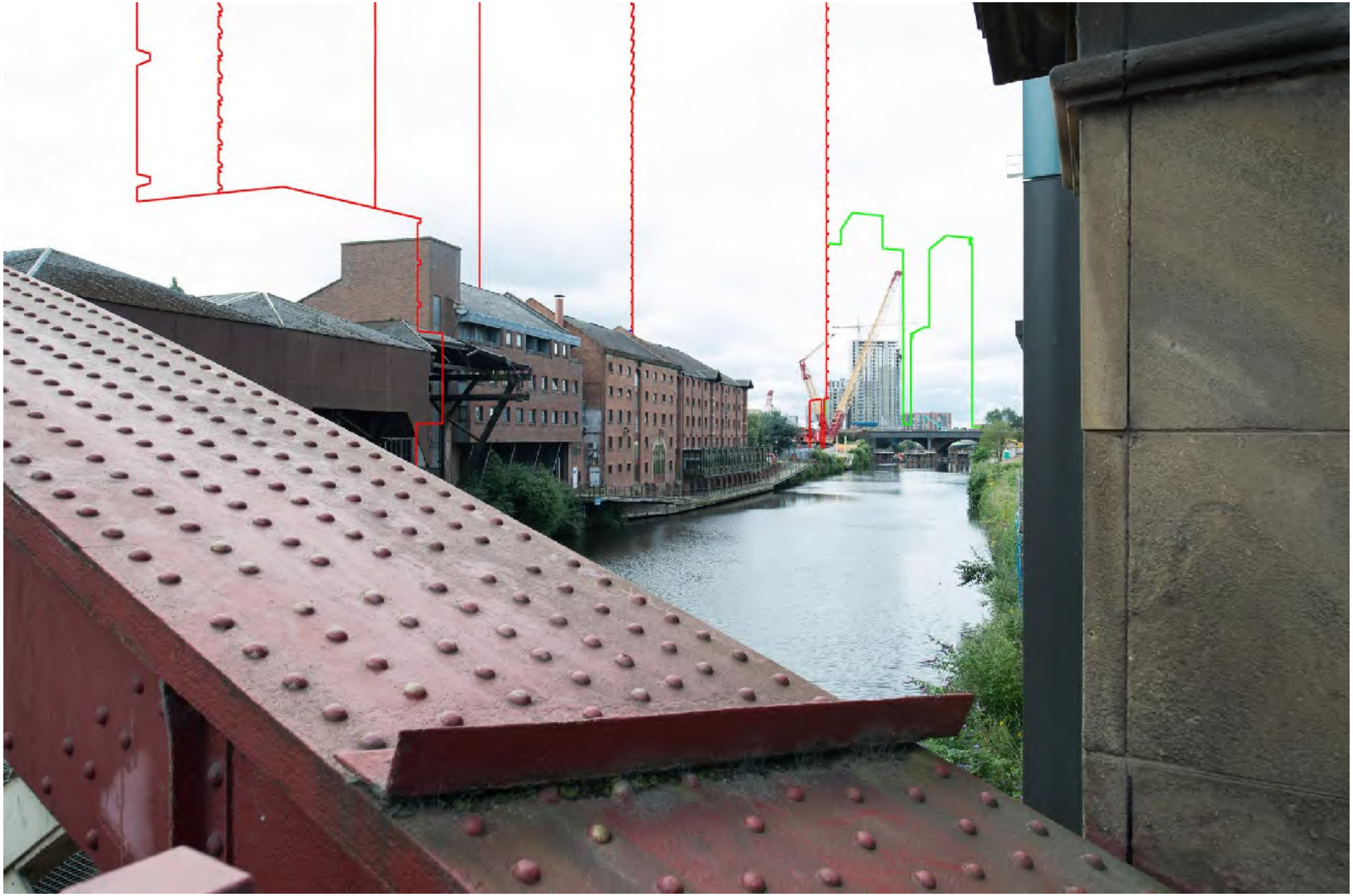
THE FACTORY Townscape and Visual Impact Assessment



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THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 9
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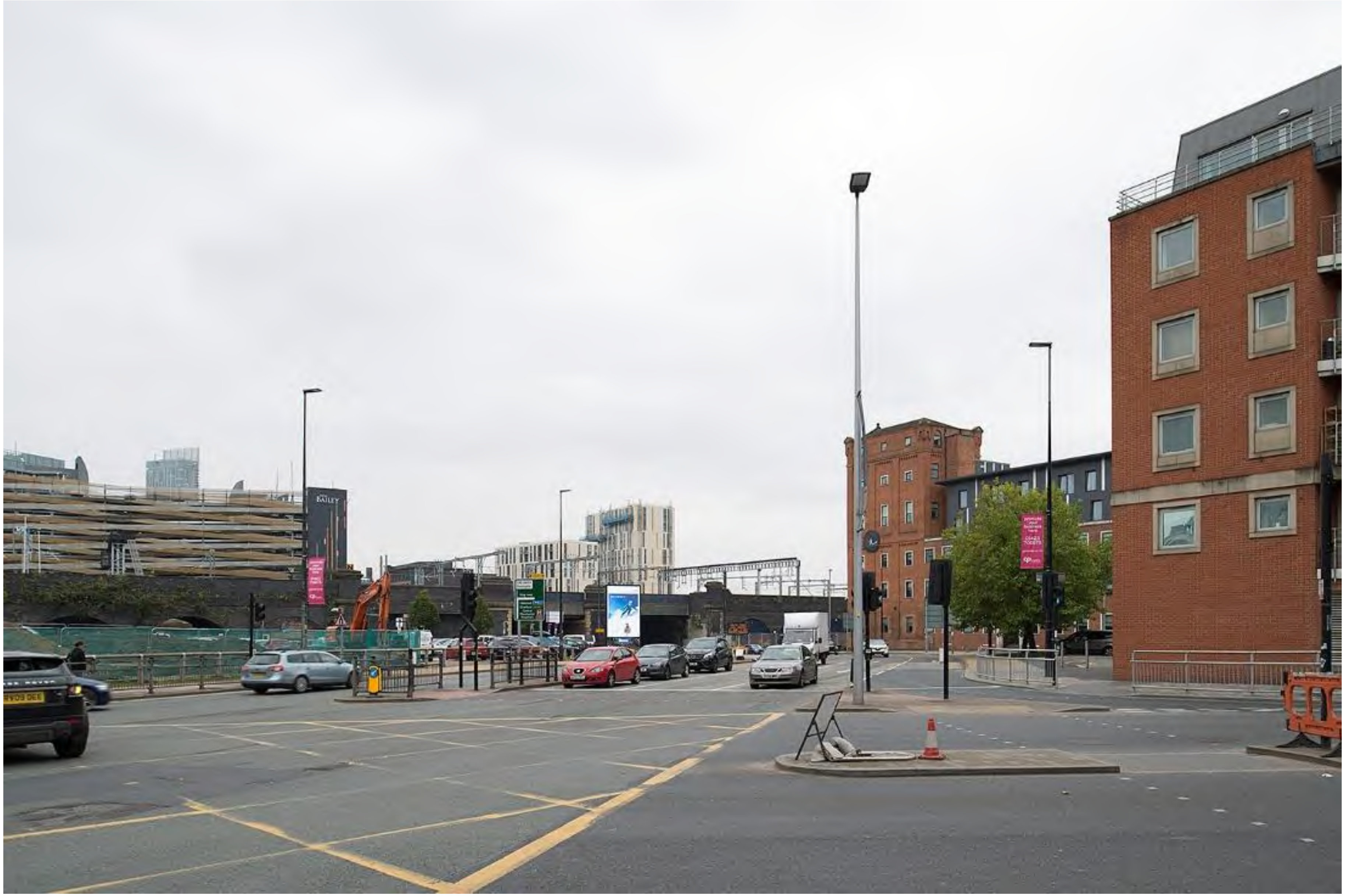

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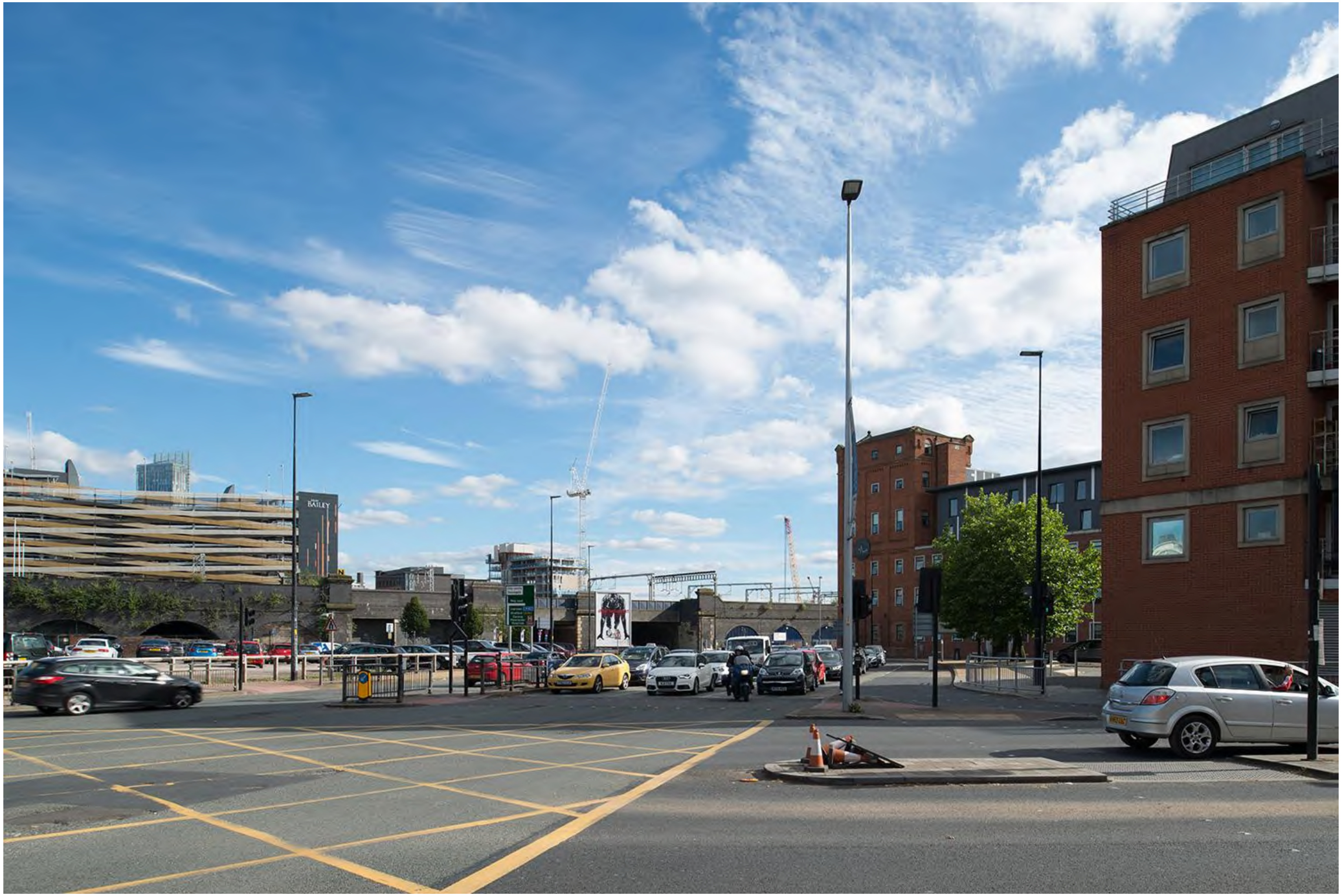
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 10
Trinity Way 2017



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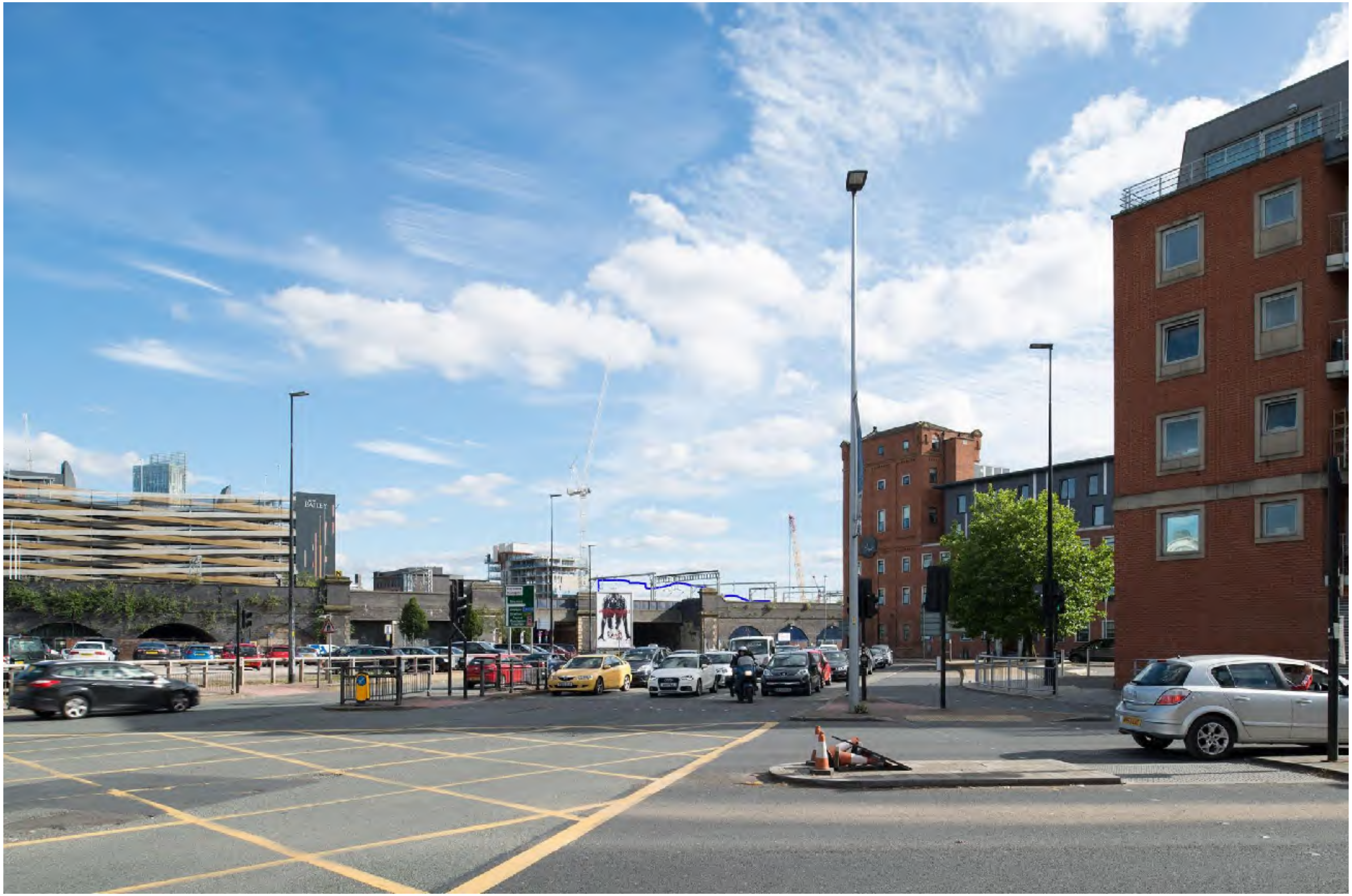
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 10
Trinity Way 2016



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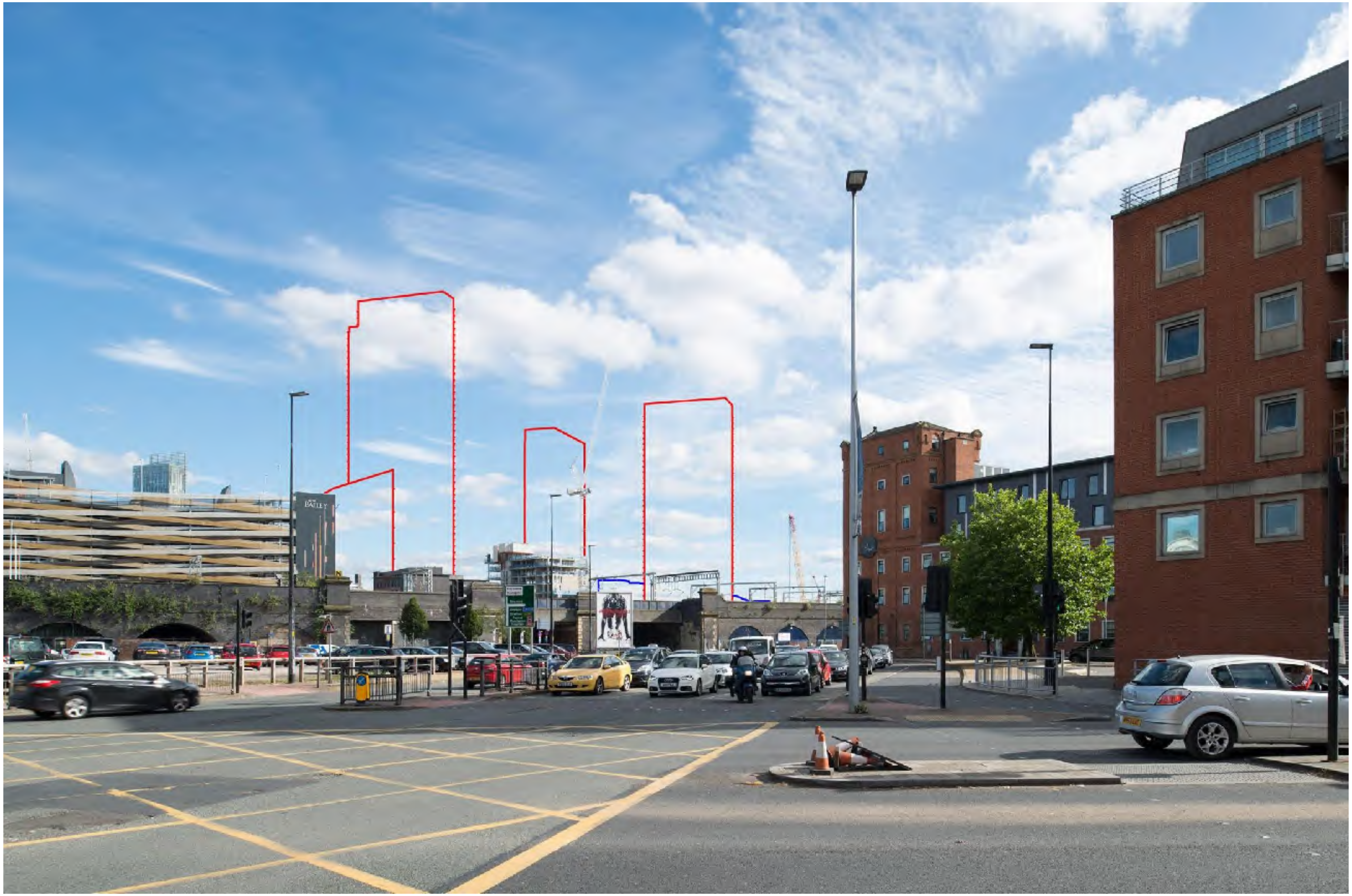
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 10
Proposed



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CHRIS BURNETT ASSOCIATES 21 09 17

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VIEWPOINT 10
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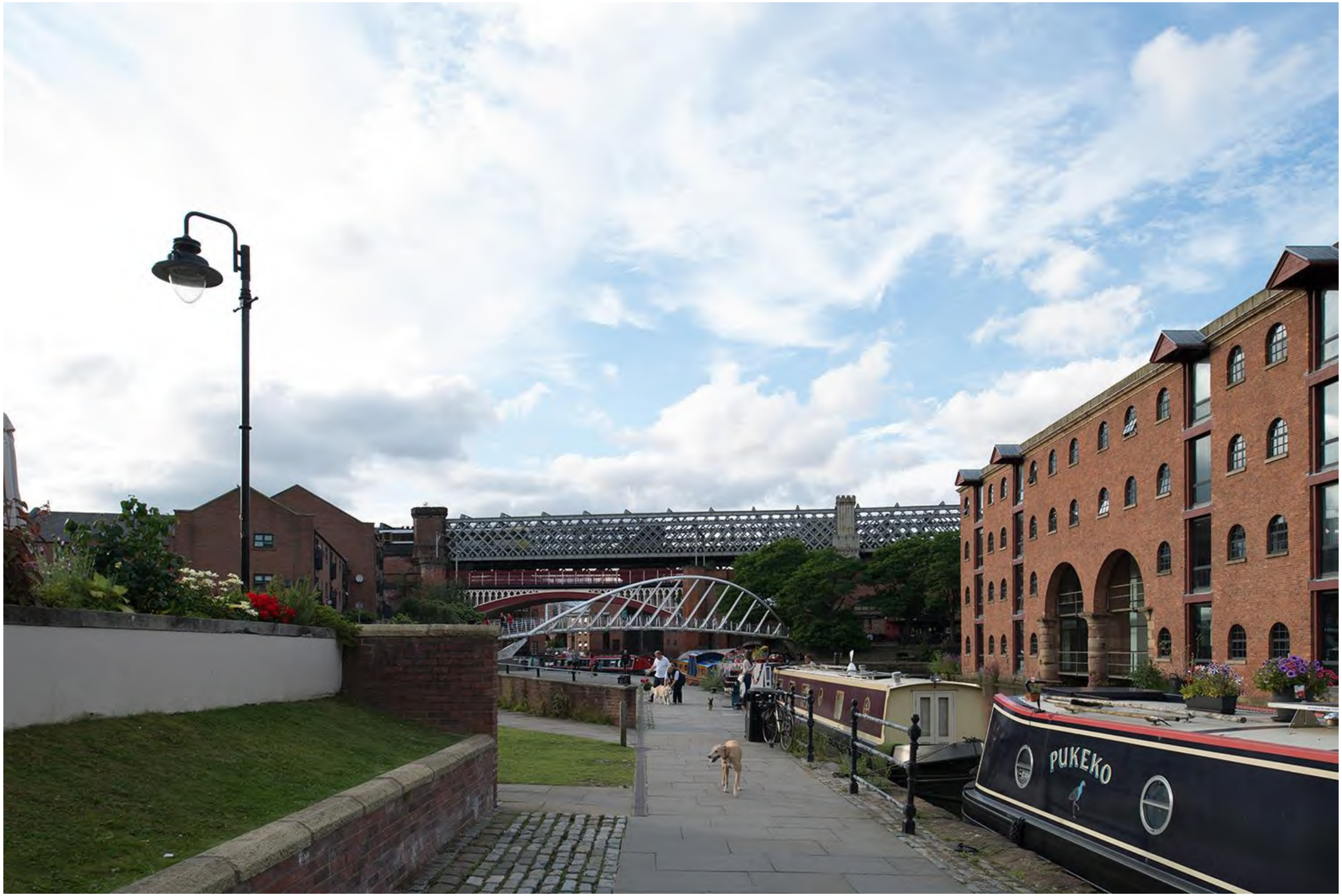

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VIEWPOINT 11
Castlefield 2016

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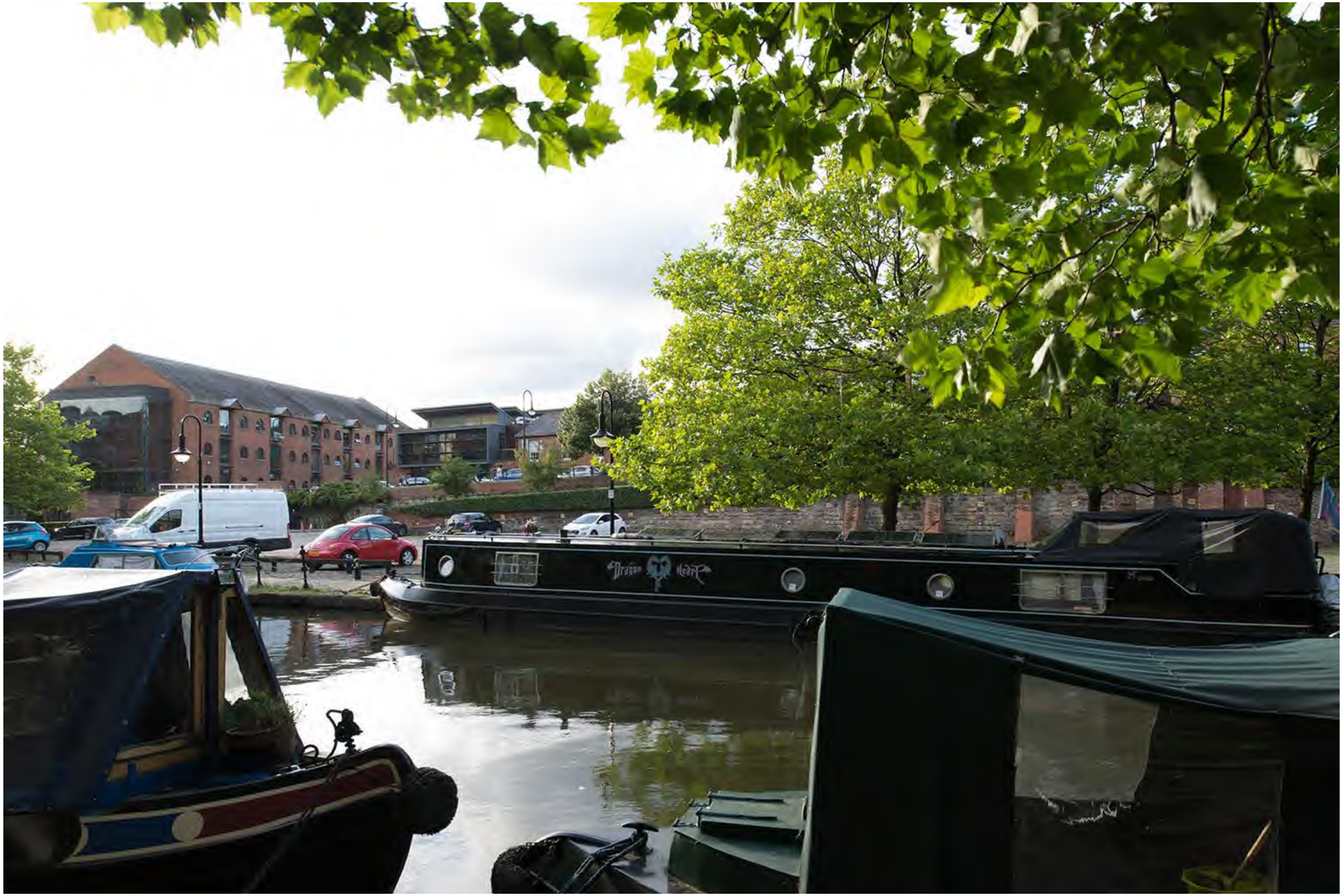
THE FACTORY Townscape and Visual Impact Assessment



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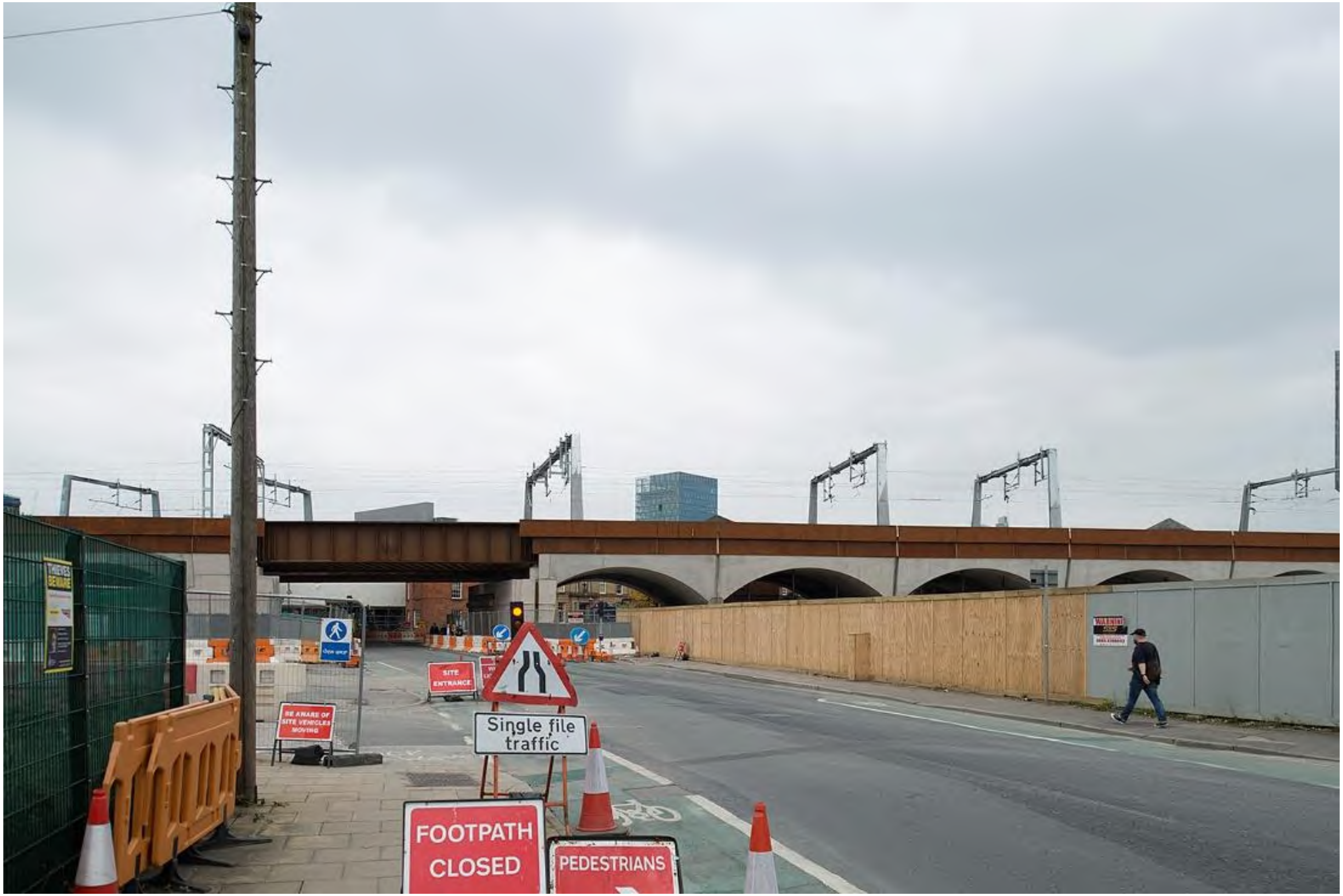
Castlefield


THIEVES BEWARE
SITE ENTRANCE
BE AWARE OF SITE VEHICLES MOVING
Single file traffic
FOOTPATH CLOSED
PEDESTRIANS
WARNING

PHOTOGRAPH INFORMATION:

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THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 13
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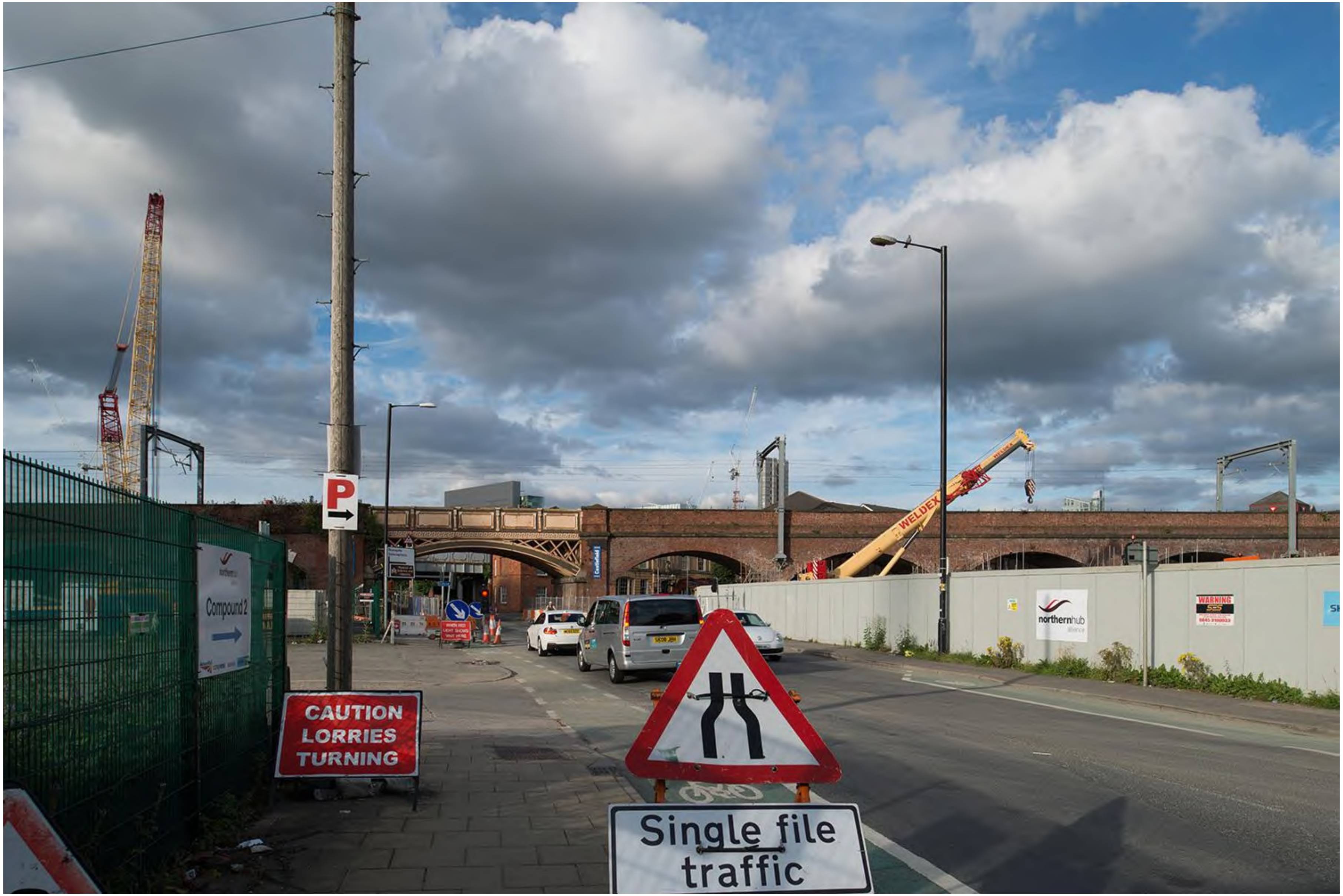
P
Compound 2
CAUTION LORRIES TURNING
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WELDEX
northernhub
WARNING

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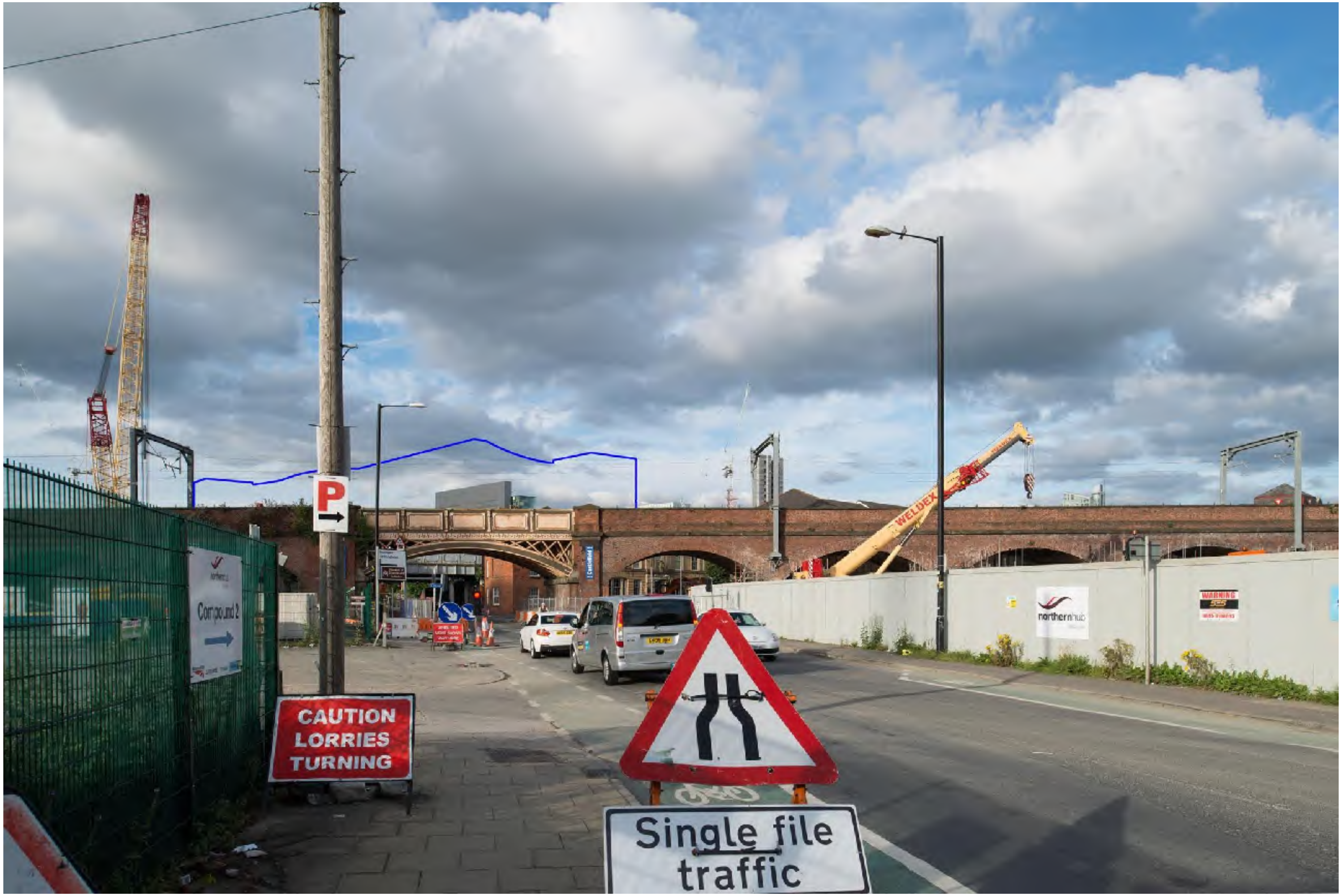
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 13
Water Street 2016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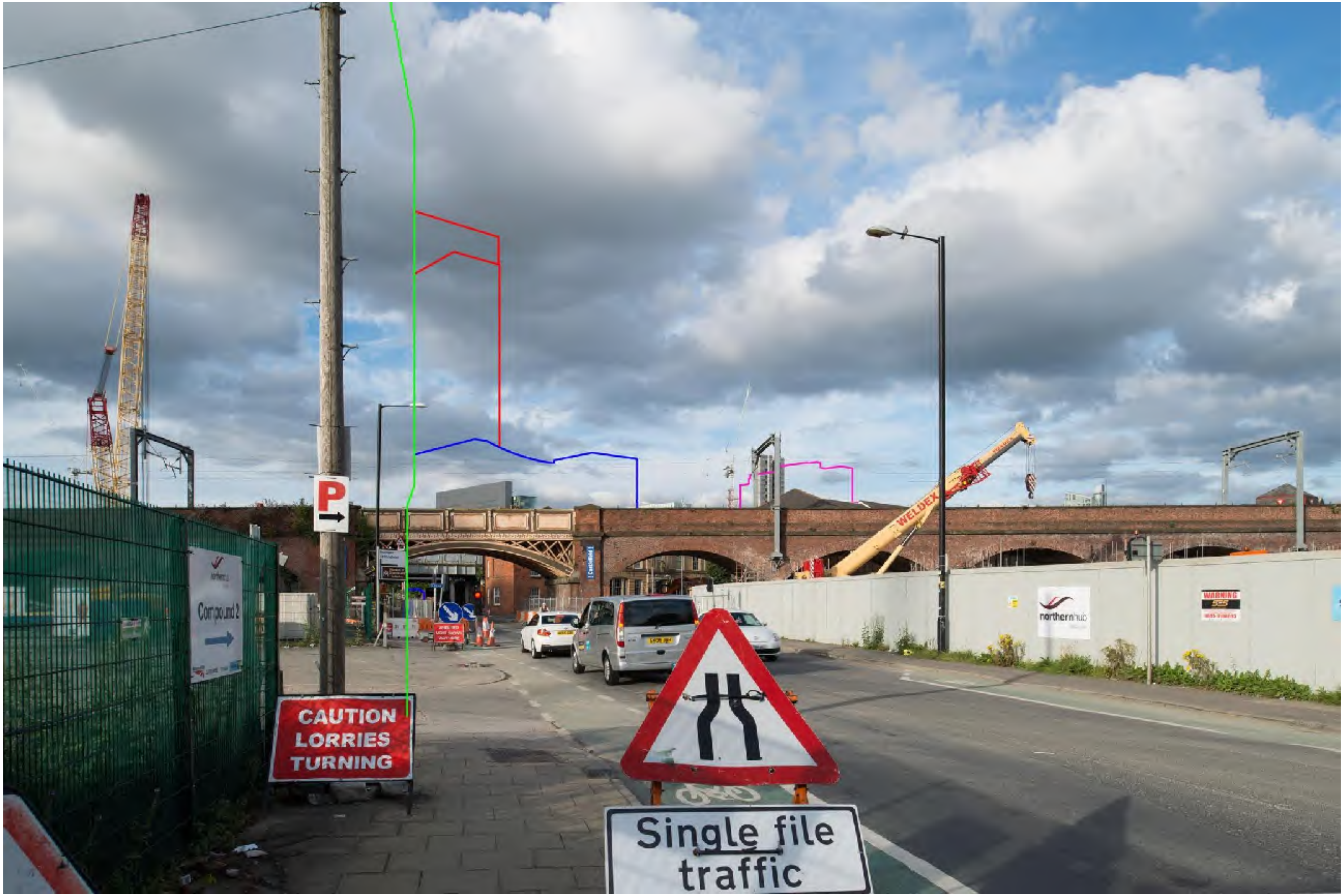
VIEWPOINT 13
Proposed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CAUTION LORRIES TURNING
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WARNING

PHOTOGRAPH INFORMATION:

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VIEWPOINT 13
Cumulative

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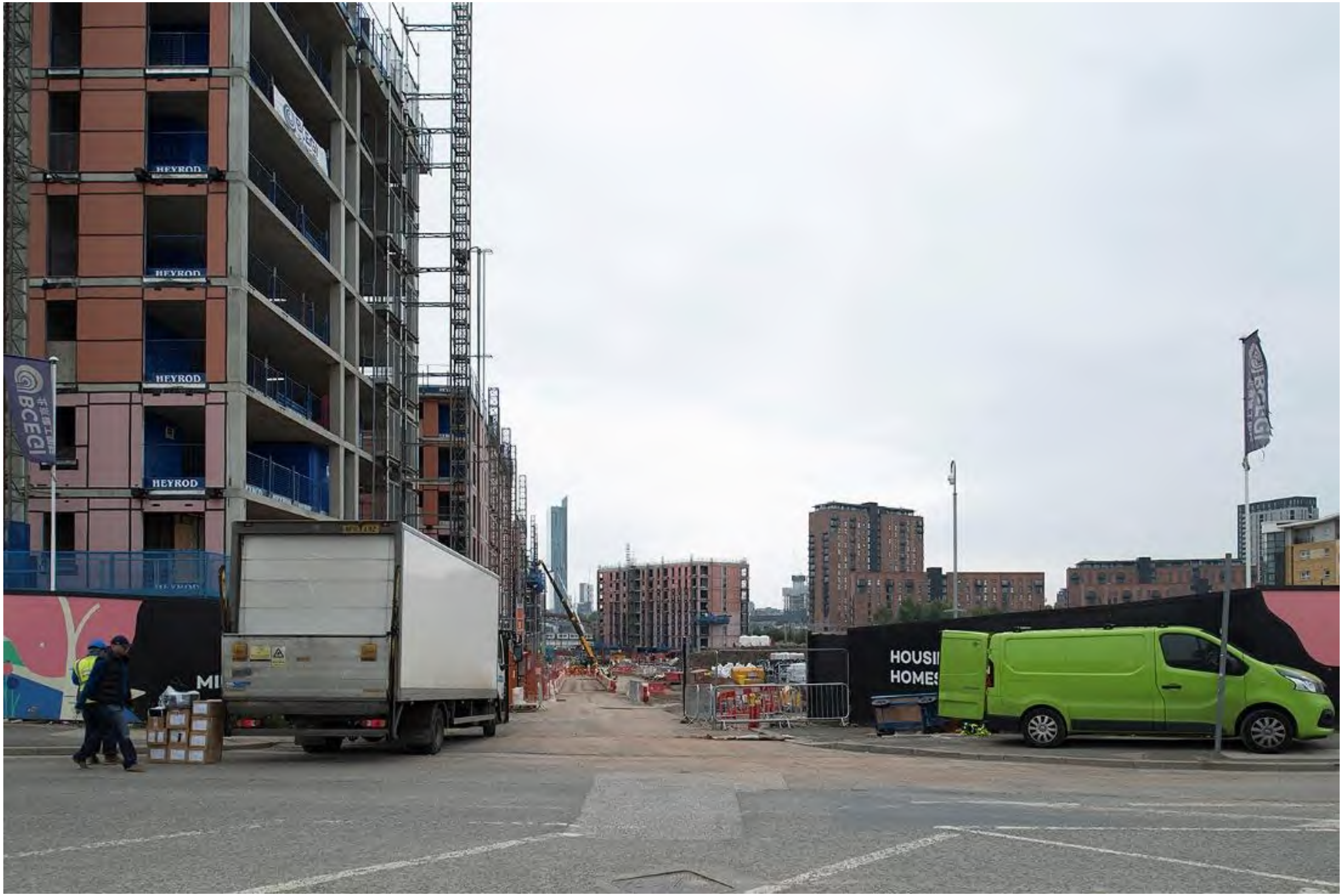
THE FACTORY Townscape and Visual Impact Assessment


HEYROD
HEYROD
HEYROD
HEYROD
BCEGI
BCEGI
HOUSI
HOMES

PHOTOGRAPH INFORMATION:

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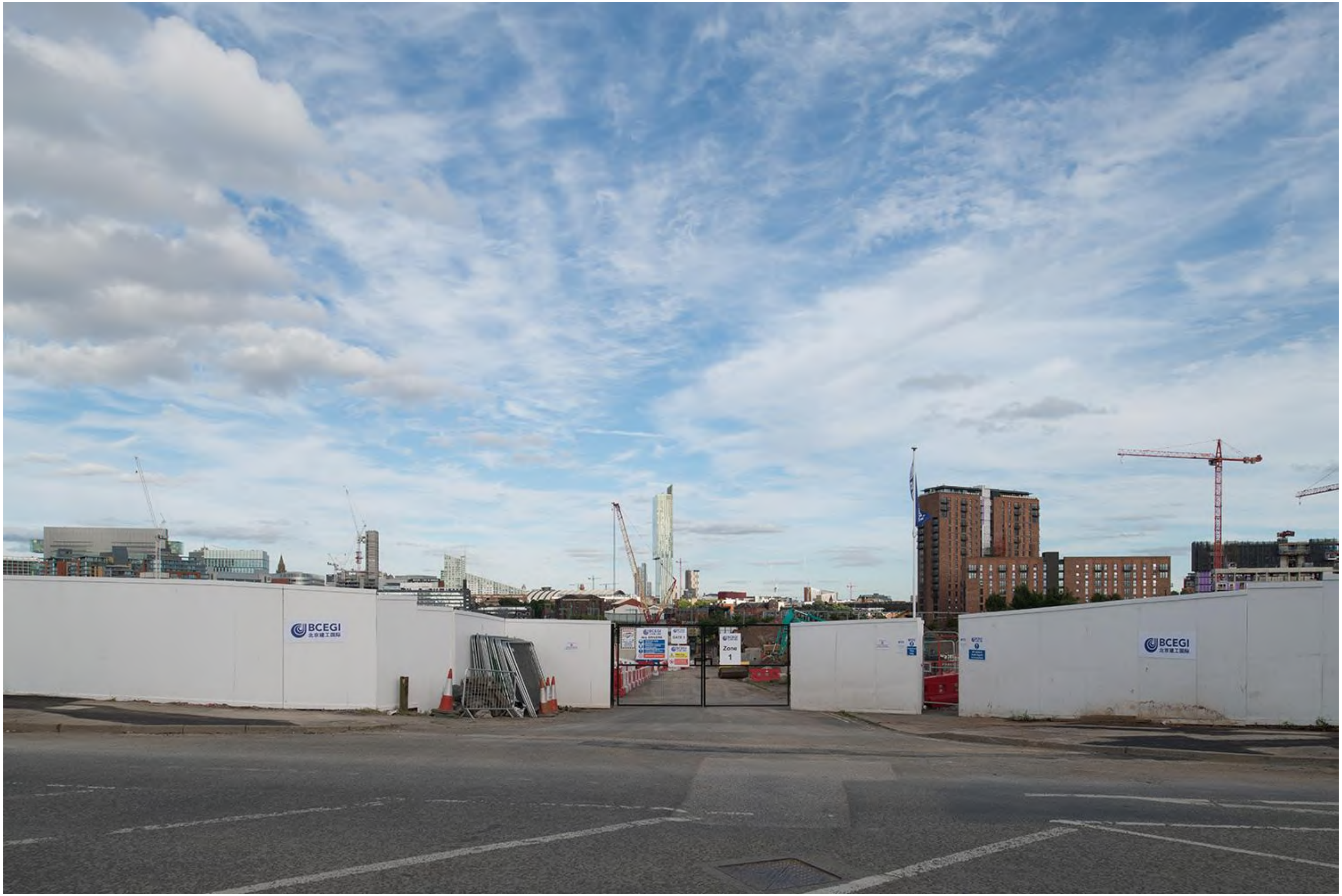
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 14
Oldfield Road
2017


BCEGI
北京建工国际
Zone 1
BCEGI
北京建工国际

PHOTOGRAPH INFORMATION:

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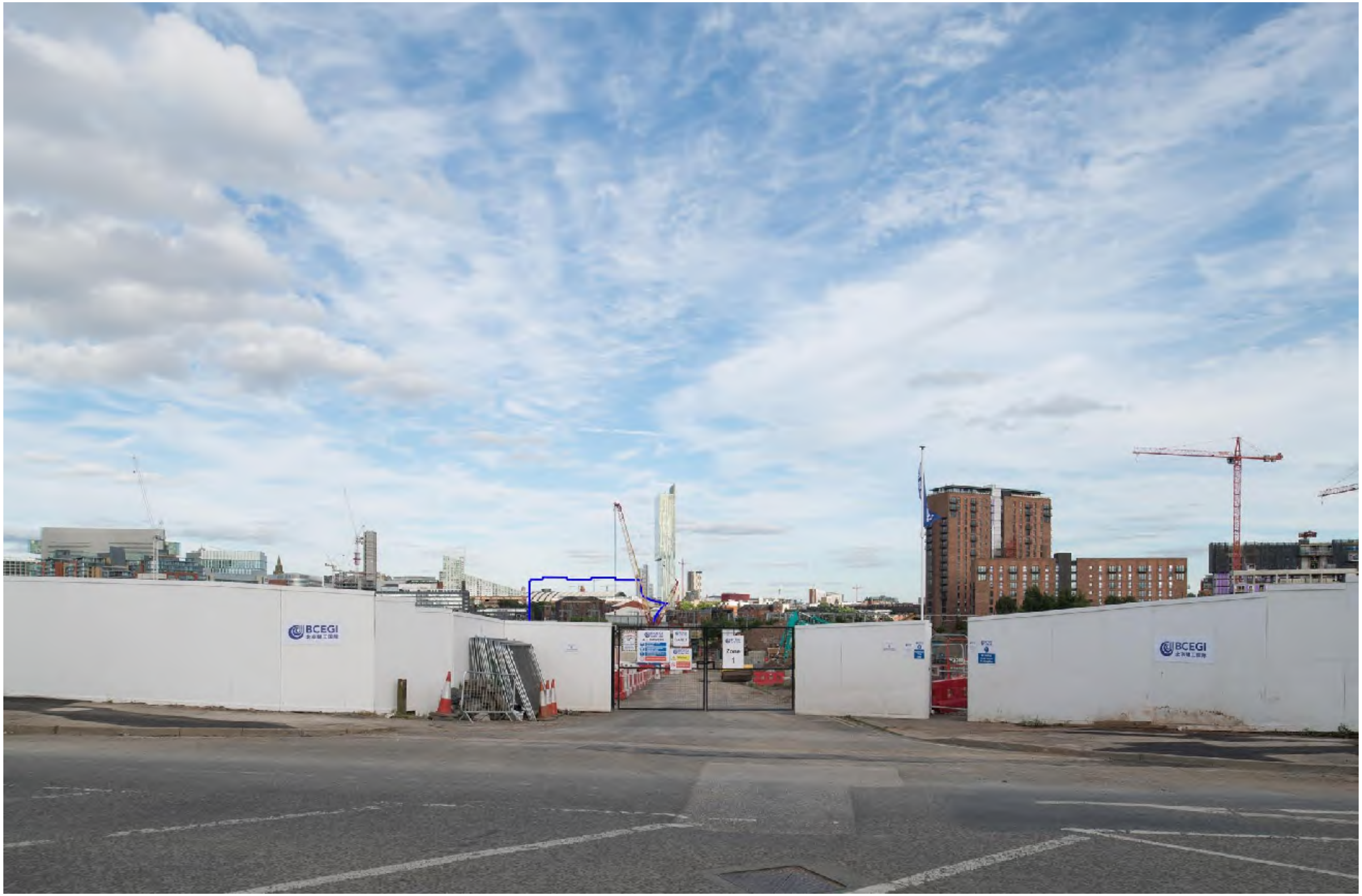
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 14
Oldfield Road
2016



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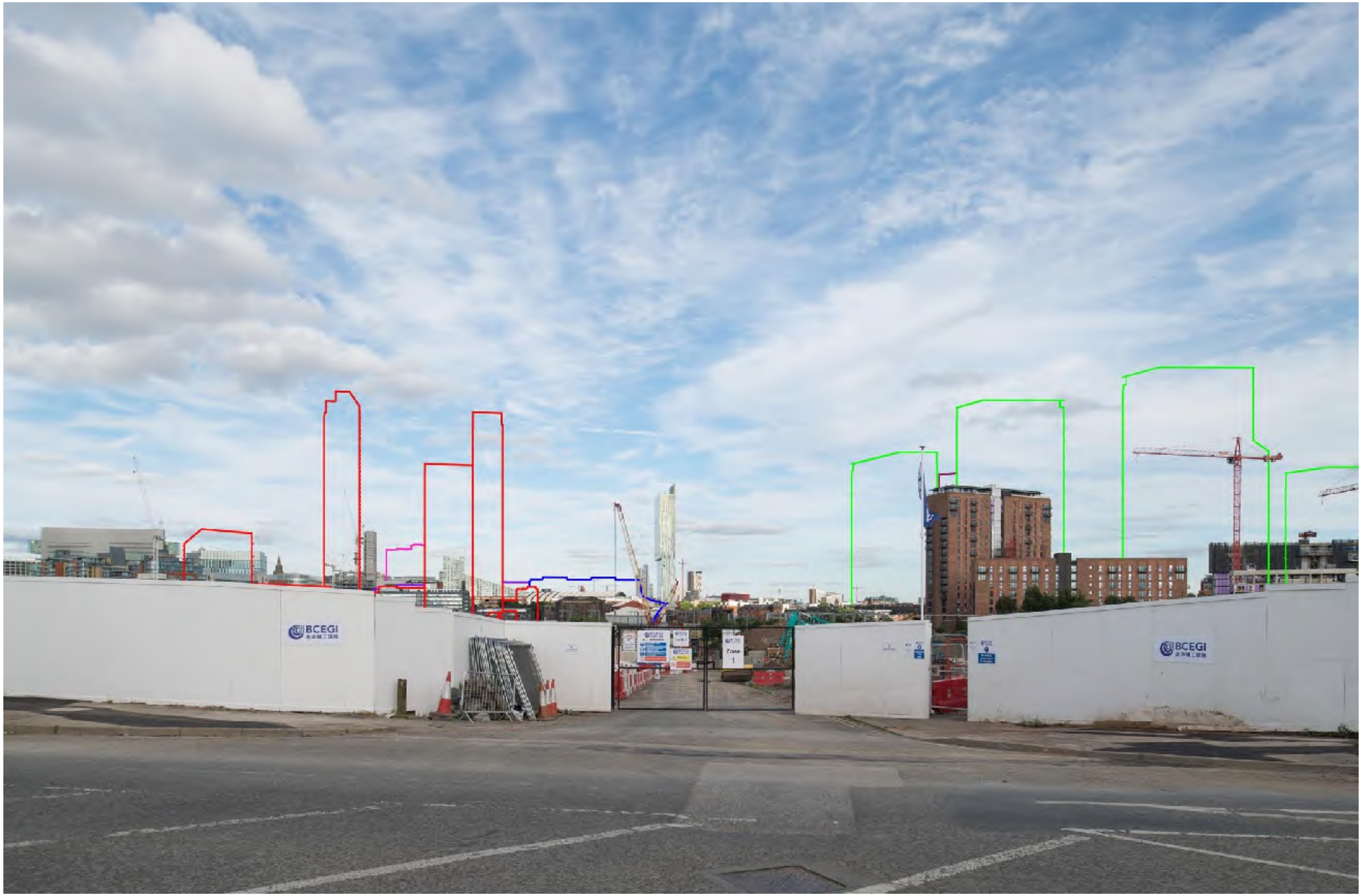
THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 14
Proposed



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THE FACTORY Townscape and Visual Impact Assessment

VIEWPOINT 14
Cumulative

Factory

St Johns, Manchester

HERITAGE STATEMENT: Significance and Impact

Prepared by:

Stephen Levrant Heritage Architecture Ltd

A: Canada House, Chepstow St., Manchester
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Prepared for
Manchester City Council

March 2018

Factory, Manchester: Heritage Statement

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1 INTRODUCTION

1.1 Background

The Factory forms part of the St. John's Masterplan area in Manchester City Centre. St. John's comprises the former ITV Quay Street estate in Manchester City Centre. The site was acquired in March 2014 by Manchester Quays Limited (MQL), a joint venture between Allied London and Manchester City Council, and is the subject of long term regeneration proposals that involve both conversion of existing buildings and redevelopment of other plots to create a new neighbourhood of the City.

This report supports a revised scheme for the Factory site; Planning Permission and Listed Building Consent were granted in 2016 (see Planning Permission Ref. 114294/VO/2016).

This statement, and the preceding conservation advice to the project team, has been prepared in the context of relevant national and local heritage planning policy. In particular, the statement is presented to accord with the national policy requirement of NPPF paragraph 128, to describe the significance of the affected heritage assets and the consequent impact of the proposed development.

This statement should be read in conjunction with the drawings and Design and Access Statement by OMA, information and drawings by Buro Happold, which provide further details of the proposals.

1.2 Site Description

The proposals relate to an area located within the south western part of the St. John's Masterplan, on a site broadly bounded by the River Irwell and surface car parking (currently in use for construction of the Ordsall Chord) to the west, Grape Street and the Bonded Warehouse to the east, the Museum of Science and Industry (MSI) complex, including the 1830 Warehouse (Grade I Listed) to the south and Water Street and surface car parking to the north.

The site is approximately 1.80 ha and is currently occupied by surface car parking, the Starlight theatre and a number of structures and buildings associated with the formerly use by ITV for filming and events, Water Street and the Grade II Listed Colonnaded Railway Viaduct (in part), which was also in use by ITV for filming and storage.

The area around the Site is defined by a mix of leisure, commercial and residential uses including Spinningfields to the north, the Great Northern Warehouse and Deansgate to the east and MSI to the south. It is also situated 750m from the Deansgate / Castlefield Metrolink stop and a range of bus and Metroshuttle services.

Nearby listed buildings include the 1830 Warehouse (Grade I Listed), as well as the former Liverpool Road Station Master's House (Grade I Listed) and the Railway Bridge over the River Irwell (Grade I Listed) to the south, the MSI Warehouse to the east (Grade II Listed).

The site is located with the Castlefield Conservation area and approximately 500m to the west of the St John Street Conservation Area.

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1.3 Proposals

The proposals involve the demolition of the Starlight theatre and other buildings and structures, together with works to the Grade II Listed Colonnaded Railway Viaduct, to facilitate the development of circa 13,500 sq. m. of development comprising two flexible auditorium spaces to be used for theatre, music, dance, art and other performance-related events, conferences and associated facilities, including retail and bar use, office, administrative and back of house function, training and educational facilities, servicing and access arrangements, circulation and external landscaped areas.

1.4 Research methodology

This appraisal is the result of an extensive process which synthesises literature and documentary research, building surveying and professional judgment.

The documentary research was based upon primary and secondary sources, including maps, drawings and reports.

Surveys of the site and surrounding areas were conducted in June 2016 by visual inspection, in order to map out and identify the relevant parts of the Conservation Areas and of the setting of the designated heritage assets that could be affected by the proposals. Consideration has also been given to the historical development of the area, non-designated heritage assets, building types and material and key views to the notable historic buildings which contribute to the identification of the built form and the understanding of the special interest of the area.

1.5 Structure of the report

Following this introductory section, the report is structured as follows:

- Section 2 outlines the relevant legislative and policy context regarding the site and the proposals;
- Section 3 provides a description of the site's location and statutory designations;
- Section 4 analyses the historic context of the site and its setting;

- Section 5 sets out the characterisation appraisal of the area and appraises the significance of the identified heritage assets;
- Section 6 appraises the impact of the proposed scheme;
- Section 7 tests the proposals against the heritage policies in NPPF; and
- Section 8 provides a summary and conclusion

1.6 Authorship

This report has been prepared by Stephen Levrant Heritage Architecture Ltd., an architectural practice specialising exclusively in the historic cultural environment.

Authors:

- Stephen Levrant [RIBA, AA Dip, IHBC, Dip Cons (AA), FRSA] - Principal Architect
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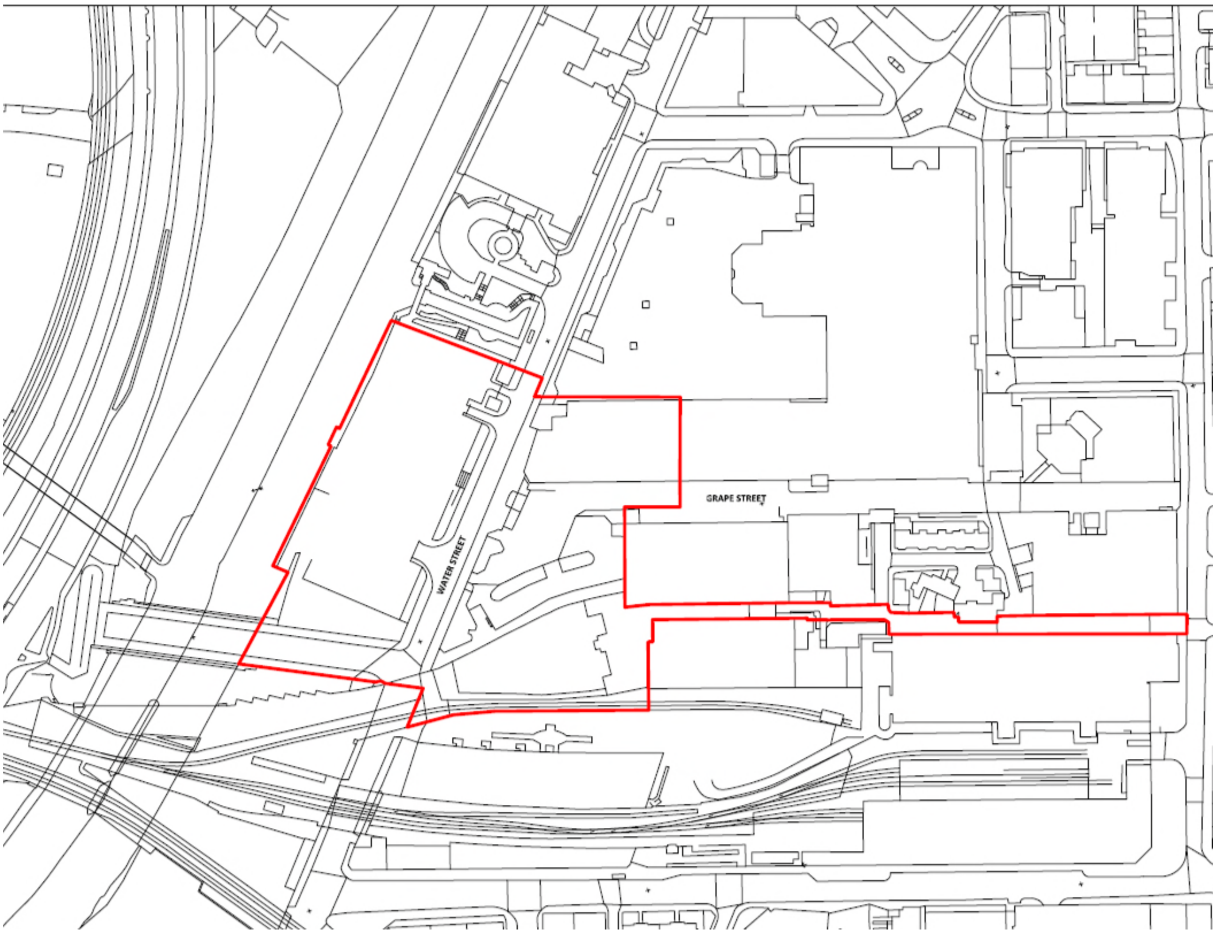

Figure 1: *Site plan illustrating the red line boundary for planning.*

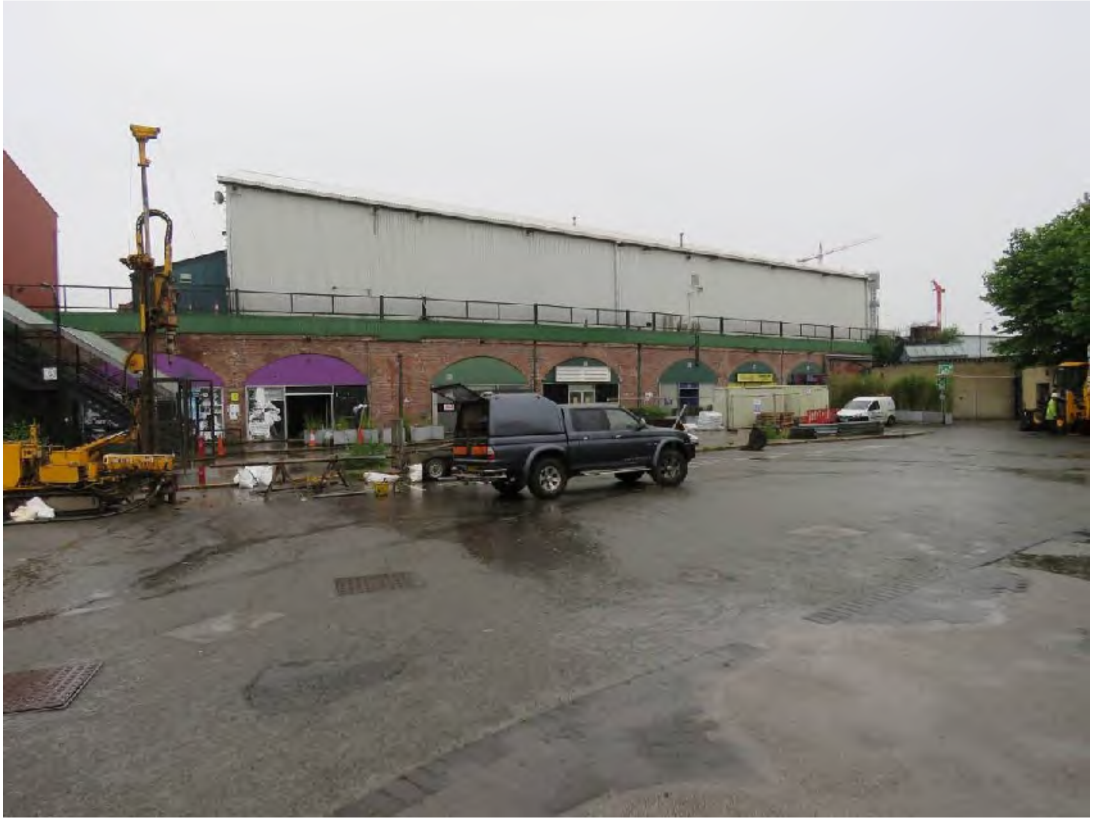

Figure 1A: *photo of the brick arches and viaduct as it exists today; the former Starlight Theatre sits on top of the viaduct.*

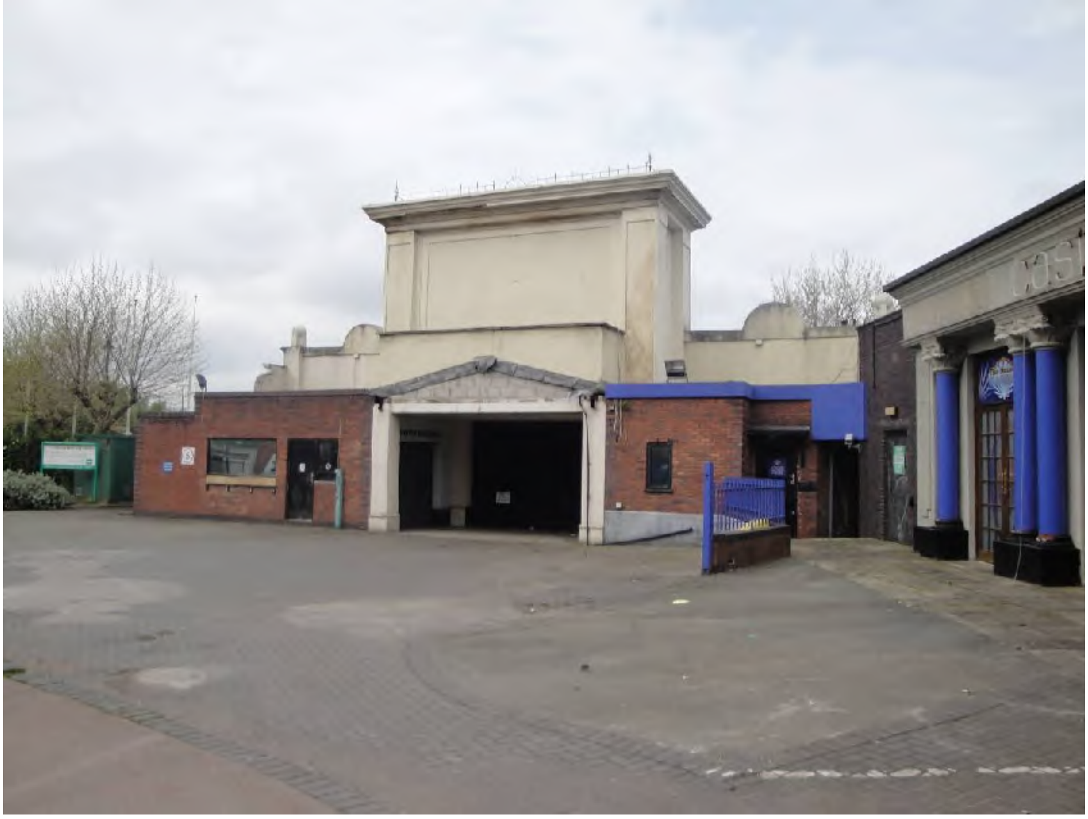

Figure 1B: *photo of the former entrance into the site, from Water Street, and the former casino to the right. These structures will be demolished as part of the proposed development*

2 POLICY CONTEXT

2.1 The Planning (Listed Building and Conservation Areas) Act 1990

As the Proposed Development will require intervention into the listed viaduct structure, Listed Building Consent will be required. Section 66 of the Act requires the Local Planning Authority to "*have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses*," when considering whether to grant planning permission.

As the site is also within the Castlefield Conservation Area, Section 72 of the Act is of relevance as it requires the Local Planning Authority to pay special attention to the *'desirability of preserving or enhancing the character and appearance'* of the designated area. Consequently, it is important to consider the viaduct as a contributor to the townscape character of the conservation area and the impact of the proposed works on this aspect of the wider historic environment.

2.2 National Planning Policy Framework (NPPF) (2012)

The policies in the NPPF constitute the Government's view of what sustainable development in England means in practice. In these terms, development proposals which fail to give due weight to the conservation of heritage assets are deemed not to be sustainable development, and consequently should not be supported. This is because one of the key dimensions of sustainability is protecting and enhancing our historic environment (NPPF paragraph 7). It will be clear that the proposals for the Bonded Warehouse are part of a larger Masterplan for the area which focuses on providing sustainable use for this and other heritage assets and, therefore, aims to demonstrate that it accords with the definition of sustainable development.

The focus of the Government's planning policy guidance is to ensure that account is always taken of the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses, consistent with their conservation (NPPF paragraph 126). The current proposals seek to address this policy requirement by demonstrating that the proposals will conserve the significance of the heritage asset.

It will be clear that development of a heritage asset will have some impact on its fabric or setting, and that it could be either beneficial or harmful. The fundamental design objective is to ensure that the balance of the impact on the heritage asset is demonstrably beneficial, minimising any negative impact on its significance. Consequently, development works are required to be justified by clear and convincing evidence of the impact. This report seeks to contribute to such evidence, demonstrating that the proposed works will result in either a beneficial impact or limited instances of *"less than substantial harm"* in terms of its physical or visual impact on the character and appearance of the conservation area and non-designated heritage asset.

The cumulative impact of the proposed development should, therefore, be evaluated against the substantial public benefit of maintaining a viable and sustainable use for the heritage asset, in accordance with the requirements of NPPF para. 134. This report contends that the proposal offers a substantial opportunity to both enhance and sustain the significance of the Bonded Warehouse and the Castlefield Conservation Area and therefore will be shown to accord with the national planning policy requirements.

Planning Policy Guidance: Conserving and Enhancing the Historic Environment (2014) provides further information on the implementation of the policies within the NPPF and has been utilised as part of this assessment.

2.3 Manchester City Council Core Strategy, 2012

It will be clear that relevant, local heritage planning policy maintains the same focus as the NPPF. The City Council's heritage policies focus on the fundamental importance of *"preserving or, where possible, enhancing the historic environment".* In particular, it notes that the Council "*will support high density and mixed use development in the City Centre, but developers must recognise the specific design challenges that must be overcome to ensure complementarity of function and form*" (policy CC9).

This key regeneration objective is tempered by the need to ensure that, *"historic sites and areas of particular heritage value should be both safeguarded for the future and, where possible, enhanced for their own heritage merits and as part of wider heritage regeneration proposals"* (paragraph 12.21, Policy EN3)*.* This evidently also requires development proposals to be sensitive to the inherent values of the heritage asset and clarity of evidence, in order to justify the impact.

2.4 Historic England's Good Practice Advice Notes

In 2015 Historic England released a number of Good Practice Advice notes supporting the implementation of national policy and the related guidance in the PPG. The advice notes do not constitute a statement of Government policy itself, nor do they seek to prescribe a single methodology or particular data sources.

Good Practice Advice Note 2 (Managing Significance in Decision-Taking in the Historic Environment), and the Good Practice Advice Note 3 (The Setting of Heritage Assets) were utilised as part of this assessment in order to gain a full understanding of the relevant issues, alongside the NPPF and PPG.

3 THE SITE

3.1 Listed buildings

Statutory listing of buildings means that a building is of special architectural or historic interest and is therefore of heritage significance. Grading of listed buildings reflects their architectural and historic interest; Grade I buildings are of exceptional interest; Grade II* buildings are particularly important buildings of more than special interest; and Grade II buildings are of special interest.

The list description for the colonnaded viaduct is as follows:

> *SJ8397NW LIVERPOOL ROAD 698-1/30/212 (North side) Colonnaded railway viaduct at former Liverpool Road Goods Depot*
>
> *GV II*
>
> *Railway viaduct. Probably c.1870. Cast-iron. A series of cast-iron columns on stone bases supports the viaduct which has cast-iron beams showing at the sides.*
>
> *Listing NGR: SJ8301397907*

As noted in the above listed description, the colonnaded viaduct is listed for its group value (GV) due to being part of the former Liverpool Road Station complex. Consequently, and in light of the proposals, it is considered that the Proposed Development has the potential to impact the setting and group value of the following buildings (see Figure 2):

Table 1: heritage assets within 250m radius of the subject site (number refers to Figure 2)

1) Stephenson’s Bridge	Grade I
2) Liverpool Road Station Building	Grade I
3) 1830 Warehouse	Grade I
4) 1830 Viaduct	Grade II
5) Colonnaded Railway Viaduct	Grade II
6) Manchester South Junction and Altrincham Railway Viaduct	Grade II
7) Giants Basin	Grade II
8) Pair of culvert arches over River Medlock and associated overflow channel	Grade II
9) Commercial Hotel, Liverpool Road	Graded II
10) 123 Liverpool Road	Grade II
11) MSI Power Hall	Grade II
12) MSI Warehouse	Grade II

13) Great John Street Hotel	Grade II
14) Victoria and Albert Warehouse	Grade II
15) Zig-Zag viaduct	Grade II
16) Girder Bridge (Salford side)* *NB this structure was being partially demolished at the time of writing	Grade II
17) Stephenson’s Bridge (Salford side)	Grade I
18) Manchester and Salford Junction Canal Tunnel	Grade II
19) Bonded Warehouse	Non-designated heritage asset

3.2 Conservation areas

Conservation areas are designated areas that are deemed to have special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance.

The Castlefield Conservation Area has been designated as a Conservation Area due to the high significance and grouping of a number of structures which reflect the industrial development of this part of Manchester. Alongside this, the site is of special historic interest due to the connections with the Roman occupation of the area. The Conservation Area is one of the largest in Manchester and was designated in 1979.

Adjoining the boundary to the Castlefield Conservation Area is the St John Street Conservation Area which has been designated due to the high architectural interest of the buildings on St John Street which is the only surviving Georgian terraced street in central Manchester.

It is considered that the proposed development has the potential to impact the character and appearance of both conservation areas.

3.3 Structures within the site

The subject site also contains the perimeter wall and 1980s entrance to the former ITV Granada site, as well as a former casino and the Starlight Theatre, which is on top of the Grade II listed colonnaded viaduct.

The Starlight Theatre was built as a studio space for ITV Granada in the later 1980s, early 1990s. It was integrated with the Grade II arches below with the insertion of a lift and staircase. The perimeter wall, entrance and associated buildings, including a former casino were built in the 1980s to facilitate tours of the TV studios.

None of these modern structures are considered to yield sufficient heritage value to be considered as non-designated heritage assets. As illustrated in Figures 1A and 1B (above) they are low-quality, functional structures and demolition of them is fully justifiable.

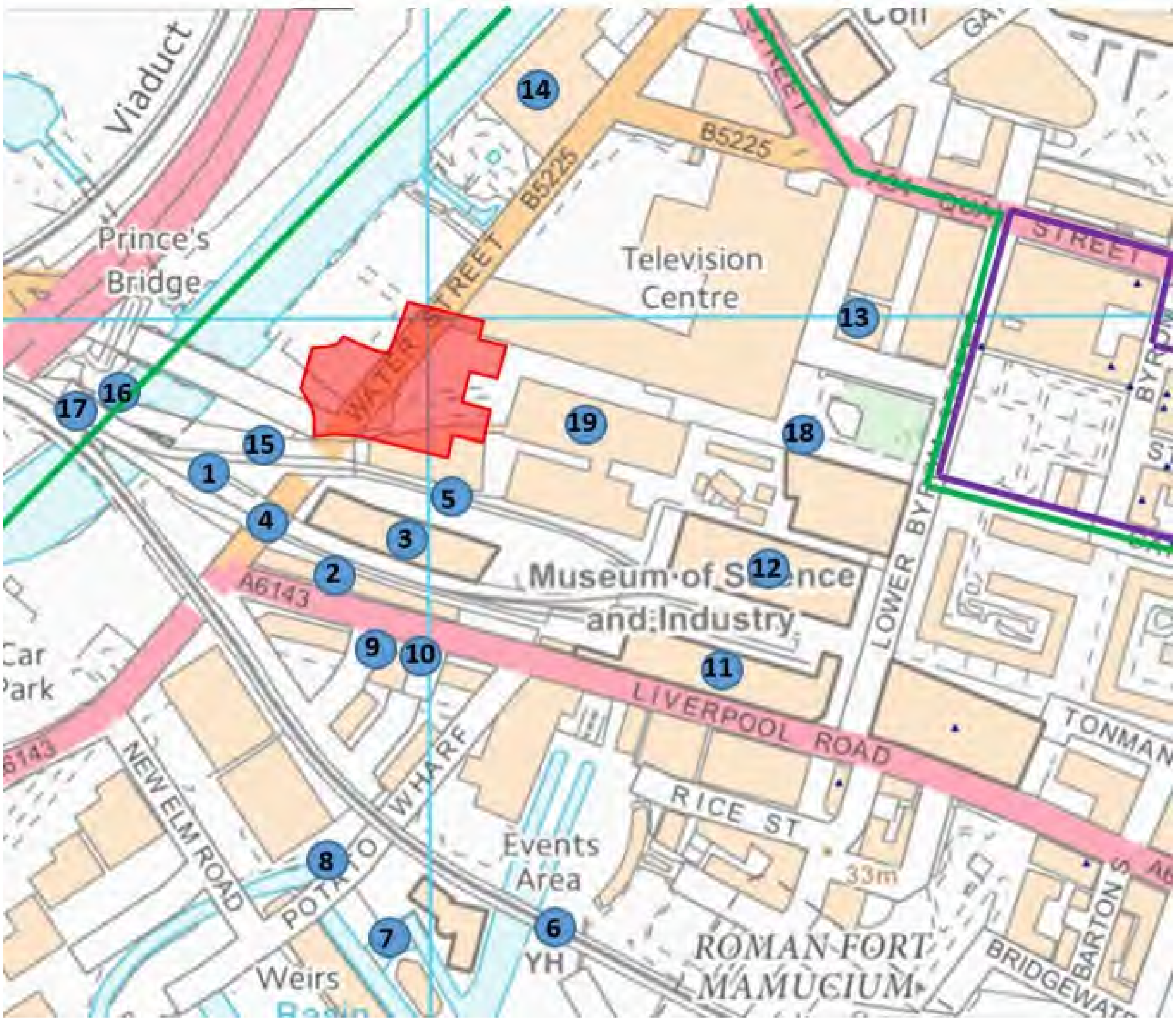
Viaduct
Prince's Bridge
Television Centre
Museum of Science and Industry
B5225
WATER STREET
A6143
LIVERPOOL ROAD
LOWER BYROM ST
RICE ST
WHARF
NEW ELM ROAD
POTATO
Events Area
YH
ROMAN FORT MAMUCIUM
BRIDGEWATER
BARTON S
TONMAN
Car Park
Weirs
Basin
33m
1
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Figure 2: *Site plan illustrating the designated heritage assets in and around the proposed site (red). Listed buildings are numbered in blue circles, Castlefield Conservation Area boundary is highlighted in green and St John's Conservation Area boundary is highlighted in purple*

4 HISTORICAL DEVELOPMENT

4.1 Introduction

The area of the former ITV Quay Street estate contains a large and complex series of buildings, historic street patterns and history of former uses from the late-18th Century to the early-21st Century. This section will chronologically chart these phases and developments highlighting the historic context of the subject site and its surroundings.

4.2 Brief Historical Background and Development of the former ITV Quay Street estate and Liverpool Road Station

The immediate environs surrounding the former ITV Quay Street estate, as it is today, began developing following the establishment of the first of Manchester's Quay's in the late 18th century. This first quay was located at approximately the junction of Water Street and Quay Street, thus giving Quay Street its name. By the beginning of the 19th century other warehouses and wharves had been constructed and a handful of small residential roads and courts, which were interspersed with warehousing and industrial buildings, leading off Quay Street southwards into what is today the car park of the former ITV Studio.

A cluster of grander Georgian townhouses faced Water Street at the point where the canal crossed underneath Water Street, via the Irwell Bridge. These small pockets of housing were intersected by timber yards, warehousing facing the Irwell and quays with associated industrial buildings.

Land for a new canal was purchased in 1824 and in July 1836 the Salford & Manchester Junction Canal Act was passed allowing work to commence on the new Salford Junction Canal. The Act permitted the construction of a basin to be positioned parallel to Atherton Street and terminating just before Quay Street. This basin was named Brunswick Basin and served as a potato market on its sidings. By the early 1840's the canal was regarded surplus to requirements largely due to the timing of its construction coinciding with the beginnings of the railway boom. A section of the canal to the east was in-filled and was later to become the site of the Manchester Central Railway Station (now Manchester Central Conference centre) and the Great Northern Warehouse. The canal remained open, but to limited trade and closed in 1922.

By 1850 there were over 80 houses on the site which were densely concentrated mainly on the site now occupied by Stage One and the neighbouring garden/studio. The majority of these houses were back-to-backs, three-storey terraces and courtyard housing, intersected by occasional public houses.

The Brunswick Potato Market structure was open on all sides in 1851 and by 1891 the market was filled-in. Granada purchased the section of the canal that passed beneath their new studio site in 1955 with the end of the market building nearest Quay Street being shortened to accommodate the construction of Granada's first phase in 1956. This building was subsequently kept as part of the studio's reception, with the remainder of the market buildings being demolished.

Once Sidney Bernstein had purchased the Granada site, clearance of any remaining housing and streets began. It was at this time that the Junction Canal was in-filled and modern studio buildings constructed upon the site. The industrial nature of the area continued into the mid-20th century, by which time some areas of housing had been cleared and other more modern engineering works had been constructed.

In regards to the Liverpool Road Station/ MSI complex, the cutting of the Bridgewater Canal in 1765, to the south of this area, reinforced this location as a hub of transportation and industry. By 1808, the line of Liverpool Road had been laid out, and in 1810 a red-brick double-fronted town house had been erected on the corner of Water Street. In 1830 the construction of the Liverpool Road Station (Grade I Listed) saw the construction of the group of station buildings to the western end of Liverpool Road and incorporating the existing town house of 1810 into the new station as the station masters residence. The station development included the stone bridge over the Irwell (Grade I listed), a brick viaduct and a cast iron bridge over Water Street (replaced 1905 & Grade II Listed).

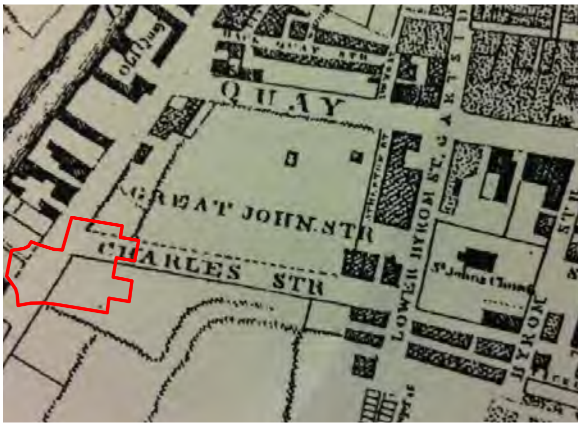
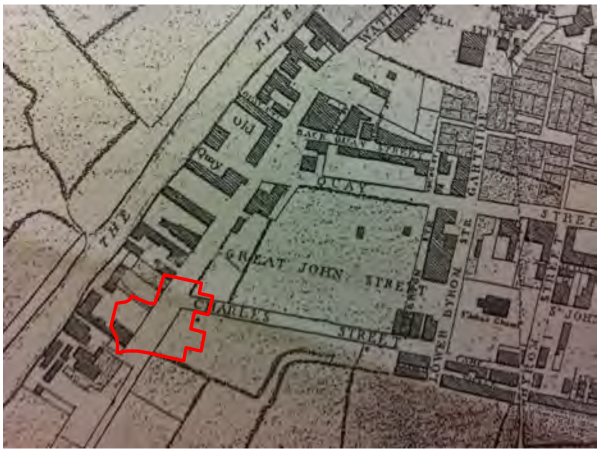
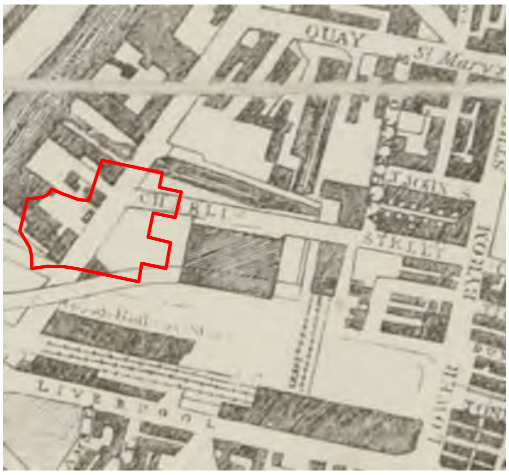
Rapid development of the railways followed including the MSJ&AR Viaduct in 1850 and the partial redevelopment of the station following a warehouse fire in 1866, by which time the station was used exclusively for transporting goods. The fire resulted in two early warehouses being replaced by a Bonded Warehouse on Grape Street in c1867, which was originally named the Charles Street Warehouse before 1888 (now part of the ITV Quay Street estate). The eastern end of Liverpool Road was characterised by blocks of three-storeyed weaver’s terraces and back courtyard dwellings behind. The northern side of the street was the St Matthews Church (designed by Sir Charles Barry, demolished 1951) with its Sunday school to the southern side of the street (Grade II Listed). Two iron and glass market buildings were constructed either side of the church in the 1870’s.

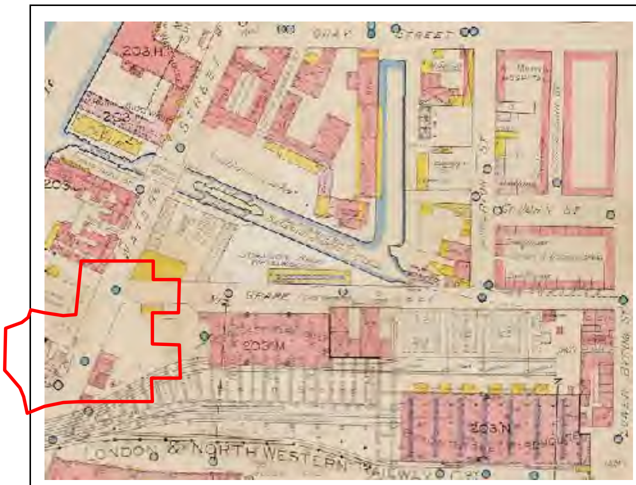
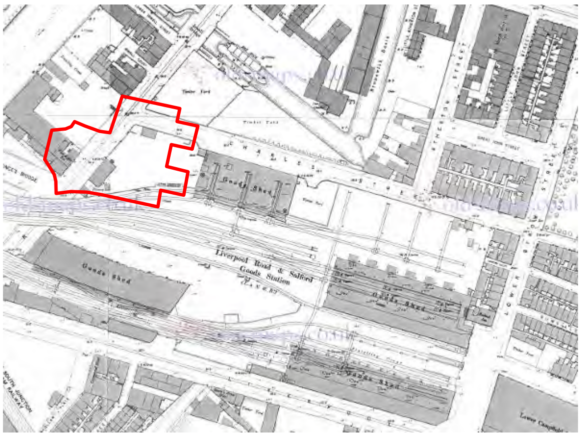
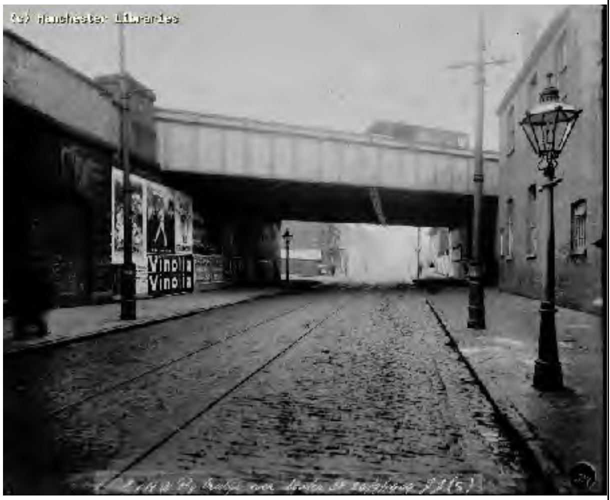
During the 1880’s, developments on the station site saw the Lower Byrom Street Warehouse, which is now occupied by the Museum of Science and Industry (MSI), being constructed along with an accumulator tower to generate the good’s yard machinery with hydraulic power.

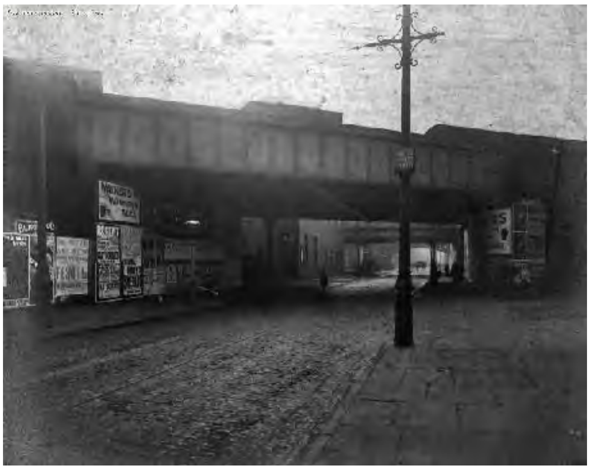
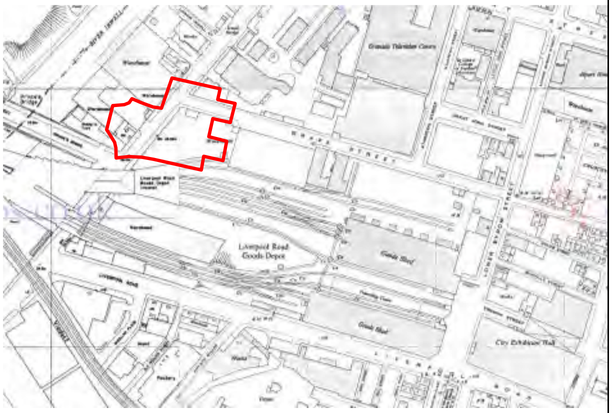
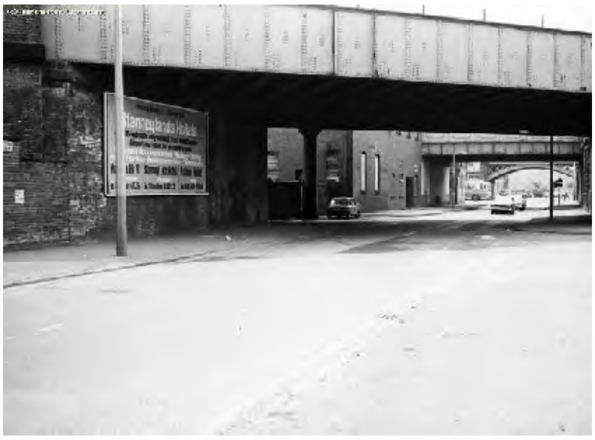
Except for the areas of late-20th century residential blocks to the western end of the street, today the area largely remains unchanged as it did in the mid-19th Century. The railway buildings have been redeveloped for use as MSI and the former railway and industrial buildings form a significant grouping which can be understood and appreciated as a multi-phased railway station development.

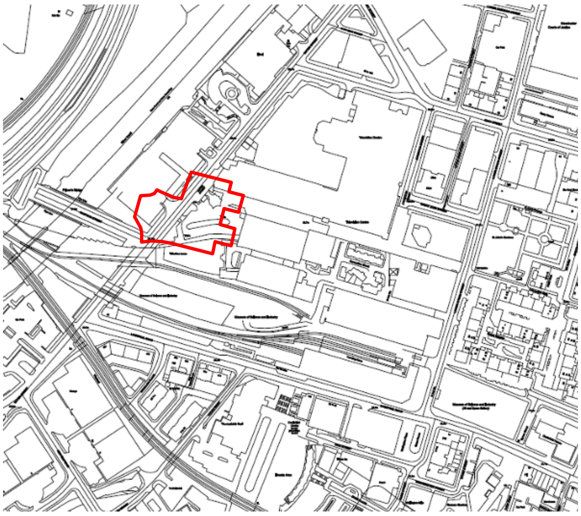
4.2.1 Map Regression

Table 2: Historic map regression (red outline indicates proposed Factory bulding location)

Image	Date and description
 Old Quay QUAY GREAT JOHN STR CHARLES STR LOWER BYRON ST. St Johns Church BYRON	**1770 –** *The site was largely undeveloped by this date except for two small buildings to the east and a cluster of dwellings to the north-west. Charles Street and Great John Street has been laid out, but is yet undeveloped. Liverpool Road, to the south, and New Quay Street to the north have not been laid out yet but the quay by the river is already referred to as the 'Old Quay'.*
 RIVER WATER Old Quay THE QUAY GREAT JOHN STREET CHARLES STREET LOWER BYRON St Johns	**1800 –** *By 1800 no major developments had taken place in and around the site. Charles Street and Great John Street have still not been developed and the area to the south, now containing MSI and the Liverpool Road Station, is still to be laid out.*
 QUAY St Marys CHARLES STREET BYRON LIVERPOOL	**1886 Slaters –** *Slaters map illustrates the Bonded Warehouse as having been built to the south of Charles Street with the train line adjoining it to the south; the colonnaded part of the viaduct does not exist at this time.*

 GOAD STREET GRAPE STREET 203 H 203 M 203 N LONDON & NORTH WESTERN RAILWAY	**1888 Goad map –** *The site and its surroundings have been fully developed by the end of the 19th Century The Bonded Warehouse (named Charles Street Warehouse on the map) appears to the south of the site upon the recently renamed 'Grape Street'. The two distinct parts of the viaduct structure, to the south of the Bonded Warehouse, can clearly be seen; this corresponds to the tracks going into the Lower Byrom Street Warehouse and the tracks that went into the Bonded Warehouse.*
 Goods Shed Liverpool Road & Salford Goods Station Goods Shed	**1891 OS –** *the 1891 OS map provides further details of the internal configuration of the railway tracks and turntables inside the Bonded Warehouse.*
 (c) Manchester Libraries Vinolia Vinolia	**1909 –** Historic photo of the viaduct looking north along Water Street – the building to the right is no longer present; it was offices and stables attached to the 1830 Warehouse.

	**1909 –** as above, but looking south
	**1963-5 OS–** Under sixty years later, this map illustrates the transformation of the area to the north of the Bonded Warehouse; which is no longer labelled as a Goods Shed. Whilst the ‘Liverpool Road Goods Depot’ is still in its industrial use, the industrial character of the wider area is clearly changing, marking a clear change towards commercial uses within the city centre. *This map illustrates the completion of the last main phase of the Granada Studios development. The new Studio 8 and 12 buildings have been constructed to the south of the existing studios, resulting in any remaining structures located around and above the Salford Junction Canal tunnel opening being removed.*
	**1973 –** historic photo of the bridge looking south

	**2004 OS –** this OS map, from the beginning of the 21st Century illustrates the large footprints of the former ITV Quay Street estate and the extent of the MSI site. The Stage 2 building and Starlight Theatre building can both be seen in place of the former train tracks.

5 CHARACTERISATION AND SIGNIFICANCE ASSESSMENT

5.1 Introduction

This section of the report describes the character area surrounding the subject site and assesses its relative historic and architectural importance. Following this appraisal is the assessment of the significance of the Grade II listed viaduct and the surrounding historic built environment. The characterisation appraisal and significance assessment will allow for the assessment and appraisal of the area's capacity for change.

5.2 Characterisation appraisal

The area surrounding the proposed site of the Factory building represents the boundary of two distinct character areas; the former ITV Quay Street estate to the north and the Liverpool Road/ MSI complex to the south.

Figure 3 illustrates the extent of the 2 character areas and they are discussed in turn below.

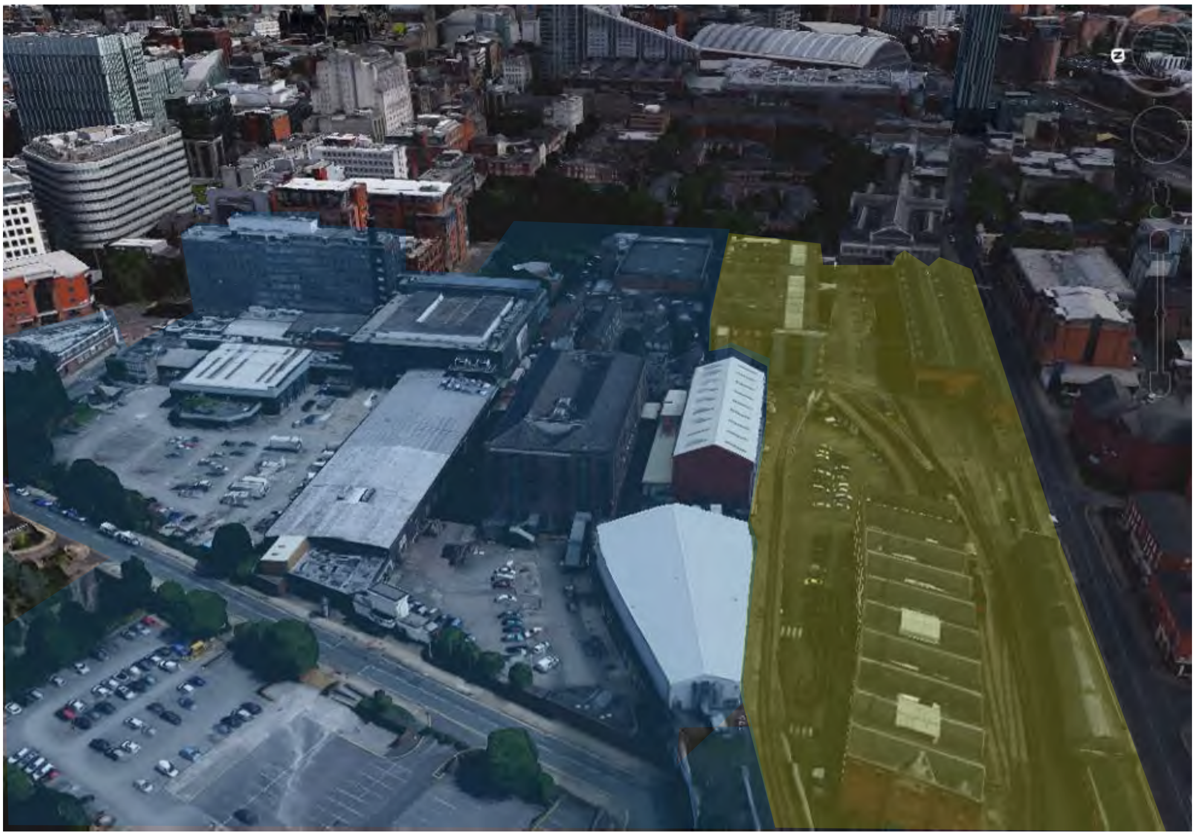


Figure 3: *View of the environs to the site, looking east towards the city centre of Manchester. The area shaded in blue, to the left, is the former ITV Quay Street estate, subject to the St Johns Masterplan. To the right, shaded in yellow, is the former Liverpool Road Station/ MSI complex.*

5.2.1 Granada ITV site/ St Johns Masterplan

Location

For the purposes of this report, the Character Area has been defined as the area bounded by Water Street to the west, Quay Street to the north, Lower Byrom Street to the east and the MSI site to the south.

Discussion

The prevailing former use of the area was predominately industrial in nature, with shipping and goods warehouses fronting onto the River Irwell. Small pockets of residential properties consisting of low standard courts behind grander townhouses existed by the end of the 18th century and throughout the 19th century, however these were not characteristic of the prevailing uses of the area.

Following the decline of local industry and the railways, during the mid-1950's and into the mid-1960's, the site was totally redeveloped with the construction of Granada Studios. Over several years this venture redefined this area of Manchester into the first commercial television station in Great Britain. This modern edifice became an important creative and technical hub. In the process, and in the following decades, many early warehouses along Water Street were demolished to make way for car parking associated with the studios. Following the acquisition of Grape Street, to the south of the television centre, the Bonded Warehouse and associated structures, including the former stables, train viaduct and accumulator tower were all utilised within the expansion and development of the site.

The prevailing character within the Granada Site largely focuses on the mid-20th century modern studio buildings which make up a large and sprawling proportion of the site. Spaces in and around the enclosed site are interrupted and severed by later additions and ad hock extensions and adaptions for the exterior Coronation Street set.

The site is now largely developed with the exception of two car parking areas and a small landscaped garden containing a small modern studio. These open spaces are linked by the former public thoroughfare of Grape Street which still exists in its original late 18th century street pattern and which now forms the 'backbone' to the whole site, connecting most areas of the site and its different buildings.

This character area does not contain any public areas of green space, and historically has never had any such areas within it. Following the demolition of a block of early 19th century townhouses facing on Great John Street, Atherton Street, Grape Street and Lower Byrom Street, the space was used as a car park for Granada employees and in recent years the area was extensively planted. Today this established mature garden contains a small, modern garden studio. This green space is only visible from within the studio site as its high perimeter security walls and intruder-proof fencing closes off this open space from surrounding streets creating non-active street frontages.

A negative factor of the Granada Site focusses on the lack of active street frontages resulting from the high and impenetrable security walls erected around the entire site. These large areas of blank walling are somewhat softened by planting but do still dominate the surrounding streetscapes and views creating a non-active and closed-in appearance when viewed from surrounding streets.

Along with the early buildings upon the Granada site, other more utilitarian buildings and structures were constructed in more recent years to accommodate the workings of the studio and its tours. These structures did not follow nor match Ralph Tubbs original design concept or vision for the site and were substandard in their execution They do not enhance the setting of any of the identified heritage assets within the site.

The loss of historic built form towards the southern end of Water Street has drastically altered the nature and historic streetscape of Grape Street and Water Street. The remaining unbuilt plots backing onto the River Irwell on Water Street were previously used for Granada Tour's car parking and today form a large open expanse which is underutilised and would benefit from redevelopment.

5.2.2 Liverpool Road

Location

For the purposes of the study, the Liverpool Road Corridor Character Area has been defined as the area bounded by Water Street to the west, Deansgate to the east, the ITV Quay Street estate to the north and the southern aspect of Liverpool Road to the south.

Discussion

The area was laid out in the 18th Century due to its proximity to the River Irwell. The cutting of the Bridgewater Canal in 1765, to the south of this area, reinforced this location as a hub of transportation and industry. By 1808, the line of Liverpool Road had been laid out, and in 1810 a red-brick double-fronted town house had been erected on the corner of Water Street. In 1830 the construction of the Liverpool Road Station (Grade I Listed) saw the construction of the group of station buildings to the western end of Liverpool Road and incorporating the existing town house of 1810 into the new station as the station masters residence. The station development included the stone bridge over the Irwell (Grade I listed), a brick viaduct and a cast iron bridge over Water Street (replaced 1905 & Grade II Listed).

Rapid development of the railways followed including the MSJ&AR Viaduct in 1850 and the partial redevelopment of the station following a warehouse fire in 1866, by which time the station was used exclusively for transporting goods. The fire resulted in two early warehouses being replaced by a Bonded Warehouse on Grape Street, which was originally named the Charles Street Warehouse, before 1888 (now part of the former ITV Quay Street estate). The eastern end of Liverpool Road was characterised by blocks of three-storeyed weaver's terraces and back courtyard dwellings behind. Two Grade II listed iron and glass market buildings were constructed to the north side of the street in the 1870's. During the 1880's, developments on the station site saw the Grade II Lower Byrom Street Warehouse, which is now occupied by the Museum of Science and Industry (MSI), being constructed.

Except for the areas of late-20th century residential blocks to the western end of the street, today the area largely remains unchanged as it did in the mid-19th Century. The railway buildings have been redeveloped for use as MSI and the former railway and industrial buildings form a significant grouping which can be understood and appreciated as a multi-phased railway station development.

The main historic qualities of the area relate to the unique survival and relationship of the Liverpool Road Station site, its associated warehouses and infrastructure including bridges and viaducts which all represent the changing demands and requirements of the world's first passenger railway. This specific element of the character area contributes greatly to the area's historic and innovative past.

The streetscape of Liverpool Road is a varied one, with low range classical station buildings to the west and highly decorative mid-Victorian glazed market buildings with high pitched roofs and gables. In-between are simple early 19th Century terraced houses and public houses which make up a diverse mix of different building types, ages and former uses.

Historically, the building stock in the area was predominantly built of red-brick with some stone sill, quoin and keystone detailing. During the 1830's Liverpool Road Station's red-brick buildings were applied with coursed painted render to their ground floor level. Other building materials appeared later in the 19th Century in the form of decorative Gothic cast iron market buildings with large areas of glazing. Modern residential buildings constructed approximately 15 years have also used red-brick with stone dressings, with later restaurants and apartment buildings to the east also constructed using red-brick but with larger areas of plain glazing.

Views of this Character Area are largely limited to the enclosed urban form of Liverpool Road, but kinetic views moving south open into the lower areas of Potato Wharf and the Castlefield Basin to the south-west, reveal the association with this adjacent canal transport infrastructure and industrial character.

The long wide view looking eastwards along Liverpool Road towards Deansgate terminates with the massive and dominant Beetham Tower terminating the view. The dominant characteristic of the western end of Liverpool Road is the relatively continuous tight urban grain and back of pavement construction. The slight incline towards Deansgate allows views west towards the River Irwell and above the high perimeter wall of the Liverpool Road Station, allowing interesting glimpses of the Grade I Listed Goods Warehouse within the station yard.

Historically the character area has not had any form of green space nor any natural elements within it. Although the River Irwell is situated at the western end of Liverpool Road, it has been largely obstructed by various bridge and viaduct structures leading to Liverpool Road Station providing only a distant fleeting view when viewed from the Water Street/Liverpool Road junction.

Parts of the area have been demolished during the latter half of the 20th Century and modern buildings built in their place. Architecturally these recent buildings, to a large extent, adhere to the historic building materials and massing of former and existing historic buildings of the area. Areas of buildings towards the eastern end of Liverpool Road show obvious signs of no maintenance and neglect, these include both Campfield Market halls and the row of 7 weaver's cottages, with several being uninhabited for some time and falling into disrepair.

5.3 Viaduct description

The Bonded Warehouse (originally known as the Charles Street Warehouse pre 1891) was constructed in 1869, with a railway line passing over Water Street directly into the building for securely storing goods such as alcohol and tobacco; the brick arched side of the viaduct corresponds to this original railway line (area highlighted in green in Figure 4).

Two warehouses for storing cotton and a transit shed were constructed to the south of Grape Street as part of the Liverpool Road Station complex in 1831. However in 1866 a serious fire gutted one warehouse and severely damaged the other, and these in turn were subsequently demolished and replaced by the Bonded Warehouse.

The Warehouse had three internal track turntables and an internal railway line which ran through its southern side; this had a further parallel line outside the building which was also fitted with turntables in order to direct trains at right angles into the warehouse's three large goods entrances.

The Lower Byrom Street Warehouse, and tracks into this building, were then constructed alongside the tracks into the Bonded Warehouse shortly afterwards and form the southern, colonnaded part of the viaduct (area highlighted in yellow in Figure 4).

The former track beds to the south of the warehouse have been removed. Low quality structures, associated with the development of the former ITV Quay Street estate, have been constructed on top of the viaduct adjacent to the Warehouse which have no architectural or historic interest and adversely affect the setting of the surrounding heritage assets; these are the Stage 2 building and the Starlight Theatre building.

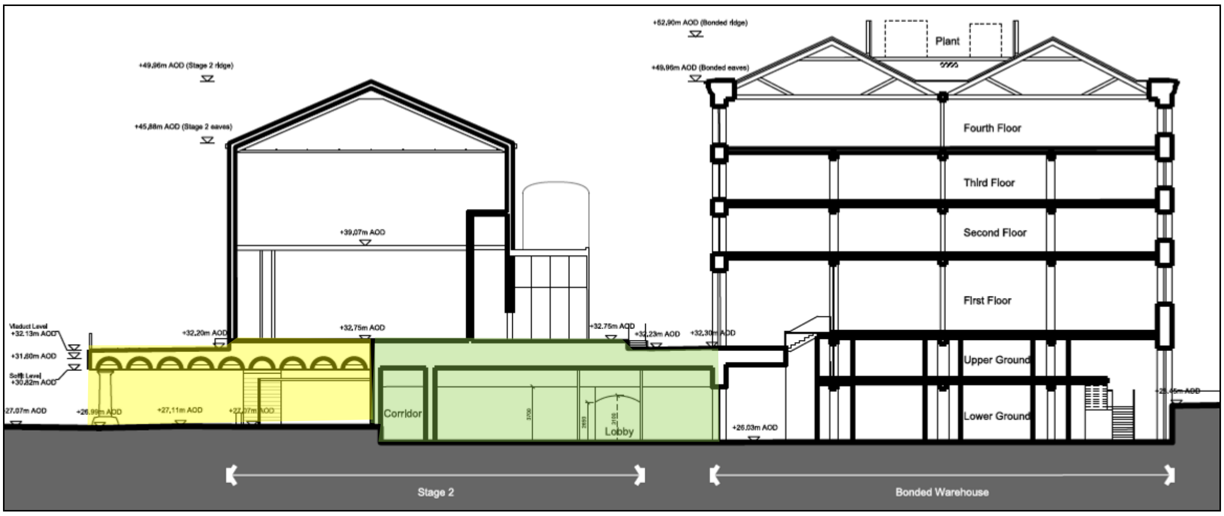
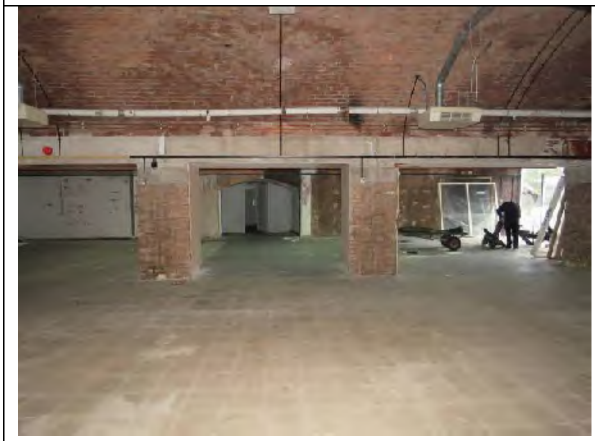
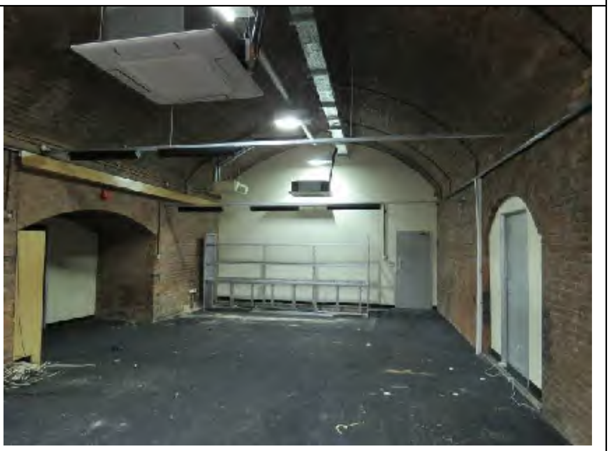

+52,90m AOD (Bonded ridge)
+49,96m AOD (Stage 2 ridge)
+49,96m AOD (Bonded eaves)
+45,88m AOD (Stage 2 eaves)
Plant
Fourth Floor
Third Floor
Second Floor
First Floor
+39,07m AOD
Viaduct Level +32.13m AOD
+31,60m AOD
Soffit Level +30,82m AOD
+32,20m AOD
+32,75m AOD
+32,75m AOD
+32,23m AOD
+32,30m AOD
Upper Ground
Lower Ground
27,07m AOD
+26,99m AOD
+27,11m AOD
+27,07m AOD
Corridor
3700
2650
3100
Lobby
+26,03m AOD
+25,45m AOD
Stage 2
Bonded Warehouse

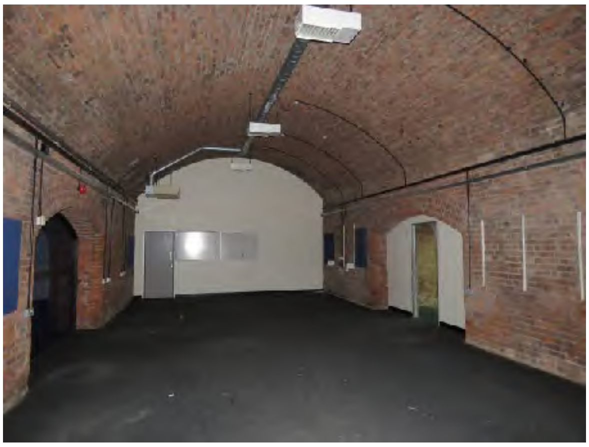
Figure 4: *Cross Section as existing illustrating the two phases of the viaduct construction; area shaded yellow is the colonnaded section, with brick arches that carried the train track into the Lower Byrom Street Warehouse. Area shaded green is the brick arched section which carried the train track into the Bonded Warehouse, and the area subject to the current proposals.*

The last active use the brick arches of the viaduct had were as film sets for the filming of Coronation Street. Internally, the arches of the viaduct retain their original openings, which link all the arches together; in some locations these openings have been altered either by being enlarged or enclosed.

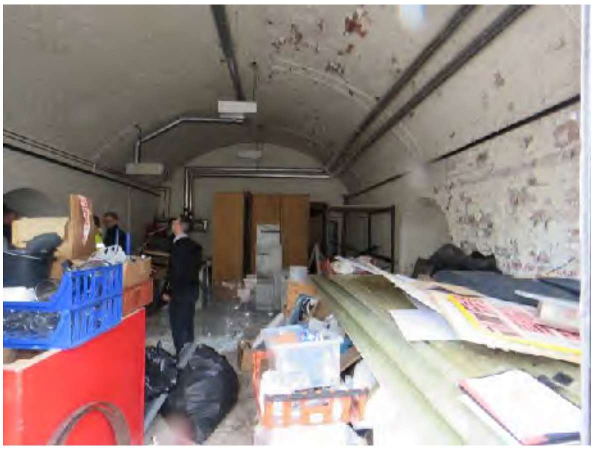
Table 3 provides further details of the internal condition of the arches and the external brickwork.

Figure 5 and Table 4 illustrate the existing context/ setting of the viaduct.

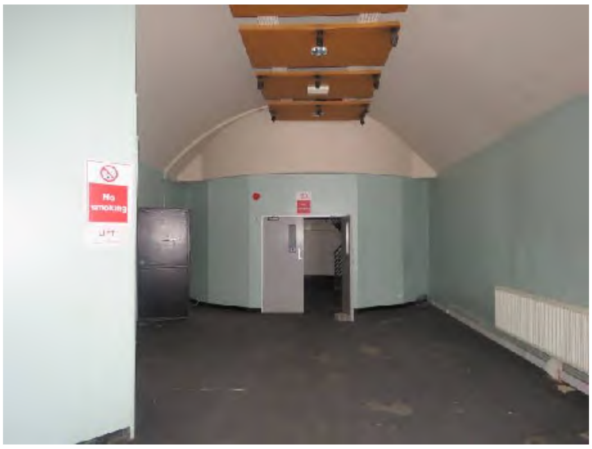
Table 3: Details of the interior condition of the arches	
	
To the east end of the viaduct, the spine wall has been substantially altered; at this end of the viaduct it links through into the basement of the Bonded Warehouse and may have been altered to accommodate larger set pieces.	In the middle section of the arches the original spatial qualities have been retained; original openings have been blocked in with light-weight partitions. M&E services have been service mounted throughout the arches. Brickwork to these central arches appears to have been repointed and well maintained



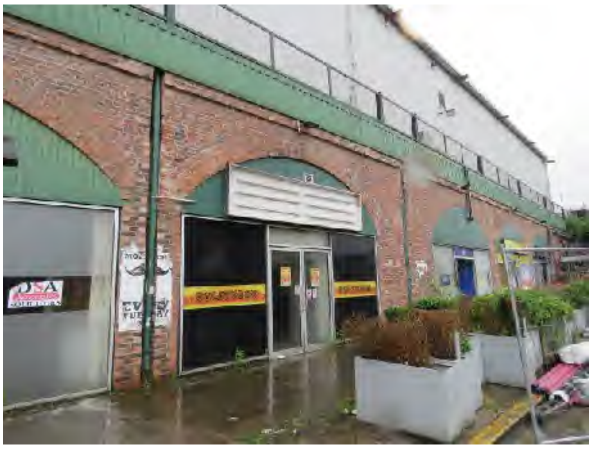
Moving further west, towards the Water Street end of the viaduct, the brickwork has been less heavily repaired/ restored and shows sign of efflorescence. This is indicative of greater water ingress



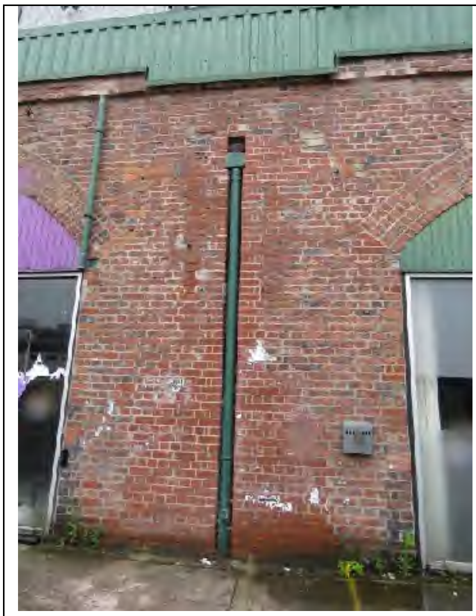
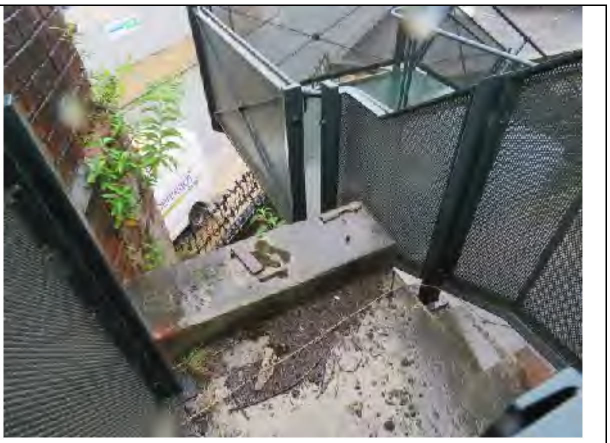
The western most arch, that is accessible, has been painted in white paint and is showing signs of water ingress and efflorescence.



To the east of the middle of the viaduct is a modern staircase and lift structure that have been inserted within one of the arches to provide access to the Starlight Theatre above.



This photo illustrates the infill to the arches along the north face of the structure. They are all from film sets.

	
This photo illustrates the alterations to the original parapet which has been removed and replaced by the green metal railing and the heavily repointed brickwork to the north face of the arches	This photo illustrates the small remaining section of the stone parapet to the west end of the viaduct adjacent to the brick pier/ bridge over Water Street (left) and the inserted access stair (right)

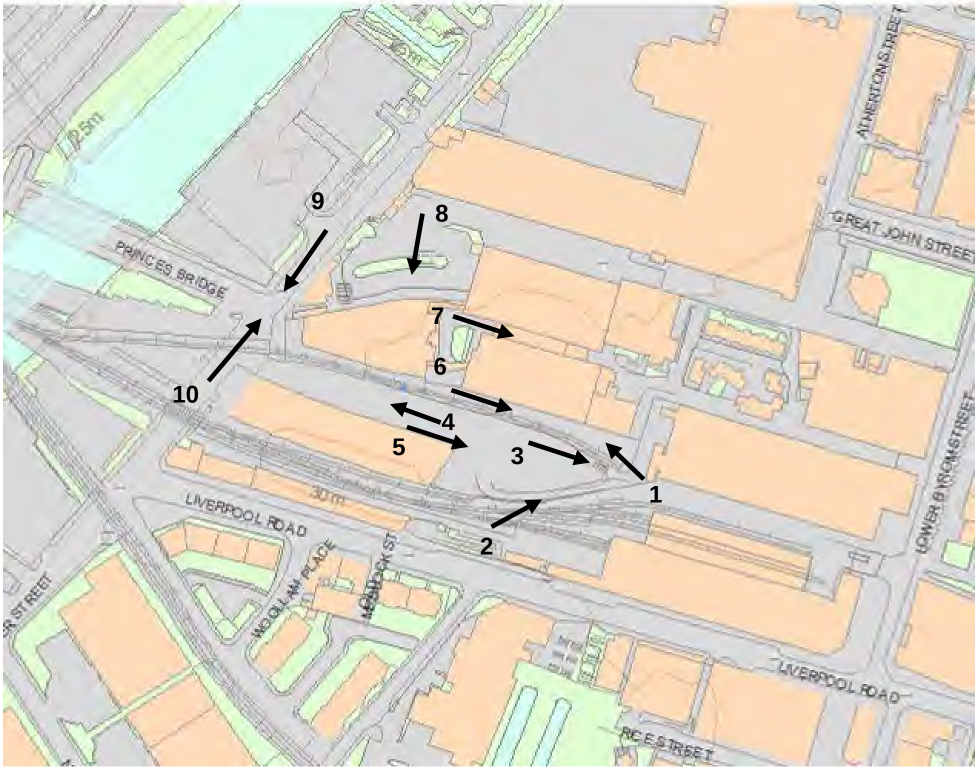
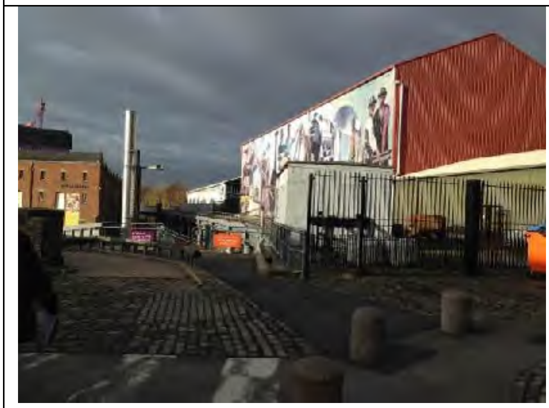
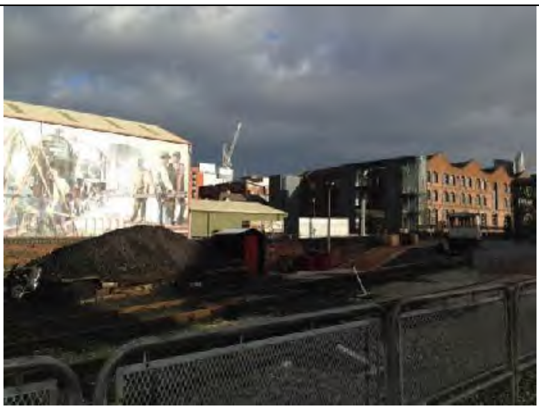
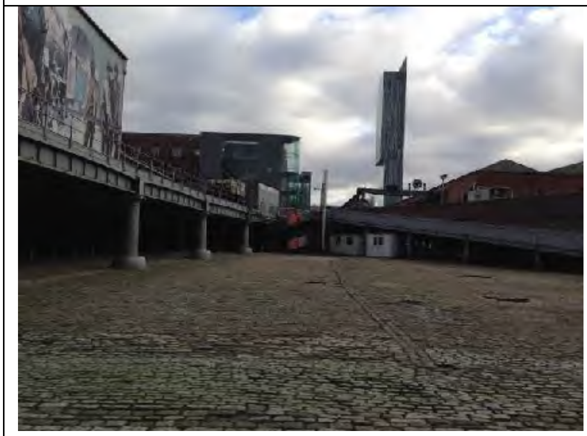
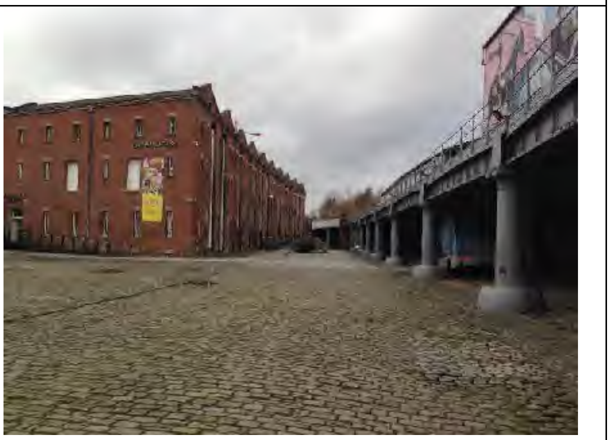
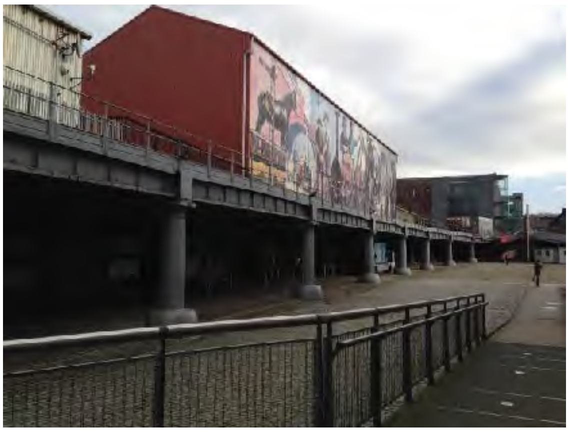
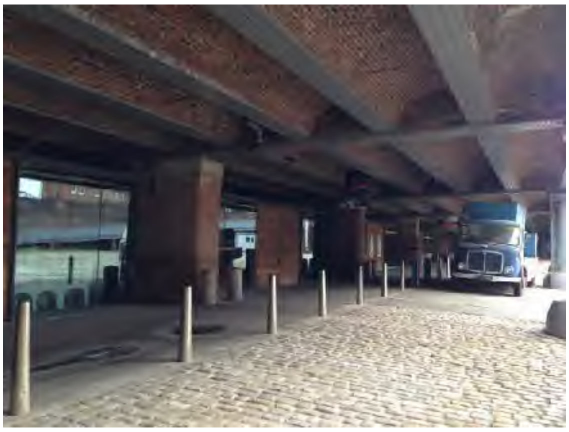
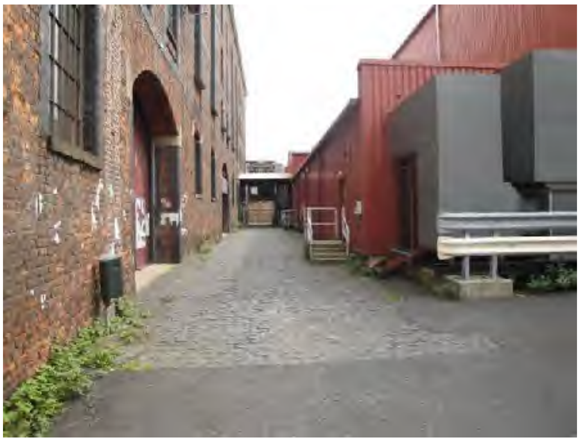
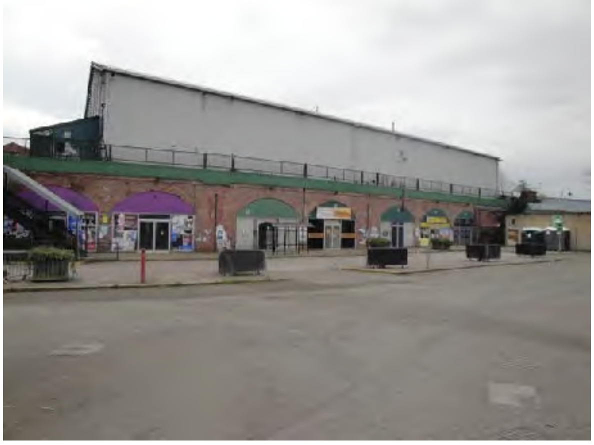
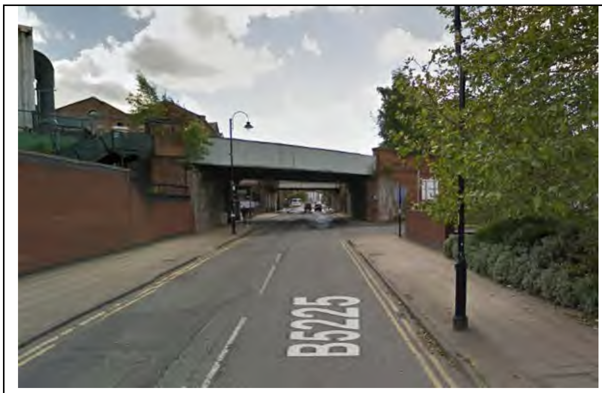
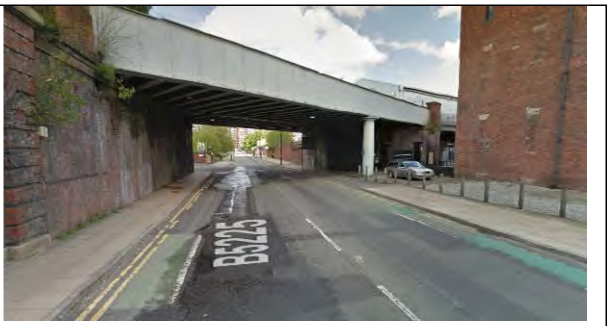

9
8
7
6
10
4
5
3
1
2
PRINCES BRIDGE
LIVERPOOL ROAD
ATHERTON STREET
GREAT JOHN STREET
LOWER BYROM STREET
RICE STREET
30 m

Figure 5: *Existing context views – see Table 4 below.*

Table 4: Views of the existing context as illustrated in Figure 3.

	
View 1: elevated view looking west across the MSI site from the west end of the Lower Byrom Street Warehouse building. The Stage 2 building, with its painted southern elevation, and associated extensions, dominates the view to the right; the Starlight Theatre building can be seen beyond it. The Grade I listed 1830s Warehouse is seen to the left hand side. This view illustrates the industrial character of the site. The low quality, functional form and materiality of the Stage 2 building can be understood and appreciated from this view – its low quality appearance makes it appear like a temporary structure.	**View 2:** this view is a kinetic view from that of view 1, having moved across the MSI site to the west. Still from an elevated position, this view is taken looking towards the north-east. The painted southern elevation of the Stage 2 building can be seen to the left and the Grade II listed Lower Byrom Street Warehouse, with its glazed extensions, can be seen to the right. This view illustrates the industrial character of the site. The low quality, functional form and materiality of the Stage 2 building can be understood and appreciated from this view – its low quality appearance makes it appear like a temporary structure.
	
View 3: this view is taken from 'street level' within the MSI site looking east towards the Grade II listed Lower Byrom Street Warehouse (left) and the Grade II Power Hall (right). The Grade II listed colonnaded viaduct is seen to the left, and the painted southern elevation of the Stage 2 buildings is seen above it. The Beetham Tower is seem to the middle of the view signifying the city beyond.	**View 4:** this view is from the same position as view 3 but looking west. The Grade I listed 1830s Warehouse is seen to the left and the Grade II listed colonnaded viaduct is seen to the right. The painted southern elevation of the Stage 2 building can just be seen to the top right of the photo. This view illustrates the group value of the listed structures.

	
View 5: this view is a kinetic view from that seen in View 3; this view is taken from the ramp of the Grade I 1830 Warehouse, on its north side, looking in a north-easterly direction. This view reveals the extent of the Stage 2 building in relation to the Grade II listed colonnaded viaduct and the relationship to the Grade II Lower Byrom Street Warehouse which terminates the view.	**View 6:** this view is taken from underneath the colonnaded viaduct, looking east. The structure has been infilled with glazing to provide ancillary uses for the MSI complex. This view demonstrates the structural expression of the viaduct with its brick jack-arches and cast iron beams.
	
View 7: this view is taken from the top of the colonnaded viaduct, between the Bonded Warehouse (left) and the Stage 2 building (right), looking east. The functional, low quality Stage building has created a 'back of house' area between the Bonded Warehouse and presents 'visual clutter' to the view.	**View 8:** this view is taken from street level within the former car park of the former ITV Quay Street estate site looking south at the northern side of the viaduct. The Bonded Warehouse is out of shot to the left. The view is dominated by the Starlight Theatre building which sits on top of the viaduct. The brick arch construction of the viaduct, on this north side, can be seen; the arches have been infilled and were used for filming sets and storage latterly.

	
View 9: this view is taken from Water Street looking south towards the north side of the Grade II listed viaduct. The setting of the viaduct is undermined by the existing brick bundary wall to the streetscape and the lack of activity to the street. The existing interventions into the viaduct; Starlight Theatre, access stairs etc. also have a dertrimental impact on the heritage values of the strcuture.	**View 10:** this view is taken from Water Street looking north towards the south side of the Grade II listed viaduct. As with view 9, the lack of activity at street level, and lack of maintenace to the structure, have a negative impact on the setting of the listed structure

5.4 Significance assessment

This significance appraisal is structured to provide an objective description of the listed viaduct and the significance of the settings to the surrounding heritage assets.

The assessment of significance accords with the requirements of the NPPF and uses English Heritage's methodology outlined in its 2008 document, *"Conservation Principles, Policies and Guidance"*.

Consequently, the designated heritage asset's significance is determined by an analysis of the relevant aspects of the following:

- Evidential Value – this relates to the potential of the place to yield primary evidence about past human activity;
- Historical Value – relevant to ways in which the present can be connected through a place to past people, events and aspects of life;
- Aesthetic Value – focusing on the ways in which sensory and intellectual stimulation is derived from the place;
- Communal Value – relating to the meaning the Bonded Warehouse has for the people of Manchester and the collective experience of memory they hold.

The key criteria for listing are special historic or architectural interest. Consequently, in order to determine the significance of a certain component of a heritage asset the sum of its architectural, historic, artistic or archaeological value needs to be disaggregated and determined.

The analysis of the significance allows for an assessment of the current integrity and authenticity of the listed viaduct. This has been used to inform and justify their capacity for change. The focus is on providing necessary and proportional amount of information, in order to justify the proposed alterations, based on the perceived level of heritage significance.

The assessment of the significance is based on both desktop research and on-site visual surveys.

High significance relates to those parts or elements of the structure deemed to be of particularly special interest. These components are *fundamental* to the understanding of the architectural design concept, and play a major role in reflecting their evidential, historic, aesthetic or communal values. The loss of such elements (through demolition, removals, or alterations) could potentially cause a highly adverse impact on the special interest of the building and has been largely been avoided in the proposed development.

Considerable significance relates to those components of the structure deemed to be of special interest. They are *important* to the understanding of the architectural design concept, and play a considerable role in reflecting the buildings' evidential, historic, aesthetic or communal values. The loss of such elements (through demolition, removals, and/or alterations) could potentially cause a moderate adverse impact on the special interest of the buildings.

Low significance relates to those components of the structure deemed to be of more modest interest. They provide a *minor contribution* to the understanding of the architectural design concept and a modest role in revealing the buildings' evidential, historic, aesthetic or communal values. The loss of such elements (through demolition, removal, or alteration) may cause a minor adverse or neutral impact on the special interest of the building.

None/Detrimental features and elements that do not contain any special interest. These can *detract from* the significance of the building and maybe evidence of poor craftsmanship or ad-hoc refurbishments. The loss of such elements (through demolition, removal or alteration) could potentially have a beneficial impact on the special interest of the building.

Section 5.4.1 provides a statement of significance for the Grade II listed viaduct. Table 6 provides details of the significance of the setting to the surrounding heritage assets that could be impacted by the proposals.

5.4.1 Statement of significance

The Grade II colonnaded viaduct was clearly built in two phases, demonstrated by the different structural forms on each side; the colonnaded viaduct is, as the name suggests, an open structure constructed with brick jack arches on large brick piers (see Figure 4 above). The viaduct structure to the north, and the part of the viaduct structure that will be physically impacted by the proposals, is of brick arch construction with a series of closed round arches expressed on the north face. As has been explained, the two sides of the viaduct structure have been, and still are, in separate uses and this has resulted in a number of alterations to the structure. Notwithstanding the removal of the track beds and the subsequent numerous resurfacing materials, that are no on top of the structure, the colonnaded side of the viaduct (south, within MSI) has been infilled to the back (north) side with glazed partitions whilst the brick arches to the north side have all been infilled and contain numerous penetrations and openings, in association with its former use as a studio space. The viaduct is of **considerable significance** due to the extent and survival of its structure (evidential) and its historic interest. Architectural interest is also yielded through the group value of the structure in association with the adjacent listed industrial buildings/ structures.

The significance of the colonnaded viaduct, 1830s Warehouse, Lower Byrom Street Warehouse, Power Hall, Liverpool Road Station buildings and associated bridges and viaducts over Water Street have all been recognised by the statutory listing designations. Table 5 provides further details of the significance of the settings of these buildings/ structures.

TABLE 5: Significance of setting to surrounding listed buildings

Listed Building Name and No. on Fig 2	Grade	Summary	Significance of setting
1) Stephenson's Bridge (Manchester)	I	Railway bridge carrying former Liverpool to Manchester railway over the River Irwell. Designed in 1830 by George Stephenson, 2 segmental arches with central pier in stone.	The significance of the setting of the bridge is in relation to its relationship and group value with the adjacent girder bridge and MSJ&AR viaduct which all converge to the west, Salford side of the River. The bridge has high historic value due to its association with the development of the railways in Manchester.
2) Liverpool Road Station	I	Former passenger railway station at terminus of Liverpool and Manchester railway, now part of museum complex. 1830 by George Stephenson with attached house of 1808, formerly occupied by the station agent. Oldest surviving passenger railway station in the world. Ceased to handle passenger traffic in 1844 but continued in use as a goods station until 1975.	The significance of the setting to the former station building is in its group value with the Old Warehouse and the adjacent bridge and viaduct structures. The building is experienced along the entire length of Liverpool Road where it forms a continuous frontage up to Lower Byrom Street. Short-range views of the building are also experienced from Water Street. Due to the modest height of the buildings and the urban form in this area it is not experienced from outside of the immediate streetscape.
3) 1830 Warehouse	I	Railway warehouse, 1830, by George Stephenson. Red brick with sandstone dressing and slate roofs. Long slightly curved plan, convex to the railway line and concave to the rear. 3 storeys, 10 individually gabled bays arranged in pairs with slotted pilasters between each pair at both ends.	The warehouse building is experienced from within the former Liverpool Road Station complex and its setting is understood as part of this grouping of buildings.
4) Railway viaduct to Liverpool Road Station	II	Railway viaduct with attached animal ramp at east end of south side, including bridge carrying railway line over Water Street to former Liverpool Road Station. 1830 with bridge rebuilt 1905. Brick viaduct, iron bridge.	The significance of the setting of the bridge is in relation to its relationship and group value with the adjacent former Liverpool Road Station, its warehouse and the 2 bridges and viaducts immediately to the south. The viaduct has high historic value due to its association with the development of

TABLE 5: Significance of setting to surrounding listed buildings

Listed Building Name and No. on Fig 2	Grade	Summary	Significance of setting
			the railways in Manchester.
5) Colonnaded railway viaduct	II	Railway viaduct. Probably c.1870. Cast-iron. A series of cast-iron columns on stone bases suports the viaduct which has cast-iron beams showing at the sides.	The significance of the setting of the bridge is in relation to its relationship and group value with the adjacent former Liverpool Road Station, its warehouse and the 2 bridges and viaducts immediately to the south. The viaduct has high historic value due to its association with the development of the railways in Manchester.
6) MSJ&AR Viaduct	II	1846-9 by David Bellhouse Jnr in red brick with sandstone dressings and cast iron bridges. Early example of a 1 ¾ mile long urban viaduct incorporating a series of well detailed bridges. The MSJ&AR line is one of the earliest suburban railways and was the first in Manchester.	The viaduct has group value with the associated railway structures and buildings from Piccadilly Station to the Liverpool Road Station and the bridges that cross the River Irwell. Due to the length of the structure it has several different settings; these are understood as being different depending on the urban form and or context of the viaduct in the particular location. In the context of the subject site, the significance of the setting is best represented within the Castlefield area where the viaduct forms part of the multi-level environment, adjacent to associated railway viaducts and bridges.
7) Giants Basin	II	Circular weir. Probably 1765, by James Brindley, for Duke of Bridgewater, altered in C19. Coursed squared sandstone. Circular structure approx.10m in diameter, with 2-course sloped lip. Part of hydraulic system by which the Bridgewater Canal terminus basin exploited the course of the River Medlock, which was diverted through a culvert running from east of Deansgate at Knott Mill to Potato Wharf, and the canal overflow was returned to the river via this weir.	Forms group with canal basin at Potato Wharf, and with Castelfield Railway Viaduct, and Culvert arches, New Elm Road; associated with Floodgate, Deansgate.
8) Pair of culvert arches of River Medlock and associated overflow channel	II	Pair of culvert arches. Probably 1765, by James Brindley, for Duke of Bridgewater. Coursed squared sandstone. Two low segmental spans at an angle, over the outflows from the River Medlock culvert and the overflow culvert from the Giant's Basin, that on the right lower and with a plain arch-band.	Forms group with canal basin at Potato Wharf, and with Castelfield Railway Viaduct, and Giants Weir, New Elm Road; associated with Floodgate, Deansgate.
9) Commercial Hotel, Liverpool Road	II	Hotel. Early to mid C19, altered. Red brick in Flemish bond, with some sandstone dressings, slate roof. Double-depth double-fronted plan, with rear wing	The significance of the streetscape setting of the listed building is intrinsic to its architectural and historic interest. Forming part of the historic streetscape of Liverpool Road, alongside Nos. 123 and opposite the Liverpool Road

TABLE 5: Significance of setting to surrounding listed buildings			
Listed Building Name and No. on Fig 2	**Grade**	**Summary**	**Significance of setting**
			complex, means the setting of the building is limited to the ability to understand and appreciate it from the street.
10) 123 Liverpool Road	II	Pair of town houses, now office. Early to mid C19, altered. Red brick in Flemish bond with some sandstone dressings and slate roof. Double-depth plan with back extension.	123 Liverpool Road is listed due to its group value; as such the significance of the streetscape setting of the listed building is intrinsic to its architectural and historic interest. Forming part of the historic streetscape of Liverpool Road, alongside the Commercial Hotel and opposite the Liverpool Road complex, means the setting of the building is limited to the ability to understand and appreciate it from the street.
11) Power Hall of MSI	II	Railway goods transfer shed, now museum exhibition hall. 1855, for London and North Western Railway. Red brick with some sandstone dressings, hipped slate roof. High group value with other railway buildings.	The setting of the Power Hall is enhanced with the survival of a number of similar dates and uses of former railway architecture that are located within the MSI site.
12) MSI Warehouse	II	Large three storey and basement Railway goods warehouse, now part of museum complex. 1880. Red brick with dressings of red brick and some sandstone, slate and glass roof. Large rectangular plan. Forms a group with other railway buildings.	The warehouse setting is enhanced with the survival of a number of similar dates and uses of former railway architecture that are located within the MSI site.
13) Great John Street Hotel	II	School, now college of further education. Late C19, altered. Stock brick with dressings of red brick and sandstone. Notable for its flat roof which formerly served as school playground.	The former school building largely lost its original setting over the past 50 years with the demolition of all historic buildings and former courts around the building.
14) Victoria and Albert Warehouse	II	Warehouses. Early to mid C19, altered. Red brick with sandstone dressings and slate roof; quay of very large dressed stone blocks. Victoria Warehouse L-plan with one range at right-angles to street and the other parallel to the quay, and Albert Warehouse continued from north end of this. Five storeys.	The significance of the setting of the Warehouse has been affected by the erosion of development along the riverside over the last c.50 years. The warehouse is largely horn of its historic context and its setting is therefore understood against its relationship with the river and the warehouses in the wider area. Having been converted into a hotel, with associated landscaping exclusively for the hotel users, there is the capacity to extend and enhance the setting of the warehouse.
15) Zig-Zag viaduct	II	Railway viaduct carrying railway line over River Irwell and Water Street to former Lower Byrom Street Warehouse of former Liverpool Road Goods Station. Late 19th	The significance of the setting of the bridge is in relation to its relationship and group value with the adjacent former Liverpool Road Station, its warehouse and the 2 bridges and

TABLE 5: Significance of setting to surrounding listed buildings			
Listed Building Name and No. on Fig 2	**Grade**	**Summary**	**Significance of setting**
		Century, red brick. Forms part of group of railway structures at this site.	viaducts immediately to the south. The viaduct has high historic value due to its association with the development of the railways in Manchester.
16) Girder Bridge* *NB – this structure was in the process of being partially demolished at the time of writing	II	1860s bridge leading to railway viaduct over River Irwell. Built at an angle over the river to abut the 1830 stone bridge on its south side, enabling the railway lines the two bridges carried to converge on the west, Salford side of the river. Brick viaduct with zig-zag north wall. Integral component to the Liverpool Road Station.	The significance of the setting of the bridge is in relation to its relationship and group value with the adjacent stone bridge and MSJ&AR viaduct which all converge to the west, Salford side of the River. The bridge has high historic value due to its association with the development of the railways in Manchester.
17) Railway Bridge (Salford)	I	Railway bridge carrying former Liverppol to Manchester railway over the River Irwell. Designed in 1830 by George Stephenson, 2 segmental arches with central pier in stone.	The significance of the setting of the bridge is in relation to its relationship and group value with the adjacent girder bridge and MSJ&AR viaduct which all converge to the west, Salford side of the River. The bridge has high historic value due to its association with the development of the railways in Manchester.
18) Manchester and Salford Junction Canal Tunnel	II	Extensive canal tunnel constructed in the 1830's from the River Irwell in the west, to approximately Whitworth Street West to the east. Canal structure is only now visible from within tunnel itself, retains large-scale air raid shelters dating to the Second World War.	The canal tunnel is only viewable from within the tunnel itself where its setting can only be recognised, no remnants of its original external portal entrances or basins survive. The tunnels are notable for their extensive air raid shelters which survive within.
19) Bonded Warehouse	Non-designated	c.1869, the building is constructed of red-brick with blue engineering brick banding and quoins. Large battened timber doors are located to the base of each loading bay with half glazed doors to each loophole and the remains of hoists and their associated brackets to the top of most. All windows are metal framed and louvre opening and are largely original.	The Warehouse is an integral part of the multi-phased development of the former Liverpool Road Goods Station, reflecting the former rail network in the area. The Warehouse is also understood as being part of the former ITV Granada site and thus group value is afforded to the relationship of the building to the mid-20th Century buildings to the north. Consequently, the setting of the building is the significance of its group value and the ability to visually appreciate the building in conjunction with the surrounding buildings.

6 IMPACT ASSESSMENT

6.1 Proposals

The proposals involve the demolition of the Starlight theatre and other buildings and structures, together with works to the Grade II Listed Colonnaded Railway Viaduct, to facilitate the development of circa 13,000 sq. m. of development comprising two flexible auditorium spaces to be used for theatre, music, dance, art and other performance-related events and potentially conferences and associated facilities, including retail and restaurant use, office, administrative and back of house function, training and educational facilities, servicing and access arrangements, circulation and external landscaped areas.

The proposed Factory building will abutt the north side of the Grade II listed colonnaded railway viaduct and over-sail the upper deck. In order to support the structure X6 columns will be inserted through the brick arches. New foundations will be required for the proposed columns; piling solutions would be of an augured nature and not installed with any percussive equipment to ensure that the viaduct is not damaged. Pad foundations are the preferred solution; however the depth of rock head may exclude this as a possibility. The installation of pads or the pile caps may require some temporary works to be installed to ensure the existing foundations are not undermined.

Other works to the listed arches include removal of existing structures and finishes (e.g. existing lift and stairs that link through to the Starlight theatre above) and repair works to the brickwork. Following the removal of the Starlight theatre, and installation of new structural columns, a new waterproofing system will be installed at deck level.

Reference should be made to drawings by OMA and Buro Happold for more details.

6.2 Impact assessment

The aim is to demonstrate the impact of the proposed alterations are necessary to provide the optimum viable use of the heritage asset and that these will not result in harm to the significance of the heritage asset.

The assessment is informed by the understanding of heritage significance set out above. It identifies the impact of the proposed development on the key components of the heritage asset, evaluating the results and justifying the proposed interventions by demonstrating an overall beneficial outcome.

The key purpose of the impact assessment is to ensure that the proposals demonstrably balance the degree of change, to ensure the proposed new uses are sustainable and lead to the long-term maintenance of the building. The basic objective is to provide the evidence to facilitate clear, transparent and practical planning decisions.

There is no recognised standard methodology for the appraisal of impact on listed buildings. Therefore, the method used is based on the Historic England’s guidance in *“Conservation Principles*”, 2008 and. The development proposals aim to minimise the loss or compromise of significance.

The effects of the proposed development on the integrity and authenticity of the heritage assets and their significant components may be measured as: **adverse; neutral; or beneficial.**

The scale of the overall impact of the proposed works on the significance of the heritage assets is evaluated as:

- **negligible** – no material change;
- **minor** - changes that only make a small difference to the ability to understand and appreciate the heritage assets or their setting, and may be either adverse or beneficial. Such changes will impact on components which are of modest significance and sensitivity which are exposed to change of a slight to minor magnitude.
- **moderate** - a change that makes an appreciable difference to the ability to understand the heritage assets or their setting, either adverse or beneficial. Such changes will impact on components of moderate significance and sensitivity which are exposed to alteration of a large magnitude, or highly sensitive receptors exposed to change of a minor magnitude.
- **substantial** – these will be fundamental changes in the appreciation of the heritage asset or its setting, either adverse or beneficial. A substantial impact may be defined as the result of highly sensitive components exposed to change of a large magnitude.

As the effect of proposals can be neutral, beneficial or adverse, mitigation measures will normally be identified in the development of the proposals to reduce or balance any potential harm to the heritage assets. The over-arching aim is to demonstrate that the development positively contributes to the long-term protection and enhancement of the heritage assets, in accordance with the requirements of both national and local planning policy.

As the effect of proposals can be neutral, beneficial or adverse, mitigation measures will normally be identified in the development of the proposals to reduce or balance any potential harm to the heritage assets. The over-arching aim is to demonstrate that the development positively contributes to the long-term protection and enhancement of the heritage assets, in accordance with the requirements of both national and local planning policy.

Impacts of the physical and visual impacts are considered below. Reference should be made to the accompanying drawings and reports by OMA and Buro Happold which provide further details of the proposals.

6.2.1 Assessment of the physical impact on the fabric of the Grade II listed viaduct

The specific impact on the fabric of the listed building is considered below in Table 6.

The table must be read in conjunction with the “Schedule of Works” document and associated drawings prepared by OMA (architects). The Design and Access Statement, by OMA, and supporting information by Buro Happold provides the rationale and justification for the proposed interventions, as well as method statements for how the works will be undertaken to ensure the historic fabric not subject to intervention, will be protected.

Table 6: Impact assessment - fabric

Works Number **(refer to drawings by OMA)**	**Description of proposed work**	**Heritage significance**	**Impact & mitigation**
DEM. E01	Removal of Starlight Theatre	None	None – method statement to ensure historic fabric not impacted by works
DEM. E02 – 06	Removal of external stairs, handrails and fence	None	None – method statement to ensure historic fabric not impacted by works
DEM. E07-E34	Removal of all modern infills to facades and internal partitions, including modern structures.	None	None – method statement to ensure historic fabric not impacted by works
DEM. E37 -E43	Removal of rainwater goods, trenches in floors, brick and masonry to accommodate new openings/ structure	Negligible	None – method statement to ensure historic fabric not impacted by works. In addition areas of brick parapet, previously altered internal brickwork to be rebuilt.
DEM. F01 – F06	Removal of all modern wall finishes and ceiling finishes	None	None – method statement to ensure historic fabric not impacted by works
Proposed (DEM. E36)	X6 core drilled holes through the brick arches to allow for structural columns to be inserted (x1 of the proposed 6 columns in total to utilise existing opening where staircase is to be removed). Diameter of cores will be 850mm-1500mm.	Considerable – will affect historic fabric of Grade II brick arches	**Minor adverse** – amount of historic fabric proposed for removal is minimal and will not affect the character of the structure overall. Method statement to ensure surrounding historic fabric will not be affected.
Proposed	Foundations for proposed new structural columns and trench for duct work.	Low – floor of arches is modern screed, but may contain historic fabric in localised areas	**Negligible** – detailed design subject to results of intrusive surveys and design development. Method statement to ensure adjacent historic fabric will not be impacted by works.
Proposed	Waterproofing of deck level.	None	**Beneficial impact** -works will ensure historic fabric is not adversely impacted by water ingress. Details to be confirmed.

Proposed	Installation of new infills to facades, toilet facilities and associated M&E	Low – infills to arches, replacing existing and internal fixtures will be fixed floors/ require min fixings to brickwork	**Negligible -** detailed design subject to results of intrusive surveys and design development. Method statement to ensure adjacent historic fabric will not be impacted by works.
Proposed	Alteration of the existing internal arched openings to allow for increased head height.	Considerable – will affect historic fabric and original feature of the structure	**Moderate adverse -** To recreate the load bearing arch link at the proposed higher level exposes the existing vaults to an increased risk of destabilisation. The temporary works needed to achieve this would require the removal of large amounts of the listed fabric to install substantial temporary props to ensure that a safe load path is maintained throughout the construction process. As such a less intrusive approach has been considered where the temporary works holes are utilised as the space for the proposed new structural lintel. It is considered that leaving the newly inserted lintel exposed will allow the intervention to be understood and appreciated as a contemporary insertion.

6.2.2 Visual Impact assessment

The visual impact assessment utilises the guidance and evaluation criteria as set out in Historic England’s *Seeing the History in the View: A Method for Assessing Heritage Significance Within Views* (May 2011), and *Good Practice Advice Note 3 (The Setting of Heritage Assets)*, (2015).

The impact assessment criteria utilises a series of matrices to determine overall impact. Full details of the definitions of the values and matrices used are produced in Appendix i.

Identifying the importance of the assets and the view

The detailed visual appraisal of the impact of proposed development has been made using CGI perspectives. A description of the baseline is provided to identify the importance of the assets and the view.

- Value/ importance of individual heritage assets identified within the view and the value/ importance of the view as a whole are measured as being **high, moderate** or **low**

Assessing the magnitude of the impact

The assessment of magnitude of impact attempts to be objective and quantifiable as far as possible and descriptions are given to demonstrate the reasons for arriving at the level of impact. The extent to which heritage significance within a view may be changed or affected by the proposal as a result of its location and/or design is also considered. The extent to which specific design parameters influence the impact of the proposal on the heritage significance within a view is relevant. Aspects of design such as scale, mass, silhouette, and materiality/ reflectivity may be relevant to impact on heritage significance within a view. Impacts may be beneficial or adverse. If changes are proposed which enhance heritage values then the impact on heritage significance within the view will be deemed to be beneficial; however, if changes are proposed which fail to sustain heritage values then the impact on heritage significance within the view will be deemed adverse.

- Assessing the magnitude of impact on heritage significance within a view is measured as being **high beneficial, moderate beneficial, low beneficial, imperceptible/none, low adverse, moderate adverse** or **high adverse**.

Determining the overall impact

No formal guidance exists for the assessment of significance of effects on heritage assets or heritage significance within views. However, the severity of the effect on heritage assets and heritage significance within views may depend on both the magnitude of impact and the value and importance of the resource; this is how the overall impact of the proposed development is determined.

- Determining the overall impact measures the magnitude of impact against the value. This results in a **major effect, moderate effect, minor effect** or **negligible effect**

Mitigation

This impact assessment, alongside the design development of the proposed scheme, has been an iterative process in order to avoid harm to heritage significance of individual assets and within views.

Mitigation in respect of any impact upon settings of listed buildings and the conservation area, as a whole, is formulated upon the overall benefits of the proposed development as a whole. Benefits relate to both the place in which the development will be constructed, as well as benefits to the wider community or society as a whole. That the architectural design is of the highest quality is proposed as a given value, and is not offered as mitigation. The design is considered to be outstanding and this may be offered as part of the justification process.

Key view points

The key viewpoints within Figure 6 have been identified following discussion with the design team and Historic England.

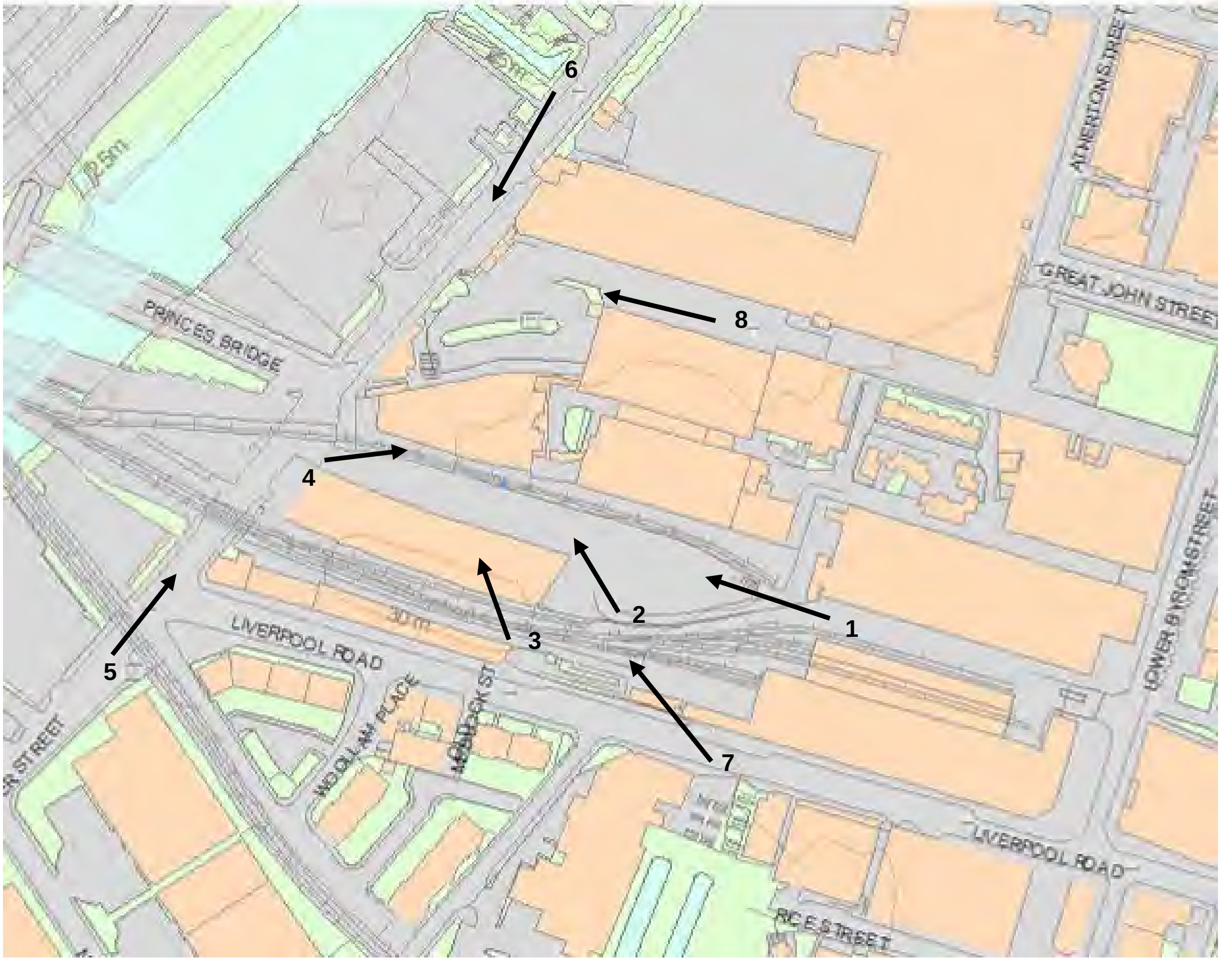


Figure 6: *key viewpoint locations.*

6.2.3 The assessment

(N.B. Refer to Appendix i for Historic England's *Seeing the History in the View* matrix tables for full definitions).

Viewpoint 1 – baseline

This view is experienced from within the Museum of Science and Industry's site (MSI), at the upper level of the former goods yard. The viewpoint looks west towards the subject site (Figure 7A).

To the left of the view is the Grade II listed Power Hall. To the right of the view is the modern glass staircase structure to the south side of Grade II former Lower Byrom Street Warehouse. In the foreground is the cobbled yard where once the numerous train tracks would have fed these buildings; to the middle ground the tracks are still evident and these lead the eye to the western side of the site where the Grade I listed former Station building is (to the left) and the Grade I 1830s Warehouse (to the middle).

To the right of the view is the Stage 2 building and Starlight Theatre building which define the boundary of the former ITV Granada site; these buildings sit on top of the Grade II listed colonnaded viaduct and mark the location of the train lines that fed the Lower Byrom Street Warehouse and Bonded Warehouse beyond.

Beyond the confines of the MSI site, new development and cranes punctuate the skyline, reflecting the continuation of the city and Salford beyond; in particular, the Wilburn Basin scheme now provides a dominant visual termination to the view of the highly significant group of listed buildings within the MSI site. This has changed the setting and context of the group of listed buildings by placing them within a contemporary back-drop.

This viewing place well represents the heritage values of the heritage assets and the ability to appreciate them as a cohesive complex, **the combined value and importance of the heritage assets and the view as a whole is high.**

Viewpoint 1 – impact assessment

The Proposed Development will be visible from this viewpoint above and to the side of the Stage 2 building (Figure 7B).

The different forms and materiality of the Proposed Development are legible from this viewpoint and will be understood and appreciated as a contemporary form. The materiality of the tower element of the Proposed Development takes its cue from the industrial character within the MSI complex thereby creating a form that whilst innovative and contemporary does not compete with the heritage values of the heritage assets in this view. Consequently, **the overall impact of the Proposed Development will be negligible.**

Figure 7C demonstrates the cumulative impact of the proposed St Johns scheme (red wireline) and Trinity Islands (green wireline) and the introduction of a new skyline to this part of the city, offering a clear juxtapose to the largely horizontal, open and linear forms within the view.

From this viewpoint it is considered that the proposed cumulative development will still be understood and appreciated as a contemporary backdrop to the established roofline of the buildings within the MSI site. Kinetic views, moving west from this viewpoint, across the site, will diminish the predominance of the cumulative development.

It will be clear that whilst the proposed development does not affect the ability to understand and appreciate the heritage values of the identified heritage assets within this view individually, a key element to their significance as heritage assets is their group value. It is considered that the proposed cumulative development will erode to minor extent the ability to appreciate the values of the view as a whole and consequently the **overall impact of the Proposed Development will be moderate adverse.**

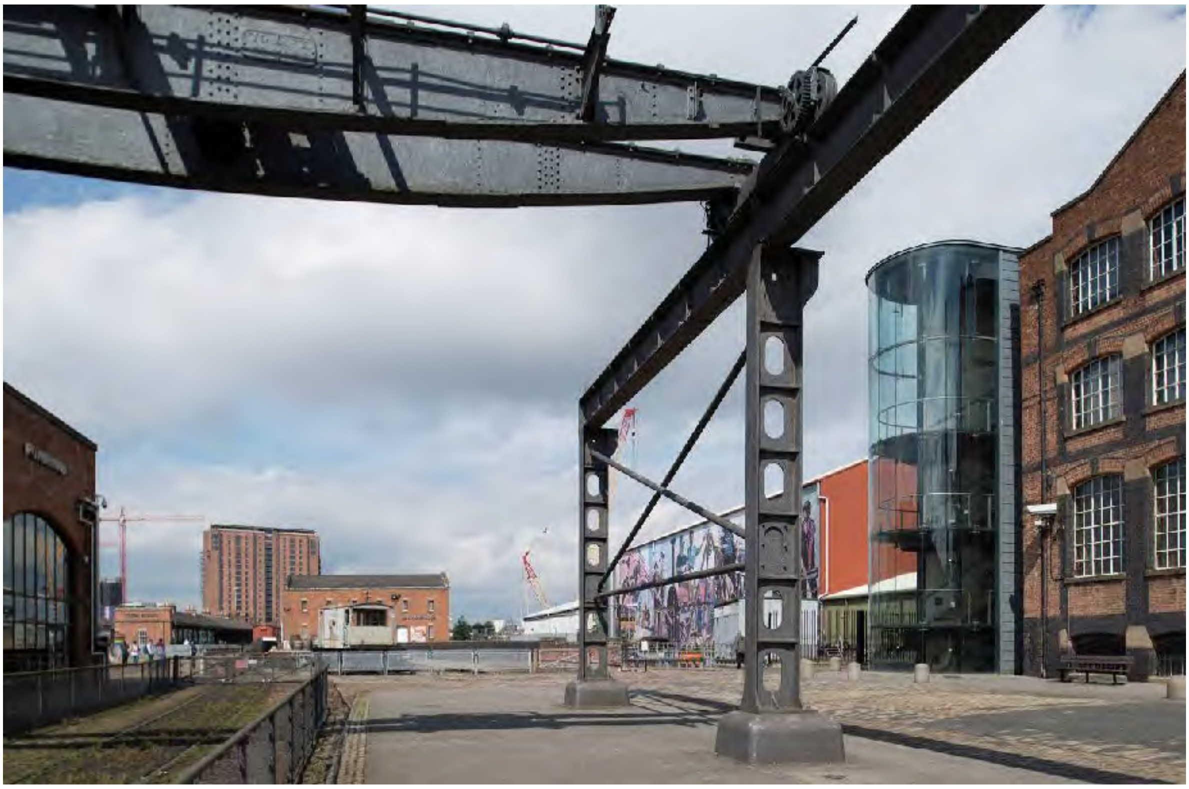
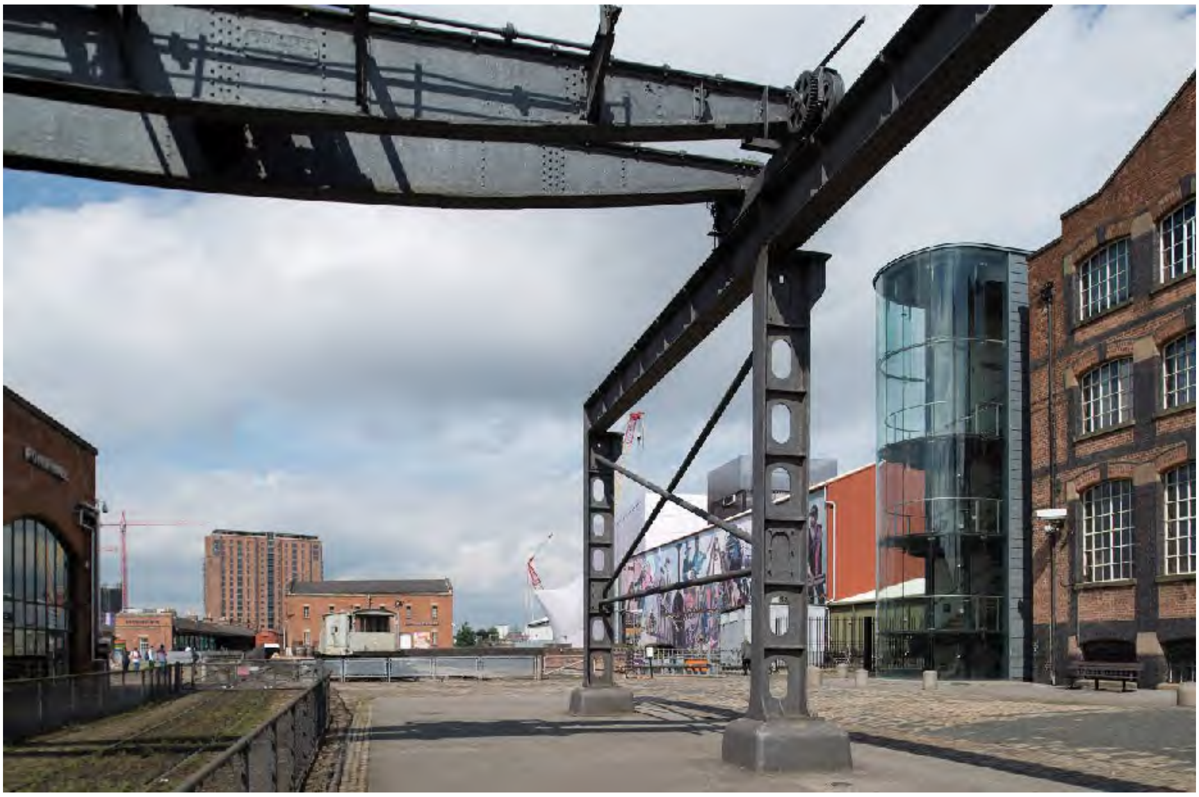


Figure 7A, above. Viewpoint 1 as existing. **Figure 7B**, below. Viewpoint 1 as proposed



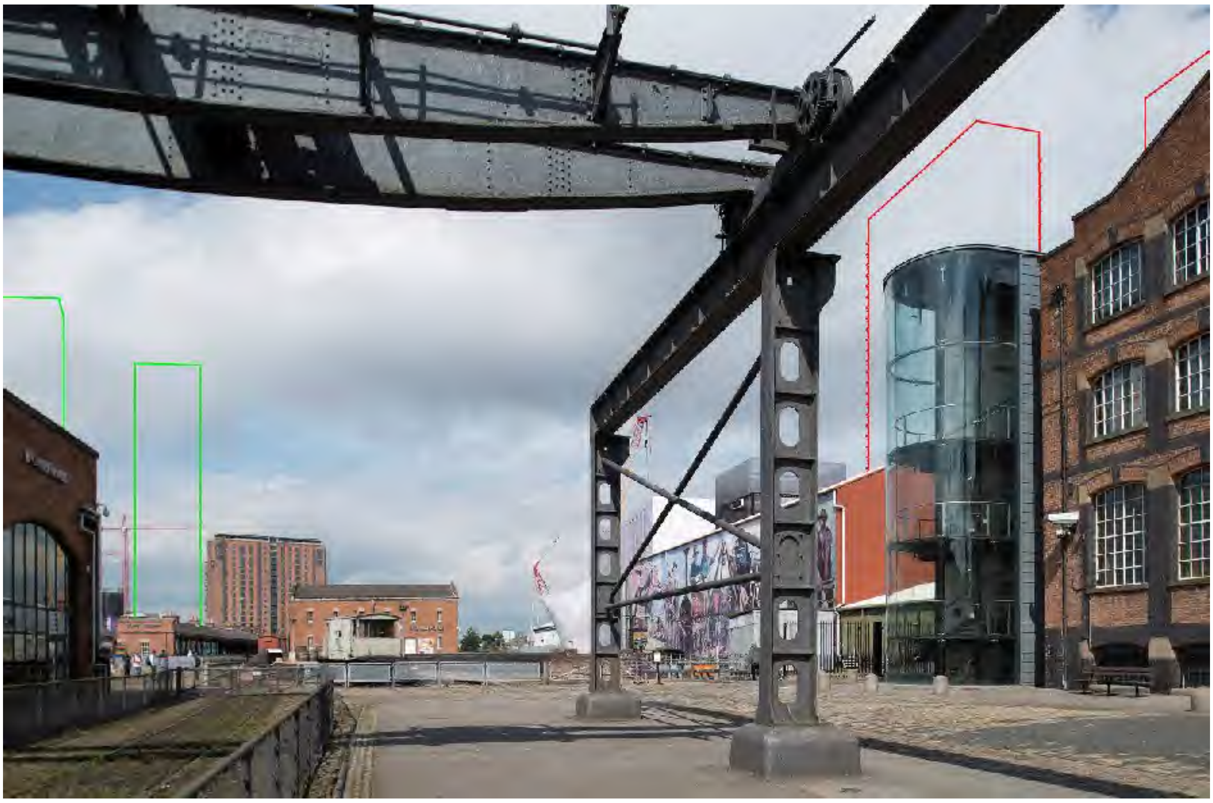


Figure 7C, above. Viewpoint 1 as proposed - cumulative

Viewpoint 2 – baseline

This view is experienced from the lower yard within the MSI complex, looking north-west towards the subject site (Figure 8A).

This view is dominated by the Grade I listed 1830s Warehouse and the Grade II listed colonnaded viaduct. The structures on top of the viaduct; the Starlight Theatre and Stage 2 building; mark the boundary of the former ITV Granada site. These buildings are of no heritage interest and are of low quality.

This view has been selected to demonstrate the importance of short range views of the Proposed Development in relation to this important group of Grade I and Grade II listed buildings. The viewing place represents well the heritage values of the heritage assets and consequently **the combined value and importance of the heritage assets and the view as a whole is high.**

Viewpoint 2 – impact assessment

The Proposed Development will be clearly visible from this viewpoint, replacing the Starlight Theatre building with three distinct forms; the auditorium, the warehouse and towers (Figure 8B).

Whilst presenting three very distinct and contemporary forms, the height, scale and massing of the Proposed Development will still remain subservient to the robust form of the Grade I listed Warehouse building.

The Proposed Development will encourage movement across the MSI site, by introducing a dynamic form that will provide a high level of activity and synergy between the two sites.

Figure 8C illustrates the cumulative impact of the wider St Johns scheme, from this viewpoint, which will be understood and appreciated as a backdrop to the Proposed Development and an extension of the city beyond.

It is considered that the **overall impact of the Proposed Development, and the cumulative development, will be negligible.**

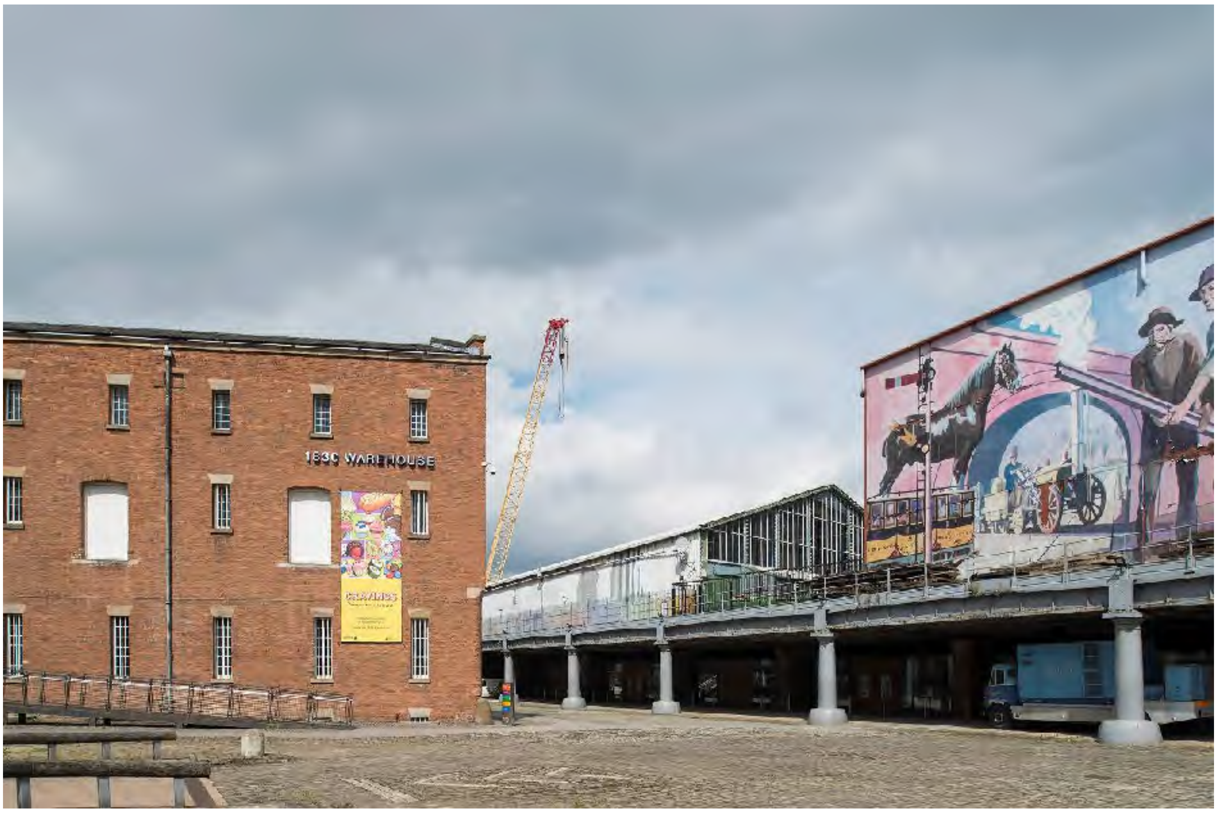
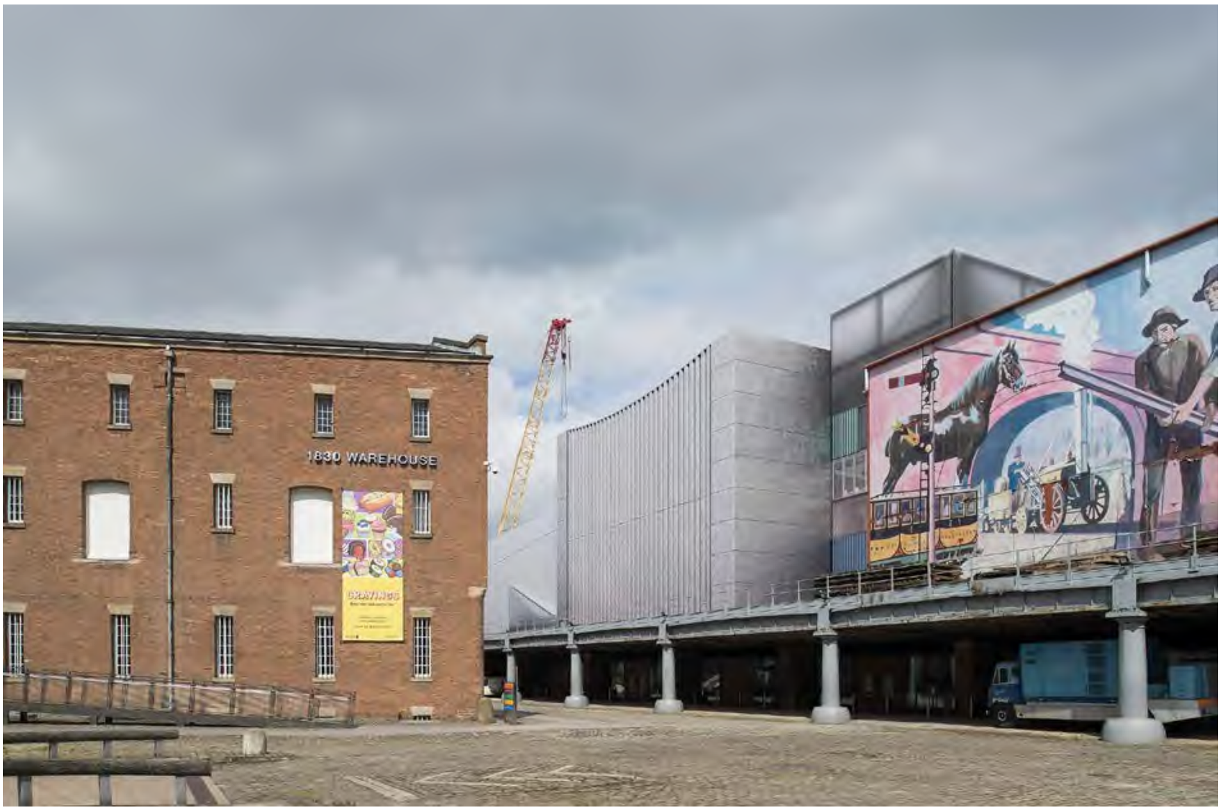

1830 WAREHOUSE
CRAVINGS

Figure 8A, above. Viewpoint 2 as existing. **Figure 8B**, below. Viewpoint 2 as proposed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CRAVINGS

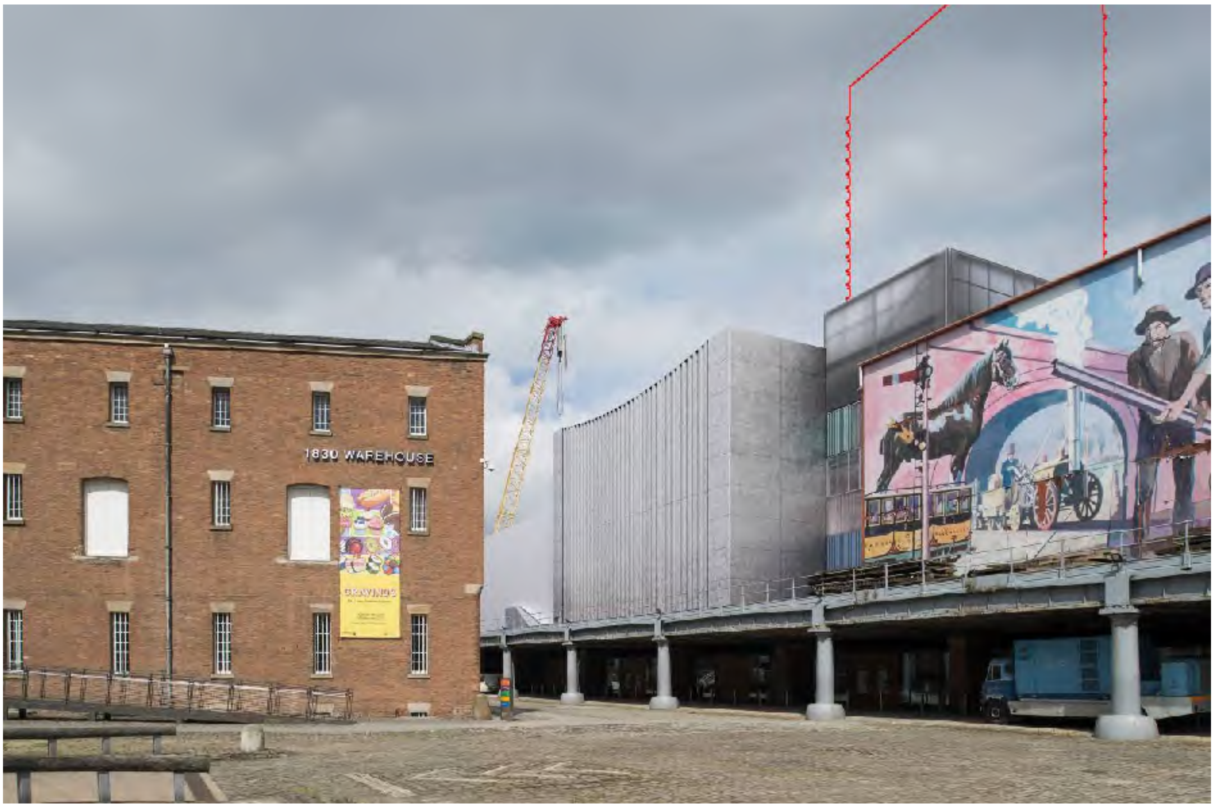

1830 WAREHOUSE
CRAVINGS

Figure 8C, above. Viewpoint 1 as proposed – cumulative

Viewpoint 3 – baseline

This view is experienced platform of the Grade I listed former Station building looking north-west towards the subject site. (Figure 9A).

This enclosed view is dominated by the Grade I listed 1830s Warehouse. This view has been selected as it is a key view of the former Liverpool Road Station buildings. The viewing place represents well the heritage values of the heritage assets and consequently **the combined value and importance of the heritage assets and the view as a whole is high.**

Viewpoint 3 – impact assessment

The Proposed Development will not be visible from this viewpoint and will have no impact. Figure 9B illustrates the cumulative impact of the wider St Johns development which will be glimpsed above the roofline of the Grade I listed warehouse. The **overall impact of the cumulative development will be negligible.**

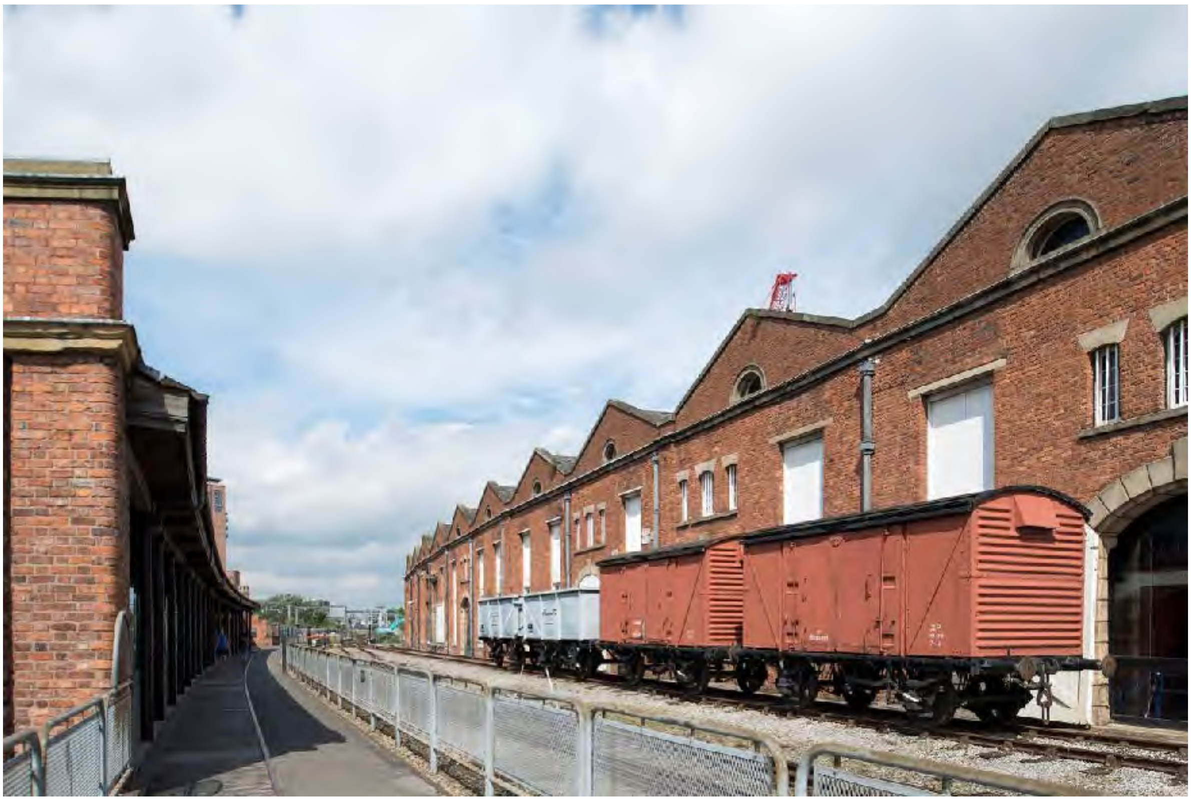
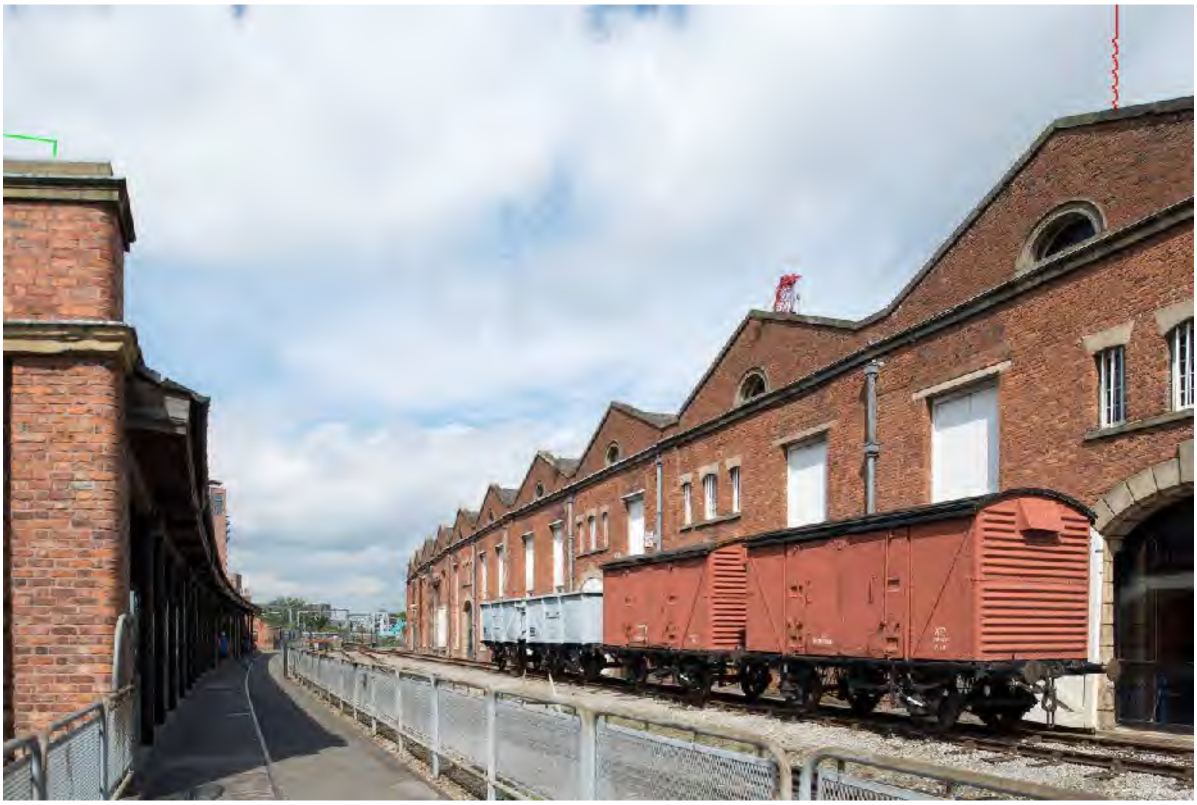


Figure 9A, above. Viewpoint 3 as existing. **Figure 9B**, below. Viewpoint 3 as proposed - cumulative



Viewpoint 4 – baseline

This view is experienced from the west end of the MSI site, looking north-east towards the subject site. (Figure 10A).

As with viewpoint 2, this viewpoint demonstrates the setting and group value of the Grade I listed 1830s Warehouse (to the right) and the Grade II listed colonnaded viaduct (to the left), but also provides a greater understanding and appreciation of the wider MSI site by providing views back to the Grade II listed Lower Byrom Street Warehouse and Power Hall.

Again, as with viewpoint 2, the contemporary structures of the Stage 2 building and the Starlight Theatre can be seen on top of the viaduct.

This view has been selected to demonstrate the importance of short-range range views of this important group of Grade I and Grade II listed buildings. The viewing place represents well the heritage values of the heritage assets and consequently **the combined value and importance of the heritage assets and the view as a whole is high.**

Viewpoint 4 – impact assessment

The auditorium element of the Proposed Development will be clearly visible from this viewpoint, set back from the edge of the viaduct (Figure 10B).

Due to the positioning, alignment, height, form and materiality of the auditorium it will not affect the ability to appreciate the heritage values of heritage assets or the view a whole. The **overall impact of the Proposed Development will be negligible.**

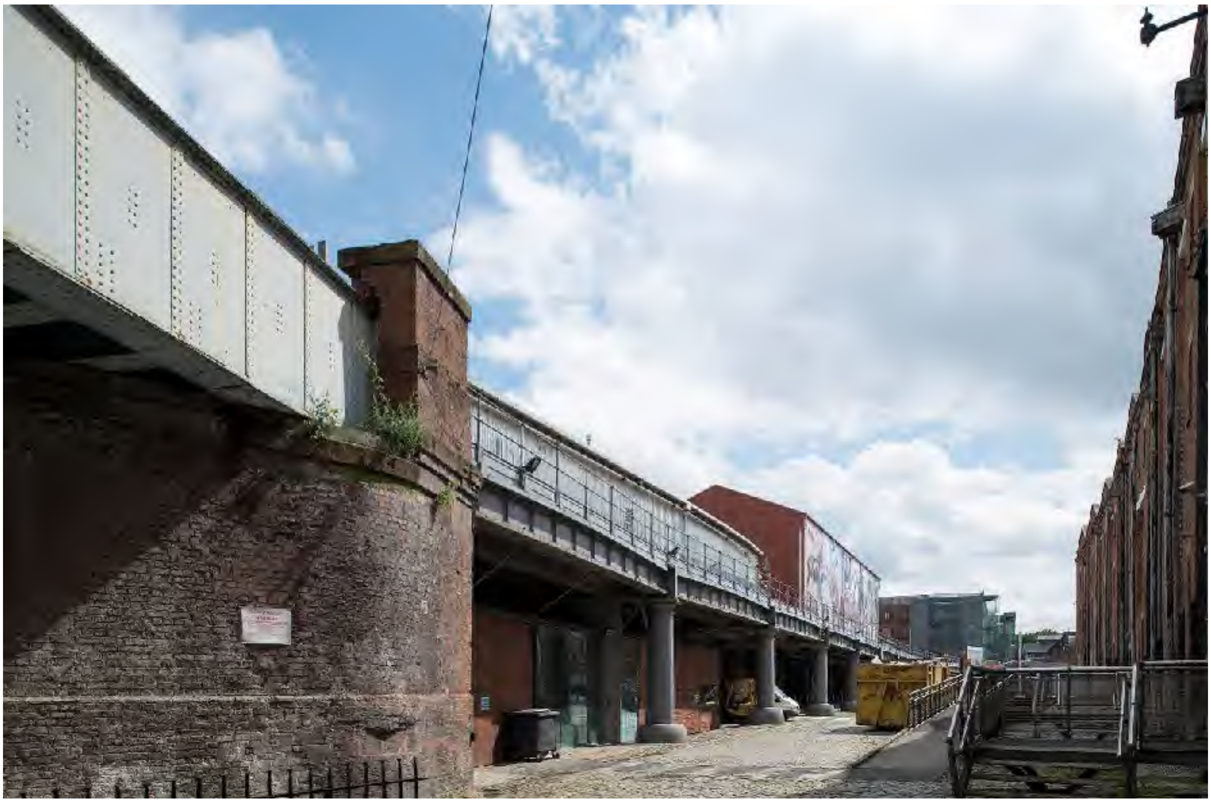
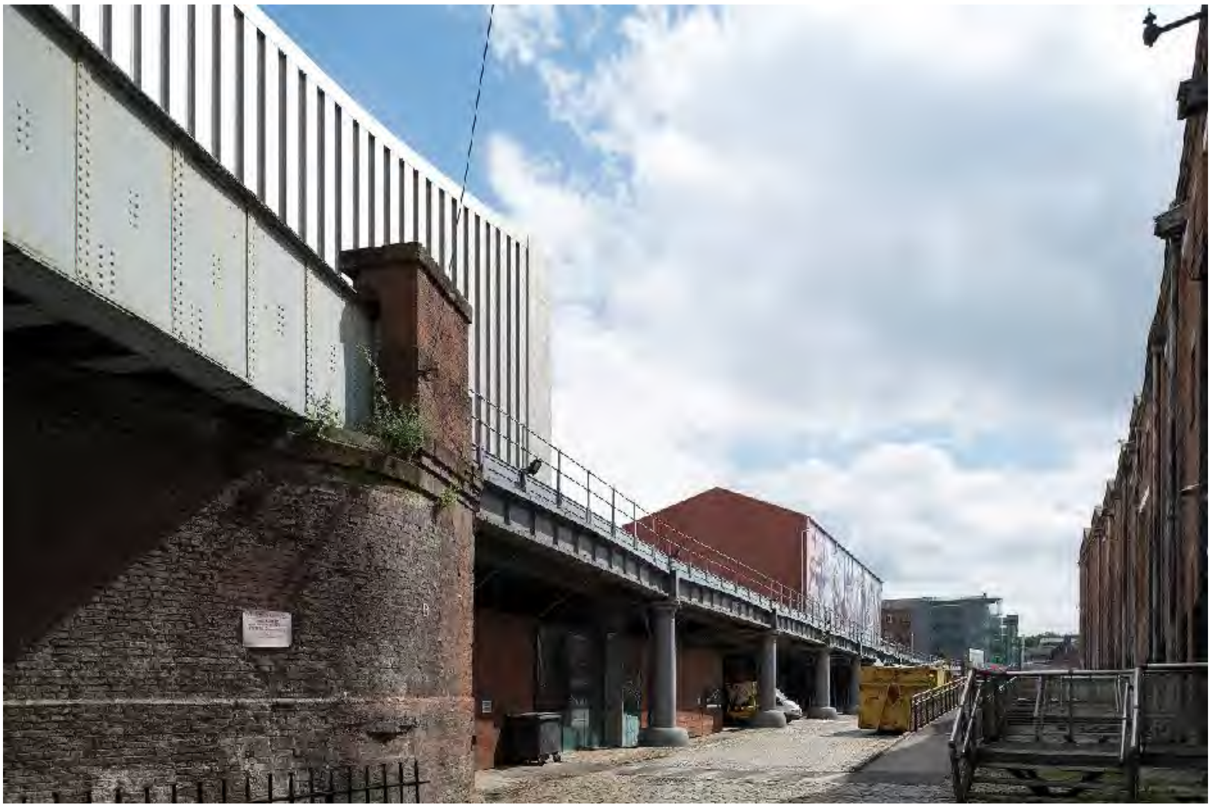


Figure 10A, above. Viewpoint 4 as existing. **Figure 10B**, below. Viewpoint 4 as proposed



Viewpoint 5 – baseline

This view is experienced from the western end of Liverpool Road, at the junction with Water Street, looking north (Figure 11A).

The view is dominated by the continuous elevation of the Grade I listed former Liverpool Road Station building which encloses the streetscape along the north side of Liverpool Road.

To the left of the view are a series of bridges and viaducts that cross Water Street and aid the understanding and appreciation of the former industrial use of the complex of historic buildings. The first bridge is the Grade I listed former railway bridge that served the train station, which then leads onto the Grade II viaduct within the site. Behind this is the Grade II railway bridge and viaduct. Kinetic views to the west would illustrate the wider network of listed structures that cross the river over to Salford. Due to the historic interest and group value of this complex of buildings, this view forms a positive contribution to the character of the Castlefield Conservation Area.

This view has been selected to demonstrate the importance of short range views of the subject site in relation to this important group of Grade I and Grade II listed early railway buildings/structures. The viewing place represents the heritage values of the heritage assets and consequently **the combined value and importance of the heritage assets and the view as a whole is high.**

Viewpoint 5 – impact assessment

The dynamic and contemporary forms of the Proposed Development will be visible from this viewpoint beyond the historic bridge structures (Figure 11B).

Due to the robust nature of the group of heritage assets within this view it is considered that the proposed development will be understood and appreciated as being located within the distance, signalling the continuation of the city beyond. As a new landmark feature to the wider townscape it will introduce variety and dynamism to the skyline.

Figure 11C illustrates the cumulative impact of the tower elements within the proposed St Johns development. The towers, which are all set back from the group of listed station buildings, provide a tall vertical element to the end of Liverpool Road, and will be in stark contrast to the historically horizontal form of the Grade I and Grade II listed former Liverpool Road Railway Station buildings, which retain their early 19th Century domestic scale; the proposed development will provide a ‘bookend’ to the Beetham tower to the east and together are understood and appreciated as contemporary development to the periphery of the historic area.

The Proposed Development will provide new landmarks to the skyline in an area that has, in recent years, been underutilised. The Proposed Development will enhance the urban cohesion of the area encouraging movement and permeability which is considered beneficial to the sustainability of the historic environment.

The materiality, form, height and articulation of the Proposed Development maintains the dominant architectural expression of the heritage assets in this view and consequently they are read as a backdrop to the former railway complex. As described above, the understanding and appreciation of the heritage values of the Grade I and Grade II listed group of railway buildings/ structures will still be clearly represented in this view **and consequently the overall impact of the Proposed Development, and the cumulative impact, will be negligible.**

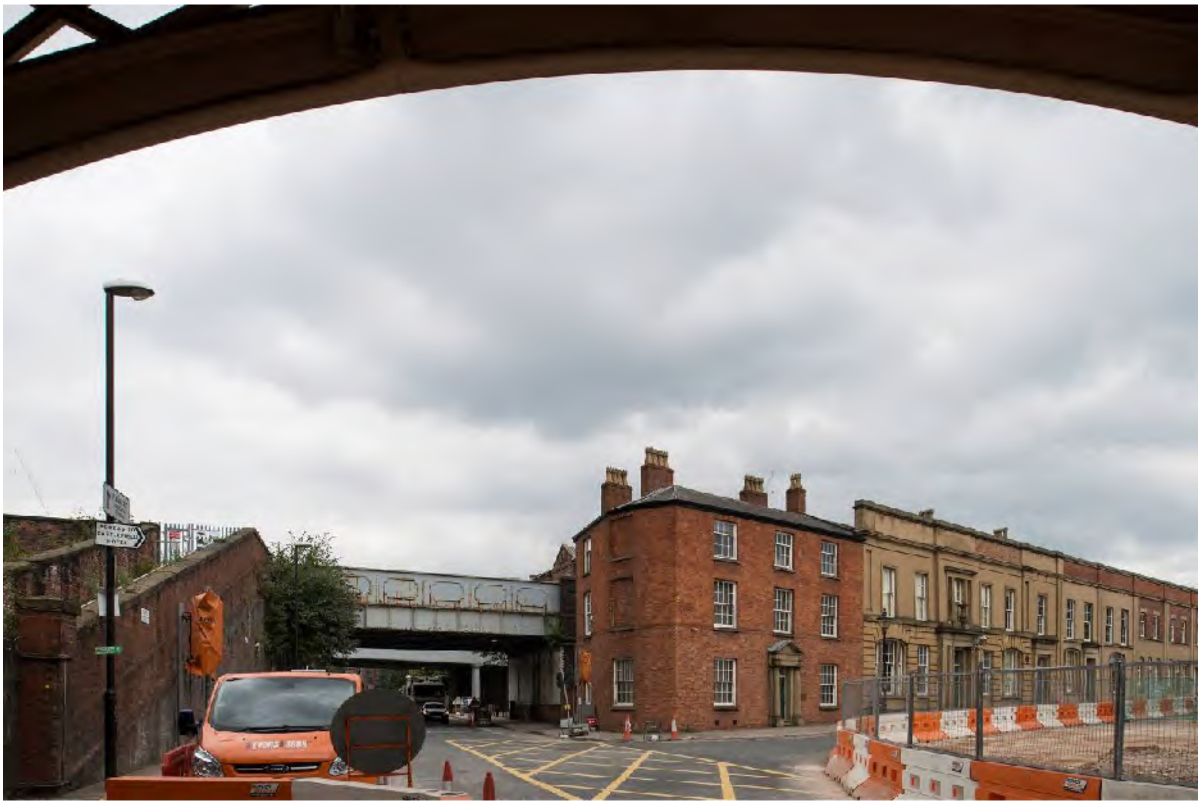
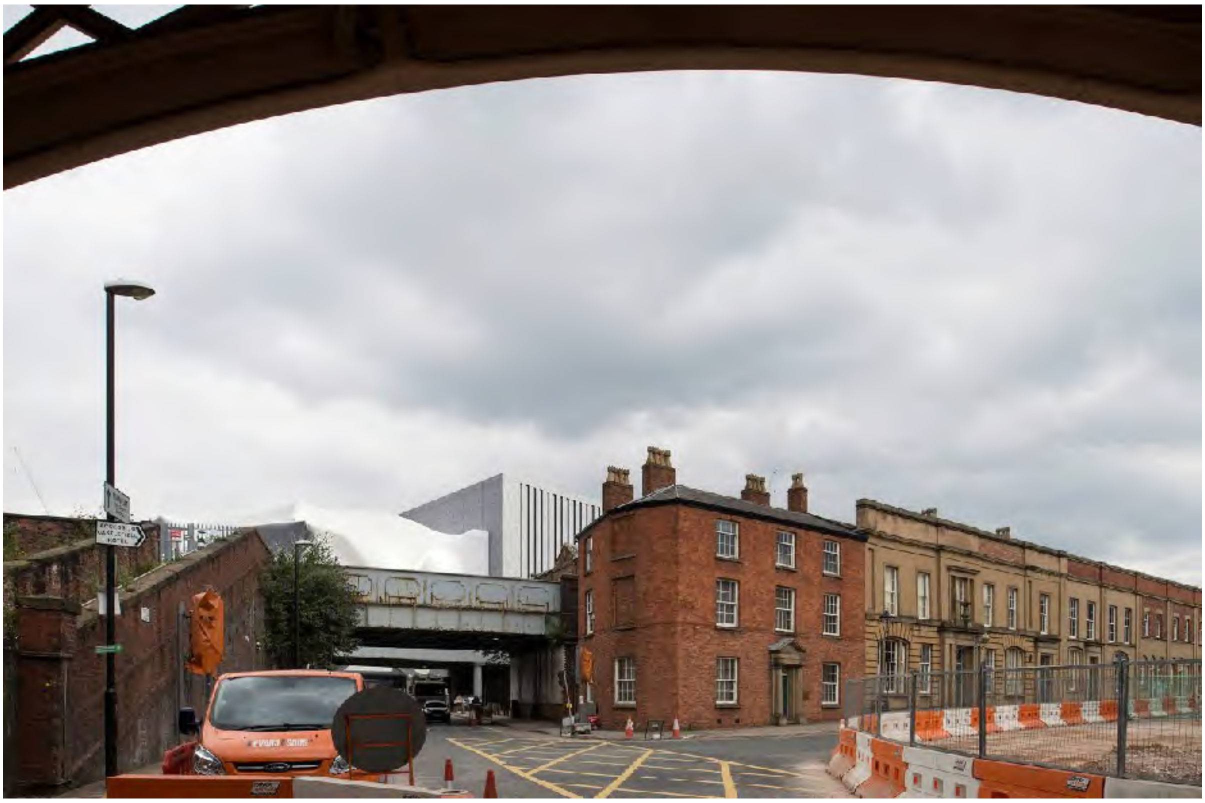


Figure 11A, above. Viewpoint 5 as existing. **Figure 11B**, below. Viewpoint 5 as proposed



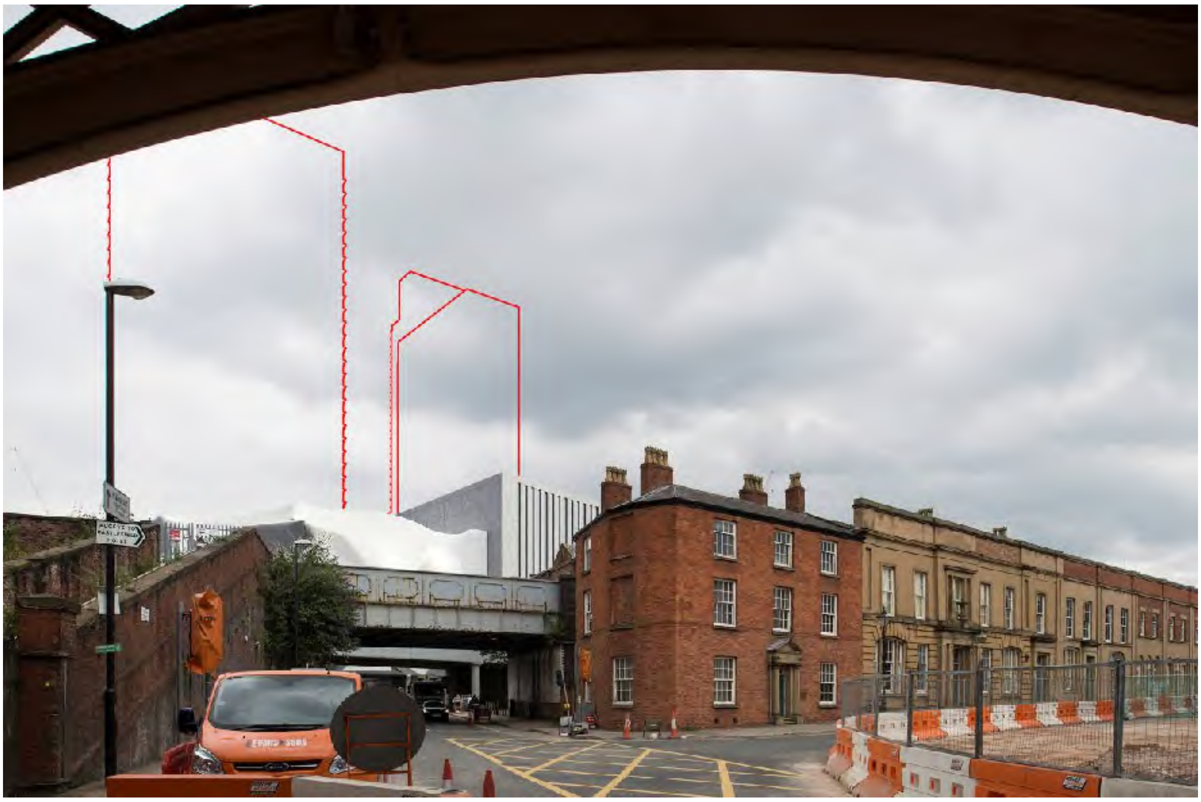


Figure 11C, above. Viewpoint 5 as proposed - cumulative

Viewpoint 6 – baseline

This view is experienced from the north side of Water Street looking south west towards the subject site (Figure 12A).

Out of shot, to the right of the view is the Grade II listed Victoria and Albert Warehouse (Marriott Hotel) and glimpsed behind the trees to the left of the view is the Bonded Warehouse (non-designated heritage asset). Terminating the view is the bridge connecting the Grade II listed colonnaded viaduct and the Grade II zig-zag viaduct.

This view illustrates a medium range view from the north end of Water Street and demonstrates the lack of vitality and built form along Water Street which in turn detracts from the character and appearance of the Castlefield Conservation Area.

Despite the presence of the identified heritage assets within this view, this viewing place does not best represent the heritage values of any of the heritage assets. **As a locally valued view, the combined value and importance of the heritage assets and the view as a whole is low.**

Viewpoint 6 – impact assessment

The proposed development will be highly visible within this view transforming it to provide a new streetscape and urban form (Figure 12B).

The contemporary forms of the different elements of the proposed development will be clearly understood; the central warehouse which will straddle the street clearly articulates the entrance and focal point for the pedestrian, whilst the dynamic and animated walkway under the building encourages pedestrian movement and permeability through the space.

Although the proposed development will provide a new termination to Water Street, and block view of the listed bridges, it is considered that the benefits the proposed development will bring, in terms of activity and appreciation of the bridges; through being encouraged to walk along Water Street; will mitigate any perceived harm.

Overall, it is considered that the proposed development will have a **minor beneficial impact** in terms of enhancing this part of the conservation area.

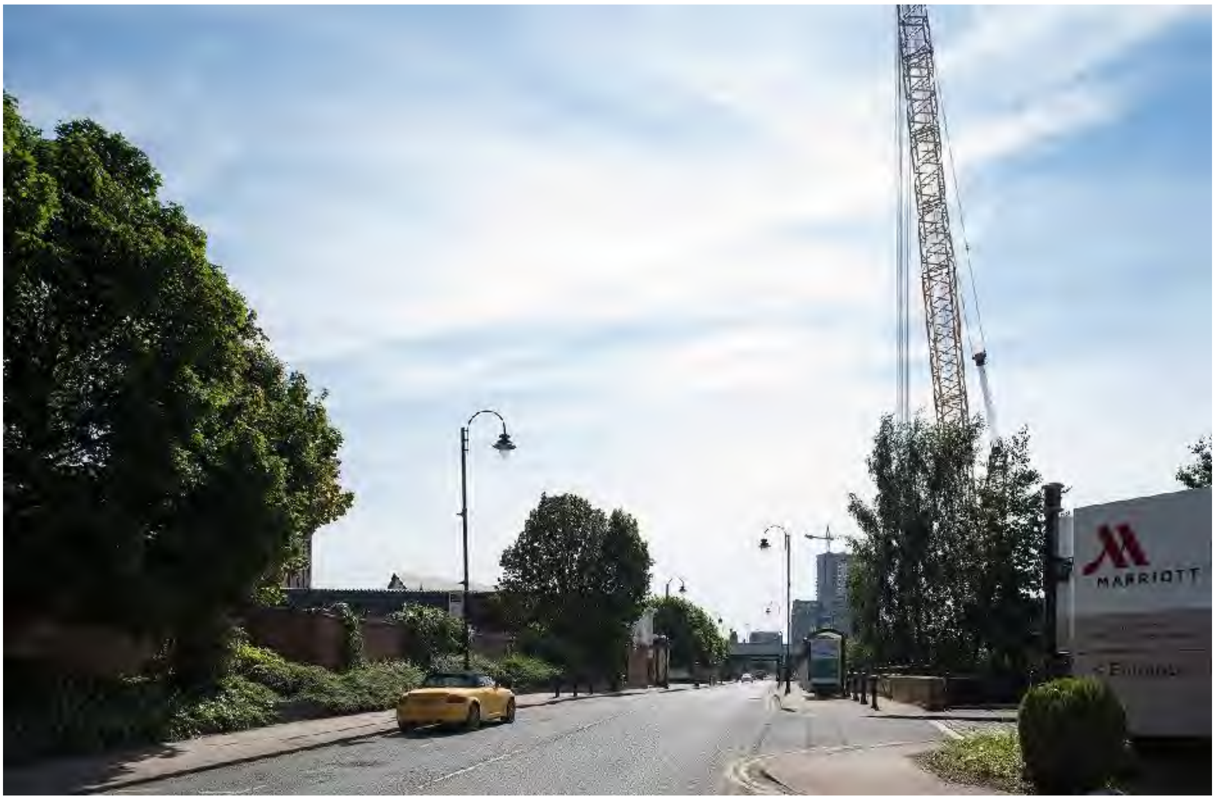
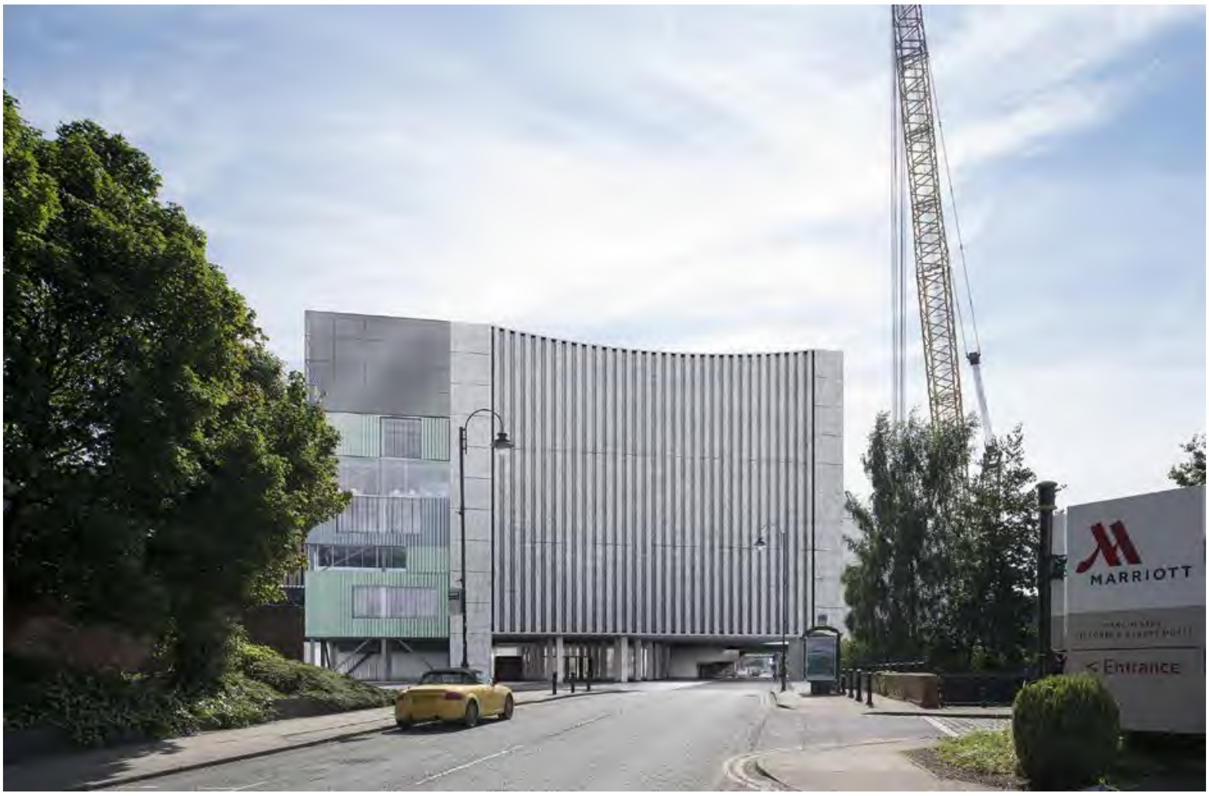

MARRIOTT
< Entrance

Figure 12A, above. Viewpoint 6 as existing. **Figure 12B**, below. Viewpoint 6 as proposed


MARRIOTT
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Viewpoint 7 – baseline

This view is experienced from the south side of Liverpool Road, at the junction with Potato Wharf, looking north-west. (Figure 13A).

This view is dominated by the continuous façade of the Grade I listed former Liverpool Road Station building which encloses the streetscape to the north side of Liverpool Road. Rather than providing a vista down the streetscape, this viewpoint provides a short-range view into the MSI site and allows views of the Grade I listed 1830 Warehouse. Kinetic views looking north and east from this viewpoint provide a fuller understanding and appreciation of the group value of the complex of Grade I and Grade II listed buildings. Due to the historic interest and group value of this complex of buildings, this view forms a positive contribution to the character of the Castlefield Conservation Area.

This view has been selected to demonstrate the importance of short range views of the proposed development of the subject site in relation to this important group of Grade I and Grade II listed buildings. The viewing place represents well the heritage values of the heritage assets and consequently **the combined value and importance of the heritage assets and the view as a whole is high.**

Viewpoint 7 – impact assessment

The top of the Warehouse element of the Proposed Development will be glimpsed from this viewpoint, extending above the established roofline (Figure 13B).

As a contemporary form, the Proposed Development will be understood and appreciated as a backdrop to the robust, horizontal forms of the MSI complex.

The overall impact of the Proposed Development will be negligible.

Figure 13C illustrates the cumulative impact of the wider St Johns and Trinity Islands developments.

The towers provide a strong vertical emphasis within an entirely low-rise, horizontal streetscape and despite being understood and appreciated as a backdrop to the historic industrial complex, it is considered that the proposed development will erode to a minor extent the ability to appreciate the heritage values of the view as a whole and consequently the **overall impact of the cumulative development will be moderate adverse.**

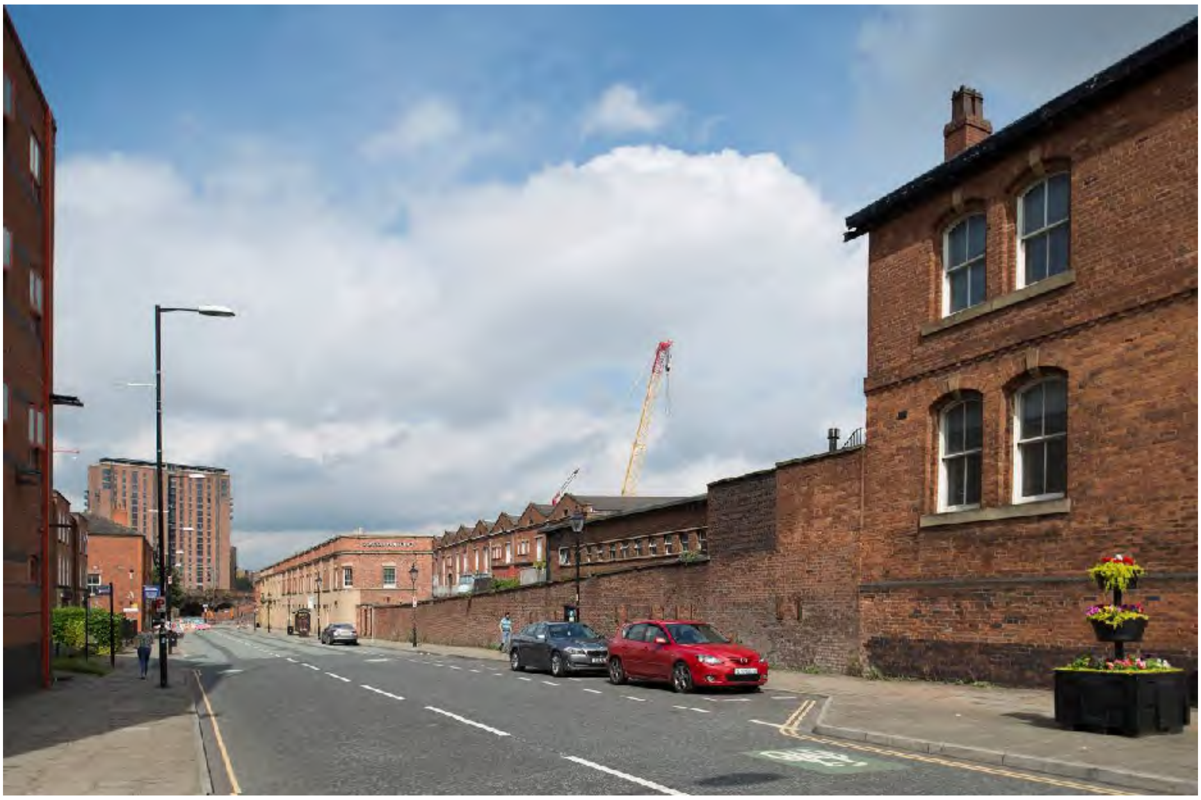
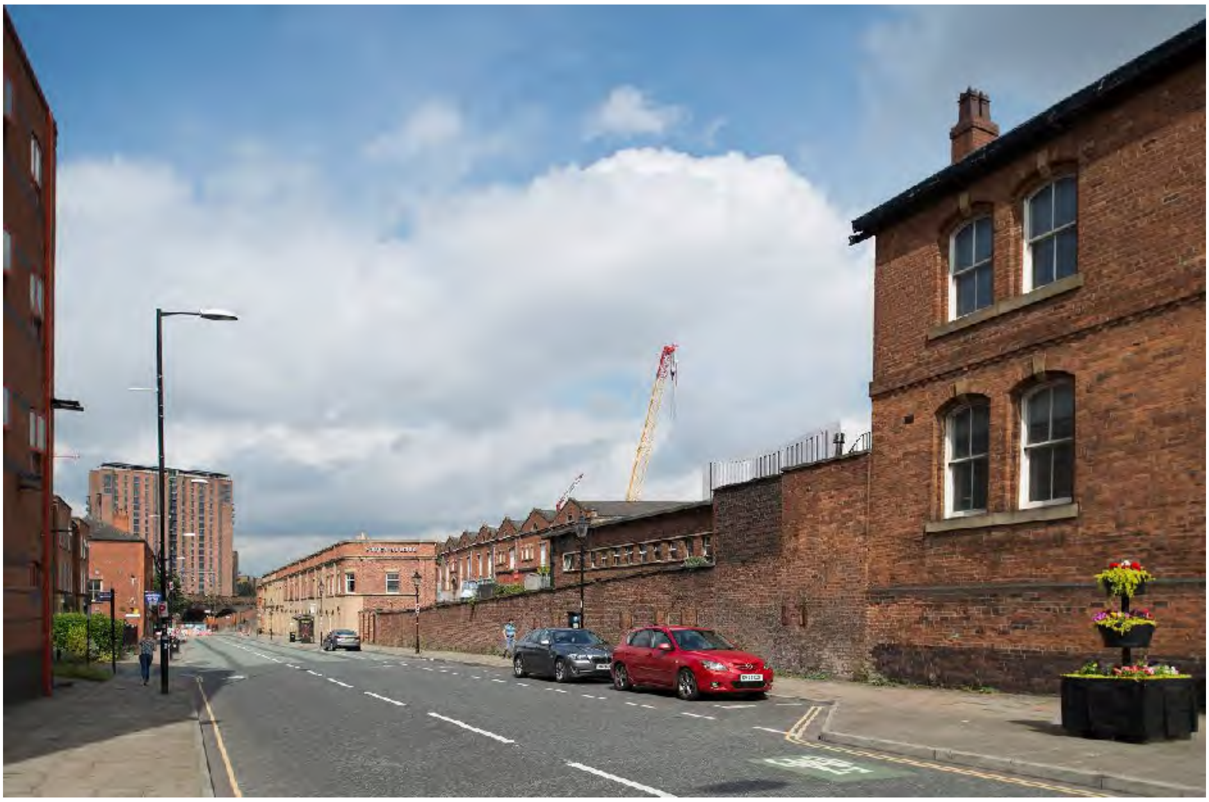


Figure 13A, above. Viewpoint 7 as existing. **Figure 13B**, below. Viewpoint 7 as proposed



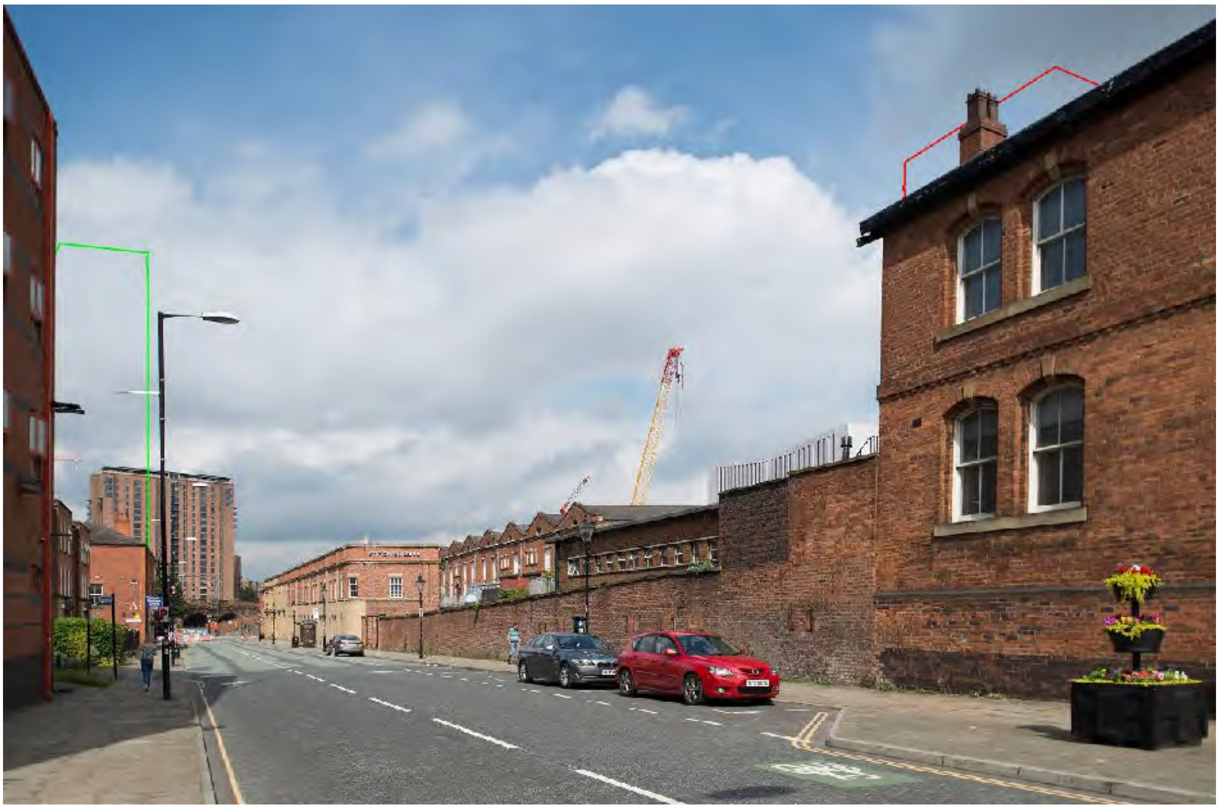


Figure 13C, above. Viewpoint 7 as proposed - cumulative

Viewpoint 8 – baseline

This view is experienced from the north side of the Bonded Warehouse, to the east of the subject site (Figure 14A).

This view demonstrates the current lack of activity within and surrounding the subject site. The Bonded Warehouse is a non-designated heritage asset, but the ability to appreciate and understand its heritage values are currently undermined by the temporary hoarding, poor quality low-rise buildings surrounding it and the lack of use to the building.

The combined value and importance of the heritage assets and the view as a whole is low.

Viewpoint 8 – impact assessment

The Proposed Development will articulate the historic street of Grape Street, which is proposed to be reinstated as part of the wider proposals for the site/ area (Figure 14B). In demarcating the form of the street, the Proposed Development, alongside the cumulative development (Figure 14C), encloses the streetscape and provides a coherent urban form.

The Proposed Development provides an overtly innovative and dynamic form which clearly takes its cue from the industrial character of the area.

The Proposed Development will encourage movement and activity and will thus allow for a greater understanding and appreciation of the area. Consequently, **overall impact of the Proposed Development will be minor beneficial.**

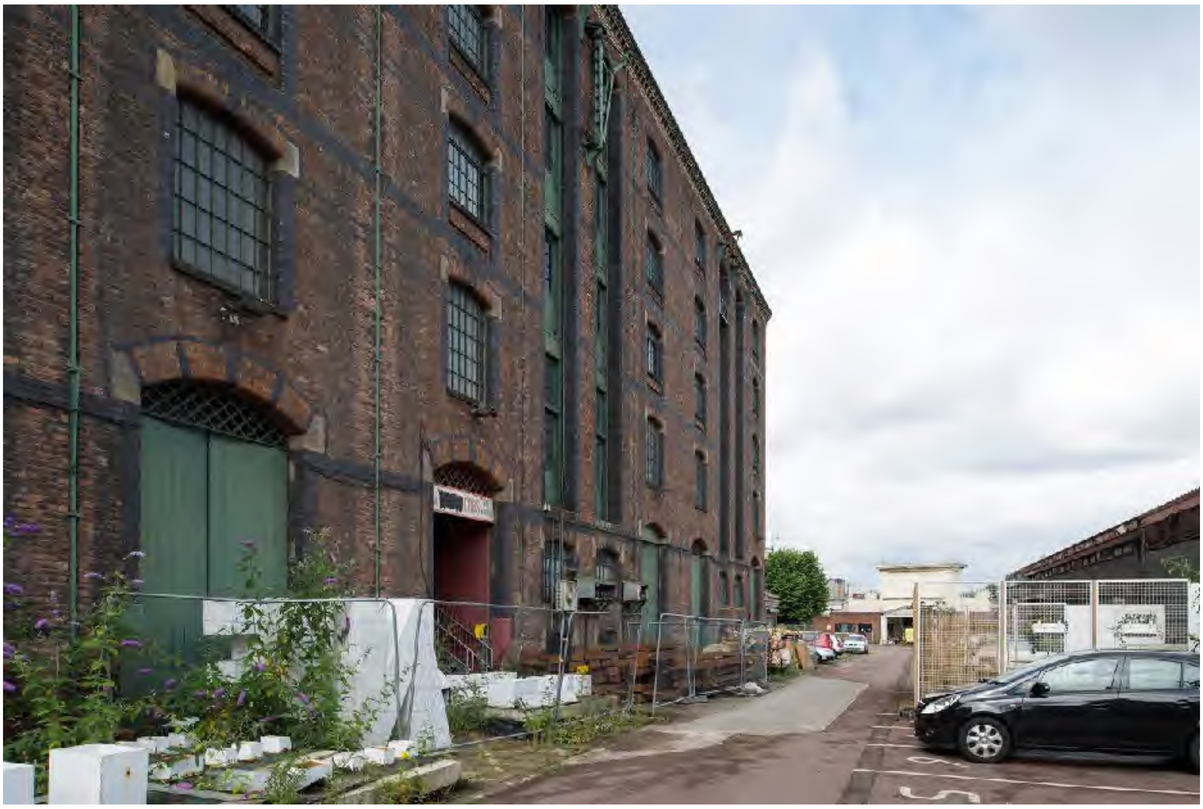
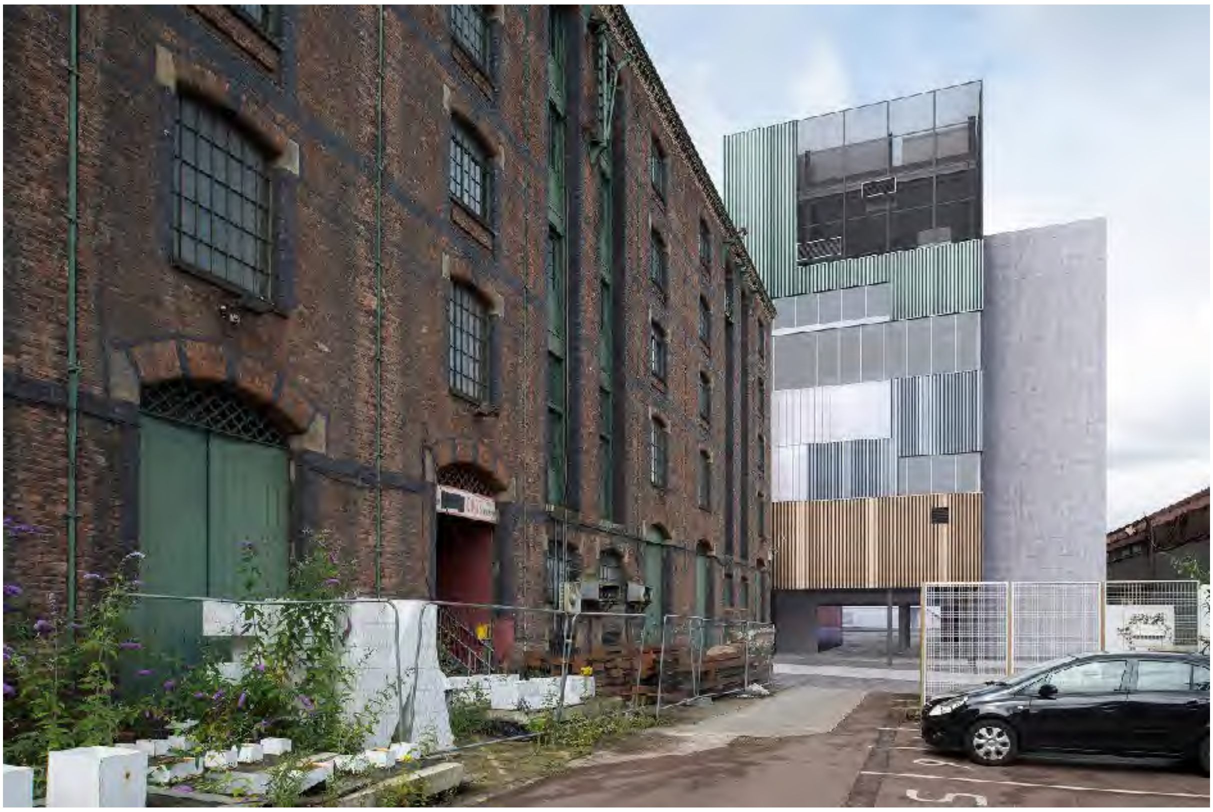


Figure 14A, above. Viewpoint 8 as existing. **Figure 14B**, below. Viewpoint 8 as proposed



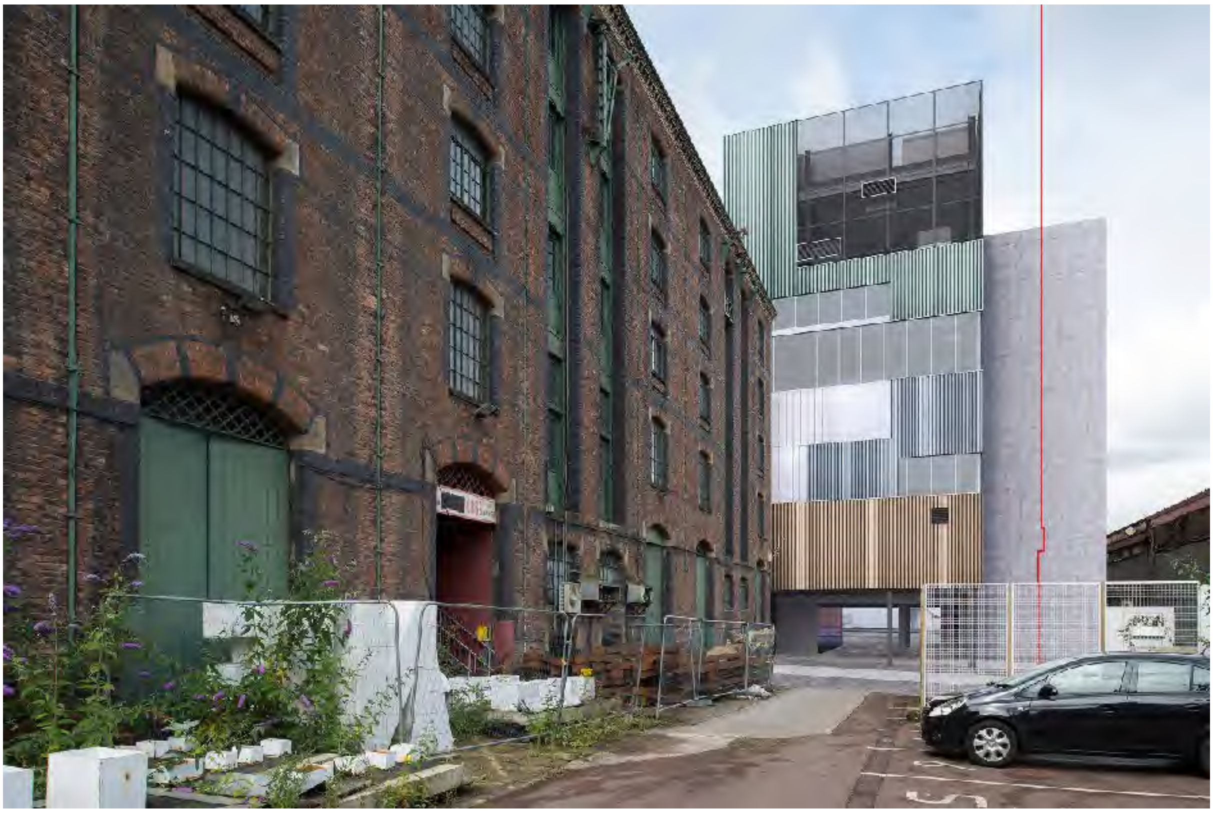


Figure 14C, above. Viewpoint 8 as proposed - cumulative

6.2 Impact Assessment Summary

- The physical impact assessment has demonstrated the proposed development will result in limited instances of adverse impact as a result of the removal of historic fabric. The proposed development will also have beneficial impacts by introducing a new waterproof membrane to the deck level of the structure thereby preventing further deterioration of the historic fabric.

- The visual impact assessment has assessed eight (8no.) views; 6 views will result in negligible impacts and 2 views will result in beneficial impacts.

- The cumulative visual impact will result in two instances of moderate adverse harm. These instances of adverse impact are in relation to the visual impact on the understanding and appreciation of the setting of the MSI complex (including views along Liverpool Road and Water Street).

- It is considered that the Proposed Development will result in overall beneficial impacts.

7 NPPF JUSTIFICATION AND PLANNING POLICY COMPLIANCE STATEMENT

7.1 Introduction

The National Planning Policy Framework, 2012, sets out the Government's planning policies for England and how these are expected to be applied. The relevant local plan policies contained within the Manchester Core Strategy have also been considered.

7.2 National Planning Policy Framework (NPPF)

This statement addresses the relevant policies within the NPPF concerned with the historic environment (principally Section 12).

It is a fundamental requirement of the NPPF that planning proposals contribute to the achievement of *"sustainable development"* (NPPF. Para. 7). The fundamental planning objective is, therefore, to ensure that the development of the heritage asset contributes to the stimulation of a thriving historic environment. This requires a clear and proportionate evaluation of the significance of the affected heritage assets, as has been outlined above.

In this context, the analysis of the Grade II listed colonnaded viaduct and the heritage assets surrounding the subject site has led to informed and sensitive development proposals, which minimise conflict with the conservation of the heritage asset, ensuring that the application clearly meets the requirements of the **NPPF, paragraphs 128 and 129.**

As set out in **paragraph 128**, the Heritage Statement describes the significance of the identified heritage assets. The setting of the identified heritage assets has been addressed sufficiently to understand the potential impact of the proposals.

The Heritage Statement provides information proportionate to the identified heritage assets' importance; whilst there will be instances of adverse impact on the historic fabric of the Grade II listed colonnaded viaduct structure, the visual impact assessment demonstrates that the impact of the proposals will result in overall beneficial impacts. It is considered that the instances of adverse impact are mitigated by the substantial public benefits of the scheme and will lead to "*less than substantial harm"* to the significance of the identified heritage assets (**paragraph 134**).

As expounded in the accompanying Planning Statement, by Deloitte Real Estate, this harm is outweighed by the public benefits of the scheme, which include:

Economic

- Increase numbers of visitors to Manchester and the North
- Provide new employment opportunities in the creative sector, which is an important area of growth for the city region.

- Deliver benefits for a range of other businesses that will work with Factory.
- Grow St. John’s as creative hub linked to current clusters at MediaCity and The Sharp Project.
- Within a decade help create directly or indirectly, the equivalent of 2,453 full time jobs and add £137.7m a year to the economy.

Skills and Training

- Play a significant role in supporting the skills, training and employability for the developing creative industries sector in Greater Manchester and the North
- Present a unique setting in which to inspire and nurture a new creative generation.
- Present opportunities for engagement with young people, apprenticeships and volunteering.
- Together with the opportunity to develop a creative enterprise zone at St. John's, Factory will ensure that Manchester will continue to strengthen as a place where talented creatives look to work.

Cultural and audience impact

- Create new work for new and existing audiences.
- Meet and grow audience demand for new experiences.
- Encourage a great number of people to engage with the arts.
- Continue to improve the culture offer of the North.

Environmental impact

- Provide a world-class arts and culture space, designed by OMA, an internationally renowned architectural practice.
- Deliver a new venue that works with the heritage assets close to the site.
- Provide high quality new public space, which connects well to the City Centre and Castlefield.
- Be accessible to all.
- The proposals will provide a cultural anchor to St. John’s, which in turn seeks to open up the former ITV site and re-connect it to the City Centre and Castlefield. In particular, the proposals will help to enliven Water Street and connect the core St. John’s site with the riverside area, linking through to the River Irwell.

- In addition, there are opportunities to potentially make new connections into MSI, at upper and lower level.

Careful consideration of the alignment, scale, massing and materiality of the proposed development, as expounded in the accompanying Design and Access Statement, supports **paragraphs 56 – 68** of the NPPF which emphasises the need for the integration of new development into the built and historic environment (paragraph 61). The proposed development responds to the context of the site's surroundings in regards to the variety in massing, scale, alignment and materiality of the buildings surrounding the site. The proposed development has also responded to the local character and history and reflects the diversity of the local identity, building styles and materials. Importantly, the design of the proposed development is appropriately innovative continuing the history of independence and variety and place shaping, addressing connections between people and places **(paragraph 58**, point 4).

As will be evident, the proposals for the site herald further investment in this part of Manchester. The proposals will clearly make a positive contribution to the vitality of this part of the city and therefore enhance the character and distinctiveness of the setting of the identified heritage assets surrounding the site.

The NPPF does not specifically define *'good architecture'* but puts great weight on the delivery of contextual design *(paragraph 64)* which takes the opportunities available for improving the character and quality of an area and the way it functions. The emphasis of the proposed development is thus on providing architectural space for the delivery of new accommodation, taking advantage of the complexity of the site in urban design terms and responding accordingly.

The NPPF stresses that *'great weight'* should be given to the objective of conserving listed buildings *(paragraph 132),* emphasising the need to avoid substantial harm to such designated heritage assets. Given this conservation objective, any perceived harm, from demolition to visual compromise (resulting from insensitive development within the setting of a designated heritage asset) should be avoided and at least require *'clear and convincing justification'*. It has been demonstrated that the accompanying D&A Statement details the extensive process of design development and review in order to respond to the context of the site.

It will be noted that the NPPF establishes a clear hierarchy of significance for heritage assets, derived from their designated status. The fundamental objective is to avoid compromising designated heritage assets, such that any potential '*substantial harm'* from a development must be balanced against the potential advantages of the public benefits that may outweigh any harm *(paragraph 133)*. In this instance we contend that the proposed development does not cause substantial harm to the special interest of the designated heritage assets, and actually complements the wider historic environment by enhancing the urban form and streetscape of the adjacent heritage assets.

The NPPF Planning Practice Guide (2014) emphasises that, in general terms, *"substantial harm is a high test, so it may not arise in many cases"*. Thus when determining whether a proposed development within the setting of a listed building would result in substantial harm, a key consideration is whether or not the impact seriously affects an important element of its *“special architectural or historic interest”*. This impact could include its setting.

It is the degree of harm to the asset’s significance rather than the scale of the development that is to be assessed. The current proposals do not affect the character of the listed colonnaded viaduct, as a building of special architectural or historic interest, physically or visually. Nor do the proposals impact on the identified heritage assets or detract entirely from key views of them. Consequently, there can be no such harm. It has been demonstrated that the proposed development will have no measurable detrimental impact on the heritage assets, and indeed makes a substantial beneficial contribution to the cohesion of this part of the city.

The cumulative impact of the proposed new development should, therefore, be evaluated against the positive contribution to local character and distinctiveness, in accordance with the requirements of the NPPF, in particular paragraph 134.

This report contends that the proposal offers a substantial opportunity to enhance the vitality and complement the character of the site, thereby fully complying with the national planning policy requirements as established in the NPPF.

Consequently, the proposed development is demonstrably consistent with the desirability of new development making a positive contribution to local character and distinctiveness and therefore accords with the requirements of the **NPPF, paragraph 131**.

7.3 Local Planning Policy – Saved UDP

Policy CC9: Design and Heritage:

“Design of new buildings will need to be of the highest standard in terms of appearance and function […] Development in Manchester City Centre should preserve or enhance the heritage assets.”

Policy EN3: Heritage:

“New developments must be designed so as to support the Council in preserving or, where possible, enhancing the historic environment, the character, setting and accessibility of areas and buildings of acknowledged importance, including […] listed buildings [and] conservation areas.”

As propounded in these policies, the proposed development has been designed with due regard to principles of scale, height, massing, alignment, material and use, within a contemporary architectural idiom, which is consistent with contemporary development in this area and also the character and appearance of the wider townscape. Reference to the accompanying Design and Access Statement should be made for further details.

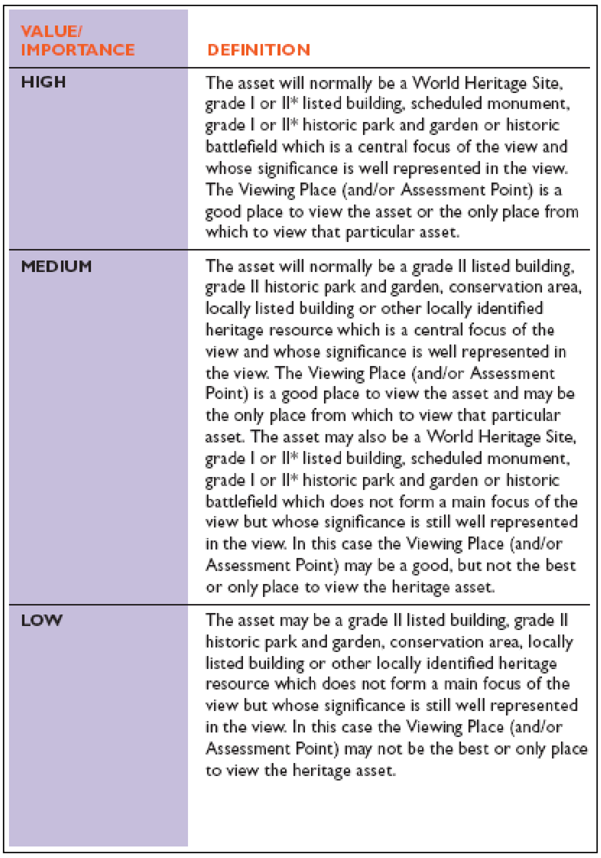
The proposed development gives rise to significant regeneration benefits, including; the bringing back into full economic use a gap site and significant enhancements to the streetscape and wider townscape.

8 SUMMARY AND CONCLUSION

- The proposals seek to maintain a sustainable, viable use for the listed Viaduct structure by better revealing its heritage values and allowing for continual maintenance and repair.
- The proposals cannot be considered to result in anything more than limited instances of "*less than substantial harm,*" due to the fact that the special architectural interest of the listed buildings will not be fundamentally compromised.
- The beneficial impacts of the proposals, alongside heritage and public benefits, are considered to outweigh any instances of less than substantial harm.
- The proposals comply with national and local planning policy.

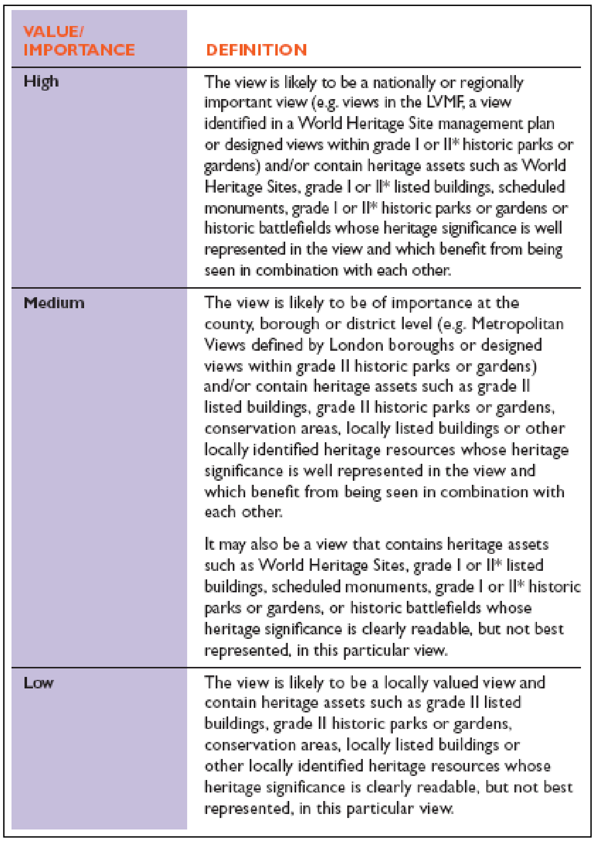
8 APPENDICES

8.1 Appendix i: Visual assessment criteria



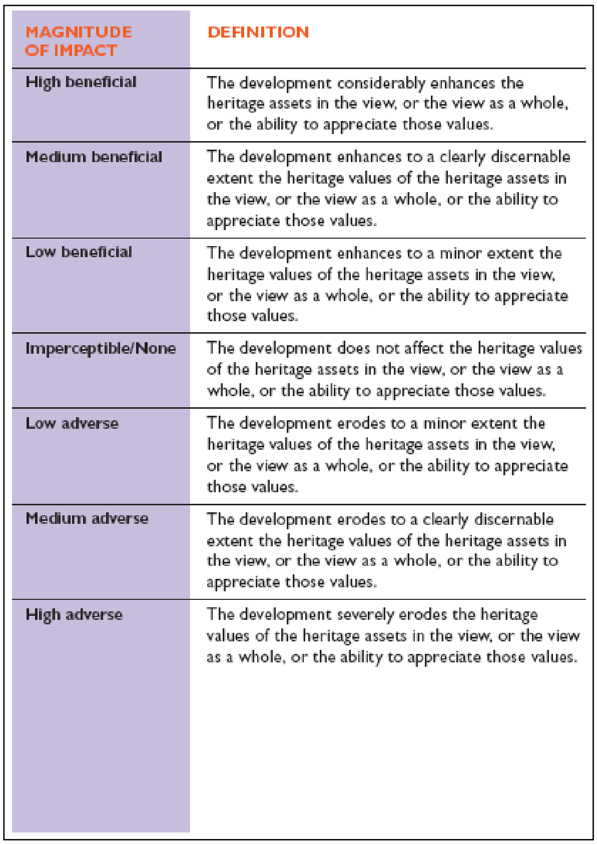
VALUE/ IMPORTANCE	DEFINITION
HIGH	The asset will normally be a World Heritage Site, grade I or II* listed building, scheduled monument, grade I or II* historic park and garden or historic battlefield which is a central focus of the view and whose significance is well represented in the view. The Viewing Place (and/or Assessment Point) is a good place to view the asset or the only place from which to view that particular asset.
MEDIUM	The asset will normally be a grade II listed building, grade II historic park and garden, conservation area, locally listed building or other locally identified heritage resource which is a central focus of the view and whose significance is well represented in the view. The Viewing Place (and/or Assessment Point) is a good place to view the asset and may be the only place from which to view that particular asset. The asset may also be a World Heritage Site, grade I or II* listed building, scheduled monument, grade I or II* historic park and garden or historic battlefield which does not form a main focus of the view but whose significance is still well represented in the view. In this case the Viewing Place (and/or Assessment Point) may be a good, but not the best or only place to view the heritage asset.
LOW	The asset may be a grade II listed building, grade II historic park and garden, conservation area, locally listed building or other locally identified heritage resource which does not form a main focus of the view but whose significance is still well represented in the view. In this case the Viewing Place (and/or Assessment Point) may not be the best or only place to view the heritage asset.

Table 1: Value/ importance of individual heritage assets identified within the view.



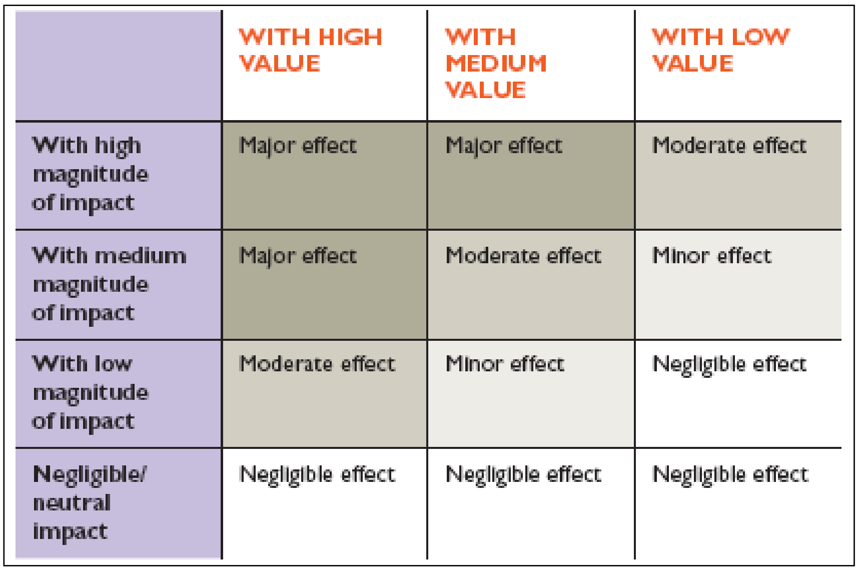
VALUE/ IMPORTANCE	DEFINITION
High	The view is likely to be a nationally or regionally important view (e.g. views in the LVMF, a view identified in a World Heritage Site management plan or designed views within grade I or II* historic parks or gardens) and/or contain heritage assets such as World Heritage Sites, grade I or II* listed buildings, scheduled monuments, grade I or II* historic parks or gardens or historic battlefields whose heritage significance is well represented in the view and which benefit from being seen in combination with each other.
Medium	The view is likely to be of importance at the county, borough or district level (e.g. Metropolitan Views defined by London boroughs or designed views within grade II historic parks or gardens) and/or contain heritage assets such as grade II listed buildings, grade II historic parks or gardens, conservation areas, locally listed buildings or other locally identified heritage resources whose heritage significance is well represented in the view and which benefit from being seen in combination with each other. It may also be a view that contains heritage assets such as World Heritage Sites, grade I or II* listed buildings, scheduled monuments, grade I or II* historic parks or gardens, or historic battlefields whose heritage significance is clearly readable, but not best represented, in this particular view.
Low	The view is likely to be a locally valued view and contain heritage assets such as grade II listed buildings, grade II historic parks or gardens, conservation areas, locally listed buildings or other locally identified heritage resources whose heritage significance is clearly readable, but not best represented, in this particular view.

Table 2: Value/ importance of the view as a whole



MAGNITUDE OF IMPACT	DEFINITION
High beneficial	The development considerably enhances the heritage assets in the view, or the view as a whole, or the ability to appreciate those values.
Medium beneficial	The development enhances to a clearly discernable extent the heritage values of the heritage assets in the view, or the view as a whole, or the ability to appreciate those values.
Low beneficial	The development enhances to a minor extent the heritage values of the heritage assets in the view, or the view as a whole, or the ability to appreciate those values.
Imperceptible/None	The development does not affect the heritage values of the heritage assets in the view, or the view as a whole, or the ability to appreciate those values.
Low adverse	The development erodes to a minor extent the heritage values of the heritage assets in the view, or the view as a whole, or the ability to appreciate those values.
Medium adverse	The development erodes to a clearly discernable extent the heritage values of the heritage assets in the view, or the view as a whole, or the ability to appreciate those values.
High adverse	The development severely erodes the heritage values of the heritage assets in the view, or the view as a whole, or the ability to appreciate those values.

Table 3: Criteria for determining magnitude of impact on heritage significance within a view



	WITH HIGH VALUE	WITH MEDIUM VALUE	WITH LOW VALUE
With high magnitude of impact	Major effect	Major effect	Moderate effect
With medium magnitude of impact	Major effect	Moderate effect	Minor effect
With low magnitude of impact	Moderate effect	Minor effect	Negligible effect
Negligible/ neutral impact	Negligible effect	Negligible effect	Negligible effect

Table 4: Overall impact: magnitude of impact against value

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Tables reproduced from Historic England, Seeing History in the View: A method for assessing heritage significance within views, 2011

BONDED WAREHOUSE
TUTUBAR

Appendix 9.1

Acoustic Terminology

Appendix 9.1

Acoustic terminology

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Acoustic terminology **1**

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Acoustic terminology

Decibel (dB)

The ratio of sound pressures which we can hear is a ratio of 10^6:1 (one million:one). For convenience, therefore, a logarithmic measurement scale is used. The resulting parameter is called the 'sound pressure level' (L_p) and the associated measurement unit is the decibel (dB). As the decibel is a logarithmic ratio, the laws of logarithmic addition and subtraction apply.

dB(A)

The unit used to define a weighted sound pressure level, which correlates well with the subjective response to sound. The 'A' weighting follows the frequency response of the human ear, which is less sensitive to low and very high frequencies than it is to those in the range 500Hz to 4kHz.

In some statistical descriptors the 'A' weighting forms part of a subscript, such as L_{A10}, L_{A90}, and L_{Aeq} for the 'A' weighted equivalent continuous noise level.

Equivalent continuous sound level

An index for assessment for overall noise exposure is the equivalent continuous sound level, L_{eq}. This is a notional steady level which would, over a given period of time, deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating levels can be described in terms of a single figure level.

Frequency

Frequency is the rate of repetition of a sound wave. The subjective equivalent in music is pitch. The unit of frequency is the hertz (Hz), which is identical to cycles per second. A 1000Hz is often denoted as 1kHz, eg 2kHz = 2000Hz. Human hearing ranges approximately from 20Hz to 20kHz. For design purposes the octave bands between 63Hz to 8kHz are generally used. The most commonly used frequency bands are octave bands, in which the mid frequency of each band is twice that of the band below it. For more detailed analysis, each octave band may be split into three one-third octave bands or in some cases, narrow frequency bands.

Maximum noise level

The maximum noise level identified during a measurement period. Experimental data has shown that the human ear does not generally register the full loudness of transient sound events of less than 125ms duration and fast time weighting (F) has an exponential time constant of 125ms which reflects the ear's response. Slow time weighting (S) has an exponential time constant of 1s and is used to allow more accurate estimation of the average sound level on a visual display.

The maximum level measured with fast time weighting is denoted as $L_{Amax, F}$. The maximum level measured with slow time weighting is denoted $L_{Amax, S}$.

Sound power level

The sound power level (L_w) of a source is a measure of the total acoustic power radiated by a source. The sound power level is an intrinsic characteristic of a source (analogous to its volume or mass), which is not affected by the environment within which the source is located.

Sound pressure level

The sound power emitted by a source results in pressure fluctuations in the air, which are heard as sound.

The sound pressure level (L_p) is ten times the logarithm of the ratio of the measured sound pressure (detected by a microphone) to the reference level of 2 x 10^{-5}Pa (the threshold of hearing).

Thus L_p (dB) = 10 log $(P1/P_{ref})^2$ where P_{ref}, the lowest pressure detectable by the ear, is 0.00002 pascals (ie $2x10^{-5}$ Pa).

The threshold of hearing is 0dB, while the threshold of pain is approximately 120dB. Normal speech is approximately 60dBL_A and a change of 3dB is only just detectable. A change of 10dB is subjectively twice, or half, as loud.

Statistical noise levels

For levels of noise that vary widely with time, for example road traffic noise, it is necessary to employ an index which allows for this variation. The L_{10}, the level exceeded for 10% of the time period under consideration, and can be used for the assessment of road traffic noise (note that L_{Aeq} is used in BS 8233 for assessing traffic noise). The L_{90}, the level exceeded for 90% of the time, has been adopted to represent the background noise level. The L_1, the level exceeded for 1% of the time, is representative of the maximum levels recorded during the sample period. A weighted statistical noise levels are denoted L_{A10}, dBL_{A90} etc. The reference time period (T) is normally included, e.g. dB$L_{A10, 5min}$ or dB$L_{A90, 8hr}$.

Typical levels

Some typical dB(A) noise levels are given below:

Noise Level, dB(A)	Example
130	Threshold of pain
120	Jet aircraft take-off at 100m
110	Chain saw at 1m
100	Inside disco
90	Heavy lorries at 5m
80	Kerbside of busy street
70	Loud radio (in typical domestic room)
60	Office or restaurant
50	Domestic fan heater at 1m
40	Living room
30	Theatre
20	Remote countryside on still night
10	Sound insulated test chamber

Vibration

Vibration may be expressed in terms of displacement, velocity and acceleration. Velocity and acceleration are most commonly used when assessing human comfort or structureborne noise issues.

Vibration magnitude may be quantified as a peak value, or as a root mean squared (rms) value. The rms value is of benefit because it takes into account both time history variation and energy content. The rms value is equal to 0.707 times the peak value.

The peak value, expressed as the peak particle velocity (PPV) is commonly used for construction vibration and is the parameter best correlated with building damage. PPV can also be related to the perceptible to people of vibration.

Generally humans are more sensitive to changes in vibration amplitude than they are to changes in the duration of the exposure to vibration.

Vibration dose value (VDV)

This is a complex metric that has been identified as being the best objective measure of human disturbance from intermittent/transient vibration. The VDV is the fourth root of the time integral of the fourth power of the weighted acceleration. VDV are measured in units of $m/s^{1.75}$. The frequency weightings are defined in BS 6472-1: 2008 and in BS 6841: 1987.

The VDV doubles in magnitude with a doubling of vibration amplitude. However, a 16-fold increase in the duration of exposure to the vibration is required to double the VDV (without any change in amplitude).

Appendix 9.2

Noise and Vibration Significance Criteria

Appendix 9.2

Noise and vibration significance criteria

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Noise and vibration significance criteria **1**

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Introduction

The noise and vibration assessment takes account of Manchester City Council's requirements and the *Infrastructure Planning (Environmental Impact Assessment) Regulations 2009* and has been undertaken according to the national government's planning and noise policy as defined in:

- the *Noise Policy Statement for England (NPSE)*;
- *National Planning Policy Framework (NPPF)* and
- *Planning Practice Guidance – Noise (PPG-N).*

The assessment of noise and vibration considers the likely significant effects arising from the construction and operation of the Proposed Development. It is important to differentiate between impacts and effects. The following definitions are adopted for this assessment:

- Impact - the introduction of new noise or vibration into an existing environment.
- Effect - the noise effect on the receptor/community subject to an impact. The noise effect is therefore linked to the level of the impact, the sensitivity of the receptor and other key matters such as the existing acoustic environment.

Therefore it follows that:

- an impact is a change in the environment;
- an effect is what results from an impact on a receptor and is dependent on the receptor and its sensitivity; and
- as an impact increases in level, so the effect increases either in terms of magnitude (e.g. noise change) or in terms of the number of receptors adversely affected (or both), to a point where either the level of exposure or the number of receptors exposed reach a point where the assessment needs to report the outcome as a likely significant effect consistent with the EIA Regulations.

Significance criteria

The Government's noise policy, set out in NPSE, uses the key phrases "significant adverse" and "adverse". In clarifying what these mean the policy notes that "*…there are two established concepts from toxicology that are currently being applied to noise effects, for example, by the WHO*". These concepts are:

- NOEL – no observed effect level, the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise; and
- LOAEL – lowest observed adverse effect level, the level above which adverse effects on health and quality of life can be detected.

The policy extends these concepts to include:

- SOAEL – significant observed adverse effect level, the level above which significant adverse effects on health and quality of life occur.

Under Government noise policy and practice guidance, it becomes clear that defining SOAELs for the noise sources under consideration in an assessment is a key step. Any receptor forecast to experience an overall exposure from the scheme that exceeds the relevant SOAELs is identified as being subject to significant adverse impact on health and quality of life (under Government noise policy) and hence identified as a likely significant observed adverse effect in this assessment.

Where the noise level from the scheme is between LOAEL and SOAEL, NPSE states:

"all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur."

The EIA process requires that likely significant effects are identified along with the envisaged mitigation to avoid or reduce adverse significant effects. The ES therefore has to define significance criteria that enable impacts that are 'adverse impacts' in Government policy terms to be identified, where necessary, as likely significant effects in the ES. This aligns the triggering of mitigation under both the EIA process and government noise policy.

Where the effects are adverse in policy terms (i.e. not significant in policy terms) then other factors such as the number of dwellings affected can result in the effects being reported as likely significant effects in the ES.

The following sections of this appendix provide more detail on significance criteria used in the scheme's noise and/or vibration impact assessment.

For residential receptors the significance criteria are:

- the magnitude of the impact and effect identified (based on overall noise level and noise change).
- the number of adversely or beneficially affected dwellings;
- the level and character of the existing noise environment;
- any unique features of the source or receiving environment in the local area;
- duration of impact and effect (for construction); and
- the effectiveness of mitigation measures that could avoid or reduce the adverse effects.

Construction noise

Direct, temporary effects of noise are associated with construction. Impact thresholds for construction noise have been established by reference to the 'ABC method' described in Annex E of *BS5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – noise* (British Standards Institute, 2014). The ABC method defines the thresholds at building facades on the basis of existing noise levels as set out in Table 9.2.1.

Where the forecast construction noise exceeds the relevant threshold this is an indicator of a potential significant effect, as noted in BS5228-1 i.e. where the level of impact is sufficient that it may lead to a likely significant effect once other aspects are considered.

For daytime, the widely used threshold of 75dBL_{Aeq} (category C in Table 9.2.1) has been taken to be the SOAEL for construction noise. Typically a duration for the impact is also considered, such as being exceeded for one month or more. In the absence of a developed construction programme, in this case it has been cautiously taken than any exceedence of this threshold level is assessed as significant. The threshold was originally set to avoid interference with normal speech indoors, with windows closed (reference the Wilson Report, 1963). Windows and their sound insulation properties have improved substantially since the Wilson Report; the 75dBL_{Aeq} SOAEL is therefore likely to be precautionary for modern properties.

Table 9.2.1: Thresholds of potential significant effects of construction noise at residential buildings (from BS 5228-1:2009+A1:2014)

Period	**Threshold value in decibels, dB$L_{pAeq,T}$**		
	Category A (LOAEL)*	**Category B (LOAEL)***	**Category C (SOAEL)**
Day: T=12hr, Weekdays, 07.00-19.00, T=6hr, Saturday, 07.00-13.00	65	70	75
Evenings and weekends: T=1hr Weekdays 19.00–23.00, Saturdays 13.00–23.00, Sundays 07.00–23.00	55	60	65
Night: T=1hr Every day 23.00–07.00	45	50	55
Notes: All noise levels are defined outdoors at the façade of the receptor Assessment Category A: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are less than these values; Assessment Category B: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are the same as category A values; and Assessment Category C: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are higher than category A values. * dependent on existing ambient noise levels			

The day-time SOAEL assumed for construction reflects that construction noise is temporary and that higher levels of noise generally only occur for part of the construction programme.

For night-time, the *Night Noise Guidelines for Europe* (World Health Organisation (WHO), 2009) introduced an interim target of 55dB$L_{pAeq,8hr}$ measured outdoors as an annual average. Exceeding this noise threshold (category 'C' of the ABC impact criteria at night as shown in Table 9.2.1), for one month or longer has been adopted as the SOAEL for night-time construction noise. *The Night Noise Guidelines for Europe* is based on evidence gathered for long term exposure to primarily road and aircraft noise. There is no evidence of short-term construction noise leading to significant health effects. The WHO's interim target of 55dBL_{pAeq} is therefore applied to construction on a precautionary basis.

For the evening, the SOAEL is set 10dB lower than the day-time SOAEL, consistent with the 'ABC criteria' (British Standards Institute, 2014) and the accepted criteria that date back to the *Advisory Leaflet 72 - Noise Control on Building Sites* (Department of the Environment, 1976).

Noise exposure between LOAEL and SOAEL is, in Government policy terms, an adverse observed effect but not a significant observed adverse effect. Such adverse effects relate to people's response to changes in local acoustic character particularly outdoors and to a lesser extent indoors. Adverse observed effects are identified where categories A or B from Table 9.2.1 apply and the forecast construction noise exceeds the relevant category but is below category C. This provides a simplified method for considering adverse effects from noise increases caused by construction. Such adverse effects under policy may be reported as likely significant effects in the ES following the consideration of the other significance criteria set out in this appendix (for example the number of receptors exposed to the adverse effect).

Construction traffic noise

Changes in traffic flows on existing roads as a consequence of the construction works have been used to calculate changes in noise levels in terms of the basic noise level (BNL) defined in CRTN. For this project, the magnitude of impact and effects associated with the change have been evaluated using the same criteria as for other (on site) construction activity. A minor impact (3dB or greater) is taken as an indicator of a potential significant effect unless the area being considered is currently exposed to high levels of noise, in which case a smaller impact (1dB or greater) has been taken as an indicator of potential significance.

Likely significant indirect effects have been evaluated with respect to the impacts and also matters such as the number of receptors affected. Values for LOAEL and SOAEL are defined to be consistent with those from site-based construction to reflect their temporary presence.

Construction vibration

Table 9.2.2 defines the no observed adverse effect levels for groundborne vibration with regard to risk of building damage. These criteria are derived from *British Standard BS7385*, Part 2 *Evaluation and measurement for vibration in buildings – Guide to damage levels from groundborne vibration* and ensures there is no risk of the lowest damage category ('cosmetic') being exceeded, as defined in *BS ISO 4866:2010 Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures*.

Table 9.2.2: Vibration impact criteria for buildings (conservative criteria below which there is no risk of cosmetic damage)

Category of building	**Peak particle velocity (PPV) at building foundation**	
	Transient[1] vibration	**Continuous[2] vibration**
Potentially vulnerable buildings[3]	≥6 mm/s	≥3 mm/s
Structurally sound buildings	≥12 mm/s	≥6 mm/s

1. Transient vibration relative to building response such as impulsive vibration from percussive piling.
2. Continuous vibration relative to building response such as vibrating rollers.
3. BS7385-2 highlights that the criteria for aged buildings may need to be lower if the buildings are structurally unsound. The standard also notes that criteria should not be set lower simply because a building is important or historic (listed). Where information about these structures is not currently known, the significance criteria for these receptors has been set at a lower level on a precautionary basis.

Guidance on the impact of vibration on people in buildings is presented in *British Standard 6472-1 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting* (BSI, 2008). Part 1 of this standard assesses the impact of vibration using the vibration dose value (VDV). This indicator takes into account how people respond to vibration in terms of frequency content, vibration magnitude and the number and duration of vibration events during an assessment period. For dwellings, vibration from construction is assessed using the criteria presented in Table 9.2.3.

The LOAEL values, corresponding to the threshold for a minor adverse impact in EIA terms, are taken as the lower end of the range of values for which BS6472-1 indicates a 'low probability of adverse comment'. The SOAEL values are taken where a level of exposure is the lower value for 'adverse comment probable' in *BS6472-1*. As for construction noise, a cautious approach is taken than does not consider the period of time over which the impact will occur.

Table 9.2.3: Thresholds of likely effects of vibration for residential buildings (derived from BS 6472-1: 2008)

Threshold (residential)	Impact classification	Vibration exposure[1]	
		VDV daytime (07:00 – 23:00) ($m/s^{1.75}$)	VDV night time (23:00 – 07:00) ($m/s^{1.75}$)
LOAEL	Minor	0.2	0.1
-	Moderate	0.4	0.2
SOAEL	Major	0.8	0.4

1. Determined at the worst location on a normally loaded floor (usually the centre of the floor)

Noise from events

The building envelope is being designed to contain noise such that, even at the closest proposed new dwellings, the low frequency noise criteria required by MCC will be achieved (see Appendix 9.4). Consequently the impacts and effects of event noise have not been assessed further, so no criteria are defined in terms of government policy.

Operational road traffic noise

The operational noise impacts and effects are related to both the noise level and the change in noise level caused by the scheme. The Government's noise policy provides the basis for evaluating the magnitude of the effect as discussed earlier in this appendix. In this assessment, residential receptors (dwellings) are forecast to experience a likely significant adverse noise effect from operation of the scheme if noise outside dwellings from the scheme only is:

- 68dB$L_{A10,18hr}$ (equivalent to 63dB$L_{Aeq,16hr}$ free-field) or greater during the day; or
- 55dB$L_{Aeq,8hr}$ (i.e. 23:00-07:00) or greater during the night.

The rationale for this is as follows.

During the day-time the level of 68dB$L_{A10,18hr}$ is considered a SOAEL (equivalent to 63dB$L_{Aeq,16hr}$ free-field). This is consistent with the daytime trigger level in the *Noise Insulation (Amendment) Regulations 1988*. Aligning the SOAEL with noise insulation trigger thresholds is consistent with the advice in PPG-N that notes as an example of the consequence of noise exposure above the SOAEL is that people start *"avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise"*.

The WHO *Night Noise Guidelines for Europe* sets an interim target of 55dB$L_{Aeq,8hr}$ outdoors. This has been taken to be a SOAEL for night-time traffic noise.

In this assessment residential receptors (dwellings) are forecast to experience an adverse effect in policy terms where noise from the operation of the scheme outside dwellings is:

- 50dB$L_{Aeq,16hr}$ or greater during the day; and
- 40dB$L_{Aeq,8hr}$ or greater at night.

These are the LOAELs adopted for operational noise in this assessment.

For the day-time LOAEL the WHO *Guidelines for Community Noise* identifies that 50 to 55dBL_{Aeq} (outdoor noise level), represents: "*day-time levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed, respectively*."

In the *Night Noise Guidelines for Europe*, the night noise guideline of 40dB$L_{night, outside}$ is set explicitly as a lowest observable adverse effect level (LOAEL). This is an annual average level measured over the 8hr night-time period from 2300 to 0700.

The thresholds of 50dB$L_{Aeq,16hr}$ and 40dB$L_{Aeq,8hr}$ therefore represent the onset of the lowest observed community noise effects during the day (annoyance) and night (potential for some reported sleep disturbance) consistent with the *Night Noise Guidelines for Europe Guidelines for Community Noise* and *PPG–N*). No adverse effects are therefore generally likely below these absolute levels of sound exposure.

Forecast operational sound levels from the scheme of between 50dBL_{Aeq} and 68dB$L_{A10,18hr}$ (equivalent to 63dB$L_{Aeq,16hr}$ free-field), or 40dB$L_{Aeq,8hr}$ and 55dB$L_{Aeq,8hr}$ night-time (i.e. between the respective LOAELs and SOAELs) are adverse effects with regard to noise policy. When considered collectively for groups of dwellings, such effects may be considered significant in terms of the EIA because of the change in noise and the number of dwellings exposed to the change.

DMRB, HD213/11 provides a basis for evaluating the magnitude of the impact and effect caused by noise change both in the short-term and long-term. This assessment has focused on the long term change as this is the likely worst case considering traffic growth. This is also consistent with *DMRB, HD213/11*, which notes:

"In terms of permanent impacts… In the long-term, a 3dB(A) change is considered perceptible. Such increases in noise should be mitigated if possible".

Where the overall noise level with the scheme in operation is between the lowest (LOAEL) and the significant observed adverse effect levels (SOAEL), the magnitude of the impact and effect caused can be indicated by the change in noise levels attributable to the scheme. The DMRB method for evaluating the magnitude of impact from such changes in the long term is shown in *Table 9.2.4*.

Table 9.2.4: Classification of magnitude of traffic noise impact on dwellings in the long-term under DMRB, where the level of overall exposure is between LOAEL and SOAEL

Noise change (dB(A)) – decrease or increase	**Magnitude of impact in the long term**
0	No change
0.1 – 2.9	Negligible
3.0 – 4.9	Minor
5.0 – 9.9	Moderate
10.0 +	Major

Where the overall exposure is greater than the relevant significant observed adverse effect level (SOAEL), then there is the increasing risk of likely health effects associated with long term (permanent) exposure.

For areas already exposed to relatively high baseline noise levels, it is appropriate to give greater weight to noise change where the existing baseline noise level is in excess of the SOAEL. This is to reflect the consideration of likely health effects. In these situations the magnitude of the impact caused by change in noise levels attributable to the scheme is shown in *Table 9.2.5.*

Table 9.2.5: Classification of magnitude of traffic noise impact on dwellings in the long-term under DMRB, where baseline noise level is greater than SOAEL

Noise change (dB(A)) – decrease or increase	**Magnitude of impact in the long term**
0	No change
0.1 – 0.9	Negligible
1.0 – 2.9	Minor
3.0 – 4.9	Moderate
5.0 +	Major

Appendix 9.3

Construction Noise and Vibration Calculation Assumptions

Appendix 9.3

Construction assumptions

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Construction assumptions **1**

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Construction assumptions

Noise

To calculate noise levels off site, the assumptions set out in Table 9.3.1 have been made for plant, operating locations and typical durations of time for which plant would be operating during a working day.

A typical location has been assumed at which the plant would operate. There would be some variability in noise level during the day and for different locations, depending on variations in distance and amount of screening provided by the site hoarding.

No mitigation is included, other than 2.4m site hoarding and use of best practicable means of working.

Construction equipment locations and receptor positions used for the calculations are shown in Figure 9.3.1.

Table 9.3.1: Construction plant assumptions

Activity	**Equipment**	**% on-time**	**Lw dB(A)**	**Source**
Breaking out (1)	Pulverizer Mounted on Excavator	80	108	BS5228 Table C 1-3
	Wheeled Backhoe Loader	60	86	BS5228 Table C 2-8
	Tracked Excavator	30	114	BS5228 Table C 1-13
	Dumper	30	106	BS5228 Table C 4-7
Bored piling (2)+(4)	Crawler Mounted Rig	25	108	BS5228 Table C 3-22
	Concrete Pump + Cement Mixer Truck (Discharging)	25	95	BS5228 Table C 4-24
	Tracked Excavator (Inserting Cylindrical Metal Cage)	15	102	BS5228 Table C 3-24
	Tracked Mobile Crane	25	95	BS5228 Table C 3-28
	Dumper	15	106	BS5228 Table C 4-7
Excavation (3)	Tracked Excavator	70	103	BS5228 Table C 2-18
	Tracked Excavator	10	107	BS5228 Table C 2-29

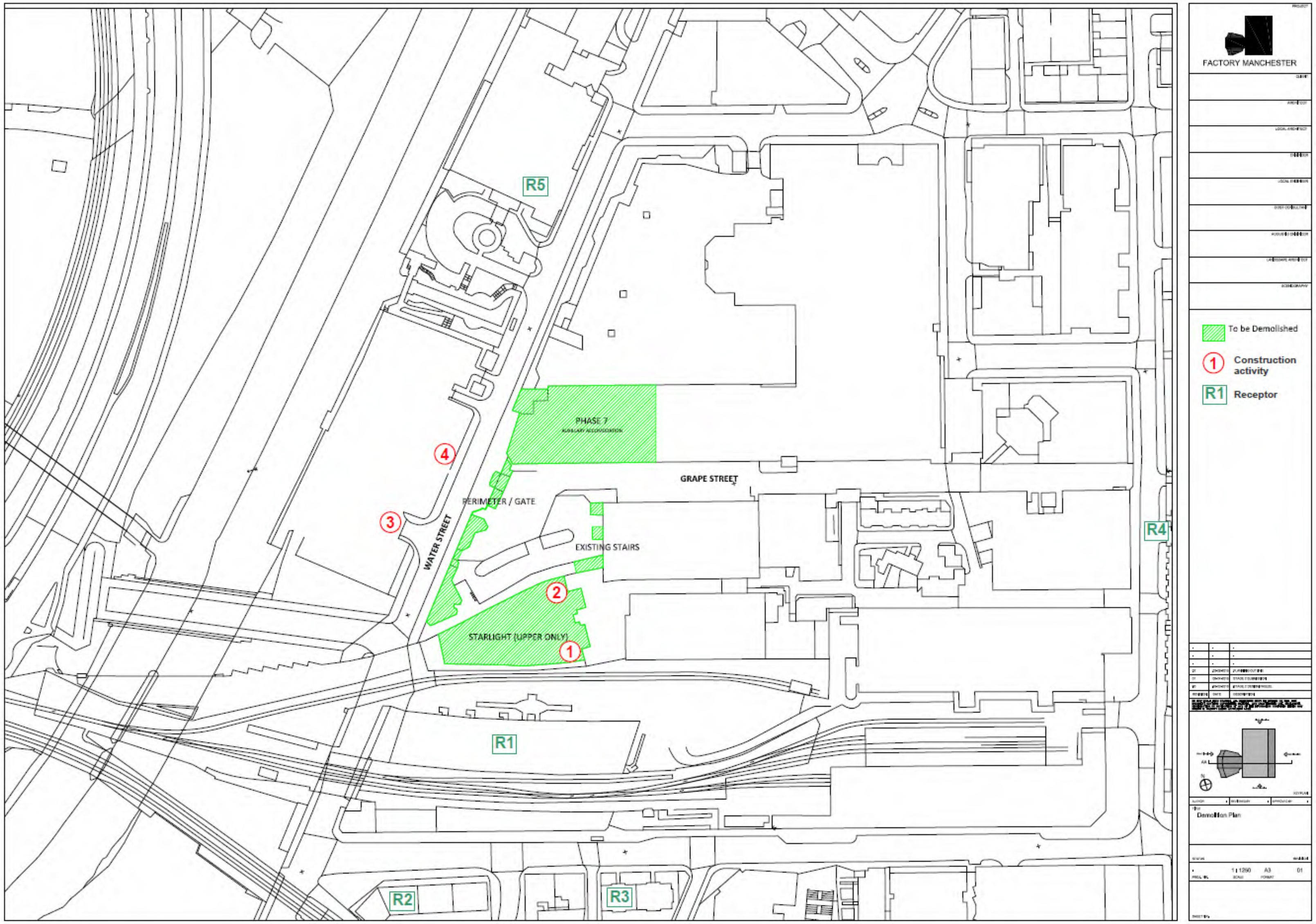
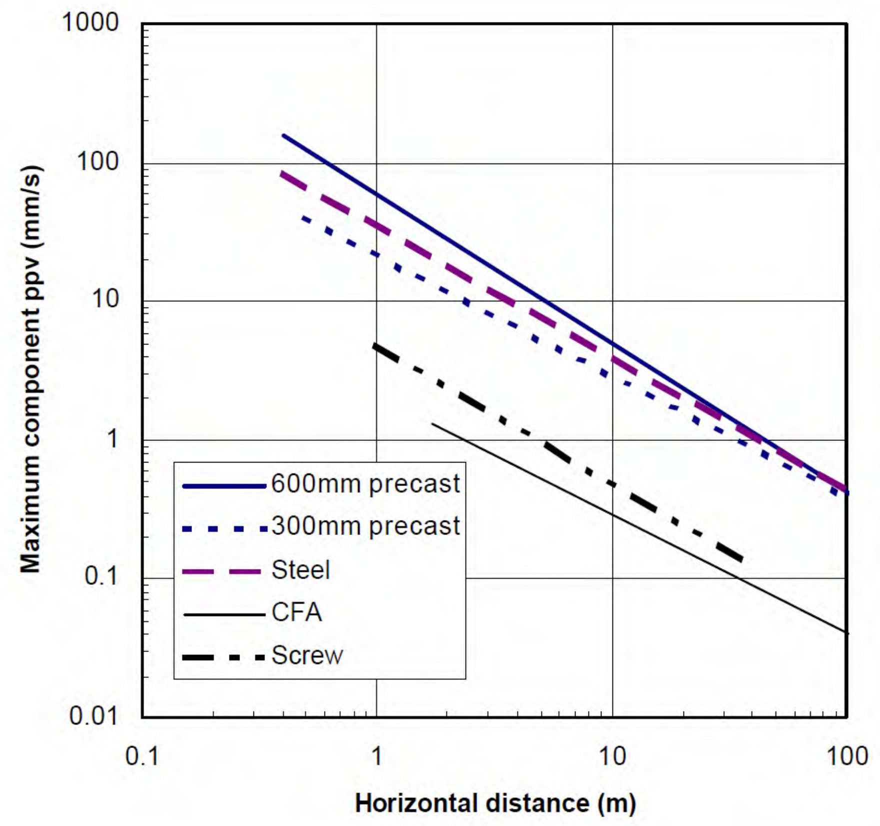

R5
PHASE 7
ANCILLARY ACCOMMODATION
④
GRAPE STREET
PERIMETER / GATE
③
WATER STREET
EXISTING STAIRS
R4
②
STARLIGHT (UPPER ONLY)
①
R1
R2
R3
FACTORY MANCHESTER
To be Demolished
① Construction activity
R1 Receptor
AA
N
Demolition Plan
1 : 1250
A3
01

Figure 9.3.1. Locations of construction activities and receptor positions used in noise calculations

Vibration

Vibration has been estimated using the methods set out in BS5228 Part 2. No predictor is provided for bored piling vibration. This has therefore been estimated based on the published[1] data presented below, which compare data from hammer driven concrete and steel piles with continuous flight auger (CFA) and displacement (screw) piles.



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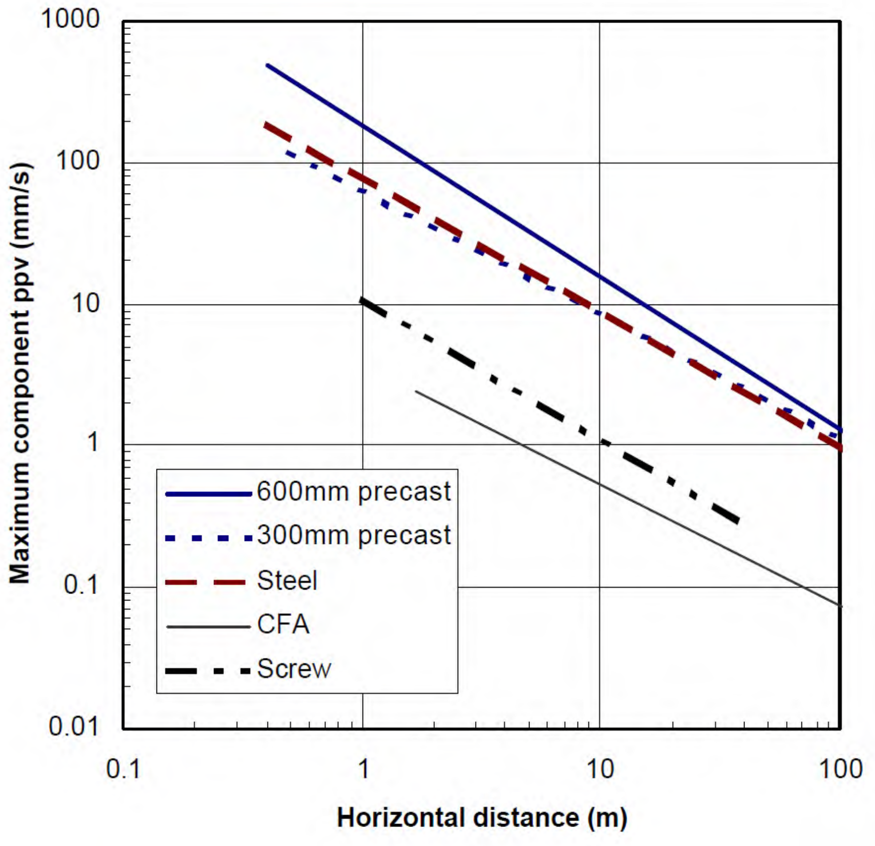
[1] Hiller D (2001) A comparison of noise and vibration from percussive and bored piling. Proc Underground Construction 2001.


1000
100
10
1
0.1
0.01
Maximum component ppv (mm/s)
0.1
1
10
100
Horizontal distance (m)
600mm precast
300mm precast
Steel
CFA
Screw

Appendix 9.4

Event Noise Emission Calculation

Event noise emission calculation

Criteria

A key element of the design is to control noise breakout from Factory to its surroundings, in particular the nearby residential areas. The nearest proposed residential building is less than 9m from the venue's facade.

The following criteria have therefore been set for amplified music in Factory in the previous stages of the project, by Arup and Sandy Brown consultants in conjunction with the MCC Environmental Protection Department:

For residential apartment buildings and hotels, the maximally allowed sound levels inside due to amplified music in Factory are 47 dB for the 63 Hz octave band, 41 dB for the 125 Hz octave band.

An attenuation of 5dB through an open window at these low frequencies has been assumed by Arup. Which results in the following criteria on the facades:

The maximally allowed sound level on the façade of residential apartment buildings and hotels is:

- *52 dB Leq for the 63 Hz octave band*
- *46 dB Leq for the 125 Hz octave band*

In addition to the criteria for music noise, the following criteria are set mechanical services noise. These plant noise emission criteria apply to noise sensitive buildings in general, so not only residential apartment buildings and hotels, but also offices for example.

The maximally allowed noise level at 1 meter from the façade of noise sensitive buildings due to external plant noise emission by Factory is:

- *50 dB LAeq during daytime (07.00-23.00h)*
- *43 dB LAeq during nighttime (23.00-07.00h)*

Environmental noise modelling

To determine the required sound insulation of the building envelope, with which the above mentioned criteria can be met, a 3D noise model of Factory and its (future) surroundings has been made. For this, environmental noise modelling software Geonoise V4.3 was used. The calculations have been done in accordance with the international standard ISO 9613.

Geometry

Figure 1 shows the 3D geometry of Factory and its (future) surroundings within the acoustic noise modelling software.

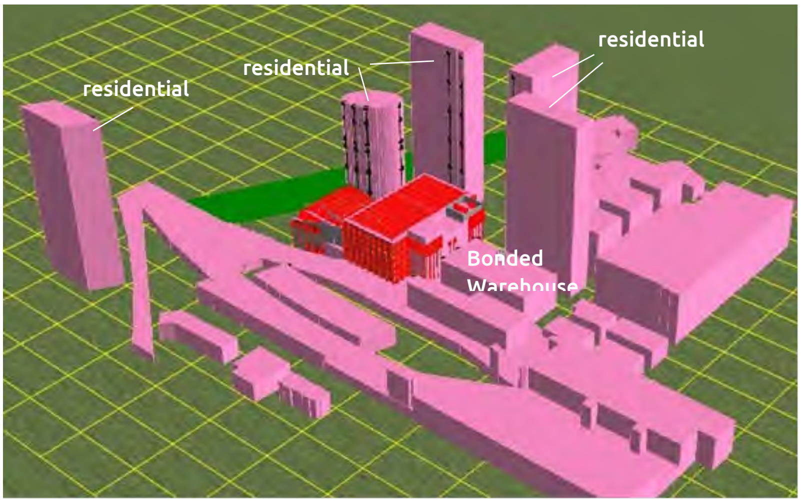


Figure 1: 3D noise model – including (future) residential and other types of buildings around Factory

Sound sources

The following sound sources that dominate the noise emission of Factory have been included in the modelling.

Amplified music in the Theatre and Warehouse
The Theatre and Warehouse will be used for a wide variety of performances. In the most extreme case, three performances can take place at the same time. High sound levels up to 106 dB(A) are to be expected in each space, with a considerable amount of low frequency sound. The acoustic design has been based on the following maximum internal noise production levels and spectra (as stated by Arup in an earlier stage):

Table 1: Maximum sound levels (Leq) for Warehouse and Theatre

	Octave Band Centre Frequency [Hz]								**Noise production level dB(A)**
Spectrum	63	125	250	500	1000	2000	4000	8000	
Warehouse	110	105	104	104	101	97	93	90	106
Theatre	100	100	104	104	101	97	93	90	106

Simultaneous use of Theatre and Warehouse has been accounted for in the modelling.

Background music and activities in the foyer spaces
In our modelling we accounted for a sound production level of 80 dB(A) in the foyer spaces, for example sound caused by walking and talking of people, sound coming from bar equipment etcetera. The used spectrum is similar to the Theatre spectrum given in table 1. This implies that background music with limited sound levels may be played. It is assumed that parties with relatively loud music, are assumed not to be planned in the foyer spaces (see also the paragraph 'not included').

Not included
Because the design of the air handling and other building services systems is currently not that detailed that accurate calculations can be done, the contribution of these sound sources has not be taken into account yet. As soon as the design is sufficiently detailed, the noise egress from these systems will be calculated and consequential attenuation measures will be integrated in the design in order to meet the noise criteria.

Outdoors sound sources, such as cars and trucks and people visiting Factory and its surroundings, have not been taken into account in the calculations of noise egression due to events (described in this appendix).

High sound levels (above 80 dB(A)) in the foyer spaces, in particular the foyer space of the Theatre, are not accounted for. The façade and roof build-ups of the foyer spaces of both the Theatre and the Warehouse are limiting the maximum allowed noise egression.

Building envelope sound insulation

Following from the assumed internal noise levels within Factory and the criteria on the facades of the surrounding buildings, minimum sound insulation requirements have been determined for the various façade, roof and outdoor floor structures.

In the 3D environmental noise model, the exterior skin of Factory has been approximated using point sources that have been grouped in order to represent the different façade elements of the building. With this, the minimum sound insulation requirement of each individual façade element was then calculated.

Based on the results the required airborne sound insulation of each façade element (including doors and windows) is defined in terms of:

- R_A for spaces with typical indoor sound sources like the human voice
- R_{Atr} with frequency range 50 – 5000 Hz for spaces with music as a source (enlarged spectrum, according to ISO 717),
- R_{63Hz} and R_{125Hz} for envelope elements that are part of the sound insulating structure around theTheatre and Warehouse.

Detailed noise modelling has also been completed to test the cumulative effect of the noise emission due to simultaneous use of the Theatre and Warehouse, and from all facade elements, at each noise sensitive location.

Calculation results

Figure 2 shows a plot of the 3D model with the Factory and its direct surroundings in plan. The red dots show the points on the facades and in the free field for which the noise emission levels from Factory have been calculated.

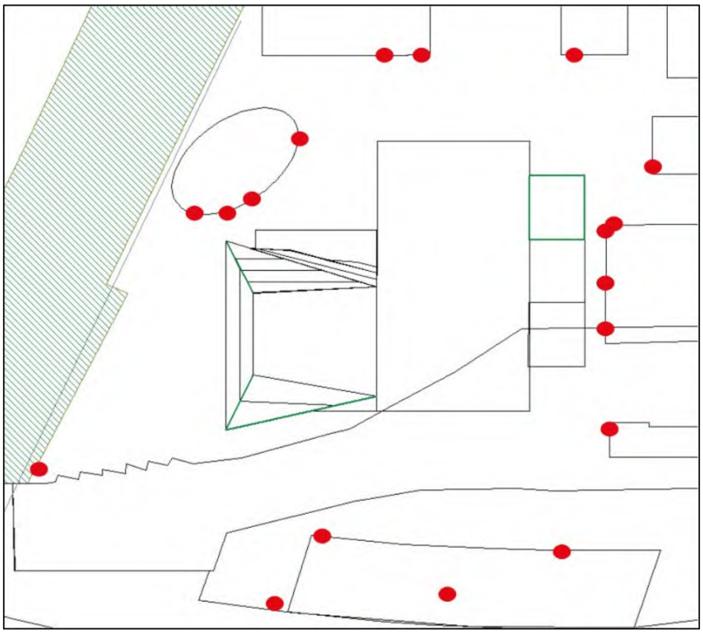


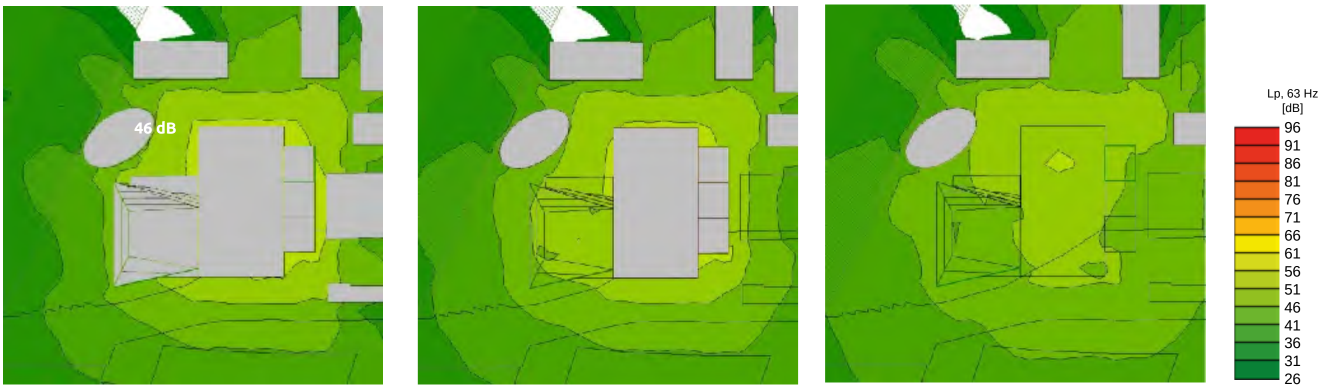
Figure 2: Factory and surrounding buildings (incl. immission points (red dots) at all relevant heights)

Figure 3 on the next pages shows sound mappings of the predicted noise levels in the surroundings of Factory:

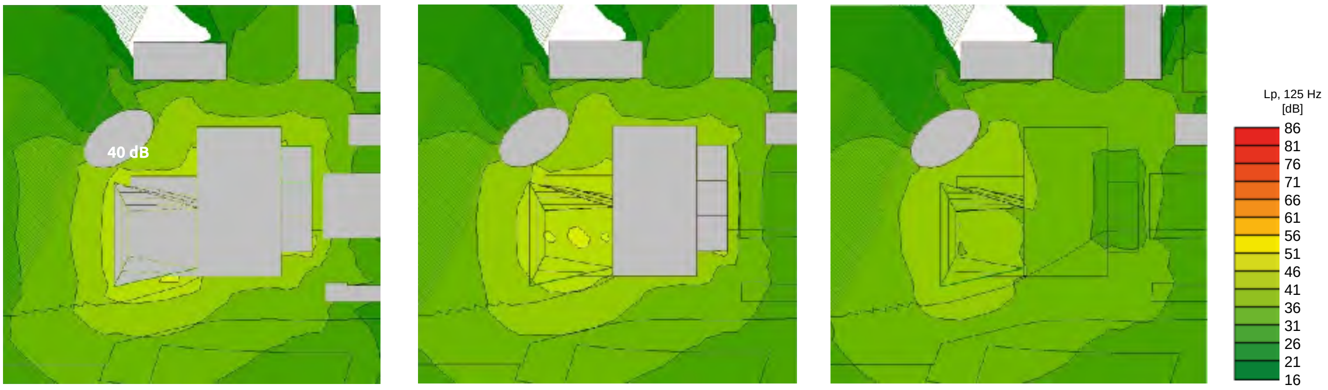
- Levels in the octave band with mid frequency 63 Hz.
- Levels in the octave band with mid frequency 125 Hz

The maximum predicted noise immission level on the façade of a residential apartment building for the 63 Hz octave band is 46 dB, which is lower than the criterion (max 52 dB)
The maximum predicted noise immission level on the façade of a residential apartment building for the 125 Hz octave band is 40 dB, which is lower than the criterion (max 46 dB)

These results show that with the designed sound insulation of the building envelope the criteria can be met.


46 dB
Lp, 63 Hz
[dB]
96
91
86
81
76
71
66
61
56
51
46
41
36
31
26

Levels 63 Hz octave band at heights 15 m (left), 30 m (middle) and 45 m (right)


40 dB
Lp, 125 Hz
[dB]
86
81
76
71
66
61
56
51
46
41
36
31
26
21
16

Levels 125 Hz octave band at heights 15 m (left), 30 m (middle) and 45 m (right)

Figure 3: Sound mapping noise immission levels for 63 Hz and 125 Hz octave bands (top and bottom), for heights 15 m, 30 m and 45 m.

Appendix 9.5

Baseline Noise Survey

Appendix 9.5

Baseline Noise Survey

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Appendix 9.5 1

Baseline Noise Survey 1

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Introduction

This appendix describes the baseline noise survey and presents the measurement results. Two surveys were undertaken: An unattended survey for two weeks continuously on the Site. An attended short term survey to quantify daytime noise levels at the closest existing residential receivers to the Proposed Development.

Short term daytime survey

Measurements were made at four locations to provide an indication of the daytime baseline noise levels at the residential (including hotel) areas closest to the Proposed Development. The equipment used is in Table 9.5.1.

The microphone is Type 1, conforming to BS EN 61672-1: 2013. All the equipment undergoes yearly external calibration in an accredited laboratory. The calibration of the sound level meter was also checked at the start of the survey. Broadband measurements were A-weighted and used a fast time constant (0.125s).

Table 9.5.1: Measurement Equipment

Equipment	Manufacturer	Type	Serial Number
Precision sound level meter	B&K	2250	3001795
Calibrator	B&K	4231	3015461
Microphone and preamp	B&K	4231	2839721

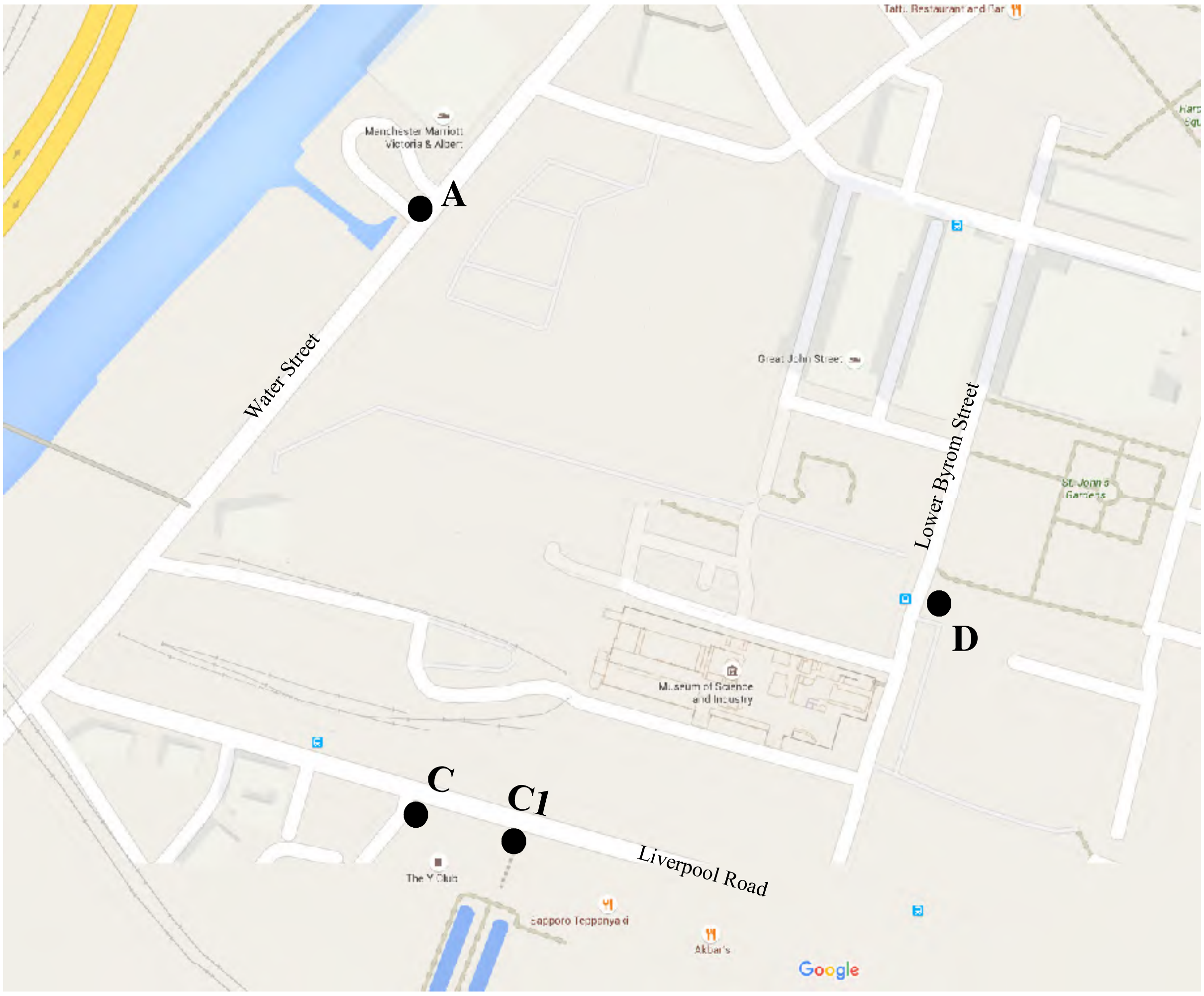

A
Water Street
Lower Byrom Street
D
C
C1
Liverpool Road
Manchester Marriott Victoria & Albert
Great John Street
Museum of Science and Industry
St John's Gardens
The Y Club
Sapporo Teppanyaki
Akbar's
Google

Figure 9.5.1: Measurement Locations. (Map data ©Google 2016)

Location A

Description
Outside Marriott Hotel entrance, 2m from Water Street. Measurements taken under acoustically free-field conditions, i.e. in excess of 3.5m from any acoustically reflective surfaces other than the ground, facing south east towards the Site on a tripod raised to 1.2-1.5m above ground

Date
06/07/2016

Personnel
Daniel Shaw
Thomas Mays

Noise Climate
Traffic on Water Street dominates, with nearby construction noise from Ordsall Chord (to the south-west) including crane noise and general hum. Noise from a fountain in the Marriott Hotel entrance was audible, and distant train horns could occasionally be heard.

Weather
Scattered Cloud, no rain.

Wind
Average of 2.8 m/s general SW direction.

Table 9.5.2: Location A sound levels, dB (re 20 µPa)

Start Time	Duration (minutes)	dBL_{Aeq}	dBL_{AF10}	dBL_{AF90}	dBL_{AFmax}
09:37	15	68.1	72.5	55.2	81.6
10:51	15	67.3	71.5	54.4	85.1
15:02	15	67.3	71.6	56.9	81.2

Location C

Description of Location
Located near the Castlefield Hotel, opposite the Museum of Science and Industry. The sound level meter was 3m from the kerb on Liverpool Road, on a tripod raised 1.2-1.5m above ground, far from any reflective facades, facing north towards the Site. The Castlefield Bowl outdoor music venue was approximately 50m to the south.

Location C.1

Due to preparations for a concert in the Castlefield Bowl later in the day, site C was moved 20m west, along Liverpool Road.
Measurements made under acoustically façade conditions, with the sound level meter 1m from the wall of the Castlefield Hotel, 4 m from the kerb of Liverpool Road, facing north.

Date
06/07/2016

Personnel
Daniel Shaw
Thomas Mays

Noise Climate and Description
Liverpool Road traffic noise dominated, with additional noise from reversing and unloading lorries and trains pulling into Deansgate station. At various points music could be heard coming from the Castlefield Bowl during sound-checks, including some distant talking.

Weather
Scattered Cloud, no rain.

Wind
Average of 2.8 m/s general SW direction.

Table 9.5.3: Location C and C1 sound levels

Location	Start Time	Duration (minutes)	dBL_{Aeq}	dBL_{AF10}	dBL_{AF90}	dBL_{AmaxF}
C	10:03	15	63	67.4	52.2	80.9
C	11:14	15	64.6	68.6	53.2	84.1
C.1	15:30	15	64.5	68.5	53.8	80.8

Location D

Description of Location
The sound level meter was placed over 3 m from Lower Byrom Street, to the south of Saint John's Gardens. It was on a section of grass close to several trees and on the opposite side of a hedge to the road. Again, it was placed on a tripod raised over 1.2 m from the ground, and faced west towards the Factory site.

Date
06/07/2016

Personnel
Daniel Shaw
Thomas Mays

Noise Climate and Description
Earlier in the morning the noise was dominated by a lorry idling and unloading at the Museum of Science and Industry, and traffic on Lower Byrom Street. As the day progressed, traffic continued, but construction noise to the north became more dominant, including loud bangs and crashes.

Weather
Scattered Cloud, no rain.

Wind
Average of 2.8 m/s general SW direction.

Table 9.5.4: Location D sound levels, dB (re 20 µPa)

Start Time	Duration (minutes)	dBL_{Aeq}	dBL_{AF10}	dBL_{AF90}	dBL_{AFmax}
10:27	15	59.7	63.8	47.8	76.4
14:40	15	61.2	65.4	49.7	77.1
15:51	15	61.6	66.2	50.1	74.4

Long term survey

Measurements of the baseline noise levels at the Site were completed during the first and second weeks of February 2016 by Adam Thomas of Arup. Noise loggers were placed at the three locations shown in Figure 9.5.2.

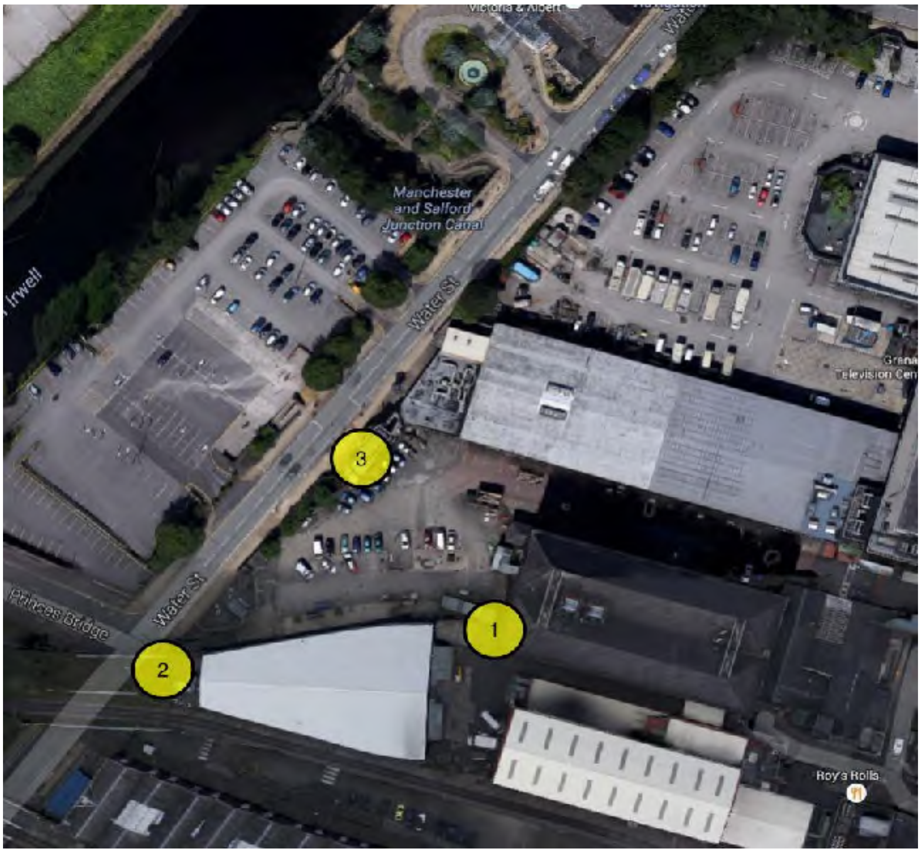

Victoria & Albert
Irwell
Manchester and Salford Junction Canal
Water St
Water St
Princes Bridge
3
1
2
Granada Television Cen
Roy's Rolls

Figure 9.5.2: Noise logger locations (aerial imagery ©Google 2016)

Location 1 was out of an open window on the 6th floor of the adjacent Bonded Warehouse.

Location 2 was attached to the perimeter fence of the old Granada Studios

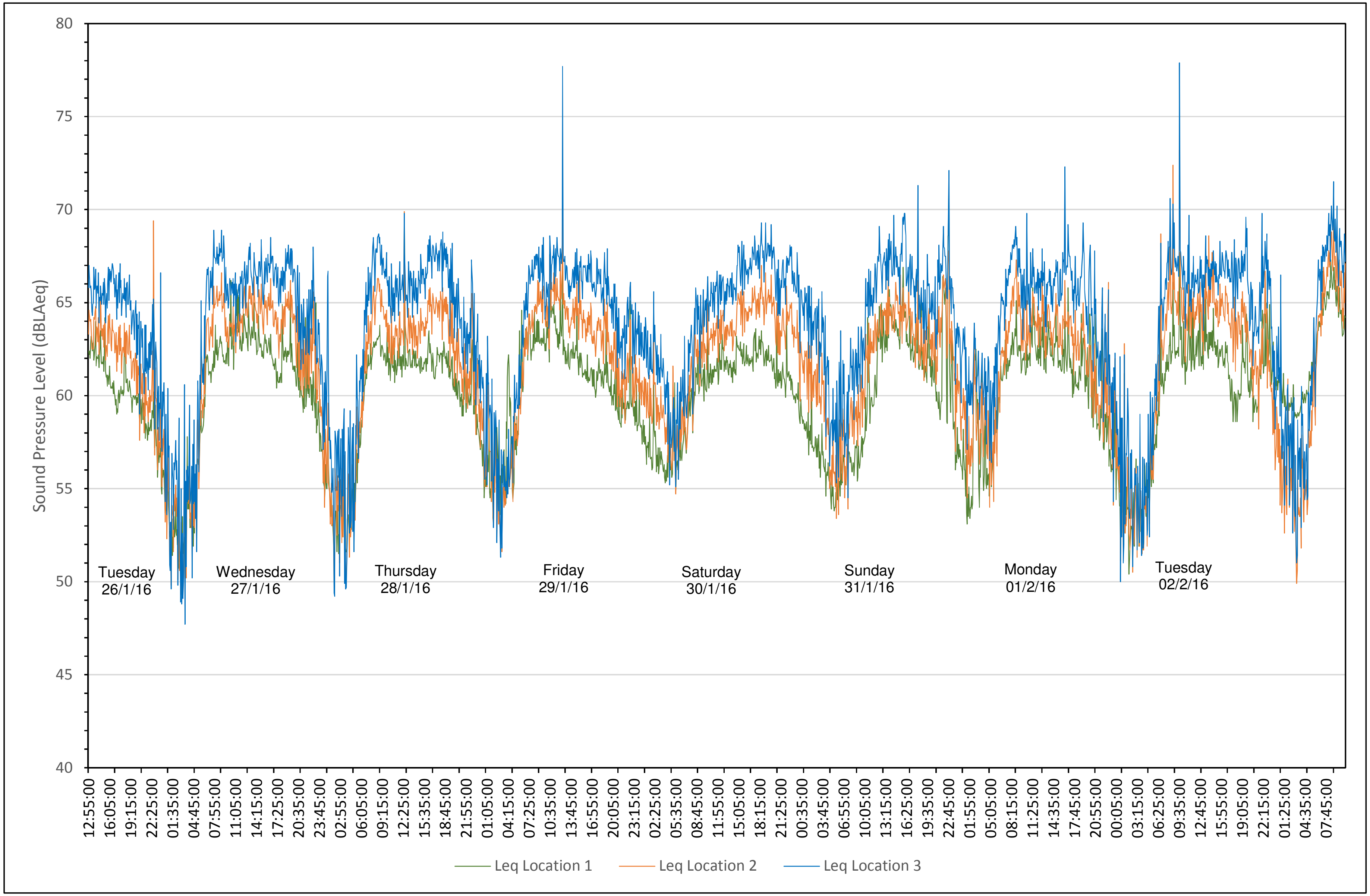
Location 3 was on top of a roof at the Granada Studios entrance.

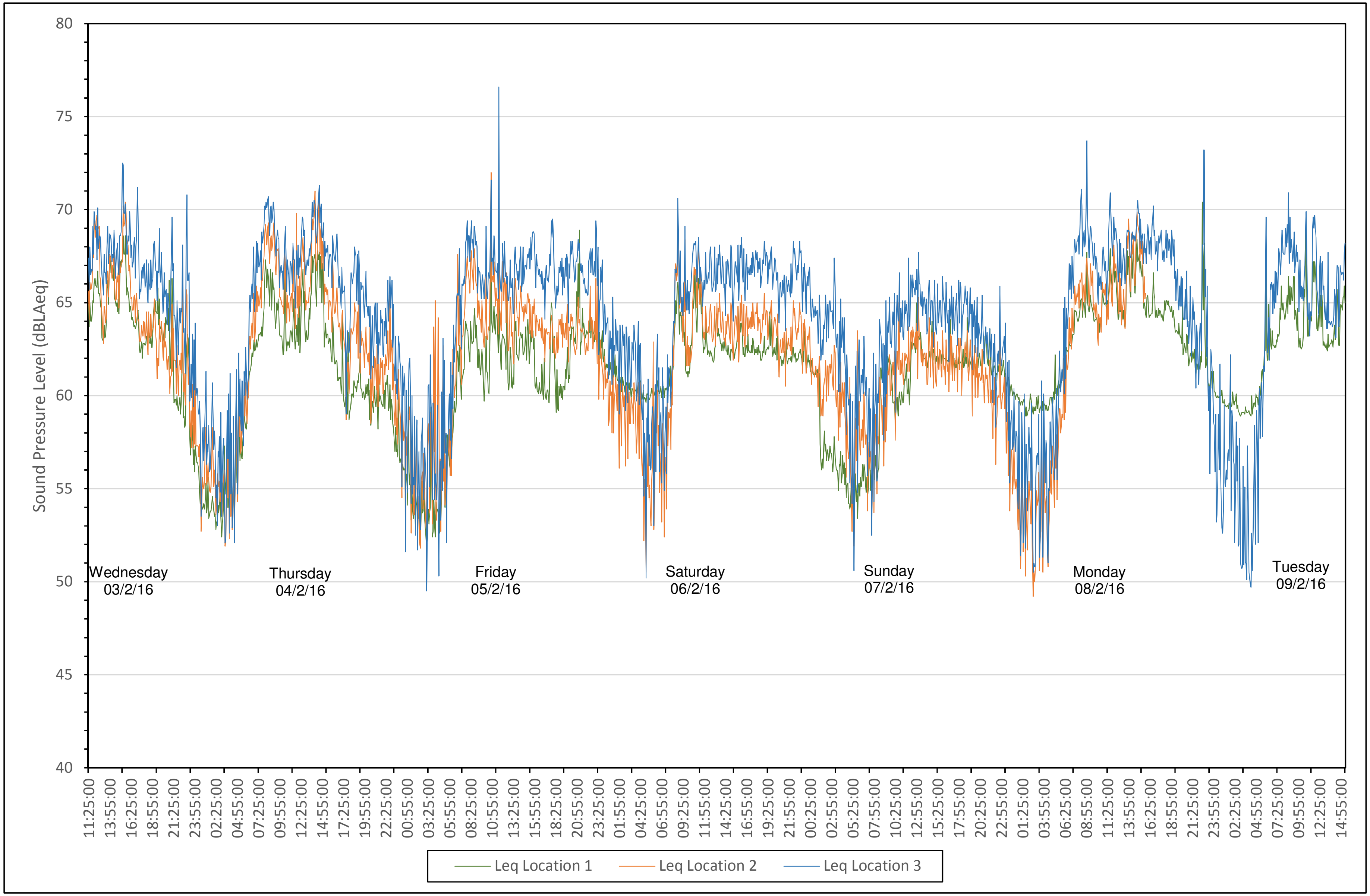
Measurements were made continuously over five minute intervals for two weeks.

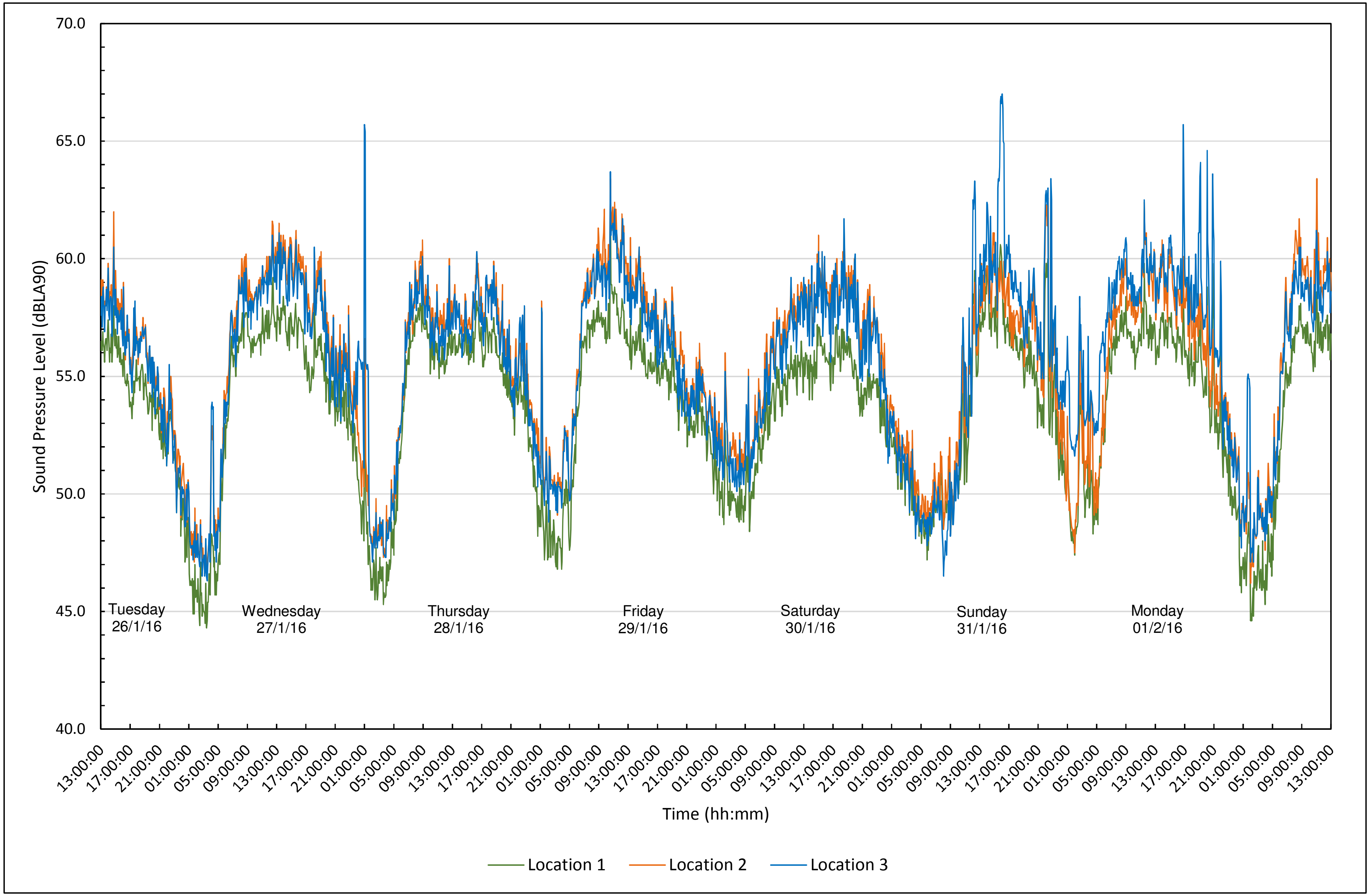
Logger 1

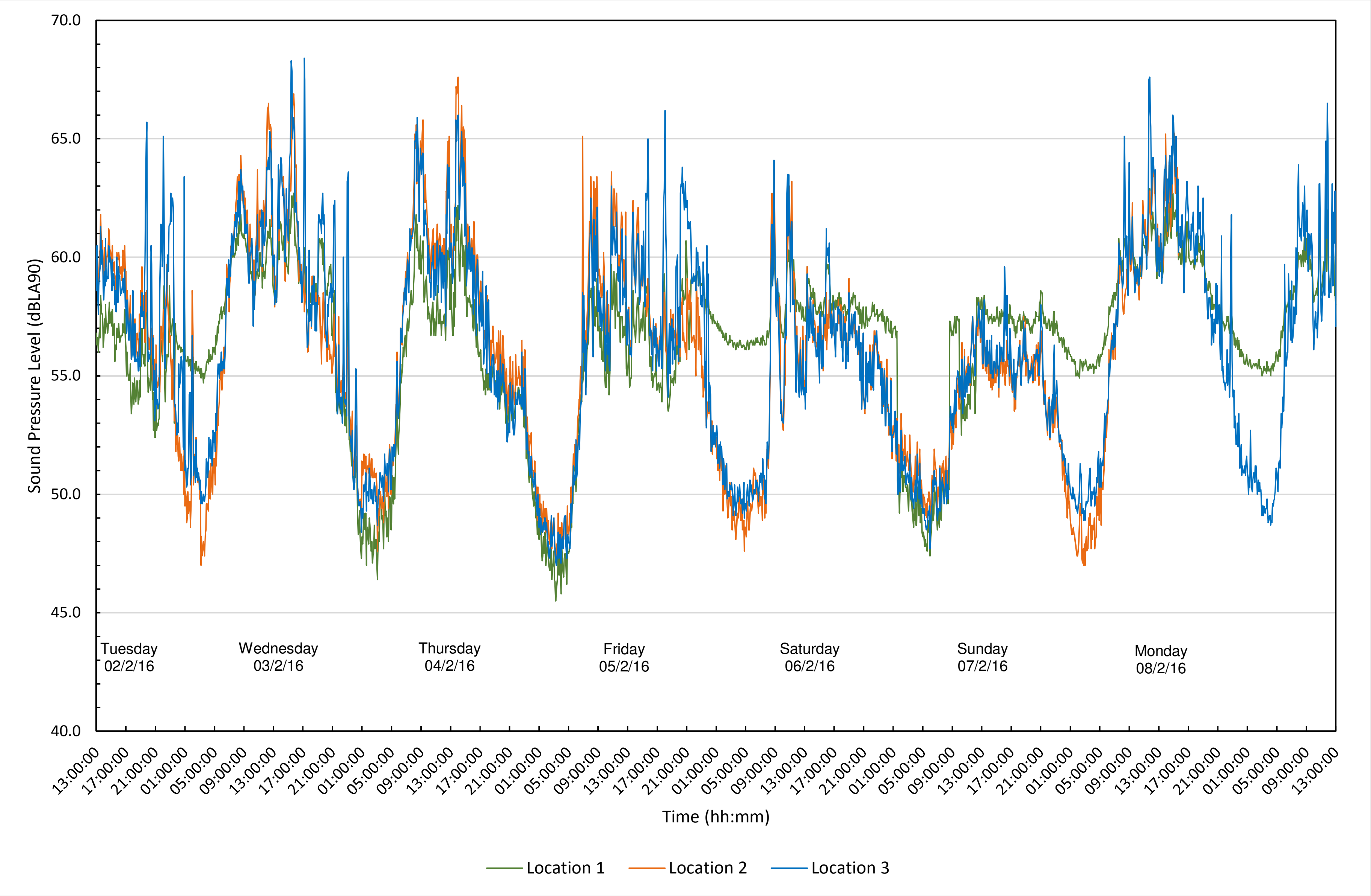
Logger 2

Logger 3


80
75
70
65
60
55
50
45
40
Sound Pressure Level (dBLAeq)
Tuesday 26/1/16
Wednesday 27/1/16
Thursday 28/1/16
Friday 29/1/16
Saturday 30/1/16
Sunday 31/1/16
Monday 01/2/16
Tuesday 02/2/16
12:55:00
16:05:00
19:15:00
22:25:00
01:35:00
04:45:00
07:55:00
11:05:00
14:15:00
17:25:00
20:35:00
23:45:00
02:55:00
06:05:00
09:15:00
12:25:00
15:35:00
18:45:00
21:55:00
01:05:00
04:15:00
07:25:00
10:35:00
13:45:00
16:55:00
20:05:00
23:15:00
02:25:00
05:35:00
08:45:00
11:55:00
15:05:00
18:15:00
21:25:00
00:35:00
03:45:00
06:55:00
10:05:00
13:15:00
16:25:00
19:35:00
22:45:00
01:55:00
05:05:00
08:15:00
11:25:00
14:35:00
17:45:00
20:55:00
00:05:00
03:15:00
06:25:00
09:35:00
12:45:00
15:55:00
19:05:00
22:15:00
01:25:00
04:35:00
07:45:00
Leq Location 1
Leq Location 2
Leq Location 3


Sound Pressure Level (dBLAeq)
80
75
70
65
60
55
50
45
40
Wednesday 03/2/16
Thursday 04/2/16
Friday 05/2/16
Saturday 06/2/16
Sunday 07/2/16
Monday 08/2/16
Tuesday 09/2/16
11:25:00
13:55:00
16:25:00
18:55:00
21:25:00
23:55:00
02:25:00
04:55:00
07:25:00
09:55:00
12:25:00
14:55:00
17:25:00
19:55:00
22:25:00
00:55:00
03:25:00
05:55:00
08:25:00
10:55:00
13:25:00
15:55:00
18:25:00
20:55:00
23:25:00
01:55:00
04:25:00
06:55:00
09:25:00
11:55:00
14:25:00
16:55:00
19:25:00
21:55:00
00:25:00
02:55:00
05:25:00
07:55:00
10:25:00
12:55:00
15:25:00
17:55:00
20:25:00
22:55:00
01:25:00
03:55:00
06:25:00
08:55:00
11:25:00
13:55:00
16:25:00
18:55:00
21:25:00
23:55:00
02:25:00
04:55:00
07:25:00
09:55:00
12:25:00
14:55:00
Leq Location 1
Leq Location 2
Leq Location 3


70.0
65.0
60.0
55.0
50.0
45.0
40.0
Sound Pressure Level (dBLA90)
Tuesday 26/1/16
Wednesday 27/1/16
Thursday 28/1/16
Friday 29/1/16
Saturday 30/1/16
Sunday 31/1/16
Monday 01/2/16
13:00:00
17:00:00
21:00:00
01:00:00
05:00:00
09:00:00
Time (hh:mm)
Location 1
Location 2
Location 3


70.0
65.0
60.0
55.0
50.0
45.0
40.0
Sound Pressure Level (dBLA90)
Tuesday 02/2/16
Wednesday 03/2/16
Thursday 04/2/16
Friday 05/2/16
Saturday 06/2/16
Sunday 07/2/16
Monday 08/2/16
13:00:00
17:00:00
21:00:00
01:00:00
05:00:00
09:00:00
Time (hh:mm)
Location 1
Location 2
Location 3

Appendix 9.6

Traffic Noise Assessment Data

Appendix 9.6

Traffic Noise Assessment Data

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Traffic Noise Assessment Data **1**

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Road traffic noise calculation results 1

Road traffic noise calculation results **1**

Road traffic noise calculation results

This appendix provides the tabulated basic noise levels (BNLs) calculated from the traffic model data. The road links are identified according to the traffic model.

Cells stating “flow to low” are links where the total traffic flow is below the minimum for which the Calculation of Road Traffic Noise procedures are valid.

Colour density provides an indication of the relative levels of noise and degree of change, as appropriate to each column.

DM = ‘do minimum’ scenario ie the traffic noise levels without the Proposed Development.

DS = ‘do something’ scenario ie the traffic noise with the Proposed Development.

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
1294701223	A6	70.4	70.4	70.2	70.3	0.0	0.0
123201224	A5063	58.5	58.7	60.3	60.3	0.2	0.0
466301224	A5063	68.8	68.8	68.6	68.6	0.0	0.0
123301232	A5063	68.8	68.9	69.4	69.5	0.1	0.1
378601233	A5063	69.4	69.5	69.9	69.9	0.1	0.0
122401233	A5063	69.2	69.2	69.2	69.2	0.0	0.0
122301257	A6	66.8	66.8	67.0	67.0	0.0	0.0
123201257	A6	71.9	71.9	72.2	72.2	0.0	0.0
126701268	A56	68.5	68.5	68.4	68.4	0.0	0.0
126801269	A34	67.4	67.4	67.4	67.5	0.1	0.1
328101273	A6042	62.5	62.5	62.4	62.5	0.0	0.0
127301278	A6042	66.9	66.9	67.2	67.2	0.0	0.0
127701281	A34	Flow too low	Flow too low	Flow too low	Flow too low		
120401284	A34	66.6	66.6	66.8	66.7	0.0	0.0
329301285	A34	70.3	70.3	70.3	70.3	0.0	0.0
580601304	A664	64.3	64.3	64.5	64.5	0.0	0.0
363501312	A6042	68.1	68.1	68.6	68.6	0.0	0.0
130701317	A6	68.3	68.2	68.0	68.0	0.0	0.0
131801321	B5225	59.7	60.5	60.4	60.9	0.8	0.5
132401325	A56	69.2	69.3	68.9	69.1	0.1	0.1
128401326	B6469	67.9	68.0	67.8	67.9	0.0	0.1
607801327	A5103	Flow too low	Flow too low	Flow too low	Flow too low		
132401328	A56	67.6	67.6	67.0	67.1	0.0	0.1
128401336	A34	67.8	67.8	67.8	67.8	0.0	0.0
200501347	M602	78.1	78.1	78.1	78.1	0.0	0.0
2251701349	A57	72.8	72.8	72.9	72.9	0.0	0.0
121601351	A5066	65.0	65.0	64.8	64.8	0.1	0.0
135101352	A5066	65.0	65.0	65.9	65.9	0.1	0.0
135601357	A6	69.2	69.3	69.4	69.4	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
136401366	A576	71.9	71.9	71.4	71.4	0.0	0.0
135001373	A5066	66.7	66.7	67.4	67.4	0.0	0.0
364401374	A5063	68.9	68.9	68.8	68.8	0.0	0.0
136101391	A5014	67.3	67.3	68.1	68.1	0.0	0.0
139301394	B5218	67.9	68.0	67.9	68.0	0.1	0.1
352701399	A56	68.1	68.1	67.6	67.6	0.0	0.0
137401400	A5063	69.0	69.0	68.8	68.9	0.0	0.0
394401400	A5063	68.2	68.2	68.7	68.7	0.0	0.0
156801401	A5063	65.1	65.2	65.5	65.6	0.0	0.0
394301401	A56	67.1	67.1	67.3	67.3	0.0	0.0
132501402	B6469	65.6	65.8	65.5	65.7	0.2	0.2
132601402	B6469	66.6	66.6	66.3	66.4	0.0	0.0
139101489	A5014	65.6	65.6	66.3	66.3	0.0	0.0
128801546	A56	68.7	68.7	69.1	69.1	0.0	0.0
128801547	A56	68.7	68.7	69.1	69.1	0.0	0.0
128301548	A5066	65.7	65.8	66.6	66.6	0.1	0.0
154701548	B6186	61.4	61.5	61.3	61.4	0.1	0.1
155601557	A56	69.4	69.4	69.6	69.6	0.0	0.0
358301566	B6182	61.9	61.8	61.8	61.8	-0.1	-0.1
154801567	A5066	65.1	65.3	65.8	65.9	0.1	0.1
531701568	A5063	65.5	65.6	65.9	65.9	0.0	0.0
136501570	B6186	68.8	68.8	68.4	68.4	0.0	0.0
155901602	A5066	67.8	67.9	68.1	68.1	0.1	0.1
128301730	A5066	64.5	64.6	66.0	66.0	0.1	0.1
154601730	A576	69.1	69.1	69.3	69.3	0.0	0.0
120301879	M602	77.5	77.5	77.7	77.8	0.0	0.0
148901951	A5014	68.6	68.6	69.1	69.1	0.0	0.0
156801951	A5014	68.6	68.6	69.1	69.1	0.0	0.0
126701985	A56	67.5	67.5	67.3	67.3	0.0	0.0
397202005	M602	78.9	78.8	78.9	78.9	0.0	0.0
135902007	A6041	65.5	65.5	65.8	65.8	0.0	0.0
126502057	A5103	72.3	72.3	72.4	72.4	0.0	0.0
128202057	A5103	72.0	72.0	72.1	72.1	0.0	0.0
128202107	A5103	71.8	71.8	71.9	71.9	0.0	0.0
200602107	A5103	71.6	71.6	71.8	71.8	0.0	0.0
759202159	A56	69.4	69.4	69.4	69.4	0.0	0.0
535002159	A5067	60.2	60.3	60.9	60.9	0.1	0.0
531602159	A56	64.1	64.1	64.4	64.4	0.0	0.0
198502283	A56	67.3	67.3	67.0	67.0	0.0	0.0
127102284	A6042	64.1	64.1	64.4	64.2	0.0	-0.1
130902291	A665	71.9	71.8	71.9	71.8	0.0	0.0
131102291	A665	70.0	70.0	69.8	69.8	0.0	0.0
126102293	A5103	Flow too low	Flow too low	Flow too low	Flow too low		

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
125702299	A6	69.5	69.5	69.8	69.9	0.0	0.0
1431102299	A6	70.1	70.2	70.3	70.3	0.0	0.0
136602300	A576	71.6	71.6	70.9	70.9	0.0	0.0
659302301	A6	71.3	71.3	71.9	71.9	0.0	0.0
136102306	A5067	66.1	66.1	66.8	66.9	0.0	0.0
770102306	B5224	Flow too low	Flow too low	Flow too low	Flow too low		
230602321	A5067	66.2	66.2	67.1	67.1	0.1	0.0
143102321	A5067	66.1	66.2	66.8	66.8	0.1	0.0
156102338	A5066	69.4	69.5	69.7	69.8	0.1	0.1
229902664	A6	69.3	69.4	69.7	69.7	0.0	0.0
525302665	A576	69.0	69.0	67.8	67.8	0.0	0.0
266402666	A6	70.2	70.2	70.6	70.7	0.0	0.0
266502666	A6	63.8	63.8	64.4	64.4	0.0	0.0
278702670	A6	71.5	71.5	71.9	71.9	0.0	0.0
267002671	A6	62.7	62.7	62.8	62.8	0.0	0.0
659502671	A576	67.5	67.5	66.7	66.7	0.0	0.0
267002672	A6	70.3	70.3	70.8	70.8	0.0	0.0
525002672	A6	66.6	66.6	66.3	66.3	0.0	0.0
395902890	A57	75.0	75.0	75.2	75.2	0.0	0.0
289302891	A57	73.7	73.7	73.6	73.7	0.0	0.0
1419702891	A57	67.0	67.0	67.1	67.2	0.0	0.0
289002892	A57	73.7	73.8	74.0	74.0	0.0	0.0
507302892	A57	69.4	69.4	69.3	69.3	0.0	0.0
289402893	A57	74.8	74.9	74.8	74.8	0.0	0.0
289202897	A57	75.1	75.1	75.2	75.3	0.0	0.0
143102900	A5067	69.4	69.5	69.2	69.3	0.1	0.1
1408802909	A56	67.5	67.5	66.9	66.9	0.0	0.0
120402942	A34	66.6	66.6	66.8	66.7	0.0	0.0
229003027	A6042	68.0	68.0	68.0	68.1	0.0	0.0
127303030	A34	62.8	62.8	62.8	62.8	0.0	0.0
130903257	A6042	62.0	62.0	63.9	63.9	0.0	0.0
130403265	A664	68.2	68.2	68.2	68.2	0.0	0.0
228303271	A6	65.8	65.7	65.8	65.8	-0.1	0.0
200703271	A6	67.5	67.5	67.8	67.9	0.0	0.1
126903272	A34	66.8	66.9	66.9	66.9	0.0	0.0
132203273	A34	66.4	66.7	66.9	67.0	0.3	0.1
130803274	A56	68.6	68.6	68.4	68.4	0.0	0.0
131203274	A56	65.7	65.7	65.7	65.6	0.0	0.0
132803275	A34	66.6	66.6	66.5	66.5	0.0	0.0
132803277	A56	67.6	67.6	66.9	67.0	0.0	0.1
302903277	A56	67.7	67.7	67.1	67.2	0.0	0.1
228403278	A6042	64.0	64.0	64.3	64.1	0.0	-0.1
127103280	A34	65.2	65.2	65.4	65.4	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
327503280	A34	66.3	66.2	66.2	66.2	0.0	0.0
448303281	A6042	62.4	62.4	62.4	62.4	0.0	0.0
200603292	A5103	69.2	69.2	69.2	69.2	0.0	0.0
294203292	A5103	69.9	69.9	69.9	69.9	0.0	0.0
200603293	A34	70.0	70.0	70.0	70.0	0.0	0.0
133603320	A34	67.9	68.0	68.0	68.0	0.0	0.0
378203322	A5103	68.9	69.0	68.9	69.0	0.1	0.1
140003520	A5063	68.4	68.4	68.3	68.3	0.0	0.0
394403520	A5081	67.5	67.5	67.6	67.6	0.0	0.0
140003525	A5063	67.5	67.5	68.1	68.1	0.0	0.0
394603527	A56	68.2	68.2	67.7	67.7	0.0	0.0
131203583	A6042	68.4	68.3	68.3	68.3	-0.1	-0.1
127403629	A6042	71.0	71.0	71.2	71.2	0.0	0.0
156303629	A6041	67.9	67.9	68.3	68.4	0.0	0.0
361903629	A6042	70.8	70.7	71.0	70.9	0.0	0.0
358303635	A6042	67.3	67.3	67.2	67.2	-0.1	-0.1
361903635	A6042	70.8	70.7	71.0	70.9	0.0	0.0
397703640	A5067	64.4	64.5	64.5	64.6	0.1	0.1
712303640	A5103	69.5	69.5	69.4	69.5	0.1	0.1
506803641	A5103	68.2	68.2	68.2	68.2	0.1	0.0
352503644	A5063	67.9	67.9	68.5	68.5	0.0	0.0
362103644	A5063	71.4	71.5	71.6	71.6	0.0	0.0
156803746	A5014	67.6	67.7	68.1	68.1	0.0	0.0
364103782	A5103	68.9	69.0	68.9	69.0	0.1	0.1
397203785	A57	69.6	69.7	70.0	70.1	0.1	0.0
378503786	A57	69.6	69.7	70.0	70.1	0.1	0.0
397103787	A57	69.8	69.8	69.9	69.9	0.0	0.0
302703814	A6042	Flow too low	Flow too low	61.5	61.5		0.0
139103818	A5067	63.1	63.2	63.8	63.9	0.1	0.0
215903818	A5067	64.1	64.1	64.4	64.4	0.0	0.0
299103872	A5063	68.5	68.5	68.5	68.6	0.0	0.0
123403921	A5081	71.7	71.7	72.0	72.0	0.0	0.0
230703921	A5081	71.7	71.7	72.0	72.0	0.0	0.0
131203923	A6042	71.1	71.1	71.0	71.0	0.0	0.0
229103923	A6042	71.1	71.1	71.0	71.0	0.0	0.0
352003943	A5063	71.0	71.0	71.0	71.0	0.0	0.0
535103943	A56	69.1	69.1	69.2	69.2	0.0	0.0
230703944	A5081	71.6	71.6	71.7	71.7	0.0	0.0
394503944	A5063	70.2	70.2	70.5	70.5	0.0	0.0
394303945	A56	69.7	69.7	69.4	69.4	0.0	0.0
394703945	A5063	69.0	69.0	69.3	69.3	0.0	0.0
531203946	A56	Flow too low	Flow too low	Flow too low	Flow too low		
139903946	A56	67.4	67.4	67.8	67.9	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
394503946	A56	70.7	70.7	70.6	70.6	0.0	0.0
140103947	A56	69.2	69.3	69.5	69.5	0.0	0.0
396503956	A56	66.3	66.3	66.4	66.3	0.0	0.0
396703956	A57	63.9	64.2	64.5	64.7	0.3	0.2
290903957	A56	67.6	67.6	67.2	67.2	0.0	0.0
395603957	A56	68.3	68.4	68.5	68.6	0.1	0.1
395703958	A56	68.9	69.0	68.7	68.8	0.0	0.0
395803959	A57	68.9	69.0	69.1	69.0	0.1	0.0
396703959	A57	73.8	73.8	74.0	74.1	0.0	0.0
289103960	A57	75.1	75.2	75.1	75.2	0.0	0.0
395803961	A56	65.3	65.3	64.8	64.8	0.0	0.0
396003961	A57	69.4	69.4	69.1	69.2	0.0	0.0
396103962	A56	69.1	69.1	68.7	68.7	0.0	0.0
395703964	A56	68.8	68.8	68.9	69.0	0.1	0.1
396203964	A56	68.6	68.6	68.2	68.2	0.0	0.0
396403965	A56	69.6	69.6	69.6	69.5	0.0	0.0
396003966	A57	72.6	72.6	72.7	72.7	0.0	0.0
396503966	A57	66.3	66.3	66.2	66.1	-0.1	0.0
2251503967	A57	73.2	73.3	73.5	73.6	0.1	0.1
123303968	A5063	70.0	70.0	69.6	69.6	0.0	0.0
378603968	A57	62.9	63.0	63.3	63.4	0.0	0.1
396803969	A57	69.9	69.9	69.5	69.5	0.0	0.0
764403970	A5063	68.4	68.4	68.4	68.4	0.0	0.0
764603970	A57	65.4	65.4	65.5	65.5	0.0	0.0
764503971	A57	68.7	68.8	68.9	68.9	0.0	0.0
764303971	A57	63.0	63.1	63.2	63.3	0.1	0.1
187903972	M602	78.0	78.1	78.2	78.3	0.0	0.0
396903972	A57	74.7	74.7	74.6	74.6	0.0	0.0
378703972	A57	69.8	69.8	69.9	69.9	0.0	0.0
364103978	A5067	59.7	59.8	59.9	59.9	0.1	0.0
397703978	A5067	66.0	66.0	66.4	66.3	0.0	0.0
397703979	A5067	67.5	67.5	67.6	67.7	0.1	0.0
133903980	A5067	62.8	62.9	63.5	63.5	0.1	-0.1
143504225	B5219	65.1	65.1	65.2	65.3	0.0	0.0
143604225	B5219	65.1	65.1	65.2	65.3	0.0	0.0
154804241	B6186	64.5	64.5	64.3	64.3	0.0	0.0
143504314	A5103	71.0	71.0	70.9	71.0	0.1	0.1
128104322	A34	63.0	63.1	63.0	63.1	0.0	0.0
327804483	A6042	62.4	62.5	62.4	62.5	0.0	0.0
313304486	A56	71.8	71.9	72.0	72.0	0.0	0.0
126804530	A56	67.8	67.9	67.3	67.4	0.1	0.1
302904530	A56	67.8	67.9	67.3	67.4	0.1	0.1
327304531	A34	65.3	65.6	65.5	65.7	0.3	0.1

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
332004532	A34	68.8	68.9	69.0	69.1	0.0	0.0
127404539	A6042	71.0	71.0	71.2	71.2	0.0	0.0
135604539	A6042	71.0	71.0	71.2	71.2	0.0	0.0
175504561	A56	68.7	68.7	68.9	68.9	0.0	0.0
155504564	A576	65.8	65.9	67.0	67.0	0.0	0.0
154604565	A576	69.6	69.6	69.9	69.9	0.0	0.0
155504565	A576	69.6	69.6	69.9	69.9	0.0	0.0
173004567	A576	70.1	70.1	69.0	69.0	0.0	0.0
154904568	A576	71.2	71.2	70.3	70.3	0.0	0.0
155904587	A5066	66.9	67.0	67.0	67.1	0.1	0.1
136404595	A576	72.1	72.1	71.7	71.7	0.0	0.0
122304663	A5063	67.9	67.9	67.4	67.4	0.0	0.0
396404732	A56	72.0	72.0	72.1	72.1	0.0	0.0
290004733	A5067	69.0	69.1	68.8	68.8	0.1	0.1
396204733	A5067	69.0	69.1	68.8	68.8	0.1	0.1
131304739	A56	69.9	69.9	70.4	70.4	0.0	0.0
148904744	B5217	67.4	67.4	68.0	68.0	0.0	0.0
139404746	B5218	68.0	68.1	67.9	68.0	0.1	0.1
160204758	A5066	68.7	68.8	68.8	68.9	0.1	0.1
233804758	A5066	68.7	68.8	68.8	68.9	0.1	0.1
135504897	A6	70.6	70.7	70.8	70.9	0.0	0.1
375204897	A6	70.6	70.7	70.8	70.9	0.0	0.1
1419805064	A57	66.0	66.0	66.2	66.2	0.1	0.1
507005064	A5103	68.5	68.6	68.7	68.7	0.1	0.1
506405065	A5103	70.4	70.5	70.6	70.7	0.1	0.1
506505066	A5103	69.4	69.4	69.3	69.4	0.0	0.1
506605067	A5103	66.6	66.7	66.8	66.8	0.1	0.0
594305067	A5103	66.9	67.0	67.3	67.4	0.1	0.1
506705068	A5103	69.8	69.8	70.0	70.1	0.1	0.0
364005069	A5103	69.6	69.7	69.5	69.6	0.1	0.1
506805069	A5103	64.7	64.8	65.5	65.5	0.1	0.0
506905070	A5103	70.8	70.9	71.0	71.0	0.1	0.1
507605071	A5103	63.3	63.4	63.9	63.9	0.1	0.0
594205071	A5103	66.1	66.1	65.8	65.9	0.0	0.1
507105072	A5103	67.9	68.0	67.9	68.0	0.0	0.1
507205073	A5103	69.0	69.0	69.1	69.2	0.0	0.0
289305074	A57	68.4	68.5	68.4	68.5	0.1	0.1
507305074	A5103	65.7	65.7	66.1	66.1	0.0	0.0
133905075	A5067	67.4	67.5	67.7	67.7	0.1	0.1
507405075	A5103	68.5	68.6	68.8	68.8	0.1	0.0
507505076	A5103	68.5	68.6	69.0	69.0	0.1	0.0
525405249	A576	71.2	71.2	70.9	70.9	0.0	0.0
524905250	A576	71.8	71.8	71.2	71.2	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
1431205251	A6	64.6	64.6	64.9	64.9	0.0	0.0
525005251	A576	70.2	70.2	69.6	69.6	0.0	0.0
761505252	A576	68.0	68.0	66.3	66.3	0.0	0.0
525205253	A576	71.4	71.4	70.7	70.7	0.0	0.0
267105254	A576	68.8	68.8	68.2	68.2	0.0	0.0
525305254	A576	67.5	67.6	67.6	67.6	0.0	0.0
394705312	A56	Flow too low	Flow too low	Flow too low	Flow too low		
394305316	A56	69.5	69.5	69.8	69.8	0.0	0.0
394305317	A5063	65.5	65.6	65.9	65.9	0.0	0.0
397805337	A5067	66.3	66.4	66.7	66.7	0.0	0.0
398005337	A5067	66.3	66.4	66.7	66.7	0.0	0.0
362105344	A5066	66.5	66.6	67.1	67.1	0.0	0.0
230405345	A5063	70.6	70.6	70.5	70.6	0.0	0.0
362105345	A5063	70.8	70.8	70.9	70.9	0.0	0.0
381805350	A5067	62.0	62.1	62.5	62.5	0.1	0.0
215905351	A56	68.8	68.8	68.9	68.9	0.0	0.0
535005351	A5067	Flow too low	Flow too low	Flow too low	Flow too low		
126505404	A5103	72.1	72.1	72.2	72.2	0.0	0.0
229305404	A5103	71.7	71.7	71.7	71.7	0.0	0.0
140205407	A5103	69.1	69.2	69.2	69.3	0.1	0.1
362905413	A6041	66.4	66.4	67.0	67.1	0.0	0.1
135905413	A6041	64.8	64.8	65.2	65.3	0.0	0.0
127705432	A34	Flow too low	Flow too low	Flow too low	Flow too low		
540805432	A34	66.2	66.2	66.1	66.1	0.0	0.0
540805433	A34	66.2	66.2	66.1	66.1	0.0	0.0
200605433	A34	66.5	66.5	66.4	66.4	0.0	0.0
303005435	A34	62.8	62.8	62.8	62.8	0.0	0.0
432205435	A34	63.2	63.2	63.2	63.2	0.0	0.0
550505507	A6	70.2	70.3	70.6	70.6	0.0	0.1
131205801	A56	69.6	69.6	70.3	70.3	0.0	0.0
325705803	A6042	62.0	62.0	63.9	63.9	0.0	0.0
381405803	A6042	Flow too low	Flow too low	61.5	61.5		0.0
228905806	A664	64.3	64.3	64.5	64.5	0.0	0.0
132705833	A5103	62.6	62.8	63.1	63.0	0.1	-0.1
200805833	A5103	62.6	62.7	63.0	62.9	0.1	-0.1
140205834	A5103	68.8	68.9	69.0	69.1	0.1	0.1
131805839	A34	65.0	65.3	65.4	65.5	0.3	0.1
130805846	A6041	68.6	68.6	68.4	68.4	0.0	0.0
131705853	A6041	56.2	56.4	57.9	58.1	0.2	0.2
200705853	A6041	56.2	56.4	57.9	58.1	0.2	0.2
128405862	B6469	66.7	66.7	66.7	66.7	0.0	0.0
200805864	A5103	68.8	68.9	69.0	69.1	0.1	0.1
583405864	A5103	68.8	68.9	69.0	69.1	0.1	0.1

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
421905865	B5225	61.7	61.4	61.7	61.7	-0.3	-0.1
506605942	A5103	66.1	66.1	65.8	65.9	0.0	0.1
507605943	A5103	66.9	67.0	67.3	67.4	0.1	0.1
143105946	A5067	67.0	67.0	67.3	67.3	0.0	0.1
397905946	A5067	67.0	67.0	67.3	67.3	0.0	0.1
127805962	A6042	Flow too low	Flow too low	Flow too low	Flow too low		
584006013	A6143	66.6	66.9	66.3	66.6	0.3	0.4
135306014	B5225	65.7	66.2	66.4	66.6	0.4	0.2
601306014	A6042	70.0	70.2	70.4	70.5	0.1	0.1
135706023	A34	68.0	67.9	68.1	68.0	0.0	-0.1
327206023	A34	68.0	67.9	68.1	68.0	0.0	-0.1
143506077	B5219	65.1	65.2	64.8	64.8	0.0	0.0
127106078	A34	65.8	65.8	66.0	66.0	0.0	0.0
294206079	A34	Flow too low	Flow too low	Flow too low	Flow too low		
607806079	A34	65.8	65.8	65.9	65.9	0.0	0.0
583906159	A34	65.0	65.3	65.4	65.5	0.3	0.1
601406159	A6042	69.1	69.2	69.3	69.4	0.1	0.1
155506554	A6010	67.9	67.9	67.7	67.7	0.0	0.0
456606554	A6010	67.9	67.9	67.7	67.7	0.0	0.0
266606593	A6	71.6	71.6	72.1	72.2	0.0	0.0
1431406595	A576	66.7	66.7	66.4	66.4	0.0	0.0
230406610	A5063	69.9	69.9	69.9	69.9	0.0	0.0
299106610	A5063	70.2	70.2	70.1	70.1	0.0	0.0
396906612	A57	74.9	74.9	74.8	74.9	0.0	0.0
457506612	A57	74.8	74.8	74.8	74.8	0.0	0.0
135006613	A5066	64.3	64.3	64.6	64.7	0.1	0.1
456806651	A576	71.2	71.2	70.3	70.3	0.0	0.0
230006651	A576	71.2	71.2	70.2	70.2	0.0	0.0
155007109	B6180	64.7	64.7	65.0	65.0	0.0	0.0
433907110	A665	69.4	69.4	69.4	69.4	0.0	0.0
143107121	B5218	68.5	68.6	68.5	68.5	0.1	0.0
474607121	B5218	68.0	68.1	67.9	68.0	0.1	0.1
332207123	A5103	69.5	69.6	69.5	69.5	0.1	0.1
135507219	A6	70.6	70.7	70.8	70.9	0.0	0.1
135607219	A6	70.8	70.8	70.9	71.0	0.1	0.1
156107220	A6041	68.2	68.3	68.6	68.6	0.1	0.1
156307220	A6041	67.9	67.9	68.3	68.4	0.0	0.0
540707283	A5103	68.8	69.0	69.1	69.2	0.1	0.1
313307591	A5014	60.9	60.9	61.3	61.3	0.0	0.0
313307592	A56	71.5	71.5	71.6	71.6	0.0	0.0
759107592	A5014	62.5	62.6	63.0	63.0	0.1	0.0
531607592	A56	69.2	69.2	69.5	69.5	0.0	0.0
525107615	A576	71.3	71.3	70.8	70.8	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
764507643	A57	64.6	64.6	64.2	64.2	0.0	0.0
457207643	A57	66.9	66.9	66.7	66.8	0.0	0.0
764607644	A5063	68.0	68.0	67.3	67.3	0.0	0.0
299107644	A5063	71.2	71.2	70.9	70.9	0.0	0.0
397007645	A57	70.2	70.2	70.2	70.2	0.0	0.0
396907646	A57	69.9	69.9	69.5	69.5	0.0	0.0
138507701	A5014	60.9	61.0	62.1	62.1	0.0	0.0
136107701	A5014	60.9	60.9	62.1	62.1	0.0	0.0
550707894	A6	70.2	70.3	70.6	70.6	0.0	0.1
385007895	A6	70.8	70.8	71.0	71.0	0.0	0.1
375207895	A6	70.6	70.7	70.8	70.9	0.0	0.1
457507897	A57	74.8	74.8	74.8	74.8	0.0	0.0
457407897	A57	75.0	75.0	74.9	74.9	0.0	0.0
135307899	B5461	63.3	63.6	64.9	65.1	0.3	0.2
457207900	A57	66.9	66.9	66.7	66.8	0.0	0.0
134607900	A57	67.5	67.6	67.3	67.3	0.0	0.0
137307903	A5066	66.7	66.7	67.4	67.4	0.0	0.0
534407903	A5066	66.5	66.6	67.1	67.1	0.0	0.0
155707935	A56	68.8	68.8	69.0	69.0	0.0	0.0
456107935	A56	68.7	68.7	68.9	68.9	0.0	0.0
458607937	A56	68.5	68.5	68.6	68.7	0.0	0.0
456707940	A576	70.1	70.1	69.0	69.0	0.0	0.0
154907940	A576	70.2	70.2	69.0	69.0	0.0	0.0
157007943	B6186	65.0	65.0	64.8	64.8	0.0	0.0
424107943	B6186	64.5	64.5	64.3	64.3	0.0	0.0
458707945	A5066	66.9	67.0	67.0	67.1	0.1	0.1
156707945	A5066	65.9	66.1	66.7	66.8	0.2	0.1
229907947	B6186	68.5	68.5	68.2	68.2	0.0	0.0
136507947	B6186	68.7	68.7	68.4	68.4	0.0	0.0
524907952	A576	72.3	72.3	71.9	71.9	0.0	0.0
459507952	A576	72.1	72.1	71.7	71.7	0.0	0.0
156107959	A5066	65.3	65.3	65.6	65.6	0.0	0.0
121607959	A5066	62.4	62.4	62.6	62.6	0.1	0.0
200707960	A6	63.2	63.3	63.6	63.8	0.1	0.2
135707960	A6	65.9	65.9	66.0	65.9	0.0	-0.1
173007963	B6187	66.8	66.9	64.2	64.3	0.1	0.0
155607963	B6187	62.2	62.3	62.4	62.5	0.1	0.0
139908013	A56	70.7	70.7	70.8	70.8	0.0	0.0
474408014	B5217	67.4	67.4	68.0	68.0	0.0	0.0
138708015	B5224	58.1	58.3	58.0	58.2	0.1	0.1
230608015	B5224	57.1	57.3	56.2	56.4	0.1	0.2
138508107	A5014	60.1	60.2	61.1	61.1	0.1	0.0
759108107	A5014	64.7	64.7	65.1	65.1	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
374608116	A5014	67.6	67.7	68.1	68.1	0.0	0.0
586508541	B5225	61.7	61.4	61.7	61.7	-0.3	-0.1
130708544	A56	68.3	68.2	68.0	68.0	0.0	0.0
228308544	A56	68.3	68.3	68.0	68.0	0.0	0.0
586208564	B6469	66.7	66.7	66.7	66.7	0.0	0.0
728308566	A5103	68.9	69.0	69.2	69.3	0.1	0.1
506508566	A5103	69.1	69.2	69.4	69.4	0.1	0.0
602408570	A6143	67.1	67.5	67.3	67.6	0.4	0.4
132408570	A6143	67.4	67.7	67.2	67.5	0.2	0.3
602408571	A6143	65.6	66.4	65.5	66.3	0.8	0.8
229208571	A6143	66.4	67.1	66.3	67.0	0.6	0.6
131108596	A665	70.0	70.0	69.8	69.8	0.0	0.0
433908596	A665	69.4	69.4	69.4	69.4	0.0	0.0
473208642	A56	72.1	72.1	72.2	72.2	0.0	0.0
448608642	A56	71.8	71.9	72.0	72.0	0.0	0.0
175408972	B6180	63.1	63.1	63.9	63.9	0.0	0.0
710908972	B6180	65.8	65.8	66.3	66.3	0.0	0.0
897208973	B6180	63.1	63.1	63.3	63.4	0.0	0.1
131308973	A56	69.1	69.1	69.7	69.7	0.0	0.0
175408973	A56	67.9	67.9	68.6	68.6	0.0	0.0
711009024	A665	69.4	69.4	69.5	69.5	0.0	0.0
228912835	A6	67.3	67.3	67.6	67.6	0.0	0.0
580112877	A56	69.6	69.6	70.3	70.3	0.0	0.0
859512877	A56	69.6	69.6	70.3	70.3	0.0	0.0
859512893	A56	69.9	69.9	70.4	70.4	0.0	0.0
473912893	A56	69.9	69.9	70.4	70.4	0.0	0.0
266512927	A576	67.5	67.5	65.2	65.2	0.0	0.0
143512940	A5103	71.2	71.2	71.1	71.2	0.1	0.0
123212945	A6	70.7	70.8	71.1	71.1	0.0	0.0
229912947	A6	70.4	70.4	70.2	70.3	0.0	0.0
1443012947	A6	Flow too low	Flow too low	Flow too low	Flow too low		
132514088	A56	68.9	69.0	68.6	68.7	0.1	0.1
395714088	A56	65.1	65.3	65.1	65.3	0.2	0.2
507014197	A57	67.0	67.0	67.1	67.2	0.0	0.0
289014198	A57	66.0	66.0	66.2	66.2	0.1	0.1
135314244	B5461	63.6	63.6	65.3	65.2	0.0	-0.1
1424414246	B5461	63.6	63.6	65.3	65.2	0.0	-0.1
175414303	A56	68.3	68.3	68.9	69.0	0.0	0.0
434314303	A56	68.3	68.3	68.9	68.9	0.0	0.0
434314304	A56	68.3	68.3	68.9	68.9	0.0	0.0
1430414305	A56	68.3	68.3	68.9	68.9	0.0	0.0
154714305	A56	68.3	68.3	68.9	68.9	0.0	0.0
154614306	A56	68.4	68.4	68.5	68.5	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
793714306	A56	68.4	68.4	68.5	68.5	0.0	0.0
458614307	A56	68.5	68.5	68.6	68.7	0.0	0.0
1430714308	A56	68.5	68.5	68.6	68.7	0.0	0.0
155614308	A56	68.5	68.5	68.6	68.7	0.0	0.0
121614310	A6	70.2	70.3	70.6	70.6	0.0	0.1
550514310	A6	70.2	70.3	70.6	70.6	0.0	0.1
267214311	A6	70.1	70.2	70.3	70.3	0.0	0.0
266414312	A6	64.6	64.6	64.9	64.9	0.0	0.0
1431314314	A576	66.7	66.7	66.4	66.4	0.0	0.0
139314352	B5218	69.2	69.2	69.0	69.0	0.0	0.0
139314357	B5219	67.1	67.1	67.1	67.1	0.0	0.0
1435714358	B5219	67.1	67.1	67.1	67.1	0.0	0.0
143614358	B5219	67.1	67.1	67.1	67.1	0.0	0.0
332214362	A5103	72.6	72.6	72.5	72.6	0.1	0.0
1294014362	A5103	72.6	72.6	72.5	72.6	0.1	0.0
229914430	A6	Flow too low	Flow too low	Flow too low	Flow too low		
789414431	A6	70.3	70.3	70.7	70.7	0.0	0.0
1294514431	A6	70.3	70.3	70.7	70.7	0.0	0.0
385014502	A6	70.8	70.8	71.0	71.0	0.0	0.1
121614503	A6	70.8	70.8	71.0	71.0	0.0	0.1
1450214503	A6	70.8	70.8	71.0	71.0	0.0	0.1
1424614504	B5461	63.6	63.6	63.4	63.2	0.0	-0.2
135614504	A34	71.3	71.3	71.5	71.5	0.0	0.0
615914504	A34	70.5	70.6	70.8	70.8	0.1	0.1
584614528	A6041	68.6	68.6	68.4	68.4	0.0	0.0
131714528	A6041	68.6	68.6	68.4	68.4	0.0	0.0
453115130	A34	65.3	65.6	65.5	65.7	0.3	0.1
132815130	A34	63.2	63.5	63.5	63.5	0.3	0.1
421916009	B5225	61.7	60.9	61.7	61.2	-0.8	-0.6
229216009	B5225	61.7	61.4	61.7	61.7	-0.3	0.0
229216017	A6143	66.6	66.7	66.3	66.5	0.2	0.3
584016017	A6143	66.6	66.6	66.3	66.3	0.0	0.1
132116018	B5225	61.3	60.5	61.6	60.9	-0.8	-0.7
854116018	B5225	61.3	60.5	61.6	60.9	-0.8	-0.7
2253222515	A57	68.4	68.5	68.6	68.7	0.1	0.1
2252022515	A57	72.4	72.5	72.5	72.5	0.0	0.0
2251522516	A6042	62.7	62.7	62.7	62.7	-0.1	0.0
2253322516	A57	72.4	72.4	72.4	72.4	0.0	0.0
2251622517	A57	72.8	72.8	72.9	72.9	0.0	0.0
134922518	A57	72.4	72.5	72.5	72.5	0.0	0.0
601322519	A6042	70.4	70.5	70.6	70.8	0.1	0.1
2251522519	A6042	70.4	70.5	70.6	70.8	0.1	0.1
2252122520	A57	72.4	72.5	72.5	72.5	0.0	0.0

LINK ID	ROAD NUMBER	2017 DM $L_{10,18hr}$	2017 DS.Event $L_{10,18hr}$	2032 DM $L_{10,18hr}$	2032 DS.Event $L_{10,18hr}$	2017 DS - DM	2032 DS - DM
2251622520	A57	Flow too low	Flow too low	Flow too low	Flow too low		
2251822521	A57	72.4	72.5	72.5	72.5	0.0	0.0
134922522	B5461	66.4	66.6	67.2	67.2	0.2	0.0
2252222523	B5461	66.4	66.6	67.2	67.2	0.2	0.0
789922523	B5461	66.4	66.5	67.1	67.2	0.2	0.0
134922524	B5461	65.1	65.2	65.8	65.9	0.1	0.0
2252422525	B5461	65.1	65.2	65.8	65.9	0.1	0.0
135022525	B5461	65.1	65.2	65.8	65.9	0.1	0.0
134922526	A57	75.0	75.0	74.9	74.9	0.0	0.0
2252622527	A57	75.0	75.0	74.9	74.9	0.0	0.0
186722527	A57	75.0	75.0	74.9	74.9	0.0	0.0
186722528	A5066	63.5	63.5	64.5	64.6	0.1	0.0
661322528	A5066	63.5	63.5	64.5	64.6	0.1	0.0
186722529	A5066	75.2	75.2	75.1	75.2	0.0	0.0
2252922530	A57	75.2	75.2	75.1	75.2	0.0	0.0
457422530	A57	75.2	75.2	75.1	75.2	0.0	0.0
186722531	A5066	65.4	65.5	66.6	66.7	0.1	0.1
396622532	A57	73.9	73.9	73.9	74.0	0.0	0.0
2253222533	A57	72.4	72.4	72.4	72.4	0.0	0.0
387131034	A999	Flow too low	Flow too low	Flow too low	Flow too low		
2251631163	A999	Flow too low	Flow too low	Flow too low	Flow too low		
2253143001	A5066	65.5	65.5	66.6	66.7	0.1	0.1
135243001	A5066	66.6	66.6	67.6	67.7	0.0	0.1
126846301	A34	68.2	68.2	68.3	68.3	0.0	0.0
127346301	A34	68.2	68.2	68.3	68.3	0.0	0.0

Manchester City Council

FACTORY, ST JOHNS
MANCHESTER

Transport Assessment

VN60596

April 2018

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FIGURES

Figures are included within the main text of the Transport Assessment

APPENDICES

Appendix A **Area of TfGM SATURN Model**
Appendix B **Accident Data Report**
Appendix C **TRICS Data – Theatres**
Appendix D **Committed Developments**
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Appendix H **'Junctions 8' Model Outputs**

1 INTRODUCTION

1.1 Introduction

1.1.1 Manchester City Council has commissioned Vectos North to prepare a Transport Assessment to support a planning application for Factory. Factory will be a landmark arts development where the widest range of art forms would be made and presented.

1.2 Site Context

1.2.1 Factory forms part of the St. John's Masterplan area in Manchester City Centre. St. John's comprises the former ITV Quay Street estate to the south west of the city. The site was acquired in March 2014 by Manchester Quays Limited (MQL), a joint venture between Allied London and Manchester City Council and is the subject of long term regeneration proposals that involve both conversion of existing buildings and redevelopment of other plots to create a new neighbourhood of the City.

1.2.2 The redevelopment of the site is supported by the St. John's Masterplan and Strategic Regeneration Framework (SRF), which were formally adopted by Manchester City Council's Executive Committee in February 2015. An update to the SRF was endorsed by Manchester City Council's Executive Committee in January 2017.

1.3 Site Description

1.3.1 The proposals relate to an area located within the south-western part of the St. John's Masterplan, on a site broadly bounded by the River Irwell and surface car parking (currently in use for construction of the Ordsall Chord) to the west, Grape Street and the Bonded Warehouse to the east, the Museum of Science and Industry (MSI) complex, including the 1830 Warehouse (Grade I Listed) to the south and Water Street and surface car parking to the north.

1.3.2 The site is approximately 1.80 ha and is currently occupied by surface car parking, the Starlight theatre and a number of structures and buildings associated with the formerly use by ITV for filming and events, Water Street and the Grade II Listed Colonnaded Railway Viaduct (in part), which was also in use by ITV for filming and storage.

1.3.3 The area around the Site is defined by a mix of leisure, commercial and residential uses including Spinningfields to the north, the Great Northern Warehouse and Deansgate to the east and MSI to the south. It is also situated 750m from the Deansgate / Castlefield Metrolink stop and a range of bus and Metroshuttle services.

1.3.4 Nearby listed buildings include the 1830 Warehouse (Grade I Listed), as well as the former Liverpool Road Station Master's House (Grade I Listed) and the Railway Bridge over the River Irwell (Grade I Listed) to the south, the MSI Warehouse to the east (Grade II Listed).

1.3.5 The site is located with the Castlefield Conservation area and approximately 500m to the west of the St John Street Conservation Area.

1.4 Development Proposals

1.4.1 The St John's development aims to create 'a mixed-use neighbourhood that brings together enterprise, innovation, culture, entertainment and leisure, in a unique living environment in the heart of the city'. Factory aims to support that by creating a landmark arts development where the widest range of art forms would be made and presented.

1.4.2 The proposals will facilitate the development of a new flexible arts space to be used for a range of activities including theatre, music, dance, art, other performance-related events and conferences (Sui Generis). Ancillary facilities will be located on the site and will include retail and bar uses, offices, administrative and back of house functions, training and educational facilities, servicing and access arrangements, highways works, creation of new public realm, cycle parking, provision of new plant and associated works.

1.4.3 The maximum capacity of the publicly accessible spaces located inside the development is as follows:

- Warehouse – 5,000 standing.
- Theatre – 2,090 standing / 1,520 seated.

1.4.4 The foyer will be used as follows:

- Queuing for events
- General circulation
- Exhibition Hall
- Gallery

1.4.5 The Factory layout at ground floor and Viaduct level is shown in the following drawings:

Dwg MF- OMA- XX- GF- DR- A- 10_0110 for the Ground floor level
Dwg MF- OMA- XX- L1- DR- A- 10_0120 for the first floor Viaduct Level

1.4.6 Factory expects to attract in excess of 500,000 paying attenders per year. The larger events are expected to attract people that would travel from national and international locations and stay overnight either in the St John's hotels or elsewhere in the City.

1.4.7 Factory would employ around 125 permanent staff, plus 15 apprentices, plus the engagement of temporary staff to facilitate events.

1.4.8 This Transport Assessment is also supported by a Travel Plan and a Waste and Servicing Strategy Report prepared by Vectos and an Event Management Strategy prepared by Deloitte.

2 POLICY CONTEXT

2.1 National Planning Policy Framework

2.1.1 The main source of national policy regarding the transport planning aspects of development can be found in the Department of Communities and Local Government (DCLG) 'National Planning Policy Framework' (March 2012).

2.1.2 The document sets out the national Government's planning policies for England and how these are expected to be applied by local authorities. The underlying objectives of the NPPF are to contribute toward achieving sustainable development. The NPPF identifies that development should be sustainable in terms of economic, social and environmental sustainability.

2.1.3 The NPPF states that twelve core land-use planning principles should underpin the development of local plans and also in making planning decisions. The transport-related principle states that planning should 'actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are, or can be made, sustainable.'

2.1.4 The NPPF also states that development should only be prevented or refused on transport grounds where the residual impacts of development are severe.

2.2 Manchester Core Strategy

2.2.1 Manchester's Core Strategy was adopted on 11 July 2012 and is the key document in the Manchester Local Plan. It sets the out the long term strategic policies for Manchester's future development and forms the framework that planning applications will be assessed against. The relevant policies that influence transport are described below.

- Policy T1 Sustainable Transport aims to deliver a sustainable high quality and integrated transport system to encourage a modal shift away from the car.
- Policy T2 Accessible Areas of Opportunity & Need states that the council will actively manage the pattern of development to ensure that new development is located to ensure good access to the City's main economic drivers and is easily accessible by walking, cycling and public transport.
- Policy T2 also states that 'Within the City Centre, developments provide a level of car parking which reflects the highly accessible nature of the location, as well as the realistic requirements of the users of the development.

- Policy DM1 Development Management states that all development should be fully accessible to disabled people and access to new development should be accessible to sustainable transport modes.

2.2.2 These policies may be supported by supplementary planning documents which give more detail to policies in the Core Strategy.

2.2.3 Manchester adopted its 'Guide to Development in Manchester SPD and Planning Guidance' (April 2007), 'Providing for Housing Choice SPD and Planning Guidance' (September 2008). The Guide to Development in Manchester is effectively a hybrid document acting as both a Supplementary Planning Document and planning guidance. The document sets out the City Council's stance on a wide range of issues. It provides guidance on Urban Design, Accessibility, Environmental Standards, Street Hierarchy and Parking. The development aims to conform to that guidance.

2.3 St John's Strategic Regeneration Framework

2.3.1 A Regeneration Framework was prepared for the St Johns Masterplan area was prepared in 2014 by Deloitte and adopted by MCC in February 2015. An update to the SRF was endorsed by Manchester City Council Executive Committee in January 2017. That vision for the site is to create a new mixed use, sustainable city centre neighbourhood which is accessible, has a distinctive sense of place, and offers life and activity 24 hours of the day, 7 days a week and 365 days of the year. At the heart of the strategy is the delivery of a mix of uses focused on employment, residential and leisure, together with complementary ground floor retail activity which will provide amenities for visitors to, and occupiers of, this district, as well as to local residents and other city centre users in adjoining districts

2.3.2 The National and Local Policy context as well as the Development Framework will form the basis of the Transport and Access Strategy for the Site.

2.4 Greater Manchester Transport Strategy 2040

2.4.1 The Greater Manchester Local Transport Plan (LTP) is moving on from LTP3 and there are two Draft Consultation Documents that aim to set the future transport strategy. The first document is the **Greater Manchester Transport Strategy 2040** which sets out the Vision for transport in Manchester over that period and the second document is the **Delivery Plan 1: 2016/17-2021/22**.

2.4.2 The vision is 'for Greater Manchester to have 'World class connections that support long-term, sustainable economic growth and access to opportunity for all'. The Transport Vision aims to:

- Supporting Sustainable Economic growth
- Protecting Our Environment
- Improving Quality of Life for All
- Developing an Innovative City Region

2.4.3 **The 2040 Vision** is supported by policies and proposals for improving the transport network in the medium term up to 2025 structured around Spatial Themes. A common theme is the need to tackle congestion on our transport networks and minimise the negative impacts of traffic on our communities.

2.4.4 **The Delivery Plan 1: 2016/17-2021/22** sets out schemes and measures that are aimed to be brought forward up to 2021. It also sets out the funding availability and will provide annual updates on progress against key performance indicators.

2.4.5 The development proposals aspire to conform to the vision and goals as set out within the 2040 Vision Document by ensuring that the site is accessible by a variety of sustainable transport modes. To deliver a quality development that enhances the environment.

3 EXISTING TRAFFIC CONDITIONS

3.1 Site Location

3.1.1 The location of the Factory site as described by the application redline plan is shown in **Dwg MF- OMA- XX- XX- DR- A- 01_0002.**

3.1.2 The area around the Site is defined by a mix of leisure, commercial and residential uses including Spinningfields to the north, the Great Northern Warehouse and Deansgate to the east and MSI to the south. It is also situated 750m from the Deansgate / Castlefield Metrolink stop and a range of bus and Metroshuttle services.

3.1.3 The site is located with the Castlefield Conservation area and approximately 500m to the west of the St John Street Conservation Area.

3.2 Parking

3.2.1 The area includes two main surface car parks that were used by ITV Granada Studios. An Aerial view of the site while it was operating as a car park for ITV is given in **Figure 3.1** below. The site includes parts of the Water Street Car Park which provided 258 parking spaces and a parking area around the Bonded Warehouse which provided around 50 car parking spaces.

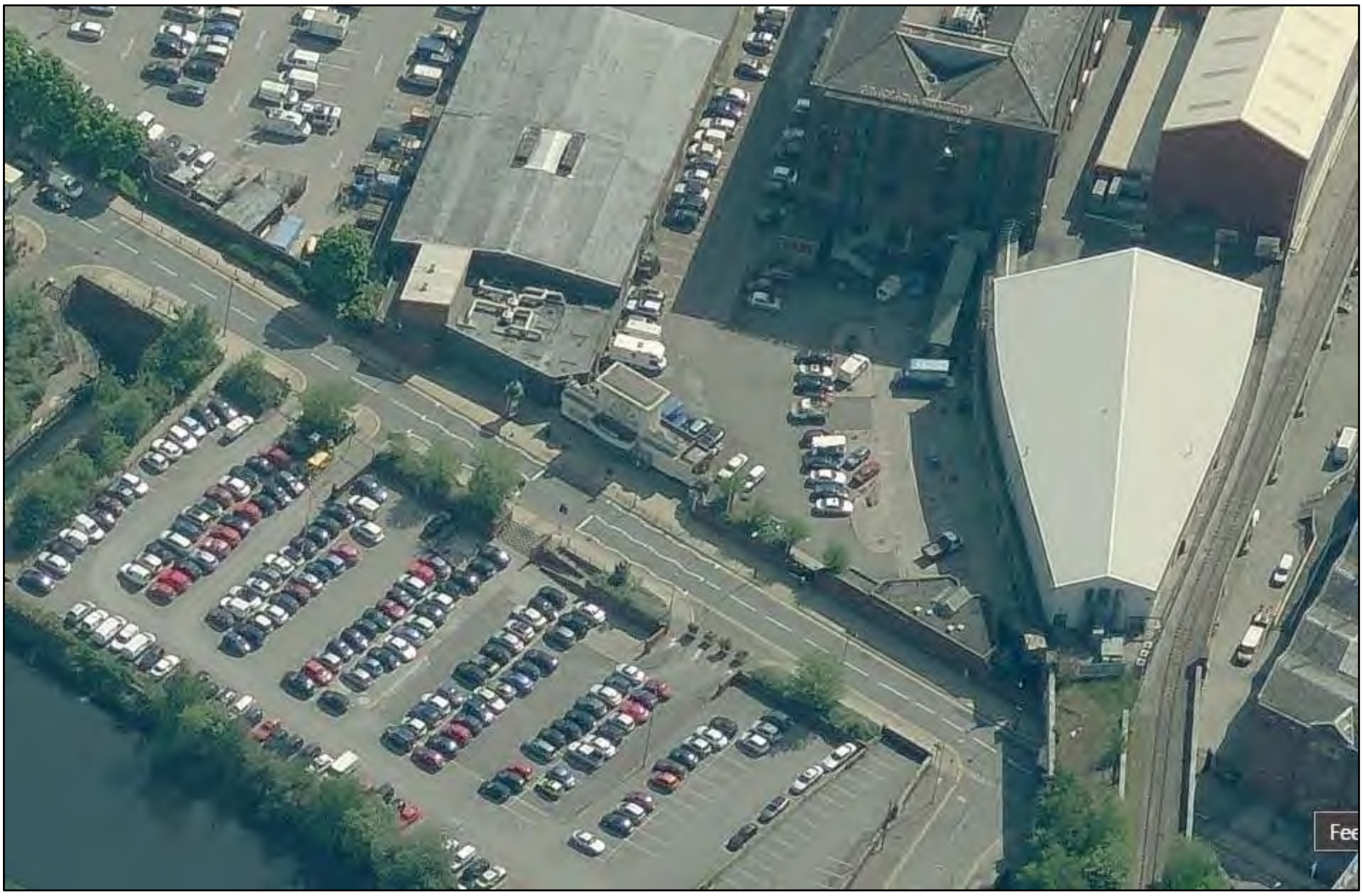


Figure 3.1 Aerial View of Site While Operating as ITV Studios (2011)

3.2.2 Elsewhere on the former ITV estate there are around 132 spaces provided on the main 'Manchester Goods Yard' car park accessed from Quay Street, 20 spaces on the Globe & Simpson site, 645 spaces on Sites C and D to the south. Overall the former ITV estate offered parking for around 1100 cars.

3.2.3 Of the off-site public parking spaces available within in the area there are more than 3300 spaces of public parking available within a 10 minute walk of the site and over 5500 spaces within a 15 minute walk as given in **Table 3.1** overleaf:

Car Parking Spaces within a 10 Minute Walk of Factory	
Spinningfields NCP	680
New Bailey, Salford NCP	605
Great Northern 1&2 NCP	1200
Bridge Street NCP	73
Deansgate Euro Car Parks	40
Bridgewater Street	70
Manchester Central NCP	700
Total	**3338**
Additional Car Parking Spaces within a 15 Minute Walk of Factory	
Chapel Wharf	208
King Street	554
Deansgate (Blackfriars Street)	340
Blackfriars	200
M&S	155
Cleminson Street	70
Wilton Space	140
Stone Street	12
Bridgewater Hall	288
Park Avenue	112
Silvercroft Street	83
Total	**5530**

Table 3.1 Car parking Spaces within a 10 & 15 minute walk of Factory

3.2.4 In addition, there are numerous private contract parking spaces nearby notably in Castlefields off Duke Street/ Castle Street. While it is not relied upon for Factory, there are two developments that can provide additional parking in the future. Firstly, the Salford Central Parking Strategy aims to deliver additional parking provision and an application 16/68325/OUT has been approved for the Stanley Street site which will offer 637 public spaces in a multi-storey car park across the River Irwell. Secondly the Water Street Strategic Regeneration Framework identifies in the preferred option a public car park of between 370-740 spaces.

3.3 Traffic Flows

3.3.1 Transport for Greater Manchester (TfGM) were consulted on the most appropriate method of assessing the existing and future highway operation. TfGM maintain a SATURN traffic model for the City Region and a PARAMICS model for more detailed modelling of the City Centre.

3.3.2 The SATURN model covers the wider City Centre and Salford, which forms part of the wider Greater Manchester. Within that model they can derive 2014 baseline traffic flows for the area. The 2012 Validation Report which forms the basis for that model is available upon request. The SATURN model is kept up to date and is used to test the implications of the development as outlined in the Local Plan. For this area, the model has been used to test the operation of Regent Road and Trinity Way under existing and future improved conditions. The extent of the model covers well beyond the area of likely impact arising from the St John's and is shown in **Appendix A**. It is a Weekday model covering the following time periods:

- AM Peak (0800-0900)
- Interpeak (Average Hour 1000-1530)
- PM Peak (1700-1800)

3.3.3 The model includes a zone (Zone 163) for the ITV Granada Studios estate. This zone connects on to Water Street and is representative of all the traffic generated by Granada Studios prior to its relocation to Media City including the car parks on the Factory site.

3.3.4 The peak hour traffic arrivals and departures for Zone 163 for Granada Studios at the different time periods is given in **Table 3.2** below:

	Arrivals	Departures
AM Peak (0800-0900)	242	213
PM Peak (1700-1800)	64	136

Table 3.2 Saturn Model Zone Connector Flows Zone 163 Granada Studios

3.3.5 The 2014 traffic flows for the AM, and PM peaks are shown in **Figures 3.2 and 3.3**. The roads identified in these Figures represent the links that would be assessed as part of this Transport Assessment.

3.3.6 Separate to the Traffic Model, traffic counts have been obtained for the local junctions to St John's. These counts and the dates when those counts were surveyed are presented in **Figure 3.4.** These traffic counts will be used to complement the modelled forecasts made by TfGM and to help assess the local junctions using detailed traffic models.

3.3.7 As described on **Figure 3.4**, the Base traffic flows have been taken from the following sources:

- For the Gartside St junction a traffic count was provided by TfGM. This was undertaken in November 2013.
- The Transport Assessment for Astley House (prepared by Waterman Boreham) provided traffic flows for both junctions at 2014.
- For the Water Street junction, the level of traffic has been taken from the link count on New Quay St from the TfGM traffic count. This has been distributed using the proportions for the turning counts from the Astley House TA.

3.4 Traffic Speeds and Delay

3.4.1 The traffic speeds across the network have been obtained from observations and journey times at different times of the day. The observed average traffic speeds are shown in **Figures 3.5,** and **3.6** for the respective AM and PM peak periods.

3.4.2 There are currently traffic delays experienced on the network. In both peak periods, there is congestion around the Regent Road/Trinity Way junction and also the Trinity Way/New Quay Street junction. The most congested peak inside the Inner Relief Road is the PM peak for traffic leaving Manchester. This results in long queues on Quay Street as it approaches Trinity Way and also on Water Street, again looking to join Trinity Way.

3.4.3 In the morning peak period, the traffic is busy for City bound flows but delays are not as evident as in the PM peak.

3.5 Review of Personal Injury Accident Data

3.5.1 Traffic collision data has been obtained from TfGM for the surrounding area. Data was provided for a period of three years, to the end of January 2015 for the area bounded by Deansgate, Quay Street, New Quay Street, the Inner Relief Road Regent Road and Mancunian Way. The location of accidents in that period and the full data is given in **Appendix B.** While this data is historic, it was used to support the previous planning applications.

3.5.2 In total, there have been 44 accidents in the identified area. This consists of 35 which are categorised as slight and 9 which are categorised as serious. There were no fatal accidents in the area in this time period.

3.5.3 On Water Street itself, there were two accidents. These were both slight and appear to have been caused by lapses in concentration.

3.5.4 One accident occurred on Liverpool Road and this was caused by a vehicle fire.

3.5.5 Four accidents occurred at the junction of Water Street and the Inner Relief Road. Three of these appear to have a root cause in driver inattention and the fourth was due to careless driving.

3.5.6 New Quay Street has one accident at the junction with Water Street which was caused by driver inattention. There are also a cluster of four accidents of the junction with Gartside Street. Once again these were all caused by human error and lack of judgement.

3.5.7 The change in accidents over time has been reviewed and does not show any material change in accident rates or location. The extract from the GMATS Database below in **Figure 3.2** shows recorded accidents over the last 3 years. This shows that there has not been any increase in the number of accidents, any transfer of accident location or change in severity.

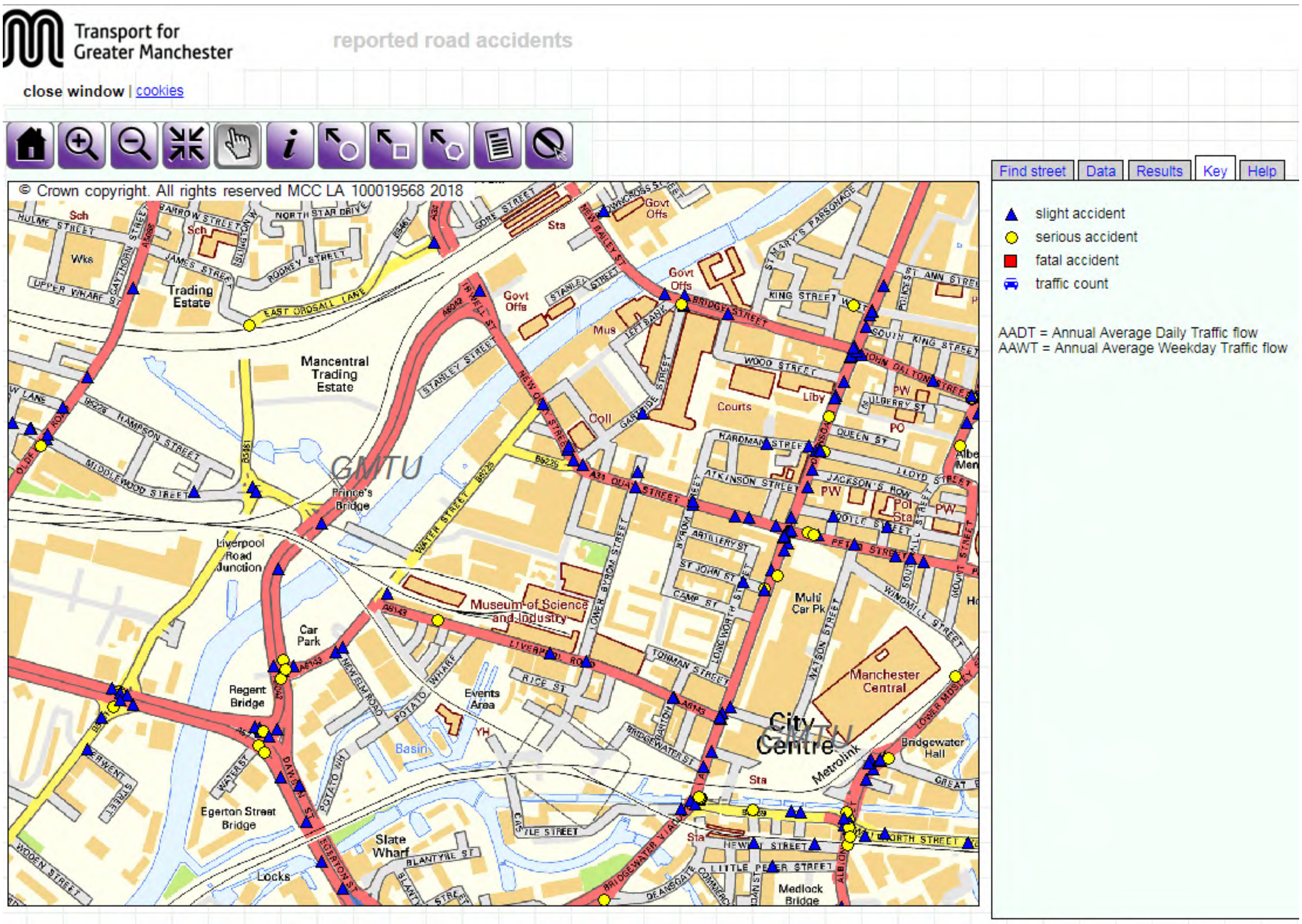

Transport for Greater Manchester
reported road accidents
close window | cookies
© Crown copyright. All rights reserved MCC LA 100019568 2018
Find street
Data
Results
Key
Help
▲ slight accident
● serious accident
■ fatal accident
traffic count
AADT = Annual Average Daily Traffic flow
AAWT = Annual Average Weekday Traffic flow
Mancentral Trading Estate
Museum of Science and Industry
City Centre
Manchester Central
GMTU

Figure 3.2 Recent 3 Year Accident Data

3.5.8 In summary, the review of accident data reveals no evidence of underlying highway safety issues. It is therefore concluded that there are no existing accident blackspots on the highway network in the vicinity of the site.

4 DEVELOPMENT PROPOSALS

4.1 Development Proposals

4.1.1 To create Factory, the proposals involve the demolition of the Starlight theatre, existing workshop and other structures and perimeter wall, removal of four existing trees, and alterations to the Grade II Listed Colonnaded Railway Viaduct. This will facilitate the development of a new flexible arts space to be used for a range of activities.

4.1.2 The types of event expected are summarised below:

- Theatre and dance productions: located within both the warehouse and theatre spaces, capacity will be approximately 1,800 for dance and theatre productions.
- Live music events: performances from various genres including jazz, rock and pop, opera, musical theatre, classical, acoustic and amplified ensembles. The capacity will vary, depending on the nature of the artist and performance, from 2,090 to 5,000. Opera and classical performances would take place with a capacity between 750 and 1,500 people depending on the location in the warehouse or theatre spaces.
- Pre-recorded music events: dance music and DJ events would be subject to demand, but would not exceed the maximum capacity of 5,000.
- Smaller theatre events: includes spoken word and speeches, theatrical presentations and comedy. Would likely use the warehouse space, with the potential to utilise the theatre space with capacity of up to 800 people.
- Cross-art form productions: based around live performance, video and broadcast media, which would have a capacity of 1,500 people and be located in the warehouse space.
- Immersive theatre: likely to take place within the theatre space with a capacity of 800 people.
- Circus-style performances: could be accommodated in the warehouse, with a potential capacity of 1,500 people.
- Exhibitions: to take place within the warehouse space and foyer space and are generally likely to be open to the public.
- Trade fairs and conferences: would utilise the foyer and warehouse space. These would primarily be day-time events.
- Other internal events that are likely to take place include cinema and film screenings, community events, children and young people events.

- Public Realm: the two new public spaces in Festival Square and Factory Square will generally be open for public use and are also designed to accommodate performances and activities.

4.1.3 As described before, the maximum capacity of the publicly accessible spaces located inside the development is as follows:

- Warehouse – 5,000 standing.
- Theatre – 2,090 standing and 1,520 seated.

4.1.4 Factory expects to attract in excess of 500,000 paying attenders per year. With larger events expected to attract people from further national and international locations and stay overnight either in the St John's hotels or elsewhere in the City.

4.1.5 Factory would also employ around 125 permanent staff, plus 15 apprentices, plus the engagement of temporary staff to facilitate events.

4.1.6 Details of pedestrian management and the dispersal strategy are given in the Event Management Strategy.

4.2 Travel Infrastructure

4.2.1 The transport infrastructure that supports the Factory is described in **Dwg VN70930-101E.** The detail highway layout on Water Street under the Factory undercroft is shown in **Dwg VN70930-102B.** As part of the separate St Johns Place Scheme there will be a highway improvement on Quay Street with a 'Supercrossing' to assist pedestrian crossing at the Gartside Street junction and also the closure of part of Quay Street as shown in **Dwg VN50483-104D** which will facilitate the creation of a new square at St Johns Place.

4.2.2 **The key features are:**

- Factory oversails Water Street with a minimum height clearance of 5.03m
- Water Street narrowed to 5.5m to avoid the Orchestra Pit
- A raised pedestrian crossing is proposed across Water Street to the north of Festival Square
- Visually Impaired visitors considered by using Water Street to approach Factory
- Quality lighting and displays in the undercroft to promote Art and events at the Factory
- Two new squares, Festival Square and Factory Square offer high quality public realm
- Links to other quality pedestrian routes in the area

- The dispersal plan shall initially require all audiences to be directed by marshals to Water Street with no access through St John's. Subject to the discretion of the St John's Management Company that dispersal strategy may be varied in the light of operational experience of Factory with different dispersal strategies depending on the timing and scale of event.
- Festival and Factory Square will be subject to access controls using automatic bollards to allow permitted vehicles access.
- Grape Street is a new link from Lower Byrom Street to Water Street to provide connectivity across the site for service and access only vehicles as well as pedestrians and cyclists
- Grape Street would have similar access control bollards at its junction with Lower Byrom Street and then again east of Factory.
- The access control bollards would use number plate recognition for regular vehicle access backed up with a 24/7 control room with CCTV and communications units to manage unplanned access
- There is one bus service running close to Factory but with many others under 6000m from the site. It is considered that with the scale of development there is scope for some bus services to be diverted by St Johns on a commercial basis
- Salford central Rail station is less than a 8 minute walk from Factory and Metrolink is a 9 minute walk
- National Cycle Route 6 is provided on Water Street and across the River Irwell
- Factory and St John's public realm is designed to be cycle friendly
- 40 undercover cycle parking spaces offered within the public realm, 20 to the west of Water Street and 20 to the east located in the undercroft areas, the exact location determined as part of the public realm design
- 20 staff spaces to be located within the service yard
- A further 242 cycle parking spaces are planned as part of the future development and proposed to be located in the wider public realm of St John's
- 5 Blue Badge Parking spaces provided on Water Street with consideration of electric charging points
- No parking provided for staff or visitors on site, over 5500 other public parking is available within a 15 minute walk. The parking availability would be monitored and managed as the operational plan is progressed.
- On street pay & display parking available in the area

- Two Lorry lifts are located east of Water Street to take large articulated HGVs and events deliveries to Warehouse floor level
- A service yard located between Factory and Bonded Warehouse to manage waste and back of house servicing
- The Factory Service Yard would be accessed to and from Water Street.
- Two loading bays on Water Street would serve the Factory and Theatre foyers. The southern lay-by would be dual use with taxis with loading limited to 06:00-11:00
- A 6 car taxi rank is proposed on Water Street south of Factory with a 4 car feeder rank using the southern dual use loading bay.
- Private hire taxis would be monitored to ensure they do not cause a nuisance
- Following the re-development of Stage 2 large outsized deliveries that cannot fit in the lorry lifts may be permitted subject to agreement with MQL to access Factory from Viaduct Square via Lower Byrom Street
- A Coach Parking Strategy has been prepared combining both new and existing pick-up locations. Drivers would follow MCC guidance on timing, engine off and passengers to wait on the coach during pickup.

4.3 Parking Provision

4.3.1 As described above there will be no on-site parking provision for Factory visitors or staff however there is significant public car parking available with more than 3300 parking spaces within a 10 minute walk and over 5500 spaces within a 15 minute walk and other parking provision likely to come forward in the vicinity of the site.

5 ACCESS BY NON CAR MODES

5.1 Introduction

5.1.1 The accessibility to good transport infrastructure has a potential to reduce the need to travel by single occupancy car and to encourage people to make sustainable transport choices to access jobs, local facilities and services. The accessibility of Factory by sustainable modes to the wider network is described in this chapter.

5.1.2 This section considers the accessibility of the site by the following modes of transport:

- Accessibility on foot;
- Accessibility by cycle;
- Accessibility by bus;
- Accessibility by train.

5.2 Accessibility on Foot

5.2.1 The Chartered Institution of Highways and Transportation document entitled 'Providing for Journeys on Foot' provides guidance on what are considered to be acceptable walking distances. That document states that the acceptable maximum walking distance for commuting trips is 2 kilometres about a 25 minute walk while an 800 metre walking distance is stated as being the preferred maximum distance for shopping trips. A 2km walk covers all of the city centre and many nearby residential areas such as Ordsall and Castlefield.

5.2.2 Given the city centre location of the application site, pedestrian accessibility to the surrounding area is very good. Existing pedestrian links are present around the site which lead to the primary routes towards the centre of Manchester along Liverpool Road and Quay Street via Water Street. Grape Street will be re-opened and offer a route via St Johns Gardens Park towards Deansgate. All footways in the surrounding area are lit and there are appropriate crossing facilities across all the main highways.

5.2.3 Many local facilities are situated within the immediate vicinity of the Factory, including a Sainsbury's and Tesco local store, banking facilities and a wide range of retail, cafes and restaurants allowing occupiers and visitors to access a wide range of services and amenities without the need to travel elsewhere. The range of amenities located within a 5 minute (390m) and 10 minute (780m) walk of the site is given in **Figure 5.1** below. With a 20 minute walk, practically all of the city centre can be reached. The St Johns site itself with its A1,A2,A3 and A4 units will offer many amenities for Factory workers and visitors.

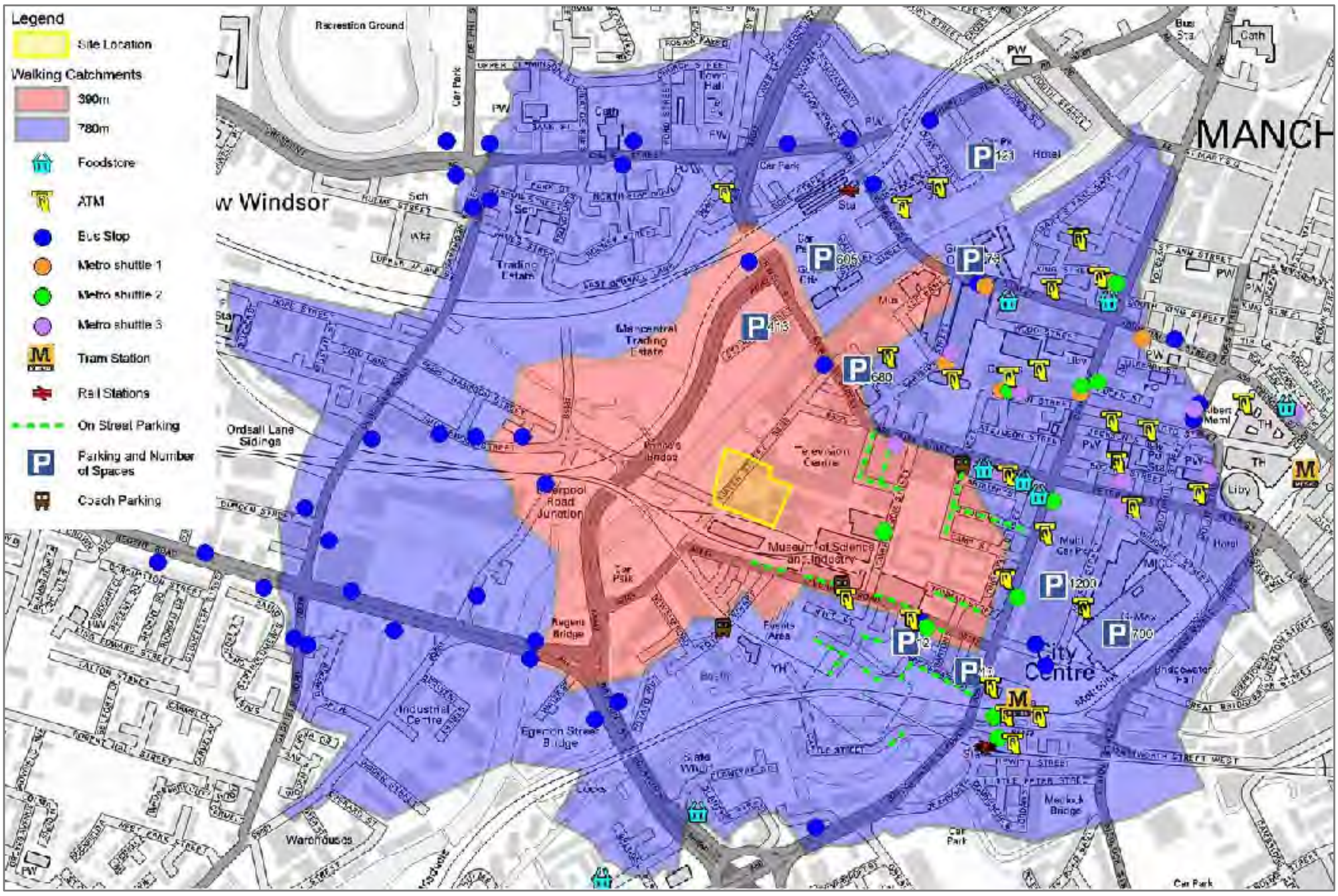

Legend
Site Location
Walking Catchments
390m
780m
Foodstore
ATM
Bus Stop
Metro shuttle 1
Metro shuttle 2
Metro shuttle 3
Tram Station
Rail Stations
On Street Parking
Parking and Number of Spaces
Coach Parking
Recreation Ground
w Windsor
MANCH
Mancentral Trading Estate
Ordsall Lane Sidings
Liverpool Road Junction
Prince's Bridge
Regents Bridge
Television Centre
Museum of Science and Industry
Events Area
Egerton Street Bridge
Industrial Centre
Warehouses
City Centre
G-Mex
121
605
74
413
680
1200
700
Medlock Bridge
Car Park

Figure 5.1 Pedestrian Accessibility Plan

5.2.4 3.2.4 Water Street will be traffic calmed and would be narrowed under Factory. There would be raised crossing table of Water Street at Festival Square. Elsewhere Pedestrians heading north and towards the city centre can cross Quay Street at an existing pedestrian crossing facility at Water Street and at a new upgraded crossing at Gartside Street. Pedestrians can also head north along Left Bank where a recently built footbridge offers a link across the River Irwell to Salford Central. (**Figure 5.2**). This footbridge provides a direct and accessible link from the site to the major transport hub of Salford Central which will be described in more detail later.

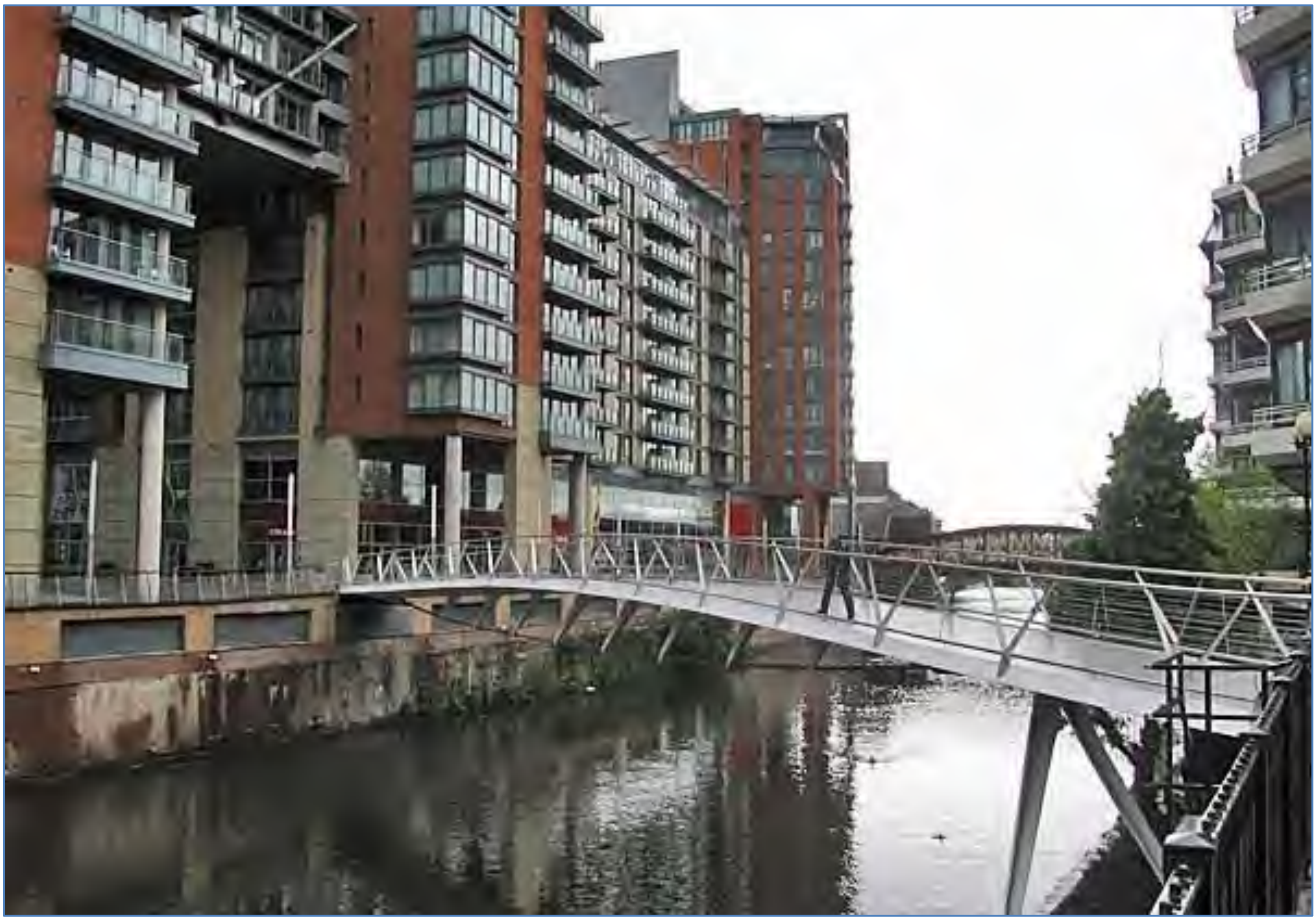


Figure 5.2 Irwell Pedestrian Footbridge

5.2.5 Around Factory there are two new Squares, Festival Square and Factory Square which will offer a high quality pedestrian space that links the Factory to other quality routes to the City and the surrounding area providing excellent permeability. Throughout the St John's area traffic speeds would be kept low. Water Street would have a maximum speed limit of 20mph while vehicles accessing the rest of the roads in St John's would do so at a speed limit of 5mph or walking pace.

5.2.6 Pedestrians who are visually impaired have been considered as part of the Factory design. Festival Square represents the main arrival point on foot for pedestrians but this space will have a constantly changing environment to cater for events in that space including changing traffic movements. As that changing environment would be difficult to navigate, it is recommended that visually impaired persons approach the Factory via Water Street. This route has traditional carriageway and footway design with fixed street furniture which will help those persons navigate and takes people right to the main entrances.

5.2.7 To the West a replacement footbridge for Princes Bridge has been built as part of the Ordsall Chord development is proposed to connect the area to Salford including the Middlewood Locks development and the Regent Road Retail Park.

5.2.8 There is an aspiration as part of the wider St. John's Masterplan that the River Irwell will benefit from a riverside walkway that connects the proposed Trinity Islands' development to the South (and Castlefield and Ordsall beyond) and Quay Street to the north. This would be delivered through later phases of the St. John's Masterplan and the Factory incorporates new public realm adjacent to the River Irwell that would enable the connections to be made.

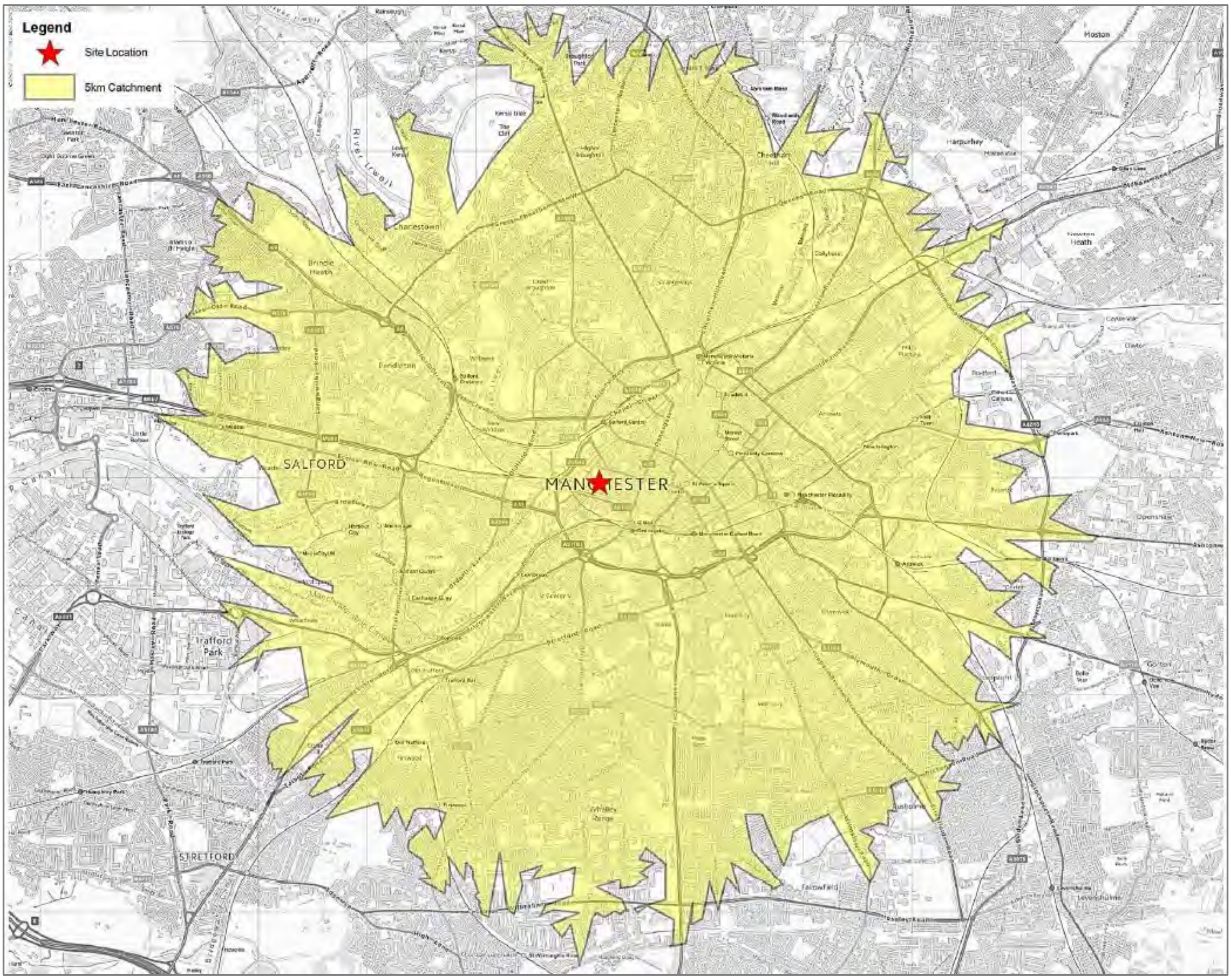
5.2.9 As described before, pedestrian access to Salford Central has already been improved with a new footbridge across the River Irwell from Spinningfields to Salford.

5.2.10 The area will also benefit from high quality signage to direct pedestrians on the most appropriate routes.

5.3 Accessibility by Cycle

5.3.1 Cycling is an increasingly popular mode of transport and is an effective mode for short trips. The Department for Transport's Local Transport Note 2/08 'Cycle Infrastructure Design' (2008) states that many utility cycle journeys are under 3 miles (5 kilometres) although for commuters a trip distance of over 5 miles (8 kilometres) is not uncommon.

5.3.2 **Figure 5.3** below illustrates that the 5 kilometre cycling catchment area encompasses the whole of Manchester City Centre and much of the surrounding conurbation and would equate to a journey of around 25 minutes using a leisurely cycle speed of 12 kilometres per hour.



Plan 5.3: 5km Cycling Catchments

5.3.3 There are a number of designated cycle routes and facilities in the area as well as a network of quiet streets which are convenient for cyclists and these are shown in **Figure 5.4.**

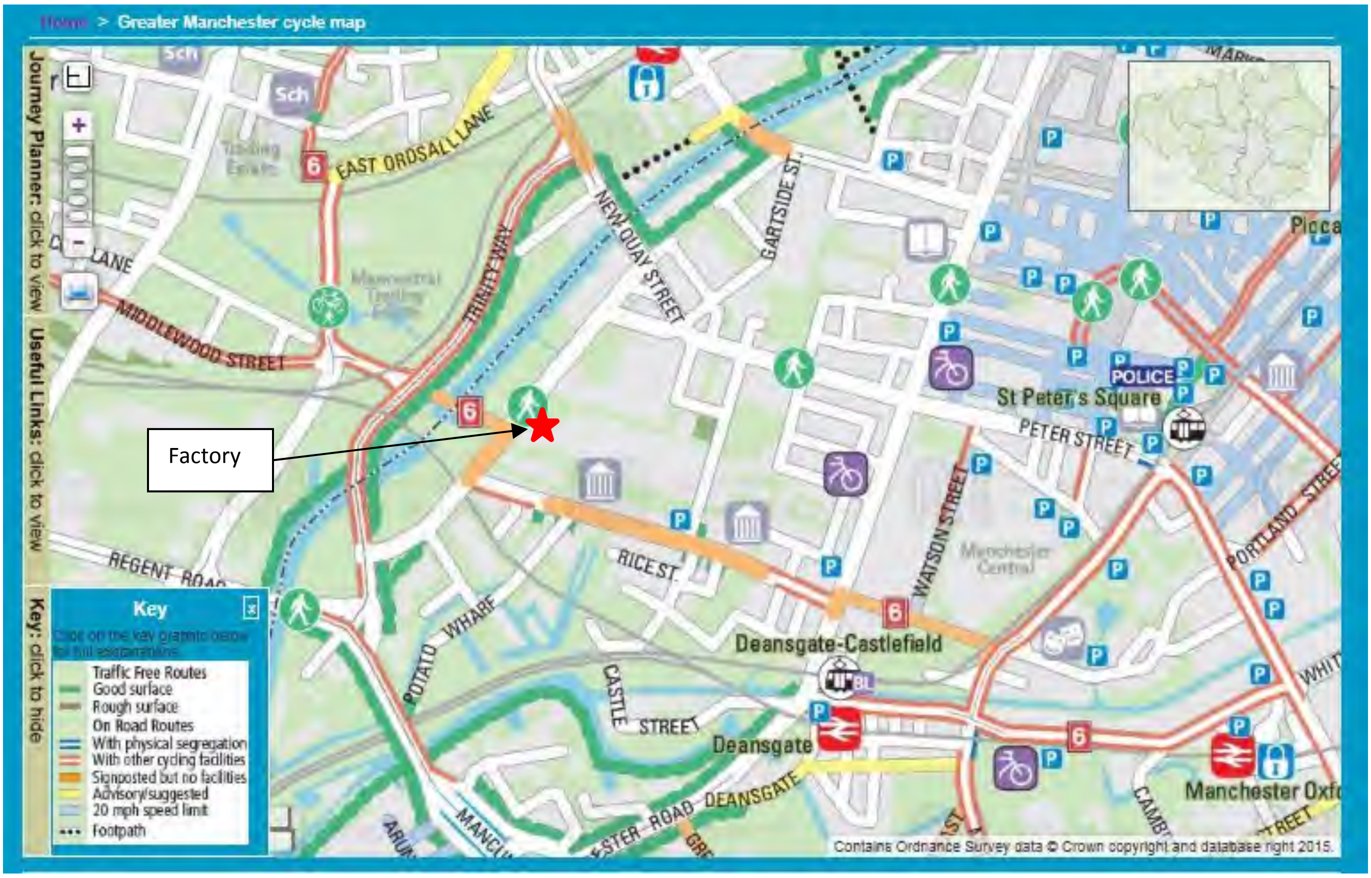

Home > Greater Manchester cycle map
Journey Planner: click to view
Useful Links: click to view
Key: click to hide
Key
Click on the key graphic below for full explanations
Traffic Free Routes
Good surface
Rough surface
On Road Routes
With physical segregation
With other cycling facilities
Signposted but no facilities
Advisory/suggested
20 mph speed limit
Footpath
Factory
EAST ORDSALL LANE
MIDDLEWOOD STREET
TRINITY WAY
NEW QUAY STREET
GARTSIDE ST.
REGENT ROAD
RICE ST
WHARF
POTATO
CASTLE STREET
DEANSGATE
WATSON STREET
PETER STREET
PORTLAND STREET
St Peter's Square
POLICE
Deansgate-Castlefield
Deansgate
Manchester Central
Manchester Oxf
Picca
6
Sch
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Figure 5.4: Local Cycle Infrastructure

5.3.4 Local cycle infrastructure will be improved. National Cycle Route 6 passes through the site under Factory, crossing the River Irwell, meeting Water Street at a give way junction before heading east along Liverpool Road. The Ordsall Chord works are funding cycle improvements on Liverpool Road and Water Street and these are shown in **Dwg NHE_127523-5804-OCD-WPA-DDR-A-100-350 & 351**. The Factory project will complement those works with public realm improvements to the River Irwell Crossing and Traffic Calming on Water Street. The complementary works to Water Street by Network Rail are considered a key part of the traffic calming strategy.

5.3.5 TfGM's Cycle City programme is implementing a programme of cycle friendly streets alongside strategic segregated cycle routes throughout the city in order to encourage cycling. Nearby TfGM is developing a scheme along the Bridgewater Canal that arrives at Deansgate close to the Station just south of Liverpool Road as shown in **Figure 5.5**.

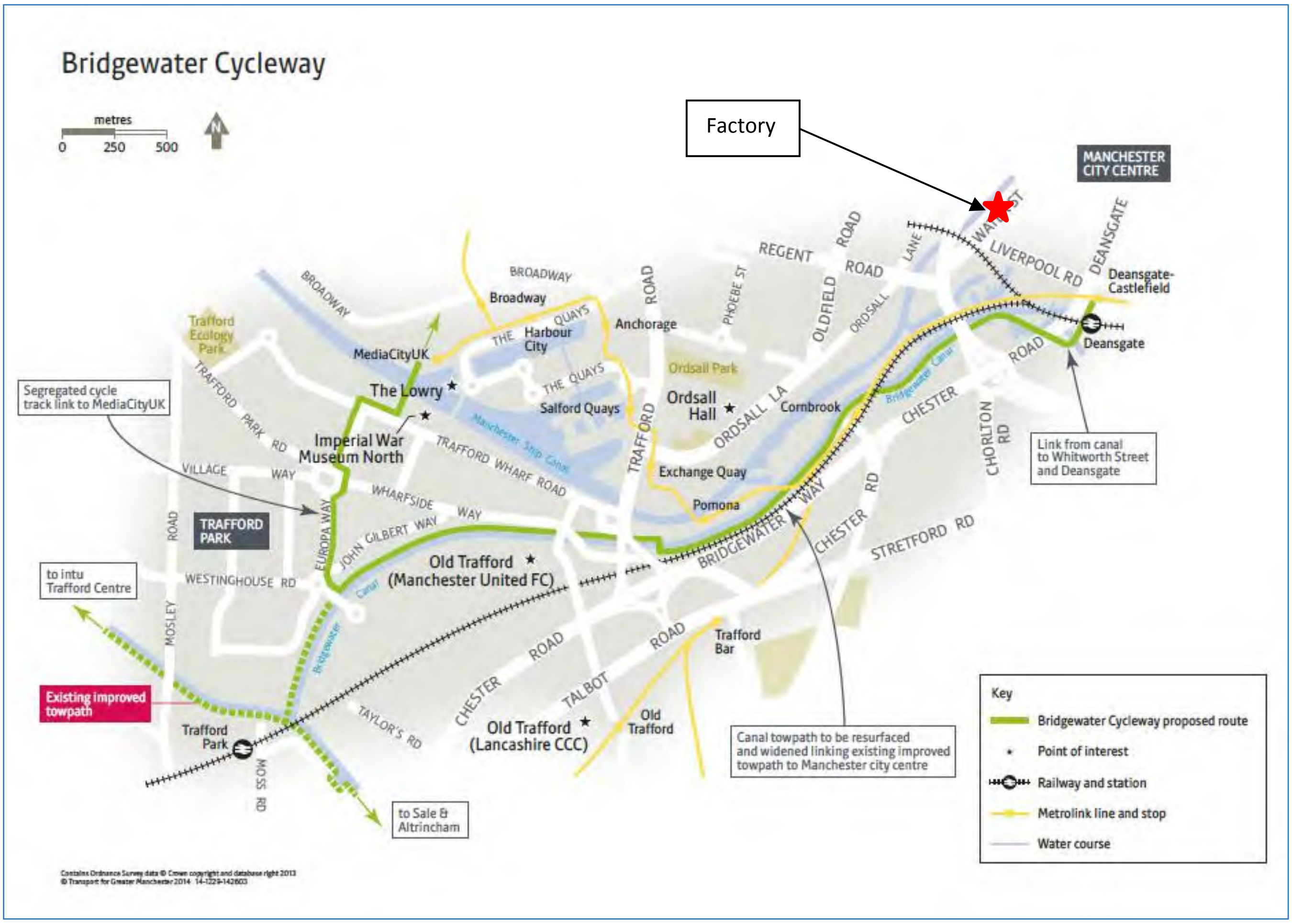

Bridgewater Cycleway
metres
0
250
500
N
Factory
MANCHESTER CITY CENTRE
Segregated cycle track link to MediaCityUK
Trafford Ecology Park
BROADWAY
Broadway
MediaCityUK
THE QUAYS
Harbour City
Anchorage
The Lowry
Salford Quays
Imperial War Museum North
Manchester Ship Canal
TRAFFORD WHARF ROAD
TRAFFORD PARK RD
VILLAGE WAY
WHARFSIDE WAY
JOHN GILBERT WAY
EUROPA WAY
TRAFFORD PARK
ROAD
WESTINGHOUSE RD
MOSLEY
to intu Trafford Centre
Old Trafford (Manchester United FC)
Canal
Bridgewater
Existing improved towpath
Trafford Park
MOSS RD
TAYLOR'S RD
to Sale & Altrincham
CHESTER ROAD
TALBOT ROAD
Old Trafford (Lancashire CCC)
Old Trafford
Trafford Bar
TRAFFORD RD
Ordsall Park
Ordsall Hall
Exchange Quay
Pomona
ORDSALL LA
Cornbrook
PHOEBE ST
REGENT ROAD
OLDFIELD ROAD
ORDSALL
LANE
WATER ST
LIVERPOOL RD
DEANSGATE
Deansgate-Castlefield
Deansgate
BRIDGEWATER WAY
CHESTER RD
CHESTER ROAD
STRETFORD RD
CHORLTON RD
Link from canal to Whitworth Street and Deansgate
Canal towpath to be resurfaced and widened linking existing improved towpath to Manchester city centre
Key
Bridgewater Cycleway proposed route
Point of interest
Railway and station
Metrolink line and stop
Water course
Contains Ordnance Survey data © Crown copyright and database right 2013 © Transport for Greater Manchester 2014 14-1229-142603

Figure 5.5: Proposed Bridgewater Cycleway

5.3.6 These cycle improvements will give some changes to the junction on Deansgate with Whitworth Street and Liverpool Road. These are shown in **Figures 5.6** and 5.**7** below.

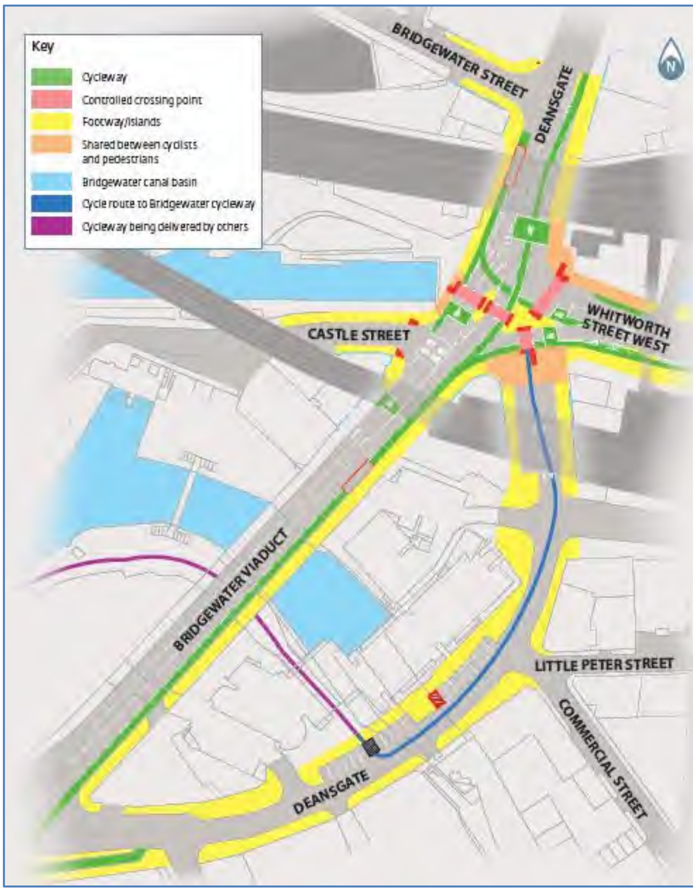

Key
🟩 Cycleway
🟥 Controlled crossing point
🟨 Footway/islands
🟧 Shared between cyclists and pedestrians
Bridgewater canal basin
Cycle route to Bridgewater cycleway
Cycleway being delivered by others
BRIDGEWATER STREET
DEANSGATE
WHITWORTH STREET WEST
CASTLE STREET
BRIDGEWATER VIADUCT
LITTLE PETER STREET
COMMERCIAL STREET
DEANSGATE

Figure 5.6 Bridgewater Viaduct Cycle Improvements

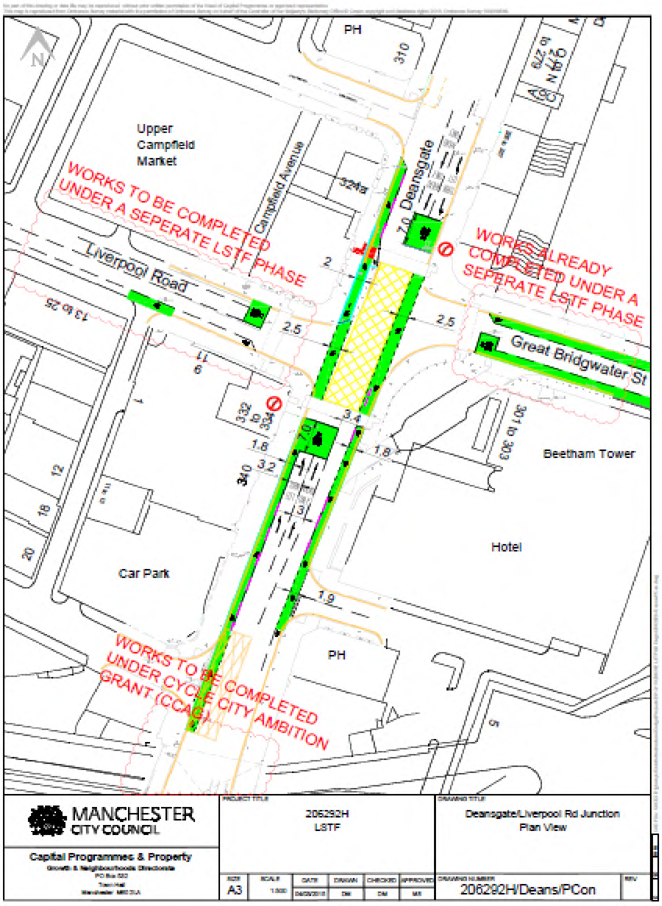

PH
Upper Campfield Market
Campfield Avenue
Deansgate
Liverpool Road
WORKS TO BE COMPLETED UNDER A SEPERATE LSTF PHASE
WORKS ALREADY COMPLETED UNDER A SEPERATE LSTF PHASE
Great Bridgewater St
Beetham Tower
Hotel
Car Park
PH
WORKS TO BE COMPLETED UNDER CYCLE CITY AMBITION GRANT (CCAG)
MANCHESTER CITY COUNCIL
Capital Programmes & Property
206292H LSTF
Deansgate/Liverpool Rd Junction Plan View
A3
206292H/Deans/PCon

Figure 5.7 Deansgate Cycle Improvements

5.3.7 Salford Central, Piccadilly and Victoria Rail Stations are located within a short cycle from the site which makes it possible for multi modal journeys by bicycle and train.

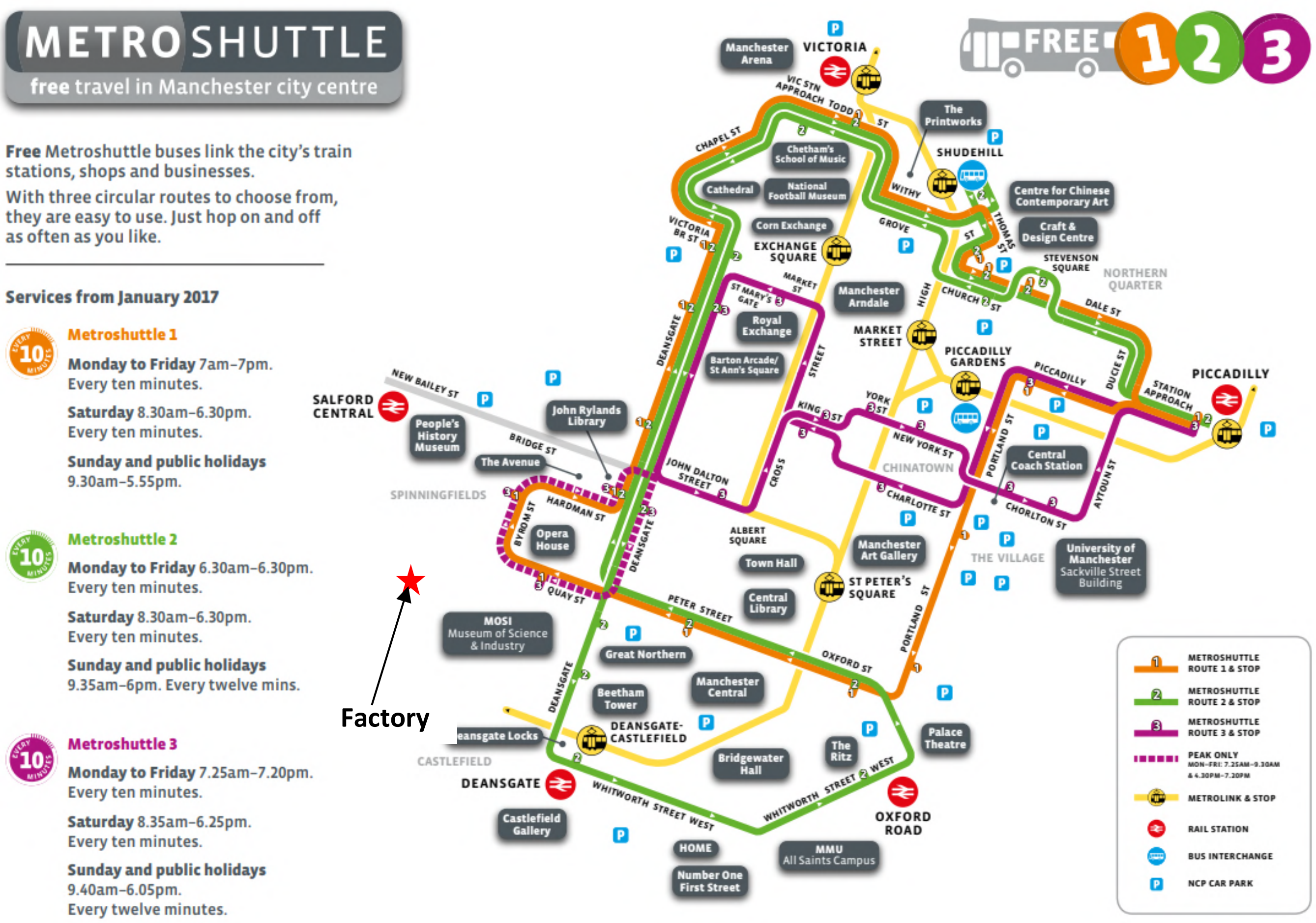
5.3.8 These excellent cycle links offer attractive cycle routes from both Salford and Trafford to Factory whereupon cyclists will benefit from the excellent cycle parking provision.

5.4 Accessibility by Public Transport

5.4.1 Access by public transport represents a key mode choice to St John's. The Travel Plan will help make that travel choice easier and cheaper through a number of initiatives. These are explained in TfGM's Travel Choices website and include extra discounts on season tickets, Get Me There, Journey Planning Apps and use of the Personalised Travel Planning service.

5.5 Metroshuttle

5.5.1 As illustrated below in **Figure 5.8,** the Metroshuttle bus service covers most of the city centre and provides convenient access to major activity centres in the City. In particular, it completes the City's integrated public transport service and gives the St John's site quick and convenient public transport connections to all mainline railway stations, principal car parks and retail centres.



METROSHUTTLE
free travel in Manchester city centre

Free Metroshuttle buses link the city's train stations, shops and businesses.

With three circular routes to choose from, they are easy to use. Just hop on and off as often as you like.

Services from January 2017

Metroshuttle 1
Monday to Friday 7am–7pm.
Every ten minutes.
Saturday 8.30am–6.30pm.
Every ten minutes.
Sunday and public holidays
9.30am–5.55pm.

Metroshuttle 2
Monday to Friday 6.30am–6.30pm.
Every ten minutes.
Saturday 8.30am–6.30pm.
Every ten minutes.
Sunday and public holidays
9.35am–6pm. Every twelve mins.

Metroshuttle 3
Monday to Friday 7.25am–7.20pm.
Every ten minutes.
Saturday 8.35am–6.25pm.
Every ten minutes.
Sunday and public holidays
9.40am–6.05pm.
Every twelve minutes.

EVERY 10 MINUTES
FREE 1 2 3
Manchester Arena
VICTORIA
VIC STN APPROACH
TODD ST
The Printworks
SHUDEHILL
CHAPEL ST
Chetham's School of Music
National Football Museum
Cathedral
WITHY GROVE
Centre for Chinese Contemporary Art
Craft & Design Centre
THOMAS ST
STEVENSON SQUARE
NORTHERN QUARTER
VICTORIA BR ST
Corn Exchange
EXCHANGE SQUARE
MARKET ST
ST MARY'S GATE
Manchester Arndale
HIGH ST
CHURCH ST
DALE ST
Royal Exchange
MARKET STREET
Barton Arcade/ St Ann's Square
DEANSGATE
PICCADILLY GARDENS
PICCADILLY
DUCIE ST
STATION APPROACH
NEW BAILEY ST
SALFORD CENTRAL
People's History Museum
John Rylands Library
KING ST
YORK ST
NEW YORK ST
PORTLAND ST
Central Coach Station
BRIDGE ST
The Avenue
SPINNINGFIELDS
JOHN DALTON STREET
CROSS ST
CHINATOWN
CHARLOTTE ST
CHORLTON ST
AYTOUN ST
HARDMAN ST
BYROM ST
Opera House
ALBERT SQUARE
Town Hall
Manchester Art Gallery
ST PETER'S SQUARE
THE VILLAGE
University of Manchester Sackville Street Building
QUAY ST
Central Library
PETER STREET
MOSI Museum of Science & Industry
Great Northern
OXFORD ST
Factory
Beetham Tower
Manchester Central
Deansgate Locks
DEANSGATE-CASTLEFIELD
CASTLEFIELD
Bridgewater Hall
The Ritz
Palace Theatre
DEANSGATE
WHITWORTH STREET WEST
OXFORD ROAD
Castlefield Gallery
HOME
Number One First Street
MMU All Saints Campus
METROSHUTTLE ROUTE 1 & STOP
METROSHUTTLE ROUTE 2 & STOP
METROSHUTTLE ROUTE 3 & STOP
PEAK ONLY MON–FRI: 7.25AM–9.30AM & 4.30PM–7.20PM
METROLINK & STOP
RAIL STATION
BUS INTERCHANGE
NCP CAR PARK

Figure 5.8: Metroshuttle Route Map (Services from January 2017)

5.5.2 Metroshuttle buses are highly branded and are instantly recognisable to workers and visitors. High quality stops are provided along the service routes with clear branded images on bus stop plates to enable instant recognition.

5.5.3 Metroshuttle is free of charge, runs on a 10 to 12 minute frequency and has been promoted in a unique joint venture by Manchester City Council, National Car Parks (NCP), Greater Manchester Passenger Transport Executive (GMPTE) and Allied London Properties Ltd. During peak hours of the day, all of the routes operate within a short walk of Factory.

5.6 Scheduled Bus Services

5.6.1 Other significant bus services are available within a short walk of the site. On Liverpool Road, there are two bus services the 33 and 63 that serve Salford, Eccles and Brookhouse/Worsley every 20 minutes with evening services finishing at 23:08. There are a considerable number of bus services within 600m of the site on Bridge Street running past every few minutes including the new Leigh Guided Busway part of the Cross City Bus package that connects Leigh, Salford and passing through the city centre along Oxford Road to terminate at Manchester Central Hospital. There are more services on Deansgate and more still just beyond a 400m walk from the site.

5.6.2 The routes of all those bus services within 400m are shown in **Dwg VN50436-G108**.

5.6.3 The St John's site will become one of the main destinations for visitors to Manchester offering many cultural events as well as being a destination for residents and employees. The scale of development at St John's and in the vicinity means that bus operators or TfGM may want to divert or provide new services and operate those on a commercial basis.

5.6.4 It can therefore be concluded that the existing bus services operating in the near vicinity of the site provide the opportunity for many employees and visitors travelling from the outlying surrounding areas of the conurbation to travel to the site by bus. The development is therefore considered to be accessible by this mode of travel. However, it is considered that the scope for new or diverted bus services to pass closer to the site would enhance bus accessibility.

5.7 Accessibility by Rail

5.7.1 The site is conveniently located for access by a number of Railway Stations. The recently improved Salford Central Station is located immediately to the northwest of the development and is a 5-7 minute walk away. This Station has been improved to provide a main commuting Station for the western part of the conurbation. The last regular service is around 23:30 in the evening.

5.7.2 Deansgate Railway Station is located to the south, a 7-8 minute walk away and its last service is at 23:29 to Liverpool calling at all stops including Urmston, Irlam, Warrington and Widnes.

5.7.3 Both of these nearby stations offer access to frequent services to Lancashire, Merseyside and Bolton.

5.7.4 Manchester Victoria and Piccadilly Stations are a longer walk (approximately 25 minutes) but both are readily accessible by Metroshuttle and provide links both nationally and across the conurbation.

5.7.5 The Northern Hub programme for rail around Manchester will offer faster services and greater capacity and in particular divert Trans-Pennine services via Salford Central making this station a more prominent focal point for services offering frequent services every 10 minutes or less across the main destinations across the north.

5.8 Accessibility by Metrolink

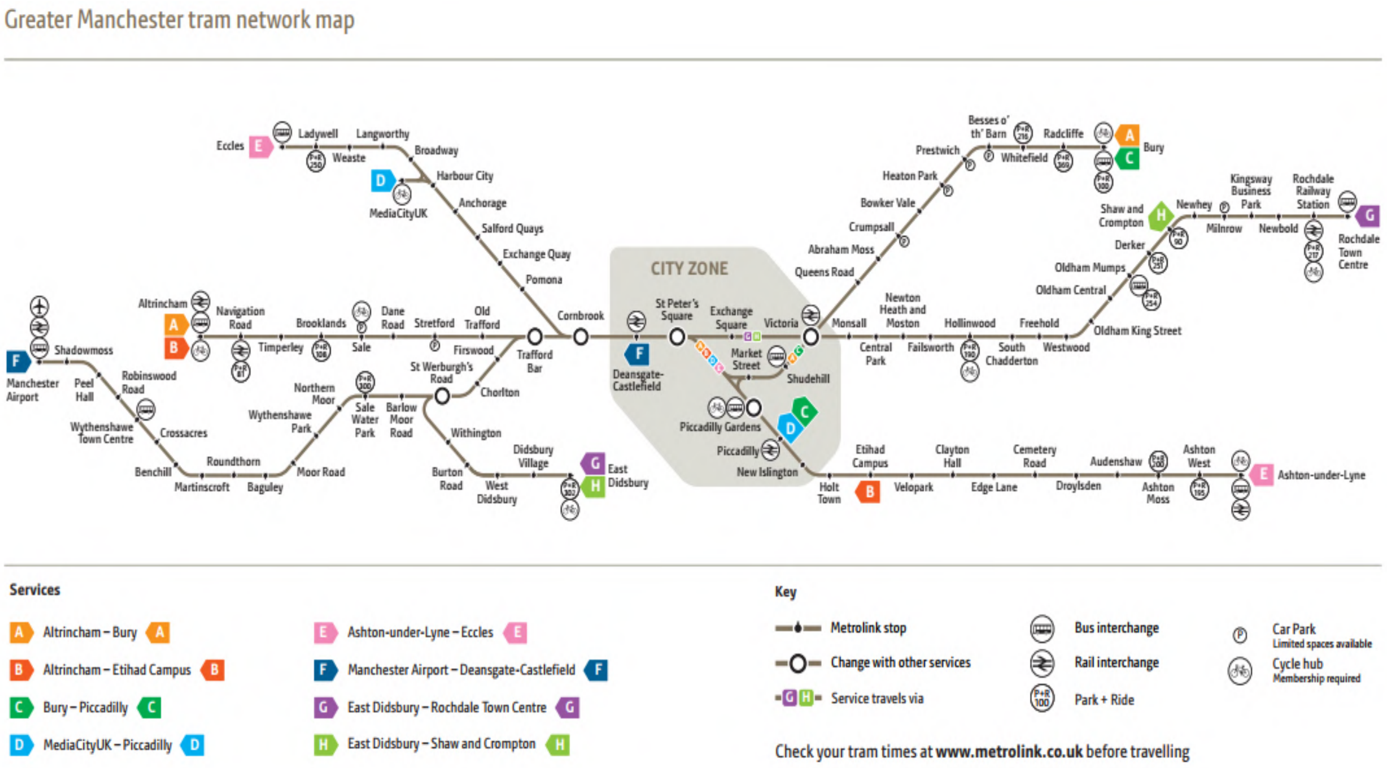
5.8.1 The existing Metrolink services currently cover a broad area of Manchester and its outlying residential districts. A plan showing the destinations and Metrolink stops are shown in **Figure 5.9** overleaf. Deansgate Castlefield is the closest Metrolink stop being a 9 minute walk away for visitors and employees and this stop has recently been upgraded to allow for the Second City Crossing.

5.8.2 Fifteen trams in each direction stop at St Peter's Square and Deansgate-Castlefield in the peak hour, including the services indicated below. A new line to the Trafford Centre is currently under construction.

- Bury (via Manchester Victoria);
- Oldham & Rochdale (via Manchester Victoria);
- Ashton-Under-Lyne (via Manchester Piccadilly);
- East Didsbury;
- Manchester Airport;
- Altrincham;
- Eccles and Media City.

5.8.3 The last tram from Deansgate Castlefield is at 00:04 on a weekday but at the Friday or weekend the last tram is at 00:54. Metrolink will offer excellent transport for staff and visitors to the site.

Figure 5.9: Metrolink Network Map


Greater Manchester tram network map
CITY ZONE
Eccles
Ladywell
Weaste
Langworthy
Broadway
Harbour City
MediaCityUK
Anchorage
Salford Quays
Exchange Quay
Pomona
Cornbrook
Deansgate-Castlefield
St Peter's Square
Exchange Square
Victoria
Market Street
Shudehill
Piccadilly Gardens
Piccadilly
New Islington
Holt Town
Etihad Campus
Velopark
Clayton Hall
Edge Lane
Cemetery Road
Droylsden
Audenshaw
Ashton Moss
Ashton West
Ashton-under-Lyne
Monsall
Central Park
Newton Heath and Moston
Failsworth
Hollinwood
South Chadderton
Freehold
Westwood
Oldham King Street
Oldham Central
Oldham Mumps
Derker
Shaw and Crompton
Newhey
Milnrow
Kingsway Business Park
Newbold
Rochdale Railway Station
Rochdale Town Centre
Queens Road
Abraham Moss
Crumpsall
Bowker Vale
Heaton Park
Prestwich
Besses o' th' Barn
Whitefield
Radcliffe
Bury
Altrincham
Navigation Road
Timperley
Brooklands
Sale
Dane Road
Stretford
Old Trafford
Trafford Bar
Firswood
St Werburgh's Road
Chorlton
Withington
Burton Road
West Didsbury
Didsbury Village
East Didsbury
Barlow Moor Road
Sale Water Park
Northern Moor
Wythenshawe Park
Moor Road
Baguley
Martinscroft
Roundthorn
Benchill
Crossacres
Wythenshawe Town Centre
Robinswood Road
Peel Hall
Shadowmoss
Manchester Airport
Services
A Altrincham – Bury A
B Altrincham – Etihad Campus B
C Bury – Piccadilly C
D MediaCityUK – Piccadilly D
E Ashton-under-Lyne – Eccles E
F Manchester Airport – Deansgate-Castlefield F
G East Didsbury – Rochdale Town Centre G
H East Didsbury – Shaw and Crompton H
Key
Metrolink stop
Change with other services
Service travels via
Bus interchange
Rail interchange
Park + Ride
Car Park Limited spaces available
Cycle hub Membership required
Check your tram times at www.metrolink.co.uk before travelling

6 TRAVEL DEMANDS

6.1 Introduction

6.1.1 The typical maximum size of event for Factory is 5000 persons and the modal share and trip forecasts are based on this scenario. However, for robustness, the test submitted for the highways modelling exercise is based on the larger, rarer event when the Warehouse and Theatre are operating at the same time, combining to produce a 6850 person capacity.

Events can occur throughout the day and at weekends although large events are considered more likely at weekday evening and at weekends. A large event occurring during a weekday is likely to have a broader arrival and departure profile such as for an exhibition or multiple events. The event attendees fall in to several different categories that affect their travel patterns and these are considered next.

6.2 Trip Forecasts

6.2.1 The trip forecasts have been based broadly on the modal share TRICS data for Theatres and this is shown in **Appendix C** and summarised below**. Figure 6.1** shows the overall modal share for both Friday and Saturday periods and is a useful starting point for the trip forecasts.

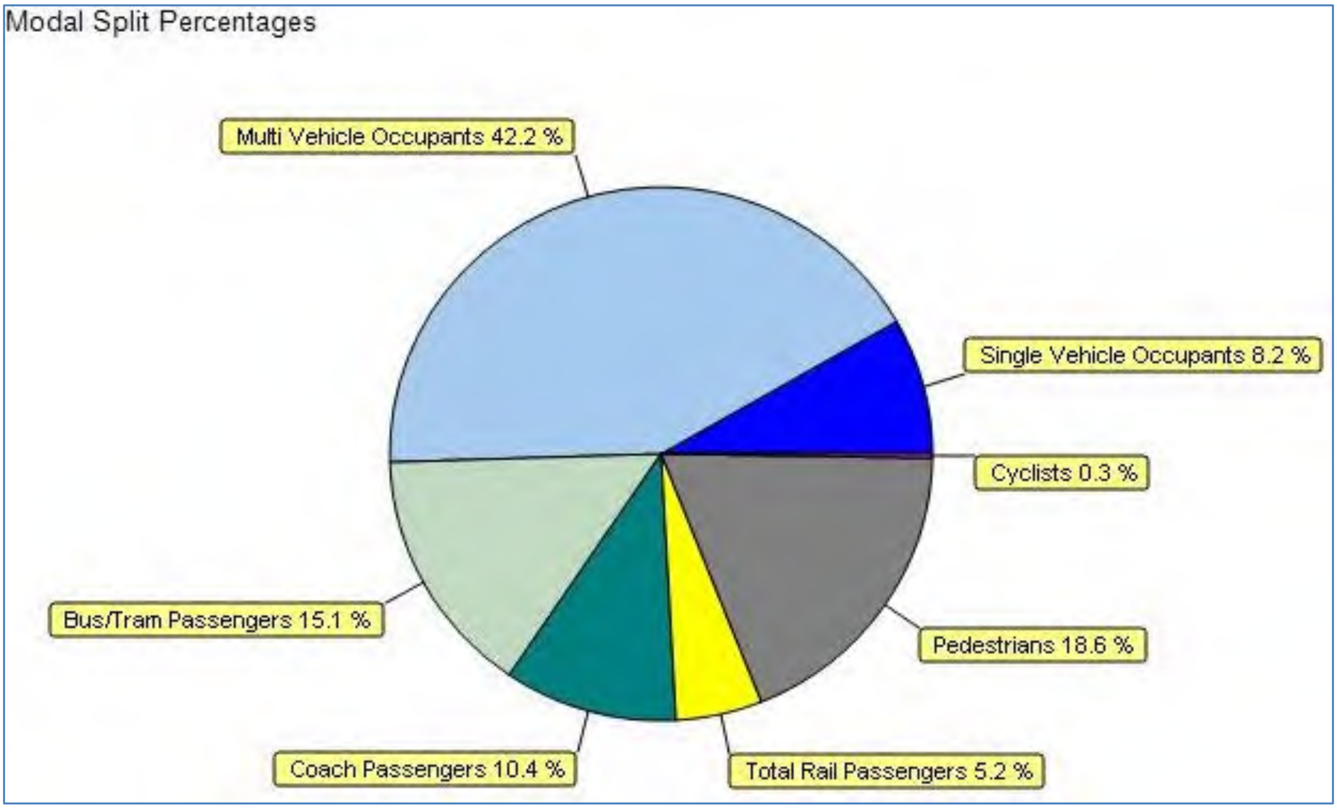


Figure 6.1 TRICS Theatre Mode Share

6.2.2 The Factory location and transport infrastructure characteristics have resulted in some adjustment to those forecasts. The first issue relates to the number staying in local hotels, the second relates to the likely attractiveness of certain transport modes for Factory.

6.2.3 The modal choice and arrival/departure pattern and for visitors for a large weekday evening and Saturday afternoon event of 5000 persons is presented in **Table 6.1** overleaf. This forecast is broadly based on TRICS but adjusted to reflect locational and transport issues. As well as a forecast of trips by each transport mode, a profile of arrivals and departures has been made. That profile again broadly follows the TRICS profile although the TRICS information is only hourly so a more detailed profile was assumed.

6.3 Hotel Stayers

6.3.1 For a large event, there is a significant proportion who are assumed to stay in hotels either on site or in the city and these forecasts have been taken from MIF research which established that around 15% of event goers for their Festivals stayed in city centre hotels. This effect is also seen in the increased occupancy at city centre hotels when concerts are held at Manchester Arena. Visit Manchester keep a monthly record of city hotel occupancy and they include in the statistics the concerts that have been a contributory factor to the peak in occupancy. For example, in June 2017 the general background level of 81% peaked to 98% across the city for particular concert nights. Therefore, the figure of 15% staying in hotels for large events at Factory is considered reasonable.

6.3.2 For a large event at Factory, 15% hotel stayers equate to 750 persons that could stay at St John's or in other City Centre Hotels. Their parking/travel needs are associated with the hotel rather than with Factory and we expect this group to arrive on foot, by taxi or arrive by Metroshuttle. For those that stay on the St Johns hotels they would benefit from valet parking within the Manchester Goods Yard Car Park.

6.3.3 It can be seen in **Table 6.1** that the forecasts include an assumption on the numbers of visitors using local hotels to Factory (not just on St John's) who are assumed to walk. We then consider those staying in hotels further across the city which includes a 50:50 split between walk and taxi. After that, a modal share has been applied to remaining non- hotel visitors which is broadly based on TRICS.

Table 6.1 Factory Event Forecasts

St Johns Masterplan

Weekday Evening Event Forecasts

Assumptions

Attendees

Evening Events at Factory		5000
Total Attendees		**5000**
Attendees Staying Overnight*	15%	750
Attendees Returning Home	85%	4250

*Source MIF

St Johns	
Attendees staying in St Johns area	**525**
Attendees staying in other hotels	**225**

Attendees Needing Transport Home	**4250**

Transport Mode

Walk /cycle	**113**
Taxi / Shuttle Bus	**113**

Main Mode	Assumptions		Person Trips	Modal Share	Modal Share With Hotel Guests	Modal Share
Private car (on-site)	Occupancy	2	1913	45%	1913	38%
	No. vehicles	956			No Vehs 956	
Coach	Occupancy	40	425	10%	425	9%
	No. Coaches	11			No Coaches 11	
Taxi	Occupancy	2	213	5%	325	7%
	No Vehicles	106			No Vehs 163	
Train			425	10%	425	9%
Bus			213	5%	213	4%
Tram			638	15%	638	13%
Walk, Cycle			425	10%	1063	21%
			4,250	100%	5000	100%

Arrival Profile for 19:30 Start

Departure Profile for 11:00 pm Finish

Time period	17:30 18:00	18:00 18:30	18:30 19:00	19:00 19:30	19:30 20:00	23:00 23:30	23:00 00:00	00:00 00:30
Person Arrival Profile	213	213	1488	2125	213			
Person Departure Profile						3400	638	213
%Arrival Profile	5%	5%	35%	50%	5%			
% Departure Profile						80%	15%	5%
Non Public Transport Profile								
Cars Arriving	48	48	335	478	48			
People Walking from Car Parks	96	96	669	956	96			
Cars Departing						765	143	48
People Walking to Car Parks						1530	287	96
Coaches		5	5				11	
Taxi Profile	5%	5%	35%	50%	5%	80%	15%	5%
Taxis (Vehicles)	8	8	57	81	8	130	24	8
Train (persons)	21	21	149	213	21	340	64	21
Bus (persons)	11	11	74	106	11	170	32	11
Tram (persons)	32	32	223	319	32	510	96	32
Walk /Cycle (persons)	53	53	372	531	53	850	159	53

St John Masterplan

Saturday Afternoon Event Forecasts

Assumptions

Attendees

Weekend Events at Factory		5000
Total Attendees		**5000**
Attendees Staying Overnight*	15%	750
Attendees Returning Home	85%	4250

*Source MIF

St Johns	
Attendees staying in St Johns area	**525**
Attendees staying in other hotels	**225**

Attendees Travelling to/from Home	**4250**

Transport Mode

Walk	**113**
Taxi / Shuttle Bus	**113**

Main Mode	Assumptions		Person Trips	Modal Share	Modal Share With Hotel Guests	Modal Share
Private car (on-site)	Occupancy	2	1913	45%	1913	38%
	No. vehicles	956			No Vehs 956	
Coach	Approx Occupancy	40	425	10%	425	9%
	No. Coaches	11			No Coaches 11	
Taxi	Occupancy	2	213	5%	325	7%
	No Vehicles	106			No Vehs 163	
Train			425	10%	425	9%
Bus			213	5%	213	4%
Tram			638	15%	638	13%
Walk, Cycle			425	10%	1063	21%
			4,250	100%	5000	100%

Mix of Saturday Afternoon Events

Time period	11:00 11:30	11:30 12:00	12:00 12:30	12:30 13:00	13:00 13:30	13:30 14:00	14:00 14:30	14:30 15:00	15:00 15:30	15:30 16:00	16:00 16:30	16:30 17:00	17:00 17:30
Person Arrival Profile	425	638	850	850	850	425	213						
Person Departure Profile								213	425	1275	1275	850	213
%Arrival Profile	10%	15%	20%	20%	20%	10%	5%						
% Departure Profile								5%	10%	30%	30%	20%	5%
Non Public Transport Profile													
Cars Arriving	96	143	191	191	191	96	48						
People Walking from Car Parks	191	287	383	383	383	191	96						
Cars Departing								48	96	287	287	191	48
People Walking to Car Parks								96	191	574	574	383	96
Coaches		5	5									5	5
Taxis (Vehicles)	11	16	21	21	21	11	5	5	11	32	32	21	5
Train (persons)	43	64	85	85	85	43	21	21	43	128	128	85	21
Bus (persons)	21	32	43	43	43	21	11	11	21	64	64	43	11
Tram (persons)	64	96	128	128	128	64	32	32	64	191	191	128	32
Walk /Cycle (persons)	43	64	85	85	85	43	21	21	43	128	128	85	21

We assume that a proportion of Attendees Arrive early for a meal/drink and a smaller proportion stay later after an event

6.3.4 The adjustments made were to increase rail mode given the accessibility of the site to rail and that large events will attract visitors over the region. We have split the car and taxi users roughly in line with the TRICS data and finally also split the bus and tram users as described in TRICS. Here we increased the proportion using the tram given the attractiveness of that mode.

6.3.5 These forecasts as described in **Table 6.1** on the implications for the particular modes are considered next.

6.4 Parking

6.4.1 The largest modal share is forecast by private car drivers and passengers at 38%. With an assumed occupancy of 2 persons per car, Factory would generate 956 car trips for a 5000 capacity event and 1310 for a larger but rarer 6850 capacity event.

6.4.2 As previously described there is no on-site public parking for Factory apart from some on street parking provision. However, near to Factory there are more than 3300 spaces of public parking available within a 10 minute walk of the site and more than 5500 spaces within a 15 minute walk of the site. It has also been noted that while it is not relied upon, there is additional public parking provision identified in the Salford Central Parking Strategy with a 637 space multi-storey car park application on the Stanley Street site and the Water Street Strategic Regeneration Framework identifies in the preferred option a public car park of between 370-740 spaces.

6.4.3 For a large event such as this, the most critical period is the hour between 17:00-18:00 when commuters are still parked in the nearby car parks and Factory may expect early arrivals before an event. **Table 6.1** shows a modest 48 cars looking to parking at this time for the 5000 person event and 66 cars for the 6850 person event.

6.4.4 The parking occupancies for the nearest NCP car parks at this critical time between 17:00-18:00 are given in **Table 6.2** below and have been provided by MCC/NCP. At this time, it can be seen that the Spinningfields Car Park has around 200 spaces available and New Bailey, Salford, 525 and Great Northern nearly 900 spaces available. Even more space is available at Central Car Park as well as the many other car parks within a 15 minute walk of the site. After 18:00 many more commuters leave and the capacity within all the car parks increases significantly allowing the Factory visitors to park near to the site.

Site Name	NCP Capacity	Current Average Occupancy 1700-1800	Available Space 1700-1800	Current Average Weekend Occupancy	Available Space Weekend
Spinningfields	680	480	200	500	180
Salford New Bailey	605	80	525	100	505
Great Northern 1 & 2	1200	310	890	520	680
Central	700	240	460	450	250
Total	**3185**	**1110**	**2075**	**1570**	**1615**

Table 6.2 NCP Car Park Occupancies – PM 17:00-18:00 & Weekends

6.4.5 **Table 6.2** also shows the occupancies at a daytime (Saturday) weekend period and this shows slightly less capacity at this time. Notwithstanding that there is spare capacity available.

6.4.6 Therefore, it is considered that there is capacity in the nearby car parks to accommodate demand at the weekday evening peak and weekend performances.

6.4.7 For events held during a weekday while commuter parking is greatest, the nature of events is likely to be different to an evening or weekend performance. Daytime events are expected to have a broader arrival profile or tend to have a reduced scale of event. For these events then greater reliance would be made on parking in the 5500 car parks that are within a 15 minute walk.

6.4.8 To help visitors arrive at the right car park with spaces available, visitors would be directed to one of the 5500 nearby car parks by the Variable Message Signs that are currently located on The Inner Relief Road and inform drivers of the available car park capacity.

6.5 On Street Parking

6.5.1 With development, there is a reasonable amount of on street parking available near to Factory. There are 68 on street pay and display (P&D) bays within a short walk and these spaces are shown in **Dwg VN50436-209O.**

6.6 Disabled Visitor Parking

6.6.1 The on street pay and display bays described above can also be used by disabled users without charge. There are 3 disabled parking bays on Lower Byrom Street close to the MSI entrance which will be 230m from Factory. Blue Badge Holders can park for up to 3 hours on Liverpool Road (approx. 100m from Factory) on the single yellow lines in front of the MSI Station Building. Blue Badge holders can also park in the standard parking bays for free and without time limit on the 15 standard pay and display parking bays on Liverpool Road (nearest approximately 150 m from Factory) and also on Lower Byrom Street, Great John Street and Atherton Street between 200m and 300m from Factory and on the proposed replacement parking bays on Water Street less than 100m from Factory.

6.6.2 Notwithstanding this it is considered appropriate to provide additional blue badge parking bays closer to the Factory. In this respect, we propose to provide 5 disabled parking spaces off Water Street adjacent to the Factory Entrance as shown in **Dwg VN70930-102A**. The design of these could be similar to those on Mount Street as in **Figure 6.2** below.

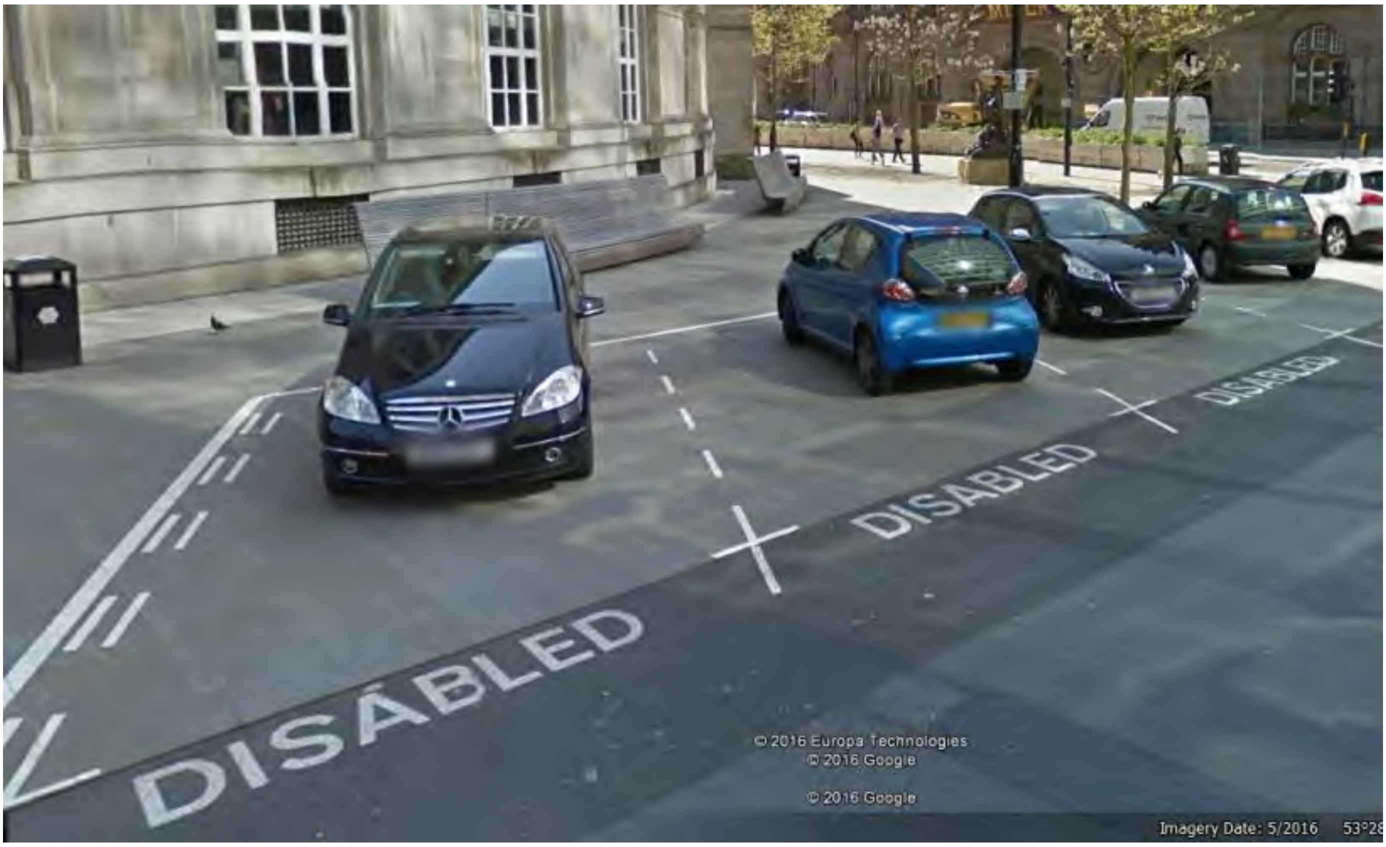


Figure 6.2 Precedent Blue Badge Parking

6.6.3 Following discussions with MCC highways officers it was agreed that the five disabled bays would be provided on adopted highway and that they would fall under the MCC traffic regulation orders and be enforced by the MCC parking officers.

6.7 Staff Parking

6.7.1 There is no allocated parking for Factory staff although there are public parking spaces available in the NCP car parks nearby.

6.7.2 We next describe how persons attending events at the Factory, staff and loading vehicles would access the site by their various transport modes.

6.8 Coach Drop-Off / Pickup

6.8.1 At Factory, 10% of visitors to a large event are assumed to arrive by coach, a figure taken from the Theatre land use category in the TRICS database. This equates to 425 persons which are assumed to arrive in 10-11 coaches depending on coach size and occupancy.

6.8.2 The proposed Coach Parking Strategy for Factory has been updated with the agreement of MCC Highways officers to include the needs of other attractions in the area including MSI and the Opera House with different provision between Daytime and Evening activities to help minimise any potential adverse impacts on local residents.

6.8.3 The updated Coach Parking Strategy builds on the existing coach parking provision/traffic orders which serves the areas attractions on Liverpool Road and also on Quay Street and Byrom Street.

6.8.4 The proposed coach parking provision is described below with the changes underlined.

6.8.5 Provide 4 new coach parking bays on New Elm Road on its southern kerb between Water Street and the first junction of New Elm Road into the Industrial Estate. The single yellow line will be changed to provide 4 hour coach parking in 4 bays.

6.8.6 Provide 2 Coach Parking Bays on Water Street (southbound) between Liverpool Road and New Elm Road to be time limited to 20 minutes. This is to replace the single coach parking bay and the loading bay(s) which offer 4 hour coach parking there.

6.8.7 Add 2 new Coach Parking Bays on Deansgate between Camp Street and St Johns Street. In addition, there is a bus stop that is currently not in use. MCC to discuss with TfGM whether this bus stop could be used for an additional coach parking space to provide additional flexibility for attractions in the area.

6.8.8 The proposed changes to coach parking provision is shown in the following drawings:

Dwg VN60596-D210 shows the daytime coach parking provision
Dwg VN60596-D211 shows the evening coach parking provision

6.8.9 Overall the area will benefit from at least 14 coach parking spaces during the day and at least 16 spaces available in the evening after 8pm. This is considered sufficient to meet the demand for the various needs for coach parking in the area. The demand for coach parking is helped by the variety of events and activities spreading the timings of arrivals and departures.

6.8.10 The Factory management team will inform coach drivers of MCCs guidance which directs drivers to drop-off and pick-up in designated locations, but to then require them to move on to a long stay parking area such as the Imperial War Museum or the Etihad Stadium. There is a code of conduct for drivers which include turning off the engine when parked and following instructions for special events which would apply in this case. In addition, drivers would be instructed on pickup to ensure passengers wait on the coach before departure.

6.8.11 To avoid any adverse impacts on residents, the Factory management team will monitor coach parking activity and respond to any adverse impacts. The Factory team will have marshals on hand for large events to direct passengers and advise coach drivers to access the appropriate drop-off/pick-up locations and control any inappropriate behaviour.

6.9 Taxis

6.9.1 There are four existing taxis ranks in the area:

- Deansgate: Opposite St John Street;
- Hardman Street;
- Byrom Street: Adjacent to the Opera House
- Liverpool Road: Adjacent to MSI

6.9.2 Taxis have been assumed to move over 326 persons after a large event. Around one third are assumed to be heading to other city centre hotels and the rest heading towards the suburbs. Taxi use is changing with the Uber effect and in particular the location for where people pick up a taxi.

6.9.3 It is proposed to provide a six vehicle taxi rank for hackney black cabs plus a four vehicle feeder rank on Water Street, just south of the Factory. This arrangement is shown in **Dwg VN70930-102B**. The dual use loading bay will have a time limited servicing period in the morning (0600-1100) allowing them to be used by taxis for events in the afternoon and evening. The location of these loading bays is subject to review as part of the landscape strategy.

6.9.4 These are in addition to the existing nearby taxi ranks at Deansgate (opposite St. John Street), Hardman Street, Byrom Street (adjacent to the Opera House) and Liverpool Road (adjacent to MSI).

6.9.5 Stewards will be on hand to manage the flow of traffic on Water Street and people crossing Water Street from east to west. To achieve an efficient dispersal, and to prevent unnecessary waiting of vehicles and pedestrians waiting for taxis, a number of provisions will be undertaken as follows:

- Reduce the number of private hire, Uber and private pick up on Water street.
- Advertise on the Factory website for members of the public to advise taxi drivers not to pick up on Water Street or Liverpool Road, rather use Quay Street or Deansgate. Advise if booking a taxi or using Uber to organise pick up in these locations also.
- Liaise with taxi firms and Uber to avoid congestion along Water Street and request to arrange more convenient pick up location as above.

6.10 Public Transport

6.10.1 Access by public transport is assumed to account for 30% of attendees that do not stay in the city or 26% overall. Train accessibility for the area will improve with the completion of the Northern Hub railway works including the Ordsall Chord as this allows many more trains to stop at Salford Central, particularly Trans Pennine services. Salford Central is less than 800m from the Factory and its last regular train to Liverpool is at 23:30. Other rail services are available from Deansgate Station (last train 23:29) also within an 800m of the Factory and national services can be made from Piccadilly and Victoria Stations which are can be reached by the Metroshuttle Service.

6.10.2 We have therefore assumed a greater modal share arriving by train of 9% or 425 persons.

6.10.3 Metroshuttle is a free and accessible service linking the major destinations in Manchester (running 07:00-19:00). There have been changes to the services which mean the nearest service stops about 500 metres from the Factory. Metroshuttle can pick up mobility impaired persons and either directly or with a change onto the other Routes take people across all the major City Centre destinations including the major rail and bus interchanges. During the day it operates on a 10 minute frequency.

6.10.4 Currently there is the 33/63 services on Liverpool Road (Last Service to Eccles/Worsley 23:08) serving the area. Other significant bus services are available within a short walk of the site. Notably on Bridge Street 600m to the north there are 12 services reaching Salford, Bolton and the western area of the Greater Manchester Conurbation. Other services can be reached on Deansgate within a 600m walk from the site where 4 services serve Trafford and the south.

6.10.5 The extent over which people can travel by bus or train up to 45 minutes from the site is given in **Dwg VN50477-G103**. In **Dwg VN50477-G104** we show the frequency of buses at nearby bus stops.

6.10.6 It can therefore be concluded that the existing bus services operating in the near vicinity of the site provide the opportunity for some visitors and staff travelling from the outlying surrounding areas of the conurbation to travel to the site by bus. However, it is expected that, given the scale of development at St Johns, the bus companies could provide new or diverted services on a commercial basis. The potential to prepare for new or diverted bus services on a commercial basis would be discussed with TfGM to identify opportunities upon opening of Factory.

6.10.7 The Metrolink network is located around 800m away at Deansgate-Castlefield or St Peters Square. This is also linked by the Metroshuttle to the Factory and offers access to much of the City Region. Given its coverage it is assumed that Metrolink has the greatest modal share of the Public Transport modes and 638 persons are forecast to use Metrolink. The last tram from Deansgate Castlefield is at 00:04 on a weekday but at the Friday or weekend the last tram is at 00:54. Metrolink will offer excellent transport for staff and visitors to the site.

6.11 Walk

6.11.1 There is expected to be a significant number of people walking to and from Factory either to city centre hotels, city centre residents heading back home or those heading to other transport modes. The City Centre’s population has grown, as well as that over the river in Salford providing a large catchment population that is accessible within a short walk.

6.11.2 Factory will benefit from the two new squares around it allowing people to congregate. The dispersal plan for pedestrians is described more fully in the Event Management Strategy but this varies according to the size, timing and nature of the event but in the first instance shall require all audiences to be directed along Water Street.

6.11.3 Consideration has been given to the number of pedestrians that may wish to cross Water Street in the vicinity of Factory. In summary, the volumes are likely to be limited to just those residents heading towards Salford across Princes Bridge, those heading towards Trinity Islands, the two bay taxi rank on the west side of Water Street or a few cyclists parked on the west side. Therefore, most visitors can access their destination without crossing Water Street.

6.12 Cycle

6.12.1 The demand for cycle use by visitors to Factory events is forecast to be limited. TRICS shows this to be less than 0.3% of visitors.

6.12.2 While the numbers cycling generally have increased significantly the number that cycle to arts, theatre or music events are quite low. We have assumed that cycling to Factory would be double the TRICS figures at 0.6% which equates to 30 cyclists for a large Factory event.

6.12.3 Around the Factory it is proposed to offer cycle parking for 60 covered cycle spaces within the public realm. This would be provided with 30 Sheffield Cycle stands. The final location of these cycle stands is to be confirmed but they will be spread both east and west of Water Street and subject to the landscape design.

6.12.4 In addition, in St John's overall it is proposed that there will be 242 on street cycle parking spaces situated within the public realm to be brought forward through other development schemes.

6.13 Flexible use of Festival Square

6.13.1 The Access Strategy includes the potential for the flexible use of Festival Square. This area could be used for VIP Drop-off for Red Carpet events, performance space or market stalls. This flexible use would be helped by 'movable' furniture within that square that can then also help define the traffic routes. Any vehicles using this space will be directed to move at walking pace and the location of the street furniture to define areas where traffic moves.

6.13.2 The types of vehicle using this space include service vehicles accessing Manchester Goods Yard/T1, the Factory Service Yard or South Village as well as Residents accessing South Village. Most of the service vehicles to Manchester Goods Yard would be timed to avoid busy times and to complete servicing before 11:00. In the busiest hour 10:00-11:00 it is forecast that less than 50 vehicles would pass through that space (two way).

6.13.3 Consideration has been given to vehicle access controls to prevent terrorist related incidents. The design solution is subject to further consideration and it is recommended that this is considered as part of the landscaping proposals for the area. It is expected that access would be managed by automatic drop bollards linked to a control room with registered/regular vehicles benefitting from automatic access. Vehicles leaving Festival Square would have vehicle sensors that automatically drop on approach.

6.13.4 There is a desire to limit the encroachment of these bollards and associated CCTV and Communications units into the Square. Therefore, larger vehicles serving the Factory Service Yard such as refuse collection will be timed to arrive early in the morning. In this scenario they would wait on Water Street for the bollards to drop before accessing the Square. This allows the bollard location to be placed closer to Water Street.

6.14 Servicing

6.14.1 The servicing strategy for Factory is described more fully in the Waste & Servicing Strategy that accompanies this application. In summary, Factory benefits from two lorry lifts that aim to take the majority of event based servicing. A separate gated Service Yard is located between Factory and the Bonded Warehouse which aims to handle the Waste and Back of House deliveries and can contain around 6 vans plus an HGV. There are also two loading bays on Water Street close to the foyer to deliver Food and Beverage deliveries in particular to the foyer areas.

6.14.2 The operation of Factory relies upon a combination of:

- Periodic planned production get in and out to facilitate the events and performances in the theatre and warehouse
- Regular planned deliveries to service the venue including restocking bars and catering areas, replenishing general building stock materials and waste collection,
- Ad hoc deliveries to service the organisation running the venue and exceptional, unplanned for needs.

6.14.3 Production get ins and outs are planned well in advance, with an agreed logistics plan forming part of the show contract. This allows the management team to plan for and minimise the impact of a large get-ins or get-outs..

6.15 Lorry Lifts

6.15.1 The main access for vehicles associated with set-up/break down is to use the Lorry Lifts located within the public realm adjacent to the Theatre on Water Street to deliver equipment directly to the performance areas. Vehicles arriving to access the Lorry Lifts are planned and the Factory staff would be prepared to receive such vehicles.

6.15.2 The manoeuvring of delivery vehicles within the public realm area of Factory Square is described in the swept path tracks as shown in **Dwg VN60596-TR115A** for the large articulated vehicle. Any reversing/manoeuvring within the public realm would be under the control of a banksman provided by the Factory team. Vehicle movements within the public areas would be timed to avoid periods of high pedestrian movement such as events within Factory Square or periods just after an event when the audience is leaving Factory.

6.15.3 Smaller vehicles may also access the lorry lifts directly from Water Street should the Square be used for an event. All movements would be in a forward gear.

6.15.4 At the higher Viaduct level, vehicles can manoeuvre off the lorry lifts and turn within the performance area of the Warehouse if required.

6.15.5 The truck turnaround times are based on an assumed 5 minute load and lift time with 50 minutes to load or unload.

6.15.6 Most shows would work on a tip and move system. This is where the trucking company will move the show trailers to within easy reach of the City and then park them up while they go back and collect another trailer. The common practice would be to have 2 drivers with tractor units and they relay the trailers into the venue as they are required from a distance away from the venue as there is no capacity to store the trailers on the road. They work in tandem with the show production manager in determining the order and timing of the trailers coming in. This allows a 12 truck show to load in two trucks at a time with only two drivers. If the Lorry Lifts are not being used then, depending on the timing and needs to the Factory then vehicles can be parked within the Lorry Lift itself.

6.16 Service Yard Deliveries

6.16.1 The Factory Service Yard is located between the Factory and the Bonded Warehouse this area will be gated. It is here that the Back of House deliveries can occur.

6.16.2 These deliveries include standard office deliveries such as IT equipment, post, marketing materials, sanitation/cleaning and other consumables that support the building function, some food and beverage deliveries as well as smaller deliveries to support performances.

6.16.3 The movement of service vehicles (and refuse collections) into the service yard is described in **Dwg VN60596-TR104C** and are typically expected to arrive between 07:30 and 11:00.

6.16.4 Vehicles would approach from Water Street through the controlled bollards and into Festival Square. The larger vehicles would reverse into the service yard.

6.16.5 The access points on entry into Festival Square and at the Service Yard gates benefit from CCTV so the Factory staff can identify vehicles as they pull up. Larger vehicles would need to be scheduled as while two large HGVs can park in the service yard they would be block parked.

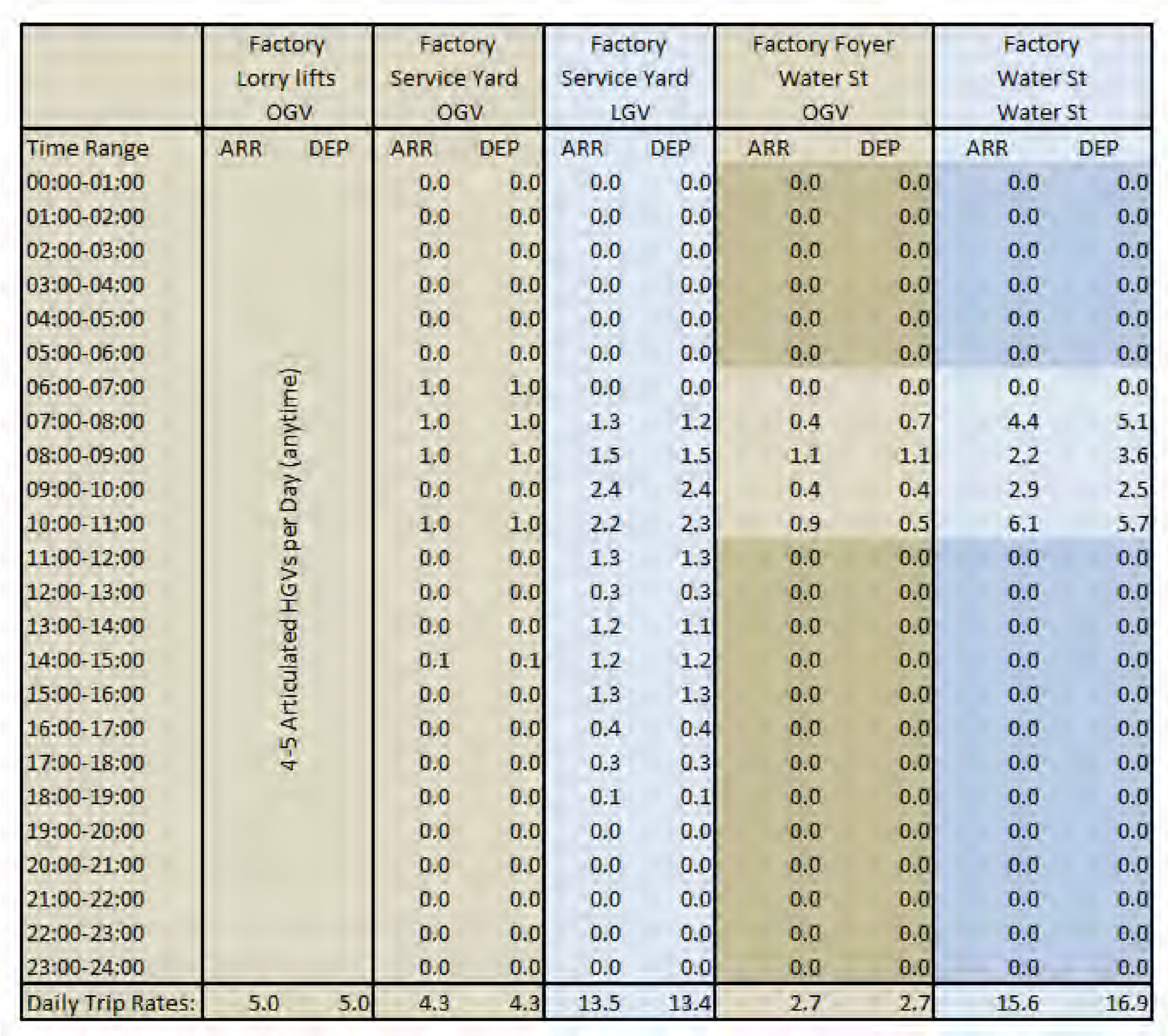
6.16.6 There is space for addition vans to park in the loading bay. There is an area beneath the sloping rake of stairs which has a height clearance of up to 2.8m.

6.17 Water Street Deliveries

6.17.1 The Factory will be supported by food and beverage outlets and these may include permanent and temporary units. Deliveries for these units could be made from the loading bays on Water Street. There is one double loading bay to the east of Water Street and a single loading bay to the west. These loading bays would only be used for servicing between 0600-1100 allowing for their use late in the evening for taxis.

6.17.2 The Water Street loading bays would mainly be light deliveries with the occasional large arrival of drinks to the foyer bar or food that would be taken through the doors of Factory. The Factory FM team also would manage the delivery timings so any deliveries in the morning do not coincide with large movements of visitors to the Factory.

6.17.3 A summary of these trips to the various servicing areas is given in **Table 6.3** below. This data is based on information provided by other venues, MIF and the TRICS database. These volumes of deliveries are not considered to cause significant operational difficulties although some management of timing will be needed. The fact that there are several servicing locations does allow some flexibility of use and spreading the demand.



	Factory Lorry lifts OGV		Factory Service Yard OGV		Factory Service Yard LGV		Factory Foyer Water St OGV		Factory Water St Water St	
Time Range	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP
00:00-01:00	4-5 Articulated HGVs per Day (anytime)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01:00-02:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
02:00-03:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
03:00-04:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
04:00-05:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
05:00-06:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
06:00-07:00			1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
07:00-08:00			1.0	1.0	1.3	1.2	0.4	0.7	4.4	5.1
08:00-09:00			1.0	1.0	1.5	1.5	1.1	1.1	2.2	3.6
09:00-10:00			0.0	0.0	2.4	2.4	0.4	0.4	2.9	2.5
10:00-11:00			1.0	1.0	2.2	2.3	0.9	0.5	6.1	5.7
11:00-12:00			0.0	0.0	1.3	1.3	0.0	0.0	0.0	0.0
12:00-13:00			0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0
13:00-14:00			0.0	0.0	1.2	1.1	0.0	0.0	0.0	0.0
14:00-15:00			0.1	0.1	1.2	1.2	0.0	0.0	0.0	0.0
15:00-16:00			0.0	0.0	1.3	1.3	0.0	0.0	0.0	0.0
16:00-17:00			0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0
17:00-18:00			0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0
18:00-19:00			0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
19:00-20:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20:00-21:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21:00-22:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22:00-23:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23:00-24:00			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Trip Rates:	5.0	5.0	4.3	4.3	13.5	13.4	2.7	2.7	15.6	16.9

Table 6.3 Forecast Service Activity – Factory

(Shaded area indicates periods of restricted Servicing)

6.18 Outsized Deliveries

6.18.1 The Lorry Lifts can accommodate standard articulated lorries, however there may be a need on rare occasions to delivery outsized art or scenery to the Factory. Following the re-development of Stage 2 such deliveries may be permitted subject to agreement with MQL to access Factory from Lower Byrom Street and arrive via the existing servicing route along Victoria Street to the south of Bonded Warehouse and then into Viaduct Square. Delivery vehicles will drive into the Warehouse and then turn around in the Warehouse floor area and return in forward gear to Lower Byrom Street. Depending on the height such vehicles may need to avoid the low bridges on Water Street and Deansgate and approach via Quay Street.

7 TRAFFIC ASSESSMENT DO-MINIMUM SCENARIO

7.1 Introduction

7.1.1 This chapter sets out the traffic and highway operational analysis. This is needed to demonstrate that the highway network can continue to operate efficiently but also to demonstrate that the environmental implications are acceptable and if any implications are considered to be significant that mitigation measures are put in place.

7.1.2 The operation of the wider highway network has been modelled by TfGM firstly using a SATURN model and then a PARAMICS model.

7.1.3 The base case model is for 2014 and existing conditions were described in Chapter 2.

7.2 Do-Minimum Scenario

7.2.1 The years of assessment are taken as 2017 and 2032. This is the assessment years taken for the major highway improvement proposed for Regent Road but also represents the earliest possible opening for the early phases at St John's together with a 15 year future scenario. By taking these years it is a robust means of testing the full development scenario with the future highway scenario and the full development of the Regional Centre up to that point.

7.2.2 The Do-min model incorporates two local highways schemes in the vicinity of the site which are proposed and which are assumed to be in place prior to the development of the St John's site. These are:

- The Regent Road improvement scheme: This scheme will deliver significant capacity improvements to the nearby junction of Regent Road and Trinity Way.
- Removal of traffic signals at the Water Street/Liverpool Road Junction: This scheme will replace the existing signalised junction with a priority junction. The northern section of Water Street will form the minor arm of this junction as the main traffic flow is expected to be between Liverpool Road and the southern section of Water Street.

7.2.3 The Regent Road scheme is a £15m scheme which is identified in the Local Transport Plan and is in the Capital Programme for completion before 2021. It is presently in the design development stage.

7.2.4 The scheme aims to improve junction capacity by 30% and the forecast benefits include:

- Reducing delays for traffic at the Regent Road – Water Street Junction;
- Increased reliability for bus services using the junction (Trinity Way/ Irwell St/ Chapel St forms part of the current Cross City Bus proposals;
- Reducing delays for traffic at the Trinity Way-Irwell Street and Chapel Road junctions;
- Increasing reliability for bus services using these junctions which form part of the Cross City bus service access into the City Centre; and
- An increased proportion of trips on the IRR with their ends within or near the city centre.

7.2.5 Network Rail as part of the Ordsall Chord works are implementing an improvement scheme as described in paragraph 5.3.3 which removes the traffic signals at Liverpool Road /Water Street and makes Liverpool Road the priority movement along with cycle improvements.

7.2.6 The above highway improvements have been included in the Do-min analysis for the Environmental Impact Statement.

7.3 Committed Development Trip Forecasts

7.3.1 The trips from nearby committed developments would form part of the base traffic flows against which the development flows would be tested. The neighbouring committed developments are shown in **Appendix D** and the Transport Assessments for these developments have been reviewed. Many result in very limited traffic impact or in fact fewer trips than the current land use. The committed developments that result in traffic changes within the Study area are at Water Street, Astley House, Chapel Street, Middlewood Locks and Salford Central. These trips would be incorporated into the Base Traffic Flows.

7.4 Future Year Flows

7.4.1 To derive the change in traffic flows with development, the committed development trips were added to the 2014 base flows. The remaining background growth to 2017 and 2032 levels were then added.

7.4.2 When the development trips are added the current Granada traffic flows accessing Zone 163 in the model were deducted in order to test the net impact of trips. It should be borne in mind that the proposed development trips are distributed to the five proposed car parks where the previous Granada traffic was all concentrated in one zone. This can lead to some changes in flows in the immediate vicinity of car parks.

7.4.3 TfGM have applied traffic growth to the 2014 baseline flows. The growth factors applied to all traffic to account for future growth of the Regional Centre are:

Growth Factors (Growth from 2014)

	2017	**2032**
AM Peak	5%	12%
Inter-Peak	7%	15%
PM Peak	2%	17%

7.4.4 The 2017 Do-Minimum flows are shown in **Figures 7.1** and **7.2** for the 2017 year, AM and PM and **Figures 7.3** and **7.4** for the 2032 peak periods overleaf.

8 TRAFFIC IMPACT ASSESSMENT, DO –SOMETHING SCENARIO

8.1 Traffic Flow Changes

8.1.1 The traffic modelling has tested the changes with the wider St John's development of which Factory forms a part. The approach for traffic modelling has been agreed with TfGM. In general, the SATURN model provides a useful overview of highway operation but that for junctions where there is a significant change in traffic flow with development or where the highway layout changes it is appropriate to undertake more detailed modelling.

8.2 Highway Operation

8.2.1 The operation of the Do-Something highway network with development has been tested by TfGM using their SATURN model and the report for this is presented in **Appendix E**. That Do-Something network includes the local authority improvement at Regent Road, the Network Rail improvement at Water Street/Liverpool Road and finally the closure of Quay Street to create St John's Place resulting in diversions of that link onto new Quay Street.

8.2.2 The report's key observations and conclusions are summarised below.

8.3 Changes in Traffic Flows

8.3.1 Analysis focuses on the 2032 forecasts because the development is unlikely to be fully built out by 2017. Plots for each modelled time period showing the differences in actual flows between the Do Minimum and the Do Something scenarios for the 2032 forecast year are shown in Figures 4 and 5 of the report and Tables 4.1 and 4.2 of the report show the magnitude of change in actual flows at key locations in the vicinity of the St John's development for the morning and evening peak hours respectively.

8.3.2 The plots show some similar trends in terms of actual flow changes between the morning and evening peaks. There is an increase in traffic using Water Street, A56 Chester Rd northbound just after its junction with Regent Rd and A57 Dawson St southbound.

8.3.3 The morning peak shows a decrease in actual flows along Trinity Way on the section between the A665 Cheetham Hill Rd and Water Street. This is a direct result of removing existing traffic using the Granada site and replacing it with the St Johns traffic. During the morning peak, less of the St Johns traffic is forecast to use Trinity Way than the Granada site traffic that it replaces. The evening peak shows an increase along Trinity Way between the A6 Chapel Street and Water Street.

8.3.4 In terms of key locations near the scheme, Water Street shows an average flow increase in both directions of around 100 PCUs (Passenger Car Units) and this represents an increase of between 43% and 120% in the morning peak. During the evening peak hour, there are equivalent increases of 15% northbound and 28% southbound.

8.3.5 Hampson Street westbound shows an increase of 13% in the morning peak and of 10% in the evening peak. Liverpool Road westbound shows a significant increase during the evening peak (+17%).

8.3.6 On Lower Byrom Street there is practically no change in traffic flow in the AM peak. In the PM Peak at 2017 levels there is an increase of 61 vehicles southbound and 23 vehicles northbound. This level of traffic increase is not sufficient to give rise to a perceptible environmental impact for residents.

8.4 Effects on Junction Performance

8.4.1 The TfGM report also considers the impact of the development of junction performance, Junction performance plots are shown in Figures 6 - 9 of the report for each scenario in 2032. The plots show where the maximum turn volume over capacity (V/C) ratio exceeds certain range thresholds.

8.4.2 Plots of the Do Minimum networks (Figures 6 and 8 of the report) show that by 2032 a number of junctions across the modelled area are forecast to be operating either close to or over capacity during the peak hours. This is as a result of traffic growth attributable to the specific developments modelled in the Do Minimum scenario as well as general background traffic growth.

8.4.3 The Do Something network plots (Figures 7 and 9 of the report) show that addition of the St Johns development traffic does not change the Do Minimum situation to a large degree. In general, the majority of deteriorated junctions show only small increases in V/C (Volume to Capacity) ratios in the do something scenario. These junctions are flagged up in the analysis as their maximum turn V/C ratio is very close to the upper boundary of one of the range thresholds such that the small increase in V/C pushes the junction into the next group. Junctions that fall into this category are:

- Albion Way / Liverpool St – Morning Peak;
- Whitworth St W / Albion St– Morning Peak;
- Liverpool St / Oldfield Rd – Evening Peak;
- Deansgate / John Dalton St – Evening Peak.

8.4.4 A significant increase in V/C ratio is also observed at the Trinity Way / Hampson St junction in the morning peak. The V/C ratio for the left turn from Trinity Way onto Hampson St increases from 84% in the do minimum scenario to 92% in the do something scenario.

8.4.5 The Do-Something link flows at 2017 AM and PM are shown in **Figures 8.1** and **8.2** and the 2032 flows are provided in **Figures 8.3** and **8.4**.

8.5 Overall Conclusions of the SATURN Modelling Report

8.5.1 Based on the traffic modelling undertaken, the TfGM report summary draws the following overall conclusions:

- *Flows increase along Water Street, A56 Chester Road northbound (just after the Regent Road junction), Hampson Street westbound, Liverpool Road westbound and Dawson Street southbound in the morning and evening peaks in the with development scenarios;*
- *Flows decrease along Trinity Way between A665 Cheetham Hill Road and Water Street in the morning peak, but increase slightly in the evening peak. The morning peak decreases are due to replacing the existing Granada site traffic with the St Johns traffic which has different traffic distribution;*
- *Junction V/C ratios generally do not increase enough to cause capacity problems. There are some exceptions to this, most notably the Liverpool Street / Oldfield Rd junction where large increases in maximum turn V/C ratios are observed. Analysis also shows a significant increase in the maximum turn V/C ratio at the Trinity Way / Hampson Street junction in the morning peak.*

In general, modelled flows increase along the majority of roads close to the St Johns site and along key routes into the west of the city centre. The impact of these flows on junction performance, however, is observed to be small.

8.6 PARAMICS Model

8.6.1.1 Following the SATURN modelling the more detailed Paramics model was used to test highway operation. Paramics can model blocking back from one function to the next which reflect real life situations. The TfGM Paramics Modelling report is given in **Appendix F** and summarised below.

The modelling indicates that, with the developments and associated traffic in place,

- *A modest amount of traffic is likely to re-route away from the study area in response to the forecast increase in traffic flows at the four development accesses*

- *the model forecasts a reduction in evening peak southbound traffic flows towards the study area, ie along Trinity Way and Irwell Street; this is likely to be mainly due to congestion/slow-moving traffic.*

In the morning peak hour, increased queueing and delay is likely

- *on Water Street, southbound*
- *on Liverpool Road, westbound, and*
- *on Trinity Way.*

In the evening peak hour, the model forecasts increased queueing and delay

- *inbound on Irwell Street*
- *in both directions on Water Street (north)*
- *westbound on Liverpool Road*
- *northbound on Trinity Way.*

The model suggests that evening-peak congestion may be increased by the proposed removal of the short stretch of Quay Street immediately east of Water Street, as traffic wishing to turn left from New Quay Street into Water Street may add to congestion here.

8.7 Individual Junction Capacity Assessments

8.7.1 The SATURN model is validated according to link counts and the turning movements at junctions may not be representative. Therefore, in order to demonstrate that traffic flows associated with the proposed development can be accommodated at key junctions on the highway network, individual junction capacity assessments have been undertaken in the following locations where there is a significant change in junction form and traffic flow:

- Quay Street signalled junctions with Water Street and Gartside Street; and
- Liverpool Road/Water Street priority controlled junction.

8.7.2 Elsewhere the changes in traffic flow are less significant and the junction form is not being altered with development and therefore it is considered appropriate to rely on the SATURN Model output.

8.8 Capacity Assessment: Quay Street Signalled Junctions

8.8.1 The signalised junctions of New Quay Street/Water Street and Quay Street/Gartside Street/New Quay Street are to be altered with development. In summary, the closure of Quay Street between the Gartside Street and Water Street will result in traffic that was on that link diverting onto New Quay Street. At the junction of New Quay Street/Gartside Street the loss of the Quay Street arm presents an opportunity to improve that junction to provide a quality 'Supercrossing' for pedestrians as well as cycle facilities. This improvement removes the traffic islands on Quay Street/New Quay Street and creates an all red crossing stage with standard crossings as well as a diagonal crossing on the desire line between St Johns Place and the City.

8.8.2 This junction has been modelled using the Linsig V3 junction modelling software. The modelling assumes a cycle time of 90 seconds and assumes that the pedestrian stage is called in each cycle. The Linsig software was then used to optimise the timings for the junction.

8.8.3 From talking to TfGM, the SATURN model provides a good overview of traffic operation but is not recommended for detailed junction modelling. TfGM consider that the link flows within the model represent a good forecast for traffic flows they have said that the effect of zone connectors can affect the turning flows. Therefore, the method used and discussed with TfGM is to use the link flows form the SATURN model to give the right overall flows in the area but to use the turning proportions from the surveyed flows as presented in **Figure 3.4** previously. This has been done for both 2017 and 2032 levels and presented in **Figures 8.5** and **8.6**.

8.8.4 The New Quay Street signal junctions have been assessed for the 2017 and 2032 development scenarios. The results of this assessment are presented in **Table 8.1** below, with the full modelling output files included in **Appendix G**.

2017 Assessment				
Link	**AM Peak**		**PM Peak**	
	DoS (%)*	**MMQ** (PCU)**	**DoS (%)**	**MMQ (PCU)**
J1/1: New Quay St (W)	67.1	12	58.1	10
J1/2: Water St (N)	25.1	1	33.9	3
J1/3: New Quay St (E)	46.2	1	54.4	3
J1/4: Water St (S)	67.4	4	62.2	5
PRC (%)	**-10.2**		**14.0**	
J2/1: New Quay St (W)	62.8	7	75.1	11
J2/2: Gartside Street (N)	62.2	4	72.4	6
J2/3: Quay St (S)	64.3	11	58.1	10
PRC (%)	**6.1**		**-7.2**	
Cycle Time (Secs)	90		90	
2032 Assessment				
Link	**AM Peak**		**PM Peak**	
	DoS (%)	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
J1/1: New Quay St (W)	68.3	12	61.9	10
J1/2: Water St (N)	26.3	1	33.0	3
J1/3: New Quay St (E)	47.1	1	58.1	3
J1/4: Water St (S)	68.1	4	60.9	5
PRC (%)	**-10.2**		**14.0**	
J2/1: New Quay St (W)	64.0	8	78.2	11
J2/2: Gartside Street (N)	63.7	4	75.7	6
J2/3: Quay St (S)	64.3	12	61.9	10
PRC (%)	**6.1**		**-7.2**	
Cycle Time (Secs)	90		90	

Table 8.1 New Quay Street/Water Street/Gartside Street Signals: 2017 Capacity Assessment

* DoS Degree of Saturation. 100% equates to the theoretical junction capacity

** MMQ Mean Maximum Queue averaged over the hour Base traffic flows have been taken from the following sources:

8.8.5 For signalised junctions modelled with LINSIG, a Degree of Saturation (DoS) value of 90% or less typically demonstrate that a junction arm or turning movement is operating "within capacity".

8.8.6 The results of both assessments indicate that the junction operates within but with some reasonable level queueing and a mean maximum queue forecast of 11-12 vehicles in length on the New Quay Street/Quay Street arms depending on time period. This represents a queue length of up to 72m. It is noted that occasionally in the peak hour the absolute maximum queue could be greater.

8.8.7 The results demonstrate that the junction would continue to operate as a busy junction within the City.

8.8.8 It is considered likely that the improvements to the Regent Road signals and the Liverpool Road improvement have helped the operation of the Quay Street corridor.

Capacity Assessment: Liverpool Road/Water Street Junction

8.8.9 The capacity assessment of the Liverpool Road/Water Street junction has been undertaken using the TRL developed 'JUNCTIONS 8' programme, which is the industry standard tool for assessing isolated priority controlled junctions.

8.8.10 Independently of the St John's proposals, the junction layout and priority is proposed to be changed with the northern arm of the junction (to Water Street) becoming the minor arm. The new priority junction layout has been modelled.

8.8.11 The junction has again been assessed using the SATURN link flows as derived from the 2017 and 2032 development scenarios to give the link flows for the respective years and then use the turning proportions from the surveyed flows as presented in **Figure 3.4** previously to give the turning flows. This general methodology has been agreed with TfGM.

8.8.12 The results of this assessment are presented in **Table 8.2**, with the full modelling output files provided in **Appendix H**.

2017 Do-Something Scenario				
Movement	**AM Peak**		**PM Peak**	
	RFC	**Q (pcu)**	**RFC**	**Q (pcu)**
Water Street (N)	0.57	1	0.75	1
Liverpool Road (E)	0.19	0	0.25	0
2032 Do-Something Scenario				
Movement	**AM Peak**		**PM Peak**	
	RFC	**Q (pcu)**	**RFC**	**Q (pcu)**
Water Street (N)	0.40	1	0.58	1
Liverpool Road (E)	0.14	0	0.21	0

Table 8.2: Liverpool Road/Water Street 2017,2032 Do-Something Scenario 'JUNCTION 8' Results

8.8.13 For priority, controlled junctions modelled with 'JUNCTIONS 8' a Ratio of Flow to Capacity (RFC) value of 0.85 or less typically demonstrates that a junction arm or turning movement is operating "within capacity", and is therefore unlikely to experience regular queuing.

8.8.14 The results of the JUNCTIONS assessment demonstrate that the proposed junction layout for Liverpool Road/Water Street is forecast to operate within capacity. A maximum RFC of 0.57 is recorded on the Water Street minor arm in the AM peak and 0.75 in the PM peak (in2017).

8.9 Highway Improvements and Mitigation

8.9.1 A number of highway and sustainable transport measures will be employed to reduce the implications of additional road traffic on the highway network.

8.9.2 As has been described in Chapter 4, the St Johns site as a whole benefits from excellent locational characteristics which mean that residents, visitors and employees to St John's can access the amenities, leisure and employment opportunities of Manchester City Centre and local facilities without using a car, thereby reducing the demand for travel in the first place. Secondly St Johns will offer a range of facilities and opportunities for work and leisure on site which mean that people do not need to leave St John's in order to conduct many of their daily activities.

8.9.3 Pedestrians at and around the proposed Trinity Islands development are able to cross the main highways and Trinity Way at different levels either via the Riverside walkway at-grade across the signal crossings, or residents can cross at the high podium level bridge.

8.9.4 Water Street will be traffic calmed so that traffic speeds are kept low. This starts at the junction with Liverpool Road so that the priority is changed and Water Street traffic gives way to traffic on Liverpool Road. Water Street is narrowed and there are then raised crossing tables with quality differential road surfacing at the pedestrian desire lines across Water Street as shown in **Dwg VN50436-207F**. This traffic calmed environment continues throughout the St Johns estate so that pedestrians have many alternative routes through the area.

8.9.5 Grape Street is a new link providing connectivity across the area which will have access controls which will prevent rat running while allowing accessibility. If bus companies see the commercial benefit then this route could be used by buses to access close to Factory.

8.9.6 On New Quay Street, the signalised junctions at Water Street and Gartside Street will be upgraded to give a quality pedestrian crossing environment. Quality pedestrian signage will be available throughout. It is considered that the new pedestrian infrastructure will result in an improved pedestrian environment that will enhance road safety above existing conditions, reduce severance and improve pedestrian amenity.

8.9.7 Cyclists will benefit from extensive and excellent cycle parking. The National Cycle Route 6 passes by the site and the traffic calmed Water Street will improve safety for cyclists on that route.

8.9.8 The site is located with a short walk of Salford Central Rail Station that will increase its services as a result of the Northern Hub improvements, the Metrolink at Deansgate Castlefield and also close to many bus services including the three Metroshuttle services.

8.9.9 The St John's development will also benefit from Enterprise Car Club spaces to be located on site, variable message signing to inform drivers of available spaces and reduce delay and frustration in finding a parking space.

8.9.10 The site will also benefit from a Travel Plan that will utilise these physical measures to influence and encourage sustainable travel behaviour.

8.9.11 Finally, the increases in traffic flow at the southern end of Water Street will benefit from the proposed improvement to Regent Road and its junctions with Trinity Way and Water Street as well as other complementary minor works.

8.9.12 This comprehensive package of mitigation measures is considered to reduce the environmental implications of development to a minor adverse impact.

9 SUMMARY AND CONCLUSION

9.1 Summary

9.1.1 This Transport Assessment has been prepared in support of the planning application for the development of Factory located within the Castlefield Conservation Area and within the former ITV Quay Street Estate in Manchester City Centre. The Site forms part of a wider Masterplan and Strategic Regeneration Framework for the area, which is to become known as St. John's.

9.1.2 The St John's development aims to create 'a mixed use neighbourhood that brings together enterprise, innovation, culture, entertainment and leisure, in a unique living environment in the heart of the city' Factory aims to support that by creating a landmark arts development where the widest range of art forms would be made and presented.

9.1.3 The proposals involve the demolition of the Starlight theatre, existing workshop and other structures and perimeter wall, removal of four existing trees, and alterations to the Grade II Listed Colonnaded Railway Viaduct. This will facilitate the development of a new flexible arts space to be used for a range of activities including theatre, music, dance, art, other performance-related events and conferences (Sui Generis). Ancillary facilities will be located on the site and will include retail and bar uses, offices, administrative and back of house functions, training and educational facilities, servicing and access arrangements, highways works, creation of new public realm, cycle parking, provision of new plant and associated works.

9.1.4 The maximum capacity of the publically accessible spaces located inside the development is as follows:

- Warehouse – 5,000 standing.
- Theatre – 1,520 seated or up to 2,090 seated/standing.

9.1.5 Factory expects to attract in excess of 500,000 paying attenders per year. The larger events including MIF are expected to attract people that would travel from national and international locations and stay overnight either in the St John's hotels or elsewhere in the City.

9.1.6 Factory would also employ around 125 permanent staff, plus 15 apprentices, plus the engagement of temporary staff to facilitate events.

9.2 Travel Infrastructure

9.2.1 The key features of the transport infrastructure that support Factory is described below**.**

- Factory oversails Water Street with a minimum height clearance of 5.03m
- Water Street narrowed to 5.5m to avoid the Orchestra Pit
- Water Street under the Factory offers dropped kerbs for ease of pedestrians crossing
- A raised pedestrian crossing is proposed across Water Street to the north of Festival Square
- Visually Impaired visitors considered by using Water Street to approach Factory
- Quality lighting and displays in the undercroft to promote Art and events at the Factory
- Two new squares, Festival Square and Factory Square offer high quality public realm
- Links to other quality pedestrian routes in the area
- The dispersal plan shall require all audiences to be directed along Water Street with no access to St John's
- Grape Street is a new link from Lower Byrom Street to Water Street to provide connectivity across the site for service and access only vehicles and also for pedestrians and cyclists
- Grape Street would be controlled by 2 no. automatic bollards located east of Factory around between Bonded Warehouse and Lower Byrom Street, using number plate recognition to permit automatic access by residents and regular users
- Metroshuttle operates close to Factory and scheduled services could be diverted by MCC/TfGM along Grape Street past Factory.
- National Cycle Route 6 is provided on Water Street and across the River Irwell
- Factory and St John's public realm is designed to be cycle friendly
- 60 undercover cycle parking spaces offered within the public realm, the exact location determined as part of the public realm design
- A further 242 cycle parking spaces are planned as part of the future development and proposed to be located in the wider public realm of St John's
- 5 Blue Badge Parking spaces provided on Water Street
- No parking provided for staff or visitors on site, over 5500 other public parking is available within a 15 minute walk
- On street pay & display parking available in the area
- Two Lorry lifts are located east of Water Street to take large articulated HGVs and events deliveries to Warehouse floor level

- A service yard located between Factory and Bonded Warehouse to manage waste and Back of House servicing
- Two loading bays on Water Street with time limited loading enables servicing to take place at times outside of peak pedestrian movements
- A 6 car taxi rank is proposed on Water Street south of Factory with a 4 car feeder rank using one of the dual use loading bays. The remaining loading bay will be used for taxis to u-turn in the road to access the feeder rank
- Private hire taxis will be directed to pick up from Liverpool Road
- Following the re-development of Stage 2 such deliveries may be permitted subject to agreement with MQL to access Factory from Viaduct Square via Lower Byrom Street
- Coach drop-off /pickup provided on New Elm Road and in existing coach pick-up locations nearby. Drivers would follow MCC guidance on timing, engine off and passengers to wait on the coach during pickup.

9.2.2 This Transport Assessment has presented the excellent locational characteristics for staff and visitors to access Factory using sustainable transport modes both on site and also within a short walk.

9.2.3 Pedestrians will benefit from a traffic calmed environment with Water Street narrowed and raised crossing tables at the pedestrian desire lines, as well as a network of pedestrianised streets.

9.2.4 The site is close to bus routes and is within a short walk of Metrolink, Salford Central and Deansgate Rail Stations, and all three Metroshuttle bus routes pass the site.

9.2.5 The sustainable transport measures will be promoted through a Travel Plan which aims to influence travel behaviour to maximise use of the available transport infrastructure.

9.2.6 Based on the traffic modelling undertaken, the TfGM report summary draws the following overall conclusions:

- *Flows increase along Water Street, A56 Chester Road northbound (just after the Regent Road junction), Hampson Street westbound, Liverpool Road westbound and Dawson Street southbound in the morning and evening peaks in the with development scenarios;*
- *Flows decrease along Trinity Way between A665 Cheetham Hill Road and Water Street in the morning peak, but increase slightly in the evening peak. The morning peak decreases are due to*

replacing the existing Granada site traffic with the St Johns traffic which has different traffic distribution;

- *Junction V/C ratios generally do not increase enough to cause capacity problems. There are some exceptions to this, most notably the Liverpool Street / Oldfield Rd junction where large increases in maximum turn V/C ratios are observed. Analysis also shows a significant increase in the maximum turn V/C ratio at the Trinity Way / Hampson Street junction in the morning peak.*

In general, modelled flows increase along the majority of roads close to the St Johns site and along key routes into the west of the city centre. The impact of these flows on junction performance, however, is observed to be small.

9.2.7 The traffic implications of development have also been tested. In summary development trip forecasts have been made using the TRICS database and agreed with TfGM/MCC. The baseline traffic flows at 2017 and 2032 levels have been calculated and incorporate traffic flows from committed developments as obtained from their Transport Assessment Reports. The development scenario replaces the former Granada Studios traffic within the base flows with the new development trips for St John's.

9.2.8 From the comparison of the Baseline Flows with Development it is evident that the greatest change in traffic flows occurs at the southern end of Water Street and also at its northern end where the closure of Quay Street results in background traffic diverting and combining with development flows.

9.2.9 Elsewhere the effects of development are relatively limited and would not be perceptible to the road user or at sensitive locations such as for residents off Lower Byrom Street.

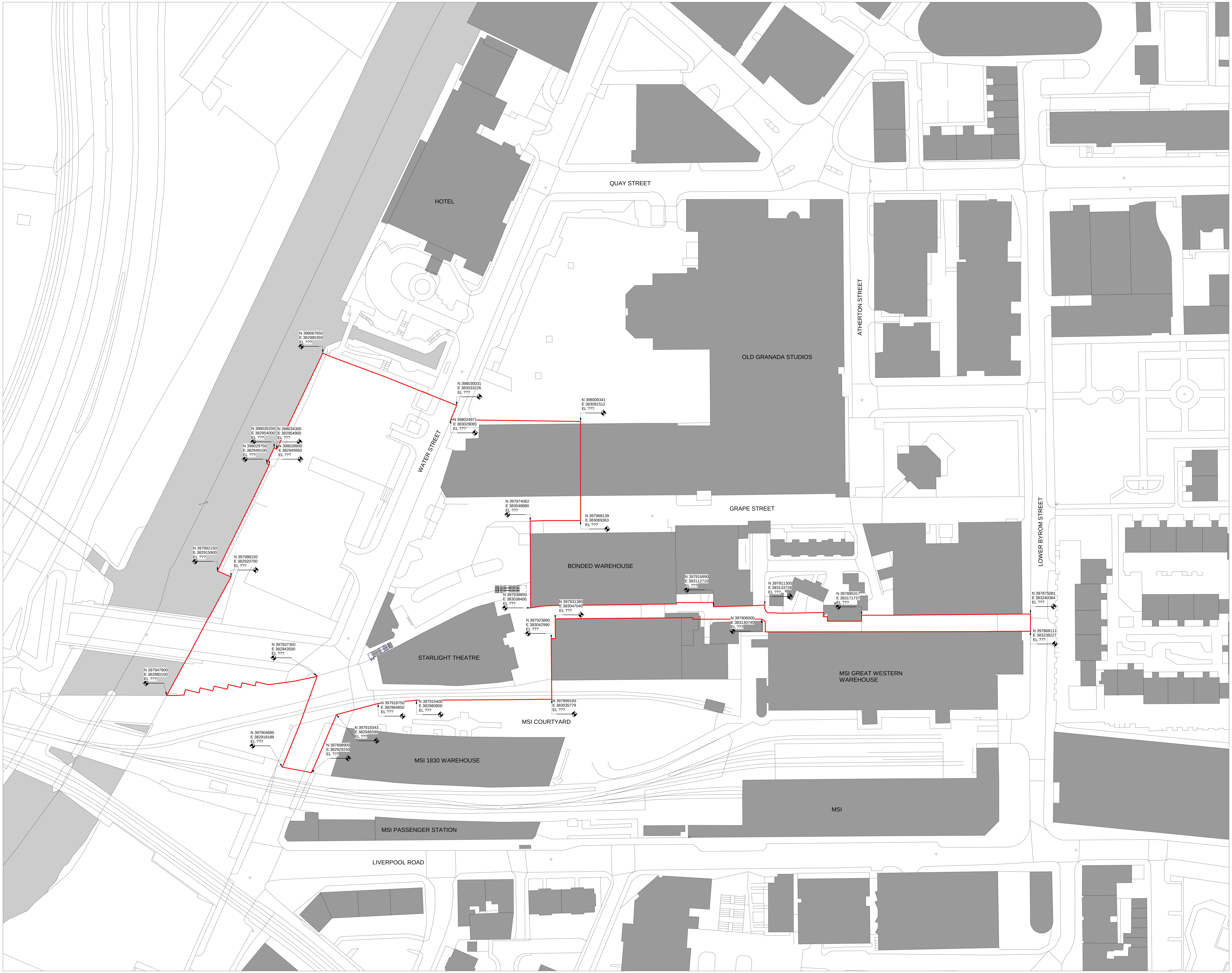
9.2.10 The City Centre Transport Strategy includes in its Capital Programme to 2020/21 a £15m improvement scheme at Regent Road, Water Street and associated junctions. This scheme aims to improve junction capacity by 30%. This scheme will help mitigate the potential delays to traffic movement arising from development.

9.3 Conclusion

9.3.1 It is considered that the Factory development is consistent with aspirations for the St John's Masterplan. It is in a sustainable location and the transport measures implemented with the development will enhance the sustainable transport outcomes for its occupiers and visitors.

9.3.2 This proposal does not adversely affect the operation of the highway or transport network and meets the criteria set out in National and Local Policy for sustainable development, and therefore it is considered that the scheme is acceptable in highways and transportation terms.

Plans


HOTEL
QUAY STREET
OLD GRANADA STUDIOS
ATHERTON STREET
WATER STREET
GRAPE STREET
LOWER BYROM STREET
BONDED WAREHOUSE
STARLIGHT THEATRE
MSI GREAT WESTERN WAREHOUSE
MSI COURTYARD
MSI 1830 WAREHOUSE
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MSI PASSENGER STATION
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GF +26.720	LEVEL LEVEL HEIGHT
FFL/SSL +26.720	LEVEL HEIGHT (FFL SAME AS SSL)
+26.720 +26.670	FINISHED FLOOR LEVEL STRUCTURAL SLAB LEVEL
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☒	*FLOOR BOX*
	NOT IN CONTRACT

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P3	S3	11 Aug 2017	RIBA STAGE 3 SUBMISSION
P2	D1	21 Jul 2017	DESIGN FREEZE FOR COSTING
P1	S4	04 Nov 2016	RIBA STAGE 3 SUBMISSION
P0	S2	07 Oct 2016	ISSUED FOR PLANNING

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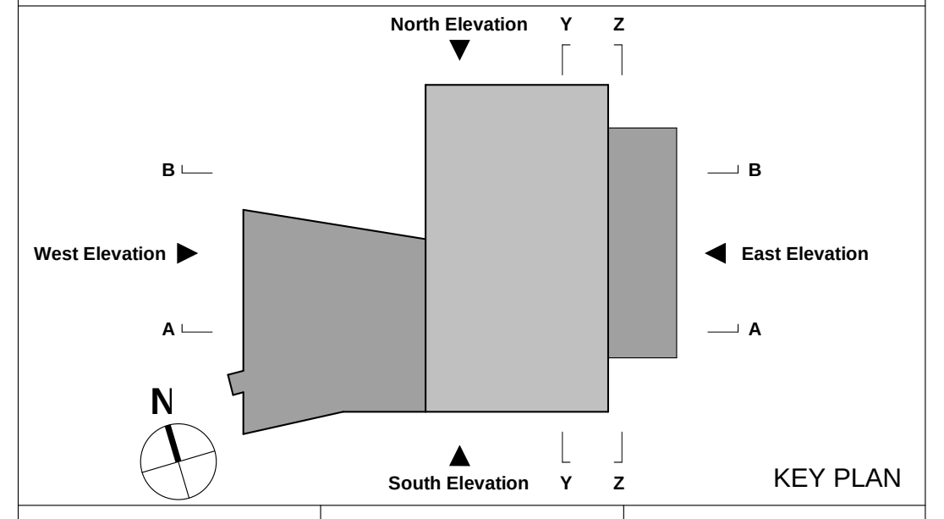
North Elevation
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West Elevation
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South Elevation
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KEY PLAN

DRAWN BY	Author	CHECKED BY	Checker	APPROVED BY	Approver

EXISTING SITE PLAN
REDLINE BOUNDARY

DRAWING NAME

PHASE

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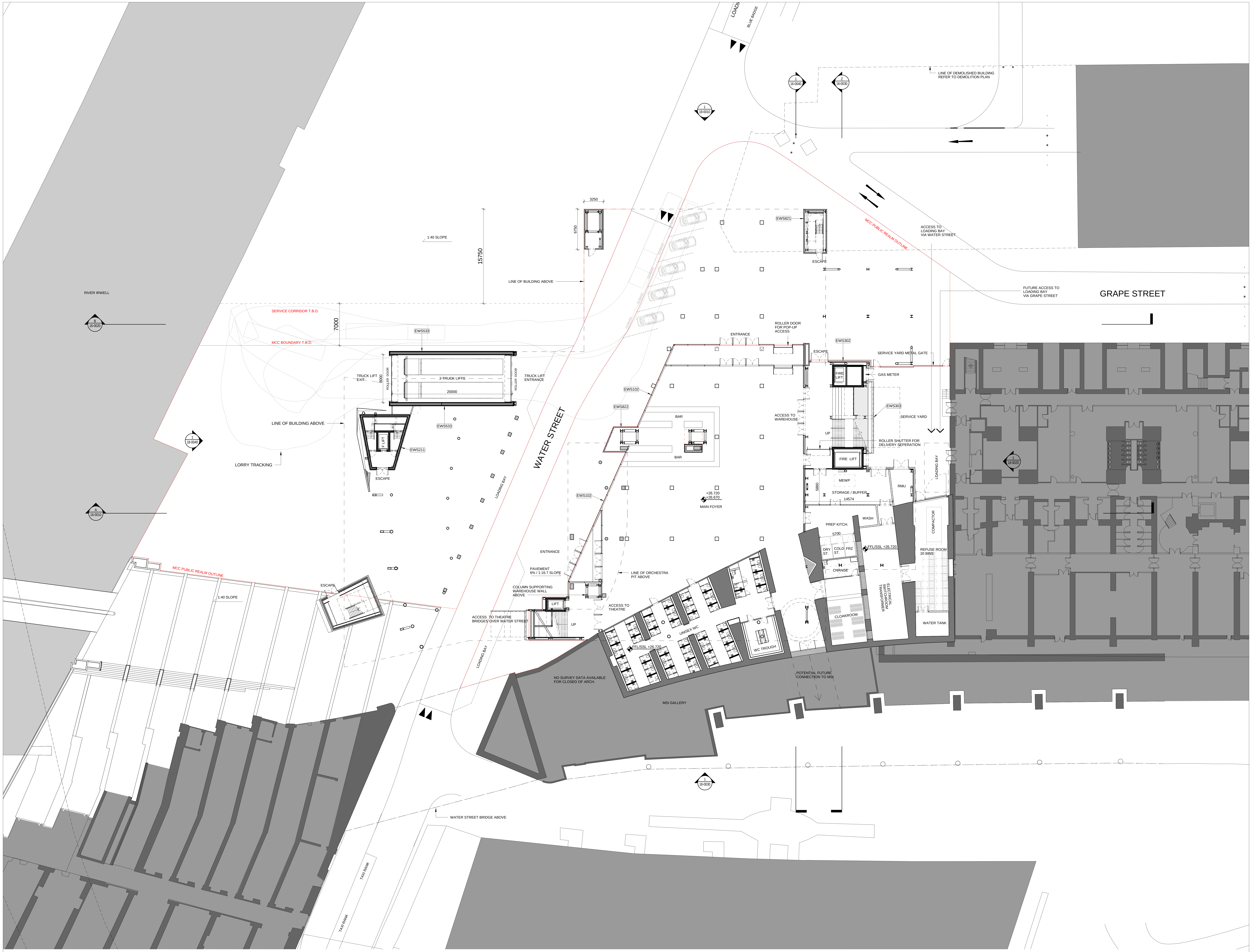
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MCC BOUNDARY T.B.D.
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TRUCK LIFT
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LOADING BAY
VIA GRAPE STREET
GRAPE STREET
ENTRANCE
ROLLER DOOR
FOR POP-UP
ACCESS
ESCAPE
EWS302
SERVICE YARD METAL GATE
FIRE
LIFT
GAS METER
EWS102
EWS822
BAR
BAR
ACCESS TO
WAREHOUSE
EWS303
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DELIVERY SEPERATION
FIRE LIFT
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① FLOOR PLAN - GROUND FLOOR

SCALE: 1 : 200

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+26.720 +26.670	FINISHED FLOOR LEVEL STRUCTURAL SLAB LEVEL
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REV	STAT	DATE	DESCRIPTION
P8	S2	23 Mar 2018	ISSUED FOR PLANNING
P7	S3	16 Mar 2018	INTERIM DESIGN RELEASE
P6	S0	21 Dec 2017	WIP INTERIM GA SUBMISSION
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P4	S3	11 Aug 2017	RIBA STAGE 3 SUBMISSION

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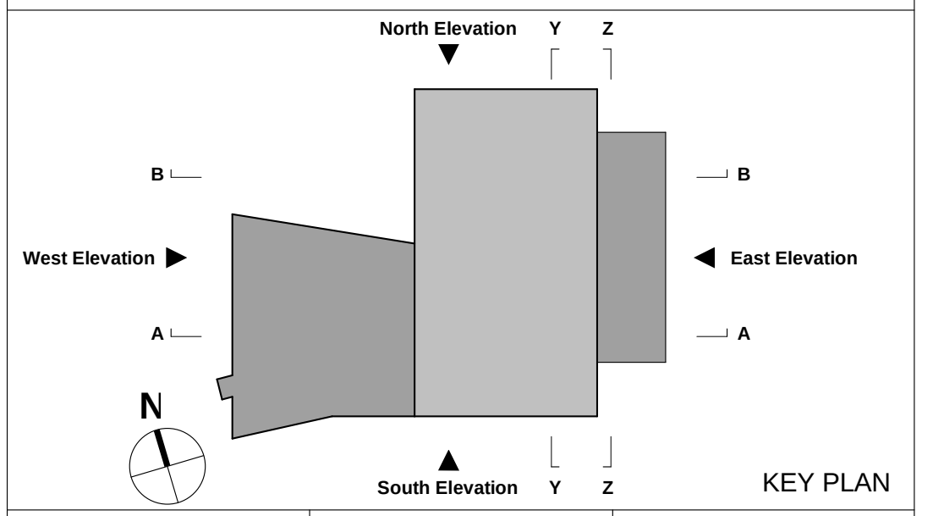
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West Elevation
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South Elevation
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KEY PLAN

DRAWN BY	Author	CHECKED BY	Checker	APPROVED BY	Approver

PROPOSED GROUND FLOOR PLAN

DRAWING NAME

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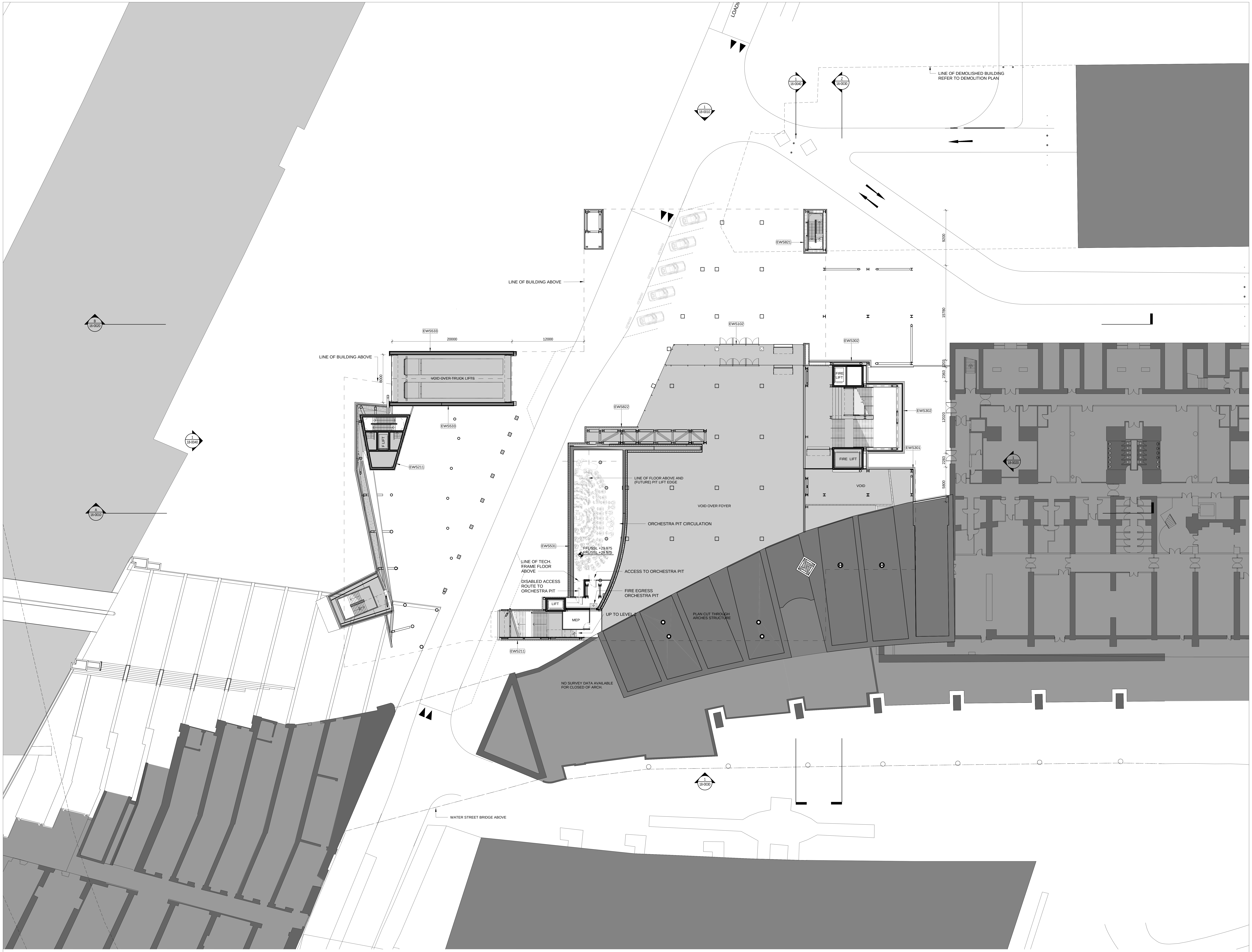
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LIFT
EWS533
EWS211
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EWS102
EWS302
FIRE LIFT
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EWS301
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ORCHESTRA PIT CIRCULATION
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FFL/SSL +29.575
LINE OF TECH. FRAME FLOOR ABOVE
DISABLED ACCESS ROUTE TO ORCHESTRA PIT
ACCESS TO ORCHESTRA PIT
FIRE EGRESS ORCHESTRA PIT
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MEP
UP TO LEVEL 2
PLAN CUT THROUGH ARCHES STRUCTURE
EWS211
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2363
12020
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5800
WATER STREET BRIDGE ABOVE

① FLOOR PLAN - LEVEL 1
SCALE: 1 : 200

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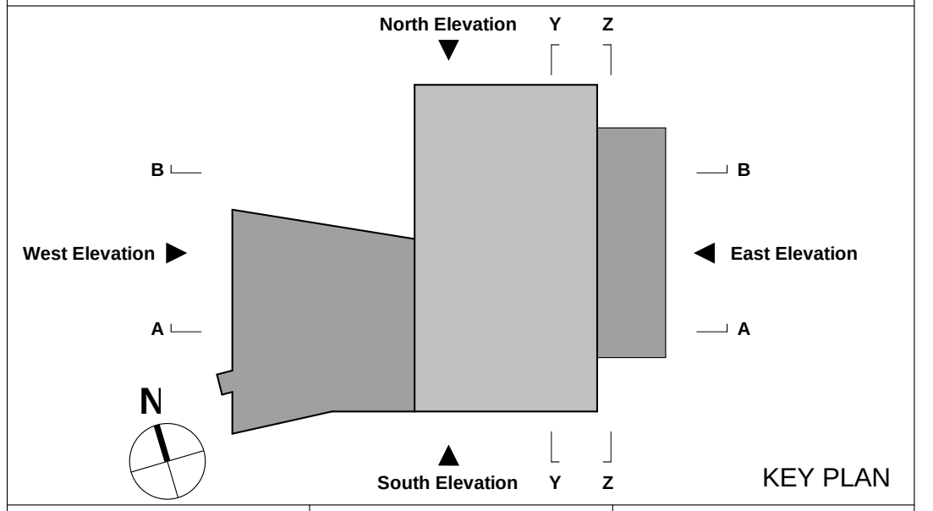
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West Elevation
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KEY PLAN

DRAWN BY	Author	CHECKED BY	Checker	APPROVED BY	Approver

PROPOSED LEVEL 01 PLAN
DRAWING NAME

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REVISION

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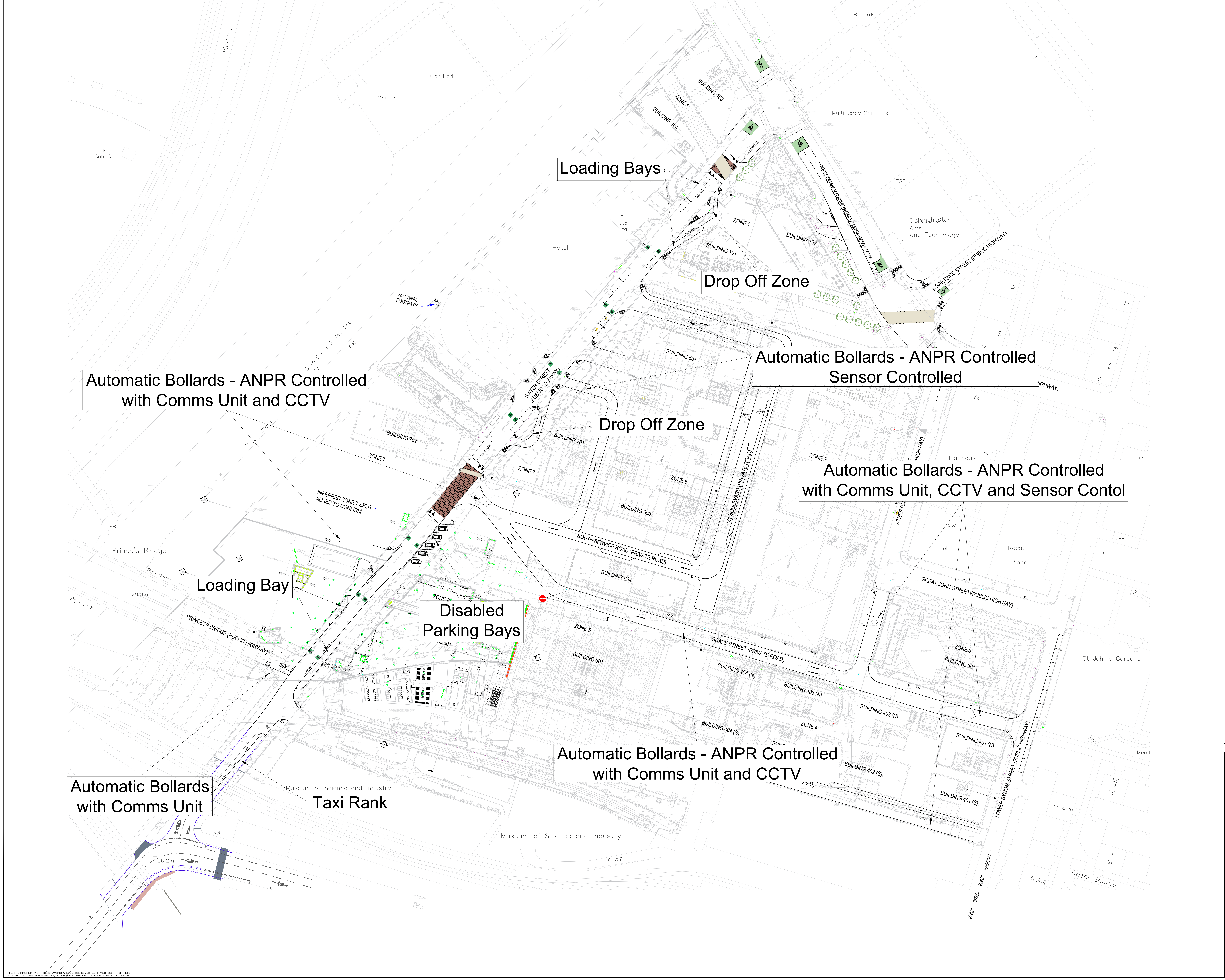
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Drop Off Zone
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Automatic Bollards - ANPR Controlled Sensor Controlled
Drop Off Zone
Automatic Bollards - ANPR Controlled with Comms Unit, CCTV and Sensor Contol
Loading Bay
Disabled Parking Bays
Automatic Bollards - ANPR Controlled with Comms Unit and CCTV
Automatic Bollards with Comms Unit
Taxi Rank
Bollards
Viaduct
Car Park
Car Park
El Sub Sta
Multistorey Car Park
BUILDING 103
ZONE 1
BUILDING 104
ESS
El Sub Sta
Hotel
ZONE 1
BUILDING 101
BUILDING 102
NEW QUAY STREET (PUBLIC HIGHWAY)
Manchester College of Arts and Technology
GARTSIDE STREET (PUBLIC HIGHWAY)
3m CANAL FOOTPATH
Boro Const & Met Dist
CR
BUILDING 601
WATER STREET (PUBLIC HIGHWAY)
River Irwell
BUILDING 702
ZONE 7
BUILDING 701
ZONE 7
ZONE 6
BUILDING 603
M1 BOULEVARD (PRIVATE ROAD)
ZONE 2
Bauhaus
ATHERTON
INFERRED ZONE 7 SPLIT. ALLIED TO CONFIRM
SOUTH SERVICE ROAD (PRIVATE ROAD)
BUILDING 604
Hotel
Hotel
Rossetti Place
FB
Prince's Bridge
Pipe Line
Pipe Line
29.0m
PRINCESS BRIDGE (PUBLIC HIGHWAY)
GREAT JOHN STREET (PUBLIC HIGHWAY)
ZONE 5
BUILDING 501
GRAPE STREET (PRIVATE ROAD)
BUILDING 404 (N)
BUILDING 403 (N)
ZONE 3
BUILDING 301
St John's Gardens
BUILDING 402 (N)
BUILDING 404 (S)
ZONE 4
BUILDING 401 (N)
BUILDING 402 (S)
BUILDING 401 (S)
LOWER BYROM STREET (PUBLIC HIGHWAY)
Museum of Science and Industry
Museum of Science and Industry
Ramp
26.2m
48
Rozel Square
Meml
PC
PC
FB

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

REV.	DETAILS	DRAWN	CHECKED	DATE
E	Directional Arrows Amended	HF	GD	13.04.18
D	Bollard/Direction Amendments	HF	GD	10.04.18
C	Access from New Quay St included	HF	GD	20.03.18
B	Bollard Updates	HF	GD	09.03.18
A	General Updates	HF	GD	29.01.18

CLIENT:
Manchester Quays Ltd

PROJECT:
St John's Technical Masterplan

DRAWING TITLE:
Highway Layout

SCALES:
1:500 at A0

DRAWN: HF
CHECKED: GD
DATE: 17.01.18

vectos
transport planning specialists

3rd Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008
e: manchester@vectos.co.uk

DRAWING NUMBER: VN70930-101
REVISION: E

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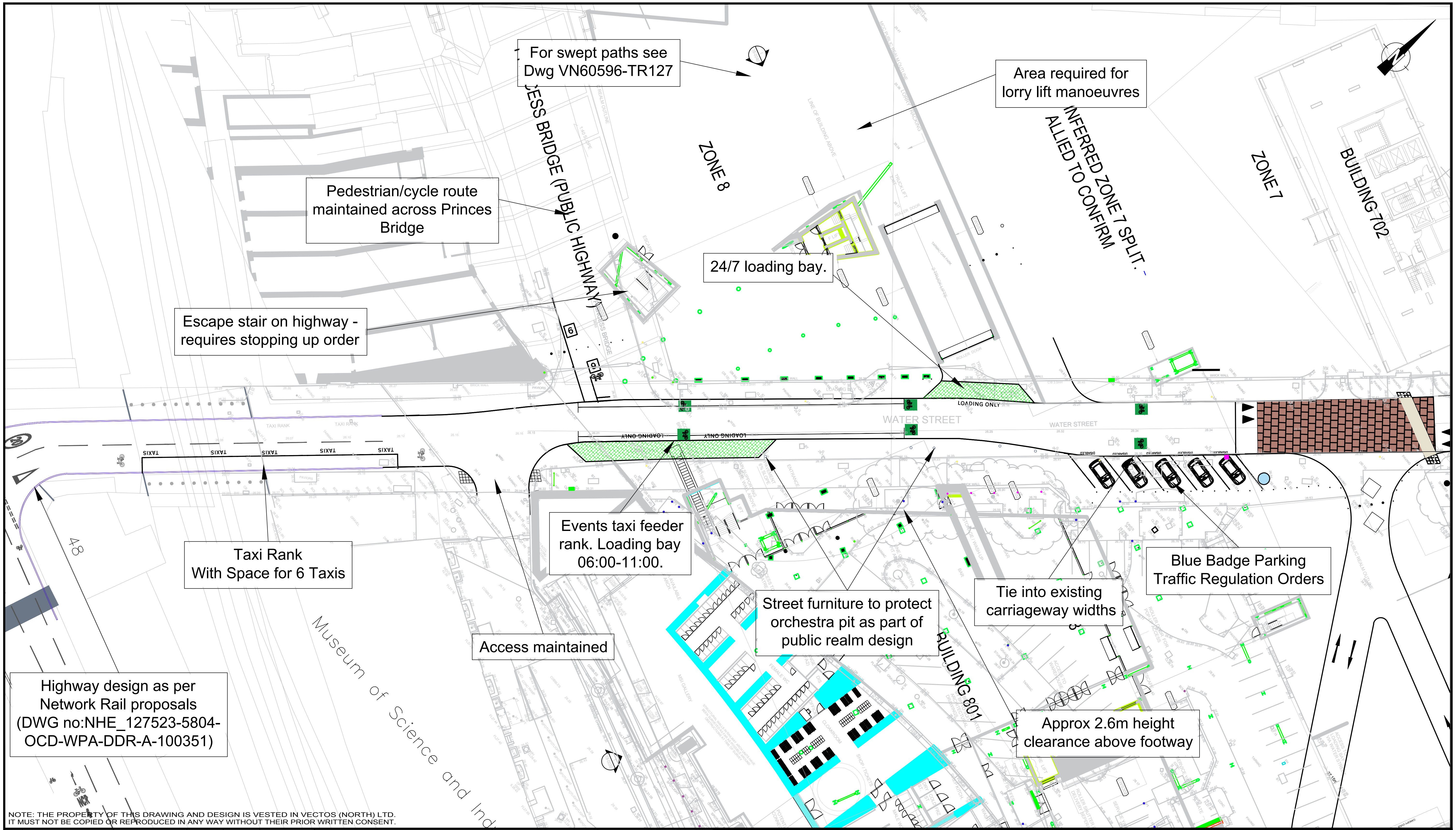
For swept paths see Dwg VN60596-TR127
Area required for lorry lift manoeuvres
ZONE 8
INFERRED ZONE 7 SPLIT. ALLIED TO CONFIRM
ZONE 7
BUILDING 702
CESS BRIDGE (PUBLIC HIGHWAY)
Pedestrian/cycle route maintained across Princes Bridge
24/7 loading bay.
Escape stair on highway - requires stopping up order
LOADING ONLY
WATER STREET
WATER STREET
TAXIS
TAXIS
TAXIS
TAXIS
TAXIS
LOADING ONLY
LOADING ONLY
48
Taxi Rank With Space for 6 Taxis
Events taxi feeder rank. Loading bay 06:00-11:00.
Street furniture to protect orchestra pit as part of public realm design
Tie into existing carriageway widths
Blue Badge Parking Traffic Regulation Orders
Access maintained
BUILDING 801
Museum of Science and Ind
Highway design as per Network Rail proposals (DWG no:NHE_127523-5804-OCD-WPA-DDR-A-100351)
Approx 2.6m height clearance above footway

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REV.	DETAILS	DRAWN	CHECKED	DATE
A	Layout Updates	HF	GD	27.03.18
B	Layout Updates	HF	GD	23.04.18

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

St John's Technical Masterplan

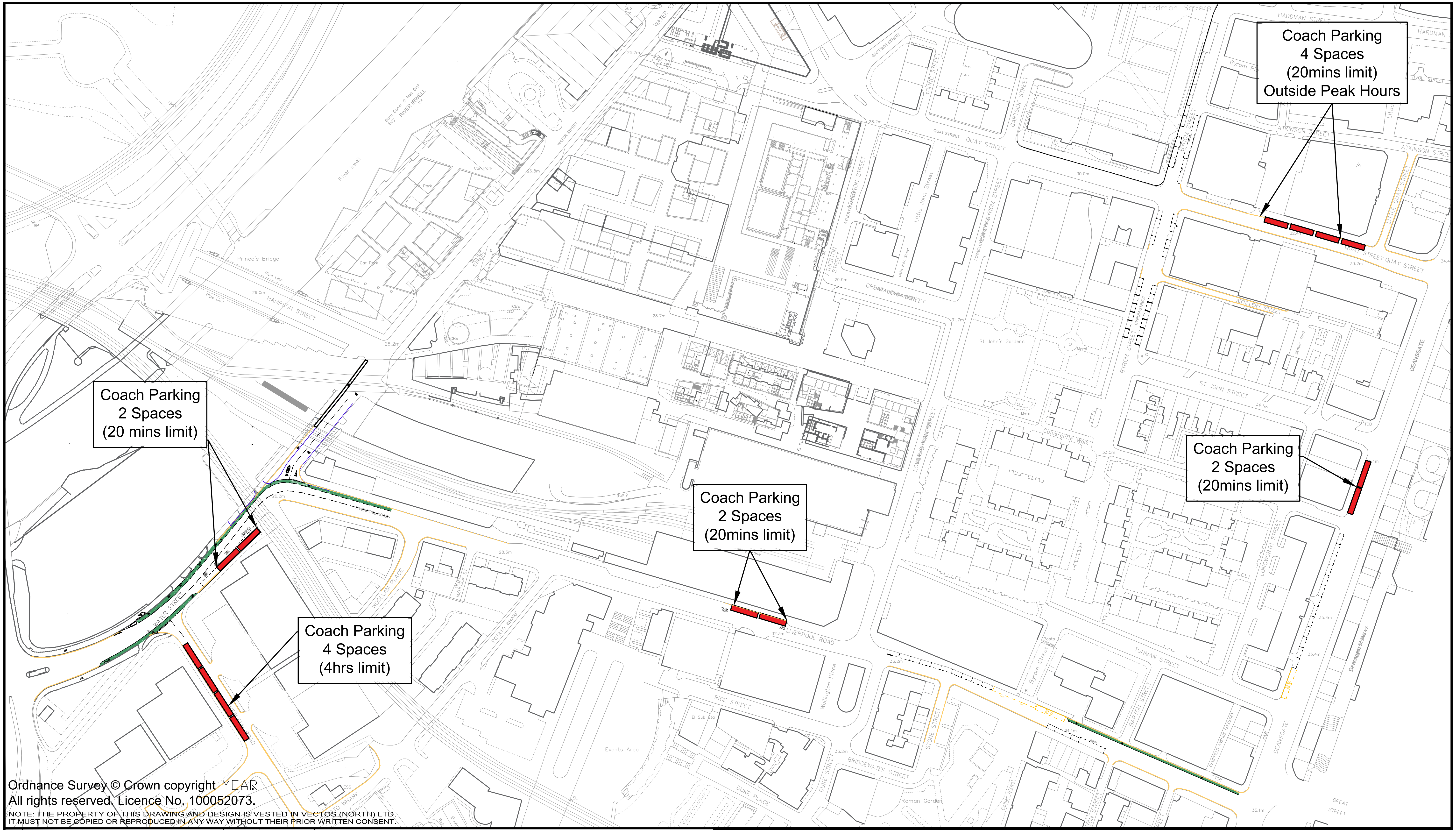
Manchester City Council

Indicative Highways Layout - Water Street

vectos
transport planning specialists

3rd Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008
e: manchester@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
HF	PW	23.06.16	1:500 at A3	VN70930-102	B


Coach Parking
4 Spaces
(20mins limit)
Outside Peak Hours
Coach Parking
2 Spaces
(20 mins limit)
Coach Parking
2 Spaces
(20mins limit)
Coach Parking
2 Spaces
(20mins limit)
Coach Parking
4 Spaces
(4hrs limit)
LIVERPOOL ROAD
QUAY STREET
ST JOHN STREET
WATER STREET
BYROM STREET
DEANSGATE
TONMAN STREET
BRIDGEWATER STREET
HAMPSON STREET
St John's Gardens
Prince's Bridge
Events Area

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REV.	DETAILS	DRAWN	CHECKED	DATE
A	Signage added and TRO's	PJ	GD	17.05.17
B	Signage amended	HF	GD	09.06.17
C	Text changes	HF	GD	23.06.17

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

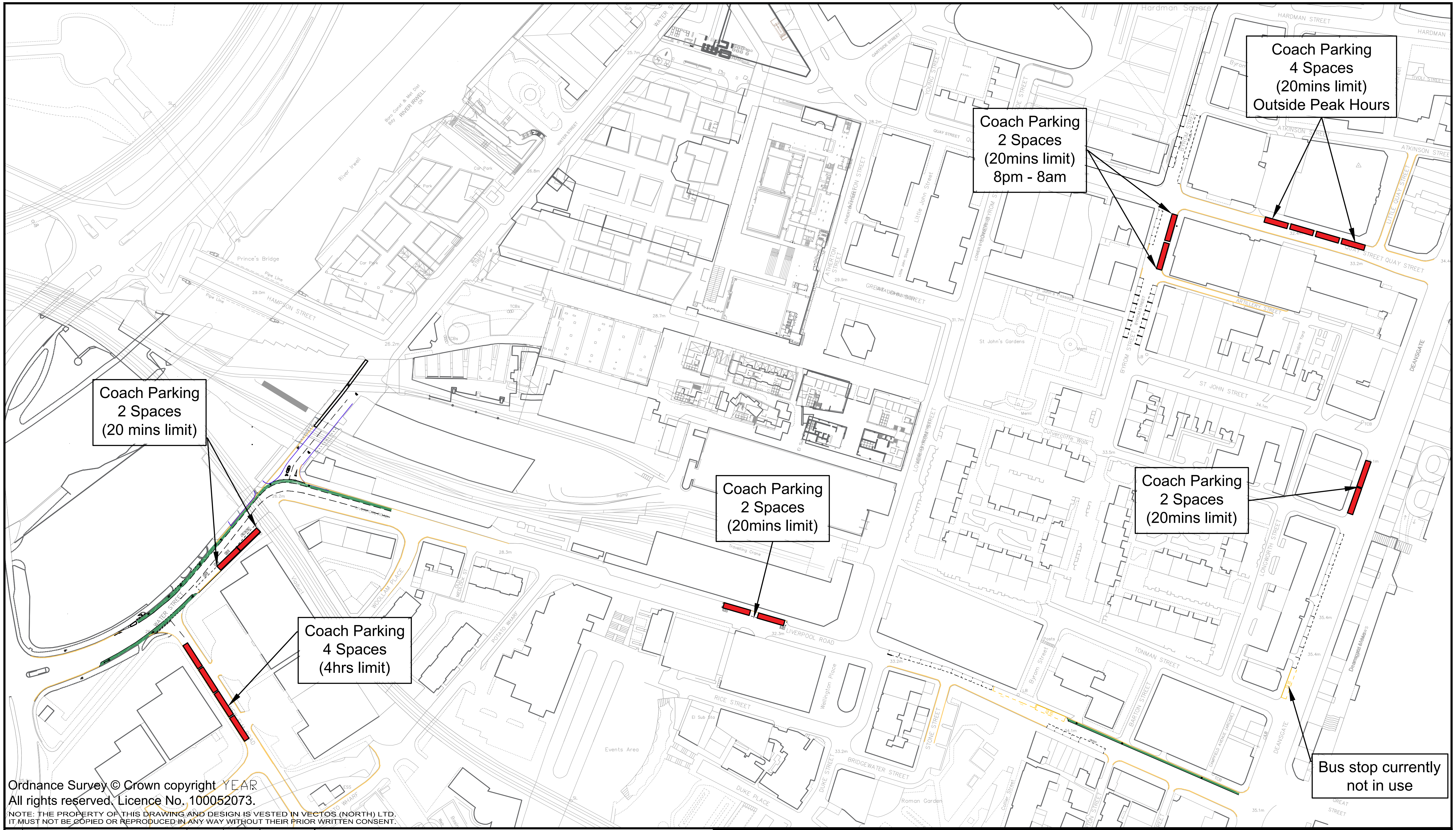
The Factory

Manchester City Council

Proposed Daytime Coach Parking for Wider St Johns Area

vectos
transport planning specialists
4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008
e: manchester@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
HF	GD	24.04.17	1:2000 at A3	VN60596-D211	C


Hardman Square
HARDMAN STREET
ATKINSON STREET
QUAY STREET
LITTLE QUAY STREET
ARTILLERY STREET
ST JOHN STREET
BYROM STREET
DEANSGATE
LONGWORTH STREET
TOMMAN STREET
BARTON STREET
LIVERPOOL ROAD
RICE STREET
BRIDGEWATER STREET
DUKE PLACE
DUKE STREET
STONE STREET
Wellington Place
Events Area
Roman Garden
St John's Gardens
Culvercliffe Walk
Little John Street
ATHERTON STREET
GREAT BAUGHAM STREET
WATER STREET
HAMPSON STREET
Prince's Bridge
River Irwell
POTATO WHARF
WOOLLAM PLACE
Travelling Crane
Car Park

Coach Parking
4 Spaces
(20mins limit)
Outside Peak Hours

Coach Parking
2 Spaces
(20mins limit)
8pm - 8am

Coach Parking
2 Spaces
(20 mins limit)

Coach Parking
2 Spaces
(20mins limit)

Coach Parking
2 Spaces
(20mins limit)

Coach Parking
4 Spaces
(4hrs limit)

Bus stop currently not in use

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REV.	DETAILS	DRAWN	CHECKED	DATE
A	Added Signage, some TRO's	PJ	GD	17.05.17
B	Text changes	HF	GD	23.06.17

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

Factory

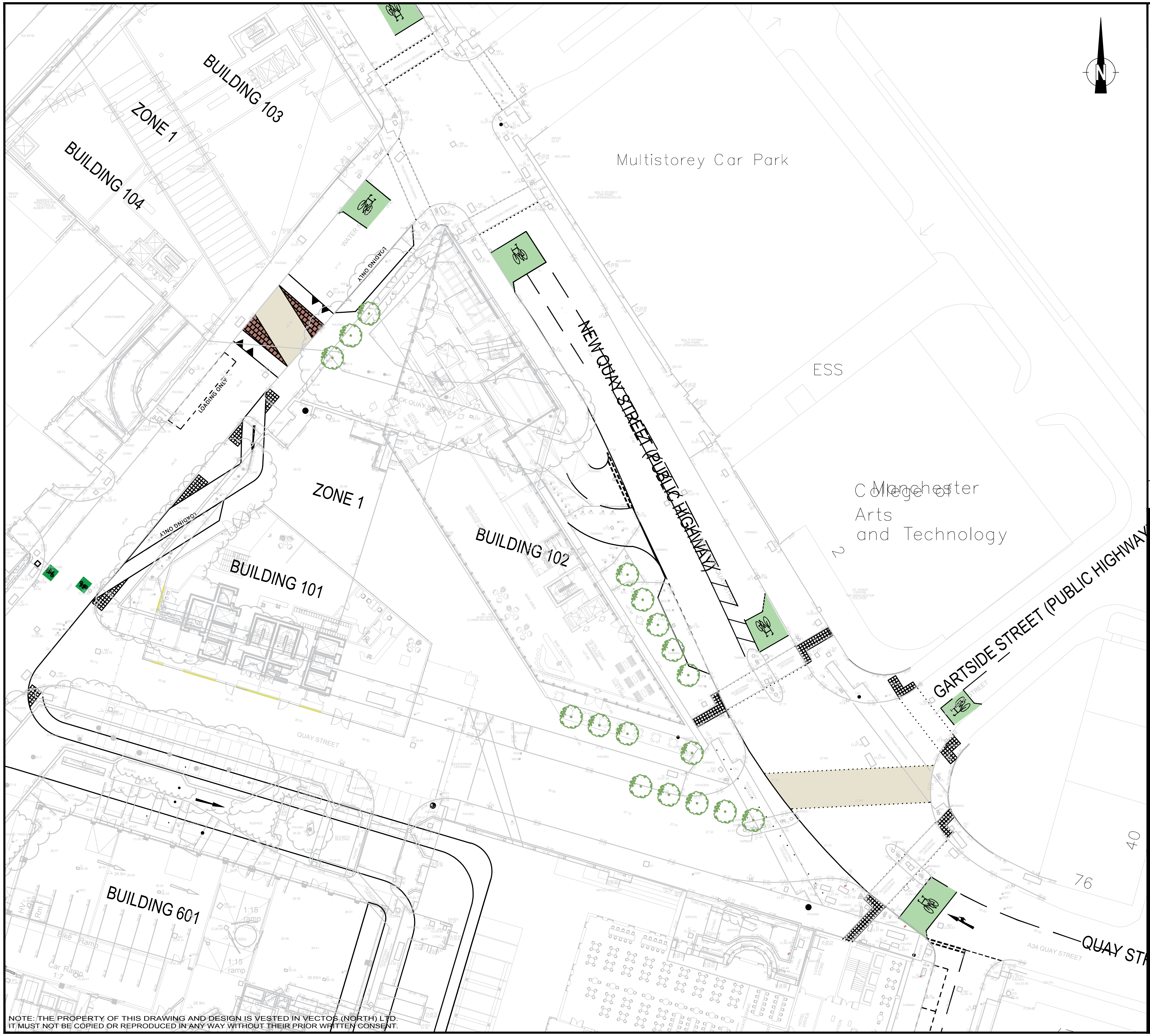
Proposed Evening Coach Parking for Wider St Johns Area

Manchester City Council

vectos
transport planning specialists

4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008 e: manchester@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
HF	GD	24.04.17	1:2000 at A3	VN60596-D210	B


BUILDING 103
ZONE 1
BUILDING 104
Multistorey Car Park
LOADING ONLY
LOADING ONLY
NEW QUAY STREET (PUBLIC HIGHWAY)
ESS
ZONE 1
BUILDING 102
Manchester College of Arts and Technology
BUILDING 101
LOADING ONLY
GARTSIDE STREET (PUBLIC HIGHWAY)
QUAY STREET
BUILDING 601
QUAY ST
A34 QUAY STREET
N

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REV.	DETAILS	DRAWN	CHECKED	DATE
D	Layout Amendments	HF	GD	27.03.18
C	Layout Amendments	PJ	JL	27.04.17
B	Layout Amendments	HF	GD	22.07.16
A	Diagonal Crossing Widened	HF	GD	16.03.16

CLIENT:
Manchester Quays 2 Ltd

PROJECT:
St John's Place

DRAWING TITLE:
Proposed Super Crossing

SCALES:
1:500 at A3

DRAWN: HF
CHECKED: GD
DATE: 11.03.16

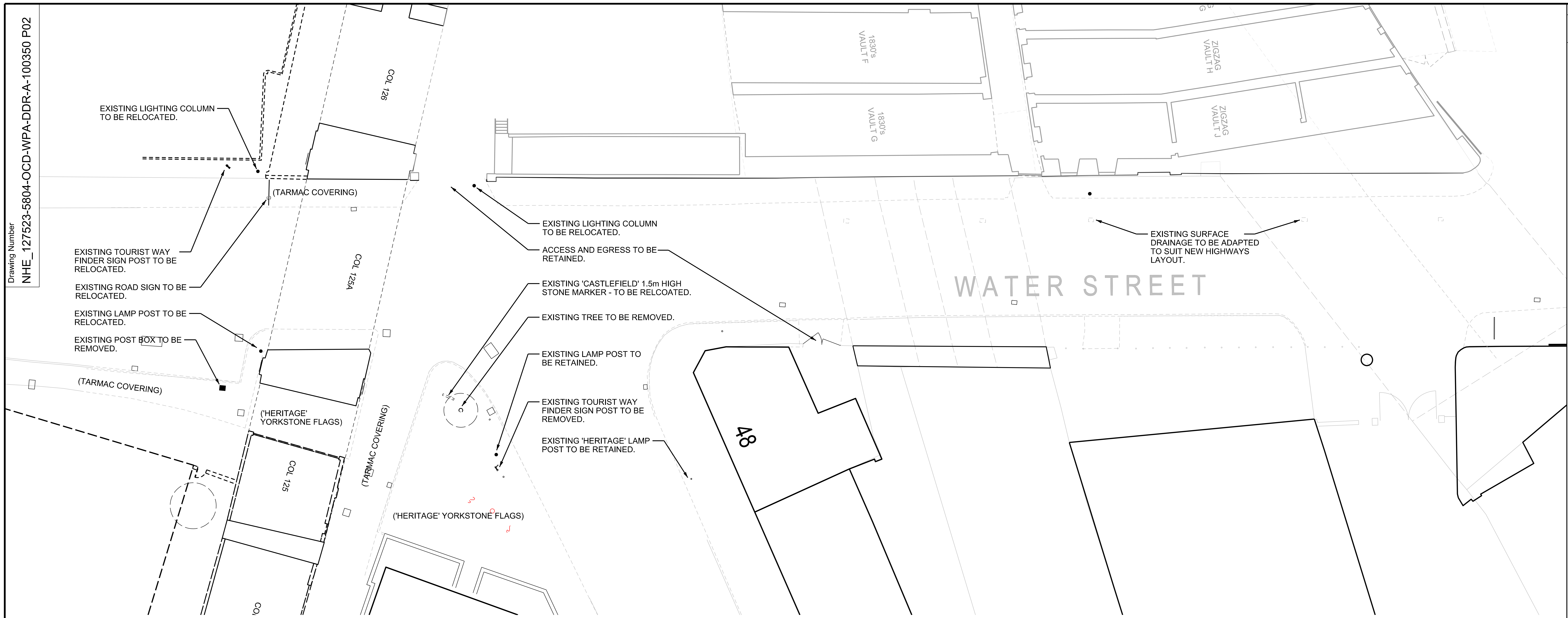
vectos
transport planning specialists

3rd Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008
e: manchester@vectos.co.uk

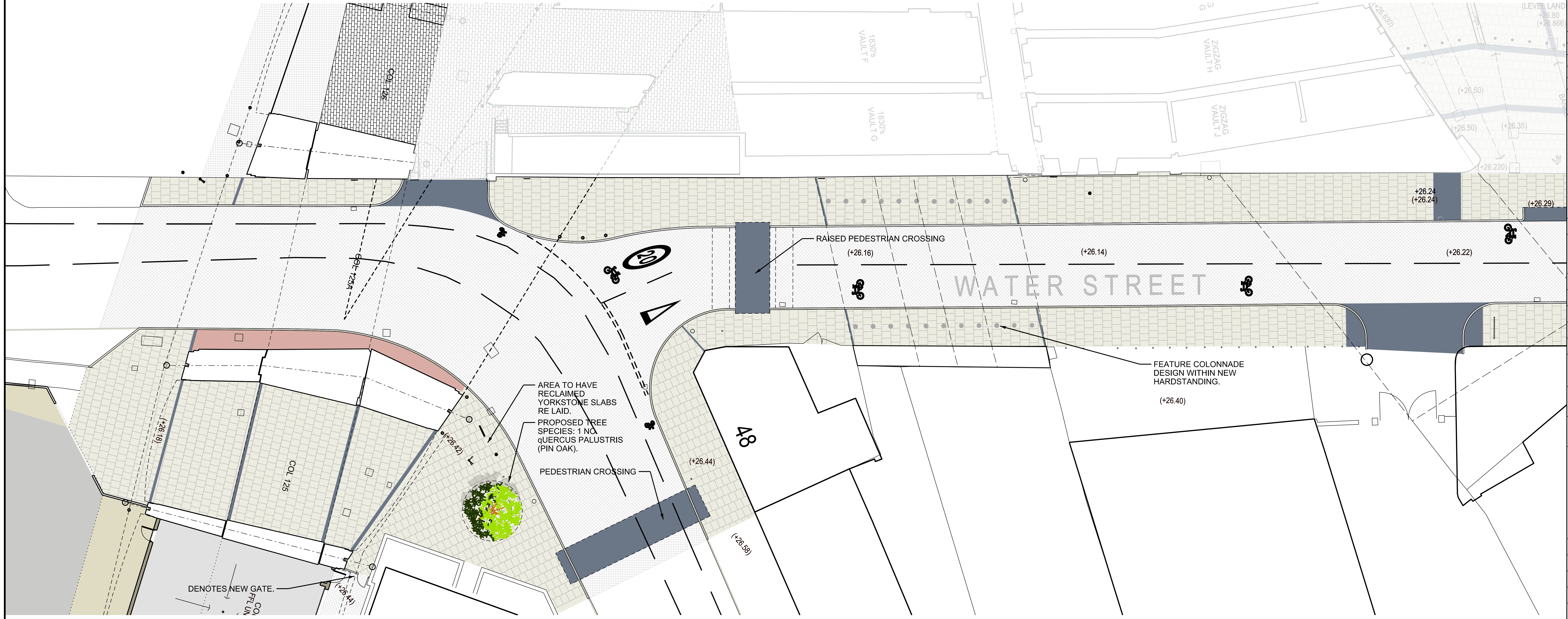
DRAWING NUMBER: VN50483-104
REVISION: D

0c8a2fd6-bf26-453a-85a7-4fd7116af5dc

Drawing Number
NHE_127523-5804-OCD-WPA-DDR-A-100350 P02


EXISTING LIGHTING COLUMN TO BE RELOCATED.
(TARMAC COVERING)
EXISTING TOURIST WAY FINDER SIGN POST TO BE RELOCATED.
EXISTING ROAD SIGN TO BE RELOCATED.
EXISTING LAMP POST TO BE RELOCATED.
EXISTING POST BOX TO BE REMOVED.
(TARMAC COVERING)
('HERITAGE' YORKSTONE FLAGS)
(TARMAC COVERING)
('HERITAGE' YORKSTONE FLAGS)
COL 126
COL 125A
COL 125
COL
EXISTING LIGHTING COLUMN TO BE RELOCATED.
ACCESS AND EGRESS TO BE RETAINED.
EXISTING 'CASTLEFIELD' 1.5m HIGH STONE MARKER - TO BE RELCOATED.
EXISTING TREE TO BE REMOVED.
EXISTING LAMP POST TO BE RETAINED.
EXISTING TOURIST WAY FINDER SIGN POST TO BE REMOVED.
EXISTING 'HERITAGE' LAMP POST TO BE RETAINED.
1830's VAULT F
1830's VAULT G
ZIGZAG VAULT H
ZIGZAG VAULT J
EXISTING SURFACE DRAINAGE TO BE ADAPTED TO SUIT NEW HIGHWAYS LAYOUT.
WATER STREET
48

EXISTING LANDSCAPE PLAN


COL 126
COL 125A
COL 125
1830's VAULT F
1830's VAULT G
ZIGZAG VAULT H
ZIGZAG VAULT J
(LEVEL LAND
+26.80
(+26.866)
(+26.50)
(+26.50)
(+26.35)
(+26.220)
+26.24
(+26.24)
(+26.29)
RAISED PEDESTRIAN CROSSING
(+26.16)
(+26.14)
(+26.22)
20
WATER STREET
FEATURE COLONNADE DESIGN WITHIN NEW HARDSTANDING.
(+26.40)
AREA TO HAVE RECLAIMED YORKSTONE SLABS RE LAID.
PROPOSED TREE SPECIES: 1 NO. QUERCUS PALUSTRIS (PIN OAK).
PEDESTRIAN CROSSING
(+26.44)
(+26.42)
(+26.19)
(+26.58)
(+26.44)
48
DENOTES NEW GATE.

PROPOSED LANDSCAPE PLAN

0 4 8 12 16 20m

SCALE 1:200

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Legend/Notes

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

FOR HEALTH AND SAFETY INFORMATION, REFER TO DISCIPLINE SPECIFIC RISK MANAGEMENT SCHEDULE.

NOTES:

1. CONFIRMATION OF ALL SURVEY DATA MUST BE OBTAINED FROM THE NETWORK RAIL SURVEY TEAM.
2. ALL COORDINATES ARE TO THE PROJECT GRID. ALL LEVELS TO ORDNANCE DATUM NEWLYN.
3. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.

LANDSCAPE LEGEND:

▨	PROPOSED TARMAC SURFACE.
▨	EXTENTS OF WORKS TO EXISTING ARCH INTERIORS / FLOORS, INTENTIONS TO BE CONFIRMED.
▨	PROPOSED MARSHALLS (OR SIMILAR APPROVED) SCOUTMOOR DIAMOND SAWN 'YORK STONE' PAVING SLABS.
■	PROPOSED MARSHALLS (OR SIMILAR APPROVED) GRA921 BLACK FLAMED PAVING SETS.
🟥	RECLAIMED COBBLED PAVED AREA.

LEVELS LEGEND:

🟥	DENOTES EXISTING SPOT / GROUND LEVELS.
🟦	DENOTES PROPOSED SPOT / GROUND LEVELS.

REFER TO HIGHWAYS LIGHTING AND DRAINAGE DRAWINGS FOR RELEVANT INFORMATION

PLEASE NOTE:

DRAWING TO BE READ IN CONJUNCTION WITH HIGHWAY ENGINEERS DRAWINGS:

NHE_127523-2405-OCD-WPA-DDR-D-000019

PLEASE NOTE:

URBAN REALM / LANDSCAPING LIGHTING DESIGN TO BE DEVELOPED INCOORDINATION WITH LOCAL AUTHORITY.

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
P01	23/09/14	Stage A AIP			
P02.1	24/04/15	Stage A AIP Second Submission	LH	RC	PJ
P02	24/07/15	Stage A Formal Submission	LH	RC	PJ

Status: Fit for Internal Review & Comment
Suitability: S3

NORTHERN HUB & ELECTRIFICATION ALLIANCE

Authorised		Signed	Date

Contractor(s)
Building Design Partnership

Location: ORDSALL CHORD
Type: CAD Drawing
Sub-type: Plan
Role: Architect
Sub-Role: Design
Zone: Work Package A
Phasing: Proposed
Grip Stage: 4

Project
Northern Hub and Electrification

Contract No.
127523

Contract Title
Central GRIP 2 to 8

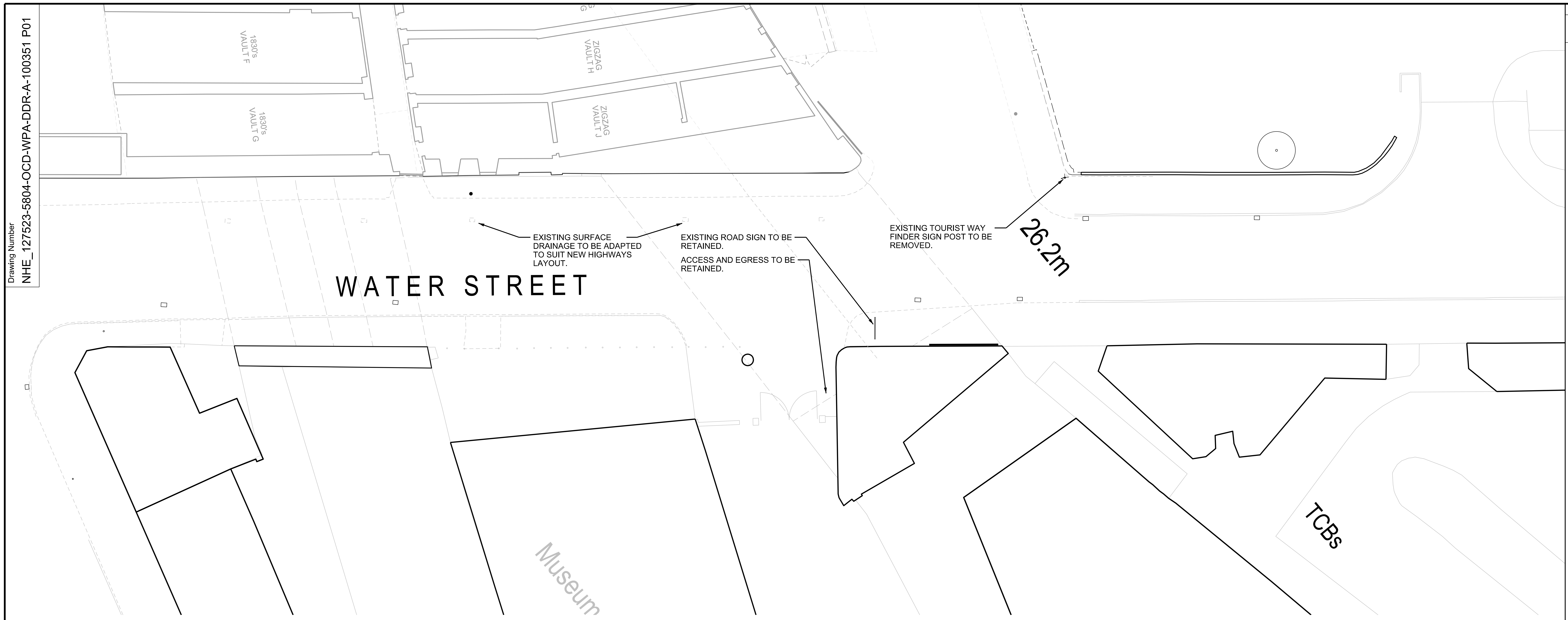
Drawing Title
Ordsall Chord
Proposed
Landscape & Highway Plan
Stage A - Section 6

Designed	P.Jenkins	Signed	Date 23/09/14
Drawn	L. Herrick	Signed	Date 23/09/14
Checked	R. Connelly	Signed	Date 24/07/15
Approved	P. Jenkins	Signed	Date 24/07/15

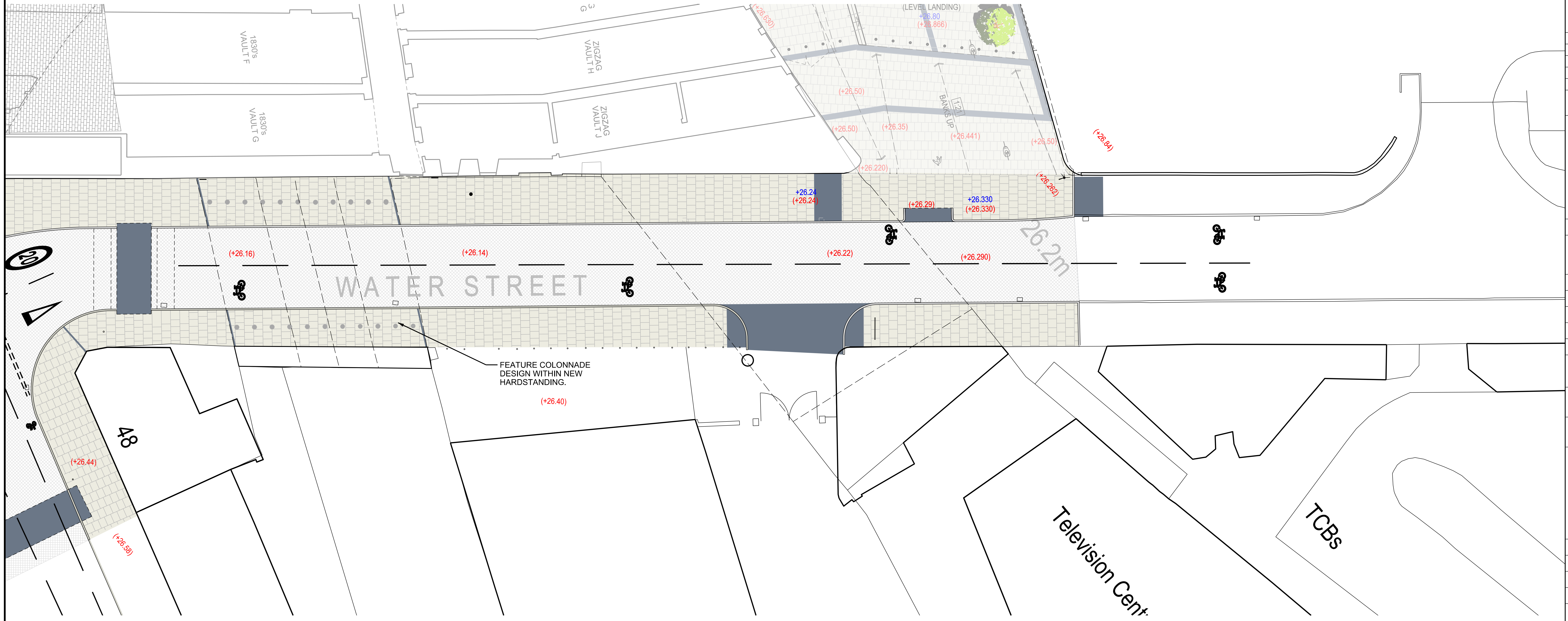
Scale(s): 1:200
ELR & Mileage: 190.011 to 190.1166
Alternative Reference
Sheet 1 of 1
Drawing Number: NHE_127523-5804-OCD-WPA-DDR-A-100350
Revision: P02

Sheet Size A1 594 x 841

Drawing Number
NHE_127523-5804-OCD-WPA-DDR-A-100351 P01


1830's VAULT F
1830's VAULT G
ZIGZAG VAULT H
ZIGZAG VAULT J
EXISTING SURFACE DRAINAGE TO BE ADAPTED TO SUIT NEW HIGHWAYS LAYOUT.
EXISTING ROAD SIGN TO BE RETAINED.
ACCESS AND EGRESS TO BE RETAINED.
EXISTING TOURIST WAY FINDER SIGN POST TO BE REMOVED.
26.2m
WATER STREET
Museum
TCBs

EXISTING LANDSCAPE PLAN


1830's VAULT F
1830's VAULT G
ZIGZAG VAULT H
ZIGZAG VAULT J
(+26.630)
(LEVEL LANDING)
+26.80
(+26.866)
(+26.50)
(+26.50)
(+26.35)
1:21 BANKS UP
(+26.441)
(+26.50)
(+26.84)
(+26.220)
(+26.262)
+26.24
(+26.24)
(+26.29)
+26.330
(+26.330)
(+26.16)
(+26.14)
(+26.22)
(+26.290)
26.2m
WATER STREET
20
FEATURE COLONNADE DESIGN WITHIN NEW HARDSTANDING.
(+26.40)
48
(+26.44)
(+26.58)
Television Cent
TCBs

PROPOSED LANDSCAPE PLAN

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0 4 8 12 16 20m
SCALE 1:200

44df0ecb-d90b-475b-a2cd-b1d93a254bc4

Legend/Notes

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

FOR HEALTH AND SAFETY INFORMATION, REFER TO DISCIPLINE SPECIFIC RISK MANAGEMENT SCHEDULE.

NOTES:

1. CONFIRMATION OF ALL SURVEY DATA MUST BE OBTAINED FROM THE NETWORK RAIL SURVEY TEAM.
2. ALL COORDINATES ARE TO THE PROJECT GRID. ALL LEVELS TO ORDNANCE DATUM NEWLYN.
3. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.

LANDSCAPE LEGEND:

▩	PROPOSED TARMAC SURFACE.
▨	EXTENTS OF WORKS TO EXISTING ARCH INTERIORS / FLOORS, INTENTIONS TO BE CONFIRMED.
▦	PROPOSED MARSHALLS (OR SIMILAR APPROVED) SCOUTMOOR DIAMOND SAWN 'YORK STONE' PAVING SLABS.
■	PROPOSED MARSHALLS (OR SIMILAR APPROVED) GRA921 BLACK FLAMED PAVING SETS.
■	RECLAIMED COBBLED PAVED AREA.

LEVELS LEGEND:

🟥	DENOTES EXISTING SPOT / GROUND LEVELS.
🟦	DENOTES PROPOSED SPOT / GROUND LEVELS.

REFER TO HIGHWAYS LIGHTING AND DRAINAGE DRAWINGS FOR RELEVANT INFORMATION

PLEASE NOTE:

DRAWING TO BE READ IN CONJUNCTION WITH HIGHWAY ENGINEERS DRAWINGS:

NHE_127523-2405-OCD-WPA-DDR-D-000019

PLEASE NOTE:

URBAN REALM / LANDSCAPING LIGHTING DESIGN TO BE DEVELOPED INCOORDINATION WITH LOCAL AUTHORITY.

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
P01.1	24/04/15	Stage A AIP	LH	RC	PJ
P01	24/07/15	Stage A Formal Submission	LH	RC	PJ

Status
Fit for Internal Review & Comment
Suitability
S3

NORTHERN HUB & ELECTRIFICATION ALLIANCE

Authorised		Signed	Date

Contractor(s)
Building Design Partnership

Location
ORDSALL CHORD

Type: CAD Drawing	Sub-type: Plan
Role: Architect	Sub-Role: Design
Zone: Work Package A	
Phasing: Proposed	Grip Stage: 4

Project
Northern Hub and Electrification

Contract No.
127523

Contract Title
Central GRIP 2 to 8

Drawing Title
Ordsall Chord
Proposed
Landscape & Highway Plan
Stage A - Section 6 - Part 2

Designed	P. Jenkins	Signed	Date 12/12/14
Drawn	L. Herrick	Signed	Date 12/12/14
Checked	R. Connelly	Signed	Date 28/04/15
Approved	P. Jenkins	Signed	Date 05/05/15

Scale(s)
1:200

ELR & Mileage
190.011 to 190.1166

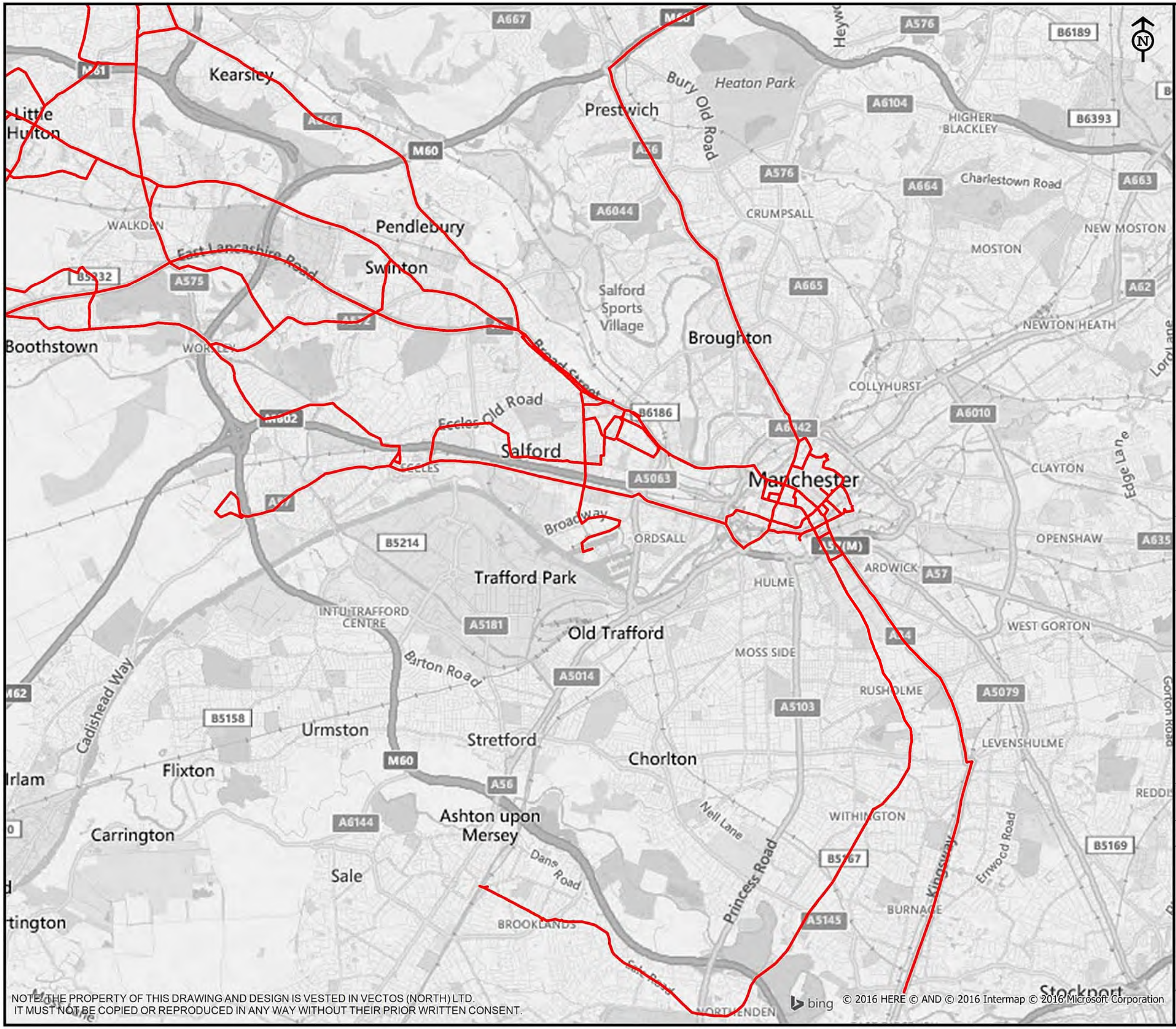
Alternative Reference

Sheet
2 of 2

Drawing Number
NHE_127523-5804-OCD-WPA-DDR-A-100351

Revision
P01

Sheet Size A1 594 x 841


N
Kearsley
Little Hulton
Prestwich
Heaton Park
Bury Old Road
HIGHER BLACKLEY
Charlestown Road
CRUMPSALL
NEW MOSTON
MOSTON
WALKDEN
Pendlebury
Swinton
East Lancashire Road
Salford Sports Village
Broughton
NEWTON HEATH
Boothstown
WORSLEY
Broad Street
COLLYHURST
Eccles Old Road
Salford
ECCLES
Manchester
CLAYTON
Edge Lane
Broadway
ORDSALL
OPENSHAW
Trafford Park
HULME
ARDWICK
INTU TRAFFORD CENTRE
Old Trafford
WEST GORTON
Barton Road
MOSS SIDE
RUSHOLME
Cadishead Way
Urmston
Stretford
Chorlton
LEVENSHULME
Irlam
Flixton
Ashton upon Mersey
Nell Lane
WITHINGTON
Carrington
Sale
Princess Road
Kingsway
Erwood Road
BURNAGE
Dane Road
BROOKLANDS
Sale Road
NORTHENDEN
Stockport
Lord Lane
Gorton Road
REDDISH
A667
M60
A576
B6189
M61
A6104
B6393
A666
A56
A6044
A664
A663
B5232
A575
A665
A62
A572
A6010
M602
B6186
A6042
A5063
A57
A635
B5214
A57(M)
A5181
A5014
A5079
A34
M62
B5158
A5103
M60
A56
A6144
B5169
B5167
A5145
bing

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CLIENT:
Manchester Quays Ltd

PROJECT TITLE:
St John's

DRAWING TITLE:
Bus Routes within 400m of St John's

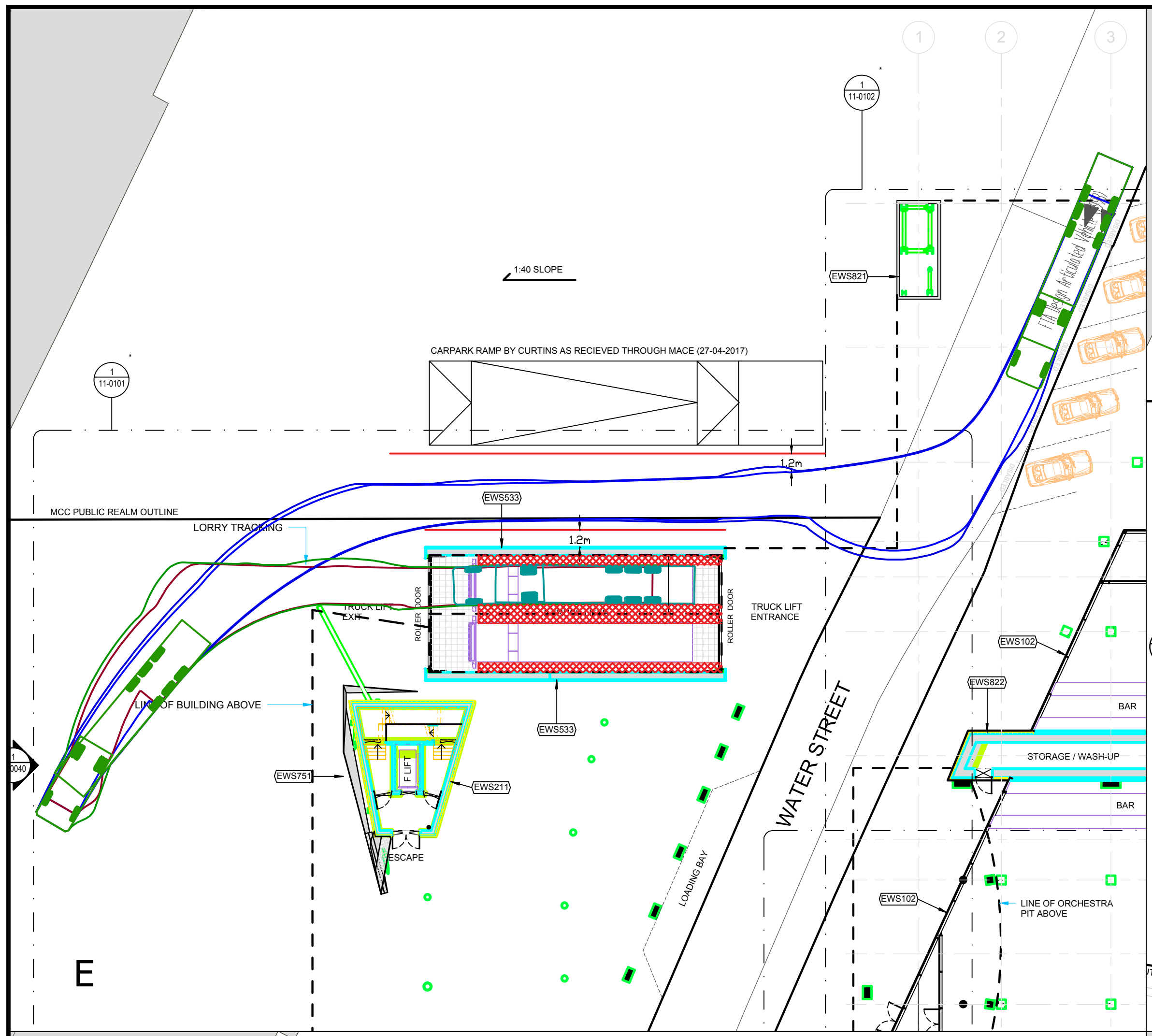
SCALE:
N.T.S

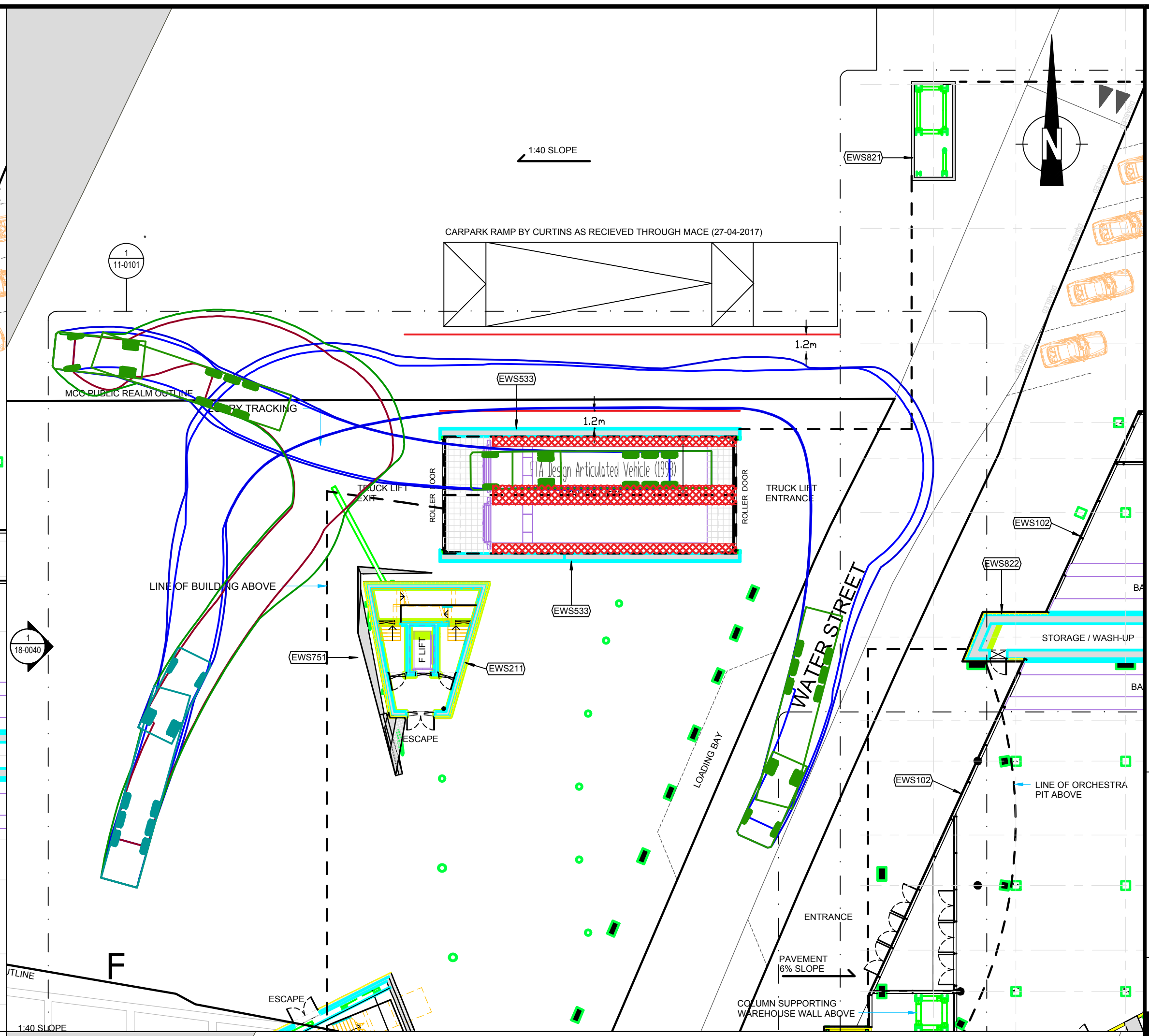
DRAWN: HF	CHECKED: GD	DATE: Sep 16

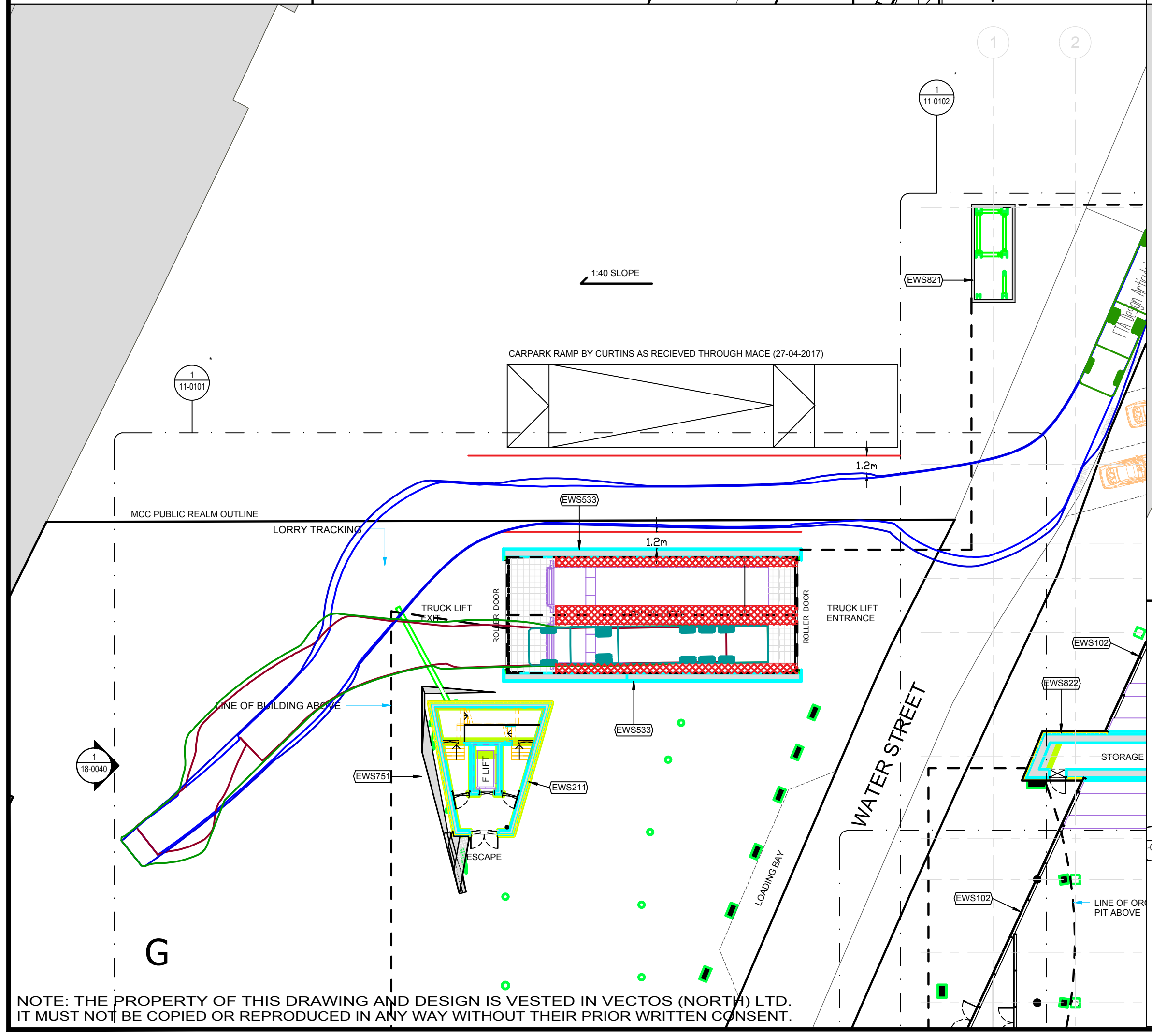
vectos
transport planning specialists

Oxford Place, 61 Oxford Street, Manchester M1 6EQ
t:0161 228 1008 e:manchester@vectos.co.uk

DRAWING NO:	REVISION:
VN50436-G108	


E
1:40 SLOPE
CARPARK RAMP BY CURTINS AS RECIEVED THROUGH MACE (27-04-2017)
MCC PUBLIC REALM OUTLINE
LORRY TRACKING
TRUCK LIFT EXIT
ROLLER DOOR
TRUCK LIFT ENTRANCE
1.2m
LINE OF BUILDING ABOVE
ESCAPE
WATER STREET
LOADING BAY
STORAGE / WASH-UP
BAR
LINE OF ORCHESTRA PIT ABOVE
EWS533
EWS751
EWS211
EWS102
EWS822
EWS821
11-0101
11-0102


F
1:40 SLOPE
CARPARK RAMP BY CURTINS AS RECIEVED THROUGH MACE (27-04-2017)
MCC PUBLIC REALM OUTLINE
LORRY TRACKING
TRUCK LIFT EXIT
TRUCK LIFT ENTRANCE
ROLLER DOOR
1.2m
LINE OF BUILDING ABOVE
ESCAPE
WATER STREET
LOADING BAY
STORAGE / WASH-UP
ENTRANCE
PAVEMENT 6% SLOPE
COLUMN SUPPORTING WAREHOUSE WALL ABOVE
LINE OF ORCHESTRA PIT ABOVE
FTA Design Articulated Vehicle (1998)
N
EWS533
EWS751
EWS211
EWS102
EWS822
EWS821
11-0101
18-0040


G
1:40 SLOPE
CARPARK RAMP BY CURTINS AS RECIEVED THROUGH MACE (27-04-2017)
MCC PUBLIC REALM OUTLINE
LORRY TRACKING
TRUCK LIFT EXIT
TRUCK LIFT ENTRANCE
ROLLER DOOR
1.2m
LINE OF BUILDING ABOVE
ESCAPE
WATER STREET
LOADING BAY
STORAGE
LINE OF ORCHESTRA PIT ABOVE
EWS533
EWS751
EWS211
EWS102
EWS822
EWS821
11-0101
11-0102
18-0040

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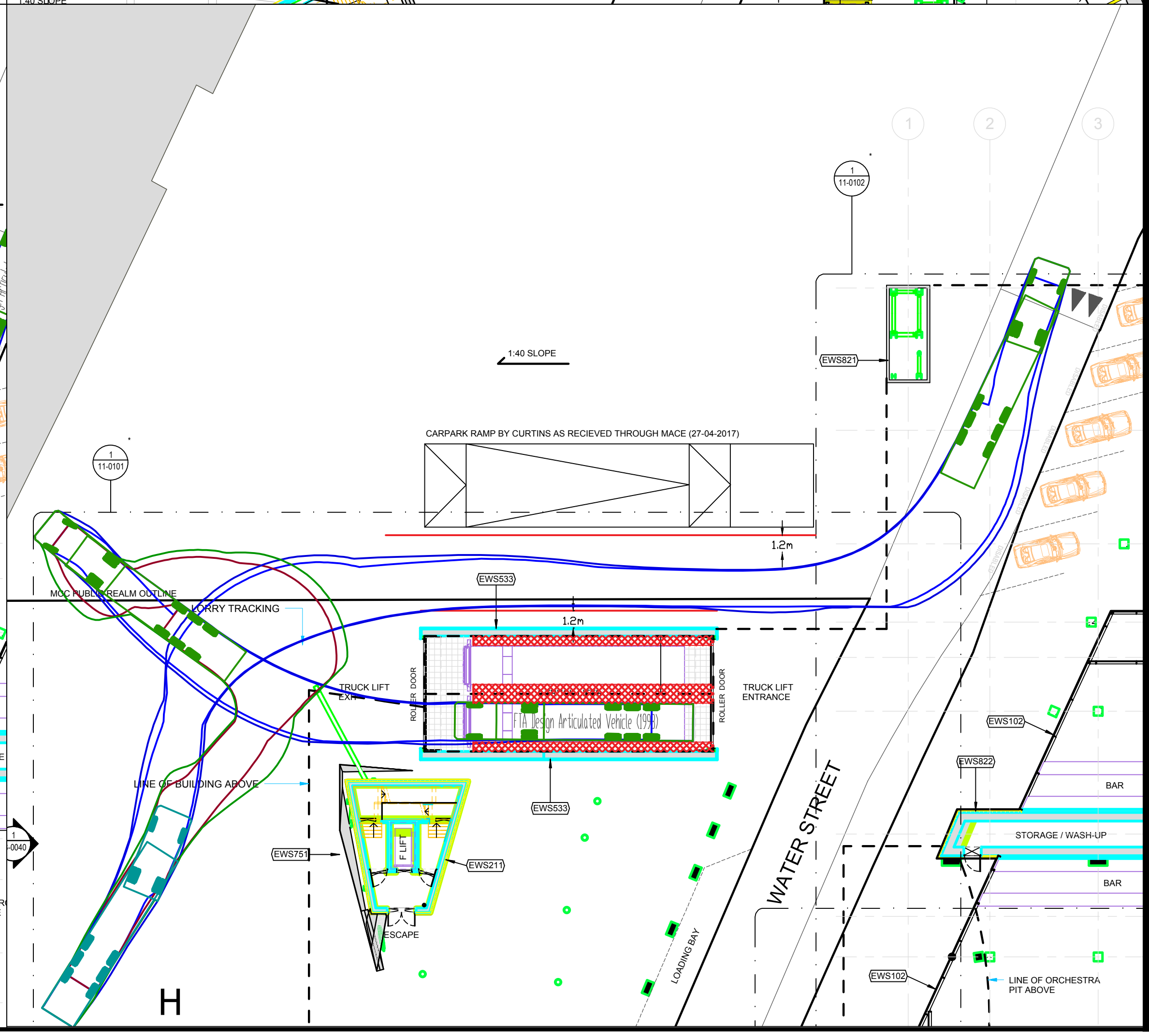
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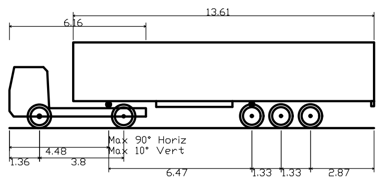
1:40 SLOPE
CARPARK RAMP BY CURTINS AS RECIEVED THROUGH MACE (27-04-2017)
MCC PUBLIC REALM OUTLINE
LORRY TRACKING
TRUCK LIFT EXIT
TRUCK LIFT ENTRANCE
ROLLER DOOR
1.2m
FTA Design Articulated Vehicle (1998)
LINE OF BUILDING ABOVE
ESCAPE
WATER STREET
LOADING BAY
STORAGE / WASH-UP
BAR
LINE OF ORCHESTRA PIT ABOVE
EWS533
EWS751
EWS211
EWS102
EWS822
EWS821
11-0101
11-0102

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.


13.61
6.16
Max 90° Horiz
Max 10° Vert
4.48
1.36
3.8
6.47
1.33
1.33
2.87

FTA Design Articulated Vehicle (1998)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.550m

REV.	DETAILS	DRAWN	CHECKED	DATE
F	Updated with Banksmen Protection Zone	HF	GD	01.03.18

CLIENT:

Manchester City Council

PROJECT:

Factory

DRAWING TITLE:

Lorry Lift - 16.5m Artic Track

SCALES:

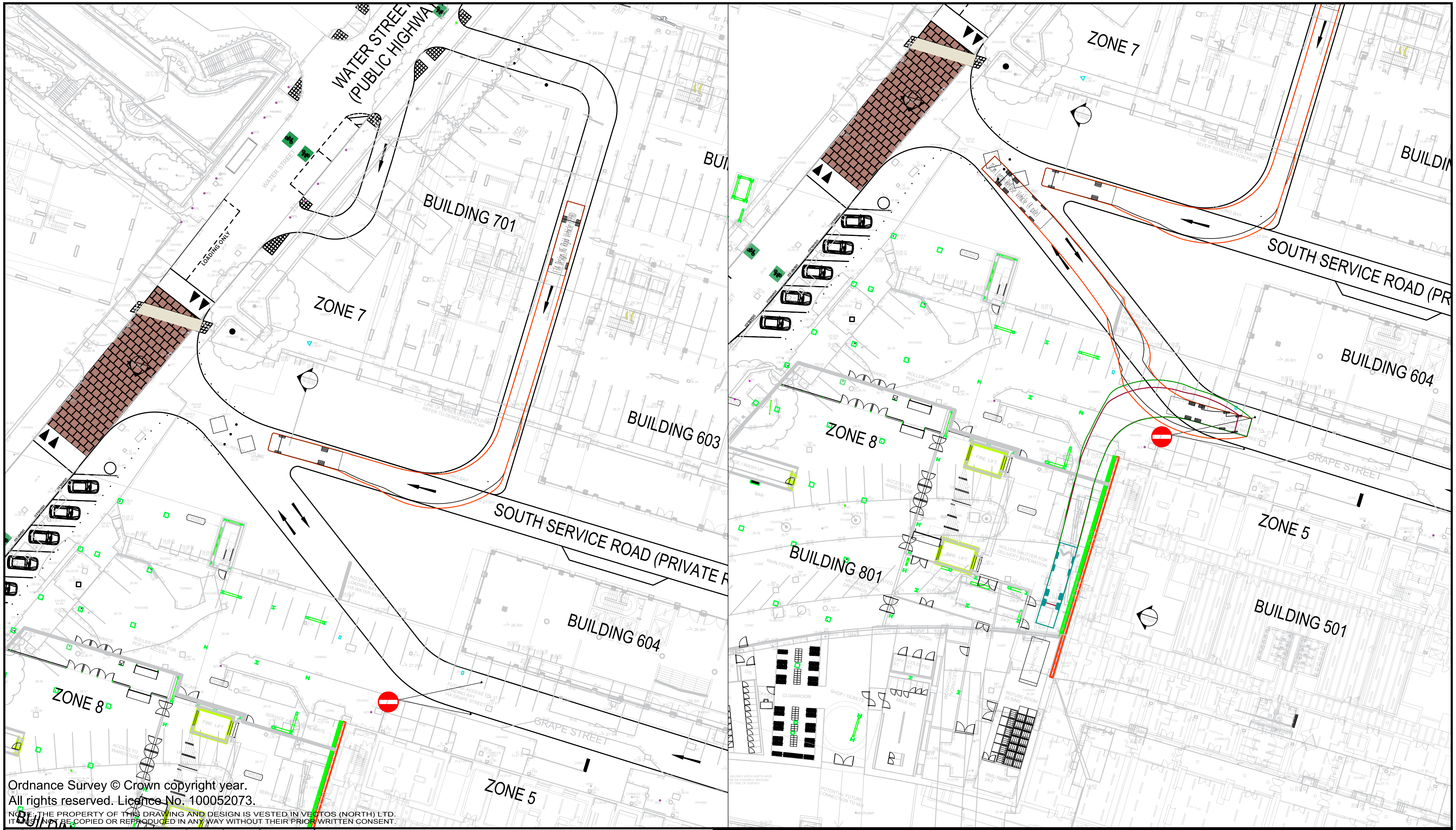
1:500 at A3

DRAWN: HF
CHECKED: GD
DATE: 27.08.17

vectos
transport planning specialists

4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008
e: manchester@vectos.co.uk

DRAWING NUMBER: VN60596-TR115
REVISION: F


WATER STREET (PUBLIC HIGHWAY)
LOADING ONLY
BUILDING 701
ZONE 7
BUILDING 603
SOUTH SERVICE ROAD (PRIVATE
BUILDING 604
ZONE 8
GRAPE STREET
ZONE 5
BUILDING 801
BUILDING 501
FIRE LIFT

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REV.	DETAILS	DRAWN	CHECKED	DATE
A	Track Amendments	HF	GD	19.04.18

Notes:

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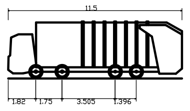
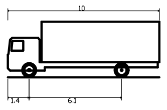

11.5
1.82
1.75
3.505
1.396

11.5m Large Refuse Vehicle (4 axle)	
Overall Length	11.500m
Overall Width	2.500m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	6.00s
Wall to Wall Turning Radius	11.330m



FTA Design HG Rigid Vehicle (1998)	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	11.000m

St John's Technical Masterplan

Manchester Quays Ltd

10m Rigid and Large Refuse Vehicle Track

vectos
transport planning specialists

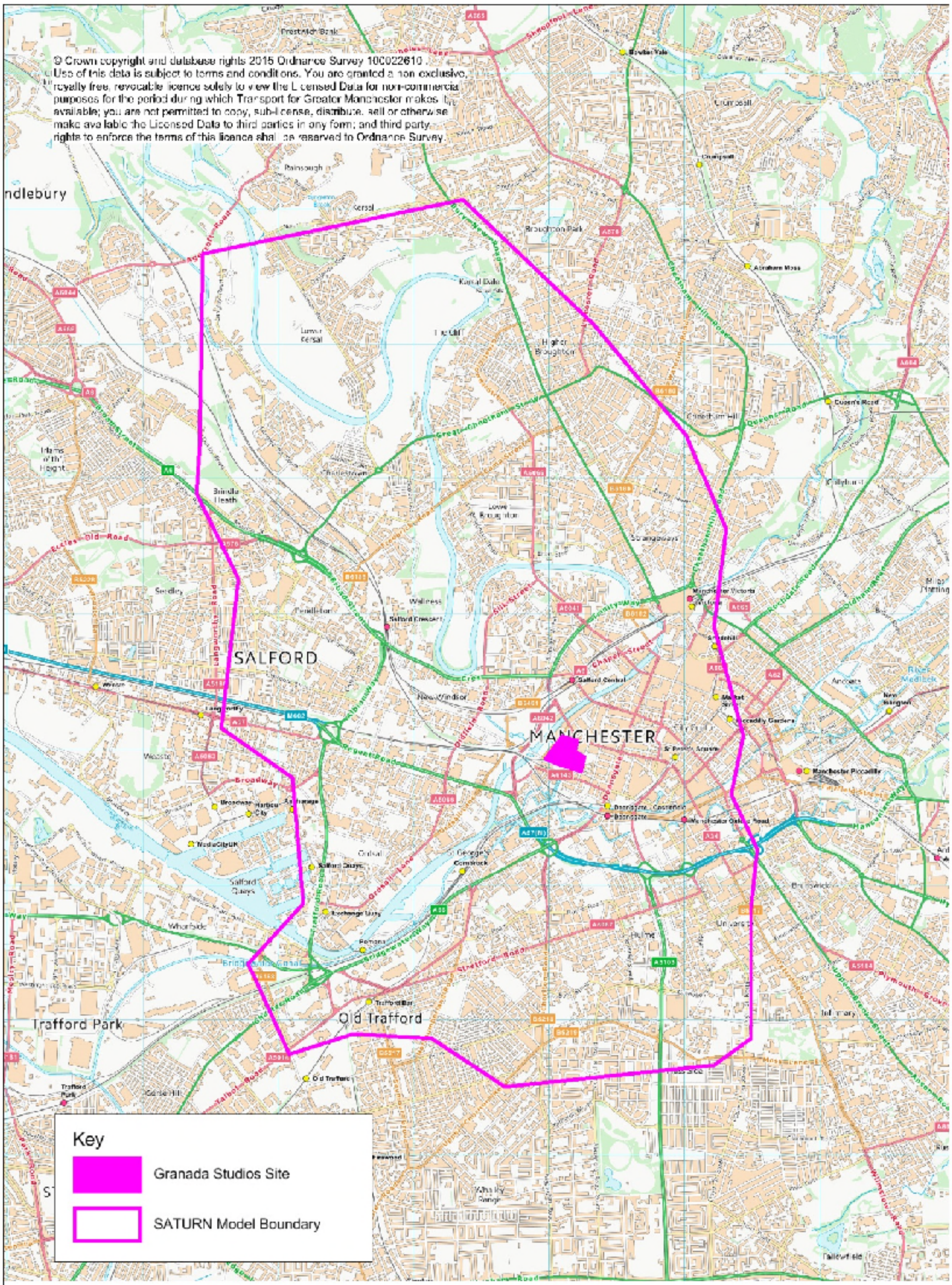
3rd Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008
e: manchester@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
HF	GD	11.04.18	1:500 at A3	VN70930-TR101	A

Figures

APPENDIX A

Area of TfGM SATURN Model


ndlebury
Prestwich Bank
Rainsough
Kersal
Broughton Park
Lower Kersal
Higher Broughton
Cheetham Hill
Crumpsall
Queen's Road
Strangeways
SALFORD
MANCHESTER
Manchester Victoria
Salford Central
Manchester Piccadilly
Deansgate - Castlefield
Salford Quays
MediaCityUK
Ordsall
Hulme
Old Trafford
Trafford Park
Key
Granada Studios Site
SATURN Model Boundary

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St John's Masterplan - SATURN Model Coverage

Transport for Greater Manchester 2 Piccadilly Place, Manchester, M1 3BG	Drawn By : SN	Date : May 2015
	Scale : NTS	Report : 1871 Figure : 1

APPENDIX B

Accident Data

TRANSPORT FOR GREATER MANCHESTER

Transport for
Greater Manchester

Traffic Accident Data for

Vectos

3rd Floor,
Oxford Place,
61 Oxford Street,
Manchester,
M1 6EQ

John Lancaster

Reported Road Injury Accidents in the Specified Area of Water Street, Deansgate, Quay Street and Inner Relief Road, Manchester City Centre.

01/02/2012 - 31/01/2015

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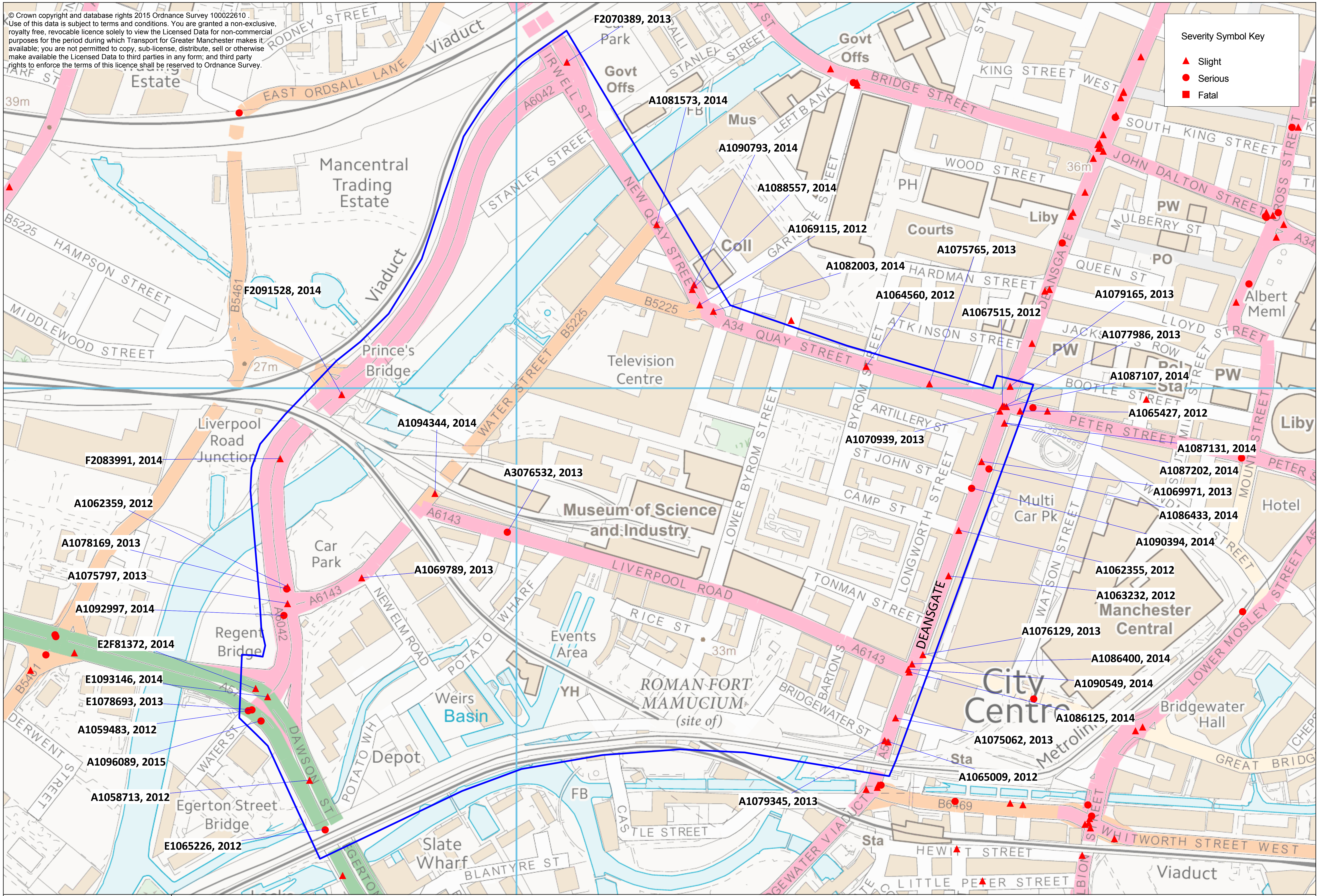
Severity Symbol Key
▲ Slight
● Serious
■ Fatal
F2070389, 2013
A1081573, 2014
A1090793, 2014
A1088557, 2014
A1069115, 2012
A1075765, 2013
A1082003, 2014
A1064560, 2012
A1079165, 2013
A1067515, 2012
A1077986, 2013
F2091528, 2014
A1087107, 2014
A1065427, 2012
A1094344, 2014
A1070939, 2013
A1087131, 2014
F2083991, 2014
A3076532, 2013
A1087202, 2014
A1069971, 2013
A1062359, 2012
A1086433, 2014
A1078169, 2013
A1090394, 2014
A1069789, 2013
A1075797, 2013
A1062355, 2012
A1063232, 2012
A1092997, 2014
A1076129, 2013
E2F81372, 2014
A1086400, 2014
E1093146, 2014
A1090549, 2014
E1078693, 2013
A1086125, 2014
A1059483, 2012
A1075062, 2013
A1096089, 2015
A1065009, 2012
A1058713, 2012
A1079345, 2013
E1065226, 2012
Mancentral Trading Estate
Viaduct
East Ordsall Lane
Hampson Street
Middlewood Street
Prince's Bridge
Liverpool Road Junction
Stanley Street
Irwell St
New Quay Street
Quay Street
A34
B5225
Water Street
Television Centre
Museum of Science and Industry
Liverpool Road
A6143
A6042
Car Park
Regent Bridge
Dawson St
Egerton Street Bridge
Weirs Basin
Depot
Events Area
ROMAN FORT MAMUCIUM (site of)
Bridgewater St
Deansgate
Byrom Street
Lower Byrom Street
Tonman Street
St John St
Camp St
Hardman Street
Atkinson Street
Bridge Street
King Street West
John Dalton Street
Wood Street
Courts
Peter Street
Manchester Central
City Centre
Bridgewater Hall
Great Bridgewater Street
Lower Mosley Street
Whitworth Street West
Castle Street
Slate Wharf
Blantyre St
Multi Car Pk
Hotel
Albert Meml
Liby
Govt Offs
Coll
Mus
PW
PO
Sta
Metrolink

Transport for Greater Manchester

2 Piccadilly Place,
Manchester,
M1 3BG

Reported Road Injury Accidents in the Specified Area of Water Street, Deansgate, Quay Street and Inner Relief Road, Manchester City Centre. 01/02/2012 - 31/01/2015

Drawn By : R Beesley

Note: A road accident which occurs at or within 20m of a junction, is coded as a junction accident

Date : 11/03/2015

TRANSPORT FOR GREATER MANCHESTER

Reported Road Injury Accidents in the Specified Area of Water Street, Deansgate, Quay Street and Inner Relief Road, Manchester City Centre.
01/02/2012 - 31/01/2015

Injury Accidents	Feb-Dec 2012	2013	2014	Jan 2015	**Total**
Fatal	0	0	0	0	**0**
Serious	2	3	3	1	**9**
Slight	9	11	15	0	**35**
Total	**11**	**14**	**18**	**1**	**44**

Standard Totals Report : Reported Road Injury Accidents in the Specified Area of Water Street, Deansgate, Quay Street and Inner Relief Road, Manchester City Centre. 01/02/2012 - 31/01/2015

Accidents

Serious	9
Slight	35
Total Accidents	**44**

Casualties By Age and Sex

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious					
Male	0	7	0	0	7
Female	0	3	0	0	3
Total	**0**	**10**	**0**	**0**	**10**
Slight					
Male	1	27	2	0	30
Female	4	20	1	0	25
Total	**5**	**47**	**3**	**0**	**55**
Total Casualties	**5**	**57**	**3**	**0**	**65**

Casualties By Age and Class

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious					
Driver or rider	0	5	0	0	5
Veh or pillion pas	0	3	0	0	3
Pedestrian	0	2	0	0	2
Total	**0**	**10**	**0**	**0**	**10**
Slight					
Driver or rider	1	23	2	0	26
Veh or pillion pas	4	15	1	0	20
Pedestrian	0	9	0	0	9
Total	**5**	**47**	**3**	**0**	**55**
Total Casualties	**5**	**57**	**3**	**0**	**65**

Cyclist (Rider and Pillion) and Pedestrian Casualties By Age

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious	0	5	0	0	5
Slight	1	16	0	0	17
Total Casualties	**1**	**21**	**0**	**0**	**22**

Casualties Broken Down By Type

Car (Driver)	**0-15**	**16+**	**Total**
Slight	0	12	12
Total	**0**	**12**	**12**
Car (Passenger)	**0-15**	**16+**	**Total**
Serious	0	3	3
Slight	4	15	19
Total	**4**	**18**	**22**
Pedestrian	**0-15**	**16+**	**Total**
Serious	0	2	2
Slight	0	9	9
Total	**0**	**11**	**11**
TWPV (Rider)	**0-15**	**16+**	**Total**
Serious	0	1	1
Slight	0	5	5
Total	**0**	**6**	**6**
Cyclist (Rider)	**0-15**	**16+**	**Total**
Serious	0	3	3
Slight	1	7	8
Total	**1**	**10**	**11**
Other (Driver)	**0-15**	**16+**	**Total**
Serious	0	1	1
Slight	0	1	1
Total	**0**	**2**	**2**
Other (Passenger)	**0-15**	**16+**	**Total**
Slight	0	1	1
Total	**0**	**1**	**1**
Total	**5**	**60**	**65**

Standard Report - Reported Road Injury Accidents in the Specified Area of Water Street, Deansgate, Quay Street and Inner Relief Road, Manchester City Centre. 01/02/2012 - 31/01/2015

This printout has been generated from the Transport for Greater Manchester's database of road traffic accident records using the query system, GMAXI.

The road traffic accident database contains STATS19 data supplied by Greater Manchester Police and further validated by the Highways Forecasting and Analytical Services (HFAS) section of Transport for Greater Manchester. It is maintained by HFAS on behalf of the ten District Councils in Greater Manchester.

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Accident Reference Number: A1059483 **Day:** Friday **Date:** 27/04/2012 **Time** 15:40

Place Reported: Scene **District:** Manchester

Location: Regent Road at junction with Water Street

Description: V1 Trav S Trinity Way Waiting To Turn R Regent Rd V2 Trav N From Water St Onto Trinity Way V1 Turns Acc Path Of V2 And Coll

Locational Details				**Conditions**		**Accident Details**	
Road:	A57/U	Junction Details:	Xrds	Road Surface:	Wet	Severity:	Serious
OSGR:	382707 397648	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	40	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	4

Contributory Factors

Factor	Conf	Ref
DCare	Poss	V1
DDisIn	VLike	V1
DJnOv	Poss	V1
DSign	VLike	V1
DFLoo	VLike	V1
DJudg	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	N	NW	
LGV	Ahea	SW	NE	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	F	24	Slight	
2	Pas	F	20	Serious	
3	Pas	F	20	Slight	
4	Pas	F	20	Slight	

Accident Reference Number: E1078693 **Day:** Saturday **Date:** 05/10/2013 **Time** 01:50

Place Reported: Scene **District:** Manchester

Location: Dawson Street at junction with Water Street

Description: V1 Trav W On Dawson St At Jct With Water St. V2 Is On Pedal Cycle Trav Ne Water St And Crosses Into Path Of V1. Although V1 Brakes, Collision Occurs

Locational Details				**Conditions**		**Accident Details**	
Road:	A57/U	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Serious
OSGR:	382711 397649	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	40	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	VLike	V2

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	SE	W	
p/c	Ahea	SW	NE	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	22	Serious	

Accident Reference Number: E2F81372 **Day:** Monday **Date:** 06/01/2014 **Time** 19:35
Place Reported: Scene **District:** Manchester
Location: Regent Road at junction with Trinity Way
Description: Both Vehs Trav E On Regent Rd In Lane 2. Approaching The Junction With Trinity Way, Lights Change To Red. V2 Stops But V1 Hits V2

Locational Details				**Conditions**		**Accident Details**	
Road:	A57/A6042	Junction Details:	Xrds	Road Surface:	Wet	Severity:	Slight
OSGR:	382715 397672	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	40	Ped Crossing:	TSX	Weather Conditions:	Rain	No. of Casualties:	2

Contributory Factors

Factor	Conf	Ref
DFLoo	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Rben	W	SE	
Taxi	Stopg	W	SE	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	27	Slight	
2	Pas	F	28	Slight	

Accident Reference Number: A1096089 **Day:** Sunday **Date:** 11/01/2015 **Time** 01:15
Place Reported: Scene **District:** Manchester
Location: Dawson Street/Mancunian Way at junction with Regent Road
Description: C1 Walks In Live Lane On Dawson St/Mancunian Way Against Flow Of Traffic. C1 Is In Dark Clothes, Its Wet. V1, Trav Nw Dawson St, Has Green Light As C1 Steps Into Road. V1 Hits C1

Locational Details				**Conditions**		**Accident Details**	
Road:	A57/A6042	Junction Details:	Tjun	Road Surface:	Wet	Severity:	Serious
OSGR:	382721 397637	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	1
Speed Limit:	40	Ped Crossing:	TSX	Weather Conditions:	Wind	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
PAlcoh	VLike	C1
PDrugs	Poss	C1
PCloth	Poss	C1

Vehicle Details

Type	Move	From	To	Skid
Taxi	Ahea	SE	NW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Ped	M	39	Serious	

Accident Reference Number: E1093146 **Day:** Sunday **Date:** 12/10/2014 **Time** 18:46
Place Reported: Scene **District:** Manchester
Location: Regent Road at junction with Trinity Way
Description: V1 Travels S On Trinity Way Towards Regent Rd. V1 Check Way Is Clear And Moves Out. V2 Trav Se Regent Rd Gives Way To Traffic And V1 Hits V2.

Locational Details				**Conditions**		**Accident Details**	
Road:	A57/A6042	Junction Details:	Slip	Road Surface:	Dry	Severity:	Slight
OSGR:	382728 397663	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	40	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	4

Contributory Factors

Factor	Conf	Ref
DTgate	Poss	V1
DFast	Poss	V1
DFLoo	Poss	V1
DBrake	Poss	V2

Vehicle Details

Type	Move	From	To	Skid
LGV	TurnR	N	W	
Car	Stopg	W	SE	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Pas	M	12	Slight	
2	Pas	F	9	Slight	
3	Pas	F	3	Slight	
4	Pas	F	9	Slight	

Accident Reference Number: F2083991 **Day:** Saturday **Date:** 08/03/2014 **Time** 20:49
Place Reported: Scene **District:** Salford
Location: Trinity Way 155 metres N of Water Street
Description: V1 Trav Sw On Trinity Way On Left Hand Bend. Driver Loses Control And Leaves Carriageway, Hitting Barrier.

Locational Details				**Conditions**		**Accident Details**	
Road:	A6042	Junction Details:		Road Surface:	Dry	Severity:	Slight
OSGR:	382742 397923	Junction Control:	n/a	Light Conditions:	Dark	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DCare	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Lbend	NE	S	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	22	Slight	

Accident Reference Number: A1092997 **Day:** Friday **Date:** 31/10/2014 **Time** 08:40
Place Reported: Scene **District:** Manchester
Location: Trinity Way at junction with Water Street
Description: V1 Trav N Trinity Way in L1 Of 2 Turns Right Into Path Of V2 (Motorcycle) Also Trav Same in L2. V1 Collides With V2, Rider Thrown From Bike & Falls Heavily To Ground.

Locational Details				**Conditions**		**Accident Details**	
Road:	A6042/A6143	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Serious
OSGR:	382746 397752	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	Poss	V1
DWscr	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	S	E	
m/cl	Stopg	S	N	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	32	Serious	

Accident Reference Number: A1078169 **Day:** Sunday **Date:** 06/10/2013 **Time** 03:25
Place Reported: Scene **District:** Manchester
Location: Trinity Way at junction with Water Street
Description: Both Vehicles Trav S On Trinity Way. V3 Stationary At Red Light. V1 Loses Control + Hits V2, Then Street Furniture And Finally V3

Locational Details				**Conditions**		**Accident Details**	
Road:	A6042/A6143	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Serious
OSGR:	382749 397781	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	3
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	2

Contributory Factors

Factor	Conf	Ref
DAlcoh	VLike	V1
DAggr	Poss	V1
DCare	Poss	V1
DSpee	VLike	V1
DFast	Poss	V1
DLoss	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	N	S	S&O
Car	Ahea	N	S	
Car	Waitg	N	S	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Pas	M	23	Serious	
2	Pas	F	20	Serious	

Accident Reference Number: A1062359 **Day:** Thursday **Date:** 12/07/2012 **Time** 20:25
Place Reported: Scene **District:** Manchester
Location: A6042 at junction with Water Street
Description: V1 & V2 Trvl Along Trinity Way T/wards Regent Rd V2 Stops At Red Ats V1 Collides Rear Of V2

Locational Details				**Conditions**		**Accident Details**	
Road:	A6042/A6143	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	382750 397783	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DSpee	Poss	V1
DTgate	Poss	V1
DFLoo	VLike	V1
DBrake	Poss	V1
DDisO	Poss	V1
DCare	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Stopg	N	S	
Car	Parkd	Pk	Pk	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	45	Slight	

Accident Reference Number: A1075797 **Day:** Monday **Date:** 05/08/2013 **Time** 11:06
Place Reported: Scene **District:** Manchester
Location: Trinity Way at junction with Water Street
Description: V1 Travels South On Trinity Way Through Red Ats. V2 Turns Right From Water St Into Trinity Way With Green Ats. Vehicles Collide

Locational Details				**Conditions**		**Accident Details**	
Road:	A6042/A6143	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	382750 397765	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	Poss	V1
DATS	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	N	S	
Car	TurnR	E	N	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	65	Slight	

Accident Reference Number: A1058713 **Day:** Friday **Date:** 30/03/2012 **Time** 14:25

Place Reported: Scene **District:** Manchester

Location: Mancunian Way 100 metres S of Egerton Street

Description: Rider Of V1 Loses Control Collides Cent Res Vehicle Bounces Into Air Lands On Bonnet Of V2 Trav Behind

Locational Details				**Conditions**		**Accident Details**	
Road:	A57	Junction Details:		Road Surface:	Dry	Severity:	Slight
OSGR:	382774 397572	Junction Control:	n/a	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	40	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DLoss	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
othr	Ahea	NW	SE	
Car	Ahea	NW	SE	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	29	Slight	

Accident Reference Number: E1065226 **Day:** Sunday **Date:** 30/09/2012 **Time** 12:00

Place Reported: Scene **District:** Manchester

Location: Dawson Street 120 metres NW of Egerton Street

Description: V1 Joins Dawson Street NW/bound At Junc Chester Rd Trvls From Lane 1 To 3 Causing V2 To Take Avoiding Action Moving From Lane 2 To 3 Collision Occurs

Locational Details				**Conditions**		**Accident Details**	
Road:	A57	Junction Details:		Road Surface:	Dry	Severity:	Serious
OSGR:	382791 397518	Junction Control:	n/a	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	40	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DAlcoh	Poss	V1
DDrug	Poss	V1
DTurn	Poss	V1
DFLoo	Poss	V1
DSwer	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
p/c	Ahea	SE	NW	
Car	Ahea	SE	NW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	F	38	Serious	

Accident Reference Number: F2091528 **Day:** Friday **Date:** 12/09/2014 **Time** 20:30

Place Reported: Scene **District:** Salford

Location: Trinity Way at junction with Hampson Street

Description: V2 (Motorcycle) Travels Sw On Trinity Way As V1 Travels Ne On Same Road. V1 Commences U Turn Into Path Of V2. Rider Of V2 Falls From Machine. V1 Fts

Locational Details				**Conditions**		**Accident Details**	
Road:	A6042/B5225	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	382809 397993	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DTurn	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Uturn	SW	SW	
m/s	Ahea	NE	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	32	Slight	

Accident Reference Number: A1069789 **Day:** Tuesday **Date:** 15/01/2013 **Time** 19:00

Place Reported: Else **District:** Manchester

Location: Water Street at junction with New Elm Road

Description: V1 Turned Left Into Path Of V2

Locational Details				**Conditions**		**Accident Details**	
Road:	A6143/U	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	382831 397793	Junction Control:	GW	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DGWor	VLike	V1
DJnOv	VLike	V1
DTurn	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnL	SE	SW	
p/c	Ahea	NE	SW	O/tn

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	F	27	Slight	

Accident Reference Number: A1094344
Day: Saturday
Date: 29/11/2014
Time 04:02
Place Reported: Scene
District: Manchester
Location: Water Street 14 metres NE of Liverpool Road
Description: Both Vehs Trav Sw On Water St. V2 Is Stationary At Red Ats, V1 Approaches From Behind And Collision Occurs.

Locational Details

Road:	B5225/A6143	Junction Details:	Tjun
OSGR:	382911 397885	Junction Control:	TS
Speed Limit:	30	Ped Crossing:	

Conditions

Road Surface:	Wet
Light Conditions:	Dark
Weather Conditions:	Fine

Accident Details

Severity:	Slight
No. of Vehicles:	2
No. of Casualties:	3

Contributory Factors

Factor	Conf	Ref
Slip	Poss	V1
DTgate	Poss	V1
DSpee	Poss	V1
DLoss	Poss	V1
DDisIn	VLike	V1
DAggr	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Stopg	NE	SW	
Taxi	Stopg	NE	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Pas	M	31	Slight	
2	Pas	M	23	Slight	
3	Pas	M	23	Slight	

Accident Reference Number: A3076532
Day: Wednesday
Date: 28/08/2013
Time 17:10
Place Reported: Scene
District: Manchester
Location: Liverpool Road 12 metres W Of Old Medlock Street
Description: V1 Trav E Liverpool Rd, When Veh Cab Sets On Fire

Locational Details

Road:	A6143/U	Junction Details:	Tjun
OSGR:	382990 397843	Junction Control:	GW
Speed Limit:	30	Ped Crossing:	

Conditions

Road Surface:	Dry
Light Conditions:	Light
Weather Conditions:	Fine

Accident Details

Severity:	Serious
No. of Vehicles:	1
No. of Casualties:	2

Contributory Factors

Factor	Conf	Ref
Other	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
LGV	Ahea	W	E	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	28	Serious	
2	Pas	M	35	Slight	

Accident Reference Number: F2070389
Day: Wednesday
Date: 13/02/2013
Time 14:50
Place Reported: Scene
District: Salford
Location: Trinity Way at junction with Irwell Street
Description: Ped On Crossing Get Hit By Veh's

Locational Details

Road:	A34/A34	Junction Details:	Tjun
OSGR:	383055 398356	Junction Control:	TS
Speed Limit:	30	Ped Crossing:	TSX

Conditions

Road Surface:	Snow
Light Conditions:	Light
Weather Conditions:	Snow

Accident Details

Severity:	Slight
No. of Vehicles:	2
No. of Casualties:	2

Contributory Factors

Factor	Conf	Ref
Slip	Poss	V1
RdLay	Poss	V1
PFLoo	VLike	C2
PJudg	VLike	C2
PCare	VLike	C2

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	NW	SW	
Car	TurnR	NW	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	57	Slight	
2	Ped	F	22	Slight	

Accident Reference Number: A1081573
Day: Saturday
Date: 11/01/2014
Time 18:55
Place Reported: Scene
District: Manchester
Location: New Quay Street at junction with Water Street
Description: V1 Trav Se New Quay St Turns Right Across Path V2 (Moped) Trav Same

Locational Details

Road:	A34/B5225	Junction Details:	Xrds
OSGR:	383153 398179	Junction Control:	TS
Speed Limit:	30	Ped Crossing:	

Conditions

Road Surface:	Wet
Light Conditions:	Dark
Weather Conditions:	Fine

Accident Details

Severity:	Slight
No. of Vehicles:	2
No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	VLike	V1
DTurn	VLike	V1
Other	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	NW	SW	
m/p	Ahea	NW	SE	O/tn

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	22	Slight	

Accident Reference Number: A1088557 **Day:** Thursday **Date:** 03/07/2014 **Time** 18:48

Place Reported: Scene **District:** Manchester

Location: New Quay Street 16 metres North West Of Gartside Street

Description: V1 Travels Nw On New Quay St And Starts U Turn, Bringing V1 Into Path Of V2 (Motorcycle), Which Was Filtering Past Standing Traffic Trav Same.

Locational Details				**Conditions**		**Accident Details**	
Road:	A34/U	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Slight
OSGR:	383192 398108	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DWhite	VLike	V1
DFLoo	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Uturn	SE	SE	
m/cl	Ahea	SE	NW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	58	Slight	

Accident Reference Number: A1090793 **Day:** Monday **Date:** 18/08/2014 **Time** 16:40

Place Reported: Scene **District:** Manchester

Location: New Quay Street at junction with Quay Street

Description: All Veh Trav Se New Quay St. V2 And V3 Are Stopped At Lights On New Quay St. V1 Collides With Rear Of V2, Which Is Pushed Into V3

Locational Details				**Conditions**		**Accident Details**	
Road:	A34/B5225	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Slight
OSGR:	383194 398113	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	3
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DLoss	VLike	V1
DIllns	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	NW	SE	
LGV	Waitg	NW	SE	
Car	Waitg	NW	SE	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	50	Slight	

Accident Reference Number: A1069115 **Day:** Thursday **Date:** 20/12/2012 **Time** 08:10

Place Reported: Else **District:** Manchester

Location: New Quay Street at junction with Quay Street

Description: Ped Crossing Rd Struck By V1

Locational Details				**Conditions**		**Accident Details**	
Road:	A34/B5225	Junction Details:	Xrds	Road Surface:	Wet	Severity:	Slight
OSGR:	383200 398091	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Rain	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFast	VLike	V1
DFLoo	VLike	V1
PFLoo	VLike	C1

Vehicle Details

Type	Move	From	To	Skid
Taxi	TurnR	NE	NW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Ped	F	49	Slight	

Accident Reference Number: A1082003 **Day:** Tuesday **Date:** 21/01/2014 **Time** 07:29

Place Reported: Scene **District:** Manchester

Location: Quay Street at junction with Gartside Street

Description: V1 (Pedal Cycle) Trav Ne Quay St (Water St) Turns R At Jct. V2 Trav Sw Gartside St Turns L Into Same Road And Collision Occurs At The Junction.

Locational Details				**Conditions**		**Accident Details**	
Road:	A34/U	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Slight
OSGR:	383215 398084	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	VLike	V1
DTurn	VLike	V1
DCDar	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
p/c	TurnR	SW	SE	
Car	TurnL	NE	SE	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	F	35	Slight	

Accident Reference Number: A1064560 **Day:** Wednesday **Date:** 19/09/2012 **Time** 17:30

Place Reported: Else **District:** Manchester

Location: Quay Street at junction with Byrom Street

Description: Cyc On Quay St V1 Pulls Out Of Byrom St Into Path Of V2

Locational Details				**Conditions**		**Accident Details**	
Road:	A34/U	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Slight
OSGR:	383382 398024	Junction Control:	GW	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	PelX	Weather Conditions:	N/A	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref

Vehicle Details

Type	Move	From	To	Skid
Car	TurnL	SW	NE	
p/c	Ahea	SE	NW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	F	29	Slight	

Accident Reference Number: A1079345 **Day:** Tuesday **Date:** 22/10/2013 **Time** 06:50

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Bridgewater Street

Description: V1 (Pedal Cycle) Trav Ne Deansgate On The Wrong Side Of The Road Collides With V2 Trav Sw Same Turn Right

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/U	Junction Details:	Tjun	Road Surface:	Wet	Severity:	Slight
OSGR:	383402 397615	Junction Control:	GW	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Rain	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DGWor	VLike	V1
DTurn	VLike	V1
DCDar	VLike	V1
DNoLit	VLike	V1
DLearn	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
p/c	Ahea	SW	NE	
Car	TurnR	NE	W	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	F	15	Slight	

Accident Reference Number: A1065009 **Day:** Thursday **Date:** 13/09/2012 **Time** 22:19

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Bridgewater Street

Description: V1 Pulls Out Of Bridgewater St Onto Deansgate Collides With V2

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/U	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	383406 397614	Junction Control:	GW	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	VLike	V1
DAlcoh	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	NW	SW	
Car	Ahea	NE	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Drv	M	53	Slight	

Accident Reference Number: A1075062 **Day:** Sunday **Date:** 07/07/2013 **Time** 13:14

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Trafford Street

Description: V1 Trav W Trafford St Pulls Onto Deansgate Turning R Sees V2 Approaching Attemps To Reverse But V2 Collides With V1

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/U	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	383414 397640	Junction Control:	GW	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	E	W	
m/c	Ahea	N	S	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	67	Slight	

Accident Reference Number: A1090549 **Day:** Tuesday **Date:** 19/08/2014 **Time** 16:10

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Liverpool Road

Description: V1 (Motorcycle) Travels S On Deansgate Towards Liverpool Rd, Enters Yellow Box, Turning Right. V2 Travels N On Deansgate. V1 Is Hit By V2, Who Fails To Stop

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A6143	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	383428 397693	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
TmpRd	Poss	V1
DGWor	VLike	V2
DFast	VLike	V2
DTurn	Poss	V1
DFLoo	Poss	V1
DCare	VLike	V2

Vehicle Details

Type	Move	From	To	Skid
m/cl	wtgTR	N	W	
Car	Ahea	S	N	Skid

Casualty Details

Type	Sex	Age	Sev	Pupil
1 Rid	M	39	Slight	

Accident Reference Number: A1086125 **Day:** Tuesday **Date:** 15/04/2014 **Time** 07:40

Place Reported: Else **District:** Manchester

Location: Deansgate at junction with Liverpool Road

Description: V1 Travels N On Deansgate In Line Of Traffic. V2 Trav Same Moves Forward And V1 Does Same, But Hits Rear Of V2 Whilst Doing So.

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A6143	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	383429 397690	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	S	N	
LGV	Ahea	S	N	

Casualty Details

Type	Sex	Age	Sev	Pupil
1 Drv	F	53	Slight	

Accident Reference Number: A1086400 **Day:** Monday **Date:** 12/05/2014 **Time** 17:30

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Liverpool Road

Description: Both Vehs Trav Se Liverpool Rd. V2 Brakes Mid Junction And V1 Collides With Rear Of V2

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A6143	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	383432 397699	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
TmpRd	Poss	V1
DJudg	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Stopg	NW	SE	
Car	Stopg	NW	SE	

Casualty Details

Type	Sex	Age	Sev	Pupil
1 Drv	F	51	Slight	

Accident Reference Number: A1076129 **Day:** Friday **Date:** 16/08/2013 **Time** 02:45

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Great Bridgewater Street

Description: V1 Trav Sw Deansgate Swerves To O/s Mounts Kerb And Coll Street Furniture

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/C	Junction Details:	Tjun	Road Surface:	Wet	Severity:	Slight
OSGR:	383444 397709	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Rain	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DSwer	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Taxi	Ahea	NE	SW	

Casualty Details

Type	Sex	Age	Sev	Pupil
1 Pas	M	22	Slight	

Accident Reference Number: A1075765 **Day:** Sunday **Date:** 09/06/2013 **Time** 02:25
Place Reported: Else **District:** Manchester
Location: Quay Street, outside number 13, 80 metres W of Deansgate
Description: V1 Trav W Quay St When Passenger Exiting Vehicle Looses Footing And Falls Into Road

Locational Details				**Conditions**		**Accident Details**	
Road:	A34	Junction Details:		Road Surface:	Dry	Severity:	Slight
OSGR:	383451 398005	Junction Control:	n/a	Light Conditions:	Dark	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
EmVeh	VLike	V1
VDoor	Poss	C1

Vehicle Details

Type	Move	From	To	Skid
Mbus	Start	E	W	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Pas	F	30	Slight	

Accident Reference Number: A1063232 **Day:** Tuesday **Date:** 24/07/2012 **Time** 10:23
Place Reported: Scene **District:** Manchester
Location: Deansgate, outside number 269, 46 metres SW of Camp Street
Description: Veh1 And Veh2 Heading W/b Veh1 Pulls Into Path Of Veh2 And Collision Occurs

Locational Details				**Conditions**		**Accident Details**	
Road:	A56	Junction Details:		Road Surface:	Dry	Severity:	Slight
OSGR:	383472 397795	Junction Control:	n/a	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DCPav	Poss	V2
DCare	Poss	V1
DStat	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	NE	SW	
p/c	Ahea	NE	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	40	Slight	

Accident Reference Number: A1062355 **Day:** Friday **Date:** 13/07/2012 **Time** 09:48
Place Reported: Scene **District:** Manchester
Location: Deansgate at junction with Camp Street
Description: V1 Trvl North, Then Turns West T/wards Camp St And Collides With V3 Which Then Collides With V2

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/U	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Slight
OSGR:	383483 397845	Junction Control:	GW	Light Conditions:	Light	No. of Vehicles:	3
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	5

Contributory Factors

Factor	Conf	Ref
DTurn	VLike	V1
DFLoo	VLike	V1
DLoss	Poss	V1
DPanic	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	chlnL	SW	NW	
Car	Waitg	NE	SW	
Car	Ahea	NE	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
5	Ped	F	37	Slight	
1	Drv	M	30	Slight	
2	Pas	M	53	Slight	
3	Pas	M	25	Slight	
4	Pas	F	31	Slight	

Accident Reference Number: A1090394 **Day:** Tuesday **Date:** 19/08/2014 **Time** 09:50
Place Reported: Scene **District:** Manchester
Location: Deansgate at junction with St John Street
Description: V1 Travels S On Deansgate As V2 (Pedal Cycle) Travels Opposite Direction. V1 Turns Right, Across Path Of V2 And Collision Occurs.

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/U	Junction Details:	Tjun	Road Surface:	Dry	Severity:	Serious
OSGR:	383497 397891	Junction Control:	GW	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DStat	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	N	W	
p/c	Ahea	S	N	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	32	Serious	

Accident Reference Number: A1069971 **Day:** Friday **Date:** 25/01/2013 **Time** 09:05

Place Reported: Else **District:** Manchester

Location: Deansgate 25 metres NE of St John Street

Description: V1 Attempts U Turn Reverses And Collides With Ped

Locational Details				**Conditions**		**Accident Details**	
Road:	A56	Junction Details:		Road Surface:	Dry	Severity:	Slight
OSGR:	383508 397920	Junction Control:	n/a	Light Conditions:	Light	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	**Conf**	**Ref**

Vehicle Details

Type	**Move**	**From**	**To**	**Skid**
Car	Uturn	SW	SW	

Casualty Details

	Type	**Sex**	**Age**	**Sev**	**Pupil**
1	Ped	M	52	Slight	

Accident Reference Number: A1086433 **Day:** Sunday **Date:** 11/05/2014 **Time** 02:10

Place Reported: Scene **District:** Manchester

Location: Deansgate 66 metres SW of Peter Street

Description: V1 (Hackney Carriage) Trav Sw On Deansgate Collides With C1 (Pedestrian), Who Crosses From Nearside Behind Parked Vehicles

Locational Details				**Conditions**		**Accident Details**	
Road:	A56	Junction Details:		Road Surface:	Wet	Severity:	Serious
OSGR:	383516 397912	Junction Control:	n/a	Light Conditions:	Dark	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:		Weather Conditions:	Rain	No. of Casualties:	1

Contributory Factors

Factor	**Conf**	**Ref**
PFLoo	VLike	C1
PCare	VLike	C1
PXMas	VLike	C1
PAlcoh	VLike	C1
PDrugs	Poss	C1
PJudg	VLike	C1

Vehicle Details

Type	**Move**	**From**	**To**	**Skid**
Taxi	Ahea	NE	SW	

Casualty Details

	Type	**Sex**	**Age**	**Sev**	**Pupil**
1	Ped	M	22	Serious	

Accident Reference Number: A1070939 **Day:** Sunday **Date:** 03/03/2013 **Time** 01:00

Place Reported: Else **District:** Manchester

Location: Deansgate at junction with Quay Street

Description: Pedestrians Start To Cross Deansgate Veh Starts To Reverse And Colls With Pedestrians

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A34	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Slight
OSGR:	383528 397975	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	2

Contributory Factors

Factor	**Conf**	**Ref**
DTurn	VLike	V1
DFLoo	VLike	V1
DCare	VLike	V1
PAlcoh	Poss	C1
PCloth	Poss	C1

Vehicle Details

Type	**Move**	**From**	**To**	**Skid**
Car	Revg	W	S	

Casualty Details

	Type	**Sex**	**Age**	**Sev**	**Pupil**
1	Ped	F	26	Slight	
2	Ped	F	21	Slight	

Accident Reference Number: A1067515 **Day:** Saturday **Date:** 24/11/2012 **Time** 20:50

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Peter Street

Description: V1 Trav West On Peter St Carries On Over Crossroads Hitting V2 Travelling North On Deansgate

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A34	Junction Details:	Xrds	Road Surface:	Wet	Severity:	Slight
OSGR:	383531 397981	Junction Control:	TS	Light Conditions:	Dark	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Rain	No. of Casualties:	5

Contributory Factors

Factor	**Conf**	**Ref**
DATS	Poss	V1
DATS	Poss	V2

Vehicle Details

Type	**Move**	**From**	**To**	**Skid**
Car	Ahea	E	W	
Car	Start	S	N	

Casualty Details

	Type	**Sex**	**Age**	**Sev**	**Pupil**
2	Pas	F	55	Slight	
3	Pas	F	65	Slight	
1	Drv	M	34	Slight	
4	Pas	F	22	Slight	
5	Pas	F	22	Slight	

Accident Reference Number: A1077986 **Day:** Tuesday **Date:** 01/10/2013 **Time** 08:50

Place Reported: Scene **District:** Manchester

Location: Deansgate at junction with Peter Street

Description: V1 Is Trav E On Quay St Toward Peter St Turning Right. Stops To Do So. V2 Approaches From Opposite Direction. Collision Occurs

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A34	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Slight
OSGR:	383533 397980	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	W	S	
p/c	Ahea	E	W	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	F	23	Slight	

Accident Reference Number: A1087202 **Day:** Tuesday **Date:** 13/05/2014 **Time** 17:55

Place Reported: Scene **District:** Manchester

Location: Deansgate 14 metres SW of Quay Street

Description: C1 (Pedestrian) Crosses Road Without Waiting For Lights Into Path Of V1 Trav Sw On Deansgate. V1 Tries To Avoid C1 But Collision Occurs.

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A34	Junction Details:	Xrds	Road Surface:	Dry	Severity:	Slight
OSGR:	383533 397962	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
PPedX	VLike	C1
PJudg	VLike	C1
PFLoo	VLike	C1
DSwer	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	NE	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Ped	M	56	Slight	

Accident Reference Number: A1087131 **Day:** Thursday **Date:** 22/05/2014 **Time** 11:05

Place Reported: Scene **District:** Manchester

Location: Deansgate 12 metres SW of Quay Street/Peter Street

Description: C1 Steps Into Road From Between Stationary Vehicles Into Path Of V1 Trav Sw On Deansgate. Collision Occurs.

Locational Details				**Conditions**		**Accident Details**	
Road:	A56/A34	Junction Details:	Xrds	Road Surface:	Wet	Severity:	Slight
OSGR:	383533 397962	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	1
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
PFLoo	VLike	C1

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	NE	SW	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Ped	M	22	Slight	

Accident Reference Number: A1087107 **Day:** Friday **Date:** 23/05/2014 **Time** 17:54

Place Reported: Scene **District:** Manchester

Location: Quay Street at junction with Deansgate

Description: V1 Trav E On Quay St Turns Right Into Path Of V2 (Pedal Cycle) Trav W On Peter St. Collision Occurs.

Locational Details				**Conditions**		**Accident Details**	
Road:	A34/A56	Junction Details:	Xrds	Road Surface:	Wet	Severity:	Slight
OSGR:	383535 397980	Junction Control:	TS	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	30	Ped Crossing:	TSX	Weather Conditions:	Fine	No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DFLoo	VLike	V1
DJudg	VLike	V1

Vehicle Details

Type	Move	From	To	Skid
Car	TurnR	W	S	
p/c	Ahea	E	W	

Casualty Details

	Type	Sex	Age	Sev	Pupil
1	Rid	M	35	Slight	

Accident Reference Number: A1079165 **Day:** Sunday **Date:** 03/11/2013 **Time** 01:00

Place Reported: Scene **District:** Manchester

Location: Deansgate 14 metres N of Quay Street

Description: Ped In Intoxicated State Crosses Attempting To Beat Traffic Coll V1 Trav N Deansgate, Rolls Off Bonnet Onto Floor

Locational Details

Road:	A56/A34	Junction Details:	Xrds
OSGR:	383539 398002	Junction Control:	TS
Speed Limit:	30	Ped Crossing:	TSX

Conditions

Road Surface:	Wet
Light Conditions:	Dark
Weather Conditions:	Rain

Accident Details

Severity:	Slight
No. of Vehicles:	1
No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
PAlcoh	VLike	C1
PFLoo	Poss	C1
PCare	VLike	C1

Vehicle Details

Type	Move	From	To	Skid
Car	Waitg	S	N	

Casualty Details

Type	Sex	Age	Sev	Pupil
1 Ped	M	31	Slight	

Accident Reference Number: A1065427 **Day:** Tuesday **Date:** 25/09/2012 **Time** 09:10

Place Reported: Else **District:** Manchester

Location: Peter Street 10 metres E of Deansgate

Description: Stationary Pedal Cyclist At Lights Is Hit From Behind By V1 Who Is Travelling W V1 Fails To Stop

Locational Details

Road:	A34/A56	Junction Details:	Xrds
OSGR:	383550 397975	Junction Control:	TS
Speed Limit:	30	Ped Crossing:	TSX

Conditions

Road Surface:	Wet
Light Conditions:	Light
Weather Conditions:	Rain

Accident Details

Severity:	Slight
No. of Vehicles:	2
No. of Casualties:	1

Contributory Factors

Factor	Conf	Ref
DATS	Poss	V1
DDisO	Poss	V1
DCare	Poss	V1

Vehicle Details

Type	Move	From	To	Skid
Car	Ahea	E	W	
p/c	Waitg	E	W	

Casualty Details

Type	Sex	Age	Sev	Pupil
1 Rid	M	44	Slight	

Abbreviations used in GMAXI Reports for New Contributory Factors - 2005/06

WARNING: Please note that -
Codes 101 to 999 only relate to accidents from 1 April 2005. - New National Factors introduced by DfT
Codes 1001 to 1154 relate to accidents from 1 April 1999 to 31 March 2005 only. - Local Factors introduced
Accidents before 1 April 1999 do not have contributory factors attached.

Code	ContribFactor1Name	ContribFactor1Abb
0	None	
101	Poor or defective road surface	Surf
102	Deposit on road (eg oil, mud, chippings)	Dposit
103	Slippery road (due to weather)	Slip
104	Inadequate/masked signs or road markings	Mark
105	Defective traffic signals	DefATS
106	Traffic calming (eg speed cushions, road humps, chicanes)	TCalm
107	Temporary road layout (eg contraflow)	TmpRd
108	Road layout (eg bend, hill, narrow carriageway)	RdLay
109	Animal or object in carriageway	ObjInC
201	Tyres illegal, defective or under inflated	VTyres
202	Defective lights or indicators	VLight
203	Defective brakes	VBrake
204	Defective steering or suspension	VSteer
205	Defective or missing mirrors	VMirr
206	Overloaded or poorly loaded vehicle or trailer	VLoad
301	Disobeyed automatic traffic signal	DATS
302	Disobeyed Give Way or Stop sign or markings	DGWorS
303	Disobeyed double white line	DWhite
304	Disobeyed pedestrian crossing facility	DPedX
305	Illegal turn or direction of travel	DITurn
306	Exceeding speed limit	DSpeed
307	Travelling too fast for conditions	DFast
308	Following too close	DTgate
309	Vehicle travelling along pavement	DPave
310	Cyclist entering road from pavement	DCPave
401	Junction overshoot	DJnOvr
402	Junction restart	DJnRst
403	Poor turn or manoeuvre	DTurn
404	Failed to signal/misleading signal	DSign
405	Failed to look properly	DFLook
406	Failed to judge other person's path or speed	DJudge
407	Passing too close to cyclist, horse rider or pedestrian	DClose
408	Sudden braking	DBrake
409	Swerved	DSwerv
410	Loss of control	DLossC
501	Impaired by alcohol	DAlcoh
502	Impaired by drugs (illicit or medicinal)	DDrugs
503	Fatigue	DTired
504	Uncorrected, defective eyesight	DEye
505	Illness or disability, mental or physical	DIllns
506	Not displaying lights at night or in poor visibility	DNoLit
507	Cyclist wearing dark clothing at night	DCDark
508	Driver using mobile phone	DMobPh
509	Distraction in vehicle	DDisIn
510	Distraction outside vehicle	DDisOu
601	Aggressive driving	DAggre
602	Careless/reckless/in a hurry	DCare

603	Nervous/uncertain/panic	DPanic
604	Driving too slow or conditions or slow vehicle (eg tractor)	DSlow
605	Learner or inexperienced driver/rider	DLearn
606	Inexperience of driving on the left	DInDrL
607	Inexperience with type of vehicle	DInVeh
701	Stationary or parked vehicle(s)	DStat
702	Vegetation	DVeg
703	Road layout (eg bend, winding road, hill crest)	DRdLay
704	Buildings, road signs, street furniture	DBuild
705	Dazzling headlights	DHLigt
706	Dazzling sun	DSun
707	Rain, sleet, snow, or fog	DRain
708	Spray from other vehicles	DFog
709	Visor or windscreen dirty or scratched	DSpray
710	Vehicle blind spot	DWscrn
801	Crossed road masked by stationary or parked vehicle	PXMask
802	Failed to look properly	PFLook
803	Failed to judge vehicle's path or speed	PJudge
804	Wrong use of pedestrian crossing facility	PPedX
805	Dangerous action in carriageway (eg playing)	PDange
806	Impaired by alcohol	PAlcoh
807	Impaired by drugs (illicit or medicinal)	PDrugs
808	Careless/reckless/in a hurry	PCare
809	Pedestrian wearing dark clothing at night	PCloth
810	Disability or illness, mental or physical	PIllns
901	Stolen vehicle	StoVeh
902	Vehicle in course of crime	VCrime
903	Emergency vehicle on call	EmVeh
904	Vehicle door opened or closed negligently	VDoor
999	Other	Other
1001	Failed to stop (mandatory sign)	Fstop
1002	Failed to give way	Fgive
1003	Failed to avoid pedestrian (pedestrian not to blame)	FAPed
1004	Failed to avoid vehicle or object in carriageway	FAObj
1005	Failure to signal/misleading signal	Fsig
1006	Loss of control of vehicle	Loss
1007	Pedestrian entered carriageway without due care	Ped
1008	Passenger fell in or near PSV	Pfell
1009	Swerved to avoid object in carriageway	Swerv
1010	Sudden braking	Brake
1011	Poor turn/manoeuvre	Turn
1012	Poor overtaking	Over
1013	Drove wrong way (e.g. 1-way street)	1Way
1014	Opening door carelessly	Door
1015	Other	Other
1101	Impairment alcohol	Alcoh
1102	Impairment drugs	Drugs
1103	Impairment fatigue	Tired
1104	Impairment illness	Ill
1105	Distraction stress/emotional state of mind	Stress
1106	Distraction physical in/on vehicle	DPhIn
1107	Distraction physical outside vehicle	DPhOut
1108	Behaviour panic	Panic
1109	Behaviour careless/thoughtless/reckless	Care
1110	Behaviour nervous/uncertain	Nerve
1111	Behaviour in a hurry	Hurry

1112	Failure to judge other person's path or speed	Fjudg
1113	Disability	Disab
1114	Failed to look	F2look
1115	Looked but did not see	Nsee
1116	Inattention	Inatt
1117	Person hit wore dark or inconspicuous clothing	Cloth
1118	Other (Personal details)	Pother
1119	Crossed from behind parked vehicle etc	Cross
1120	Ignored lights at crossing	Xlight
1121	Excessive Speed	Speed
1122	Following too close	Tgate
1123	Inexperience of driving	InDri
1124	Inexperience of vehicle	InVeh
1125	Interaction or competition with other road users	Users
1126	Aggressive driving	Aggr
1127	Lack of judgement of own path	Judge
1128	Tyres wrong pressure	Press
1129	Tyres deflation before impact	Deflat
1130	Tyres worn/insufficient tread	Tread
1131	Defective lights or signals	Signal
1132	Defective brakes	Brakes
1133	Other (Vehicle defects)	Vother
1134	Site details poor road surface	Surf
1135	Site details poor/no street lighting	Lightg
1136	Site details inadequate signing	Sign
1137	Site details steep hill	Hill
1138	Site details narrow road	Narr
1139	Site details bend/winding road	Rbend
1140	Site details roadworks	Works
1141	Slippery road	Slip
1142	High winds	Winds
1143	Earlier accident	Earli
1144	Other (Local conditions)	Lother
1145	View windows obscured	Obs
1146	View glare from sun	Glare
1147	View glare from headlights	Head
1148	Surroundings bend/winding road	Bend
1149	Surroundings stationary parked vehicle	Stat
1150	Surroundings moving vehicle	Move
1151	Surroundings buildings, fences, vegetation etc	Fence
1152	Weather (e.g. mist or sleet)	Weath
1153	Failed to see pedestrian or vehicle in blindspot	Blind
1154	Animal out of control	Animal
9999	GMP Out of Range	OoR

APPENDIX C

TRICS Data – Theatres

TRICS 7.3.3
Trip Rate Parameter: Number of seats

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 07 - LEISURE
Category W - THEATRE
MULTI-MODAL VEHICLES

Selected regions and areas:

1	GREATER LONDON		
	BK	BARKING	1 days
4	EAST ANGLIA		
	NF	NORFOLK	1 days
6	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
7	YORKSHIRE & NORTH LINCOLNSHIRE		
	SY	SOUTH YORKSHIRE	1 days
8	NORTH WEST		
	MS	MERSEYSIDE	1 days
9	NORTH		
	DH	DURHAM	1 days
	TW	TYNE & WEAR	1 days
10	WALES		
	CF	CARDIFF	1 days
	SW	SWANSEA	1 days
11	SCOTLAND		
	AG	ANGUS	1 days
	EB	CITY OF EDINBURGH	1 days
12	CONNAUGHT		
	CS	SLIGO	1 days
17	ULSTER (NORTHERN IRELAND)		
	DE	DERRY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.
Parameter: Number of seats
Actual Range: 100 to 1915 (units:)
Range Selected by User: 100 to 1915 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/08 to 25/10/13

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.
Selected survey days:

Monday	1 days
Wednesday	1 days
Thursday	3 days
Friday	2 days
Saturday	6 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	13 days
Directional ATC Count	0 days

This data displays the number of manual classified surv the total adding up to whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	11
Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	1
Edge of Town	0
Neighbourhood Centre (PPS6 Local Centre)	0
Free Standing (PPS6 Out of Town)	0
Not Known	0

This data displays the number of surveys per main locat Edge of Town Suburban Area Neighbourhood Cent Edge of Town Centre Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	0
Commercial Zone	0
Development Zone	0
Residential Zone	1
Retail Zone	0
Built-Up Zone	11
Village	0
Out of Town	0
High Street	1
No Sub Category	0

This data displays the number of surveys per location su Industrial Zone Development Zone Residential Zone Retail Zone Built-Up Zone Village Out of Town High Street and No Sub Category.

Filtering Stage 3 selection:

Use Class:

D2	7 days
Sui Generis	6 days

This data displays the number of surveys per Use Class which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	4 days
20,001 to 25,000	1 days
25,001 to 50,000	6 days
50,001 to 100,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	3 days
250,001 to 500,000	4 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	6 days
1.1 to 1.5	6 days

This data displays the number of selected surveys withi within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	12 days

This data displays the number of surveys within the sele and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1 AG-07-W-01 THEATRE ANGUS
HIGH STREET

ARBROATH
Town Centre
Built-Up Zone
Total Number of seats: 500
Survey date: WEDNESDAY 23/05/2012 Survey Type: MANUAL

2 BK-07-W-01 THEATRE BARKING
BROADWAY

BARKING
Edge of Town Centre
Built-Up Zone
Total Number of seats: 341
Survey date: SATURDAY 08/12/2012 Survey Type: MANUAL

3 CF-07-W-01 THEATRE CARDIFF
GREYFRIARS ROAD

CARDIFF
Town Centre
Built-Up Zone
Total Number of seats: 1091
Survey date: SATURDAY 06/10/2012 Survey Type: MANUAL

4 CS-07-W-01 THEATRE SLIGO
LOWER QUAY STREET

SLIGO
Town Centre
Built-Up Zone
Total Number of seats: 100
Survey date: FRIDAY 25/10/2013 Survey Type: MANUAL

5 DE-07-W-01 THEATRE DERRY
ARTILLERY STREET
BOGSIDE
LONDONDERRY
Town Centre
Built-Up Zone
Total Number of seats: 170
Survey date: FRIDAY 22/06/2012 Survey Type: MANUAL

6 DH-07-W-01 THEATRE & CINEMA DURHAM
MILLENNIUM PLACE

DURHAM
Town Centre
Built-Up Zone
Total Number of seats: 718
Survey date: SATURDAY 24/11/2012 Survey Type: MANUAL

7 EB-07-W-01 THEATRE CITY OF EDINBURGH
NICOLSON STREET
SOUTH SIDE
EDINBURGH
Town Centre
High Street
Total Number of seats: 1915
Survey date: SATURDAY 01/06/2013 Survey Type: MANUAL

8 MS-07-W-01 THEATRE MERSEYSIDE
HOPE PLACE

LIVERPOOL
Town Centre
Built-Up Zone
Total Number of seats: 238
Survey date: SATURDAY 15/06/2013 Survey Type: MANUAL

9 NF-07-W-01 THEATRE NORFOLK
ST JOHN'S ALLEY

NORWICH
Town Centre
Built-Up Zone
Total Number of seats: 310
Survey date: THURSDAY 18/10/2012 Survey Type: MANUAL

10 SW-07-W-01 THEATRE SWANSEA
SINGLETON STREET

SWANSEA
Town Centre
Built-Up Zone
Total Number of seats: 1021
Survey date: SATURDAY 19/10/2013 Survey Type: MANUAL

11 SY-07-W-01 THEATRE SOUTH YORKSHIRE
NORFOLK STREET

SHEFFIELD
Town Centre
Built-Up Zone
Total Number of seats: 960
Survey date: THURSDAY 20/12/2012 Survey Type: MANUAL

12 TW-07-W-01 THEATRE TYNE & WEAR
SALTWELL VIEW

GATESHEAD
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of seats: 187
Survey date: MONDAY 07/10/2013 Survey Type: MANUAL

13 WK-07-W-01 THEATRE WARWICKSHIRE
VICTORIA TERRACE

LEAMINGTON SPA
Town Centre
Built-Up Zone
Total Number of seats: 200
Survey date: THURSDAY 01/11/2012 Survey Type: MANUAL

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: TAXIS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0	3	204	0	3	204	0
09:00-10:00	5	567	0.002	5	567	0.002	5	567	0.004
10:00-11:00	10	686	0	10	686	0	10	686	0
11:00-12:00	10	686	0.001	10	686	0.001	10	686	0.002
12:00-13:00	11	669	0.001	11	669	0.001	11	669	0.002
13:00-14:00	11	669	0.002	11	669	0.002	11	669	0.004
14:00-15:00	11	669	0.003	11	669	0.003	11	669	0.006
15:00-16:00	12	630	0	12	630	0	12	630	0
16:00-17:00	12	630	0.003	12	630	0.003	12	630	0.006
17:00-18:00	13	596	0.003	13	596	0.003	13	596	0.006
18:00-19:00	13	596	0.008	13	596	0.008	13	596	0.016
19:00-20:00	12	626	0.01	12	626	0.009	12	626	0.019
20:00-21:00	12	626	0.001	12	626	0.002	12	626	0.003
21:00-22:00	11	668	0.002	11	668	0.002	11	668	0.004
22:00-23:00	10	700	0.017	10	700	0.017	10	700	0.034
23:00-24:00	5	538	0.003	5	538	0.003	5	538	0.006
Daily Trip Rates:			0.056			0.056			0.112

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: OGVS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0.002	3	204	0.002	3	204	0.004
09:00-10:00	5	567	0	5	567	0	5	567	0
10:00-11:00	10	686	0	10	686	0	10	686	0
11:00-12:00	10	686	0	10	686	0	10	686	0
12:00-13:00	11	669	0	11	669	0	11	669	0
13:00-14:00	11	669	0	11	669	0	11	669	0
14:00-15:00	11	669	0	11	669	0	11	669	0
15:00-16:00	12	630	0	12	630	0	12	630	0
16:00-17:00	12	630	0	12	630	0	12	630	0
17:00-18:00	13	596	0	13	596	0	13	596	0
18:00-19:00	13	596	0	13	596	0	13	596	0
19:00-20:00	12	626	0	12	626	0	12	626	0
20:00-21:00	12	626	0	12	626	0	12	626	0
21:00-22:00	11	668	0	11	668	0	11	668	0
22:00-23:00	10	700	0	10	700	0	10	700	0
23:00-24:00	5	538	0	5	538	0	5	538	0
Daily Trip Rates:			0.002			0.002			0.004

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: PSVS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0	3	204	0	3	204	0
09:00-10:00	5	567	0	5	567	0	5	567	0
10:00-11:00	10	686	0.001	10	686	0	10	686	0.001
11:00-12:00	10	686	0	10	686	0	10	686	0
12:00-13:00	11	669	0	11	669	0.001	11	669	0.001
13:00-14:00	11	669	0.002	11	669	0.001	11	669	0.003
14:00-15:00	11	669	0.002	11	669	0.001	11	669	0.003
15:00-16:00	12	630	0	12	630	0	12	630	0
16:00-17:00	12	630	0.001	12	630	0.001	12	630	0.002
17:00-18:00	13	596	0	13	596	0.002	13	596	0.002
18:00-19:00	13	596	0	13	596	0	13	596	0
19:00-20:00	12	626	0	12	626	0	12	626	0
20:00-21:00	12	626	0	12	626	0	12	626	0
21:00-22:00	11	668	0	11	668	0	11	668	0
22:00-23:00	10	700	0	10	700	0	10	700	0
23:00-24:00	5	538	0	5	538	0	5	538	0
Daily Trip Rates:			0.006			0.006			0.012

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: BUS/TRAM PASSENGERS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0.007	3	204	0	3	204	0.007
09:00-10:00	5	567	0.009	5	567	0.001	5	567	0.01
10:00-11:00	10	686	0.013	10	686	0.009	10	686	0.022
11:00-12:00	10	686	0.015	10	686	0.011	10	686	0.026
12:00-13:00	11	669	0.028	11	669	0.018	11	669	0.046
13:00-14:00	11	669	0.08	11	669	0.02	11	669	0.1
14:00-15:00	11	669	0.058	11	669	0.014	11	669	0.072
15:00-16:00	12	630	0.009	12	630	0.011	12	630	0.02
16:00-17:00	12	630	0.008	12	630	0.074	12	630	0.082
17:00-18:00	13	596	0.01	13	596	0.043	13	596	0.053
18:00-19:00	13	596	0.031	13	596	0.007	13	596	0.038
19:00-20:00	12	626	0.03	12	626	0.002	12	626	0.032
20:00-21:00	12	626	0	12	626	0.004	12	626	0.004
21:00-22:00	11	668	0	11	668	0.006	11	668	0.006
22:00-23:00	10	700	0.001	10	700	0.057	10	700	0.058
23:00-24:00	5	538	0	5	538	0.008	5	538	0.008
Daily Trip Rates:			0.299			0.285			0.584

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: TOTAL RAIL PASSENGERS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0	3	204	0	3	204	0
09:00-10:00	5	567	0.001	5	567	0	5	567	0.001
10:00-11:00	10	686	0.002	10	686	0.002	10	686	0.004
11:00-12:00	10	686	0.004	10	686	0.002	10	686	0.006
12:00-13:00	11	669	0.007	11	669	0.005	11	669	0.012
13:00-14:00	11	669	0.04	11	669	0.005	11	669	0.045
14:00-15:00	11	669	0.026	11	669	0	11	669	0.026
15:00-16:00	12	630	0.001	12	630	0.001	12	630	0.002
16:00-17:00	12	630	0.001	12	630	0.052	12	630	0.053
17:00-18:00	13	596	0.004	13	596	0.01	13	596	0.014
18:00-19:00	13	596	0.014	13	596	0.002	13	596	0.016
19:00-20:00	12	626	0.009	12	626	0	12	626	0.009
20:00-21:00	12	626	0	12	626	0.004	12	626	0.004
21:00-22:00	11	668	0	11	668	0.009	11	668	0.009
22:00-23:00	10	700	0	10	700	0.026	10	700	0.026
23:00-24:00	5	538	0	5	538	0	5	538	0
Daily Trip Rates:			0.109			0.118			0.227

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: COACH PASSENGERS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0	3	204	0	3	204	0
09:00-10:00	5	567	0.002	5	567	0	5	567	0.002
10:00-11:00	10	686	0.014	10	686	0	10	686	0.014
11:00-12:00	10	686	0.002	10	686	0	10	686	0.002
12:00-13:00	11	669	0.001	11	669	0.013	11	669	0.014
13:00-14:00	11	669	0.034	11	669	0.006	11	669	0.04
14:00-15:00	11	669	0.045	11	669	0.01	11	669	0.055
15:00-16:00	12	630	0	12	630	0	12	630	0
16:00-17:00	12	630	0	12	630	0.009	12	630	0.009
17:00-18:00	13	596	0.002	13	596	0.055	13	596	0.057
18:00-19:00	13	596	0.006	13	596	0	13	596	0.006
19:00-20:00	12	626	0	12	626	0	12	626	0
20:00-21:00	12	626	0	12	626	0.002	12	626	0.002
21:00-22:00	11	668	0	11	668	0	11	668	0
22:00-23:00	10	700	0	10	700	0.007	10	700	0.007
23:00-24:00	5	538	0	5	538	0	5	538	0
Daily Trip Rates:			0.106			0.102			0.208

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: CYCLISTS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0.003	3	204	0.002	3	204	0.005
09:00-10:00	5	567	0.002	5	567	0	5	567	0.002
10:00-11:00	10	686	0.001	10	686	0.001	10	686	0.002
11:00-12:00	10	686	0.001	10	686	0.001	10	686	0.002
12:00-13:00	11	669	0.001	11	669	0	11	669	0.001
13:00-14:00	11	669	0.001	11	669	0	11	669	0.001
14:00-15:00	11	669	0	11	669	0	11	669	0
15:00-16:00	12	630	0	12	630	0	12	630	0
16:00-17:00	12	630	0.001	12	630	0.001	12	630	0.002
17:00-18:00	13	596	0	13	596	0.001	13	596	0.001
18:00-19:00	13	596	0.001	13	596	0	13	596	0.001
19:00-20:00	12	626	0	12	626	0	12	626	0
20:00-21:00	12	626	0	12	626	0	12	626	0
21:00-22:00	11	668	0	11	668	0	11	668	0
22:00-23:00	10	700	0	10	700	0	10	700	0
23:00-24:00	5	538	0	5	538	0.001	5	538	0.001
Daily Trip Rates:			0.011			0.007			0.018

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: VEHICLE OCCUPANTS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0.016	3	204	0.005	3	204	0.021
09:00-10:00	5	567	0.008	5	567	0.001	5	567	0.009
10:00-11:00	10	686	0.031	10	686	0.01	10	686	0.041
11:00-12:00	10	686	0.036	10	686	0.016	10	686	0.052
12:00-13:00	11	669	0.035	11	669	0.028	11	669	0.063
13:00-14:00	11	669	0.098	11	669	0.029	11	669	0.127
14:00-15:00	11	669	0.085	11	669	0.026	11	669	0.111
15:00-16:00	12	630	0.028	12	630	0.022	12	630	0.05
16:00-17:00	12	630	0.025	12	630	0.096	12	630	0.121
17:00-18:00	13	596	0.038	13	596	0.065	13	596	0.103
18:00-19:00	13	596	0.177	13	596	0.027	13	596	0.204
19:00-20:00	12	626	0.231	12	626	0.016	12	626	0.247
20:00-21:00	12	626	0.007	12	626	0.029	12	626	0.036
21:00-22:00	11	668	0	11	668	0.043	11	668	0.043
22:00-23:00	10	700	0.011	10	700	0.356	10	700	0.367
23:00-24:00	5	538	0.007	5	538	0.049	5	538	0.056
Daily Trip Rates:			0.833			0.818			1.651

TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: PEDESTRIANS

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0.005	3	204	0	3	204	0.005
09:00-10:00	5	567	0.01	5	567	0.002	5	567	0.012
10:00-11:00	10	686	0.023	10	686	0.014	10	686	0.037
11:00-12:00	10	686	0.025	10	686	0.02	10	686	0.045
12:00-13:00	11	669	0.04	11	669	0.032	11	669	0.072
13:00-14:00	11	669	0.042	11	669	0.031	11	669	0.073
14:00-15:00	11	669	0.035	11	669	0.026	11	669	0.061
15:00-16:00	12	630	0.028	12	630	0.027	12	630	0.055
16:00-17:00	12	630	0.025	12	630	0.038	12	630	0.063
17:00-18:00	13	596	0.023	13	596	0.032	13	596	0.055
18:00-19:00	13	596	0.038	13	596	0.02	13	596	0.058
19:00-20:00	12	626	0.032	12	626	0.008	12	626	0.04
20:00-21:00	12	626	0.005	12	626	0.016	12	626	0.021
21:00-22:00	11	668	0.005	11	668	0.02	11	668	0.025
22:00-23:00	10	700	0.002	10	700	0.039	10	700	0.041
23:00-24:00	5	538	0	5	538	0.013	5	538	0.013
Daily Trip Rates:			0.338			0.338			0.676

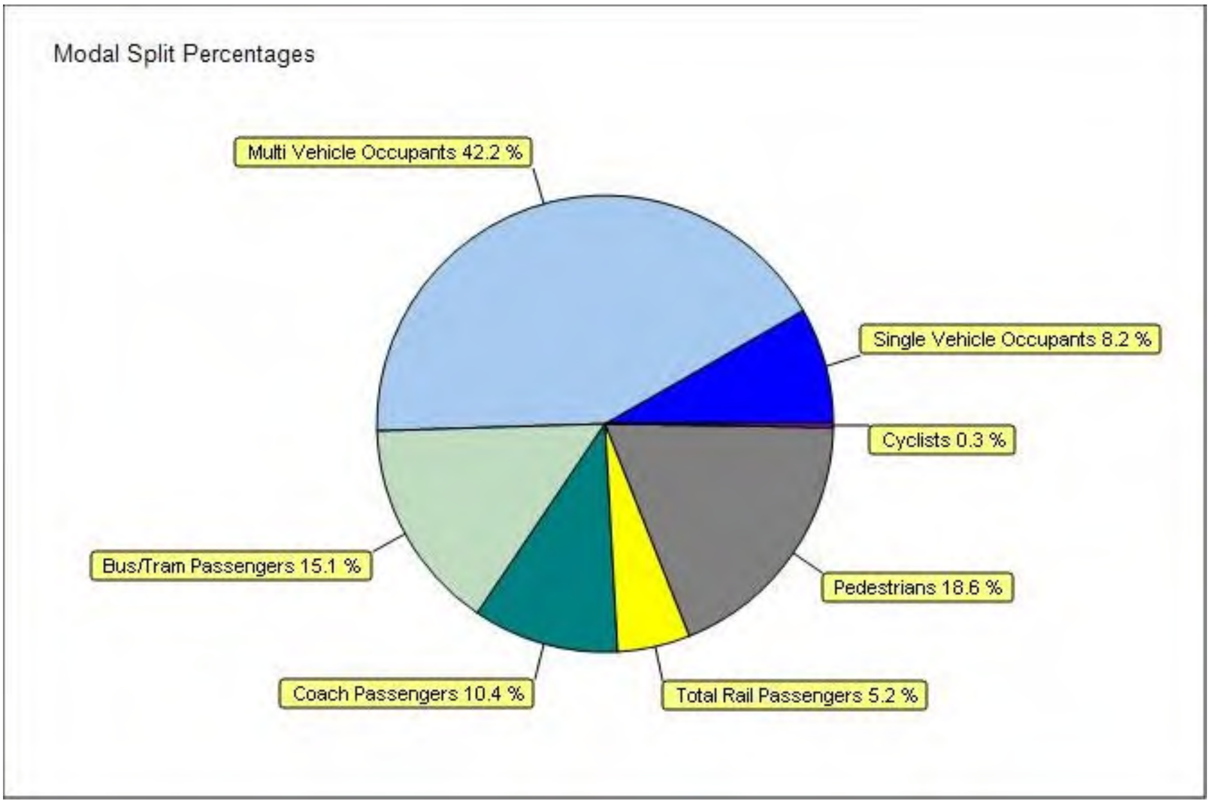
TRIP RATE for Land Use 07 - LEISURE/W - THEATRE
Calculation Factor: 1 SEATS
Count Type: TOTAL PEOPLE

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate	No. Days	Ave. SEATS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00	3	204	0.031	3	204	0.007	3	204	0.038
09:00-10:00	5	567	0.033	5	567	0.004	5	567	0.037
10:00-11:00	10	686	0.083	10	686	0.037	10	686	0.12
11:00-12:00	10	686	0.084	10	686	0.049	10	686	0.133
12:00-13:00	11	669	0.112	11	669	0.095	11	669	0.207
13:00-14:00	11	669	0.295	11	669	0.091	11	669	0.386
14:00-15:00	11	669	0.249	11	669	0.077	11	669	0.326
15:00-16:00	12	630	0.066	12	630	0.062	12	630	0.128
16:00-17:00	12	630	0.06	12	630	0.27	12	630	0.33
17:00-18:00	13	596	0.077	13	596	0.206	13	596	0.283
18:00-19:00	13	596	0.268	13	596	0.057	13	596	0.325
19:00-20:00	12	626	0.301	12	626	0.026	12	626	0.327
20:00-21:00	12	626	0.013	12	626	0.056	12	626	0.069
21:00-22:00	11	668	0.005	11	668	0.077	11	668	0.082
22:00-23:00	10	700	0.014	10	700	0.485	10	700	0.499
23:00-24:00	5	538	0.007	5	538	0.071	5	538	0.078
Daily Trip Rates:			1.698			1.67			3.368

Parameter summary

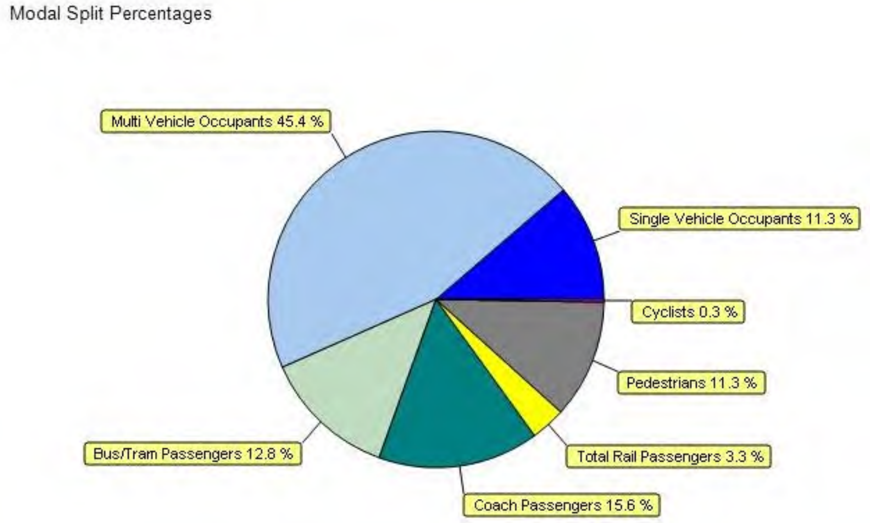
Trip rate parameter range selected: 100 - 1915 (units:)
Survey date date range: 01/01/08 - 25/10/13
Number of weekdays (Monday-Friday): 7
Number of Saturdays: 6
Number of Sundays: 0
Surveys automatically removed from selection: 0
Surveys manually removed from selection: 0

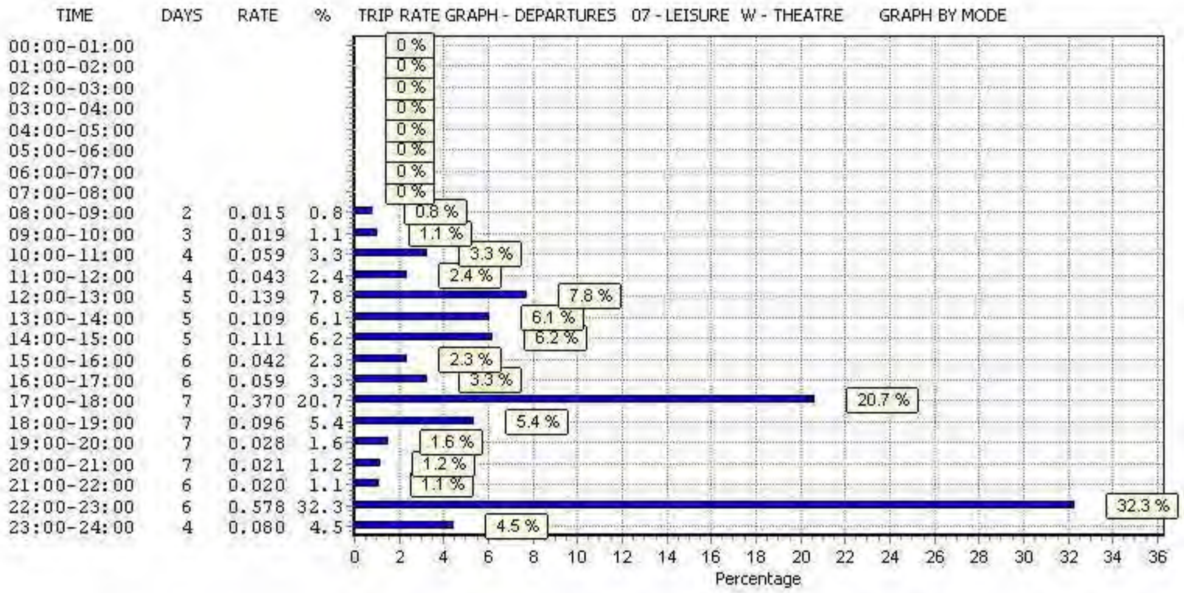
TRICS Theatre Modal Share – Total People All Days



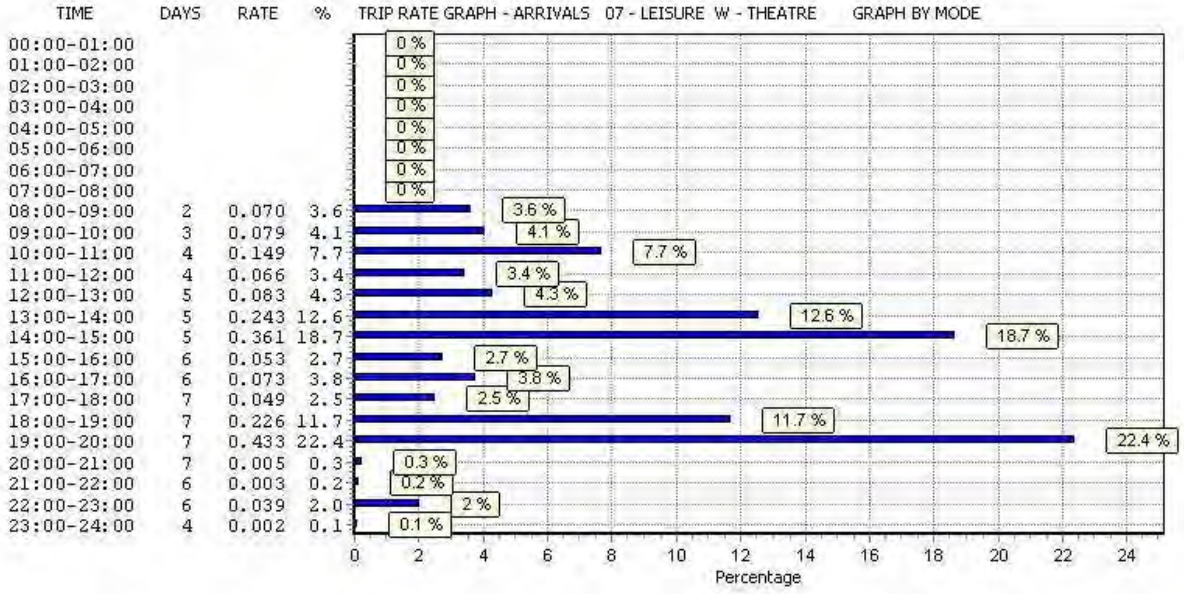
TRICS Theatres Modal Split Percentages

TRICS Theatres Modal Split Percentages Friday



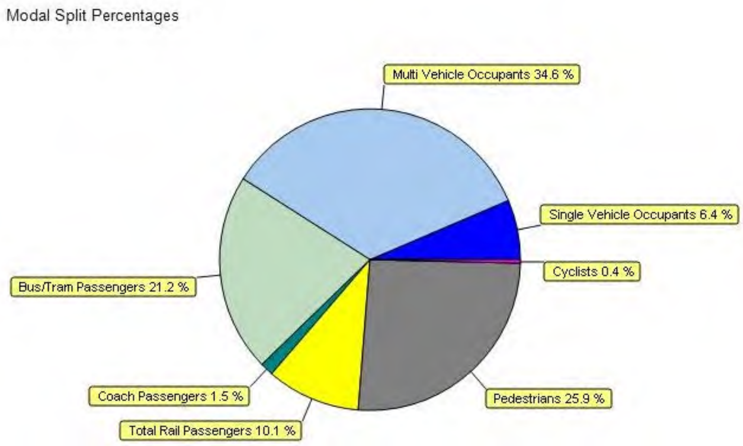


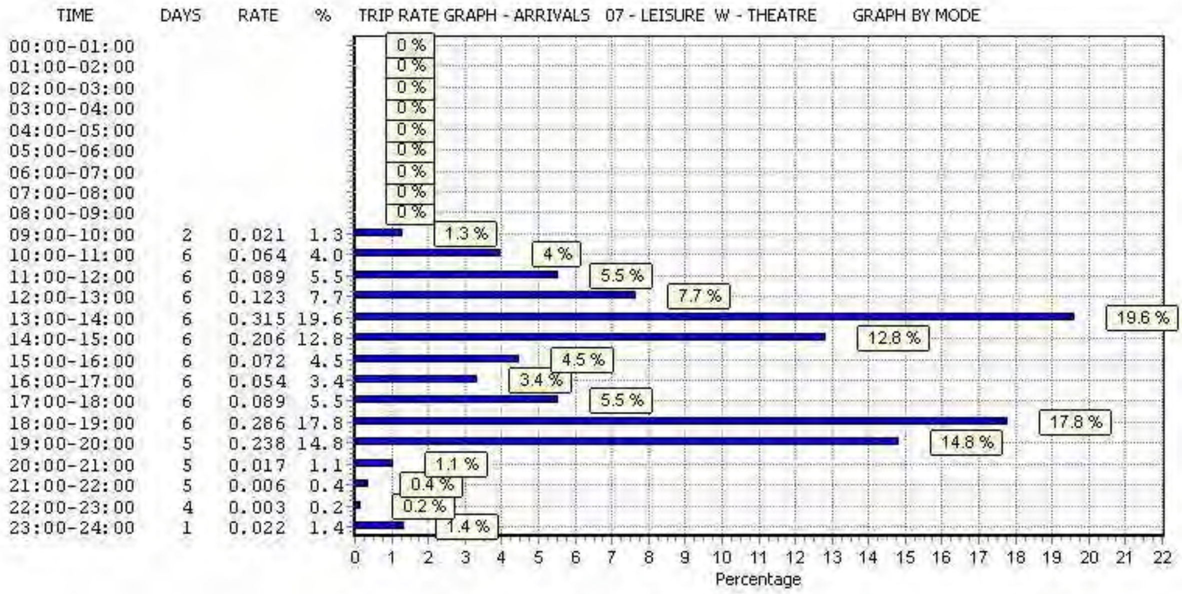
TIME	DAYS	RATE	%
00:00-01:00			
01:00-02:00			
02:00-03:00			
03:00-04:00			
04:00-05:00			
05:00-06:00			
06:00-07:00			
07:00-08:00			
08:00-09:00	2	0.015	0.8
09:00-10:00	3	0.019	1.1
10:00-11:00	4	0.059	3.3
11:00-12:00	4	0.043	2.4
12:00-13:00	5	0.139	7.8
13:00-14:00	5	0.109	6.1
14:00-15:00	5	0.111	6.2
15:00-16:00	6	0.042	2.3
16:00-17:00	6	0.059	3.3
17:00-18:00	7	0.370	20.7
18:00-19:00	7	0.096	5.4
19:00-20:00	7	0.028	1.6
20:00-21:00	7	0.021	1.2
21:00-22:00	6	0.020	1.1
22:00-23:00	6	0.578	32.3
23:00-24:00	4	0.080	4.5



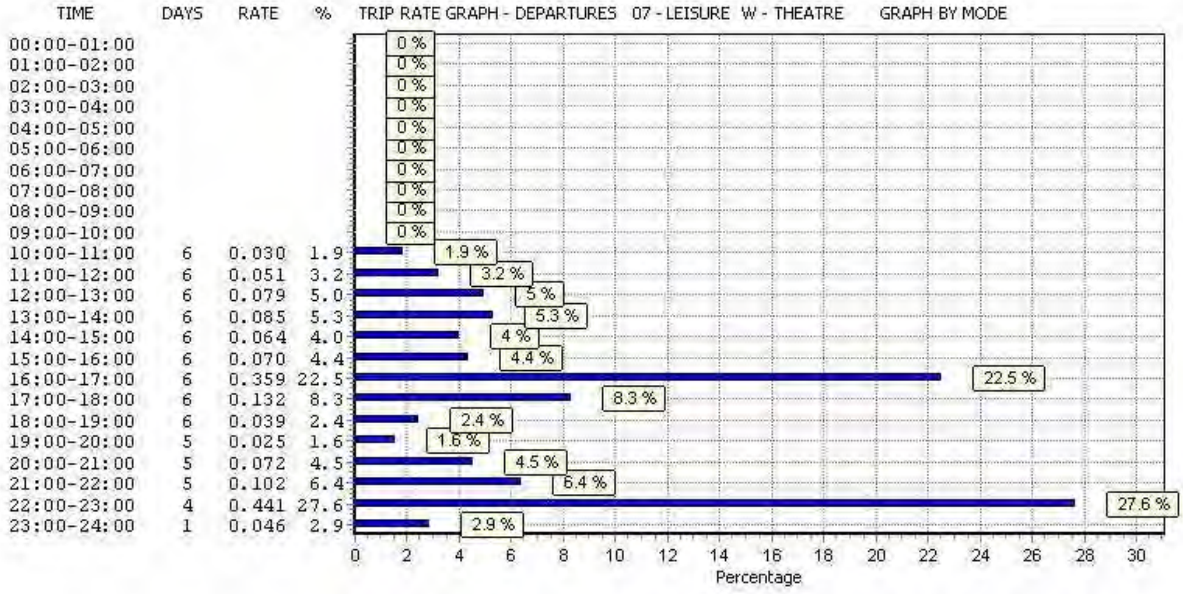
TIME	DAYS	RATE	%
00:00-01:00			
01:00-02:00			
02:00-03:00			
03:00-04:00			
04:00-05:00			
05:00-06:00			
06:00-07:00			
07:00-08:00			
08:00-09:00	2	0.070	3.6
09:00-10:00	3	0.079	4.1
10:00-11:00	4	0.149	7.7
11:00-12:00	4	0.066	3.4
12:00-13:00	5	0.083	4.3
13:00-14:00	5	0.243	12.6
14:00-15:00	5	0.361	18.7
15:00-16:00	6	0.053	2.7
16:00-17:00	6	0.073	3.8
17:00-18:00	7	0.049	2.5
18:00-19:00	7	0.226	11.7
19:00-20:00	7	0.433	22.4
20:00-21:00	7	0.005	0.3
21:00-22:00	6	0.003	0.2
22:00-23:00	6	0.039	2.0
23:00-24:00	4	0.002	0.1

TRICS Theatres Modal Split Percentages Saturday




TRIP RATE GRAPH - ARRIVALS 07 - LEISURE W - THEATRE GRAPH BY MODE

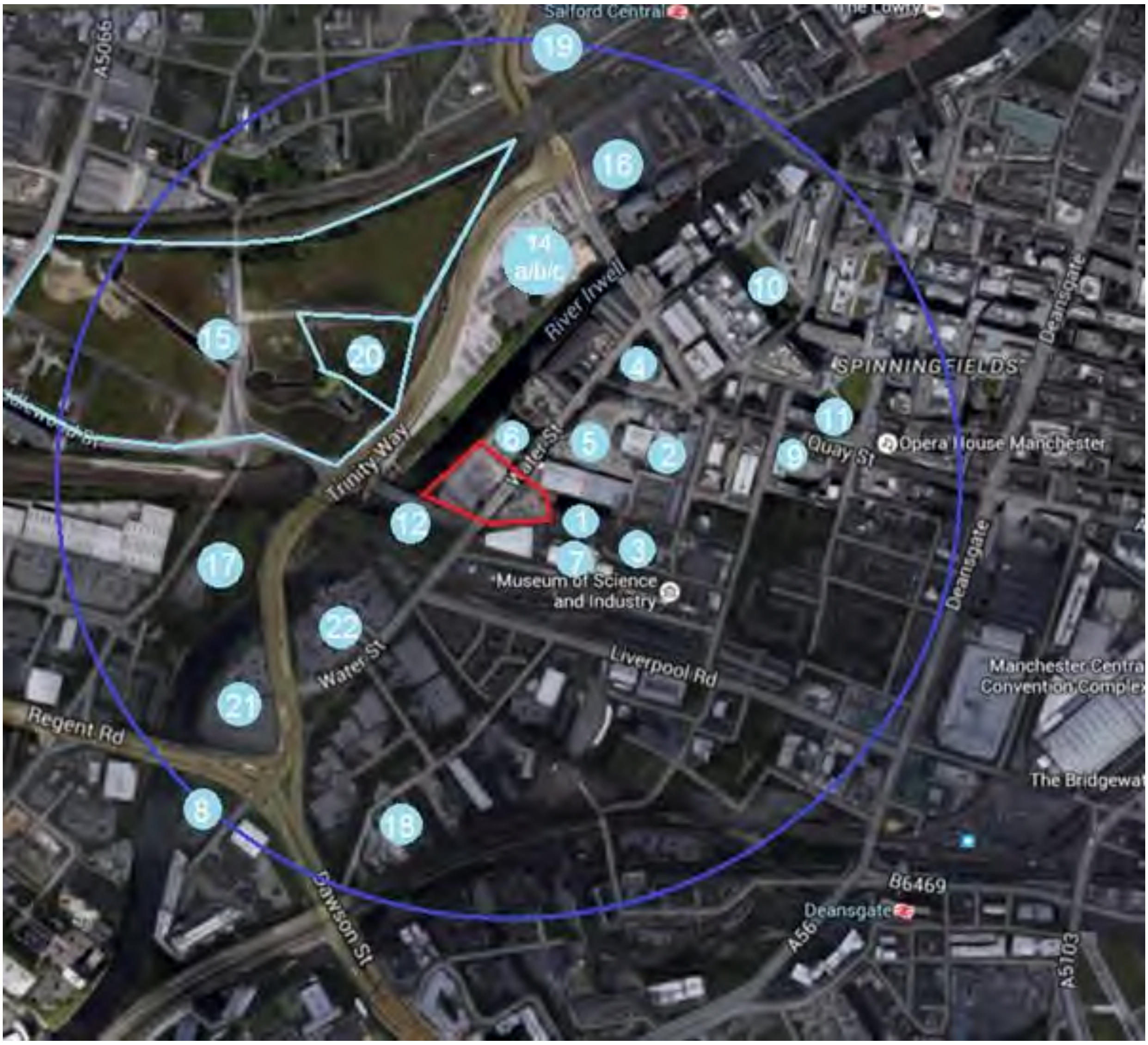
TIME	DAYS	RATE	%
00:00-01:00			
01:00-02:00			
02:00-03:00			
03:00-04:00			
04:00-05:00			
05:00-06:00			
06:00-07:00			
07:00-08:00			
08:00-09:00			
09:00-10:00	2	0.021	1.3
10:00-11:00	6	0.064	4.0
11:00-12:00	6	0.089	5.5
12:00-13:00	6	0.123	7.7
13:00-14:00	6	0.315	19.6
14:00-15:00	6	0.206	12.8
15:00-16:00	6	0.072	4.5
16:00-17:00	6	0.054	3.4
17:00-18:00	6	0.089	5.5
18:00-19:00	6	0.286	17.8
19:00-20:00	5	0.238	14.8
20:00-21:00	5	0.017	1.1
21:00-22:00	5	0.006	0.4
22:00-23:00	4	0.003	0.2
23:00-24:00	1	0.022	1.4


TRIP RATE GRAPH - DEPARTURES 07 - LEISURE W - THEATRE GRAPH BY MODE

TIME	DAYS	RATE	%
00:00-01:00			
01:00-02:00			
02:00-03:00			
03:00-04:00			
04:00-05:00			
05:00-06:00			
06:00-07:00			
07:00-08:00			
08:00-09:00			
09:00-10:00			
10:00-11:00	6	0.030	1.9
11:00-12:00	6	0.051	3.2
12:00-13:00	6	0.079	5.0
13:00-14:00	6	0.085	5.3
14:00-15:00	6	0.064	4.0
15:00-16:00	6	0.070	4.4
16:00-17:00	6	0.359	22.5
17:00-18:00	6	0.132	8.3
18:00-19:00	6	0.039	2.4
19:00-20:00	5	0.025	1.6
20:00-21:00	5	0.072	4.5
21:00-22:00	5	0.102	6.4
22:00-23:00	4	0.441	27.6
23:00-24:00	1	0.046	2.9

APPENDIX D

Committed Development Trips


Salford Central
The Lowry
A5066
19
16
14 a/b/c
River Irwell
10
15
20
4
SPINNINGFIELDS
Deansgate
11
Opera House Manchester
Quay St
9
6
5
2
Water St
Trinity Way
12
1
7
3
Museum of Science and Industry
17
22
Water St
Liverpool Rd
Manchester Central Convention Complex
21
Regent Rd
The Bridgewat
8
18
Dawson St
B6469
Deansgate
A56
A5103

Factory – EIA Committed Development

Reference	Address	Description	Approved	On Site?
St John's Applications				
1. Bonded Warehouse	*Bounded by Water Street, Museum of Science and Industry and the old Granada Studios.*	Demolition of outbuildings, adjoining former stables building and external fire escape to facilitate the conversion and refurbishment of the lower ground, upper ground and first floors of the Bonded Warehouse for retail (use class A1), restaurant (use class A3), bar (use class A4) or continued office (use class B1) use; and refurbishment of the second, third and fourth floors for continued office use (use class B1); along with the installation of roof plant and enclosure, minor external	21 October 2015	No

Reference	Address	Description	Approved	On Site?
		alterations to facilitate new entrances, creation of three external lightwells for external seating, façade lighting, landscaping and cycle parking		
2. Manchester Grande (OGS)	*Bounded by Water Street, Museum of Science and Industry and the old Granada Studios.*	Conversion of the existing Granada HQ Building and studios into a hotel and event space; demolition of the four storey annexe building and erection of a new eight storey building providing managed workspace and a rooftop pool; demolition of Studio 8 and the creation of a new pedestrian link; demolition of associated administration buildings and workshop space; creation of a new public walkway to provide access to the event space; use of the existing Breeze Studio Gardens as a managed public space; use of the existing area of surface car parking as a temporary surface car park together with creation of a new vehicle access from Water Street.	21 October 2015	No
3. Village Phase 1 (South Village)	*Bounded by Lower Byrom Street, Museum of Science and Industry and the old Granada Studios.*	Works would comprise comprehensive redevelopment of the Site to create a mixed use development of 5 to storeys including approximately 60 residential units, plus a community centre, energy centre, retail units and workspace for small businesses.	21 October 2015	No
4. St Johns Place	*Bounded by Water Street, Quay Street and New Quay Street.*	Demolition of the existing Globe & Simpson and Albert Shed buildings; erection of new buildings, including a tower element (of up to 52 storeys), for residential and hotel use, together with associated public realm and car parking.	Submitted June 2016	No
5. Central Village	*Bounded by Water Street, the Bonded Warehouse and the old Granada Studios.*	Residential-led, mixed use development incorporating workspaces, retail, leisure, restaurant, bar uses as well as community facilities, public realm and green space and car parking. The proposals include a tall building of up to 40 storeys.	To be submitted October 2016	No

Reference	Address	Description	Approved	On Site?
6. Riverside	*Bounded by the River Irwell, Water Street, and the proposed Factory site.*	Residential building of up to 36 storeys.	To be submitted December 2016	No
7. Energy Centre	*Bounded by Museum of Science and Industry and the old Granada Studios.*	A gas-powered combined heat and power facility, which will sit largely within the existing Stage 2 Building and will provide heat and power for development across the St. John's Masterplan.	Submitted June 2016	No; the application was withdrawn in September 2016.
8. 105611/FO/2014/C1 Link	1 Water Street Manchester M3 4JU8	28 storey building with 307 units, ground floor commercial units and two levels of basement car parking, landscape and public realm works	31 October 2014	Yes
9. 107281/FO/2014/C1 Link	Astley House & Byrom House 23 Quay Street Manchester M3 4AS	Demolition of Astley House and Byrom House and redevelopment of the site for the erection of a building up to 16 storeys in height, comprising offices (class B1) on the upper floors, restaurants and cafes (Class A3) on the ground floor, basement car and cycle parking, and related highways, access, servicing, landscaping, and associated works.	2 July 2015	No
10. XYZ Building **103505/FO/2013/C1** Link	2-3 Hardman Boulevard Spinningfields Manchester M3 3AQ (known as 'XYZ Building')	Erection of a new office building comprising offices (Class B1), ground floor restaurant (Class A3), a gym (Class D2), basement car parking, cycle parking provision, related highways, access, servicing, landscaping, roof top plant and associated works.	30 Dec 2013	Yes
11. 104702/FO/2014/C1 (Minor amendment application reference 108126/JO/2015/C1 subsequently approved)	Quay House Quay Street Manchester M3 3JE (known as '1 Spinningfields')	Demolition of Quay House and redevelopment of the site for the erection of a 21 storey building comprising offices (class B1) on the upper floors, with a restaurant (Class A3) at Level 18, retail (Class A1), restaurant and cafe uses (Class A3) at ground floor, basement car and cycle parking, and related highways, access,	13 May 2014 / 22 May 2015	Yes

Reference	Address	Description	Approved	On Site?
Link		servicing, landscaping, roof top plant and associated works.		
12. 103615/LO/2013/C1 Link	Girder Bridge leading to railway viaduct over River Irwell, leading to Lower Byrom Street Warehouse (that part in Manchester)	Demolition of iron Girder Bridge including brick and stone abutments on the Manchester side and retention of the central iron column and stone pier within the River Irwell.	Application Pending	No
13. **13/63267/DCO**	Ordsall Chord Transport and Works Act West Of Manchester City Centre Between Existing Railway Structures In The Vicinity Of The Museum Of Science And Industry And Trinity Way	Construction of a new elevated chord railway linking the Bolton Lines railway near Castlefield Centre with the Chat Moss Lines railway near Salford Central station to provide a direct link between Manchester Piccadilly, Oxford Road and Victoria Rail Stations, and associated Listed Building Consents. The Transport and Works Act Order was made in March 2015 and construction commenced during Spring 2015. Operation of the Ordsall Chord is scheduled to commence in December 2017.	Order Granted 25 Mar 2015	Yes
14a. 15/66404/REM	Land Adjacent To Premier Inn South Of Stanley Street Salford	Details of reserved matters for access, appearance, landscaping, layout and scale for development of Plot A5 for erection of an 11-storey building to provide 90 apartments (use class C3); together with associated ancillary facilities, servicing, access, parking, landscaping and public realm, pursuant to outline planning permission 09/57950/EIAHYB	16 July 2015	Yes
14b. 15/67019/REM	Land Adjacent To Plot A5 Of Salford Central Masterplan Stanley Street	Details of reserved matters application for access, appearance, landscaping, layout and scale for development of Plot A6 for erection of a 16-storey building to provide 135 apartments	3 December 2015	Yes

Reference	Address	Description	Approved	On Site?
	Salford	(use class C3); together with associated ancillary facilities, servicing, access, parking, landscaping and public realm, pursuant to outline planning permission 09/57950/EIAHYB		
14c. 16/68325/OUT	Land Surrounding Stanley Street Bound By Trinity Way, Irwell Street And River Irwell M3 5DA	Outline application for the comprehensive phased regeneration of Zone A/C of the Salford Central masterplan area for a residential led (maximum 843 dwellings) mixed use development including tall building (up to 100 metres / 33 storeys) and ground floor commercial units with potential for offices, retail, food and drink, entertainment and leisure uses (Use Classes A1, A2, A3, A4, A5, B1 and D1) together with associated car parking, landscaping and infrastructure.	Submitted 4 June 2016 Awaiting determination.	No
15. 06/52762/OUT (subsequently extended by 13/64081/OUTEIA and varied by 14/65457/OUTEIA) Link	Middlewood Locks (Salford City Council)	Outline application (access only) for mixed use development comprising 142,697 sq m residential use (Class C1 and C3); 67,773 sq m commercial use (Class B1); and 27,191 sq m leisure/retail use (Class A1, A2, A3, A4 and D2) together with associated uses, car parking, landscaping and infrastructure.	21 Nov 2014 (Time Extension Approval). Reserved Matters approved	Yes
16. 09/57950/EIAHYB (and subsequent reserved matters / variation applications) Link	Salford Central (Salford City Council)	Outline application for a comprehensive phased regeneration of Salford Central, including selective demolition, for a mixed-use development of new, improved, altered and replacement buildings, for offices/commercial use (use classes A2 and B1, maximum 197,010sq.m), retail, food and drink and entertainment (use classes A1, A3, A4 and A5, maximum 24,255sq.m), leisure (class D1), hotels (class C1 maximum 140 and 250 bedrooms) and residential use (maximum 849 dwellings) together with associated car parking, landscaping and infrastructure. Detailed application for highway and	21 Jan 2010 (Original Permission)	Yes

Reference	Address	Description	Approved	On Site?
		associated works to Chapel Street (between Oldfield Rd and Trinity Way) and the laying out of public space at Stanley Street.		
17. 14/64851/FUL Link	Land At Wilburn Street Salford	Mixed-use development comprising of 491 residential units, in four buildings from 8 to 21 storeys high , 670m2 of Shops, Financial and Professional Services units, Business, together with associated car parking and landscaping	30 Jan 2015	Yes
18. 109335/FO/2015/C1	Land at Potato Wharf, Castlefield, Manchester (Potato Wharf Blocks 3 and 4)	Residential development comprising 191 apartments overs two eight storey blocks, as an extension to the existing Potato Wharf development. Block 3 comprises 112 units, with a combination of 1 and 2 bedrooms, plus one 2 bed townhouse; Block 4 comprises 79 units, with a combination of 1 and 2 bedrooms.	3 November 2015	No
19. 15/66415/FUL	Land Bounded By Gore Street, Trinity Way And Chapel Street Salford	Demolition of existing building and redevelopment of site to provide: three residential buildings ranging from 13 to 22 storeys comprising 364 apartments (Use Class C3) sitting on a two storey podium containing commercial and retail floorspace (872 sq.m) (Use Classes A1, A2, A3, A4, A5 and/or B1), car parking (107 spaces) and related servicing and plant; eleven townhouses; new access and landscaping and associated works.	Awaiting Decision (Validated 18 May 2015)	No
20. 14/65793/OUT	Land At Middlewood Basin Off East Ordsall Lane Salford M5	Mixed use development including residential (C3) and commercial uses (B1, A1, A2, A3, A4, A5) together with ancillary car parking and public realm/landscaping.	15 May 2015	No
21. -	Part of the St. John's Masterplan- Trinity Islands Scheme	Five residential towers from 20 to 30 storeys in height, incorporating two ground plus 3 storey podium elements with car parking and amenity space at lower level. Circa 1,200 residential units, with a mix of 1, 2 and 3 bedrooms. Approximately 650 car	To be submitted December 2016	No

Reference	Address	Description	Approved	On Site?
		parking spaces. The podium elements will also include educational, retail and gym uses, together with cycle parking		
22. -	Part of the St. John's Masterplan- Trinity Islands Scheme	As above	To be submitted December 2016	No

APPENDIX E

TfGM SATURN Model Report

1. Introduction

1.1 Transport for Greater Manchester Highways Forecasting and Analytical Services (TfGM HFAS) were commissioned by Manchester Quays to undertake revised SATURN traffic modelling for the St Johns Masterplan development proposals to provide information to assist with preparation of the Transport Assessment and to provide traffic flows for the Environmental Impact Assessment.

1.2 HFAS had originally supplied modelling information in Autumn 2015 based on earlier development proposals but these proposals have since evolved. The latest St Johns development proposals were supplied to HFAS by Vectos who were working on behalf of Manchester Quays to prepare the Transport Assessment to support the Masterplan.

1.3 This report describes preparation of and results from the traffic modelling, based on the July 2016 revised development assumptions. The modelling outlined here was used to produce the traffic flows required for the Environmental Impact Assessment.

1.4 The structure of the remainder of this report is as follows:

- Section 2- Network Development
- Section 3 - Trip Matrix Development
- Section 4 - Modelling Results
- Section 5 – Summary and Conclusions

2. Network Development

2.1 The SATURN model used as the basis for the St Johns modelling was the recently developed model used to appraise the Regent Road capacity improvement scheme. This model was calibrated and validated to a 2014 base year[1] and it covers the area shown in Figure 1.

2.2 Three average weekday time periods were modelled:

- Morning peak (0800-0900 hours)
- Average inter-peak hour (average hour between 1000-1600 hours)
- Evening peak (1700-1800 hours).

2.3 The model represents five user classes, namely car employers business, car commute, car other, light goods vehicles and other goods vehicles, with different values of time used for each user class.

2.4 Two forecast year scenarios were developed for the Regent Road modelling and these were considered appropriate for examining the impact of the St Johns proposals. The following scenarios were modelled:

- 2017 Do Minimum
- 2017 Do Something (including St Johns development traffic)
- 2032 Do Minimum
- 2032 Do Something (including St Johns development traffic)

2.5 Do Minimum scenarios for both forecast years above include the following committed transport schemes:

- Bus Priority Package, comprising
    - Rochdale Road corridor bus priority measures
    - Oxford and Wilmslow Road bus priority measures

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[1] HFAS Report 1852 Regent Road SATURN Model Validation Report

    - Leigh-Salford-Manchester guided busway and associated on-highway bus priority improvements
    - Regional Centre transport strategy highway impacts
- Metrolink Second City Crossing highway impacts
- Regent Road capacity improvement scheme, comprising changes at the following junctions
    - Regent Road / Water Street
    - Regent Road / Ordsall Lane
    - Regent Road / Oldfield Road
    - Chester Road roundabout
    - Trinity Way / Hampson Street
    - Middlewood Street / Hampson Street
- Removal of traffic signals at Water Street / Liverpool Street, which are to be removed as part of the Ordsall Chord rail link.

2.6 Additionally, new zones representing the St Johns development were included in the Do Minimum networks but with no trips included in them. This was done to enable direct comparisons to be made between Do Minimum and Do Something test scenarios.

2.7 No additional highway schemes were included in the Do Something scenario. However, the St Johns proposals include the closure of Quay Street between New Gartside Street and Water Street, so this road was removed in the Do Something (with St Johns) scenarios.

2.8 St Johns Masterplan proposals were modelled in the Do-Something scenario as the six car parks that the masterplan aims to create, alongside a further car park assumed to be built as part of the ‘Big Yellow’ development. This method was selected because although the proposals are for a number of buildings to be constructed, the associated traffic will only use the proposed car parks. New car parks included in the proposals (Figure 2) were:

- Central car park

- South Village car park
- St John's Place car park
- Riverside car park
- Site C car park
- Site D car park.
- Big Yellow car park

3. Trip Matrix Development

3.1 Demand forecasts were produced for 2017 and 2032 forecast years using the existing Regent Rd matrices as the starting point for all scenarios.

3.2 The forecasts incorporated background traffic growth between the 2014 base year and the respective forecast year. In each forecast year some committed developments were modelled explicitly, that is the traffic generated by the development was loaded at the point on the road network at the proposed site access. Traffic for the remaining developments was accounted for by general background traffic growth and distributed more widely across the network.

3.3 Do Minimum developments modelled explicitly are summarised in Table 3.1, at the locations shown in Figure 3.

Table 3.1 Explicitly Modelled Do Minimum Developments

Reference	Development Description	Development Type	2017 Build-out	2032 Build-out
S1	Woden Street	Residential	-	372 dwellings
S4	Middlewood Locks	Residential Office Leisure	-	1202 dwellings 68,000 sqm 27,000 sqm
S5	Middlewood Locks, Granada site	Residential Office	-	250 dwellings 370 sqm
S11	Wilburn Basin	Residential	491 dwellings	491 dwellings
M1	Water Street	Residential	301 dwellings	301 dwellings
M2	Great Jackson St	Residential	-	1,300 dwellings

3.4 St Johns development traffic was incorporated into the Do Minimum demand matrices as additional trips to create the Do Something scenario demand matrices. The Do Minimum model also included some traffic going to / coming from a zone representing the existing Granada site. Since the St Johns proposals would cause this traffic to be displaced, these trips were removed from the Do Something scenario. The magnitude of this removed traffic ranged from between 200 and 400 two-way trips.

3.5 Traffic generation for the St Johns proposals was supplied by Vectos for each element included in the masterplan. We summed the trips allocated to each car park as shown in Table 3.2 below and for modelling purposes we agreed the assumption that the St Johns development would be fully open in 2017.

3.6 A key aspect of this work was to understand the impact of events using “The Factory” and at the old Granada Studios, parking at the Big Yellow car park. When events are held, the vast majority of event traffic is expected to arrive and leave after the evening peak period (17:00 – 18:00), with only a small number of vehicles expected to arrive during the evening peak itself. The analysis in the remainder of this report represents traffic generation on a day with no event, although we have carried out model runs of a typical ‘with-event’ scenario to provide traffic flows for EIA purposes.

Table 3.2: All development trips 2017 & 2032											
Car Park	Zone No	Development Type	Morning Peak			Inter-peak			Evening peak		
			Arr	Dep	2-way	Arr	Dep	2-way	Arr	Dep	2-way
Central CP	1165	Residential	15	41	57	15	17	32	30	17	46
South Village CP	1166	Residential	6	16	22	6	7	13	14	9	23
St Johns Place CP	1167	Hotel	9	12	21	6	5	11	9	8	17
Site C CP	1169	Residential	27	73	100	26	29	55	51	28	79
Site D CP	1170	Residential	38	102	140	36	41	77	71	39	111
Central CP	1171	Hotel	33	45	78	23	19	43	35	29	63.96
Central CP	1172	Office	22	30	51	35	16	51	0	73	73
St Johns Place CP	1173	Residential	12	33	45	12	13	25	23	13	36
Riverside CP	1174	Residential	16	42	57	15	17	32	29	16	45
Site C CP	1175	School	20	13	34	2	1	3	2	3	4
Big Yellow CP	1176	Office	145	0	145	0	21	21	0	112	112
Big Yellow CP	1177	Residential	25	66	91	23	27	50	47	26	72
Big Yellow CP	1178	Events	0	0	0	0	0	0	0	0	0

Table 3.3: Forecast Year Demand Matrix Totals (pcu/hr)									
Period	2014 Trips	2017 Do Min		2017 Do Something		2032 Do Min		2032 Do Something	
		Trips	Diff cf 2014	Trips	Diff cf 2014	Trips	Diff cf 2014	Trips	Diff cf 2014
AM	44,755	46,625	+4%	47,264	+6%	49,905	+12%	50,347	+12%
IP	32,001	34,257	+7%	34,450	+8%	36,615	+14%	36,797	+15%
PM	44,795	45,454	+1%	45,911	+2%	52,075	+16%	52,529	+17%

3.7 Overall traffic growth for the forecasts is summarised in Table 3.3. Growth between 2014 and 2017 ranges from 1% to 7% across all time periods with the St Johns proposals increasing this to between 2 and 8%.

3.8 Growth to 2032 is higher at 12 to 16% for the Do Minimum scenario, with St Johns proposals adding a further 0 to 2% growth on top of that.

3.9 Trip distribution for each different land-use included in the St Johns development was estimated using the HFAS proprietary distribution model DEVTRIPS. This model uses census data to distribute traffic using drive time bands for different types of land use for different times of day.

4. Modelling Results

Changes in Traffic Flows

4.1 Analysis in this and following sections focuses on the 2032 forecasts because the development is unlikely to be fully built out by 2017. Plots for each modelled time period showing the differences in actual flows between the Do Minimum and the Do Something scenarios for the 2032 forecast year are shown in Figures 4 and 5. Tables 4.1 and 4.2 below show the magnitude of change in actual flows at key locations in the vicinity of the St John's development for the morning and evening peak hours respectively.

4.2 The plots show some similar trends in terms of actual flow changes between the morning and evening peaks. There is an increase in traffic using Water Street, A56 Chester Rd northbound just after its junction with Regent Rd and A57 Dawson St southbound.

4.3 The morning peak shows a decrease in actual flows along Trinity Way on the section between the A665 Cheetham Hill Rd and Water Street. This is a direct result of removing existing traffic using the Granada site and replacing it with the St Johns traffic. During the morning peak, less of the St Johns traffic is forecast to use Trinity Way than the Granada site traffic that it replaces. The evening peak shows an increase along Trinity Way between the A6 Chapel Street and Water Street.

4.4 In terms of key locations near the scheme, Water Street shows an average flow increase in both directions of around 100 PCUs (representing an increase of between 43% and 120%) in the morning peak. During the evening peak hour there are equivalent increases of 15% northbound and 28% southbound.

4.5 Hampson Street westbound shows an increase of 13% in the morning peak and of 10% in the evening peak. Liverpool Road westbound shows a significant increase during the evening peak (+17%).

Table 4.1 - Changes in Actual Flows– 2032 AM Peak Hour (expressed in pcu)

Location	Actual Flow Difference DS-DM	% Change
Water St NB	+120	+120%
Water St SB	+100	+43%
Liverpool Rd EB	+60	+17%
Mancunian Way EB after its jct with Trinity Way (A57 Dawson St)	+110	+3%
A56 Chester Rd NB after jct with A57	+70	+6%
Trinity Way NB after its jct with Water St	+50	+4%
Hampson St WB	+50	+13%
Liverpool St WB	+30	+9%
Ordsall Ln / Wilburn St SB	+50	+18%
Irwell St / New Quay St SB	-110	-12%

Table 4.2 – Changes in Actual Flows – 2032 PM Peak Hour (expressed in – pcu)		
Location	**Actual Flow Difference DS-DM**	**% Change**
Water St NB	+10	+15%
Water St SB	+130	+28%
Mancunian Way EB after its jct with Trinity Way (A57 Dawson St)	+90	+3%
A56 Chester Rd NB after jct with A57	+120	+19%
Liverpool Rd WB	+70	+17%
Hampson St WB	+40	+10%
Ordsall Ln / Wilburn St SB	+40	+4%

Effects on Junction Performance

4.6 Junction performance plots are shown in Figures 6 - 9 for each scenario in 2032. The plots show where the maximum turn volume over capacity (V/C) ratio exceeds certain range thresholds.

4.7 Plots of the Do Minimum networks (Figures 6 and 8) show that by 2032 a number of junctions across the modelled area are forecast to be operating either close to or over capacity during the peak hours. This is as a result of traffic growth attributable to the specific developments modelled in the Do Minimum scenario as well as general background traffic growth.

4.8 The Do Something network plots (Figures 7 and 9) show that addition of the St Johns development traffic does not change the Do Minimum situation to a large degree. In general, the majority of deteriorated junctions show only small increases in V/C ratios in the Do Something scenario. These junctions are flagged up in the analysis as their maximum turn V/C ratio is very close to the upper boundary of one of the range thresholds such that the small increase in V/C pushes the junction into the next group. Junctions that fall into this category are

- Albion Way / Liverpool St – Morning Peak

- Whitworth St W / Albion St– Morning Peak
- Liverpool St / Oldfield Rd – Evening Peak
- Deansgate / John Dalton St – Evening Peak

4.9 A significant increase in V/C ratio is also observed at the Trinity Way / Hampson St junction in the morning peak. The V/C ratio for the left turn from Trinity Way onto Hampson St increases from 84% in the Do Minimum scenario to 92% in the Do Something scenario.

5. Summary and Conclusions

5.1 TfGM HFAS have produced morning peak, average inter peak and evening peak SATURN models for both 'with-' and 'without-development' scenarios for the proposed St Johns development.

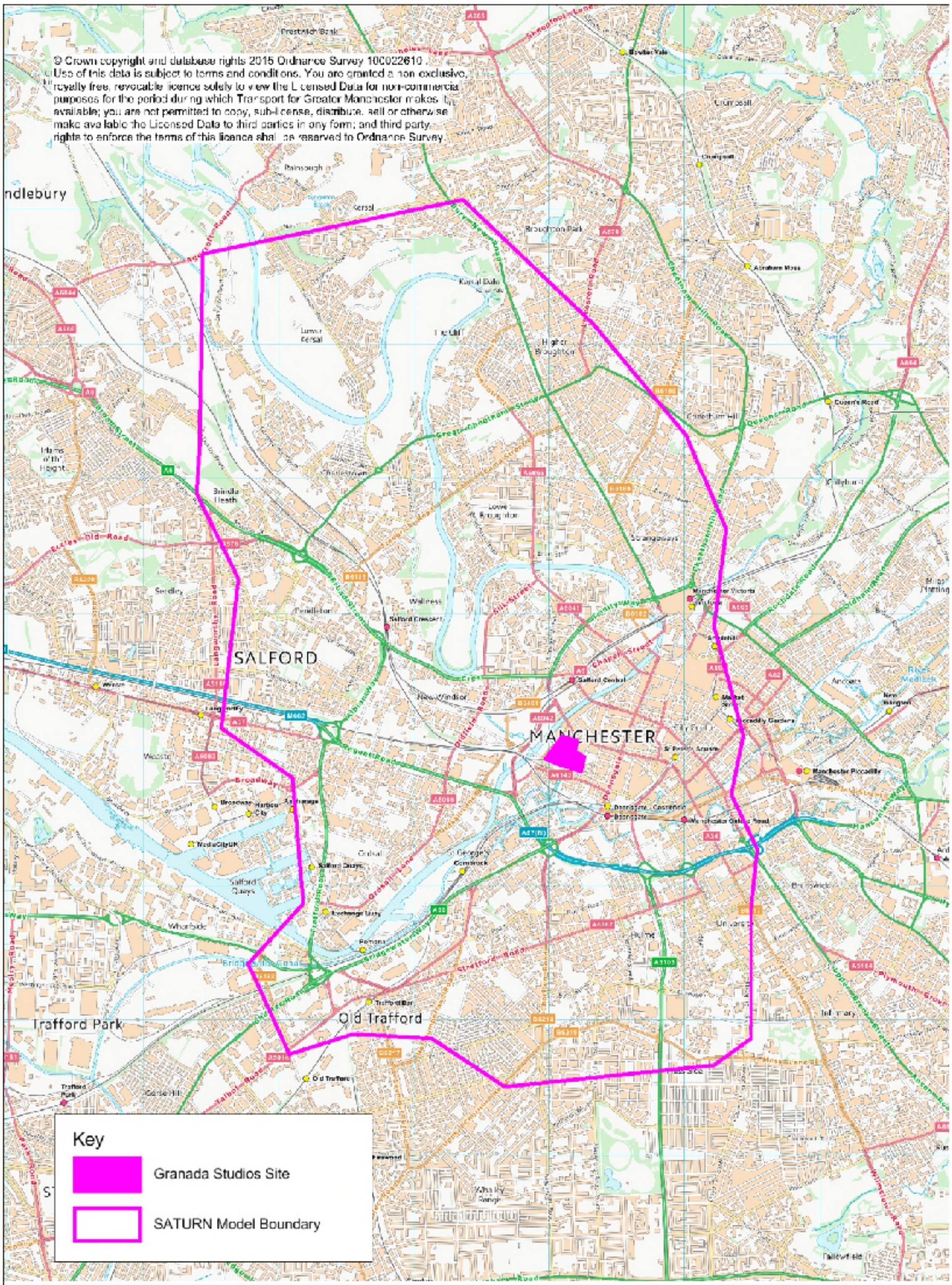
5.2 Based on the model assignments, the following observations can be made:

- Flows increase along Water Street, A56 Chester Road northbound (just after the Regent Road junction), Hampson Street westbound, Liverpool Road westbound and Dawson Street southbound in the morning and evening peaks in the with-development scenarios.
- Flows decrease along Trinity Way between A665 Cheetham Hill Road and Water Street in the morning peak, but increase slightly in the evening peak. The morning peak decreases are due to replacing the existing Granada site traffic with the St Johns traffic which has different traffic distribution
- Junction V/C ratios generally do not increase enough to cause capacity problems. There are some exceptions to this, most notably the Liverpool Street / Oldfield Rd junction where large increases in maximum turn V/C ratios are observed. Analysis also shows a significant increase in the maximum turn V/C ratio at the Trinity Way / Hampson Street junction in the morning peak.

5.3 In general, modelled flows increase along the majority of roads close to the St Johns site and along key routes into the west of the city centre. The impact of these flows on junction performance, however, is observed to be small.

5.4 Finally, we are aware that the SATURN modelling is intended for use in estimating the highway impacts of the St Johns development proposals which will be submitted in

Transport Assessments supporting Planning Applications for the development. Although the SATURN model is detailed, we do not consider it to be sufficiently detailed to model the effects of the proposals at individual junctions. This is largely because the SATURN model is validated using link counts and not turning counts at specific junctions. Therefore, for the detailed performance assessment of individual junctions, particularly traffic signals, we would recommend LINSIG analysis should be included in any Transport Assessments.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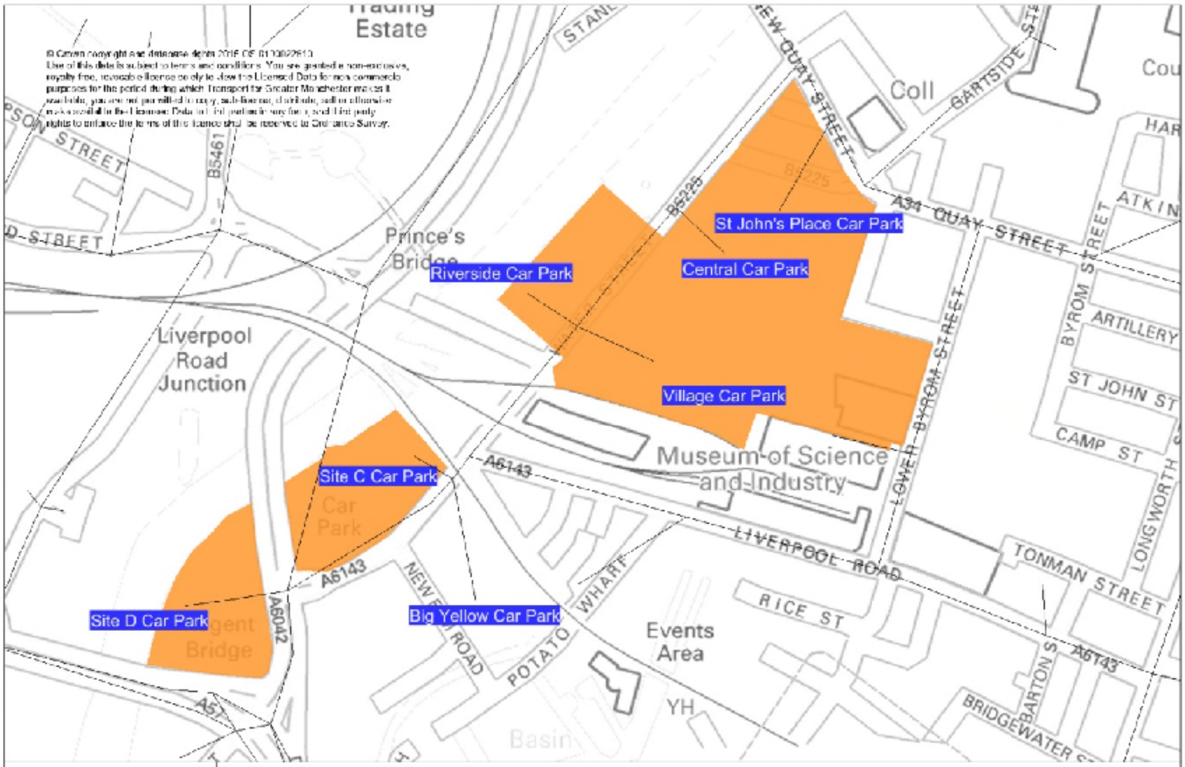
Key
Granada Studios Site
SATURN Model Boundary
SALFORD
MANCHESTER
Old Trafford
Trafford Park
Kersal
Broughton Park
Higher Broughton
Cheetham Hill
Pendleton
Ordsall
Salford Quays
Hulme

St John's Masterplan - SATURN Model Coverage

Transport for Greater Manchester 2 Piccadilly Place, Manchester, M1 3BG	Drawn By : SN	Date : May 2015
	Scale : NTS	Report : 1871 Figure : 1


St John's Place Car Park
Central Car Park
Riverside Car Park
Village Car Park
Site C Car Park
Site D Car Park
Big Yellow Car Park
Liverpool Road Junction
Prince's Bridge
Museum of Science and Industry
Events Area
Trading Estate
Coll
QUAY STREET
LIVERPOOL ROAD
LOWER BYROM STREET
NEW QUAY STREET
BYROM STREET
ARTILLERY
ST JOHN ST
CAMP ST
TONMAN STREET
LONGWORTH
RICE ST
WHARF
POTATO
NEW ELM ROAD
BRIDGEWATER
BARTON S
GARTSIDE
A34
A6143
A6042
A57
B6225
B5461
YH
Basin

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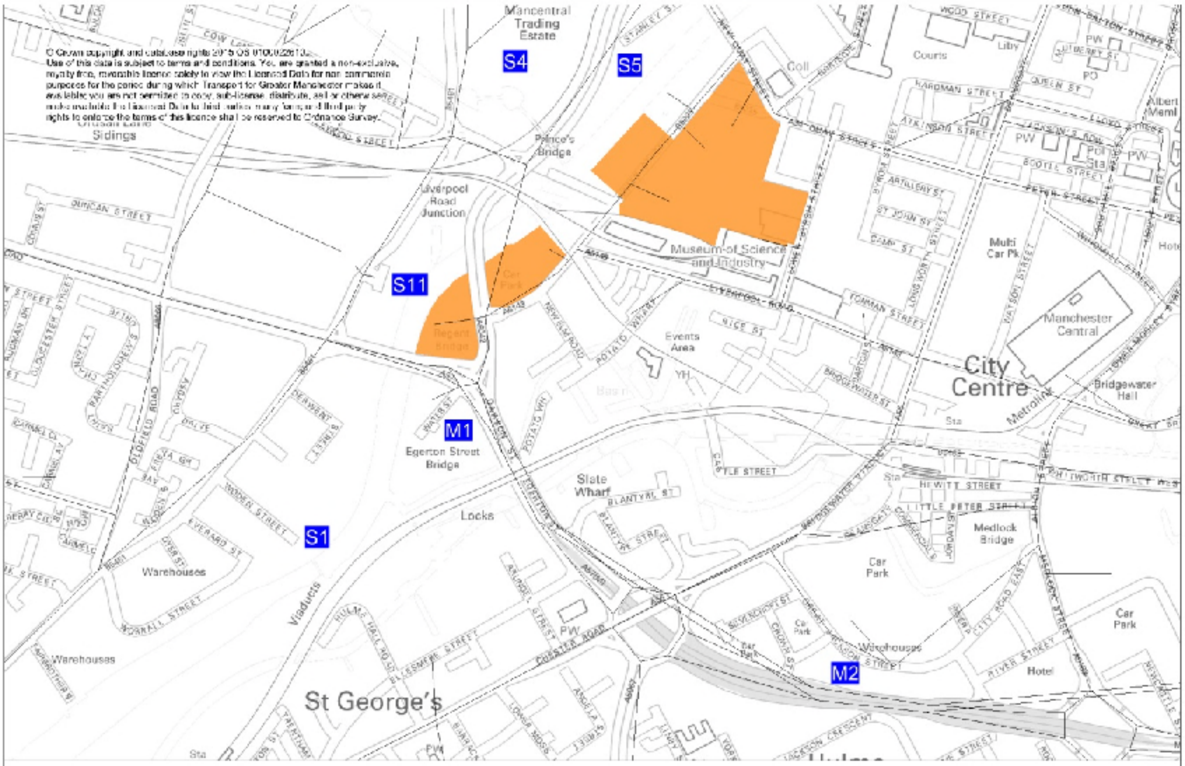
St Johns Car Park Locations

Drawn By : S. Corns	Scale : NTS	Date : August 2016	Report : 1871 Figure: 2


S4
S5
S11
M1
S1
M2
Mancentral Trading Estate
Liverpool Road Junction
Prince's Bridge
Museum of Science and Industry
Egerton Street Bridge
Slate Wharf
Locks
Warehouses
Viaducts
St George's
City Centre
Manchester Central
Bridgewater Hall
Medlock Bridge
Car Park
Hotel

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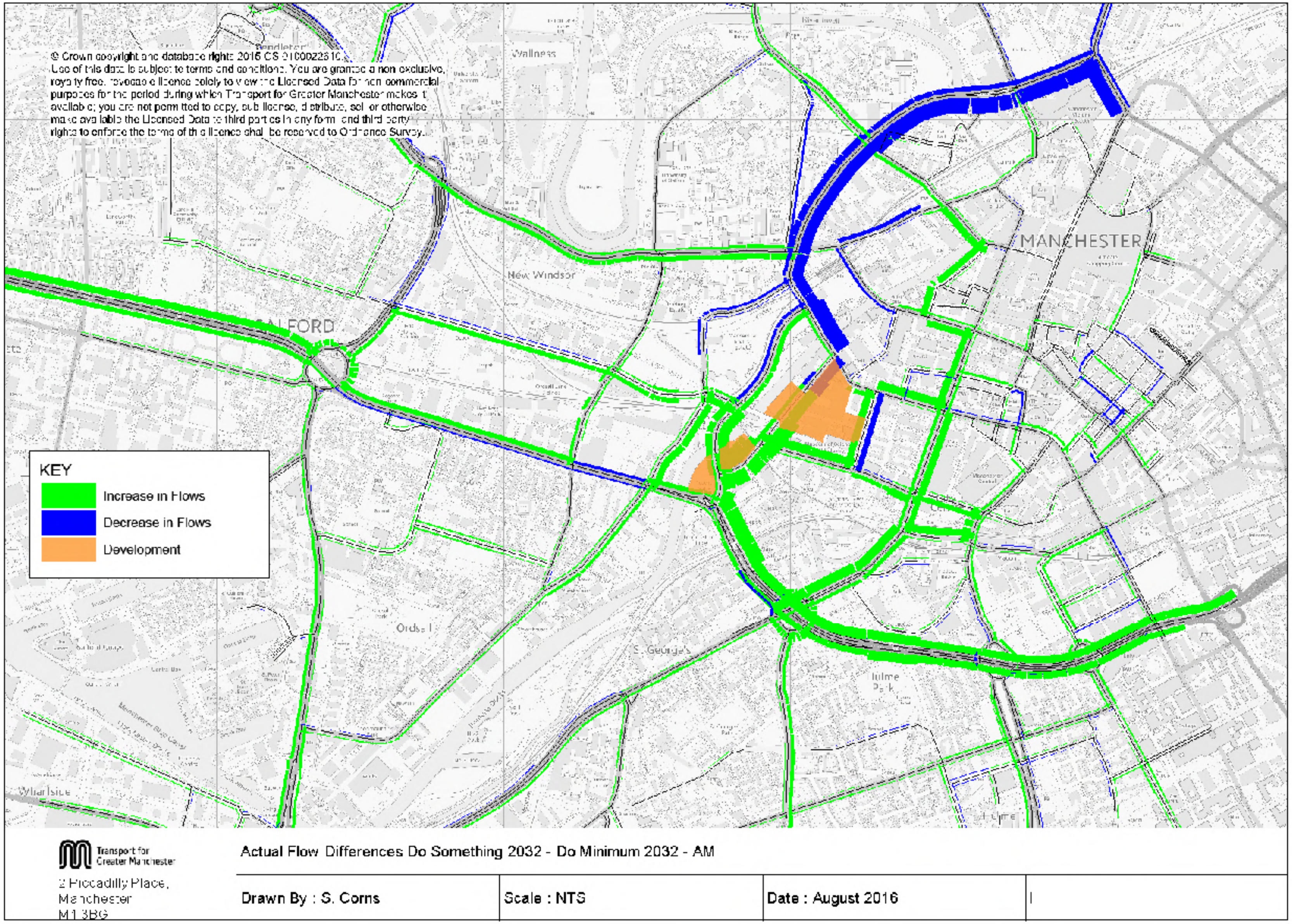
St John's Do Minimum Developments

Drawn By : S. Corns | Scale : NTS | Date : December 2015 | Report : 1871 Figure: 3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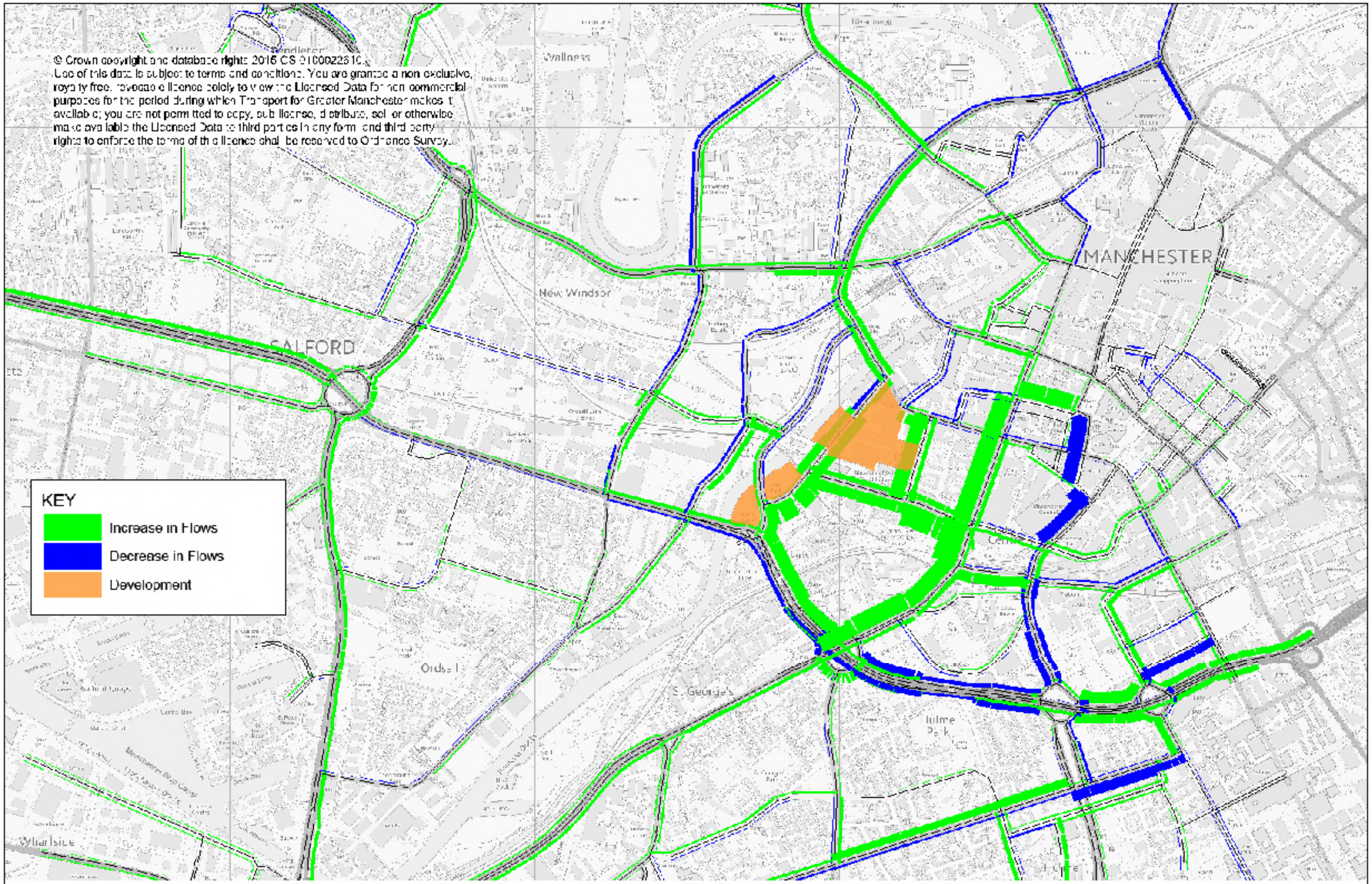
KEY
🟩 Increase in Flows
🟦 Decrease in Flows
🟧 Development
Pendleton
Wallness
New Windsor
SALFORD
MANCHESTER
Ordsall
St George's
Hulme Park
Hulme
Wharfside
Transport for Greater Manchester
2 Piccadilly Place,
Manchester
M1 3BG
Actual Flow Differences Do Something 2032 - Do Minimum 2032 - AM
Drawn By : S. Corns
Scale : NTS
Date : August 2016

Figure 4: Actual Flow Differences Do Something 2032 – Do Minimum 2032 - AM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🟦 Decrease in Flows
🟧 Development
SALFORD
MANCHESTER
New Windsor
Ordsall
St George's
Hulme Park
Wallness
Whariside

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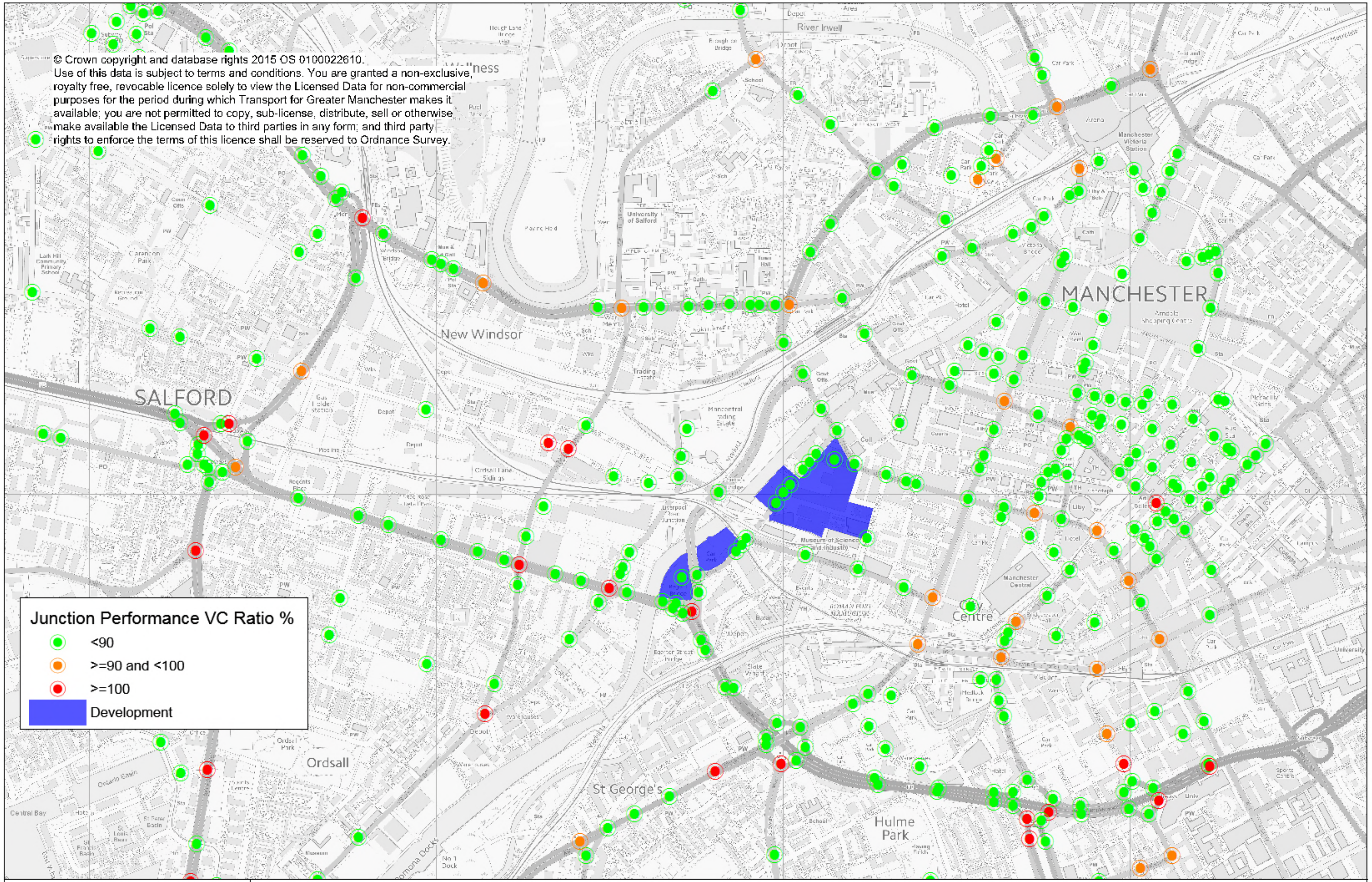
Actual Flow Differences Do Something 2032 - Do Minimum 2032 - PM

Drawn By : S. Corns	Scale : NTS	Date : August 2016	

Figure 5: Actual Flow Differences Do Something 2032 – Do Minimum 2032 - PM


SALFORD
MANCHESTER
New Windsor
Ordsall
St George's
Hulme Park
City Centre
River Irwell
University of Salford
Manchester Victoria Station
Arndale Shopping Centre
Museum of Science and Industry
Manchester Central
Junction Performance VC Ratio %
🟢 <90
🟠 >=90 and <100
🔴 >=100
🟦 Development

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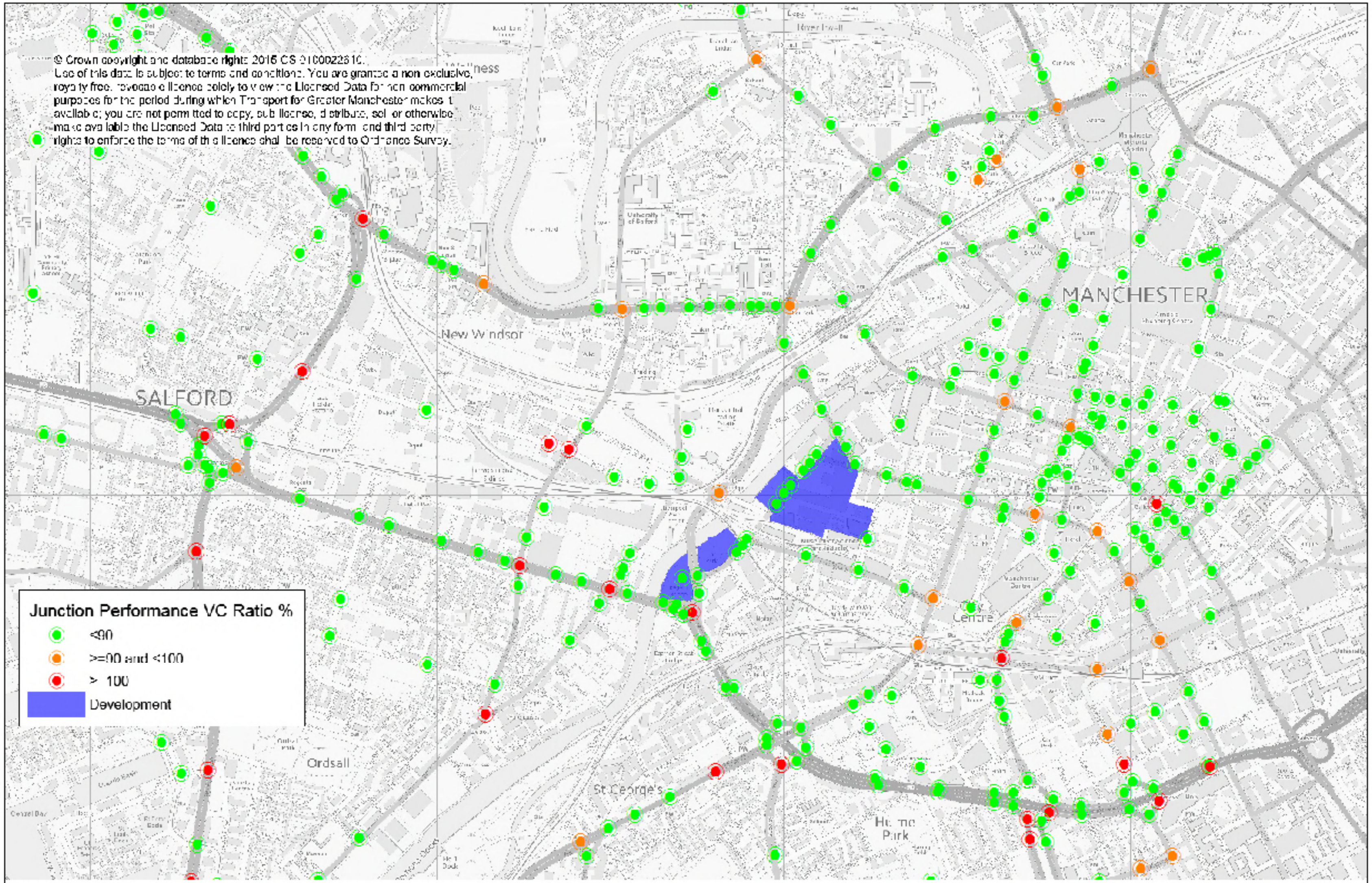
Junction VC Ratio 2032 DM AM

Drawn By : S. Corns
Scale : NTS
Date : August 2016

Figure 6: Junction VC Ratio 2032 DM AM


MANCHESTER
SALFORD
New Windsor
Ordsall
St George's
Hulme Park
Centre
Junction Performance VC Ratio %
<90
>=90 and <100
> 100
Development

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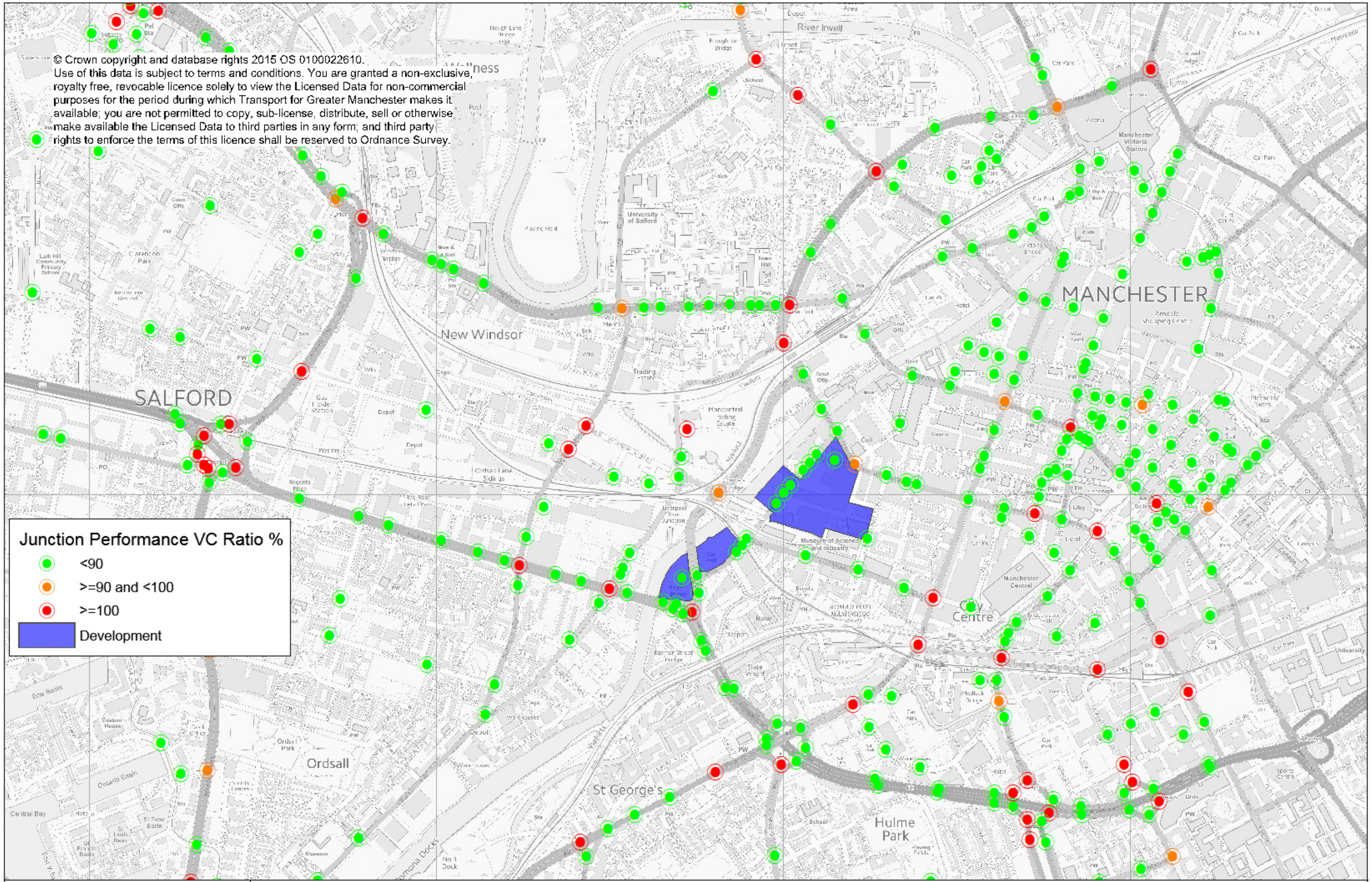
Junction VC Ratio 2032 DS AM

Drawn By : S. Corns	Scale : NTS	Date : August 2016	

Figure 7: Junction VC Ratio 2032 DS AM


Junction Performance VC Ratio %
🟢 <90
🟠 >=90 and <100
🔴 >=100
🟦 Development
SALFORD
MANCHESTER
New Windsor
Ordsall
St George's
Hulme Park
City Centre
River Irwell

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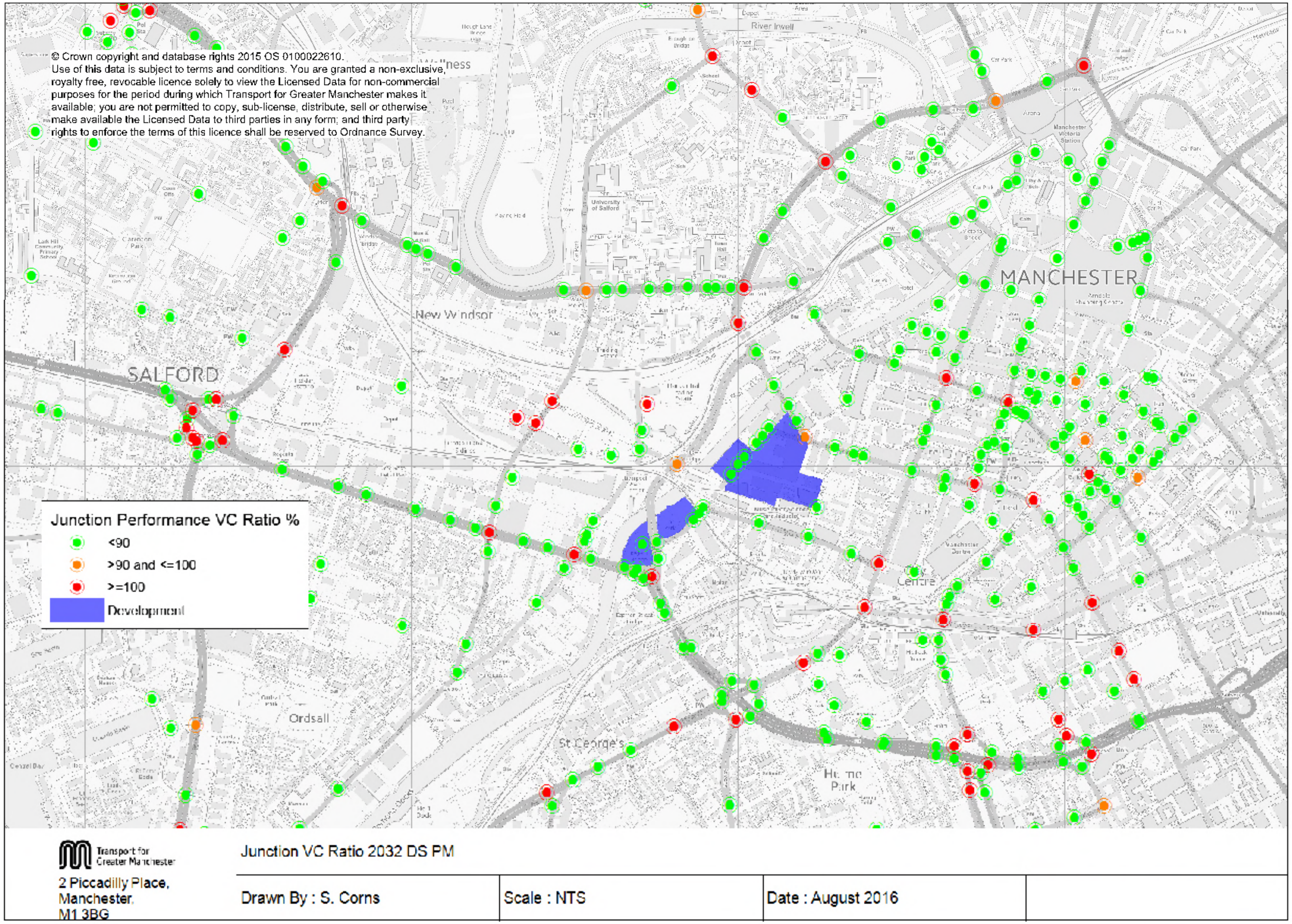
Junction VC Ratio 2032 DM PM

Drawn By : S. Corns

Scale : NTS

Date : August 2015

Figure 8: Junction VC Ratio 2032 DM PM


SALFORD
MANCHESTER
New Windsor
Ordsall
St George's
Hulme Park
River Irwell
Junction Performance VC Ratio %
🟢 <90
🟠 >90 and <=100
🔴 >=100
🟦 Development

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Junction VC Ratio 2032 DS PM

Drawn By : S. Corns | Scale : NTS | Date : August 2016

Figure 9: Junction VC Ratio 2032 DS PM

APPENDIX F

TfGM Paramics Model Report

Subject	**St John's, Manchester**
Project	**St John's - Microsimulation Modelling**

This Note	**StJohns_Microsim_v3.docx**		
Originator	Mike Killian		
Version	Comments	Date	Check / Approve
5.0	Final version	13.06.17	

Contact	**HFAS:**	**E-mail**	**Tel:**
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	Mike Killian	mike.killian@tfgm.com	0161 244 1415

Issued	**Organisation**	**FAO**
13.06.17	Vectos Consulting	John Lancaster

St John's, Microsimulation Modelling

Executive Summary

TfGM HFAS has completed traffic modelling of the likely traffic effects of the proposed St John's development in central Manchester. The modelling was done using the Paramics microsimulation modelling software.

The modelling indicates that, with the developments and associated traffic in place,

- A modest amount of traffic is likely to re-route away from the study area in response to the forecast increase in traffic flows at the four development accesses
- the model forecasts a reduction in evening peak southbound traffic flows towards the study area, ie along Trinity Way and Irwell Street; this is likely to be mainly due to congestion/slow-moving traffic.

In the morning peak hour, increased queueing and delay is likely

- on Water Street, southbound
- on Liverpool Road, westbound, and
- on Trinity Way.

In the evening peak hour, the model forecasts increased queueing and delay

- inbound on Irwell Street
- in both directions on Water Street (north)
- westbound on Liverpool Road
- northbound on Trinity Way.

The model suggests that evening-peak congestion may be increased by the proposed removal of the short stretch of Quay Street immediately east of Water Street, as traffic wishing to turn left from New Quay Street into Water Street may add to congestion here.

Introduction

In March 2017, TfGM HFAS was commissioned by consultants Vectos to undertake microsimulation modelling of the likely traffic effects of the proposed St John’s developments, adjacent to Water Street in central Manchester. The developments as proposed would

- Replace the former Granada Studios site and associated car parking (Central Village, St John’s Place, Riverside)
- Create two new developments close to the Water Street/ Trinity Way junction (Trinity Islands)
- Close a short stretch of Quay Street between its junctions with New Quay Street and Water Street, to allow more space for an improved pedestrian environment.

HFAS used the Regional Centre microsimulation model for the work. The model covers the Manchester- Salford central area, mostly within, and including, the Inner Relief Road (now usually called the Ring Road.) The extent of the model is shown in Figure 1. Calibration and validation and of the model is detailed in *‘Manchester Regional Centre Paramics Model – Local Model Validation Report’*, available as an appendix to this report (2175-01.)

The modelling compared a With-Developments scenario to traffic conditions broadly as they are now (the Base scenario.) The Regent Road improvement scheme was assumed to be open in both the Base and the With-Developments scenarios.

Traffic generation for the St John’s developments was supplied by Vectos.

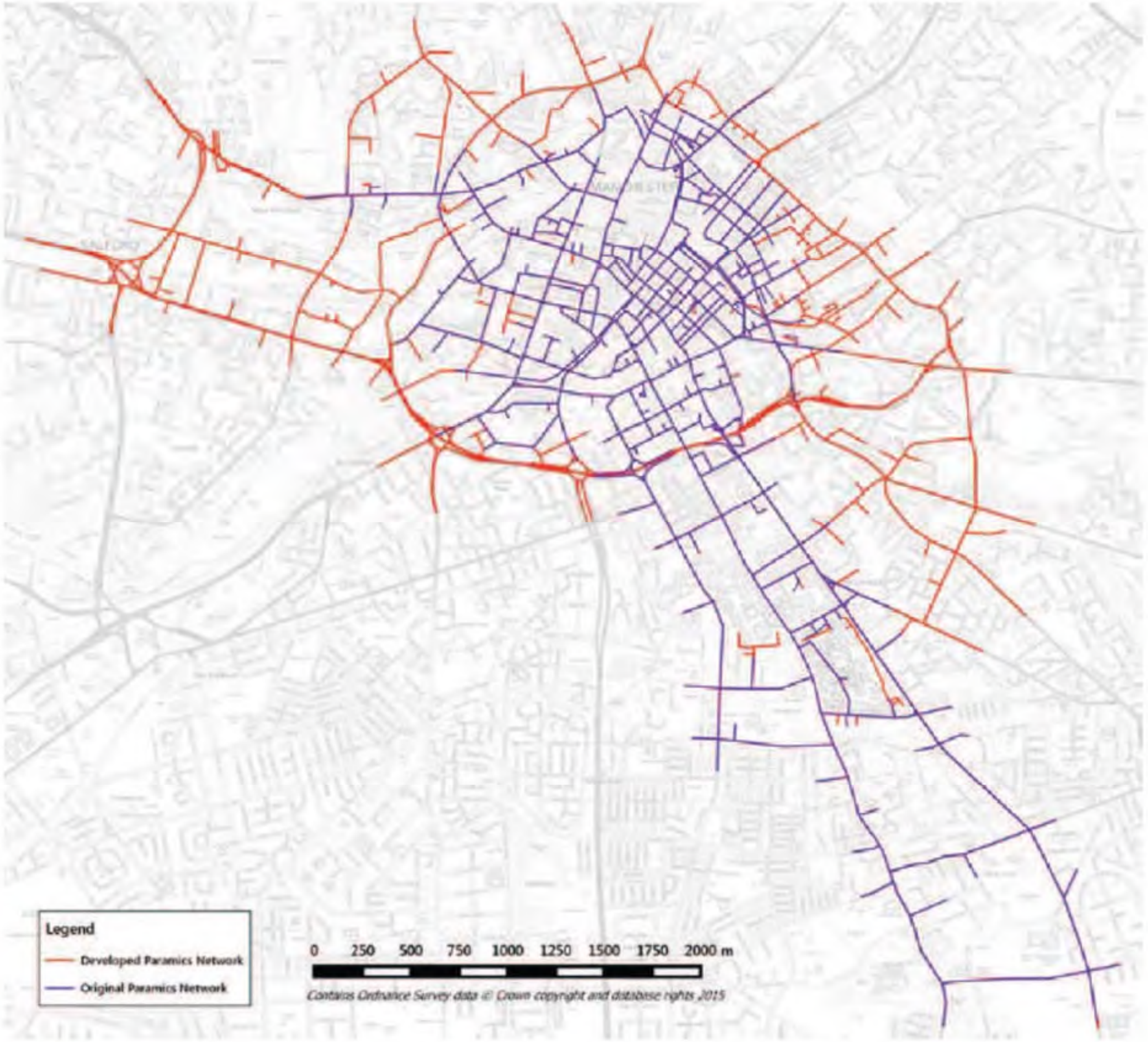
MANCHESTER
SALFORD
Legend
Developed Paramics Network
Original Paramics Network
0 250 500 750 1000 1250 1500 1750 2000 m
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Figure 1 – Extent of the Modelled Area (from the Local Model Validation Report)

Modelling Scenarios

Two model scenarios were agreed and specified, as follows:

- Base/Without-Developments – road network and traffic levels broadly as at October 2016, but with the Water Street/Liverpool Street junction converted to a priority junction, with the north arm of Water Street giving way; traffic demand as in the existing Regional Centre microsimulation model
- With-Developments – short stretch of Quay Street closed, Water Street/Liverpool Street junction converted as in the Base scenario, new zones and junctions for Trinity Islands; traffic demand including development traffic as detailed in the Trip Generation section below.

The Study Area

The area of interest reported in this note broadly includes the area lying between Irwell Street and Quay Street to the north and, to the south, the Water Street/ Trinity Way junction and Liverpool Road.

Trip Generation

Additional traffic demand due to the proposed development was provided by Vectos. Development traffic as supplied included St Johns and the Trinity Island sites (sites C and D.) Traffic due to the Big Yellow self-storage depot was also included (at the same model zone as site C.)

The new traffic replaced some existing traffic currently at the St John's development site; this mainlyrepresented traffic at the Granada Studios site. Table 1 shows the new development traffic, the existing traffic (that was replaced, ie subtracted) and the resulting net new traffic.

Table 1 Development Traffic

	New Development Traffic		Replaced Traffic at Two Zones (Granada Studios, etc.)		Net New Traffic	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Morning Peak Hour (0800-0900)	463	621	225	253	+238	+368
Evening Peak Hour (1700-1800)	532	494	159	106	+373	+388

Notes Development traffic as supplied by consultants Vectos. The middle two columns show the quantity of existing traffic in the study area that was replaced by new development traffic. Traffic is in vehicles (mostly cars.)

(It is noted that modelled flows from the Potato Wharf area may be slightly high in the evening peak period, at about 5vehs/hr.)

Development Impacts – Forecast Changes in Forecast Flows, Morning Peak Hour

Figure 2 (below) is a plot that shows an overview of forecast changes in morning peak hour traffic flows within the area of interest. The widths of the bars are proportional to the size of the forecast changes in traffic flows.

The yellow bars show a forecast reduction of up to about -300vehs/hr, eg, eastbound/inbound on Regent Road.

The red bars indicate an increase of up to about 150vehs/hr, particularly eastbound both on Liverpool Street and on A6 the Crescent- Chapel Street.

Figure 2 shows that some morning peak inbound traffic may re-route away from Regent Road-Trinity Way and onto Liverpool Street and The Crescent, in response to the proposed changes associated with Trinity Islands.

Closer to the proposed development, Figure 2 indicates a likely slight decrease in northbound flows on Water Street (north) and an increase on Liverpool Road in both directions. This is likely to be, at least in part, a response to the change in priority at the Water Street/ Liverpool Road junction.

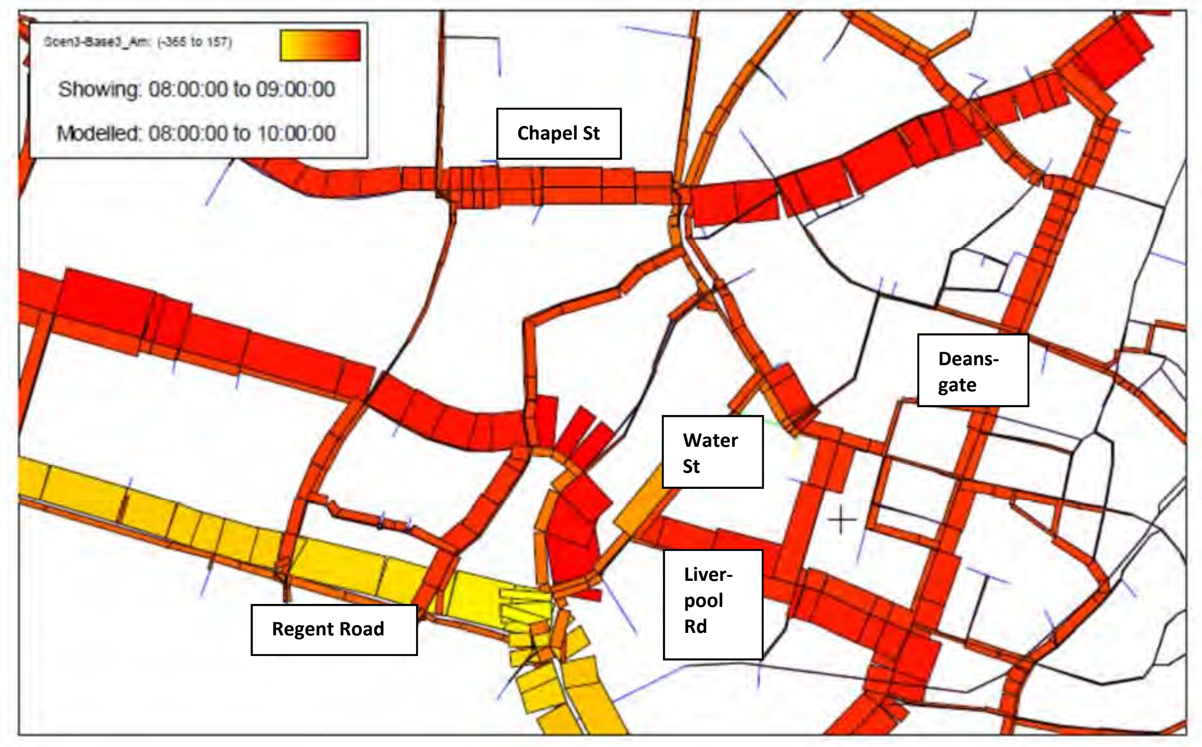

Scen3-Base3_Am: (-365 to 157)
Showing: 08:00:00 to 09:00:00
Modelled: 08:00:00 to 10:00:00
Chapel St
Deans-gate
Water St
Liver-pool Rd
Regent Road

Figure 2 - Differences in Forecast Flows, Morning Peak Hour

Table 2 (below) summarises changes in morning peak hour forecast flows on the main roads around the area of interest.

Table 2 – Forecast Morning Peak Hour Flows, Without and With Proposed Developments			
	Base (As-Now)	With-Dev'ts	Change
Irwell St (sbd)	761	715	-46
Irwell St (nbd)	418	348	-70
Quay St (E) (ebd/inbd)	395	396	+1
Quay St (E) (wbd)	383	351	-32
Water St N (sbd)	296	115	-181
Water St N (nbd)	126	97	-29
Liverpool Rd (ebd)	171	235	+64
Liverpool Rd (wbd)	121	83	-38
Water St S (sbd)	116	108	-8
Water St S (nbd)	358	268	-90
Trinity Way, parallel to Water St (sbd)	823	877	+54
Trinity Way, parallel to Water St (nbd)	869	712	-157
Notes Forecast flows are in vehs/hr, between 0800 and 0900. All the traffic flow figures measure the actual 'throughput' of vehicles at a given point on a road.			

Table 2 indicates a likely decrease in forecast morning peak hour flows on Water Street with the developments in place, particularly in the southbound direction. The model suggests some soutbound traffic traffic may re-route away from the area of interest onto Trinity Way. However northbound traffic is likely to re-route over a wider area, with small increases in northbound traffic flows forecast on Ordsall Lane and on Oldfield Road.

Overall, the model indicates that some traffic is likely to re-route away from the area of interest; such re-routing is likely to occur over a wide area.

Development Impacts – Forecast Changes in Forecast Flows, Evening Peak Hour

The Figure 3 plot (below) indicates the overall pattern of forecast changes in evening peak hour traffic flows within the area of interest.

The yellow bars show a forecast reduction of up to about -250vehs/hr, eg, southbound on Irwell Street and on New Quay Street. This is due in large measure to congestion/slow-moving traffic (see below): if traffic is held back upstream by congestion, less traffic is recorded passing a given point and total flows are therefore reduced. (Note that this is not the same effect as re-routing.)

The plot indicates decreases in actual forecast flows on Trinity Way, also associated with congestion and slow-moving traffic.

The darker-coloured bars indicate a forecast increase of up to about +90vehs/hr in evening peak hour traffic flows, eg, northbound on Water Street towards Liverpool Road, eastbound on Liverpool Road from Water Street and westbound on Liverpool Road from Deansgate.

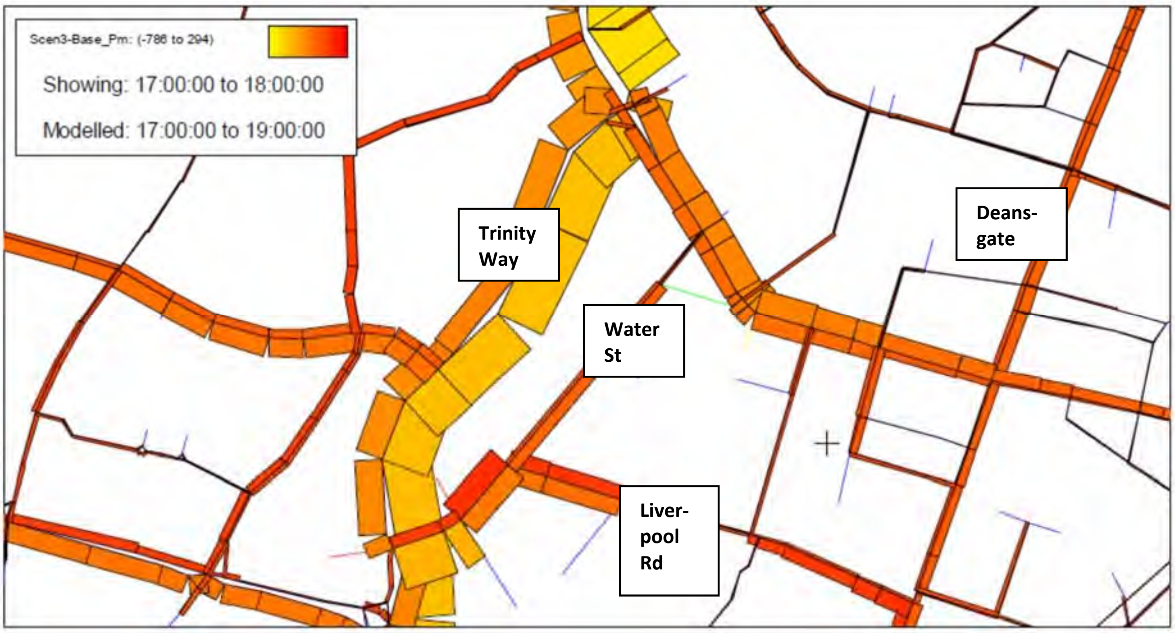

Scen3-Base_Pm: (-786 to 294)
Showing: 17:00:00 to 18:00:00
Modelled: 17:00:00 to 19:00:00
Trinity Way
Water St
Deans-gate
Liver-pool Rd

Figure 3 – Differences in Forecast Flows, Evening Peak Hour

Table 3 (below) summarises changes in evening peak hour forecast flows on the main roads around the area of interest.

Table 3 – Forecast Evening Peak Hour Flows, Without and With Proposed Developments

	Base (As-Now)	With-Dev'ts	Change
Irwell St (sbd)	494	236	-258
Irwell St (nbd)	548	402	-146
Quay St (E) (ebd/inbd)	486	242	-244
Quay St (E) (wbd)	473	292	-181
Water St N (sbd)	138	32	-106
Water St N (nbd)	93	47	-46
Liverpool Rd (ebd)	126	181	+55
Liverpool Rd (wbd)	233	62	-171
Water St S (sbd)	268	57	-211
Water St S (nbd)	121	191	+70
Trinity Way, parallel to Water St (sbd)	1210	700	-510
Trinity Way, parallel to Water St (nbd)	974	664	-310

Notes Forecast flows are in vehs/hr, between 1700 and 1800. All the traffic flow figures measure the actual 'throughput' of vehicles at a given point on a road.

Table 3 suggests that, with the developments in place, substantial decreases in evening peak hour flows are forecast for most roads in the immediate area of interest. This is likely to be associated with congestion: as through-traffic meets development traffic along Water Street, the evening peak hour model forecasts slow-moving traffic along Water Street (north) in both directions, as well as in the westbound direction on Liverpool Road.

(However, the model forecasts a likely increase in flows northbound on Water Street (south) and eastbound on Liverpool Road.)

Congestion and slow-moving traffic are also forecast for the evening peak on Irwell Street- Quay Street, particularly in the eastbound/inbound direction.

Further, Table 3 indicates possible decreases in evening peak traffic flows on Trinity Way, in both directions. In the southbound direction, the model forecasts that traffic is likely to be held back from reaching Trinity Way by slow-moving/queueing traffic on Irwell Street- Quay Street. In the northbound direction, the model also indicates that traffic flows on Trinity Way would effectively by reduced by queuing by vehicles wishing to turn right from Trinity Way into the slow-moving traffic that is forecast for Irwell Street- Quay Street.

The model suggests that evening-peak congestion may be exacerbated by removal of the short stretch of Quay Street immediately east of Water Street: over 100vehs wishing to turn left from Quay Street into Water Street are likely to add considerably to congestion here.

Overall, the flow-difference plots and the figures in Tables 2 and 3 suggest that some traffic would re-route away from roads within the area of interest, in response to new traffic associated with the developments. However increased evening peak congestion on Irwell Street and Quay Street, especially in the eastbound direction, is likely to reduce the actual throughput of traffic on a number of roads in the area of interest.

Development Impacts – Forecast Changes in Queuing on Links

The model outputs forecast queueing on individual stretches of road, or links, within the model. A vehicle is defined as being in a queue if its speed drops below about 5mph and the gap to the next vehicle ahead drops below 10m.

Tables 4 and 5 below show the number of vehicles that were held in a queue on stretches of road within the area of interest, without- and with-developments, for the morning and evening peak hours. The vehicle-count is averaged over several model runs.

Table 4 – Forecast Morning Peak Hour Queuing, Without and With Proposed Developments

	Base (As-Now)	With-Dev'ts	Change
Irwell St (sbd)	19	19	-
Irwell St (nbd)	5	11	+6
Quay St (E) (ebd/inbd)	6	11	+5
Quay St (E) (wbd)	14	15	+1
Water St N (sbd)	4	17	+13
Water St N (nbd)	3	2	-1
Liverpool Rd (ebd)	-	1	+1
Liverpool Rd (wbd)	4	16	+12
Water St S (sbd)	-	57	+57
Water St S (nbd)	-	1	+1
Trinity Way, parallel to Water St (sbd)	-	12	+12
Trinity Way, parallel to Water St (nbd)	35	71	+36

Notes The figures show the number of vehicles queueing on each stretch of road, between 0800 and 0900. The vehicle-count is averaged over a large number of model runs. A vehicle is defined as being in a queue if its speed is <5mph and the gap ahead is <10m.

Table 5 – Forecast Evening Peak Hour Queuing, Without and With Proposed Developments

	Base (As-Now)	With-Dev'ts	Change
Irwell St (sbd)	12	33	+21
Irwell St (nbd)	33	28	-5
Quay St (E) (ebd/inbd)	17	23	+6
Quay St (E) (wbd)	32	32	-
Water St N (sbd)	3	57	+54
Water St N (nbd)	2	43	+41
Liverpool Rd (ebd)	-	5	+5
Liverpool Rd (wbd)	17	33	+16
Water St S (sbd)	70	65	-5
Water St S (nbd)	-	6	+6
Trinity Way, parallel to Water St (sbd)	8	4	-4
Trinity Way, parallel to Water St (nbd)	55	82	+27

Notes The figures show the number of vehicles queueing on each stretch of road, between 1700 and 1800. The vehicle-count is averaged over a large number of model runs. A vehicle is defined as being in a queue if its speed is <5mph and the gap ahead is <10m.

Tables 4 and 5 indicate that some substantial increases in queued (ie, slow-moving) traffic is forecast within the area of interest with the developments in place. In particular, in the morning peak hour, increased queueing is likely

- on Water Street southbound and
- on Trinity Way.

In the evening peak hour, the model forecast increased queueing

- inbound on Irwell Street
- in both directions on Water Street (north)
- westbound on Liverpool Road
- northbound on Trinity Way.

The proposed removal of a short stretch of Quay Street may add to evening peak congestion as traffic turning left from New Quay Street into Water Street is routed via the remaining single junction.

The traffic signal green splits tested at the new four-arm site access on Water Street and at the all-movements Water Street/ Trinity Way junction have been modelled as a first-draft, and both junctions would benefit from subsequent optimisation of the signal settings.

Development Impacts – Forecast Changes in Journey Times

Three routes were specified within the model for journey time comparison. The model output forecast journey times for each route in each direction, giving six journey times for comparison without- and with-development traffic. The journey time routes are as follows:

- Irwell Street- Quay Street, eastbound and westbound, between the Trinity Way junction and Deansgate
- Water Street, southbound and northbound, between New Quay Street and Trinity Way
- Liverpol Road-Water Street, eastbound and westbound, between Trinity Way (south) and Deansgate.

The forecast journey times on these routes are shown in Tables 6 and 7.

Table 6 – Forecast Journey Times in the Morning Peak Hour, Without and With Proposed Developments

	Base (As-Now)	With-Dev’ts	Change
Irwell St- Quay St (ebd/inbd)	1’ 55’’	2’ 00’’	+ 5’’
Quay St- Irwell St (wbd)	2’ 15’’	2’ 50’’	+ 35’’
Water St (sbd)	1’ 30’’	6’ 10’’	+ 4’ 40’’
Water St (nbd)	2’ 15’’	2’ 55’’	+ 40’’
Water St- Liverpool Rd (ebd)	1’ 30’’	1’ 35’’	+ 5’’
Liverpool Rd- Water St (wbd)	1’ 45’’	13’ 00’’	+ 11’ 15’’

Notes The figures show modelled journey times on each stretch of road, between 0800 and 0900, in minutes and seconds. The modelled times have a 95% confidence interval (two Standard Deviations) of plus-or-minus about 45sec.

Table 7 – Forecast Journey Times in the Evening Peak Hour, Without and With Proposed Developments			
	Base (As-Now)	With-Dev'ts	Change
Irwell St- Quay St (ebd/inbd)	2' 05''	2' 45''	+ 40''
Quay St- Irwell St (wbd)	5' 30''	6' 10''	+ 40''
Water St (sbd)	5' 25''	7' 30''	+ 2' 05''
Water St (nbd)	3' 40''	11' 40''	+8' 0''
Water St- Liverpool Rd (ebd)	2' 10''	2' 15''	+ 5''
Liverpool Rd- Water St (wbd)	4' 30''	26' 00''	+ 21' 30''
Notes The figures show modelled journey times on each stretch of road, between 1700 and 1800, in minutes and seconds. The modelled times have a 95% confidence interval (two Standard Deviations) of plus-or-minus about 45sec.			

The modelled journey times shown in Tables 6 and 7 confirm the likely traffic conditions indicated by the forecast queuing, if the development is assumed to be fully built out.

For the morning peak hour, Table 6 indicates significant forecast increases in queueing southbound on Water Street and westbound on Liverpool Road-Water Street. Table 7 indicates significant increases in forecast evening peak hour queueing in both directions on Water Street and westbound on Liverpool Road-Water Street.

The model suggests that congestion and queueing is likely to have a marked effect on some journey times, in particular northbound on Water Street in the morning peak and westbound on Liverpool Road-Water Street (towards Regent Road) in both peaks. However, it is likely that optimisation of traffic signal settings at the Site D access, as well as at the regent Road/ Dawson Street junction, could reduce congestion and improve traffic flows

Conclusion

TfGM HFAS have modelled the likely traffic effects of the St Johns development, comprising developments known as Central village, St John's Place, Riverside, South Village and Trinity Islands. Traffic generation was supplied by Vectos.

In the With-Developments scenario, an all-movements junction has been assumed for the Site D access, at the Trinity Way/ water Street junction.

The Water Street/ Liverpool Road junction has been assumed to be converted to a priority junction, in both the Base/as-now and the With-Developments scenarios. Southbound traffic would give way from Water Street (north.)

The modelling indicates that, with the development fully built out, in the morning peak period, traffic is likely to reroute away from the area. In particular, some eastbound traffic (inbound to the Regional Centre) is likely to reroute away from Regent Road (eastbound) onto Liverpool Street or The Crescent.

Morning peak hour congestion is likely to increase southbound on Water Street and westbound on Liverpool Road if the development is assumed to be open. This is indicated by the model-output measure for forecast queueing and for forecast journey times.

In the evening peak period, the modelling indicates significant increases in congestion and slow-moving traffic if the St Johns development is assumed to be in place. This is strongly suggested by the modelled measure of queueing and of journey times, as well as by the modeeled decrease in actual traffic flows through the area of interest.

The modelling indicates likely evening peak impacts on Trinity Way traffic. In particular, the model suggests that slow-moving southbound traffic on Irwell Street- New Quay Street is likely to cause delay to traffic wishing to turn right from Trinity Way.

APPENDIX G

Linsig Junction Modelling Outputs

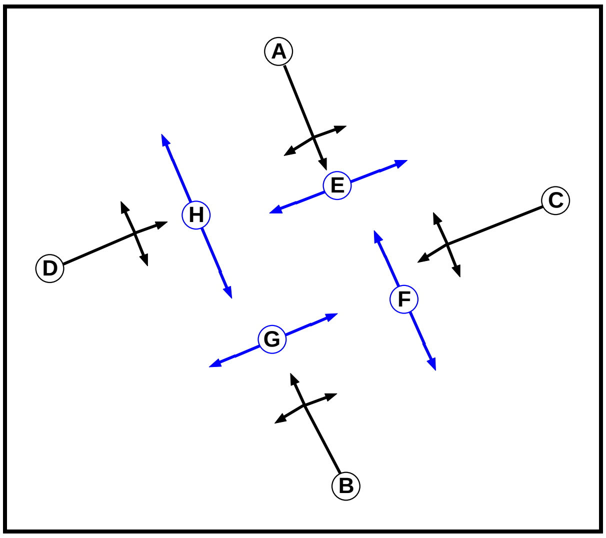
Basic Results Summary

User and Project Details

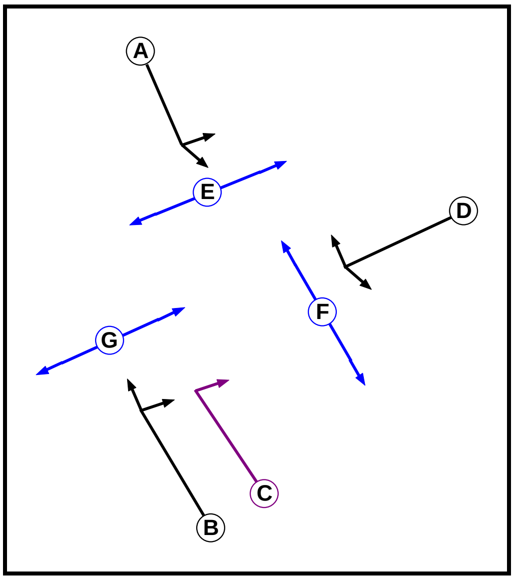
Project:	**St John's Masterplan**
Title:	**Quay Street Corridor**
Location:	
File name:	New Qauy St v3.lsg3x
Author:	
Company:	Vectos (North) Ltd
Address:	
Notes:	

Phase Diagram

C1 - Water Street



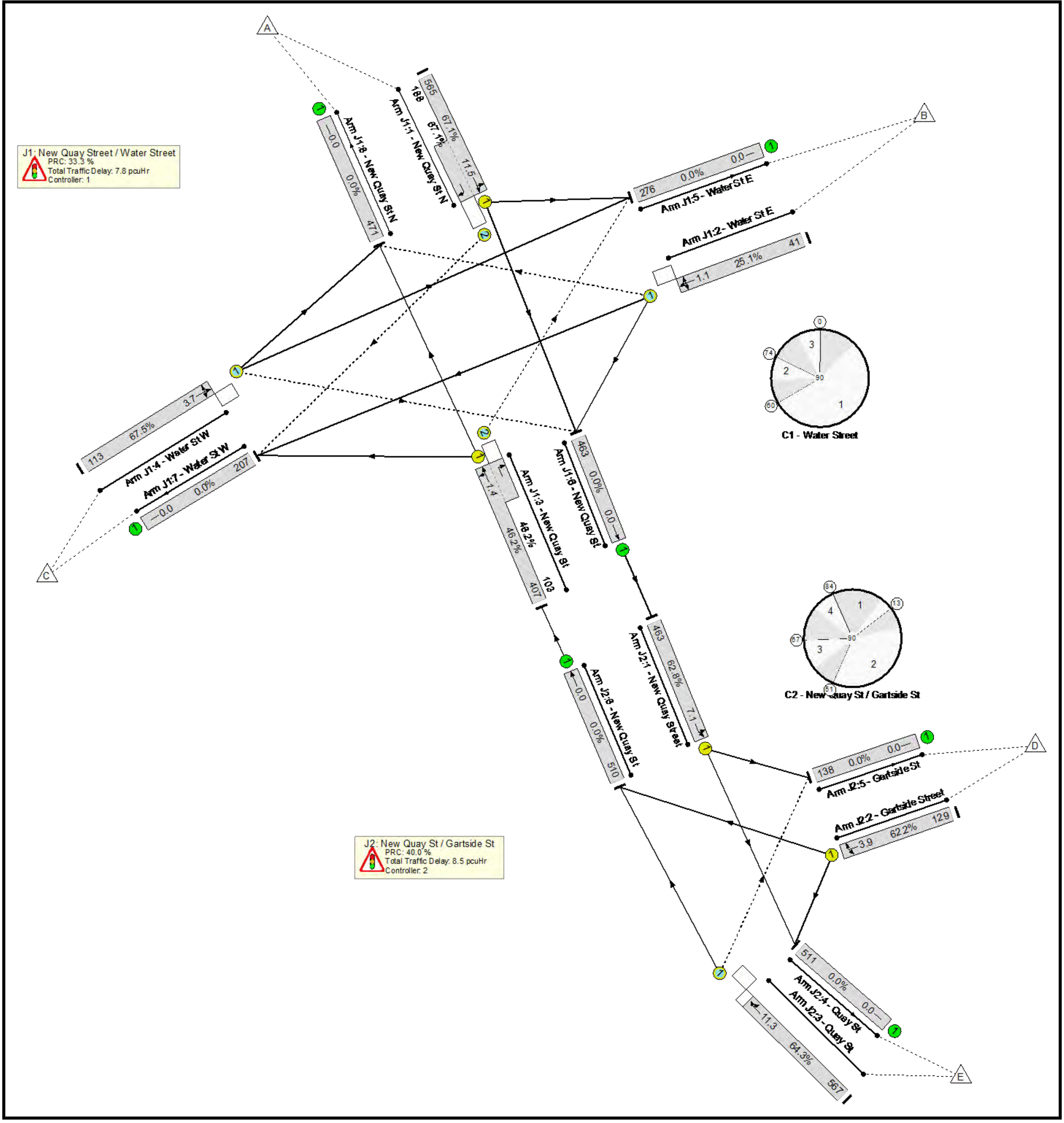
C2 - New Quay St / Gartside St



Basic Results Summary

Scenario 2: '2017 DS AM' (FG2: '2017 DS AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



A
B
C
D
E
J1: New Quay Street / Water Street
PRC: 33.3 %
Total Traffic Delay: 7.8 pcuHr
Controller: 1
J2: New Quay St / Gartside St
PRC: 40.0 %
Total Traffic Delay: 8.5 pcuHr
Controller: 2
Arm J1:1 - New Quay St N
565
188
67.1%
87.1%
11.5
Arm J1:8 - New Quay St N
0.0
0.0%
471
Arm J1:5 - Water St E
276
0.0%
0.0
Arm J1:2 - Water St E
41
25.1%
1.1
Arm J1:4 - Water St W
113
67.5%
3.7
Arm J1:7 - Water St W
207
0.0%
0.0
Arm J1:3 - New Quay St
48.2%
46.2%
103
407
1.4
Arm J1:6 - New Quay St
463
0.0%
0.0
C1 - Water Street
0
3
74
2
90
60
1
Arm J2:1 - New Quay Street
463
62.8%
7.1
Arm J2:8 - New Quay St
0.0
0.0%
510
C2 - New Quay St / Gartside St
84
4
1
13
67
90
3
2
51
Arm J2:5 - Gartside St
138
0.0%
0.0
Arm J2:2 - Gartside Street
129
62.2%
3.9
Arm J2:4 - Quay St
511
0.0%
0.0
Arm J2:3 - Quay St
11.3
64.3%
567

Basic Results Summary

Network Results

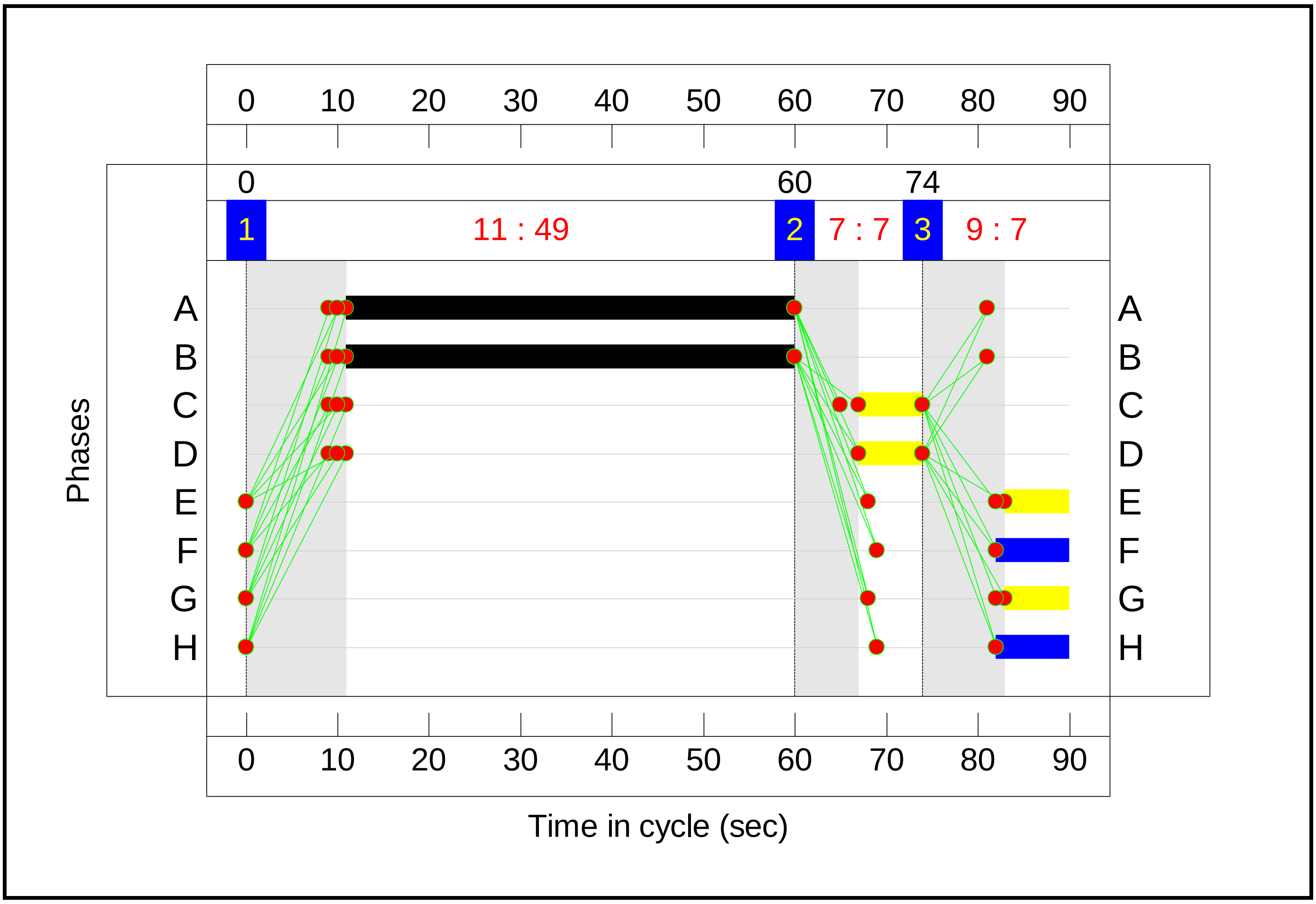
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Quay Street Corridor	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.5%**	**384**	**23**	**3**	**16.3**	**-**	**-**
J1: New Quay Street / Water Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.5%**	**313**	**0**	**2**	**7.8**	**-**	**-**
1/1+1/2	New Quay St N Left Ahead Right	U+O	C1:A		1	49	-	753	1875:1868	842+280	67.1 : 67.1%	186	0	2	3.9	18.7	11.5
2/1	Water St E Left Ahead Right	O	C1:C		1	7	-	41	1839	163	25.1%	15	0	0	0.6	54.6	1.1
3/1+3/2	New Quay St Right Left Ahead	U+O	C1:B		1	49	-	510	1915:1912	881+223	46.2 : 46.2%	103	0	0	1.0	7.4	1.4
4/1	Water St W Ahead Right Left	O	C1:D		1	7	-	113	1883	167	67.5%	9	0	0	2.2	71.7	3.7
J2: New Quay St / Gartside St	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**64.3%**	**71**	**23**	**1**	**8.5**	**-**	**-**
1/1	New Quay Street Ahead Left	U	C2:A		1	32	-	463	2011	737	62.8%	-	-	-	2.4	18.7	7.1
2/1	Gartside Street Left Right	U	C2:D		1	9	-	129	1866	207	62.2%	-	-	-	2.2	60.7	3.9
3/1	Quay St Right Ahead	O	C2:B	C2:C	1	42	4	567	1945	882	64.3%	71	23	1	3.9	24.8	11.3

C1 - Water Street PRC for Signalled Lanes (%): 33.3 Total Delay for Signalled Lanes (pcuHr): 7.83 Cycle Time (s): 90
C2 - New Quay St / Gartside St PRC for Signalled Lanes (%): 40.0 Total Delay for Signalled Lanes (pcuHr): 8.48 Cycle Time (s): 90
PRC Over All Lanes (%): 33.3 Total Delay Over All Lanes(pcuHr): 16.31

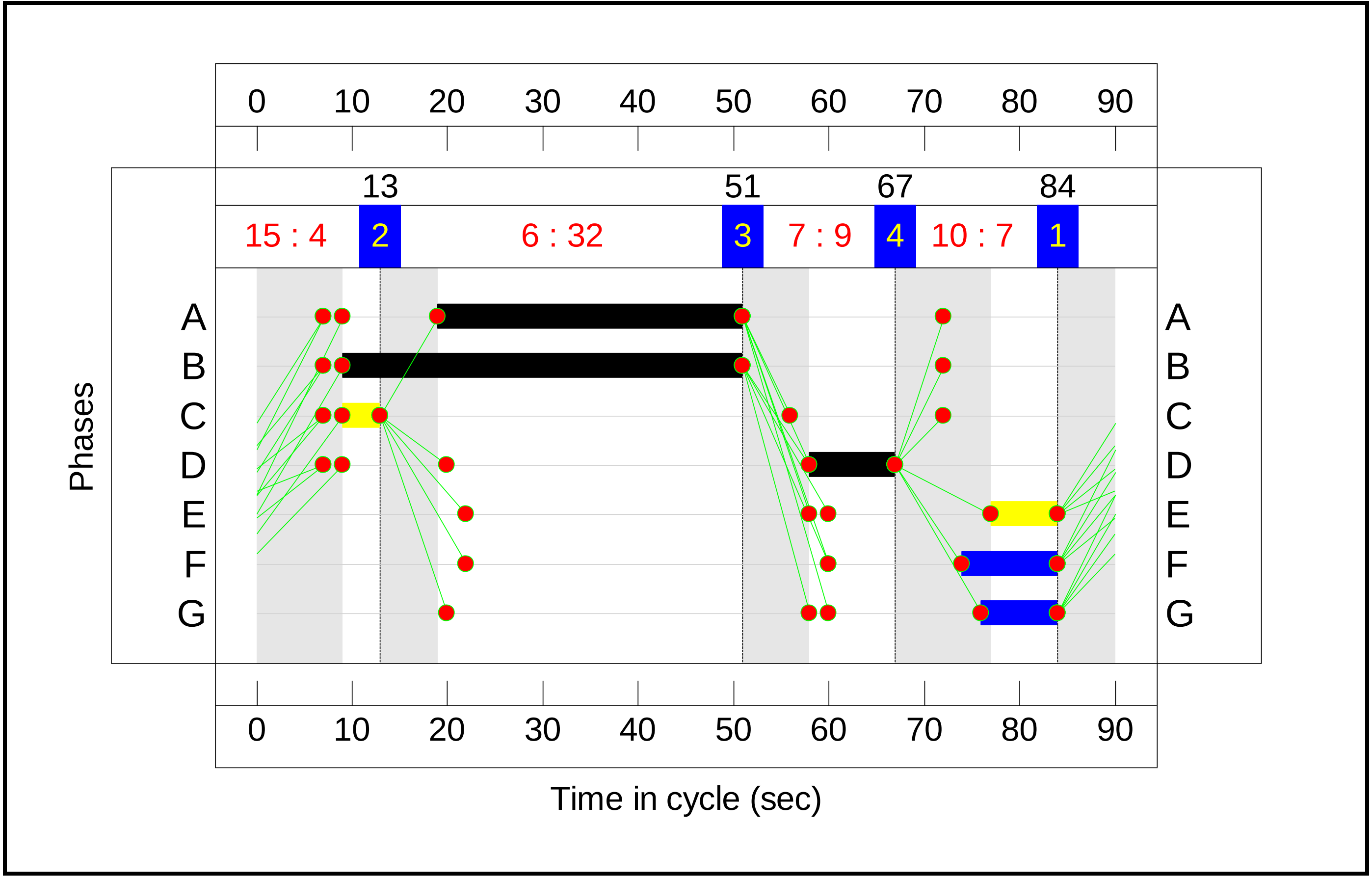
Basic Results Summary

Signal Timings Diagram

C1 - Water Street

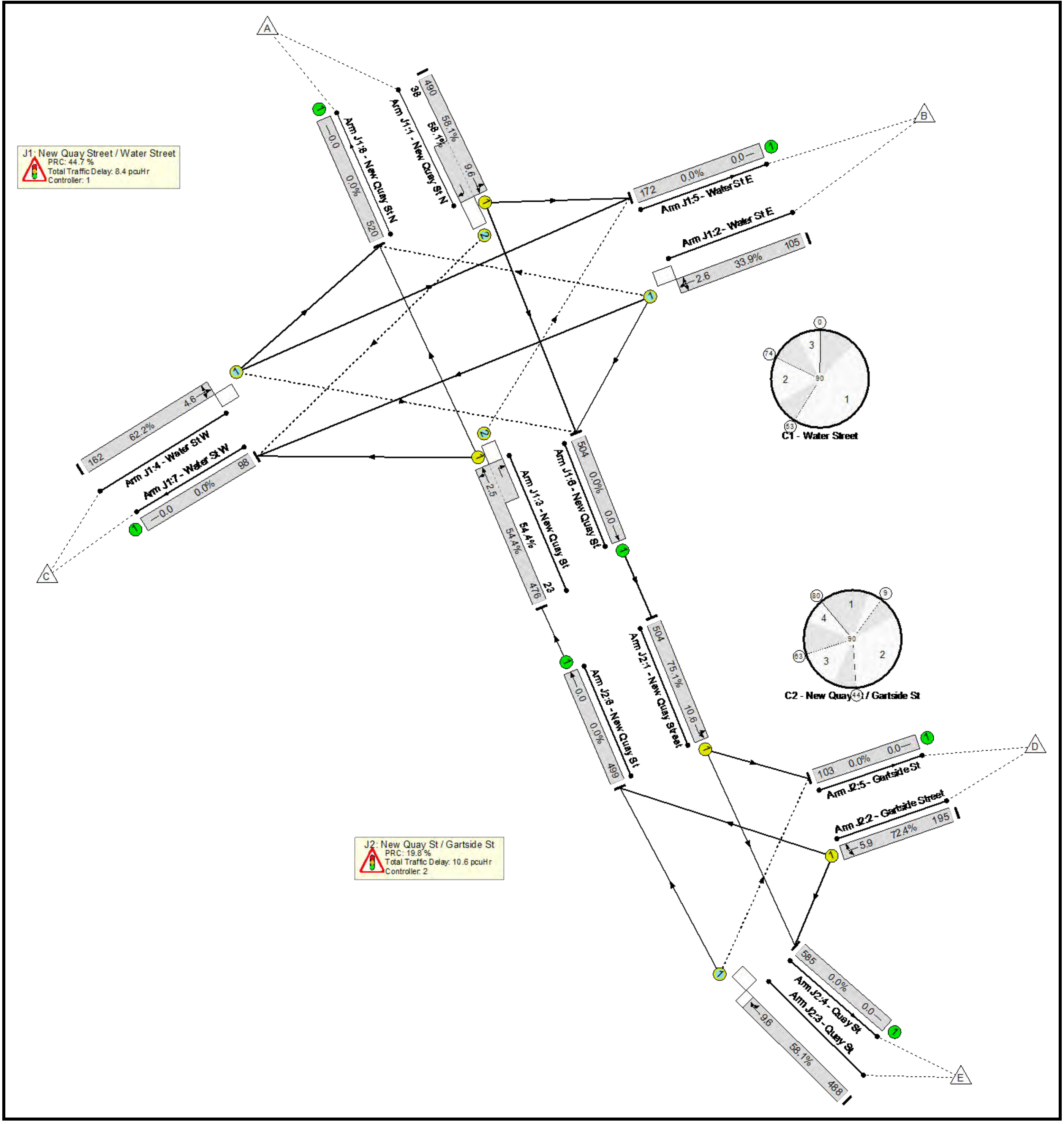


C2 - New Quay St / Gartside St



Scenario 3: '2017 DS PM' (FG3: '2017 DS PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram


J1: New Quay Street / Water Street
PRC: 44.7 %
Total Traffic Delay: 8.4 pcuHr
Controller: 1
J2: New Quay St / Gartside St
PRC: 19.8 %
Total Traffic Delay: 10.6 pcuHr
Controller: 2
A
B
C
D
E
Arm J1:1 - New Quay St N
490
58.1%
38
58.1%
9.6
Arm J1:8 - New Quay St N
0.0
0.0%
520
Arm J1:5 - Water St E
172
0.0%
0.0
Arm J1:2 - Water St E
2.6
33.9%
105
Arm J1:4 - Water St W
162
62.2%
4.6
Arm J1:7 - Water St W
0.0
0.0%
88
Arm J1:3 - New Quay St
2.5
54.4%
476
54.4%
23
Arm J1:6 - New Quay St
504
0.0%
0.0
Arm J2:1 - New Quay Street
504
75.1%
10.6
Arm J2:6 - New Quay St
0.0
0.0%
499
Arm J2:5 - Gartside St
103
0.0%
0.0
Arm J2:2 - Gartside Street
5.9
72.4%
195
Arm J2:4 - Quay St
585
0.0%
0.0
Arm J2:3 - Quay St
9.6
58.1%
488
C1 - Water Street
0
74
53
90
1
2
3
C2 - New Quay St / Gartside St
80
9
83
44
90
1
2
3
4

Basic Results Summary

Network Results

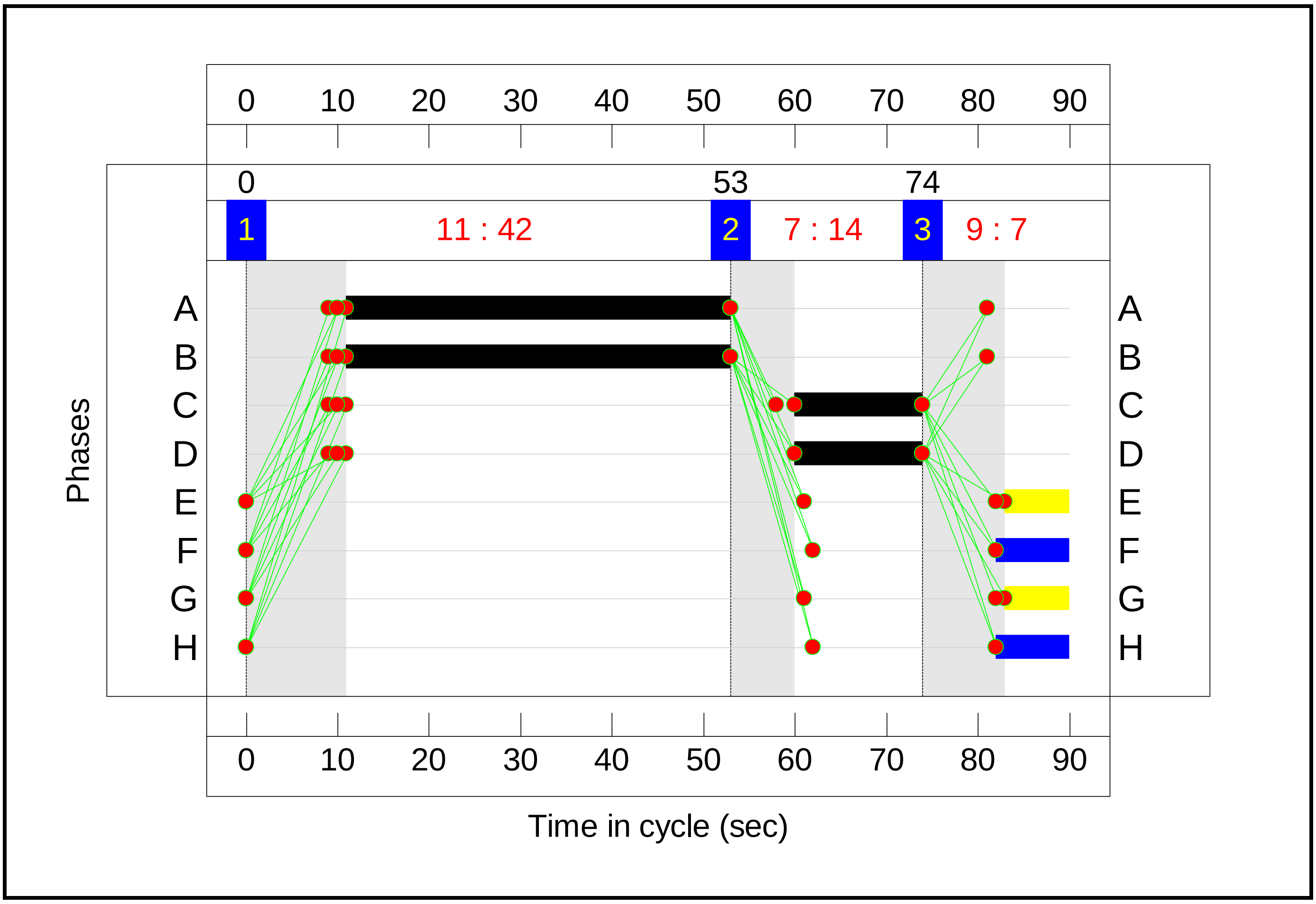
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Quay Street Corridor	-	-	-		-	-	-	-	-	-	**75.1%**	**281**	**17**	**1**	**19.1**	-	-
J1: New Quay Street / Water Street	-	-	-		-	-	-	-	-	-	**62.2%**	**237**	**0**	**0**	**8.4**	-	-
1/1+1/2	New Quay St N Left Ahead Right	U+O	C1:A		1	42	-	528	1866:1868	843+65	58.1 : 58.1%	38	0	0	3.2	22.0	9.6
2/1	Water St E Left Ahead Right	O	C1:C		1	14	-	105	1857	309	33.9%	41	0	0	1.2	41.9	2.6
3/1+3/2	New Quay St Right Left Ahead	U+O	C1:B		1	42	-	499	1913:1912	876+42	54.4 : 54.4%	23	0	0	1.5	10.8	2.5
4/1	Water St W Ahead Right Left	O	C1:D		1	14	-	162	1856	260	62.2%	135	0	0	2.5	55.6	4.6
J2: New Quay St / Gartside St	-	-	-		-	-	-	-	-	-	**75.1%**	**44**	**17**	**1**	**10.6**	-	-
1/1	New Quay Street Ahead Left	U	C2:A		1	29	-	504	2013	671	75.1%	-	-	-	4.0	28.3	10.6
2/1	Gartside Street Left Right	U	C2:D		1	12	-	195	1865	269	72.4%	-	-	-	3.3	60.2	5.9
3/1	Quay St Right Ahead	O	C2:B	C2:C	1	39	4	488	1950	840	58.1%	44	17	1	3.4	25.1	9.6

C1 - Water Street PRC for Signalled Lanes (%): 44.7 Total Delay for Signalled Lanes (pcuHr): 8.45 Cycle Time (s): 90
C2 - New Quay St / Gartside St PRC for Signalled Lanes (%): 19.8 Total Delay for Signalled Lanes (pcuHr): 10.63 Cycle Time (s): 90
PRC Over All Lanes (%): 19.8 Total Delay Over All Lanes(pcuHr): 19.08

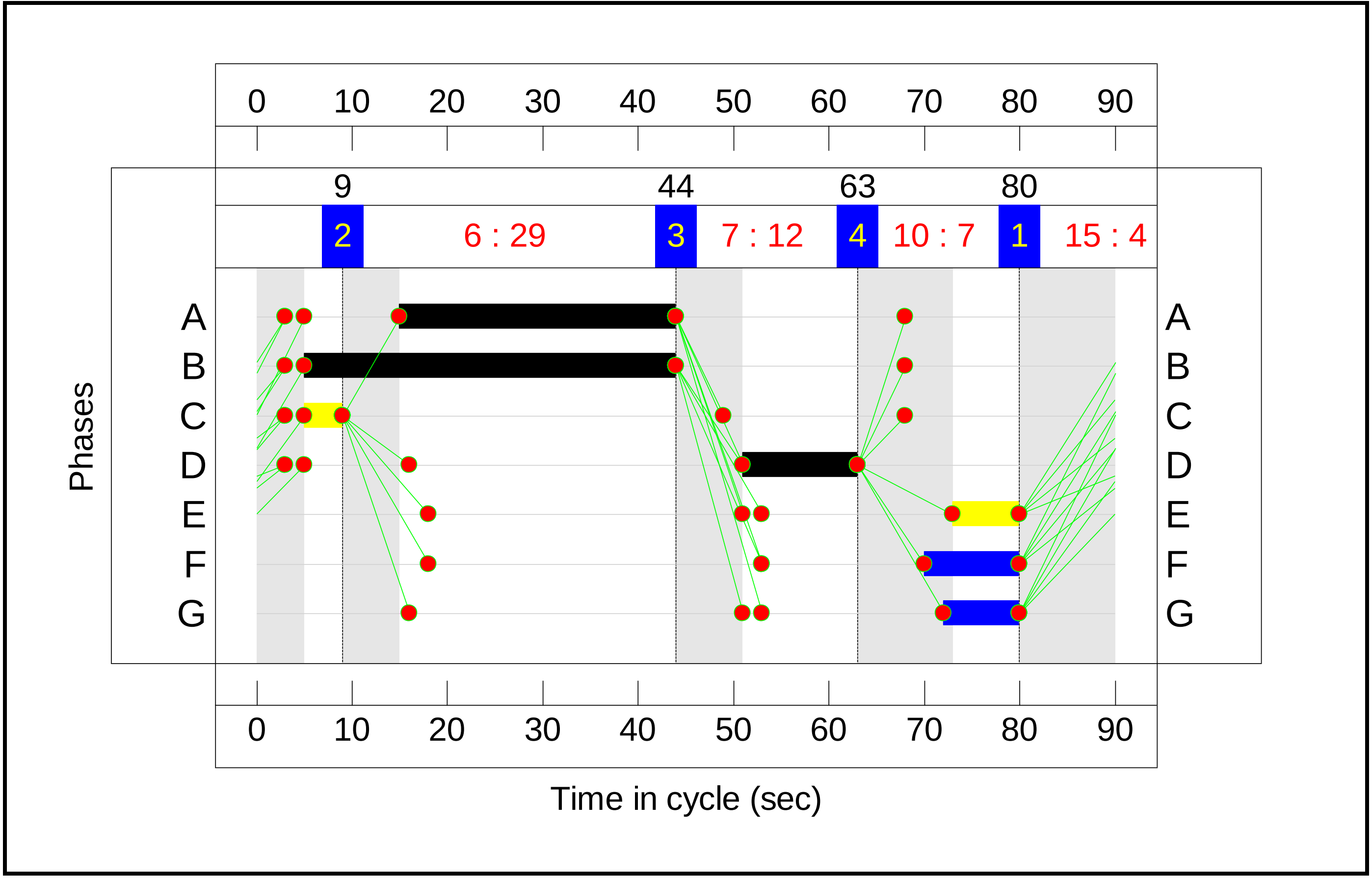
Basic Results Summary

Signal Timings Diagram

C1 - Water Street

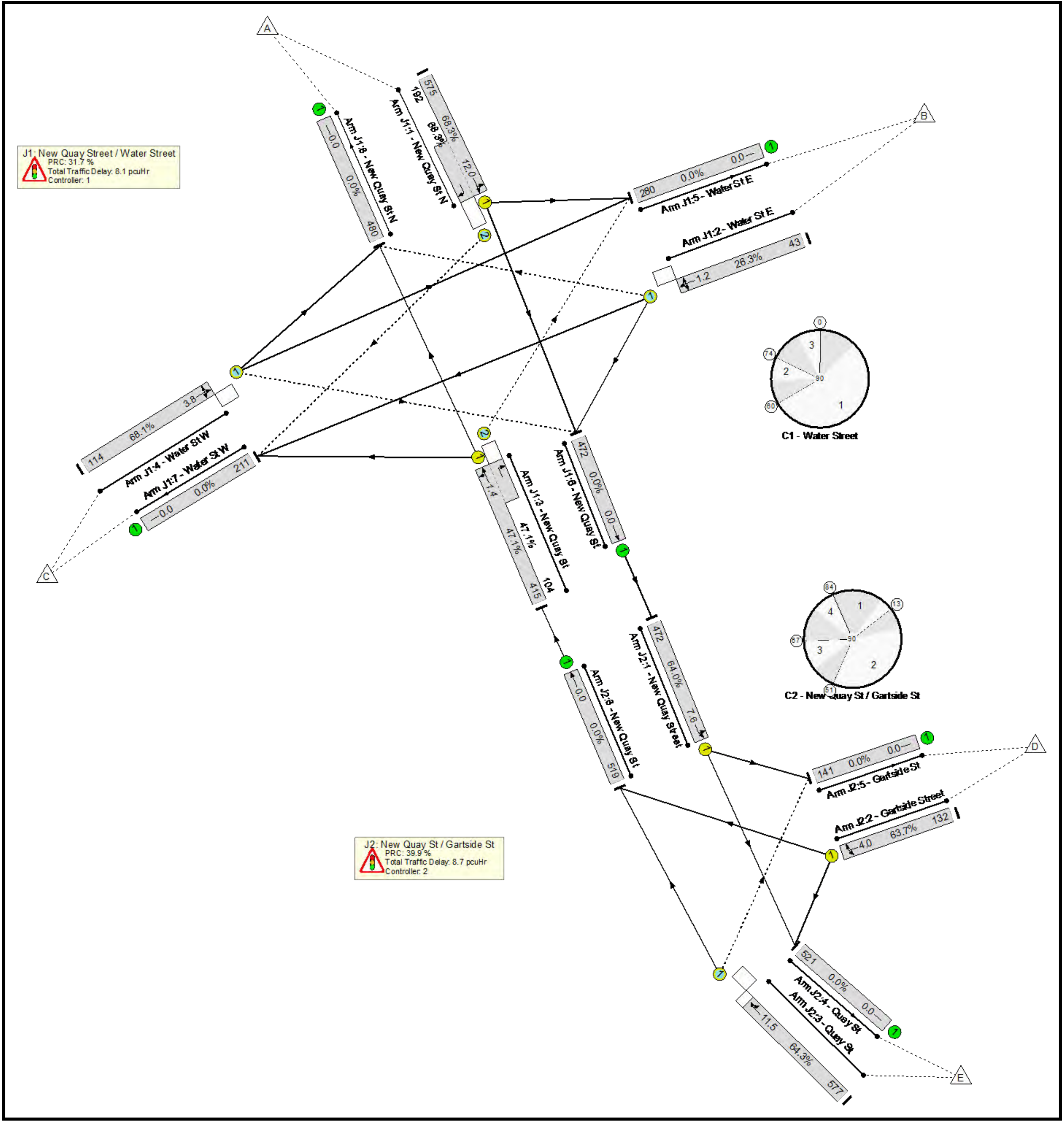


C2 - New Quay St / Gartside St



Scenario 4: '2032 DS AM' (FG4: '2032 DS AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram


A
B
C
D
E
J1: New Quay Street / Water Street
PRC: 31.7 %
Total Traffic Delay: 8.1 pcuHr
Controller: 1
Arm J1:8 - New Quay St N
0.0
0.0%
480
Arm J1:1 - New Quay St N
575
192
68.3%
68.3%
12.0
Arm J1:5 - Water St E
280
0.0%
0.0
Arm J1:2 - Water St E
43
26.3%
1.2
Arm J1:4 - Water St W
114
68.1%
3.8
Arm J1:7 - Water St W
211
0.0%
0.0
Arm J1:3 - New Quay St
1.4
47.1%
47.1%
415
104
Arm J1:6 - New Quay St
472
0.0%
0.0
C1 - Water Street
0
74
60
90
1
2
3
C2 - New Quay St / Gartside St
84
13
67
51
90
1
2
3
4
Arm J2:1 - New Quay Street
472
64.0%
7.6
Arm J2:6 - New Quay St
0.0
0.0%
519
Arm J2:5 - Gartside St
141
0.0%
0.0
Arm J2:2 - Gartside Street
132
63.7%
4.0
J2: New Quay St / Gartside St
PRC: 39.9 %
Total Traffic Delay: 8.7 pcuHr
Controller: 2
Arm J2:4 - Quay St
521
0.0%
0.0
Arm J2:3 - Quay St
11.5
64.3%
577

Basic Results Summary

Network Results

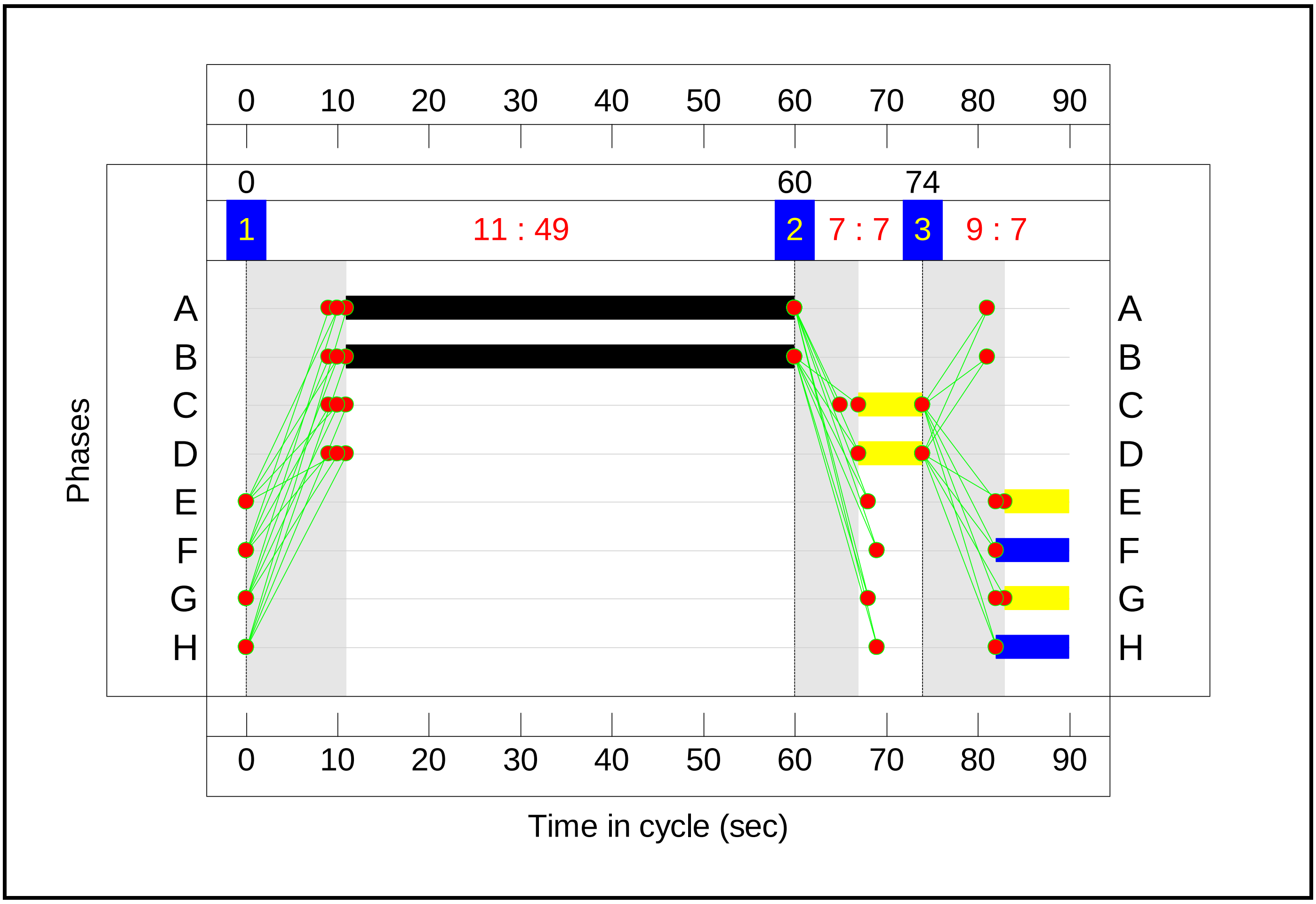
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Quay Street Corridor	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**68.3%**	**392**	**23**	**3**	**16.8**	**-**	**-**
J1: New Quay Street / Water Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**68.3%**	**319**	**0**	**2**	**8.1**	**-**	**-**
1/1+1/2	New Quay St N Left Ahead Right	U+O	C1:A		1	49	-	767	1876:1868	841+281	68.3 : 68.3%	190	0	2	4.1	19.1	12.0
2/1	Water St E Left Ahead Right	O	C1:C		1	7	-	43	1836	163	26.3%	16	0	0	0.7	54.9	1.2
3/1+3/2	New Quay St Right Left Ahead	U+O	C1:B		1	49	-	519	1915:1912	882+221	47.1 : 47.1%	104	0	0	1.1	7.5	1.4
4/1	Water St W Ahead Right Left	O	C1:D		1	7	-	114	1884	167	68.1%	9	0	0	2.3	72.2	3.8
J2: New Quay St / Gartside St	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**64.3%**	**73**	**23**	**1**	**8.7**	**-**	**-**
1/1	New Quay Street Ahead Left	U	C2:A		1	32	-	472	2011	737	64.0%	-	-	-	2.5	19.0	7.6
2/1	Gartside Street Left Right	U	C2:D		1	9	-	132	1866	207	63.7%	-	-	-	2.3	61.6	4.0
3/1	Quay St Right Ahead	O	C2:B	C2:C	1	42	4	577	1945	897	64.3%	73	23	1	4.0	24.9	11.5

C1 - Water Street PRC for Signalled Lanes (%): 31.7 Total Delay for Signalled Lanes (pcuHr): 8.11 Cycle Time (s): 90
C2 - New Quay St / Gartside St PRC for Signalled Lanes (%): 39.9 Total Delay for Signalled Lanes (pcuHr): 8.73 Cycle Time (s): 90
PRC Over All Lanes (%): 31.7 Total Delay Over All Lanes(pcuHr): 16.84

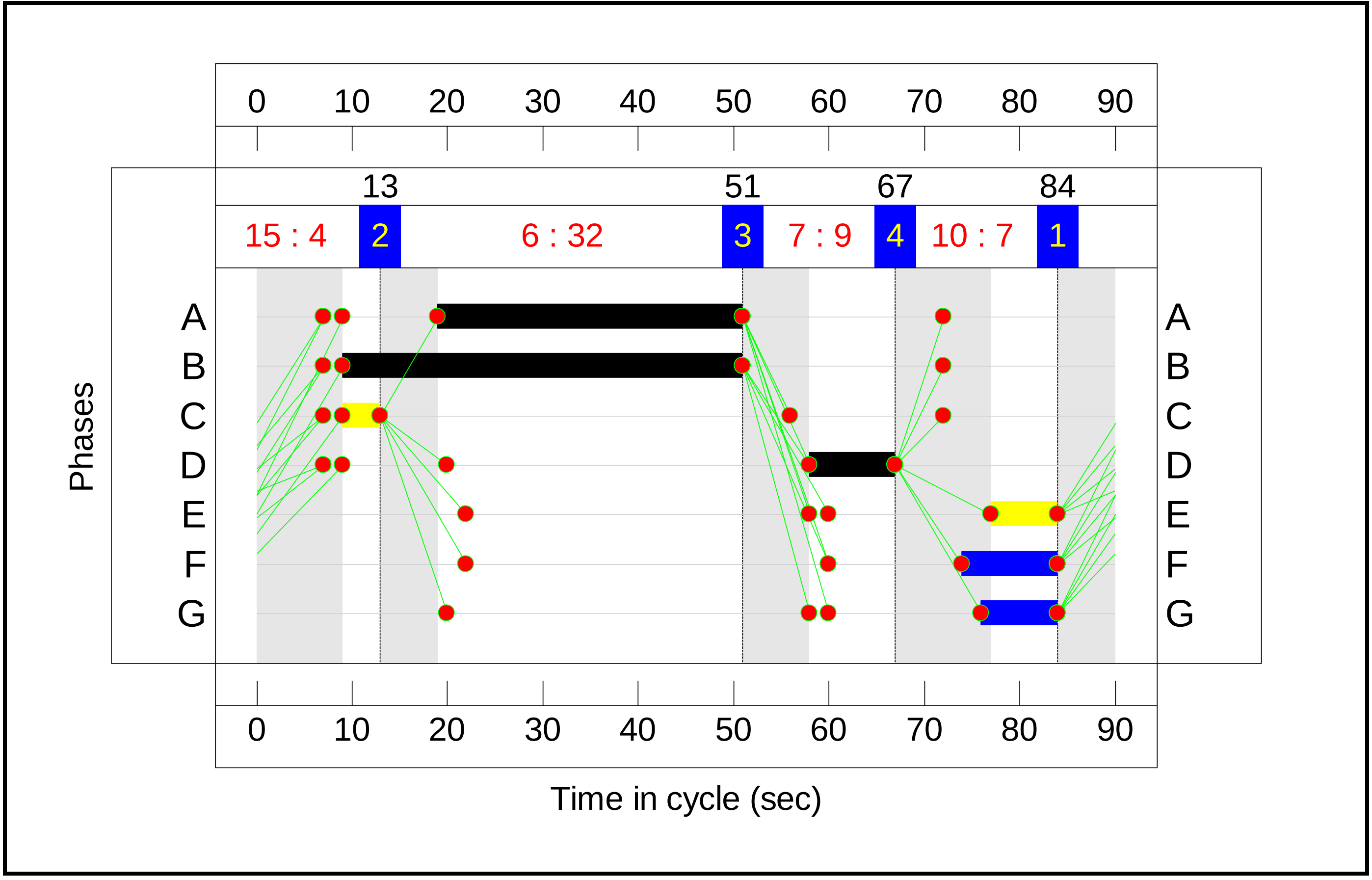
Basic Results Summary

Signal Timings Diagram

C1 - Water Street

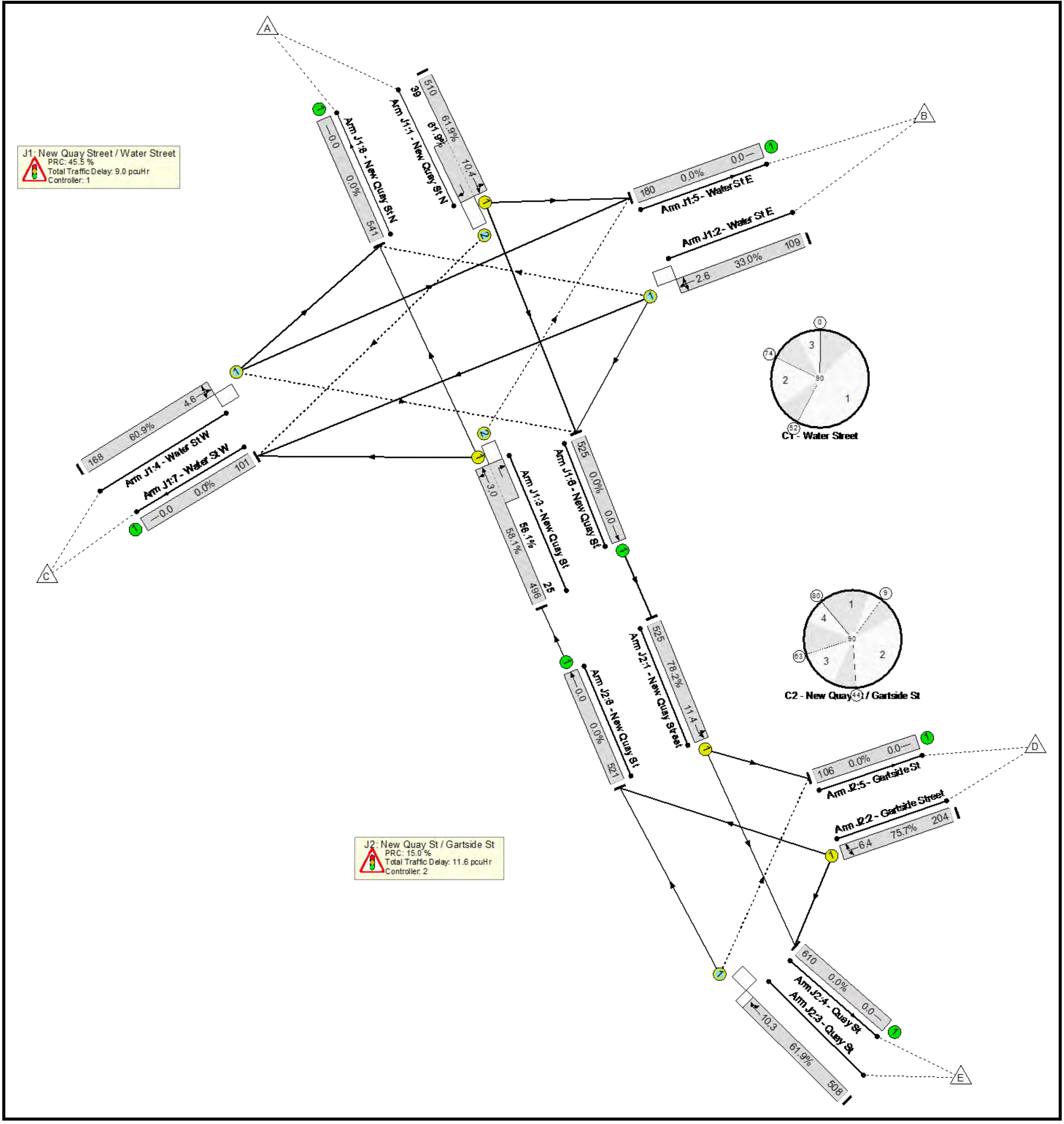


C2 - New Quay St / Gartside St



Scenario 5: '2032 DS PM' (FG5: '2032 DS PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram


A
B
C
D
E
J1: New Quay Street / Water Street
PRC: 45.5 %
Total Traffic Delay: 9.0 pcuHr
Controller: 1
J2: New Quay St / Gartside St
PRC: 15.0 %
Total Traffic Delay: 11.6 pcuHr
Controller: 2
Arm J1:1 - New Quay St N
510
61.9%
10.4
39
61.9%
Arm J1:8 - New Quay St N
0.0
0.0%
541
Arm J1:5 - Water St E
180
0.0%
0.0
Arm J1:2 - Water St E
109
33.0%
2.6
Arm J1:4 - Water St W
168
60.9%
4.6
Arm J1:7 - Water St W
101
0.0%
0.0
Arm J1:3 - New Quay St
3.0
58.1%
496
58.1%
25
Arm J1:6 - New Quay St
525
0.0%
0.0
C1 - Water Street
0
74
52
90
1
2
3
C2 - New Quay St / Gartside St
80
9
63
44
90
1
2
3
4
Arm J2:1 - New Quay Street
525
78.2%
11.4
Arm J2:6 - New Quay St
0.0
0.0%
521
Arm J2:5 - Gartside St
106
0.0%
0.0
Arm J2:2 - Gartside Street
204
75.7%
6.4
Arm J2:4 - Quay St
610
0.0%
0.0
Arm J2:3 - Quay St
10.3
61.9%
508

Basic Results Summary

Network Results

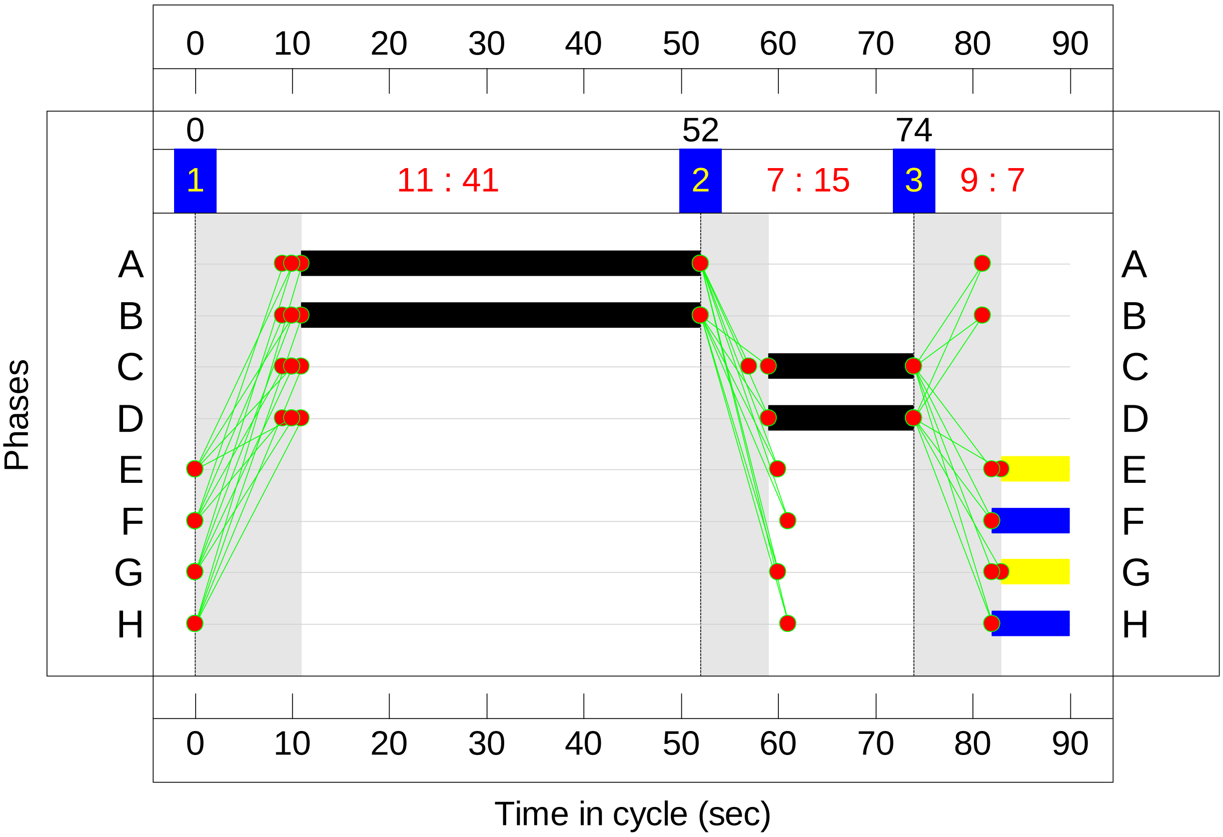
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Quay Street Corridor	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.2%**	**292**	**17**	**1**	**20.7**	**-**	**-**
J1: New Quay Street / Water Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**61.9%**	**246**	**0**	**0**	**9.0**	**-**	**-**
1/1+1/2	New Quay St N Left Ahead Right	U+O	C1:A		1	41	-	549	1866:1868	824+63	61.9 : 61.9%	39	0	0	3.6	23.7	10.4
2/1	Water St E Left Ahead Right	O	C1:C		1	15	-	109	1857	330	33.0%	42	0	0	1.2	40.5	2.6
3/1+3/2	New Quay St Right Left Ahead	U+O	C1:B		1	41	-	521	1913:1912	854+43	58.1 : 58.1%	25	0	0	1.7	11.8	3.0
4/1	Water St W Ahead Right Left	O	C1:D		1	15	-	168	1856	276	60.9%	140	0	0	2.5	53.3	4.6
J2: New Quay St / Gartside St	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.2%**	**46**	**17**	**1**	**11.6**	**-**	**-**
1/1	New Quay Street Ahead Left	U	C2:A		1	29	-	525	2013	671	78.2%	-	-	-	4.4	29.8	11.4
2/1	Gartside Street Left Right	U	C2:D		1	12	-	204	1865	269	75.7%	-	-	-	3.6	63.3	6.4
3/1	Quay St Right Ahead	O	C2:B	C2:C	1	39	4	508	1950	821	61.9%	46	17	1	3.7	26.2	10.3

C1 - Water Street PRC for Signalled Lanes (%): 45.5 Total Delay for Signalled Lanes (pcuHr): 9.04 Cycle Time (s): 90
C2 - New Quay St / Gartside St PRC for Signalled Lanes (%): 15.0 Total Delay for Signalled Lanes (pcuHr): 11.63 Cycle Time (s): 90
PRC Over All Lanes (%): 15.0 Total Delay Over All Lanes(pcuHr): 20.67

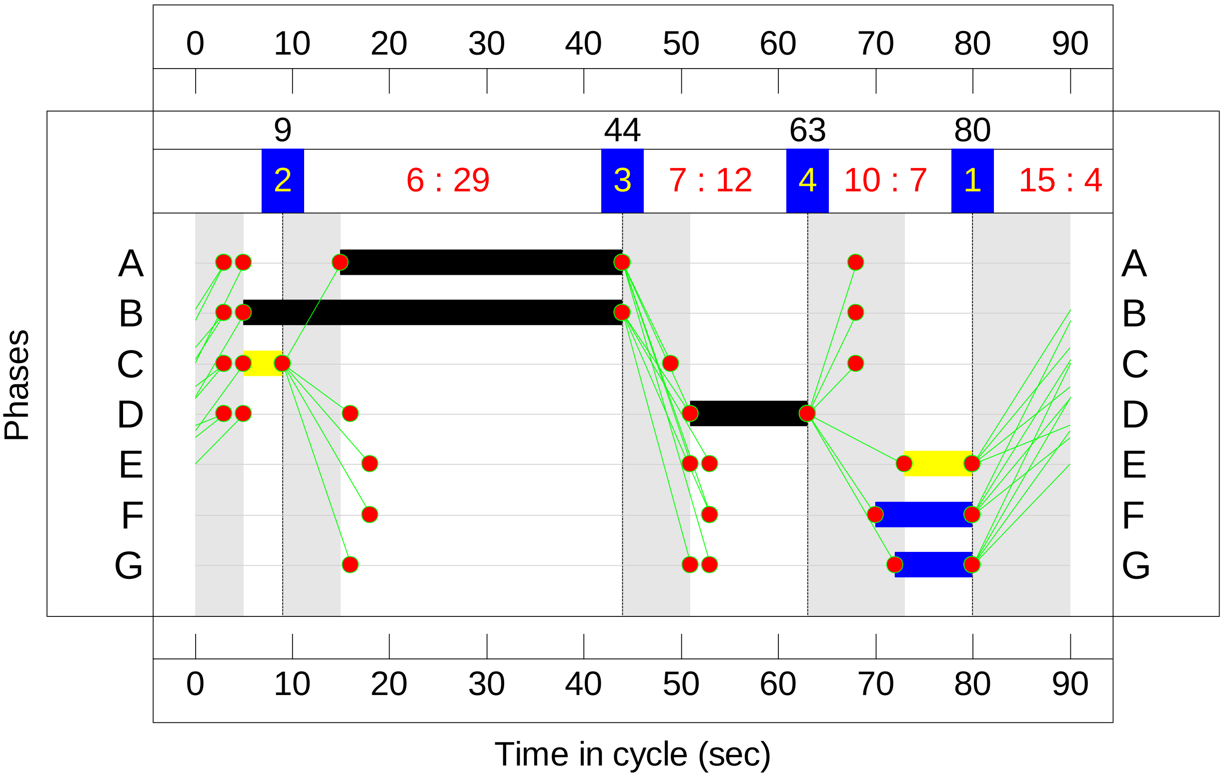
Basic Results Summary

Signal Timings Diagram

C1 - Water Street



C2 - New Quay St / Gartside St



APPENDIX H

‘Junctions 8’ Model Outputs

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.4.487 [15039,24/03/2014]
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Filename: WaterSt_LiverpoolRd v2.arc8
Path: N:\2015\VN50436 St Johns Masterplan\Picady
Report generation date: 12/10/2016 09:32:17

« Proposed Layout - 2017 DS am, AM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2017 DS am			
Stream B-C	0.59	14.08	0.37	B
Stream B-A	1.30	20.05	0.57	C
Stream C-A	-	-	-	-
Stream C-B	0.24	8.44	0.19	A
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - Traffic Count am, AM" model duration: 07:45 - 09:15
"D2 - Traffic Count pm, PM" model duration: 16:45 - 18:15
"D3 - 2017 DS am, AM " model duration: 07:45 - 09:15
"D4 - 2017 DS pm, PM" model duration: 16:45 - 18:15
"D6 - 2032 DS pm, PM" model duration: 16:45 - 18:15
"D7 - 2032 DS am, AM" model duration: 07:45 - 09:15
"D8 - Count+Dev70 pm, PM" model duration: 16:45 - 18:15
"D9 - Count+Dev70 am, AM" model duration: 07:45 - 09:15

Run using Junctions 8.0.4.487 at 12/10/2016 09:32:17

File summary

Title	(untitled)
Location	Liverpool Road
Site Number	
Date	20/09/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	VN50436
Enumerator	Office
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Proposed Layout - 2017 DS am, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Layout	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2017 DS am, AM	2017 DS am	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	Liverpool Road	T-Junction	Two-way	A,B,C		15.81	C

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Water St South		Major
B	B	Water St North		Minor
C	C	Liverpool Road		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	10.00		0.00	✓	2.50	60.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane plus flare				8.00	5.00	4.00	3.50	3.50		1.00	30	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	566.213	0.085	0.215	0.135	0.308
1	B-C	631.570	0.080	0.202	-	-
1	C-B	628.584	0.201	0.201	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	435.00	100.000
B	ONE HOUR	✓	355.00	100.000
C	ONE HOUR	✓	242.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	0.000	226.000	209.000
	B	216.000	0.000	139.000
	C	150.000	92.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	0.00	0.52	0.48
	B	0.61	0.00	0.39
	C	0.62	0.38	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	1.010	1.010	1.010
	B	1.010	1.010	1.010
	C	1.010	1.010	1.010

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	1.0	1.0	1.0
	B	1.0	1.0	1.0
	C	1.0	1.0	1.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-C	0.37	14.08	0.59	B	127.55	191.32	35.53	11.14	0.39	35.53	11.14
B-A	0.57	20.05	1.30	C	198.21	297.31	75.41	15.22	0.84	75.43	15.22
C-A	-	-	-	-	137.64	206.46	-	-	-	-	-
C-B	0.19	8.44	0.24	A	84.42	126.63	16.57	7.85	0.18	16.57	7.85
A-B	-	-	-	-	207.38	311.07	-	-	-	-	-
A-C	-	-	-	-	191.78	287.67	-	-	-	-	-

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	104.65	26.16	103.63	0.00	517.11	0.202	0.00	0.25	8.773	A
B-A	162.62	40.65	160.56	0.00	475.38	0.342	0.00	0.52	11.477	B
C-A	112.93	28.23	112.93	0.00	-	-	-	-	-	-
C-B	69.26	17.32	68.70	0.00	562.71	0.123	0.00	0.14	7.353	A
A-B	170.14	42.54	170.14	0.00	-	-	-	-	-	-
A-C	157.35	39.34	157.35	0.00	-	-	-	-	-	-

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	124.96	31.24	124.57	0.00	479.59	0.261	0.25	0.35	10.230	B
B-A	194.18	48.54	193.29	0.00	453.67	0.428	0.52	0.74	13.915	B
C-A	134.85	33.71	134.85	0.00	-	-	-	-	-	-
C-B	82.71	20.68	82.56	0.00	549.92	0.150	0.14	0.18	7.777	A
A-B	203.17	50.79	203.17	0.00	-	-	-	-	-	-
A-C	187.89	46.97	187.89	0.00	-	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	153.04	38.26	152.13	0.00	413.72	0.370	0.35	0.58	13.845	B
B-A	237.82	59.46	235.71	0.00	419.12	0.567	0.74	1.26	19.594	C
C-A	165.15	41.29	165.15	0.00	-	-	-	-	-	-
C-B	101.29	25.32	101.06	0.00	532.24	0.190	0.18	0.23	8.428	A
A-B	248.83	62.21	248.83	0.00	-	-	-	-	-	-
A-C	230.11	57.53	230.11	0.00	-	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	153.04	38.26	153.00	0.00	411.09	0.372	0.58	0.59	14.084	B
B-A	237.82	59.46	237.70	0.00	418.67	0.568	1.26	1.30	20.053	C
C-A	165.15	41.29	165.15	0.00	-	-	-	-	-	-
C-B	101.29	25.32	101.29	0.00	532.24	0.190	0.23	0.24	8.436	A
A-B	248.83	62.21	248.83	0.00	-	-	-	-	-	-
A-C	230.11	57.53	230.11	0.00	-	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	124.96	31.24	125.86	0.00	476.63	0.262	0.59	0.36	10.393	B
B-A	194.18	48.54	196.25	0.00	453.42	0.428	1.30	0.78	14.249	B
C-A	134.85	33.71	134.85	0.00	-	-	-	-	-	-
C-B	82.71	20.68	82.93	0.00	549.92	0.150	0.24	0.18	7.791	A
A-B	203.17	50.79	203.17	0.00	-	-	-	-	-	-
A-C	187.89	46.97	187.89	0.00	-	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	104.65	26.16	105.06	0.00	514.67	0.203	0.36	0.26	8.885	A
B-A	162.62	40.65	163.58	0.00	475.19	0.342	0.78	0.54	11.706	B
C-A	112.93	28.23	112.93	0.00	-	-	-	-	-	-
C-B	69.26	17.32	69.41	0.00	562.71	0.123	0.18	0.14	7.375	A
A-B	170.14	42.54	170.14	0.00	-	-	-	-	-	-
A-C	157.35	39.34	157.35	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	3.64	0.24	8.773	A	A
B-A	7.29	0.49	11.477	B	B
C-A	-	-	-	-	-
C-B	2.03	0.14	7.353	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	5.09	0.34	10.230	B	B
B-A	10.56	0.70	13.915	B	B
C-A	-	-	-	-	-
C-B	2.60	0.17	7.777	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	8.27	0.55	13.845	B	B
B-A	17.60	1.17	19.594	C	B
C-A	-	-	-	-	-
C-B	3.43	0.23	8.428	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:30-08:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	8.80	0.59	14.084	B	B
B-A	19.25	1.28	20.053	C	C
C-A	-	-	-	-	-
C-B	3.53	0.24	8.436	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:45-09:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	5.69	0.38	10.393	B	B
B-A	12.34	0.82	14.249	B	B
C-A	-	-	-	-	-
C-B	2.78	0.19	7.791	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:00-09:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	4.03	0.27	8.885	A	A
B-A	8.38	0.56	11.706	B	B
C-A	-	-	-	-	-
C-B	2.19	0.15	7.375	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.4.487 [15039,24/03/2014]
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Filename: WaterSt_LiverpoolRd v2.arc8
Path: N:\2015\VN50436 St Johns Masterplan\Picady
Report generation date: 12/10/2016 09:35:16

« Proposed Layout - 2017 DS pm, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2017 DS pm			
Stream B-C	0.60	19.88	0.38	C
Stream B-A	2.89	34.29	0.75	D
Stream C-A	-	-	-	-
Stream C-B	0.34	8.27	0.25	A
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - Traffic Count am, AM" model duration: 07:45 - 09:15
"D2 - Traffic Count pm, PM" model duration: 16:45 - 18:15
"D3 - 2017 DS am, AM" model duration: 07:45 - 09:15
"D4 - 2017 DS pm, PM " model duration: 16:45 - 18:15
"D6 - 2032 DS pm, PM" model duration: 16:45 - 18:15
"D7 - 2032 DS am, AM" model duration: 07:45 - 09:15
"D8 - Count+Dev70 pm, PM" model duration: 16:45 - 18:15
"D9 - Count+Dev70 am, AM" model duration: 07:45 - 09:15

Run using Junctions 8.0.4.487 at 12/10/2016 09:35:15

File summary

Title	(untitled)
Location	Liverpool Road
Site Number	
Date	20/09/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	VN50436
Enumerator	Office
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Proposed Layout - 2017 DS pm, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Layout	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2017 DS pm, PM	2017 DS pm	PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	Liverpool Road	T-Junction	Two-way	A,B,C		24.87	C

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Water St South		Major
B	B	Water St North		Minor
C	C	Liverpool Road		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	10.00		0.00	✓	2.50	60.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane plus flare				8.00	5.00	4.00	3.50	3.50		1.00	30	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	586.873	0.088	0.223	0.140	0.319
1	B-C	605.118	0.077	0.194	-	-
1	C-B	628.584	0.201	0.201	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	187.00	100.000
B	ONE HOUR	✓	391.00	100.000
C	ONE HOUR	✓	567.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	0.000	91.000	96.000
	B	290.000	0.000	101.000
	C	433.000	134.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	0.00	0.49	0.51
	B	0.74	0.00	0.26
	C	0.76	0.24	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	1.010	1.010	1.010
	B	1.010	1.010	1.010
	C	1.010	1.010	1.010

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
From		**A**	**B**	**C**
	A	1.0	1.0	1.0
	B	1.0	1.0	1.0
	C	1.0	1.0	1.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-C	0.38	19.88	0.60	C	92.68	139.02	31.09	13.42	0.35	31.10	13.42
B-A	0.75	34.29	2.89	D	266.11	399.16	143.63	21.59	1.60	143.68	21.60
C-A	-	-	-	-	397.33	595.99	-	-	-	-	-
C-B	0.25	8.27	0.34	A	122.96	184.44	23.73	7.72	0.26	23.73	7.72
A-B	-	-	-	-	83.50	125.25	-	-	-	-	-
A-C	-	-	-	-	88.09	132.14	-	-	-	-	-

Main Results for each time segment

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	76.04	19.01	75.28	0.00	478.45	0.159	0.00	0.19	9.003	A
B-A	218.33	54.58	215.08	0.00	482.57	0.452	0.00	0.81	13.439	B
C-A	325.99	81.50	325.99	0.00	-	-	-	-	-	-
C-B	100.88	25.22	100.07	0.00	600.26	0.168	0.00	0.20	7.257	A
A-B	68.51	17.13	68.51	0.00	-	-	-	-	-	-
A-C	72.27	18.07	72.27	0.00	-	-	-	-	-	-

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	90.80	22.70	90.45	0.00	419.84	0.216	0.19	0.27	11.027	B
B-A	260.70	65.18	258.87	0.00	459.22	0.568	0.81	1.27	17.975	C
C-A	389.26	97.31	389.26	0.00	-	-	-	-	-	-
C-B	120.46	30.12	120.26	0.00	594.77	0.203	0.20	0.25	7.658	A
A-B	81.81	20.45	81.81	0.00	-	-	-	-	-	-
A-C	86.30	21.58	86.30	0.00	-	-	-	-	-	-

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	111.20	27.80	110.04	0.00	304.06	0.366	0.27	0.56	18.630	C
B-A	319.30	79.82	313.49	0.00	423.73	0.754	1.27	2.72	31.410	D
C-A	476.74	119.19	476.74	0.00	-	-	-	-	-	-
C-B	147.54	36.88	147.21	0.00	587.17	0.251	0.25	0.33	8.258	A
A-B	100.19	25.05	100.19	0.00	-	-	-	-	-	-
A-C	105.70	26.42	105.70	0.00	-	-	-	-	-	-

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	111.20	27.80	111.06	0.00	293.75	0.379	0.56	0.60	19.877	C
B-A	319.30	79.82	318.61	0.00	422.97	0.755	2.72	2.89	34.285	D
C-A	476.74	119.19	476.74	0.00	-	-	-	-	-	-
C-B	147.54	36.88	147.53	0.00	587.17	0.251	0.33	0.34	8.270	A
A-B	100.19	25.05	100.19	0.00	-	-	-	-	-	-
A-C	105.70	26.42	105.70	0.00	-	-	-	-	-	-

Main results: (17:45-18:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	90.80	22.70	92.03	0.00	409.71	0.222	0.60	0.29	11.489	B
B-A	260.70	65.18	266.72	0.00	458.66	0.568	2.89	1.39	19.487	C
C-A	389.26	97.31	389.26	0.00	-	-	-	-	-	-
C-B	120.46	30.12	120.77	0.00	594.77	0.203	0.34	0.26	7.675	A
A-B	81.81	20.45	81.81	0.00	-	-	-	-	-	-
A-C	86.30	21.58	86.30	0.00	-	-	-	-	-	-

Main results: (18:00-18:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	76.04	19.01	76.42	0.00	473.37	0.161	0.29	0.20	9.168	A
B-A	218.33	54.58	220.45	0.00	482.17	0.453	1.39	0.86	14.005	B
C-A	325.99	81.50	325.99	0.00	-	-	-	-	-	-
C-B	100.88	25.22	101.10	0.00	600.26	0.168	0.26	0.21	7.289	A
A-B	68.51	17.13	68.51	0.00	-	-	-	-	-	-
A-C	72.27	18.07	72.27	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.71	0.18	9.003	A	A
B-A	11.33	0.76	13.439	B	B
C-A	-	-	-	-	-
C-B	2.92	0.19	7.257	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:00-17:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	3.98	0.27	11.027	B	B
B-A	17.85	1.19	17.975	C	B
C-A	-	-	-	-	-
C-B	3.72	0.25	7.658	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:15-17:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	7.93	0.53	18.630	C	B
B-A	35.59	2.37	31.410	D	C
C-A	-	-	-	-	-
C-B	4.89	0.33	8.258	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:30-17:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	8.83	0.59	19.877	C	B
B-A	42.36	2.82	34.285	D	C
C-A	-	-	-	-	-
C-B	5.04	0.34	8.270	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:45-18:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	4.60	0.31	11.489	B	B
B-A	22.87	1.52	19.487	C	B
C-A	-	-	-	-	-
C-B	3.99	0.27	7.675	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (18:00-18:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	3.03	0.20	9.168	A	A
B-A	13.63	0.91	14.005	B	B
C-A	-	-	-	-	-
C-B	3.16	0.21	7.289	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.4.487 [15039,24/03/2014]
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Filename: WaterSt_LiverpoolRd v2.arc8
Path: N:\2015\VN50436 St Johns Masterplan\Picady
Report generation date: 12/10/2016 09:38:24

« Proposed Layout - 2032 DS am, AM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

Summary of junction performance

	AM			
	Queue (PCU)	**Delay (s)**	**RFC**	**LOS**
	Proposed Layout - 2032 DS am			
Stream B-C	0.32	9.79	0.24	A
Stream B-A	0.67	13.19	0.40	B
Stream C-A	-	-	-	-
Stream C-B	0.17	7.64	0.14	A
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - Traffic Count am, AM" model duration: 07:45 - 09:15
"D2 - Traffic Count pm, PM" model duration: 16:45 - 18:15
"D3 - 2017 DS am, AM" model duration: 07:45 - 09:15
"D4 - 2017 DS pm, PM" model duration: 16:45 - 18:15
"D6 - 2032 DS pm, PM" model duration: 16:45 - 18:15
"D7 - 2032 DS am, AM " model duration: 07:45 - 09:15
"D8 - Count+Dev70 pm, PM" model duration: 16:45 - 18:15
"D9 - Count+Dev70 am, AM" model duration: 07:45 - 09:15

Run using Junctions 8.0.4.487 at 12/10/2016 09:38:23

File summary

Title	(untitled)
Location	Liverpool Road
Site Number	
Date	20/09/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	VN50436
Enumerator	Office
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Proposed Layout - 2032 DS am, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Layout	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2032 DS am, AM	2032 DS am	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	Liverpool Road	T-Junction	Two-way	A,B,C		11.00	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Water St South		Major
B	B	Water St North		Minor
C	C	Liverpool Road		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	10.00		0.00	✓	2.50	60.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane plus flare				8.00	5.00	4.00	3.50	3.50		1.00	30	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	566.296	0.085	0.215	0.135	0.308
1	B-C	631.465	0.080	0.202	-	-
1	C-B	628.584	0.201	0.201	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	338.00	100.000
B	ONE HOUR	✓	276.00	100.000
C	ONE HOUR	✓	188.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	176.000	162.000
	B	168.000	0.000	108.000
	C	117.000	71.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.52	0.48
	B	0.61	0.00	0.39
	C	0.62	0.38	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.010	1.010	1.010
	B	1.010	1.010	1.010
	C	1.010	1.010	1.010

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.0	1.0	1.0
	B	1.0	1.0	1.0
	C	1.0	1.0	1.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-C	0.24	9.79	0.32	A	99.10	148.65	21.52	8.69	0.24	21.52	8.69
B-A	0.40	13.19	0.67	B	154.16	231.24	43.62	11.32	0.48	43.62	11.32
C-A	-	-	-	-	107.36	161.04	-	-	-	-	-
C-B	0.14	7.64	0.17	A	65.15	97.73	11.81	7.25	0.13	11.81	7.25
A-B	-	-	-	-	161.50	242.25	-	-	-	-	-
A-C	-	-	-	-	148.65	222.98	-	-	-	-	-

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	81.31	20.33	80.61	0.00	550.01	0.148	0.00	0.17	7.736	A
B-A	126.48	31.62	125.12	0.00	497.82	0.254	0.00	0.34	9.722	A
C-A	88.08	22.02	88.08	0.00	-	-	-	-	-	-
C-B	53.45	13.36	53.04	0.00	577.40	0.093	0.00	0.10	6.934	A
A-B	132.50	33.13	132.50	0.00	-	-	-	-	-	-
A-C	121.96	30.49	121.96	0.00	-	-	-	-	-	-

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	97.09	24.27	96.88	0.00	527.52	0.184	0.17	0.23	8.438	A
B-A	151.03	37.76	150.58	0.00	482.88	0.313	0.34	0.45	10.926	B
C-A	105.18	26.30	105.18	0.00	-	-	-	-	-	-
C-B	63.83	15.96	63.73	0.00	567.46	0.112	0.10	0.13	7.215	A
A-B	158.22	39.56	158.22	0.00	-	-	-	-	-	-
A-C	145.63	36.41	145.63	0.00	-	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	118.91	29.73	118.54	0.00	491.21	0.242	0.23	0.32	9.746	A
B-A	184.97	46.24	184.13	0.00	460.55	0.402	0.45	0.66	13.113	B
C-A	128.82	32.20	128.82	0.00	-	-	-	-	-	-
C-B	78.17	19.54	78.02	0.00	553.72	0.141	0.13	0.16	7.641	A
A-B	193.78	48.44	193.78	0.00	-	-	-	-	-	-
A-C	178.37	44.59	178.37	0.00	-	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	118.91	29.73	118.90	0.00	490.45	0.242	0.32	0.32	9.785	A
B-A	184.97	46.24	184.94	0.00	460.49	0.402	0.66	0.67	13.191	B
C-A	128.82	32.20	128.82	0.00	-	-	-	-	-	-
C-B	78.17	19.54	78.17	0.00	553.72	0.141	0.16	0.17	7.644	A
A-B	193.78	48.44	193.78	0.00	-	-	-	-	-	-
A-C	178.37	44.59	178.37	0.00	-	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	97.09	24.27	97.45	0.00	526.52	0.184	0.32	0.23	8.482	A
B-A	151.03	37.76	151.84	0.00	482.88	0.313	0.67	0.47	11.009	B
C-A	105.18	26.30	105.18	0.00	-	-	-	-	-	-
C-B	63.83	15.96	63.97	0.00	567.46	0.112	0.17	0.13	7.225	A
A-B	158.22	39.56	158.22	0.00	-	-	-	-	-	-
A-C	145.63	36.41	145.63	0.00	-	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	81.31	20.33	81.52	0.00	548.80	0.148	0.23	0.18	7.786	A
B-A	126.48	31.62	126.95	0.00	497.80	0.254	0.47	0.35	9.817	A
C-A	88.08	22.02	88.08	0.00	-	-	-	-	-	-
C-B	53.45	13.36	53.55	0.00	577.40	0.093	0.13	0.10	6.941	A
A-B	132.50	33.13	132.50	0.00	-	-	-	-	-	-
A-C	121.96	30.49	121.96	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.51	0.17	7.736	A	A
B-A	4.85	0.32	9.722	A	A
C-A	-	-	-	-	-
C-B	1.48	0.10	6.934	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	3.30	0.22	8.438	A	A
B-A	6.56	0.44	10.926	B	B
C-A	-	-	-	-	-
C-B	1.87	0.12	7.215	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	4.63	0.31	9.746	A	A
B-A	9.51	0.63	13.113	B	B
C-A	-	-	-	-	-
C-B	2.41	0.16	7.641	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:30-08:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	4.80	0.32	9.785	A	A
B-A	10.01	0.67	13.191	B	B
C-A	-	-	-	-	-
C-B	2.47	0.16	7.644	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:45-09:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	3.57	0.24	8.482	A	A
B-A	7.29	0.49	11.009	B	B
C-A	-	-	-	-	-
C-B	1.98	0.13	7.225	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:00-09:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.73	0.18	7.786	A	A
B-A	5.40	0.36	9.817	A	A
C-A	-	-	-	-	-
C-B	1.59	0.11	6.941	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.4.487 [15039,24/03/2014]
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Filename: WaterSt_LiverpoolRd v2.arc8
Path: N:\2015\VN50436 St Johns Masterplan\Picady
Report generation date: 12/10/2016 09:43:05

« Proposed Layout - 2032 DS pm, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2032 DS pm			
Stream B-C	0.29	11.44	0.23	B
Stream B-A	1.37	18.96	0.58	C
Stream C-A	-	-	-	-
Stream C-B	0.26	7.70	0.21	A
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - Traffic Count am, AM" model duration: 07:45 - 09:15
"D2 - Traffic Count pm, PM" model duration: 16:45 - 18:15
"D3 - 2017 DS am, AM" model duration: 07:45 - 09:15
"D4 - 2017 DS pm, PM" model duration: 16:45 - 18:15
"D6 - 2032 DS pm, PM " model duration: 16:45 - 18:15
"D7 - 2032 DS am, AM" model duration: 07:45 - 09:15
"D8 - Count+Dev70 pm, PM" model duration: 16:45 - 18:15
"D9 - Count+Dev70 am, AM" model duration: 07:45 - 09:15

Run using Junctions 8.0.4.487 at 12/10/2016 09:43:04

File summary

Title	(untitled)
Location	Liverpool Road
Site Number	
Date	20/09/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	VN50436
Enumerator	Office
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Proposed Layout - 2032 DS pm, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Layout	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2032 DS pm, PM	2032 DS pm	PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	Liverpool Road	T-Junction	Two-way	A,B,C		14.65	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Water St South		Major
B	B	Water St North		Minor
C	C	Liverpool Road		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	10.00		0.00	✓	2.50	60.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane plus flare				8.00	5.00	4.00	3.50	3.50		1.00	30	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	586.853	0.088	0.223	0.140	0.319
1	B-C	605.143	0.077	0.194	-	-
1	C-B	628.584	0.201	0.201	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	155.00	100.000
B	ONE HOUR	✓	325.00	100.000
C	ONE HOUR	✓	471.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	76.000	79.000
	B	241.000	0.000	84.000
	C	360.000	111.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.49	0.51
	B	0.74	0.00	0.26
	C	0.76	0.24	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.010	1.010	1.010
	B	1.010	1.010	1.010
	C	1.010	1.010	1.010

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.0	1.0	1.0
	B	1.0	1.0	1.0
	C	1.0	1.0	1.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-C	0.23	11.44	0.29	B	77.08	115.62	18.46	9.58	0.21	18.46	9.58
B-A	0.58	18.96	1.37	C	221.15	331.72	80.90	14.63	0.90	80.92	14.64
C-A	-	-	-	-	330.34	495.51	-	-	-	-	-
C-B	0.21	7.70	0.26	A	101.86	152.78	18.56	7.29	0.21	18.56	7.29
A-B	-	-	-	-	69.74	104.61	-	-	-	-	-
A-C	-	-	-	-	72.49	108.74	-	-	-	-	-

Main Results for each time segment

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	63.24	15.81	62.68	0.00	513.88	0.123	0.00	0.14	8.049	A
B-A	181.44	45.36	179.19	0.00	501.57	0.362	0.00	0.56	11.204	B
C-A	271.03	67.76	271.03	0.00	-	-	-	-	-	-
C-B	83.57	20.89	82.93	0.00	605.11	0.138	0.00	0.16	6.954	A
A-B	57.22	14.30	57.22	0.00	-	-	-	-	-	-
A-C	59.48	14.87	59.48	0.00	-	-	-	-	-	-

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	75.51	18.88	75.33	0.00	478.43	0.158	0.14	0.19	9.016	A
B-A	216.65	54.16	215.70	0.00	483.38	0.448	0.56	0.80	13.532	B
C-A	323.63	80.91	323.63	0.00	-	-	-	-	-	-
C-B	99.79	24.95	99.63	0.00	600.55	0.166	0.16	0.20	7.257	A
A-B	68.32	17.08	68.32	0.00	-	-	-	-	-	-
A-C	71.02	17.75	71.02	0.00	-	-	-	-	-	-

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	92.49	23.12	92.09	0.00	412.94	0.224	0.19	0.29	11.319	B
B-A	265.35	66.34	263.20	0.00	456.83	0.581	0.80	1.34	18.565	C
C-A	396.37	99.09	396.37	0.00	-	-	-	-	-	-
C-B	122.21	30.55	121.98	0.00	594.25	0.206	0.20	0.26	7.694	A
A-B	83.68	20.92	83.68	0.00	-	-	-	-	-	-
A-C	86.98	21.75	86.98	0.00	-	-	-	-	-	-

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	92.49	23.12	92.47	0.00	410.26	0.225	0.29	0.29	11.441	B
B-A	265.35	66.34	265.22	0.00	456.66	0.581	1.34	1.37	18.960	C
C-A	396.37	99.09	396.37	0.00	-	-	-	-	-	-
C-B	122.21	30.55	122.21	0.00	594.25	0.206	0.26	0.26	7.702	A
A-B	83.68	20.92	83.68	0.00	-	-	-	-	-	-
A-C	86.98	21.75	86.98	0.00	-	-	-	-	-	-

Main results: (17:45-18:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	75.51	18.88	75.91	0.00	475.52	0.159	0.29	0.19	9.107	A
B-A	216.65	54.16	218.75	0.00	483.24	0.448	1.37	0.84	13.856	B
C-A	323.63	80.91	323.63	0.00	-	-	-	-	-	-
C-B	99.79	24.95	100.01	0.00	600.55	0.166	0.26	0.20	7.269	A
A-B	68.32	17.08	68.32	0.00	-	-	-	-	-	-
A-C	71.02	17.75	71.02	0.00	-	-	-	-	-	-

Main results: (18:00-18:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	63.24	15.81	63.44	0.00	511.48	0.124	0.19	0.14	8.118	A
B-A	181.44	45.36	182.47	0.00	501.33	0.362	0.84	0.58	11.442	B
C-A	271.03	67.76	271.03	0.00	-	-	-	-	-	-
C-B	83.57	20.89	83.73	0.00	605.11	0.138	0.20	0.16	6.975	A
A-B	57.22	14.30	57.22	0.00	-	-	-	-	-	-
A-C	59.48	14.87	59.48	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.03	0.14	8.049	A	A
B-A	7.95	0.53	11.204	B	B
C-A	-	-	-	-	-
C-B	2.33	0.16	6.954	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:00-17:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.73	0.18	9.016	A	A
B-A	11.46	0.76	13.532	B	B
C-A	-	-	-	-	-
C-B	2.93	0.20	7.257	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:15-17:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	4.15	0.28	11.319	B	B
B-A	18.66	1.24	18.565	C	B
C-A	-	-	-	-	-
C-B	3.79	0.25	7.694	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:30-17:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	4.34	0.29	11.441	B	B
B-A	20.33	1.36	18.960	C	B
C-A	-	-	-	-	-
C-B	3.89	0.26	7.702	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:45-18:00)

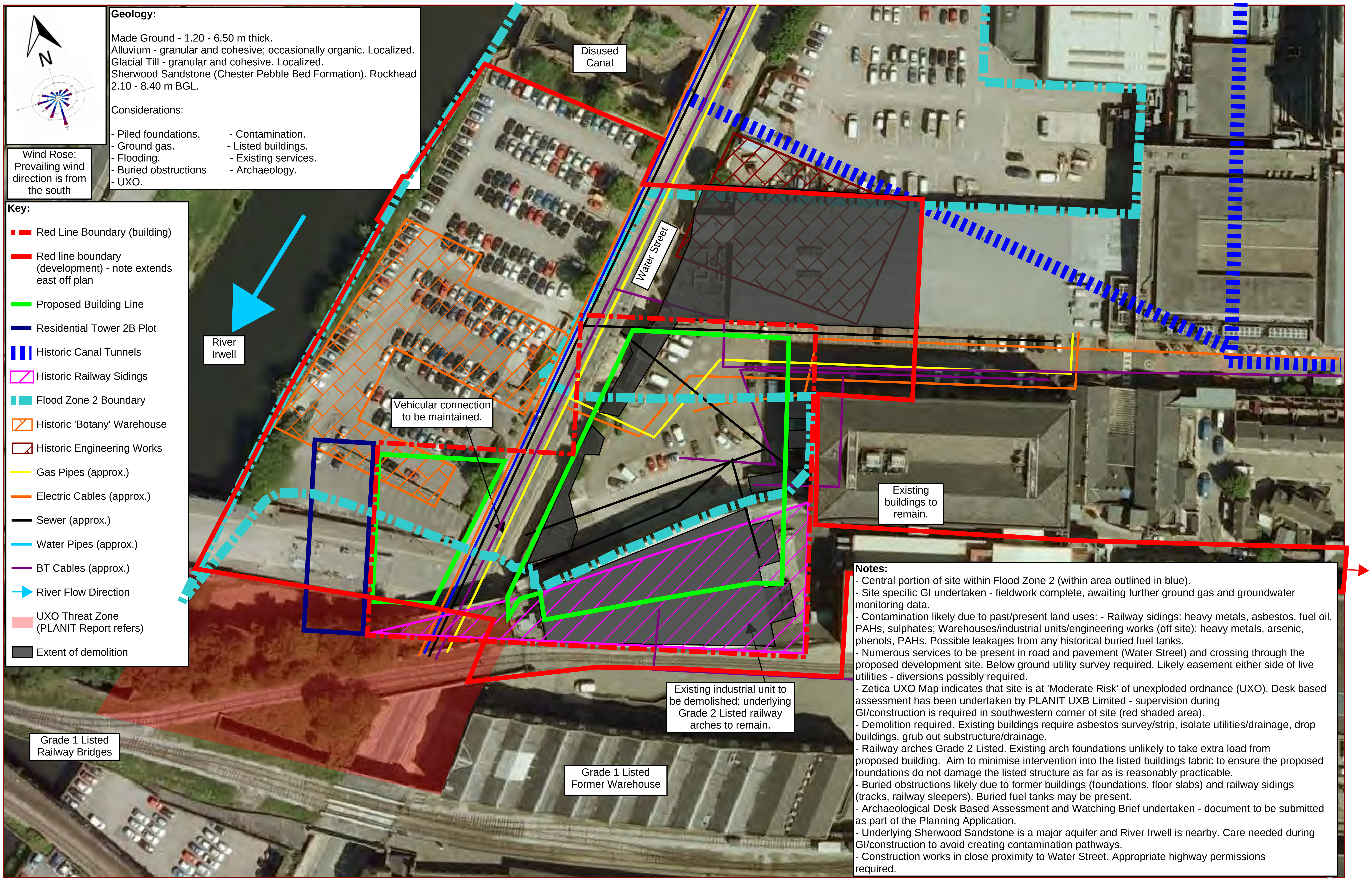
Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.99	0.20	9.107	A	A
B-A	13.37	0.89	13.856	B	B
C-A	-	-	-	-	-
C-B	3.12	0.21	7.269	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (18:00-18:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.22	0.15	8.118	A	A
B-A	9.13	0.61	11.442	B	B
C-A	-	-	-	-	-
C-B	2.50	0.17	6.975	A	A
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Appendix 12.1

Site Constraints Plan


N
Disused Canal
River Irwell
Water Street
Vehicular connection to be maintained.
Existing buildings to remain.
Existing industrial unit to be demolished; underlying Grade 2 Listed railway arches to remain.
Grade 1 Listed Railway Bridges
Grade 1 Listed Former Warehouse

Wind Rose: Prevailing wind direction is from the south

Geology:

Made Ground - 1.20 - 6.50 m thick.
Alluvium - granular and cohesive; occasionally organic. Localized.
Glacial Till - granular and cohesive. Localized.
Sherwood Sandstone (Chester Pebble Bed Formation). Rockhead 2.10 - 8.40 m BGL.

Considerations:

- Piled foundations.
- Ground gas.
- Flooding.
- Buried obstructions
- UXO.
- Contamination.
- Listed buildings.
- Existing services.
- Archaeology.

Key:

Red Line Boundary (building)
Red line boundary (development) - note extends east off plan
Proposed Building Line
Residential Tower 2B Plot
Historic Canal Tunnels
Historic Railway Sidings
Flood Zone 2 Boundary
Historic 'Botany' Warehouse
Historic Engineering Works
Gas Pipes (approx.)
Electric Cables (approx.)
Sewer (approx.)
Water Pipes (approx.)
BT Cables (approx.)
River Flow Direction
UXO Threat Zone (PLANIT Report refers)
Extent of demolition

Notes:

- Central portion of site within Flood Zone 2 (within area outlined in blue).
- Site specific GI undertaken - fieldwork complete, awaiting further ground gas and groundwater monitoring data.
- Contamination likely due to past/present land uses: - Railway sidings: heavy metals, asbestos, fuel oil, PAHs, sulphates; Warehouses/industrial units/engineering works (off site): heavy metals, arsenic, phenols, PAHs. Possible leakages from any historical buried fuel tanks.
- Numerous services to be present in road and pavement (Water Street) and crossing through the proposed development site. Below ground utility survey required. Likely easement either side of live utilities - diversions possibly required.
- Zetica UXO Map indicates that site is at 'Moderate Risk' of unexploded ordnance (UXO). Desk based assessment has been undertaken by PLANIT UXB Limited - supervision during GI/construction is required in southwestern corner of site (red shaded area).
- Demolition required. Existing buildings require asbestos survey/strip, isolate utilities/drainage, drop buildings, grub out substructure/drainage.
- Railway arches Grade 2 Listed. Existing arch foundations unlikely to take extra load from proposed building. Aim to minimise intervention into the listed buildings fabric to ensure the proposed foundations do not damage the listed structure as far as is reasonably practicable.
- Buried obstructions likely due to former buildings (foundations, floor slabs) and railway sidings (tracks, railway sleepers). Buried fuel tanks may be present.
- Archaeological Desk Based Assessment and Watching Brief undertaken - document to be submitted as part of the Planning Application.
- Underlying Sherwood Sandstone is a major aquifer and River Irwell is nearby. Care needed during GI/construction to avoid creating contamination pathways.
- Construction works in close proximity to Water Street. Appropriate highway permissions required.

BUROHAPPOLD
ENGINEERING

JOB TITLE:	Factory, Manchester.	JOB NUMBER:	034933	DATE:	7/09/2016
SKETCH TITLE:	Site Constraints Plan Rev03	SKETCH NUMBER:	Figure 3	INITIALS:	GM/PH

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Appendix 12.2

Coal Authority Non-Residential Coal Mining Report

The Coal
Authority

Issued by:
The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848

LANDMARK INFORMATION GROUP LIMITED
SOWTON INDUSTRIAL ESTATE
ABBEY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY

Our reference:	**51001098500001**
Your reference:	**79633581_2|**
Date of your enquiry:	**10 February 2016**
Date we received your enquiry:	**10 February 2016**
Date of issue:	**10 February 2016**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

121, WATER STREET, MANCHESTER, GREATER MANCHESTER

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

According to the records in our possession, the property is not within the zone of likely physical influence on the surface from past underground workings.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

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However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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Location map

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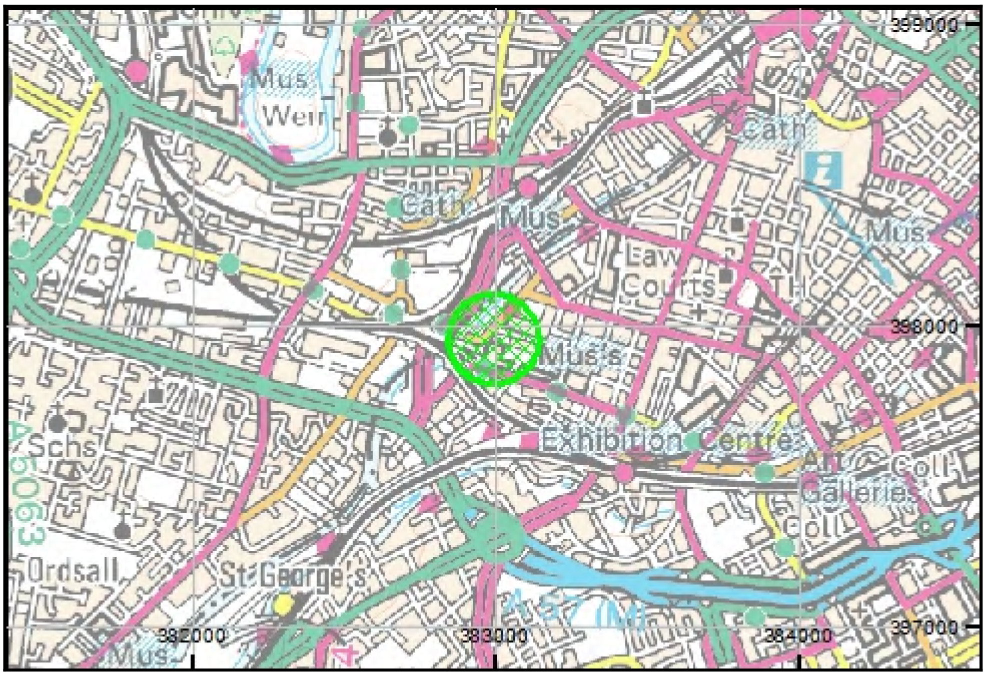
Approximate position
of property



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Enquiry boundary

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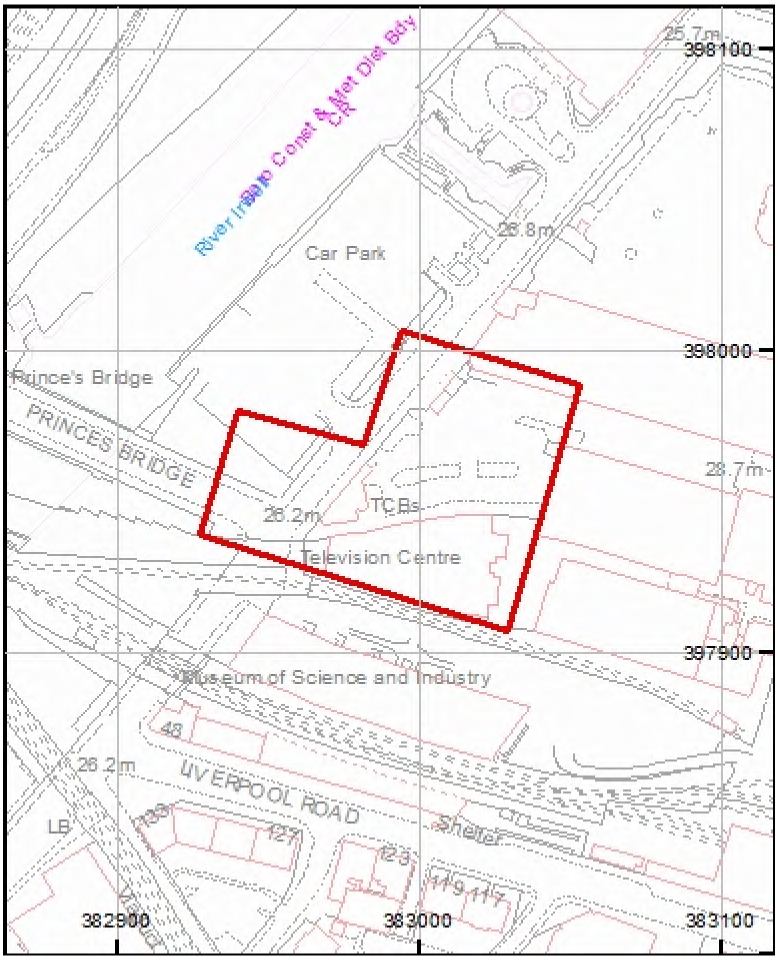

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River Irwell
Co Const & Met Dist Bdy
CR
26.8m
Car Park
398000
Prince's Bridge
PRINCES BRIDGE
28.7m
26.2m
TCBs
Television Centre
397900
Museum of Science and Industry
48
26.2m
LIVERPOOL ROAD
LB
133
127
Shelter
123
119
117
382900
383000
383100

Key

Approximate position of enquiry boundary shown 🟥

Mapping sourced from Ordnance Survey

Appendix 12.3

Ground Engineering Desk Study Report – Factory, Manchester

BUROHAPPOLD
ENGINEERING

Factory, Manchester

Ground Engineering Desk Study Report

034933

6 September 2016

Revision 01

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Revision	Description	Issued by	Date	Checked
00	Ground Engineering Desk Study Report	GM	19/07/16	CoH, RF
01	Ground Engineering Desk Study Report	GM	06/09/16	CoH, RF

O:\034933 The Factory, Manchester\F9 Ground Engineering - Site Investigation\03 Reports\Desk Study\160906 GM 034933 Ground Engineering Desk Study Report 01.docx

This report has been prepared for the sole benefit, use and information of Manchester City Council for the purposes set out in the report or instructions commissioning it. The liability of Buro Happold Limited in respect of the information contained in the report will not extend to any third party.

author	**George Mitchell**
Date	**6 September 2016**
approved	**Chris O'Hara and Rob Frost**
Signature	silc SPECIALIST IN LAND CONDITION Rob Frost Reg No. 71596
date	**6 September 2016**

..

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Appendix K – PLANIT Explosive Ordnance Threat Assessment

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1 Introduction

BuroHappold Engineering Limited has been appointed by Manchester City Council to undertake site investigation works for the proposed development of a new build cultural venue ('Factory') within the St John's Masterplan, Water Street, Manchester, herein referred to as 'the Site'.

The Site is located in Manchester City Centre, approximately 550 m northwest of Deansgate Railway Station and forms part of the St. John's Masterplan area (St. John's comprises the former ITV Quay Street estate in Manchester City Centre). The site was acquired in March 2014 by Manchester Quays Limited (MQL), a joint venture between Allied London and Manchester City Council, and is the subject of long term regeneration proposals that involve both conversion of existing buildings and redevelopment of other plots to create a new neighbourhood of the City. The redevelopment of the site is supported by the St. John's Masterplan and Strategic Regeneration Framework (SRF), which were formally adopted by Manchester City Council's Executive Committee in February 2015. An update to the SRF was presented to Manchester City Council's Executive Committee in July 2016.

The site boundaries can be broadly defined as the River Irwell and surface car parking (currently in use for construction of the Ordsall Chord) to the west, Grape Street and the Bonded Warehouse to the east, the Museum of Science and Industry (MSI) complex, including the 1830 Warehouse (Grade I Listed) to the south and Water Street and surface car parking to the north. The area around the Site is defined by a mix of leisure, commercial and residential uses including Spinningfields to the north, the Great Northern Warehouse and Deansgate to the east and MSI to the south. It is also situated 750m from the Deansgate / Castlefield Metrolink stop and a range of bus and Metroshuttle services.

The proposals relate to an area located within the south western part of the St. John's Masterplan which is currently occupied by surface car parking (the western extent is currently occupied by Network Rail/Skanska as a construction site compound), the Starlight Theatre (overlying railway arches) and a number of structures and buildings associated with the formerly use by ITV for filming and events (including the 5 storey 19th century Bonded Warehouse), Water Street (running centrally through the Site (oriented SW-NE)) and the Grade II Listed Colonnaded Railway Viaduct (in part), which was also in use by ITV for filming and storage. For the purposes of this report the two sets of adjacent railway arches present on site are referred to as the 'St Johns arches' (northern) and the 'Museum of Science and Industry (MoSI) arches' (southern). A site location plan is included as Figure 1 and an aerial photograph is included as Figure 2.

The current development proposal for the Site consists of a new build cultural venue. The proposed building will overlie the existing car park in front of the St Johns railway arches, and will also sit directly on the St Johns arches. The Starlight Theatre building currently overlying the arches will be demolished. The building will also span across Water Street, where vehicular access is to be maintained, landing in the car park to the west of Water Street. The proposed development (circa 13,000 sq. m.) comprises two flexible auditorium spaces to be used for theatre, music, dance, art and other performance-related events and potentially conferences and associated facilities, including retail and restaurant use, office, administrative and back of house function, training and educational facilities, servicing and access arrangements, circulation and external landscaped areas.

An architect's impression of the proposed development and associated layout is included as Appendix A.

This desk study has been undertaken to allow an appropriate ground investigation to be designed and to optimize, as far as possible, the positioning of the exploratory holes. The purpose of this report is to collate and summarize the information for the Site and immediate surrounding area, including:

- The general physical constraints of the Site such as topography, landscape and existing structures;
- An assessment of the generalized past and present usage of the Site;
- An assessment of the anticipated ground conditions in respect of geology, hydrology, hydrogeology, mining activity and geohazards, if any;
- An assessment of the environmental setting of the Site, including the possibility of encountering ground gas as well as potentially contaminating substances; and
- A summary of current development proposals.

The principal source of information relied upon is an Envirocheck® Report[1], which provides a database of information within a 1 km radius of the site as supplied by different statutory authorities and other relevant bodies.

A summary of all the information sources used in this report is included as Appendix B and a Site Constraints Plan is included as Figure 3. Other references include:

- The British Geological Survey (BGS);
- Manchester Central Library Archive;
- Published technical reports;
- RoC Consulting Report, 'Phase 1 Desktop Study on St Johns' Core Development Sites, Manchester for Manchester Quays Limited'. Dated July 2015.
- Stephen Levrant Heritage Architecture Limited Report, 'Heritage Appraisal: St John's Quarter, Manchester'. Dated May 2014;
- Stephen Levrant Heritage Architecture Limited Report, 'Heritage Statement: Significance and Impact. Factory, St John's, Manchester'. Dated August 2016;
- Salford Archaeology report, 'Archaeological Desk-Based Assessment and Watching Brief: The Factory, Water Street, Manchester. Dated September 2016.
- ERAP Limited report, 'Ecological Survey and assessment (Including a Licensed Bat Survey) – The Factory, Manchester. Dated July 2016.
- Coal Authority Report, 'Non-Residential Coal Authority Mining Report 51001098500001'. Dated February 2016.
- PLANIT UXB Report, 'Explosive Ordnance (UO) Threat Assessment (EOTA), Manchester City Centre'(Ref: 0123 EOTA MCC Factory 170216). Dated 17 February 2016;
- Documents found during internet searches; and
- Any information provided by the Client i.e. previous desk study or ground investigation / utilities information.

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[1] Envirocheck Report Order Number 79633581_1_1 (10 February 2016) 121 Water Street, Manchester. Landmark Information Group Service.

A site specific geotechnical and geoenvironmental ground investigation has been scoped and is contained within Section 7 of this report. The proposed ground investigation will provide information on the ground conditions, degree of ground contamination (if any), geometry and load capacity of existing foundations (St Johns arches, Bonded Warehouse), the structural integrity and profile of the arches and groundwater and ground gas regimes for the site area. Based on the currently available data a preliminary assessment of the likely ground conditions has been undertaken in order to assess potential foundation solutions and to identify key issues likely to affect the groundworks associated with the current development proposal.

It should be noted that the preliminary assessment is based on some information in respect of works undertaken in the general vicinity of the Site as opposed to the specific site area. Such information has been taken to be representative of the ground conditions underlying the footprint of the Site supported by the site specific data thus some of the assumptions made may need to be reviewed after the site specific ground investigation has been undertaken.

In addition it should be noted that groundwater conditions summarized are those observed as part of previous ground investigations and take no account of fluctuations due to seasonal, local drainage, the River Irwell or any other localized effects.

2 The Site

2.1 Site Location

The Site is located in Manchester City Centre, approximately 550 m northwest of Deansgate Railway Station and forms part of the St. John's Masterplan area. The Ordnance Survey (OS) National Grid Reference (NGR) for the centre of the site is ^{3}83005 E, ^{3}97965 N. The site location is shown in Figure 1.

2.2 Site Description

The proposed development site is roughly L-shaped and measures approximately 55 m to 110 m in length (E-W) and 35 m to 80 m in width (N-S). The total area for Factory Site is approximately 0.73 hectares (7,300 m^{2}), which sits within the wider development masterplan (REF Roc).

The proposals relate to an area located within the south western part of the St. John's Masterplan which is currently occupied by surface car parking (the western extent is currently occupied by Network Rail/Skanska as a construction site compound), the Starlight Theatre (overlying railway arches) and a number of structures and buildings associated with the formerly use by ITV for filming and events (including the 5 storey 19th century Bonded Warehouse), Water Street (running centrally through the Site (oriented SW-NE)) and the Grade II Listed Colonnaded Railway Viaduct (in part), which was also in use by ITV for filming and storage. For the purposes of this report the two sets of adjacent railway arches present on site are referred to as the 'St Johns arches' (northern) and the 'Museum of Science and Industry (MoSI) arches' (southern). Access to the Site is currently via entrances on Quay Street to the north, Water Street to the west and Atherton Street to the east. The area around the Site is defined by a mix of leisure, commercial and residential uses including Spinningfields to the north, the Great Northern Warehouse and Deansgate to the east and MSI to the south. It is also situated 750m from the Deansgate / Castlefield Metrolink stop and a range of bus and Metroshuttle services.

The existing site layout is presented in Figure 2 and the site boundaries can be described as follows:

- To the north - The wider St Johns masterplan development.
- To the south/southeast - The Museum of Science and Industry.
- To the west/northwest - Princes Bridge and car parking with the River Irwell beyond.
- To the east - The Bonded Warehouse (5 storey 19th century warehouse) with the wider St Johns masterplan development beyond.

The Site consists of two levels: an upper level on top of the St Johns arches, and a lower level comprising the remainder of the site. The topographical survey by Survey Operations Ltd (Ref: 16A267/002) indicates that the Site is predominantly flat with a gentle slope in a north-easterly direction from approximately 26.50 m AOD along the eastern edge of Water Street in the centre of the site to approximately 27.00 m AOD in the north-eastern corner of the Site. There is currently a ~0.50 m difference in height across the proposed development site. The upper floor level (top of St Johns arches) was surveyed and is roughly flat at approximately 32.50 m AOD.

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2.3 Site Utilities

A GPR utilities survey was undertaken by L&M Survey Services in order to obtain information on the expected position and extent of buried and overground cables, pipes, wires etc., which may present constraints on future site development works. The drawing produced by L&M Survey Services (Ref: 11543 Draft) is included as Appendix C. Please note, access into the Skanska compound to the west of Water Street was not possible, so this area was not surveyed.

Please note, several services including comms cables, a gas pipe, electricity cables and surface water drainage are shown to run beneath the northern/central portion of the Site, and numerous services run along Water Street in the western portion of the Site (running southwest to northeast) (Appendix C refers).

Guidance issued by the individual service providers should be followed at all times when excavating in the vicinity of buried services. Where appropriate, the service providers should be consulted to mark their equipment in the vicinity of any proposed excavation works.

2.4 Site History

Historical Ordnance Survey (OS) maps covering the Site have been studied to detail the historical development of the Site and the immediate surrounding area (~100 m radius of the site). Extracts of historical maps as provided in the Envirocheck Report[1] are included in Appendix D. Key features are identified in Tables 1 and 2 in chronological order.

2.5 Archaeology

Manchester is an area of archaeological interest with developments taking place within the city from the Roman period, but the major interest is in industrial archaeology. The potential archaeological remains that exist on or adjacent to the Site may include the remains of various warehouses, wharfs and stores. A scheme specific archaeological Desk Based Assessment (DBA) has been completed by Salford Archaeology[2] (SA) and should be read in conjunction with this report. Given the finding within the SA report, further scheme specific archaeological investigation may be required for this Site. Any such investigation is beyond the scope of this report.

A site wide Heritage Appraisal[3] and scheme specific Heritage Appraisal[4] were undertaken by Stephen Levrant Heritage Architecture Limited. The reports identify a number of Grade II Listed structures within the confines of the Site including the St Johns arches, the 1830 Warehouse (Grade I Listed), as well as the former Liverpool Road Station Master's House (Grade I Listed) and the Railway Bridge over the River Irwell (Grade I Listed) to the south, the MSI Warehouse to the east (Grade II Listed).. The aforementioned structures will need to be considered in the development proposals.

---

[2] Salford Archaeology Report, Archaeological Desk-Based Assessment and Watching Brief: The Factory, Water Street, Manchester. Dated September 2016.

[3] Stephen Levrant Heritage Architecture Limited Report, 'Heritage Appraisal: St John's Quarter, Manchester'. Dated May 2014.

[4] Stephen Levrant Heritage Architecture Limited Report, Heritage Statement: Significance and Impact. Factory, St John's, Manchester'. Dated August 2016;

Table 1: Site History

Historical Map	Key features recorded
1851 (OS 1:1,056)	'Charles Street' (oriented E-W) crosses the northern portion of the site; 'Water Street' (oriented SW-NE) crosses the eastern portion of the site. A 'Cotton Stores' is recorded in the south-eastern corner of the Site; 'Slate Wharf' is recorded along the northern edge of the Site immediately north of Charles Street, extending offsite to the north and east; a 'Warehouse' with adjacent unnamed buildings and a yard area is recorded along the western boundary of the Site, extending offsite to the west ; unnamed buildings are recorded on the southern boundary immediately east of Water Street. The remainder of the site appears undeveloped.
1891 (OS 1:500)	A railway viaduct with 2 sets of tracks is shown to cross the southern portion of the Site, replacing the 'Cotton Stores' and unnamed buildings previously present; 3 No. additional buildings are recorded to the immediate east of Water Street including a 'Chimney'; an additional building is recorded in the northern portion of the Site directly south of Charles Street; 'Slate Wharf' has now been replaced by a 'Timber Yard'; a 'Goods Shed' is shown immediately to the east of the Site with a small 'Store' present onsite immediately south of Charles Street; 'Princes Bridge' is recorded in the southwestern corner of the Site, extending to the west across the River Irwell.
1908 (OS 1:2,500)	An additional building is recorded to the immediate east of Water Street in the central portion of the Site; 'Charles Street' has been renamed 'Grape Street'; an additional building is recorded along the northern site boundary, immediately north of Grape Street; the northern area of the Site is no longer recorded as a 'Timber Yard'. The remainder of the Site appears unchanged.
1922 (OS 1:2,500)	The additional building to the east of Water Street shown in 1908 is no longer recorded; the warehouse along the western site boundary is now recorded as the 'New Botany Warehouse'. The remainder of the Site appears unchanged.
1931-1932 (OS 1:10,560)	No changes are recorded within the Site.
1948-1949 (OS 1:1,250)	The yard area adjacent to the warehouse in the western boundary of the Site has been developed with an additional building (another 'Warehouse') shown to cross the western site boundary. The 'New Botany Warehouse' is again recorded as a 'Warehouse' and a new building, labelled 'Pineapple Hotel', is present to its immediate east.
1950-1951 (OS 1:2,500)	No changes are recorded within the Site.
1953-1957 (OS 1:1,250)	No changes are recorded within the Site.
1956-1965 (OS 1:2,500)	No changes are recorded within the Site.
1962-1980 (OS 1:1,250)	A building, named 'Liverpool Road Goods Depot', is shown overlying the railway tracks along the central southern site boundary; the area to the immediate north of Princes Bridge is now recorded as a 'Builder's Yard'; the buildings adjacent to Water Street to the east are no longer recorded.
1973-1981 (OS 1:1,250)	No changes are recorded within the Site.
1978-1984 (OS 1:1,250)	A new building, the 'Granada Television Centre', is shown to cover the area north of Grape Street. The remainder of the site remains unchanged.
1986-1990 (OS 1:1,250)	The building covering the railway tracks in the southern area of the Site has been extended eastwards; the warehouses and the 'Pineapple Hotel' building in the area to the west of Water Lane are no longer recorded, with only one unnamed building remaining; the Site is now recorded as a 'TV Centre'.
1990 (OS 1:1,250)	All buildings to the west of Water Lane have been demolished; 3 No. new buildings (unnamed) are recorded immediately to the east of Water Lane; landscaping is shown across the centre of the site. No changes are recorded within the Site on subsequent maps.

Table 2: History of the immediate surrounding area (~100 m radius)

Ordnance Survey Map	Key features recorded
1851 (OS 1:1,056)	The 'Manchester and Salford Junction Canal' (oriented NW-SE) is recorded approx. 50 m north of the Site, shown to enter a 'Tunnel' approx. 100 m east of the Site; the River Irwell is recorded approx. 30 m west of the Site; a 'Lock' is recorded approx. 80 m north of the Site where the river and canal meet; railway tracks are shown approx. 50 m south of the Site with various adjacent 'Stores'; a 'Timber Yard', 'Cotton Stores' and 'Pig Station' are recorded east of the Site; 'New Botany Yard Wharf' with numerous buildings including warehouses is shown between Water Lane and the River Irwell west of the site (also recorded as 'The Old Quay); 'Slate Wharf' is shown immediately north of the Site; a 'Coal Yard' is shown approx. 120 m to the east; a 'Tank' and various 'Chimneys' are recorded approx. 70 m to the northeast.
1891 (OS 1:500)	'Slate Wharf' is now recorded as a 'Timber Yard'; a 'Goods Shed' is recorded to the immediate east of the Site; a 'Timber Yard' is shown approx. 50 m to the east (adjacent to the 'Goods Shed'); new railway tracks which cross the Site extend east, replacing the buildings previously present; a 'Pig Market' and 'Works' are recorded approx. 80 m southwest of the Site; the 'Coal Yard' is no longer shown.
1908 (OS 1:2,500)	The 'Timber Yard' to the east has been built over with unspecified buildings.
1922 (OS 1:2,500)	No major changes are recorded near the Site.
1931-1932 (OS 1:10,560)	No major changes are recorded near the Site.
1948-1949 (OS 1:1,250)	Various 'Works' are recorded north of the Site, including 'Engineering Works' immediately to the north and approx. 90 m to the northeast, and 'Compound Works' approx. 80 m to the northeast; 'Ruins' are shown approx. 100 m to the south and 120 m to the east; 'Engineering Works' are recorded approx. 90 m the south; a 'Saw Mill' is recorded approx. 100 m to the southeast; the 'Tank' and 'Chimneys' to the northeast are no longer recorded.
1950-1951 (OS 1:2,500)	No major changes are recorded near the Site.
1953-1957 (OS 1:1,250)	The 'Manchester and Salford Junction Canal' and 'Lock' are no longer recorded; the 'Granada Television Centre' is recorded immediately to the north of the former canal, approx. 80 m northeast of the Site; a 'Gland Factory' is shown approx. 110 m the south; the 'Saw Mill' to the south has been replaced by 'Ladder Works'; a 'Ready Mixed Concrete Depot' (later referred to as 'Depot') is recorded approx. 120 m to the southeast.
1956-1965 (OS 1:2,500)	No major changes are recorded near the Site.
1962-1980 (OS 1:1,250)	Structures have been built over the railway tracks to the west and southwest of the Site; the 'Granada Television Centre' has been extended to the west with several new buildings.
1973-1981 (OS 1:1,250)	A 'Garage' is shown approx. 130 m to the southeast; the 'Ladder Works' to the southeast are no longer present.
1978-1984 (OS 1:1,250)	The 'Granada Television Centre' has been extended to the west and is shown to encroach onto the northern portion of the Site.
1986-1990 (OS 1:1,250)	The buildings to the south of the Site are now recorded as 'Liverpool Road Station (Museum of Science and Industry)'; the buildings to the west/northwest of the Site have been demolished.
1990 (OS 1:1,250)	The 'Depot' to the southeast is no longer recorded.
1993-1995 (OS 1:1,250)	A substation is recorded approx. 100 m to the south. No major changes are recorded near the Site on subsequent maps.

3 Ground Conditions

3.1 General

The anticipated ground conditions underlying the Site have been assessed on the basis of both published and unpublished data available for the Site and the immediate surrounding area. The available data has been summarized in the following sections and has been combined to establish as accurate a ground model as possible.

3.2 Published Geology

The British Geological Survey (BGS) Maps[5] [6], and Regional Geology Guides[7] have been obtained and reviewed as part of this study, with relevant information presented below.

The geological map indicates the Site is directly underlain by Triassic Sherwood (Bunter) Sandstone. No Made Ground is recorded within the site boundary on the map, however, given the urban setting and development history of the site, a reasonable thickness of Made Ground is anticipated. Made Ground material due to its nature is likely to be very variable in both composition and characteristics.

3.2.1 Drift Geology

The 1" to 1 mile British Geological Survey (BGS) map[5] was studied to determine the probable nature and extent of any drift deposits under the site and in the surrounding area. The maps indicate that no drift deposits are present onsite, although Boulder Clay is recorded to the immediate west of the Site. The Envirocheck Report[1] also indicates that no drift deposits are present onsite, although Alluvium is recorded to the immediate west of the Site. The total thickness of the drift deposits is not recorded on either the geological map or within the Envirocheck Report.

3.2.2 Solid Geology

The 1" to 1 mile and 1:50,000 British Geological Survey (BGS) maps[5] [6] indicate the solid geology on site to be Triassic Sherwood Sandstone (formerly Bunter Sandstone). The Envirocheck Report[1] indicates the solid geology to be the Triassic Chester Pebble Beds Formation (part of the Sherwood Sandstone Group). The Sherwood Sandstone Group typically comprises well cemented medium and coarse grained sandstones and pebbly sandstones/conglomerates with occasional red brown mudstones. The Sherwood Sandstone is indicated to be underlain by the Manchester Marls (mudstone) over the Collyhurst Sandstone lying unconformably over Carboniferous Upper Coal Measures (Westphalian C) typically comprising a mixture of mudstones, siltstones and sandstones with coal seams. Four named coal seams (Openshaw, Charlotte, Bradford Three-quarter and Bradford Four Foot) are indicated to outcrop between 3.0 km and 3.5 km northeast of the Site. The geological map cross-section indicates that productive coal measures strata are at least 1000 m beneath the proposed development site.

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[5] BGS (1970). Manchester. England and Wales Sheet 85. Solid and Drift Geology. 1" to 1 mile. British Geological Survey.

[6] BGS (1975). Manchester. England and Wales Sheet 85. Solid Geology, 1: 50,000, British Geological Survey.

[7] BGS (2002) British Regional Geology: The Pennines and Adjacent Areas, (4th Ed), British Geological Survey Nottingham.

The Site is located between two faults both trending northwest-southeast, namely, the West Manchester Fault which is indicated to run approximately 500 m northeast of the Site, downthrown to the northeast by approximately 250 m, and the Pendleton Fault approximately 250 m southwest of the Site, downthrown to the northeast by an unknown magnitude. The angle and direction of dip of the bedrock strata between these faults is recorded to be approximately 8˚ to the southwest.

3.3 Unpublished Geology

As part of this study the BGS Geoscience Database has been consulted to ascertain whether any exploratory hole records exist for the site or the immediate surrounding area. Borehole records from this source have been obtained and examined as part of this study.

The relevant BGS records are listed in Table 3 and included as Appendix E herein. The stratigraphic succession and indicative depths and thicknesses encountered by the boreholes listed in Table 3 are summarized in Table 4. Please note, no site specific historic borehole data is available.

Table 3: Summary of BGS Borehole Data

Record Type	BGS Reference	Location	Ground Level (m AOD)	Depth (m BGL)	Year
Borehole	SJ89NW/641	~100 m to the south	Not given	3.10	1992
Borehole	SJ89NW/642	~110 m to the south	Not given	3.70	1992
Borehole	SJ89NW/643	~130 m to the south	Not given	4.70	1992
Trial Pit	SJ89NW/644	~90 m to the south	Not given	4.90	1992
Borehole	SJ89NW/2270	~130 m to the southeast	Not given	9.00	1991
Borehole	SJ89NW/2271	~170 m to the southeast	Not given	5.50	1991
Borehole	SJ89NW/3428	~170 m to the southeast	Not given	12.70	1984

Table 4: Summary of Ground Conditions in BGS Boreholes

Depth to Top of Strata (m BGL)	Typical Thickness (m)	Generalized Description
0.00	1.20 – 6.50	Black and dark brown clayey SAND with ash, brick, coal, pottery and sandstone. AND Soft to firm black and dark brown slightly gravelly sandy silty CLAY with ash, brick, clinker, coal and wood. AND Soft brown sandy silty CLAY with sandstone and brick. [MADE GROUND]
3.00 – 6.50 (Encountered in 3 No. of 7 No. boreholes)	0.70 – 1.90	Soft to firm black organic silty CLAY with occasional wood and peat. AND Soft to firm brown silty sandy CLAY with sandstone. AND Loose to dense brown clayey SAND/GRAVEL with sandstone. [ALLUVIUM]
1.20 – 2.50 (Encountered in 2 No. of 7 No. boreholes)	0.40 – 1.80	Stiff to very stiff brown sandy CLAY with sandstone and coal. AND Dense brown gravelly clayey SAND. [GLACIAL TILL]
2.10 – 8.40	>9.25	Dense red brown fine to medium SAND with sandstone fragments. Completely weathered. AND Weak to moderately weak red brown fine to medium grained SANDSTONE. Moderately to highly weathered. [CHESTER PEBBLE BEDS FORMATION - SHERWOOD SANDSTONE GROUP]

Note: Groundwater was not recorded in any BGS boreholes.

It is considered that the succession recorded in Table 4 (Made Ground overlying Alluvium (cohesive/granular) or Glacial Till (cohesive/granular) overlying sandstone strata) does not generally accord with the site specific published geology insofar as no drift deposits are recorded onsite. However it does generally accord with the published geology of the wider area.

3.4 Hydrology

The hydrology relevant to the Site has been reviewed based on information provided on current and historical OS maps. The nearest surface water feature to the Site is the River Irwell, located to the immediate northwest of the Site. The river flows to the southwest.

A disused branch of the Manchester & Salford Junction Canal is located approximately 50 m to the north of the Site, to the west of Water Street. Historically, the canal continued further east, beyond Water Street, and entered a tunnel approximately 100 m east of the Site (Section 2.4 refers). Section 2.11 and Drawing ES01 S1 (Figure 4 refers) within the RoC Desk Study for the wider St Johns masterplan development[8], states that the canal basin to the east of Water Street was infilled in the 1950s, and *'several historic tunnels are known to remain further to the east'*.

The Bridgewater Canal is located approximately 175 m south of the Site.

The central and western portions of the Site are indicated to be within Flood Zone 2 as presented in the Envirocheck Report[1], based on the relevant Environment Agency information and reproduced in Appendix F.

Certain areas of the Site are recorded to undergo surface water flooding, namely, the centre (low risk – 1000 year return), the majority of Water Lane (western portion of Site; low risk – 1000 year return) and along the central eastern boundary (medium risk – 100 year return), as presented in as presented in the Envirocheck Report[1], based on the relevant Environment Agency information and reproduced in Appendix F. Please also refer to the RoC Consulting Flood Risk Assessment[9] for further details in terms of the proposed site levels strategy for the mitigation of fluvial and pluvial flood risk.

3.5 Hydrogeology

3.5.1 Groundwater Vulnerability

The Environment Agency Groundwater Vulnerability Map Sheet 17 (Derbyshire and North Staffordshire) indicates that the Site is underlain by a *'Major Aquifer* with '*Soils of High Leaching Potential (U)*' (Appendix G refers). It should be noted that the site is labelled 'U' for urban and a note is normally included on the maps explaining that such a classification means that '*Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) is assumed until proved otherwise*'.

The Envirocheck Report[1] also records the Site to be underlain by a '*Principal Aquifer*' (formerly termed a '*Major Aquifer)*' and is defined as '*highly permeable formations usually with a known or probable presence of significant fracturing. They may be highly productive and able to support large abstractions for public water supply and other purposes.*' This is considered to refer to the Chester Pebble Beds Formation (Sherwood Sandstone Group) beneath the Site. The Envirocheck Report[1] also records that the Site is underlain by a '*Secondary A Aquifer*'. This is considered to refer to the Alluvial Deposits recorded in close proximity to the Site.

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[8] RoC Consulting Report, 'Phase 1 Desktop Study on St Johns' Core Development Sites, Manchester for Manchester Quays Limited'. Dated July 2015.

[9] RoC Consulting Report, FRA & Surface Water Drainage Statement, The Factory. Dated August 2016.

The Envirocheck Report[1] records no water abstractions within the site boundary or within 250 m of the Site. There are 5 No. abstraction locations within 1 km of the Site namely: Her Majesty's Court Service (427 m NE), CDS Computer Design Systems Ltd (688 m SW), Threlfalls (Salford) Ltd (821 m NNW), Cemex Uk Materials Ltd (829 m NW) and British Telecommunications Plc (961 m NE).

3.5.2 Groundwater

Examination of the general topography and hydrology of the locality, based on the current and historic OS maps indicates that the prevailing direction of groundwater flow is likely to be towards the west/southwest, towards and in the direction of flow of the nearest watercourse as summarized in Section 3.4.

Localized groundwater may be encountered in the Made Ground deposits perched on underlying low permeability cohesive Glacial Till or Alluvium (where/if present). Deeper groundwater conditions within the weathered and intact sandstone bedrock are likely to be controlled by the hydraulic conductivity of the sandstone (degree of cementation, degree of fissuring, faults etc).

3.5.3 Mining Activity

The Envirocheck Report[1] states that the site is *'in an area which may be affected by coal mining activity'*. A Coal Authority (CA) Report[10] (Appendix H refers) has been obtained for the proposed development as the Site overlies coal bearing strata at depth and, as such, further assessment in respect of previous coal mining activity was considered necessary.

The CA Report states that:

- The Site is not the within the zone of likely physical influence on the surface from past underground workings. However, reserves of coal do exist in the locality which could be worked in the future subject to feasibility, licences and planning consents.
- There are no recorded mine entries within the Site or within 20 m of the site boundary.
- In respect of opencast mining, the Site is not within the boundary of any past or present workings. In addition, there is no licence to extract or proposed licence to extract coal by opencast methods within the immediate vicinity of the Site.
- No subsidence, in respect of the Coal Mining Subsidence Act 1991, has been recorded in respect of the immediate site area.

Given the published and unpublished geology of the Site, the site history and the CA Report information, it is considered that the risk arising from former coal mining operations can be considered to be low.

3.6 Ground Instability and Geo-Hazard

A summary of the anticipated risk in respect of typical causes of instability or geo-hazards specific to this Site which are not covered in other sections of this report is presented in Table 5.

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[10] Coal Authority Report, 'Non-Residential Coal Authority Mining Report 51001098500001'. Dated February 2016.

Table 5: Summary of Natural Ground Subsidence Hazards at the Site

Subsidence Hazard Type	Applicable to this Site?		Comments
	No	*Yes*	
Collapsible Ground	✓	-	Envirocheck states *'Very Low Risk - No Hazard'.*
Compressible Ground	✓	-	Envirocheck states *'No Hazard'.*
Ground Dissolution	✓	-	Envirocheck states *'No Hazard'.*
Landslide	✓	-	Envirocheck states *'Very Low Risk'.*
Shrinking/Swelling Clay	✓	-	Envirocheck states *'Very Low Risk - No Hazard'.*
Running Sand	✓	-	Envirocheck states *'Low Risk - No Hazard'.*

On the basis of the desk study work undertaken and the nature of the strata likely to be encountered on site, collapsible or compressible ground, ground dissolution, landslides, shrinking/swelling clay and running sand are not considered to be issues for the proposed development.

3.7 Trees

The presence of existing trees and shrubs on the Site has been noted, namely several mature trees located along both sides of Water Street, which may need to be considered in the development proposals for the Site. An arboricultural survey may be required in order to identify tree species, tree maturity and tree heights. The presence of the existing trees may impact on the depth of the proposed foundations and service runs in the vicinity of any trees to be retained.

4 Environmental Setting

4.1 General

The environmental setting of the proposed development site has been reviewed on the basis of both published and unpublished data obtained for the Site and the immediate surrounding area. The available data is summarized in the following sections and has been combined to establish any ground or groundwater contamination as well as ground gas generation that may potentially be present to allow this to be targeted as part of the proposed site specific ground investigation.

4.2 Potential Contaminative Land Uses

A review of the historical development of the Site and surrounding area, as outlined in Section 2.4 of this report, has shown that the Site and the immediate surrounding area have been subject to a significant degree of historical development. Land uses considered to be potentially contaminative with respect to human health, controlled waters, ecosystems and/or the built environment can be summarized as follows.

Within the Site Boundary

- Various warehouses/goods sheds/stores.
- Railway tracks.
- Slate Wharf/Timber Yard.
- Builders Yard.
- Chimney (presumed industrial).
- Car park and any oil/petrol spills from car parking.

Outside the Site Boundary

- Various wharfs (slate, 'New Botany Yard') to the northwest and north.
- Tank to the northeast.
- Various works (engineering works, compound works, unspecified) to the north and south.
- Livestock (pig) markets to the east and southwest.
- Garage to the southeast.
- Concrete depot to the southeast.
- Coal yard to the east.
- Timber yard to the east.
- Saw mill/ladder works to the south.
- Factory to the south.
- Ruins to the south and east (UXO risk).

- Electricity substation to the south.
- Railway tracks and associated depot/stores to the south.
- Numerous warehouses, goods stores etc.

Given the types of land use specific to the Site and the close proximity of some off site facilities, it is considered possible that some contamination of the soils and groundwater may have occurred. The degree of contamination arising from previous land uses is typically a function of previous site practices, operational procedures and the degree/condition of any hardstanding that may have been in place when any specific land use was in operation. As such, the determination of the actual degree of contamination present, if any, will be assessed as part of the site specific investigation works.

4.3 Potential Contaminants of Concern

Due to the rich industrial site history of the proposed development site, it is considered likely that Made Ground is present. Further information on the extent of this will be obtained as part of the site specific ground investigation works. Further information regarding other potential sources of contamination is presented in Section 6.3.

Made Ground typically comprises reworked site material due to former development or material that has been imported onto the site from an external source. As such, any Made Ground present may represent a potential source of contamination. Urban fill commonly contains heavy metals, arsenic, and polycyclic aromatic hydrocarbons (PAHs) in background concentrations and can include locally elevated 'hotspots' which may pose a risk to human health and/or controlled waters. Made Ground can also contain asbestos fibres.

Potentially contaminative on-site historical land uses identified in Section 4.2 which are considered to have affected the Site include the industrial land uses such as various Wharfs (slate and unspecified), timber yard, builders yard, chimney, various warehouses, depots and stores (cotton and unspecified), and any oil/petrol spills from car parking. DOE Industry Profiles for some of these users can be consulted to indicate the potential contaminants that could be present.

At present there is no site specific chemical test data available.

Potential offsite historical sources which are considered to be up hydraulic gradient (i.e. located to the east/northeast of the proposed development site) include various goods sheds/warehouses/depots, a coal yard, a timber yard, a pig market and a tank.

4.4 Landfill Entries

The Envirocheck Report[1] identifies 1 No. historic landfill site, identified simply as Wilburn Street (122 m W). No further details about this historic landfill are provided. The landfill is located downstream on the opposite bank of the River Irwell from the site and as such there is unlikely to be an active pathway for contaminants including ground gas to migrate to the site. Also identified is 1 No. waste management site, namely Soil & Water Remediation Ltd (218 m SW); 2 No. waste transfer sites, namely Spray Shop Supplies Ltd (185 m S) and Supertune Automotive Ltd (486 m NNE); and 1 No. waste treatment/disposal site, namely Manchester Wharf Steel Ltd (Scrapyard; 200 m SW) within a 500 m radius of the site. Given distance of the majority of these facilities from the Site and the fact that only one is located directly up hydraulic gradient of the Site (Section 3.5.2 refers), the potential impact of contamination arising from the aforementioned facilities on the proposed development site is considered to be low.

4.5 Ground Gas

Ground gas typically consists of methane and carbon dioxide generated by the decomposition of organic materials. Although other gases are often associated with gas generation, methane and carbon dioxide are those which are typically measured during ground investigations, along with measurements for oxygen concentrations (to assess oxygen depletion) and flow rate. Ground gas is generally generated by and associated with the following ground conditions:

- Made Ground – typically non-engineered and poorly sorted material containing an organic component including soil, vegetation and timber;
- Alluvium/Peat – natural drift deposits often associated with river floodplains and generally having a high organic content sometimes with peat inclusions or peat layers;
- Coal Measures – 'mine' gas is often generated in such strata and can permeate through old workings and rock masses disturbed by mining activities; and
- Landfill – 'landfill' gas is often generated by the decomposition of organic materials placed in landfills. 'Inert' waste is similar to the Made Ground described above with the degree of gas generation dependent upon the amount of organic material present. Domestic waste, however, has a very high organic content and generates large quantities of gas over a sustained period (decades).

An appraisal of the likelihood of the above features affecting the proposed development is summarized below:

- There is Made Ground recorded within the unpublished geology as summarized in Section 3.3 which is of substantial thickness (1.20 – 6.50 m). However it should be noted that there is currently no site specific data. The offsite Made Ground encountered is predominantly comprised of rubble and ash, which are unlikely to represent a significant source of ground gas, however fragments of coal and clinker are recorded. Notwithstanding the above, the site has a long development history and as such, Made Ground is likely to be present across the site. Based on the available data (i.e. due to the lack of site specific data), the likelihood of ground gas being present within the Made Ground materials can be considered to be medium at this time.
- The published and unpublished geology as summarized in Sections 3.2 and 3.3 respectively indicates that alluvium is present near the Site and organic alluvial material is recorded in 2 No. of 7 No. BGS boreholes located offsite. As such, the likelihood of ground gas being encountered arising from alluvial materials can be considered to be medium at this time.
- The published and unpublished geology (Sections 3.2 and 3.3) indicate that productive coal bearing strata exist beneath the Site but are at a significant depth. As such the likelihood of ground gas being encountered arising from coal mining activities can be considered to be low.
- The Envirocheck Report[1] identifies 1 No. landfill site (historic; 122 m W) and 1 No. waste treatment or disposal site within 500 m of the Site (200 m SW) (Section 4.4 refers). Due to the distance of these facilities from the proposed development site and the presence of the River Irwell between the site and the recorded landfill, the likelihood of ground gas being encountered arising from landfill sites can be considered to be low.

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Given the environmental setting of the Site, ground gas is considered to be a potential issue at this stage. Ground gas monitoring should be undertaken as part of the site specific ground investigation to clarify the ground gas regime beneath the Site and allow appropriate protection measures to be assessed and incorporated into any substructure designs as necessary.

4.6 Radon Affected Areas

The Envirocheck Report[1] records that '*the property is in a lower probability radon area, as less than 1% of homes are above the action level*' and the corresponding BRE[11] guidance document indicates that no radon protection measures are required for development undertaken in this area.

4.7 Invasive Species

The ERAP Limited Ecology report[12] states that *'small areas of the site support Montbretia and Virginia Creeper…both species are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)'*. Please refer to the report for full details.

4.8 Unexploded Ordnance

The Zetica Unexploded Bomb Risk Map (Appendix I refers) shows the Site to be in an area of *'Moderate'* risk. Post-war historical maps show 2 No. *'Ruins'* near site – approx. 100 m to the south and 120 m to the east. Furthermore, the Manchester Bomb Damage Map[13] (Appendix J) records a high explosive bomb impact within the area adjacent to Princes Bridge to the south and indicates damage to the railway arches. The Site has also been significantly redeveloped since World War II. Given the forgoing, the risk from unexploded ordnance is considered to be moderate, therefore requiring a more detailed UXO assessment.

Based on the above, an Explosive Ordnance Threat Assessment (EOTA)[14] has been undertaken for the Site by PLANIT UXB Limited. The EOTA concludes that UXO threat management is required only in the southwestern corner of the Site (Appendix K refers).

4.9 Pollution Incidents

The Envirocheck Report[1] records that there have been no pollution incidents to controlled waters on the Site or within 500 m of the Site. The potential impact of contamination from pollution incidents to controlled waters on the proposed development site is therefore considered to be low.

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[11] BRE 1999. Radon. Guidance on protective measures for new dwellings. British Research Establishment. 1999.

[12] ERAP Ecology report – Ecological Survey & Assessment, The Factory, Manchester. Dated July 2016.

[13] Manchester Libraries, Information and Archives, Manchester City Council (2013) Record of location of aerial bombs on the City of Manchester 1940-1941.

[14] PLANIT UXB Report, 'Explosive Ordnance (UO) Threat Assessment (EOTA), Manchester City Centre'(Ref: 0123 EOTA MCC Factory 170216). Dated 17 February 2016.

4.10 Radioactive Substances

No registered Radioactive Substances have been identified to be present within a 500 m radius of the Site. The risk to the proposed development site from Radioactive Substances can therefore be considered to be low.

4.11 Nitrate Vulnerability

Given the urban location of the proposed development site, nitrate vulnerability is not considered to pose a significant constraint on the proposed development.

4.12 Area of Conservation

The site is located with the Castlefield Conservation area and approximately 500m to the west of the St John Street Conservation Area.

The Envirocheck Report[1] records that the Site is not located within a National Park or a RAMSAR site. Nor is the Site recorded to be in a Site of Special Scientific Interest (SSSI). As such, it is not considered that this will pose a constraint on the Proposed Development.

4.13 Contemporary Trade Directory Entries

The Envirocheck Report[1] indicates that there are 2 No. Contemporary Trade Directory Entries within 100 m of the Site of which both are Inactive, namely:

Atlantis	Dry Cleaners	Inactive	40 m to the SW.
Atlantis Piccadilly Laundry Services	Laundries & Laundrettes	Inactive	87 m to the S.

Given the commercial nature of the facilities, the fact that both are inactive, and the fact that both are along/down hydraulic gradient, the risk of contamination arising from these sources can be considered to be low.

4.14 Fuel Station Entries

The Envirocheck Report[1] records 2 No. Fuel Stations within 500 m of the Site, namely:

Sainsburys Salford	Open	418 m to the WSW	Down hydraulic gradient
Castlefield Travellers Check	Obsolete	489 m to the SSW	Along hydraulic gradient

Given the distance of both facilities from the site and the fact that neither are located directly up hydraulic gradient of the site (Section 3.5.2 refers), the potential impact of contamination from these sources on the proposed development site is considered to be low.

5 Proposed Development

The current development proposal for the Site consists of a new build cultural venue (Appendix A refers). The proposed building will overlie the existing car park in front of the St Johns railway arches, and will also sit directly on the St Johns arches. The Starlight Theatre building currently overlying the arches will be demolished. The building will also span across Water Street, where vehicular access is to be maintained, landing in the car park to the west of Water Street.

The proposed development (circa 13,000 sq. m.) comprises two flexible auditorium spaces to be used for theatre, music, dance, art and other performance-related events and potentially conferences and associated facilities, including retail and restaurant use, office, administrative and back of house function, training and educational facilities, servicing and access arrangements, circulation and external landscaped areas.

Key Design Considerations

The key elements of the proposed development in respect of the ground investigation works undertaken can be summarized as follows:

- Geometry of existing foundations (St Johns railway arches, bonded warehouse and retaining walls in western portion of site).
- Structural integrity of existing St Johns arches, which may be subject to loading by proposed development.
- Bearing capacity of ground beneath existing St Johns arch piers.
- Current loading regime on existing St Johns arches (i.e. thickness of overlying material/tracks).
- Column loadings associated with proposed development including plant loadings.
- The presence of existing services onsite. Exact location/dimensions etc. to be confirmed by GPR survey and localized trenches.
- Material assessment for bulk earthworks.
- UXO risk mitigation procedures for any intrusive site or construction works.
- Excavation and removal of any buried obstructions.
- Ground gas and groundwater regime.
- Contamination assessment in respect of both human health and waste disposal.
- Geotechnical assessment.

6 Preliminary Conceptual Site Model

6.1 Ground Model

The anticipated ground conditions underlying the Site based on the information available can be summarized as follows. It is worthy of note that no historic borehole data was available beneath the Site, and as such the following information should be treated as indicative.

Made Ground: recorded as black and dark brown clayey SAND; soft to firm black and dark brown slightly gravelly sandy silty CLAY; and soft brown sandy silty CLAY. Gravel comprises various materials including sandstone, ash, brick, clinker, coal and wood. Highly variable thickness and distribution (1.20 m to 6.50 m BGL).

Alluvium: recorded as soft to firm black organic silty CLAY with occasional wood and peat; soft to firm brown silty sandy CLAY with sandstone fragments; and loose to dense brown clayey SAND/GRAVEL with sandstone fragments. Only encountered in 3 No. of 7 No. historic boreholes.

Glacial Till: recorded as stiff to very stiff brown sandy CLAY with sand and coal fragments; and dense brown gravelly clayey SAND. Thicknesses vary between 0.40 and 1.80 m. Only encountered in 2 No. of 7 No. historic boreholes.

Chester Pebble Beds Formation (Sherwood Sandstone Group): recorded as dense red brown fine to medium grained SAND with sandstone fragments – completely weathered; and weak to moderately weak red brown fine to medium grained SANDSTONE – moderately to highly weathered. Rockhead between 2.10 and 8.40 m BGL.

The River Irwell is situated to the immediate northwest of the Site and flows in a south-westerly direction. Perched water may also be present within any Made Ground, Glacial Till or Alluvium encountered, particularly overlying low permeability clayey layers or buried obstructions within the Made Ground. The hydraulic connectivity within the Made Ground, Glacial Till and Alluvium materials is expected to be highly variable and any perched water is likely to be present in localized pockets of granular fill. A regional groundwater regime is likely to be present within the Chester Pebble Beds (Principal Aquifer). It should be noted that the nearby River Irwell may impact on the local groundwater regime.

6.2 Geoenvironmental Risk Assessment – General Approach

In the UK, the assessment of risk from contamination follows the source-pathway-receptor approach. If one of these three elements is absent, it is considered that there is no potential for harm. If, however, there is considered to be a linkage between any given source and any given receptor, then a risk-based approach is used to assess the significance of impact of any such linkage.

Risks are defined as the probability of an event occurring combined with the severity of the consequence of that event. Particularly, to assess the risks to site end users posed by any given source, the sensitivity of each receptor is considered. For example, the concentration of contamination acceptable at a site to be developed as a residential property with a garden used to grow vegetables and accessible to young children is set lower than that for a commercial site where soil is exposed only in minor areas of landscaping and the only long-term users of the site are adults. Similarly, a site overlying a Principal Aquifer supplying potable water to a large population will be considered more stringently than a site overlying an impermeable geology with only minor seepages of groundwater.

6.3 Potential Sources of Contaminants

Potential contamination sources from review of regulatory data and historical maps have been identified and are summarized in Table 6. The 'Contaminants of Concern' in this risk assessment are based primarily on information from the review of historical information.

Table 6: Potential sources of contamination

Potential Source	Location	Likely Age	Potential Contaminants of Concern
Historical industrial land uses (various works, warehouses, depots, railway lines).	On site / off site	From ~1800s to present.	Metals, inorganics, organics, fuel oils, petroleum hydrocarbons, PAHs, sulphates.
Historic buildings.	On site	From ~1800s to ~1960s	Asbestos.
Fuel and oil spills from car parking retained within site soils.	On site / off site	Approx. 100 years to present	Petroleum hydrocarbons, oils.
Ground gas sourced from Made Ground and Alluvium.	On site / off site	-	Methane, carbon dioxide.

6.4 Receptors and Pathways

Site specific pathway-receptor linkages have been identified in Table 7 with respect to the sources outlined in Table 6 and with respect to the anticipated future uses.

Table 7: Potential Receptors

Receptor		Pathway
Human Health	Future site users / visitors.	Direct/dermal contact. Inhalation of contaminated dusts, gas & vapour.
	Offsite land users.	Inhalation / ingestion of contaminated dust.
	Investigation and construction workers.	Direct/ dermal contact. Ingestion/ inhalation of contaminated soils. Inhalation of gas / vapour.
Controlled Waters	Principal Aquifer within the Chester Pebble Beds.	Migration via preferential pathways (e.g. piling), overland flow.
Below ground infrastructure	Buried concrete foundations. Services pipework.	Direct contact.

6.5 Risk Assessment

The qualitative risk assessment of the potential pollutant linkages described above is presented in Table 8. Based on the assessment, the likelihood of potential ground contamination affecting the proposed development is considered to be low to medium.

A site specific ground investigation and associated laboratory testing is considered necessary for both geotechnical design purposes and to clarify the geo-environmental considerations in terms of the Proposed Development (Section 7 refers).

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Table 8: Qualitative Risk Assessment

Pollutant Linkage				**Risk Assessment**			**Description of source [bold text]** Comment on hazard realisation [normal text]
Source	Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Risk	
Made Ground – historic industrial uses.	Metals, inorganics, organics, fuel oils, petroleum hydrocarbons, PCBs, PAHs, sulphates.	**The Site has been developed since at least 1851, comprising numerous industrial land uses including various warehouses/goods sheds/stores, a slate wharf, railway tracks, timber yard, builders yard and chimney, as well as car parking (oil/petrol spill risk). Made Ground is recorded in close proximity to site from BGS borehole logs (no historic ground investigation data for Site).**					
		Direct /dermal contact, ingestion, inhalation	Construction / Maintenance workers	Medium	Low Likelihood	Moderate / Low	Potential for direct contact with contaminated materials during excavation for foundations / service runs. Can be mitigated by good working practice, health and safety and use of PPE.
		Direct / dermal contact, ingestion, inhalation	Future site occupants and visitors	Medium	Unlikely	Low	Pathway will be removed in the end use as the entire site will be covered by the building or hard landscaping (concrete floor slab or hard landscaping with clean build-up).
		Ingestion / inhalation	Occupants and visitors of neighbouring properties	Medium	Low Likelihood	Moderate / Low	Residential / commercial neighbours surrounding and adjacent to the site. Good working practices i.e. dust suppression likely to be in place.
		Migration via permeable strata	Groundwater (Principal Aquifer – Chester Pebble Beds)	Medium	Low Likelihood	Moderate / Low	Downward leaching of contaminants due to infiltration will be prevented in the end use by the drainage network and cover by the building/hard landscaping. Procedures must be taken to avoid the creation of pathways during piling works.
		Migration via permeable strata, overland flow	River Irwell	Medium	Low Likelihood	Moderate / Low	Potential for infiltration and leaching during construction works due to removal of concrete cover; good construction practice would provide mitigation.
		Direct contact	Below ground services / infrastructure	Mild	Low Likelihood	Low	Any new services likely to be in clean corridors / trenches or appropriately specified.
Various potentially contaminative historic land uses up hydraulic gradient (east / northeast).	Leachable contaminants – organics, metals, fuels, oils, PAHs, petroleum hydrocarbons.	**Various warehouses, works and depots have been present at various times since at least 1851 and leachable contaminants may have migrated onto / beneath the Site, possibly within perched groundwater.**					
		Direct/dermal contact, ingestion, inhalation	Construction / Maintenance workers	Medium	Low likelihood	Moderate / Low	Potential for exposure to contaminated waters during foundation / service run excavation and ground works. Capable of mitigation by good working practice and use of PPE.
Asbestos fibres and fragments within Made Ground from historic buildings formerly onsite.	Asbestos	**ACM may be present in Made Ground beneath the Site from previous development.**					
		Inhalation	Construction / Maintenance workers	Severe	Low likelihood	Moderate / Low	If asbestos is present in Made Ground, mitigation by good working practice and use of PPE will be required and potentially special protective measures. Made Ground to be assessed for asbestos by the site investigation.
			Future site occupants and visitors	Severe	Unlikely	Low	Pathway between any asbestos in Made Ground and receptors will be broken by concrete floor slab/hard landscaping and clean build-up.
Made Ground. Organic material (Alluvium) near the Site.	Gas and vapour	**Made Ground is likely to be present onsite, and, with the historic industrial land uses, there is the potential for this to be contaminated and provide a source of hazardous gas and vapour beneath the Site. In addition, there is a potential for gas migration from neighbouring historic contaminative uses (works, depots) via permeable strata. BGS boreholes indicate that alluvial material is present close to the site and there is potential for alluvium to present beneath the site.**					
		Inhalation Explosion (methane)	Construction / maintenance workers	Severe	Unlikely	Moderate / Low	Potential for uncontrolled exposure to hazardous ground gas / vapour (if present) in confined unventilated excavations. Capable of mitigation by gas monitoring to define the risks from ground gas and good construction practice e.g. avoiding works in confined spaces, where required PPE and air quality monitoring.
			Future site occupants and visitors	Severe	Low Likelihood	Moderate	Potential for ingress of hazardous ground gas / vapour into the future development. Need for ground investigation to establish the extent of the risk.

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7 Ground Investigation

7.1 Scope and Objectives

A site specific ground investigation (GI) has been scoped to obtain further information in respect of the ground conditions beneath the proposed development site and to allow foundation assessments to be made. The site specific GI is yet to be undertaken and will need to be reviewed once the final factual report becomes available. Based on the likely ground conditions and the nature of the engineering considerations of the proposed development, issues to be clarified include the following:

- Prove geological succession – including presence, thickness and nature of any Made Ground, Alluvium, Glacial Till and depth to rockhead.
- Determine geometry of existing foundations of St Johns arches, bonded warehouse and retaining walls within western portion of site.
- Determine indicative parameters for ground model - bearing capacity, ground stability, settlement etc.
- Determine groundwater levels and behaviour to characterize groundwater regime.
- Determine ground gas concentrations and flow rates.
- Determine structural integrity and current loading regime on St Johns arches.
- Contamination assessment in respect of end use, health and safety of workforce and waste disposal of arisings.
- Manage UXO risk during intrusive investigations (southwest of Site only – Section 4.8 refers).

7.2 Methodology

Given the foregoing and considering the information available for the Site, the following ground investigation works have been undertaken to address the issues outlined above. Please note, works are still ongoing in terms of monitoring and geotechnical/chemical testing:

- 5 No. boreholes (25 m deep) comprising cable percussive drilling with rotary core follow on to allow assessment of the deeper ground conditions and to allow the installation of instrumentation.
- 2 No. days machine dug trial pitting to allow an assessment of the ground conditions across the entire site, presence of below ground substructure, permeability testing and any ground contamination in respect of end use, health and safety considerations in addition to waste disposal categorization.
- A series of hand excavated trial pits to obtain foundation details/geometry of railway arch pier bases/bonded warehouse foundations/retaining wall foundations and the strength/composition of the bearing stratum, to establish the thickness of ballast overlying the arches and to establish the profile/thickness of the arches.
- A series of window sample boreholes to establish soil strength/bearing capacity at existing St Johns arch foundation level, to allow the installation of instrumentation and to determine any ground contamination in respect of end use, health and safety considerations in addition to waste disposal categorization.
- A series of concrete cores through the brick piers within the St Johns arches to establish thickness and construction of the piers and to obtain samples for laboratory strength testing of the brick and mortar.

- Geotechnical laboratory testing. To determine the physical properties and characteristics of the ground mass for foundation design purposes.
- Chemical laboratory testing to allow an assessment of any ground contamination in respect of end use, health and safety considerations in addition to waste disposal categorization.
- Installation of gas and groundwater monitoring wells in each exploratory hole to allow appropriate ground gas and groundwater monitoring to be undertaken.
- Programme of gas and groundwater monitoring to allow the ground gas and groundwater conditions beneath the site to be assessed.
- Attendance of a UXO specialist engineer to manage UXO risk for investigatory works for those areas identified as higher risk.

7.3 Constraints

The positions and programming of all exploratory holes will need to be agreed with the land owners as appropriate to minimize impact and disruption in the use of the Site.

A utilities survey has been commissioned and completed, identifying services running through the site (Section 2.3 refers).

In addition, as detailed above, UXO detection equipment and survey techniques will be required within the southwestern portion of the site (Section 4.8 refers) as part of the ground investigation. It is anticipated that that similar techniques or geophysical surveys will be required to mitigate the UXO risk for the construction phase of works.

A Ground Engineering Hazard Checklist is included as Appendix L.

Figures

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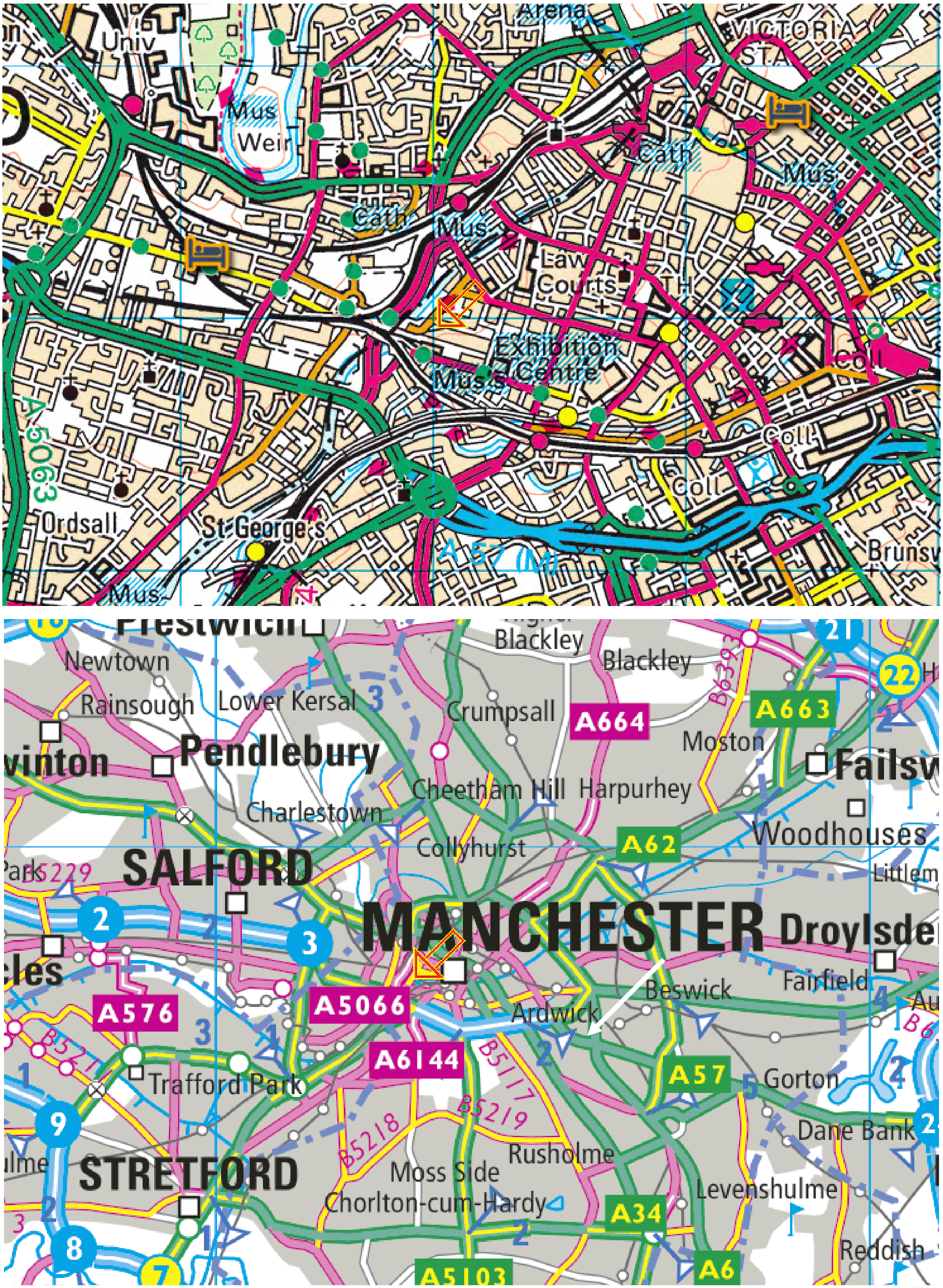
Univ
Mus
Weir
Arena
VICTORIA STA
Cath
Mus
Cath
Mus
Law Courts
TH
Exhibition Centre
Mus
Coll
Coll
A 5063
Ordsall
St George's
Mus
A 57 (M)
Brunsw
Prestwich
Newtown
Rainsough
Lower Kersal
Blackley
Blackley
Crumpsall
A664
A663
Moston
Pendlebury
Swinton
Failsw
Cheetham Hill
Harpurhey
Charlestown
Woodhouses
Collyhurst
A62
SALFORD
MANCHESTER
Droylsde
Littlem
Eccles
A576
A5066
Beswick
Fairfield
Ardwick
A6144
A57
Gorton
Trafford Park
B5117
B5219
B5218
Dane Bank
Levenshulme
Rusholme
Moss Side
STRETFORD
Chorlton-cum-Hardy
A34
A6
Reddish
A5103
B6393
B5229

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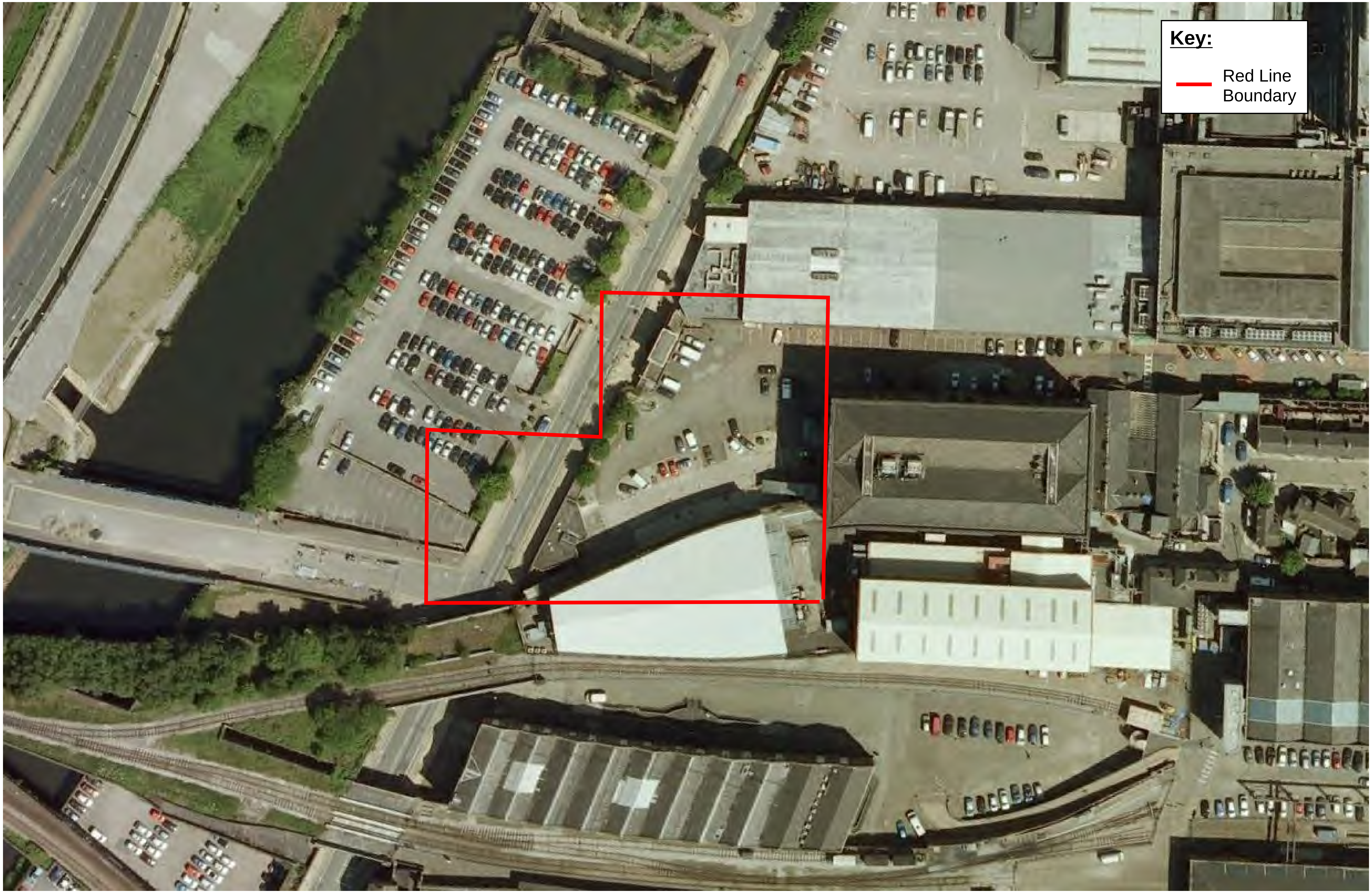
Project Name : The Factory, Manchester				BUROHAPPOLD ENGINEERING
Report Title : Ground Engineering Desk Study Report				
Figure Title : Site Location Plan				
Scale: NTS	**Date:** July 2016	**Job No:** 034933	**Figure:** 1	



BUROHAPPOLD ENGINEERING	JOB TITLE:	The Factory, Manchester	JOB NUMBER:	034933	DATE:	July 2016
	SKETCH TITLE:	Aerial Photograph	SKETCH NUMBER:	Figure 2	INITIALS:	GM

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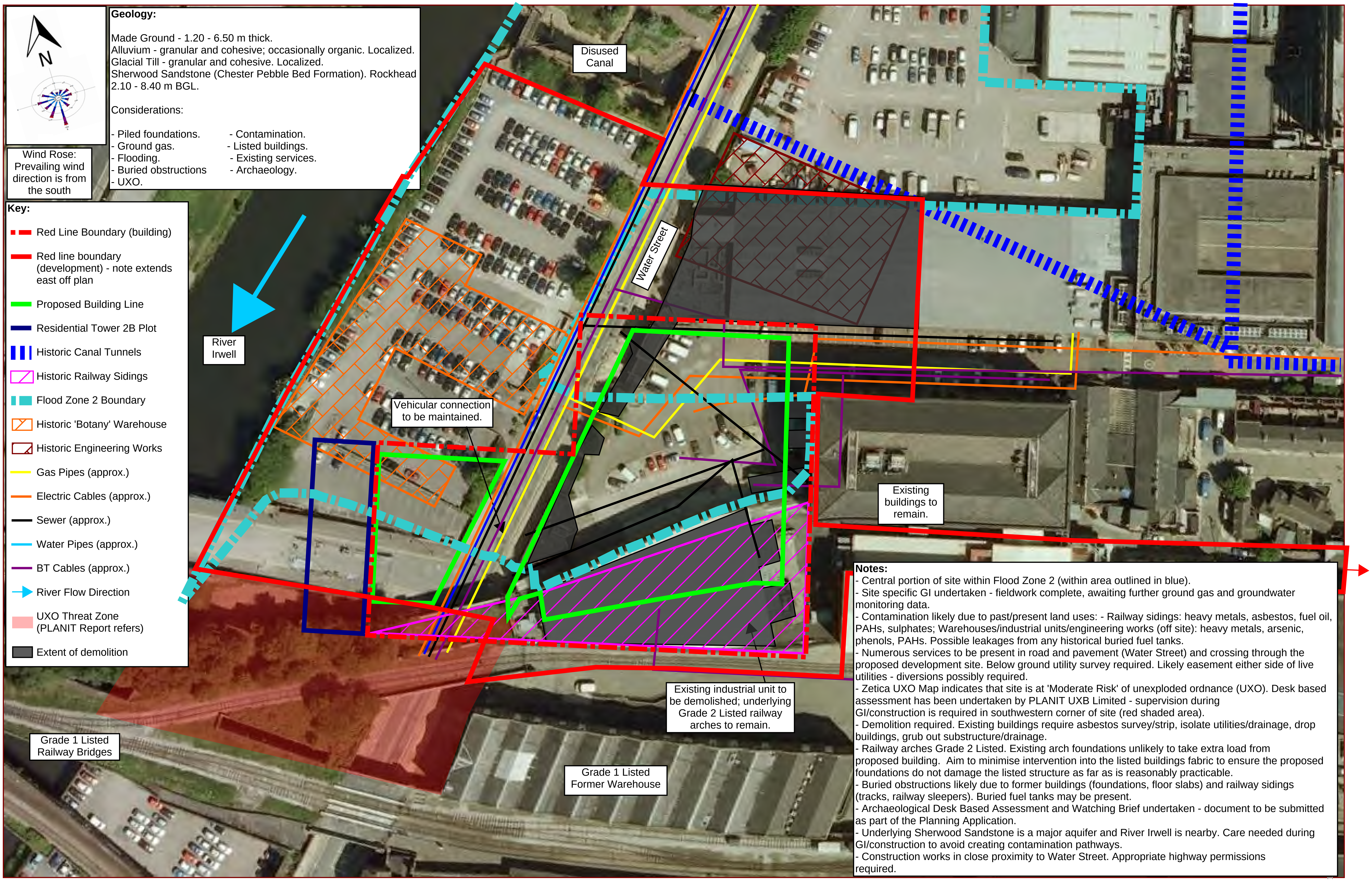
N
Wind Rose:
Prevailing wind direction is from the south
Disused Canal
River Irwell
Water Street
Vehicular connection to be maintained.
Existing buildings to remain.
Existing industrial unit to be demolished; underlying Grade 2 Listed railway arches to remain.
Grade 1 Listed Railway Bridges
Grade 1 Listed Former Warehouse

Geology:

Made Ground - 1.20 - 6.50 m thick.
Alluvium - granular and cohesive; occasionally organic. Localized.
Glacial Till - granular and cohesive. Localized.
Sherwood Sandstone (Chester Pebble Bed Formation). Rockhead 2.10 - 8.40 m BGL.

Considerations:

- Piled foundations.
- Ground gas.
- Flooding.
- Buried obstructions
- UXO.
- Contamination.
- Listed buildings.
- Existing services.
- Archaeology.

Key:

- Red Line Boundary (building)
- Red line boundary (development) - note extends east off plan
- Proposed Building Line
- Residential Tower 2B Plot
- Historic Canal Tunnels
- Historic Railway Sidings
- Flood Zone 2 Boundary
- Historic 'Botany' Warehouse
- Historic Engineering Works
- Gas Pipes (approx.)
- Electric Cables (approx.)
- Sewer (approx.)
- Water Pipes (approx.)
- BT Cables (approx.)
- River Flow Direction
- UXO Threat Zone (PLANIT Report refers)
- Extent of demolition

Notes:

- Central portion of site within Flood Zone 2 (within area outlined in blue).
- Site specific GI undertaken - fieldwork complete, awaiting further ground gas and groundwater monitoring data.
- Contamination likely due to past/present land uses: - Railway sidings: heavy metals, asbestos, fuel oil, PAHs, sulphates; Warehouses/industrial units/engineering works (off site): heavy metals, arsenic, phenols, PAHs. Possible leakages from any historical buried fuel tanks.
- Numerous services to be present in road and pavement (Water Street) and crossing through the proposed development site. Below ground utility survey required. Likely easement either side of live utilities - diversions possibly required.
- Zetica UXO Map indicates that site is at 'Moderate Risk' of unexploded ordnance (UXO). Desk based assessment has been undertaken by PLANIT UXB Limited - supervision during GI/construction is required in southwestern corner of site (red shaded area).
- Demolition required. Existing buildings require asbestos survey/strip, isolate utilities/drainage, drop buildings, grub out substructure/drainage.
- Railway arches Grade 2 Listed. Existing arch foundations unlikely to take extra load from proposed building. Aim to minimise intervention into the listed buildings fabric to ensure the proposed foundations do not damage the listed structure as far as is reasonably practicable.
- Buried obstructions likely due to former buildings (foundations, floor slabs) and railway sidings (tracks, railway sleepers). Buried fuel tanks may be present.
- Archaeological Desk Based Assessment and Watching Brief undertaken - document to be submitted as part of the Planning Application.
- Underlying Sherwood Sandstone is a major aquifer and River Irwell is nearby. Care needed during GI/construction to avoid creating contamination pathways.
- Construction works in close proximity to Water Street. Appropriate highway permissions required.

BUROHAPPOLD
ENGINEERING

JOB TITLE: Factory, Manchester.
JOB NUMBER: 034933
DATE: 7/09/2016
SKETCH TITLE: Site Constraints Plan Rev03
SKETCH NUMBER: Figure 3
INITIALS: GM/PH

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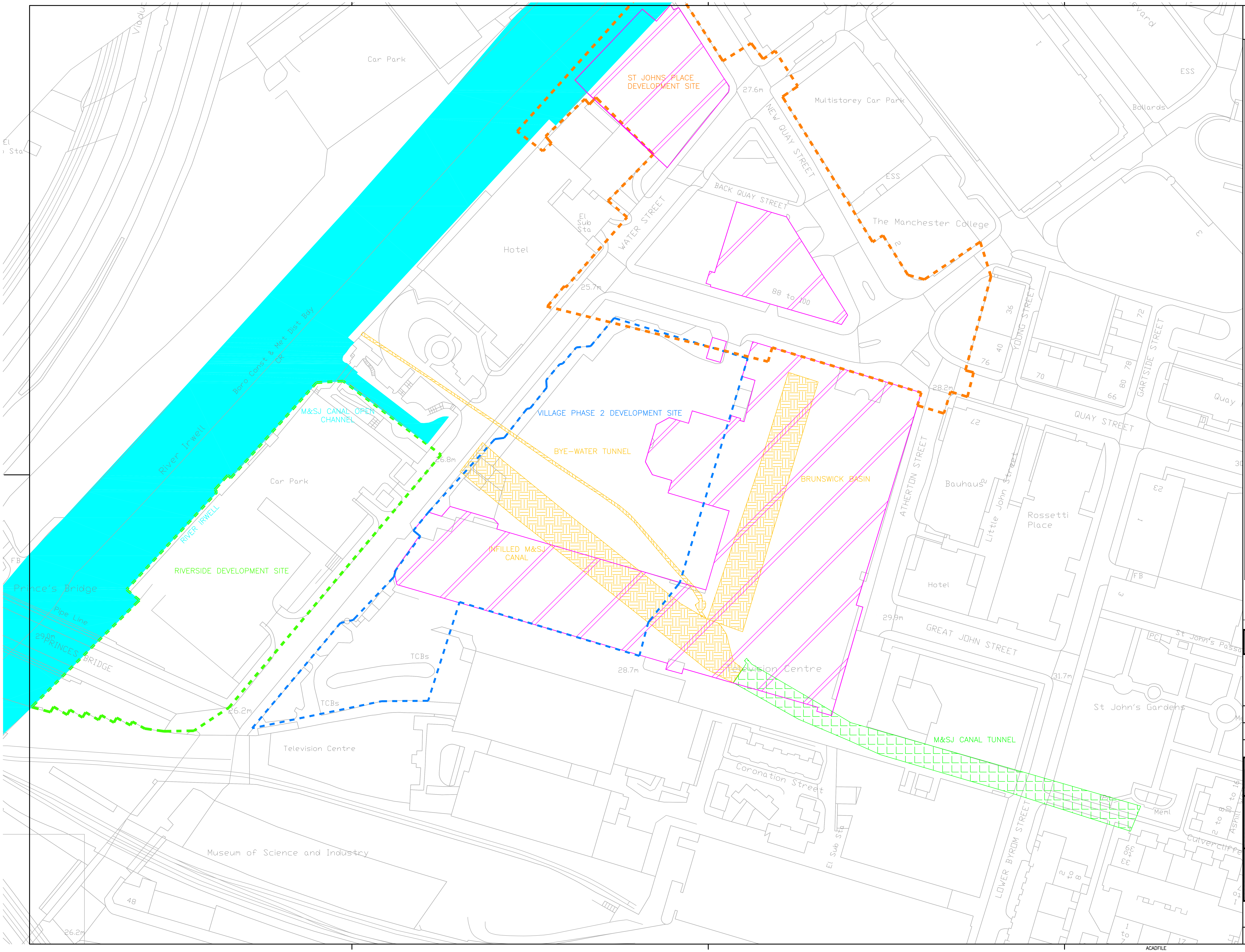
FIGURE 4


Car Park
ST JOHNS PLACE DEVELOPMENT SITE
27.6m
Multistorey Car Park
NEW QUAY STREET
BACK QUAY STREET
ESS
The Manchester College
Hotel
El Sub Sta
WATER STREET
25.7m
88 to 100
Boro Const & Met Dist Bdy
River Irwell
M&SJ CANAL OPEN CHANNEL
VILLAGE PHASE 2 DEVELOPMENT SITE
BYE-WATER TUNNEL
BRUNSWICK BASIN
26.8m
Car Park
RIVER IRWELL
INFILLED M&SJ CANAL
RIVERSIDE DEVELOPMENT SITE
Prince's Bridge
Pipe Line
PRINCES BRIDGE
29.9m
TCBs
28.7m
26.2m
Television Centre
M&SJ CANAL TUNNEL
Coronation Street
Museum of Science and Industry
YOUNG STREET
GARTSIDE STREET
QUAY STREET
28.2m
ATHERTON STREET
Bauhaus
Little John Street
Rossetti Place
Hotel
29.9m
GREAT JOHN STREET
31.7m
St John's Gardens
St John's Passage
LOWER BYROM STREET
Culvercliffe
Ashill
El Sub Sta
Ballards
Quay
ESS
N

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NOTES

- — APPROX RIVERSIDE DEVELOPMENT BOUNDARY
- — APPROX VILLAGE PHASE 2 DEVELOPMENT BOUNDARY
- — APPROX ST JOHNS PLACE DEVELOPMENT BOUNDARY
- ▨ APPROX EXISTING BUILDING FOOTPRITNT
- ▦ INFILLED CANAL RELATED FEATURE
- ▦ EXISTING CANAL TUNNELS
- ■ RIVER IRWELL

DRAWING NOTES

1) PLANNING APPLICATION AND DEVELOPMENT SITE BOUNDARIES INDICATED ON THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY AND MAY BE SUBJECT TO AMENDMENT. PLEASE REFER TO SIMPSONHAUGH ARCHITECTS DRAWINGS FOR DETAILED SITE BOUNDARY INFORMATION

2) THE LOCATION AND EXTENT OF HISTORICAL FEATURES HAS BEEN CONJECTURED FROM MAP RECORDS AND SHOULD BE CONSIDERED AS APPROXIMATE

REV.	DATE	DETAILS	DRN.	CHK.

DRAWING STATUS
INFORMATION

RoC CONSULTING
Civil & Structural Engineers
81 Chapel Street, Salford, M3 5DF
Tel: 0161 833 3794 Fax: 0161 819 5070

DRAWN as	DATE 10.2014	SCALES 1:1000
CHECKED	DATE	THE ABOVE SCALES APPLY WHEN PLOTTED AT A3 SIZE
APPRVD.	DATE	EMAIL FOR DRAWINGS drawings@rocconsulting.com

CLIENT
Allied London

PROJECT TITLE
ST JOHN'S
VILLAGE PHASE 2
& RIVERSIDE SITES

DRAWING TITLE
APPROX
CANAL RELATED
FEATURES

PROJECT No.	DRAWING No.	REV.
3233	ES01	S1

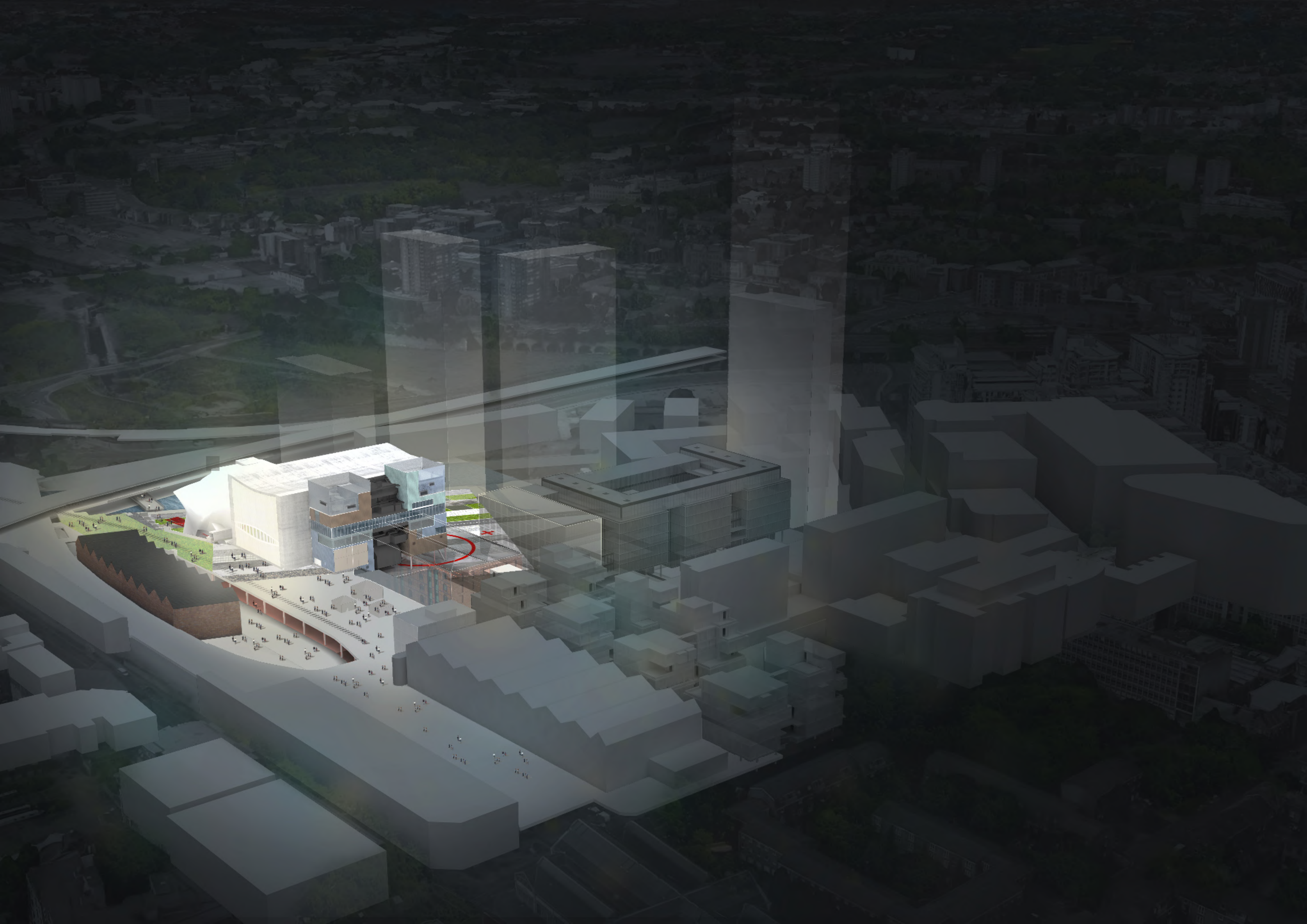
Ⓒ RoCp Ltd.

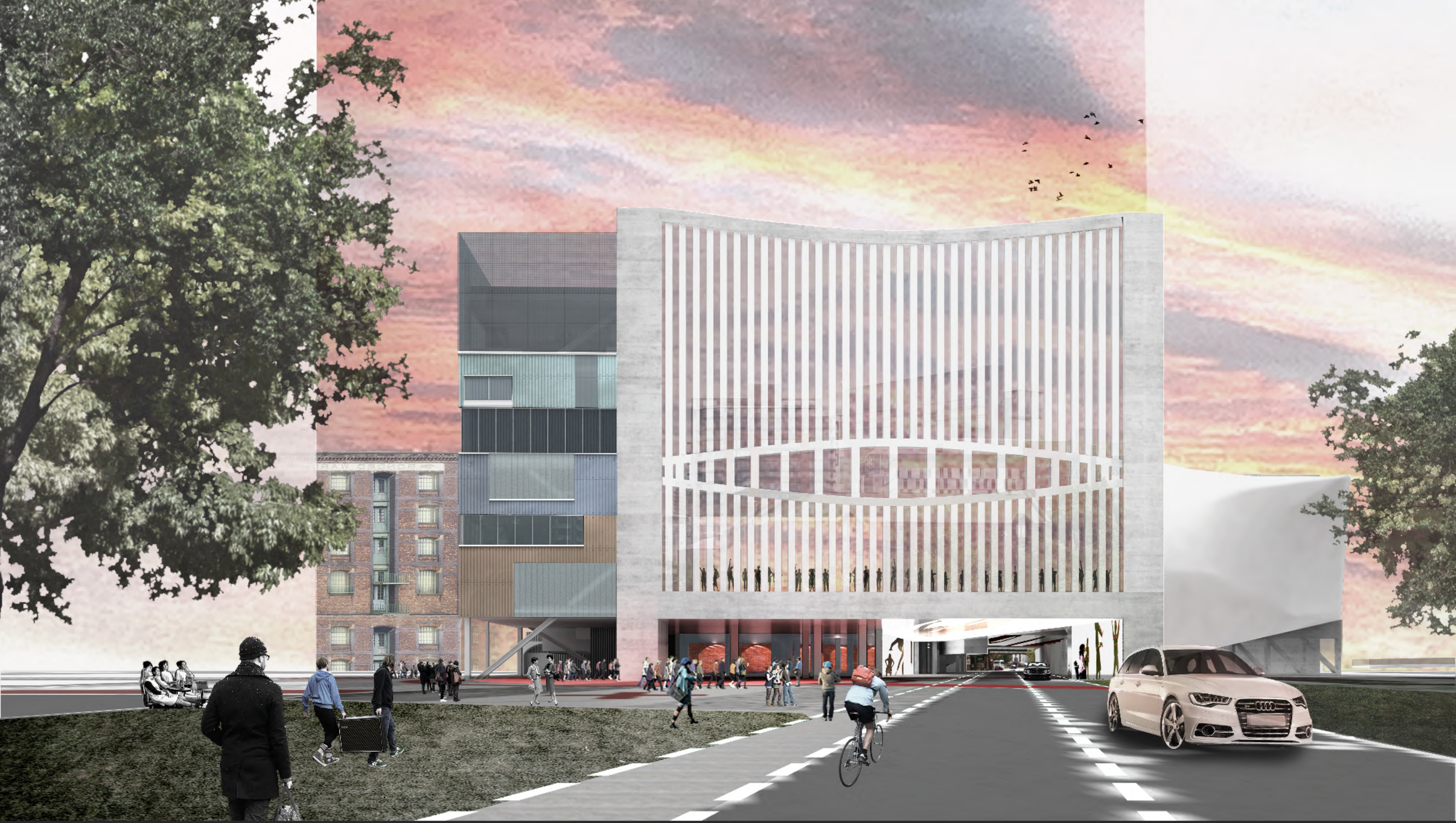
RoC Consulting

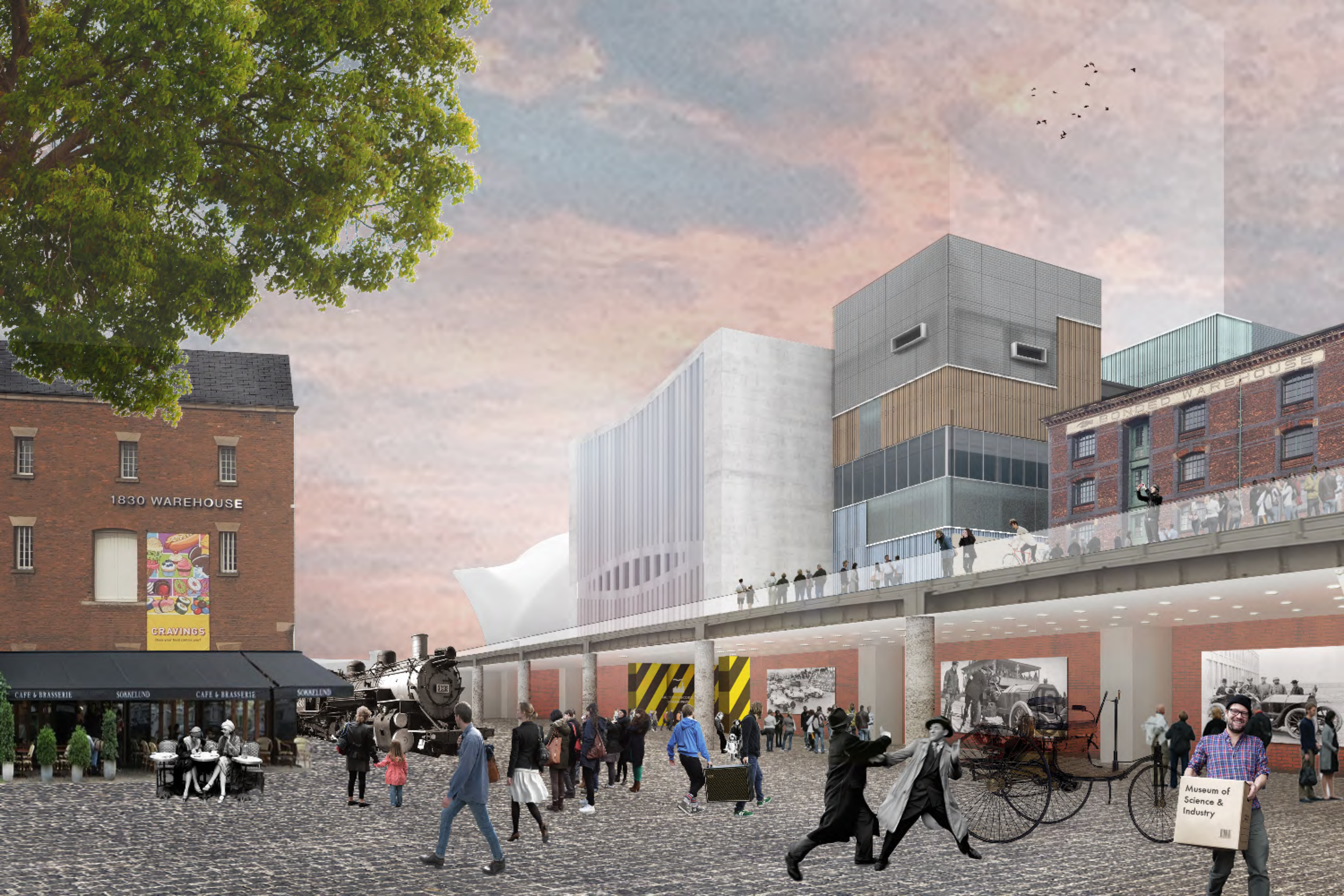
ACADFILE

PLOT DATE: PLOTDATE

Appendix A – Proposed Development Details






1830 WAREHOUSE
CRAVINGS
CAFE & BRASSERIE
SOKKELUND
CAFE & BRASSERIE
SOKKELUND
BONDED WAREHOUSE
Museum of Science & Industry

Appendix B – Information Source Summary

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Information Sources	Information Obtained?		Comments
	YES	NO	
Environment Agency (e.g. for information on landfill sites, water abstraction, pollution incidents)	✓		Envirocheck® Report data.
The Local Authority (e.g. for information on environmental health & planning)	✓		Various reports and information for the St Johns masterplan.
Archaeological records	✓		Stephen Levrant Heritage Architecture Ltd Report (Heritage Appraisal).
Local history sources (e.g. libraries, museums, societies)	✓		Manchester Central Library Archive.
Coal Authority (coal mining records)	✓		Coal Authority Report Data.
British Geological Survey (maps and information about the geology of the area)	✓		BGS maps and memoirs.
Historical borehole information	✓		BGS data.
Aquifers (major and minor, and groundwater vulnerability)	✓		Envirocheck® Report data.
Hydrogeology (groundwater levels)	✓		Envirocheck® Report data and BGS data.
Ordnance Survey (current & previous editions of plans)	✓		Envirocheck® Report data & Manchester Central Library plans.
Newspaper reports		✓	---
Waste, Hazardous Substances	✓		Envirocheck® Report data.
Service/Utility Companies	✓		Combined service drawing covering majority of site(indicative) by Crookes Walker Consulting.
Existing site investigations		✓	---

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Appendix C – Utilities Information

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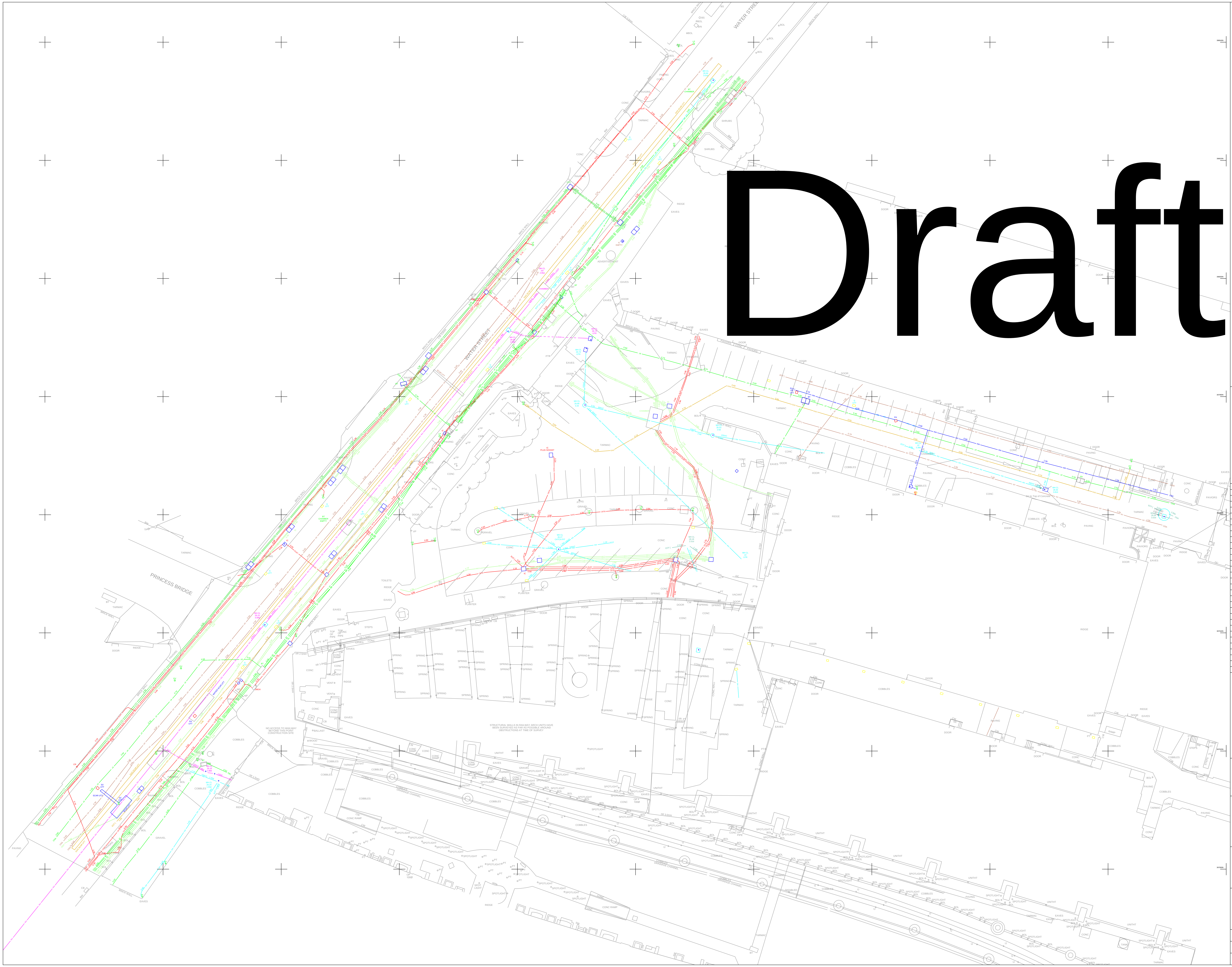

WATER STREET
PRINCESS BRIDGE
NO ACCESS TO RAILWAY BEYOND THIS POINT CONSTRUCTION SITE
STRUCTURAL WALLS IN RAILWAY ARCH UNITS HAVE BEEN SURVEYED AS FAR AS POSSIBLE AROUND OBSTRUCTIONS AT TIME OF SURVEY
398040N
398020N
398000N
397980N
397960N
397920N
397900N

Draft

LEGEND

Line	Name
	Kerb
	Low Kerb
	Safety Kerb
	Verge
	Fence
	Wall
	Wall (To scale)
	Railway
	Pipeline
	Top of bank
	Bottom of bank
	Ditch
	Channel (To scale)
	Overhead Line
BT	BT Cable
COM	General Comms. Cable
CTV	CTV Cable
CW	Combined Water Pipe
ELEC	Electricity Cable
FO	Fibre Optic Cable
FW	Foul Water Pipe
GAS	Gas Pipe
HV	High Voltage Cable
LV	Low Voltage Cable
MW	Mains Water Pipe
OXG	Oxygen Pipe
SW	Surface Water Pipe
UN	Unknown Service
ABT	Assumed BT Cable
ACOM	Assumed General Comms. Cable
ACTV	Assumed CTV Cable
ACW	Assumed Combined Water Pipe
AELEC	Assumed Electricty Cable
AFO	Assumed Fibre Optic Cable
AFW	Assumed Foul Water Pipe
AGAS	Assumed Gas Pipe
AHV	Assumed High Voltage Cable
ALV	Assumed Low Voltage Cable
AMW	Assumed Mains Water Pipe
ASW	Assumed Surface Water Pipe

Symbol	Name
AV ○	Air Valve
BH ⌖	Borehole
Bol ○	Bollard
BT □	British Telecom
CTV □	Cable T.V.
CR ○	Cable Riser
CULV □	Culvert
DP ○	Down Pipe
Dr ○	Drain
EP ○	Electricity Pole
ER ○	Earth Rod
FH ○	Fire Hydrant
G □	Gully
GR ○	Gas Riser
Gas ○	Gas Pipe
GV ○	Gas Valve
IC ○	Small IC
IC □	Inspection Cover
IC △	Triangular IC
IRS ○	Illuminated Road Sign
KO ○	Kerb Outlet
LP ○	Lamp Post
Met □	Meter
MH ○	Circular Manhole
MH □	Manhole
MH △	Triangular Manhole
MP +	Marker Post
Pipe ○	Pipe
PIT ☒	Trial Pit
RE ○	Rodding Eye
RS ○	Road Sign
SC ○	Stop Cock
Stay +	Stay
Tap ○	Tap
TP ○	Telegraph Pole
TS ○	Traffic Signal
Vent ○	Vent
WR •	Point Water Riser
EOR	End of Record
EOT	End of Trace (Proceed with caution)
OSA	Outside Survey Area

X	Exit pipe	UTS	Unable to Survey	UTL	Unable To Locate
TFR	Taken From Records	SV	Sluice Valve	UTR	Unable to Raise
d	Depth Equals	VC	Vitrified Clay Pipe	UTT	Unable To Trace

A range of detection methods are used to obtain the underground information produced in this drawing. Variations in the ground conditions can affect the quality of the data and therefore an absolute affirmation cannot be guaranteed. The identification of any located service should not be treated as infallible. The originating source may not have been traced. The location and/or identification of a service will not necessarily indicate whether it is live or dead.

All depths of metallic features are to centre of the service, depths on drainage runs are to the pipe invert at the manhole and should be treated as an approximate indication. Underground drainage has been proven for position using traceable sonde methods, unless otherwise stated. No allowance has been made for sub surface entry into manholes or other chambers or voids below ground level, therefore any details relating to depths, sizes etc., are taken from above ground and as such will be approximate only.

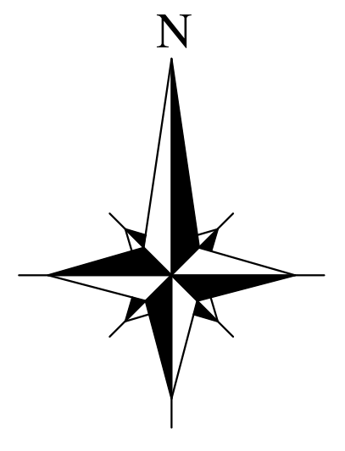
Features not traceable by electromagnetic or sonde techniques, have not been located. These results are not infallible and trial excavations should be carried out to confirm service identification, position and particularly depths, where these are critical.

L & M Surveys Services Ltd is not liable for any topographical survey that has not been undertaken by us. Any inaccuracies relating to background mapping, that we have no control over, are the liability of the client.

The term end of trace signifies the last possible point of location and not the termination of the service. In these instances please proceed with caution.

CONTROL STATION COORDINATES

STN	EASTING	NORTHING	LEVEL



INDICATIVE OF NORTH

Notes:
All levels shown are relative to the existing site control supplied by client.

The co-ordinates shown on this plan are relative to a LOCAL GRID.
The survey is orientated approximately to grid north.

L&M Survey Services
LAND - MINERAL - HYDROGRAPHIC

Kilmarnock
Netherton House, West Netherton Street,
Kilmarnock, KA1 4BU
Tel: 01563 533368 Fax: 01563 533309
Email: kilmarnock@lmsurveyservices.com

Edinburgh
24 Canning Street, Haymarket,
Edinburgh, EH3 8EG
Tel: 0131 272 2706 Fax: 0131 272 2800
Email: edinburgh@lmsurveyservices.com

Newcastle
The Grainger Suite, Dobson House,
The Regent Centre, Newcastle, NE3 3PF
Tel: 0191 233 6314 Fax: 0191 233 6337
Email: newcastle@lmsurveyservices.com

Client :
BURRO HAPPOLD ENGINEERING
2 CASTLE STREET
MANCHESTER
M3 4LZ

Project Title :
UTILITY SURVEY
THE FACTORY
WATER STREET
MANCHESTER

Sheet Title : SHEET 1 OF 1		Scale : 1:200	
Surveyed date : 10/04/16	Issued date : 22/04/16	Enquiry No : 18333	Project No : 11543 Draft
Surveyed by : GL	Processed by : GL	Checked by : PW	Approved by : JMK

A0 Sheet

Appendix D – Historical Maps

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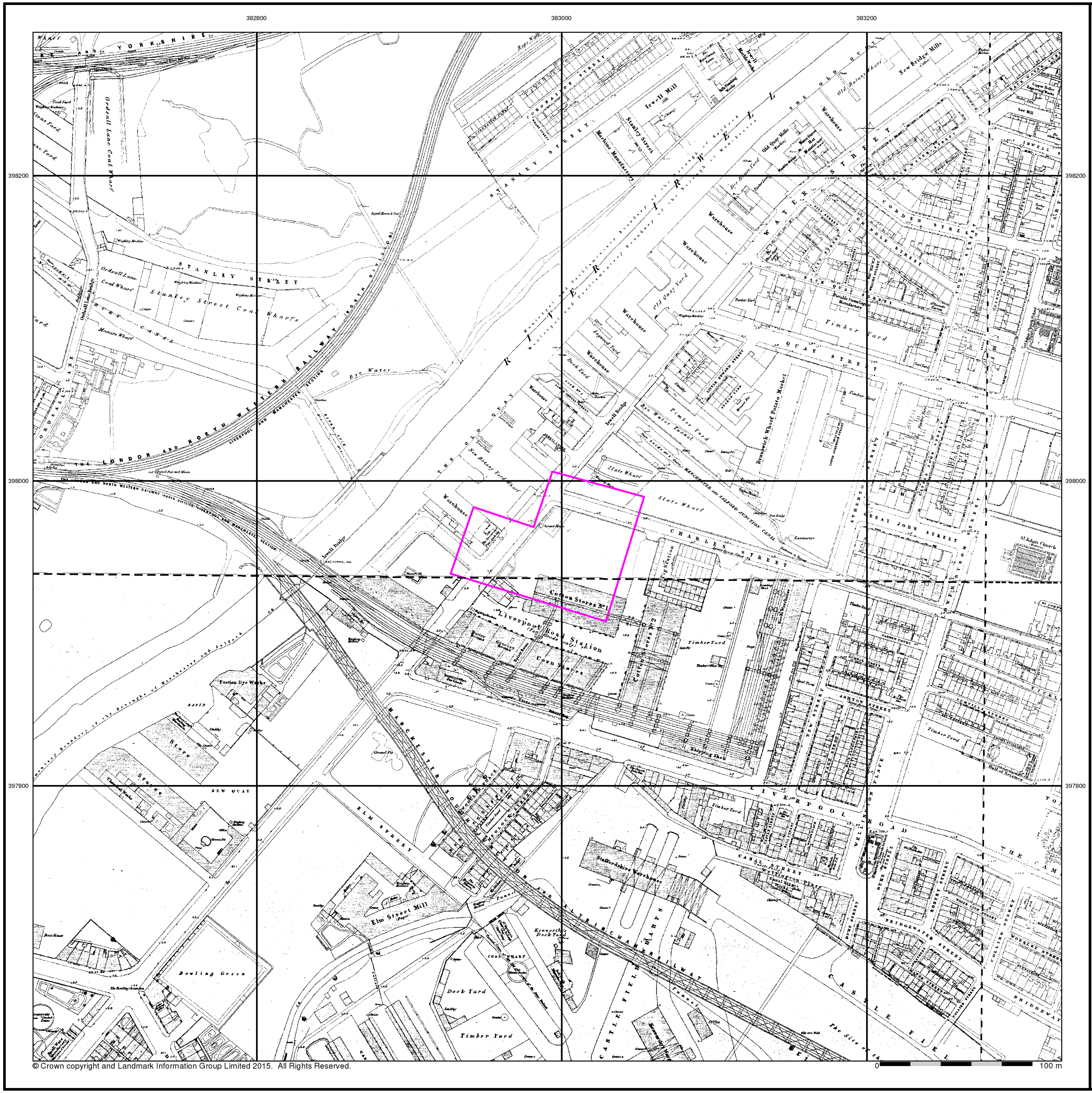
382800
383000
383200
398200
398000
397800
River Irwell
Water Street
Stanley Street
Charles Street
Great John Street
Quay Street
Liverpool Road
Liverpool Road Station
Cotton Stores No 1
Cotton Stores No 2
Slate Wharf
Old Quay
New Quay
Old Quay Yard
Timber Yard
Dock Yard
Bowling Green
Elm Street Mill
Elm Street
Manchester South Junction and Altrincham Railway
London and North Western Railway
Manchester and Salford Junction Canal
Ordsall Lane Coal Wharf
Stanley Street Coal Wharfs
Irwell Mill
Warehouse
Fustian Dye Works
Castle Field
Staffordshire Warehouse
Canal Street
Bridgewater Street
St John's Church
0
100 m

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Envirocheck® Historical

Lancashire And Furness

Published 1851

Source map scale - 1:1,056

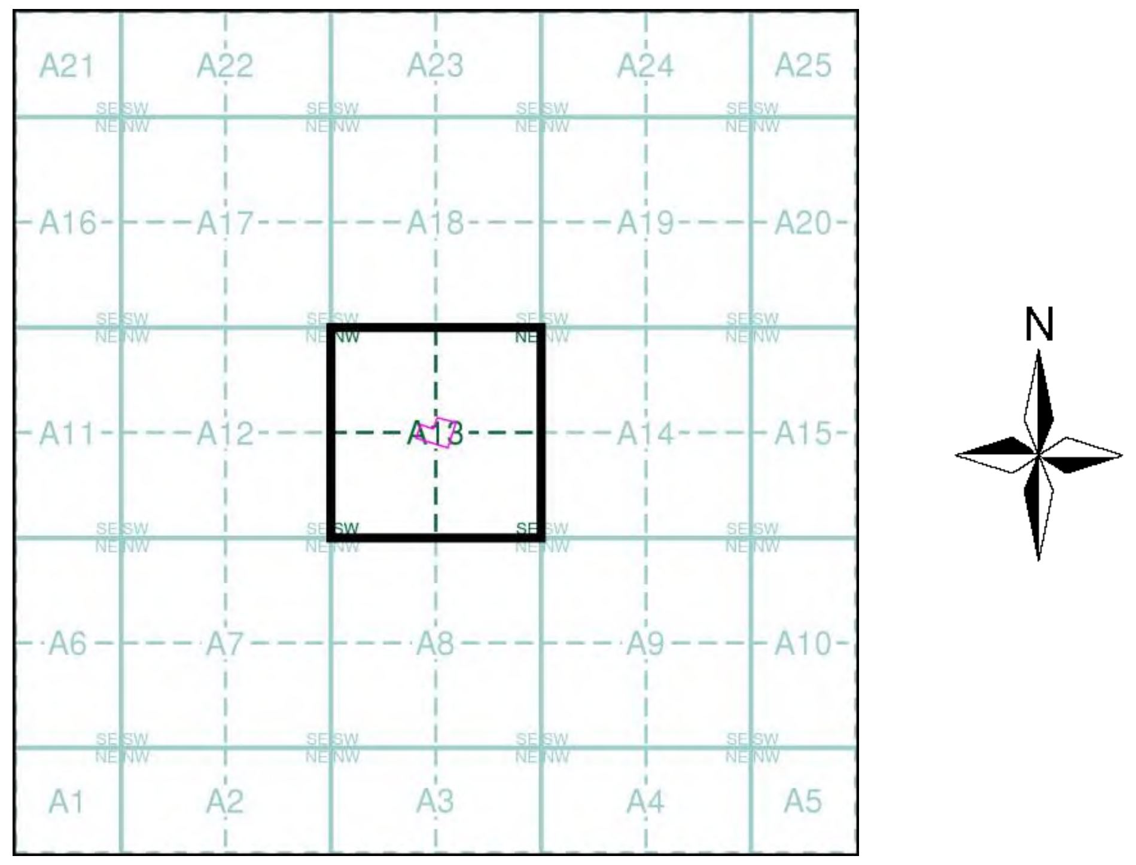
The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the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

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

Map Name(s) and Date(s)

000_00_027 1851 1:1,056	000_00_028 1851 1:1,056
000_00_032 1851 1:1,056	000_00_033 1851 1:1,056

Historical Town Plan - Segment A13


A21
A22
A23
A24
A25
A16
A17
A18
A19
A20
A11
A12
A13
A14
A15
A6
A7
A8
A9
A10
A1
A2
A3
A4
A5
N

Order Details

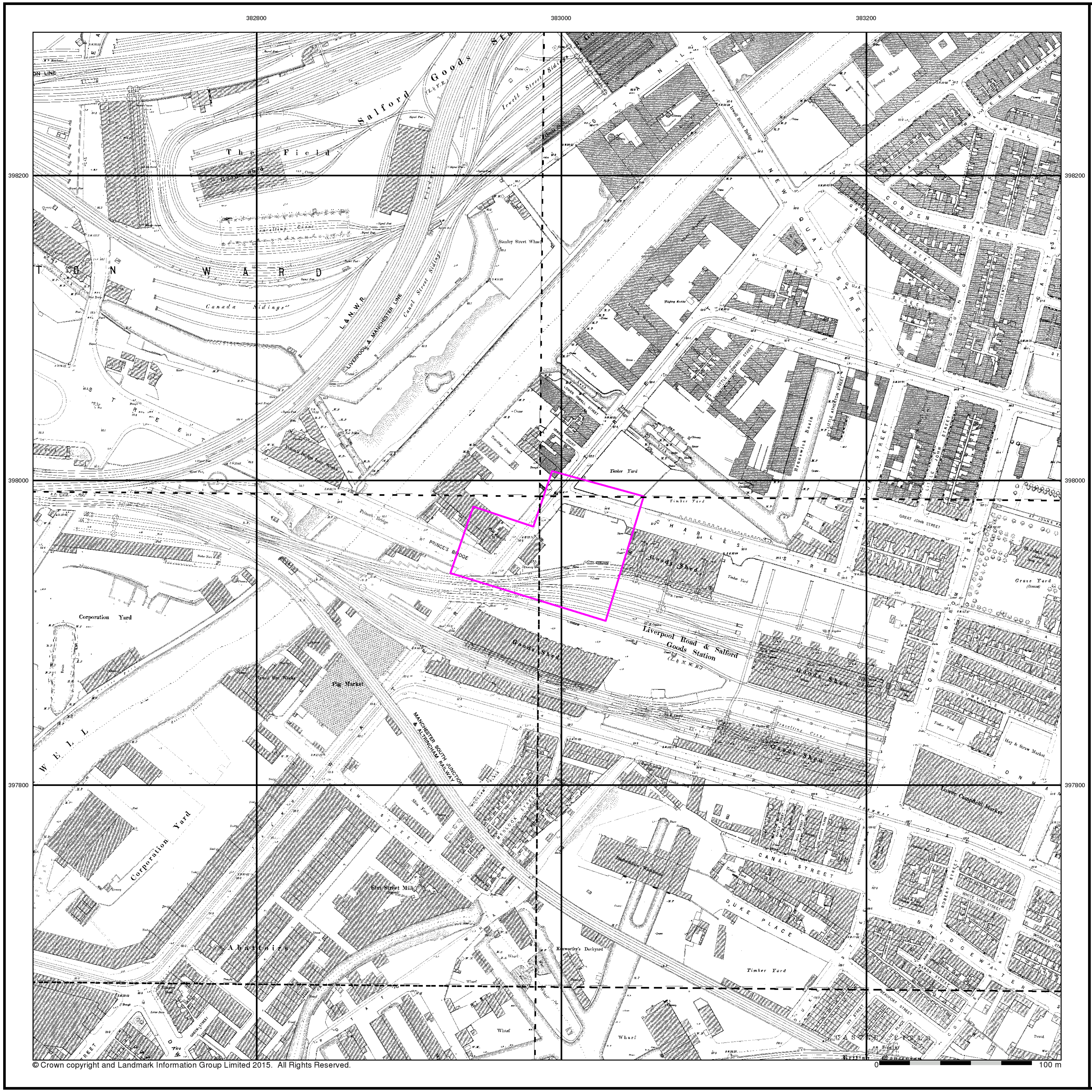
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	0

Site Details

121, Water Street, Manchester, M3 4JU

Landmark® Information Group

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


382800
383000
383200
398200
398000
397800
Salford Goods (L & Y R)
The Field
Goods Shed
Irwell Street Sidings
Canada Sidings
L. & N. W. R.
Liverpool & Manchester Line
Canal Street Sidings
Stanley Street Wharf
Timber Yard
Princes Bridge
Charles Street
Goods Shed
Liverpool Road & Salford Goods Station (L & N W R)
Corporation Yard
Pig Market
Manchester South Junction & Altrincham Railway
New Quay Street
Cobden Street
Great John Street
Lower Byrom Street
Grass Yard
Lower Campfield Market
Hay & Straw Market
Canal Street
Duke Place
Elm Street Mill
Abattoirs
Kenworthy's Dockyard
Wharf
0
100 m

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Envirocheck® Historical

Lancashire And Furness

Published 1891

Source map scale - 1:500

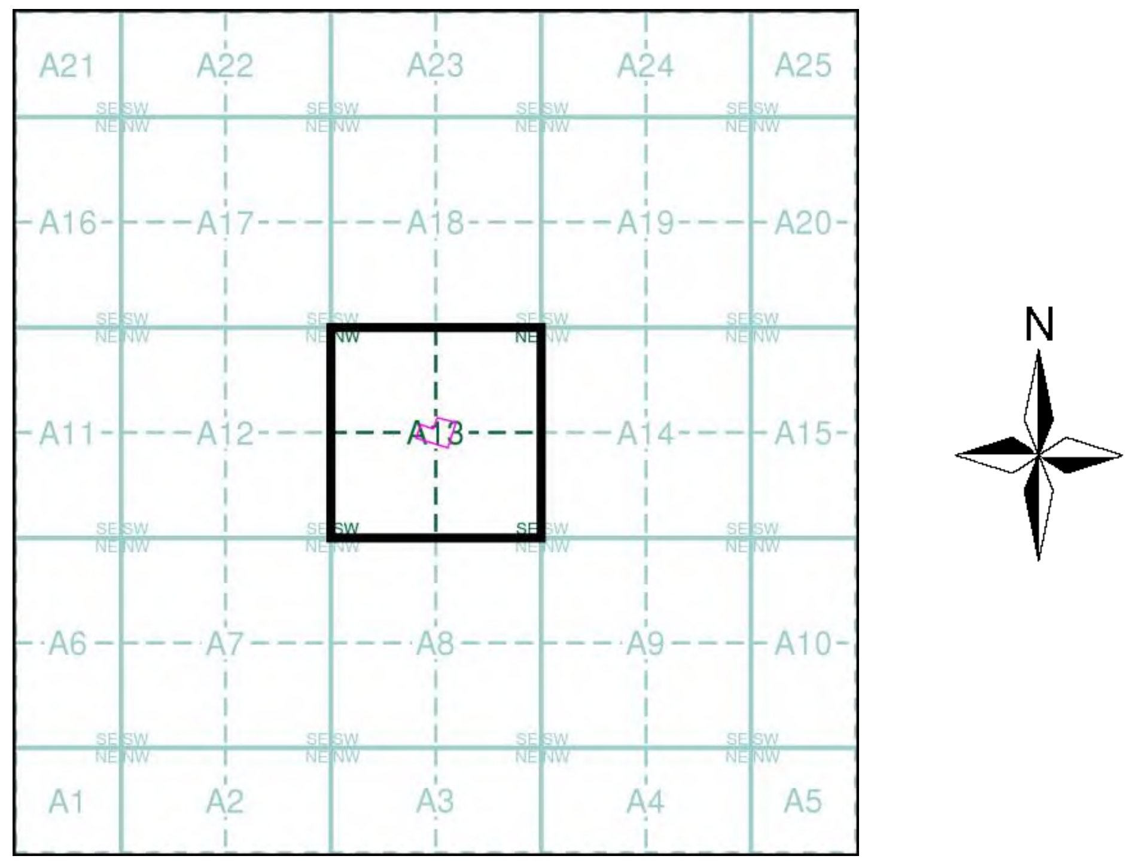
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to compliment the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped 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_10_002 1891 1:500	104_10_003 1891 1:500
104_10_007 1891 1:500	104_10_008 1891 1:500
104_10_012 1891 1:500	104_10_013 1891 1:500

Historical Town Plan - Segment A13


A21
A22
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A16
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A20
A11
A12
A13
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A15
A6
A7
A8
A9
A10
A1
A2
A3
A4
A5
N

Order Details

Order Number: 79633581_1_1
Customer Ref: 034933
National Grid Reference: 382990, 397960
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 0

Site Details

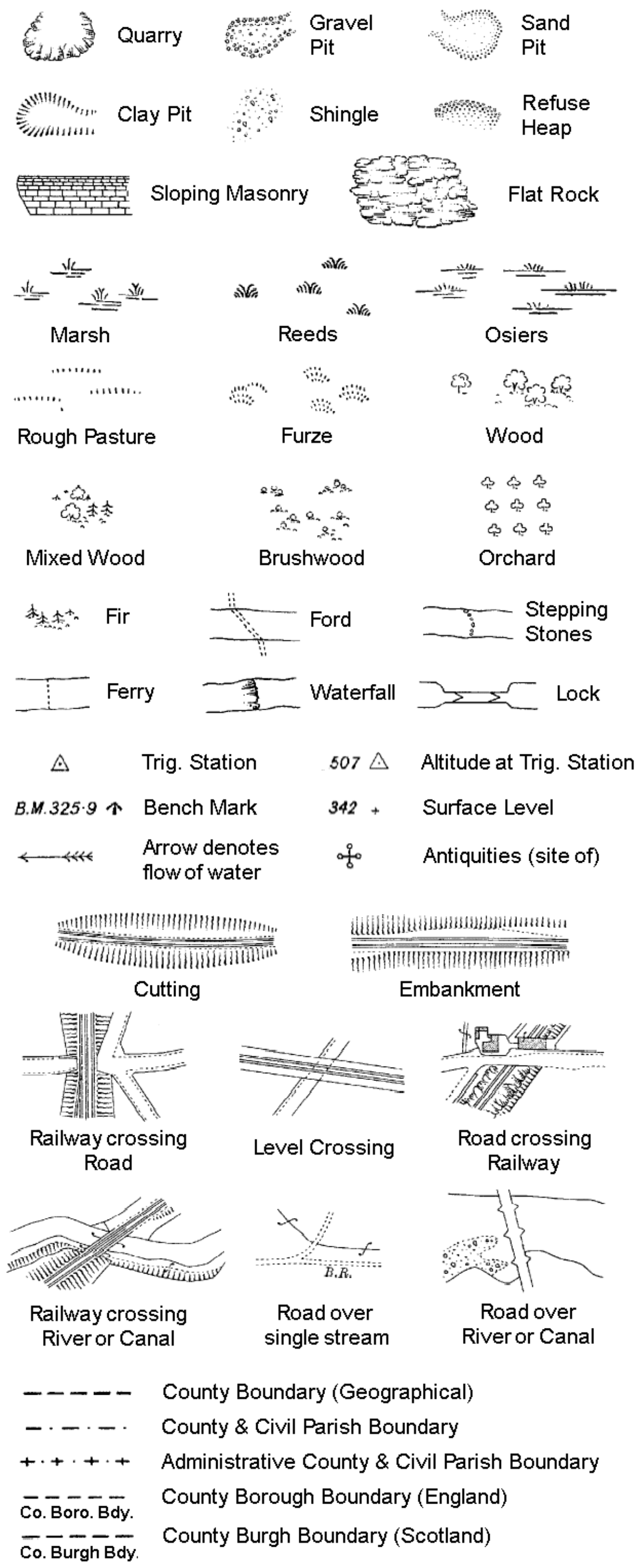
121, Water Street, Manchester, M3 4JU

Landmark® Information Group

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

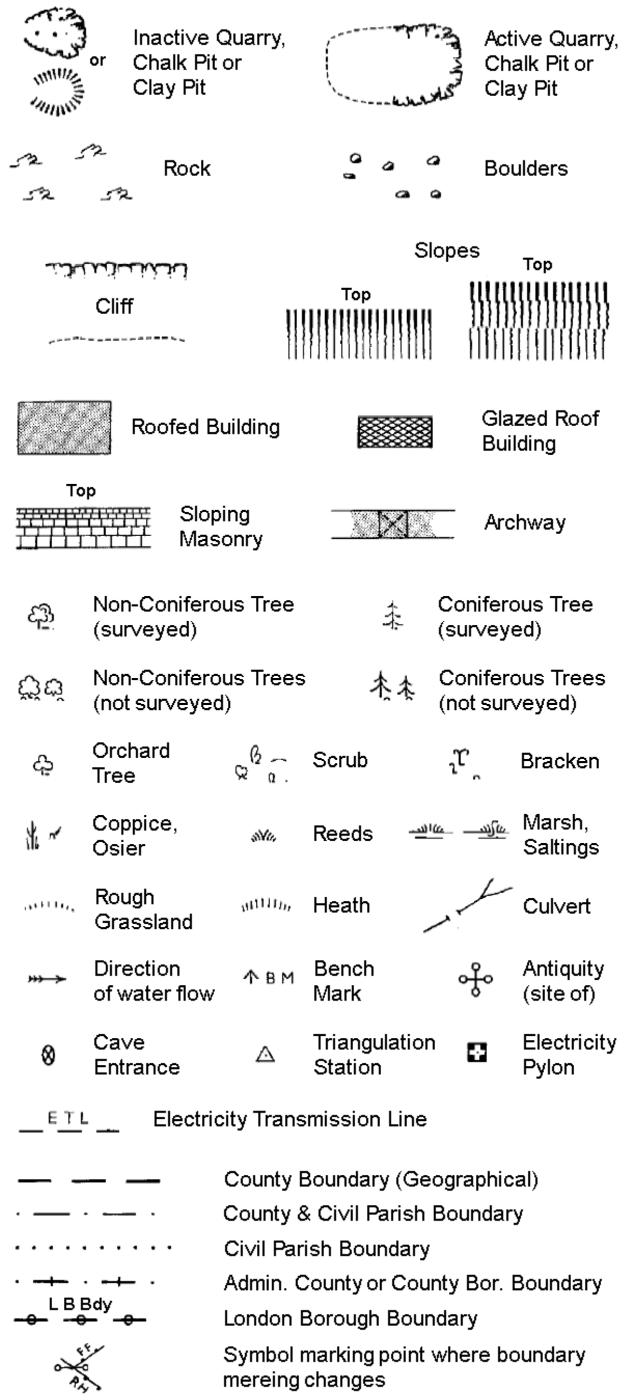
Historical Mapping Legends

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


Quarry
Gravel Pit
Sand Pit
Clay Pit
Shingle
Refuse Heap
Sloping Masonry
Flat Rock
Marsh
Reeds
Osiers
Rough Pasture
Furze
Wood
Mixed Wood
Brushwood
Orchard
Fir
Ford
Stepping Stones
Ferry
Waterfall
Lock
Trig. Station
507 Altitude at Trig. Station
B.M.325·9 Bench Mark
342 Surface Level
Arrow denotes flow of water
Antiquities (site of)
Cutting
Embankment
Railway crossing Road
Level Crossing
Road crossing Railway
Railway crossing River or Canal
Road over single stream
Road over River or Canal
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)

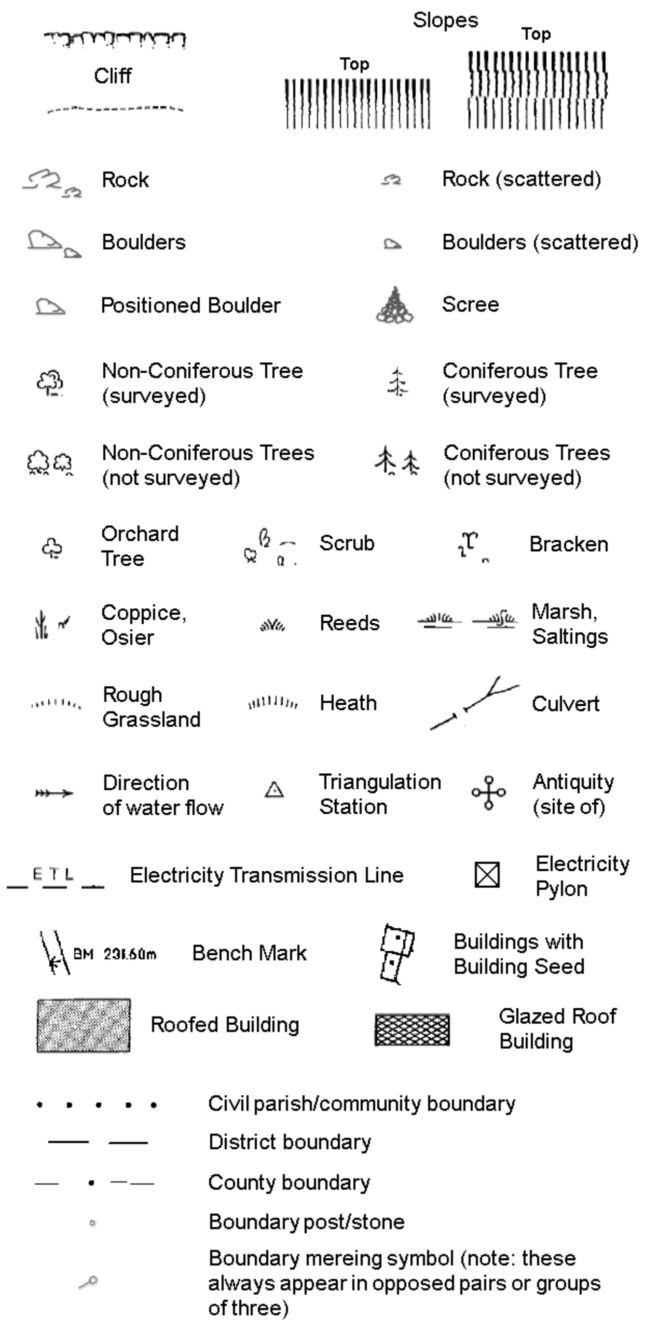
B P B S	Boundary Post or Stone	*P.C.B*	Police Call Box
B.R.	Bridle Road	*P*	Pump
E.P	Electricity Pylon	*S.P*	Signal Post
F.B.	Foot Bridge	*Sl.*	Sluice
F.P.	Foot Path	*Sp.*	Spring
G.P	Guide Post or Board	*T.C.B*	Telephone Call Box
M.S	Mile Stone	*Tr.*	Trough
M.P M.R	Mooring Post or Ring	*W*	Well

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


Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Rock
Boulders
Slopes
Cliff
Roofed Building
Glazed Roof Building
Sloping Masonry
Archway
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
B M Bench Mark
Antiquity (site of)
Cave Entrance
Triangulation Station
Electricity Pylon
E T L Electricity Transmission Line
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


Slopes
Cliff
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Positioned Boulder
Scree
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
Triangulation Station
Antiquity (site of)
E T L Electricity Transmission Line
Electricity Pylon
BM 231.60m Bench Mark
Buildings with Building Seed
Roofed Building
Glazed Roof Building
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)

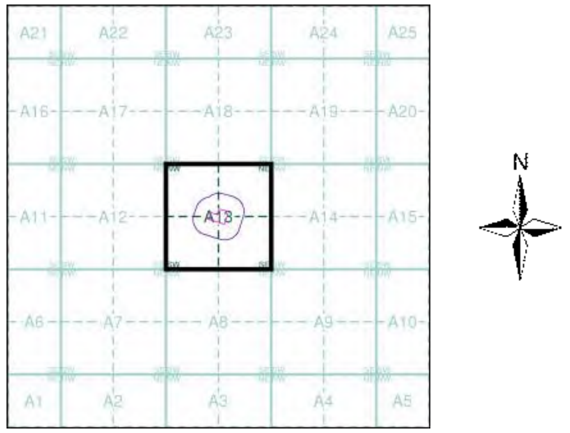
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity 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

Envirocheck®

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1908	2
Lancashire And Furness	1:2,500	1922	3
Ordnance Survey Plan	1:1,250	1948 - 1949	4
Ordnance Survey Plan	1:2,500	1950 - 1951	5
Ordnance Survey Plan	1:1,250	1953 - 1957	6
Ordnance Survey Plan	1:2,500	1956 - 1965	7
Ordnance Survey Plan	1:1,250	1962 - 1980	8
Ordnance Survey Plan	1:2,500	1963 - 1965	9
Ordnance Survey Plan	1:2,500	1971	10
Ordnance Survey Plan	1:1,250	1973 - 1981	11
Supply of Unpublished Survey Information	1:1,250	1974 - 1975	12
Additional SIMs	1:1,250	1978 - 1984	13
Additional SIMs	1:1,250	1986 - 1990	14
Additional SIMs	1:1,250	1990	15
Additional SIMs	1:1,250	1990	16
Large-Scale National Grid Data	1:1,250	1992	17
Large-Scale National Grid Data	1:1,250	1993 - 1994	18
Large-Scale National Grid Data	1:1,250	1993 - 1995	19
Large-Scale National Grid Data	1:1,250	1994 - 1995	20
Large-Scale National Grid Data	1:1,250	1995	21
Large-Scale National Grid Data	1:1,250	1996	22

Historical Map - Segment A13



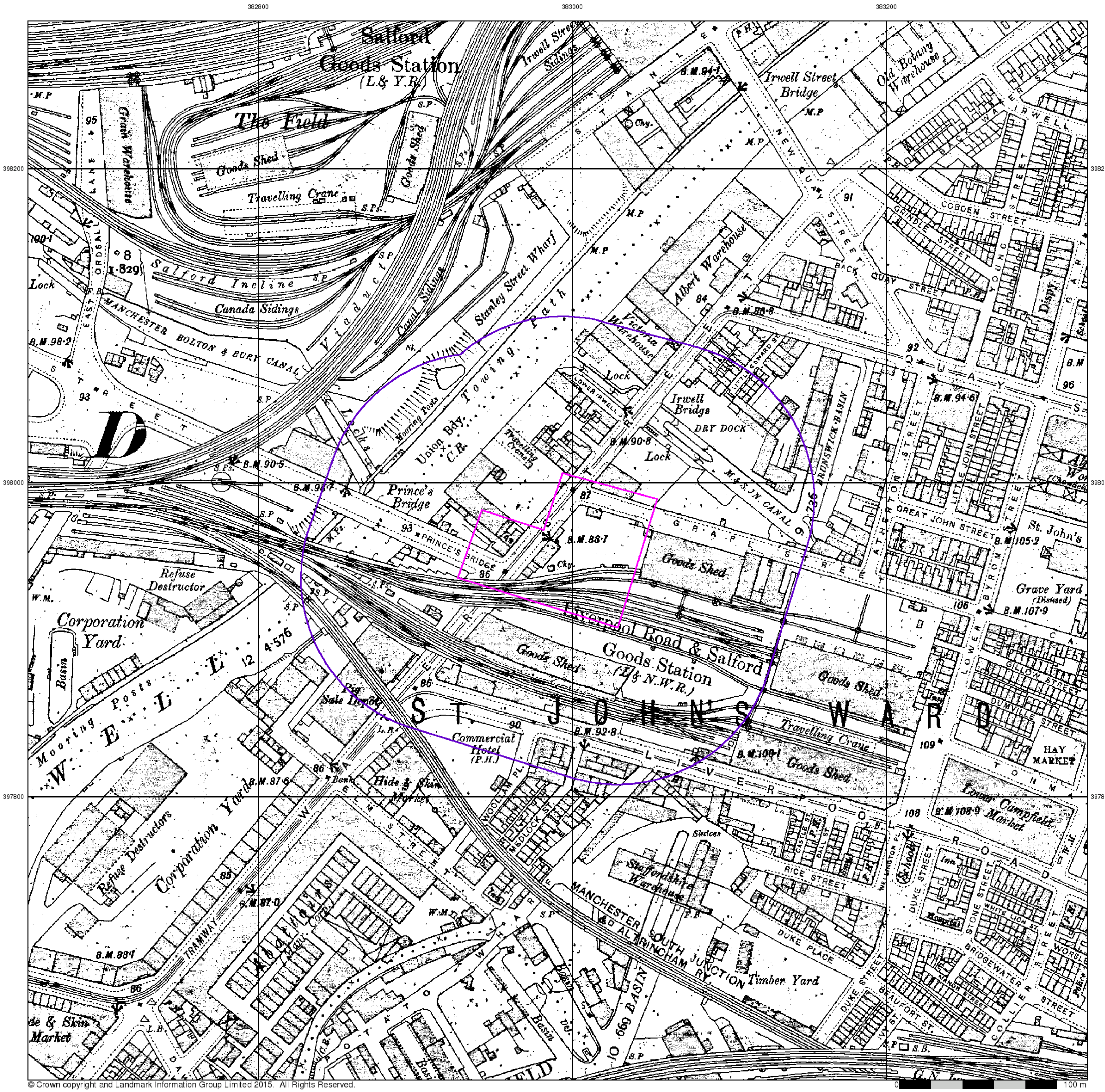
Order Details

Order Number: 79633581_1_1
Customer Ref: 034933
National Grid Reference: 382990, 397960
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 100

Site Details

121, Water Street, Manchester, M3 4JU

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



382800
383000
383200
398200
398000
397800
Salford Goods Station (L.& Y.R.)
The Field
Goods Shed
Travelling Crane
Grain Warehouse
Irwell Street Sidings
Irwell Street Bridge
Old Botany Warehouse
Salford Incline
Canada Sidings
Manchester Bolton & Bury Canal
Viaduct
Canal Sidings
Stanley Street Wharf
Towing Path
Albert Warehouse
Victoria Warehouse
Irwell Bridge
Dry Dock
Lock
Union Bay C.B.
Mooring Posts
Travelling Cranes
Prince's Bridge
Prince's Bridge
Grape Street
Goods Shed
Brunswick Basin
Great John Street
Little John Street
St. John's
Grave Yard (Disused)
Refuse Destructor
Corporation Yard
Basin
Mooring Posts
Liverpool Road & Salford Goods Station (L.& N.W.R.)
Pig Sale Depôt
Commercial Hotel (P.H.)
St. John's Ward
Liverpool Road
Travelling Crane
Hide & Skin Market
Gillow Street
Dumville Street
Hay Market
Lower Byrom Street
Lower Campfield Market
Corporation Yard
Refuse Destructors
Tramway
Staffordshire Warehouse
Sluices
Rice Street
Duke Place
Manchester South Junction and Altrincham Ry.
Timber Yard
Duke Street
Beaufort St.
Bridgewater Street
Collier Street
Worsley
Stone Street
White Lion St.
Woolam Pl.
Medlock St.
Basin
Cobden Street
Grindle Street
Young Street
Quay Street
Back Quay Street
New Quay Street
Water Street
Ordsall Lane
East Ordsall Lane
Regent Road
Hide & Skin Market
0
100 m

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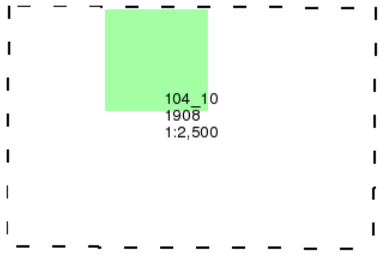
Lancashire And Furness

Published 1908

Source map scale - 1:2,500

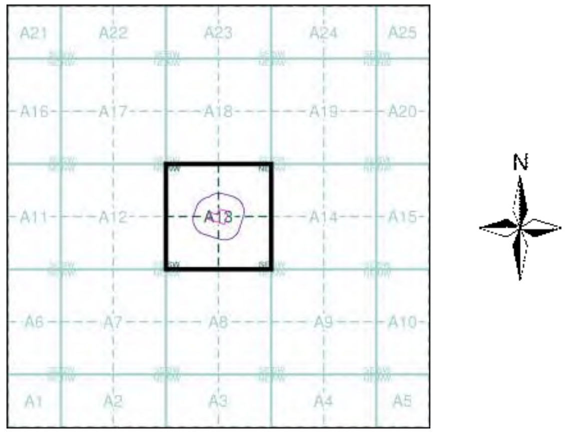
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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_10
1908
1:2,500

Historical Map - Segment A13



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A2
A3
A4
A5
N

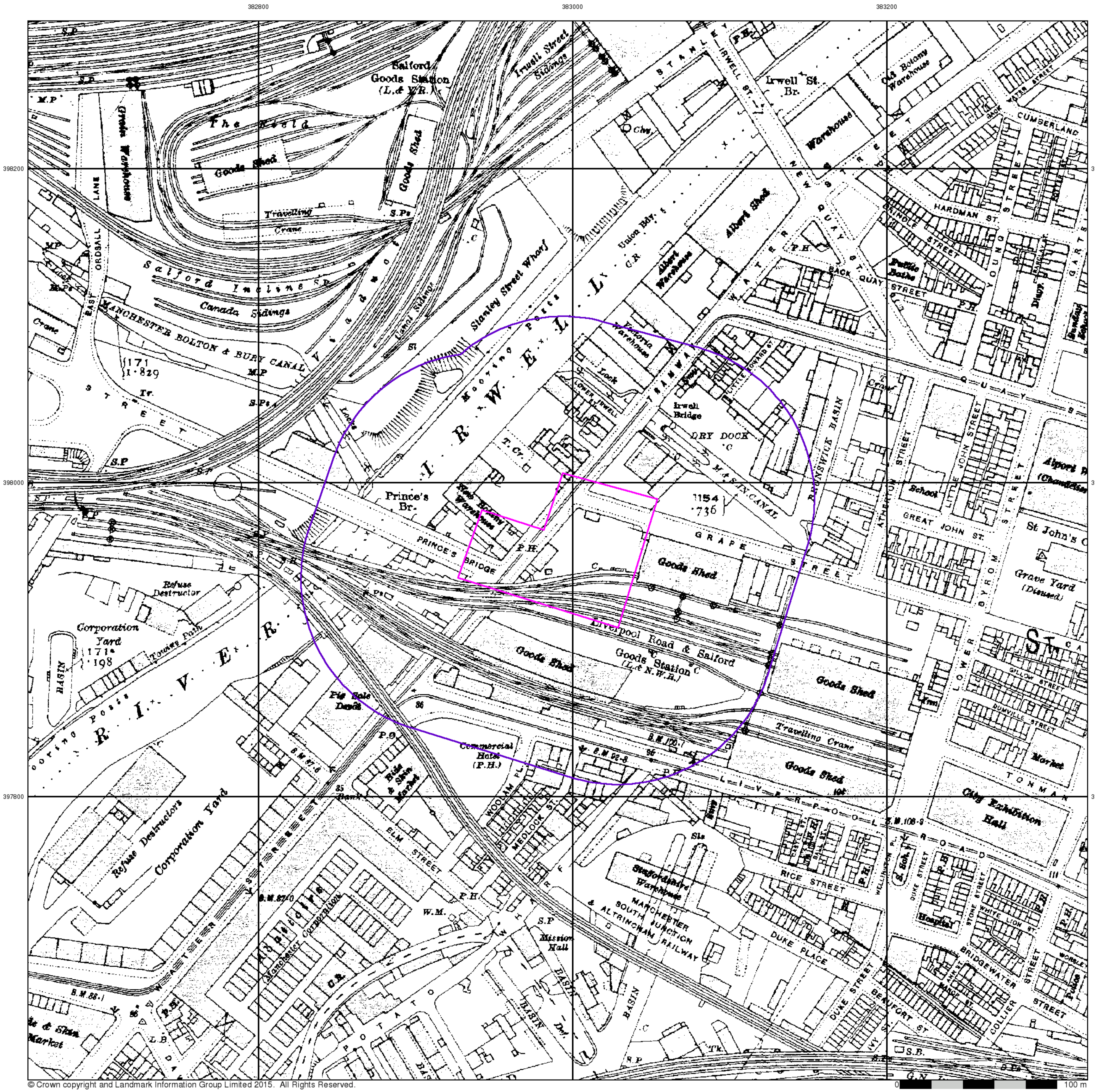
Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

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


382800
383000
383200
398200
398000
397800
Salford Goods Station (L.& Y.R.)
Irwell Street Sidings
The Field
Goods Shed
Travelling Crane
Salford Incline Sidings
Canada Sidings
Manchester Bolton & Bury Canal
Stanley Street Wharf
Mooring Posts
River Irwell
Union Bdy.
Albert Shed
Albert Warehouse
Victoria Warehouse
Irwell St. Br.
New Quay Street
Water Street
Back Quay St.
Hardman St.
Cumberland
Irwell Bridge
Dry Dock
Basin Canal
Brunswick Basin
Prince's Br.
Prince's Bridge
New Colony Warehouse
Grape Street
Goods Shed
Liverpool Road & Salford Goods Station (L.& N.W.R.)
Refuse Destructor
Corporation Yard
Pig Sale Depôt
Commercial Hotel (P.H.)
Travelling Crane
Liverpool Road
Great John St.
St John's
Grave Yard (Disused)
Lower Byrom Street
Gillow Street
Dumville Street
Market
Tonman Street
City Exhibition Hall
Staffordshire Warehouse
Manchester South Junction & Altrincham Railway
Rice Street
Duke Place
Duke Street
Hospital
Bridgewater Street
White Lion St
Elm Street
Woolam Pl.
Medlock St.
Mission Hall
Refuse Destructors
Corporation Yard
Manchester Corporation
Potato Wharf
Basin
Atherton Street
Little John Street
School
Ordsall Lane
1154 ·736
171 1·829
171 ·198
B.M. 92·8
B.M. 100·7
B.M. 106·9
B.M. 87·0
B.M. 88·1
0
100 m

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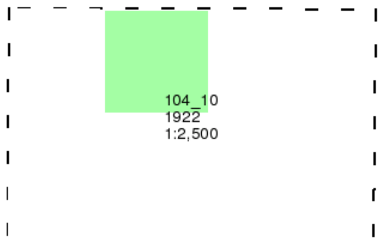
Lancashire And Furness

Published 1922

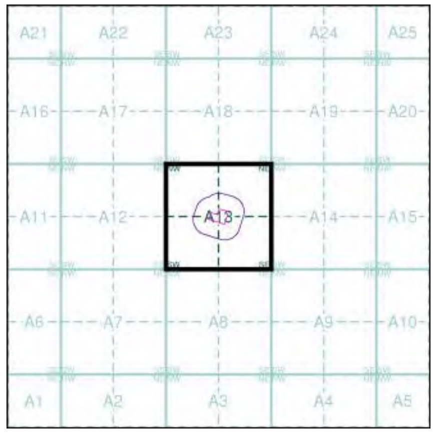
Source map scale - 1:2,500

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_10
1922
1:2,500

Historical Map - Segment A13


A21
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A7
A8
A9
A10
A1
A2
A3
A4
A5

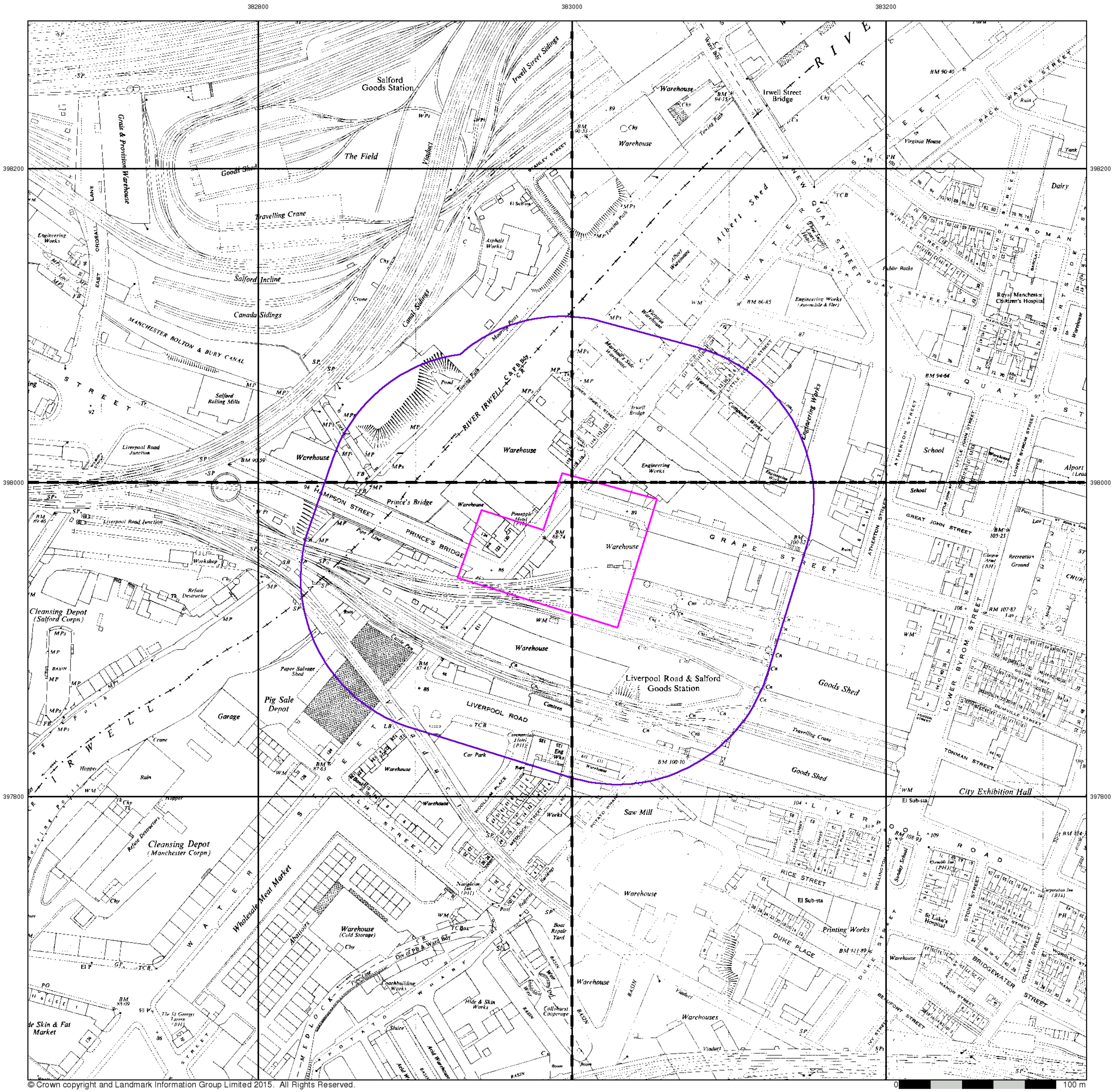
Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

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



382800
383000
383200
398200
398000
397800
Salford Goods Station
Irwell Street Sidings
The Field
Viaduct
Goods Shed
Grain & Provision Warehouse
Travelling Crane
Salford Incline
Canada Sidings
Canal Sidings
Manchester Bolton & Bury Canal
Salford Rolling Mills
Liverpool Road Junction
Engineering Works
Asphalt Works
Warehouse
Irwell Street Bridge
River Irwell
Albert Shed
New Quay Street
Water Street
Engineering Works (Automobile & Fitter)
Royal Manchester Children's Hospital
Dairy
Virginia House
Public Baths
Hardman Street
Quay Street
School
Great John Street
Lower Byrom Street
Atherton Street
Recreation Ground
Prince's Bridge
Hampson Street
Princes Bridge
Pineapple Hotel
Grape Street
Workshop
Refuse Destructor
Cleansing Depot (Salford Corpn)
Paper Salvage Shed
Pig Sale Depot
Garage
Liverpool Road & Salford Goods Station
Goods Shed
Liverpool Road
Car Park
Travelling Crane
City Exhibition Hall
Tonman Street
Irwell
Ruin
Cleansing Depot (Manchester Corpn)
Wholesale Meat Market
Abattoirs
Warehouse (Cold Storage)
Coachbuilding Works
Hide & Skin Works
Collyhurst Cooperage
Boat Repair Yard
Saw Mill
Rice Street
Printing Works
Duke Place
Duke Street
Bridgewater Street
St Luke's Hospital
Medlock
Warehouses
Viaduct
Basin
Hide Skin & Fat Market
0
100 m

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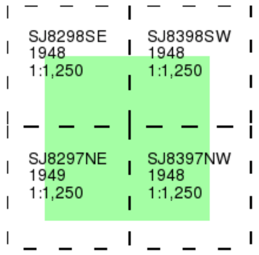
Ordnance Survey Plan
Published 1948 - 1949
Source map scale - 1:1,250

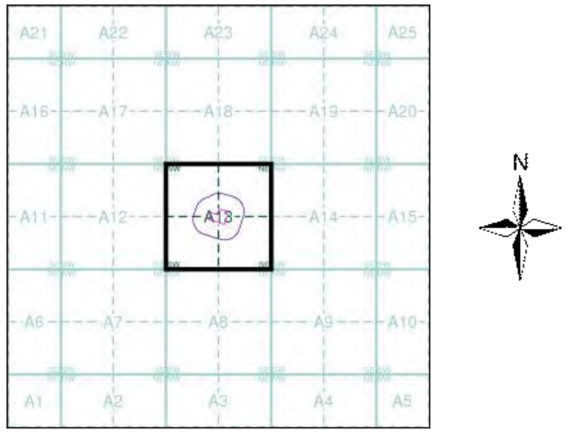
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain.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

Map Name(s) and Date(s)



SJ8298SE 1948 1:1,250
SJ8398SW 1948 1:1,250
SJ8297NE 1949 1:1,250
SJ8397NW 1948 1:1,250

Historical Map - Segment A13



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A3
A4
A5
N

Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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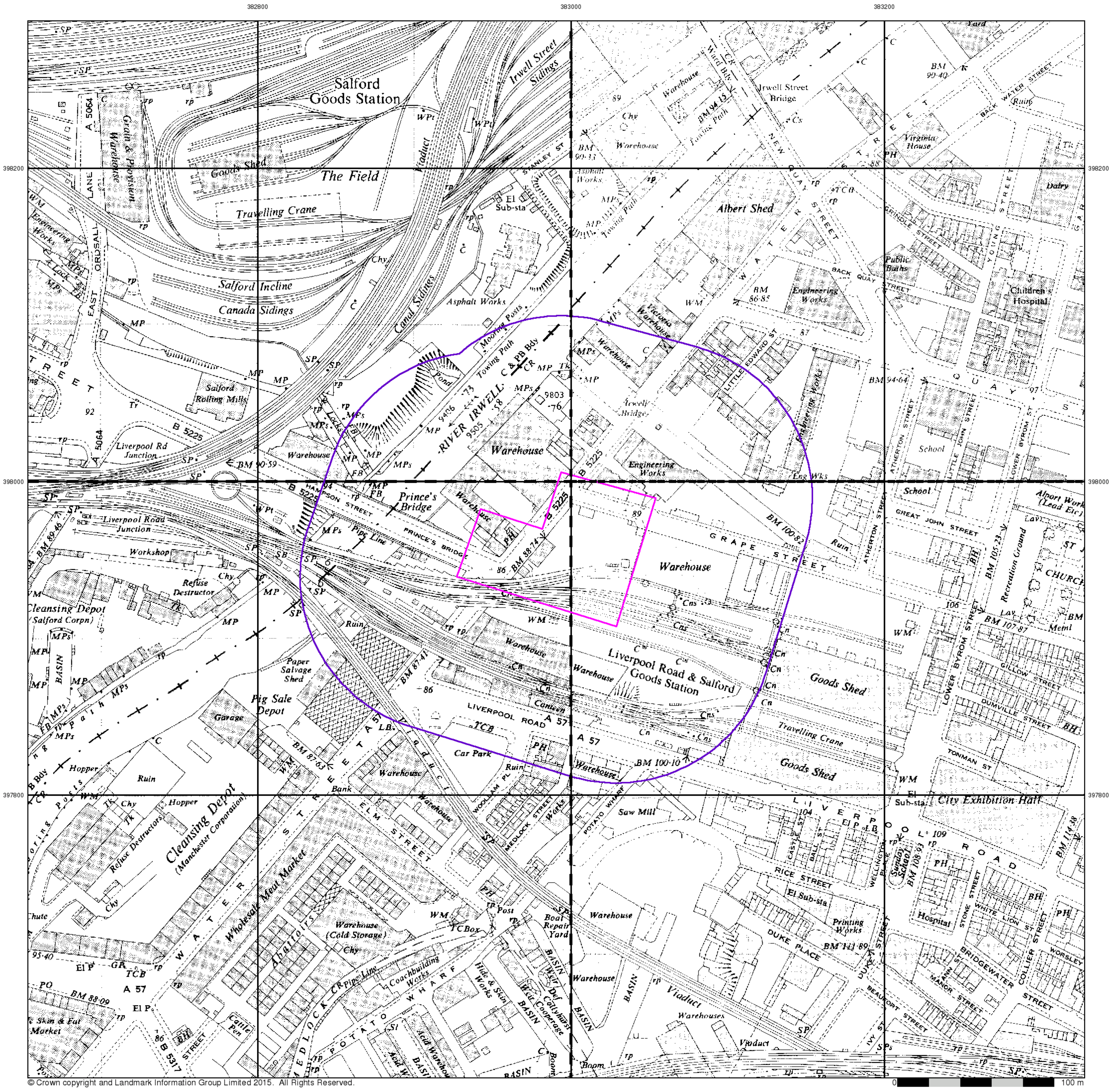
Web:	www.envirocheck.co.uk


382800
383000
383200
398200
398000
397800
Salford Goods Station
The Field
Goods Shed
Travelling Crane
Salford Incline
Canada Sidings
Canal Sidings
Irwell Street Sidings
Asphalt Works
RIVER IRWELL
Albert Shed
Warehouse
Prince's Bridge
Liverpool Road Junction
Liverpool Road & Salford Goods Station
Goods Shed
Travelling Crane
GRAPE STREET
LIVERPOOL ROAD
WATER STREET
QUAY STREET
Cleansing Depot (Manchester Corporation)
Cleansing Depot (Salford Corpn)
Wholesale Meat Market
Abattoirs
Pig Sale Depot
Salford Rolling Mills
Children's Hospital
City Exhibition Hall
Engineering Works
School
Car Park
Saw Mill
Viaduct
Warehouses
0
100 m

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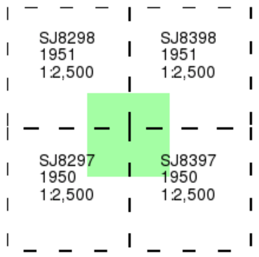
Ordnance Survey Plan

Published 1950 - 1951

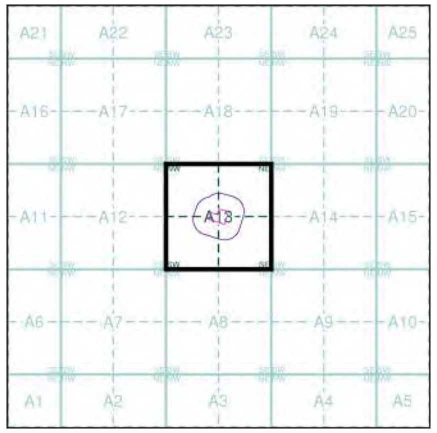
Source map scale - 1:2,500

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

Map Name(s) and Date(s)


SJ8298
1951
1:2,500
SJ8398
1951
1:2,500
SJ8297
1950
1:2,500
SJ8397
1950
1:2,500

Historical Map - Segment A13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A8
A9
A10
A1
A2
A3
A4
A5

Order Details

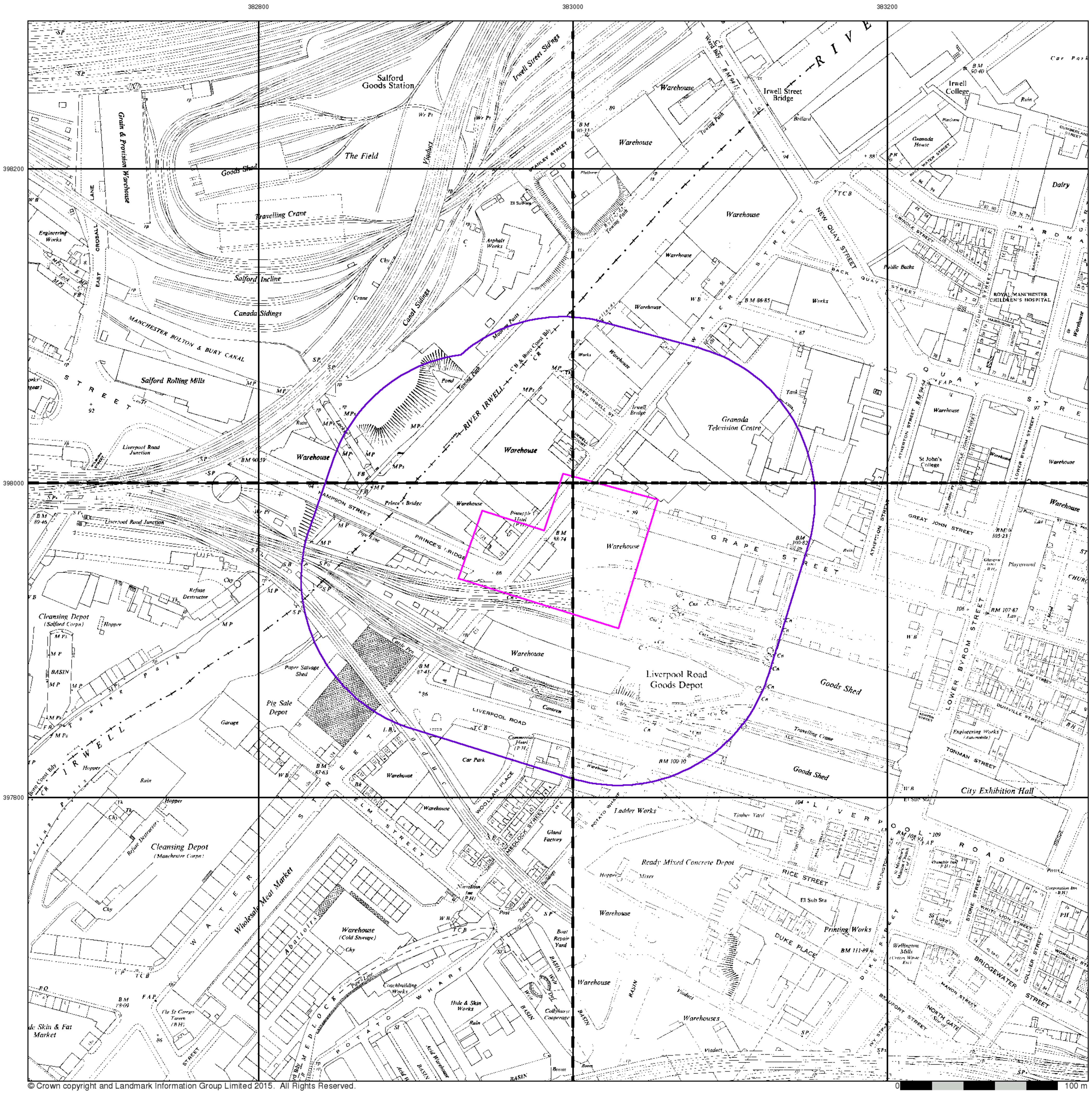
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark®

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



382800
383000
383200
398200
398000
397800
Salford Goods Station
Irwell Street Sidings
The Field
Viaduct
Goods Shed
Grain & Provision Warehouse
Travelling Crane
Salford Incline
Canada Sidings
Canal Sidings
Manchester Bolton & Bury Canal
Salford Rolling Mills
Engineering Works
Asphalt Works
Liverpool Road Junction
River Irwell
Towing Path
Pond
Warehouse
Irwell Street Bridge
Irwell Bridge
Granada Television Centre
New Quay Street
Back Quay Street
Water Street
Quay Street
Grape Street
Hampson Street
Prince's Bridge
Prince's Bridge
Cleansing Depot (Salford Corpn)
Refuse Destructor
Paper Salvage Shed
Pig Sale Depot
Garage
Liverpool Road Goods Depot
Goods Shed
Travelling Crane
Liverpool Road
Car Park
Woollam Place
Commercial Hotel (P.H.)
Irwell College
Granada House
Dairy
Public Baths
Royal Manchester Children's Hospital
St John's College
Great John Street
Lower Byrom Street
Atherton Street
Duceville Street
Engineering Works (Automobile)
Tonman Street
City Exhibition Hall
Playground
Cleansing Depot (Manchester Corpn)
Wholesale Meat Market
Abattoirs
Warehouse (Cold Storage)
Coachbuilding Works
Hide & Skin Works
Ladder Works
Ready Mixed Concrete Depot
Rice Street
Printing Works
Duke Place
Duke Street
Wellington Mills
St Luke's Clinic
Bridgewater Street
Potato Wharf
Medlock Street
Boat Repair Yard
Collyhurst Cooperage
Gland Factory
Basin
Warehouses
Hide Skin & Fat Market
Tinber Yard
Beaufort Street
0
100 m

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Ordnance Survey Plan

Published 1953 - 1957

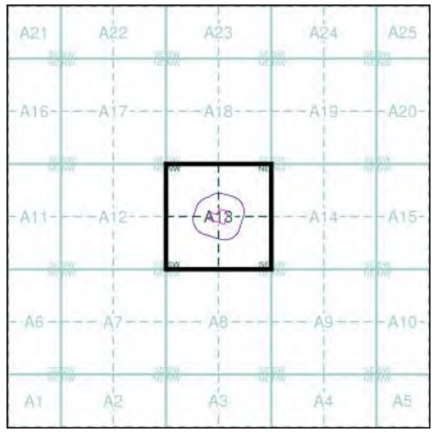
Source map scale - 1:1,250

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)

SJ8298SE 1954 1:1,250	SJ8398SW 1957 1:1,250
SJ8297NE 1953 1:1,250	SJ8397NW 1955 1:1,250

Historical Map - Segment A13



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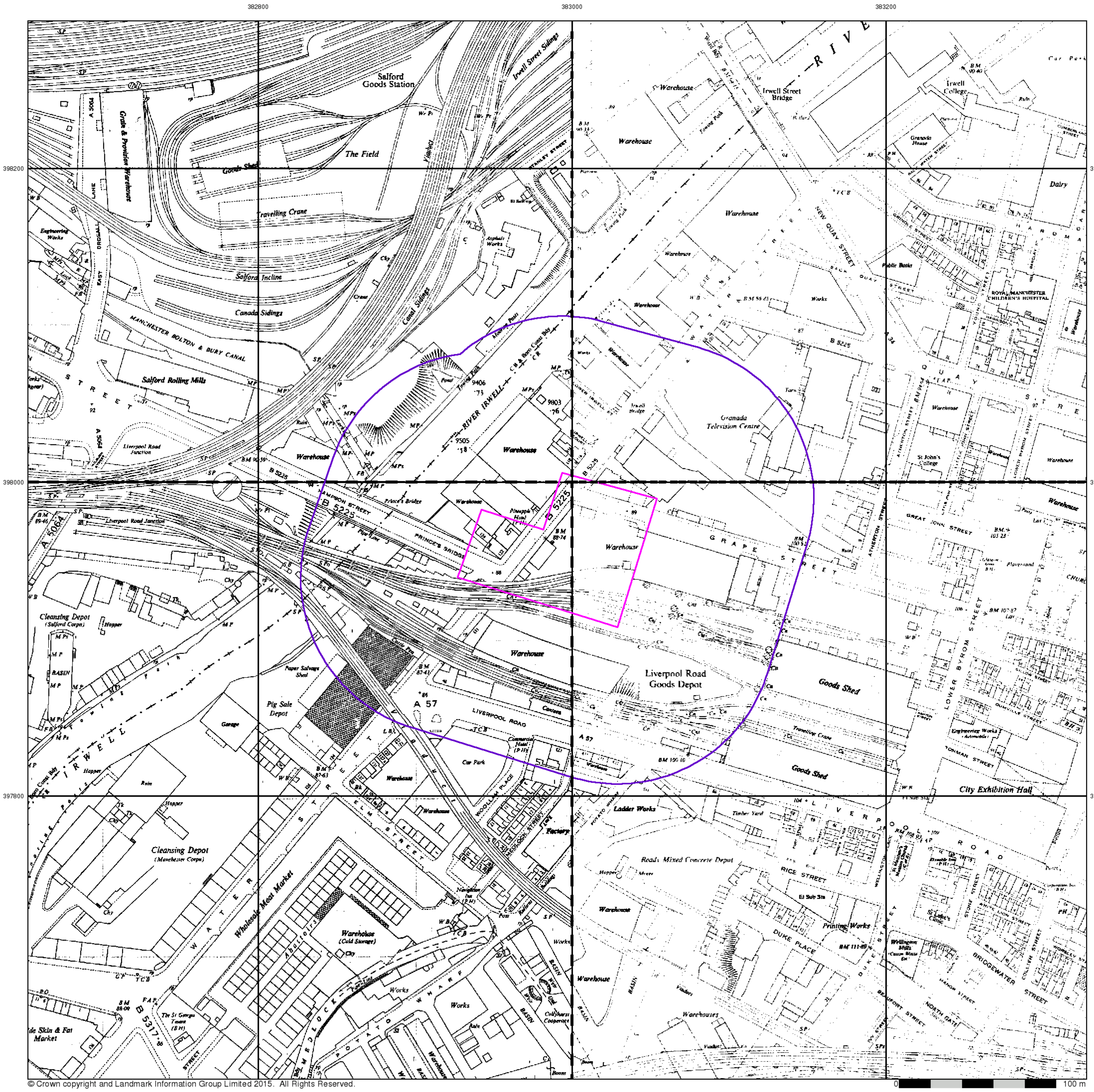
Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

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


382800
383000
383200
398200
398000
397800
Salford Goods Station
The Field
Goods Shed
Travelling Crane
Grain & Provision Warehouse
Irwell Street Sidings
Viaduct
Salford Incline
Canada Sidings
Canal Sidings
Manchester Bolton & Bury Canal
Salford Rolling Mills
Engineering Works
Liverpool Road Junction
Asphalt Works
River Irwell
Warehouse
Irwell Street Bridge
Irwell College
Granada House
Dairy
New Quay Street
Quay Street
Public Baths
Royal Manchester Children's Hospital
Works
Granada Television Centre
Irwell Bridge
St John's College
Great John Street
Grape Street
Atherton Street
Lower Byrom Street
Princes Bridge
Pineapple Hotel
B 5225
A 57
A 5064
Liverpool Road
Liverpool Road Goods Depot
Goods Shed
Travelling Crane
Commercial Hotel (P H)
Car Park
City Exhibition Hall
Quaker Street
Tonman Street
Engineering Works (Automobile)
Cleansing Depot (Salford Corpn)
Basin
Irwell
Paper Salvage Shed
Pig Sale Depot
Garage
Cleansing Depot (Manchester Corpn)
Water Street
Wholesale Meat Market
Warehouse (Cold Storage)
Abattoirs
Hide Skin & Fat Market
Ladder Works
Timber Yard
Ready Mixed Concrete Depot
Rice Street
Printing Works
Duke Place
Duke Street
Liverpool Road
Wellington Mills (Cotton Waste)
St Luke's Clinic
Bridgewater Street
Warehouses
Works
Potato Wharf
0
100 m

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Ordnance Survey Plan

Published 1956 - 1965

Source map scale - 1:2,500

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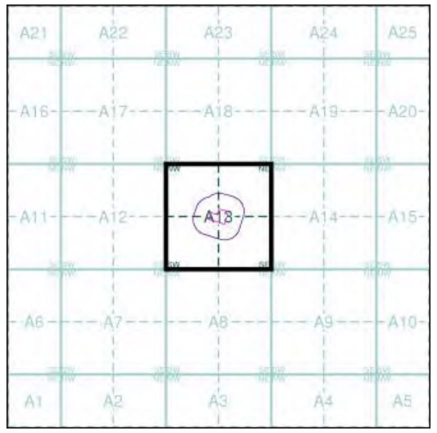
Map Name(s) and Date(s)

SJ8298 1956 1:2,500	SJ8398 1958 1:2,500
SJ8297 1965 1:2,500	SJ8397 1956 1:2,500

Historical Map - Segment A13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Order Details

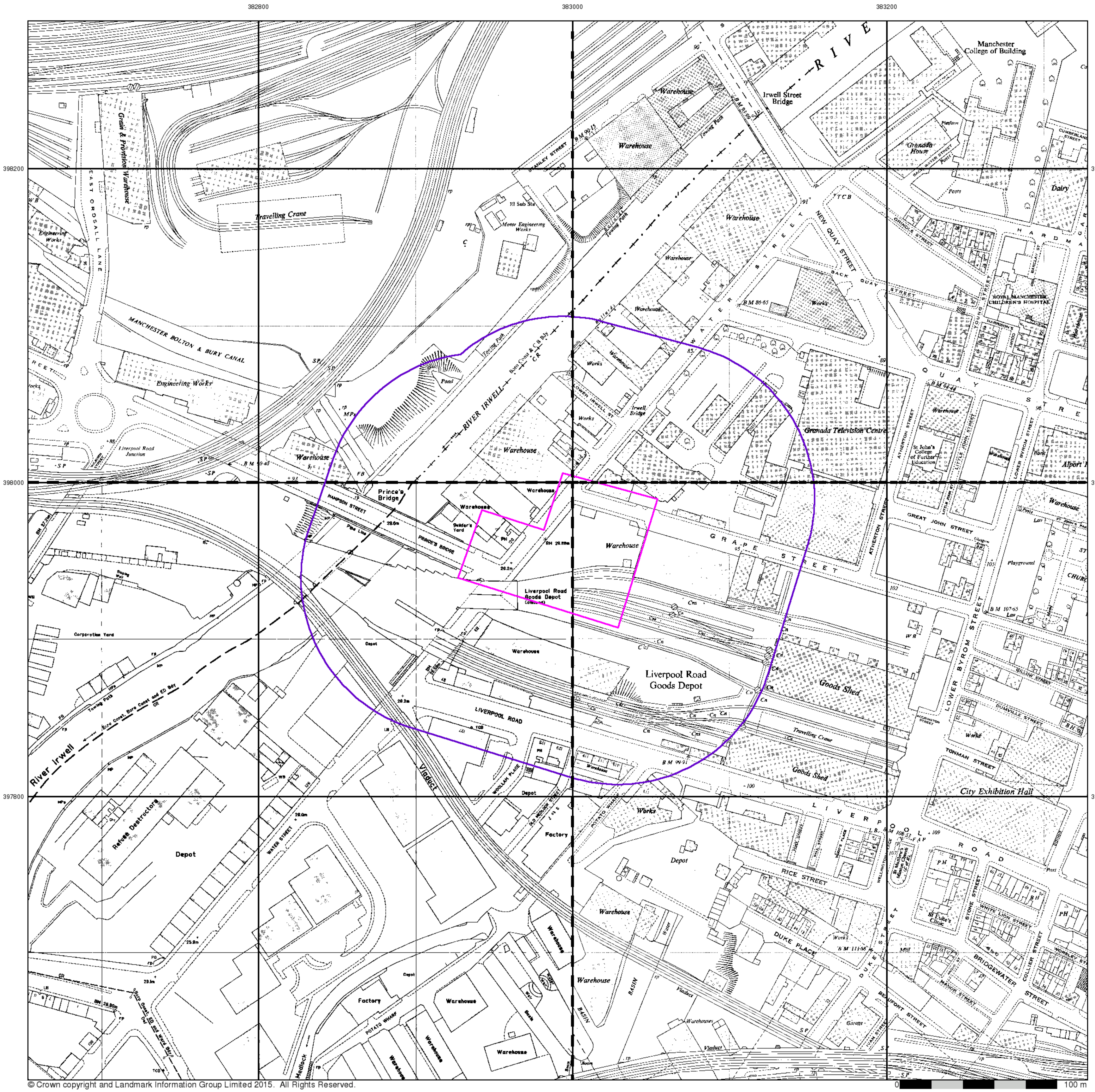
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark

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


382800
383000
383200
398200
398000
397800
Manchester College of Building
Irwell Street Bridge
Warehouse
Travelling Crane
Grain & Provision Warehouse
EAST ORDSALL LANE
MANCHESTER BOLTON & BURY CANAL
Engineering Works
Motor Engineering Works
El Sub Sta
RIVER IRWELL
Towing Path
Granada House
Dairy
NEW QUAY STREET
WATER STREET
QUAY STREET
Works
Granada Television Centre
ROYAL MANCHESTER CHILDREN'S HOSPITAL
St John's College of Further Education
ATHERTON STREET
LOWER BYROM STREET
GREAT JOHN STREET
Playground
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Builder's Yard
PH
Liverpool Road Goods Depot
GRAPE STREET
Liverpool Road Goods Depot
Goods Shed
Travelling Crane
City Exhibition Hall
TONMAN STREET
LIVERPOOL ROAD
Corporation Yard
Depot
Viaduct
River Irwell
Refuse Destructor
Depot
WATER STREET
Factory
Warehouse
POTATO WHARF
RICE STREET
DUKE PLACE
DUKE STREET
BRIDGEWATER STREET
BEAUFORT STREET
Mill
Garage
BASIN
Medlock
Liverpool Road Junction

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0 100 m

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Ordnance Survey Plan

Published 1962 - 1980

Source map scale - 1:1,250

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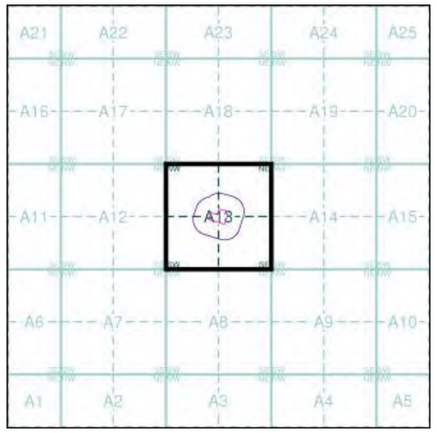
Map Name(s) and Date(s)

SJ8298SE 1969 1:1,250	SJ8398SW 1962 1:1,250
SJ8297NE 1980 1:1,250	SJ8397NW 1963 1:1,250

Historical Map - Segment A13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N

Order Details

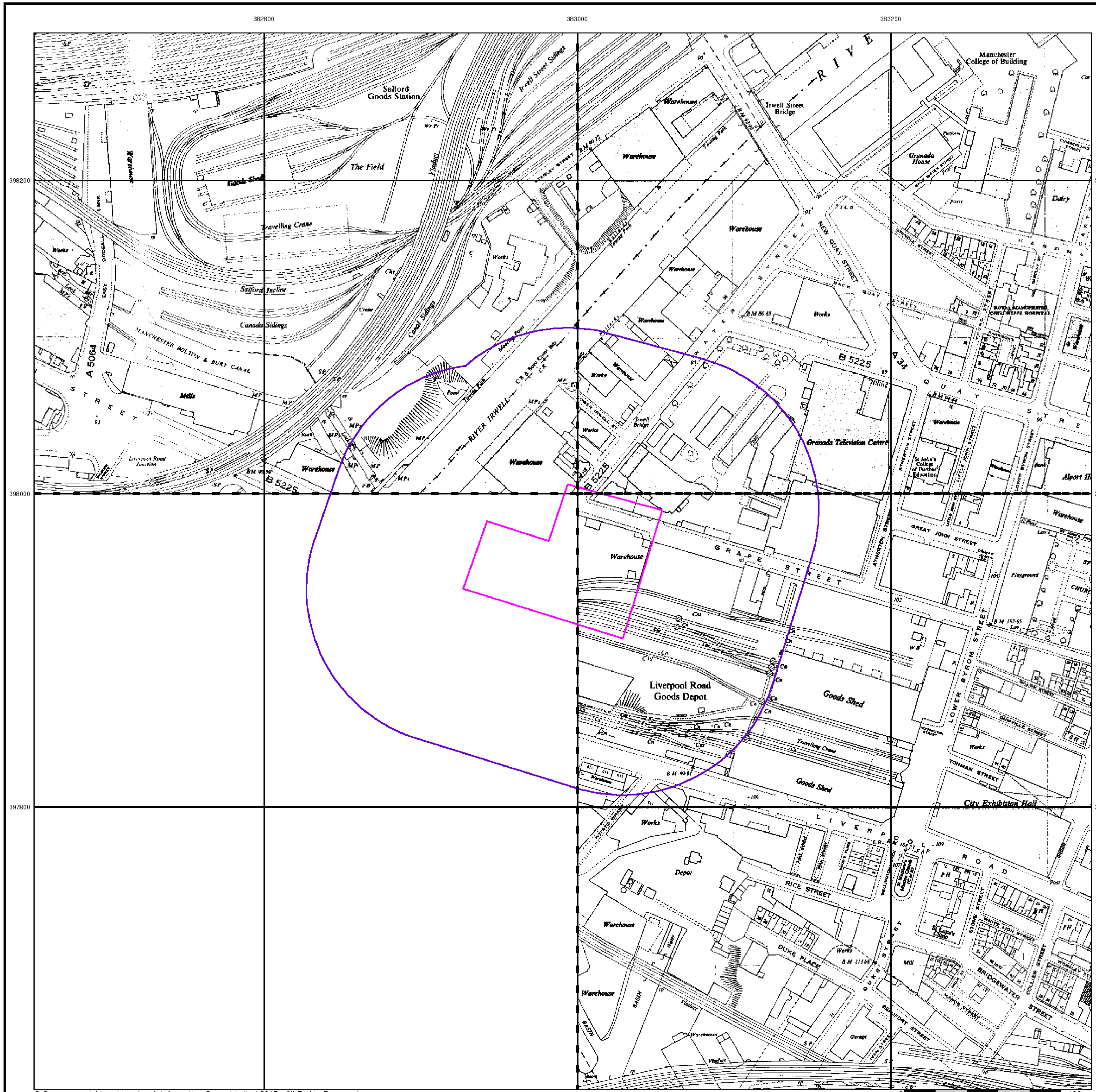
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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


382800
383000
383200
398200
398000
397800
Salford Goods Station
The Field
Goods Shed
Travelling Crane
Salford Incline
Canada Sidings
Manchester Bolton & Bury Canal
Mills
A 5064
Irwell Street Sidings
Canal Sidings
Viaduct
River Irwell
Towing Path
Warehouse
Works
Irwell Street Bridge
River
Manchester College of Building
Granada House
Dairy
New Quay Street
Quay Street
Water Street
B 5225
A 34
Granada Television Centre
Royal Manchester Children's Hospital
St John's College of Further Education
Atherton Street
Great John Street
Lower Byrom Street
Alport H
Grape Street
Liverpool Road Goods Depot
Goods Shed
Travelling Crane
Playground
City Exhibition Hall
Liverpool Road
Rice Street
Duke Place
Duke Street
Depot
Basin
Bridgewater Street
White Lion Street
Tonman Street
Quenby Street
Collier Street
Mill
Garage
0
100 m

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Ordnance Survey Plan
Published 1963 - 1965
Source map scale - 1:2,500

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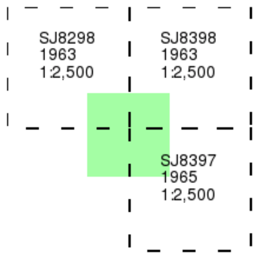
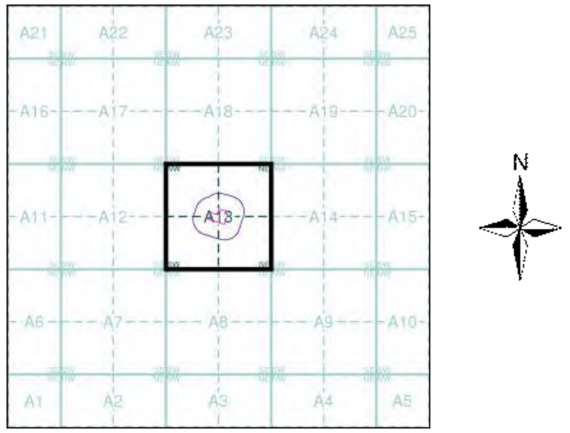
Map Name(s) and Date(s)


SJ8298
1963
1:2,500
SJ8398
1963
1:2,500
SJ8397
1965
1:2,500

Historical Map - Segment A13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A5
N

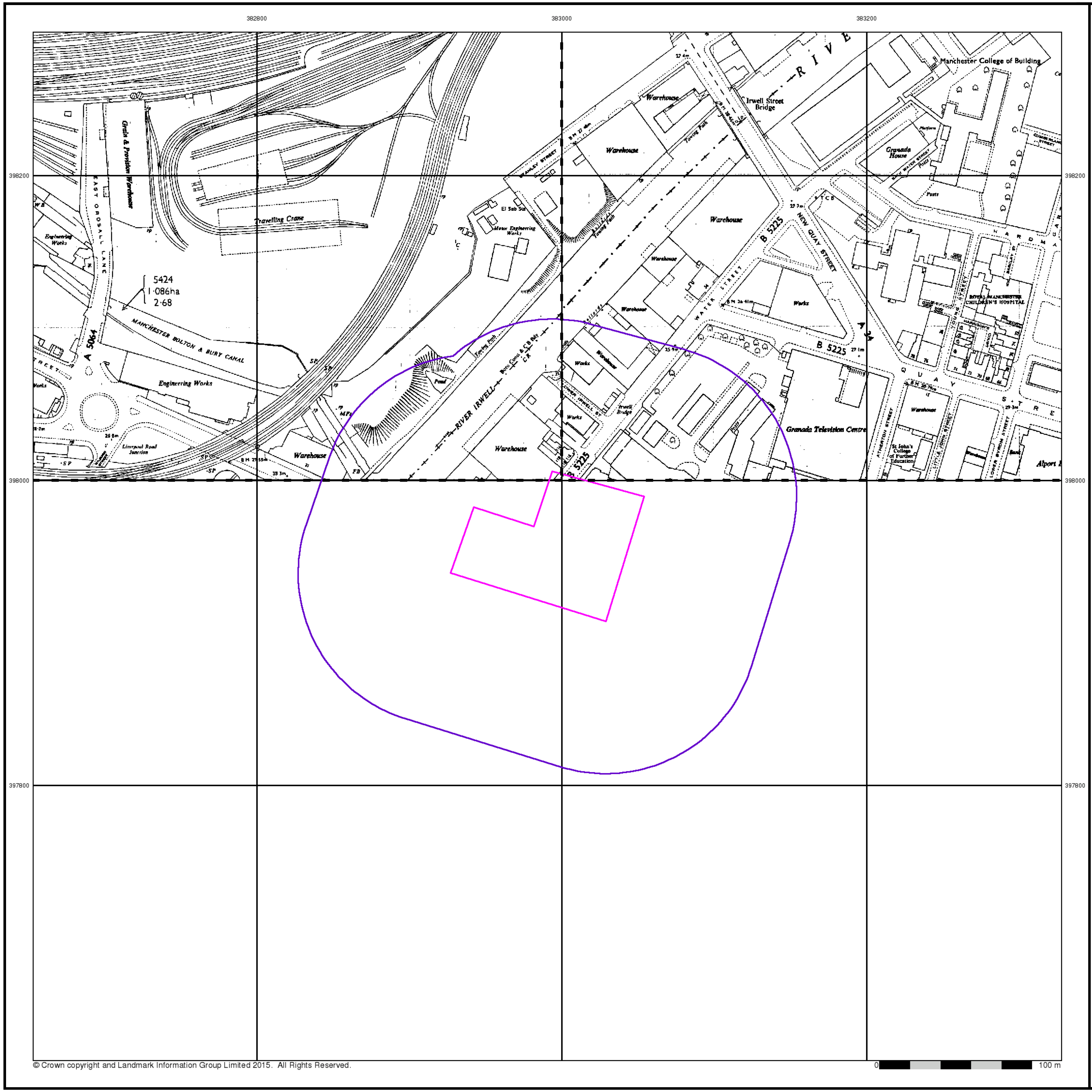
Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

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



382800
383000
383200
398200
398000
397800
Grain & Provision Warehouse
EAST ORDSALL LANE
Travelling Crane
Engineering Works
5424
1·086ha
2·68
MANCHESTER BOLTON & BURY CANAL
A 5064
Engineering Works
Liverpool Road Junction
RIVER IRWELL
Towing Path
Warehouse
Works
Irwell Street Bridge
Granada House
B 5225
NEW QUAY STREET
WATER STREET
Granada Television Centre
Manchester College of Building
ROYAL MANCHESTER CHILDREN'S HOSPITAL
St John's College of Further Education
QUAY STREET
Alport
Pond
El Sub Sta
Motor Engineering Works
0
100 m

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Ordnance Survey Plan

Published 1971

Source map scale - 1:2,500

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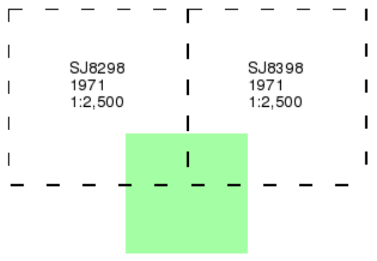
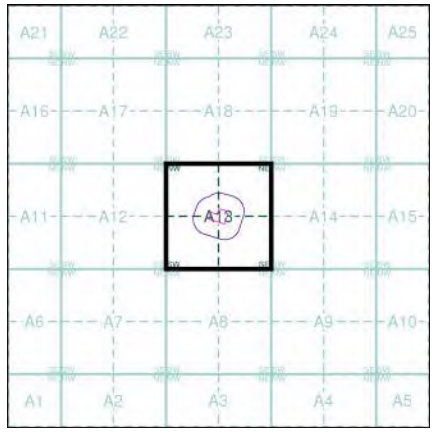
Map Name(s) and Date(s)



SJ8298
1971
1:2,500
SJ8398
1971
1:2,500

Historical Map - Segment A13



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Order Details

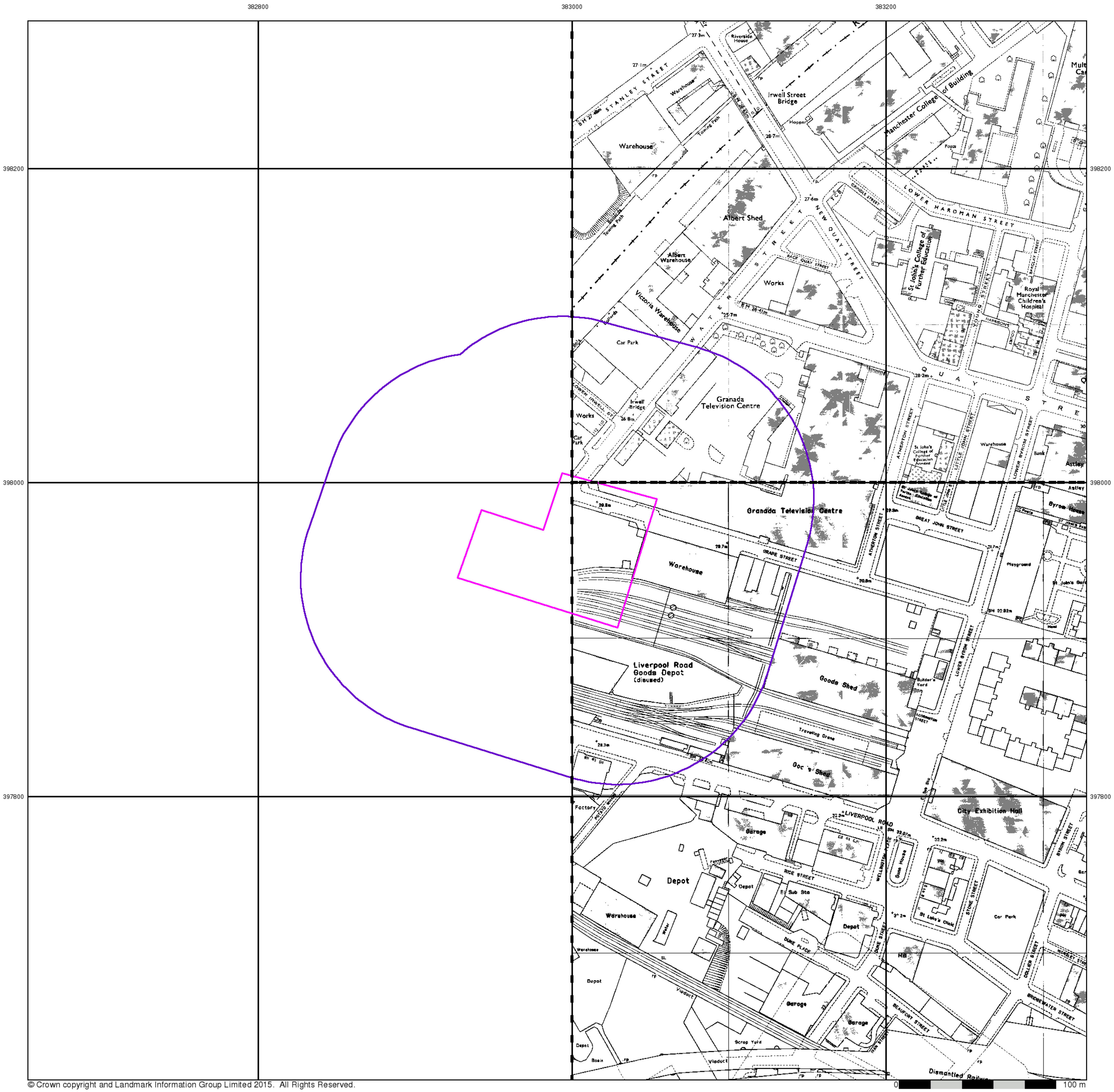
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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383000
383200
398200
398000
397800
Stanley Street
Warehouse
Irwell Street Bridge
Manchester College of Building
Albert Shed
Albert Warehouse
Victoria Warehouse
Lower Hardman Street
New Quay Street
Back Quay Street
Works
St John's College of Further Education
Royal Manchester Children's Hospital
Water Street
Car Park
Granada Television Centre
Irwell Bridge
Quay Street
Atherton Street
St John's College of Further Education Annexe
Little John Street
Lower Byrom Street
Warehouse
Bank
Astley
Byrom House
Granada Television Centre
Great John Street
Grape Street
Warehouse
Playground
Liverpool Road Goods Depot (disused)
Goods Shed
Builder's Yard
Travelling Crane
Goods Shed
City Exhibition Hall
Factory
Liverpool Road
Garage
Depot
Rice Street
El Sub Sta
Depot
Warehouse
Duke Place
St Luke's Club
Car Park
Collier Street
Beaufort Street
Bridgewater Street
Garage
Scrap Yard
Viaduct
Basin
Dismantled Railway
0
100 m

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Ordnance Survey Plan

Published 1973 - 1981

Source map scale - 1:1,250

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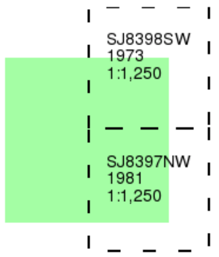
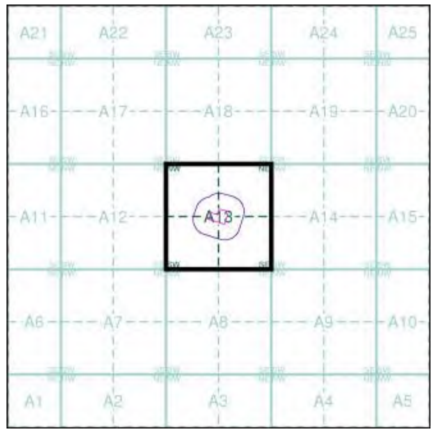
Map Name(s) and Date(s)


SJ8398SW
1973
1:1,250
SJ8397NW
1981
1:1,250

Historical Map - Segment A13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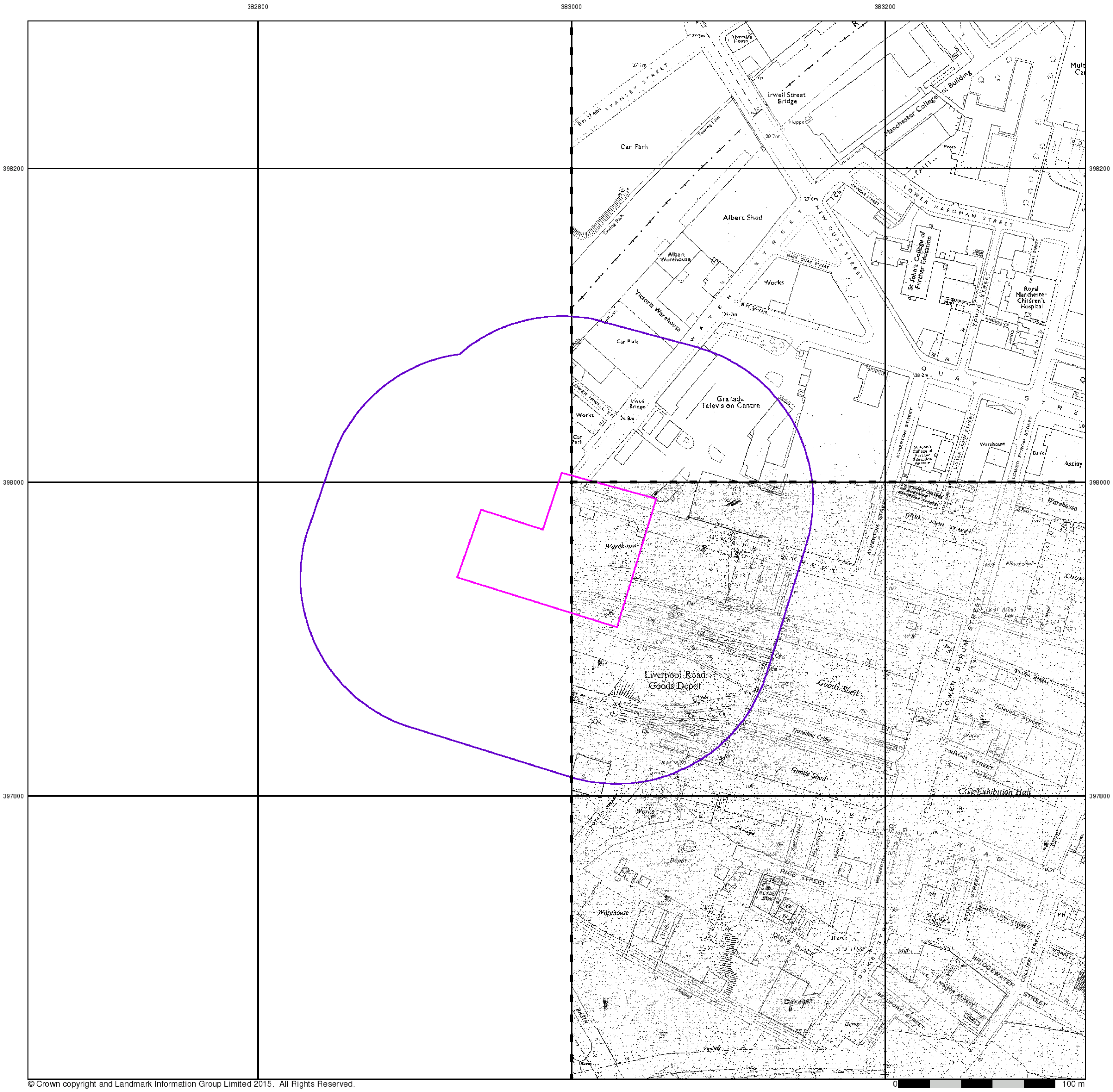
Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

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


382800
383000
383200
398200
398000
397800
Car Park
Irwell Street Bridge
Manchester College of Building
Albert Shed
Albert Warehouse
Victoria Warehouse
Works
St John's College of Further Education
Royal Manchester Children's Hospital
LOWER HARDMAN STREET
NEW QUAY STREET
WATER STREET
QUAY STREET
Granada Television Centre
Irwell Bridge
Warehouse
Astley
GREAT JOHN STREET
Liverpool Road Goods Depot
Goods Shed
Travelling Crane
City Exhibition Hall
LOWER BYROM STREET
LIVERPOOL ROAD
RICE STREET
DUKE PLACE
BRIDGEWATER STREET
Depot
Garages
Viaduct
0
100 m

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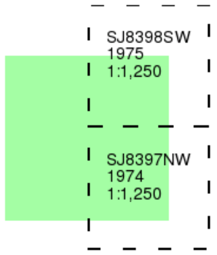
Supply of Unpublished Survey Information

Published 1974 - 1975

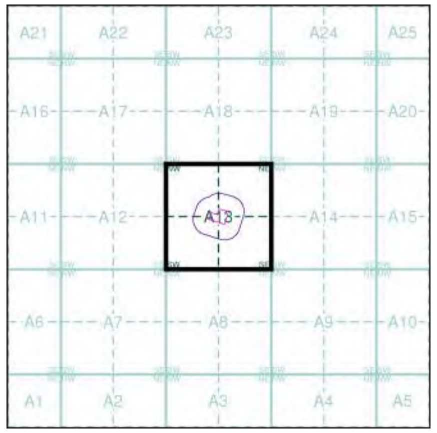
Source map scale - 1:1,250

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

Map Name(s) and Date(s)


SJ8398SW
1975
1:1,250
SJ8397NW
1974
1:1,250

Historical Map - Segment A13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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

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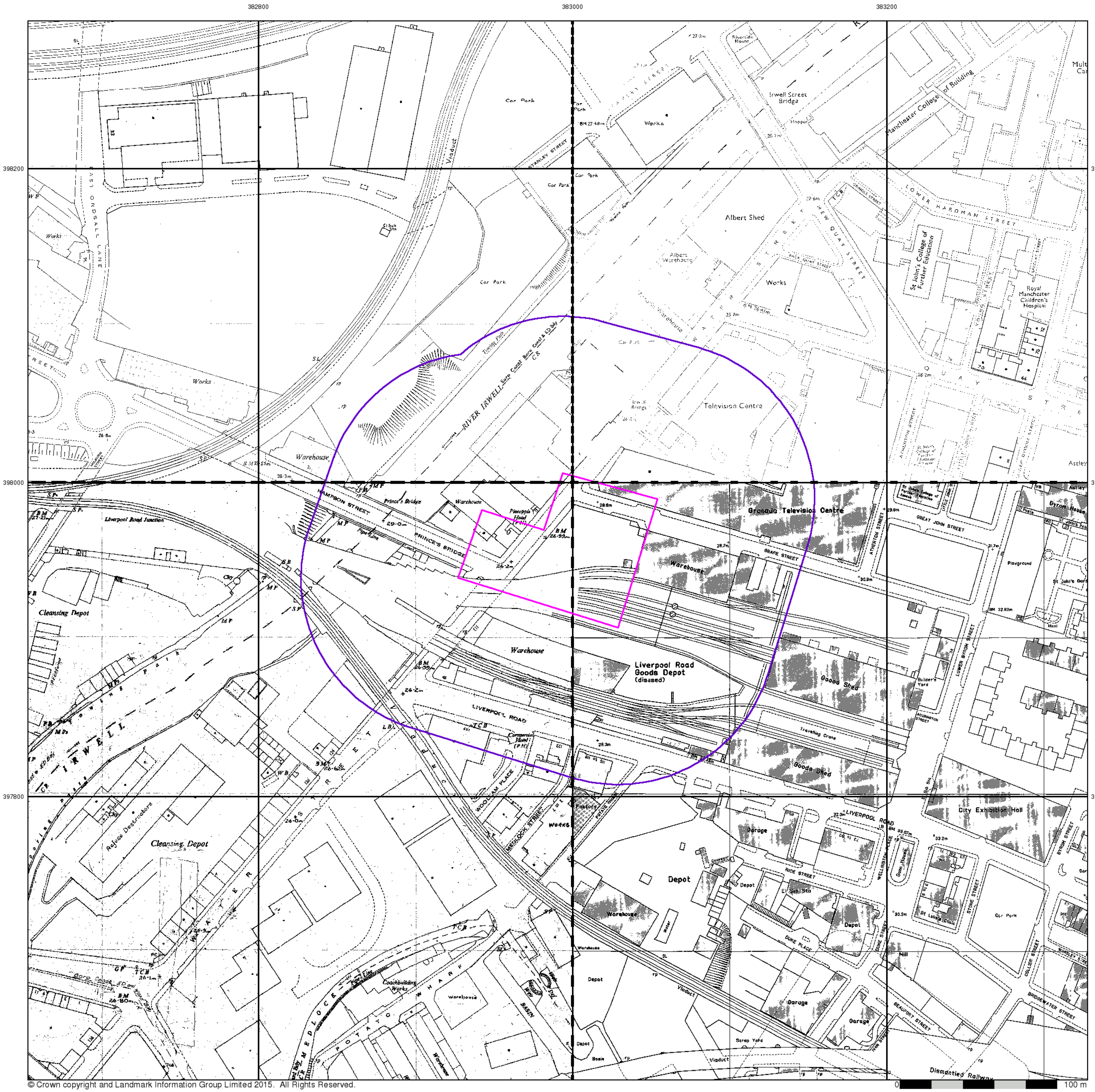
Web:	www.envirocheck.co.uk


382800
383000
383200
398200
398000
397800
Car Park
Viaduct
Works
Irwell Street Bridge
Manchester College of Building
Albert Shed
Albert Warehouse
Works
LOWER HARDMAN STREET
NEW QUAY STREET
St John's College of Further Education
Royal Manchester Children's Hospital
ORDSALL LANE
Works
RIVER IRWELL
Warehouse
Television Centre
Irwell Bridge
QUAY STREET
Astley
Prince's Bridge
Warehouse
HAMPSON STREET
PRINCE'S BRIDGE
Pineapple Hotel (P H)
Granada Television Centre
GREAT JOHN STREET
GRAPE STREET
Warehouse
Liverpool Road Junction
Cleansing Depot
Warehouse
Liverpool Road Goods Depot (disused)
Goods Shed
Travelling Crane
Goods Shed
LIVERPOOL ROAD
LOWER BYROM STREET
Byrom House
Playground
City Exhibition Hall
Refuse Destructors
Cleansing Depot
Depot
Garage
Warehouse
Coachbuilding Works
WHARF
Warehouse
Depot
Garage
Scrap Yard
Viaduct
Dismantled Railway
Car Park
BRIDGEWATER STREET
DUKE PLACE
RIVER IRWELL
0
100 m

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Additional SIMs

Published 1978 - 1984

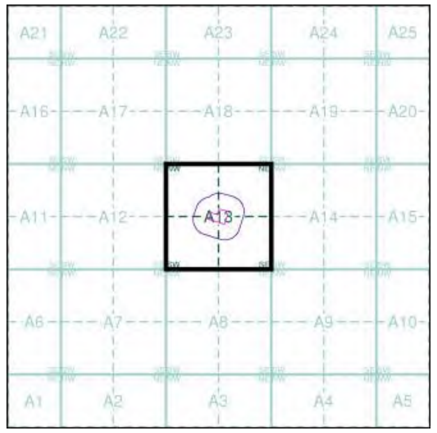
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SJ8298SE 1983 1:1,250	SJ8398SW 1984 1:1,250
SJ8297NE 1978 1:1,250	SJ8397NW 1981 1:1,250

Historical Map - Segment A13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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

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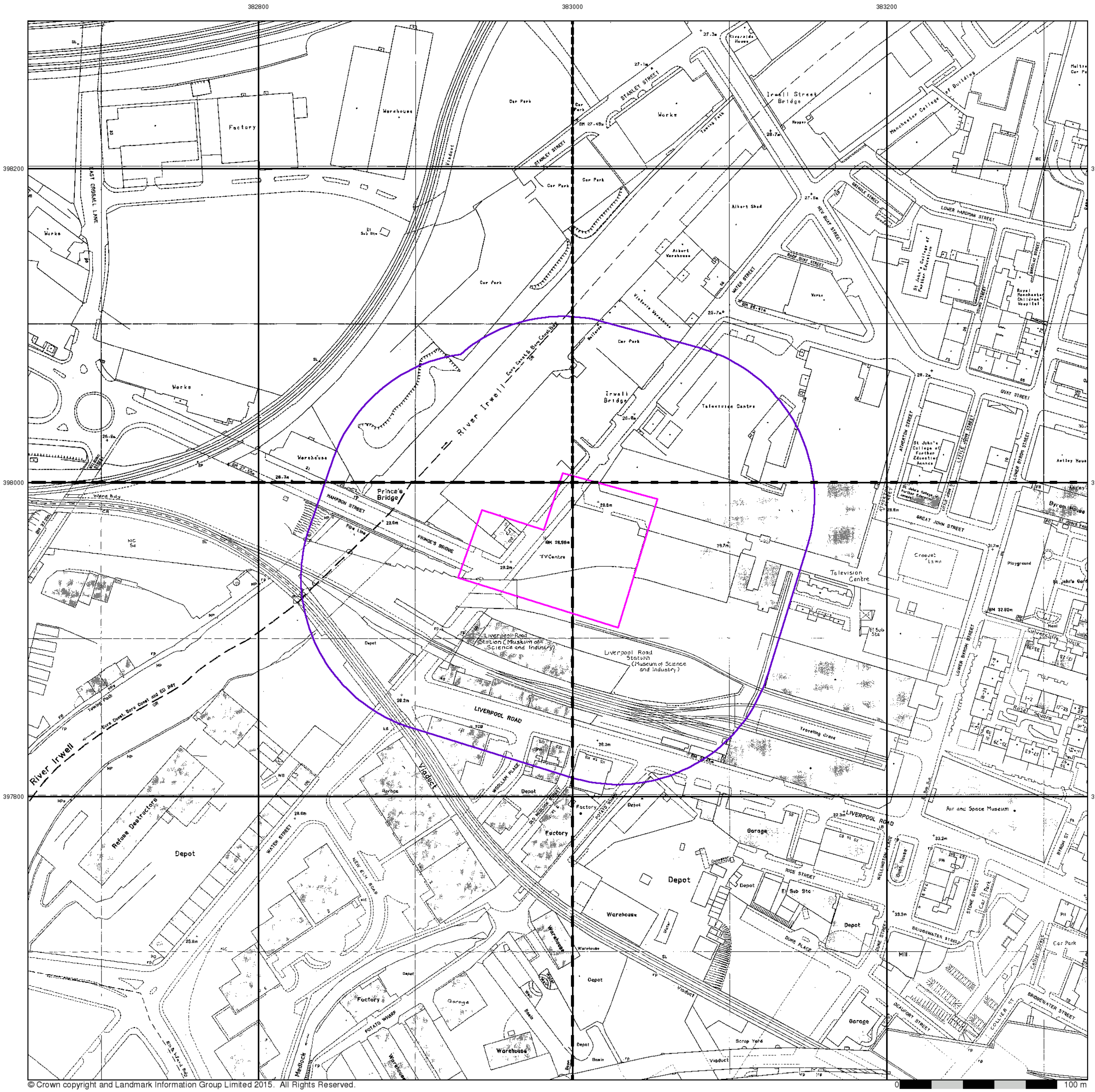
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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383000
383200
398200
398000
397800
Factory
Warehouse
Car Park
Stanley Street
Works
Irwell Street Bridge
Manchester College of Building
Albert Shed
New Quay Street
Lower Hardman Street
Water Street
Quay Street
River Irwell
Irwell Bridge
Television Centre
Prince's Bridge
Hampson Street
Prince's Bridge
TV Centre
St John's College of Further Education
Great John Street
Croquet Lawn
Playground
Television Centre
Liverpool Road Station (Museum of Science and Industry)
Liverpool Road
Travelling Crane
Viaduct
Depot
Refuse Destructor
Water Street
Factory
Garage
Rice Street
Duke Place
Warehouse
Potato Wharf
Air and Space Museum
Bridgewater Street
Byrom Street
Lower Byrom Street
Atherton Street
Car Park
Astley House
Byron House
Works
River Irwell
Medlock
0
100 m

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Additional SIMs

Published 1986 - 1990

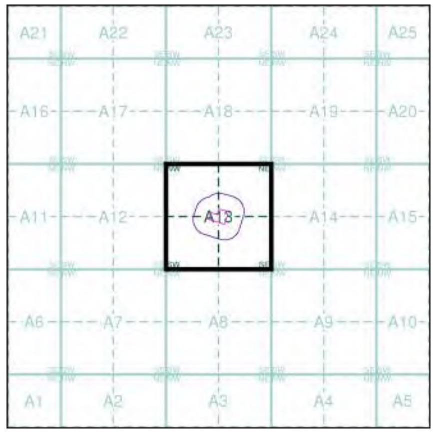
Source map scale - 1:1,250

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)

SJ8298SE 1990 1:1,250	SJ8398SW 1990 1:1,250
SJ8297NE 1986 1:1,250	SJ8397NW 1986 1:1,250

Historical Map - Segment A13


A21
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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

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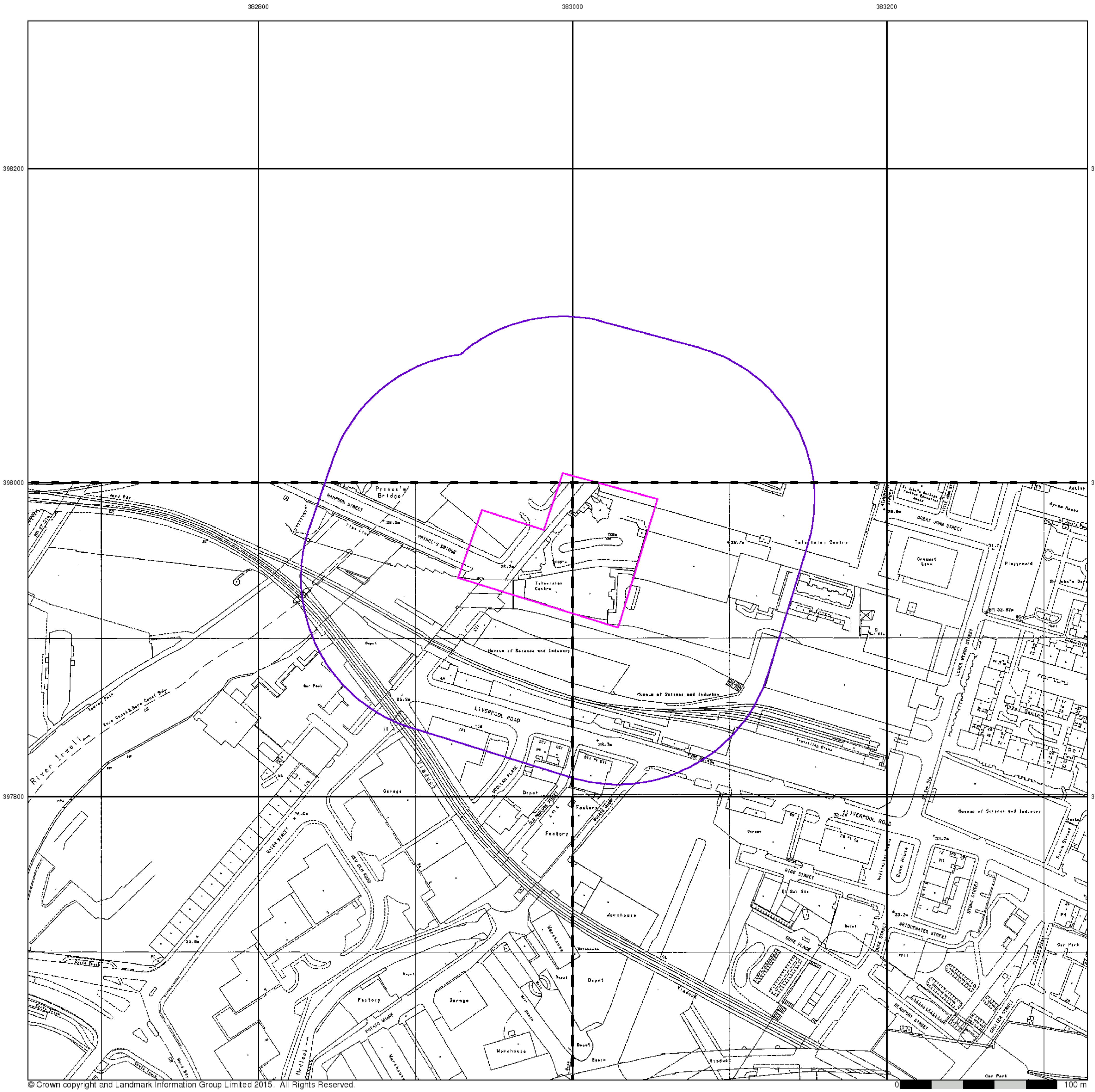
Web:	www.envirocheck.co.uk


382800
383000
383200
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398000
397800
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
LIVERPOOL ROAD
River Irwell
Viaduct
WATER STREET
NEW ELM ROAD
GREAT JOHN STREET
LOWER BYRON STREET
RICE STREET
BRIDGEWATER STREET
DUKE PLACE
POTATO WHARF
Croquet Lawn
Playground
Factory
Warehouse
Depot
Garage
Car Park
0
100 m

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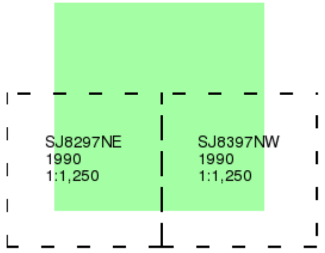
Additional SIMs

Published 1990

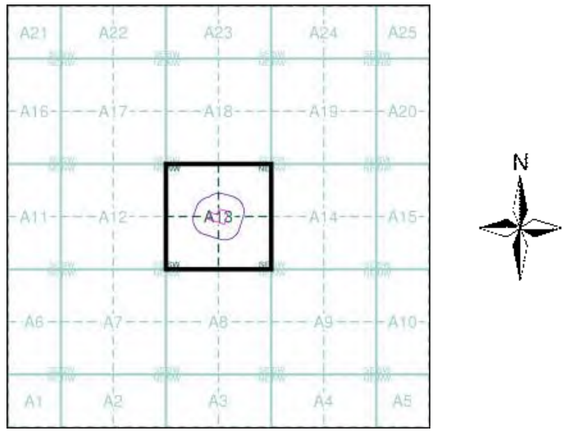
Source map scale - 1:1,250

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)


SJ8297NE
1990
1:1,250
SJ8397NW
1990
1:1,250

Historical Map - Segment A13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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
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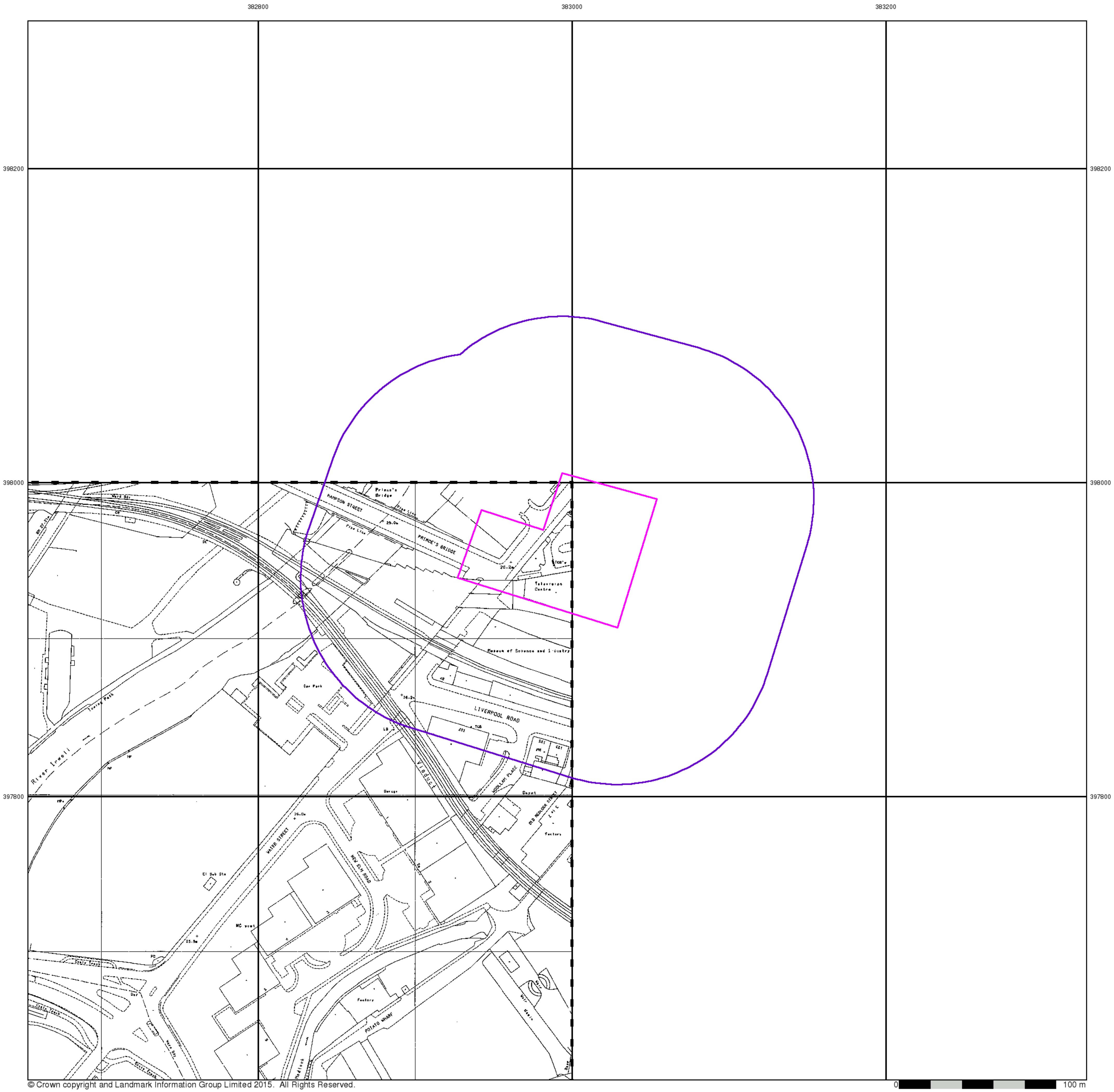
382800
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397800
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
Car Park
LIVERPOOL ROAD
WOOLLAM PLACE
VIADUCT
Garage
Depot
OLD MEDLOCK STREET
Factory
WATER STREET
NEW ELM ROAD
El Sub Sta
POTATO WHARF
River Irwell
Towing Path

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0 100 m

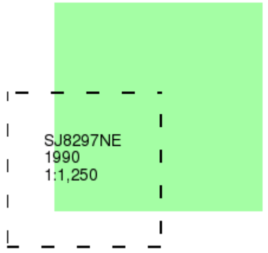
Additional SIMs

Published 1990

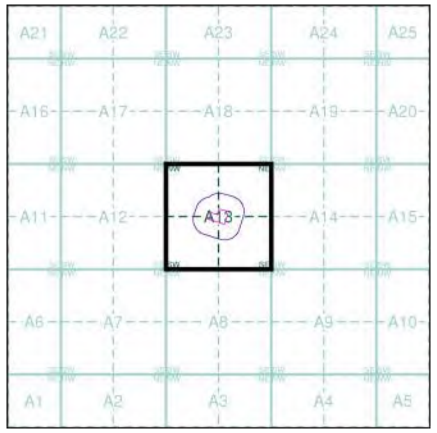
Source map scale - 1:1,250

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)


SJ8297NE
1990
1:1,250

Historical Map - Segment A13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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

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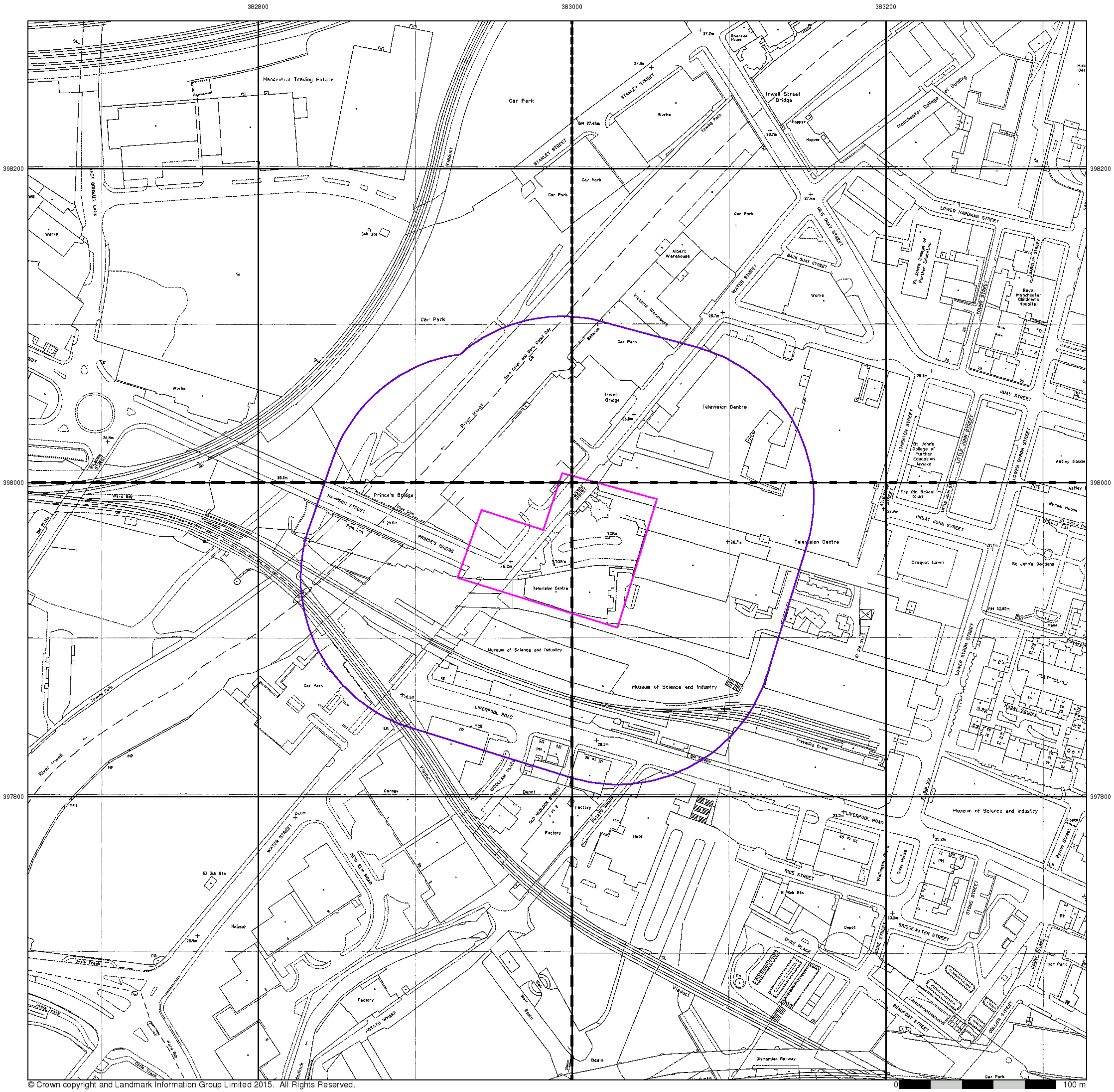
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Mancentral Trading Estate
Car Park
Stanley Street
Works
Irwell Street Bridge
Manchester College of Building
Lower Hardman Street
New Quay Street
Back Quay Street
Water Street
Albert Warehouse
Victoria Warehouse
St John's College of Further Education
Royal Manchester Children's Hospital
River Irwell
Irwell Bridge
Television Centre
Quay Street
Atherton Street
Little John Street
Lower Byrom Street
Astley House
Prince's Bridge
Hampson Street
Prince's Bridge
Great John Street
Byrom House
Croquet Lawn
St John's Gardens
Museum of Science and Industry
Liverpool Road
Travelling Crane
Woodlam Place
Garage
Depot
Factory
Hotel
Water Street
New Elm Road
Potato Wharf
Viaduct
Basin
Dismantled Railway
Duke Place
Bridgewater Street
Beaufort Street
Collier Street
Rice Street
Wellington Street
Stone Street
Works
0
100 m

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Envirocheck®

Large-Scale National Grid Data

Published 1992

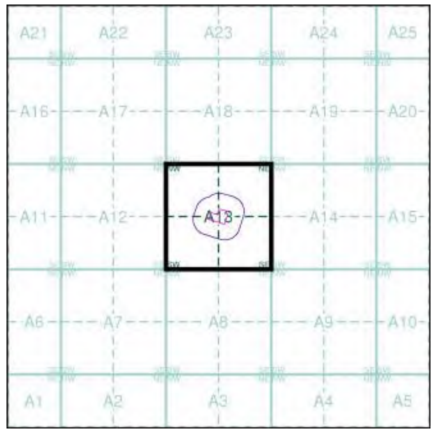
Source map scale - 1:1,250

'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)

SJ8298SE 1992 1:1,250	SJ8398SW 1992 1:1,250
SJ8297NE 1992 1:1,250	SJ8397NW 1992 1:1,250

Historical Map - Segment A13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A3
A4
A5

Order Details

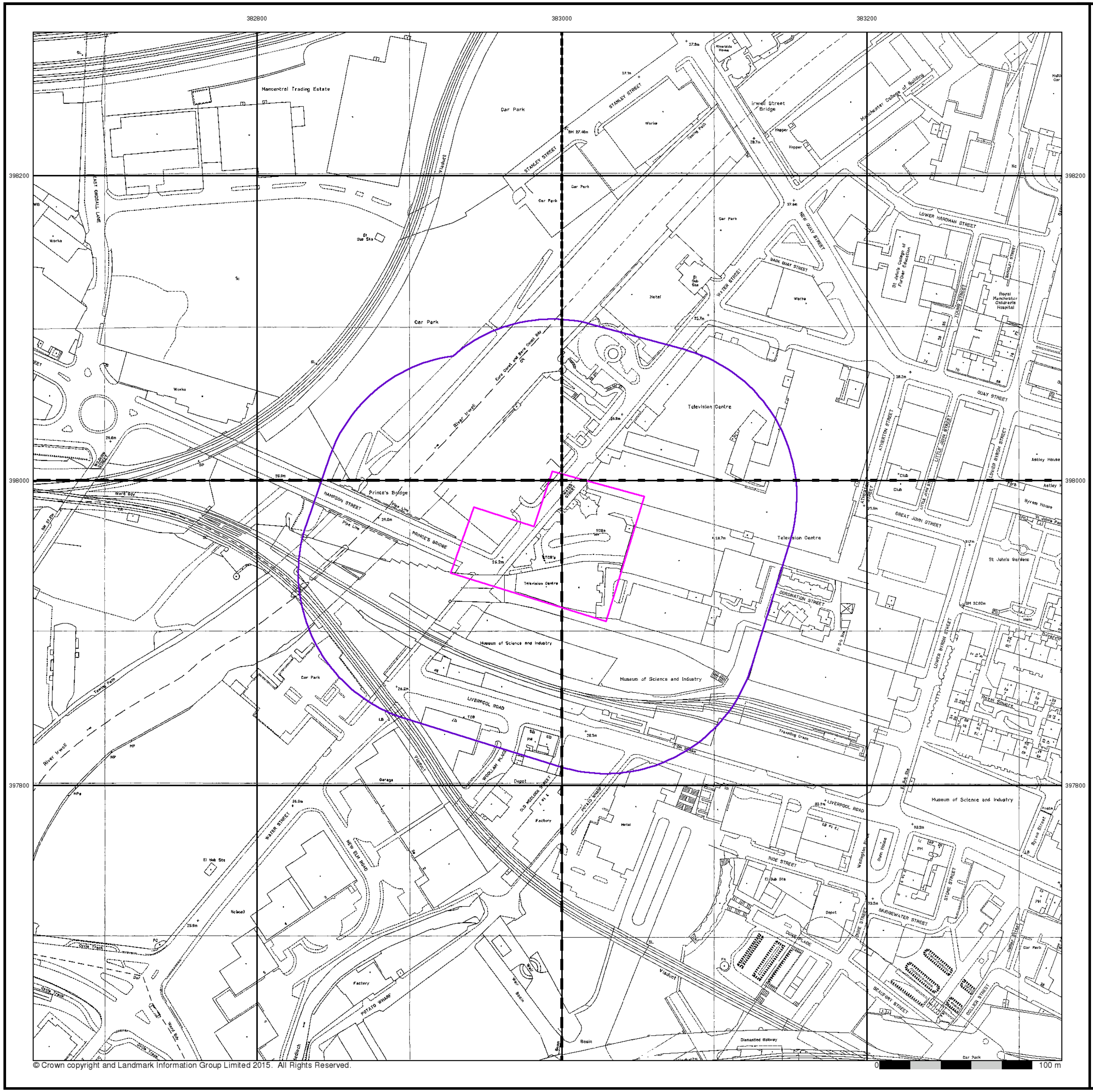
Order Number: 79633581_1_1
Customer Ref: 034933
National Grid Reference: 382990, 397960
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark

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


382800
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397800
Mancentral Trading Estate
Car Park
STANLEY STREET
Irwell Street Bridge
Manchester College of Building
LOWER HARDMAN STREET
NEW QUAY STREET
BACK QUAY STREET
WATER STREET
Hotel
Works
St John's College of Further Education
Royal Manchester Children's Hospital
YOUNG STREET
QUAY STREET
EAST ORDSALL LANE
River Irwell
Viaduct
Television Centre
ATHERTON STREET
LITTLE JOHN STREET
LOWER BYRON STREET
Astley House
Byrom House
GREAT JOHN STREET
St John's Gardens
Club
HAMPSON STREET
Prince's Bridge
PRINCE'S BRIDGE
ORDINATION STREET
Museum of Science and Industry
LIVERPOOL ROAD
WOOLLAM PLACE
OLD MEDLOCK STREET
POTATO WHARF
Depot
Garage
Factory
WATER STREET
NEW ELM ROAD
Traveling Crane
Royal Sq
RIDE STREET
BRIDGEWATER STREET
DUKE PLACE
BEAUFORT STREET
COLLIER STREET
STONE STREET
Wellington Place
Basin
Dismantled Railway
Towing Path
Cycle Track
Car Park
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0 100 m

Envirocheck®

Large-Scale National Grid Data

Published 1993 - 1994

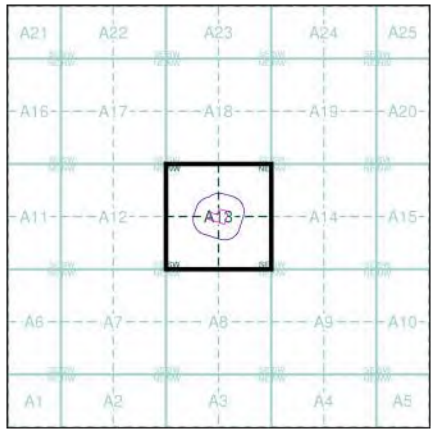
Source map scale - 1:1,250

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

Map Name(s) and Date(s)

SJ8298SE 1993 1:1,250	SJ8398SW 1994 1:1,250
SJ8297NE 1993 1:1,250	SJ8397NW 1994 1:1,250

Historical Map - Segment A13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A3
A4
A5

Order Details

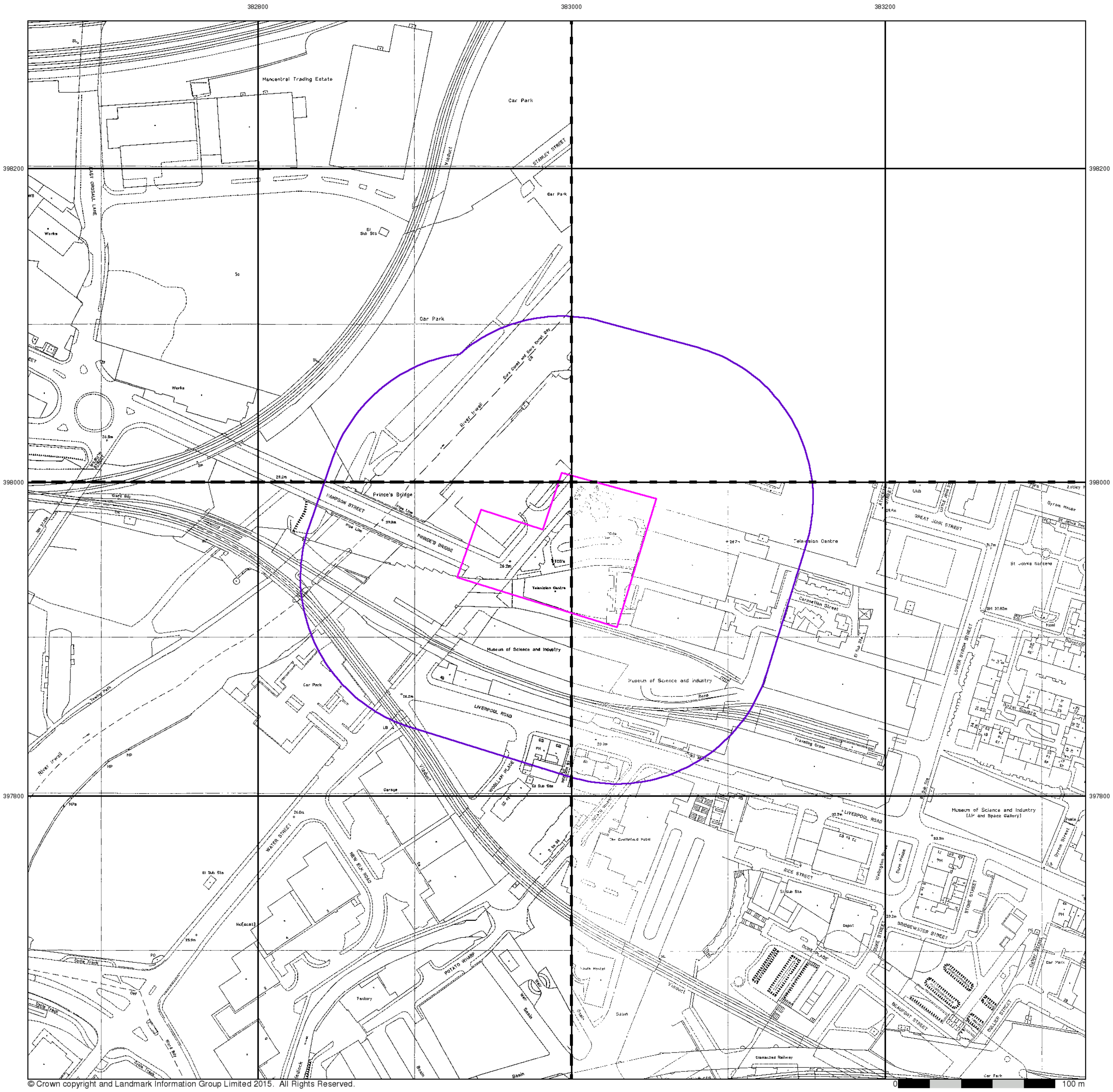
Order Number: 79633581_1_1
Customer Ref: 034933
National Grid Reference: 382990, 397960
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark

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


382800
383000
383200
398200
398000
397800
Mancentral Trading Estate
Car Park
Stanley Street
Viaduct
East Ordsall Lane
Works
El Sub Sta
Car Park
Works
River Irwell
Prince's Bridge
Hampson Street
Prince's Bridge
Television Centre
Museum of Science and Industry
Car Park
Liverpool Road
Woollam Place
El Sub Sta
Great John Street
Television Centre
St Johns Gardens
Lower Byrom Street
Grotto Rhodes Cross
Travelling Crane
Museum of Science and Industry (Air and Space Gallery)
Liverpool Road
Rice Street
Water Street
New Elm Road
Potato Wharf
Bridgewater Street
Beaufort Street
Youth Hostel
Basin
Factory
Towing Path
Cycle Track
Dismantled Railway
Car Park
0
100 m

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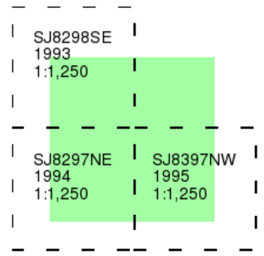
Large-Scale National Grid Data

Published 1993 - 1995

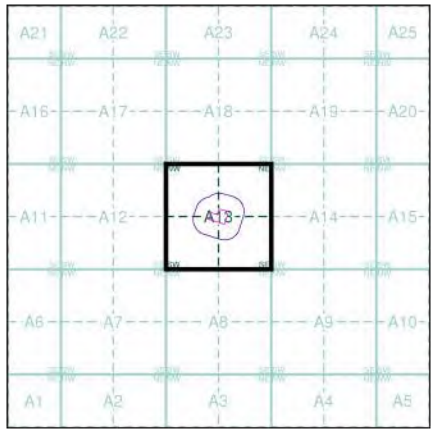
Source map scale - 1:1,250

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

Map Name(s) and Date(s)


SJ8298SE
1993
1:1,250
SJ8297NE
1994
1:1,250
SJ8397NW
1995
1:1,250

Historical Map - Segment A13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A3
A4
A5

Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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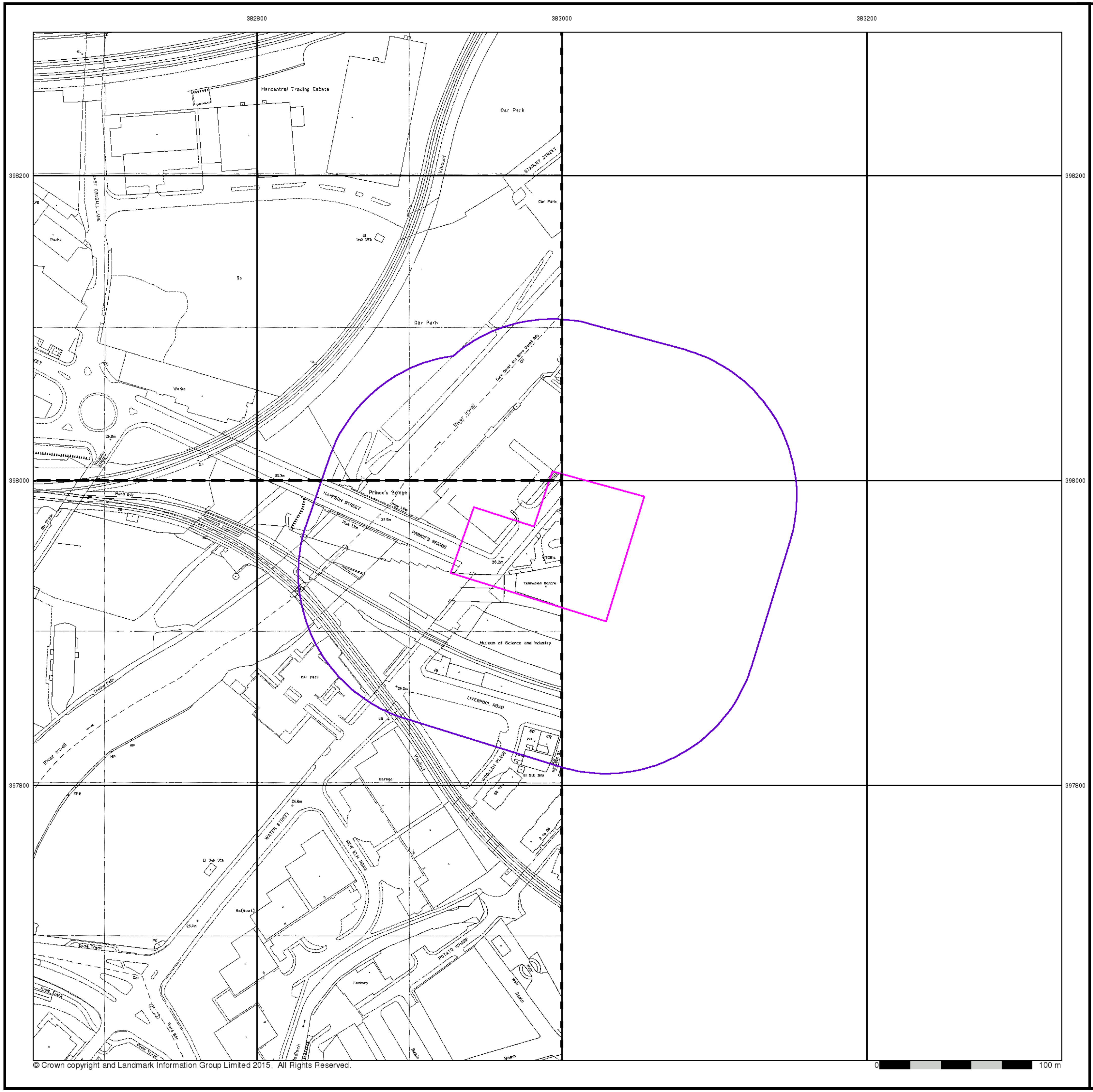
Web:	www.envirocheck.co.uk



382800
383000
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398200
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397800
Mancentral Trading Estate
Car Park
STANLEY STREET
Viaduct
Car Park
EAST ORDSALL LANE
Works
Sub Sta
Sc
Car Park
Works
River Irwell
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
Car Park
LIVERPOOL ROAD
WOOLLAM PLACE
El Sub Sta
Garage
Towing Path
River Irwell
WATER STREET
NEW ELM ROAD
El Sub Sta
Ho(acol)
Cycle Track
POTATO WHARF
Factory
Basin
Weir

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0 100 m

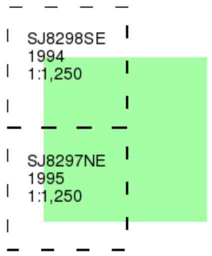
Large-Scale National Grid Data

Published 1994 - 1995

Source map scale - 1:1,250

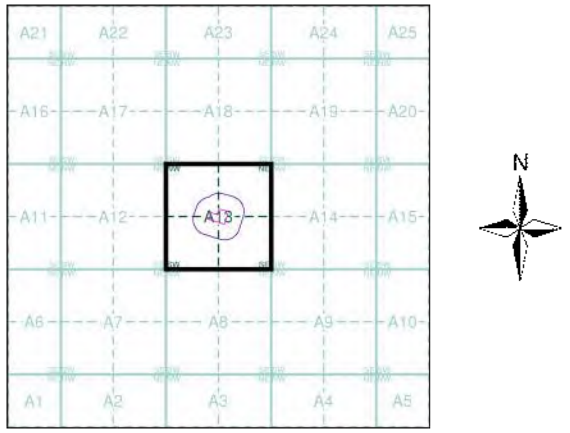
'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

Map Name(s) and Date(s)



SJ8298SE
1994
1:1,250
SJ8297NE
1995
1:1,250

Historical Map - Segment A13



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N

Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

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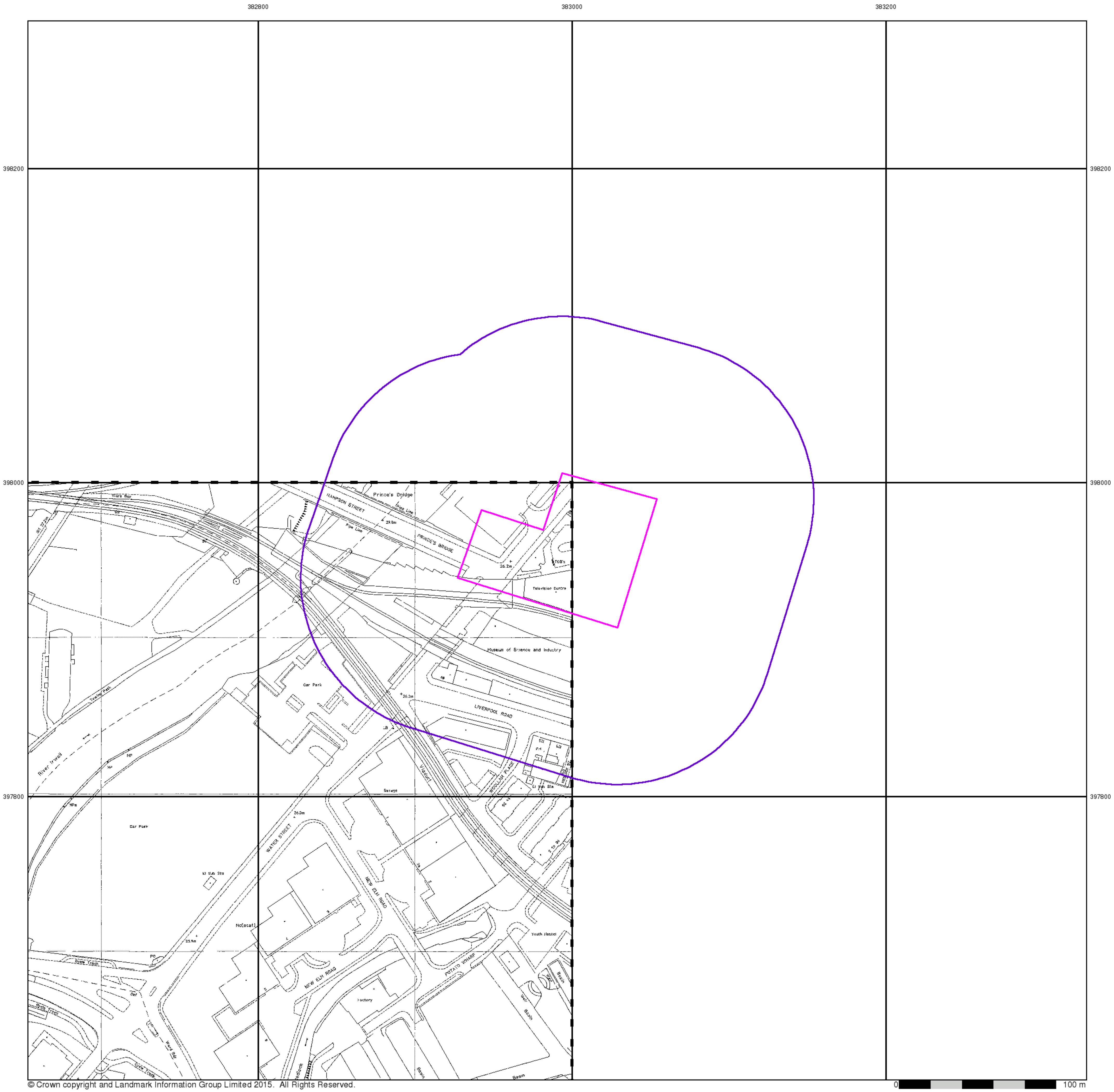
Fax: 0844 844 9951
Web: www.envirocheck.co.uk


382800
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Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
Car Park
LIVERPOOL ROAD
Viaduct
River Irwell
Towing Path
Garage
WATER STREET
NEW ELM ROAD
El Sub Sta
Youth Hostel
POTATO WHARF
Factory
Basin

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0 100 m

Envirocheck®

Large-Scale National Grid Data

Published 1995

Source map scale - 1:1,250

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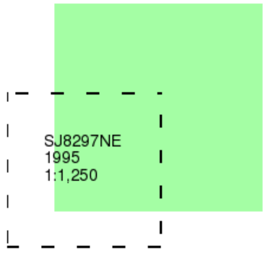
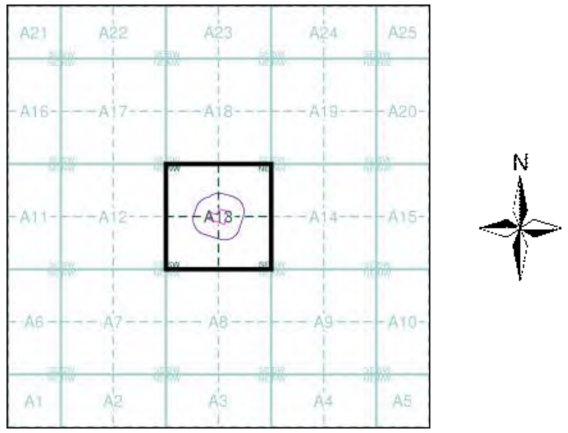

SJ8297NE
1995
1:1,250

Historical Map - Segment A13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A4
A5
N

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Slice:	A
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Landmark®

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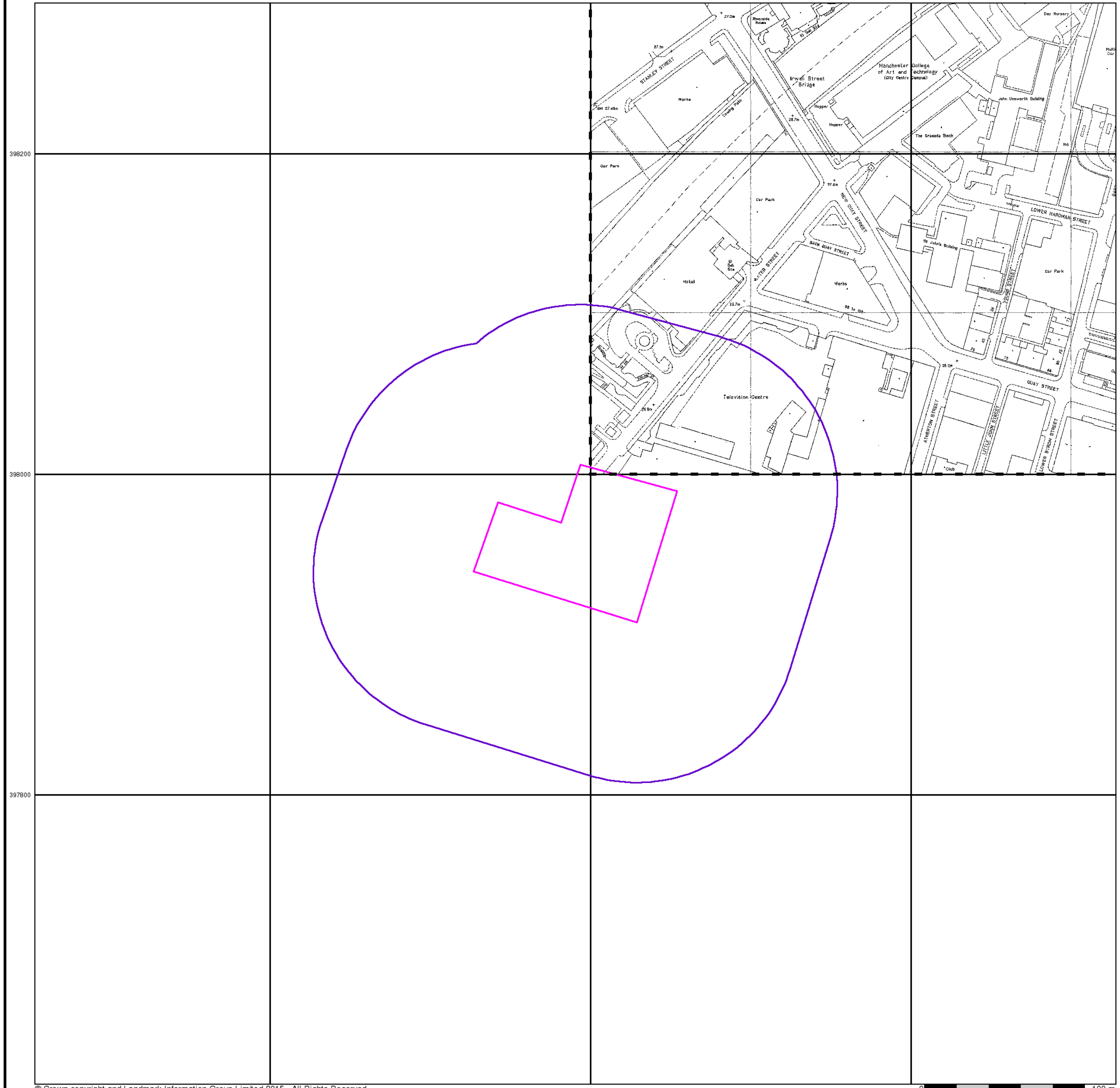
Web:	www.envirocheck.co.uk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398000
397800
STANLEY STREET
Works
Car Park
Irwell Street Bridge
Manchester College of Art and Technology (City Centre Campus)
John Unsworth Building
The Granada Block
NEW QUAY STREET
LOWER HARDMAN STREET
St John's Building
BACK QUAY STREET
WATER STREET
Hotel
Works
Car Park
YOUNG STREET
QUAY STREET
Television Centre
ATHERTON STREET
LITTLE JOHN STREET
LOWER BYROM STREET
Day Nursery
Club
0
100 m

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Envirocheck®

Large-Scale National Grid Data
Published 1996
Source map scale - 1:1,250

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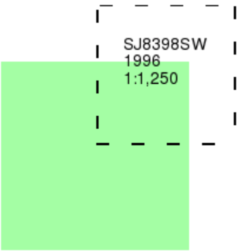
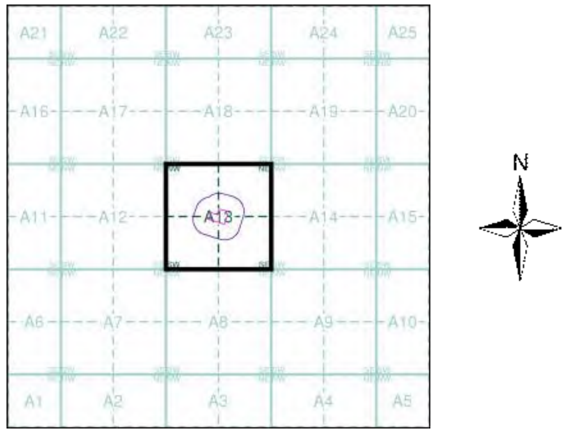
Map Name(s) and Date(s)


SJ8398SW
1996
1:1,250

Historical Map - Segment A13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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

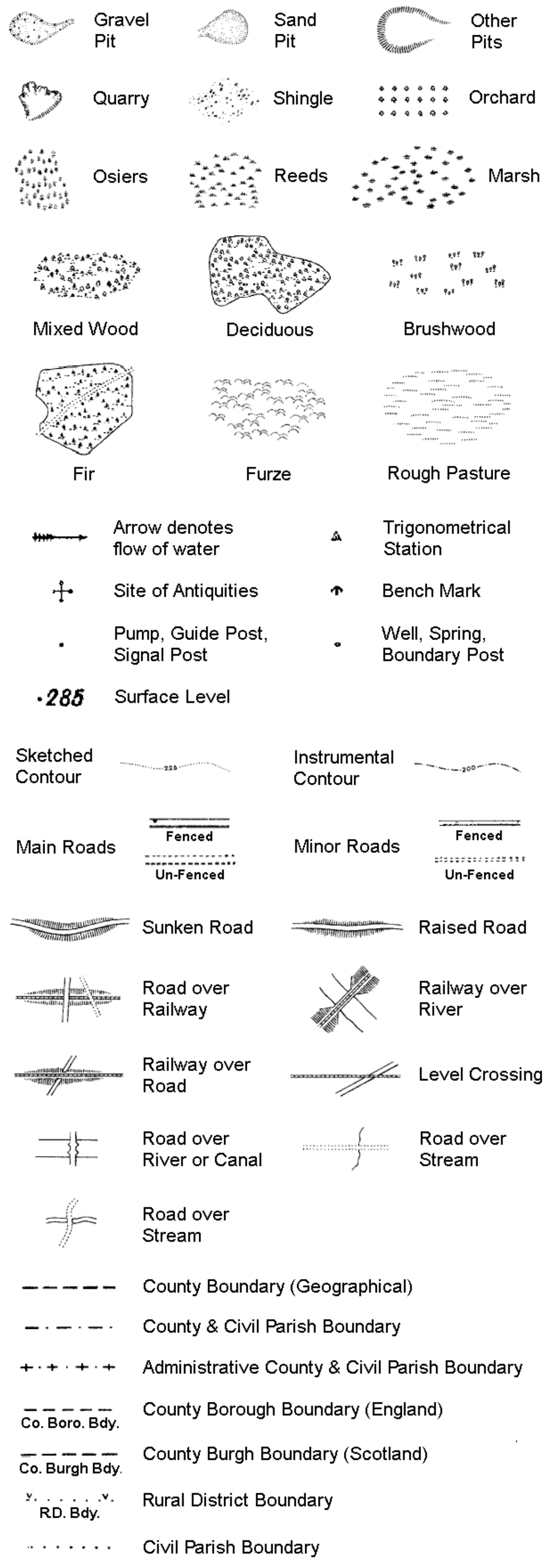
121, Water Street, Manchester, M3 4JU

Landmark Information Group

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

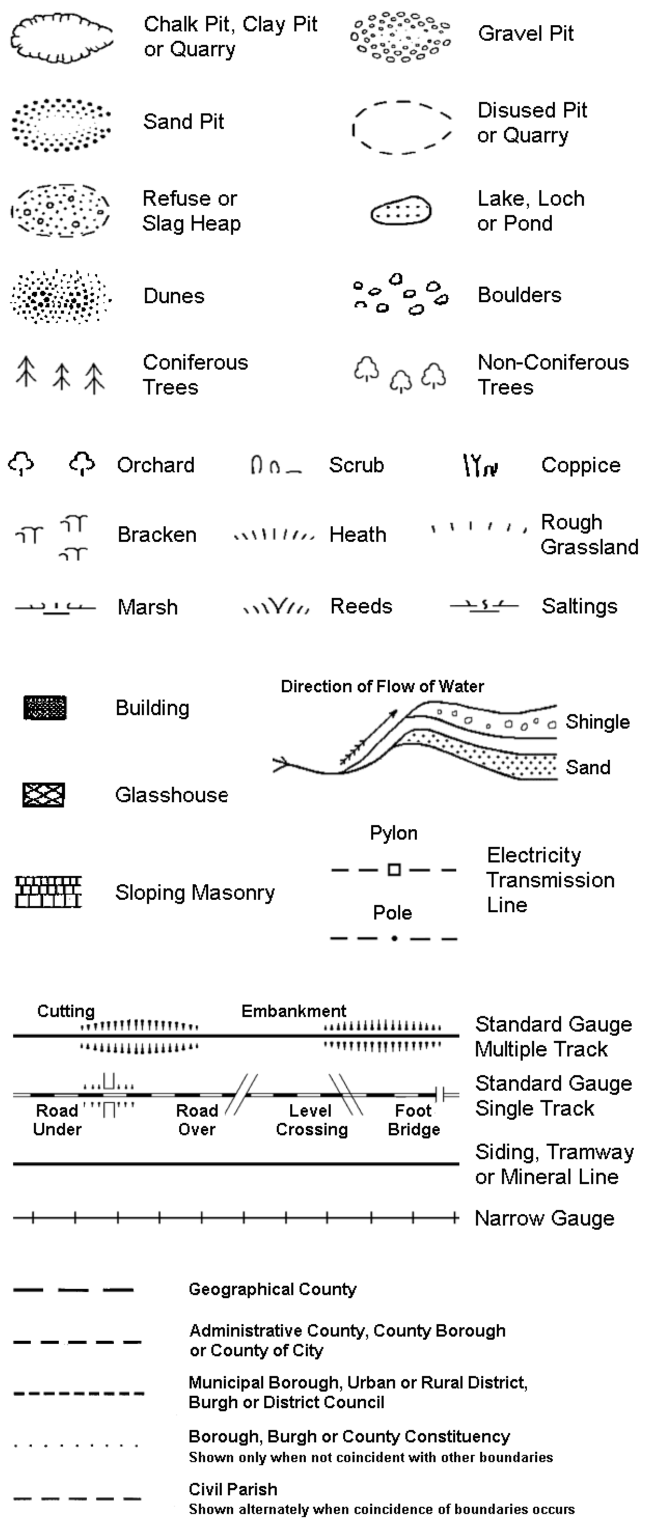
Historical Mapping Legends

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
Minor Roads
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
County Borough Boundary (England)
County Burgh Boundary (Scotland)
Rural District Boundary
Civil Parish Boundary

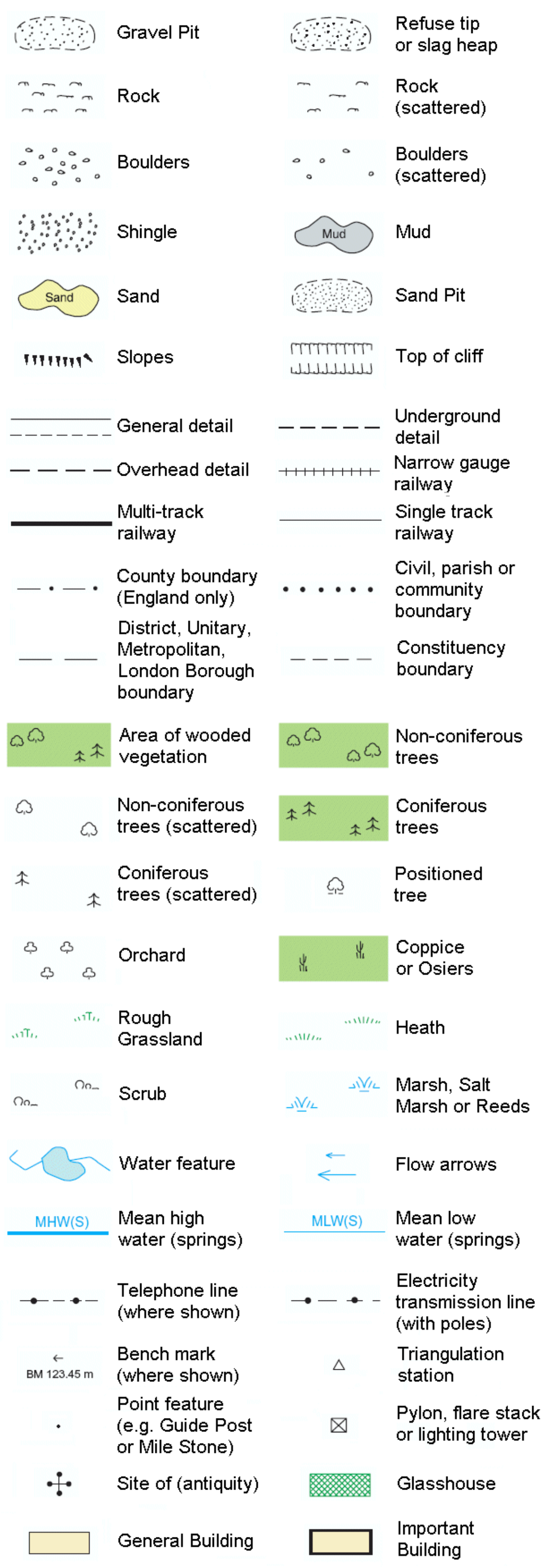
Ordnance Survey Plan 1:10,000



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
Shingle
Sand
Glasshouse
Sloping Masonry
Electricity Transmission Line
Standard Gauge Multiple Track
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

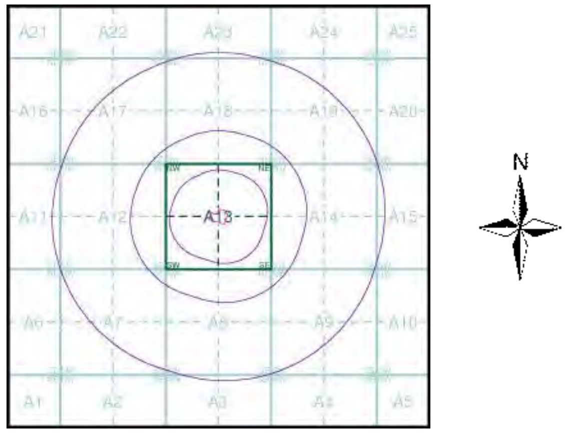


Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community 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
Mean high water (springs)
Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
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

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 - 1932	8
Lancashire And Furness	1:10,560	1938	9
Ordnance Survey Plan	1:10,000	1956	10
Ordnance Survey Plan	1:10,000	1972	11
Manchester	1:25,000	1975	12
Ordnance Survey Plan	1:10,000	1980	13
Ordnance Survey Plan	1:10,000	1985	14
Ordnance Survey Plan	1:10,000	1989	15
Ordnance Survey Plan	1:10,000	1994	16
10K Raster Mapping	1:10,000	2006	17
VectorMap Local	1:10,000	2015	18

Historical Map - Slice A



Order Details

Order Number: 79633581_1_1
Customer Ref: 034933
National Grid Reference: 382990, 397960
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 1000

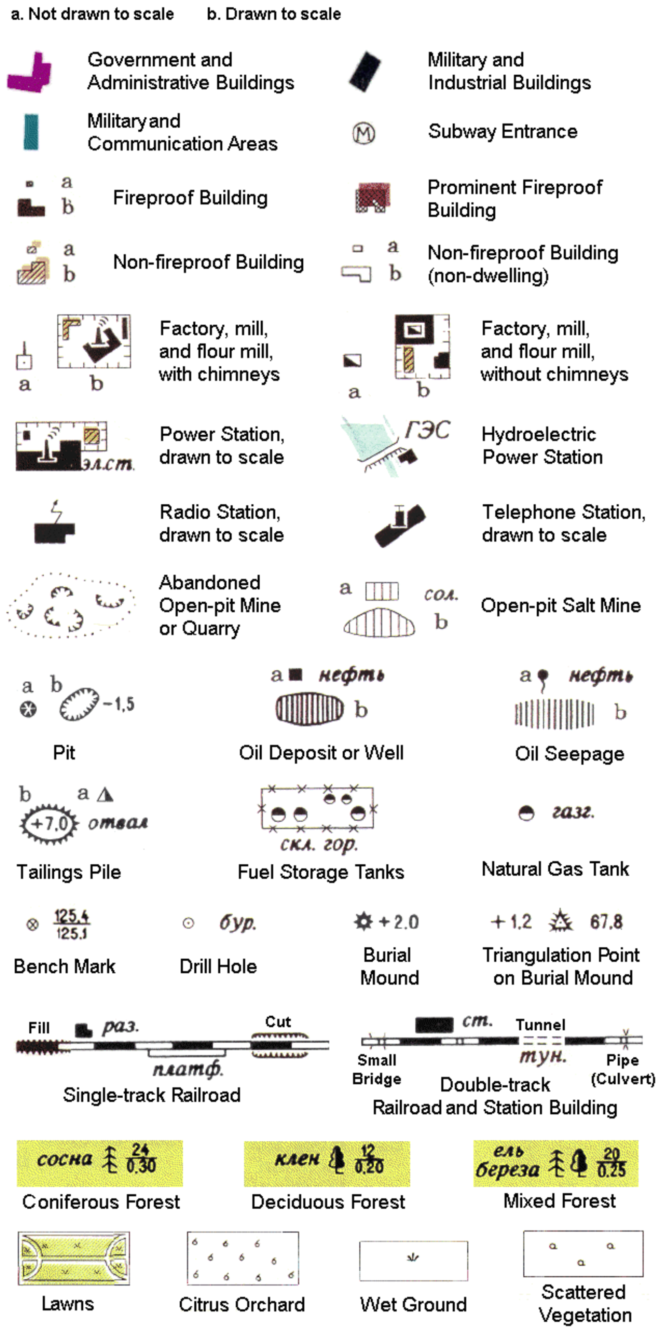
Site Details

121, Water Street, Manchester, M3 4JU

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

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
ГЭС
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
Fill
Cut
Tunnel
Small Bridge
Pipe (Culvert)
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.

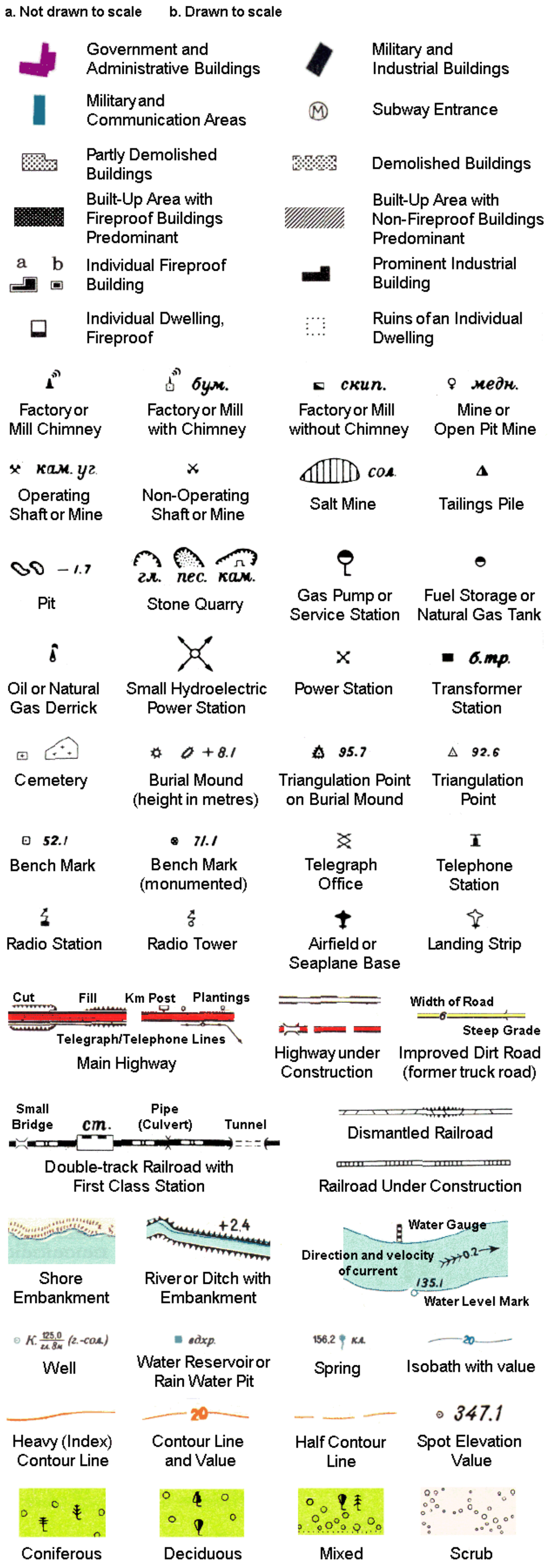
0,2 Velocity of the current, width of river bed, depth of river

180/12 180/12 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)
Б б (B)
В в (V)
Г г (G)
Д д (D)
Е е (E)
Ё ё (YO)
Ж ж (ZH)
З з (Z)
И и (I)
Й й (Y)
К к (K)
Л л (L)
М м (M)
Н н (N)
О о (O)
П п (P)
Р р (R)
С с (S)
Т т (T)
У у (U)
Ф ф (F)
Х х (KH)
Ц ц (TS)
Ч ч (CH)
Ш ш (SH)
Щ щ (SHCH)
ъ (-)
ы (Y)
ь (')
Э э (E)
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
Factory or Mill without Chimney
Mine or Open Pit Mine
Operating Shaft or Mine
Non-Operating Shaft or Mine
Salt Mine
Tailings Pile
Pit
Stone Quarry
Gas Pump or Service Station
Fuel Storage or Natural Gas Tank
Oil or Natural Gas Derrick
Small Hydroelectric Power Station
Power Station
Transformer Station
Cemetery
Burial Mound (height in metres)
Triangulation Point on Burial Mound
Triangulation Point
Bench Mark
Bench Mark (monumented)
Telegraph Office
Telephone Station
Radio Station
Radio Tower
Airfield or Seaplane Base
Landing Strip
Cut
Fill
Km Post
Plantings
Telegraph/Telephone Lines
Main Highway
Highway under Construction
Width of Road
Steep Grade
Improved Dirt Road (former truck road)
Small Bridge
Pipe (Culvert)
Tunnel
Double-track Railroad with First Class Station
Dismantled Railroad
Railroad Under Construction
Shore Embankment
River or Ditch with Embankment
Water Gauge
Direction and velocity of current
Water Level Mark
Well
Water Reservoir or Rain Water Pit
Spring
Isobath with value
Heavy (Index) Contour Line
Contour Line and Value
Half Contour Line
Spot Elevation Value
Coniferous
Deciduous
Mixed
Scrub

Key to Numbers on Mapping

SJ89_Manchester

No.	Description
1	Airfield/Airport
6	Railway Station
62	Factory (Gas)
66	Factory (Gas)
94	Factory (Metal Works)
158	Police Station/Headquarters
197	Railway Station

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
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Ordnance Survey Plan	1:10,000	1980	13
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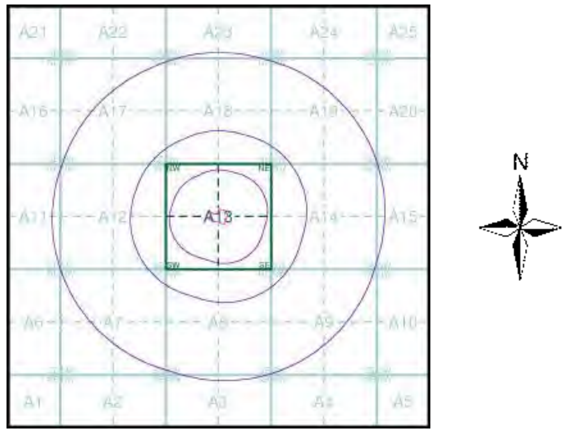
Ordnance Survey Plan	1:10,000	1989	15
Ordnance Survey Plan	1:10,000	1994	16
10K Raster Mapping	1:10,000	2006	17
VectorMap Local	1:10,000	2015	18

Russian Map - Slice A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Order Details

Order Number:	79633581_1_1
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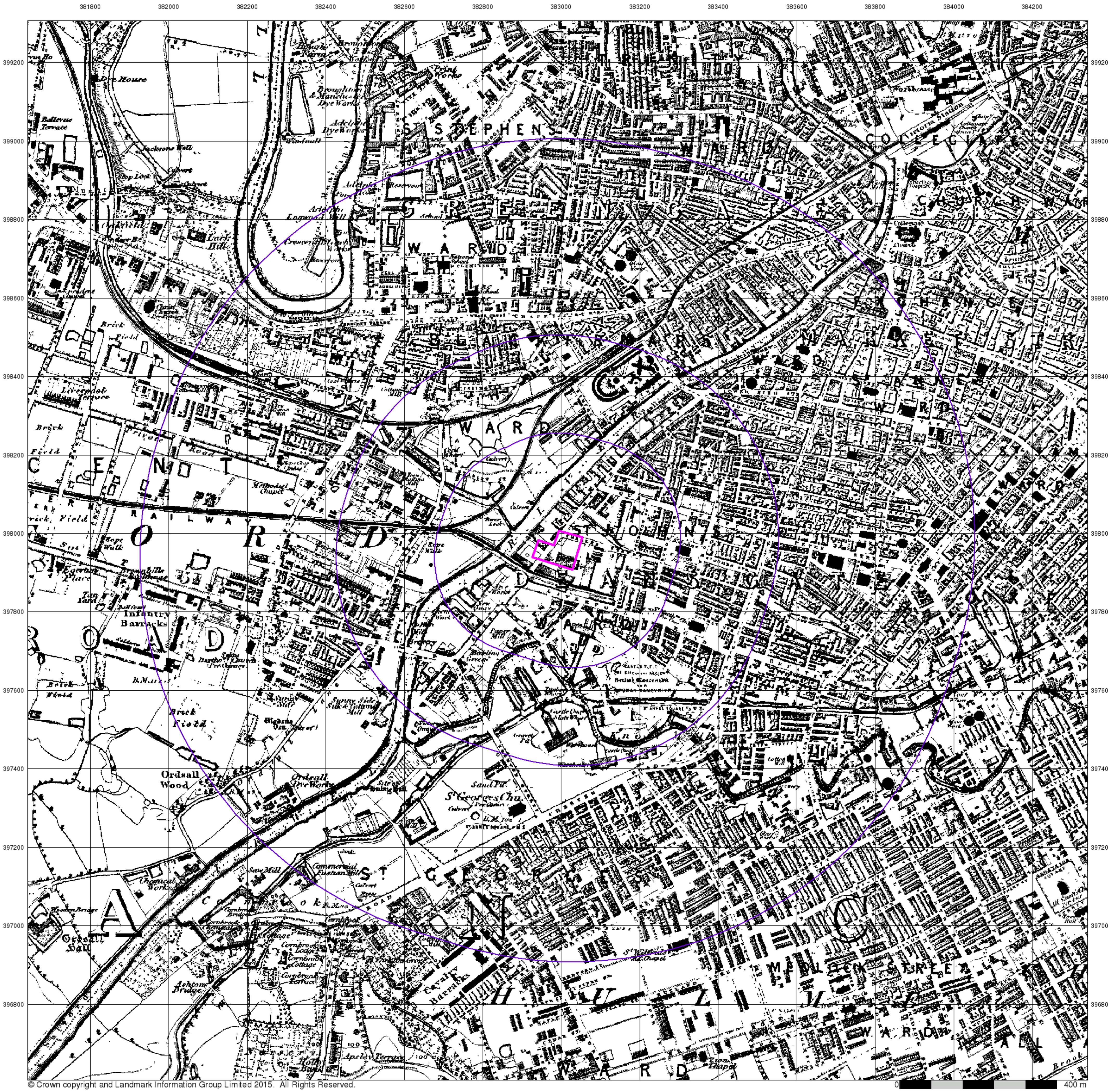
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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397400
397200
397000
396800
ST STEPHENS
WARD
COLLEGIATE
CHURCH WARD
EXCHANGE
ST ANN'S WARD
ST JOHN'S
WARD
Infantry Barracks
Ordsall Wood
Ordsall Hall
St Georges Chu.
Commercial Fustian Mill
Cavalry Barracks
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400 m

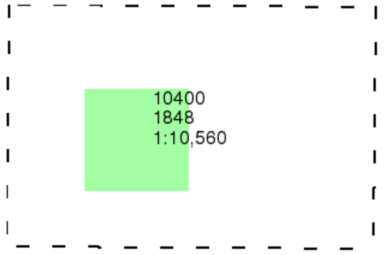
Lancashire And Furness

Published 1848

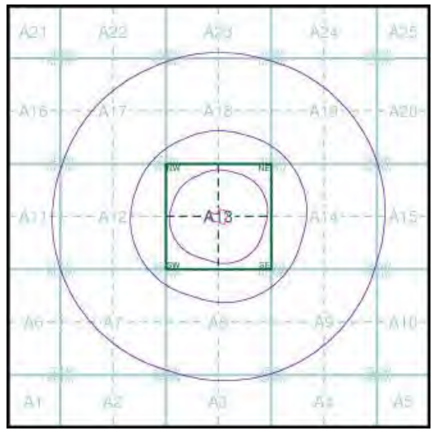
Source map scale - 1:10,560

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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Order Details

Order Number:	79633581_1_1
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Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

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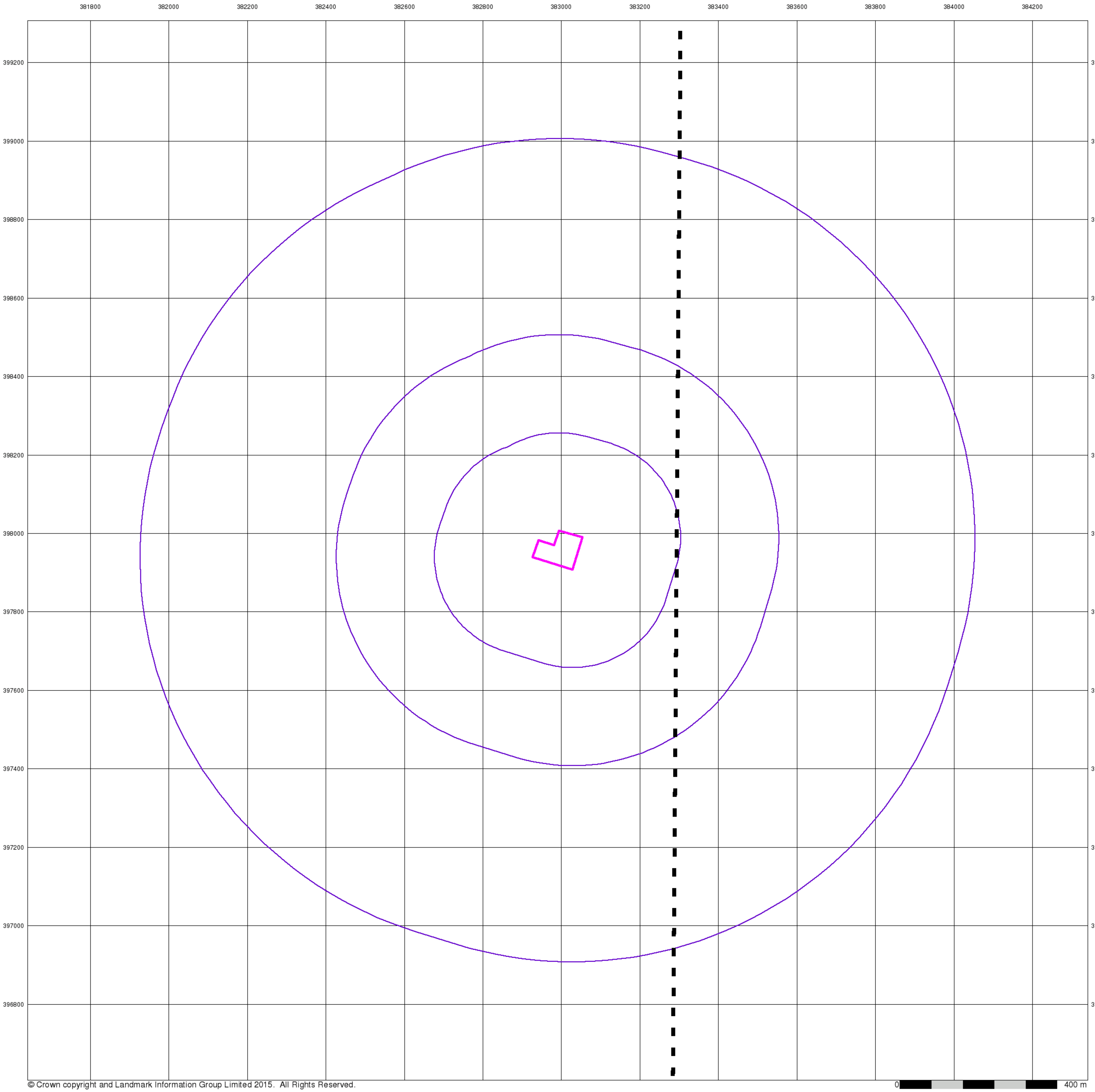
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Envirocheck®

Cheshire

Published 1882

Source map scale - 1:10,560

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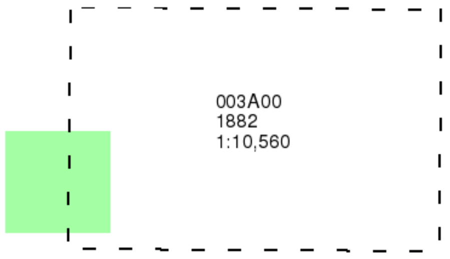
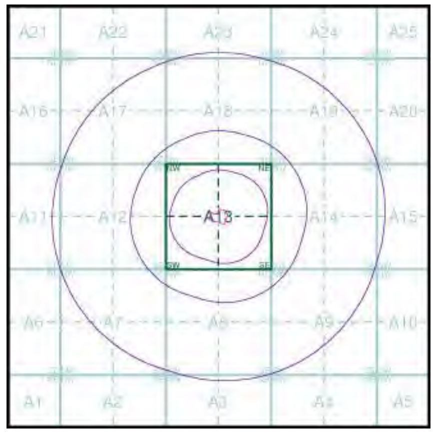
Map Name(s) and Date(s)


003A00
1882
1:10,560

Historical Map - Slice A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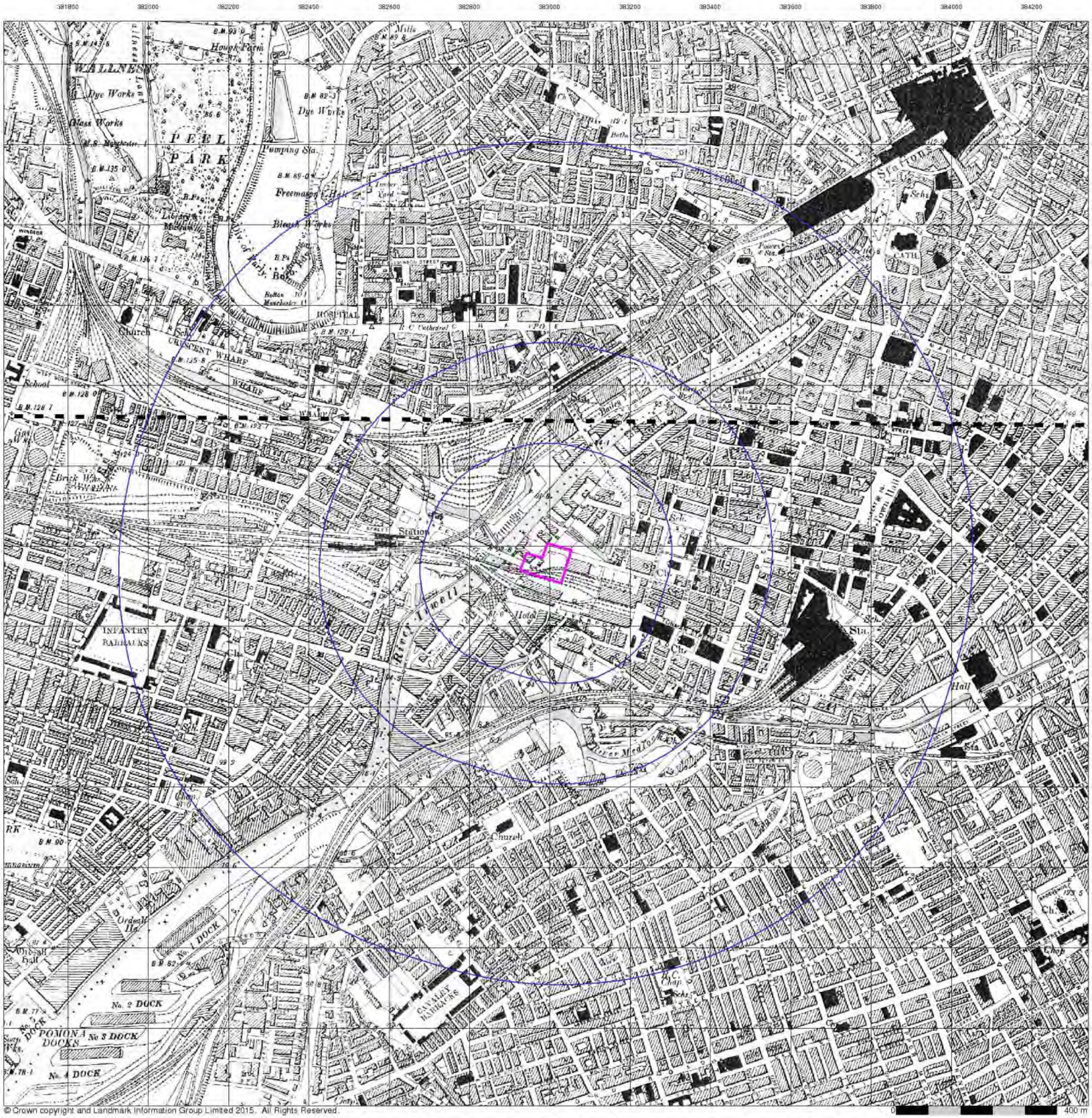
N

Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU



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396800
WALLNESS
Dye Works
Glass Works
PEEL PARK
Hough Farm
Dye Works
Pumping Sta.
Freemasons' Hall
Bleach Works
Mills
HOSPITAL
R C Cathedral
CRESCENT WHARF
WHARF
School
Church
Brick Works
Station
River Irwell
Hotel
INFANTRY BARRACKS
Sta.
CATH.
Hall
Church
No. 1 DOCK
No. 2 DOCK
No. 3 DOCK
No. 4 DOCK
POMONA DOCKS
CAVALRY BARRACKS
Ordsall Hall
0
400 m

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Envirocheck®

Lancashire And Furness

Published 1894 - 1896

Source map scale - 1:10,560

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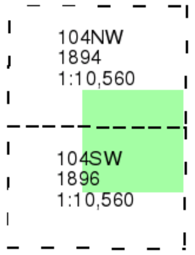
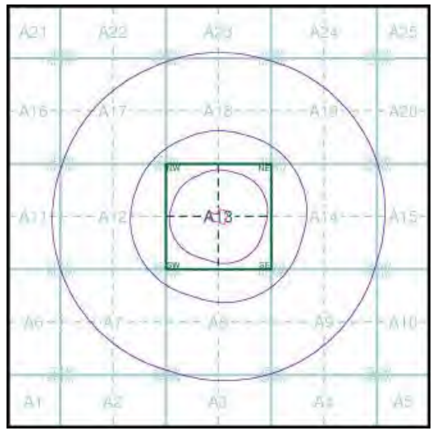
Map Name(s) and Date(s)



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

Historical Map - Slice A



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Order Details

Order Number:	79633581_1_1
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National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
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Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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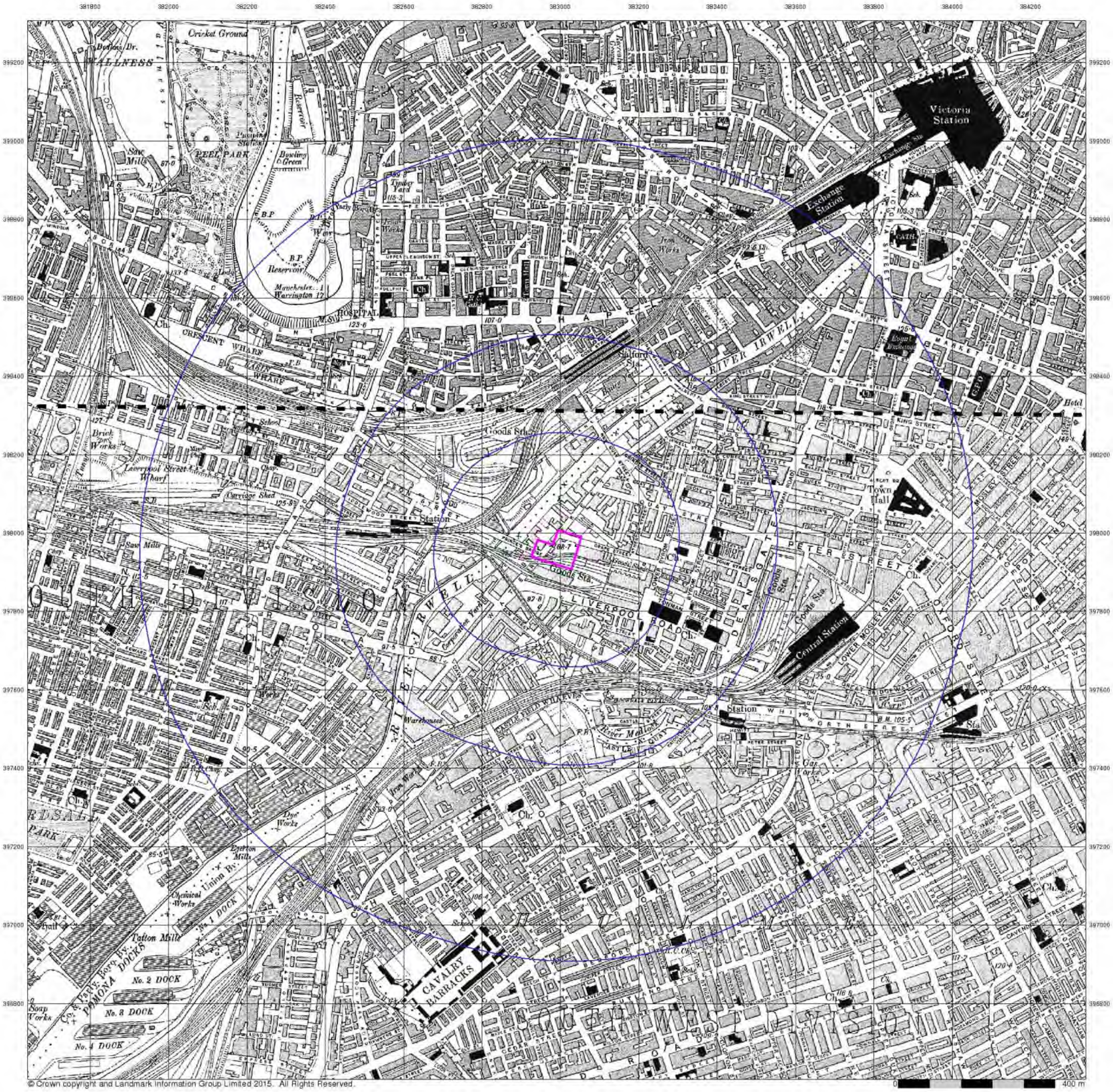
Web:	www.envirocheck.co.uk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396800
Cricket Ground
Peel Park
Saw Mills
Pumping Station
Bowling Green
Reservoir
B.P. Reservoir
Manchester & Warrington
Hospital
Crescent Wharf
Iron Works
Chapel Street
Salford Sta.
River Irwell
Exchange Station
Victoria Station
Royal Exchange
Cath.
Market Street
King Street
Hotel
Brick Works
Liverpool Street Wharf
Carriage Shed
Station
Goods Sta.
Saw Mills
Liverpool Road
Deansgate
Peter Street
Town Hall
Goods Sta.
Central Station
Lower Mosley Street
Oxford Road
Warehouses
Castle Field Wharves
River Medlock
Whitworth Street
Gas Works
Dye Works
Union Bt.
Chemical Works
Tatton Mills
No. 1 Dock
No. 2 Dock
No. 3 Dock
No. 4 Dock
Pomona Docks
Soap Works
Cavalry Barracks
School
South Division
South West Division
Ordsall
0
400 m

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Envirocheck®

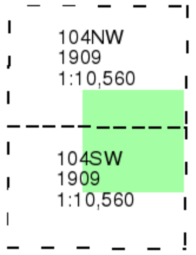
Lancashire And Furness

Published 1909

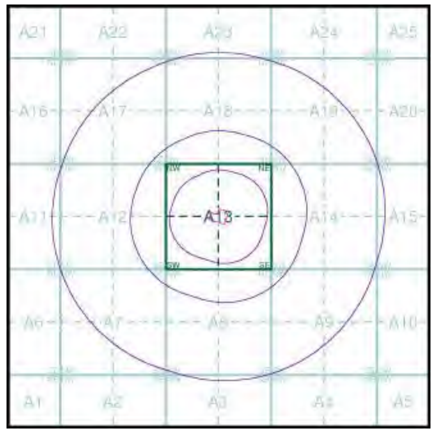
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)


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

Historical Map - Slice A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Order Details

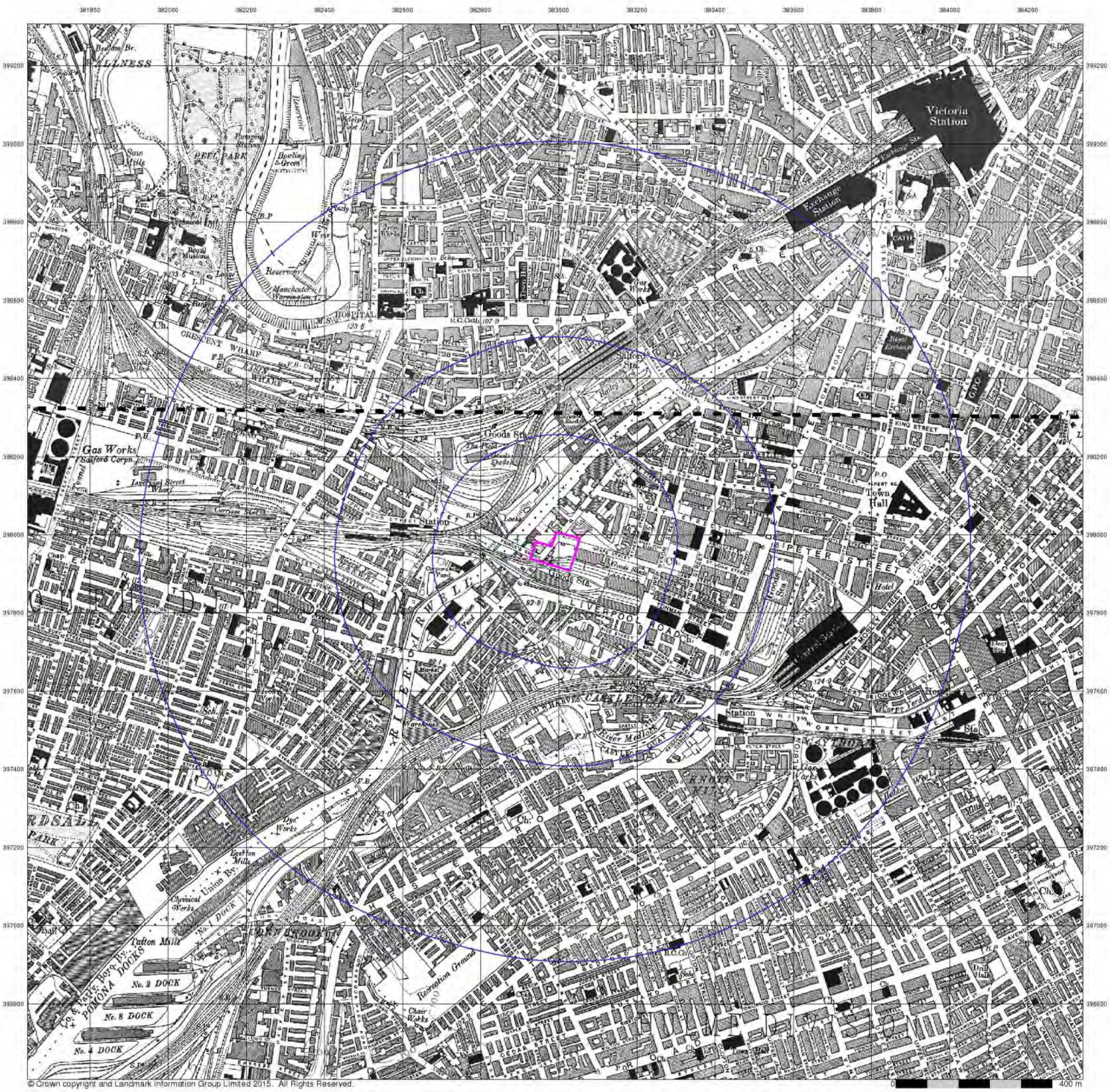
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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398600
398400
398200
398000
397800
397600
397400
397200
397000
396800
Victoria Station
Exchange Station
Peel Park
Gas Works Salford Corpn.
Goods Sta.
Salford Sta.
Town Hall
Royal Exchange
Central Station
Liverpool Road
Pomona Docks
No. 2 Dock
No. 3 Dock
No. 4 Dock
Recreation Ground
0
400 m

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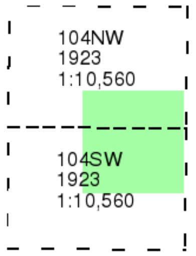
Lancashire And Furness

Published 1923

Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)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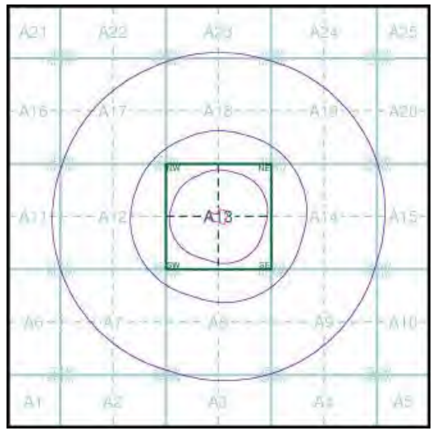
1923
1:10,560
104SW
1923
1:10,560

Historical Map - Slice A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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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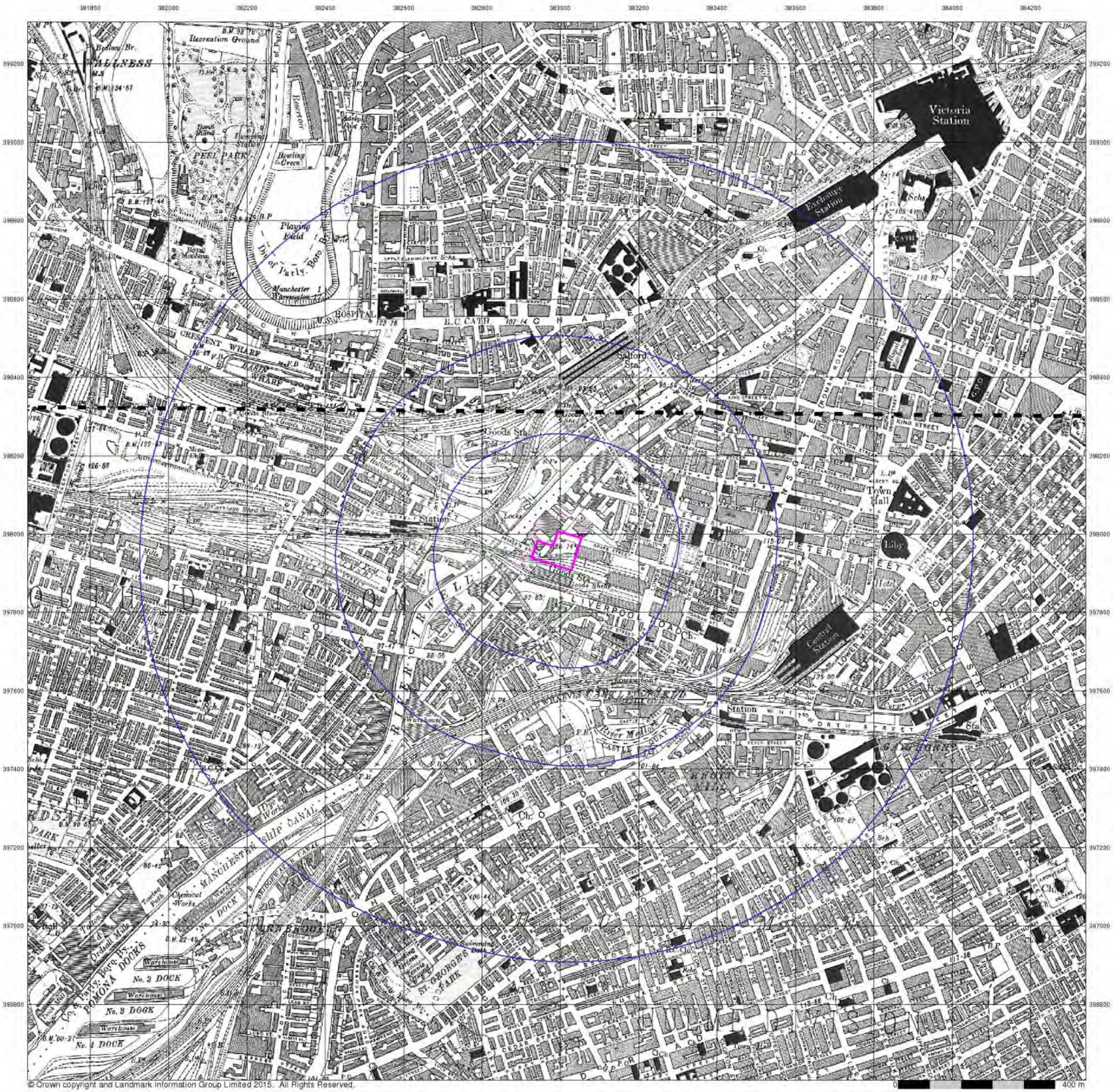
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397600
397400
397200
397000
396800
Victoria Station
Exchange Station
Salford Stn.
Central Station
Station
PEEL PARK
Playing Field
Bowling Green
Recreation Ground
HOSPITAL
R.C. CATH.
CRESCENT WHARF
WHARF
Goods Sta.
Town Hall
Liby.
PETER STREET
KING STREET
LIVERPOOL ROAD
IRWELL
MANCHESTER SHIP CANAL
No. 2 DOCK
No. 3 DOCK
No. 4 DOCK
Warehouse
POMONA DOCKS
Chemical Works
ST. GEORGE'S PARK
Castle Quay
0
400 m

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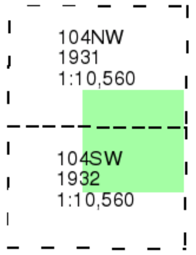
Lancashire And Furness

Published 1931 - 1932

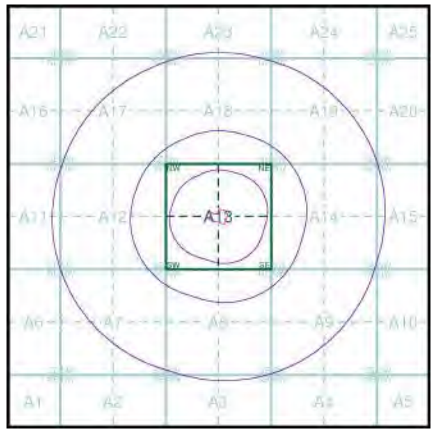
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)


104NW
1931
1:10,560
104SW
1932
1:10,560

Historical Map - Slice A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Order Details

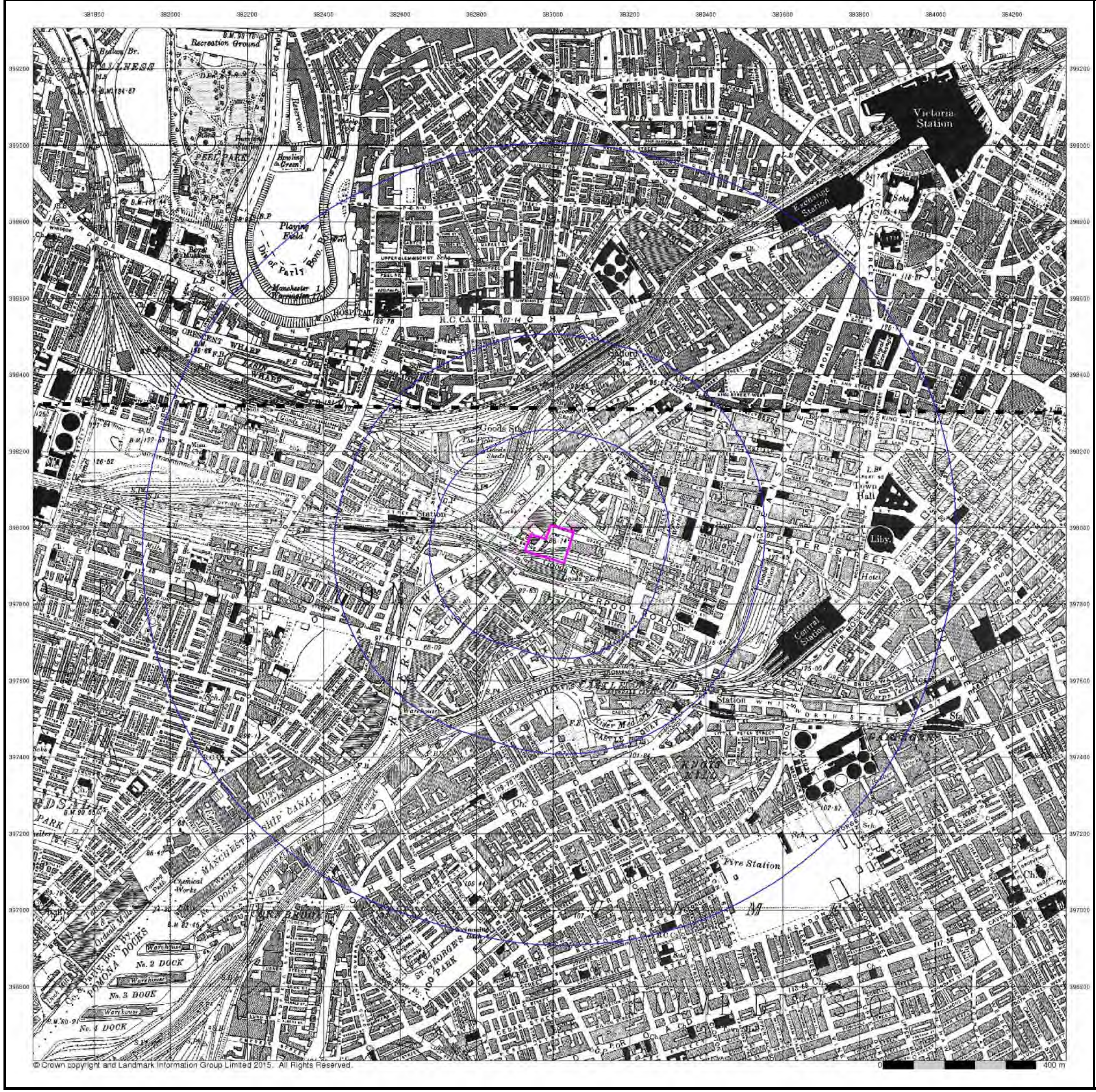
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark

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



Victoria Station
Exchange Station
Peel Park
Recreation Ground
Playing Field
Crescent Wharf
Goods Sta.
Salford Sta.
Irwell
Liverpool Road
Central Station
Town Hall
Liby.
Peter Street
Whitworth Street
Manchester Ship Canal
No. 2 Dock
No. 3 Dock
No. 4 Dock
Pomona Docks
St. George's Park
Fire Station
King Street
Market Street
Victoria Street
Hotel
Knott Mill
Castle Quay
0
400 m

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Envirocheck®

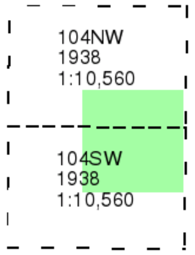
Lancashire And Furness

Published 1938

Source map scale - 1:10,560

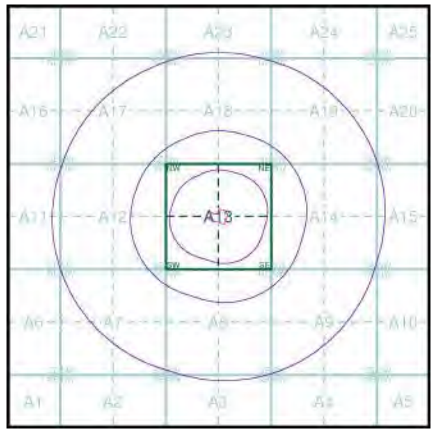
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



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

Historical Map - Slice A



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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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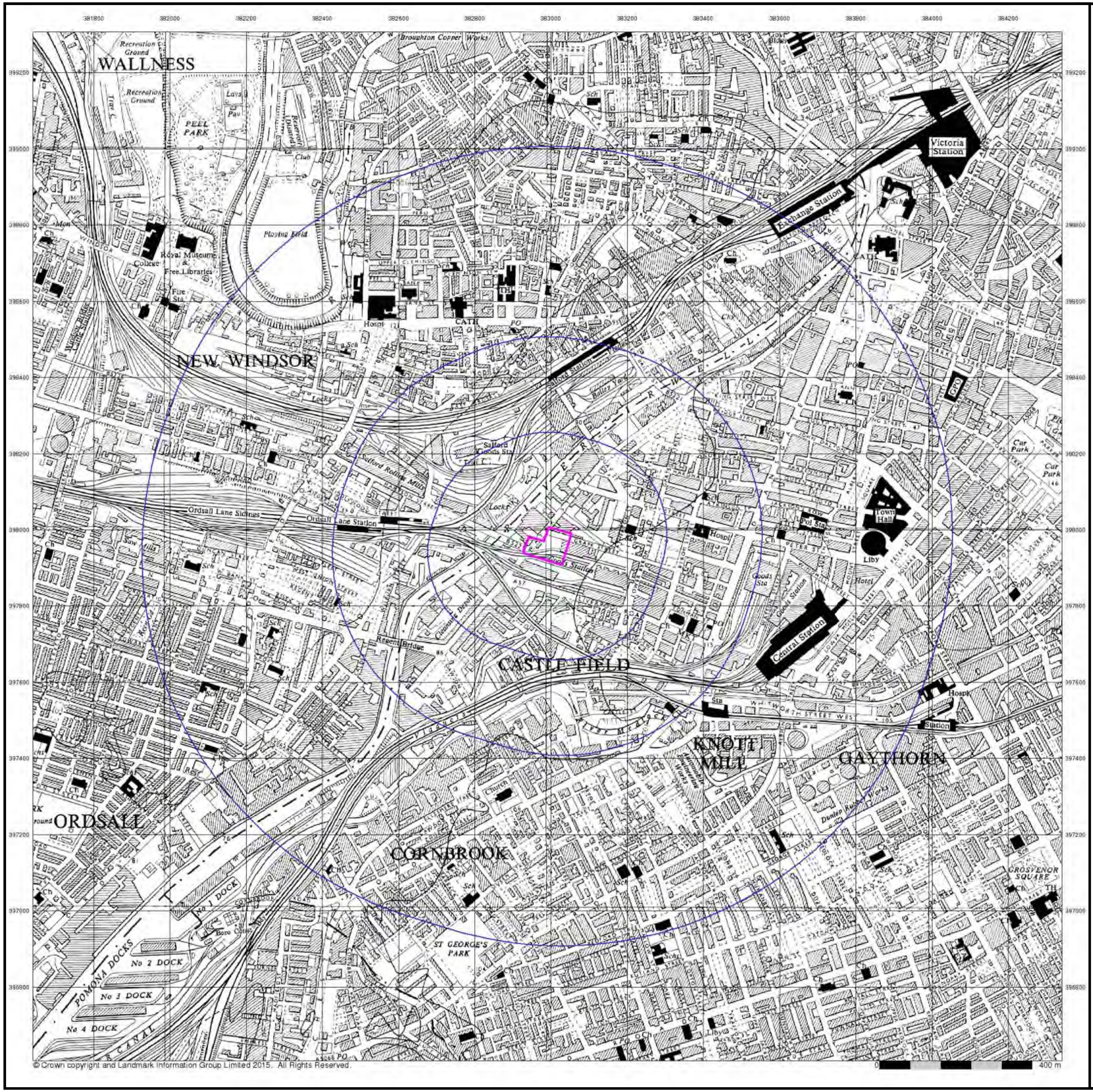
381800
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396800
Recreation Ground
WALLNESS
Recreation Ground
PEEL PARK
Broughton Copper Works
Victoria Station
Exchange Station
Playing Field
Royal Museum & Free Libraries
College
Hospl
CATH
NEW WINDSOR
Salford Station
Salford Goods Sta
Salford Rolling Mills
Ordsall Lane Sidings
Ordsall Lane Station
Town Hall
Liby
Pol Sta
Hospl
Hotel
Goods Sta
Central Station
Regent Bridge
CASTLE FIELD
KNOTT MILL
GAYTHORN
Station
Hospl
ORDSALL
CORNBROOK
Church
ST GEORGE'S PARK
GROSVENOR SQUARE
POMONA DOCKS
No 1 DOCK
No 2 DOCK
No 3 DOCK
No 4 DOCK
CANAL
Dunlop Rubber Works
Car Park
0
400 m
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Ordnance Survey Plan

Published 1956

Source map scale - 1:10,000

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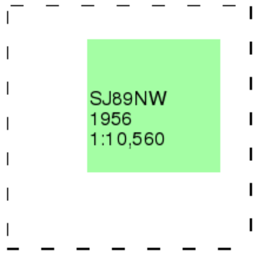
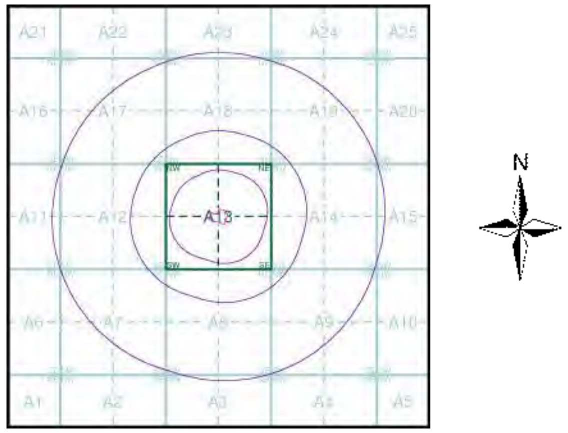
Map Name(s) and Date(s)


SJ89NW
1956
1:10,560

Historical Map - Slice A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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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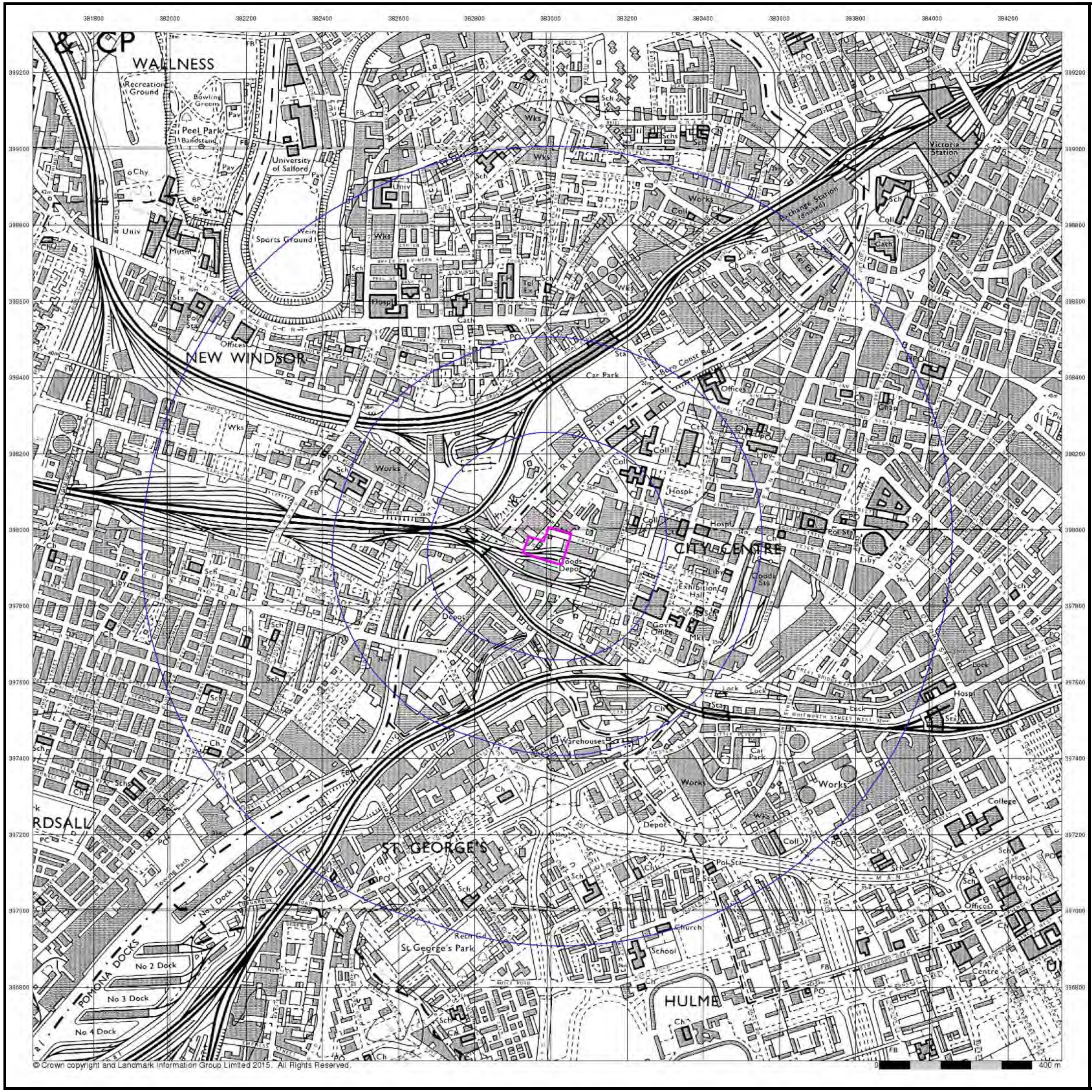
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397800
397600
397400
397200
397000
396800
WALLNESS
Peel Park
University of Salford
Sports Ground
NEW WINDSOR
Victoria Station
Exchange Station (disused)
Car Park
CITY CENTRE
Goods Depot
Exhibition Hall
Warehouses
ST GEORGE'S
St George's Park
HULME
No 2 Dock
No 3 Dock
No 4 Dock
POMONA DOCKS
RDSALL
College
0
400 m

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Ordnance Survey Plan

Published 1972

Source map scale - 1:10,000

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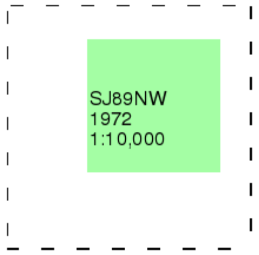
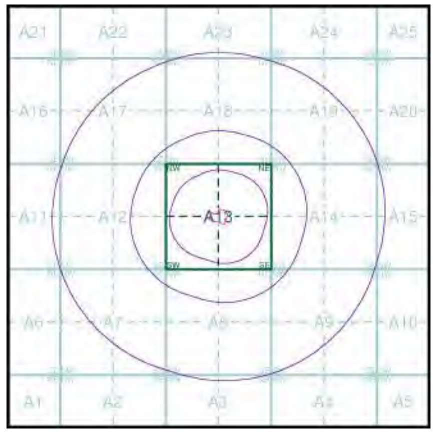
Map Name(s) and Date(s)


SJ89NW
1972
1:10,000

Historical Map - Slice A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Order Details

Order Number:	79633581_1_1
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National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

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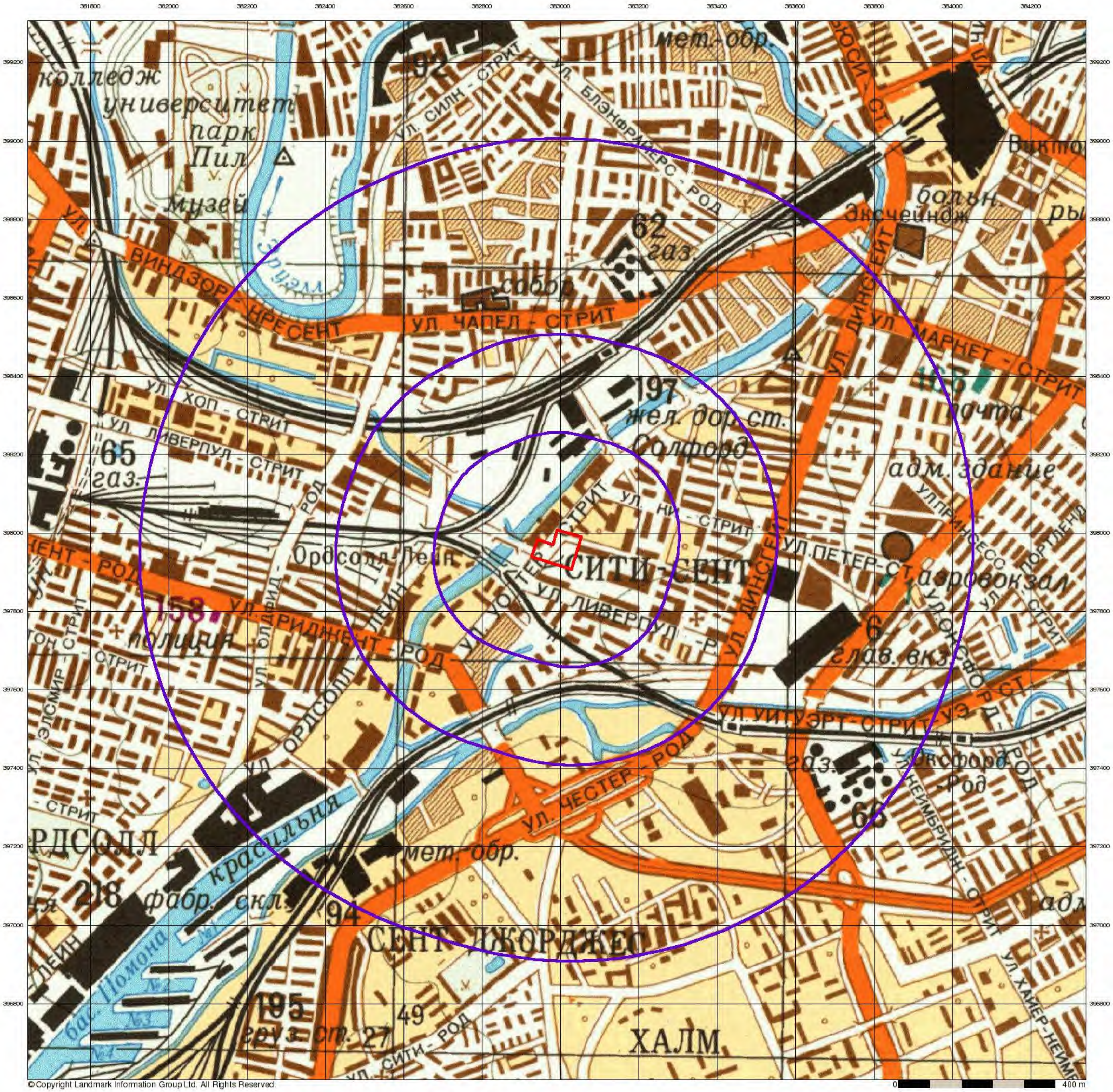
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398000
397800
397600
397400
397200
397000
396800
коллeдж
университет
парк
Пил
музей
92
ул. Силн - стрит
ул. Блэнфрайерс - род
мет. обр.
62
газ.
собор
ул. Виндзор - кресент
ул. Чапел - стрит
ул. Хоп - стрит
ул. Ливерпул - стрит
65
газ.
197
жел. дор. ст.
Солфорд
Ордсолл-Лейн
Сити-Сент
ул. Ливерпул - р
ул. Бриджент - род
158
полиция
ул. Динсгейт
ул. Петер-ст.
аэровокзал
6
глав. вкз.
адм. здание
165
почта
больн.
Эксчейндж
ул. Маркет - стрит
ул. Уитуэрт-стрит
Оксфорд-род
газ.
66
ул. Честер - род
мет. обр.
Ордсолл
218
фабр.
скл.
красильня
94
Сент-Джорджес
бас. Помона
№1
№2
№3
№4
195
груз. ст.
27
49
ул. Сити - род
Халм
ул. Кеймбридж - стрит
0
400 m

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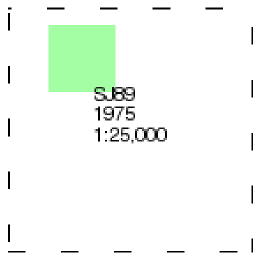
Manchester

Published 1975

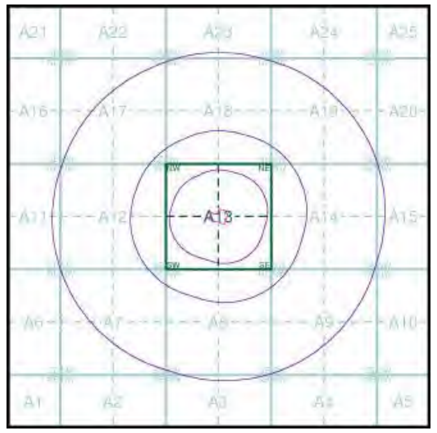
Source map scale - 1:25,000

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)


SJ89
1975
1:25,000

Russian Map - Slice A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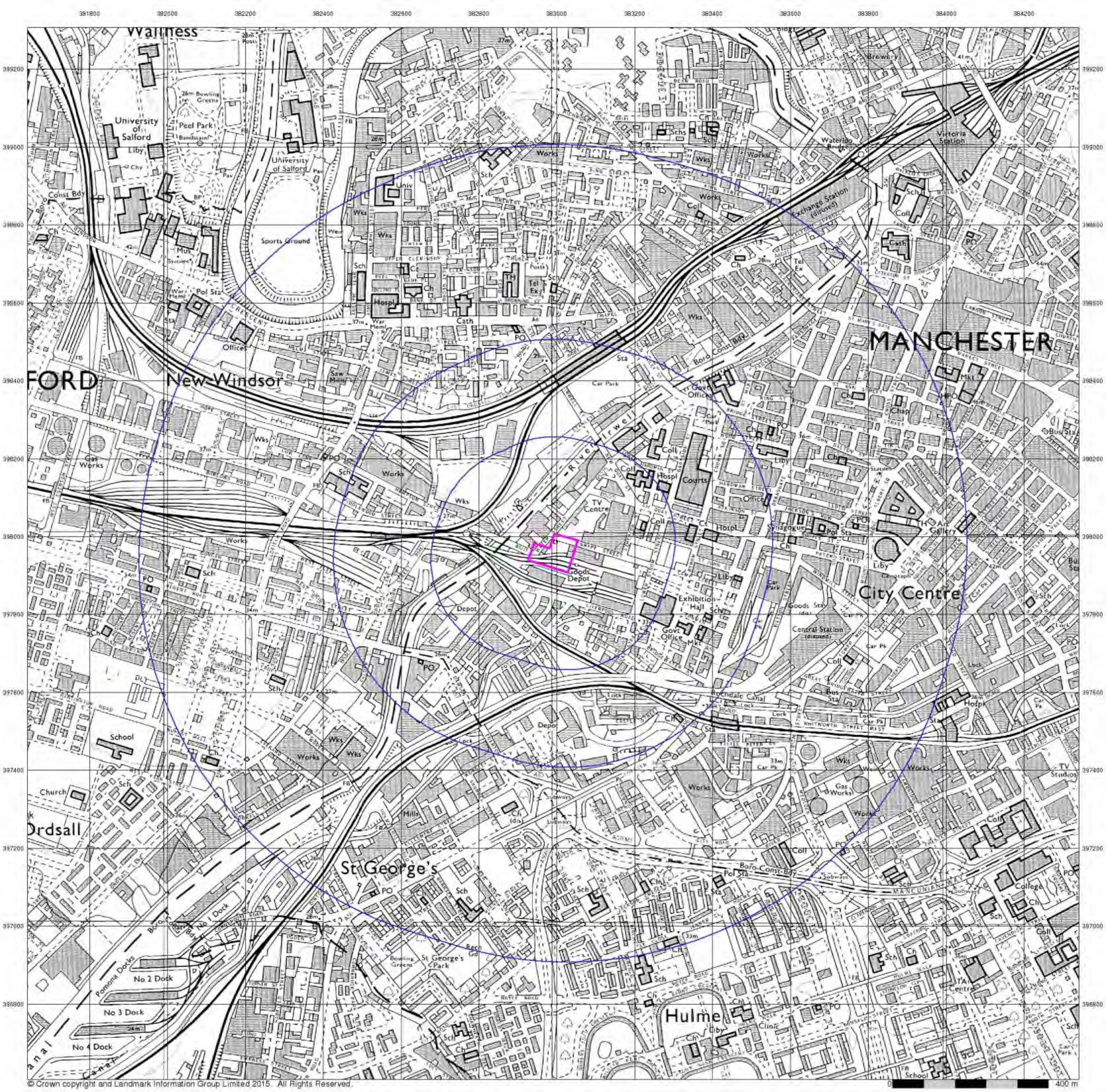
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398600
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398200
398000
397800
397600
397400
397200
397000
396800
University of Salford
Peel Park
Sports Ground
FORD
New Windsor
MANCHESTER
Victoria Station
Exchange Station (disused)
River Irwell
TV Centre
Goods Depot
Exhibition Hall
Central Station (disused)
City Centre
Gas Works
Rochdale Canal
St George's
St George's Park
Ordsall
Hulme
Pomona Docks
No 1 Dock
No 2 Dock
No 3 Dock
No 4 Dock
Works
School
Church
TV Studios
Gas Works
0
400 m

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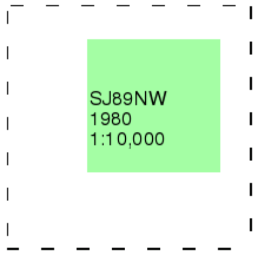
Ordnance Survey Plan

Published 1980

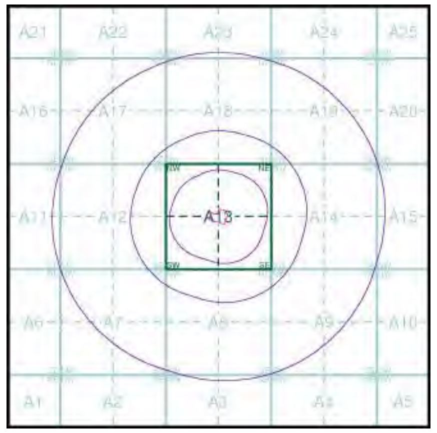
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)


SJ89NW
1980
1:10,000

Historical Map - Slice A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N

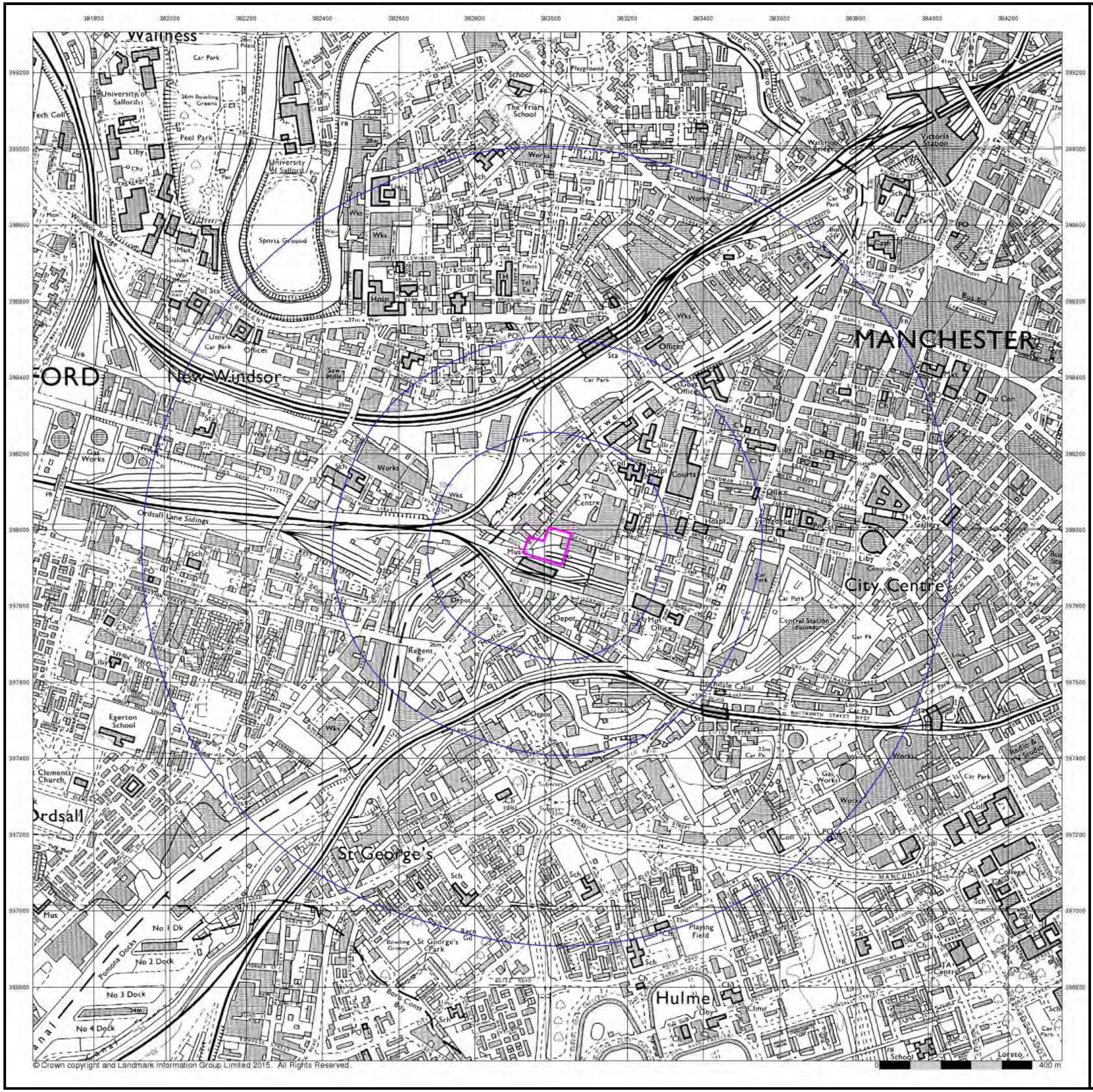
Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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Walness
Car Park
University of Salford
Peel Park
Sports Ground
The Friars School
Victoria Station
Waterloo Bridge
MANCHESTER
New Windsor
FORD
Cath
Car Park
Gas Works
Ordsall Lane Sidings
Works
Wks
TV Centre
Courts
Mus
Depot
Regent Br
Central Station (disused)
City Centre
Art Gallery
Rochdale Canal
Egerton School
Clements Church
Ordsall
St George's
Bowling Green
St George's Park
Playing Field
Hulme
No 1 Dk
No 2 Dock
No 3 Dock
No 4 Dock
Pomona Docks
Gas Works
Radio & TV Studio
College
Loreto
School
0
400 m

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Ordnance Survey Plan

Published 1985

Source map scale - 1:10,000

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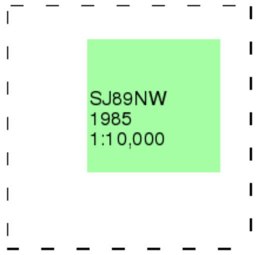
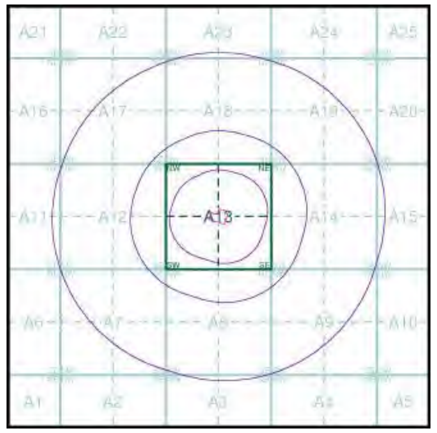
Map Name(s) and Date(s)


SJ89NW
1985
1:10,000

Historical Map - Slice A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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

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Information Group

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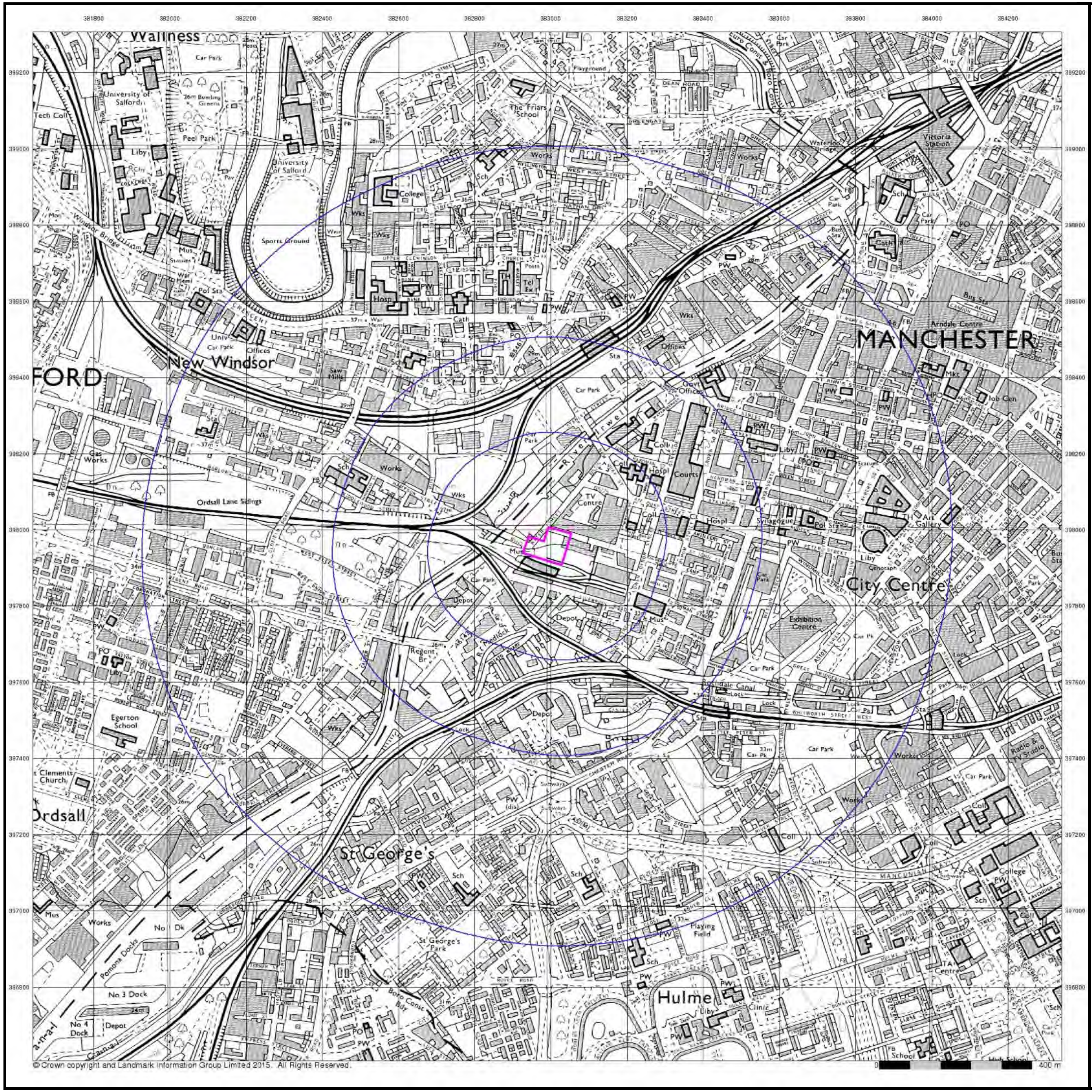
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MANCHESTER
City Centre
FORD
New Windsor
Ordsall
St George's
Hulme
University of Salford
Peel Park
Sports Ground
Victoria Station
Orsdall Lane Sidings
River Irwell
TV Centre
Courts
Exhibition Centre
Egerton School
St Clements Church
Pomona Docks
No 3 Dock
No 4 Dock
Arndale Centre
Gas Works
Car Park
0
400 m

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Ordnance Survey Plan

Published 1989

Source map scale - 1:10,000

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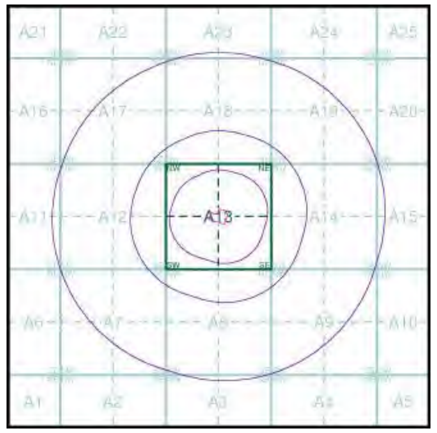
Map Name(s) and Date(s)

SJ89NW
1989
1:10,000

Historical Map - Slice A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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

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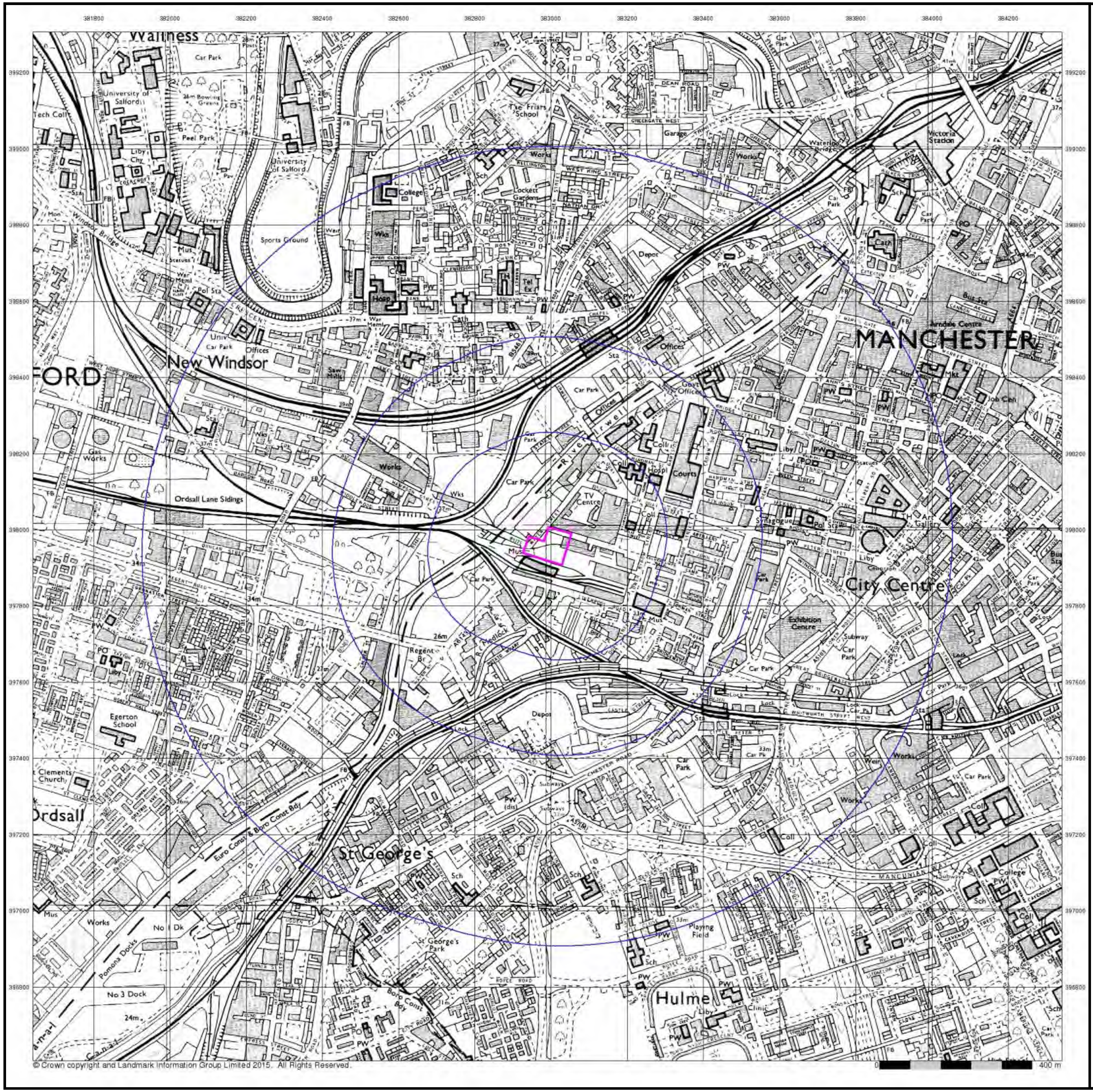
Web: www.envirocheck.co.uk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Peel Park
Tech Coll
Car Park
Sports Ground
College
Wks
Hosp
The Friars School
Works
Dean Road
Victoria Station
Waterloo Bridge
Cath
MANCHESTER
New Windsor
FORD
Gas Works
Ordsall Lane Sidings
Works
Car Park
TV Centre
Courts
River Irwell
Mus
Regent Br
City Centre
Exhibition Centre
Art Gallery
Depot
Egerton School
St Clements Church
Ordsall
Euro Const & Boro Const Bdy
St George's
St George's Park
No 3 Dock
Pomona Docks
Works
Playing Field
Hulme
Mancunian Way
College
Arndale Centre
Bus Sta
Mkt
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400 m

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Ordnance Survey Plan

Published 1994

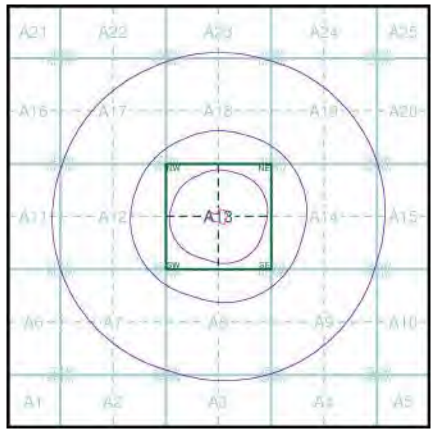
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SJ89NW
1994
1:10,000

Historical Map - Slice A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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

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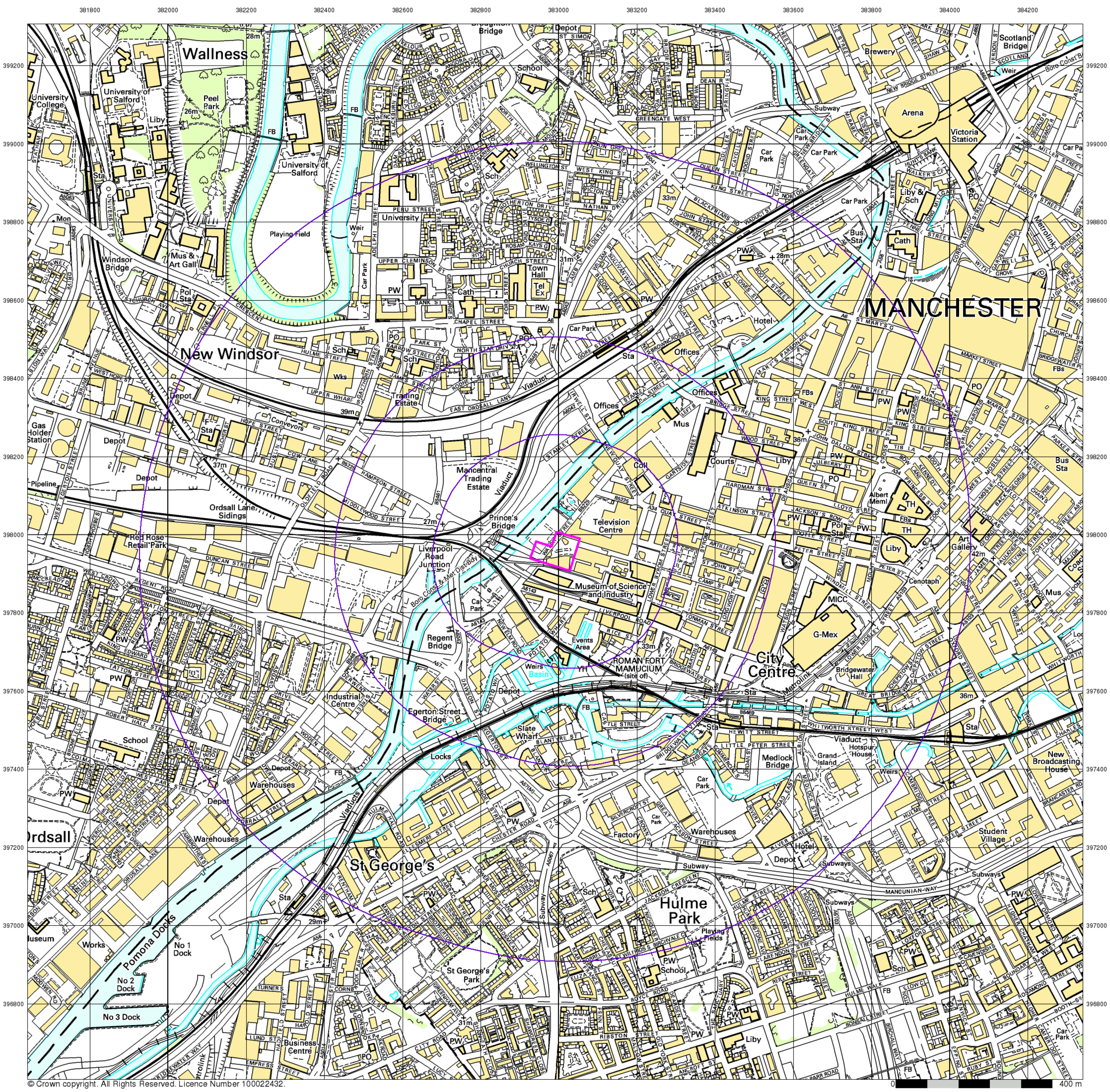
Web: www.envirocheck.co.uk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Peel Park
University of Salford
University College
Broughton Bridge
Scotland Bridge
Brewery
Arena
Victoria Station
Playing Field
Mus & Art Gall
Windsor Bridge
Town Hall
Cath
MANCHESTER
New Windsor
Trading Estate
Mancentral Trading Estate
Gas Holder Station
Ordsall Lane Sidings
Red Rose Retail Park
Prince's Bridge
Liverpool Road Junction
Television Centre
Museum of Science and Industry
Offices
Mus
Courts
Albert Meml
Art Gallery
Bus Sta
MICC
G-Mex
City Centre
Bridgewater Hall
ROMAN FORT MAMUCIUM (site of)
Events Area
Regent Bridge
Weirs
Basin
Industrial Centre
Egerton Street Bridge
Slate Wharf
Locks
Warehouses
Viaduct
Hotspur House
Medlock Bridge
Grand Island
New Broadcasting House
Student Village
St George's
Hulme Park
St George's Park
Ordsall
Pomona Docks
No 1 Dock
No 2 Dock
No 3 Dock
Business Centre
Works
School
© Crown copyright. All Rights Reserved. Licence Number 100022432.
0
400 m

Envirocheck®

10k Raster Mapping

Published 2006

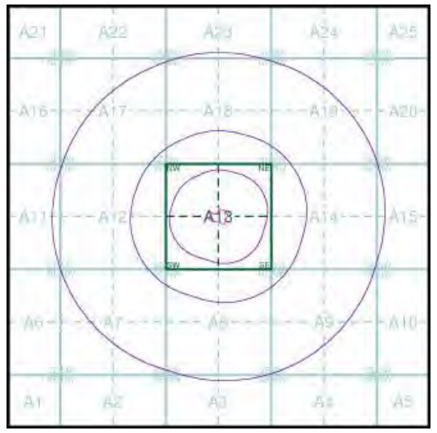
Source map scale - 1:10,000

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)

SJ89NW
2006
1:10,000

Historical Map - Slice A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Order Details

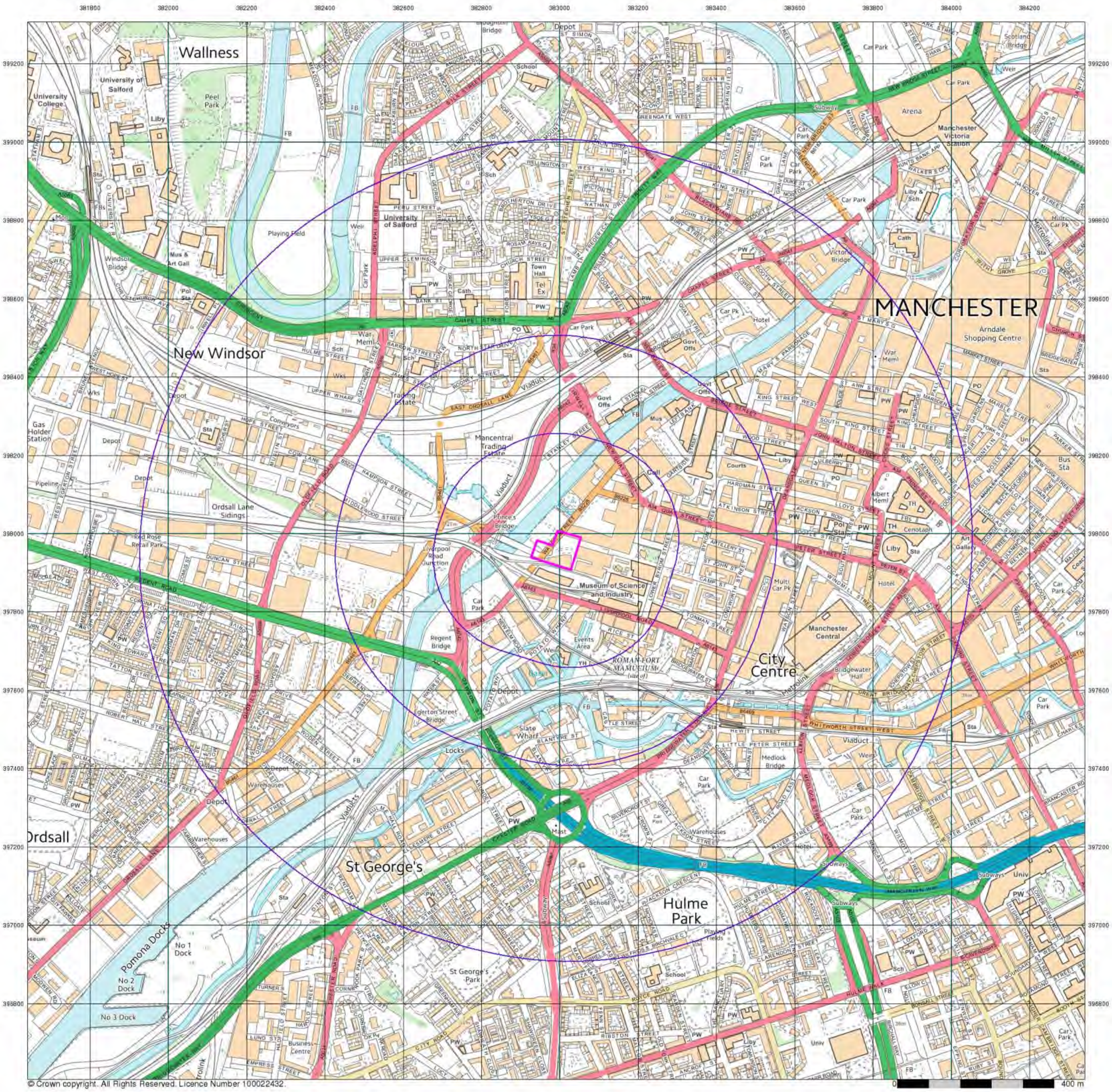
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark

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


Wallness
New Windsor
MANCHESTER
City Centre
St George's
Hulme Park
Ordsall
0
400 m
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VectorMap Local

Published 2015

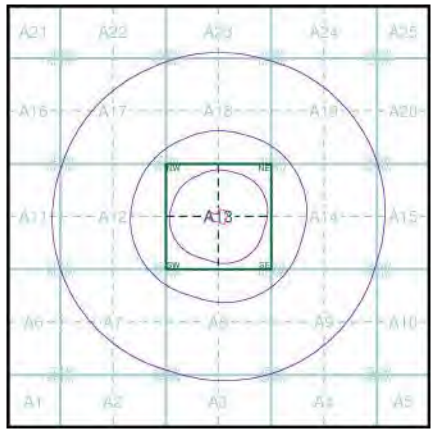
Source map scale - 1:10,000

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)

SJ89NW
2015
Variable

Historical Map - Slice A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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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Web:	www.envirocheck.co.uk

Appendix E – Historical Borehole Logs

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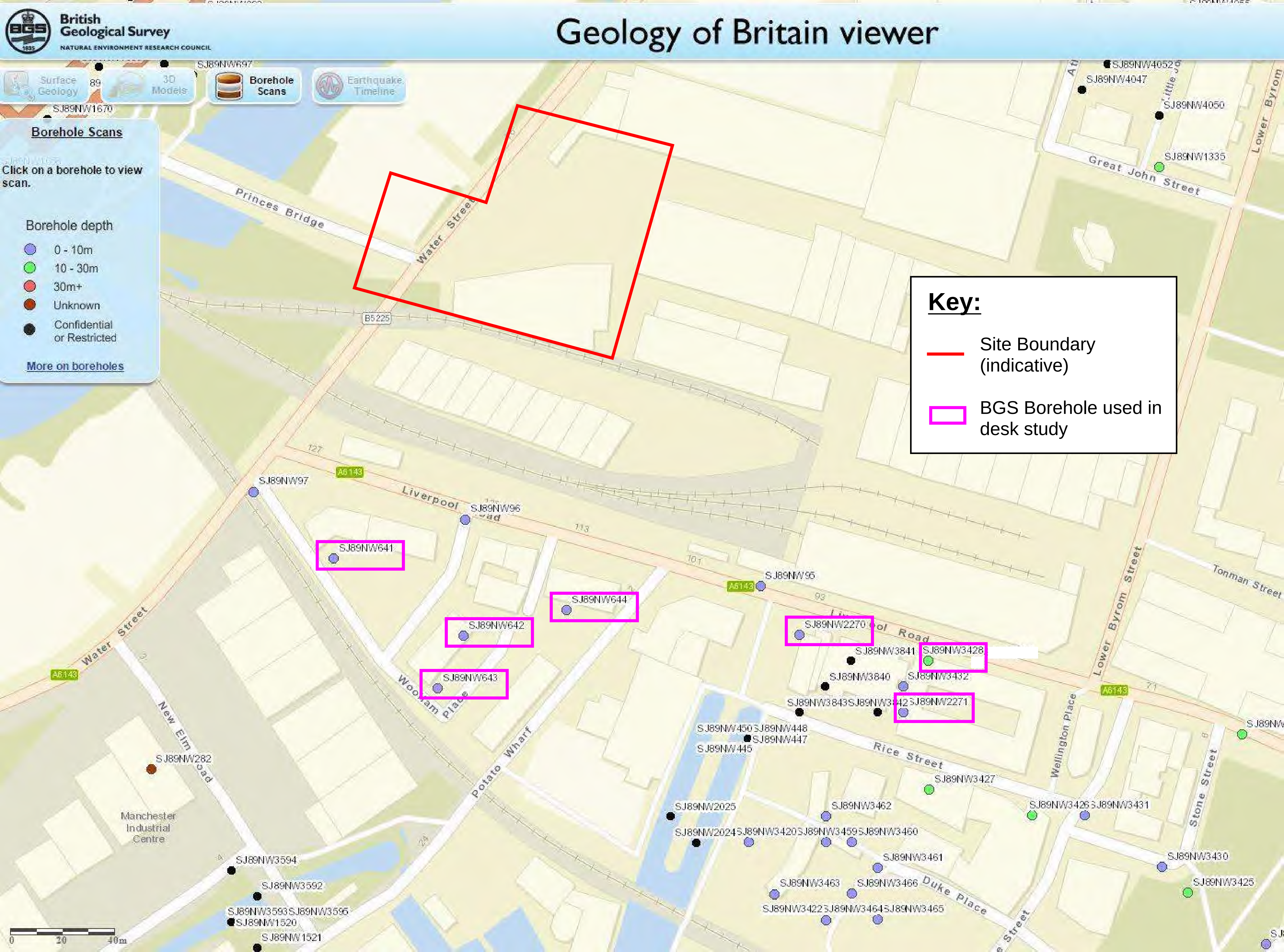

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Geology of Britain viewer

Borehole Scans

Click on a borehole to view scan.

Borehole depth

●	0 - 10m
●	10 - 30m
●	30m+
●	Unknown
●	Confidential or Restricted

More on boreholes

Key:

—	Site Boundary (indicative)
☐	BGS Borehole used in desk study

Surface Geology
3D Models
Borehole Scans
Earthquake Timeline
Princes Bridge
Water Street
B5225
Liverpool Road
A6143
Great John Street
Lower Byrom Street
Tonman Street
Woodham Place
Potato Wharf
New Elm Road
Rice Street
Duke Place
Wellington Place
Stone Street
Manchester Industrial Centre
SJ89NW697
SJ89NW1670
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SJ89NW4047
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SJ89NW3595
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0
20
40m

SJ 89 NW - 641 8292, 9783

Vibroflotation Limited	Site Manchester, Woolham Place Ref No V2845		Borehole No. Shell and Auger 1 Sheet 1
	Date 7 August 1992	O. D. Level	

Day	Water Level	Casing Depth	Depth (m)	Description of Strata	Legend	Sample Type	Depth (m)	'N'
7.8.92				Gravel and shale fill	▨			
			1.10	Very soft brown clay containing cinders and ash ..... becoming more yellow with depth	▨			
			2.10	Hard brown sandstone	░			
			3.10	End of borehole				

Sample Type U – Undisturbed Sample J – Jar Sample B – Bulk Sample W – Water Sample N – Standard Penetration Test

Casing Details	Date	Standing Water Level	Observed Water Seepage	Estimated Seepage	Depth of Casing to Seal	Water added to assist boring
150 mm. dia. to 2.10 m. ...... mm. dia. to ...... m.	7.8.92	Nil	Nil			

Remarks

SJ 89 NW - 642   8297, 9780

Vibroflotation Limited	Site Manchester, Woolham Place Ref No V2845		Borehole No. Shell and Auger 4 Sheet 1
	Date 6 August 1992	O. D. Level	

Day	Water Level	Casing Depth	Depth (m)	Description of Strata	Legend	Sample Type	Depth (m)	"N"
6.8.92			0.30	Concrete slab (reinforced)	▨			
				Loose to medium dense mixture of broken concrete, bricks, ash and cinders	▨			
			2.70	Brown sandstone	░			
			3.70	End of borehole				

Sample Type U – Undisturbed Sample J – Jar Sample B – Bulk Sample W – Water Sample N – Standard Penetration Test

Casing Details	Date	Standing Water Level	Observed Water Seepage	Estimated Seepage	Depth of Casing to Seal	Water added to assist boring
150 mm. dia. to 3.50 m.	6.8.92	Nil	Nil			
...... mm. dia. to ...... m.						

Remarks

1) Chiselling through concrete for 3 hours

2) Borehole backfilled with gravel and cement during installation of methane monitoring standpipe

8296, 9778. SJ 89NW - 643

Vibroflotation Limited

Site Manchester, Woolham Place Ref No V2845		Borehole No. Shell and Auger 5 Sheet 1
Date 4 August 1992	O. D. Level	

Day	Water Level	Casing Depth	Depth (m)	Description of Strata	Legend	Sample Type	Depth (m)	'N'
4.8.92			0.30	Concrete slab (reinforced)	▨			
				Compact mixture of broken concrete, sandstone cobbles, bricks, ash and cinders	▨	C	1.00	24
			1.30	Soft yellow silty clay containing abundant fragments of broken concrete, bricks, sand and gravel	▨	C	2.50	5
			3.80	Soft black very organic silty clay with some ~~oil/tar~~ contamination	≡	B1	3.90	
			4.50	Hard broken sandstone	⁘	C	4.70	99
			4.70	End of borehole				

Sample Type U – Undisturbed Sample J – Jar Sample B – Bulk Sample W – Water Sample N – Standard Penetration Test

Casing Details	Date	Standing Water Level	Observed Water Seepage	Estimated Seepage	Depth of Casing to Seal	Water added to assist boring
150 mm. dia. to 4.5 m. ...... mm. dia. to ...... m.	4.8.92	Nil	Nil			

Remarks

1) Chiselling through concrete for 3 hours

C = Cone penetration test

8301,9781 SJ89NW-644

Vibroflotation Limited	Site Manchester, Woolham Place Ref No VZ845	Borehole No. Shell and Auger 6 Sheet 1
	Date 31 July 1992	O.D. Level

Day	Water Level	Casing Depth	Depth (m)	Description of Strata	Legend	Sample Type	Depth (m)	'N'
31.7.92				Compact mixture of bricks, boulder and cobble size concrete slabs, tarmac, ash and sand	▩	B1	0.50	
						C	1.00	Refusal
			2.00	Soft brown silty clay with bands of soft black silty organic clay containing traces of ash, brick and cinders	▩	B2	2.50	
			3.00	Soft brown silty clay containing abundant fragments of weathered sandstone and gravel	☰	C	4.00	2
			4.50	Hard brown sandstone	⁘			
			4.90 →	End of borehole				

Sample Type U - Undisturbed Sample J - Jar Sample B - Bulk Sample W - Water Sample N - Standard Penetration Test

Casing Details	Date	Standing Water Level	Observed Water Seepage	Estimated Seepage	Depth of Casing to Seal	Water added to assist boring
150 mm. dia. to 3.50 m. ...... mm. dia. to ...... m.	31.7.92	Nil	Nil			

Remarks

1) Chiselling through obstructions in fill for 1 hour

C = Cone penetration test

Norwest Holst Soil Engineering Ltd.

Borehole No. **1**

BOREHOLE LOG

Contract No. F9366
Location Liverpool Road, Manchester
Client Shepherd Gilmour
Method of Boring Cable Percussion
Diameter of Borehole 150mm

SJ89NW 7780
8310 9780

Sheet 1 of 1
Chainage
Ground Level m.A.O.D.
Date 19/11/91 - 20/11/91

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
TOPSOIL AND TURF *		0.18					
MADE GROUND: Hard reinforced concrete house bricks and occasional ash.		1.90			1.00-1.30 C	"38" for 150mm	19/11
MADE GROUND: Firm brown red black sandy clay with some fine to coarse subrounded gravel and occasional brick and coal fragments.		2.80			2.00-2.50 (16)		
MADE GROUND: Medium dense brown black clayey sand and fine to coarse gravel of ash and coal.		4.00			3.00-3.45 C	"12"	
MADE GROUND: Medium dense dark brown black slightly clayey sand and fine to coarse gravel of brick, coal and subrounded sandstone.		6.00			4.00-4.45 C 5.00-5.45 C	"18" "20"	
MADE GROUND: Very soft to soft brown slightly sandy silty clay with occasional fine to medium gravels of sandstone and brick.		6.50			6.00-6.50 (15)		
Soft to firm brown black organic silty CLAY with occasional wood fragments and peaty material.		6.80					
Dense to very dense brown slightly clayey fine to coarse sand, fine to coarse gravel and occasional sandstone cobbles.		8.40			7.00-7.20 C	"45" for 50mm	
Red fine to coarse grained slightly weathered SANDSTONE, moderately weak.		9.00			8.50 S	* * "63" for 75mm	20/11
Borehole Complete at 9.00m.							

Type of Sample

Is	S.P.T.	▮	Undisturbed
Ic	C.P.T.	x	Vane
0	Jar	△	Water
●	Bulk	▮	Piezometer

Remarks (Observations of Ground Water etc.) ( ) U100 Blows
* Drillers description. ** Seating blows only
Inspection pit dug to 1.00m.
Hard ground: 1.30m to 1.60m 1 hour
7.10m to 7.70m 1½ hours
8.40m to 9.00m 1½ hours
Water added to assist drilling, standing water level at 5.30m.
Borehole cased to 8.50m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Norwest Holst Soil Engineering Ltd.

Borehole No. **2**

BOREHOLE LOG

Contract No. F9366
Location Liverpool Road, Manchester
Client Shepherd Gilmour
Method of Boring Cable Percussion
Diameter of Borehole 150mm

SJ89NW2271
8314 9777

Sheet 1 of 1
Chainage
Ground Level m.A.O.D.
Date 21/11/91

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
TOPSOIL: Soft dark brown slightly silty clay with occasional fine sub-rounded gravel and some rootlets.		0.30			0.30		
MADE GROUND: Hard reinforced concrete house bricks and occasional ash.		1.80			1.00-1.45 c	"51"	
MADE GROUND: Soft red brown black sandy silty clay with some fine to coarse subrounded sandstone gravel with occasional coal fragments and cobbles.		2.50 2.90			2.00-2.45 c 2.60 N.R	"14"	
Stiff brown silty CLAY with some sub-rounded fine to coarse gravel and occasional black fine gravel coal fragments.		4.00			3.00-3.45 s	"48"	
Dense red slightly silty fine to medium SAND. (Completely weathered sandstone)					4.00-4.30 s	"51" for 150mm	
Red fine to coarse grained, highly weathered SANDSTONE, weak.					5.00-5.30 s	"77" for 150mm	
Borehole Complete at 5.50m.		5.50					21/11

Type of Sample

Is	S.P.T	▮	Undisturbed
Ic	C.P.T	x	Vane
0	Jar	△	Water
●	Bulk	▮	Piezometer

Remarks (Observations of Ground Water etc.) N.R – No Recovery

Hard ground 1.40m – 1.80 ¾ hr
4.00m – 5.50m 2 hrs
Inspection pit dug to 1.00m.
Water added to assist drilling; standing water level 4.80m
Borehole cased to 4.00m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

MANCHESTER CITY COUNCIL

CITY ENGINEER AND SURVEYORS DEPARTMENT

SJ89NW3428
8315 9779

SITE INVESTIGATION FOR	Main Drainage	DATE COMMENCED	7.8.84
LOCATION	Bridgewater Street/Rice Street	BORING METHOD	S.S. Multi Rig
BOREHOLE No.	6 (Sheet 2 of 2)	BORING DIAMETER	150/60mm
GRID REFERENCE		SCALE:	1.50

DATE	CASING DEPTH (m)	WATER LEVEL MORNING & EVENING	DEPTH OF STRATA BELOW GL	Reduced Level	DESCRIPTION	No. and Type of Sample	SAMPLE DEPTH PENETRATION From	To	No. of Blows	Legend
					Red/brown fine/medium and medium grained very thinly to thinly bedded moderately weathered weak to moderately weak SANDSTONE	Core run	T	S	R	F
						7.0 to 8.5	100	80	33	1
					- Bands of laminated moderately weathered silty mudstone from 7.0 to 7.3m	8.5 to 10.0	100	53	19	17
					- completely weathered very weak zones from 8.50 - 8.80m	10.0 to 11.5	100	90	41	11
8.8.84			12·7			11.5 to 12.7	100	45	32	7

WATER OBSERVATIONS DURING BORING

DEPTH OF WATER ENTRY (m)	ESTIMATED SEEPAGE	STANDING LEVEL (m)	DEPTH OF CASING WHEN SEALED (m)

WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION

DATE	WATER LEVEL	DEPTH OF CASING

REMARKS:-

SAMPLE TEST KEY
D – DISTURBED SAMPLE
P – SPT SAMPLE
B – BULK SAMPLE
W – WATER SAMPLE
U – UNDISTURBED SAMPLE

NOTE: WHERE FULL 0.3 PENETRATION HAS NOT BEEN ACHIEVED, THE NUMBER OF BLOWS FOR THE QUOTED PENETRATION IS GIVEN (NOT N – VALUE)

ALL DEPTHS AND REDUCED LEVELS IN (m) UNLESS OTHERWISE STATED

REMARKS

M/c 5931

MANCHESTER CITY COUNCIL

CITY ENGINEER AND SURVEYORS DEPARTMENT

SJ89NW-3428
8315 9779

SITE INVESTIGATION FOR	Main Drainage	DATE COMMENCED	7.8.84.
LOCATION	Bridgewater Street/ Rice Street	BORING METHOD	S.S. Multi-Rig
BOREHOLE No.	6 (Sheet 1 of 2)	BORING DIAMETER	150/60mm
GRID REFERENCE		SCALE	1 : 50

DATE	CASING DEPTH (m)	WATER LEVEL MORNING & EVENING	DEPTH OF STRATA BELOW G.L.	Reduced Level	DESCRIPTION	No. and Type of Sample	SAMPLE DEPTH PENETRATION From	SAMPLE DEPTH PENETRATION To	No. of Blows	Legend
7.8.84.			0. 32		Bituminous Surfacing					
			1.20		Ashes, clay, bricks, gravel - Made Ground	B1	0.50			
7.8.84. 8.8.84.	–	Dry	1.85		Stiff brown silty and sandy slightly laminated CLAY with grey fissures and stone inclusions	D1 U1	1.30 1.5	 1.95		
			2.50		Medium dense brown gravelly fine/medium SAND with clay lenses.	P1 B2	2.15 2.0	2.14	13	
			2.60		Cobble					
			3.0		Stiff to very stiff brown sandy CLAY with stone inclusions & sand lenses	P2	2.65	2.95	43	
			3.45		Very dense red/brown fine/medium grained SAND	P3	3.15	3.45	54	
						CORE RUN	T	S	R	F
					Red/brown fine/medium and medium grained very thinly to bedded moderately weathered weak to moderately weak SANDSTONE	3.30 to 4.40	27	7	0	4
						4.40 to 5.47	62	27	0	16
						5.47 to 7.0	98	72	28	20

WATER OBSERVATIONS DURING BORING

DEPTH OF WATER ENTRY (m)	ESTIMATED SEEPAGE	STANDING LEVEL (m)	DEPTH OF CASING WHEN SEALED (m)

WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION

DATE	WATER LEVEL	DEPTH OF CASING

REMARKS –
T = Total Core Recovery (%) S = Solid Core Recovery (%)
R = Rock Quality Designation(%) F = Fracture Index

SAMPLE TEST KEY
D – DISTURBED SAMPLE
P – SPT SAMPLE
B – BULK SAMPLE
W – WATER SAMPLE
U – UNDISTURBED SAMPLE

NOTE: WHERE FULL 0.3 PENETRATION HAS NOT BEEN ACHIEVED, THE NUMBER OF BLOWS FOR THE QUOTED PENETRATION IS GIVEN (NOT N – VALUE)

ALL DEPTHS AND REDUCED LEVELS IN (m) UNLESS OTHERWISE STATED

REMARKS

Trial hole excavated to 1.50 metres, 100m electricity duct located at 0.75 b.g.l. 450mm from kerbline
Borehole backfilled with concrete on completion.

Appendix F – Indicative Fluvial Floodplain Map

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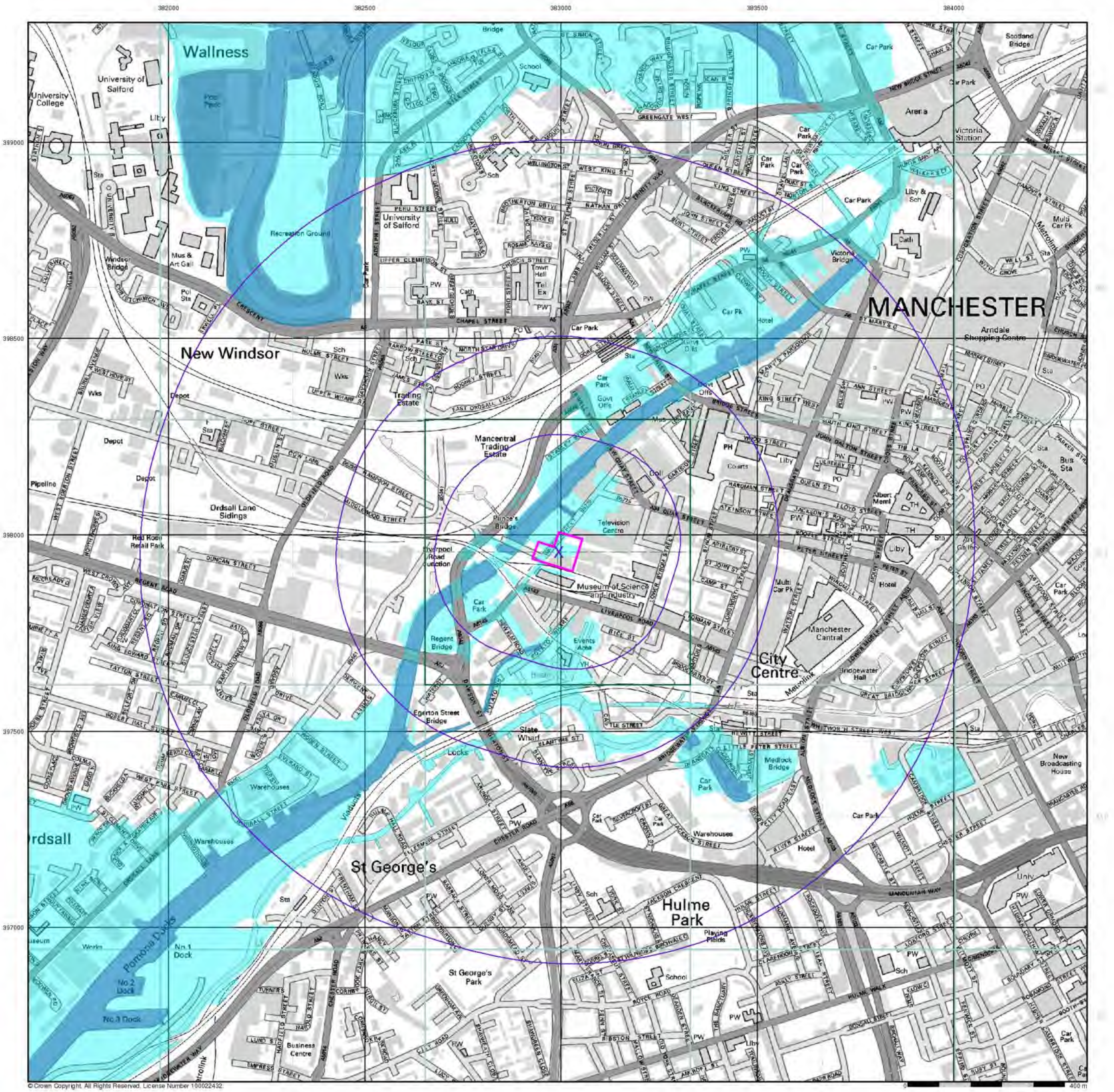

382000
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Wallness
University of Salford
New Windsor
MANCHESTER
Arndale Shopping Centre
City Centre
St George's
Hulme Park
Ordsall
Mancentral Trading Estate
Ordsall Lane Sidings
Museum of Science and Industry
Television Centre
Manchester Central
Arena
Victoria Station
Pomona Docks
No.1 Dock
No.2 Dock
No.3 Dock
Regent Bridge
Prince's Bridge
Egerton Street Bridge
Slate Wharf
Medlock Bridge
New Broadcasting House
St George's Park
0
400 m

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Envirocheck®

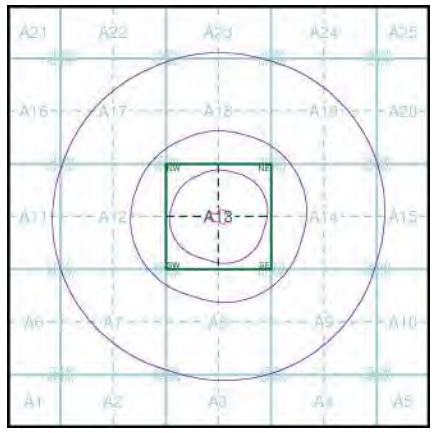
General

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

Agency and Hydrological (Flood)

- 🟦 Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- 🟦 Flooding from Rivers or Sea without Defences (Zone 3)
- ▨ Area Benefiting from Flood Defence
- 🟪 Flood Water Storage Areas
- -·- Flood Defence

Flood Map - Slice A



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N

Order Details

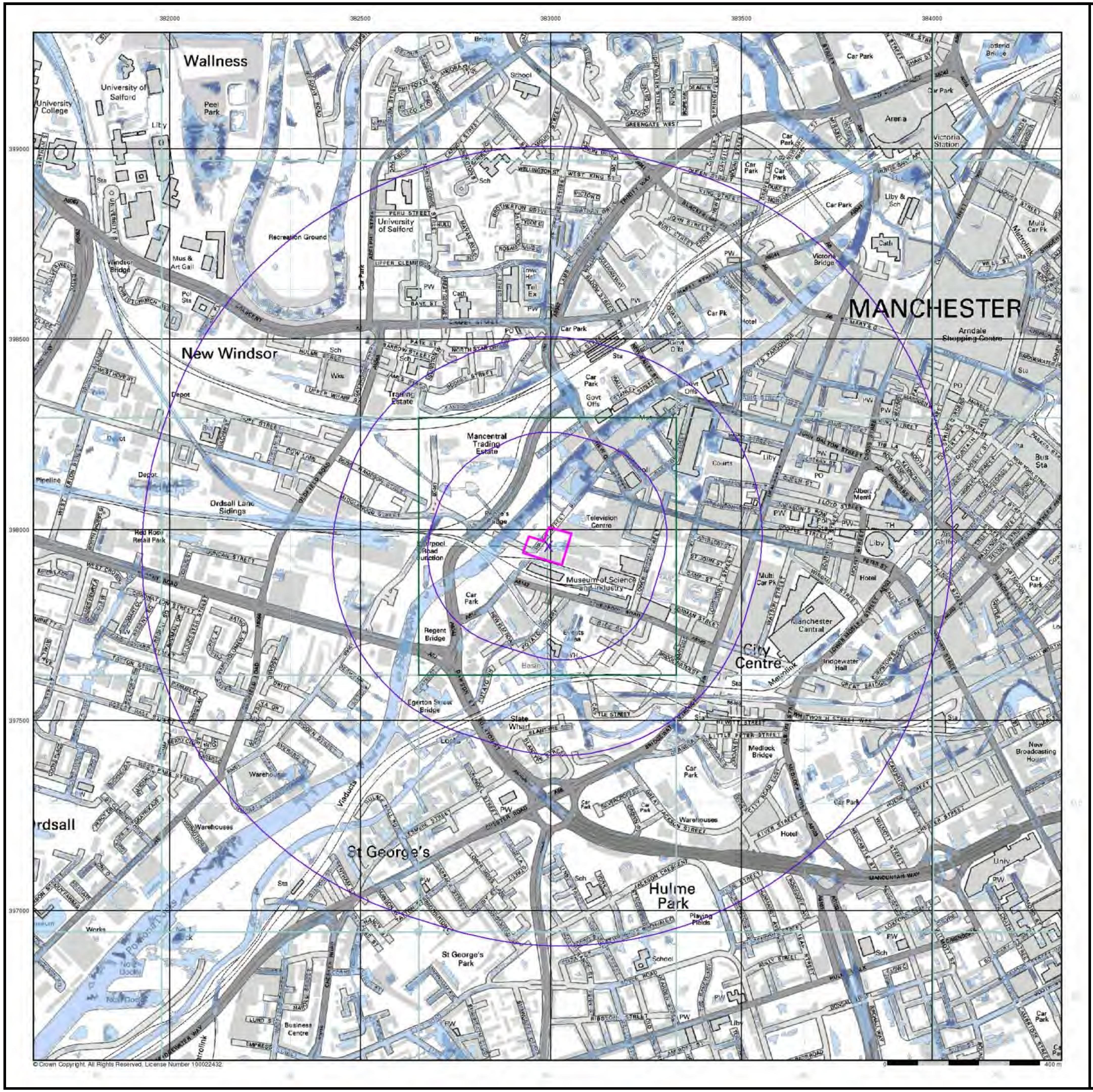
Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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University of Salford
University College
Peel Park
Recreation Ground
New Windsor
MANCHESTER
Arndale Shopping Centre
Victoria Station
Arena
Mancentral Trading Estate
Television Centre
Museum of Science and Industry
Ordsall Lane Sidings
Regent Bridge
Slate Wharf
City Centre
Manchester Central
Bridgewater Hall
Hulme Park
St George's
St George's Park
rdsall
New Broadcasting House
0
400 m

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Envirocheck®

General

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

Risk of Flooding from Surface Water

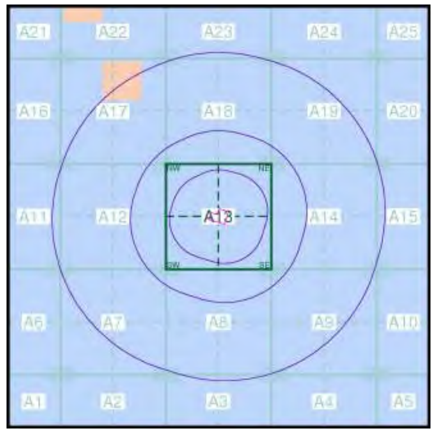
- ▇ High - 30 Year Return
- ▇ Medium - 100 Year Return
- ▇ Low - 1000 Year Return

Suitability

See the suitability map below

- ▇ National to county
- ▇ County to town
- ▇ Town to street
- ▇ Street to parcels of land
- ▇ Property

EA/NRW Suitability Map - Slice A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Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark Information Group

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

Appendix G – Groundwater Vulnerability Map

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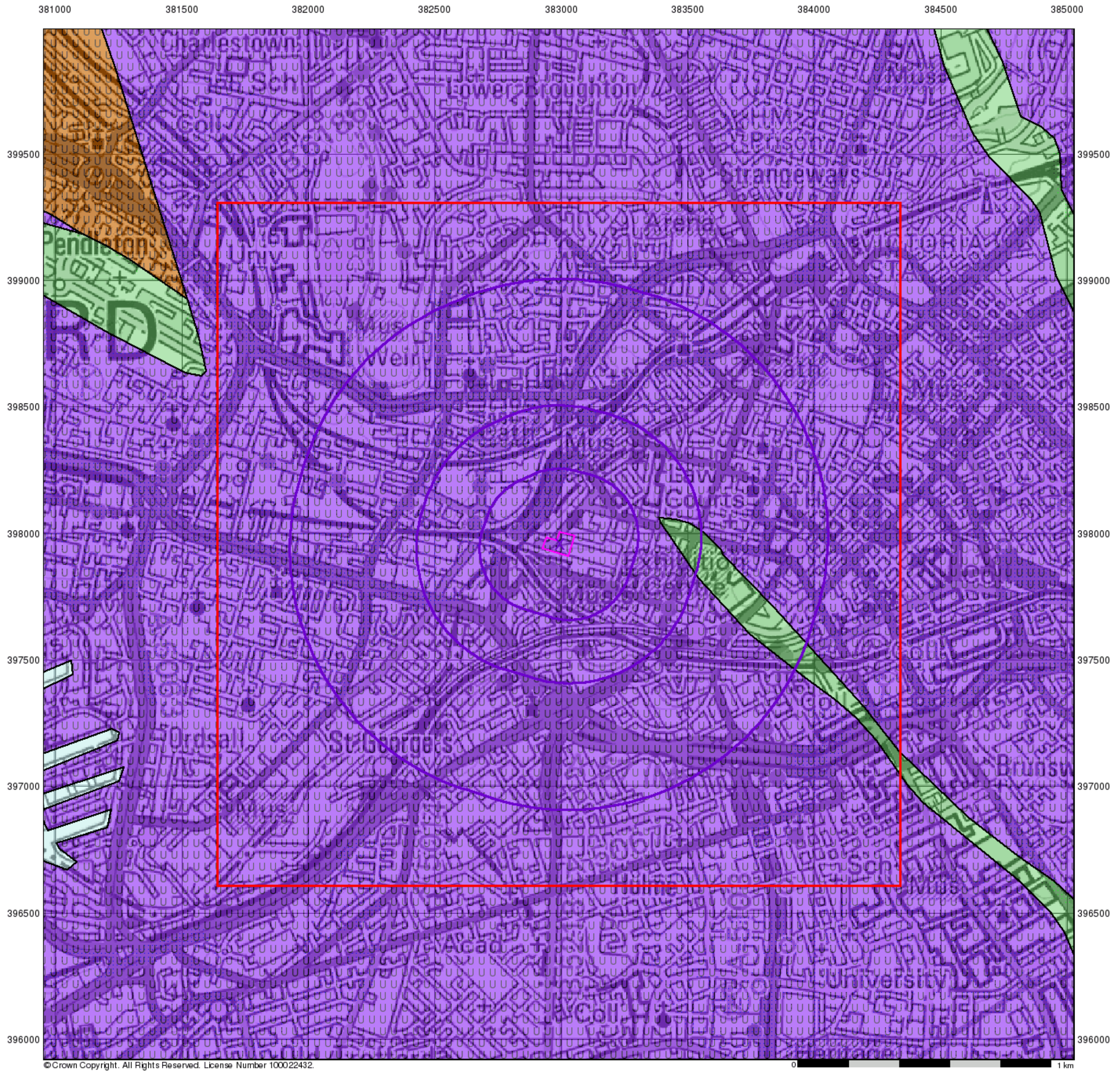

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Envirocheck®

Groundwater Vulnerability

General

Specified Site

Specified Buffer(s)

X Bearing Reference Point

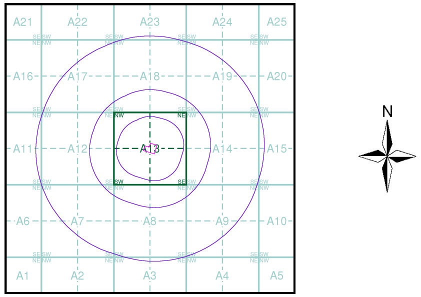
☐ Slice

8 Map ID

Agency and Hydrological

Geological Classes		Soil Classes
Major Aquifer (Highly Permeable)	🟪	High (H) 1, 2, 3, U
	🟪	Intermediate (I) 1, 2
	🟪	Low
Minor Aquifer (Variably Permeable)	🟧	High (H) 1, 2, 3, U
	🟧	Intermediate (I) 1, 2
	🟧	Low
Non Aquifer (Negligibly Permeable)	🟩	
Water or Sea	☐	
Drift Deposit	⁘	

Site Sensitivity Context Map - Slice A



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A5
N

Order Details

Order Number:	79633581_1_1
Customer Ref:	034933
National Grid Reference:	382990, 397960
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

121, Water Street, Manchester, M3 4JU

Landmark® Information Group

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

Appendix H – Coal Authority Report

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The Coal
Authority

Issued by:
The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848

LANDMARK INFORMATION GROUP LIMITED
SOWTON INDUSTRIAL ESTATE
ABBEY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY

Our reference:	**51001098500001**
Your reference:	**79633581_2|**
Date of your enquiry:	**10 February 2016**
Date we received your enquiry:	**10 February 2016**
Date of issue:	**10 February 2016**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

121, WATER STREET, MANCHESTER, GREATER MANCHESTER

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

According to the records in our possession, the property is not within the zone of likely physical influence on the surface from past underground workings.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

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© The Coal Authority --

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society’s Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society’s Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board’s Terms and Conditions applicable at the time the report was produced.

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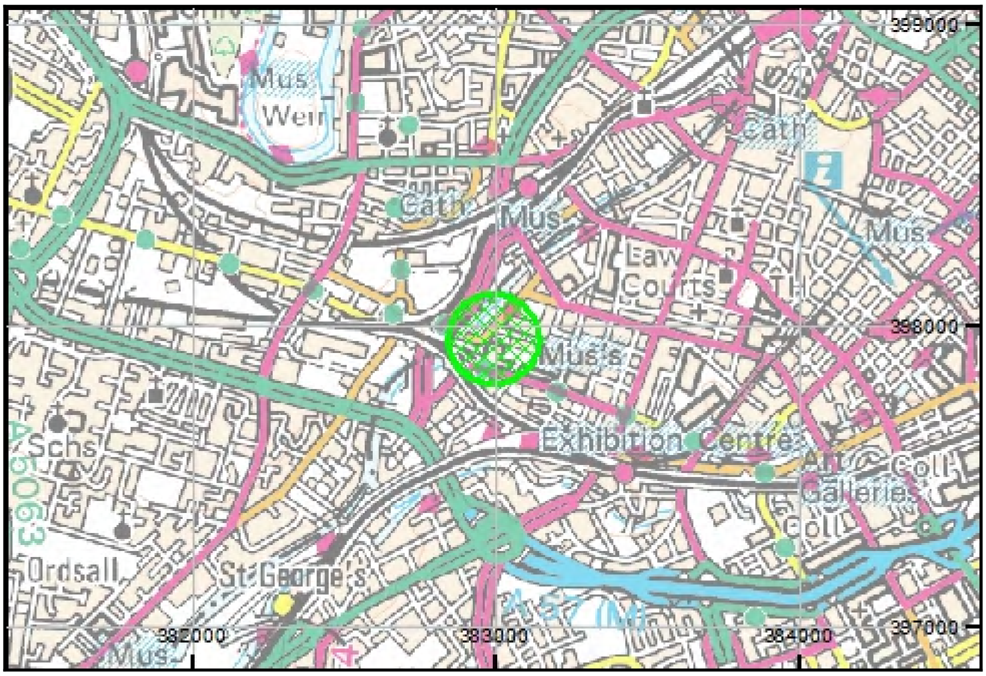
Location map



Mus
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A5063
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St George's
A57(M)
382000
383000
384000
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398000
397000

🟩 Approximate position of property

Enquiry boundary

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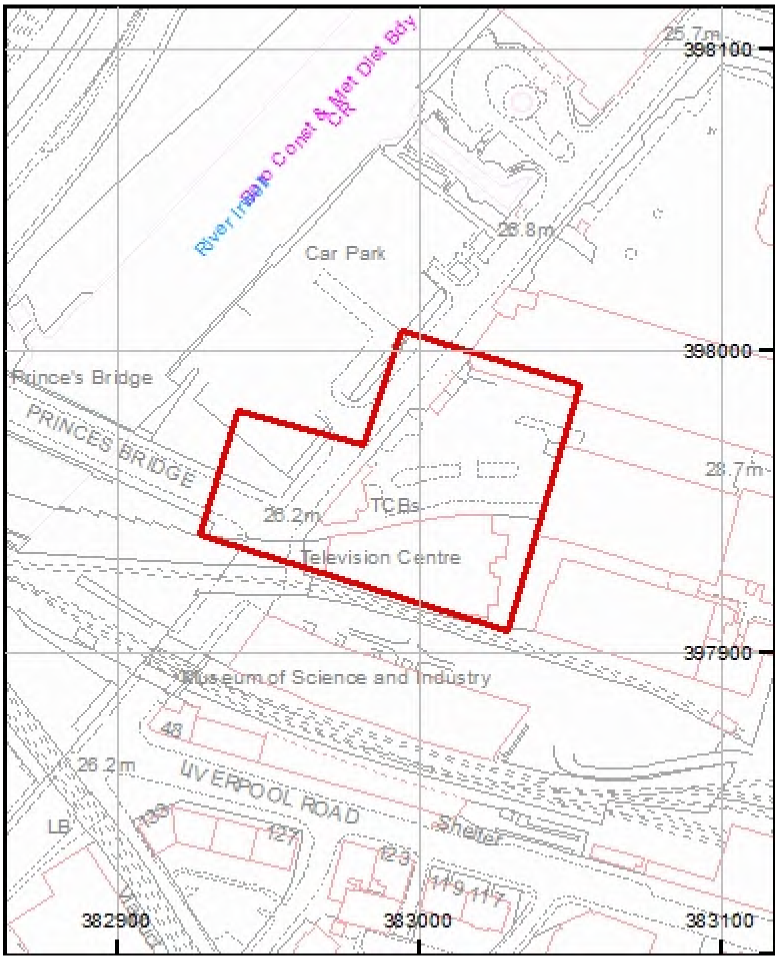

River Irwell
Salford Const & Met Dist Bdy
CR
Car Park
28.8m
25.7m
Prince's Bridge
PRINCES BRIDGE
28.2m
TCBs
Television Centre
28.7m
Museum of Science and Industry
48
26.2m
LIVERPOOL ROAD
Shelter
LB
133
127
123
119
117
382900
383000
383100
398100
398000
397900

Key

Approximate position of enquiry boundary shown 🟥

Mapping sourced from Ordnance Survey®

Appendix I – Zetica Unexploded Bomb Map

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REGIONAL UNEXPLODED BOMB RISK

MANCHESTER

DENSITY OF BOMBS PER BOROUGH

Borough	High explosive	Anti-personnel	Incendiary
Bolton	45	0	0
Eccles	114	1	0
Manchester	712	18	7
Middleton	37	0	0
Oldham	25	1	0
Salford	406	29	16
Stretford	456	64	0
Swinton & Pendlebury	92	2	0
Urmston	122	5	0
Worsley	32	2	0

On average, 10% of high explosive and 50% of incendiary bombs failed to explode.

BOMB TONNAGE

■ >1000
▨ >500
▪ >100
▫ >0
☐ unverified

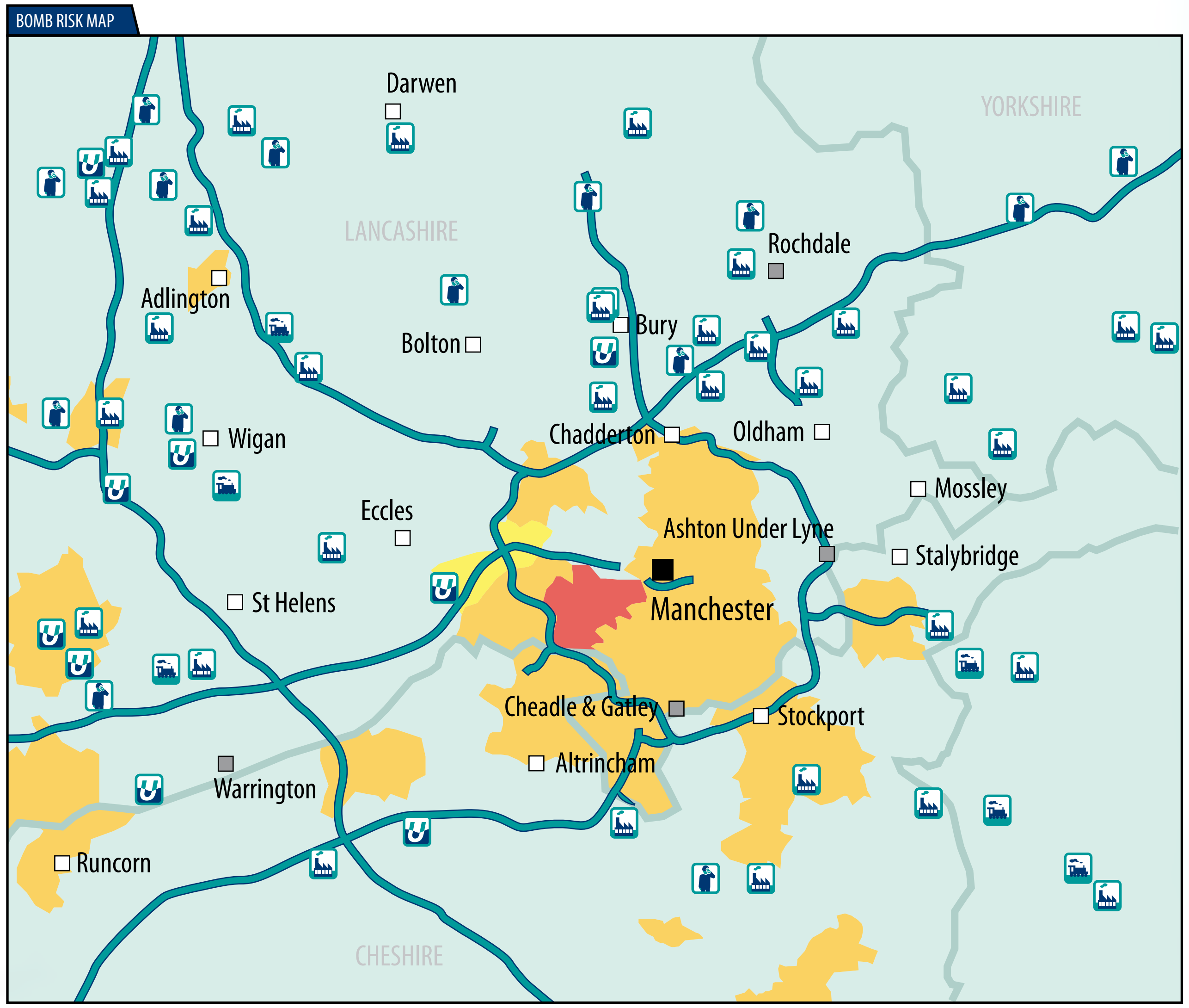
OTHER WWII TARGETS

military
transport
utilities
industry
docks
? other

BOMB RISK

🟥 high
🟧 moderate
🟨 low

BOMB RISK MAP


Darwen
YORKSHIRE
LANCASHIRE
Rochdale
Adlington
Bolton
Bury
Chadderton
Oldham
Wigan
Mossley
Eccles
Ashton Under Lyne
Stalybridge
St Helens
Manchester
Cheadle & Gatley
Stockport
Altrincham
Warrington
Runcorn
CHESHIRE

The information in this regional UXB risk map is derived from a number of sources and should be read in conjunction with the "Users' Guide" (printed overleaf). Zetica cannot guarantee the accuracy or completeness of the information or data.

This map covers regions of coast with beaches, estuaries and alike. Further consideration of the bomb risk is required in these areas. The often inaccessible nature and changing ground conditions (e.g. movement of silt that may contain ordnance) means that historical bombing records for these areas are often poor or inaccurate and further assessment of the bomb risk may be required as part of a site specific study.

A FOUR-STEP PROCESS

Risk assessment and method statement from a qualified explosive ordnance clearance (EOC) operative.

Surface geophysical survey to allow shallow groundwork.

MAGCONE detects UXBs and obstructions on piling layout to the no-risk depth.

Detected UXBs can be dealt with by our EOC engineers and a Clearance Certificate issued for the site.

zetica

For more details on this and related services, telephone: +44 (0) 1993 886682 or visit our website: www.zetica.com

BOMB MAP USERS' GUIDE

Sources of information and explanation of bomb risk

Why?

Unexploded bombs (UXB) still present a risk to construction projects long after the end of the Second World War (WWII). UXBs often entered the ground unnoticed at high velocity and penetrated to a depth of several metres. Here they remain – vulnerable to disturbances from construction work. Beyond the depth of shallow excavation work, the greatest risk is to piling, drilling and probing crews. A piling rig could repeatedly hit a UXBs with considerable force before the crew realises an obstruction has been impacted. It could then be up to 72 hours before the detonator activates.

Who?

The responsibility for avoiding UXB risk usually lies with construction companies or house builders particularly those who are redeveloping urban sites. In addition, project engineering or environmental consultants are expected to advise their clients of a site's history. Other interested parties include those organisations whose employees are physically at most risk from intrusive works, normally piling companies, drillers or probing operators.

How?

UXB risk should be assessed for every site, but especially those in known heavily bombed areas or those situated near war-time strategic installations that were priority targets for enemy aircraft, for example, airfields. Zetica's regional bomb risk map is therefore a first point of reference from which the relative, potential abundance of UXBs can be judged. Consultants then advise their clients that an ordnance-risk desk study is required, which they may obtain from external sources. Construction companies or house builders who assess their own risk could choose to come direct to Zetica.

When?

Do not wait for the piling or drilling company to be on site before thinking about UXB risk – it will inevitably cause delays and higher costs. Request the regional bomb risk map from Zetica as soon as a site is being considered, and then use it to help you or your clients to decide if an ordnance-risk desk study is required.

Where?

Maps can be obtained for any county in England, Scotland, Wales or Northern Ireland – or for any London borough. They can help determine the areas that were most heavily bombed – but no part of the country should be considered 100% safe from UXB risk. Even remote rural areas can have a high risk if, for example, they were locations for decoy airfields or beacons that were lit to fool enemy pilots into thinking they had located a burning city that had been successfully hit by others in the raid.

How to use this regional map

This map is designed to give you an indication of the potential risk from UXBs in your area. If you are conducting work that involves excavation, piling or other disturbance of the ground, then you should use the map to identify the category of risk for your site.

The risk boundaries are a guide, compiled from data based on the political areas for which records are held; being just outside a high-risk area does not mean there is no UXB risk. You should use the map to assist in your decision of whether to investigate the UXB risk further.

Information on the regional risk remaining from UXBs in the UK

Zetica has built the largest UXB database of its kind in the UK. It includes a unique digital library of bomb census data, and maps showing key strategic points and bombing densities from the First and Second World Wars. The main sources of information include records from central government (Public Records Office), the Ministry of Defence, and the German Luftwaffe.

Using information from this database, Zetica has published maps of UXB risk on a regional, county and borough scale. The maps indicate relative degrees of UXB risk based on available records for bombing densities and known targeted areas for regions within the UK. The risk is broken down into individual boroughs, towns or cities. The data are based on the historical boroughs and are then overlaid onto the modern map. It is important to note that more-detailed research may be required for individual sites, particularly where proximity to a potential WWII target means the local risk may be higher.

High risk

Areas designated as high risk are those that show a high density of bombing hits (50+ bombs per 1000 acres) and abundant potential WWII targets. In high-risk regions, further action to mitigate UXB risk is considered essential.

Moderate risk

Moderate-risk regions are those that show a bomb density of between 11 and 50 bombs per 1000 acres and that may contain potential WWII targets. Action to mitigate the risk is considered essential, albeit more likely that a reduced scope of work is required compared with that needed for high-risk regions.

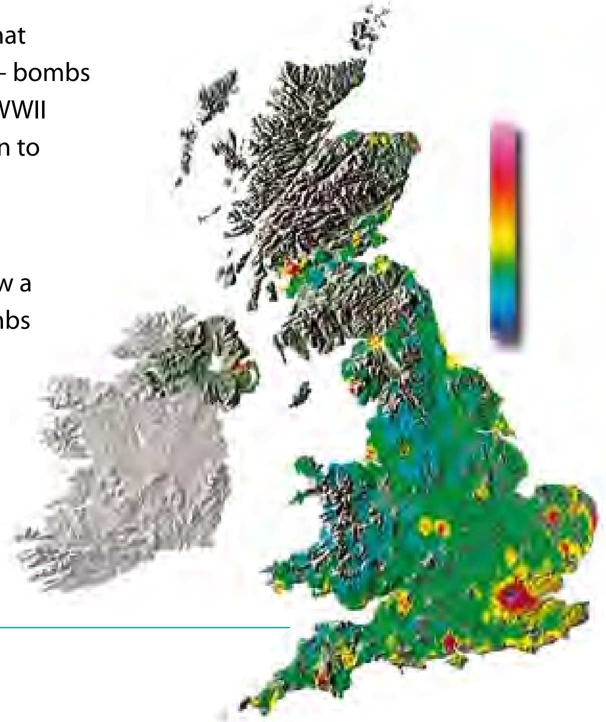
Low risk

Low-risk regions are those with a bombing density of up to 10 bombs per 1000 acres. These areas are considered to have a significant but low UXB risk. In general, further action to mitigate the risk is considered prudent, although not essential. Care is required when assessing the risk for specific sites where the risk may be higher because of local wartime activity.

Other WWII targets

Other regions with the risk of UXBs are key strategic points as defined by the government during WWII as representing potential enemy targets. Where these exist outside areas mapped as high, moderate or low risk, a site-specific assessment of the UXB risk may be required.

Relative UXB risk across UK



What to do if…

…you have a site that has a potential UXB risk

In the absence of current legislation requiring you to address the risk from UXBs, your responsibilities under health and safety legislation and regulations such as construction design and management require that you address all identified risks. The first stage is to request further advice from a professional adviser such as Zetica, or to gain more site-specific information by commissioning an ordnance-risk desk study. Then a strategy to deal with the risk can be established that is tailored to your proposed work.

…you find a suspect item or require advice

If during site works you find a suspect (ordnance-related) item, it is very important that you do not touch or move it (even if it has already been moved by an excavator). If it is clearly ordnance related, then dial 999 and ask for the police. Ensure that the area around the item is kept as clear as possible without placing yourself at risk. If you are unsure and do not wish to cause undue alarm, or you just require some advice, then you can call Zetica. We have experienced qualified UXB specialists on hand who can offer support and advice during any site works.

More-detailed procedures should be established in advance if you are in an area where the risk of finding a UXB is shown to be significant (moderate to high).

Site-specific desktop studies

Zetica is able to provide high-quality, site-specific UXB risk information for any residential, industrial or commercial property in the UK. These desktop studies provide details of the bombing density within an area and for the site itself, in order to indicate the risks of UXBs still being present. A risk assessment is provided to facilitate informed decision making on whether any further risk mitigation measures are required.

For more details on this and related services, telephone: +44 (0) 1993 886682 or visit our website: www.zetica.com

Appendix J – Manchester Bomb Damage Map

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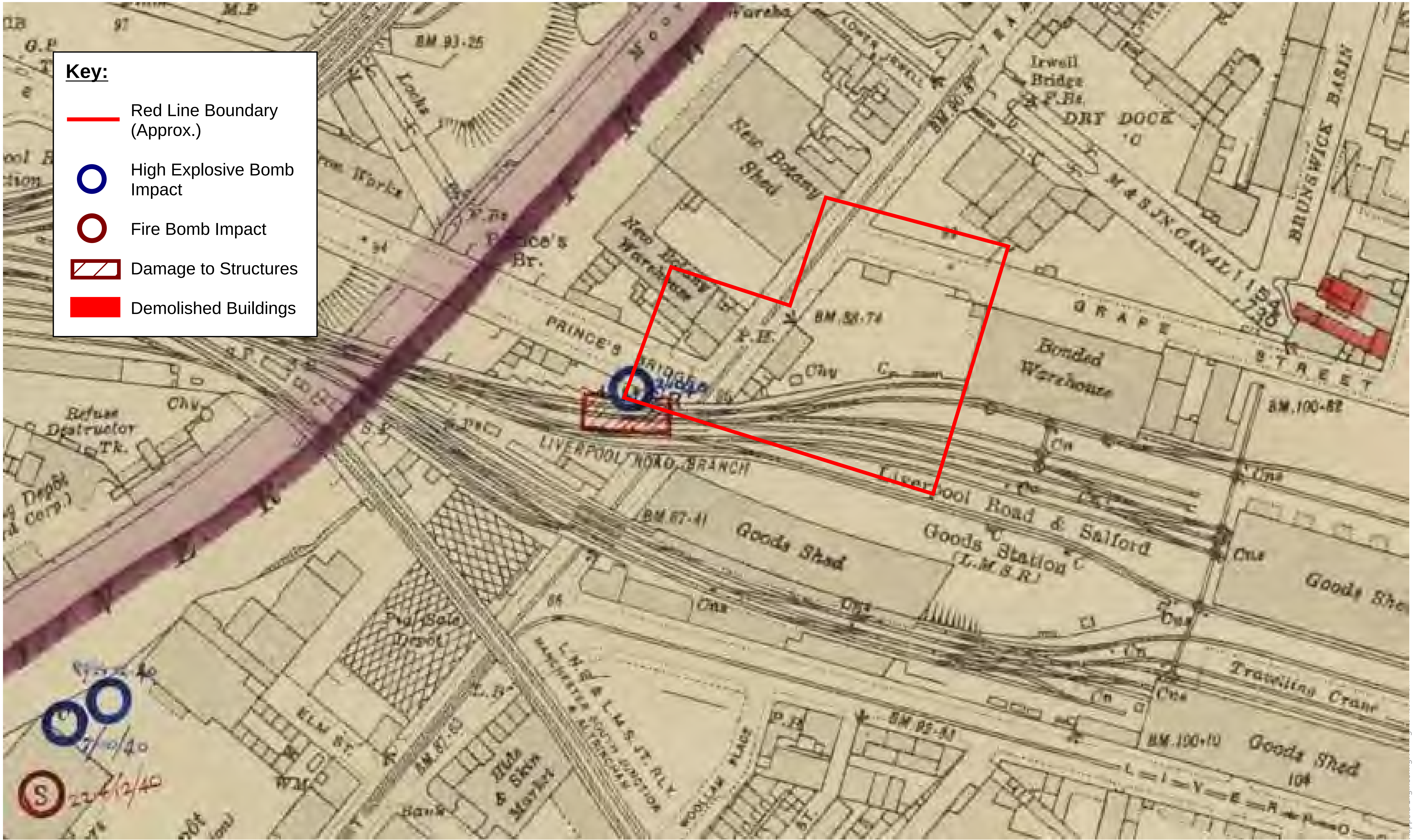
Key:
Red Line Boundary (Approx.)
High Explosive Bomb Impact
Fire Bomb Impact
Damage to Structures
Demolished Buildings
New Botany Shed
New Botany Warehouse
Prince's Br.
PRINCE'S BRIDGE
Iron Works
Locks
M.P.
BM 93.25
Irwell Bridge F.Bs.
DRY DOCK
M & S.JN.CANAL
BRUNSWICK BASIN
GRAPE STREET
Bonded Warehouse
BM 98.74
BM 100.82
P.H.
Chy
LIVERPOOL ROAD BRANCH
Liverpool Road & Salford Goods Station (L.M.S.R.)
Goods Shed
BM 97.41
Travelling Crane
BM 100.10
Goods Shed
Refuse Destructor Tk.
Depot (Corp.)
Coal Sale Depot
ELM ST.
Hide & Skin Market
L.N.E. & L.M.S. JT. RLY MANCHESTER SOUTH JUNCTION & ALTRINCHAM
WOOLLAM PLACE
BM 95.43
LIVERPOOL
7/10/40
22/12/40

Key:

Red Line Boundary (Approx.)

High Explosive Bomb Impact

Fire Bomb Impact

Damage to Structures

Demolished Buildings

BUROHAPPOLD ENGINEERING

JOB TITLE: The Factory, Manchester

JOB NUMBER: 034933

DATE: 29/02/2016

SKETCH TITLE: Manchester Bomb Damage Map

SKETCH NUMBER: Appendix K

INITIALS: GM

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Appendix K – PLANIT Explosive Ordnance Threat Assessment

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EXPLOSIVE ORDNANCE (EO) THREAT ASSESSMENT (EOTA)

MANCHESTER CITY CENTRE FACTORY

[redacted]

the preparation of detailed Risk Assessments in the management of UXO risks in the construction industry, for which PLANIT was an instrumental driver for improved UXO risk management and transparency.

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Peer Review:	Andrew HAMILTON	

EXECUTIVE SUMMARY

SITE DESCRIPTION	The site is located approximately 0.5km west of Manchester city centre and the Exhibition Centre, 0.6km south of Salford Central Station. The site straddles Prince's Bridge and Water Street (B6225) and is bounded to the east by the Museum of Science and Technology. National Grid Reference for the approximate centre of the site is SJ 829 979 and the nearest postcode is M3 4JQ. The site is dominated by a large, triangular structure at its centre but is mostly covered by hard standing for vehicle manoeuvre and parking.
POTENTIAL THREAT SOURCE	WW2 German air-dropped bombs – High Explosive (HE). British Anti-Aircraft Artillery (AAA) projectiles.
THREAT PATHWAY	For the purposes of this assessment, it has been assumed that development works would include piled foundations and excavations beyond WW2 ground levels. It is anticipated that personnel or key equipment may complete the risk pathway during excavation and/or piling operations that may bring them into physical contact with potential threat items.
KEY FINDINGS	There is evidence that the site of concern was directly affected by aerial bombing during WW2. The possibility that the site was affected by Anti-Aircraft Artillery projectiles returning to earth unexploded cannot be reasonably ignored. There is no evidence to suggest that other ordnance contamination events occurred at the site of concern. There are no Abandoned Bombs or UXBs recorded that would affect the site of concern directly. The EO Threat varies across the site of concern.
THREAT LEVEL	Outside of the UXB Threat Zone, the Ordnance Threat Levels are considered to be **NEGLIGIBLE**. Within the UXB Threat Zone, the following Ordnance Threat Levels apply: • 50, 250, 500 and 1,000kg bombs - **MEDIUM** • British AAA projectiles - **MEDIUM**
THREAT MITIGATION	In light of the findings of this assessment, within the UXB Threat Zone, a **UXO THREAT MITIGATION STRATEGY IS REQUIRED** to be in place prior to intrusive engineering works at this site of concern.
THREAT REVIEW	*A review of these recommendations must be undertaken in light of any additional, relevant information being provided. Such a review may, if the EO Threat Level is deemed to have altered, make alternative recommendations from those made above in order to implement work safely.*
AIM & METHODOLOGY	The aim of this assessment is to identify any threats that may be posed by EO during the proposed engineering works at the site of concern and, where a threat is identified, to recommend a risk mitigation strategy that will reduce this threat to acceptable levels.

This assessment follows the CIRIA 681 Guidelines, which were compiled using, as a main driver of change, PLANIT's innovative approach to EO risk assessment.

The following key considerations are addressed in this assessment:

- The risk that the site of concern was contaminated by EO.
- The risk that EO remains on site.
- The risk that EO may be encountered during the proposed engineering works.
- The risk that EO may be initiated by proposed engineering works.
- The consequences of encountering or initiating EO.

If the likelihood of encountering EO is significant, information about the types and natures of that EO and the expected levels of contamination is considered within the source-pathway-receptor context of contamination. Should a confirmed pathway exist, the information is entered into our proprietary Threat Assessment Matrices in order to arrive at a valid and transparent Threat Level.

The Threat Level allows relevant conclusions to be made about the EO Risk at the site of concern, which in turn allows an appropriate Risk Mitigation Strategy to be developed.
The Threat Mitigation Strategy is intended to give the Client a best-fit, safe solution that will allow the level of risk from EO to be reduced to an acceptable level; providing maximum project planning flexibility.

PLANITs approach to EO threat assessment has been fundamental in driving change throughout the UK Commercial EOD Industry and was instrumental in the drafting of CIRIA 681. PLANITs approach provides transparency to our EO risk assessment process allowing the Client to make valid decisions on what is a specialist activity; empowering them to maintain control over this vital aspect of their project - Where necessary, appropriate EO risk mitigation measures will be recommended.

This assessment considers general and site specific factors, including:

- Historical use of the site in relation to ordnance manufacturing, storage and disposal.
- Historical use of the site in relation to Military training and related facilities.
- Evidence of offensive aerial and naval bombardment during WW1 and WW2.
- Evidence of Unexploded Bombs (UXBs).
- Previous EO incidents and/or EO survey/clearance activities.
- Extent of post-war redevelopment.
- Proposed engineering works.

RELIABILITY OF HISTORICAL RECORDS

This assessment is drawn from detailed research into the available historical evidence. Every effort is made to gather all of the relevant material; however, PLANIT cannot be held responsible for any changes to the assessed level of risk or proposed risk mitigation strategies due to subsequent information that may come to light at a later date.

The accuracy and detail of wartime historical records is difficult to verify, not least of which is due to the conditions under which much of this information was gathered and recorded. Additionally, recording of information was less formalised in the early days of the German air campaign against the UK mainland (Pre-Bomb Census Record) and much information recorded early on was lost during subsequent air raids. Records for rural, sparsely populated areas are not always reliable, being based on second-hand information in many cases; records of attacks on military installations was often recorded independently from general records and many such archives have been lost or remain undisclosed to the public.

Consequently, the exact location, quantity and nature of the EO threat cannot be definitive but rather remains subjective and is based on the careful analysis by experts of the available information. PLANIT cannot accept liability for any gaps in the historical record.

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SITE LOCATION & DESCRIPTION

SITE OF CONCERN	The site is located approximately 0.5km west of Manchester city centre and the Exhibition Centre, 0.6km south of Salford Central Station. The site straddles Prince's Bridge and Water Street (B6225) and is bounded to the east by the Museum of Science and Technology. National Grid Reference for the approximate centre of the site is SJ 829 979 and the nearest postcode is M3 4JQ. The site is dominated by a large, triangular structure at its centre but is mostly covered by hard standing for vehicle manoeuvre and parking. Maps showing the site location and layout are at Annex A.
SCOPE OF PROPOSED WORKS	The details of the proposed development are unknown at the time of writing this assessment. For the purposes of this assessment, it has been assumed that development works could include intrusive engineering beyond WW2 ground levels. It is anticipated that personnel or key equipment may complete the risk pathway during excavation and/or piling operations that may bring them into physical contact with potential threat items.
GEOLOGICAL ENVIRONMENT	Information on the site specific geological environment is not available at the time of writing of this assessment. However, it is anticipated that the superficial deposits will consist of alluvium with clay, silt, sands and gravels.

REVIEW OF RELEVANT DATASETS

SOURCES OF INFORMATION

PLANIT ensures that Explosive Ordnance Risk Assessments (EORAs) are as comprehensive as possible and detailed research is undertaken to collate all of the available EO-related information that relates to the site of concern. Information sources may include, but are not restricted to:

- National Historic Archives.
- Local Authority & Council Archives.
- English Heritage National Monuments Record.
- Ministry of Defence Archives.
- PLANITs extensive archives drawn from many years of detailed research and operational experience of UXO Risk Management activities in the UK and abroad.
- Joint Service EOD Centre (JSEOD).
- Historic Mapping and Aerial Photography.
- Specific UXO-related documents such as military bombing and casualty records.
- Local libraries and history groups.
- Open sources such as published books and internet searches.
- Anecdotal evidence from eye witnesses.

NB: The MoD information office that deals with requests for information relevant to EO clearance operations completed by the MoD is currently facing significant delays. Although a request has been submitted, any information that may be relevant has not yet been forwarded for timely inclusion in this assessment. However, if any relevant information comes to light from this source that affects the threat assessment, this will be notified to the client as a matter of urgency.

SITE HISTORY

The site has been an area of industrialised docklands since at least 1848. At this time, Princes Bridge had not been built and the site was dominated by a number of large, warehouses.

By 1896, Princes Bridge is built and the tracks servicing the 'Goods Station' are installed. The site remains fairly static until at least 1972 by which date the servicing dock has been infilled in the northern part of the site.

By 1980, the 'TV Centre' appears in the map record built over the former servicing dock and by 1988 a number of large warehouses along the river bank to the west have been removed.

Between 1985 and 1999, the triangular shed appears in the centre of the site and no significant redevelopment has occurred since this time to the present day.

ORDNANCE MANUFACTURE & STORAGE

During WW1 and WW2, Lincolnshire housed a number of facilities involved in the manufacture, storage, filling and testing ordnance. The nearest explosive manufacturing sites (known as His Majesty's Explosive Filling Factories (HMEFs)) were:

- Trafford Park (HMEF).
- Hyde Road, Gorton, Manchester (National Shell Factory – manufacturing 4.5" shell (projectile) casings).

The nearest Royal Ordnance Facilities (ROFs) established in the run up to WW2 were:

- ROF Chorley.
- ROF Radway Green.

None of these sites would have posed a potential threat to the site of concern.

MILITARY HISTORY

There is no evidence to indicate that the site was ever used for military purposes.

CIVIL DEFENCE

Manchester possessed a peak of 56 Heavy Anti-Aircraft Batteries during WW2, including 4.5, 3.7 and 3 inch Anti-Aircraft (AA) guns, sited in some 70 separate locations. None of these were sited on or near to the site of concern to have created a direct source of potential ordnance contamination.

Due to the relatively high failure rate of Anti-Aircraft Ammunition (AAA) during this time, there remains the possibility that such ordnance fell back to earth creating additional UXO hazards. This type of ordnance had the potential to penetrate the ground to significant depths and cannot be entirely discounted as a potential threat source although its potential presence is impossible to determine with any quantifiable degree of certainty.

As would be expected, Manchester had several Civil Defence ('Starfish') sites designed to protect London from aerial attack. Manchester's Starfish Sites were located at:

- Chat Moss.
- Tatton Park.
- Park Moor (now in Lyme Park Country Park).
- Churnal Moor.
- Mossley.
- Carrington Moss.
- Ludworth Moor.
- Reddish.
- Elkstone (north Staffordshire).

None of these sites would indicate the possibility that erroneous Luftwaffe bombing would have produced a consequent UXO risk on the site of concern.

WW1

Greater Manchester suffered two aerial bombardments during WW1; on 26 Sep 1916 Zeppelin L21 dropped 20 HE bombs on Bolton, mistaking the town for Derby. Significant damage was caused and 13 people were killed. On 12 Apr 1918 Zeppelin L61 bombed Wigan at 2300hrs in a raid that lasted some 12 minutes. Three people were killed and a further nine were injured during the raid.

Neither of these raids would have affected the Site of concern and therefore the risk from WW1 unexploded ordnance is considered to be negligible.

WW2

During WWII the site sat close to a number of industrial and strategic installations key to the war effort that were located in the area – including Mills, Quarries and Railway infrastructure. Luftwaffe target maps do not list specific locations on or close to the site although the concept of specific targets, when bombing in and around Manchester, was only relevant prior to the accidental Luftwaffe raid on London on 24th Aug 1940. This attack broke the unofficial agreement not to bomb opposing capitals and led to the gradual breakdown of the Amsterdam draft international rules prohibiting the attacking of civilian infrastructure outside of combat zones (purely industrial areas); Great Britain, including Manchester, was now opened to air attacks. As well as the air raids targeting Manchester itself, unused bombs were routinely jettisoned whilst returning to base following an unsuccessful raid. In addition, the high-altitude area bombing during this period was notoriously inaccurate with areas surrounding specific targets suffering during attacks on the targets themselves.

The site in question sits to the western edge of the main areas within Manchester that were targeted, mostly during the 'Manchester Blitz' of Dec 22-24 1940 - Salford Docks, Manchester's industrial centre and Trafford Park (with the areas surrounding them also being affected by the same air raids). Many Manchester companies were involved in war production work including the Fairey Aviation plant at Ringway, the Ferranti factory at Hollingwood, Metropolitan Vickers works at Trafford Park and the A.V. Roe (Avro) plant at Chadderton. In addition, Ford operated a factory in Eccles building Rolls Royce Merlin engines for the Lancaster bomber and the Mosquito fighter bomber.

The Luftwaffe mounted consecutive heavy attacks on the Manchester area on the nights of 22/23rd and 23/24th Dec 1940. Large areas of Manchester, Salford and Stretford were devastated, killing some 684 people and injuring a further 2,364. The first raid of this 'Manchester Blitz' saw 272 tons of

HE bombs and 1, 023 canisters of Incendiary Bombs (IBs) dropped. During the second raid, 171 aircraft dropped a further 195 tons of HE bombs and 893 canisters of IBs

The site is located in Region 10 (Manchester) for Civil Defence purposes. Manchester received some 3, 465 Tonnes of HE bombs throughout the war although Cheshire and Chester were much less affected:

Ordnance Type	**Number of Bombs**		
	Region 10	Cheshire	Chester Rural District
50Kg HE	1403 (79)* + 576 (1)**	594 (25)	1
250Kg HE	727 (49) + 368	301 (19)	13
500Kg HE	114 (7) + 57 (3)	58 (6)	10 (1)
1000Kg HE	2 (2) + 6	1 (1)	
Parachute Mine	514 (77) + 592	139 (16)	
V1 'Doodlebug'	14	6	1
V2 Long Range Rocket	0		
Small Incendiary Bombs	25 454	3 639	
50Kg Phosphorus Bomb	Unknown		
Fire Pots	Unknown		
Oil Bomb	212 (4) + 202	48 (1)	
Containers	Unknown		
Unclassified Ordnance	8 114 (1 341) + 10 658	2 806 (524)	

The bombs recorded as falling on the County Borough of Manchester are summarised below:

Area Acreage	**27, 255**
High explosive Bombs (All Types)	712
Parachute Mines	18
Oil Bombs	7
Phosphorus Bombs	-
V1 'Doodlbug'	1
Total	**738**
Items per 1000 acres	**27.1**

UNEXPLODED BOMBS (UXBs)

Between 1940 and 1945, Bomb Disposal (BD) Teams cleared over 50,000 items of German air-dropped ordnance of 50Kg or larger, 7 000 anti-aircraft (AA) projectiles and more than 30 000 beach mines – This work claimed the lives of 394 Officer's and men. The War Office at the time stated that over 200 000 HE bombs exploded in Britain during WW2 with some 25 195 remaining a threat as UXBs i.e. 11%. Some 93% of all UXBs were 50Kg HE and 250Kg HE aerial bombs.

The types of ordnance discovered as UXBs give an indicator of the type of ordnance that may be encountered on or near the site of concern. In this instance there are no records of UXBs that may present a threat to the site.

ABANDONED BOMBS

A post-air raid search of damaged buildings and facilities would have included a specific search for bomb entry holes. If such evidence was discovered, then BD Teams would have been tasked (in order of strict priority from Category A, the highest priority, to category D, the lowest) to assess the potential UXB and to recommend a course of action. For UXBs that were deemed to be a high enough priority were tackled by the BD Teams who made strenuous efforts to recover and dispose of these items. However, it was not always possible to recover such bombs either through physical constraints, a lack of resources or a change in priority. Such UXBs were noted as 'Abandoned'.

Due to the low priority of abandoned bombs, records that detail them are sketchy and sometimes contradictory. Others were subsequently recovered after the War when time and resources permitted and others remain 'abandoned'. It is worth remembering that 'abandoned' bombs may also include suspected UXBs that were reported but not confirmed, but simply efforts to locate the 'bomb' were exhausted.

The Abandoned Bombs recorded in the vicinity of the site are:

Reference/ Location	Item
CD 49.3822 – Fields 600yds SE of Grove Farm, Chorlton by Beckford.	1 x AA Shell
CD 53.3825 – Fiels near rear of Gun Site Acres Lane, Upton Heath.	1 x AA Shell
CD 56.3826 – Staok Grange Farm, Little Stanney.	1 x AA Shell
CD 84.3843 – Wood Farm, Grove Road, Mollington, 500yds W of Lee Holme.	1 x AA Shell
CD 82.3842 – 50yds W of Dunkirk Lane, Capenhurst Hall Park Farm, Capenhurst.	1 x AA Shell
CD 81.3841 – 100yds S of Pitts farm, Woodbank, Shotwick.	1 x AA Shell
CD 59.3827 – Shotwick Park, S of No. 9/10 Holding Arterial Road.	1 x AA Shell

None of these are considered to present a potential UXO-related threat.

BOMB CENSUS MAPS

Manchester's Bomb Census Records are comprehensive and indicate that at least one large, air-dropped bomb fell within the south western part of the site itself.

The relevant Bomb Census Map extract is at Annex B.

HISTORICAL STREEP MAPS

Historical street plans of the period are a useful indicator of whether an area may have suffered bomb damage. The street layout prior to WW2 can be considered to be the start state and major changes to street layouts or building boundaries may indicate that the change was due to bomb damage.

In this instance, there are no significant changes to the street layout that indicate bomb damage on the site of concern itself, although there is clear bomb damage in the wider area surrounding the site.

The relevant Historical Street Plans are at Annex C.

HISTORICAL AERIAL PHOTGRAPHY

The same rational applies with historic aerial photography as it does when examining historical street plans – changes between pre-war and post-war images may indicate the possibility of damage caused by bombs falling on the site. Sometimes, detail is such that it allows bomb damage to be seen directly on sites of concern. In this instance, historical aerial photography from the period is not available and therefore no comparisons can be made.

THREAT ANALYSIS

IS THERE EVIDENCE THAT THE SITE WAS AFFECTED BY ANY EXPLOSIVE ORDNANCE

Yes.

The historical record is acknowledged as being incomplete from a National perspective but there is clear evidence within the relevant extract from the Manchester Bomb Census Maps that the site of concern was directly affected by bombing during WW2; which likely included large air-dropped bombs or British anti-aircraft artillery falling back to earth as UXBs.

CONTAMINATION EVENTS?	Although there is no change to the historical street maps of the period, this is likely more a function of the fact that the bomb is recorded as falling onto the trackway and may not have impacted nearby buildings significantly. The bomb damage would have been significant and the possibility that another bomb fell on the same area and remained underground, undiscovered as a UXB must be considered plausible. It was also a common error to mistake the havoc wreaked by a large bomb falling through built structures unexploded, which is considerable, with a smaller bomb detonating as intended. However, in this instance the damage to trackway would have been evidently caused by a detonation as it would have been burst apart as opposed to pushed into the ground as would be the case if it were a large UXB.
IF ENCOUNTERED, WHAT ORDNANCE TYPES ARE ANTICIPATED?	There is explicit evidence that the site received at least one direct hit from a large, air-dropped bomb during WW2. Given the location of the site and its proximity to Salford Docks, we must assume that larger bombs may have been used as was the procedure at the time when attacking such infrastructure. There is no explicit evidence that the site directly received Anti-Personnel or incendiary bomb strikes. Whether or not the area received AAA returning to earth unexploded is impossible to answer but it would be prudent to accept the worst case scenario in this case and accept that they probably did. The site is not known to have been used for ordnance manufacture or storage and neither was it a former Military installation. So we can discount the possibility that the site was contaminated by ad hoc military activity. The type and degree of post-War redevelopment is significant in that it would reduce the encounter potential for smaller items of ordnance such as anti-personnel bombs or AAA projectiles to such a degree in some areas of the site that this potential threat source may effectively be discounted. This is not the case for areas of the site that have not been significantly redeveloped since the end of the War. With this in mind, the following potential threat items may remain under the site in areas that have not been subject to significant redevelopment: • Large, air-dropped, German HE Bombs including 50, 250, 500 and 1,000kg bombs (of WW2 vintage). • British AAA projectiles.
WHAT IS THE EXPLOSIVE ORDNANCE / UXB ENCOUNTER DEPTH?	**Ministry of Homeland Defence Security Bomb Penetration Studies**. A major study was completed by the Ministry of Homeland Security during WW2, during which the penetration depths of 1328 air-dropped bombs (as reported by the BD Sections of the day and mostly in the Birmingham area). It was concluded, not surprisingly, that the penetration depths of different sized bombs varied according to the geology into which they fell. The average penetration depth of 430 x 50Kg HE bombs in London Clay was found to be 4.6m and that for a 250Kg bomb 6.1m. Also, they concluded that a 500Kg bomb, the largest common bomb dropped during the War, had a likely penetration depth of 6m in sand and 8.7m in clay – the maximum observed for a 500Kg was 10.2m and for a 1000Kg bomb was 12.7m. It should be remembered that these depths were achieved unencumbered by obstacles to penetration such as buildings, concrete and brickwork. **The 'J' Curve**. The 'J-curve' describes the path of a bomb (dropped from a normal altitude of about 5 000m) into homogenous ground will continue its line of flight (unless deflected by a substantial obstacle) but then turn upwards towards the surface before it stops. The horizontal distance (the 'offset') between the point of entry and final resting position was typically 1/3 of the ultimate penetration depth for a particular type of bomb. Therefore, if a bomb fell close to the exterior of a building or site and did not explode, the path that the bomb subsequently travelled beneath the ground, the "J-Curve", may have delivered it beneath the building or site footprint. The J-curve is often misunderstood, and used to describe the path taken by a bomb dropped from low flying aircraft to which it should not be applied.

The final penetration depth of an air-dropped depends upon a number of factors; the velocity of the bomb (as a function of the mass, speed) – PLANIT uses a standard velocity of 267m/s for assessment purposes – the angle of penetration of the bomb and the physical features through which the bomb travelled prior to impact with the ground and the geology of the ground into which it entered - Generally, the softer the ground, the deeper the expected penetration depth of the bomb. Peat, alluvium and soft clays are easier to penetrate than gravels and sand and water content plays a part. In addition, it must be remembered that 'barrier geology' such as very dense gravels or bedrock i.e. geology dense enough to stop the progress of a bomb underground, is an important factor in determining the median bomb penetration depth.

Given the ground cover at the time that the bombs fell, the anticipated geology and accepting the norm for the impact angle and velocity of a large UXB, it is reasonable to assume the norm when considering the potential Bomb Penetration Depth (BDP). Therefore, it is estimated that the average penetration depths of Explosive Ordnance (EO) at this site would be:

- **British AAA projectiles – 2m**
- **50kg HE – 4m**
- **250kg HE – 6m and**
- **500kg HE – 8m**
- **1000kg HE – 10m**

HOW COULD AN UNCONTROLLED DETONATION BE BROUGHT ABOUT?

Unexploded Bombs rarely spontaneously explode (although some incidents claim to contradict this statement). High Explosive (HE) requires a great deal of energy to create the necessary conditions for detonation to occur. In the case of WWII German bombs being disturbed during intrusive ground works, there are a number of scenarios to be considered:

- **Direct impact onto the main body of the bomb.** Although this is a possibility, there is little chance of generating enough energy to detonate the explosive fill unless the fuze itself is directly struck.

- **Re-starting the mechanical clock-timer in a bomb fuze.** This is a possibility. It is probable that environmental conditions have corroded the fuse sufficiently to prevent clockwork mechanisms from functioning. However, under some conditions, fuze elements will be in a good condition and additional movement of a bomb fuse may be sufficient to restart a previously 'jammed' mechanical clockwork mechanism.

- **Induction of a static charge, creating a sufficient current to initiate an electric fuze.** This is an unlikely event. Environmental conditions are likely to have corroded the fuze, degrading its components sufficiently to prevent them from functioning. Any elements of the fuze capable of holding a charge would have dissipated in the time since the bomb failed to function.

- **Friction impact initiating fuze elements causing bombs to detonate.** Although remote, this is the most likely scenario that may result in a bomb detonating. Weathering within the fuze pocket can cause the explosives within the fuze to breakdown, crystallize and exude from the fuze itself. Violent physical disturbance of this exuded material carries the remote possibility of initiating the fuze mechanism which in turn will initiate the bomb.

WHAT WOULD THE EFFECTS OF SUCH A DETONATION BE TO THE SITE?

The effects of WWII German bombs detonating have been the subject of a number of well recorded studies. The general effect of an explosive detonation will depend upon:

- The size of the bomb and its Net Explosive Quantity (NEQ) (i.e. how much explosive material it contains).
- The type of fill in the bomb (i.e. high explosive, incendiary, photoflash).
- The physical location of the bomb. Whether it is:
  - On the surface.
  - Partially buried.

    - Buried (A bomb can be considered to be 'buried' when it is more than 2½ times its own length below ground level and covered).

- The locations of the bomb in relation to other structures.
- The strength and design of structures near to the seat of an explosion.
- The nature of the ground (i.e. sand, gravel, clay, marsh etc).
- The location of the bomb in relation to human and animal populations.

There would be the potential for ground shock to damage important underground structures including sewers, communication cables, and foundations.

The potential Damage Radii to various underground structures has been assessed by extrapolating from the Joint Service Publication 364 which is the MOD Manual for assessing bomb damage. Potential damage radii for underground structures are assessed as:

Structure	Dist (m)
Brick Walls	30
Foundations	60
Cast Iron/ Concrete Pipes	15
Earthenware/ brisk Sewers	25
Electric Cables/ Steel Pipes	12

WOULD THE SITE CONDITIONS AFFECT THE BOMB FAILURE RATE?

There is no evidence to suggest that bomb failure rate at the site of concern would have been any different from that routinely experienced, i.e. 10-15% of all bombs dropped.

WOULD UXBs HAVE BEEN DISCOVERED DURING WW2?

Density of Bombing. Despite Manchester receiving a high density of bombing in WW2, the site sits on the periphery of the focus of those attacks. However, we know that the site itself received at least one direct bomb strike which caused significant damage. This factor would have made data gathering at the time more complicated and the likelihood of overlooking UXBs higher.

Frequency of Access. Since the site was occupied and used at the time of the air raids, the site of concern would have been subject to post-air raid survey and clearance. The fact that the site itself was affected by bombing, and given its key industrial role, any post-raid survey activities would have been thorough. This would have made the likelihood of identifying smaller items of EO (such as Incendiaries and AP bomblets) quite high whilst larger UXBs would have been more readily identified. However, entry holes and UXBs could easily have been overlooked due to their diminutive size, or gone unnoticed if they fell into water.

Ground Cover. Although the site was industrial in nature (and as such it's physical characteristics would act to retard the progress of UXBs underground by reducing their overall velocity prior to impact) the recorded bomb fell through trackway which is not as resilient as concrete or brick and therefore the maximum potential bomb penetration depths must be considered as the 'worst case'. This is also true of bombs falling into water.

Peripheral Bomb Damage. We know that the site of concern was subject to bomb damage during the War. This increases the possibility of post-air raid operations failing to identify entry holes of potential UXBs.

DOES THE SITE'S DEVELOPMENT HISTORY AFFECT THE POTENTIAL

Yes.

The fact that there has been a degree of post-War development at the site is worthy of note in that any potential contamination from shallow EO (i.e. AP bombs and IBs) would likely have been discovered during these works and dealt with at the time.

FOR UXO ENCOUNTER?	The small part of the site within which the bomb is recorded as falling has not been redeveloped since the end of the War in any meaningful way. Therefore, the potential for UXO encounter in this area remains as it did immediately post-War. It is worth remembering that development either immediately post-War or in the 1960/ 70s would not have taken any account of the potential for UXBs at the site of concern nor would any effective technology be available to detect such potential threat items. Modern structures tend to have foundation designs that go deeper than historic buildings and risk encountering UXBs at depths beyond existing historic foundation levels or within historic foundation structures that were not detected by excavation or historical bomb survey.
DOES THE UXO THREAT VARY ACROSS THE SITE?	**Yes.** Volumes of ground across the site that have already been subjected to extensive redevelopment involving the displacement of earth, may be considered free from the threat of UXO/EO *within the volumes of ground excavated/disturbed*. The same cannot be said of areas of the site that have not been subjected to the same degree of physical disturbance. Areas of the site that have been subjected to historical piling *cannot be automatically considered to be free from the threat of UXO/ EO within the volumes occupied by the piling layout although the threat is significantly reduced* – there is a possibility that historical piles have either missed UXBs at depth or pushed these items aside without incident when they were emplaced. Further, the volume of ground below such piled areas cannot be considered to be free from the threat of UXO/ EO. Volumes of post-War made ground may be considered free from the threat of UXO/EO also, unless a cross-contamination event has occurred. In this instance, only a small part of the site was affected by aerial bombing in WW2. We can say this with confidence as the built nature of the wider site during this time means that additional bomb damage would have been recorded as indeed it was further east of the site itself. Additionally, this area of the site has not been significantly redeveloped, involving the displacement of earth to significant depths since the end of the War and therefore the potential for UXO encounter remains the same today as it was back then. With this in mind, it is only this small area of the site that needs to be considered further when assessing the potential for UXO encounter. This area has been designated a 'UXB Threat Zone' and is highlighted at Annex D.

THREAT ASSESSMENT

POTENTIAL EXPLOSIVE ORDNANCE THREAT ITEMS	Outside of the UXB Threat Zone, there is no potential for UXO encounter. Within the UXB Threat Zone, the following items are considered to remain under the site as potential threat items: • Large, air-dropped, German HE Bombs including 50, 250, 500 and 1,000kg bombs (of WW2 vintage). • British AAA projectiles.
CURRENT EXPLOSIVE ORDNANCE THREAT LEVELS	The Ordnance Threat Levels for the site of concern from the Threat Assessment Matrices are assessed as: **Outside of the UXB Threat Zone**, the EO Threat Levels are considered to be **NEGLIGIBLE**. **Within the UXB Threat Zone**, the following EO Threat Levels apply:

<table>
<tr><td></td><td>50, 250, 500 and 1,000kg bombs - MEDIUM
British AAA projectiles - MEDIUM</td></tr>
<tr><td>ENGINEERING WORKS</td><td>Intrusive Site Investigation, piled foundations, bulk excavations etc.</td></tr>
<tr><td>RISK PATHWAY</td><td>For the purposes of this assessment, it has been assumed that development works could include excavations and/or intrusive engineering beyond WW2 ground levels. It is anticipated that personnel or key equipment may complete the risk pathway during excavation and/or piling operations that may bring them into physical contact with potential threat items.</td></tr>
<tr><td>WHAT ARE THE CONSEQUENCES OF AN INCONTROLLED DETONATION?</td><td>The consequences of the uncontrolled detonation of any of the items of ordnance listed above are:
<table>
<tr><th>Asset</th><th>Consequence</th></tr>
<tr><td>People</td><td>Lost Time Injury >7 Days</td></tr>
<tr><td>Plant</td><td>Unit Level Damage</td></tr>
<tr><td>Property</td><td>Major Wider Damage</td></tr>
<tr><td>Environmental</td><td>Major Effect</td></tr>
</table></td></tr>
<tr><td></td><td></td></tr>
</table>

THREAT MATRICES

ORDNANCE CATEGORY

The 'Ordnance Category' is assessed for the different types of ordnance in terms of the 'Damage Radii' that may result were the ordnance subject to an uncontrolled explosion and is a function of the calibre of the ordnance and whether it is encountered on the 'surface' or 'buried'.

Ordnance Category	Ordnance Category Description	Danger Radii (m)	Potential Threat Item
0	No Explosive Ordnance (EO) suspected to be present	NA	NA
1	Landmines, Anti-Personnel, HE; HE in Bulk <5Kg; Pyrotechnics	< 75	NA
2	Projectiles, HE <75mm calibre; Projectiles, Mortar, HE 50mm to < 75mm calibre; Grenades, Hand, HE; Grenades, Rifle, HE.	< 100	NA
3	Projectiles, HE < 125mm calibre; Rockets, HE, Anti-Tank (HEAT); Bombs PIAT, HE; Arial Bombs, HE, 50-250Kg (Surface & Buried); Aerial Bombs, Blast, HE & Sea Mines 20-250Kg; Aerial Bomb, HE, 250-500Kg (Buried)	< 250	**British AAA 50kg HE Bombs**
4	Bombs, Mortar, HE <105mm calibre; Bombs, Mortar, Spigot, HE; Landmines, Anti-Tank, HE; Aerial Bombs, HE, 250-500Kg (Surface)	< 300	**250-500kg HE Bombs**
5	Projectile, HE > 125mm calibre; Aerial Bombs, HE, 1500-2500Kg (Surface); Aerial Bomb, Blast, HE & Sea Mines 500-1500Kg (Surface)	< 500	**1000kg HE Bombs**

6	Aerial Bombs, HE, 2000-10000Kg (Buried); Aerial Bombs, Blast, HE & Sea Mines 1500-4000Kg (Surface)	< 800	NA

ORDNANCE THREAT

This table assigns the 'Ordnance Threat', which is a function of the Ordnance Category and the anticipated encounter depth. i.e. the smaller and deeper the ordnance the less threat is present to people and property at the surface.

	ORDNANCE CATEGORY						**Depth of Encounter (m)**
0	1	2	3	4	5	6	
	ORDNANCE THREAT						
	🟩	🟩	🟦	🟨	🟧 **1000 kg Bomb**	🟥	**>10**
	🟦	🟦	🟨	🟧 **250-500kg Bomb**	🟧	🟥	**5<10**
	🟨	🟨	🟧 **50kg Bomb**	🟧	🟥	🟥	**2.5<5**
	🟧	🟧	🟧 **British AAA**	🟥	🟥	🟥	**0.5<2.5**
	🟧	🟧	🟥	🟥	🟥	🟥	**0<0.5**
	🟥	🟥	🟥	🟥	🟥	🟥	**Surface**

ORDNANCE THREAT LEVEL

The 'Ordnance Threat Level' is arrived at by comparing the 'Ordnance Risk' with the 'Likelihood of Encounter' of a particular type of ordnance as a function of the level of expected ordnance contamination of a given type at a site of concern.

Ordnance Threat	ASSETS AFFECTED				LIKELIHOOD OF ENCOUNTER				
	People	Plant	Property	Environment	Very Unlikely	Unlikely	Likely	Very Likely	Extremely Likely
🟩	First aid injury	Slight damage	Slight damage	Slight Effect	🟩	🟩	🟦	🟨	🟧
🟦	Medical injury	Item repair	Minor damage	Minor Effect	🟩	🟦	🟦	🟨	🟧
🟨	Lost time <7 days	Item write off	Major damage	Local Effect	🟦	🟦	🟨	🟧	🟧
British AAA, 50-1000kg Bomb	Lost time injury >7 days	Unit level damage	Major wider damage	Major Effect	🟦 British AAA, 50-1000kg Bomb	🟨	🟧	🟧	🟧
🟧	Fatality	Multiple damage	Catastrophe	Massive Effect	🟨	🟧	🟧	🟧	🟧
					ORDNANCE THREAT LEVEL				

No special measures required	**NEGLIGIBLE**	
Monitor & manage potential risks	**LOW**	🟩
Review & emplace strict control measures if necessary	**MEDIUM**	🟦 X
Control measures required to mitigate risks to acceptable levels	**HIGH**	🟨
Intolerable Risk Level. Immediate control measures prior to any further works	**EXTREME**	🟧

THREAT MITIGATION		
ACTIVITY	**THREAT MITIGATION MEASURES**	**FINAL THREAT LEVEL**
All Activities	If planned engineering works are going to enter into potentially at risk ground volumes within the UXB Threat Zone, then a threat management strategy **IS REQUIRED** to be in place prior to intrusive engineering works at the site of concern. **Explosive Ordnance Safety Awareness Briefings.** An explosive ordnance Safety Briefing should be included as part of routine site health and safety training and form a key element of the Site Health & Safety Plan. This should be conducted by a trained specialist and would assist conformance with the CDM Regulations 2007. The briefing will instruct all personnel on the identification of EO hazards, actions to take in the event of an EO incident in order to protect personnel, key equipment, property and the general public. **Explosive Ordnance Site Safety Instructions.** Explosive Ordnance Site Safety Instructions should be drafted for inclusion in the site specific health and safety manual and would include information on dealing with an EO incident safely and appropriately. These instructions would form part of the permanent site documentation and will be an aide memoire for identifying potential EO hazards, making a preliminary threat assessment as well as specific guidelines on what to do in the event of a confirmed incident.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**
SITE INVESTIGATION WORKS	Site investigation works should be supported by UXO survey as appropriate. Consideration should be given to whether the works are considered to be shallow or deep from the perspective of UXO Survey. 'Shallow' Survey is survey of the ground from 0.0m bgl to 6.5m bgl and 'Deep' UXO Survey is that beyond 6.5mbgl. • **Boreholes.** PLANIT can conduct a non-intrusive survey of a 5m x 5m box which will accurately allow your borehole to proceed into a volume of ground under which there are no ferrous obstructions. A number of locations may be provided within a survey box, allowing maximum flexibility for positioning and preventing any boreholes being terminated as a result of encountering a potential threat item at depth. • **Trial Pits.** Using shallow non-intrusive survey, the area for your trial pit can quickly be surveyed and confirmed as free from ferrous anomalies/UXO. Data is interpreted on-site and therefore locations can be changed very efficiently in the event of a potential obstacle. • **Window Sampling.** Using shallow non-intrusive survey, the area for your window sample can quickly be surveyed and confirmed as free from ferrous anomalies/UXO. Data is interpreted on-site and therefore locations can be changed very efficiently in the event of a potential obstacle.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**

SHALLOW INTRUSIVE ENGINEERING WORKS	Where 'shallow' engineering may complete the risk-receptor pathway, there are two options available to effectively deal with the EO Threat when conducting shallow intrusive ground works. **On-Site UXO Support.** On-site UXO Support for shallow ground works would involve the presence of an appropriately trained and experienced UXO Technician during this phase of construction. The role of the UXO Technician is to: • Conduct EO Safety Awareness Briefings as required. • Monitor all intrusive ground works using visual and instrument aided means to locate any EO that may be uncovered during site works. • Provide an immediate and expert assessment of any EO that may be discovered. • Assist in implementing an appropriate and safe response to an EO incident. • Design and emplace protective works as an immediate response in order to protect personnel, key equipment, property and the general public as may be required. • Advise on best safe working practice in light of the perceived EO Threat. • Act as the liaison with the Authorities on behalf of the Client in the event of an EO incident. **Shallow Non-Intrusive UXO Survey**. PLANIT can deploy industry leading technology that will survey your site of concern non-intrusively (as long as ground conditions permit) in order to identify potential EO Threat Items. Any anomalies identified following the non-intrusive survey that may be EO should then be subject to Controlled Excavation in order to confirm them as EO and remove the threat or discount them. Once the non-intrusive survey and controlled excavation are complete, there is no further requirement for UXO Support at the site of concern since all EO Threats would have been identified and dealt with.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**
DEEP INTRUSIVE ENGINEERING	There are a number of options available to effectively deal with potential EO Threats when conducting deep intrusive ground works. Which approach is applicable will depend upon the ground conditions of the site of concern: **Deep Non-Intrusive UXO Survey.** PLANIT can deploy industry leading technology that will survey your site of concern non-intrusively (as long as ground conditions permit) in order to identify potential EO Threat Items at depth – UXO Survey should proceed to the expected UXB penetration depth or maximum depth of intrusive ground works, whichever is shallower. As a benchmark, PLANITs Deep Non-Intrusive Survey is capable of identifying a 500Kg HE bomb to some 8.0m bgl in average ground and larger bombs deeper. This approach is ideal for covering large areas quickly and can be employed to survey piling runs and borehole locations. Any anomalies identified following the non-intrusive survey that may be EO should then be subject to Controlled Excavation in order to confirm them as EO and remove the threat or discount them. Once the non-intrusive survey and controlled excavation are complete, there is no further requirement for UXO Support at the site of concern since all EO Threats would have been identified and dealt with. **Magcone UXB Survey.** PLANIT can deploy world class Magcone Survey Systems to survey either pile locations or small areas ahead of intrusive	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**

engineering including piling and drilling. The Magcone system is very versatile and can survey to great depths if required.

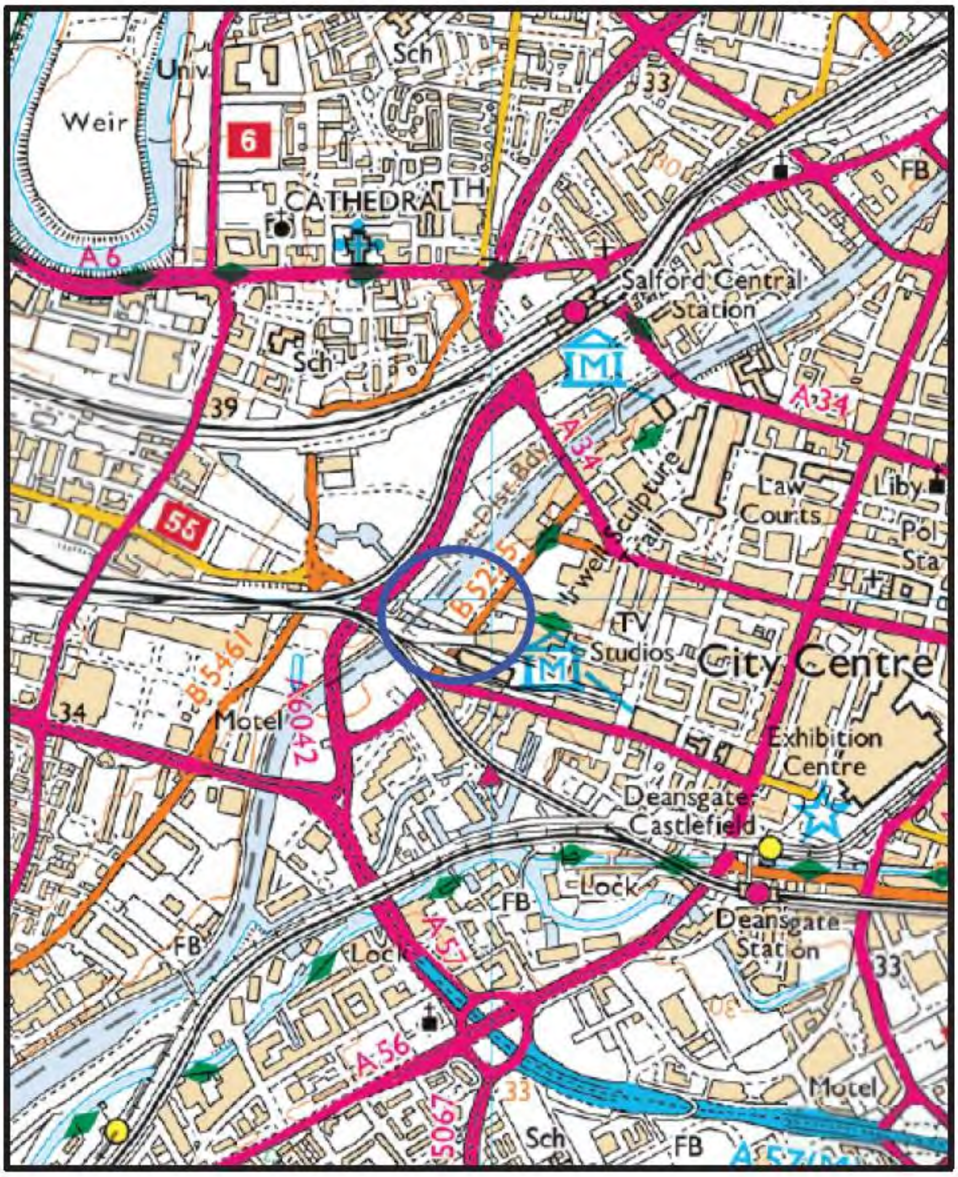
Down-Hole Magnetometer UXO Survey. PLANIT can deploy down-borehole UXO Survey equipment that will clear ahead of a piling or borehole rig as it descends underground. The main drawbacks of this approach are that it is time consuming, 'blind' (insofar as the borehole may proceed for some depth before a potential threat item is identified, at which stage the borehole will have to be terminated and relocated, wasting time and money), equipment heavy and expensive.

Any anomalies identified during this survey that may be EO should either be subject to Controlled Excavation in order to confirm them as EO and remove the threat or discount them or relocate the borehole or adjust the piling plan.

UXO Survey should proceed to the expected UXB penetration depth or maximum depth of intrusive ground works, whichever is shallower.

ANNEXES

A. Site Location & Layout.
B. Bomb Census Map.
C. Historical Street Maps.
D. UXB Threat Zone.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A 34
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Pol
Sta
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Irwell Sculpture Trail
TV
Studios
City Centre
B 5461
A 6042
Motel
34
Exhibition
Centre
Deansgate-
Castlefield
Lock
FB
Deansgate
Station
33
FB
Lock
A 57
A 56
5067
33
Sch
Motel
FB
A 57(M)

Annex A: Site Location
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ○

PLANIT
RESTORING BALANCE

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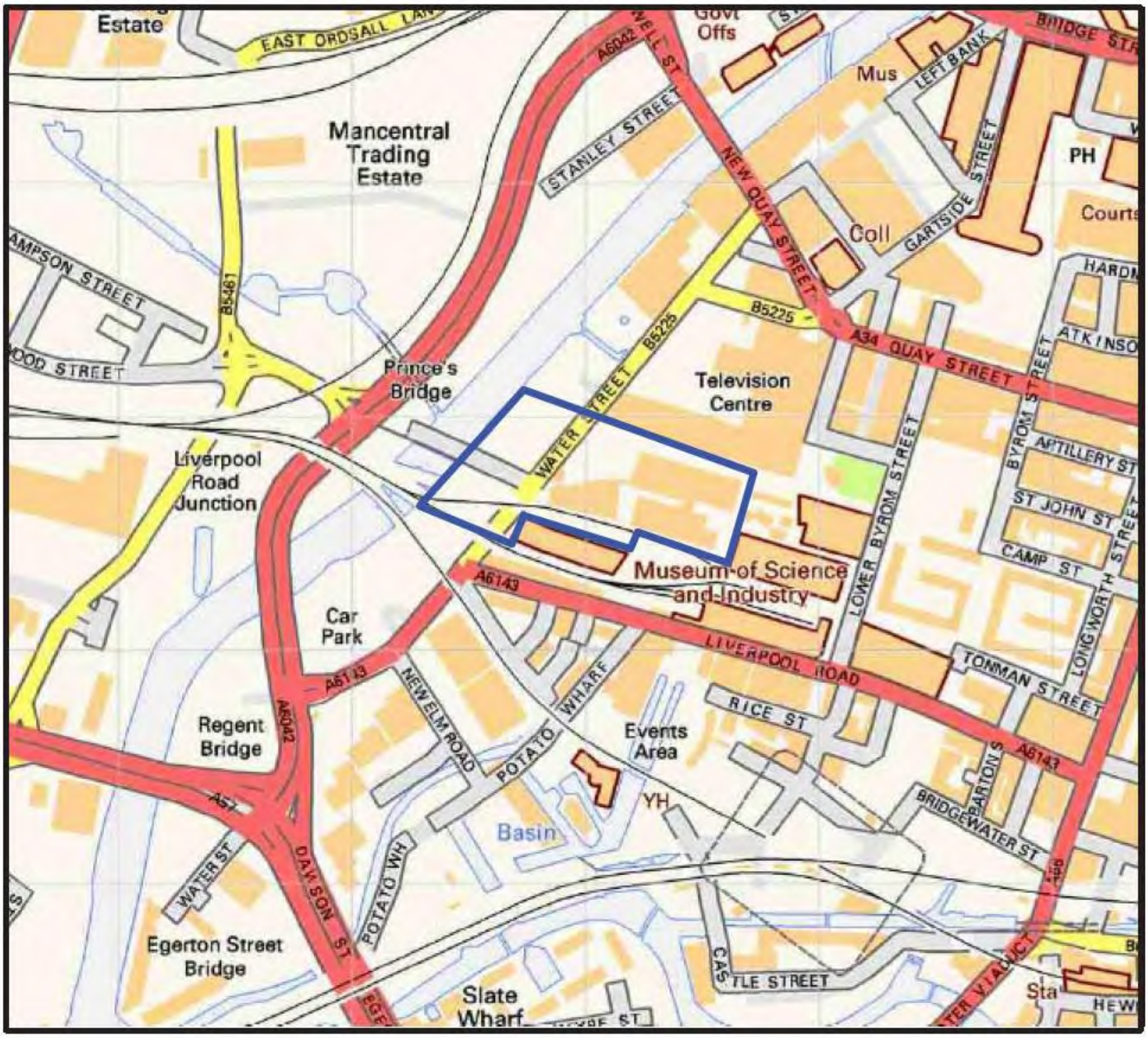
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Mancentral Trading Estate
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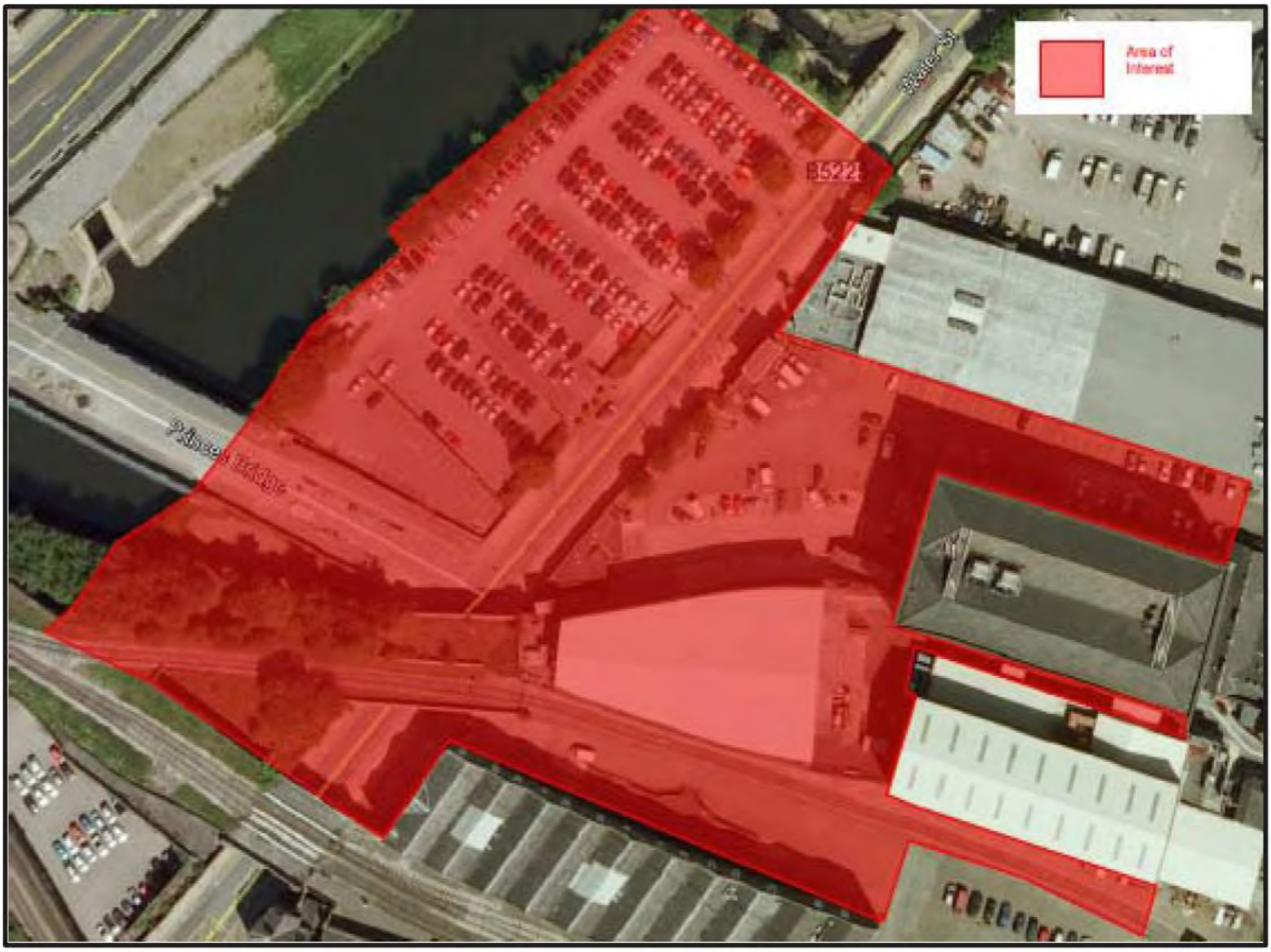
NEW QUAY STREET
GARTSIDE STREET
PH
Courts
Coll
AMPSON STREET
B5461
B5225
HARDM
ATKINSO
A34 QUAY STREET
OOD STREET
Prince's Bridge
WATER STREET
Television Centre
BYROM STREET
ARTILLERY ST
Liverpool Road Junction
LOWER BYROM STREET
ST JOHN ST
CAMP ST
A6143
Museum of Science and Industry
LONGWORTH STREET
Car Park
LIVERPOOL ROAD
TONMAN STREET
A6143
NEW ELM ROAD
WHARF
RICE ST
Regent Bridge
A6042
POTATO
Events Area
BARTON S
A6143
A57
YH
BRIDGEWATER ST
Basin
POTATO WH
WATER ST
DAWSON ST
A56
Egerton Street Bridge
CASTLE STREET
VIADUCT
Slate Wharf
Sta
HEW

Annex A: Site Location
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ○

PLANIT
RESTORING BALANCE

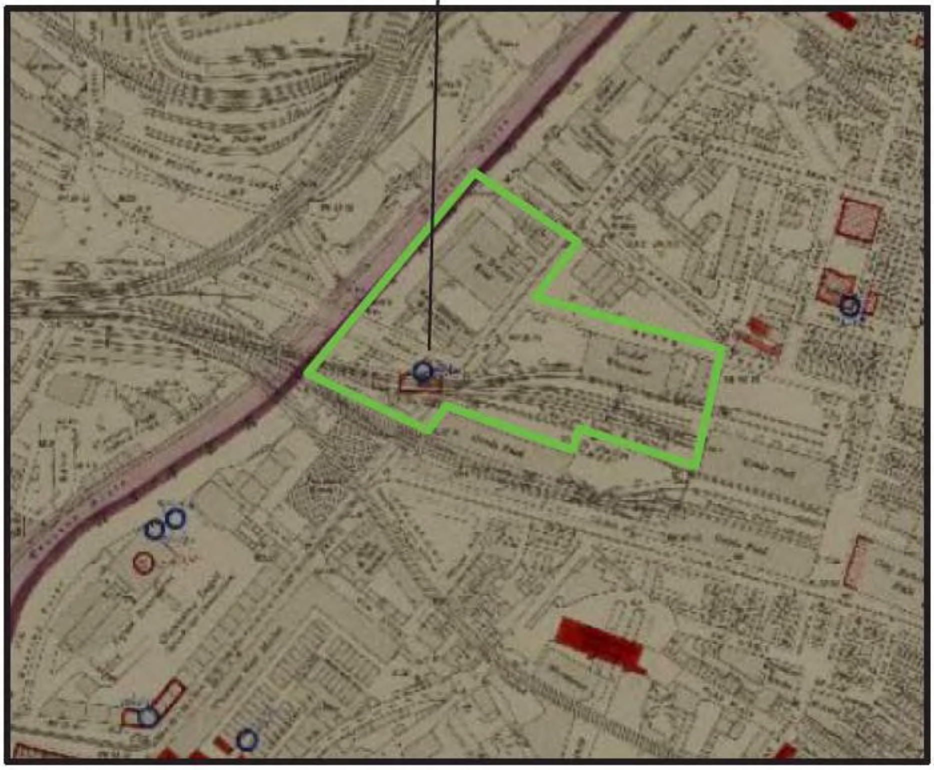

Area of Interest
B5224
Princes Bridge

Annex A: Site Location
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ●

PLANIT
RESTORING BALANCE

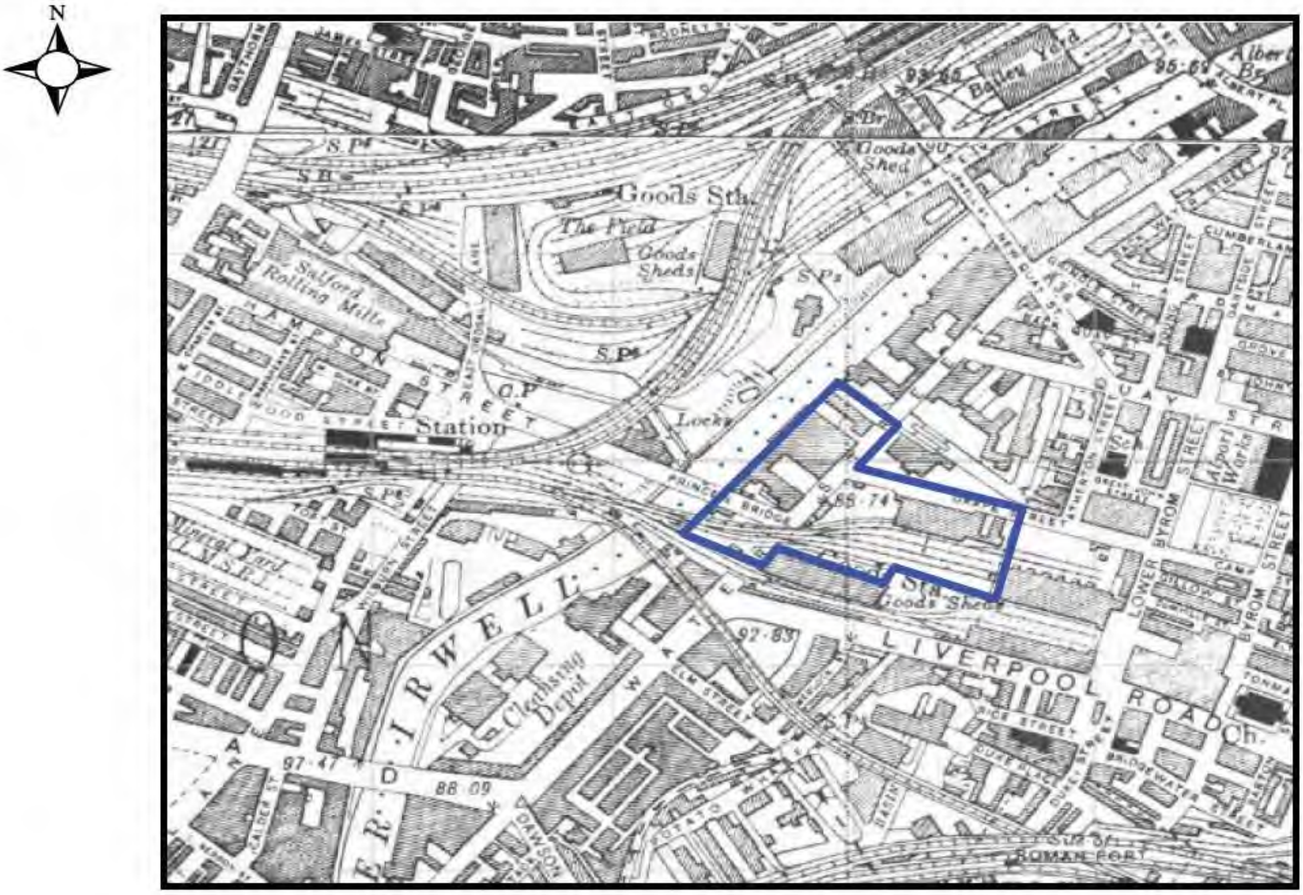


High Explosive Bomb Strike (Blue) & Bomb Damage (Red)

Annex B: Bomb Census
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ○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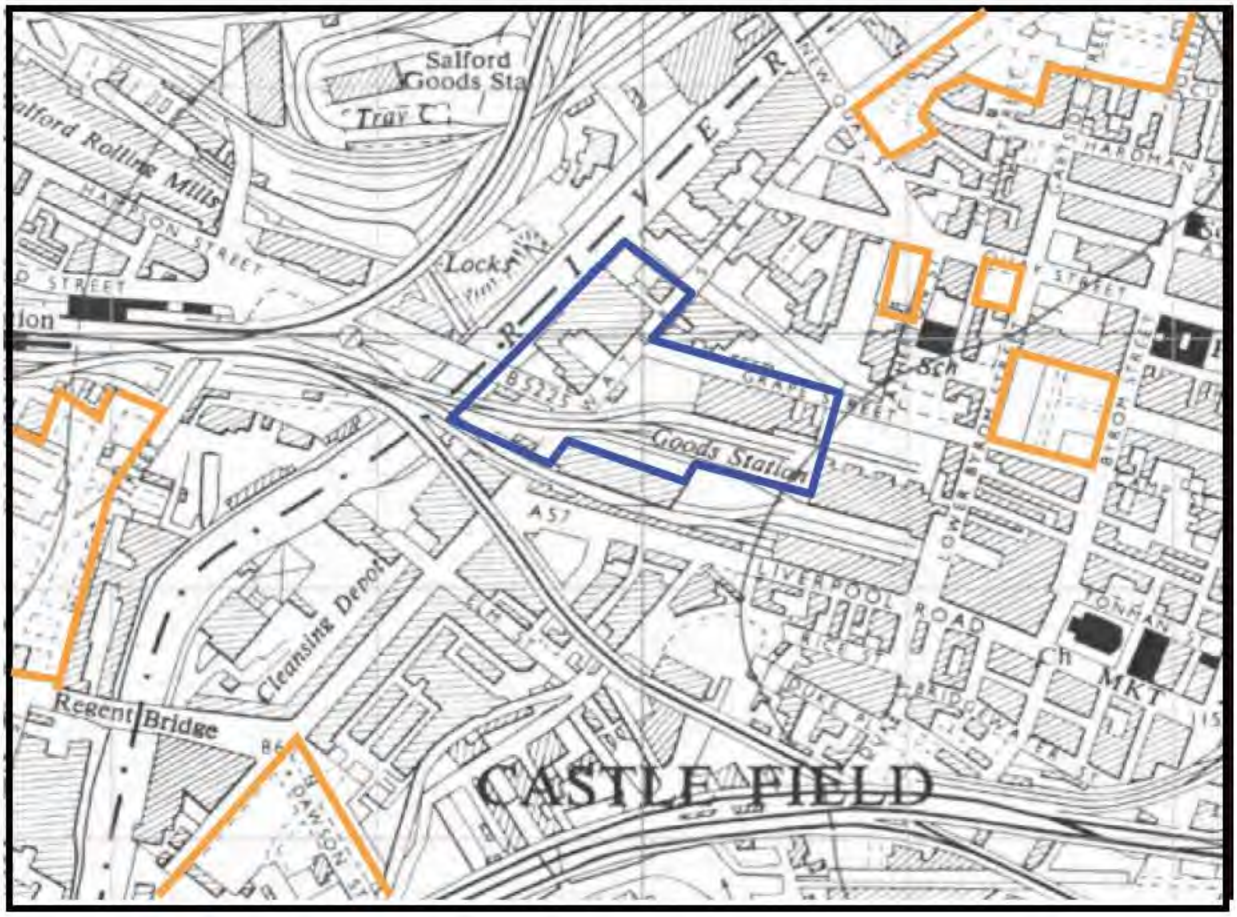
The Field
Goods Sheds
Salford Rolling Mills
Station
Locks
Princes Bridge
Goods Shed
Irwell
Cleansing Depot
Liverpool Road
Elm Street
Dawson
Roman Fort

1938

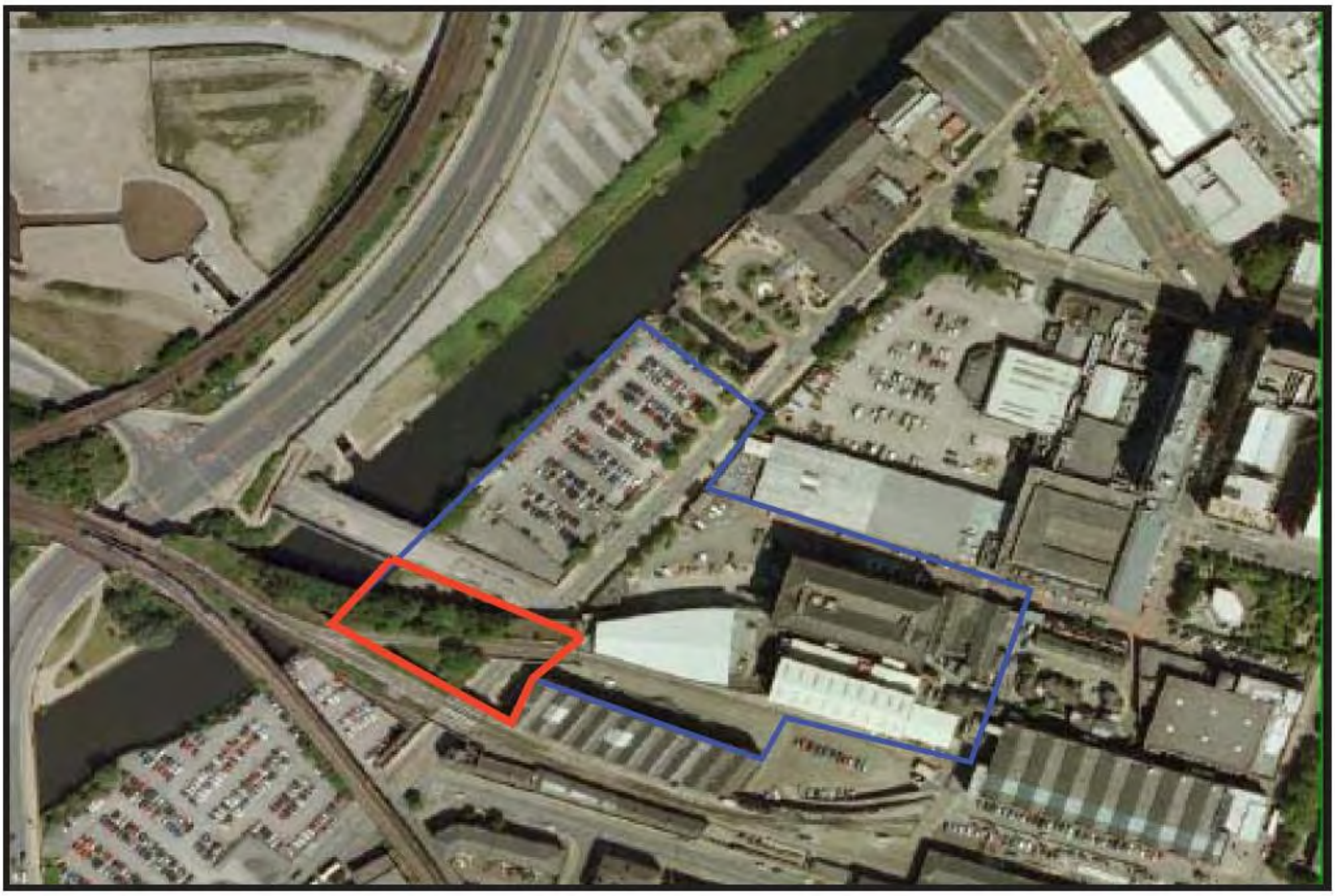

Salford Goods Sta
Salford Rolling Mills
Locks
River
Goods Station
A57
Cleansing Depot
Liverpool Road
Regent Bridge
Castle Field
Sch
MKT

1956

Annex C: Historical Street Maps
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:
Site Location ○
Bomb Damage ▭

PLANIT
RESTORING BALANCE



Key:

Site Location ▭

UXB Threat Zone ▭

Annex D: UXB Threat Zone
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Appendix L – Hazard Checklist

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Ground Engineering Hazard Check List

Job Nr: 034933 **Project: The Factory, Manchester**

Rev: 00 **Date: July 2016**

BUROHAPPOLD ENGINEERING

Ref No.	Hazard	Risk (Y/N?)					What action have you taken	Further action(s) required	Action Req'd By		
		C	P	H&S	E	S			Client	Des'nr	Cont'r
1.00	**Site Appraisal**										
1.01	Are access restrictions (e.g. site access, turning circles in the vicinity of the site, or congested sites) likely to cause restrictions in the ability to access the site for ground investigation purposes? *(Refer to BH CDM Policy hazard note 6.4)*	N	Y	N	N	Y	Access likely to be restricted in western portion of site (Network Rail/Skanska) and within MoSI land.	Contractor/Buro Happold to liaise with landowner(s) prior to start of/during works.	Y	Y	Y
1.02	Is there restricted space at the perimeter of the site boundary for required investigation?	N	N	N	N	Y	Access restrictions TBC.	Contractor to liaise with landowner(s) prior to start of/during works. Site meeting proposed prior to GI works commencing to agree exploratory hole positions.	-	Y	Y
1.03	Could the location of investigations result in undermining or cause vibration to existing structures resulting in structural collapse or damage?	N	N	Y	Y	Y	No exploratory holes (except hand excavated pits with lightweight machine assist) to be undertaken within a reasonable distance of existing structures.	Contractor method statements to take account of associate risk.	-	-	Y
1.04	Will any ground investigation works impede the means of escape from occupied or nearby premises or restrict access for emergency vehicles during construction?	N	N	N	N	N	Exploratory holes located where they will not block site entrances, access roads or fire escape routes from buildings.	-	-	-	-
1.05	Are there any overhead power lines crossing the site?	N	N	N	N	N	None anticipated	-	-	-	-
1.06	Will working over or adjacent to water be required at the site?	N	N	N	N	N	River Irwell to the west of the Site. Any exploratory holes in this area of the site have been located away from the river.	Contractor method statements to take account of associate risk.	-	-	Y
1.07	Will rope access or work on or adjacent to steep slopes be required at the site?	N	N	N	N	N	None anticipated	-	-	-	-
1.08	Will working in confined spaces be required?	N	N	N	N	N	None anticipated	-	-	-	-
1.09	Is the site in an area where damage to plant and/or equipment stored on site needs to be considered?	Y	N	N	N	Y	All working areas must be fenced off and locked if equipment is to be left on site overnight.	Secure container to be used if required by contactor.	-	-	Y

Risk Categories: C = Cost; P = Programme; H&S = Health & Safety; E = Environmental and S = Serviceability

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Ground Engineering Hazard Check List

Job Nr: 034933 **Project: The Factory, Manchester**

Rev: 00 **Date: July 2016**

Ref No.	Hazard	Risk (Y/N?)					What action have you taken	Further action(s) required	Action Req'd By		
		C	P	H&S	E	S			Client	Des'nr	Cont'r
1.10	Are munitions or unexploded ordnance present or likely to be present on site?	N	Y	Y	N	Y	The Zetica UXO Map states moderate risk. The PLANIT Explosive Ordnance Threat Assessment (EOTA) concludes that UXO management is required in the southwest portion of the site.	During the GI, on site presence from suitable UXO company is required to clear all exploratory hole positions to bedrock (southwest portion of site only).	-	Y	Y
1.11	Is there the presence or likely presence of tunnels or mineshafts?	N	N	N	N	N	None envisaged.	-	-	-	-
1.12	Is the site in an area that has or is likely to have experienced mining activities?	N	N	N	N	N	None envisaged.	-	-	-	-
1.13	Is the site in an area that is likely to contain natural cavities, voids or solution features?	N	N	N	N	N	None envisaged	-	-	-	-
1.14	Is there a possibility that existing structures, below or above ground, could contain or incorporate asbestos or other suspect harmful chemicals? *(Refer to BH CDM Policy hazard note 6.3)*	N	N	Y	Y	N	Buildings demolished on site between the 1950s and the 1990s may have contained asbestos.	Asbestos testing during ground investigation.	-	-	Y
1.15	Does the site history indicate that the site is likely to be contaminated either above or below ground?	Y	N	Y	Y	N	The site is in an industrial area of Manchester City Centre which has previously been used for a variety of industrial uses. Chemical testing during site specific ground investigation will be required.	Chemical testing during site specific ground investigation will be required.	-	-	Y
1.16	Is there the presence or likely presence of below ground fuel tanks that may or may not have fuel in them?	N	N	Y	Y	Y	Potential presence due to the industrial nature of the area.	Chemical testing during site specific ground investigation will be required.	-	-	Y
1.17	Are there likely to be any harmful or explosive gases below ground?	N	N	Y	Y	N	Ground gas monitoring to take place as part of site specific ground investigation.	-	-	-	Y
1.18	Are there gas storage tanks on or near the site?	N	N	Y	Y	Y	Potential presence due to the industrial nature of the area.	Chemical testing during site specific ground investigation will be required.	-	-	Y
1.19	Are there any live services within the existing structures and or on the site? Have these been adequately identified especially next to live services? *(Refer to BH CDM Policy hazard note 6.5)*	N	Y	Y	N	Y	Available service plans to be provided to contractor.	Contractor to review service information provided and provide for CAT scans, manhole lifting and complete hand dug inspection pits.	-	-	Y
1.20	Are there any legal or other constraints to obtaining access to work on boundary walls from the neighbours' side?	N	Y	N	N	Y	Network Rail / Skanska compound (area to the west of Water Street) currently inaccessible.	Design team to liaise with Network Rail / Skanska for existing GI data in that area; future GI mobilisation may be required once access is available.	-	Y	Y

Risk Categories: C = Cost; P = Programme; H&S = Health & Safety; E = Environmental and S = Serviceability

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Ground Engineering Hazard Check List

Job Nr: 034933 **Project: The Factory, Manchester**

Rev: 00 **Date: July 2016**

Ref No.	Hazard	Risk (Y/N?)					What action have you taken	Further action(s) required	Action Req'd By		
		C	P	H&S	E	S			Client	Des'nr	Cont'r
1.21	Are there any permits or consents required for ground investigation work, e.g. hot springs	N	N	N	N	N	None required.	-	-	-	-
1.22	Will work on the site require access to or be adjacent to land owned by Network Rail?	N	N	N	N	N	None required.	-	-	-	-
1.23	Is there the presence or likely presence of below ground structures on site i.e. basements?	N	Y	Y	N	N	Infilled basements and concrete/brick obstructions likely due to the development history of the site.	Provision of breaker required for inspection pits.	-	Y	Y
1.24	Is there the presence or likely presence of deep chambers?	N	N	N	N	N	None required.	-	-	-	-
1.25	Is there the presence or likely presence of tunnels below or near the site?	N	N	N	N	N	None required.	-	-	-	-
1.26	Will ground investigation result in excessive noise, dust, vibration which could affect adjacent properties such as schools and hospitals etc.?	N	N	N	N	N	None required.	-	-	-	-
1.27	Are there any site issues with regard to water e.g. flooding, tidal and ground water?	N	N	N	N	N	None required.	-	-	-	-
1.28	Are there likely to be any archaeological features on site?	Y	Y	N	N	Y	Archaeological remains likely due to the development history of the site. A scheme specific archaeological investigation may be required.	-	-	-	-
1.29	Are there likely to be any ecological features on site?	N	N	N	N	N	Ecology survey required.	-	-	-	-

Risk Categories: C = Cost; P = Programme; H&S = Health & Safety; E = Environmental and S = Serviceability

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Appendix 12.4

Explosive Ordnance Threat Assessment (EOTA) Report

EXPLOSIVE ORDNANCE (EO) THREAT ASSESSMENT (EOTA)

MANCHESTER CITY CENTRE FACTORY

[redacted]

the preparation of detailed Risk Assessments in the management of UXO risks in the construction industry, for which PLANIT was an instrumental driver for improved UXO risk management and transparency.

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Peer Review:	Andrew HAMILTON	

EXECUTIVE SUMMARY	
SITE DESCRIPTION	The site is located approximately 0.5km west of Manchester city centre and the Exhibition Centre, 0.6km south of Salford Central Station. The site straddles Prince's Bridge and Water Street (B6225) and is bounded to the east by the Museum of Science and Technology. National Grid Reference for the approximate centre of the site is SJ 829 979 and the nearest postcode is M3 4JQ. The site is dominated by a large, triangular structure at its centre but is mostly covered by hard standing for vehicle manoeuvre and parking.
POTENTIAL THREAT SOURCE	WW2 German air-dropped bombs – High Explosive (HE). British Anti-Aircraft Artillery (AAA) projectiles.
THREAT PATHWAY	For the purposes of this assessment, it has been assumed that development works would include piled foundations and excavations beyond WW2 ground levels. It is anticipated that personnel or key equipment may complete the risk pathway during excavation and/or piling operations that may bring them into physical contact with potential threat items.
KEY FINDINGS	There is evidence that the site of concern was directly affected by aerial bombing during WW2. The possibility that the site was affected by Anti-Aircraft Artillery projectiles returning to earth unexploded cannot be reasonably ignored. There is no evidence to suggest that other ordnance contamination events occurred at the site of concern. There are no Abandoned Bombs or UXBs recorded that would affect the site of concern directly. The EO Threat varies across the site of concern.
THREAT LEVEL	Outside of the UXB Threat Zone, the Ordnance Threat Levels are considered to be **NEGLIGIBLE**. Within the UXB Threat Zone, the following Ordnance Threat Levels apply: • 50, 250, 500 and 1,000kg bombs - **MEDIUM** • British AAA projectiles - **MEDIUM**
THREAT MITIGATION	In light of the findings of this assessment, within the UXB Threat Zone, a **UXO THREAT MITIGATION STRATEGY IS REQUIRED** to be in place prior to intrusive engineering works at this site of concern.
THREAT REVIEW	*A review of these recommendations must be undertaken in light of any additional, relevant information being provided. Such a review may, if the EO Threat Level is deemed to have altered, make alternative recommendations from those made above in order to implement work safely.*
AIM & METHODOLOGY	The aim of this assessment is to identify any threats that may be posed by EO during the proposed engineering works at the site of concern and, where a threat is identified, to recommend a risk mitigation strategy that will reduce this threat to acceptable levels.

This assessment follows the CIRIA 681 Guidelines, which were compiled using, as a main driver of change, PLANIT's innovative approach to EO risk assessment.

The following key considerations are addressed in this assessment:

- The risk that the site of concern was contaminated by EO.
- The risk that EO remains on site.
- The risk that EO may be encountered during the proposed engineering works.
- The risk that EO may be initiated by proposed engineering works.
- The consequences of encountering or initiating EO.

If the likelihood of encountering EO is significant, information about the types and natures of that EO and the expected levels of contamination is considered within the source-pathway-receptor context of contamination. Should a confirmed pathway exist, the information is entered into our proprietary Threat Assessment Matrices in order to arrive at a valid and transparent Threat Level.

The Threat Level allows relevant conclusions to be made about the EO Risk at the site of concern, which in turn allows an appropriate Risk Mitigation Strategy to be developed.
The Threat Mitigation Strategy is intended to give the Client a best-fit, safe solution that will allow the level of risk from EO to be reduced to an acceptable level; providing maximum project planning flexibility.

PLANITs approach to EO threat assessment has been fundamental in driving change throughout the UK Commercial EOD Industry and was instrumental in the drafting of CIRIA 681. PLANITs approach provides transparency to our EO risk assessment process allowing the Client to make valid decisions on what is a specialist activity; empowering them to maintain control over this vital aspect of their project - Where necessary, appropriate EO risk mitigation measures will be recommended.

This assessment considers general and site specific factors, including:

- Historical use of the site in relation to ordnance manufacturing, storage and disposal.
- Historical use of the site in relation to Military training and related facilities.
- Evidence of offensive aerial and naval bombardment during WW1 and WW2.
- Evidence of Unexploded Bombs (UXBs).
- Previous EO incidents and/or EO survey/clearance activities.
- Extent of post-war redevelopment.
- Proposed engineering works.

RELIABILITY OF HISTORICAL RECORDS

This assessment is drawn from detailed research into the available historical evidence. Every effort is made to gather all of the relevant material; however, PLANIT cannot be held responsible for any changes to the assessed level of risk or proposed risk mitigation strategies due to subsequent information that may come to light at a later date.

The accuracy and detail of wartime historical records is difficult to verify, not least of which is due to the conditions under which much of this information was gathered and recorded. Additionally, recording of information was less formalised in the early days of the German air campaign against the UK mainland (Pre-Bomb Census Record) and much information recorded early on was lost during subsequent air raids. Records for rural, sparsely populated areas are not always reliable, being based on second-hand information in many cases; records of attacks on military installations was often recorded independently from general records and many such archives have been lost or remain undisclosed to the public.

Consequently, the exact location, quantity and nature of the EO threat cannot be definitive but rather remains subjective and is based on the careful analysis by experts of the available information. PLANIT cannot accept liability for any gaps in the historical record.

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SITE LOCATION & DESCRIPTION

SITE OF CONCERN	The site is located approximately 0.5km west of Manchester city centre and the Exhibition Centre, 0.6km south of Salford Central Station. The site straddles Prince's Bridge and Water Street (B6225) and is bounded to the east by the Museum of Science and Technology. National Grid Reference for the approximate centre of the site is SJ 829 979 and the nearest postcode is M3 4JQ. The site is dominated by a large, triangular structure at its centre but is mostly covered by hard standing for vehicle manoeuvre and parking. Maps showing the site location and layout are at Annex A.
SCOPE OF PROPOSED WORKS	The details of the proposed development are unknown at the time of writing this assessment. For the purposes of this assessment, it has been assumed that development works could include intrusive engineering beyond WW2 ground levels. It is anticipated that personnel or key equipment may complete the risk pathway during excavation and/or piling operations that may bring them into physical contact with potential threat items.
GEOLOGICAL ENVIRONMENT	Information on the site specific geological environment is not available at the time of writing of this assessment. However, it is anticipated that the superficial deposits will consist of alluvium with clay, silt, sands and gravels.

REVIEW OF RELEVANT DATASETS

SOURCES OF INFORMATION

PLANIT ensures that Explosive Ordnance Risk Assessments (EORAs) are as comprehensive as possible and detailed research is undertaken to collate all of the available EO-related information that relates to the site of concern. Information sources may include, but are not restricted to:

- National Historic Archives.
- Local Authority & Council Archives.
- English Heritage National Monuments Record.
- Ministry of Defence Archives.
- PLANITs extensive archives drawn from many years of detailed research and operational experience of UXO Risk Management activities in the UK and abroad.
- Joint Service EOD Centre (JSEOD).
- Historic Mapping and Aerial Photography.
- Specific UXO-related documents such as military bombing and casualty records.
- Local libraries and history groups.
- Open sources such as published books and internet searches.
- Anecdotal evidence from eye witnesses.

NB: The MoD information office that deals with requests for information relevant to EO clearance operations completed by the MoD is currently facing significant delays. Although a request has been submitted, any information that may be relevant has not yet been forwarded for timely inclusion in this assessment. However, if any relevant information comes to light from this source that affects the threat assessment, this will be notified to the client as a matter of urgency.

SITE HISTORY

The site has been an area of industrialised docklands since at least 1848. At this time, Princes Bridge had not been built and the site was dominated by a number of large, warehouses.

By 1896, Princes Bridge is built and the tracks servicing the 'Goods Station' are installed. The site remains fairly static until at least 1972 by which date the servicing dock has been infilled in the northern part of the site.

By 1980, the 'TV Centre' appears in the map record built over the former servicing dock and by 1988 a number of large warehouses along the river bank to the west have been removed.

Between 1985 and 1999, the triangular shed appears in the centre of the site and no significant redevelopment has occurred since this time to the present day.

ORDNANCE MANUFACTURE & STORAGE

During WW1 and WW2, Lincolnshire housed a number of facilities involved in the manufacture, storage, filling and testing ordnance. The nearest explosive manufacturing sites (known as His Majesty's Explosive Filling Factories (HMEFs)) were:

- Trafford Park (HMEF).
- Hyde Road, Gorton, Manchester (National Shell Factory – manufacturing 4.5" shell (projectile) casings).

The nearest Royal Ordnance Facilities (ROFs) established in the run up to WW2 were:

- ROF Chorley.
- ROF Radway Green.

None of these sites would have posed a potential threat to the site of concern.

MILITARY HISTORY

There is no evidence to indicate that the site was ever used for military purposes.

CIVIL DEFENCE	Manchester possessed a peak of 56 Heavy Anti-Aircraft Batteries during WW2, including 4.5, 3.7 and 3 inch Anti-Aircraft (AA) guns, sited in some 70 separate locations. None of these were sited on or near to the site of concern to have created a direct source of potential ordnance contamination. Due to the relatively high failure rate of Anti-Aircraft Ammunition (AAA) during this time, there remains the possibility that such ordnance fell back to earth creating additional UXO hazards. This type of ordnance had the potential to penetrate the ground to significant depths and cannot be entirely discounted as a potential threat source although its potential presence is impossible to determine with any quantifiable degree of certainty. As would be expected, Manchester had several Civil Defence ('Starfish') sites designed to protect London from aerial attack. Manchester's Starfish Sites were located at: • Chat Moss. • Tatton Park. • Park Moor (now in Lyme Park Country Park). • Churnal Moor. • Mossley. • Carrington Moss. • Ludworth Moor. • Reddish. • Elkstone (north Staffordshire). None of these sites would indicate the possibility that erroneous Luftwaffe bombing would have produced a consequent UXO risk on the site of concern.
WW1	Greater Manchester suffered two aerial bombardments during WW1; on 26 Sep 1916 Zeppelin L21 dropped 20 HE bombs on Bolton, mistaking the town for Derby. Significant damage was caused and 13 people were killed. On 12 Apr 1918 Zeppelin L61 bombed Wigan at 2300hrs in a raid that lasted some 12 minutes. Three people were killed and a further nine were injured during the raid. Neither of these raids would have affected the Site of concern and therefore the risk from WW1 unexploded ordnance is considered to be negligible.
WW2	During WWII the site sat close to a number of industrial and strategic installations key to the war effort that were located in the area – including Mills, Quarries and Railway infrastructure. Luftwaffe target maps do not list specific locations on or close to the site although the concept of specific targets, when bombing in and around Manchester, was only relevant prior to the accidental Luftwaffe raid on London on 24th Aug 1940. This attack broke the unofficial agreement not to bomb opposing capitals and led to the gradual breakdown of the Amsterdam draft international rules prohibiting the attacking of civilian infrastructure outside of combat zones (purely industrial areas); Great Britain, including Manchester, was now opened to air attacks. As well as the air raids targeting Manchester itself, unused bombs were routinely jettisoned whilst returning to base following an unsuccessful raid. In addition, the high-altitude area bombing during this period was notoriously inaccurate with areas surrounding specific targets suffering during attacks on the targets themselves. The site in question sits to the western edge of the main areas within Manchester that were targeted, mostly during the 'Manchester Blitz' of Dec 22-24 1940 - Salford Docks, Manchester's industrial centre and Trafford Park (with the areas surrounding them also being affected by the same air raids). Many Manchester companies were involved in war production work including the Fairey Aviation plant at Ringway, the Ferranti factory at Hollingwood, Metropolitan Vickers works at Trafford Park and the A.V. Roe (Avro) plant at Chadderton. In addition, Ford operated a factory in Eccles building Rolls Royce Merlin engines for the Lancaster bomber and the Mosquito fighter bomber. The Luftwaffe mounted consecutive heavy attacks on the Manchester area on the nights of 22/23rd and 23/24th Dec 1940. Large areas of Manchester, Salford and Stretford were devastated, killing some 684 people and injuring a further 2,364. The first raid of this 'Manchester Blitz' saw 272 tons of

HE bombs and 1, 023 canisters of Incendiary Bombs (IBs) dropped. During the second raid, 171 aircraft dropped a further 195 tons of HE bombs and 893 canisters of IBs

The site is located in Region 10 (Manchester) for Civil Defence purposes. Manchester received some 3, 465 Tonnes of HE bombs throughout the war although Cheshire and Chester were much less affected:

Ordnance Type	**Number of Bombs**		
	Region 10	Cheshire	Chester Rural District
50Kg HE	1403 (79)* + 576 (1)**	594 (25)	1
250Kg HE	727 (49) + 368	301 (19)	13
500Kg HE	114 (7) + 57 (3)	58 (6)	10 (1)
1000Kg HE	2 (2) + 6	1 (1)	
Parachute Mine	514 (77) + 592	139 (16)	
V1 'Doodlebug'	14	6	1
V2 Long Range Rocket	0		
Small Incendiary Bombs	25 454	3 639	
50Kg Phosphorus Bomb	Unknown		
Fire Pots	Unknown		
Oil Bomb	212 (4) + 202	48 (1)	
Containers	Unknown		
Unclassified Ordnance	8 114 (1 341) + 10 658	2 806 (524)	

The bombs recorded as falling on the County Borough of Manchester are summarised below:

Area Acreage	**27, 255**
High explosive Bombs (All Types)	712
Parachute Mines	18
Oil Bombs	7
Phosphorus Bombs	-
V1 'Doodlbug'	1
Total	**738**
Items per 1000 acres	**27.1**

UNEXPLODED BOMBS (UXBs)

Between 1940 and 1945, Bomb Disposal (BD) Teams cleared over 50,000 items of German air-dropped ordnance of 50Kg or larger, 7 000 anti-aircraft (AA) projectiles and more than 30 000 beach mines – This work claimed the lives of 394 Officer's and men. The War Office at the time stated that over 200 000 HE bombs exploded in Britain during WW2 with some 25 195 remaining a threat as UXBs i.e. 11%. Some 93% of all UXBs were 50Kg HE and 250Kg HE aerial bombs.

The types of ordnance discovered as UXBs give an indicator of the type of ordnance that may be encountered on or near the site of concern. In this instance there are no records of UXBs that may present a threat to the site.

ABANDONED BOMBS

A post-air raid search of damaged buildings and facilities would have included a specific search for bomb entry holes. If such evidence was discovered, then BD Teams would have been tasked (in order of strict priority from Category A, the highest priority, to category D, the lowest) to assess the potential UXB and to recommend a course of action. For UXBs that were deemed to be a high enough priority were tackled by the BD Teams who made strenuous efforts to recover and dispose of these items. However, it was not always possible to recover such bombs either through physical constraints, a lack of resources or a change in priority. Such UXBs were noted as 'Abandoned'.

Due to the low priority of abandoned bombs, records that detail them are sketchy and sometimes contradictory. Others were subsequently recovered after the War when time and resources permitted and others remain 'abandoned'. It is worth remembering that 'abandoned' bombs may also include suspected UXBs that were reported but not confirmed, but simply efforts to locate the 'bomb' were exhausted.

The Abandoned Bombs recorded in the vicinity of the site are:

Reference/ Location	Item
CD 49.3822 – Fields 600yds SE of Grove Farm, Chorlton by Beckford.	1 x AA Shell
CD 53.3825 – Fiels near rear of Gun Site Acres Lane, Upton Heath.	1 x AA Shell
CD 56.3826 – Staok Grange Farm, Little Stanney.	1 x AA Shell
CD 84.3843 – Wood Farm, Grove Road, Mollington, 500yds W of Lee Holme.	1 x AA Shell
CD 82.3842 – 50yds W of Dunkirk Lane, Capenhurst Hall Park Farm, Capenhurst.	1 x AA Shell
CD 81.3841 – 100yds S of Pitts farm, Woodbank, Shotwick.	1 x AA Shell
CD 59.3827 – Shotwick Park, S of No. 9/10 Holding Arterial Road.	1 x AA Shell

None of these are considered to present a potential UXO-related threat.

BOMB CENSUS MAPS

Manchester's Bomb Census Records are comprehensive and indicate that at least one large, air-dropped bomb fell within the south western part of the site itself.

The relevant Bomb Census Map extract is at Annex B.

HISTORICAL STREEP MAPS

Historical street plans of the period are a useful indicator of whether an area may have suffered bomb damage. The street layout prior to WW2 can be considered to be the start state and major changes to street layouts or building boundaries may indicate that the change was due to bomb damage.

In this instance, there are no significant changes to the street layout that indicate bomb damage on the site of concern itself, although there is clear bomb damage in the wider area surrounding the site.

The relevant Historical Street Plans are at Annex C.

HISTORICAL AERIAL PHOTGRAPHY

The same rational applies with historic aerial photography as it does when examining historical street plans – changes between pre-war and post-war images may indicate the possibility of damage caused by bombs falling on the site. Sometimes, detail is such that it allows bomb damage to be seen directly on sites of concern. In this instance, historical aerial photography from the period is not available and therefore no comparisons can be made.

THREAT ANALYSIS

IS THERE EVIDENCE THAT THE SITE WAS AFFECTED BY ANY EXPLOSIVE ORDNANCE

Yes.

The historical record is acknowledged as being incomplete from a National perspective but there is clear evidence within the relevant extract from the Manchester Bomb Census Maps that the site of concern was directly affected by bombing during WW2; which likely included large air-dropped bombs or British anti-aircraft artillery falling back to earth as UXBs.

CONTAMINATION EVENTS?	Although there is no change to the historical street maps of the period, this is likely more a function of the fact that the bomb is recorded as falling onto the trackway and may not have impacted nearby buildings significantly. The bomb damage would have been significant and the possibility that another bomb fell on the same area and remained underground, undiscovered as a UXB must be considered plausible. It was also a common error to mistake the havoc wreaked by a large bomb falling through built structures unexploded, which is considerable, with a smaller bomb detonating as intended. However, in this instance the damage to trackway would have been evidently caused by a detonation as it would have been burst apart as opposed to pushed into the ground as would be the case if it were a large UXB.
IF ENCOUNTERED, WHAT ORDNANCE TYPES ARE ANTICIPATED?	There is explicit evidence that the site received at least one direct hit from a large, air-dropped bomb during WW2. Given the location of the site and its proximity to Salford Docks, we must assume that larger bombs may have been used as was the procedure at the time when attacking such infrastructure. There is no explicit evidence that the site directly received Anti-Personnel or incendiary bomb strikes. Whether or not the area received AAA returning to earth unexploded is impossible to answer but it would be prudent to accept the worst case scenario in this case and accept that they probably did. The site is not known to have been used for ordnance manufacture or storage and neither was it a former Military installation. So we can discount the possibility that the site was contaminated by ad hoc military activity. The type and degree of post-War redevelopment is significant in that it would reduce the encounter potential for smaller items of ordnance such as anti-personnel bombs or AAA projectiles to such a degree in some areas of the site that this potential threat source may effectively be discounted. This is not the case for areas of the site that have not been significantly redeveloped since the end of the War. With this in mind, the following potential threat items may remain under the site in areas that have not been subject to significant redevelopment: • Large, air-dropped, German HE Bombs including 50, 250, 500 and 1,000kg bombs (of WW2 vintage). • British AAA projectiles.
WHAT IS THE EXPLOSIVE ORDNANCE / UXB ENCOUNTER DEPTH?	**Ministry of Homeland Defence Security Bomb Penetration Studies**. A major study was completed by the Ministry of Homeland Security during WW2, during which the penetration depths of 1328 air-dropped bombs (as reported by the BD Sections of the day and mostly in the Birmingham area). It was concluded, not surprisingly, that the penetration depths of different sized bombs varied according to the geology into which they fell. The average penetration depth of 430 x 50Kg HE bombs in London Clay was found to be 4.6m and that for a 250Kg bomb 6.1m. Also, they concluded that a 500Kg bomb, the largest common bomb dropped during the War, had a likely penetration depth of 6m in sand and 8.7m in clay – the maximum observed for a 500Kg was 10.2m and for a 1000Kg bomb was 12.7m. It should be remembered that these depths were achieved unencumbered by obstacles to penetration such as buildings, concrete and brickwork. **The 'J' Curve**. The 'J-curve' describes the path of a bomb (dropped from a normal altitude of about 5 000m) into homogenous ground will continue its line of flight (unless deflected by a substantial obstacle) but then turn upwards towards the surface before it stops. The horizontal distance (the 'offset') between the point of entry and final resting position was typically 1/3 of the ultimate penetration depth for a particular type of bomb. Therefore, if a bomb fell close to the exterior of a building or site and did not explode, the path that the bomb subsequently travelled beneath the ground, the "J-Curve", may have delivered it beneath the building or site footprint. The J-curve is often misunderstood, and used to describe the path taken by a bomb dropped from low flying aircraft to which it should not be applied.

The final penetration depth of an air-dropped depends upon a number of factors; the velocity of the bomb (as a function of the mass, speed) – PLANIT uses a standard velocity of 267m/s for assessment purposes – the angle of penetration of the bomb and the physical features through which the bomb travelled prior to impact with the ground and the geology of the ground into which it entered - Generally, the softer the ground, the deeper the expected penetration depth of the bomb. Peat, alluvium and soft clays are easier to penetrate than gravels and sand and water content plays a part. In addition, it must be remembered that 'barrier geology' such as very dense gravels or bedrock i.e. geology dense enough to stop the progress of a bomb underground, is an important factor in determining the median bomb penetration depth.

Given the ground cover at the time that the bombs fell, the anticipated geology and accepting the norm for the impact angle and velocity of a large UXB, it is reasonable to assume the norm when considering the potential Bomb Penetration Depth (BDP). Therefore, it is estimated that the average penetration depths of Explosive Ordnance (EO) at this site would be:

- **British AAA projectiles – 2m**
- **50kg HE – 4m**
- **250kg HE – 6m and**
- **500kg HE – 8m**
- **1000kg HE – 10m**

HOW COULD AN UNCONTROLLED DETONATION BE BROUGHT ABOUT?

Unexploded Bombs rarely spontaneously explode (although some incidents claim to contradict this statement). High Explosive (HE) requires a great deal of energy to create the necessary conditions for detonation to occur. In the case of WWII German bombs being disturbed during intrusive ground works, there are a number of scenarios to be considered:

- **Direct impact onto the main body of the bomb.** Although this is a possibility, there is little chance of generating enough energy to detonate the explosive fill unless the fuze itself is directly struck.

- **Re-starting the mechanical clock-timer in a bomb fuze.** This is a possibility. It is probable that environmental conditions have corroded the fuse sufficiently to prevent clockwork mechanisms from functioning. However, under some conditions, fuze elements will be in a good condition and additional movement of a bomb fuse may be sufficient to restart a previously 'jammed' mechanical clockwork mechanism.

- **Induction of a static charge, creating a sufficient current to initiate an electric fuze.** This is an unlikely event. Environmental conditions are likely to have corroded the fuze, degrading its components sufficiently to prevent them from functioning. Any elements of the fuze capable of holding a charge would have dissipated in the time since the bomb failed to function.

- **Friction impact initiating fuze elements causing bombs to detonate.** Although remote, this is the most likely scenario that may result in a bomb detonating. Weathering within the fuze pocket can cause the explosives within the fuze to breakdown, crystallize and exude from the fuze itself. Violent physical disturbance of this exuded material carries the remote possibility of initiating the fuze mechanism which in turn will initiate the bomb.

WHAT WOULD THE EFFECTS OF SUCH A DETONATION BE TO THE SITE?

The effects of WWII German bombs detonating have been the subject of a number of well recorded studies. The general effect of an explosive detonation will depend upon:

- The size of the bomb and its Net Explosive Quantity (NEQ) (i.e. how much explosive material it contains).
- The type of fill in the bomb (i.e. high explosive, incendiary, photoflash).
- The physical location of the bomb. Whether it is:
  - On the surface.
  - Partially buried.

  - Buried (A bomb can be considered to be 'buried' when it is more than 2½ times its own length below ground level and covered).

- The locations of the bomb in relation to other structures.
- The strength and design of structures near to the seat of an explosion.
- The nature of the ground (i.e. sand, gravel, clay, marsh etc).
- The location of the bomb in relation to human and animal populations.

There would be the potential for ground shock to damage important underground structures including sewers, communication cables, and foundations.

The potential Damage Radii to various underground structures has been assessed by extrapolating from the Joint Service Publication 364 which is the MOD Manual for assessing bomb damage. Potential damage radii for underground structures are assessed as:

Structure	Dist (m)
Brick Walls	30
Foundations	60
Cast Iron/ Concrete Pipes	15
Earthenware/ brisk Sewers	25
Electric Cables/ Steel Pipes	12

WOULD THE SITE CONDITIONS AFFECT THE BOMB FAILURE RATE?

There is no evidence to suggest that bomb failure rate at the site of concern would have been any different from that routinely experienced, i.e. 10-15% of all bombs dropped.

WOULD UXBs HAVE BEEN DISCOVERED DURING WW2?

Density of Bombing. Despite Manchester receiving a high density of bombing in WW2, the site sits on the periphery of the focus of those attacks. However, we know that the site itself received at least one direct bomb strike which caused significant damage. This factor would have made data gathering at the time more complicated and the likelihood of overlooking UXBs higher.

Frequency of Access. Since the site was occupied and used at the time of the air raids, the site of concern would have been subject to post-air raid survey and clearance. The fact that the site itself was affected by bombing, and given its key industrial role, any post-raid survey activities would have been thorough. This would have made the likelihood of identifying smaller items of EO (such as Incendiaries and AP bomblets) quite high whilst larger UXBs would have been more readily identified. However, entry holes and UXBs could easily have been overlooked due to their diminutive size, or gone unnoticed if they fell into water.

Ground Cover. Although the site was industrial in nature (and as such it's physical characteristics would act to retard the progress of UXBs underground by reducing their overall velocity prior to impact) the recorded bomb fell through trackway which is not as resilient as concrete or brick and therefore the maximum potential bomb penetration depths must be considered as the 'worst case'. This is also true of bombs falling into water.

Peripheral Bomb Damage. We know that the site of concern was subject to bomb damage during the War. This increases the possibility of post-air raid operations failing to identify entry holes of potential UXBs.

DOES THE SITE'S DEVELOPMENT HISTORY AFFECT THE POTENTIAL

Yes.

The fact that there has been a degree of post-War development at the site is worthy of note in that any potential contamination from shallow EO (i.e. AP bombs and IBs) would likely have been discovered during these works and dealt with at the time.

FOR UXO ENCOUNTER?	The small part of the site within which the bomb is recorded as falling has not been redeveloped since the end of the War in any meaningful way. Therefore, the potential for UXO encounter in this area remains as it did immediately post-War. It is worth remembering that development either immediately post-War or in the 1960/ 70s would not have taken any account of the potential for UXBs at the site of concern nor would any effective technology be available to detect such potential threat items. Modern structures tend to have foundation designs that go deeper than historic buildings and risk encountering UXBs at depths beyond existing historic foundation levels or within historic foundation structures that were not detected by excavation or historical bomb survey.
DOES THE UXO THREAT VARY ACROSS THE SITE?	**Yes.** Volumes of ground across the site that have already been subjected to extensive redevelopment involving the displacement of earth, may be considered free from the threat of UXO/EO *within the volumes of ground excavated/disturbed*. The same cannot be said of areas of the site that have not been subjected to the same degree of physical disturbance. Areas of the site that have been subjected to historical piling *cannot be automatically considered to be free from the threat of UXO/ EO within the volumes occupied by the piling layout although the threat is significantly reduced* – there is a possibility that historical piles have either missed UXBs at depth or pushed these items aside without incident when they were emplaced. Further, the volume of ground below such piled areas cannot be considered to be free from the threat of UXO/ EO. Volumes of post-War made ground may be considered free from the threat of UXO/EO also, unless a cross-contamination event has occurred. In this instance, only a small part of the site was affected by aerial bombing in WW2. We can say this with confidence as the built nature of the wider site during this time means that additional bomb damage would have been recorded as indeed it was further east of the site itself. Additionally, this area of the site has not been significantly redeveloped, involving the displacement of earth to significant depths since the end of the War and therefore the potential for UXO encounter remains the same today as it was back then. With this in mind, it is only this small area of the site that needs to be considered further when assessing the potential for UXO encounter. This area has been designated a 'UXB Threat Zone' and is highlighted at Annex D.

THREAT ASSESSMENT

POTENTIAL EXPLOSIVE ORDNANCE THREAT ITEMS	Outside of the UXB Threat Zone, there is no potential for UXO encounter. Within the UXB Threat Zone, the following items are considered to remain under the site as potential threat items: • Large, air-dropped, German HE Bombs including 50, 250, 500 and 1,000kg bombs (of WW2 vintage). • British AAA projectiles.
CURRENT EXPLOSIVE ORDNANCE THREAT LEVELS	The Ordnance Threat Levels for the site of concern from the Threat Assessment Matrices are assessed as: **Outside of the UXB Threat Zone**, the EO Threat Levels are considered to be **NEGLIGIBLE**. **Within the UXB Threat Zone**, the following EO Threat Levels apply:

- 50, 250, 500 and 1,000kg bombs - **MEDIUM**
- British AAA projectiles - **MEDIUM**

ENGINEERING WORKS

Intrusive Site Investigation, piled foundations, bulk excavations etc.

RISK PATHWAY

For the purposes of this assessment, it has been assumed that development works could include excavations and/or intrusive engineering beyond WW2 ground levels. It is anticipated that personnel or key equipment may complete the risk pathway during excavation and/or piling operations that may bring them into physical contact with potential threat items.

WHAT ARE THE CONSEQUENCES OF AN INCONTROLLED DETONATION?

The consequences of the uncontrolled detonation of any of the items of ordnance listed above are:

Asset	Consequence
People	Lost Time Injury >7 Days
Plant	Unit Level Damage
Property	Major Wider Damage
Environmental	Major Effect

THREAT MATRICES

ORDNANCE CATEGORY

The ‘Ordnance Category’ is assessed for the different types of ordnance in terms of the ‘Damage Radii’ that may result were the ordnance subject to an uncontrolled explosion and is a function of the calibre of the ordnance and whether it is encountered on the ‘surface’ or ‘buried’.

Ordnance Category	Ordnance Category Description	Danger Radii (m)	Potential Threat Item
0	No Explosive Ordnance (EO) suspected to be present	NA	NA
1	Landmines, Anti-Personnel, HE; HE in Bulk <5Kg; Pyrotechnics	< 75	NA
2	Projectiles, HE <75mm calibre; Projectiles, Mortar, HE 50mm to < 75mm calibre; Grenades, Hand, HE; Grenades, Rifle, HE.	< 100	NA
3	Projectiles, HE < 125mm calibre; Rockets, HE, Anti-Tank (HEAT); Bombs PIAT, HE; Arial Bombs, HE, 50-250Kg (Surface & Buried); Aerial Bombs, Blast, HE & Sea Mines 20-250Kg; Aerial Bomb, HE, 250-500Kg (Buried)	< 250	**British AAA 50kg HE Bombs**
4	Bombs, Mortar, HE <105mm calibre; Bombs, Mortar, Spigot, HE; Landmines, Anti-Tank, HE; Aerial Bombs, HE, 250-500Kg (Surface)	< 300	**250-500kg HE Bombs**
5	Projectile, HE > 125mm calibre; Aerial Bombs, HE, 1500-2500Kg (Surface); Aerial Bomb, Blast, HE & Sea Mines 500-1500Kg (Surface)	< 500	**1000kg HE Bombs**

6	Aerial Bombs, HE, 2000-10000Kg (Buried); Aerial Bombs, Blast, HE & Sea Mines 1500-4000Kg (Surface)	< 800	NA

ORDNANCE THREAT

This table assigns the 'Ordnance Threat', which is a function of the Ordnance Category and the anticipated encounter depth. i.e. the smaller and deeper the ordnance the less threat is present to people and property at the surface.

	ORDNANCE CATEGORY						**Depth of Encounter (m)**
0	1	2	3	4	5	6	
	ORDNANCE THREAT						
	🟩	🟩	🟦	🟨	🟧 **1000 kg Bomb**	🟥	**>10**
	🟦	🟦	🟨	🟧 **250-500kg Bomb**	🟧	🟥	**5<10**
	🟨	🟨	🟧 **50kg Bomb**	🟧	🟥	🟥	**2.5<5**
	🟧	🟧	🟧 **British AAA**	🟥	🟥	🟥	**0.5<2.5**
	🟧	🟧	🟥	🟥	🟥	🟥	**0<0.5**
	🟥	🟥	🟥	🟥	🟥	🟥	**Surface**

ORDNANCE THREAT LEVEL

The 'Ordnance Threat Level' is arrived at by comparing the 'Ordnance Risk' with the 'Likelihood of Encounter' of a particular type of ordnance as a function of the level of expected ordnance contamination of a given type at a site of concern.

Ordnance Threat	**ASSETS AFFECTED**				**LIKELIHOOD OF ENCOUNTER**				
	People	Plant	Property	Environment	Very Unlikely	Unlikely	Likely	Very Likely	Extremely Likely
🟩	First aid injury	Slight damage	Slight damage	Slight Effect	🟩	🟩	🟦	🟨	🟧
🟦	Medical injury	Item repair	Minor damage	Minor Effect	🟩	🟦	🟦	🟨	🟧
🟨	Lost time <7 days	Item write off	Major damage	Local Effect	🟦	🟦	🟨	🟧	🟧
British AAA, 50-1000kg Bomb	Lost time injury >7 days	Unit level damage	Major wider damage	Major Effect	🟦 British AAA, 50-1000kg Bomb	🟨	🟧	🟧	🟧
🟧	Fatality	Multiple damage	Catastrophe	Massive Effect	🟨	🟧	🟧	🟧	🟧
					ORDNANCE THREAT LEVEL				

No special measures required	**NEGLIGIBLE**	
Monitor & manage potential risks	**LOW**	🟩
Review & emplace strict control measures if necessary	**MEDIUM**	🟦 **X**
Control measures required to mitigate risks to acceptable levels	**HIGH**	🟨
Intolerable Risk Level. Immediate control measures prior to any further works	**EXTREME**	🟧

THREAT MITIGATION

ACTIVITY	THREAT MITIGATION MEASURES	FINAL THREAT LEVEL
All Activities	If planned engineering works are going to enter into potentially at risk ground volumes within the UXB Threat Zone, then a threat management strategy **IS REQUIRED** to be in place prior to intrusive engineering works at the site of concern. **Explosive Ordnance Safety Awareness Briefings.** An explosive ordnance Safety Briefing should be included as part of routine site health and safety training and form a key element of the Site Health & Safety Plan. This should be conducted by a trained specialist and would assist conformance with the CDM Regulations 2007. The briefing will instruct all personnel on the identification of EO hazards, actions to take in the event of an EO incident in order to protect personnel, key equipment, property and the general public. **Explosive Ordnance Site Safety Instructions.** Explosive Ordnance Site Safety Instructions should be drafted for inclusion in the site specific health and safety manual and would include information on dealing with an EO incident safely and appropriately. These instructions would form part of the permanent site documentation and will be an aide memoire for identifying potential EO hazards, making a preliminary threat assessment as well as specific guidelines on what to do in the event of a confirmed incident.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**
SITE INVESTIGATION WORKS	Site investigation works should be supported by UXO survey as appropriate. Consideration should be given to whether the works are considered to be shallow or deep from the perspective of UXO Survey. 'Shallow' Survey is survey of the ground from 0.0m bgl to 6.5m bgl and 'Deep' UXO Survey is that beyond 6.5mbgl. • **Boreholes.** PLANIT can conduct a non-intrusive survey of a 5m x 5m box which will accurately allow your borehole to proceed into a volume of ground under which there are no ferrous obstructions. A number of locations may be provided within a survey box, allowing maximum flexibility for positioning and preventing any boreholes being terminated as a result of encountering a potential threat item at depth. • **Trial Pits.** Using shallow non-intrusive survey, the area for your trial pit can quickly be surveyed and confirmed as free from ferrous anomalies/UXO. Data is interpreted on-site and therefore locations can be changed very efficiently in the event of a potential obstacle. • **Window Sampling.** Using shallow non-intrusive survey, the area for your window sample can quickly be surveyed and confirmed as free from ferrous anomalies/UXO. Data is interpreted on-site and therefore locations can be changed very efficiently in the event of a potential obstacle.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**

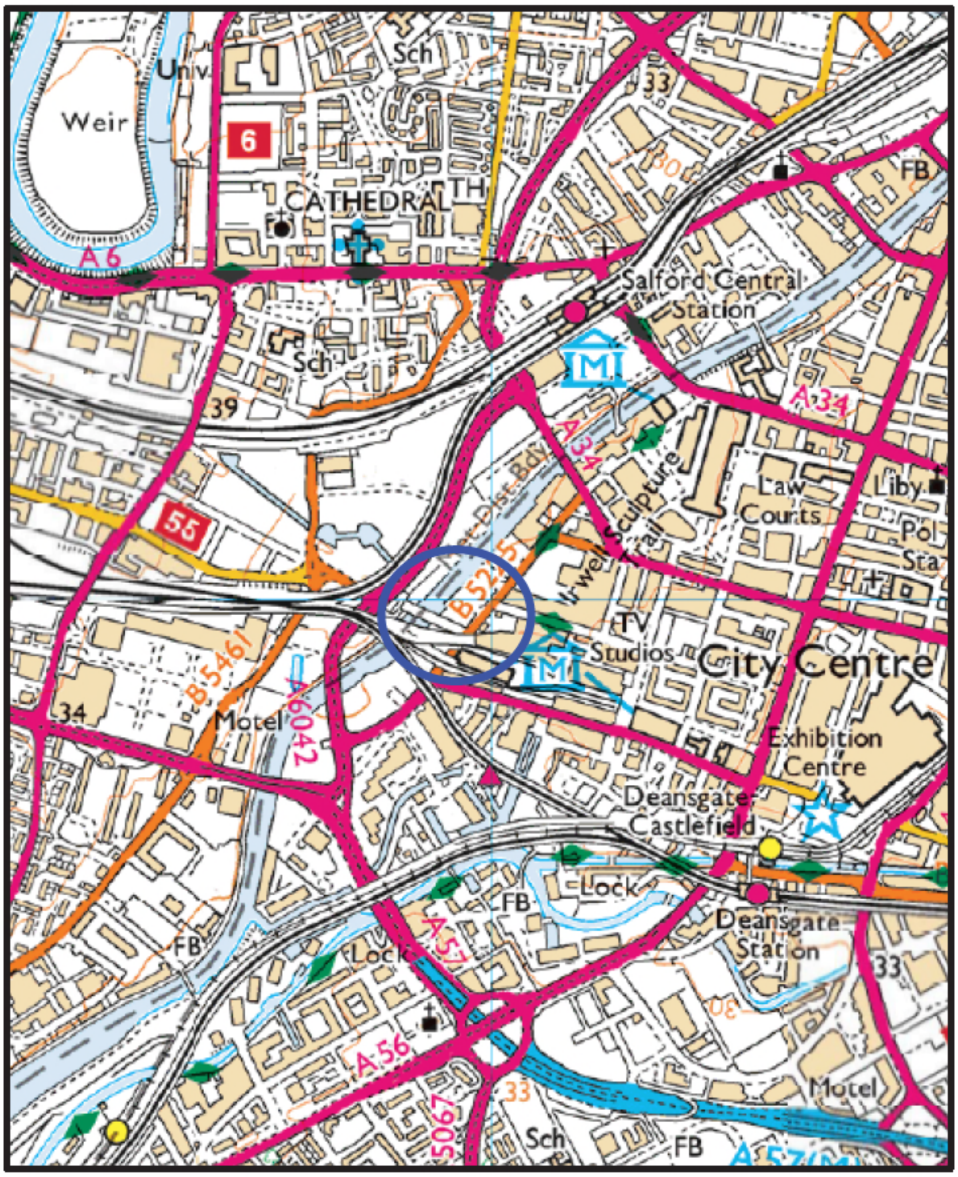
SHALLOW INTRUSIVE ENGINEERING WORKS	Where 'shallow' engineering may complete the risk-receptor pathway, there are two options available to effectively deal with the EO Threat when conducting shallow intrusive ground works. **On-Site UXO Support.** On-site UXO Support for shallow ground works would involve the presence of an appropriately trained and experienced UXO Technician during this phase of construction. The role of the UXO Technician is to: • Conduct EO Safety Awareness Briefings as required. • Monitor all intrusive ground works using visual and instrument aided means to locate any EO that may be uncovered during site works. • Provide an immediate and expert assessment of any EO that may be discovered. • Assist in implementing an appropriate and safe response to an EO incident. • Design and emplace protective works as an immediate response in order to protect personnel, key equipment, property and the general public as may be required. • Advise on best safe working practice in light of the perceived EO Threat. • Act as the liaison with the Authorities on behalf of the Client in the event of an EO incident. **Shallow Non-Intrusive UXO Survey**. PLANIT can deploy industry leading technology that will survey your site of concern non-intrusively (as long as ground conditions permit) in order to identify potential EO Threat Items. Any anomalies identified following the non-intrusive survey that may be EO should then be subject to Controlled Excavation in order to confirm them as EO and remove the threat or discount them. Once the non-intrusive survey and controlled excavation are complete, there is no further requirement for UXO Support at the site of concern since all EO Threats would have been identified and dealt with.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**
DEEP INTRUSIVE ENGINEERING	There are a number of options available to effectively deal with potential EO Threats when conducting deep intrusive ground works. Which approach is applicable will depend upon the ground conditions of the site of concern: **Deep Non-Intrusive UXO Survey.** PLANIT can deploy industry leading technology that will survey your site of concern non-intrusively (as long as ground conditions permit) in order to identify potential EO Threat Items at depth – UXO Survey should proceed to the expected UXB penetration depth or maximum depth of intrusive ground works, whichever is shallower. As a benchmark, PLANITs Deep Non-Intrusive Survey is capable of identifying a 500Kg HE bomb to some 8.0m bgl in average ground and larger bombs deeper. This approach is ideal for covering large areas quickly and can be employed to survey piling runs and borehole locations. Any anomalies identified following the non-intrusive survey that may be EO should then be subject to Controlled Excavation in order to confirm them as EO and remove the threat or discount them. Once the non-intrusive survey and controlled excavation are complete, there is no further requirement for UXO Support at the site of concern since all EO Threats would have been identified and dealt with. **Magcone UXB Survey.** PLANIT can deploy world class Magcone Survey Systems to survey either pile locations or small areas ahead of intrusive	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**

	engineering including piling and drilling. The Magcone system is very versatile and can survey to great depths if required. **Down-Hole Magnetometer UXO Survey**. PLANIT can deploy down-borehole UXO Survey equipment that will clear ahead of a piling or borehole rig as it descends underground. The main drawbacks of this approach are that it is time consuming, 'blind' (insofar as the borehole may proceed for some depth before a potential threat item is identified, at which stage the borehole will have to be terminated and relocated, wasting time and money), equipment heavy and expensive. Any anomalies identified during this survey that may be EO should either be subject to Controlled Excavation in order to confirm them as EO and remove the threat or discount them or relocate the borehole or adjust the piling plan. UXO Survey should proceed to the expected UXB penetration depth or maximum depth of intrusive ground works, whichever is shallower.	

ANNEXES

A. Site Location & Layout.
B. Bomb Census Map.
C. Historical Street Maps.
D. UXB Threat Zone.

N



Univ
Weir
Sch
6
33
CATHEDRAL
TH
FB
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Sch
A34
39
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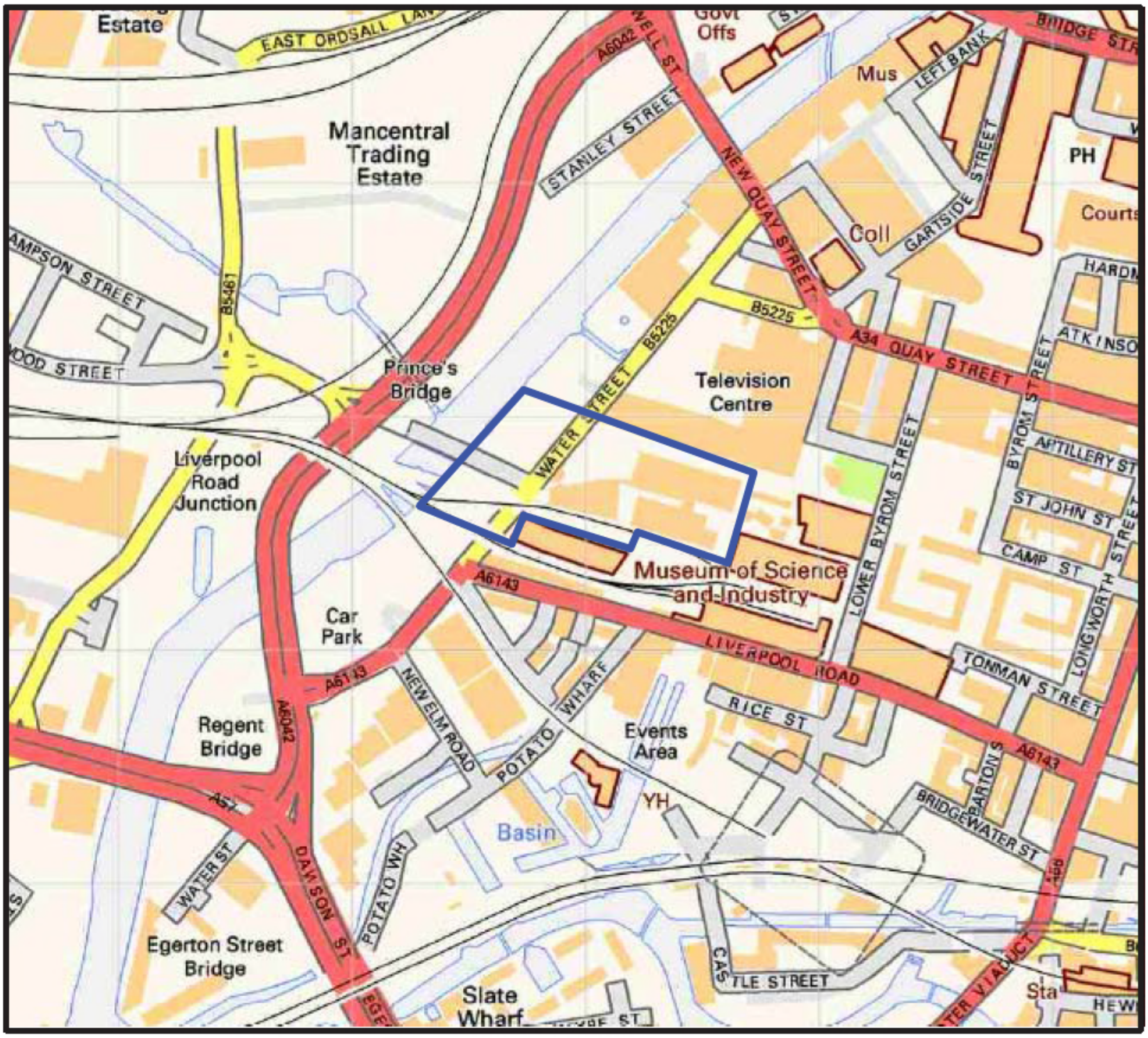
Law Courts
Liby
Pol Sta
55
B5225
TV Studios
City Centre
B5461
Motel
A6042
34
Exhibition Centre
Deansgate Castlefield
Lock
FB
Deansgate Station
FB
Lock
A57
33
A56
Motel
5067
33
Sch
FB
A57(M)

Annex A: Site Location
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ○

PLANIT
RESTORING BALANCE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WELL ST
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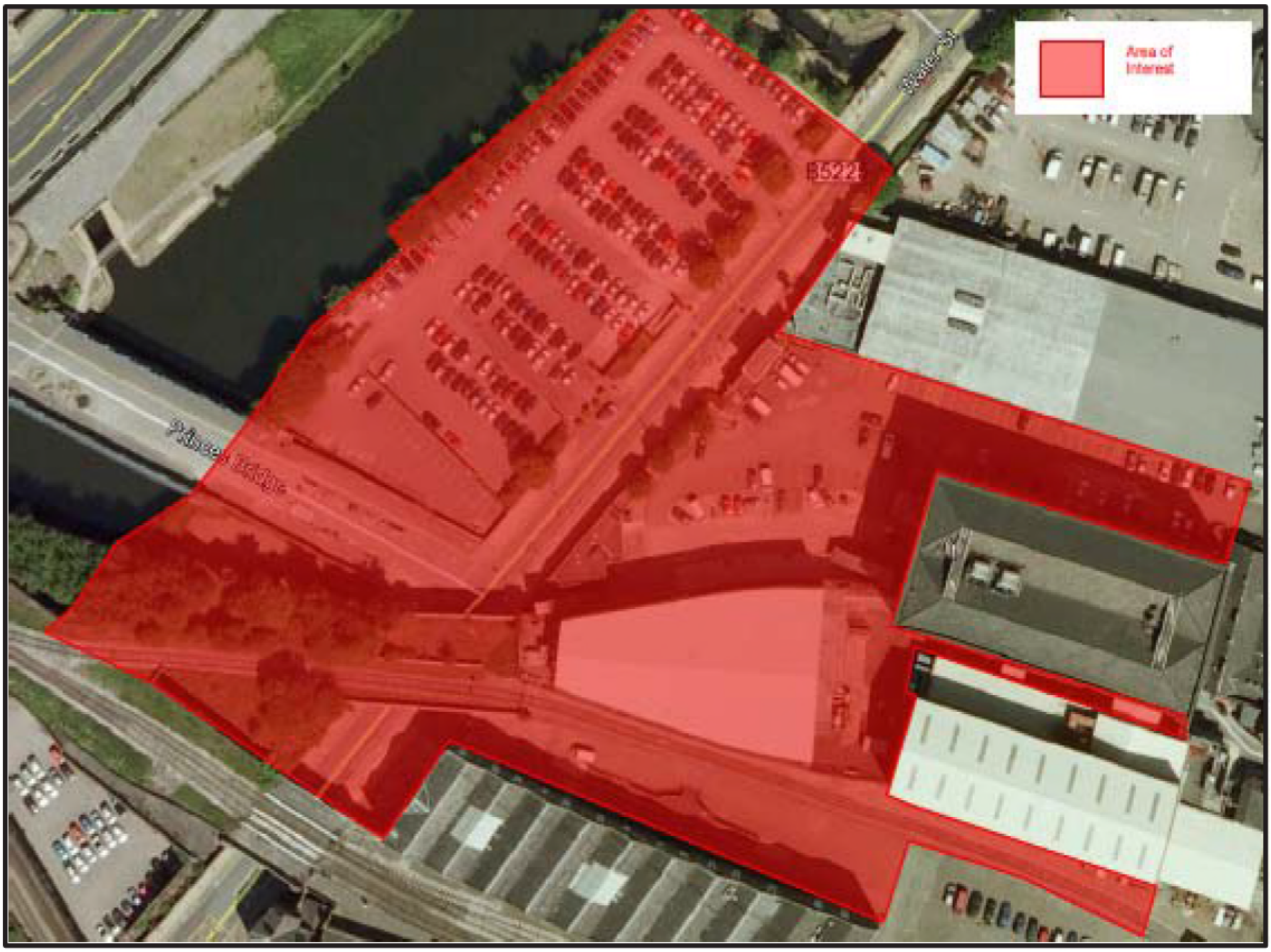
Mus
LEFT BANK
BRIDGE STR
Mancentral Trading Estate
STANLEY STREET
NEW QUAY STREET
GARTSIDE STREET
PH
Courts
Coll
HARDM
SAMPSON STREET
B5461
B5225
A34 QUAY STREET
ATKINSO
WOOD STREET
Prince's Bridge
WATER STREET
Television Centre
BYROM STREET
ARTILLERY ST
Liverpool Road Junction
LOWER BYROM STREET
ST JOHN ST
CAMP ST
LONGWORTH STREET
A6143
Museum of Science and Industry
Car Park
LIVERPOOL ROAD
TONMAN STREET
A6143
NEW ELM ROAD
WHARF
RICE ST
A6042
Regent Bridge
Events Area
POTATO
A6143
A57
YH
BARTON S
BRIDGEWATER ST
Basin
WATER ST
DAWSON ST
POTATO WH
A56
Egerton Street Bridge
CASTLE STREET
WATER VIADUCT
Sta
Slate Wharf
HEWI
EGE
ST

Annex A: Site Location
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ○

PLANIT
RESTORING BALANCE

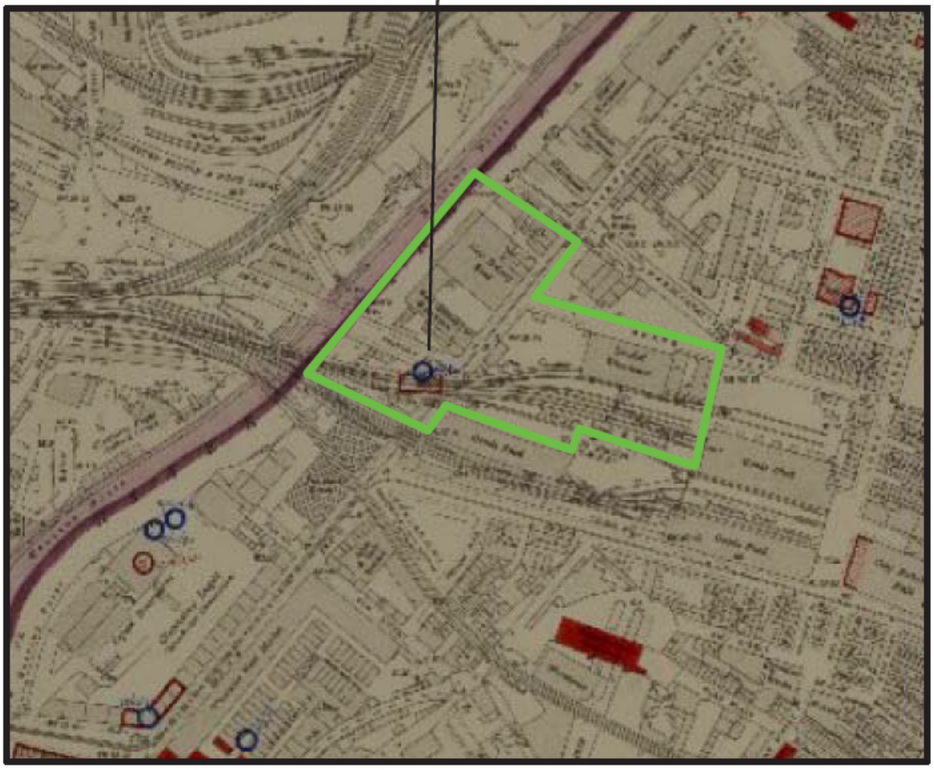

Area of Interest
Water St
B5224
Princes Bridge

Annex A: Site Location
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ●

PLANIT
RESTORING BALANCE

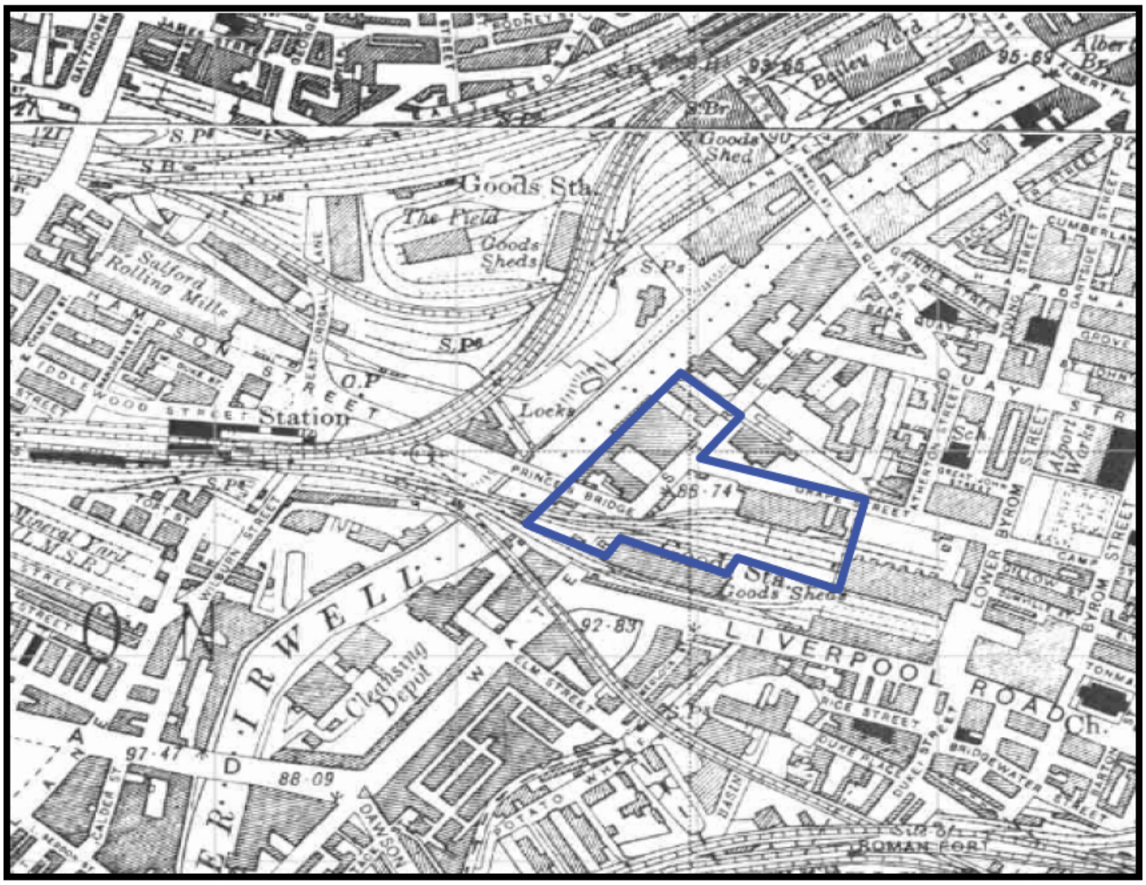


High Explosive Bomb Strike (Blue) & Bomb Damage (Red)

Annex B: Bomb Census
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:

Site Location ○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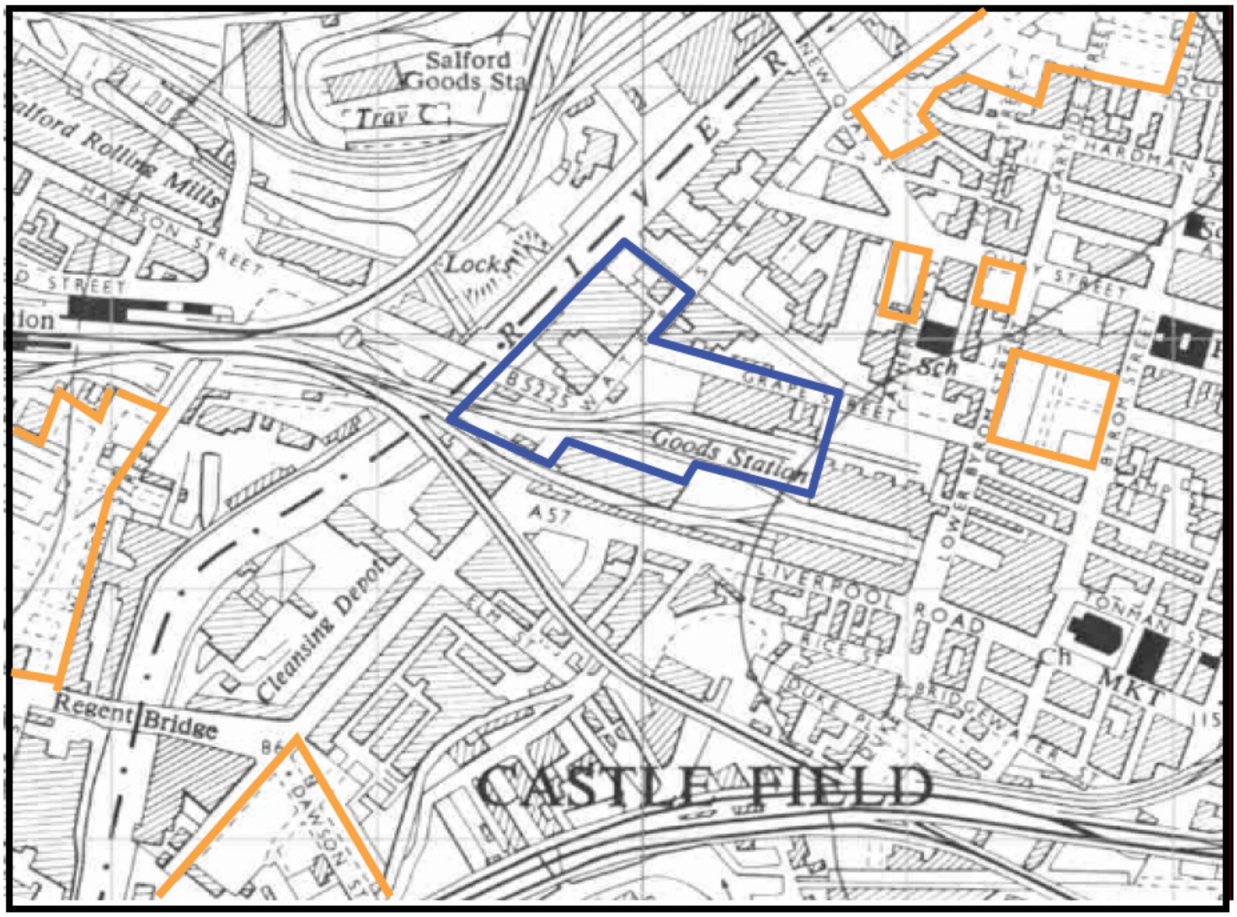
The Field
Goods Sheds
Salford Rolling Mills
Station
Locks
Princes Bridge
Goods Shed
Liverpool Road
River Irwell
Cleansing Depot
Elm Street
Bailey Yard
Roman Fort

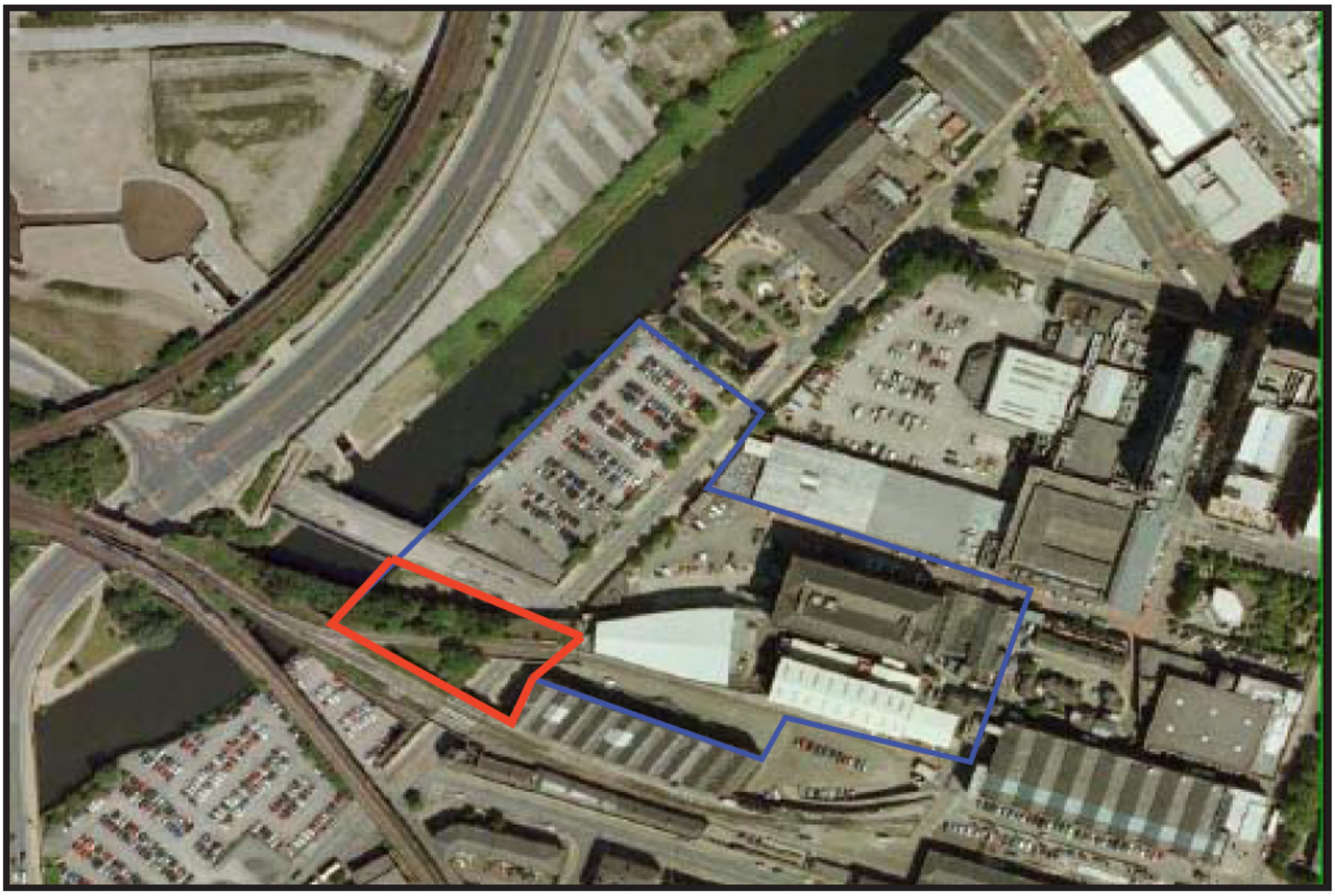
1938


Salford Goods Sta.
Salford Rolling Mills
Locks
River
Goods Station
Liverpool Road
Cleansing Depot
Regent Bridge
Castle Field
A57

1956

Annex C: Historical Street Maps
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

Key:
Site Location ○
Bomb Damage ▭



Key:

Site Location 🟦

UXB Threat Zone 🟥

Annex D: UXB Threat Zone
Client: Buro Happold
Project Ref: Manchester City Centre Factory
Doc Ref: 0123 EOTA MCCF 16/02/16

PLANIT
RESTORING BALANCE

Appendix 12.5

Heritage Appraisal: St John’s Quarter, Manchester

St John’s Quarter,

Manchester

Heritage Appraisal

Prepared for
Allied London

May 2014

Prepared by

Stephen Levrant Heritage Architecture Ltd

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St John’s Quarter, Manchester. Heritage Appraisal

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1 INTRODUCTION

1.1 Purpose

The purpose of this report is to provide an outline heritage appraisal for the site known as the St John’s Quarter, Manchester (the subject site). The site comprises of the 13-acre former ITV Estate and adjacent cleared sites between Water Street and the River Irwell.

The subject site has been identified for redevelopment and this report is intended to inform the process and development of preparing a detailed masterplan brief.

In essence, this report identifies the designated and non-designated heritage assets in and around the site whilst a ground level appraisal of the contextual relationship of the buildings and vistas within the wider area identifies the key views of the site.

1.2 Research methodology

This appraisal is the result of an extensive process which synthesises literature and documentary research, analysis and processing of information, building surveying, and professional judgment.

The documentary research was based upon primary and secondary sources, including maps, drawings and reports.

Surveys of the site and surrounding areas were conducted in April 2014 by visual inspection. Consideration has also been given to the historical development, non-designated heritage assets, building types and materials, key views to the notable historic buildings which contribute to the identification of the built form and the understanding of the special interest of the area.

1.3 Structure of the report

Following this introductory section the report is structured as follows:

- Section 2 discusses the site and its surroundings;
- Section 3 analyses the historic context in and around the site;
- Section 4 sets out the characterisation appraisal of the site and the surrounding area;
- Section 5 provides an outline appraisal of the existing buildings within the subject site;
- Section 6 identifies key views of the subject site;
- Section 7 provides a summary of the design parameters; and
- Section 8 sets out a series of guiding design principles.

1.4 Authorship

This report has been prepared by Stephen Levrant Heritage Architecture Ltd., an architectural practice specialising exclusively in the historic cultural environment.

2 THE SITE

2.1 Location

The subject site is focused on the site of the former ITV Granada studios to the west of Manchester's city centre. The site is bound by Water Street to the west, Quay Street and Great John Street to the north and Atherton Street and Lower Byrom Street to the east. The southern boundary of the site adjoins the Museum of Science and Industry (MOSI). Additional sites forming the subject site are located to the west of the former ITV Granada site and are bound by the River Irwell to the west, Regent Road Bridge to the south and New Quay Street to the north (see Figure 1).

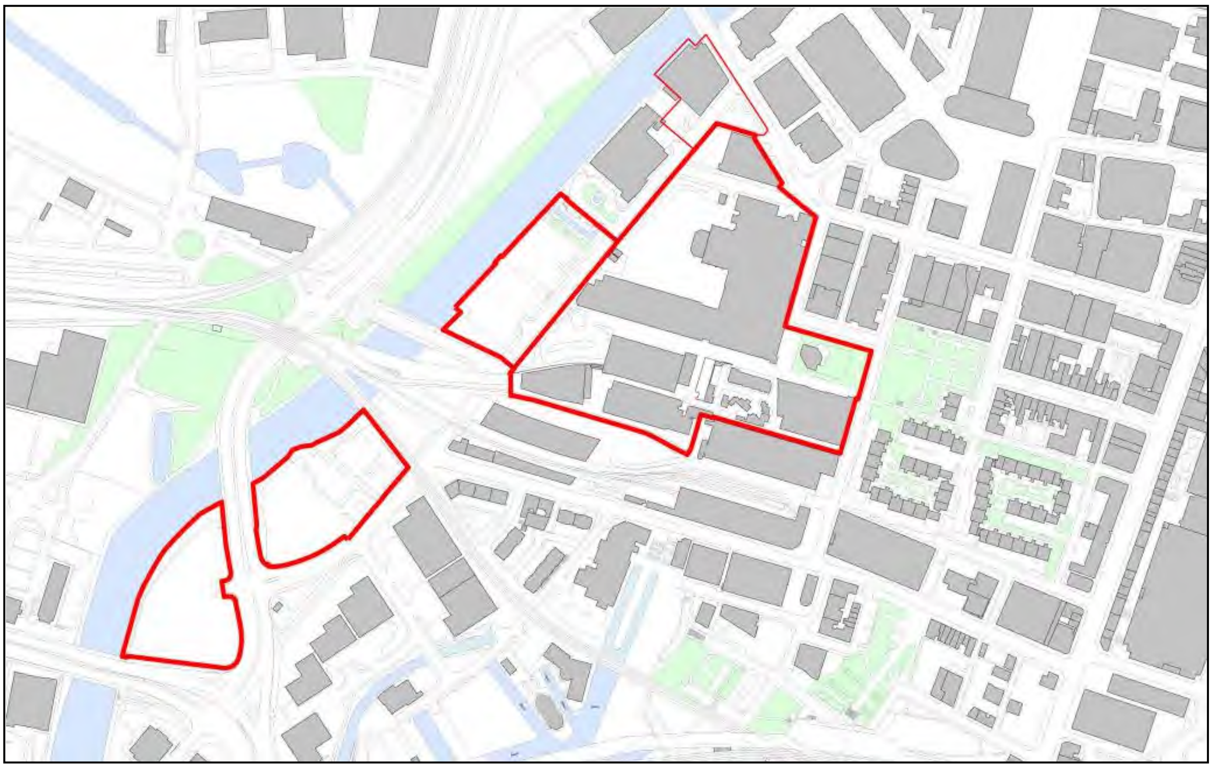


***Figure 1** – Site plan showing the 5 sites that form the subject site outlined in red*

2.2 Area of Analysis

For the purposes of this assessment, consideration has been given to the relevant parts of Manchester and Salford that surround the subject site. Broadly, this is the area bound by Chester Road/ Egerton Street/ Dawson Street to the south, Deansgate to the east, Bridge Street to the north and Trinity Way to the west. The area of analysis provides a focus for assessment but is not intended to be prescriptive; buildings outside this 'boundary' are considered where relevant.

2.3 Statutory Sites within the Area of Analysis

The subject site is within the Castlefield Conservation Area and contains two Listed Buildings (the Grade II canal tunnel that runs beneath part of the site to the east and part of the Grade II colonnaded viaduct within the MOSI site to the south (See Appendix I for list descriptions)). Figure 2 illustrates the location of the Listed Buildings that are within the site and its environs and the adjacent Conservation Area boundaries.

Within the subject site there may also be buildings which are not statutorily listed but that contribute to the architectural and historic character of the surroundings of the subject site. Non-designated assets, such as buildings of good local character are of heritage significance but not at a level that would pass the threshold for national designation. Such assets can singularly and collectively make an important positive contribution to the environment. Assessment of the existing buildings within the subject site must be made to ascertain if they should be defined as non-designated heritage assets.

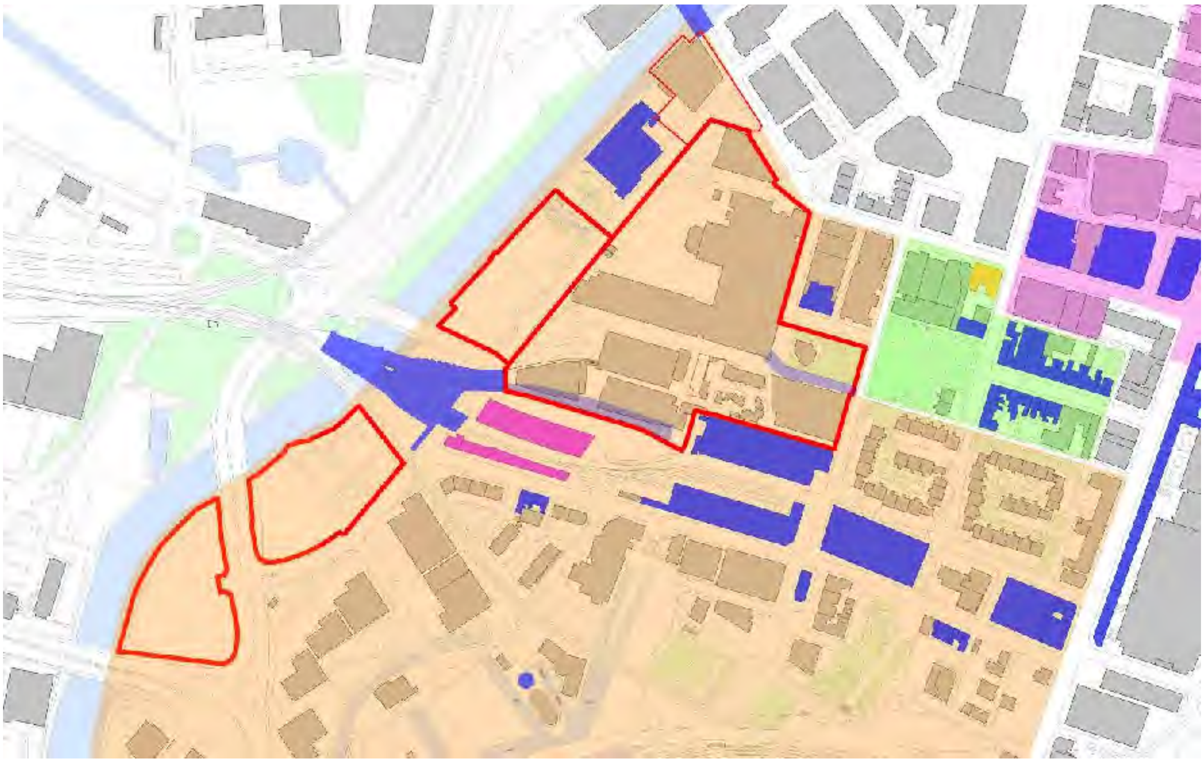


Figure 2 *– Site plan showing the 5 parts of the subject site outlined in red, the Castlefield Conservation Area shaded in orange, the St John Street Conservation Area shaded in green and the Peter Street Conservation Area shaded in purple. Grade II Listed buildings are shown as dark blue (light blue highlights structures underground), Grade II* buildings are shown in yellow and Grade I buildings are shown in pink*

3 HISTORICAL DEVELOPMENT

3.1 Introduction

In order to understand the heritage significance of the subject site and the wider area of analysis, it is first necessary to understand its historical development.

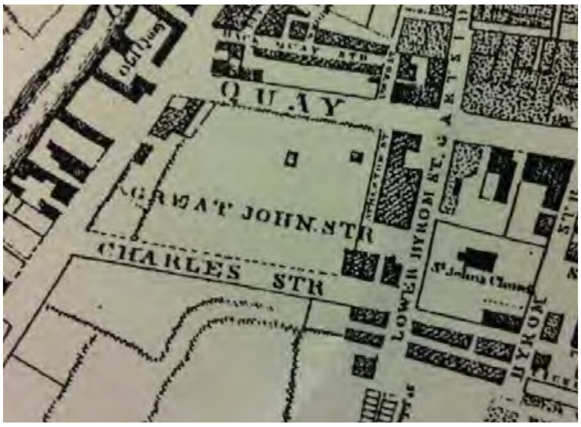
This section of the report analyses and interprets historic maps and primary and secondary information in order to:

- Provide a sound evidence base highlighting the main periods of development;
- Inform assessment of the survival and significance of the buildings, open spaces and landscape features; and
- Describe character areas and assess their relative historic and architectural importance.

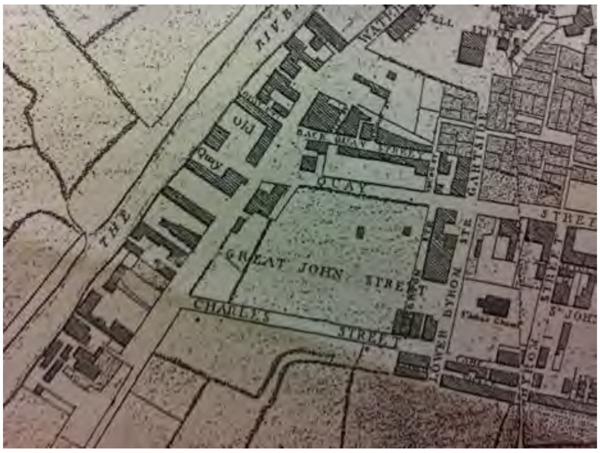
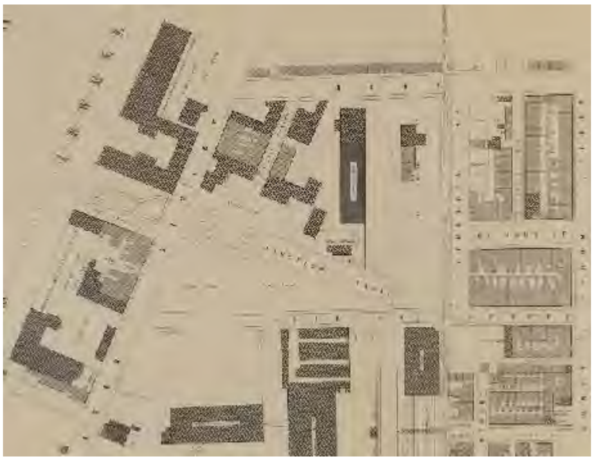
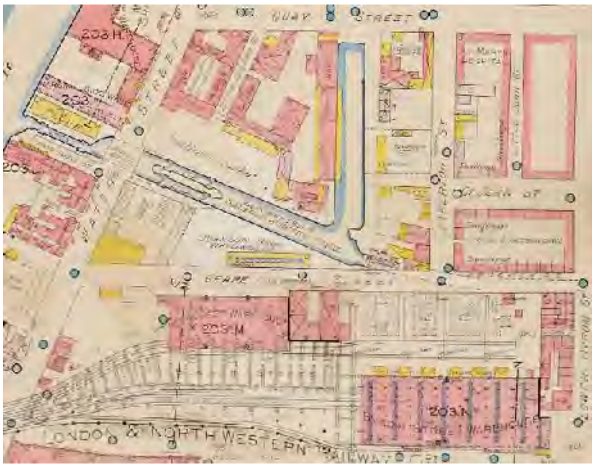
3.2 Historical Background and Development of the Granada Studio's Site

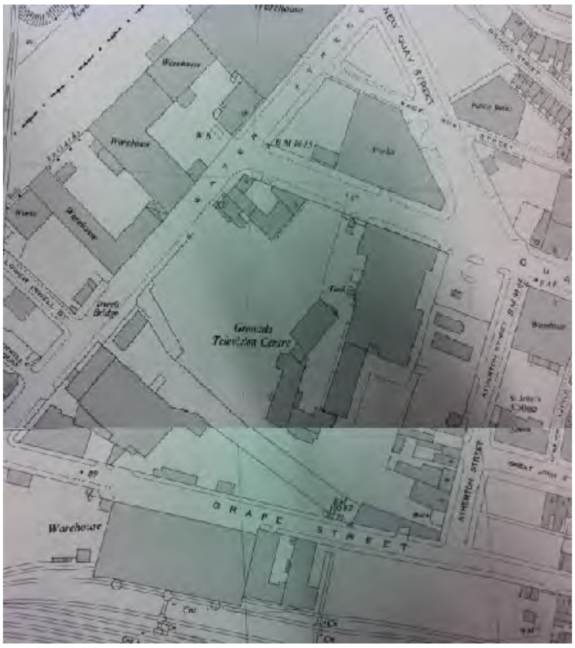
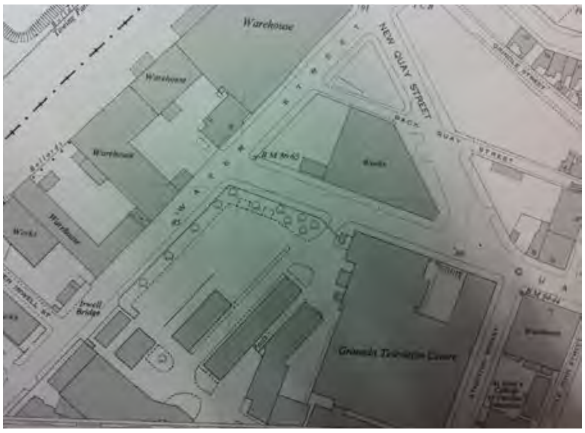
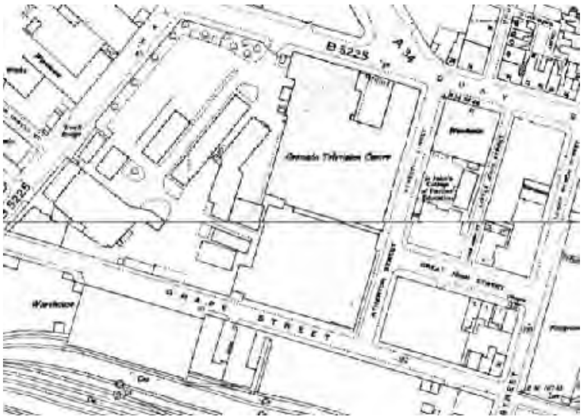
The former ITV Granada site represents the largest area of the subject site considered as part of this report. The area of the former ITV Granada Studios contains a large and complex series of buildings, historic street patterns and sequence of former uses from the late-18th Century to the early-21st Century. This section will chronologically chart these phases and developments.

3.2.1 Map Regression



1770 – *The Granada site was largely undeveloped by this date except for two small buildings to the east and a cluster of dwellings to the north-west. Great John Street has been laid out, but is yet undeveloped. Liverpool Road, to the south, and New Quay Street to the north have not been laid out yet but the quay by the river is already referred to as the 'Old Quay'.*

 RIVER THE Old Quay BACK QUAY STREET QUAY GREAT JOHN STREET CHARLES STREET BYRON LOWER BYRON STREET St JOHN	**1800 –** *By 1800 no major developments had taken place in and around the site. Great John Street has still not been developed and the area to the south, now containing MOSI and the Liverpool Road Station, is yet to be laid out.*
	**1850 –** *By the middle of the 19th Century the Salford & Manchester junction Canal has been cut across what was once the continuation of Great John Street. The canal entered an underground tunnel (now Grade II Listed) at the junction of Atherton Street and Charles Street (now named Grape Street). A potato market is located to the left side of the Brunswick Basin, which branches off north from the canal arm. Housing has been developed to the north-west of the site forming Little Edward Street, with a further street initiated to the east named Little Atherton Street.*
 203 H QUAY STREET WATER STREET GRAPE STREET 203 M 203 N LONDON & NORTH WESTERN RAILWAY Co	**1888 –** *The site and its surroundings have been fully developed by the end of the 19th Century with further housing located to the western side of the Brunswick Basin and potato market. The Bonded Warehouse can be seen to the south of the site upon the recently renamed 'Grape Street'. Various buildings including a blacksmiths have been built over the top of the canal tunnel opening.*

 Warehouse Granada Television Centre GRAPE STREET NEW QUAY STREET ATHERTON STREET	**1957 –** *By 1957 the site had been acquired by Sidney Bernstein and Phase 1 of Granada Studios has been completed. The new studios used some of the existing industrial buildings on the site as offices and canteens etc. with the plan to demolish/ redevelop them once the last construction phase was completed. The new Phase 1 administration building and Studio 2 can be seen to the north-east of the site with a petrol garage located to the right of this.*
 Warehouse Granada Television Centre NEW QUAY STREET	**1961 –** *The former petrol garage has been replaced with Phases 2 and 3; the link block and Granada House. Industrial structures still occupy the centre of the site and now have further buildings adjoining them.*
 B5225 A34 Granada Television Centre Warehouse GRAPE STREET GREAT JOHN STREET	**1963-5 –** *This map illustrates the completion of the last main phase of the Granada Studios development. The new Studio 8 and 12 buildings have been constructed to the south of the existing studios, resulting in any remaining structures located around and above the Salford Junction Canal tunnel opening being removed. A large part of the western end of Great John Street's southern aspect has been removed and some industrial buildings to the centre of the site still remain in situ.*

3.2.2 Grape Street

Today Grape Street runs through the middle of the former ITV Granada Studios site and is no longer a public highway. It was still used by the studios until 2013 for access and still appears in a street format. The street was bought by Granada after the neighbouring Liverpool Road Goods Station had been bought by the City Council. Granada’s acquisition also included the Bonded Warehouse and goods yard to the rear of the Liverpool Road Goods Station.

The street was originally called Charles Street, and changed name to ‘Grape Street’ at some point between 1886 and 1888. It is probable that due to the number of timber merchants and timber yards located on and around Charles Street during that period that the name changed to signify this; ‘Grape’ being a type of wood. Several carpenters shops and timber yards were sited in and around Charles Street in the 1888s.

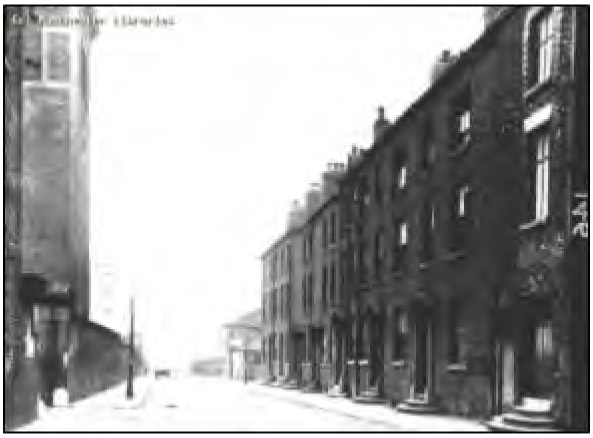
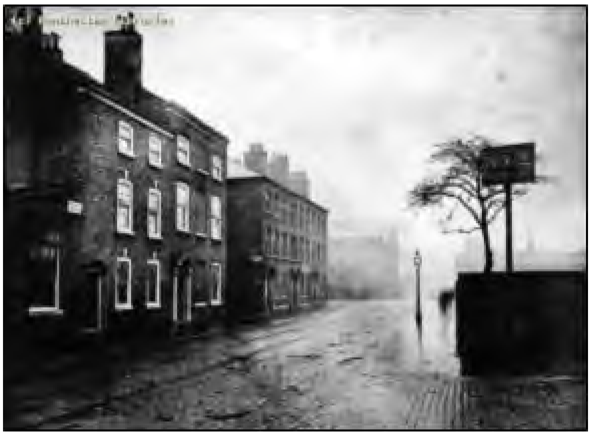


Figure 3 *– Looking west along Grape Street from its junction with Lower Byrom Street in 1945, showing the accumulator tower to the left and early 19th century housing to the right. In the far distance on the right is the perimeter wall of the Salford Junction Canal.*

Figure 4 *– Looking north along Water Street from its junction with Grape Street to the right in 1870. The houses to the left formed Lower Irwell Street and Irwell Court behind, which faced the Salford Junction Canal locks.*



A larger timber yard was located directly opposite the Bonded Warehouse on the canal sidings. A further timber yard was situated on the corner of Grape Street and Water Street in the area now occupied by the former Granada Tours Manhattan Theatre, and once bounded by the canal. This yard was replaced by a cluster of engineering works buildings which were removed by Granada in the 1960’s.

The eastern end of the street contained townhouses and two public houses, with a small cluster of buildings where Stage One is now located. By the late 1940’s half the houses contained within Grape

Street and those that backed on to them in Great John Street were demolished. The remaining houses in both streets were gradually demolished throughout the late 1950's and were completely removed by 1964.

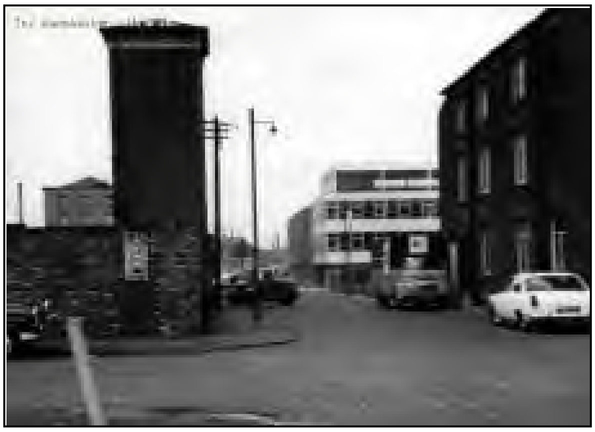


Figure 5 *– Looking west in 1964 along Grape Street at its junction with Lower Byrom Street, showing the newly completed Phase 5 of Granada Studios positioned over the Junction Canal tunnel entrance. This view also illustrates the cleared residential buildings lining Grape Street.*

3.2.3 The Salford & Manchester Junction Canal

The Salford & Manchester Junction Canal Act was passed in July of 1836 and work began on the new canal the following year, opening in 1839. The Act stipulated that the tunnel should not pass under St John's churchyard, nor should gunpowder be used. A further Act of 1841 allowed the construction of a basin to be positioned parallel to Atherton Street and terminated just before Quay Street. This basin was named Brunswick Basin and served a potato market on its sidings. In 1841 the new canal venture was failing and by 1844 it was regarded as surplus to requirements and a section was in-filled and later to become the site of the Manchester Central Railway Station (now Manchester Central Conference centre) and the Great Northern Warehouse. The remaining sections of the canal were bought by the Manchester Ship Canal Company in c1885. Although the canal remained open to limited trade, it officially closed in 1922.

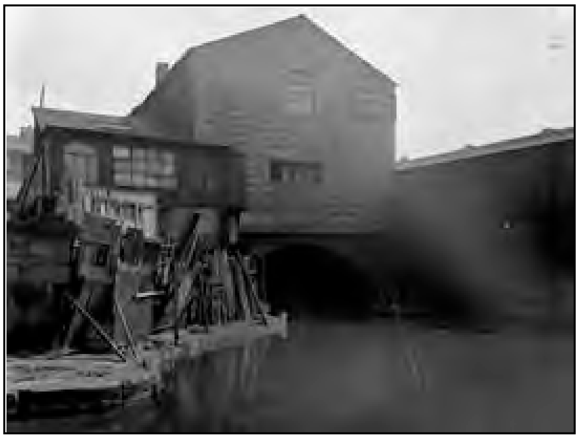


Figure 6 *– Looking eastwards towards the 1839 Salford Junction Canal tunnel entrance from Brunswick Basin, showing the later Victorian structures erected directally over the tunnel entrance. To the right can be seen the roof of the MOSI warehouse.*

Granada purchased their section of the canal in 1955 before studio construction commenced and built parts of the studio complex straddling the canal beneath. Heron Corporation Ltd bought the remaining section of canal in 1977. The underground stretch of Junction Canal from Atherton Street to Watson Street was statutorily listed Grade II in 2013.

3.2.4 Brunswick Wharf Potato Market

At some point after the cutting of the Salford Junction Canal in 1839, a canal arm called Brunswick Wharf was formed branching northwards from near the canal tunnel entrance under the junction of Atherton and Grape Street (formally known as Charles Street) and terminating just short of Quay Street at approximately where the former main entrance doors of Granada Studio's Phase 1 are now located. To the western canal-side was an open sided oblong structure the length of the basin itself, this formed the Potato Market and consisted of a continuous pitched roof supported by timber/iron posts.

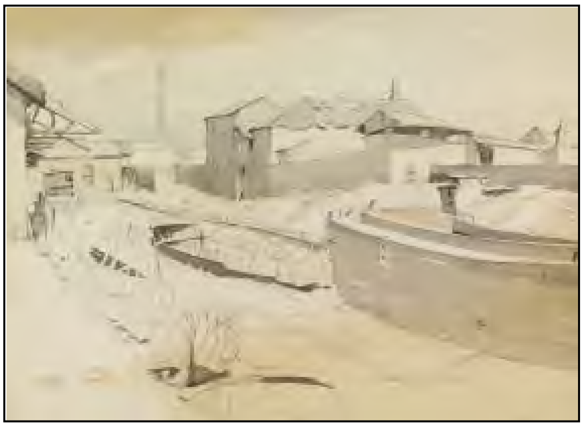
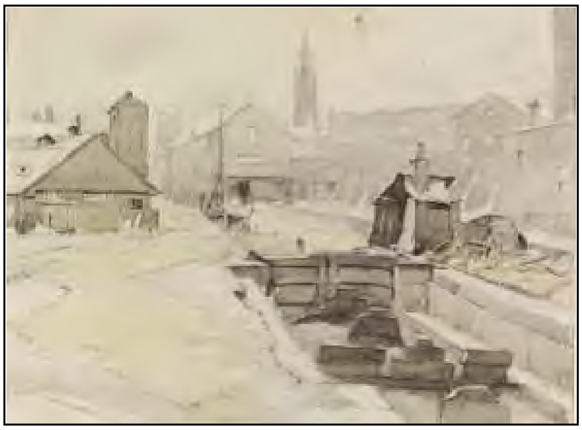


Figure 7 *– A watercolour painting from 1943 by Albert Pile, showing the Brunswick Wharf looking north towards Quay Street. This view illustrates the iron canopy of the Potato Market buildings to the left, and former buildings to the right on which Granada House now stands.*

Figure 8 *– A further view painted in 1943 looking eastwards towards the Junction Canal entrance tunnel centre and Bonded Warehouse and Stables to the right. This view shows the original lock gates and industrial structures which were sited where the former ITV Granada Studio car park is today.*



By 1850 the structure had been enclosed with its northern third being used as warehousing and its southern two-thirds being used as the public Potato Market. Parts of the earlier buildings on the site were used by the studio and hoped to be replaced by new structures in time. They were re-plastered and had flash ceilings put in and new floors for the mean time, however they lasted much longer than intended and it is unknown for what reason this occurred. All but a small section of one of the three long single storey pitched roofed structures which replaced the open-sided potato market building were kept and upgraded. Through time the other former structures which were intended to be a temporary measure were all removed and/or replaced. Only one wharf building remains today and forms part of the former studio reception and entrance corridor.

3.2.5 The Granada Studios

Sidney Bernstein (1899-1993) and his brother Cecil started their careers in the music hall and in silent film. Born in Essex, Sidney and his brother opened a chain of picture houses named Granada Theatres Limited in the south of England. The name ‘Granada’ came from a treasured family holiday to Spain and a visit to an old town of the same name; this name suggested the exotic splendour he was pursuing, such was the ideal behind many early picture houses. Their first Granada Picture House opened in Dover in 1929 in time for the arrival of talking films.

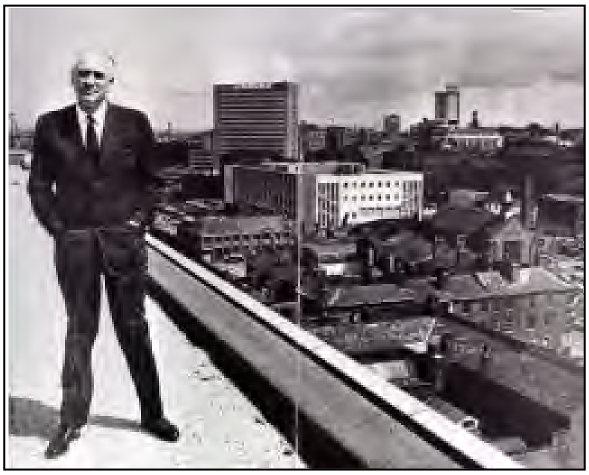
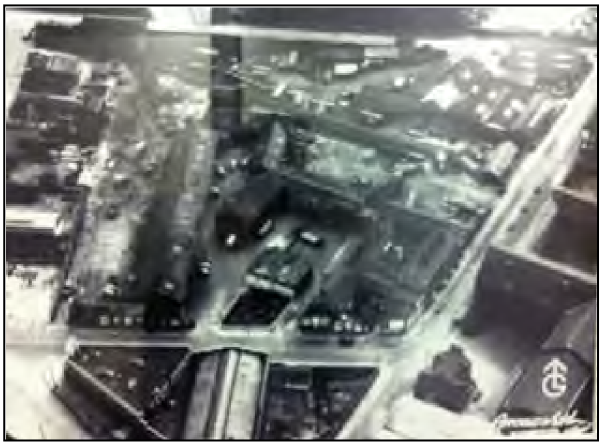


Figure 10 *– Granada founder Sidney Bernstein photographed on top of his penthouse apartment roof of Granada House, looking north, shortly after its completion in early 1961.*

The Television Act of 1954 allowed for the first to launch a commercial television channel to compete directly with the BBC; the Bernstein brothers immediately began planning their new studio to be the first commercial television studio in Britain.

In March 1955 the Manchester Corporation Town Planning Committee were asked to approve the use of a 4 acre site to be used as a commercial television studio for use by the Bernstein Granada Organisation. The original Granada Studios phase along Quay Street became the first post-war commercial building in Manchester to be built in peacetime after the end of the Second World War (1939-45).

Figure 11 – An aerial view of the Granada Site during the early 1950’s. This view looks south, with Quay Street to the bottom and Water Street to the right. To the left of the image is the long narrow Potato Market Structure with in-filled canal arm to its left. The middle section of this structure now forms part of the former ITV Granada reception and entrance corridor.



As was characteristic of the shrewd and precise Bernstein, he took an active role in the design of his building and along with his architect, Ralph Tubb’s devised an ever-changing master plan for the site. He also wanted to show off that the studios were larger than they actually were insisting that they were numbered evenly so as to appear to be a greater number than there actually were.

Studio Construction

The studios at Granada were constructed in several phases over several years. Plans altered and enhanced with each subsequent phase of Tubb’s and Bernstein master plan. The first phase of the complex, contained a single studio (Studio 2) which started transmitting on May 3rd 1956. It appears that the staggered building phases were undertaken in this manner as land was being bought up by Bernstein piece-by-piece, and was also due to the fact that the idea of a commercial television service was in its infancy during the first phases of the site, as the studio developed so did the size and requirements for each new phase thereafter.

These constant changes and developments after the design stage, ultimately left the site appearing somewhat ‘ad-hock’ in appearance with no coherent design ethos.

The Architect

Architect Ralph Tubbs (1912-1996) had already gained international recognition 5 years before Granada opened its doors when he designed the Dome of Discovery for the Festival of Britain on the South Bank in London in 1951, and was known for his contemporary des igns in the spirit of the modernist French architect; Le Corbusier.

Figure 12 *– Architect Ralph Tubb's (1912-1996)*

In 1951 The Festival of Britain opened on the South Bank of the River Thames in London, the festival was supposed to be an exhibition to mark the centenary of the Great Exhibition of 1851. Due to the length and devastation of the Second World War, the festival committee focused their scheme on bringing together the newest and most important aspects of Britain's past and future endeavours in technology ingenuity. Several architects worked on the festival structures and Ralph Tubbs was responsible for one of the largest and most memorable; the Dome of Discovery. This vast concrete and steel dome was similar to the year 2000 Millennium Dome. Not only was the Dome of Discovery the largest diameter dome in the world at 365 feet across, but was totally unsupported except around the perimeter.

Tubbs also designed several other modernist buildings during his career. An early example was for Erno Goldfinger in 1938 where he helped with the design of Goldfinger's house on 2 Willow Road, London. This set of three modern townhouses reveals many architectural elements which Tubbs then used on his later buildings, including those for Granada. Other buildings Tubbs designed included the YMCA Indian Student Hostel, London 1952-1953 (Grade II Listed), Baden-Powel House, Kensington, London 1956-1961 and Charing Cross Hospital, Hammersmith, London.

Phase 1 - September 1955 - May 1956

The initial phase of the studio complex was planned in May 1955 and by September 1955 the site was cleared. Construction began with a single studio; Studio 2, and two-storey administration block which faced Quay Street. In total it was planned to be over one acre in size. The buildings were wholly contemporary in design, although modest for their intended use.

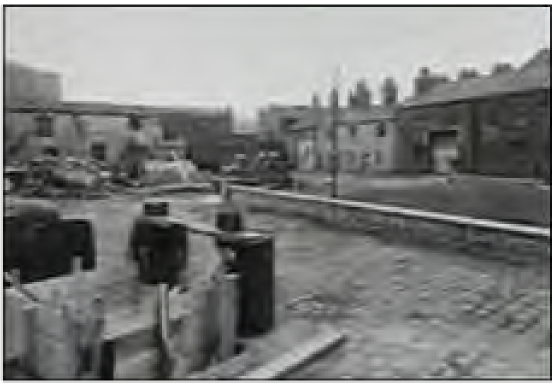
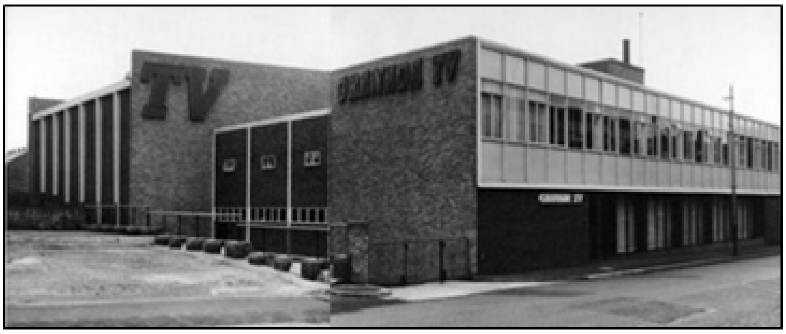


Figure 13 *- The Studio site as seen when acquired c1955, looking south from Quay Street at approximately the location of the security lodge.*

The building was constructed using concrete frame with either brickwork panels or aluminium framing with painted and glazed infill panels. Windows were metal framed with no glazing bars and the entrance was through a pair of simple glazed double doors to its frontage. Situated behind the entrance doors was the Commissionaire's desk and entrance lobby with cantilevered terrazzo stairs to the first floor offices.

Originally the section of dark brickwork to the left of the front door and commissionaires desk didn't have a window in it; this was added between 1956 and 1960 and a second window at first floor level which looked onto the sunken lawn of the later Phase 3 (latterly the staff canteen extension) was probably also added at this point. During the initial construction phase some of the existing industrial buildings on the site were incorporated into the new design and refurbished. It is thought that these 'temporary' structures were to be rebuilt at a later date but indeed lasted for decades after, finally all being demolished by the 1980's leaving one former Potato Market building forming the former studio reception area which still stands today.

Figure 14 *– The newly completed Phase 1 of Granada Studios in 1956, showing the administration and entrance block to the right, with Studio 2 to the left.*



The first studio was built behind the entrance and administration block with a small section of offices which was set back slightly from the rest and contrasted with a darker brick. Although internally not much has been altered within the studio except modern wiring and fittings, however the intended external appearance has almost vanished with the addition of Phase 3 which was built against the studio's external wall and that of the adjoining studio of the same design built in 1956.

The exterior elevations of the new studio were constructed in precast concrete with yellow brick panels; these had slender tapering concrete ribs from ground to roof level at approximately 8 feet intervals forming 7 slight recessed bays. This is perhaps Ralph Tubbs' most original and innovative design concept for the complex and uses modern materials coupled with a modern international style typifying the mid 1950's. Phase 1 took 9 months to complete and opened in May 1956.

Phase 2 - 1957

Phase 2 saw the construction of a second studio (Studio 6) adjoining the existing Studio 2 and using the same design of external concrete ribbing with darker brick infill.

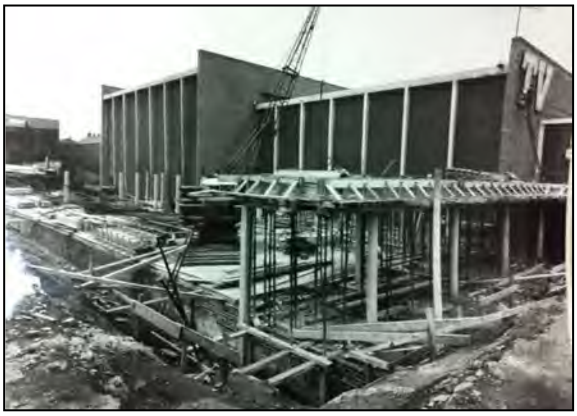


Figure 15 *– A view looking south-west from Quay Street towards the recently completed Studio 6 during the construction of Phase 3.*

The construction of Phase 2 saw several unforeseen problems causing delays in the laying of the foundations. A few existing buildings had to be demolished to undertake the work for Phase 2, these were mainly the former Brunswick Basin Potato Market buildings which lined the western side of the basin. A new building technique was used in Phase 2, with huge concrete arch beams being cast on site then raised in to place to form the structure with brickwork filling in between. Originally the Studio 6 was designed to be the same size as the first, nonetheless Sidney Bernstein decided at the last moment to insist it was built larger and with no delays in completion and opened in in December 1957.

Phase 3 – 1958 - March 1959

This third phase was to be the new link block containing the technical block with a special operations room for the directing of emergency outside broadcasts, a sound effects studio, music and tape recording library, wardrobe and make-up rooms and standards conversion unit. It also housed the dressing rooms and provided an additional 12,000 square feet of space.

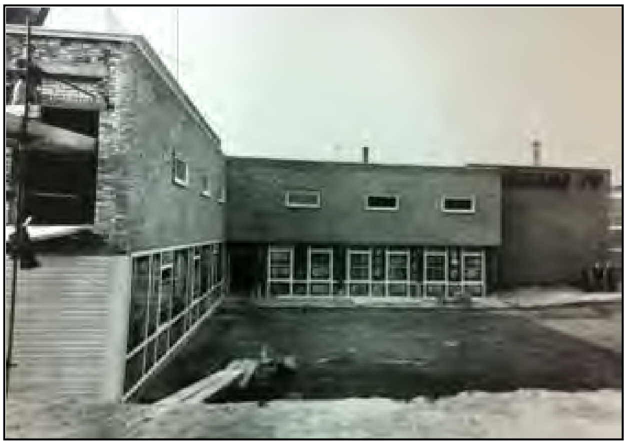


***Figure 16** – A view looking from Atherton Street on the site of what is now Granada House, looking west towards Phase 1 (to the right) and the almost completed Phase 3 link block (middle and left). The space to the centre became the Queens Sunken Lawn, and now is the site of the former canteen.*

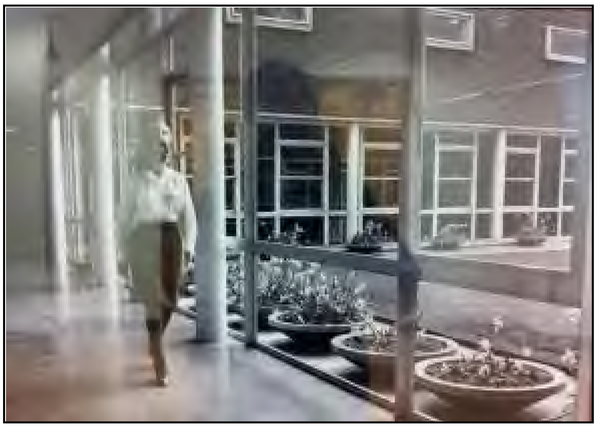
The ribbed elevation of Studio 2 was concealed by the new building extension whilst making a feature of the ribs on the new internal face of the building. The ceilings were constructed with concrete beams with angled glazed roof lights, the corner most room received a domed circular glazed roof light. Externally the new structure was knitted into the existing studio wall with yellow brickwork matching that of the studios gable end brickwork so as to entirely conceal the ribbed and dark brick side elevation.

The new link block was intended to also connect to the yet unbuilt Phase 4 (Granada House) which was completed 1 month later. Phase 3 joined to the eastern range of the original entrance block to form a glazed courtyard with a sunken landscaped garden to the Quay Street aspect. The building had floor to ceiling glazed windows and was supported by circular concrete pillars painted white, which were intended to be seen.

To the east elevation the pillars were external and to the south elevation which now contains the entrance to the canteen, its pillars were located internally. These pillars were boxed in when the glazed walkways were removed to extend the canteen into the sunken lawn area. The windows were a mixture of metal and timber with two-paned sash windows positioned to the centre of each pillar. On the first floor small oblong picture windows in pairs of three were positioned on the two new elevations.

Internally the corridors were plainly decorated with exposed smooth beige brickwork with painted concrete uprights distanced equally throughout. The floors were of lino and the ceiling treatment was either painted plasterboard or fixed ceiling tiles with pendant lights and flush ceiling lights.

Figure 16 – The newly completed Phase 3 link block looking westerly showing its glazed corridor overlooking the Sunken Lawn in 1959.



This phase terminated at the line on which Granada House would eventually be constructed, leaving temporary fencing and second floor doorways boarded-up until the tower was completed and joined to the remainder. Phase 3 also tied up any voids left by the original phase of the studios and continued the building onward towards Atherton Street and was opened on the 13th March 1959 by the Right Honourable Ernest Marples; Postmaster General.

Phase 4 – 1960 - January 1961

The new administration building, Granada House, was built on land that was higher than that of the previous stages of construction. Due to this, a single ground floor level within the studios could never be achieved.

The tower is thought to be the first example of curtain walling in Manchester, with a concrete frame being constructed followed by a non-structural wall of glazing and infill panels attached to this. It has blue Staffordshire engineering brick to its north and south elevations and a grid of aluminium holding both fixed and opening glazed windows with painted infill panels. Almost no interventions have been necessary to the façade of the tower, leaving the original external fabric largely unaltered. One-way film however has been applied to all the windows.

Originally the concrete columns to the ground floor of the tower which faces Atherton Street were clad in white and grey marble, matching the columns immediately behind in the reception area; these were replaced/covered over by a shiny grey marble c1990. It was also during this time that the entrance and steps were replaced and the lower white marble section of the building containing vents were also replaced with new grey marble. The main reception was originally to the right of the top of the entrance stairs where a desk, chairs and commissioner were located, with a larger reception area to the other side of the entrance doors to the north.

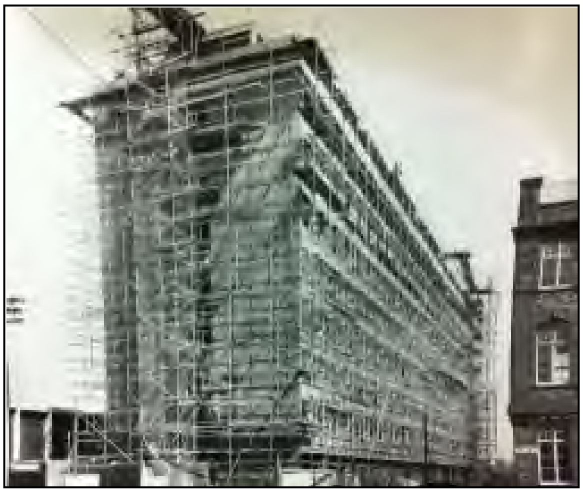


***Figure 17** – Phase 4 (Granada House) nearing completion 10th August 1960. This view is looking north along Atherton Street, with Great John Street School to the right (now Great John Street Hotel). To the extreme left can be seen the ribbed side elevation of Studio 6 still visible before Phase 5 was started.*

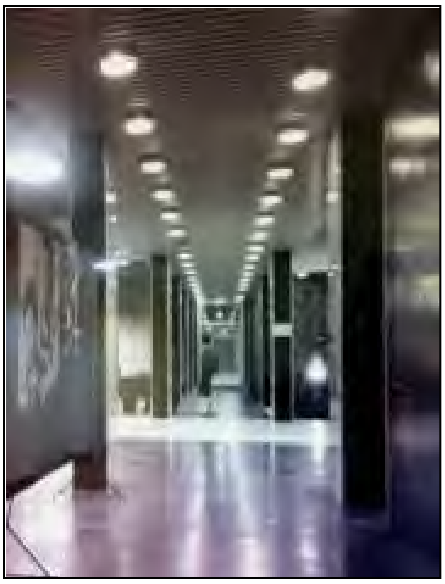


***Figure 18** – A view of the main central corridor running through the newly completed Granada House ground floor reception c1961.*

The building was ready for use in January 1961 and on the 1st October 1961 an 80ft aerial was erected on the roof of the tower block overlooking Quay Street. The mast had a large plastic dome fitted to the top to protect the aerials from the weather and was floodlit every night. The centre of the tall metal structure contained a metal spiral staircase to reach the pinnacle. The structure stood on an 8 tonne metal structure upon a large concrete base and rose 200ft above the ground. It was taken down c2010 due to safety concerns. This was perhaps Ralph Tubbs' only concession of whimsy and a nod to his Festival of Britain fame.

Phase 5 – 1961 - 1962

In mid-1961 work began on the final large-scale phase of the Granada Studios complex; the construction of the final two studios: Studio 8 and Studio 12, each larger than the previous studio. As was the case with the earlier phases, Phase 5 was altogether different in its design. Studios 8 and 12 did not follow the same architectural design of its two predecessors, it appears that an appropriate studio design format had been established by this phase and that the building would be entirely functional and not decorative.

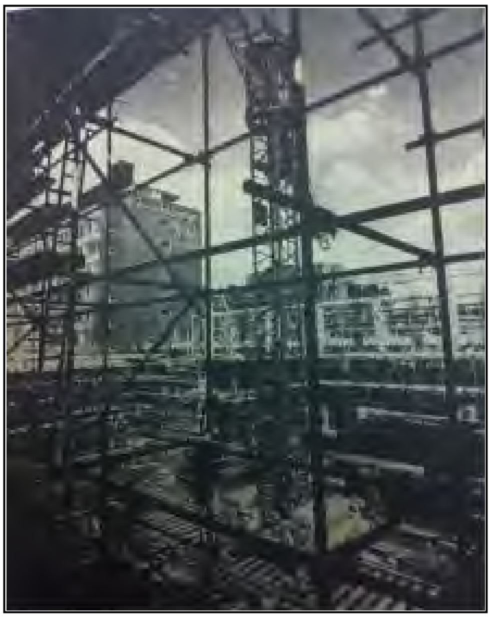


Figure 19 *– An unusual view taken in the middle of 1961 looking through the foundations and scaffolding erected around the site of Studio 8 and 12 during their construction. This photograph shows the already completed Granada House to the left.*

Whereas Studios 2 and 4 were designed to be seen from the outside, with concrete tapering ribs contrasting with dark brick in fills, the new studios were designed to only be viewed from the rear car park and had no architectural detailing. To the Atherton Street elevation, a 4 storey office block was joined in a matching style to the end of Granada House. This building used the same blue brick and aluminium windows as Granada House but was lower in scale and its top floor was set back. To the side facing Grape Street was a glazed entrance with a glazed entranceway and flat canopy leading into the building and down to the lower studio level. This entrance was subsequently used by Coronation Street to film its Weatherfield Police Station scenes.

Later Phases

Later phases to the studio during the late 1970's and 1980's saw the construction of different add-hock extensions to the site. Phase 6 saw a largely open-plan space being constructed adjoining the western aspect of the entrance to Phase 5 on Grape Street. The building is constructed of blue-brick and was used primarily for the Coronation Street construction workshop.

All interior scenes of Coronation Street were filmed in Stage One from 1985 to 2013. The studio was built around the existing accumulator tower in 1985 using similar brickwork to match the tower which was restored and altered in the process.

Phase 7 saw a further extension to the construction workshop in a similar style and was completed in 1990 in order to accommodate period themed spaces for the new Granada Tours.

In the early-21st Century a small studio was built in the middle of the mature gardens between Grape Street and Great John Street, this was later used as the green room for Coronation Street child actors.

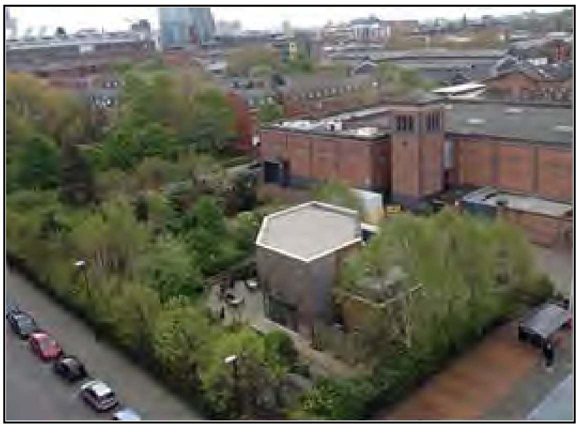
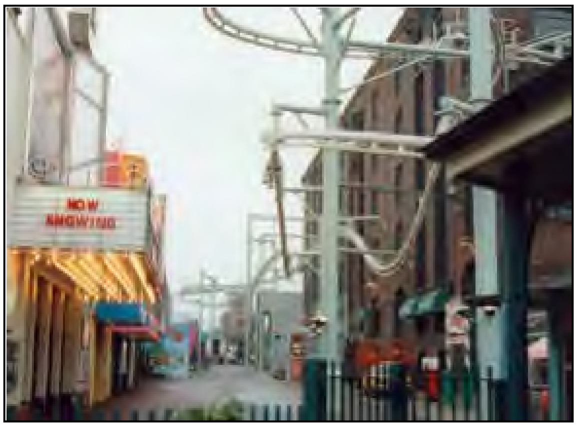


Figure 19 *– A view looking south-east from the roof of Granada House, looking towards Stage Two and its linked accumulator tower (to the right) and Garden Studio centre.*

Granada Tours – 1988 - 1999

In 1988 Granada Studios opened its doors to the public for the first time when the Granada Studio Tours commenced, being Europe's first television based theme park. The idea for the tour was to show the public the workings of television production and to allow them to see behind the scenes of all the famous sets from Granada’s programmes and how television was made during periods of non-filming. The tour complex finally closed in 1999 when visitor numbered had dwindled and the need for more frequent filming on set was required.

Figure 20 *– Looking east along Grape Street during the early 1990’s Granada Tour’s. The Bonded Warehouse is seen to the right with rides and attractions to the middle of the street and to the left.*



The former exterior Baker Street set was turned into a new internal studio known as Stage Two and large areas of the Bonded Warehouse were left unused. The Art Deco-style entrance, which was constructed in 1988 as the tours main entrance, was used for staff and for studio audiences and eventually closed permanently.

4 CHARACTERISATION APPRAISAL

4.1 Introduction

This section of the report describes character areas and appraise the area’s capacity for change by taking into account some or all of the factors regarding character and distinctiveness of the study area: spaces, public realm and the landscape, diversity/ uniformity in style, construction, materials, detailing, decoration and period of existing buildings and spaces, views into and from the site, green landscaping and current and historic uses in the area and the urban grain.

Due to the nature of the various locations and sizes of the subject site, which together comprises the area of analysis for this report, this appraisal has sub-divided the wider area into smaller ‘Character Areas’. Each area varies in terms of urban form, heritage, architectural and townscape values (known as characterisation analysis and in line with English Heritage guidance on providing a sound evidence base[1]). The aim is to define the predominant characteristics of each character area, which in turn will influence the design proposals – see Figure 21.

These areas are as follows:

- Character Area A – *Granada Site Area*
- Character Area B – *Water Street Corridor Area*
- Character Area C – *Liverpool Road Corridor Area*
- Character Area D – *Castlefield Basin/Potato Wharf Area*
- Character Area E – *St Johns Area*
- Character Area F – *Regent Road Area*
- Character Area G – *Salford Industrial Area*

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[1] PPS5 Historic Environment Planning Practice Guide, paragraph 27

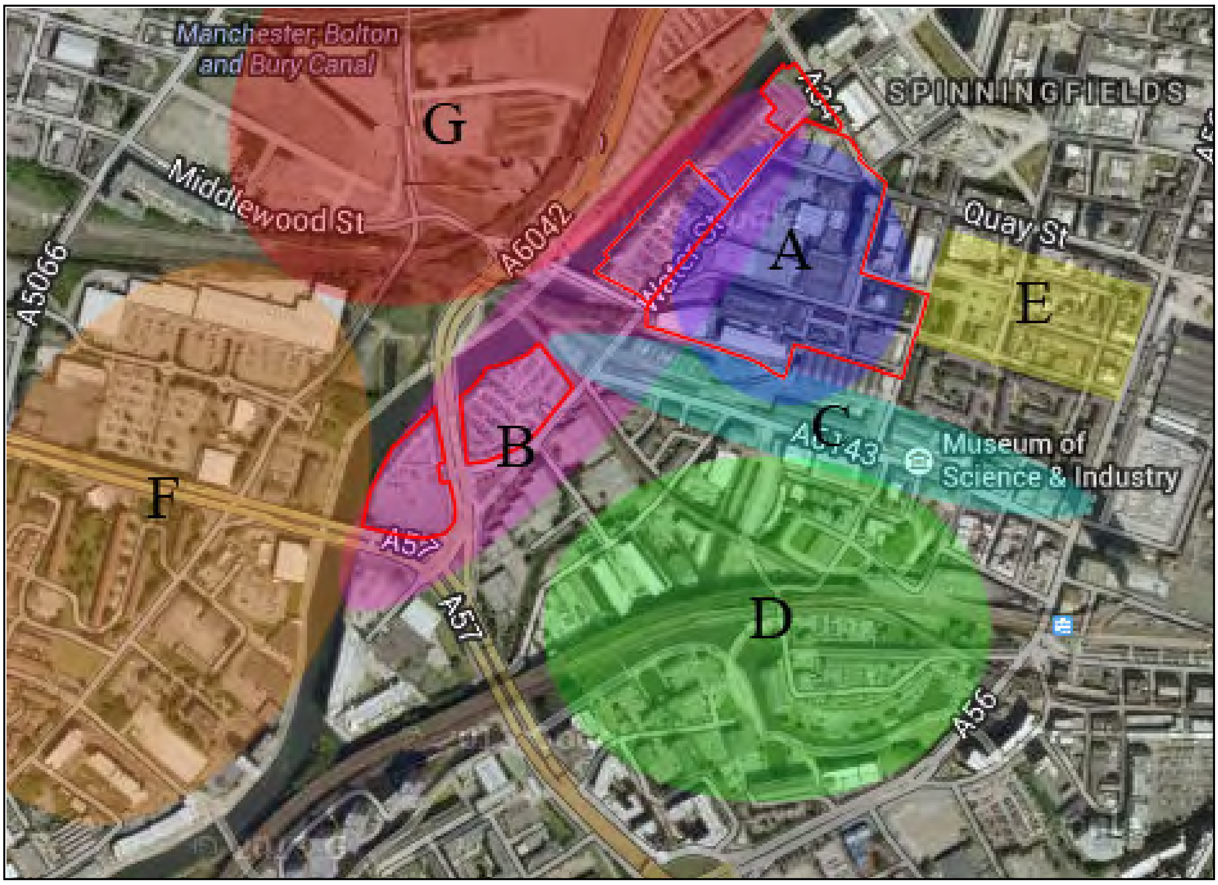

Manchester, Bolton and Bury Canal
G
SPINNINGFIELDS
Middlewood St
A6042
A5066
A
Quay St
E
B
C
A6143
Museum of Science & Industry
F
A57
A57
D
A56

Figure 21 – *Plan of Manchester and Salford showing shaded Character Areas and Subject sites in red.*

4.2 Spatial & Character Analysis of the Area

The appraisal of each character area is set out as follows:

- Key Heritage Assets within the Character Area
- The character and interrelationship of spaces within the environs of the site
- Contribution made to the character of the area by greenery and green space
- The architectural and historic qualities of the buildings & prevalent / traditional building materials
- Form, setting and character of public realm
- Skyline, views and vistas
- The extent of intrusion or damage (negative factors) and the existence of any neutral areas

4.3 Character Appraisal Area A – ITV Granada Site

Location

For the purposes of this report, the ITV Granada Site Character Area has been defined as the area bounded by Water Street to the west, Quay Street to the north, Lower Byrom Street to the east and the MOSI site to the south.

Key Heritage Assets within the Character Area

The following are the key heritage assets contained within the character area:

Structure	Designation
Colonnaded Railway Viaduct	Grade II
Manchester & Salford Junction Canal Tunnel (1839)	Grade II
The Grape Street Bonded Warehouse (1867)	Non-Designated
Grape Street Bonded Warehouse Stables	Non-Designated
Accumulator Tower (1880)	Non-Designated
Original Entrance and Admin Block (1955-6)	Non-Designated
Granada House (1960-1)	Non-Designated

The Origin's and Development of the Character Area

The immediate environs surrounding the ITV Granada Site as it is today, began developing following the establishment of the first of Manchester's Quay's in the late 18th century. This first quay was located at approximately the junction of Water Street and Quay Street, thus giving Quay Street its name. By the beginning of the 19th century other warehouses and wharves had been constructed and a handful of small residential roads and courts, which were interspersed with warehousing and industrial buildings, leading off Quay Street southwards into what is today the car park of the ITV Granada Studio.

A cluster of grander Georgian townhouses faced Water Street at the point where the canal crossed underneath Water Street, via the Irwell Bridge. These small pockets of housing were intersected by timber yards, warehousing facing the Irwell and quays with associated industrial buildings.

Land for a new canal was purchased in 1824 and in July 1836 the Salford & Manchester Junction Canal Act was passed allowing work to commence on the new Salford Junction Canal. The Act permitted the construction of a basin to be positioned parallel to Atherton Street and terminating just before Quay Street. This basin was named Brunswick Basin and served as a potato market on its sidings. By the early 1840's the canal was regarded surplus to requirements largely due to the timing of its construction coinciding with the beginnings of the railway boom. A section of the canal to the east was in-filled and was later to become the site of the Manchester Central Railway Station (now Manchester Central Conference centre) and the Great Northern Warehouse. The canal remained open, but to limited trade and closed in 1922.

By 1850 there were over 80 houses on the site which were densely concentrated mainly on the site now occupied by Stage One and the neighbouring garden/studio. The majority of these houses were back-to-backs, three-storey terraces and courtyard housing, intersected by occasional public houses.

The Brunswick Potato Market structure was open on all sides in 1851 and by 1891 the market was filled-in. Granada purchased the section of the canal that passed beneath their new studio site in 1955 with the end of the market building nearest Quay Street being shortened to accommodate the construction of Granada's first phase in 1956. This building was subsequently kept as part of the studio's reception, with the remainder of the market buildings being demolished.

Once Sidney Bernstein had purchased the Granada site, clearance of any remaining housing and streets began. It was at this time that the Junction Canal was in-filled and modern studio buildings constructed upon the site. The industrial nature of the area continued into the mid-20th century, by which time some areas of housing had been cleared and other more modern engineering works had been constructed.

Prevailing Former Uses within the Area

The prevailing former use of the area, focussing on Water Street and the street pattern which formally occupied the Granada Studio site, was predominately industrial in nature, with shipping and goods warehouses fronting onto the River Irwell. Small pockets of residential properties consisting of low standard courts behind grander townhouses existed by the end of the 18th century and throughout the 19th century, however these were not characteristic of the prevailing use of the area.

During the mid-1950's and into the mid-1960's the largest portion of the site was totally redeveloped with the construction of Granada Studios. Over several years this venture redefined this area of Manchester into the first commercial television station in Great Britain. This modern edifice became an important creative and technical hub. In the process, and in the following decades, many early warehouses along Water Street were demolished to make way for car parking associated with the studios.

The Architectural and Historic Qualities of the Buildings and the Contribution they make to the Character Area

The ITV Granada Studios Area contains part of the recently Listed Grade II Manchester & Salford Junction Canal Tunnel (underground). Its original inlet from the River Irwell is still existent, but the stretch under Granada's car park has since been in-filled. The underground canal tunnel carried on beneath the studios and the former Grape Street at this point and remains unaltered beneath the studio buildings.

To the southern boundary of the character area is a raised railway viaduct which is elevated upon iron columns, and which once allowed trains to enter the adjoining Bonded Warehouse (Grape Street Warehouse).

There are several structures located within the area which are considered to be non-designated heritage assets, the most important and striking of which is the former Bonded Warehouse.

One other structure which related back to the past railway use of the site is the Accumulator Tower. This tower is now partially hidden from view with Granada's Stage One having been constructed around it, leaving its front (northern) elevation and upper floor showing.

Other structures of note relate to the 1955-1964 construction of Granada Studios themselves. These structures include the original admin/office building which contains Studio 2 and the adjoining Granada House.

The group value of this multi-phased complex is inherent to the character of the ara, and its association with the former television studios use.

The Character and Relationship of Spaces within the Area

The prevailing character within the Granada Site largely focuses on the mid-20th century modern studio buildings which make up a large and sprawling proportion of the site. Spaces in and around the enclosed site are interrupted and severed by later additions and add-hock extensions and adaptions for the exterior Coronation Street set.

The site is now largely developed with the exception of two car parking areas and a small landscaped garden containing a small modern studio. These open spaces are linked by the former public thoroughfare of Grape Street which still exists in its original late 18th century street pattern and which now forms the 'backbone' to the whole site, connecting most areas of the site and its different buildings. Until the 1950's, the Granada Site was of a low-rise, small grain, with small terraced housing and open timber yards. Following the construction of Granada Studios, the site took on a different character and larger urban grain with large-scale commercial buildings of differing heights and scales.

Prevalent and Traditional Building Materials

From the 1950's the prevalent building materials of the area were gained from the Granada Studio construction of glazed curtain walling, blue engineering brick and yellow brick, light and dark marble panels, aluminium and metal framed windows with no glazing bars and flat roofs. Later buildings followed the more traditional use of red and blue-brick, reflecting historic materials used in adjoining character areas.

The Contribution made by Green Spaces and other Natural Elements to the Character Area

This character area does not contain any public areas of green space, and historically has never had any such areas within it. Following the demolition of a block of early 19th century townhouses facing on Great John Street, Atherton Street, Grape Street and Lower Byrom Street, the space was used as a car park for Granada employees and in recent years the area was extensively planted. Today this established mature garden contains a small, modern garden studio. This green space is only visible from within the studio site as its high perimeter security walls and intruder-proof fencing closes off this open space from surrounding streets creating non-active street frontages.

Negative Factors: The Extent of Loss, Intrusion or Damage to the Area

A negative factor of the Granada Site focusses on the lack of active street frontages resulting from the high and impenetrable security walls erected around the entire site. These large areas of blank walling are somewhat softened by planting but do still dominate the surrounding streetscapes and views creating a non-active and closed-in appearance when viewed from surrounding streets.

Along with the early buildings upon the Granada site, other more utilitarian buildings and structures were constructed in more recent years to accommodate the workings of the studio and its tours. These structures did not follow nor match Ralph Tubbs original design concept or vision for the site and were substandard in their execution.

The Existence of any Neutral Areas

The loss of historic built form towards the southern end of Water Street has drastically altered the nature and historic streetscape of Water Street. The remaining unbuilt plots backing onto the River Irwell on Water Street were previously used for Granada Tour’s car parking and today form a large open expanse which is underutilised and would benefit from redevelopment. (see Water Street Character Area for further discussion)

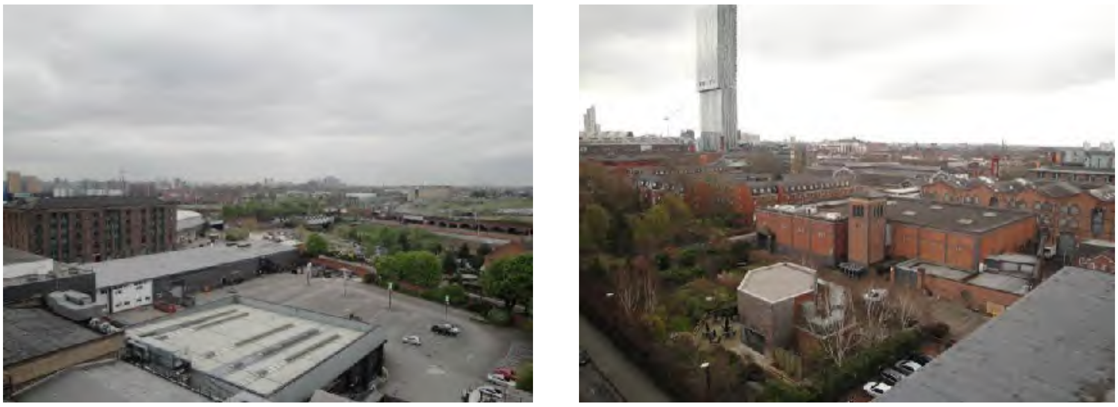


Figure 22: *views across the ITV Granada site*

4.4 Character Appraisal Area B – Water Street Corridor

Location

For the purposes of the study, the Water Street Corridor Character Area has been defined as the area bounded by the River Irwell to the west, Regent Road Bridge to the south, Water Street to the east and New Quay Street to the north.

Key Heritage Assets within the Character Area

The following are the key heritage assets contained with the character area:

Structure	Designation
Stephenson’s Bridge	Grade I
1830 Viaduct	Grade II
Water Street Bridge	Grade II
1845 Brick Bridge	Grade II
Girder Bridge	Grade II
Zig-Zag Viaduct & Water Street Bridge	Grade II
Castlefield (MSJ & AR) Viaduct & Cast Iron Bridge	Grade II
Victoria & Albert Warehouse	Grade II

The Origin’s and Development of the Character Area

The area now bounded by Water Street, Quay Street and Deansgate was originally owned by the Byrom Family as part of their estate. It was initially laid out by 1788 but only partially built up by the 1820’s. Following the development of the Bridgewater Canal, which saw the origins of the industrial development to the area, the construction of the railways concentrated the focus of industry and commerce to the Liverpool Road and Water Street area.

During the early decades of the 19th century, the southern end of Water Street contained a small area of terraced housing reaching up to Regent Road which included courtyard back-to-back housing. The remainder of the southern end of the street up to the Liverpool Road junction was relatively unbuilt upon, with large areas of the street laying empty. The main focus of Water Street during the 1830’s-40’s was the construction and enlargement of the world’s first passenger railway which was built on Liverpool Road close to the junction with Water Street in 1830. Several associated railway bridges and viaducts were constructed at this junction, spanning both Water Street and the River Irwell to facilitate the growing demands of the railways.

A chemical and dye works occupied the midpoint before the Liverpool Road junction which was replaced by the end of the century by the large Corporation Yard with refuge incinerator. The northern half of the area, during the mid-19th century, mainly consisted of established shipping wharves, quays and warehouses, which had been constructed in the late 18th century and first half of the 19th century.

The Regent Road Bridge, which is to the south of this character area, saw a concentration of development grow around it in the second half of the 19th century, including the Corporation Yard, Pig Market and Hide & Skin Market, abattoirs and pig sale rooms. These trades were greatly helped by the close proximity of the Liverpool Road Station and its adjoining Animal Ramp at its junction with Water Street.

By the middle of the 20th century, the housing along Water Street had been demolished and by the late 1980's the Corporation Yard/refuge incinerator site had been cleared along with the Abattoir/ Wholesale Meat Market and other associated animal trade structures had all been demolished and replaced in part with new industrial units towards Regent Road.

The southern junction of Water Street and Regent Road was radically altered during the early 21st century with the construction of the Manchester and Salford Inner Relief Route, in order to create a ring road around the city. Several major roads around Manchester and Salford city centres were combined and completed in 2004 with the opening of a final section to Trinity Way.

This major new road infrastructure altered the historic street pattern, creating wide new carriageways and bridges to carry the roadway across the River Irwell into Salford from Water Street. This meant that the large former site of the Corporation Yard and refuge destructor was split into two by the roadway cutting through the site. The reconfigured junction of Regent Road and Water Street to accommodate the new road resulted in the southern junction of Water Street being relocated further along the new roadway at approximately the centre of the former Corporation Yard. The remaining, now unused stretch of Water Street was pedestrianized.

Prevailing Former Uses within the Area

The Water Street Corridor was predominately industrial in its nature with large shipping and goods warehouses fronting onto the River Irwell and equally large industrial and engineering works and factories. Small clusters of terraced houses and back-to-backs courts were located at the street's mid-point and towards its southern end and were squeezed in amongst industrial structures.

Towards the end of the 19th century the mid-point of the street became a hub of several large animal trading establishments, all located close to the Liverpool Road Goods Station. The former industrial nature of this area continued with the demolition of all animal trade structures and their replacement with large trading units during the 1970's and 80's which are existent today.

The Architectural and Historic Qualities of the Buildings and the Contribution they make to the Character Area

The majority of early buildings in the Water Street area have been demolished in recent decades leaving only vestiges of its 19th century appearance. The Grade II Listed bridge’s and viaduct’s leading to the Liverpool Road Station add a dynamic historic feel to this area.

The Character and Relationship of Spaces within the Area

The area adjacent to the south of the Victoria and Albert Warehouse’s, which up to the mid-20th Century was densely developed with further industrial buildings, is now an open site containing car parking. This open area enables views to the River Irwell and towards the listed Liverpool Road bridges and viaducts.

Prevalent and Traditional Building Materials

Historically, buildings were predominantly industrial, of a large scale and built of red-brick with some stone detailing. The surviving historic fabric in the immediate area focuses largely on the sole remaining warehouse’s built c1840 as the Grade II Listed Victoria and Albert Warehouse’s (now Victoria & Albert Hotel). Other structures include the early-19th Century bridges and viaducts (Grade II Listed) associated with the Liverpool Road Station which use a mixture of decorative cast iron road bridges with large red-brick and buff stone river bridges. Towards the south of Water Street are a series of late-20th Century corrugated metal and brick industrial units with the street terminating at a recent white rendered apartment development.

The Contribution made by Green Spaces and other Natural Elements to the Character Area

The River Irwell provides the most significant contribution to the character of the area due to the open nature of the northern aspect of Water Street where once large warehousing was located. Although not included as part of the Grade II Listing of the Manchester & Salford Junction Canal; the c1839 Manchester & Salford Junction Canal locks and the adjoining landscaped forecourt and water feature of the Victoria and Albert Hotel provides a pleasant visual amenity to appreciate the historic context and former use of the area.

Negative Factors: The Extent of Loss, Intrusion or Damage to the Area

Following the decline in industry and the substantial changes to the road network in this area, during the late-20th and early-21st Century, this character area has lost the majority of its historic built form.

This area is characterised principally by large open sites used for temporary car parking. Sites that have been developed contain low quality industrial or commercial units which respond to the new road network, furthering the erosion of the historic urban grain in this area.

The open nature of the sites in this area affords views across the river to Salford (west) and Castlefield (east) but the dominance of vehicular traffic makes this a poor pedestrian environment and recent residential development at Potato Wharf limits views east.

The Existence of any Neutral Areas

The loss of historic built form along the western side of Water Street which backs onto the River Irwell has drastically altered the nature and historic streetscape of Water Street. The cleared sites, backing onto the River Irwell, are used for temporary car parking and are considered to be a neutral area.

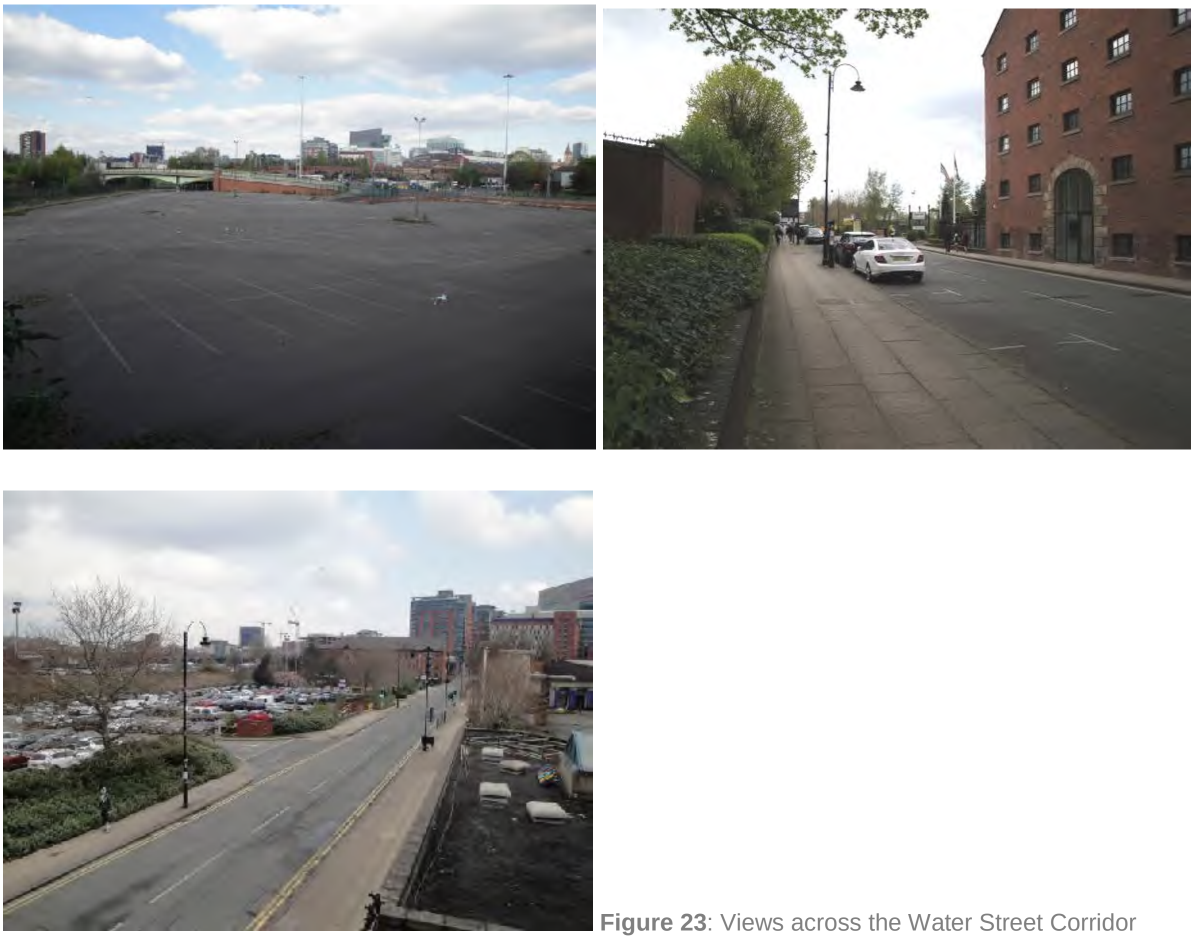


Figure 23: Views across the Water Street Corridor

4.5 Character Appraisal Area C – Liverpool Road Corridor

Location

For the purposes of the study, the Liverpool Road Corridor Character Area has been defined as the area bounded by Water Street to the west, Deansgate to the east, the ITV Granada site to the north and the southern aspect of Liverpool Road to the south.

Key Heritage Assets within the Character Area

The following are the key heritage assets contained with the character area:

Structure	Designation
Liverpool Road Station Buildings	Grade I
1830 Warehouse	Grade I
1830 Viaduct	Grade II
Castlefield (MSJ & AR) Viaduct & Cast Iron Bridge	Grade II
Gunn House (formally St Matthew's Sunday School)	Grade II
Terrace of Weavers Houses	Grade II
Lower Campfield Market	Grade II
Upper Campfield Market	Grade II

The Origin's and Development of the Character Area

The area was laid out in the 18th Century due to its proximity to the River Irwell. The cutting of the Bridgewater Canal in 1765, to the south of this area, reinforced this location as a hub of transportation and industry. By 1808, the line of Liverpool Road had been laid out, and in 1810 a red-brick double-fronted town house had been erected on the corner of Water Street. In 1830 the construction of the Liverpool Road Station (Grade I Listed) saw the construction of the group of station buildings to the western end of Liverpool Road and incorporating the existing town house of 1810 into the new station as the station masters residence. The station development included the stone bridge over the Irwell (Grade I listed), a brick viaduct and a cast iron bridge over Water Street (replaced 1905 & Grade II Listed).

Rapid development of the railways followed including the MSJ&AR Viaduct in 1850 and the partial redevelopment of the station following a warehouse fire in 1866, by which time the station was used exclusively for transporting goods. The fire resulted in two early warehouses being replaced by a Bonded Warehouse on Grape Street in c1867, which was originally named the Charles Street Warehouse before 1888 (now part of ITV Granada). The eastern end of Liverpool Road was characterised by blocks of three-storeyed weaver’s terraces and back courtyard dwellings behind. The northern side of the street was the St Matthews Church (designed by Sir Charles Barry, demolished 1951) with its Sunday school to the southern side of the street (Grade II Listed). Two iron and glass market buildings were constructed either side of the church in the 1870’s.

During the 1880’s, developments on the station site saw the Lower Byrom Street Warehouse, which is now occupied by the Museum of Science and Industry (MOSI), being constructed along with an accumulator tower to generate the good’s yard machinery with hydraulic power.

Except for the areas of late-20th century residential blocks to the western end of the street, today the area largely remains unchanged as it did in the mid-19th Century. The railway buildings have been redeveloped for use as MOSI and the former railway and industrial buildings form a significant grouping which can be understood and appreciated as a multi-phased railway station development.

Prevailing Former Uses within the Area

The Liverpool Road Corridor Area was predominately the transport hub of the city centre until further stations were constructed in Manchester during the mid and late 19th Century. The eastern aspect of the character area was the focus of much trading within the Lower and Higher Campfield Market Halls. Blocks of terraced weavers houses and back-to-back courtyard housing were located at the street’s eastern end, 7 of which survive with later inserted shop fronts to their lower floor.

The Architectural and Historic Qualities of the Buildings and the Contribution they make to the Character Area

The main historic qualities of the area relate to the unique survival and relationship of the Liverpool Road Station site, its associated warehouses and infrastructure including bridges and viaducts which all represent the changing demands and requirements of the world’s first passenger railway. This specific element of the character area contributes greatly to the area’s historic and innovative past.

The streetscape of Liverpool Road is a varied one, with low range classical station buildings to the west and highly decorative mid-Victorian glazed market buildings with high pitched roofs and gables. In-between are simple early 19th Century terraced houses and public houses which make up a diverse mix of different building types, ages and former uses.

The Character and Relationship of Spaces within the Area

Views of this Character Area are largely limited to the enclosed urban form of Liverpool Road, but kinetic views moving south open into the lower areas of Potato Wharf and the Castlefield Basin (Character Area D) reveal the association with this adjacent canal transport infrastructure and industrial character. Due to this relationship, the Liverpool Road Character Area is of high value to the Castlefield Conservation Area as a whole. The long wide view looking eastwards along Liverpool Road towards Deansgate terminates with the massive and dominant Beetham Tower terminating the view. The dominant characteristic of the western end of Liverpool Road is the relatively continuous tight urban grain and back of pavement construction. The slight incline towards Deansgate allows views west towards the River Irwell and above the high perimeter wall of the Liverpool Road Station, allowing interesting glimpses of the Grade I Listed Goods Warehouse within the station yard.

Prevalent and Traditional Building Materials

Historically, the building stock in the area was predominantly built of red-brick with some stone sill, quoin and keystone detailing. During the 1830's Liverpool Road Station's red-brick buildings were applied with coursed painted render to their ground floor level. Other building materials appeared later in the 19th Century in the form of decorative Gothic cast iron market buildings with large areas of glazing. Modern residential buildings constructed approximately 15 years have also used red-brick with stone dressings, with later restaurants and apartment buildings to the east also constructed using red-brick but with larger areas of plain glazing.

The Contribution made by Green Spaces and other Natural Elements to the Character Area

Historically the character area has not had any form of green space nor any natural elements within it. Although the River Irwell is situated at the western end of Liverpool Road, it has been largely obstructed by various bridge and viaduct structures leading to Liverpool Road Station providing only a distant fleeting view when viewed from the Water Street/Liverpool Road junction.

The junction of Liverpool Road with Lower Byrom Street provides a small enclosed green space with mature trees planted into the pavement besides the former St Matthews Sunday School (Grade II Listed). Further east is a larger green space which forms part of the excavations of Manchester Roman fort with a large grassed area and many mature trees planted back of pavement. These sporadic glimpses of green along Liverpool Road break up the continuous line of buildings and link these areas into Castlefield Basin.

Negative Factors: The Extent of Loss, Intrusion or Damage to the Area

Parts of the area have been demolished during the latter half of the 20th Century and modern buildings built in their place. Architecturally these recent buildings, to a large extent, adhere to the historic building materials and massing of former and existing historic buildings of the area. Areas of buildings towards the eastern end of Liverpool Road show obvious signs of no maintenance and neglect, these include both Campfield Market halls and the row of 7 weaver's cottages, with several being uninhabited for some time and falling into disrepair.

The Existence of any Neutral Areas

The car park areas beside the listed railway bridges and viaducts near to the Water Street junction could be classed as neutral areas.

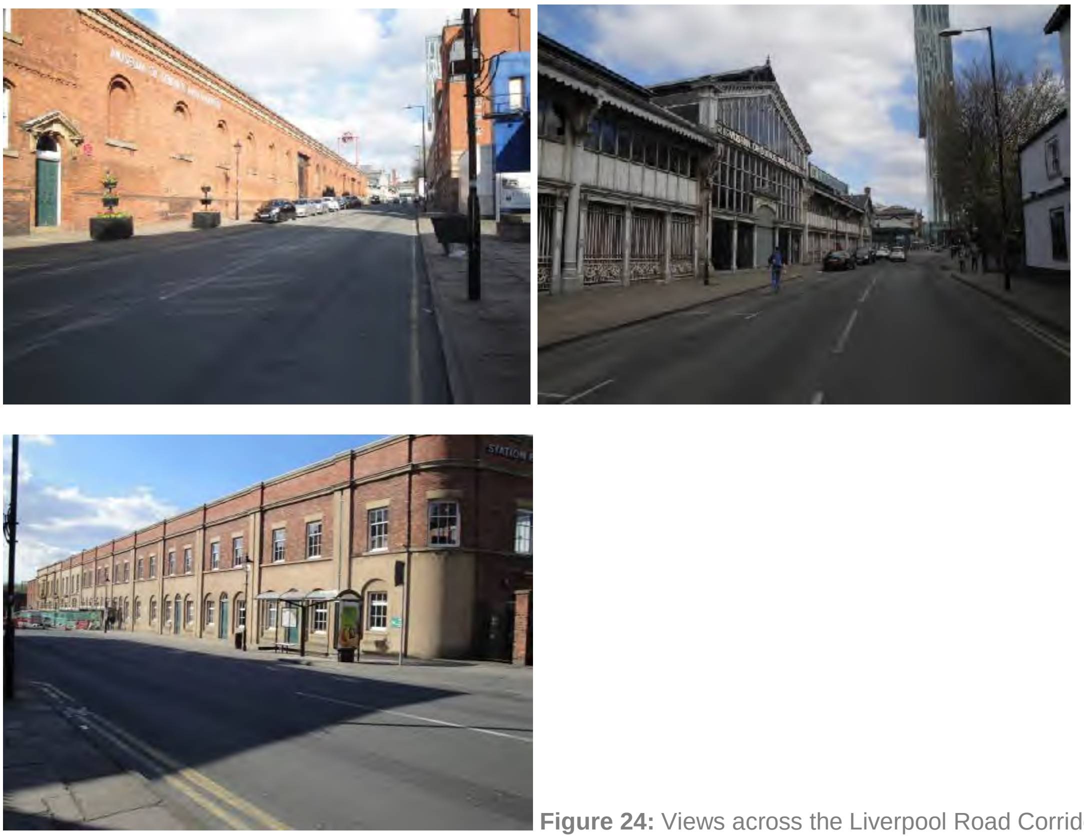


Figure 24: Views across the Liverpool Road Corridor

4.6 Character Appraisal Area D – Castlefield Basin/Potato Wharf

Location

For the purposes of the study, the Castlefield Basin/Potato Wharf Character Area has been defined as the area bounded by Water Street to the west, Liverpool Road to the north, the 1840’s brick viaduct to the east and Chester Road site to the south.

Key Heritage Assets within the Character Area

The following are the key heritage assets contained with the character area:

Structure	Designation
Castlefield (MSJ & AR) Viaduct	Grade II
Bridgewater Canal Basin at Potato Wharf	Grade II
The Giants Basin	Grade II
Castlefield Railway Viaduct	Grade II
Merchant Warehouse	Grade II
Middle Warehouse	Grade II

The Origin’s and Development of the Character Area

Following the development of the Bridgewater Canal in 1765, which saw the origins of the industrial development to the area, and the construction of warehouses, the construction of the railways during the 19th Century concentrated the focus of industry and commerce to this area. The creation of the canal basin led to the construction of a number of warehouses in the area which progressively developed into the 19th Century including potato warehouses and wharf located to the west of the basin.

The numerous viaducts and bridges constructed as part of the development of the railways dominates the character of this area, creating a unique multi-level environment which straddled both warehouses and canal. These structures resulted from the growing rail network in and out of Manchester during the second half of the 19th Century. Different rail companies constructed their own lines into the city resulting in new lines passing through Castlefield having to be operated at high level to prevent them from obstructing road and canal traffic below.

In recent years the area has been redeveloped for residential, commercial and recreational use which has restored something of the former historic urban grain to the area making it an open and vibrant area.

Prevailing Former Uses within the Area

The primary dominant former use of the Castlefield area relates to the shipping industry and trade which the canal network had provided in the formation of the canal basin. Its associated wharfs and warehousing had characterised the area from the late-18th Century and steadily grew with further warehouses and infrastructure during the 19th Century. Residential housing was not historically characteristic in the Castlefield Basin area, and this was mainly concentrated primarily along the adjacent Chester Road, Liverpool Road and its smaller subsidiary streets.

The Architectural and Historic Qualities of the Buildings and the Contribution they make to the Character Area

The main building type in the Castlefield Basin/Potato Wharf areas were large, rectangular, red-brick warehouses with pitched slate roofs and small window openings. In some cases warehouses were constructed across canal arms in order to load and unload directed up into the warehouse itself. These warehouses had large openings to their frontages to allow for canal barges to pass into them. Recent buildings such as Albert's Shed Restaurant and The Wharf Public House have maintained the quality, scale and materials of the areas historic building stock. The remaining early warehouses and waterways together with the different stages of later high level railway viaducts and bridges today characterise the complex historic layers of Castlefield Conservation Area.

The Character and Relationship of Spaces within the Area

The multi-layered character of the area creates dynamic and varied views and vistas throughout the area and beyond with the listed viaducts and former warehouses being key landmarks within this area.

The rich history of industrial development and associated transport infrastructure is well represented in this area and can be easily understood and appreciated and which is considered to form the focus of the Conservation Area.

Prevalent and Traditional Building Materials

Historically, the building stock in the area was predominantly built of red-brick with some stone sill, quoin and keystone detailing. Early railways bridges and viaducts were also constructed of red-brick, with later massive-scale Victorian examples employing large amounts of decorative cast iron with Gothic detailing and lattice girders. Modern residential buildings constructed in the last 20 years have also mostly used red-brick with composite stone dressings, with later restaurants and apartment buildings constructed using red-brick but with large areas of plain glazing.

The Contribution made by Green Spaces and other Natural Elements to the Character Area

There are many varied views within the character area, with many juxtapositions of buildings, structures and waterways viewed within each. Small areas of grass are found to the south-east of the canal basin with mature trees placed amongst the space and also sporadically throughout the entire site where possible, creating a relaxing environment combining many waterways and soft planting along with the multi-layered and interwoven nature and relationship of the spaces within the area which creates dynamic views whilst moving through the area.

Negative Factors: The Extent of Loss, Intrusion or Damage to the Area

Many areas of the Castlefield Basin and Potato Wharf area have been lost to demolition during the mid-20th Century, leaving only fragments of the previous number of large warehouse structures once within the basin. Large areas of open space these created could be considered to be negative factors. The unmaintained appearance of large lengths of viaducts and bridges through the basin is a negative factor.

The Existence of any Neutral Areas

Some areas of car parking associated with recent residential developments could be considered to be neural areas.

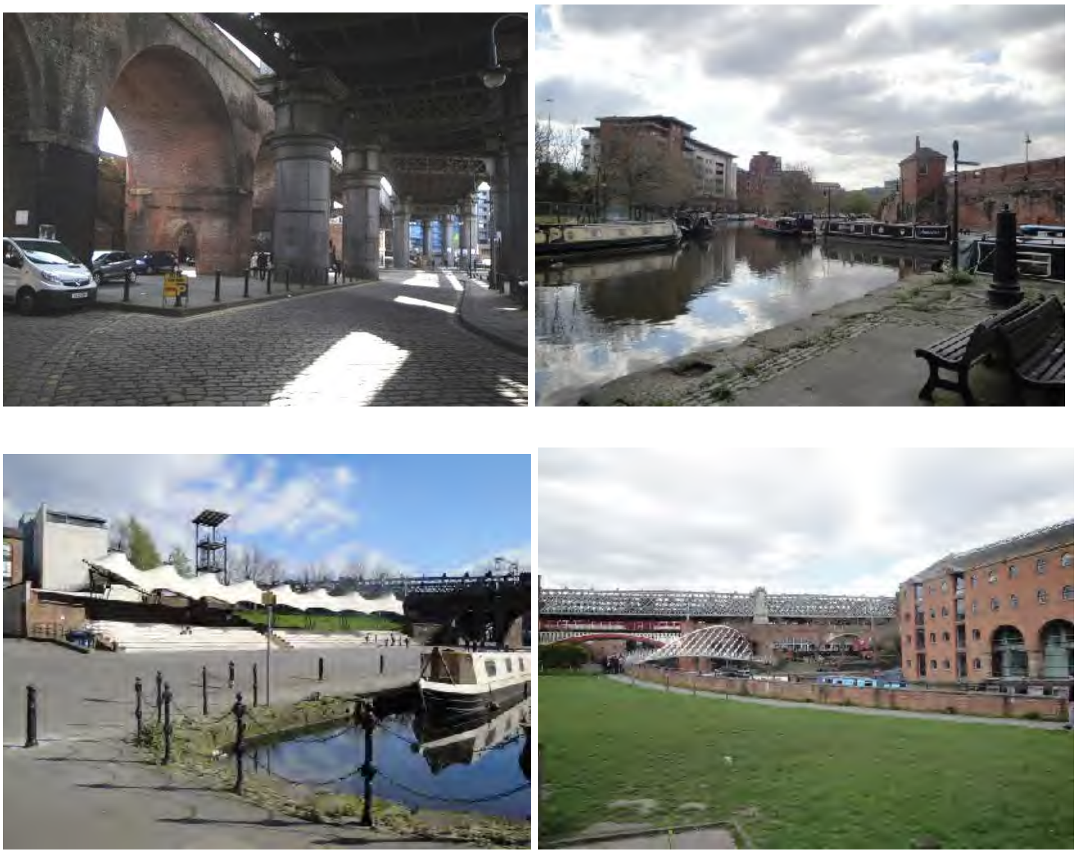


Figure 25: Views across the Castlefield/ Potato Wharf character area

4.7 Character Appraisal Area E – St John’s

Location

For the purposes of this report, the St John’s Character Area has been defined as the area bounded by Lower Byrom Street to the west, Quay Street and Artillery Street to the north, Deansgate to the east and Camp Street site to the south. The St John’s Character area also falls almost entirely within the boundary of the St John Street Conservation Area.

Key Heritage Assets within the Character Area

The following are the key heritage assets contained with the character area:

Structure	Designation
15A Byrom Street	Grade II
14 Byrom Street	Grade II
8 & 8A St John Street	Grade II
11 – 17 St John Street	Grade II
12 – 16 St John Street	Grade II
18 – 20 St John Street	Grade II
19 & 22 St John Street	Grade II
21 – 25 St John Street	Grade II
24, 24A St John Street	Grade II
26 St John Street	Grade II
25 – 31 including former chapel Byrom Street	Grade II
St John College	Grade II

The Origin’s and Development of the Character Area

The St John’s Character Area contains at its heart, a small but almost complete example of a Georgian terraced street; the only remaining in Manchester. St John Street’s Georgian terraces do not form a unified scheme as plots were sold off piecemeal. The eastern end of the street contained a large timber and stone yard which was not built upon until the mid-20th Century.

The land on which St John Street is now constructed, was open fields before the 1740’s. During Bonnie Prince Charlie’s last uprising, during the Jacobite Rebellion in his bid for the crown, he reportedly used this area as a gun park. This event was commemorated in the adjoining street names of ‘Camp Street’ and ‘Artillery Street’.

Rapid expansion of the city centre towards the end of the 18th century saw parcels of land being sold to developers to extend the centre of Manchester. St Johns Church, an early Gothic revival building of

1769 built for local land owner and businessman Edward Byrom, formed part of the former Byrom Estate. This was laid out by 1788 but only partially developed by 1820. Although the houses which faced St John Street and Byrom Street were for the middle class, directly behind them were several rear courtyards containing back-to-back houses for the lower classes called John's Place, James's Court, Holts Court, Span and Swan Court's. These were all removed by the 1950's and the spaces used as gardens for the St John Street properties.

Prevailing Former Uses within the Area

Historically the area was largely residential with the majority of housing being for the upper classes. Lower class dwellings existed on neighbouring side streets and rear courts. Towards the end of the 19th Century, several examples of small hospitals were housed in some of the western townhouses. Hospital use continued into the 20th century when in 1906 the construction of the Manchester & Salford Hospital for Skin Diseases was built on Quay Street (demolished 1999). Towards the end of the 20th Century, St John Street became home to a large number of medical and legal professions which took over entire terraced houses as their offices. Today this is still the dominant use of the area.

The Architectural and Historic Qualities of the Buildings and the Contribution they make to the Character Area

The character area largely focusses around St John Street and St John's Gardens, with the former being the main component of the Conservation Area. St John Street is the last Georgian street surviving in Manchester City Centre, and this rare early residential scheme is juxtaposed against subsequent large-scale developments which surround it. The architectural quality and detailing of the buildings illustrate the middle class status of their early inhabitants. The original scheme was terminated by a large Gothic church, and this dominant presence found its way into subsequent architectural detailing upon nearby houses. The level of survival of the historic scheme and overall layout and composition of the whole contributes largely to the character of the area.

The Character and Relationship of Spaces within the Area

The prevailing character of the area largely focusses on the relationship of the Georgian St John Street with St John's Gardens to the western end of the street. The wide, straight street terminates, in part by the perimeter wall and railings of St John's Gardens. The mature trees and shrubbery form a partial closure to the short vista which runs east-west along the length of St John Street. This creates an inviting element into the partially hidden gardens beyond.

Prevalent and Traditional Building Materials

Historically, the area's first buildings were St John's Church, which is now the site of St John's Gardens, and the three-storeyed Georgian townhouses lining St John Street. The church was built in stone ashlar and had heavy Gothic detailing with ogee window heads and crocketed pinnacles to its tower. Neighbouring streets of townhouses, some from this early date, were built in red-brick with stone detailing. More notable examples of the use of stone in the area is on the southern return of St John Street, on Byrom Street, where a row of four townhouses contain highly decorated ogee door pediments with crocketed pinnacles in the style of the former St John's Church opposite. Later buildings in the area continued the use of historic building materials in modern red-brick; this can be seen along Camp Street and recent in-fill developments along the eastern end of St John Street.

The Contribution made by Green Spaces and other Natural Elements to the Character Area

Although the St John Conservation Area is small in size, it does contain a large open green space in the form of St John's Gardens. The gardens are on the site of the former St John's Church which was demolished in 1931 with gardens being laid out within the original stone boundary walls. A large Celtic cross was erected after the demolition to mark the site of the former church and its 22,000 buried dead. The gardens contribute to the immediate area greatly and offer a rare enclosed and mature garden in the city centre.

Negative Factors: The Extent of Loss, Intrusion or Damage to the Area

Negative factors contained within the character area are the areas of unmaintained rear elevations and gardens of houses. These aspects include Camp Street and Artillery Street where former garden boundaries have been lost and gardens have been paved over. Some rear plots have had subsequent inappropriate development. The rear elevations of houses along St John Street are largely in need of maintenance.

The Existence of any Neutral Areas

Possible neutral areas of the character area could include the red-brick chalet-style c1970's housing that is located along the southern side of Camp Street and which runs along the southern boundary of St Johns Gardens.

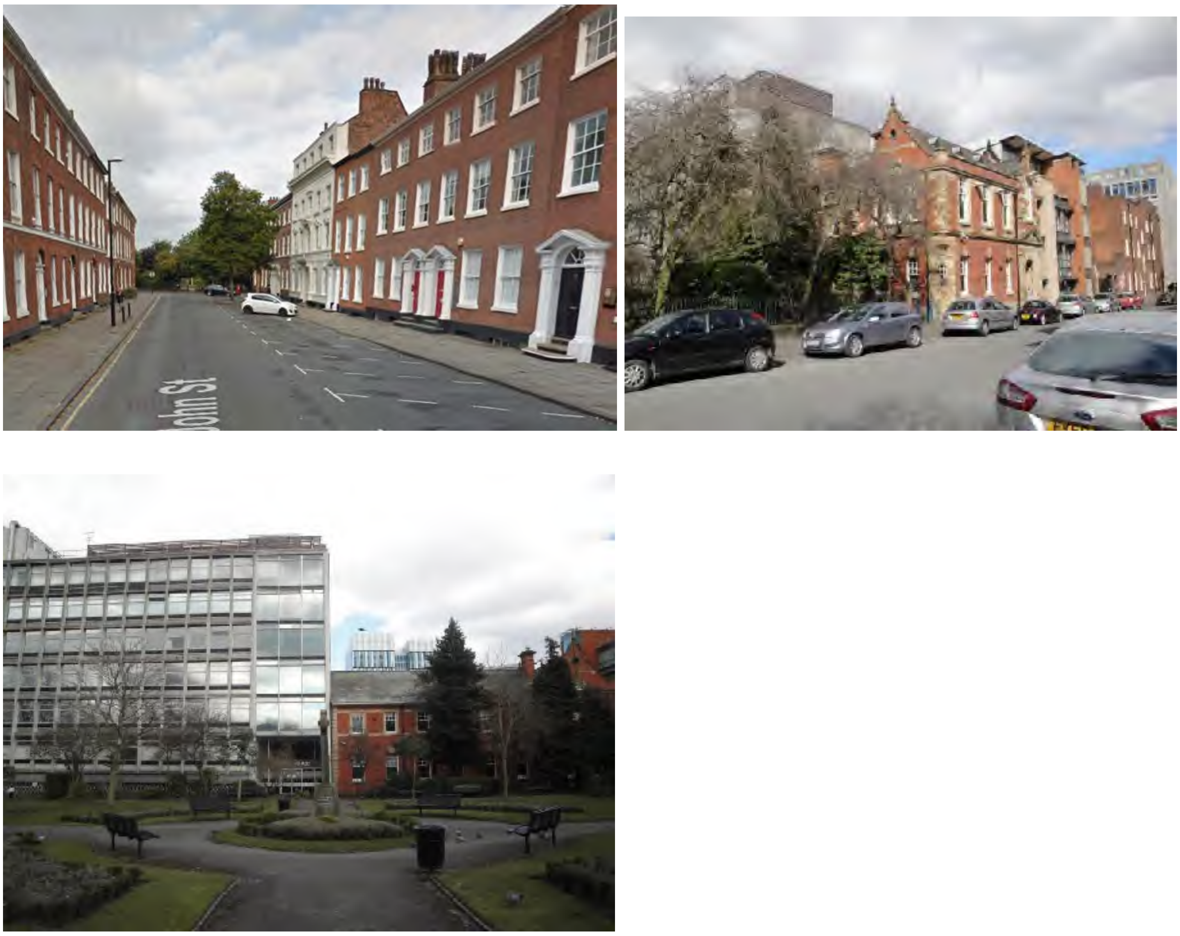


Figure 26: Views across the St John Character Area

4.8 Character Appraisal Area F – Salford Industrial Area

Location

For the purposes of this report, the Salford Industrial Character Area has been defined as the area bounded by Oldfield Road to the west, the railway line to the north, the A6042 to the east and the River Irwell to the south.

Key Heritage Assets within the Character Area

The following are the key heritage assets contained with the character area:

Structure	Designation
Manchester, Bolton & Bury Canal	Non-Designated

The Origin's and Development of the Character Area

Development in Salford followed similar patterns to that of Manchester's 18th Century street patterns. Street grids emerged towards the end of the 18th Century with streets such as Stanley Street not being fully developed until the second half of the 19th Century. Areas concentrating towards the River Irwell remained undeveloped by the 1850's, with some minor streets containing cotton mills and terraced housing having been constructed to a point. The north side of the River Irwell in Salford contains the Manchester, Bolton and Bury Canal which meets with the River Irwell just north of Princes Bridge. The canal network was cut through Salford in a north-easterly direction from this point with many wharfs and mill buildings appearing along-side. By the end of the Victorian era, and into the early 1900's, the area had gained many large areas of railway sidings, works and depot sites with large expanses of ground being taken up by areas of track.

By the mid-20th Century the majority of the area directly to the north and south of the Manchester, Bolton and Bury Canal had been cleared of its terraced housing and former cotton mills, with large, modern engineering works and factory buildings taking their place. By the late-20th Century the area had once more been cleared of its recent industrial buildings. By the beginning of the 21st Century the area was severed by the insertion of the new A6042 which was opened in 2004. This massive infrastructure and realignment of roads running through the south of Salford also cut its way across land to the south of the River Irwell in Manchester, and has resulted in the Princes Bridge across the River Irwell becoming redundant.

The area today remains largely empty except for road, rail and canal networks, and is awaiting development.

Prevailing Former Uses within the Area

The main former use of the area was for canal trading, with several wharves and cotton mills positioned along its waterways and basins. By the late 19th Century the area was fully developed with many small terraced houses filling in any former gaps in the surrounding streets. By the middle of the 20th Century, the area was mainly used for industrial purposes, with several engineering firms setting up large new factories on the site of the former residential streets. Today these have been replaced by new road systems into Salford and Manchester and the existing rail network.

The Architectural and Historic Qualities of the Buildings and the Contribution they make to the Character Area

The survival of historic fabric in this character area is very limited. The majority of the early buildings had been demolished by the 1950's. The main historic quality surviving is the Manchester, Bolton and Bury Canal, which remains, but altered to its southern end as it meets the River Irwell.

The Character and Relationship of Spaces within the Area

The character of the area today is a confusing and much altered one. Although some historic street patterns survive, they are either cleared or now have new road networks passing through them. Much of the area remains undeveloped which gives a baron and uninviting character which is dominated by vehicular traffic.

Prevalent and Traditional Building Materials

Traditionally the area contained buildings, both residential and industrial, which were constructed of red-brick. Recent construction in the area has focussed on road infrastructure and this has used red-brick and concrete in its construction.

The Contribution made by Green Spaces and other Natural Elements to the Character Area

Areas of green spaces in the character area are limited to the now overgrown plots which were left by recently demolished industrial buildings. Other green spaces which are more mature are found along the banks and sidings of the rail network. The River Irwell lies to the south of the area and parts of its banks and surrounding land contains some green spaces but this is not accessible to the public since the area was redeveloped in the early 21th Century. The majority of open space is provided by the several swathes of baron open land located between modern road systems.

Negative Factors: The Extent of Loss, Intrusion or Damage to the Area

This character area contains many areas which are considered to be negative to the wider area. The main area of loss is the removal of all historic buildings from the area during the mid-20th Century, and other later demolition. This mass clearance of development facilitated the construction of the new A6042 and associated infrastructure. The road network is a confusing mix of road levels and underpasses which obliterates the former character of the area.

The Existence of any Neutral Areas

Neutral areas within the character area could focus on the aforementioned areas of green open spaces left behind from areas of demolition and the anticipation of further development.

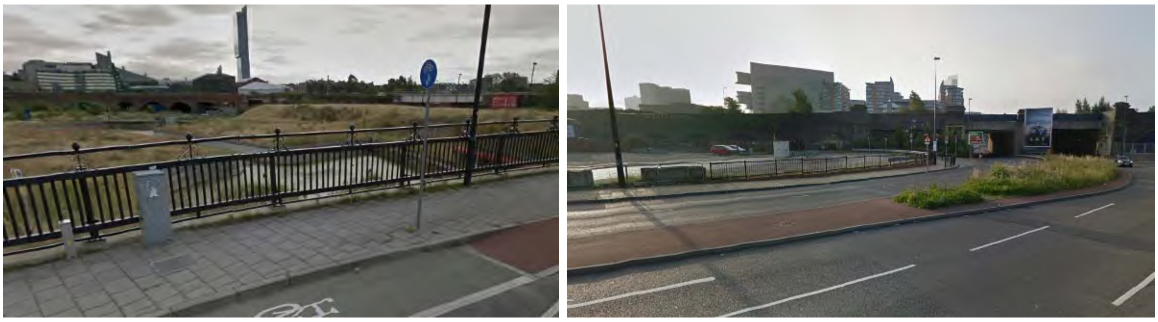


Figure 27: Views across the Salford Industrial character area

4.9 Character Appraisal Area G – Regent Road Area

Location

For the purposes of this report, the Regent Road Character Area has been defined as the area bounded by the A5066 to the west, the Regent Industrial Park to the north, the River Irwell to the east and Everard Street to the south.

Key Heritage Assets within the Character Area

The character area does not contain any key heritage assets within its boundaries.

The Origin’s and Development of the Character Area

The area of land directly to the south of Regent Road which meets the River Irwell remained open land with only one large cotton and silk mill located within it, called Sunnyside Mill by the 1840’s. During the middle of the 19th Century, the area to the north of Regent Road quickly developed a dense street pattern of small street grids with many back-to-back courts and alleyways, with larger terraced concentrated to the Regent Road side. By the end of the 19th Century, the large open space surrounding Sunnyside Mill had been fully developed with several tightly packed terraced streets leading to seven large industrial works of either rubber or iron which terminated at the river.

The large Regent Road Brewery was constructed during this period on the junction of the Regent Road Bridge and the River Irwell. The brewery, which had existed in a smaller building on the site, was extended onto the adjoining site of the former Regent Bridge Mill, which had been constructed in the early-19th Century. This area of Salford suffered aerial attacks during the Second World War and the Brewery itself was destroyed and demolished at this time.

By the mid-20th Century the majority of the area, directly to the north of Regent Road, had been cleared of its terraced housing, leaving several blocks awaiting demolition. To the south of Regent Road, a large area was cleared to make way for several long, medium-rise blocks of flats including Regent House and Everard House with landscaped grounds surrounding them. By the 1970’s the remaining areas of 19th century terraced housing, to the north and south of Regent Road, had been cleared and replaced with large industrial units. By the end of the 20th Century and into the 21st Century, the area’s commercial nature has grown and replaced the majority of the former 1950’s industrial units and factories. To the north of Regent Road is a small retail park containing large branded shops and supermarkets with associated car parking facilities.

Prevailing Former Uses within the Area

The main former use of the area was of residential, with later engineering works by the end of the 1800’s. By the middle of the 20th Century, the area was mainly used for industrial purposes, with several engineering firms setting up large new factories on the site of the former residential streets. Today the area still contains areas of housing to the west of Ordsall Lane, whereas to the east of the lane is a concentration of residential apartments which have recently been erected and some remaining industrial structures dating to the mid-20th Century. To the north of Regent Road is a small retail park containing large shops and supermarkets.

The Architectural and Historic Qualities of the Buildings and the Contribution they make to the Character Area

The survival of historic fabric in this character area is non-existent with the exception of the Edwardian Bricklayers Arms Public House at the junction of Woden Street and Ordsall Lane. The majority of early buildings had been demolished by the 1950’s.

The Character and Relationship of Spaces within the Area

The character of the area today is a confusing and much altered one. Although some historic street patterns survive, they are either cleared or now have new road networks passing through them. Much of the area remains undeveloped which gives a baron and uninviting character which is mostly catered for vehicles.

Prevalent and Traditional Building Materials

Traditionally the area contained buildings, both residential and industrial, which were constructed of red-brick. Recent construction of large apartment blocks has followed this traditional building method, in some instances, with others using painted render and timber/metal balconies.

The Contribution made by Green Spaces and other Natural Elements to the Character Area

Small areas of green verges can be found within the area to south of Regent Road. These green spaces are the result of late 20th Century construction in the area which set new buildings back from the pavement, leaving areas of green in front of them, The area to the east of Ordsall Lane, backing onto the River Irwell, contains no such green space and is fully developed with modern commercial buildings.

Negative Factors: The Extent of Loss, Intrusion or Damage to the Area

The key focus of loss on the area is the removal of the majority of its historic buildings during the mid-20th Century, and their replacement with a mass of large scale industrial units and commercial outlets. These changes altered the historic street pattern of the area and its former historic urban grain.

The Existence of any Neutral Areas

Neutral areas within the character area could focus on the small green verges and spaces areas of green open spaces left behind from areas of demolition and the realignment of replacement buildings.

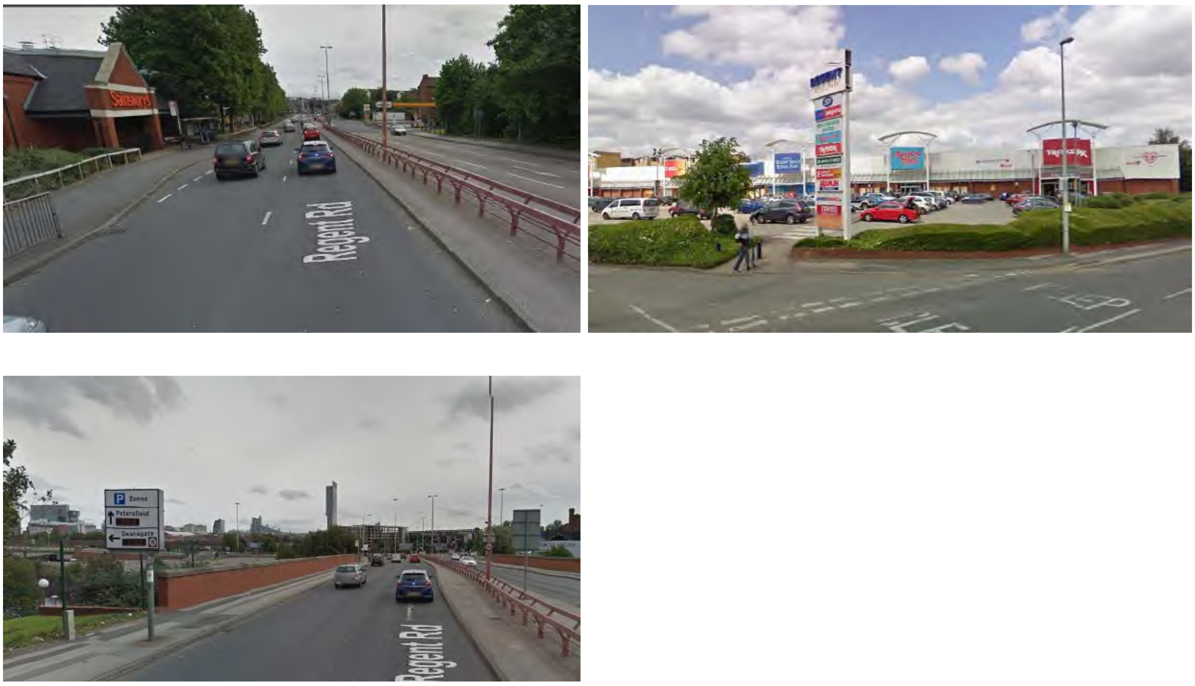


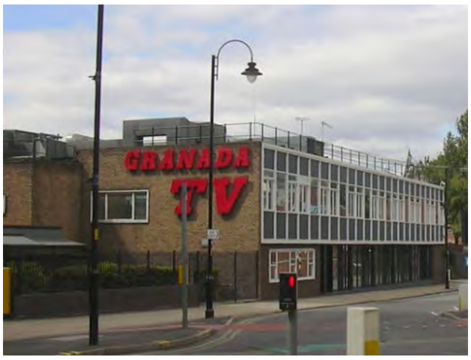
Figure 28: Views across the Regent Road Character Area

5 SIGNIFICANCE OF EXISTING BUILDINGS WITHIN THE ITV GRANADA SITE

5.1 Introduction

A high level appraisal was undertaken of the existing buildings within the former ITV Granada Studios site, in order to establish whether these had the potential to be considered as a 'non-designated heritage'. Following Section 5.2, which appraises the existing buildings within the former ITV Granada site, Figure 29 illustrates the location of the buildings which are considered to be "non designated heritage assets".

5.2 Appraisal of Existing Buildings within the Former ITV Granada Site

<table>
<tr><td colspan="3">ITV Granada Studios Site
<i>Phase 1 – 1955-56 - Original Entrance & Admin Offices</i></td></tr>
<tr><td>Designation</td><td rowspan="2"></td><td rowspan="2"> </td></tr>
<tr><td rowspan="3">Non-Designated Heritage Asset</td></tr>
<tr><td colspan="2">Description</td></tr>
<tr><td colspan="2">Phase 1 was the first element of the studio site to be completed and construction began with a single studio; Studio 2, and a small two-storey administration block facing Quay Street.

This building was designed by architect Ralph Tubbs and was the first element of his master plan for the site to be built.

The structure used a concrete frame with either brickwork panels or aluminium framing with painted and glazed infill panels. Windows are metal framed and the original main entrance was through the now unused pair of glazed doors to its Quay Street elevation. The entrance lobby contains a cantilevered terrazzo staircase leading to the first floor offices.

The first of Granada's studios, and indeed the first commercial studio to be built in Britain was Studio 2, which was built behind the 2-storey entrance block with a small</td></tr>
</table>

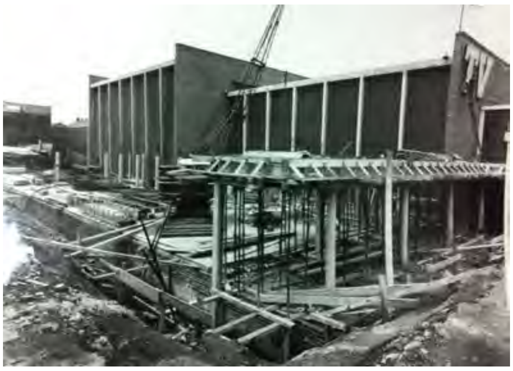
	section of offices which was set back slightly from the rest and contrasted with a darker brick.
	Discussion
	• The building was the first commercial building to be built in Manchester following the Second World War. • Externally the building is largely unaltered from its original design and demonstrates the early design concept for the experimental first commercial television studio venture in Great Britain. • The building is a good example of mid-1950's design and materials. • The original entrance and terrazzo cantilevered staircase, designed by Tubbs survives. • The building has been altered internally with removal and addition of partition walls. • The building was extended south and eastwards during the next two studio construction phases during the late 1950's and early 1960's.
	Opportunities & Constraints
	• The building is considered to be a non-designated heritage asset and should be retained. • The building has scope for internal alteration. • Externally, later additions abutting the building could be removed or altered to open up the original space.

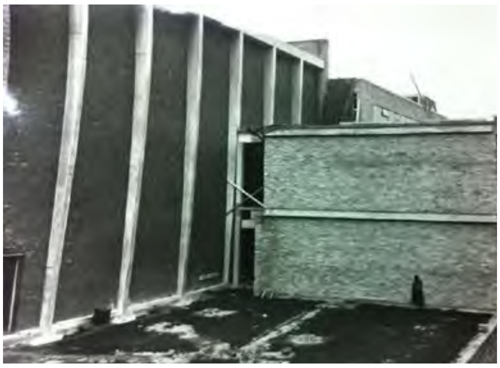
ITV Granada Studios Site

Phase 2 – 1957-58 - Studio 6 and Associated Accommodation

Designation

Non-Designated Heritage Asset





Description

Phase 2 saw the construction of a second studio (Studio 6) which was built adjoining the existing Studio 2. The new building used the same design of external concrete ribbing with darker brick infill of that of Studio 2.

Whereas Phase 1 used concrete members formed off-site, Phase 2 used huge concrete arch beams which were cast on site and then raised in to place to form the structure with brickwork filling the spaces in-between.

The smaller Studio 2, which was nearest the Quay Street entrance, was lower in scale and had less width than the new Studio 6 directly behind. This arrangement exploited the proportions and growing modern design of the new studios. The design (now hidden at street level by later buildings) displayed concrete ribs brilliantly from the road side and appeared a very modern style of architecture in a still black and bomb-damaged Manchester.

Discussion

- Phase 2 is an important element of the development and initial growth and expansion of the complex.
- Areas of the original exterior can be seen from higher levels of the adjoining Granada House. Internally the original concrete ribbing from Tubb's design survives.

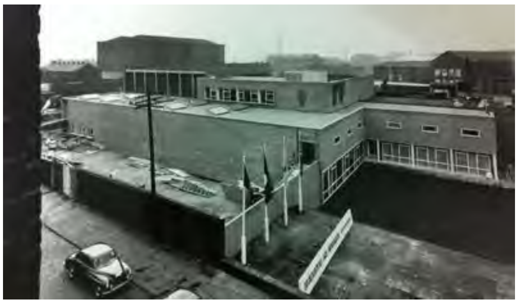
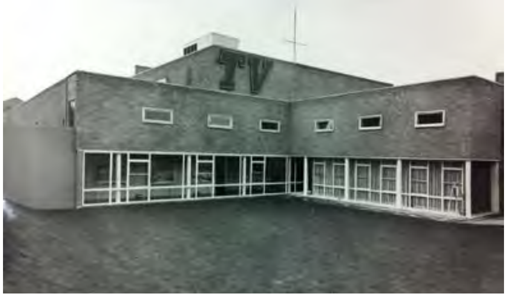
Opportunities & Constraints

- This building is considered to be a non-designated heritage asset and should be retained.
- The building has scope for internal alteration.

	• Externally, later additions abutting the building could be removed or altered to open up the original space.

ITV Granada Studios Site

Phase 3 – 1958-59 – Technical & Link Block

<table>
<tr><td>Designation</td><td></td><td></td></tr>
<tr><td rowspan="2">Non-Designated Heritage Asset</td><td colspan="2">Description</td></tr>
<tr><td colspan="2">This phase was to be the new link block containing the technical block with a special operations room for the directing of emergency outside broadcasts, a sound effects studio, a music and tape recording library, wardrobe and make-up rooms and a standards conversion unit, it also housed the dressing rooms. The new block provided an additional 12,000 square feet of space.

The construction of the link block resulted in the ribbed elevation of Studio 2 being concealed However a feature was made of the existing concrete ribs on the internal face of the new rooms. The ceilings were constructed with concrete beams with angled glazed roof lights, the corner most room received a slightly domed circular glazed roof light. Externally the new structure was knitted into the existing studio wall with yellow brickwork matching that of the studio gable end brickwork so as to entirely conceal the ribbed and dark brick side elevation.

The building knitted into the previously built Phase 1 and in part to Phase 2. The new link block was intended to precede and connect to Phase 4-the proposed 8 storey block on the corner of Atherton Street and Quay Street. The building joined to the eastern range of the existing entrance block and formed a glazed courtyard with a newly sunken garden to the Quay Street side. The glazing was floor to ceiling on the ground floor and was supported by circular concrete pillars painted white, which were intended to be seen.

To the east elevation the pillars were external and to the south elevation which now</td></tr>
</table>

contains the entrance to the canteen had its pillars located internally; these were boxed in when the glazed walkways were removed to extend the canteen into the sunken lawn area. The windows were a mixture of metal and timber with two-paned sash windows positioned to the centre of each pillar. On the first floor small oblong picture windows in pairs of three were positioned on the two new elevations.

Internally the corridors were plainly decorated with exposed smooth beige brickwork with painted concrete uprights distanced equally throughout. The floors were of lino and the ceiling treatment was either painted plasterboard or fixed ceiling tiles with pendant lights and flush ceiling lights.

This phase terminated at the line on which Granada House would eventually be constructed, leaving temporary fencing and second floor doorways boarded-up until the tower was completed and joined to the remainder. Phase 3 also tied up any voids left by the original phase of the studio construction and continued the building onward towards Atherton Street and was opened on the 13th March 1959.

Discussion

- This phase was planned to eventually link the previous phase to the next anticipated Phase 4 (Granada House).
- The building evolved Tubb's initial designs for the studio.
- Phase 3 allowed for state of the art technical procedures and facilities to be housed adjacent to the studios.

Opportunities & Constraints

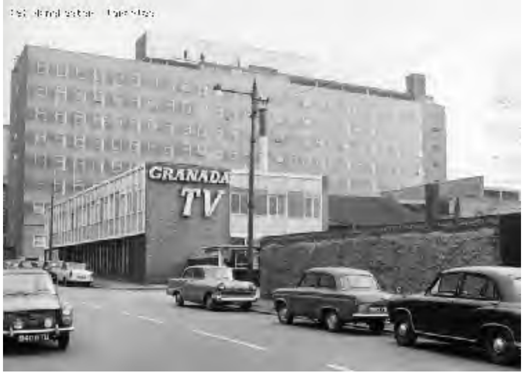
- This building is considered to be a non-designated heritage asset and should be retained.
- Internally the building has scope for internal alterations and the removal of later alterations and partitions.
- Original internal spaces could be re-established.
- Later external additions such as the staff canteen could be removed to reveal the original plan of the building.

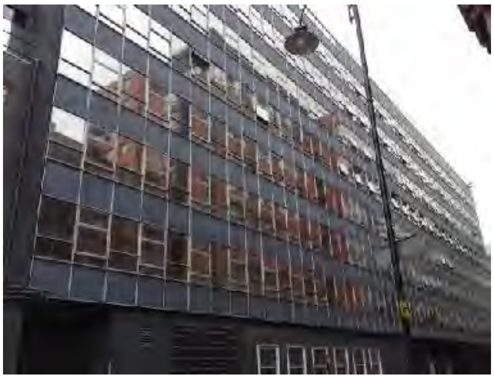
ITV Granada Studios Site

Phase 4 – 1960-61- Granada House

Designation

Non-Designated Heritage Asset





Description

The new administration building (Granada House) was built on land that was higher than that of the previous phases of construction. Due to this, a single ground floor level within the studios could never be achieved. Soon after its completion, Granada House was described in The Guardian newspaper, on the 10th of July of that year as being known to future historians as "*The 1960's look*".

The tower is thought to be the first example of curtain walling in Manchester, with a concrete frame being constructed first, followed by a non-structural wall of glazing and infill panels attached to it. The building has blue Staffordshire engineering bricks to both of its narrower ends, and a grid of aluminium holding both fixed and opening glazed windows with painted infill panels. In recent years one-way reflective film was applied to all windows.

Originally the concrete columns to the ground floor of the tower which faces Atherton Street were clad in white and grey marble, matching the columns immediately behind in the reception area; these were replaced/covered over by a shiny grey marble c1990. It was also during this time that the entrance and steps were replaced and the lower white marble section of the building containing vents was also replaced with new grey marble. The main reception was originally to the right of the top of the entrance stairs where a desk and a few chairs were placed, with a larger reception area to the other side of the entrance doors to the north.

The building was ready for use in January 1961 and on the 1st October 1961 an 80ft aerial was erected on the roof of the tower block overlooking Quay Street. The mast had a large plastic dome fitted to the top to protect the aerials from the weather and was floodlit every night. The centre of the tall metal structure contained a metal spiral staircase to reach the pinnacle. The structure stood on an 8 tonne metal structure upon

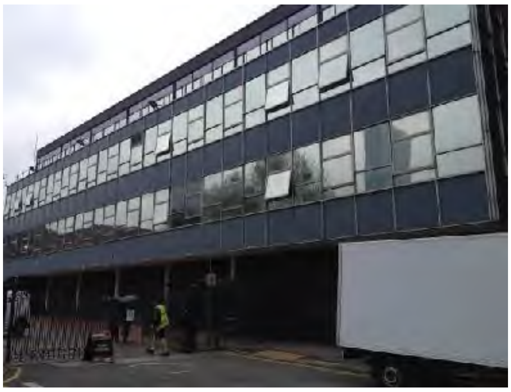
	a large concrete base and rose 200ft above the ground. It was taken down c2010 due to safety concerns. This was perhaps Ralph Tubbs’ only concession of whimsy and a nod to his Festival of Britain fame.
	Discussion
	• Dominant element of the Granada Studio’s complex designed by Ralph Tubb’s. • Thought to be the first example of curtain walling in Manchester. • The building is a largely complete example of a late 1950’s tower block. • Penthouse apartment at roof level which originally served as Sidney Bernstein’s private apartment. • The building was designed to function as a hotel in the event that Granada failed as a successful television studio.
	Opportunities & Constraints
	• This building is considered to be a non-designated heritage asset and should be retained. • The building contains large open-plan office floors which could easily be re-used. • Later internal partitions could be removed. • External curtain wall is original and unaltered and should be retained.

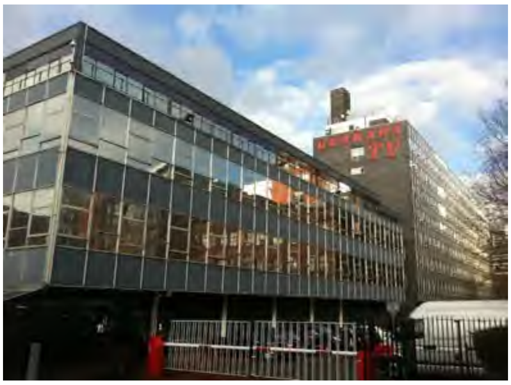
ITV Granada Studios Site

Phase 5 – 1961-62 – Office block & Studio's 8 & 12

Designation

Non-Designated Heritage Asset





Description

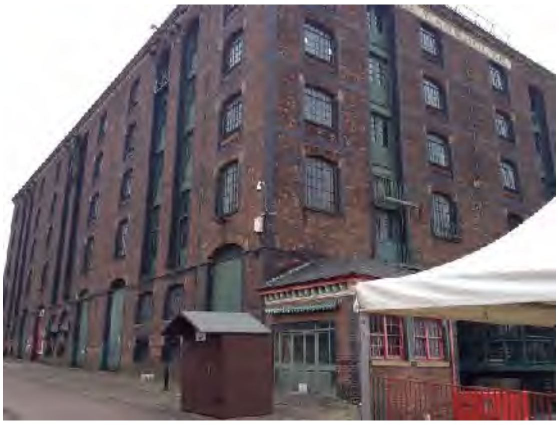
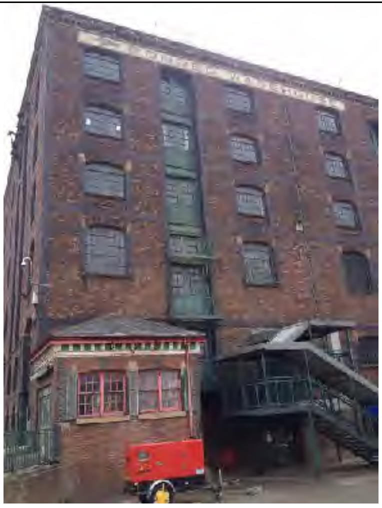
In mid-1961 work began on the final large-scale phase of the Granada Studios complex; the construction of the final two studios - Studio 8 and Studio 12, each larger than the studio previous. As was the case with the earlier phases, Phase 5 was altogether different in its design. Studios 8 and 12 did not follow the same architectural design to that of its two predecessors, it appears that an appropriate studio design format had been established by this phase and that the building would be functional and not decorative. Whereas Studios 2 and 4 were designed to be seen from the outside, with concrete tapering ribs contrasting with dark brick in fills, the new studios were not designed to be seen and were only viewed in part from the rear car park and as such, had no architectural detailing.

To the Atherton Street frontage of the new buildings, a 4 storey office block was joined in a matching style to the end of Granada House. This building used the same blue brick and aluminium windows as Granada House but was lower in scale and its top floor was set back from the frontage. To the side facing Grape Street was a glazed entrance with glazed entrance and canopy leading into the building and down to the lower studio level. This entrance was regularly used by Coronation Street to film its Weatherfield Police Station scenes. To the left of this entrance, and running westwards is a blank stretch of blue engineering brick which ends this phase of construction.

Discussion

- Externally, the building matches and compliments Ralph Tubb's previous adjoining phase (Granada House).
- The building continues the recognisable Granada building format up to Grape

	Street, harmoniously completing the entire western side of Atherton Street. • Internally the building is a mass of small rooms on different levels to that of Granada House, making an awkward and confusing space to navigate. • Internally there is no notable design or decoration. • Large blank return elevation of blue brick facing Grape Street.
	Opportunities & Constraints
	• This building is considered to be a non-designated heritage asset and should be retained. • Scope for major internal demolition/alteration. • Structures and rooms located behind, but attached to the Atherton Street frontispiece have scope for demolition. • Scope for inserting openings into large blank wall facing Grape Street.

<table>
<tr><td colspan="3"><i>ITV Granada Studios Site</i>
<i>Grape Street Bonded Warehouse c1867</i></td></tr>
<tr><td>Designation
Non-Designated Heritage Asset</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">Description</td></tr>
<tr><td></td><td colspan="2">The Grape Street Bonded Goods Warehouse (originally known as the Charles Street Warehouse pre 1888) was constructed in 1869, with a railway line passing over Water Street directly into the building for securely storing goods such as alcohol and tobacco.
Two warehouses for storing cotton and a transit shed were constructed to the south of Grape Street as part of the Liverpool Road Station complex in 1831. However in 1866 a</td></tr>
</table>

serious fire gutted one warehouse and severely damaged the other, and these in turn were subsequently demolished and replaced by the Bonded Warehouse.

The Warehouse had three internal track turntables and an internal railway line which ran through its southern side; this had a further parallel line just outside which was also fitted with turntables so as to direct trains directly at right angles into the warehouse's three large goods entrances.

The building is constructed of red-brick with blue engineering brick banding and quoins. Large battened timber doors are to the base of each loading bay with half glazed doors to each loophole and the remains of hoists and their associated brackets to the top of most. All windows being metal framed and louver opening.

Discussion

- A virtually unaltered exterior including original doors and windows.
- A later warehouse built 37 years after the Liverpool Road Station complex which it was part of.
- Some internal alterations to house the Granada Tours however these are largely reversible and contained to the lower floors.
- Much altered basement floors.
- Large open plan warehouse floors (where unaltered) supported by cast iron pillars.
- Exposed brick interior walls and early timber floors.
- Loading bays to ground floor provide an awkward useable floor height.

Opportunities & Constraints

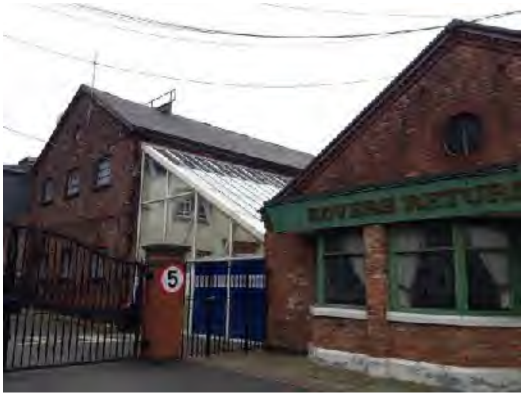
- This building is considered to be a non-designated heritage asset and is of a quality suitable for statutory listing.
- Scope for internal division, but taking into consideration the alignment of internal supporting iron pillars and window/door openings.
- Possibility for total alteration to the basement level.
- Ground floor external elevations have the scope for retail units.

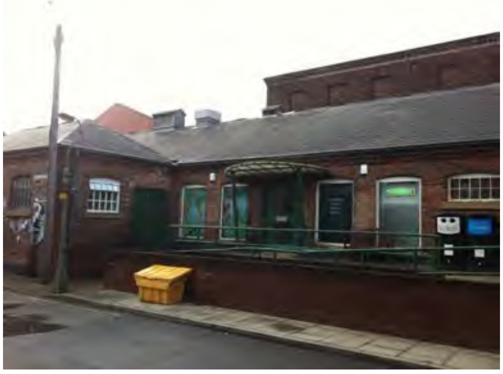
ITV Granada Studios Site

Bonded Warehouse Stables – c1888

Designation

Non-Designated Heritage Asset





Description

The stables, stalls and harnessing rooms were built soon before 1888. In 1968 it was decided to convert the by then derelict buildings into an experimental theatre, this provided performing space and a bar for Granada. As part of the Granada Tours in 1988, the one storey wing was converted into a recreation of the Rovers Return Pub complete with a replica frontage built onto the gable end of the stable in order to offer studio tour guests with a replica Rovers Return to drink in. The courtyard space in-between the two wings of the stables was glazed over and used as a thoroughfare and waiting area for audience guests.

The two storey wing was also converted in the late 1980's into a replica Emmerdale Farm, Woolpack Inn. The covered courtyard exterior was plastered and remodelled to replicate the exterior of the Woolpack. The first floor of the two storey wing is split level and formed part of the Coronation Street set.

Discussion

- Building has been altered internally and externally.
- The building is evident of the transport needs of a later 19th century railway and good depot.
- The middle of the building has been glazed and provides a well-lit internal courtyard.

Opportunities & Constraints

- The buildings are considered to be non-designated heritage assets, although the loss of these buildings could be balanced by the retention of other, more significant, non-designated heritage assets.

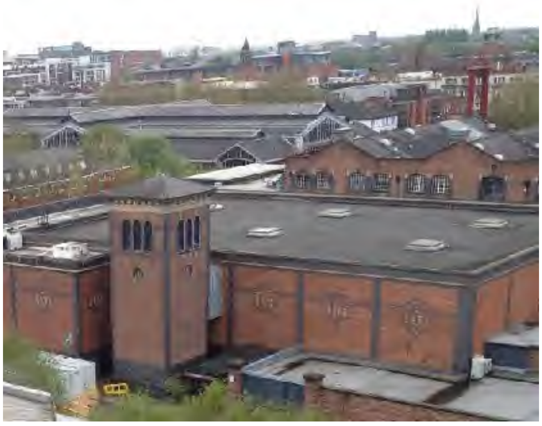
- Much altered internally with scope for major internal alterations.
- The former Granada Tour’s alterations, i.e. Rovers Return and Woolpack frontages have scope for removal and further alteration.

ITV Granada Studios Site

Accumulator Tower – 1880

Designation

Non-Designated Heritage Asset



Description

In 1880 the London & North Western Company completed the final phase of railway construction to the Liverpool Road site. Construction of a warehouse, larger to that of the existing Bonded Warehouse, but similar in design and proportions, was completed by c1880 which today forms the Manchester Science and Industry Museum (MOSI). It was during the construction that an Accumulator Tower was built close-by, in the adjoining goods yard in order to ‘accumulate’ hydraulic power in order to improve goods handing and probably power the numerous cranes and turntables on the site.

The London and North Western Railway Company built several warehouses and accumulator towers during the late 19th century, using almost identical styles for each. Each of their warehouses used matching materials such as red-brick with blue engineering brick banding and quoins, with closely paired window bays and loading bays.

The accumulator tower is a tall, square, brick tower which originally stood isolated against the boundary wall of the Liverpool Road railway goods yard. The tower and yard were entered from Grape Street through a gate located in a high brick wall that faced onto the street. The stone capitals from the two gate piers have been reused on top of the new brick piers when the area was redeveloped to form a Stage One in 1985. Originally the tower had a smaller one storey building attached to it which would have provided the power for the hydraulic equipment.

The tower was designed in a modest Italianate style, with a low pitched pyramidal roof and sets of three round headed windows to the upper-most level of each elevation. These windows were originally blind and merely for decoration and have since been opened to form ventilation. The bull's eye windows to the middle point of the tower were the only windows in the structure originally, these now have Granada Television's famous pointed 'G' logo in neon tubes.

Inside the tower is a large metal piston housed around an iron column. The piston is attached to either side of the tower to iron tracks of teeth which are bolted to large sections of timber which run the height of the tower. This would have been powered by the adjoining engine room with probably water, and in turn filled a large metal tank on top of the piston and hoisted to the top of the tower. When power was needed on site, the tank would drop creating hydraulic power to the adjoining engine house (now demolished).

Similar accumulator towers have been listed, such as Bryants Warehouse, Stockport, 1877 (Grade II) and Huddersfield Good Warehouse, Huddersfield, 1885 (Grade II).

Discussion

- The tower is in good condition, and survives relatively unaltered.
- The tower is closely linked with the neighbouring Grade II listed MOSI warehouse, and was originally its source of power.
- Remains of original hydraulic machinery and gearing exist to the internal spaces.
- The tower was built to provide hydraulic power to the adjoining Lower Byrom Street Warehouse (MOSI) and same style and materials the warehouse.
- A relatively unusual surviving example of an Accumulator Tower.
- One of a handful of matching towers constructed towards the end of the 19th Century for the London & North Western Railway Company.
- An awkward space to re-use.

Opportunities & Constraints

- The tower is considered to be a non-designated heritage asset and should be retained.
- The building has scope for internal alteration/incorporating tower into a new building as part of the proposals.
- Internal machinery could be removed to create a useable space.

	• The tower could provide a key landmark. • Externally, possible scope for alterations to the rear elevations. • Main exterior elevations should remain unaltered.

ITV Granada Studios Site

Other Buildings

Designation

N/A

Description

Later alterations and additions to the studio site includes several structures which are considered not to be classified as non-designated heritage assets, these are as follows:

- Starlight Theatre
- Stage One
- Stage Two
- Coronation Street Lot
- Phase 6 – Construction Workshop
- Phase 7 – Granada Tours, Manhattan Playhouse, Baronial Hall and Motion Master
- Security lodge
- Staff canteen
- Waste Recycling compound
- Buildings within car park area

Discussion

- Later buildings of low-quality materials and design.
- Utilitarian structures and add-ons to existing facilities which are not part of the important first stages of design by Ralph Tubbs.

Opportunities & Constraints

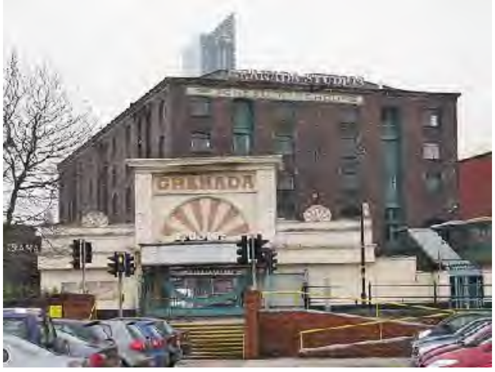
- These buildings are not considered to be non-designated heritage assets.
- Scope for total demolition of all recent studio site additions and extensions.

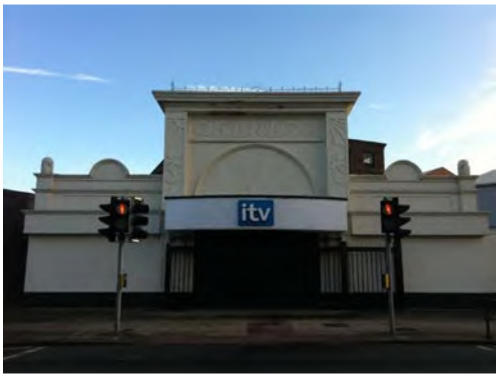
ITV Granada Studios Site

Granada Tour entrance, Water Street - 1988

Designation

N/A





Description

The former Granada Tour entrance building was possibly designed by the Building Design Partnership as part of the Tours development in 1988. The building acted as the official gateway into the tour site, and led through a central gateway into a 'New York' themed street which was constructed to the eastern side of the Bonded Warehouse.

The building was designed to hark back to Granada's early days as a 1930's cinema chain which was set up by Granada founder Sidney Bernstein. The Water Street exterior is made of brick and block work with render over. Incised and moulded render in the forms and shapes associated with the Art Deco era or sunbursts and geometric shapes with a simple iron fretwork to the flat roof. The rear elevation of the structure is of standard block-work and has no detailing or decoration.

Discussion

- Official entrance of the Granada Tours.
- Built as a homage to founder; Sidney Bernstein's early Granada venture as a cinema chain.
- Interesting arch/gateway into the site.

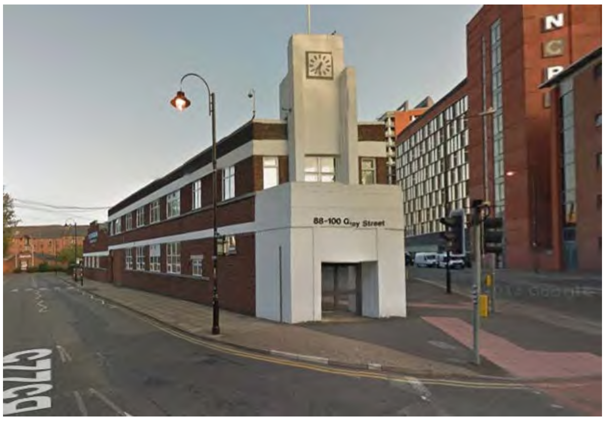
Opportunities & Constraints

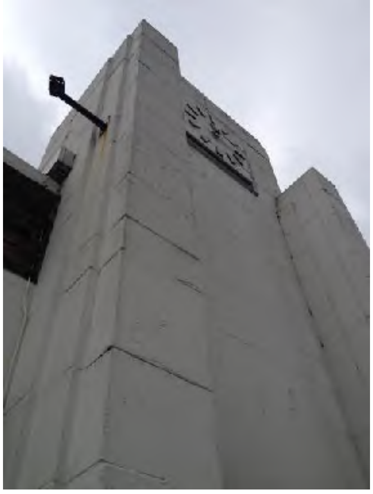
- The building is not considered to be a non-designated heritage asset however it does hold some local townscape value.

Globe & Simpson Building, 88-100 Quay Street – c1935

Designation

N/A





Description

The Globe & Simpson Building was constructed in the 1930’s on a ‘flat-iron’ island site bounded by Quay Street and New Quay Street. The building was built as an industrial works and garage, of which the latter was extended to the west soon after. For the most part of the 20th century the large empty plot behind the building, which fronts Water Street, has remained empty. The building is simply constructed of red-brick with a more detailed low-rise, modest Art Deco clock tower using painted stone/concrete blocks and with the original modern clock face to its upper portion. All windows and doors have been replaced.

Internally the building consists of two large office floors supported by square concrete pillars and retains no original features except for its two 1930’s timber staircases, which are simple in their design. To the rear is a later, single-storey former garage.

Discussion

- Low-rise concrete and brick building occupying part of a larger island site.
- Front elevation with Art Deco clock tower at its junction with Quay Street and New Quay Street has some low local interest.

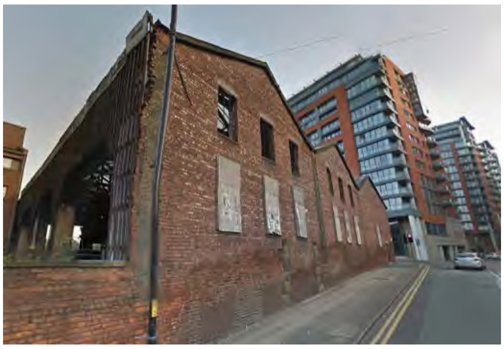
Opportunities & Constraints

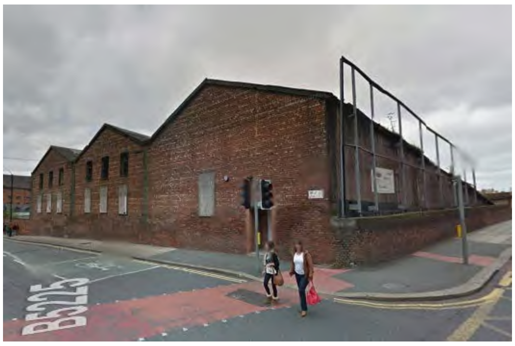
- This building is considered not to be a non-designated heritage asset and could be altered or removed.
- Due to the modest Art Deco design, shape and prominent position in Manchester, the building does have some local townscape value.
- Whole site, including vacant plot to the rear could be utilised.

Albert Shed c1908-22

Designation

N/A





Description

Albert Shed is an early-20th Century adaption of a perimeter wall formally belonging to a wing of the Albert Warehouse and the adjoining Ship Canal Company Yard wall. Between the years 1908 and 1922, the Albert Warehouse was partially demolished, leaving parts of its external warehouse and yard wall in-situ at approximately 6ft. These were subsequently built on top of to form an open sided shed with three new gable ends with a series of new window openings.

The remaining lower parts of the Water Street elevation contain a blocked doorway, once leading into the Albert Warehouse which now forms part of the external wall of the shed. This doorway forms an early chamfered, ashlar-stone door surround. Internal inspection has not been undertaken at this stage.

Discussion

- Early-20th Century utilitarian 'shed' structure incorporating parts of early-19th Century former warehouse wall.
- Basic concrete and timber frame construction with sloping, corrugated asbestos roof. Structure is open on two sides and itself partially demolished to the south.

Opportunities & Constraints

- This building is not considered to be a non-designated heritage asset, however does have some local value and has possible scope for alteration or demolition; further inspection is required.
- Large 20th century space backing onto the River Irwell.
- Scope for internal alterations.
- Early c1840 Water Street elevation associated with the Albert Warehouse including part of former stone door surround.

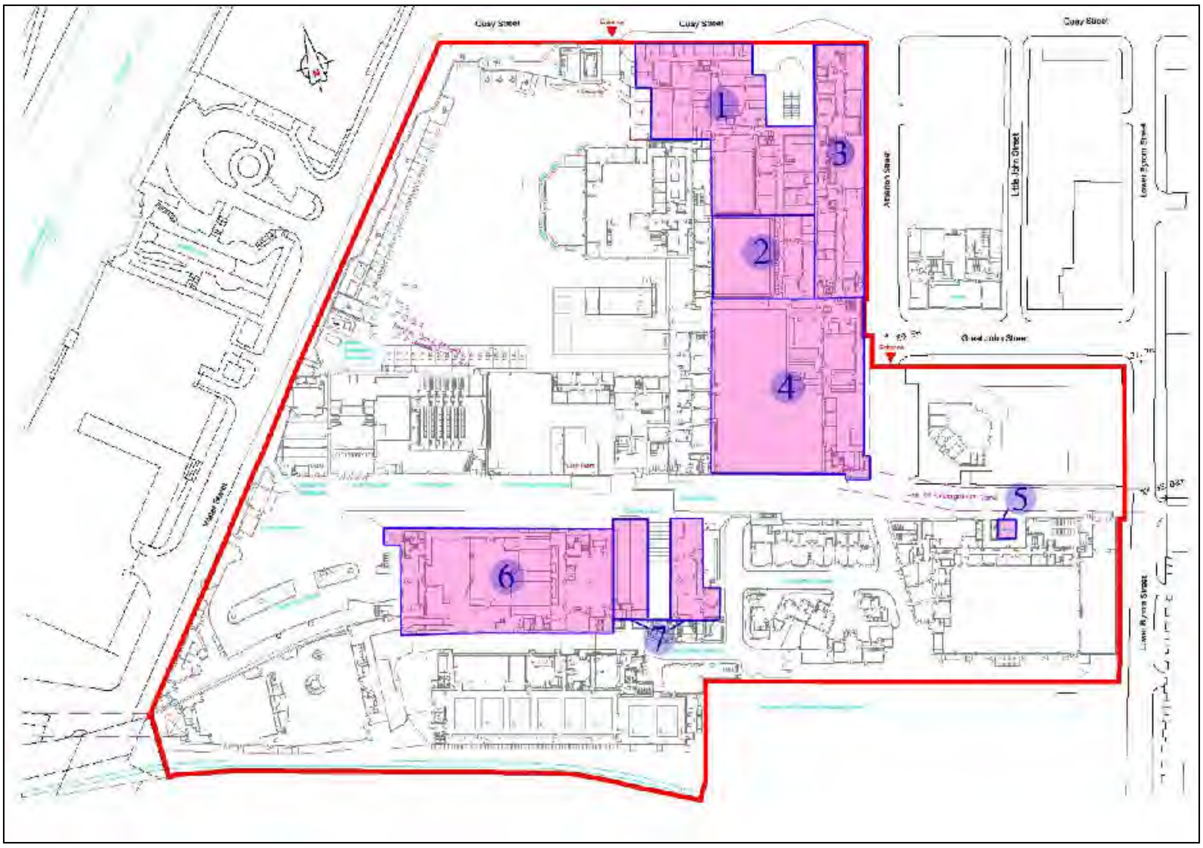

Quay Street
Quay Street
Quay Street
Little John Street
Lower Byrom Street
Water Street
1
2
3
4
5
6
7

Figure 29 site map illustrating the location of the non-designated heritage assets. **1**: Administration Block and Studio 2; **2**: Studio 6; **3**: Granada House; **4**: Granada House Annexe and Studios 8 & 12; **5**: The Accumulator Tower; **6**: The Bonded Warehouse; and **7**: The Stables

6 IDENTIFICATION OF KEY VIEWS

6.1 Introduction

Following the characterisation appraisal of the area of analysis, key views of the subject site have been identified.

This outline appraisal of the keys views is intended to enable meaningful discussion with key stakeholders and the project team in understanding potential issues in terms of visual impact on the historic environment and how best to mitigate against these.

6.2 Short Range Views

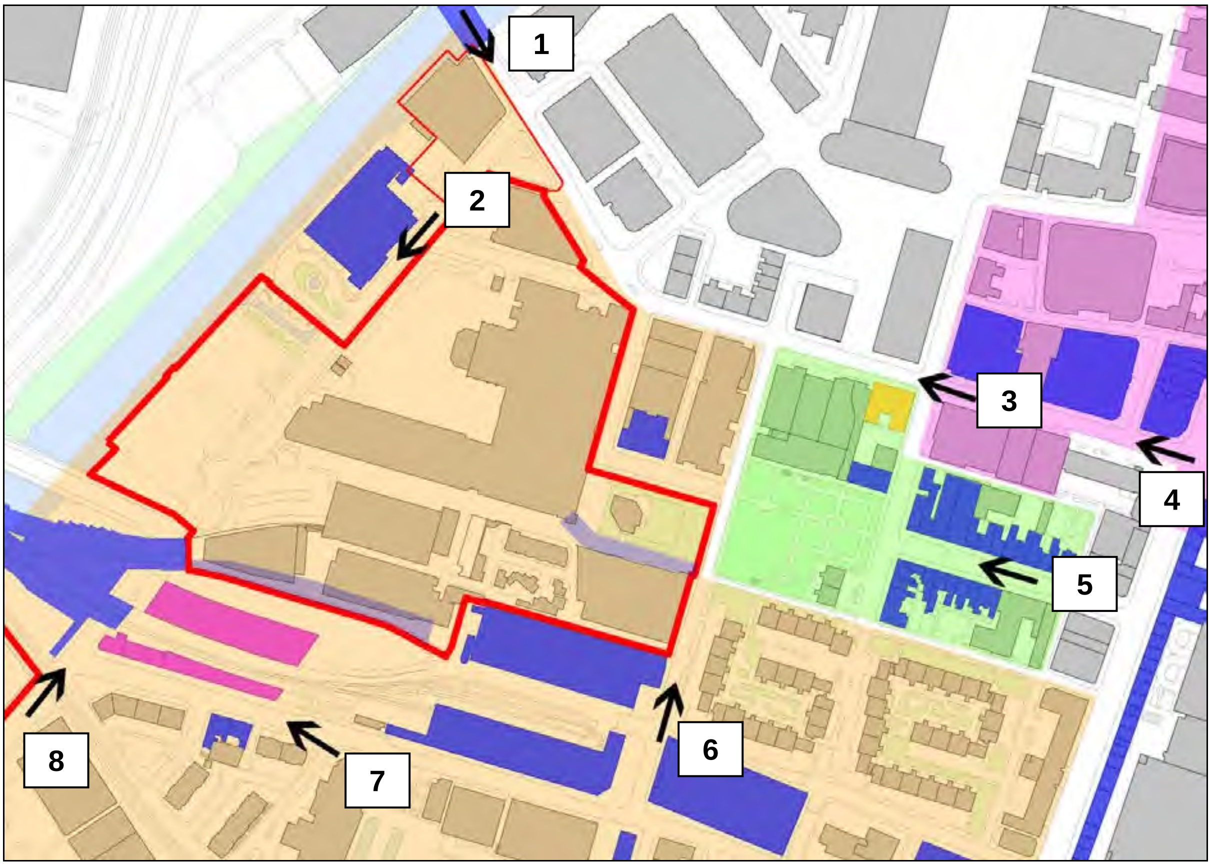
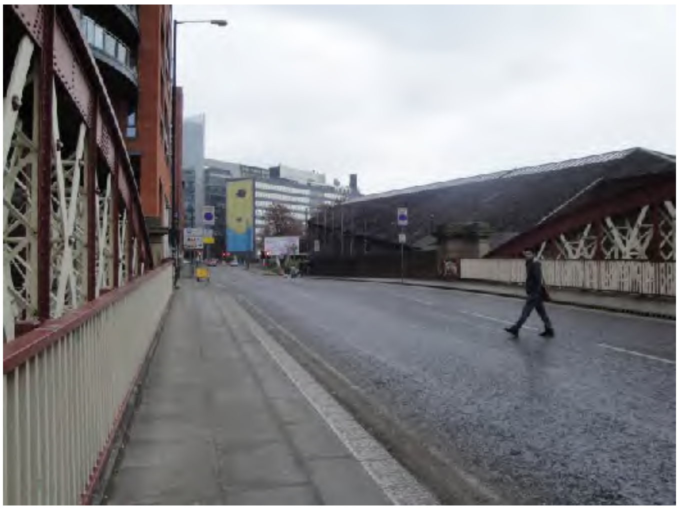
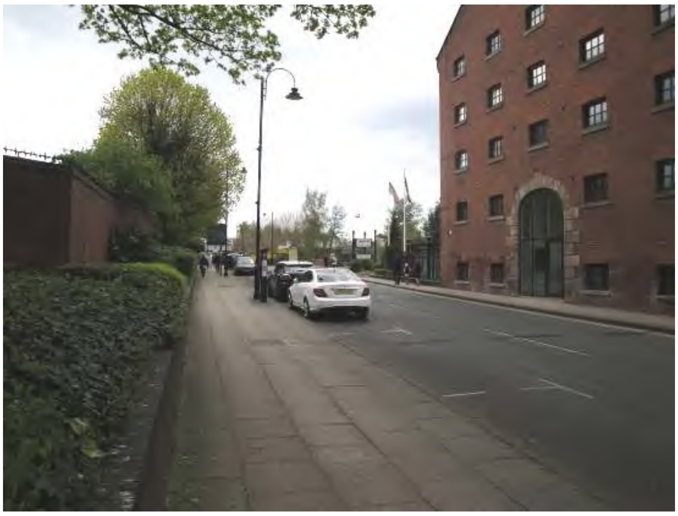
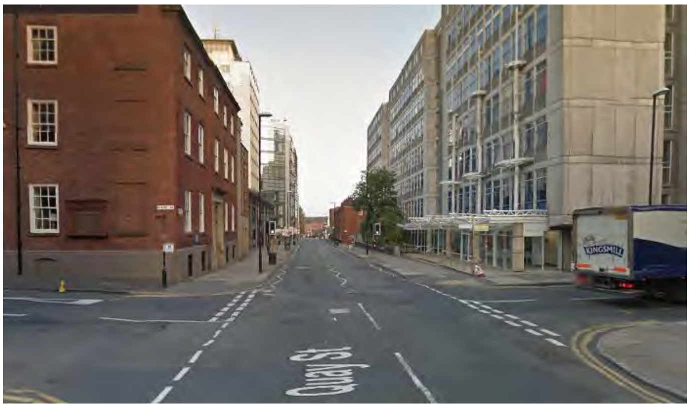
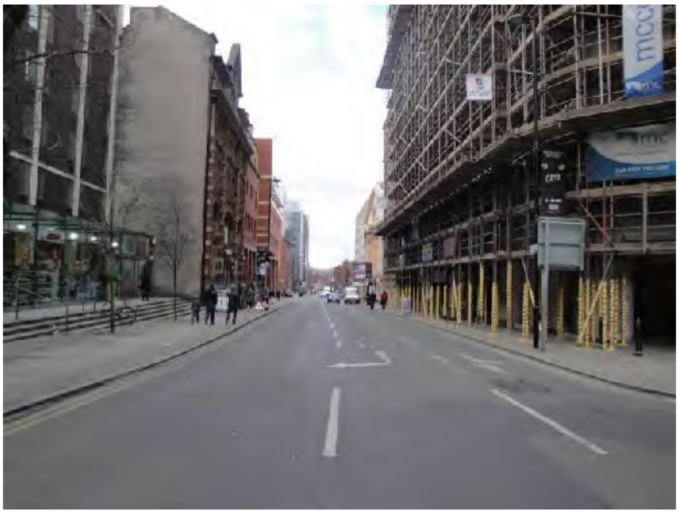
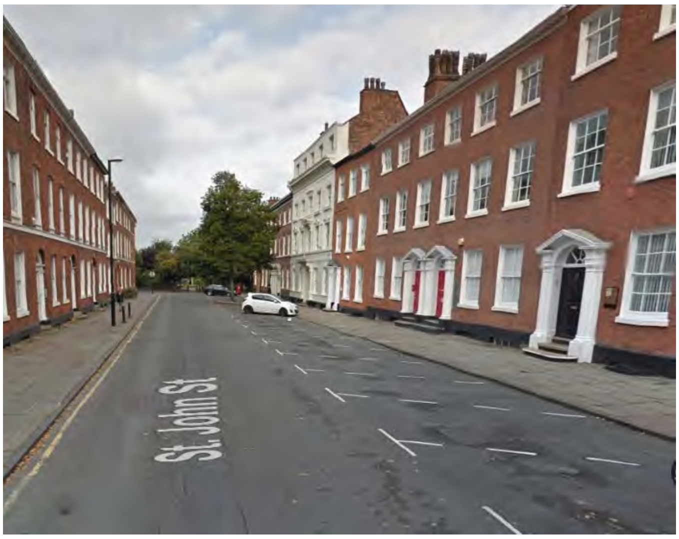
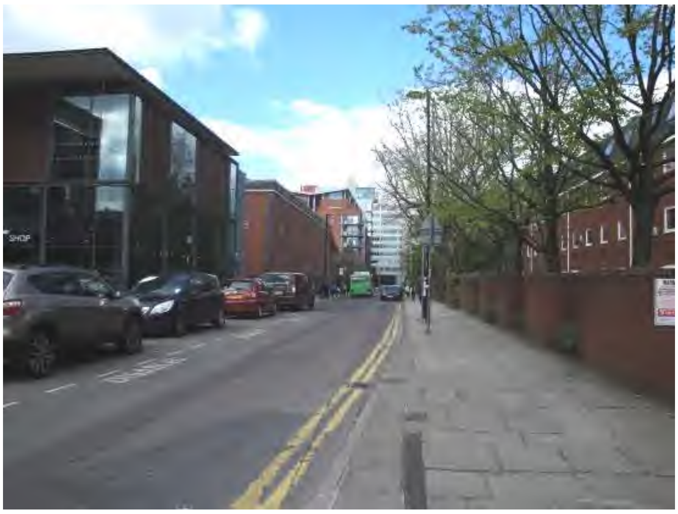
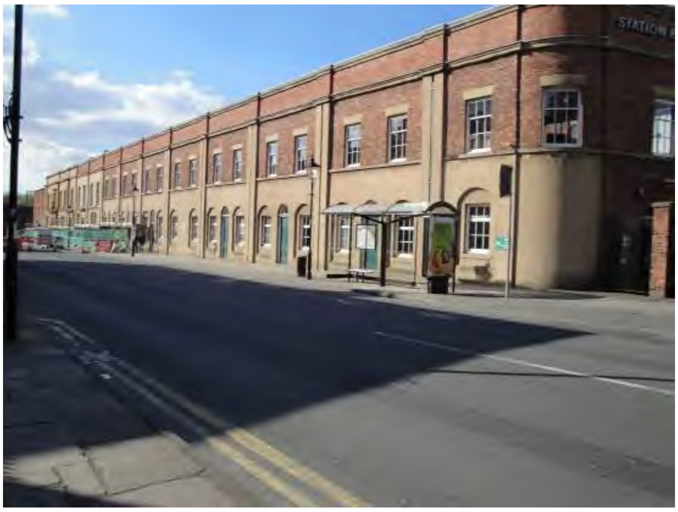
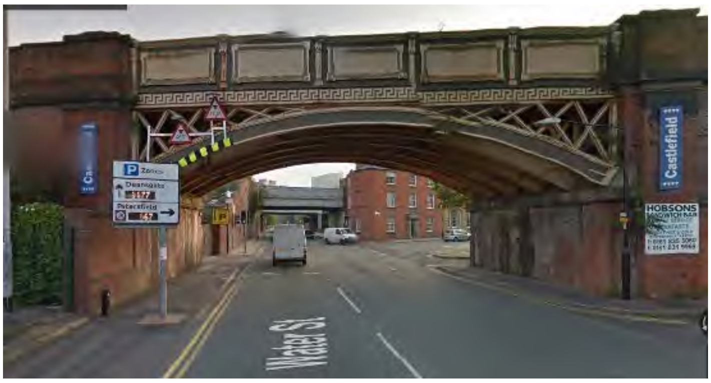


Figure 30: *map identifying the locations of key short-range views around subject site.*

View	Short range views: Baseline Image	Location
1		This view is experienced from the new Quay Street bridge looking south east towards the subject site. This view has been identified as it is a key view looking into the Castlefield Conservation Area and because of the vistas it presents of the existing buildings within the subject site, e.g. the Albert Shed building to the right and the Granada House building in the middle ground. It is considered that this view could be enhanced by creating more active street frontages to enliven this gateway into the city and conservation area.
2		This view is experienced from the junction of Water Street and Quay Street looking south west. This view has been identified as a key view as it contains the Grade II Listed Victoria and Albert Warehouse (Marriot Hotel) and the vacant sites that are part of the subject site beyond. The boundary wall of the former Granada ITV site is seen to the left which creates an inactive street frontage. This view represents the Water Street corridor character area and demonstrates that there is the opportunity to enhance the character and appearance within this area.

3		This view is experienced from the junction of Quay Street and Byrom street looking west towards the subject site. This view has been identified as it marks the boundary of the Castlefield, Deansgate/ Peter Street and St Johns Street Conservation Areas. It also contains the Grade II* Listed Cobden House. This view demonstrates the enclosed nature of Quay Street. Currently the view is not terminated by any significant feature and therefore the area of the subject site is not announced within the view.
4		This view is experienced from Quay Street, west of the junction with Deansgate looking west towards the subject site. As with view 3, this view presents a kinetic view demonstrating the wider streetscape and Listed Buildings; the Grade II Listed Opera House and the Grade II Listed Sunlight House to the right. This view has been identified to demonstrate the views from within the Deansgate/ Peter Street Conservation Area looking into the Castlefield Conservation Area. It also further demonstrates the lack of termination to the view.

5		This view is experienced from St John Street looking west towards the subject site. The view is dominated by the terraces of Grade II listed Georgian townhouses which provide a continuous building line along the street and forms a strong sense of enclosure. The view is terminated in the middle ground by St John's Gardens. This view has been identified as it illustrates the setting of the group of listed buildings and the focus of the St John Street Conservation Area.
6		This view is experienced from Lower Byrom Street, outside of MOSI, looking north towards the subject site. This view, within the Castlefield Conservation Area, looks into the St John's Street Conservation Area. The residential buildings to the left and the blind boundary wall of the subject site, beyond MOSI, have created a largely inactive streetscape. It is considered this could be enhanced to improve the character and appearance of the area.
7		This view is experienced from Liverpool Road looking west towards the subject site. The view is dominated by the Grade I former Liverpool Road Railway Station complex which encloses the view. This view has been identified as it illustrates a significant group of Listed Buildings within the Castlefield Conservation Area.

8		This view is experienced from Water Street, to the south of the junction with Liverpool Road, looking east towards the subject site. The view has been identified as it includes the significant grouping of Grade II viaducts and bridges and the Grade II* former Liverpool Road Station building which provide a dominant character to the area.

6.3 Medium range views

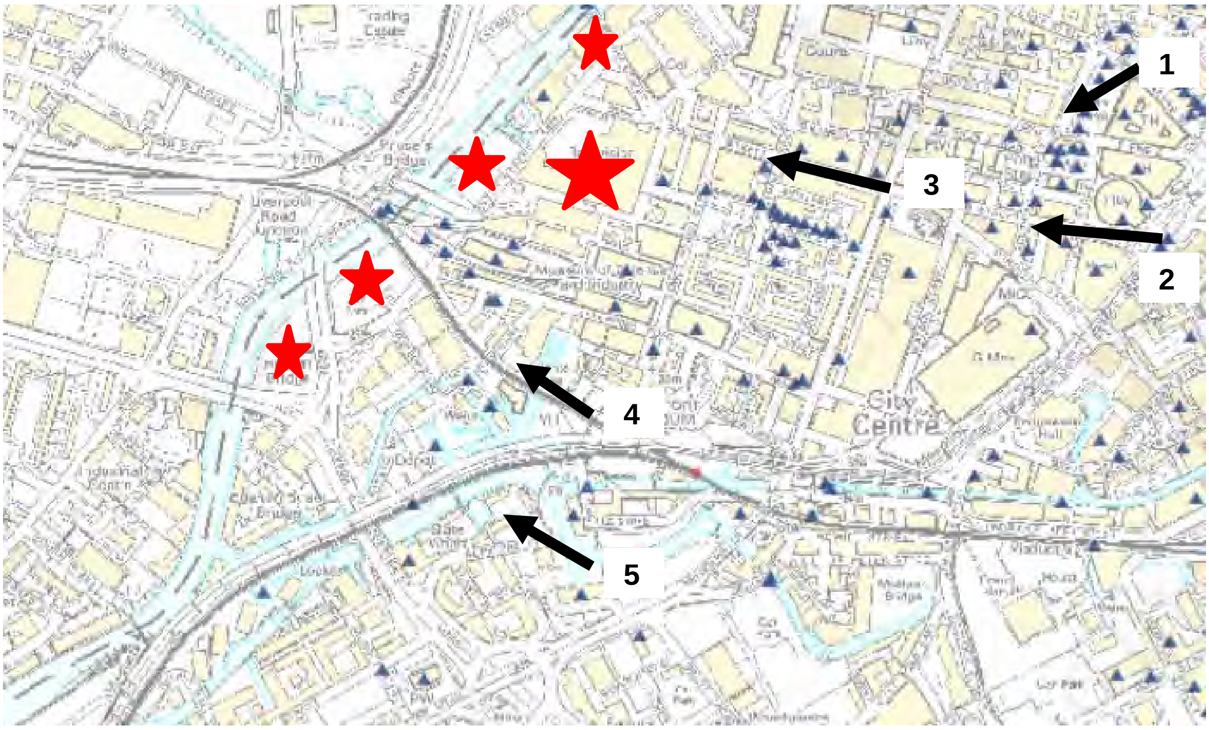
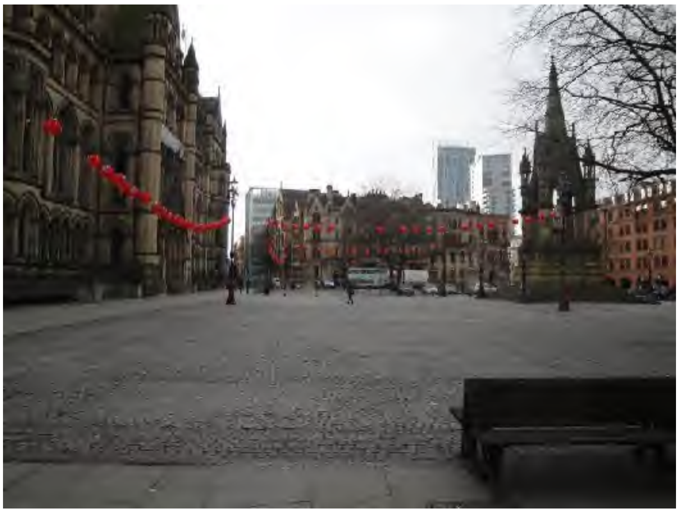
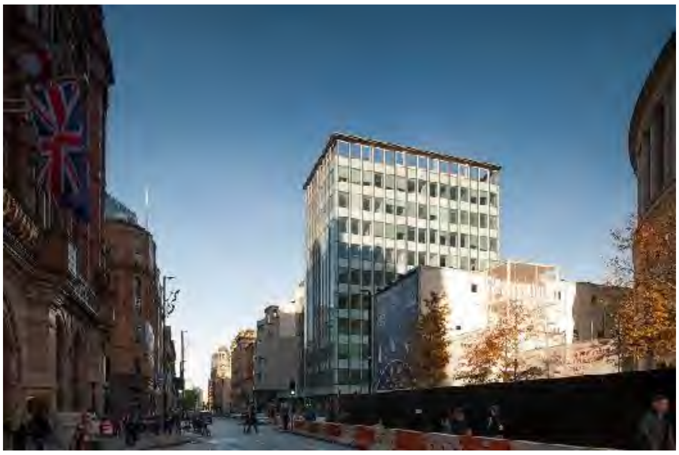
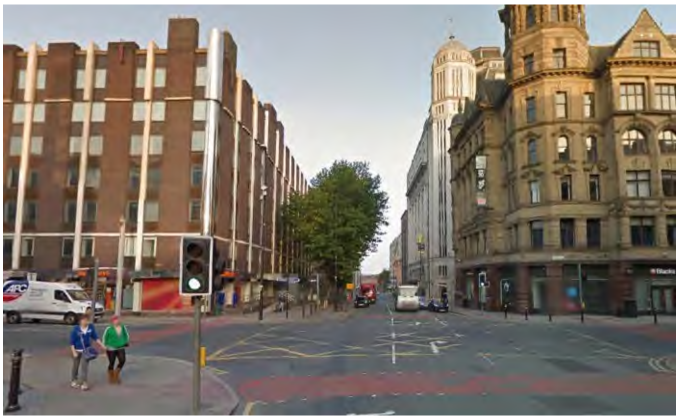
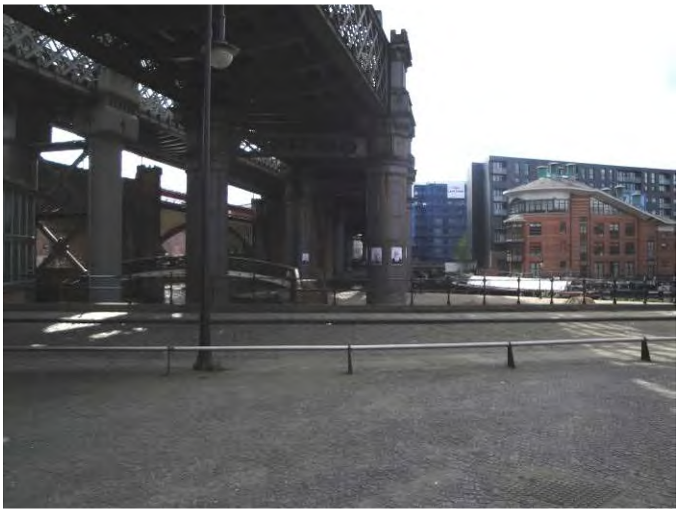
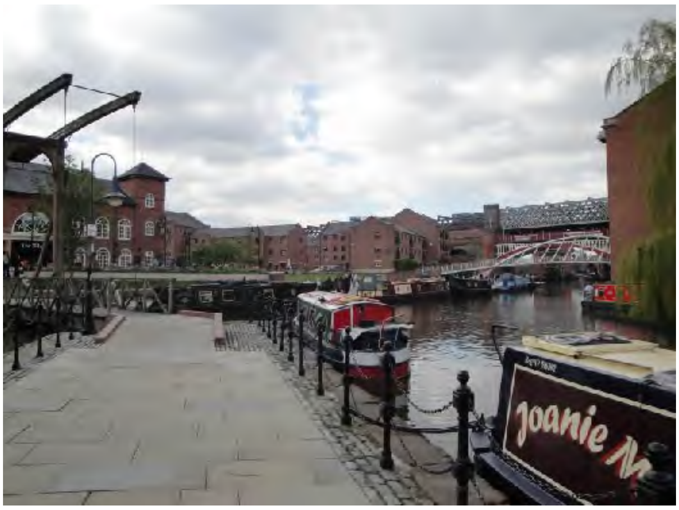


__Figure 31:__ map identifying the location of key medium-range views. The subject site is highlighted in red.

View	Medium-range views: Baseline Image	Location
1		This view is experienced from the north side of Albert Square looking south-west towards the subject site. This view has been chosen as it illustrates the enclosed setting of the Grade I Listed Town Hall and Grade I Listed Albert Memorial. The Beetham Tower and Northern Tower can be seen beyond.

2		This view is experienced from the junction of Peter Street with St Peter's Square looking west towards the subject site. This view has been identified as it contains a number of Listed Buildings and demonstrates the multi-phased streetscape of Peter Street and the character of the Deansgate/ Peter Street Conservation Area.
3		This view is experienced from the junction of Peter Street, Deansgate and Quay Street looking west towards the subject site. This view represents the kinetic view between the long and short range views of Quay Street and Peter Street. This view has been identified as this junction forms a focal point to the Deansgate/ Peter Street Conservation Area and its high townscape value.
4		This view is experienced from the north side of the Grade II Listed Castlefield Viaduct within Potato Wharf, looking west towards the subject site. This view has been identified as it demonstrates the multi-level environment of the Castlefield Basin/ Potato Wharf character area, which is the focus of the character of the Castlefield Conservation Area. Alongside the dominant form of the viaduct structure is the open nature of the canal wharf which is enclosed by new development to the west side. The vista from this viewpoint is terminated by the Lend Lease residential development which is still under construction.

5		This view is experienced from the south side of the Bridgewater Canal to the south of Castlefield Basin, looking west towards the subject site. The view is dominated by the form of the canal which curves round to the right in the middle distance revealing the continuation of residential and commercial development in the area. To the left of the view is the Grade II Listed Middle Warehouse and to the right of the view is the Grade II Merchants Warehouse. This view has been identified as it demonstrates the main character area which defines the overall character of the Castlefield Conservation Area.

6.4 Long range views

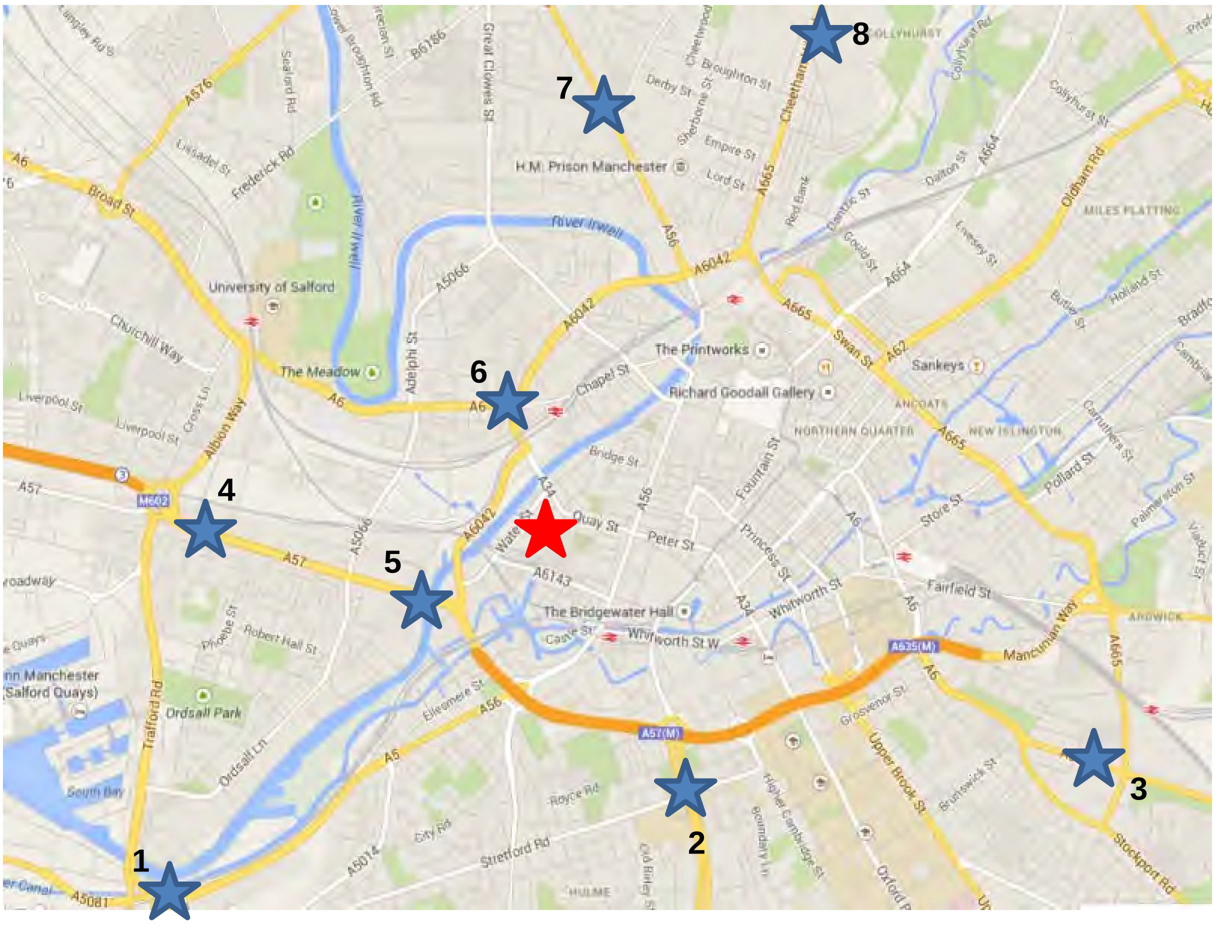
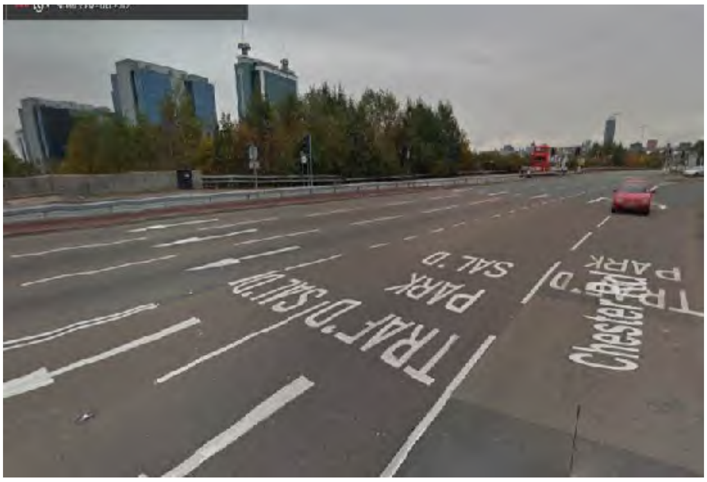
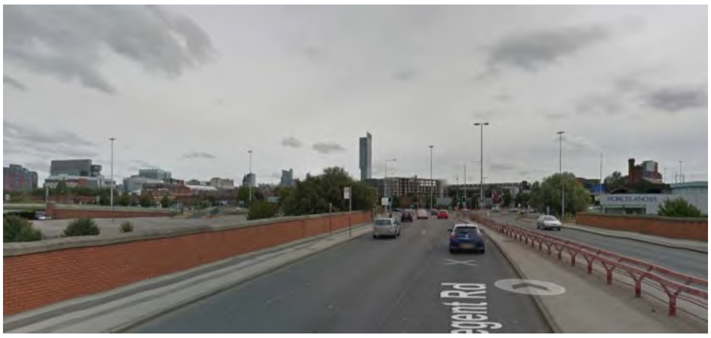
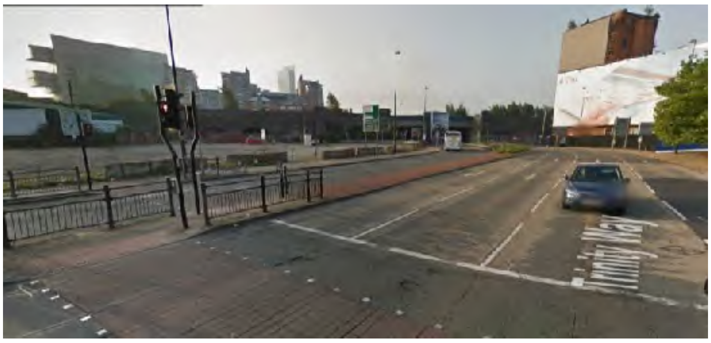
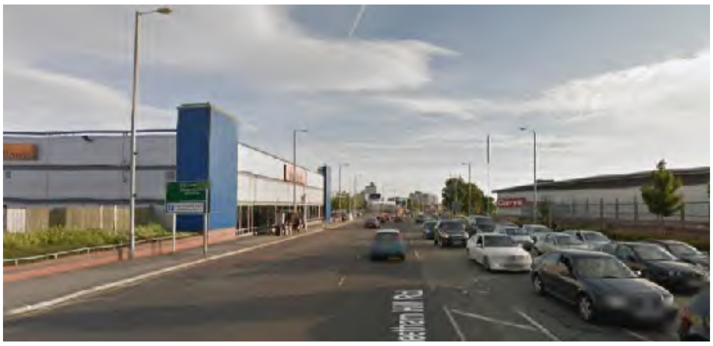
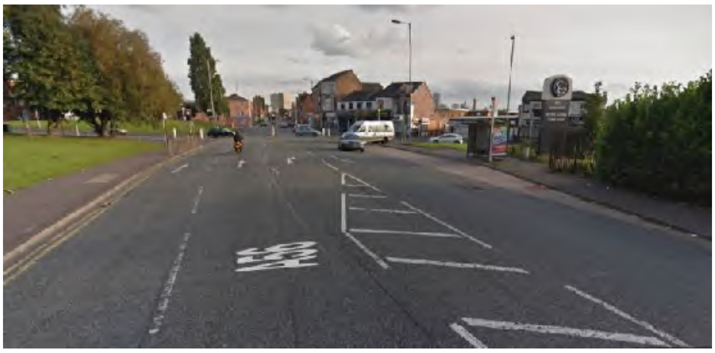

8
7
H.M. Prison Manchester
River Irwell
University of Salford
The Meadow
The Printworks
Richard Goodall Gallery
Sankeys
NORTHERN QUARTER
NEW ISLINGTON
ANCOATS
6
4
5
Quay St
Peter St
The Bridgewater Hall
Whitworth St W
Ordsall Park
Salford Quays
South Bay
3
2
1
HULME
Chester Rd
Stretford Rd
Mancunian Way

Figure 32: map illustrating the location of long-range views. The subject site is highlighted in red.

View	Long-range views: Baseline Image	Location
1		View 1 is experienced from Bridgewater Way, at its junction with Chester Road and Trafford Road, looking east towards the subject site. The tall office buildings to the left form part of the Salford Quays development at Exchange Quay. In the far distance the Beetham Tower can be seen, located on Deansgate, within the City Centre.

2	Princess Rd	View 2 is experienced from Princess Parkway at the junction with Greenheys Lane looking north towards the subject site. The view is dominated by the 6-lane road and commercial development to the left of the view.
3	A57 Dalberg St	View 3 is experienced from Hyde Road at the junction with Dalberg Street looking west towards the subject site. The view is terminated by the Beetham tower and Student Castle developments.
4		View 4 is experienced from Regent Road at the junction with West Egerton Street looking east towards the subject site. The Beetham tower provides a recognisable landmark to the skyline.
5		View 5 is experienced from Regent Road Bridge looking east towards the subject site. This view is an important gateway into Manchester and this provides views across the city's skyline. The Beetham tower is at the centre of the view, but kinetic views reveal the tower of the Grade I listed Town Hall and roofscape of the Grade II listed Sunlight House

6		View 6 is experienced from the junction of Trinity Way and Chapel Street, Salford, looking south-west towards the subject site. The cleared site in the middle-ground affords views of the Courts of Justice building and skyline beyond, including the Beetham tower.
7		View 7 is experienced from Cheetham Hill Road at the junction with Queens Road looking south towards the city centre.
8		View 8 is experienced from the Bury New Road at the junction with Waterloo Road looking south towards the subject site. Kinetic views reveal the skyline line of the city centre which is dominated by the Beetham tower.

7 SUMMARY

7.1 Summary

- The subject site is within the **Castlefield Conservation Area** and contains **two Listed Buildings.**
    - The Grade II listed Manchester and Salford Junction Canal Tunnel runs under the east side of the site.
    - The Grade II listed Colonnaded Railway Viaduct is partially within the boundary of the subject site underneath the Starlight Theatre and Stage 2 buildings.

- The subject site also contains **seven non-designated heritage assets**:
    - Administration Block and Studio 2 (Phase 1 & 3);
    - Studio 6 (Phase 2);
    - Granada House (Phase 4);
    - Granada House Annexe and Studios 8 and 12 (Phase 5);
    - The Accumulator Tower;
    - The Bonded Warehouse; and
    - The Stables

- The three cleared sites, that form part of the subject site, between the River Irwell and Water Street do not contain any built heritage assets but are within the Conservation Area and adjacent to Listed Buildings.

- The subject site is clearly distinguished **by two different character areas**: the former ITV site; enclosed by its perimeter wall; and the 'Water Street Corridor,' formed of the cleared sites bounded by the river. There is the opportunity to enhance the character and appearance of the area, and consequently the character and appearance of the Conservation Area as a whole.
    - Granada Site Character Area:
        - The former ITV Granada site represents a unique complex of industrial and commercial buildings in Manchester;
        - Whilst this area of the subject site contains a number of buildings that can be classified as non-designated heritage assets, there is the capacity for change to the buildings and significant parts of the site;
        - There is the opportunity to improve the permeability across the site to connect it with the city beyond;
        - There is the opportunity to create active street frontages to Water Street, Lower Byrom Street and Quay Street;

    - There is the opportunity to reintegrate the site back into the surrounding urban grain and restore the historic street pattern

  - Water Street Corridor Area:
    - The gap sites are not characteristic of the Conservation Area as a whole;
    - There is the capacity for a high degree of change within these areas of the subject site;
    - There is the opportunity to improve permeability and connectivity to the adjacent former ITV Granada site and the city beyond;
    - There is the opportunity to enhance the amenity value of the river aspect to these areas of the subject site;
    - There is the opportunity to reintegrate these areas of the subject site back into the urban grain; and
    - There is the opportunity to create key landmarks to these areas of the subject site.

- Identification of short, medium and long range views of the subject site have demonstrated the prominent nature of the site as a gateway into the city from the west.

7.2 Listed Buildings

- **The Grade II listed status of the Canal beneath the former ITV Granada site is not challengeable.**
- **The Grade II listed status of the Colonnaded Viaduct which is partially within the southern boundary of the former ITV Granada site is not challengeable.**
- Due to the statutory status of listed buildings they are subject, principally, to the Planning (Listed Buildings and Conservation Areas) Act 1990 and the National Planning Policy Framework (NPPF), as well as local planning policies. Any proposals to alter the fabric of listed buildings will require Listed Building Consent prior to the commencement of any works.
- Proposals to redevelop the sites of the Starlight Theatre and Stage 2 buildings could have an impact on the listed viaduct structure below and would require Listed Building Consent.
- As the proposed development of the subject site could impact on the setting of identified listed buildings surrounding the site Section 66 of the Act is relevant. This requires the Local Planning Authority to have special regard to the “*desirability of preserving*” the **setting** of listed buildings.

7.3 Conservation Areas

- Conservation areas are designated areas that are deemed to have special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance.[2]
- As the proposed redevelopment of the subject site could impact the character and appearance of the adjacent conservation areas, in particular the Castlefield and St John Street Conservation Areas, Section 72 of the Act is also of relevance. It requires the Local Planning Authority to pay special attention to the ***'desirability of preserving or enhancing the character and appearance'*** of the designated area.
- NPPF, paragraph 137, recognises that there are opportunities for new development within Conservation Areas that will enhance or better reveal their significance and these should be encouraged.

7.4 Non designated Heritage Assets

- The effect of a development proposal on the significance of a non-designated heritage asset will be taken into account in determining a planning application. The NPPF, paragraph 135, states that "*In weighing applications that affect directly or indirectly non designated heritage assets, a balanced judgement will be required having regard to the scale of harm or loss and the significance of the heritage asset".*
- Consequently, proposals to redevelop the subject site will have to be developed to take cognisance of the physical impact and visual impact on the identified non designated heritage assets.

7.5 Archaeology

- Due to the former industrial use of the subject site (both the ITV site and the cleared sites), it has the **potential for below ground archaeology** which would need to be assessed as part of the proposed plans to redevelop the site.

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[2] Section 69 (1) Planning (Listed Building and Conservation Area) Act 1990

8 GUIDING DESIGN PRINCIPLES

8.1 Introduction

The characterisation appraisal as well as the high-level significance assessment has established the overriding need for enhancement of the subject site. Due to the identified heritage assets in and around the subject site (listed buildings, conservation areas and non-designated heritage assets), it is, therefore, recognised that the development will need to fit comfortably within its context.

The following **guiding design principles** were thus identified to determine how the development of the site could be addressed without compromise to the significance of the identified heritage assets.

The design development of subsequent proposals should be been grounded on a clear understanding of this baseline context while enhancing the positive and distinctive qualities of the former industrial / commercial use of the area.

8.2 Relationship to the city context and streetscape contribution

1. The new development should create active frontages at street level enlivening the public realm towards Lower Byrom Street and St Johns Gardens, Great John Street, Quay Street, Lower Quay Street and Water Street.

2. The new development should attract users and create a critical mass of activity which will make a significant contribution towards improving the vitality and viability of this area of the city centre and surrounding areas.

3. The development should enhance the permeability of the area, creating cross-site pedestrian routes.

4. The legibility of the site should be addressed by clear focus on the junction of Quay Street/ Water Street and Lower Quay Street as a gateway site into the city.

5. The architectural form should emphasise the walkability of the site and relationship to the city centre and associated amenities.

6. Parking provision should be minimised, with an emphasis on controlled parking and simple drop-off points.

7. There is the opportunity to recreate something of the historic street pattern and building lines within the former ITV Granada site in order to provide permeability, connectivity and above all coherence to the surrounding area.

8. Alignment of new building blocks along existing streets should be to the back of the pavement line, to enhance the linear character of the streetscape

9. The height of new development should be interdependent with the other criteria, architectural design quality and impact within selected important views. New development should respect and relate to the height of the adjacent buildings and spaces, especially the adjacent grouping of industrial buildings within the MOSI complex and the group of listed former Georgian houses along St John Street. The amenity of the properties around St Johns Gardens should be carefully considered. Due to the nature of the existing urban grain and emerging development alongside the river, there is scope for development of greater height in these locations.

10. Entrances to the site should be clearly articulated, using corner blocks stepping up to greater height to mark entrances

11. The opportunity should be taken to create new landmarks, with a vertical emphasis to complement the larger urban grain along the river and key gateway sites at Regent Road Bridge and Lower Quay Street.

8.3 Contribution to the historic environment

12. Development of the site above the Grade II listed canal structure, to the east of the site, which would physically impact the listed structure, should be avoided.

13. Particular attention should be given to the redevelopment of the sites of the Starlight Theatre and Stage 2, which are partially located on the Grade II listed colonnaded viaduct. Physical intervention into the historic fabric of the viaduct would require Listed Building Consent.

14. The development should seek to retain the identified non-designated heritage assets within the proposals and integrate these into the new urban form.

15. The opportunity should be taken to recreate the historic building lines along Grape Street, Lower Byrom Street, Great John Street and Water Street.

16. The proposal should demonstrate that it will not have an adverse visual impact on the setting of the identified heritage assets from either inward or outward looking views.

17. The development should acknowledge the differing architectural expressions of the non-designated heritage assets within the subject site. The positive and distinctive qualities of the former industrial and commercial use of the area should be utilised.

18. The development should acknowledge the expression of the designated heritage assets in the locality, in particular preserving views along Water Street and Liverpool Road of the Grade I and Grade II listed station buildings and associated bridge/ viaducts.

19. Particular attention should be given to the expression of the development in views into the site from Quay Street and Water Street.

20. Particular attention should be given to development either side of the Grade II listed Victoria and Albert Warehouse (Marriot Hotel) in acknowledging the expression of this building and to enhance its setting.

21. The development should demonstrate enhancement of the Conservation Area by the form of development on the site and its architectural quality.

8.4 Architectural quality

22. The architectural style should be clearly contemporary, although taking influence in terms of proportions, materiality and elevational rhythms from the adjoining building styles (i.e clear verticality).

23. The overall design should demonstrate that it contributes to the varied architectural character of the area, and is specifically adapted to its context, by creating a cohesive group of buildings with an individual expression and vitality.

24. Emphases should be given to the verticality and proportions of elevations, differentiating between the ground floor, middle and top of the building, to create a varied skyline and active street-level frontages.

25. Monolithic blocks should be avoided by careful articulation of elevations and expression of corners which manipulate verticality.

26. The expression and animation of the roofscape / skyline is particularly important, as the site will be viewed from a range of short, medium and long range views around the city.

27. Services such as lift towers and ventilation or heating ducts should contribute positively to the articulation of the skyline.

28. There is some potential to create positive landmarks within the site, carefully located on the sites along the river and at the junction of Quay Street and Lower Quay Street. These should be a positive architectural statement creating architectural nodes within short-to-medium range views.

29. The fenestration pattern should emphasis the vertically of the elevations and create texture in the façade by means of deep reveals in order to harmonise with the proportions of elevations (and the wider historical context).

30. Corner emphasis should be a key design focus, to express the verticality and as a means to break up massing. Particular emphasis should be given to the entrance to the site from Water Street and Lower Byrom Street.

31. The presence of signs should be designed and positioned as a component of the elevation not to compete with the architectural details and features of the building;

32. The design, rhythm of fenestration and openings, choice of finishes and materials of the proposed development should reflect the predominant vertical rhythms of the area. New blocks should harmonise with the existing architectural character of the area by similarly expressing the component stages of the building.

33. Inspirations should be evident from the colour palette and use of materials such as brick and stone should be considered. The employment of appropriate materials, to disaggregate the apparent mass of the blocks and provide coherent texture, should be explored and a strategy produced to demonstrate the range of materials.

34. The colour palette of materials must avoid jarring or strident use of unrelieved panels of colours and avoid conflict with other nearby buildings.

35. The architecture should deliver sustainable building forms, but avoid assertive expression of its green credentials.

9 APPENDICES

9.1 Appendix i: Granada Site List Descriptions

Manchester & Salford Junction Canal Tunnel

List entry Number: 1405199

Location

Manchester & Salford Junction Canal Tunnel, running underground between Atherton Street and Watson Street, Manchester

Grade: II

Date first listed: 20-Nov-2012

Asset Groupings

This list entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

Summary of Building

WWII deep tunnel air-raid shelter. Originally a canal tunnel, 1839, by the engineer John Gilbert Jr, constructed for the Manchester & Salford Junction Canal. Brick-vaulted tunnel with some lower sections constructed of red sandstone, towpath with deep sandstone copings.

Reasons for Designation

The Manchester & Salford Junction Canal tunnel is designated at Grade II for the following principal reasons:

* WWII air-raid shelter use: it is a good surviving example of a deep tunnel air-raid shelter, having been converted in 1939/40 from an 1839 canal tunnel, and it survives as an evocative monument to civil defence during WWII

* Interior survival: it retains clear and tangible evidence of its wartime use as an air-raid shelter, including its internal 16-bay configuration formed by the use of reinforced-brick blast walls and brick bulkhead wall passageways with reinforced-concrete roofs, as well as key features relating to its adaptation, including reinforced stairs, painted signage, some lights, a gas-proof screen, brick skin walls inserted to prevent damp, and a series of underground buildings/structures comprising first-aid posts, chemical toilet blocks, and ARP warden's posts/look-outs

* Evidence of defence policy: it reflects the government's shift away from the pre-war policy of protecting the public through dispersal, which avoided concentrations of people in one place, to authorising a few local authorities to exploit and adapt existing features, such as tunnels and culverts into deep shelters

* Historic interest: it has significant historic interest in representing an important period in Manchester's history: the Manchester Blitz of December 1940, and in illustrating the threat posed throughout the war not only to the city's, but the nation's civilians as a result of aerial bombing, and the steps taken to protect them

History

The history of the Manchester & Salford Junction Canal is closely linked with that of the Mersey & Irwell Navigation and the Manchester, Bolton & Bury Canal. In the 1790s the Manchester, Bolton & Bury Canal proposed a link canal between the River Irwell and Rochdale Canal so that boats could navigate to Bolton, Bury and Warrington. In 1805 John Nightingale, engineer of the Manchester, Bolton & Bury Canal, was asked to draw up plans and estimates for a canal, including a tunnel, which would link the two waterways. The scheme was abandoned for nearly 30 years due to other developments, but in 1835 the proposal was revived by the Mersey &

Irwell Navigation who went into joint negotiations with the Manchester, Bolton & Bury Canal to form an independent company; the Manchester & Salford Junction Canal Act was enacted on 4 July 1836.

The Manchester & Salford Junction Canal was opened in January 1839 and was designed by the engineer, John Gilbert Jr. It was 1100 yards (0.6 mile) long with 500 yards (0.28 mile) of gas-lit tunnel running underneath Manchester from near Atherton Street to just after Deansgate, where it came into the open with locks and a reservoir before joining the Rochdale Canal near Bridgewater Street. The open section of the canal, along with locks and reservoir, was also later covered over, and the section of the canal between Lower Mosley Street and Deansgate closed when construction of the Cheshire Lines Committee's Central Station commenced in 1875. The locks were dismantled and their stonework used to build a new lock on the Runcorn & Weston Canal. Consequently, through traffic on the canal ceased. Between 1885-1899 the Deansgate/Great Northern Goods Station & Warehouse (Grade II*) was built over the top of the canal and a wharf constructed with two lift shafts that transported goods up to every level of the warehouse.

In 1842 the Manchester & Salford Junction Canal, its properties, debts and liabilities etc were acquired by the Mersey & Irwell Navigation, which in turn was later acquired by the Bridgewater Trustees. As the trustees had no real use for the Manchester & Salford Junction Canal due to the greater success of their own canal link, the trade of the Manchester & Salford Junction Canal dwindled further and it continued in limited operation until the 1920s, mainly serving the Deansgate/Great Northern Goods Station & Warehouse and Central Station. The canal was finally abandoned for navigation under the Manchester Ship Canal Act of 1936.

In 1939/40 the canal was drained and the majority of the tunnel (between Brunswick Basin and Watson Street) was converted into an air-raid shelter by the Manchester Corporation, who eventually took ownership of it in 1941. Air raids on Manchester began in August 1940, but it was not until December 1940 that serious attacks began. During the Manchester ('Christmas') Blitz nearly 500 tons of high explosive and nearly 2000 incendiaries were dropped on Manchester, resulting in the deaths of nearly 700 people and destroying, or severely damaging, many buildings, including the Free Trade Hall, Town Hall, Royal Exchange and Manchester Cathedral. Further raids took place throughout the war with nearby centres, such as Salford and Stretford also suffering heavily. Prior to the blitz, and following attacks in other parts of the country, air-raid shelters were constructed across Manchester, including the shelter in the Manchester & Salford Junction Canal tunnel, as well as concrete surface shelters in Piccadilly Gardens (now removed) and Victoria Arches air-raid shelter.

The tunnel was divided into 16 bays separated by reinforced-brick, blast walls, and there were 5 entrance points: Grape Street, Lower Byrom Street, Byrom Street, Deansgate and Watson Street. The shelter was designed to accommodate up to 1350 people, although it was generally used by 300-700 people, and contained warden's posts and look-outs, two first-aid posts (one each for men and women), chemical toilets, gas pipe handrails on the stairs, and gas-proof screens. Benches were provided and people brought their own bedding. The floor of the canal was raised slightly and a brick skin wall inserted to some sections to try and prevent damp.

Details

WWII deep tunnel air-raid shelter. Originally a canal tunnel, 1839, by the engineer John Gilbert Jr, constructed for the Manchester & Salford Junction Canal. Brick-vaulted tunnel with some lower sections constructed of red sandstone, towpath with deep sandstone copings.

PLAN: The canal tunnel has been in-filled at each end with a surviving central section, approximately 0.27 mile in length, accessible from two points: the former Deansgate/Great Northern Goods Station & Warehouse and Granada Studios. The tunnel runs mainly east - west, approximately between Watson Street and Lower Byrom Street, and then turns south-east - north-west at approximately Atherton Street where it turns towards the Irwell Navigation. The tunnel's section between approximately Lower Byrom Street and Deansgate is flooded and is not accessible on foot.

EXTERIOR: The canal tunnel is not visible above ground and the air-raid shelter entrances have all been blocked-up. The tunnel portal near Water Street has been altered and bricked-up.

INTERIOR: The canal tunnel is a brick-vaulted structure with some lower sections of walling constructed of red sandstone. The tunnel is 18' wide and 18' high with a 3'6" wide towpath set alongside the northern wall. Originally the canal was 8-10' deep, but poured concrete floors were inserted during its conversion to an air-raid shelter, raising the floor level. Following its conversion to an air-raid shelter the tunnel is divided into separate bays by reinforced-brick blast walls, inserted to prevent blasts travelling along the tunnel. The surviving section of the tunnel retains a series of reinforced-brick, arched stairwells and reinforced-concrete stairs, which were inserted to provide access to the shelter. The tunnel brickwork appears to have been painted white during its use as a shelter, presumably to create as light an environment as possible, and much of the paintwork survives. Brick skin walls inserted into the tunnel shelter to prevent damp largely survive, but gas-pipe handrails on the stairs have been removed, although some of their supports survive, along with some ceiling lights. The bay numbering starts with Bay 1 at Watson Street and ends with Bay 16 just beyond Atherton Street (this bay is now partly blocked-up).

Bays 1-5 lie underneath Deansgate and the former Deansgate/Great Northern Goods Station & Warehouse and retain their original, bay-to-bay air-raid shelter access, which consists of a passageway through each blast wall with brick bulkhead walls at either side with reinforced-concrete roofs. The bulkhead walls are annotated with arrows pointing the direction of travel and the bay numbers. This section of the tunnel is accessed via an 80ft-high stair well (formerly a c1900 lift shaft/hoist well used to transport goods up to the warehouse above) contained within the former Deansgate Goods Station & Warehouse, which leads down to a short, brick-vaulted passageway that provides access on to the towpath of Bay 2 (an identical passageway and lift shaft/hoist well leading off from Bay 3 to the west have been in-filled).

Bays 2 & 3 are wider than the rest of the tunnel, resulting from the extension of this part of the tunnel in c1900 to form a wharf that served the warehouse above. The former wharf is 31' wide and 23'6" high with a 8'6" wide towpath that retains an original, cast-iron mooring bollard in Bay 2. Steps have been inserted from the towpath down on to the raised canal floor. Bay 2 contains a reinforced-brick structure to the south-west corner, which is believed to have functioned as a toilet block during the tunnel's use as an air-raid shelter. Surviving on the north wall of the structure are painted instructions (now heavily faded) for users of the shelter. Further toilet blocks survive in Bays 1 & 4; that to bay 4 contains an original Elsan chemical toilet. A metal gas-proof screen survives to the western bulkhead wall and passageway in Bay 2, and Bay 1 retains the upper section of the canal tunnel's original west portal, including stone voussoirs.

Bay 5 has a split-level floor with a large, reinforced-brick, air-raid shelter structure (original reinforced-concrete roof now removed) set alongside the south wall of the tunnel and arranged on both floor levels. The eastern end of the structure, which is set upon the higher ground level, is formed by a warden's post, which has look-out window openings to the east and north sides, and a doorway (door removed) to the north side. A short flight of steps provides access down on to the original canal floor (now submerged under several feet of water), and to two (men's and women's) first-aid posts, which are separated internally by a brick dividing wall incorporating an access doorway. Entrance doorways and air vents exist to the north and west sides. Two stairs, forming this bay and the shelter's Deansgate entrance, have been inserted through the north wall of the tunnel. A warden's look-out with a corrugated metal roof also exists to Bay 1, along with a stair that served the Watson Street entrance.

Bays 6-12 lie underneath the area between approximately Deansgate and Lower Byrom Street and are flooded by several feet of water. However, photographs taken in 2010 show that they share the same level of survival as the rest of the tunnel, including a raised towpath, annotated bulkhead access walls, Byrom Street air-raid shelter entrance stairs, and some surviving air-raid shelter structures, including toilet blocks and a further warden's look-out. Bay 9 also contains a heavily degraded painted notice for shelter users adjacent to one of the bulkhead walls.

Bays 13-16 lie underneath the area between approximately Atherton Street and Lower Byrom Street and are accessed via a later inserted entrance contained within the Granada Studios building. Although the tunnel has been drained, groundwater seepage means that the canal is partly filled with water. Bay 16, located at the north-western end of the tunnel, has been truncated and sealed-off by a mid-late C20 concrete wall. The original air-raid shelter access from bay-to-bay, via a passageway through each blast wall with brick bulkhead walls at either side, has been blocked-up, although the bulkhead walls still survive and are annotated with painted lettering and arrows pointing the direction of travel and the bay numbers. Access between the bays is now via later doorways inserted through the blast walls at towpath level. Two air-raid shelter staircases, forming the Lower Byrom Street entrance, exist to Bay 13 and have been inserted through the northern wall of the tunnel. Set in between the stairs is a warden's look-out, which consists of a small, square, reinforced-brick structure built on the canal floor and against the towpath, with window openings to the east and west sides and a doorway (door removed) to the south side. The look-out's original reinforced-concrete roof has been removed.

A much-altered, additional chamber at the easternmost end of the tunnel section, beneath and beyond Watson Street, did not form part of the WWII air-raid shelter and incorporates an in-filled, formerly open-air reservoir and two truncated, brick, pump-engine housings (machinery now removed). It was also originally the site of the canal's open-air, upper locks. The chamber is not of special interest and is excluded from the listing.

COLONNADED RAILWAY VIADUCT AT FORMER LIVERPOOL ROAD GOODS DEPOT

List entry Number: 1200805

Location

COLONNADED RAILWAY VIADUCT AT FORMER LIVERPOOL ROAD GOODS DEPOT, LIVERPOOL ROAD

Grade: II

Date first listed: 06-Jun-1994

SJ8397NW LIVERPOOL ROAD 698-1/30/212 (North side) Colonnaded railway viaduct at former Liverpool Road Goods Depot

Railway viaduct. Probably c.1870. Cast-iron. A series of cast-iron columns on stone bases suports the viaduct which has cast-iron beams showing at the sides.

Listing NGR: SJ8301397907

Appendix 12.6

Phase 1 Desktop Study – St. John’s Core Development Sites, Manchester

PHASE 1 DESKTOP STUDY

on

St John’s Core Development Sites Manchester

for

MANCHESTER QUAYS LIMITED

RoC CONSULTING

EXCELLENCE IN ENGINEERING
CONSULTANT OF CHOICE
ADDING VALUE

Phase 1 Desktop Study

on

St John's Core Development Sites

ISSUED	DESCRIPTION	DATE	AUTHOR	CHECKER
1	Phase 1 Desktop Study Report DRAFT	28th July 2015	Jason Bradley JBradley	Alex Smiles
REVISION	**DESCRIPTION**	**DATE**	**AUTHOR**	

Project No: 3233
Date: July 2015
Reference: JB/AS/csp1 3233
Phase 1 Desk Top Study

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1.0 INTRODUCTION

1.1 Background

1.1.1 RoC Consulting have been appointed by Manchester Quays Limited to conduct a Phase 1 Desktop Study across the proposed St John's Core Development site. The report has been collated to support the submission of an Application for Planning Permission for the sites mixed residential led end use divided between three development sites, namely :

-Village Phase 2
- Riverside Development
- St John's Place.

1.1.2 These developments form part of the wider St John's development master plan for the former Granada Studios development and surrounding land. A detailed description of the development proposals for each site is provided within Section 3.0 of the current report. Individual development boundaries are indicated on RoC Consulting drawing ES02 provided within Appendix A.1 of this report.

1.1.3 The purpose of this study is to provide a preliminary environmental assessment of the site relating to current and historic operations to support future design and master planning requirements. This report presents a factual account and highlights the more pertinent considerations with respect to potential risks posed from geo-environmental and geotechnical concerns.

1.1.4 The information obtained during this assessment has also been used to collate a Preliminary Conceptual Site model for the proposed development to assist with the estimation of risk. Where required this model will form the basis for future Phase 2 Intrusive Site Investigation works to further refine (and mitigate against) risks posed to future site users.

1.2 Terms of Reference

1.2.1 The desk based environmental assessment was carried out following receipt of an instruction from Mr Graham Skinner of Manchester Quays Two Limited.

1.3 Objectives

1.3.1 The objectives of the desk-based study are:

- To characterise the environmental setting of the site, including the geology, hydrogeology and hydrology of the site and surrounding areas from published data.

- To identify (where possible) potential sources of ground, groundwater or surface water contamination and/or soil gas (hazardous materials) arising from past and/or current activities at the site and/or neighbouring properties.

- To formulate a Preliminary Conceptual Site model and assess the risks posed to identified receptors soil and / or groundwater contamination or ground gas ingress.

- As required, provide an initial indication of any supplementary site investigation works or remedial works required to ensure the site's safe redevelopment.

- To undertake a preliminary geotechnical assessment of site conditions to identify potential abnormal items that may arise as a result of the site development.

1.4 Scope of Work

1.4.1 The overall scope of work comprised reference to a Landmark ‘Envirocheck’ report and includes:

- Review of published geological, hydrogeological and hydrological information to establish environmental sensitivities at the site and within the surrounding environment.
- Completion of a site walkover survey to establish present day site setting and conditions.
- Review of historical map information to identify previous usage of the site and its immediate surroundings and search of a commercial environmental database, to identify potential sources of land contamination and potential environmental impacts.
- Preparation of a report outlining the findings and recommendations including requirements for any further work considered necessary in order to better quantify any environmental hazards identified.
- Identification of potential abnormal items that warrant further consideration as the development moves toward a detailed design phase.

1.5 Limitations of Study Assessment

1.5.1 The comments made in this report are based on the data available at the time of its completion. Any unusual or conflicting evidence discovered during any future site works must be presented to RoC Consulting as soon as possible so that any implications may be considered.

1.5.2 Additional information, changes in legislation or revised practices may necessitate re-interpretation of part or all of this report. Additionally, site redevelopment and/or a change in end use will require reinterpretation of the assessment.

1.5.3 The accuracy of the data supplied by third parties should be considered in the context of any known site conditions for which RoC Consulting cannot be held liable.

1.5.4 It should be noted that any subsequent revision of the proposed development or site boundary away from the above mentioned drawing may result in the full or partial re-interpretation of this report and assessment.

1.5.5 This report has been produced by RoC Consulting for the client and to support the submission of – Outline Planning Application and Environmental Impact Assessment for the St John's Core Site development. It may not be used by any person for any other purpose other than that specified without the express written permission of RoC Consulting. Any liability arising out of its use by a third party for purposes not wholly connected with the above shall be the responsibility of that party who shall indemnify RoC Consulting against all claims costs damages and losses arising out of such use.

2.0 DESK BASED GEO ENVIRONMENTAL REVIEW

Background Information

2.0.1 The following Phase 1 Desktop study has been collated to ascertain geo-environmental and geotechnical conditions across the study site and facilitate the collation of a Preliminary Conceptual Site Model.

2.0.2 It is noted the report will be used to support the planning application submission for three individual development sites, namely the "Village Phase 2", "St John's Place" and "Riverside" developments. The approximate development boundaries for each site within the Core EIA assessment is indicated on RoC Consulting drawing ES02 provided within Appendix A.1. A detailed description of each development is provided in Section 3.0.

2.0.3 It is noted current and historic land uses, as well as the locality of each development site varies markedly. As such, and where applicable, the following desktop assessment has been divided between the individual development sites.

2.1 Sources of Information

2.1.1 Information on the site was acquired from the following sources:

- Envirocheck at the Ordnance Survey
- British Geological Survey 1" to 1 mile/1:10'000, solid & drift (Sheet 85)
- Environment Agency Groundwater Vulnerability Map
- Radon Atlas of England
- The Coal Authority
- Observations from site walkover
- BGS Borehole Logsheets (via the Borehole Scans website)
- Heritage Appraisal Report completed by Stephen Levant Heritage Architecture Ltd (Dated May 2014).
- Manchester & Salford Junction Canal Survey and Excavation, The Greater Manchester Archaeological Unit.
- Review of proposed development information provided by project architects.

2.2 Site Location and Current Description

Village Phase 2 Site

2.2.1 Located toward the north western portion of the former Granada Studios development, the site comprises a studio workshop and 'set prop' studio; storage buildings and an associated car park. These are proposed to be demolished as part of the current application for the conversion of the Granada HQ Building and Studios into a hotel and associated event space (reference 109246/FO/2015/CI). The site boundaries are formed by Quay Street to the north; the Bonded Warehouse and car parking to the south; the main buildings of Granada Studios to the east; and Water Street, the Manchester and Salford Junction Canal, The Marriott Hotel and an area of car parking to the west. Topography of the site indicates a fall in level from North West (32mAOD) to the south east (28mAOD).

2.2.2 On site land use comprises a rectangular shaped warehouse building encompassing the sites southern portion which was formerly used as a workshop for studio set construction. The main reception of Granada studios is shown to the east of the site, while the northern perimeter comprises an access road and security lodge for the studios. The remainder and majority of the site comprises an area of car parking covered by tarmac hard standing, with a partially vegetated boundary along the north west perimeter.

2.2.4 The site currently operates as an area of car parking associated with the former Granada Studios development. Land use within the immediate vicinity of the site comprises a mixture of television sets, Bonded Warehouse, museum / leisure to the south (associated with the Museum of Science & Industry); mixed commercial and leisure uses to the north and west (associated within the former Granda Studios development) and the main Granada Studios to the east.

2.2.5 No potentially contaminative industrial activities were noted in close proximity to the site boundaries. A number of electrical substations were noted across the site of varying ages and construction.

Riverside Site

2.2.6 Located toward the western portion of the former Granada Studios development, the site comprises an area of public car parking. The site boundaries are formed by the Manchester and Salford junction Canal and the Marriott Hotel to the North; Princes Bridge and railway sidings to the south; the former Granada Studios site to the east; and the River Irwell to the west. Topography of the site indicates a fall in level from south east (29mAOD) to the west (26mAOD).

2.2.7 Land use comprises an area of land fully occupied by a public car parking facility, which encompasses an area of hard standing, with vegetated boundaries along the north, east and west perimeters. A river wall of varying age and construction forms the sites western most boundary with the River Irwell.

2.2.8 Land use within the immediate vicinity of the site comprises a mixture of television sets, Bonded Warehouse, museum / leisure to the east (associated with the Museum of Science & Industry); mixed commercial and leisure uses to the and the main Granada Studios to the north east. North of the site land use comprises residential and commercial buildings, with Rail tracks and car parking to the south, and the River Irwell to the west. A bridge and set of lock gates associated with the former Manchester & Salford Junction Canal form the sites northern boundary with the canal appearing to continue toward the Village Phase 2 site beneath Water St to the east.

St John's Place site

2.2.9 Located toward the northern and western portion of the wider St John's development site, and covering an area circa 1.28ha, the site currently comprises a vacant warehouse structure (the Albert Shed), a sound recording studio with offices and areas of car parking / open ground. The site boundaries are formed New Quay Street and mixed commercial office and residential development to the north; Quay Street, the Marriott Hotel and former Granada Studios site to the south; Quay Street and the Spinningfields commercial / office development to the east and the River Irwell to the west. In addition, Water Street bisects the site (running in a roughly north east to south west orientation) toward the sites western extent.

2.2.10 Broadly speaking, on site land use and development can be subdivided into two portions along the Water Street alignment (as indicated on Fig 2.1 overleaf) between the Albert Shed development (blue line) and former Globe & Simpson building (yellow line). Descriptions of each are provided overleaf.

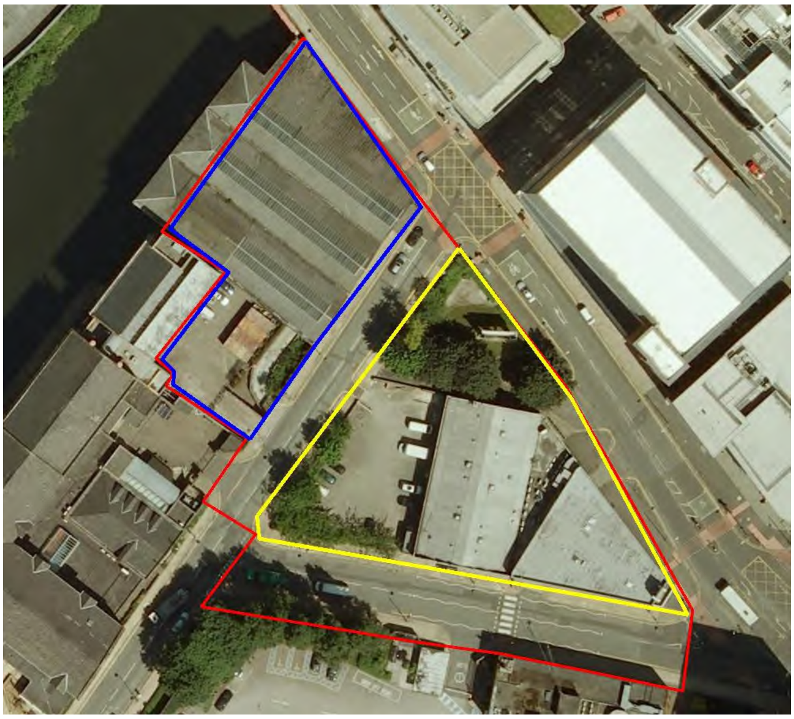


Fig 2.1: Land use subdivision across the site & Approx Redline Boundary

Albert Shed

2.2.11 Constructed (in part) from an older building during the early 20th century, the Albert Shed development comprises a timber framed warehouse situated on the banks of the River Irwell. At the time of inspection the shed was partially vacant and, where occupied, used as a multi storey car park for the adjacent Marriott Hotel development. A concrete car parking deck is noted throughout the building's interior with access gained via a ramped entrance from Water Street. Excluding vehicle parking the site was vacant; a monitoring borehole well was noted toward the sites eastern boundary wall although the sealing cover was jammed closed.

Globe & Simpson Building

2.2.12 Constructed circa 1930 in the art deco style, this building was originally employed as industrial works and a garage; having since been converted into office space and a sound recording studio. The garage portion of the development was situated toward the buildings northern extent and remains extant (albeit for different uses) to the present day. An area of open ground and car parking is present toward the northern extent. Access into the internal portion of the building was not possible at the time of inspection however it is understood the building is used for sound recording and office space.

2.2.13 Land use within close proximity to the site comprises mixed commercial office and retail development to the north and east with the former Grandad studios site (and staff car park) to the south; the Albert Hotel development and service yard form the sites western boundary.

2.2.14 No potentially contaminative industrial activities were noted on or within close proximity to the site boundaries. Similarly no electrical substations were noted during the course of the walkover survey although a detailed internal inspection of buildings was not completed as part of this study and the presence of small substations or switch rooms cannot be ruled out.

2.3 Site History

2.3.1 An overview to the sites history has been compiled by reference to historical Ordnance Survey maps (presented in Appendix B). In addition reference was made to Goad historical insurance plans (July 1889) and a Heritage Appraisal report by Stephen Levrant Heritage Architecture Ltd (2014).

Village Phase 2; On site development

2.3.2 Earliest map records show the site as a collection of terraced residential housing (toward the central and north western extent) and Brunswick Wharf Potato Market (toward the eastern boundary). The Manchester and Salford Junction Canal (M&SJC) is shown on site, crossing in a roughly north west to south / south east orientation toward its centre and comprising a number of lock gates with a dry dock. The canal enters into a tunnel toward the sites south eastern corner beneath the current Granada House building. A more detailed description of the canal is provided within Section 2.11 of the current report.

2.3.3 A bye-water channel is also noted crossing the site roughly parallel to the M&SJC, however this feature appears to have been abandoned or culverted at some point prior to 1890 when it disappears from map records. Earliest mapping records also show a Gasometer located on the south eastern boundary of the Village Phase 2 development. This gasometer is believed to have provided power for gas lighting within aforementioned M&SJ Canal tunnel to the south east,

2.3.4 Goad Insurance Plans (1889) show the site to comprise three buildings encompassing engineering works, a compound works consisting of Blacksmiths and Carpentry, and warehousing with the remainder as terraced housing in the north west portion. In addition, a tank is shown to the east of the site on historical mapping records from 1953 to 1965. In addition a timber yard is shown toward the sites central and western extent in the area adjacent the entrance to Water Street – noted as ‘Scattered Timber’ on the Goad Plan. Charles Street (Later Grape Street) forms the sites southernmost boundary with Quay St forming the sites northern boundary. One smaller road (Little Edward Street) is shown on site associated with the aforementioned terrace housing, leading on site from Quay St in a north east to south west orientation.

2.3.5 Site wide redevelopment occurs during the period leading up to the mid-1950s with the clearance of terraced housing, warehousing and the timber yards associated with the construction and subsequent operations of Granada Television Studios with no significant change thereafter.

Riverside Site; On site development

2.3.6 Earliest map records show the site as 'The Old Quay' comprising the Botany Warehouse and New Botany Yard Wharf. A manure pit is noted on site along with several travelling cranes noted on site; in addition a row of terraced houses are noted along the Water Street alignment during the period leading up to the 1940's. Little significant change occurs until 1948 when the site appears to be populated with several warehouses, a number of terraced houses (Irwell Court), and a public house (The Pineapple Hotel), with the later addition of a builders yard in 1962, adjacent Princes Bridge are noted.

2.3.7 The site remains populated by warehouses until the early 1990s when such features no longer appear on mapping records, and the site is noted as an area of car parking which has remained unchanged to present day.

St John's Place; On site development

Albert Shed

2.3.8 Earliest map records (1850's) show a range of development across the site including a Dye House Yard, and Timber Yard. The site has been cleared of all development during the period leading up to the 1890's and is annotated as the "Ship Canal Yard" on Goad Insurance documents. The site is developed into its current configuration as the Albert Shed during the period leading up to the 1920's, remaining in this configuration through until the present day.

2.3.9 Earliest map records (1850's) show a range of development across the site including a Dye House Yard, and Timber Yard. The site has been cleared of all development during the period leading up to the 1890's and is annotated as the "Ship Canal Yard" on Goad Insurance documents. The site is developed into its current configuration as the Albert Shed during the period leading up to the 1920's, remaining in this configuration through until the present day.

Globe Simpson Building

2.3.10 This portion of the site was initially found to comprise several rows of terraced housing along the Back Quay Street and Quay Street alignments. In addition several larger timber yards and shown toward the sites southern boundary. Clearance of large swathes of terraced housing occurs during the period leading up to the 1890's, particularly toward the sites northern and eastern extent. The timber yard sites are also redeveloped during this period for use as terraced housing.

2.3.11 The sites southern extent is developed into its current configuration during the period leading up to the 1930's, initially annotated as an automotive engineering and electrical engineering works, the site is later shown as a works with a small extension added to the western extent. No other noteworthy change of land use occurs from this period through until the present.

Surrounding Land Use

2.3.12 Historically it is known this portion of the River Irwell acted as a dockyard for vessels navigating the river, particularly during the period leading up to the construction of Manchester Ship Canal and Salford docks. As such early map records show surrounding to comprise warehouse and wharf side development including the Albert Warehouse (immediately adjacent the sites western extent) and the Old Quay Wharf (including a now infilled dock) circa 100m to the north east.

2.3.13 Other features of note from historical mapping records adjacent the site include the tramway routed along Quay Street and water Street until 1933, warehouse buildings and Asphalt Works along the eastern banks of the River Irwell, post WWII ruins, a series of ponds, Canal sidings, and Liverpool Road Goods Depot.

2.3.14 Potentially contaminative historical features include the canal wharfs, engineering works, a gasometer to the north and east associated with the Manchester & Salford Junction canal; and the wider operations of the Liverpool Road Goods Station to the south and west including numerous railway sidings, goods sheds and associated railway land. Copies of historical map records have been provided within Appendix B.

2.4 Geology

2.4.1 Geological, environmental and industrial information has been completed on a site wide basis. Review of publically available BGS geological map records (Sheet 85) indicate the site is underlain by the following:

Drift Geology: Largely absent according to map records, although the western perimeter is likely to be underlain by Alluvium as a result of the River Irwell.

Solid Geology: Chester Pebble Beds Formation – Triassic Sandstone.

2.4.2 The Envirocheck report (Appendix C) indicates that the site is located in an area which may be affected by historic Coal Mining or Brine extraction and a Coal Authority report is required. However, and with reference to the abovementioned geological map records, it is apparent the site falls outside an area where Coal Measures bedrock is present at shallow depth. In addition we are not aware of any commercial mineral or below ground mining workings within the Triassic Sandstone formation that underlies the site. As such it is considered a Coal Authority report is not warranted at this time.

2.4.4 A search has also been completed using the BGS Borehole Scans facility to establish what (if any) historic site investigation or borehole data may be available for the site or wider St John's development. A total of two borehole logs are within a 250m proximity to the site boundaries; SJ89NW85 (northern perimeter) and SJ89NW84 (north eastern perimeter). Records indicate Sandstone bedrock to occur at depths between 4 – 5 m below ground level, overlain with approximately 1 – 2m of fill type materials from the surface and a gravelly sand of 2 -3m in thickness until bedrock is encountered. Similarly, borehole logs relating to an off site development on Liverpool Road to the south (BGS refs: SJ89NW644 and SJ89NW3428) indicate rockhead at depths between 3.45 and 4.50m.

2.4.5 There are no geological faults or areas of weakness noted on or within 500m of the sites boundary. However, the West Manchester fault line is situated 1.50km east of the site.

2.4.6 With the exception of the aforementioned British Geological Survey borehole records, no site investigation information is available for the study site. An enquiry has been made to Manchester City Council (MCC) Contaminated Land section to establish what, if any, historic site investigation information is available for the site. At the time of writing we await receipt of a response from MCC and will update the current assessment to reflect any records or additional information that may be made available.

2.4.7 Reference has also been made to the Manchester City Council planning portal to ascertain what recent applications have been submitted for the study site and review any salient accompanying plans or reports. A number of planning applications are noted for surrounding area although only a single record contains plans or reference to the sites geology, relating to the construction of a Utility Pipe Bridge on a site to the south of the Riverside development (circa 110m).

2.4.8 This scheme (application ref: 103409/FO/2013/C1) includes a general foundation arrangement (plan ref: 127523-A-ECV-DRG-PBL-000103) indicating the new bridge is constructed using a piled foundation solution and that the underlying Sandstone Bedrock is assumed to occur at a depth circa 20.8mAOD beneath the site (or 5m below existing ground level.). No other supporting site investigation information, borehole log records etc. is provided as part of the application.

2.5 Agency, Hydrological and Flood Risk

2.5.1 The Envirocheck Groundwater Vulnerability Map indicates the drift geology as a Secondary Aquifer (A) and solid geology is classified as a Principal Aquifer.

2.5.2 The site is not said to be located within any Environment Agency Source Protection Zones or in close proximity to any sensitive water abstraction points (e.g. potable water supply well).

2.5.3 The nearest surface water feature is indicated on the western perimeter of the Riverside site, and c.55m to the west in the form of the River Irwell to the north west, with a River quality GQA Grade of E (Poor) and a flow rate of less than 40 cumecs. . However, it is noted the surface water quality data relates to samples obtained in the year 2000 and that the quality may have altered during the intervening 15 years. To address this discrepancy we have requested updated water quality data from the Environment Agency and will update the current assessment once in receipt.

2.5.4 The nearest active discharge held on site by United Utilities Plc for the release of storm drain sewage disposal discharges in to River Irwell.

2.5.5 There are no Local Authority Pollution & Prevention Controls are indicated within 500m of the site.

2.6 Hazardous Substances

2.6.1 There are no Control of Major Accident Hazards Site's (COMAH), Explosive Site's, Notification of Installations Handling Hazardous Substances (NIHHS), Planning Hazardous Substance Consents, Radioactive Substance or Planning Hazardous Substance Enforcements within 500m of the site.

2.7 Landfill Site's and Other Waste Disposal Facilities

2.7.1 A single historical landfill site is indicated within 500m of the site, situated 180m south west of the Riverside site and 209m to the west of The Village Phase 2 site; no information regarding volume or nature of material deposited within this facility is available. Neither the former Brunswick Basin, nor open section of the M&SJC, are indicated as registered or historic landfill site.

2.7.2 There are no waste disposal sites, transfer or treatment stations or registered landfill sites indicated within 500m of the sites boundary.

2.8 Industrial Land Use

2.8.1 Contemporary trade directory entries indicate the site is located within a relatively un industrialised / low risk setting. A number of industrial operations are located within 100m of the site including Gas Suppliers, Dry cleaners and launderettes, copying and duplicating services, and freight forwarders.

2.8.2 A single fuel station is indicated 410m south west positioned on the opposite bank of the River Irwell.

2.9 Radon Risk Potential

2.9.1 The Envirocheck report states that the site is in an area of lower probability of radon where less than 1% of homes are above the action level. It is considered that no radon protection measures are necessary in the construction of new buildings.

2.10 Ecological Setting & Invasive Plant Species

2.10.1 The site is not said to be adjacent an area of adopted green belt or in close proximity to any designed SSSI or SBI sites.

2.10.2 No evidence of invasive plant species was noted during the course of the site walkover survey; although it should be noted the inspection did not comprise a detailed ecological assessment. An ecological assessment has been prepared by ERAP and forms part of the planning application submission; please refer to the report for further details.

2.11 Manchester & Salford Junction Canal

2.11.1 The historic alignment of the Manchester and Salford Junction is shown to run adjacent the northern boundary of the Riverside development site, entering onto the Village Phase 2 site toward its southern extent and crossing in a roughly north west to south east orientation. The approximate extent of the canal is indicated on Fig 2.1 below with a more detailed outline provided on RoC Consulting drawing ES01 provided within Appendix A.1.

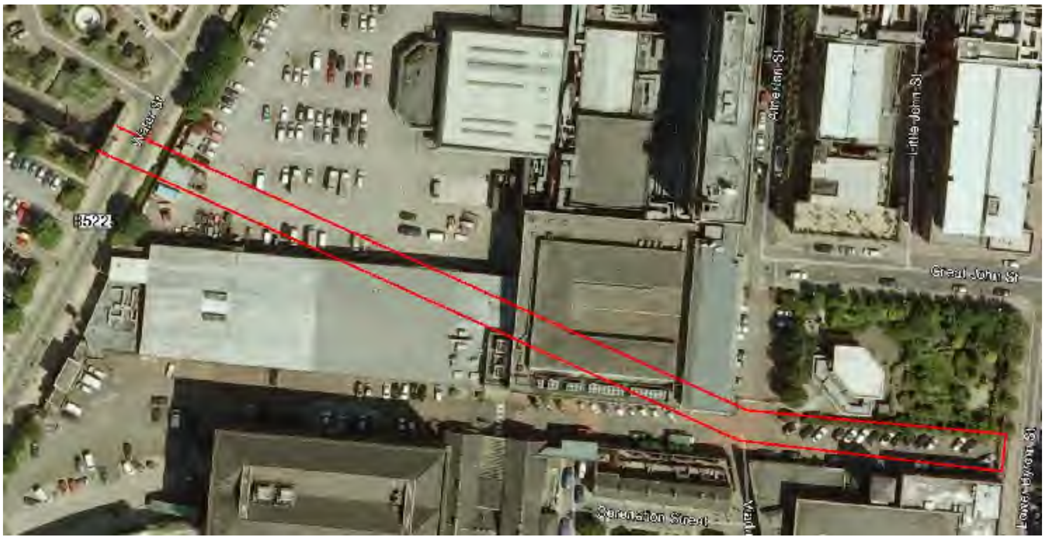


Fig 2.1: Sketch Plan showing approximate alignment of Manchester & Salford Junction Canal

2.11.2 Reference has been made to a survey and excavation report collated by the Greater Manchester Archaeological Unit (GMAU) in 1989. The report was commissioned by Granada Studios and included a historical overview to the canal within which the following points are noted:

- The canal was opened in October 1839 and was constructed to form a direct link between the Mersey and Irwell Navigation and the Rochdale Canal.

- The canal comprised an open channel leading from its entrance with the River Irwell to the west, entering into a tunnel just to the east of the sites centre (refer to drawing ES01 S1 within Appendix A.1 for approx. extent).

- The canal is fell out of use in 1922 and is said to have been abandoned in 1936.

- Portions of the canal beneath the nearby Great Northern Warehouse are known to have been converted into air raid shelters, and several tunnels are known to still be extant (and subject to listed building status) along the portion of the canal leading up to the sites easterly boundary on Atherton St.

- The western portion of the canal was acquired by the Granada Television Company in 1955 and was infilled and levelled with demolition arising's from war damaged buildings in the area.

2.11.3 The 1989 survey was completed following the discovery of any area of subsidence within the Granada studio parking lot in the area to the west of Water Street (refer to Fig 3.0 GMAU report provided below for further information). A trial trench excavation was completed in this area revealing the subsidence had occurred across a now infilled canal Lock No 2 (as indicated in GMAU Fig 3).

2.11.4 Excavation works revealed the former "Lock 2" basin had been infilled to a depth of 5.8m with fill materials comprising "loose voided rubble including brick, reinforced concrete, stone and domestic rubbish". The lower 2m of this fill was said to be bedded in a matrix of oily organic silt accumulated during the canals former operation; this material appeared to have been displaced upwards when backfilling occurred during the 1950s.

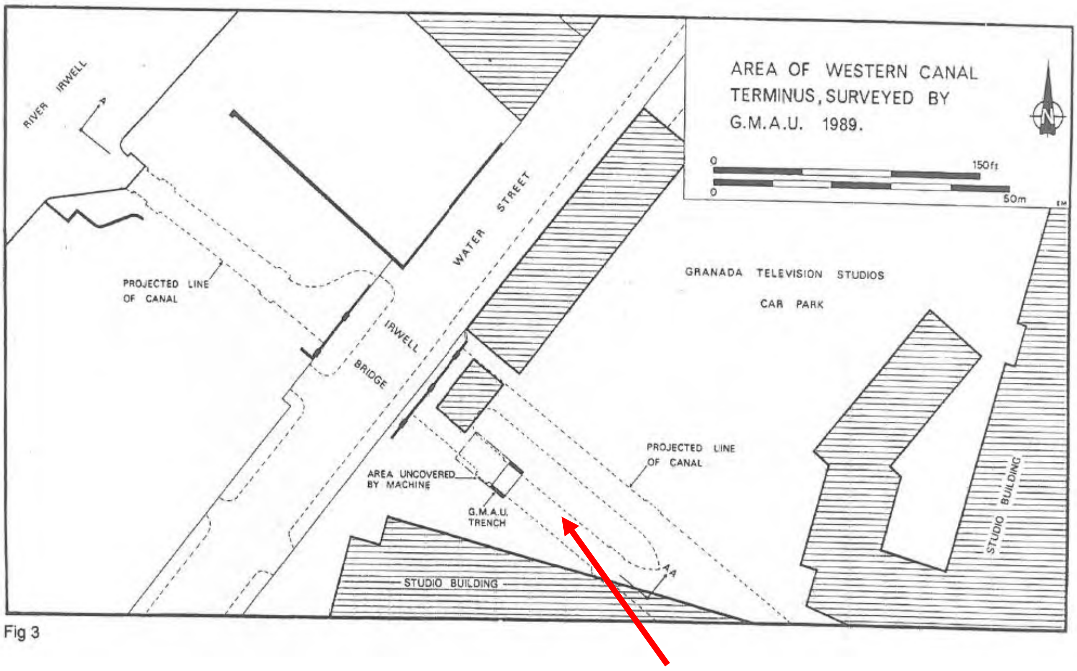

AREA OF WESTERN CANAL TERMINUS, SURVEYED BY G.M.A.U. 1989.
N
0
150ft
0
50m
RIVER IRWELL
PROJECTED LINE OF CANAL
WATER STREET
IRWELL BRIDGE
GRANADA TELEVISION STUDIOS
CAR PARK
PROJECTED LINE OF CANAL
AREA UNCOVERED BY MACHINE
G.M.A.U. TRENCH
AA
STUDIO BUILDING
STUDIO BUILDING

Fig 3

Fig 2.2 Extract from 1990 GMAU report showing the exposure trench location

2.11.5 Groundwater ingress was noted during excavation works the volumes of which could not be controlled with conventional pumping. The resting water level was found to be roughly 4.3m below existing ground level and was found to coincide with the water level in the adjacent River Irwell, indicating good permeability of the voided fill through to the river and a probable hydraulic connectivity. A diagrammatic cross section through the excavated canal is provided within the GMAU report (Fig 5) and reproduced overleaf.

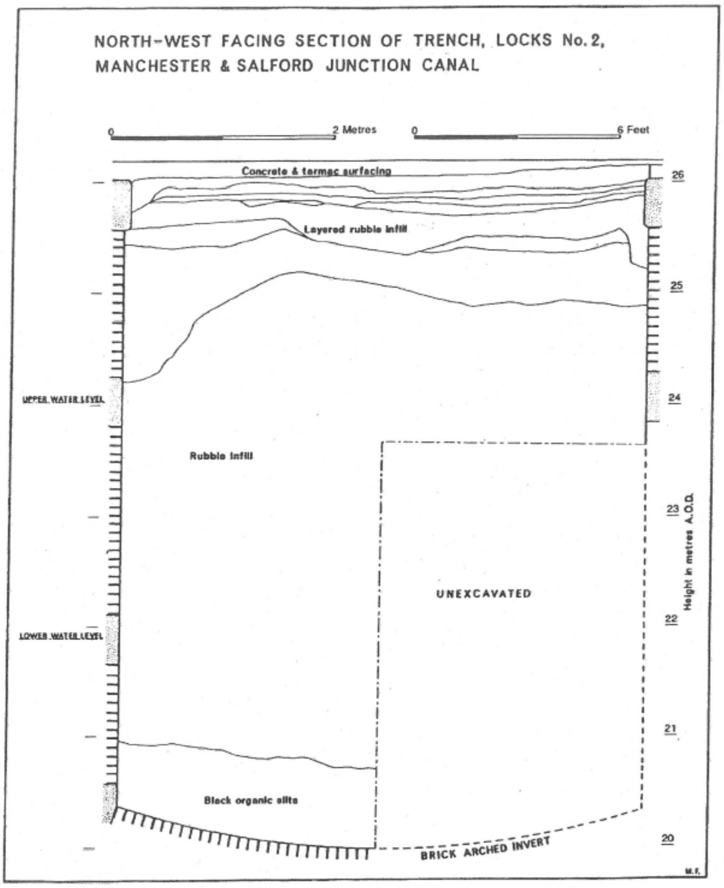

NORTH-WEST FACING SECTION OF TRENCH, LOCKS No. 2,
MANCHESTER & SALFORD JUNCTION CANAL
0
2 Metres
0
6 Feet
Concrete & tarmac surfacing
Layered rubble infill
UPPER WATER LEVEL
Rubble infill
UNEXCAVATED
LOWER WATER LEVEL
Black organic silts
BRICK ARCHED INVERT
26
25
24
23
22
21
20
Height in metres A.O.D.
M.F.

Fig 5

Fig 2.3: Extract from 1990 GMAU report showing the backfill of the M&SJC at Lock 2.

2.11.6 The total extent of canal infilling is not reported within the GMAU report, owing to the fact they were engaged to investigate a localised area of subsidence toward its western extent. However, the report notes the Irwell Bridge (carrying Water St over the former canal alignment) is not backfilled with both the eastern and western parapet walls still visible.

2.11.7 Reference is also made to the canal tunnel toward the sites eastern extent, indicating a total length of 499yards and showing the point at which the feature starts on site. The report also notes the aforementioned gasometer (as noted within the current historical map review) was used to light the tunnel and became abandoned at the same time as the canal. The report does not indicate what (if any) portion of this tunnel had been infilled.

3.0 DEVELOPMENT PROPOSALS

3.0.1 As previously discussed the development is divided into three individual development plots which will form two planning applications and the following overview has been subdivided to reflect this requirement. RoC Consulting Drawing ES02 has been collated to indicate the location of each development site along with the approximate development boundary, refer to Appendix A.1 for further details.

3.1 Village Phase 2 & Riverside Development

3.1.1 Whilst the site currently incorporates a number of existing buildings associated with its former use as the ITV television studios, it is anticipated that these will demolished as part of an earlier phase of development (known as Manchester Grande).

3.1.2 Therefore, the Proposed Development is likely to involve only a minimal amount of demolition, potentially including the perimeter wall to the site, the former Granada Studios Entrance and structures associated with the two surface car parks to the west of Water Street.

3.1.3 The scheme comprises two elements, which in summary can be described overleaf:

Riverside

3.1.4 The Riverside proposals incorporate two tall buildings for residential use of up to 40 (Riverside Tower 1) and 28 (Riverside Tower 2) storeys, together with cycle parking at ground floor of each tower and a new public riverside park and amenity space:

- Riverside Tower 1 will provide 298 residential units, ranging from 1 to 3 bedrooms, with a number of duplex and triplex units and penthouses. A restaurant and café use and resident amenity space will be included at lower level.
- Riverside Tower 2 will provide 208 residential units, ranging from 1 to 3 bedrooms, including duplex and penthouse units. A restaurant and café use and resident amenity space will be included at lower levels.

Village Phase 2

3.1.5 The Village Phase 2 proposals incorporate two tall buildings for residential use of up to 34 (Village Phase 2 Tower 1) and 21 (Village Phase 2 Tower 2) storeys, together with a lower rise 6-8 storey element that will incorporate a mix of retail, workspace and residential use. New public realm, car and cycle parking will also be provided.

- Village Phase 2 Tower 1 will provide 264 residential units, ranging from 1 to 3 bedrooms, with a number of duplex units and penthouses. A restaurant and café use and resident amenity space will be included at lower levels, totalling circa 1,367 sq.m. (NIA).
- Village Phase 2 Tower 2 will provide 144 residential units, ranging from 1 to 3 bedrooms, with a number of duplex units and penthouses. A restaurant and café use and resident amenity space will be included at lower levels.
- The lower rise element of Village Phase 2 will comprise six separate building forms, ranging from 6 to 8 storeys in height. Similarly to the proposals for Village Phase 1, this element of the scheme includes a layering of uses with retail at ground floor, office and workspace uses in the middle and residential above.
- A seventh building of 6 storeys, located opposite to the Bonded Warehouse, will provide retail and workspace uses only.
- Basement car parking will be provided underneath the area of lower rise element of Village Phase 2, with approximately 600 spaces that will serve this and wider parts of the St. John’s Masterplan, including Bonded Warehouse and Manchester Grande.

3.1.6 A ground floor layout plan showing the proposed development layout has been provided by SimpsonHaugh Architects (drawing ref: 7340-VP2-A-G200-P-00-001) has been provided within Appendix A.2 along with a development cross section (drawing ref: 7340-A-VP2-G200-S-AA) indicating the proposed basement depth and extent.

3.1.7 With reference to the above it is noted the basement structure will be constructed across the majority of the Village Phase 2 development site. The basement will cover two flows (B1 and B2) and extend to a depth of 6.2m beneath existing ground level (19.68mAOD). As such it is anticipated the basement construction will see the removal of virtually all made ground and natural soil deposits beneath the site including the infilled portion of the Manchester & Salford Junction Canal.

3.1.8 At the time of writing specific details regarding proposed soft landscaping and public realm space remains outstanding; however it is envisaged (given the nature of the development and proposed basement construction) soft landscaping zones are likely to be limited to public realm space and likely to be constructed using planting boxes integrated into the basement ground floor slab.

3.2 St John's Place

The Proposed Development involves the demolition of the existing buildings on site, including the Globe and Simpson Building, Albert Shed and former props Warehouse, in advance of the comprehensive redevelopment of the site for new residential and hotel use, with associated public realm and car parking.

3.2.1 The scheme comprises four zones or elements, which in summary can be described as follows:

- Zone 1: a tall building of up to 52 storeys (approximately 195m above ordnance datum), with basement car parking and plan areas. The building will incorporate circa 12 levels of hotel use (providing 180 bedrooms) and circa 35 levels of residential use (providing 287 units). Residential units will provide a range of 1, 2 and 3 bedrooms, with some over duplex levels, and 4 penthouses.

- Zone 2: is a serviced apart-hotel of up to ground plus 7 storeys, with a restaurant use at ground and mezzanine floor.

- Zones 3 and 4: comprise apartment units in two buildings of up to ground plus 17 and ground plus four storeys. 100 residential units will be provided, with the mix ranging from 1 to 3 bedrooms. Retail floorspace will be provided at ground and mezzanine floors.

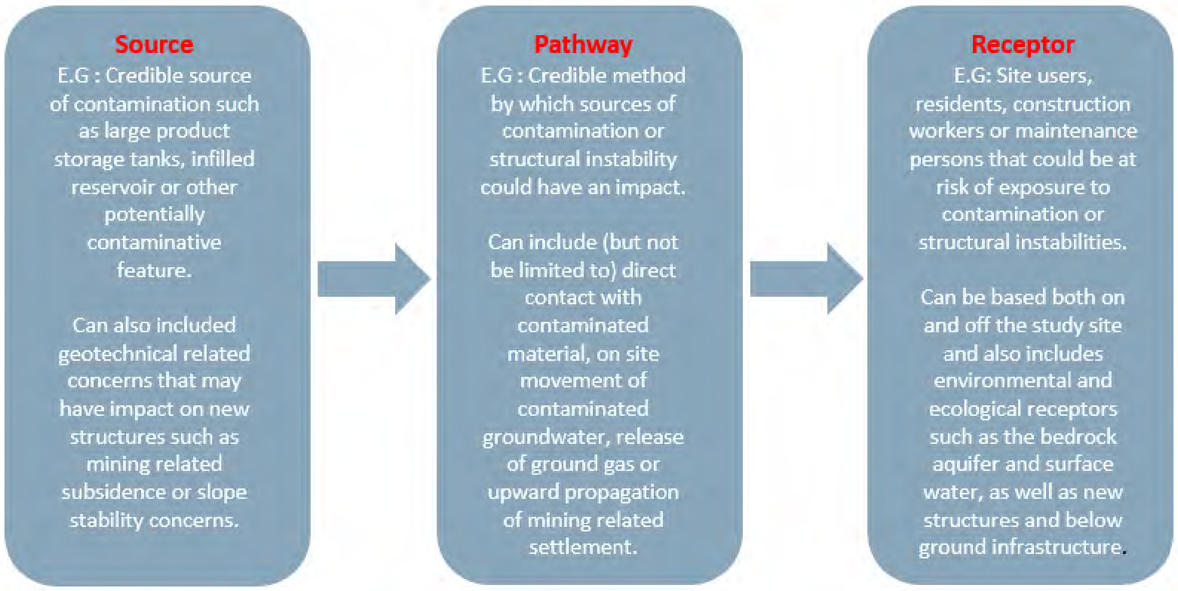
3.2.2 Copies of the proposed development layout and basement plans provided by Simpson Haugh Architects have been provided within Appendix A.3 indicating the overall development layout and proposed basement extent (ref: 7326-A-MP-G100-XP-001-099, 7340-A-G100-P-00-001).

3.2.3 With reference to these plans it is noted the basement structure will occupy the majority of the sites footprint at a level ranging between 24.72mAOD (beneath the Albert Shed development) and 23.5mAOD (beneath the Globe Simpson building). These levels broadly equate to an excavation depth ranging between 3 and 4m beneath existing site levels. For the purposes of our assessment we have assumed a mixed use residential led scheme with basement structure (where applicable) and associated public realm space, soft landscaping etc.

3.2.4 Whilst the site currently incorporates a number of existing buildings associated with its former use as the ITV television studios, it is anticipated that these will demolished as part of an earlier phase of development (known as Manchester Grande). Therefore, the proposed development is likely to involve only a minimal amount of demolition, potentially including the perimeter wall to the site, the former Granada Studios Entrance and structures associated with the two surface car parks to the west of Water Street.

4.0 PRELIMINARY CONCEPTUAL SITE MODEL

4.0.1 The information obtained during the desk study has been reviewed to establish the Preliminary Conceptual Model for the site. This model is based around the Source / Pathway / Receptor methodology as outlined in Fig 4.0.



Source

E.G : Credible source of contamination such as large product storage tanks, infilled reservoir or other potentially contaminative feature.

Can also included geotechnical related concerns that may have impact on new structures such as mining related subsidence or slope stability concerns.

Pathway

E.G : Credible method by which sources of contamination or structural instability could have an impact.

Can include (but not be limited to) direct contact with contaminated material, on site movement of contaminated groundwater, release of ground gas or upward propagation of mining related settlement.

Receptor

E.G: Site users, residents, construction workers or maintenance persons that could be at risk of exposure to contamination or structural instabilities.

Can be based both on and off the study site and also includes environmental and ecological receptors such as the bedrock aquifer and surface water, as well as new structures and below ground infrastructure.

Figure 4.0 Source Pathway Receptor Diagram

4.0.2 Risk assessment is the process of collating known information on a hazard or set hazards in order to establish actual or potential risks to receptors. The receptor may be human health, controlled waters, a sensitive local ecosystem or even construction materials. Receptors can be connected with the hazard under consideration via one or several exposure pathways (e.g. the pathway of direct skin contact and oral exposure).

4.0.3 Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there is deemed to be no risk. In other words, the mere presence of a hazard at a site does not mean that there will necessarily be risks.

4.0.4 CLEA CLR 8 provides a selection of contaminants that may be relevant for the assessment of contaminated land, based on site usage, because they are likely to be found on a large number of industrial sites in the UK and have the potential to affect human health and the environment. The CLEA CLR 8 documentation, along with other relevant guidance, forms the basis against which the site has been assessed. For the purposes of our assessment we have assumed a "Residential Led" apartment type end use scenario with building, basement and hard standing coverage across the majority of the sites footprint.

Potential Sources – Village Phase 2 Site

4.0.5 Based on the current and historical uses the following potential sources of contamination items have been identified:

- **Former Brunswick Basin & Infilled M&SJC Canal**. The nature of materials used as infill are known to comprise demolition type with domestic waste and oil contaminated organic matter. The depth of this material has been established as 5.8m at one location adjacent the Water St Bridge although it is noted the location of these works coincide with a former lock gate and are likely to be deeper than other portions of the canal.

- **Former Terraced Housing**. Cleared during the late 19th century to facilitate the expansion of Granada Television Studios, the presence of backfilled basement structures and demolition type fill material is to be expected, across the entire Village Phase 2 site and the majority of the Riverside site. Potential for Heavy metal, Poly Aromatic Hydrocarbons (PAH), and Asbestos contamination. In addition infilled basements could constitute a source of ground gas generation.

- **Timber Yard**. Situated toward the south western boundary of the Village Phase 2 adjacent Grape Street, localised heavy metal and hydrocarbon contamination may be present along with substances relating to timber preservation or varnishing such as creosote, phenols, and other chemical solvents.

- **Former on-site engineering works.** Various operations had previously populated the Village Phase 2, some of which include above ground product storage tanks. Potential source of heavy metal, PAH, asbestos and petroleum hydrocarbon contamination.

- **Gasometer.** Situated on the eastern boundary, could provide a residual source of PAH, Hydrocarbons and Phenols within made ground deposits.

- **Bywater channel**. Similar to the infilled Manchester and Salford Junction Canal the nature of materials used as infill are considered to comprise demolition type material, however the materials used cannot be precluded at this point.

Potential Sources – Riverside Site

- **Former Dockyards and Warehouses.** Situated across the Riverside development site; could pose a source of heavy metal, PAHs and asbestos contamination. In addition the infilling of dock basins could constitute a source of ground gas ingress.

- **Terraced Housing**. Noted along the Water Street boundary, potential for infilled basements and demolition type fill materials that could constitute a source of heavy metal, PAH and Asbestos contamination as well as ground gas ingress.

Potential Sources – St John's Place

- **Dye House Yard**. Located beneath the Albert Shed portion of the development and cleared during the late 19th century, it is possible sources of contamination such as result of these activities. The range of substances that could be encountered include Heavy Metals, Poly Aromatic Hydrocarbons and Asbestos (associated with historic building demolition) as well as dye stuffs, organic / inorganic compounds (such as Sodium Dichromate, Magnesium Chloride, Phosphates etc.), Chlorinated Organic Solvents and Soaps / Detergents. These range of contaminants assume the yard was used for either the storage of dyed products or chemical products associated with the dyeing process.

- **Timber Yards.** Localised heavy metal and hydrocarbon contamination may be present along with substances relating to timber preservation or varnishing such as creosote, phenols, and other chemical solvents.

- **Terraced Housing.** Historically located across the Globe Simpson site, the potential for Heavy Metals, Poly Aromatic Hydrocarbons and Asbestos (associated with historic building demolition).

- **Automotive & Electrical Engineering Works.** Contamination hotspots associated former site operations; range of contaminants could include heavy metals, PAH, PCB’s, lubrication oils and diesel /petroleum range hydrocarbons.

Potential Sources- Off Site

4.0.6 Based on the current and historical uses of land surrounding the site, the following potential sources of contamination items have been identified:

- **Former Brunswick Basin**. Situated immediately adjacent the sites north eastern extent (beneath the current Granada House development); may constitute a source of on-site contaminant migration and ground gas ingress.
- **Liverpool Road Goods Station**. Forming the sites southern boundary and possibly containing contamination hotspots associated with goods storage and railway operations. Range of contaminants could include heavy metals, PAH, PCB’s, lubrication oils and other hydrocarbons and timber varnishes or preservatives.

Potential Pathways and Receptors

4.0.7 The following potential pathways and receptors have been identified for the above potential sources of contamination:

- End users of the site (future residents and users) could be at risk of exposure to contaminated soils and materials at the site via ingestion, direct contact and inhalation of contaminated dust, vapours or hazardous gas.
- Construction persons could also be at risk of exposure to contaminated soils via ingestion, direct contact and inhalation of contaminated dust / vapours / hazardous gas.
- Leaching of potential contaminants into bedrock aquifer beneath the site or adjacent River Irwell water course.
- Nearby commercial office developments, business and the general public could be at risk of exposure to windblown contaminated dust.

- Below ground structures such as concrete foundations or water supply pipe work could be at risk of chemical attack and damage as a result of aggressive ground conditions.

Assessment of Risk –Linkages

4.0.8 Risk is normally defined by the consequences of the risk (i.e. severity) and the probability of the risk occurring. For each pollutant linkage both the probability and severity is assessed to determine whether there may be an unacceptable risk. Risk is classified as follows:

- Low - no action required
- Medium - some mitigation measures may be required
- High - mitigation measures definitely required

4.0.9 Table 4.0 (provided overleaf) assess the pollutant linkages that may exist at the site;

TABLE 4.0: PRELIMINARY CONCEPTUAL SITE MODEL

Potential Sources

Contamination Source	Risks Posed	Comment
Current land use	Low	The site's current operations (film sets workshop and car parking) can be regarded as a low risk commercial land use. In addition site wide building coverage will impede exposure to underlying soils, reducing risks to low.
Historical land use	Medium	**Village Phase 2 and Riverside** The site has been employed as a mixture of residential housing, dockyards, warehouses, and engineering works. The demolition of terraced housing and historic storage of goods may have locally impacted soil quality. The presence of deeper areas of made ground associated with the backfilling of basement structures cannot be precluded. The pattern of historic industrial activity across the site, coupled with the infilling of canal basins, is likely to have impacted soil and groundwater quality beneath the site. This issue is not considered to present a site wide concern, however localised hotspots of contamination and any excavation works into the former canal will present a risk, particularly toward site construction persons. **St John's Place** The site has been employed for a range of potentially contaminative end uses including an automotive engineering works and a dye house yard. In addition the site has been subject to several phases of development and it is likely demolition type fill material will be present beneath the site and could constitute a source of contamination.
Proposed land use	Low	Considered to be very low owing to an absence of any contaminative activity as part of the residential led development.
Off-site sources	Low	Although a number of industrial activities are known to have taken place adjacent the site (e.g. railway land and dockyard operations) it is considered unlikely a significant contaminant plume will be present within soils or groundwater with the potential to migrate on site. Similarly, excluding on site generation, the risks associated with the movement of ground gas toward the site are likely to be low.

Potential Receptors

Human Health– Construction Personnel	Construction persons are considered to be at the greatest risk of exposure to contaminants during the sites redevelopment. A better understanding of site conditions, and specifically the quality of underlying soils, will be required to assist with the identification of any contamination hot spots and associated mitigation measures.

Cont'd Overleaf

Human Health –Site Users	Future site users are considered at low risk of exposure to contaminants owing to the fact they are unlikely to be interacting with site soils and groundwater. However, this group could be considered at risk of exposure to ground gas ingress and has the potential to come into contact with soils within any new areas of soft landscaping.
Controlled waters - Surface waters	Considered to be at risk of exposure to contaminants either as a result of former site operations or during the development process owing to its distance from the site.
Controlled waters – Primary aquifer	The Principal aquifer could be at risk of contamination from previous industrial activity. As such the quality of any groundwater beneath the site will require consideration. Similarly the interaction of groundwater with surface waters will require consideration with respect to contaminant migration.
Below ground structures and service runs	Below ground concrete structures could be at risk of Sulphate attack, similarly water supply pipe work should be considered a possible receptor for chemical attack and contamination, particularly in areas of grossly contaminated soil.

Potential Pathways

Pathway route	**Likelihood of linkage**	**Reason**
Direct dermal contact, ingestion and inhalation of contaminated soil / dust	Medium	**Construction Workers:** Known and suspected sources of contamination are present across the site. A comprehensive program of site investigation works will be required to identify sources of contamination beneath the site and design appropriate remedial measures. This information will be essential to the protection of Construction Workers and particularly when designing earth works, basement and foundation excavations.
	Low to Medium	**Future site users:** As with construction persons, a detailed understand as to the form and spatial distribution of contaminants beneath the site will be required to estimate risks posed. The sites development characteristics, and specifically the proposed basements, building or hardstanding coverage will break pathways between site users and soils, reducing risks to low. Consideration will need to be given to isolating and breaking pollution linkages within any areas of soft landscaping proposed.
Leaching of contaminated soil and impact to Aquifer beneath site	Low to Medium	Drift deposits are likely to be largely absent beneath the site and it is likely these deposits will be of a permeable granular nature. Further assessment of groundwater quality within both soils and bedrock will be necessary to facilitate a thorough risk assessment of risks posed to the bedrock aquifer.
Migration of contaminated groundwater into surface water features	Medium to High	The site will be in hydraulic connectivity with the adjacent River Irwell and any contamination of the underlying groundwater table will have the potential to migrate into this water course. In addition the infilled section of the Manchester & Salford Junction Canal is known to be in partial hydraulic connectivity to the Irwell via the partially infilled Water Street bridge and lock gates beyond. The agitation of contamination sources during the sites development during basement excavation or any piling works has the potential to disturb and mobilise contaminants into the groundwater (and possibly into the river). As such a detailed understanding as to the extent of any soil or groundwater contamination will be required and, as necessary, a program of remedial works completed.
Ground Gas	Low to Medium	Credible sources of ground gas generation have been identified on site (e.g. backfilled basements associated with terraced housing). An assessment of the sites gas regime will be necessary to quantify risks posed.
Below ground structures and pipe works	Low to Medium	The use of protective water supply pipe work and Sulphate resistant concrete may be required depending on the nature and extent of any contaminants that are present beneath the site.

5.0 CONCLUSIONS & RECOMMENDATIONS

Village Phase 2 and Riverside

5.0.1 The desk-based assessment has identified the following conclusions with respect of the Village Phase 2 and Riverside development sites:

- The site comprises an area of water front car parking and an area of car parking formerly associated with the Granada Studios lot. In addition a warehouse structure formerly used for TV and film set construction is present on site toward its southern extent with a small security lodge toward the sites northern boundary. No potentially contaminative land uses were noted on site at the time of inspection; the site is located within a relatively un-industrialised setting, bounded a combination by museums, commercial office space and residential development. The River Irwell is present along the sites northern and western extent along with a lock gate leading into the former alignment of the Manchester & Salford Junction canal.

- Historical map records indicate the “Village Phase 2” portion of the development site is situated within the former M&SJC wharf side and known to have historically contained a number of engineering works, terraced housing, warehousing, timber yards and other point sources of contamination. In addition this portion of the site is crossed by the former M&SJC canal that is known to have been infilled with demolition and domestic waste material to depths circa 5.8m. Historic land use across the “Riverside” portion of the development site comprised warehousing and quayside developments associated with shipping operations on the River Irwell.

- The site is said to be underlain by limited Alluvial and Glacio-fluvial deposits which, in turn, overly the Chester Pebble Beds Triassic Sandstone formation. On site ground investigation is limited, however available logsheets indicate rockhead at depths between 4 to 5m below ground level across the northern portion of the site, with a similar depth range reported in boreholes formed off site to the south.

- The site is located within a relatively low risk environmental setting and is unlikely to be impacted or affected by nearby current or historic industrial activities. However, the proximity of the River Irwell to the north will be of concern during the development process when there will be an increased potential for contaminants to be disturbed and mobilised. Due consideration and mitigation will be required during the construction process to reduce the risks posed.

St John's Place

5.0.2 The desk-based assessment has identified the following conclusions with respect of the St John's Place development site:

- Situated to across the northern portion of the wider St John's development masterplan, the site comprises the Albert Shed former storage warehouse (now a multi-storey car park) and the former Globe Simpson automotive engineering works (now a sound recording studio and office space). In addition a small area of open ground was noted to the northern extent of the Globe Simpson development site currently used as an area of car parking and vegetated open ground.

- The site is located within a city centre location and bounded by a mixture of commercial office and retail development as well as several residential apartment developments and a hotel. The River Irwell forms the sites northern boundary with associated river wall.

- Historical map records indicate the site comprised a mixture of warehousing, engineering works, timber yards and terraced residential housing. The Albert Shed portion of the site to the north is said to have been constructed during the early 20th century, replacing an earlier Dye House and Timber Yard. The Globe Simpson site was constructed at the expense of terraced residential and timber yard developments circa 1930 and was formerly used as an automotive and electrical engineering works. The presence of backfilled basement structures and relic foundations is to be expected given this pattern of historical development.

- Historic land use within the immediate vicinity of the site mirrored development on site, comprising a mixture of storage warehousing, mills, and engineering works; in addition the now infilled Manchester & Salford Junction Canal was situated adjacent the sites southern boundary. This development also included a now infilled Brunswick canal basin with associated warehousing, canal wharfs and engineering works. The open sections of the canal were infilled during the 1950s as part of the Granada Studios development with “mixed demolition fill arising from war damaged buildings within the local area.

- As with the Village Phase 2 / Riverside developments, the site is said to be underlain by limited Alluvial and Glacio-fluvial deposits which, in turn, overly the Chester Pebble Beds Triassic Sandstone formation. Rockhead is expected at depths between 4 to 5m below ground level and the presence of a groundwater table associated with the adjacent River Irwell is to be expected beneath the site and particularly beneath the Albert Shed development on the riverbank.

- The site is located within a relatively low risk environmental setting and is unlikely to be impacted or affected by nearby current or historic industrial activities. However, the proximity of the River Irwell to the north will be of concern during the development process when there will be an increased potential for contaminants to be disturbed and mobilised. Due consideration and mitigation will be required during the construction process to reduce the risks posed.

5.0.4 In view of the above it will be necessary to demonstrate site soils are suitable for use under the proposed redevelopment scenario for each development site as the project moves toward a detailed design stage. In addition an understanding of the engineering properties of soils and bedrock is necessary to support new building and foundation design.

5.1 Recommendations for Further Works

5.1.1 We would recommend a Phase 2 intrusive site investigation be completed to further assess items identified during the current study. Exploratory boreholes and trial pits should be formed at intervals across the site to target known or suspected sources of contamination and assist with the estimation of risks posed.

5.1.2 With respect to each individual development site, the following points of note warrant further consideration:

Village Phase 2 and Riverside

5.1.3 An assessment of ground quality, as well as the precise alignment of, the Manchester & Salford Junction Canal. It is noted (with reference to proposed development plans) the basement structure proposed across the Village Phase 2 site will require the removal of the canal and associated backfill. As such a detailed understanding of its extent and the chemical composition of backfill will be essential to assess risks posed (particularly toward construction workers) and inform waste disposal costs.

5.1.4 In addition the former canal has the potential to be in hydraulic connectivity with the adjacent River Irwell (as noted during observations made during the 1990 investigation by the Greater Manchester Archaeological Unit). A concrete plug is known to have been constructed within the bridge beneath Water Street however observations indicate a groundwater table is present within the infilled canal. Further investigation of this issue and due consideration will be required during the construction process to ensure the on-going protection of the River Irwell to the north.

St John's Place

5.1.5 Ground quality beneath the Albert Shed development is of particular importance across the St John's Place site in view of its previous operation as a Dye Works yard and its close proximity to the River Irwell. Similarly the potential for hydrocarbon contamination beneath the Globe Simpson building has been identified (as result of former operations as an engineering works) and will require further investigation.

5.1.6 The quality of groundwater beneath the site should also be assessed to assess risks posed toward the Irwell, as well as the proposed development. The potential for contaminants to be mobilised during the construction process and entering groundwater / the Irwell will also require consideration and appropriate remedial measures proposed.

General Site Wide Considerations

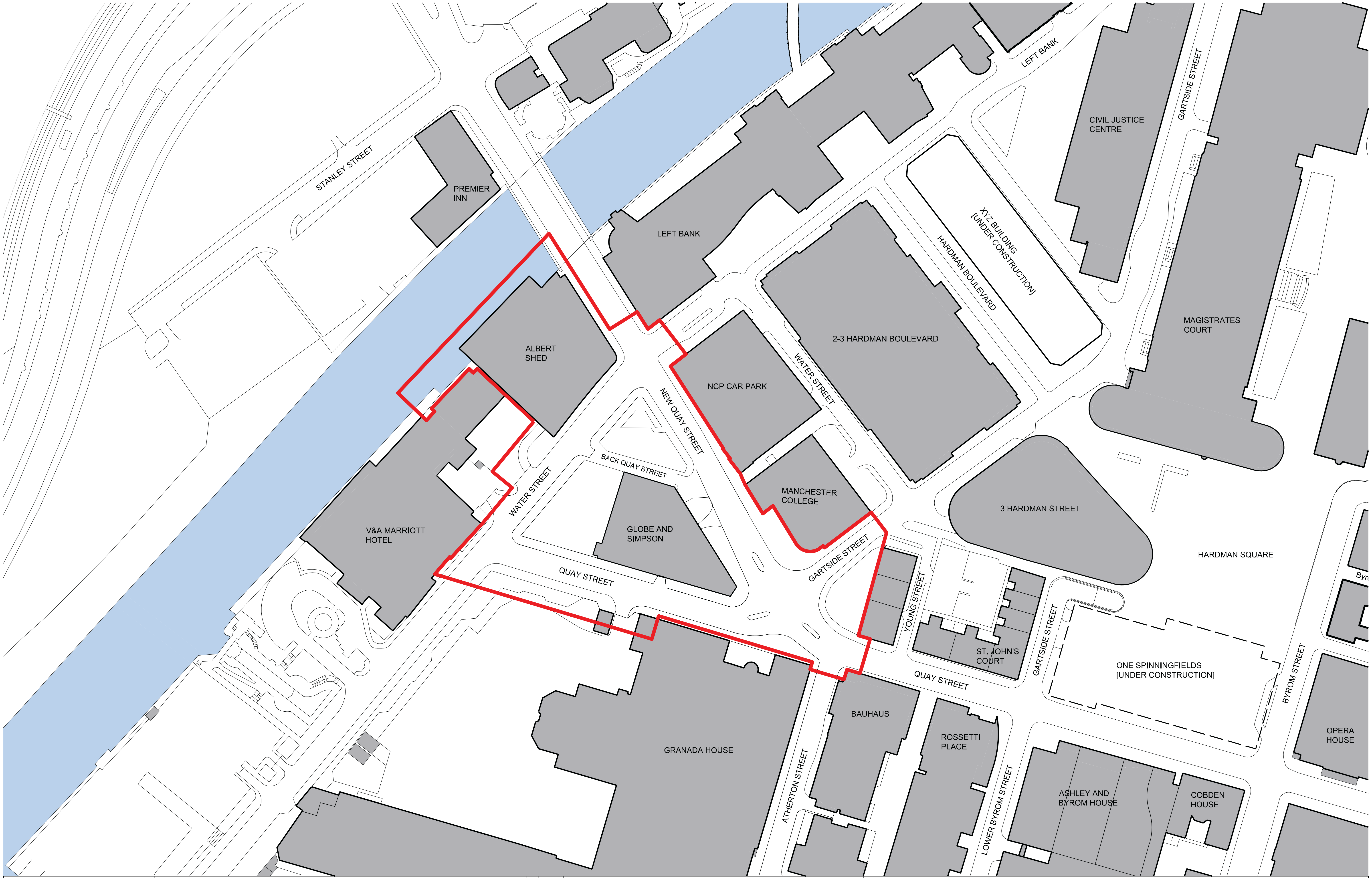
5.1.5 Away from these specific features a wider understanding of soil and bedrock conditions would be prudent across all development sites to inform new building design. As required any potentially contaminative features (e.g. former terraced housing, timber yard etc.) should also be targeted with exploratory boreholes and trial pits.

5.1.6 Any site investigation should include provision to install ground gas and groundwater wells with particular attention paid to areas of infilled ground within the site (for the estimation of risks posed by ground gas) as well as any groundwater table that may be present beneath the site. The sites groundwater table is of particular interest to the proposed basement element of the development.

5.1.7 The depth to, and quality of, bedrock beneath the site should be subject to a detailed assessment with boreholes drilled to a sufficient depth to support foundation and basement design for large tower structures. The implications of nearby geological fault lines should also be considered as part of any geotechnical assessment along with the impact of the groundwater table from the River Irwell on new structures and basements.

5.1.8 Copies of this report (along with associated Appendices) should be submitted to the Local Planning Authority in support of the planning application for the sites development. As required any comments received for the Local Authority should be fed back to RoC Consulting to respond accordingly.

APPENDIX A.1 – ROC CONSULTING DRAWINGS


STANLEY STREET
PREMIER INN
LEFT BANK
LEFT BANK
CIVIL JUSTICE CENTRE
GARTSIDE STREET
XYZ BUILDING [UNDER CONSTRUCTION]
HARDMAN BOULEVARD
MAGISTRATES COURT
ALBERT SHED
NCP CAR PARK
WATER STREET
2-3 HARDMAN BOULEVARD
NEW QUAY STREET
BACK QUAY STREET
WATER STREET
MANCHESTER COLLEGE
3 HARDMAN STREET
V&A MARRIOTT HOTEL
GLOBE AND SIMPSON
GARTSIDE STREET
HARDMAN SQUARE
QUAY STREET
YOUNG STREET
Byr
ST. JOHN'S COURT
GARTSIDE STREET
ONE SPINNINGFIELDS [UNDER CONSTRUCTION]
QUAY STREET
BYROM STREET
BAUHAUS
ROSSETTI PLACE
OPERA HOUSE
GRANADA HOUSE
ATHERTON STREET
LOWER BYROM STREET
ASHLEY AND BYROM HOUSE
COBDEN HOUSE

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NOTE:

NORTH

Rev	Date	Description

Project Title
ST. JOHN'S PLACE
MANCHESTER

Drawing Title
LOCATION PLAN (EXISTING)

Job No	Scale	Date
7326	1:1250@A3	08.07.15

Status
PLANNING

Drawing No
7326-A-MP-G100-XP-001-099

Revision

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mail@simpsonhaugh.com

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HOTEL
25.7m
28.2m
QUAY STREET
BAUHAUS
ROSSETTI PLACE
ATHERTON STREET
LOWER BYROM STREET
HOTEL
RIVER IRWELL
WATER STREET
STUDIO CAR PARK
TELEVISION CENTRE
26.8m
29.9m
GREAT JOHN STREET
31.7m
28.7m
TCBs
BONDED WAREHOUSE
CORONATION STREET
e's Bridge
Pipe Line
9.0m
TCBs
26.2m
TELEVISION CENTRE
32.19m
32.28m
32.39m
32.07m
32.17m
33.22m
33.05m
MUSEUM OF SCIENCE AND INDUSTRY
33.39m
MUSEUM OF SCIENCE AND INDUSTRY
27.29m
31.92m
31.97m
32.05m
Ramp
32.27m
33.29m
North

SIMPSONHAUGH AND PARTNERS LLP

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Rev	Date	Description	Rev	Date	Description	Rev	Date	Description
02	31-07-2015	Planning Issue						

Project Title
Village Phase 2

Drawing Title
Existing Location Plan

Status
FOR PLANNING

Scale
1:1000 @ A3 1:500 @ A1

Date
JULY 15

Job No
7340

Drawing No
7340-A-G000-P-00-001

Revision
02

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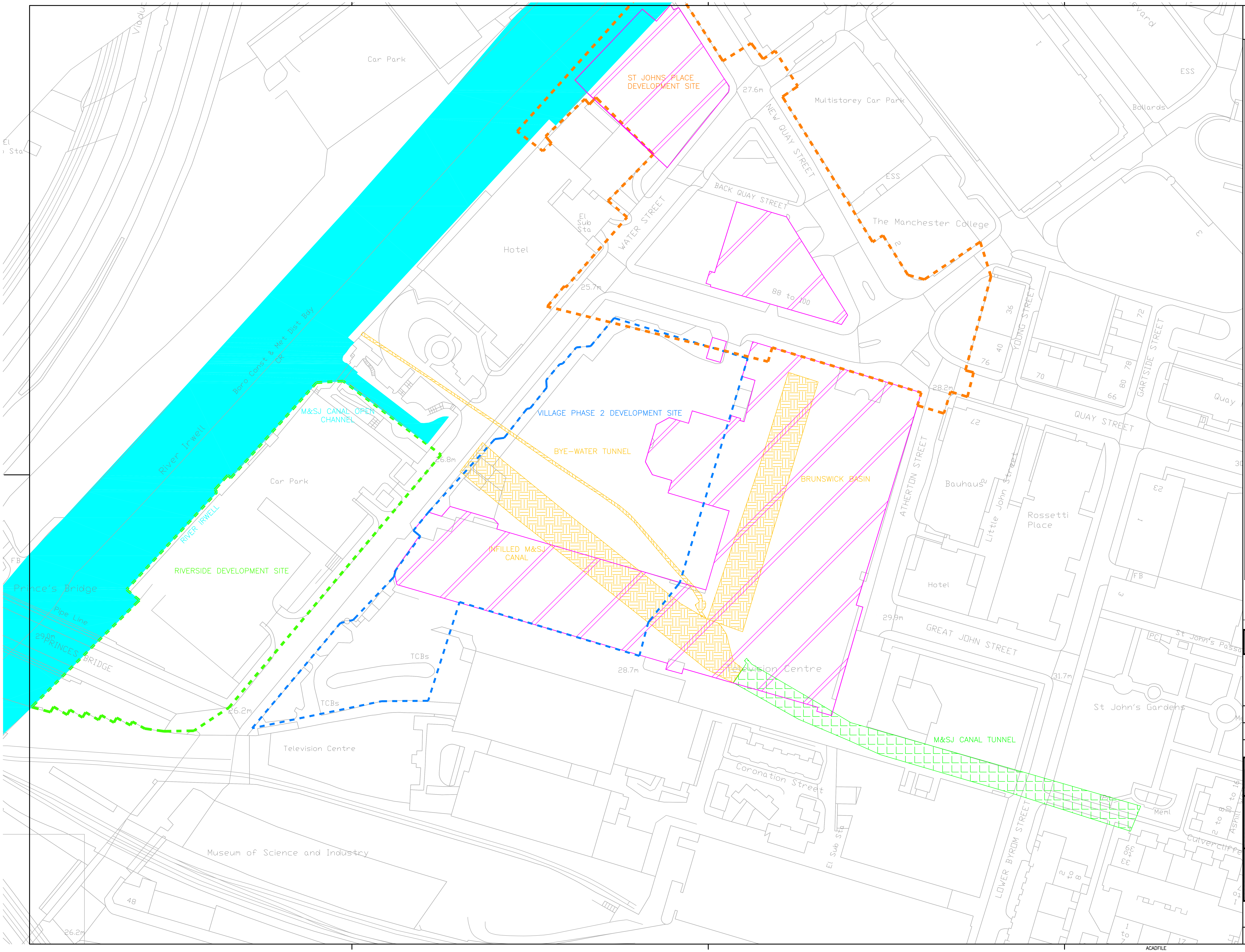
Car Park
ST JOHNS PLACE DEVELOPMENT SITE
27.6m
Multistorey Car Park
NEW QUAY STREET
ESS
Ballards
BACK QUAY STREET
ESS
El Sub Sta
Hotel
WATER STREET
The Manchester College
88 to 100
25.7m
Boro Const & Met Dist Bdy CB
River Irwell
M&SJ CANAL OPEN CHANNEL
VILLAGE PHASE 2 DEVELOPMENT SITE
BYE-WATER TUNNEL
BRUNSWICK BASIN
36
40
76
YOUNG STREET
72
78
80
66
70
GARTSIDE STREET
QUAY STREET
Quay
28.2m
27
ATHERTON STREET
Bauhaus
Little John Street
Rossetti Place
26.8m
Car Park
RIVER IRWELL
INFILLED M&SJ CANAL
RIVERSIDE DEVELOPMENT SITE
Prince's Bridge
Pipe Line
PRINCES BRIDGE
29.9m
Hotel
29.9m
GREAT JOHN STREET
St John's Passage
TCBs
28.7m
Television Centre
31.7m
St John's Gardens
26.2m
TCBs
M&SJ CANAL TUNNEL
Television Centre
Coronation Street
El Sub Sta
LOWER BYROM STREET
Meml
Culvercliffe
Museum of Science and Industry
48
26.2m

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NOTES

—	APPROX RIVERSIDE DEVELOPMENT BOUNDARY
—	APPROX VILLAGE PHASE 2 DEVELOPMENT BOUNDARY
—	APPROX ST JOHNS PLACE DEVELOPMENT BOUNDARY
▨	APPROX EXISTING BUILDING FOOTPRITNT
▦	INFILLED CANAL RELATED FEATURE
▦	EXISTING CANAL TUNNELS
■	RIVER IRWELL

DRAWING NOTES

1) PLANNING APPLICATION AND DEVELOPMENT SITE BOUNDARIES INDICATED ON THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY AND MAY BE SUBJECT TO AMENDMENT. PLEASE REFER TO SIMPSONHAUGH ARCHITECTS DRAWINGS FOR DETAILED SITE BOUNDARY INFORMATION

2) THE LOCATION AND EXTENT OF HISTORICAL FEATURES HAS BEEN CONJECTURED FROM MAP RECORDS AND SHOULD BE CONSIDERED AS APPROXIMATE

REV.	DATE	DETAILS	DRN.	CHK.

DRAWING STATUS
INFORMATION

RoC CONSULTING
Civil & Structural Engineers
81 Chapel Street, Salford, M3 5DF
Tel: 0161 833 3794 Fax: 0161 819 5070

DRAWN as	DATE 10.2014	SCALES 1:1000
CHECKED	DATE	THE ABOVE SCALES APPLY WHEN PLOTTED AT A3 SIZE
APPRVD.	DATE	EMAIL FOR DRAWINGS drawings@rocconsulting.com

CLIENT
Allied London

PROJECT TITLE
ST JOHN'S
VILLAGE PHASE 2
& RIVERSIDE SITES

DRAWING TITLE
APPROX
CANAL RELATED
FEATURES

PROJECT No.	DRAWING No.	REV.
3233	ES01	S1

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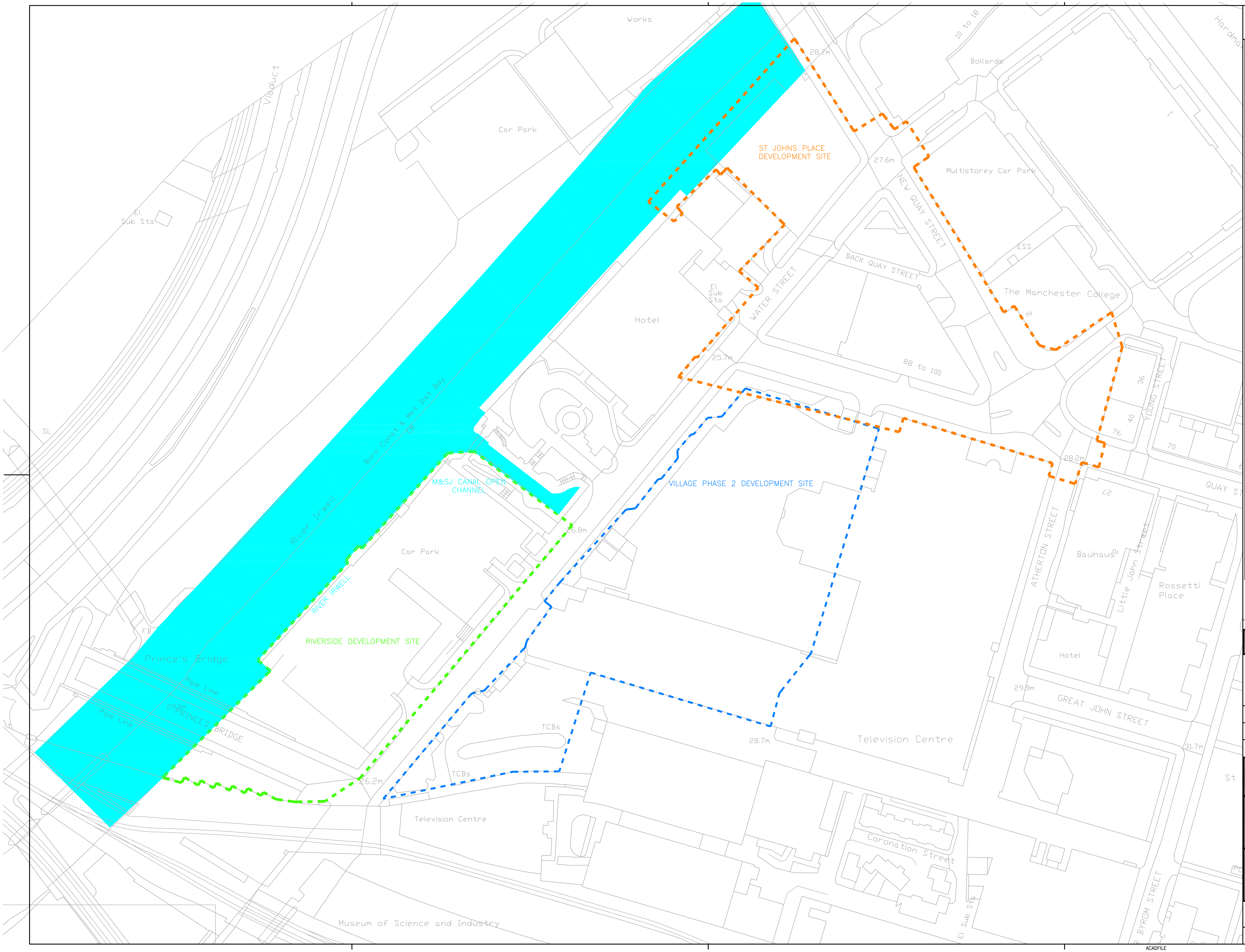
RoC Consulting

ACADFILE
PLOT DATE: PLOTDATE


Works
Car Park
Viaduct
El Sub Sta
SL
28.7m
10 to 18
Bollards
Hardman
ST JOHNS PLACE DEVELOPMENT SITE
27.6m
Multistorey Car Park
NEW QUAY STREET
BACK QUAY STREET
ESS
El Sub Sta
Hotel
WATER STREET
The Manchester College
25.7m
88 to 100
36
40
76
YOUNG STREET
70
28.2m
Boro Const & Met Dist Bdy
CR
River Irwell
M&SJ CANAL OPEN CHANNEL
VILLAGE PHASE 2 DEVELOPMENT SITE
QUAY ST
27
26.8m
ATHERTON STREET
Bauhaus
Little John Street
Rossetti Place
Car Park
RIVER IRWELL
FB
RIVERSIDE DEVELOPMENT SITE
Prince's Bridge
Pipe Line
29.8m
PRINCES BRIDGE
Pipe Line
Hotel
29.9m
GREAT JOHN STREET
TCBs
28.7m
Television Centre
31.7m
TCBs
26.2m
St
Television Centre
Coronation Street
BYROM STREET
El Sub Sta
Museum of Science and Industry
N

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NOTES

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—	APPROX VILLAGE PHASE 2 DEVELOPMENT BOUNDARY
—	APPROX ST JOHNS PLACE DEVELOPMENT BOUNDARY
▨	APPROX EXISTING BUILDING FOOTPRITNT
▦	INFILLED CANAL RELATED FEATURE
▦	EXISTING CANAL TUNNELS
■	RIVER IRWELL

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2) THE LOCATION AND EXTENT OF HISTORICAL FEATURES HAS BEEN CONJECTURED FROM MAP RECORDS AND SHOULD BE CONSIDERED AS APPROXIMATE

REV.	DATE	DETAILS	DRN.	CHK.

DRAWING STATUS
INFORMATION

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Civil & Structural Engineers
81 Chapel Street, Salford, M3 5DF
Tel: 0161 833 3794 Fax: 0161 819 5070

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CHECKED	DATE	THE ABOVE SCALES APPLY WHEN PLOTTED AT A3 SIZE
APPRVD.	DATE	EMAIL FOR DRAWINGS drawings@rocconsulting.com

CLIENT
AlliedLondon

PROJECT TITLE
ST JOHN'S
VILLAGE PHASE 2
& RIVERSIDE SITES

DRAWING TITLE
APPROX
DEVELOPMENT
BOUNDARY PLANS

PROJECT No.	DRAWING No.	REV.
3233	ES02	S1

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ACADFILE

PLOT DATE: PLOTDATE

APPENDIX A.3 – ST JOHN’S PLACE PROPOSED DEVELOPMENT PLANS

26.68
25.70
26.62
26.53
26.03
26.42
26.56
26.36
26.66
27.07
27.15
28.20
28.49
28.87
27.2m
1:10 RAMP
1:12 RAMP
1:6 RAMP
Retail Unit 37sqm / 400sqft
Retail Unit 26sqm / 282sqft
Retail Unit 32sqm / 339sqft
Retail Unit 22sqm / 232sqft
Retail Refuse
Lobby (Public)
Retail Unit 27sqm / 290sqft
Resi / Work Refuse
Retail Unit 22sqm / 232sqft
Accessible W/C
Retail Unit 22sqm / 232sqft
Lobby (Workspace)
Lobby (Residential)
Cafe / Restaurant Unit 50sqm / 541sqft
Retail Unit 35sqm / 375sqft
Retail Unit 18sqm / 190sqft
Retail Unit 18sqm / 190sqft
Retail Unit 35sqm / 372sqft
Retail Unit 18sqm / 189sqft
Kitchen
Accessible W/C
Retail Refuse
Resi / Work Refuse
Lobby (Workspace)
Lobby (Residential)
Cafe / Restaurant Unit 69sqm / 740sqft
Cafe / Restaurant Unit 89sqm / 963sqft
Retail Refuse
Resi / Work Refuse
Cycle Hub 188sqm / 2022sqft
Lobby (Residential)
Lobby (Workspace)
Retail Unit 24sqm / 259sqft
Retail Unit 24sqm / 259sqft
Retail Unit 24sqm / 259sqft
Retail Unit 24sqm / 259sqft
Kitchen
Accessible W/C
Substation
Cafe/Restaurant Unit 35sqm / 372sqft
Retail Unit 29sqm / 311sqft
Residential Entrance
Residential reception
Refuse
Substation
Switch room
Restaurant Entrance
Residential entrance
Lobby (Workspace)
Cafe / Restaurant Unit 71sqm / 762sqft
Lobby (Residential)
Retail Unit 54sqm / 579sqft
Retail Unit 47sqm / 508sqft
Retail Unit 18sqm / 198sqft
Retail Refuse
Resi / Work Refuse
Retail Unit 47sqm / 508sqft
Lobby (Workspace)
Cafe / Restaurant Unit 71sqm / 762sqft
Lobby (Residential)
Retail Unit 44sqm / 471sqft
Retail Unit 47sqm / 508sqft
Lobby (Public)
Retail Unit 28sqm / 303sqft
Lobby (Residential)
Resi / Work Refuse
Cafe / Restaurant Unit 53sqm / 569sqft
Lobby (Workspace)
Retail Refuse
Retail Unit 22sqm / 242sqft
Retail Unit 35sqm / 375sqft
Retail Unit 35sqm / 375sqft
Retail Unit 36sqm / 387sqft
LOBBY 49.6 m2
Retail Unit 18sqm / 190sqft
Retail Unit 80.2 m2
Retail Unit 63.8 m2
Sub Station 19.6 m2
Retail Unit 66.7 m2
Retail Unit 37.9 m2
Retail Unit 56.7 m2
Retail Unit 41.3 m2

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Key
☐ 1 Bedroom
☐ 2 Bedroom
☐ 3 Bedroom
☐ Lateral Living
☐ Office / Workspace
☐ Retail
☐ Private Balcony
P Private Roof Garden

Rev	Date	Description	Rev	Date	Description	Rev	Date	Description
06	31-07-2015	Planning Issue						

North

Project Title
Village Phase 2

Drawing Title
Village Phase 2 - Ground Floor

Status
FOR PLANNING

Scale
1:500 @A3 1:250@ A1

Date
MAY 2015

Job No
7340

Drawing No
7340-A-VP2-G200-P-00-001

Revision
06

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601
606
605
602
T1
R1
603
604
607
607
T2
R2
Phase 2 Extents
Phase 2 Extents
(Beyond)
*Tower part of
seperate application
FFL Level 08
+28.285m (54.885m AOD)
FFL Level 07
+24.910m (51.510m AOD)
FFL Level 06
+21.535m (48.135m AOD)
FFL Level 05
+18.160m (44.760m AOD)
FFL Level 04
+14.785m (41.385m AOD)
FFL Level 03
+11.260m (37.860m AOD)
FFL Level 02
+07.735m (34.335m AOD)
FFL Level 01
+04.210m (30.810m AOD)
FFL Level G
+00.00m (26.6m AOD)
+27.2m
FFL Level B1
-03.860m (22.740m AOD)
FFL Level B2
-06.920m (19.680m AOD)
FFL Level 09
+31.810m (58.410m AOD)
FFL Level 08
+28.435m (55.035m AOD)
FFL Level 07
+25.060m (51.660m AOD)
FFL Level 06
+21.685m (48.285m AOD)
FFL Level 05
+18.310m (44.910m AOD)
FFL Level 04
+14.785m (41.385m AOD)
FFL Level 03
+11.260m (37.860m AOD)
FFL Level 02
+07.735m (34.335m AOD)
FFL Level 01
+04.210m (30.810m AOD)
FFL Level G
+00.00m (26.6m AOD)
FFL Level B1
-03.860m (22.740m AOD)
FFL Level B2
-06.920m (19.680m AOD)
FFL Level 07
+28.200m (54.800m AOD)
FFL Level 06
+24.500m (51.100m AOD)
FFL Level 05
+20.800m (47.400m AOD)
FFL Level 04
+17.100m (43.700m AOD)
FFL Level 03
+13.400m (40.000m AOD)
FFL Level 02
+9.700m (36.300m AOD)
FFL Level 01
+06.00m (32.600m AOD)
FFL Level Mezz
+02.400m (29.000m AOD)
FFL Level G
+00.00m (26.6m AOD)
FFL Level 05
FFL Level 04
FFL Level 03
FFL Level 02
FFL Level 01
FFL Level UG
26.175
+26.175m
FFL Level LG
(26.175m AOD)
St John's Place (Seperate Application)
Quay st
Block 601
Block 602
Block 603
Block 607
Grape st
Grape st
Bonded Warehouse
Bonded Warehouse
Datum 0.00m

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Key
🟥 1 Bedroom
🟨 2 Bedroom
▨ 3 Bedroom
🟧 Lateral Living
🟦 Office / Workspace
🟪 Retail
▨ Private Balcony
P Private Roof Garden

Rev	Date	Description	Rev	Date	Description	Rev	Date	Description
02	31-07-2015	Planning Issue						

North

Project Title
Village Phase 2

Drawing Title
Section AA

Status
For Planning

Scale
1:250 @ A1

Date
JULY 15

Job No
7340

Drawing No
7340-A-VP2-G200-S-AA

Revision
02

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Parking Spaces - 301

Rev	Date	Description	Rev	Date	Description	Rev	Date	Description
05	31-07-2015	Planning Issue						

North

Project Title
Village Phase 2

Drawing Title
Village Phase 2 - Basement Level 1

Status
FOR PLANNING

Scale
1:500 @A3 1:250@ A1

Date
June 2015

Job No
7340

Drawing No
7340-A-G200-P-B1-001

Revision
05

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Restaurant
268 m2
Cloakroom
Bar
Store
Kitchen
FF
1200
6350
7950
A
B
C
D
9350
8750
9150
8750
9350
1
2
3
4
5
6

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Rev	Date	Description	Rev	Date	Description	Rev	Date	Description
-	08/07/2015	First Issue						
A	24/07/2015	General update						

North

Project Title
Village Phase 2
Riverside - Tower 1

Drawing Title
First Floor Plan - General Arrangement

Status
PLANNING

Scale
1:200 @ A3 1:100 @ A1

Date
JULY 2015

Job No
7340

Drawing No
7340-R1-A-G200-P-01-001

Revision
A

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+44 (0)20 7549 4000

mail@simpsonhaugh.com

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Restaurant
268 m2
Cloakroom
Bar
Store
Kitchen
FF
1200
6350
7950
A
B
C
D
9350
8750
9150
8750
9350
1
2
3
4
5
6

SIMPSONHAUGH AND PARTNERS LLP

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Contractor to report any dimensional discrepancies, errors
or omissions prior to commencing on site.

Rev	Date	Description	Rev	Date	Description	Rev	Date	Description
-	08/07/2015	First Issue						
A	24/07/2015	General update						

North

Project Title
Village Phase 2
Riverside - Tower 1

Drawing Title
First Floor Plan - General Arrangement

Status
PLANNING

Scale
1:200 @ A3 1:100 @ A1

Date
JULY 2015

Job No
7340

Drawing No
7340-R1-A-G200-P-01-001

Revision
A

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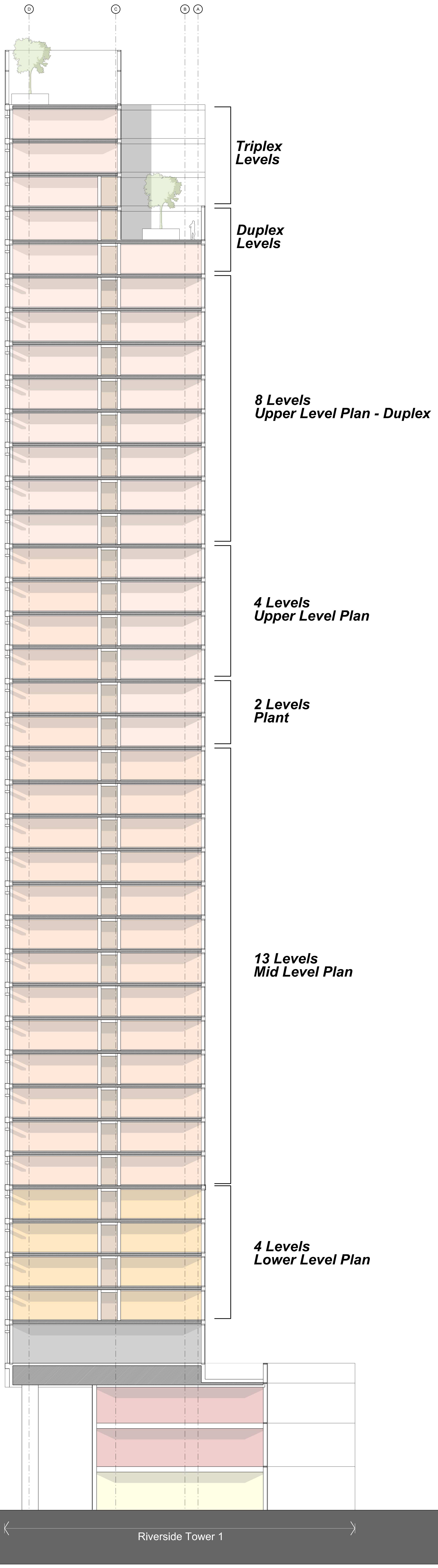
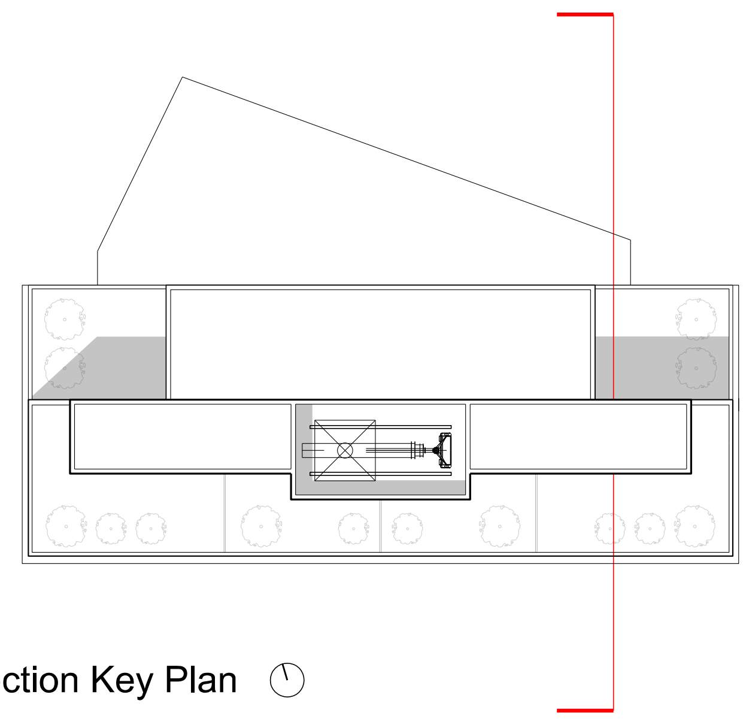
BMU	**Roof**	134200	160800	AOD
	Level 40	129100	155556	AOD
Penthouse Levels	**Level 39**	126000	152600	AOD
	Level 38	122900	149500	AOD
	Level 37	119800	146400	AOD
Residential Levels	**Level 36**	116700	143300	AOD
	Level 35	113600	140200	AOD
	Level 34	110500	137100	AOD
	Level 33	107400	134000	AOD
	Level 32	104300	130900	AOD
	Level 31	101200	127800	AOD
	Level 30	98100	124700	AOD
	Level 29	95000	121600	AOD
	Level 28	91900	118500	AOD
	Level 27	88800	115400	AOD
	Level 26	85700	112300	AOD
	Level 25	82600	109200	AOD
	Level 24	79500	106100	AOD
	Level 23	76400	103000	AOD
	Level 22	73300	99900	AOD
	Level 21	70200	96800	AOD
	Level 20	67100	93700	AOD
	Level 19	64000	90600	AOD
	Level 18	60900	87500	AOD
	Level 17	57800	84400	AOD
	Level 16	54700	81300	AOD
	Level 15	51600	78200	AOD
	Level 14	48500	75100	AOD
	Level 13	45400	72000	AOD
	Level 12	42300	68900	AOD
	Level 11	39200	65800	AOD
	Level 10	36100	62700	AOD
	Level 09	33000	59600	AOD
	Level 08	29900	56500	AOD
	Level 07	26800	53400	AOD
	Level 06	23700	50300	AOD
	Level 05	20600	47200	AOD
	Level 04	17500	44100	AOD
Plant	**Level 03**	13500	40100	AOD
Amenity	**Level 02**	8000	34600	AOD
Restaurant	**Level 01**	4000	30600	AOD
Entrance Lobby	**Level 00**	0	26600	AOD





NOTE:

- ▨ Residential Entrance
- ▨ Restaurant
- ▨ Plant
- ▨ 1 Bed Apartment
- ▨ 2 Bed Apartment
- ▨ 3 Bed Apartment

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Rev	Date	Description
-	02/07/2015	First Issue
A	21/07/2015	Unit mix updated

North

Project Title
St John's Masterplan
Riverside
Tower 1

Drawing Title
RIVERSIDE TOWER 1 - SECTION AA

Status
PLANNING

Scale
@A1 - 1:200

Scale
@A3 - 1:400

Job No
7340

Date
JULY 2015

Drawing No
7340-R1-A-G200-S-AA

Revision
A

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Residential entrance
Restaurant entrance
Post
Residential reception
Refuse store
Switchroom
Substation
Restaurant lower
Cycle store (198no. spaces)
A
B
C
D
1200
6350
7950
9350
8600
8600
8600
9350
1
2
3
4
5
6

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-	02/07/2015	First Issue						
A	24/07/2015	Landscaping updated						

North

Project Title
Village Phase 2
Riverside - Tower 2

Drawing Title
Ground Floor Plan - General Arrangement

Status
PLANNING

Scale
1:200 @ A3 1:100 @ A1

Date
JULY 2015

Job No
7340

Drawing No
7340-R2-A-G200-P-00-001

Revision
A

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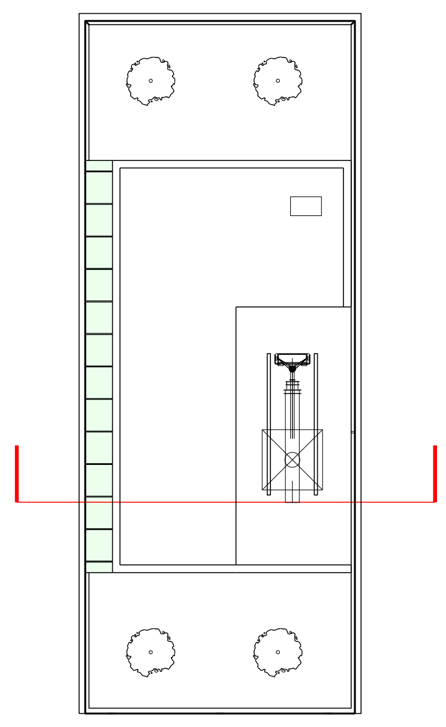
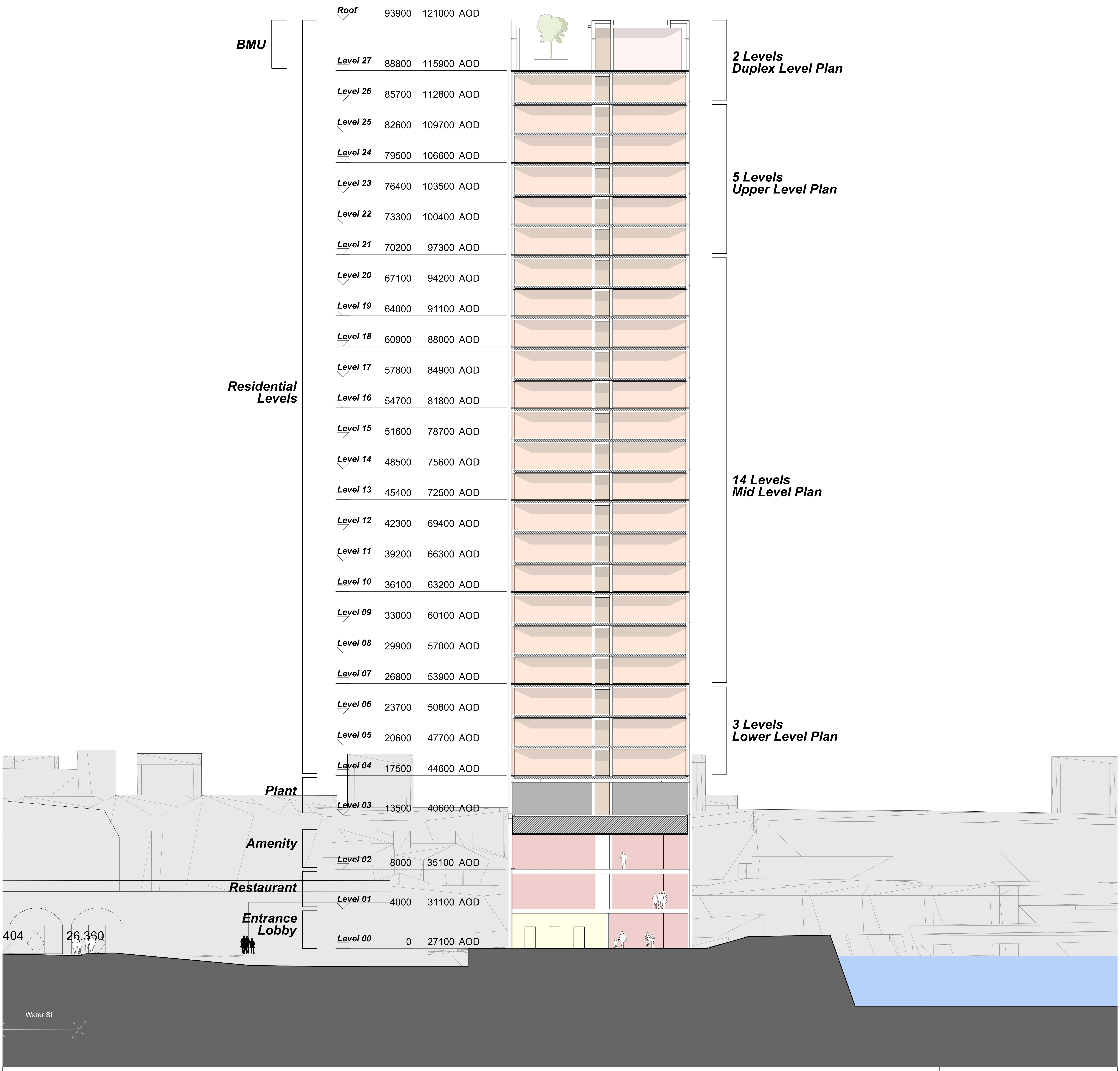


Key Plan


Roof 93900 121000 AOD
BMU
2 Levels
Duplex Level Plan
Level 27 88800 115900 AOD
Level 26 85700 112800 AOD
Level 25 82600 109700 AOD
Level 24 79500 106600 AOD
5 Levels
Upper Level Plan
Level 23 76400 103500 AOD
Level 22 73300 100400 AOD
Level 21 70200 97300 AOD
Level 20 67100 94200 AOD
Level 19 64000 91100 AOD
Level 18 60900 88000 AOD
Level 17 57800 84900 AOD
Residential
Levels
Level 16 54700 81800 AOD
Level 15 51600 78700 AOD
Level 14 48500 75600 AOD
14 Levels
Mid Level Plan
Level 13 45400 72500 AOD
Level 12 42300 69400 AOD
Level 11 39200 66300 AOD
Level 10 36100 63200 AOD
Level 09 33000 60100 AOD
Level 08 29900 57000 AOD
Level 07 26800 53900 AOD
Level 06 23700 50800 AOD
3 Levels
Lower Level Plan
Level 05 20600 47700 AOD
Level 04 17500 44600 AOD
Plant
Level 03 13500 40600 AOD
Amenity
Level 02 8000 35100 AOD
Restaurant
Level 01 4000 31100 AOD
Entrance
Lobby
404
26.360
Level 00 0 27100 AOD
Water St

NOTE:

🟨	Residential Entrance	🟧	1 Bed Apartment
🟥	Restaurant	🟧	2 Bed Apartment
⬜	Plant	🟧	3 Bed Apartment

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Rev	Date	Description
-	27/07/2015	First issue

North

Project Title
St John's Masterplan
Riverside
Tower 2

Drawing Title
RIVERSIDE TOWER 2 - SECTION AA

Scale
@A1 - 1:200

Scale
@A3 - 1:400

Job No
7340

Date
JULY 2015

Status
PLANNING

Drawing No
7340-R2-A-G200-S-AA

Revision
-

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22sqm / 232sqft
Lobby (Residential)
Lobby (Workspace)
Cafe / Restaurant Unit
71sqm / 762sqft
Retail Unit
47sqm / 508sqft
Retail Ur
18sqm / 198
Cafe / Restaurant Unit
71sqm / 762sqft
Retail Unit
47sqm / 508sqft
Lobby (Public
LOBBY
49.6 m2
403 m2
4,338 sqft
6
5
4
3
2
1
9350
8600
8600
8600
9350
D
C
B
A
7950
6350
1200
Residential Entrance
Residential reception
Refuse
Switch room
Substation
Restaurant Entrance
26.42
WATER STREET

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Rev	Date	Description	Rev	Date	Description	Rev	Date	Description
-	08/07/2015	First Issue						
A	24/07/2015	Substation and switchroom added						

North

Project Title
Village Phase 2
Tower 1

Drawing Title
Ground Floor Plan - General Arrangement

Status
PLANNING

Scale
1:200 @ A3 1:100 @ A1

Date
JULY 2015

Job No
7340

Drawing No
7340-T1-A-G200-P-00-001

Revision
A

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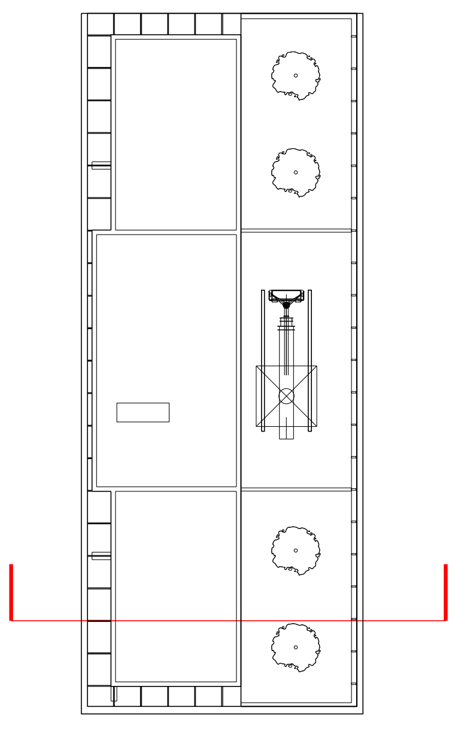
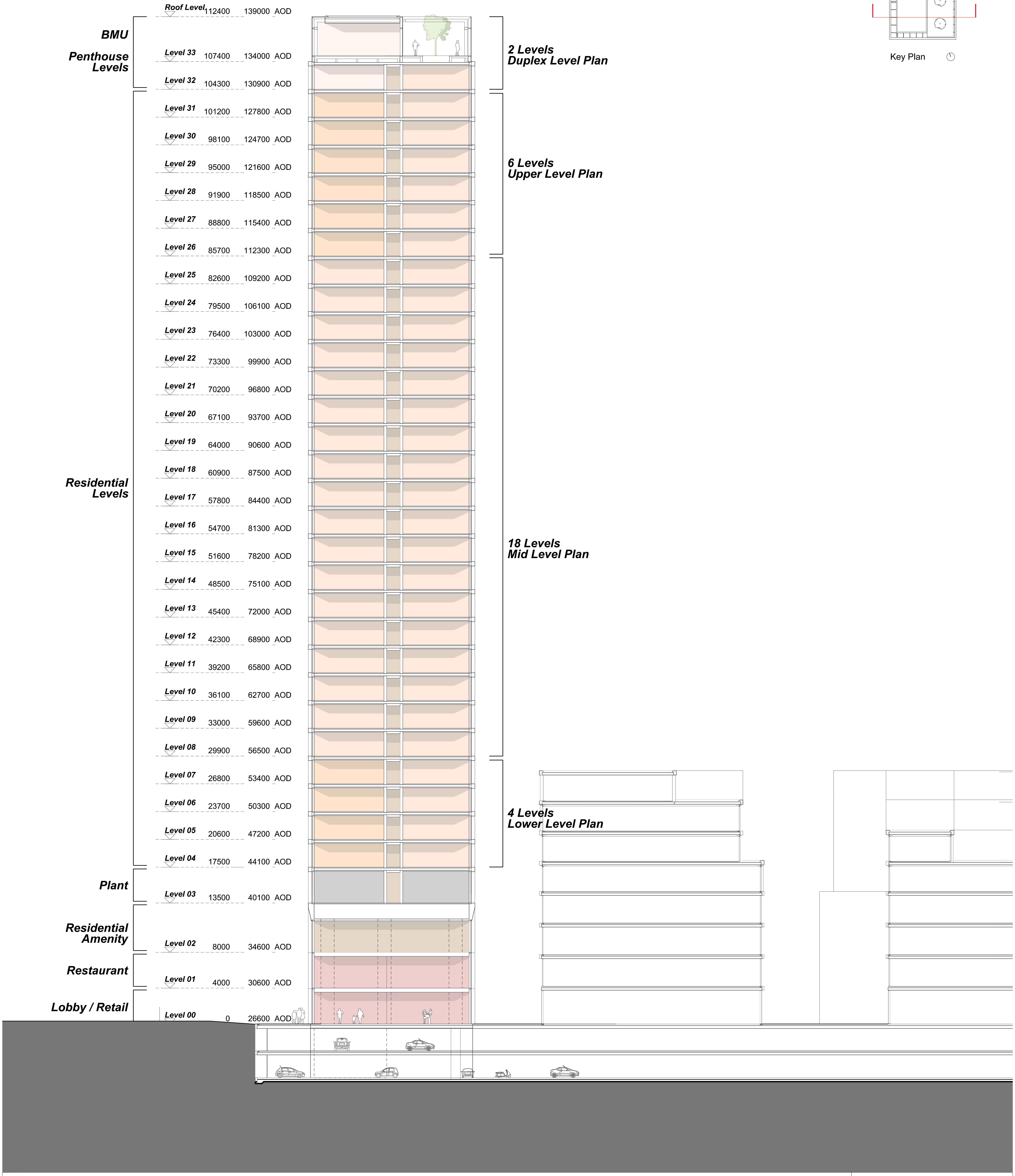


Key Plan


BMU
Penthouse Levels
Residential Levels
Plant
Residential Amenity
Restaurant
Lobby / Retail
Roof Level 112400 139000 AOD
Level 33 107400 134000 AOD
Level 32 104300 130900 AOD
Level 31 101200 127800 AOD
Level 30 98100 124700 AOD
Level 29 95000 121600 AOD
Level 28 91900 118500 AOD
Level 27 88800 115400 AOD
Level 26 85700 112300 AOD
Level 25 82600 109200 AOD
Level 24 79500 106100 AOD
Level 23 76400 103000 AOD
Level 22 73300 99900 AOD
Level 21 70200 96800 AOD
Level 20 67100 93700 AOD
Level 19 64000 90600 AOD
Level 18 60900 87500 AOD
Level 17 57800 84400 AOD
Level 16 54700 81300 AOD
Level 15 51600 78200 AOD
Level 14 48500 75100 AOD
Level 13 45400 72000 AOD
Level 12 42300 68900 AOD
Level 11 39200 65800 AOD
Level 10 36100 62700 AOD
Level 09 33000 59600 AOD
Level 08 29900 56500 AOD
Level 07 26800 53400 AOD
Level 06 23700 50300 AOD
Level 05 20600 47200 AOD
Level 04 17500 44100 AOD
Level 03 13500 40100 AOD
Level 02 8000 34600 AOD
Level 01 4000 30600 AOD
Level 00 0 26600 AOD
2 Levels Duplex Level Plan
6 Levels Upper Level Plan
18 Levels Mid Level Plan
4 Levels Lower Level Plan

NOTE:

■	Residential Entrance	■	1 Bed Apartment
■	Restaurant	■	2 Bed Apartment
■	Plant	■	3 Bed Apartment

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Rev	Date	Description
-	08/07/2015	First Issue
A	27/07/2015	General update

North

Project Title
St John's Masterplan
Village Phase 2
Tower 1

Drawing Title
VILLAGE TOWER 1 - SECTION AA

Status
PLANNING

Scale	Scale
@A1 - 1:200	@A3 - 1:400

Job No	Date
7340	JULY 2015

Drawing No	Revision
7340-T1-A-G200-S-AA	A

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Residential Entrance
Residential Reception
Post
Substation
Switchroom
Cycle store
Refuse store
Restaurant Lower
Restaurant Entrance
1200
6350
7950
A
B
C
D
9350
8600
8600
8600
9350
6
5
4
3
2
1

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-	02/07/2015	First Issue						
A	24/07/2015	Core position updated						

North

Project Title
Village Phase 2
Village - Tower 2

Drawing Title
Ground Floor Plan - General Arrangement

Status
PLANNING

Scale
1:200 @ A3 1:100 @ A1

Date
JULY 2015

Job No
7340

Drawing No
7340-T2-A-G200-P-00-001

Revision
A

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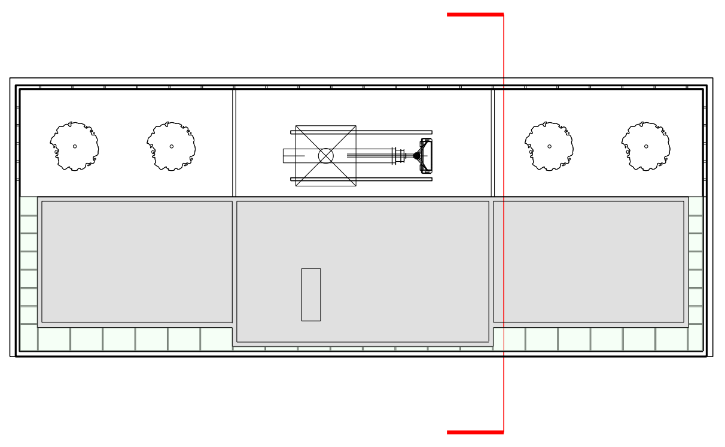
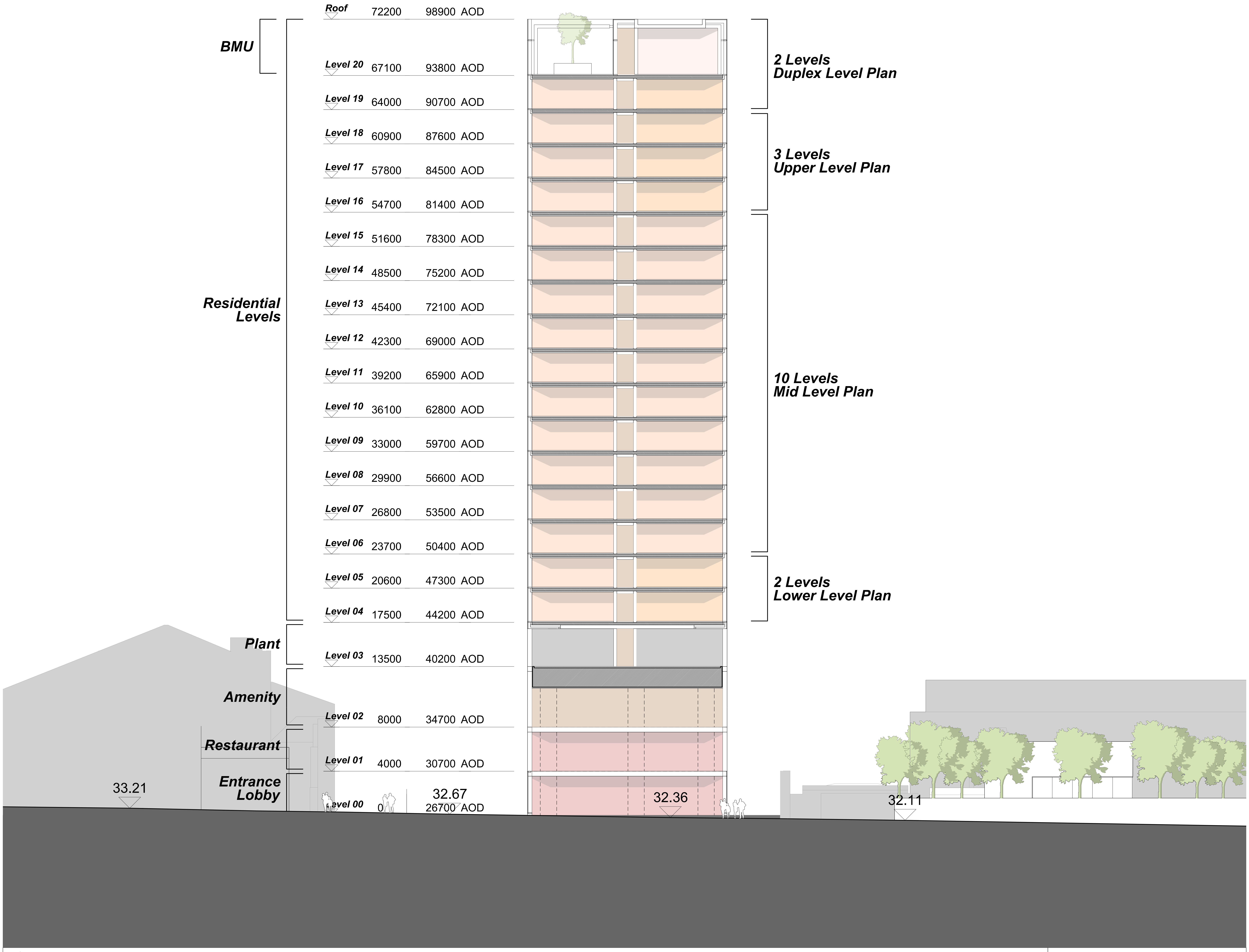


Key Plan


BMU
Residential Levels
Plant
Amenity
Restaurant
Entrance Lobby
Roof 72200 98900 AOD
Level 20 67100 93800 AOD
Level 19 64000 90700 AOD
Level 18 60900 87600 AOD
Level 17 57800 84500 AOD
Level 16 54700 81400 AOD
Level 15 51600 78300 AOD
Level 14 48500 75200 AOD
Level 13 45400 72100 AOD
Level 12 42300 69000 AOD
Level 11 39200 65900 AOD
Level 10 36100 62800 AOD
Level 09 33000 59700 AOD
Level 08 29900 56600 AOD
Level 07 26800 53500 AOD
Level 06 23700 50400 AOD
Level 05 20600 47300 AOD
Level 04 17500 44200 AOD
Level 03 13500 40200 AOD
Level 02 8000 34700 AOD
Level 01 4000 30700 AOD
Level 00 0 26700 AOD
2 Levels Duplex Level Plan
3 Levels Upper Level Plan
10 Levels Mid Level Plan
2 Levels Lower Level Plan
33.21
32.67
32.36
32.11

NOTE:

- Residential Entrance
- Restaurant
- Plant
- 1 Bed Apartment
- 2 Bed Apartment
- 3 Bed Apartment

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Rev	Date	Description
-	27/07/2015	First issue

North

Project Title
St John's Masterplan
Village
Tower 2

Drawing Title
VILLAGE TOWER 2 - SECTION AA

Status
PLANNING

Scale
@A1 - 1:200

Scale
@A3 - 1:400

Job No
7340

Date
JULY 2015

Drawing No
7340-T2-A-G200-S-AA

Revision
-

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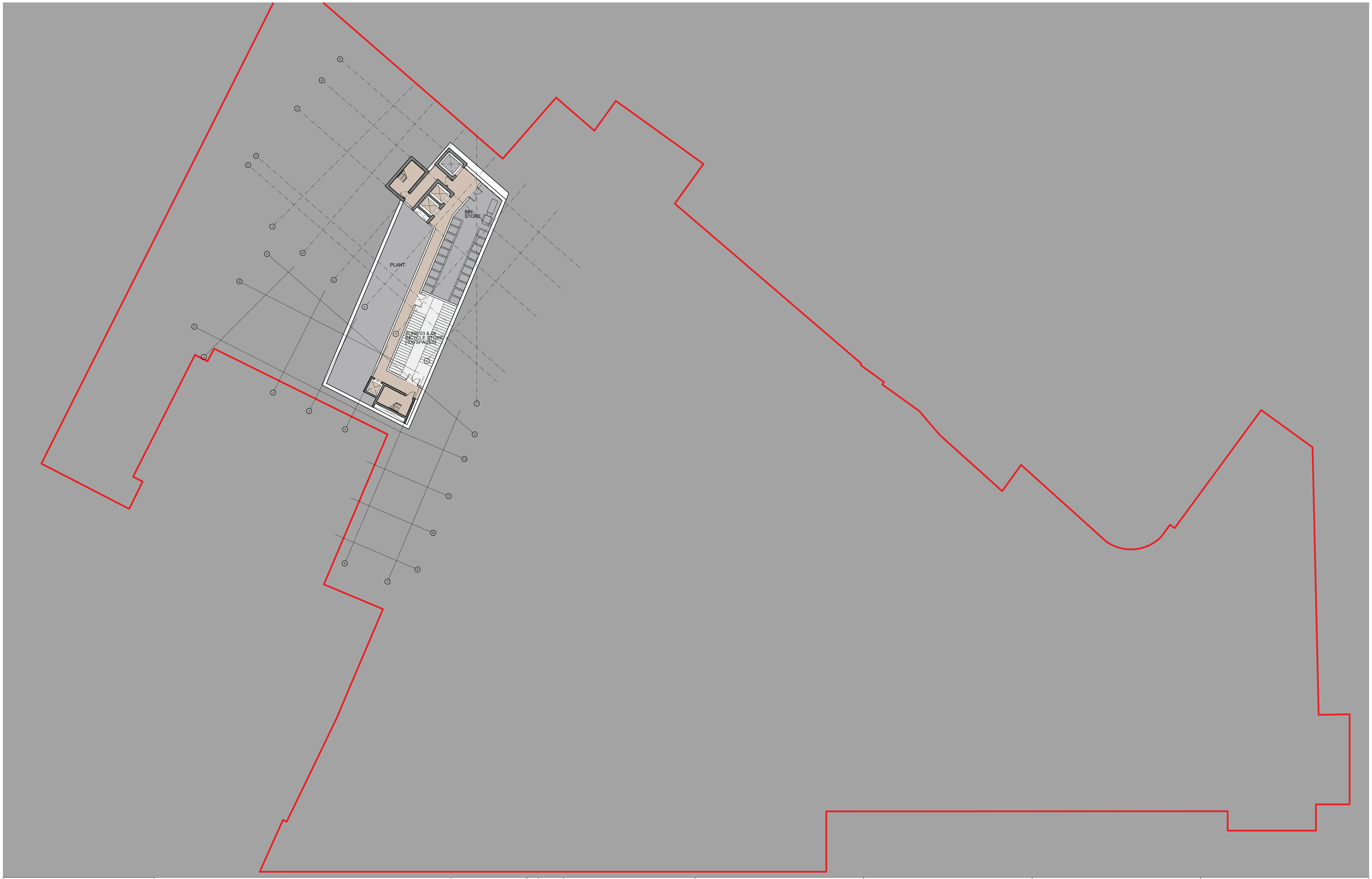
APPENDIX A.2 – VILLAGE PHASE 2 AND RIVERSIDE PROPOSED DEVELOPMENT PLANS



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NOTE:
BASEMENT A.O.D LEVELS SHOWN INDICATIVELY

NORTH

Rev	Date	Description

Project Title
ST. JOHN'S PLACE
MANCHESTER

Status
PLANNING

Drawing Title
BASEMENT LEVEL 02

Job No	Scale	Date
7326	1:250 @A1	06/07/2015

Drawing No	Revision
7326-A-MP-G100-P-B2-099	

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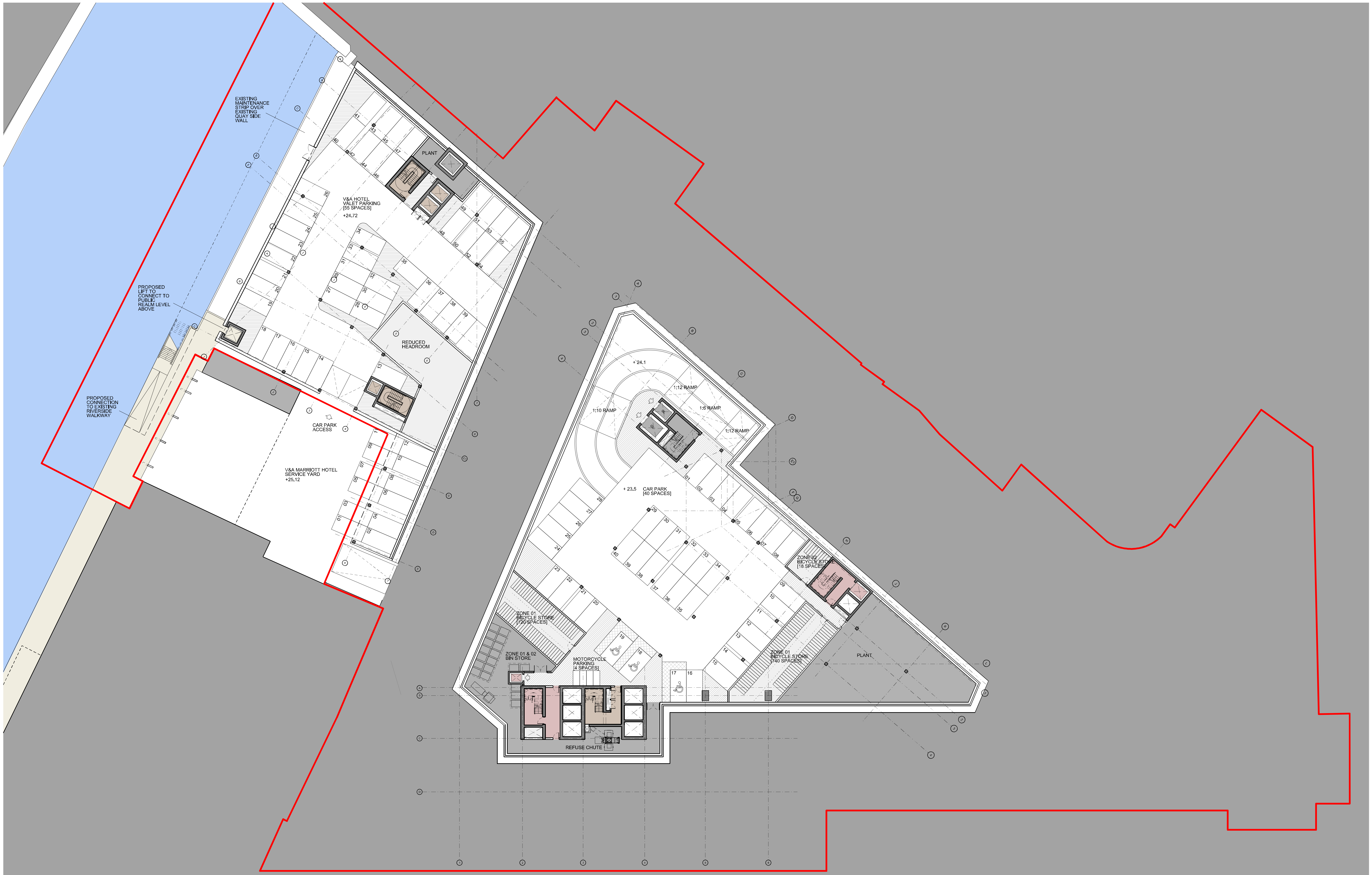
EXISTING MAINTENANCE STRIP OVER EXISTING QUAY SIDE WALL
PROPOSED LIFT TO CONNECT TO PUBLIC REALM LEVEL ABOVE
PROPOSED CONNECTION TO EXISTING RIVERSIDE WALKWAY
PLANT
V&A HOTEL VALET PARKING [55 SPACES]
+24.72
REDUCED HEADROOM
CAR PARK ACCESS
V&A MARRIOTT HOTEL SERVICE YARD
+25.12
+24.1
1:12 RAMP
1:10 RAMP
1:8 RAMP
1:12 RAMP
+ 23.5
CAR PARK [40 SPACES]
ZONE 02 BICYCLE STORE [18 SPACES]
ZONE 01 BICYCLE STORE [120 SPACES]
ZONE 01 & 02 BIN STORE
MOTORCYCLE PARKING [4 SPACES]
ZONE 01 BICYCLE STORE [140 SPACES]
PLANT
REFUSE CHUTE

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NOTE:
BASEMENT A.O.D LEVELS SHOWN INDICATIVELY

NORTH

Rev	Date	Description

Project Title
ST. JOHN'S PLACE
MANCHESTER

Drawing Title
BESEMENT LEVEL 01

Job No
7326

Scale
1:250 @A1

Date
06/07/2015

Status
PLANNING

Drawing No
7326-A-MP-G100-P-B1-099

Revision

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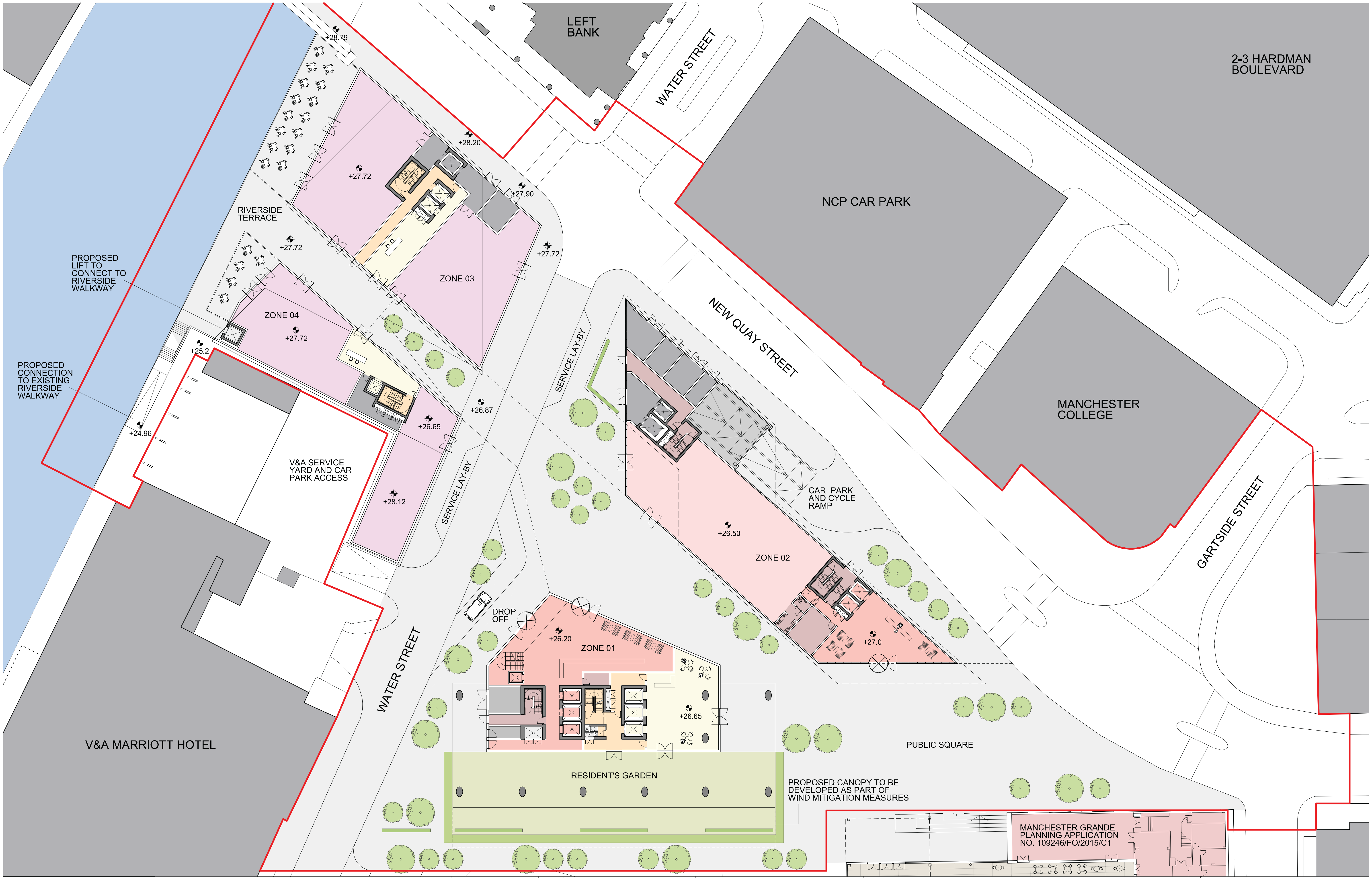
LEFT BANK
WATER STREET
2-3 HARDMAN BOULEVARD
+28.79
+28.20
+27.72
+27.90
NCP CAR PARK
RIVERSIDE TERRACE
+27.72
+27.72
ZONE 03
PROPOSED LIFT TO CONNECT TO RIVERSIDE WALKWAY
ZONE 04
+27.72
NEW QUAY STREET
+25.2
SERVICE LAY-BY
PROPOSED CONNECTION TO EXISTING RIVERSIDE WALKWAY
+26.87
+26.65
MANCHESTER COLLEGE
+24.96
V&A SERVICE YARD AND CAR PARK ACCESS
CAR PARK AND CYCLE RAMP
SERVICE LAY-BY
+28.12
+26.50
GARTSIDE STREET
ZONE 02
DROP OFF
+26.20
ZONE 01
+27.0
WATER STREET
+26.65
V&A MARRIOTT HOTEL
PUBLIC SQUARE
RESIDENT'S GARDEN
PROPOSED CANOPY TO BE DEVELOPED AS PART OF WIND MITIGATION MEASURES
MANCHESTER GRANDE PLANNING APPLICATION NO. 109246/FO/2015/C1

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NOTE:
ILLUSTRATIVE LANDSCAPE PROPOSALS

NORTH

Rev	Date	Description

Project Title
ST. JOHN'S PLACE
MANCHESTER

Status
PLANNING

Drawing Title
MASTERPLAN GROUND LEVEL

Job No	Scale	Date
7326	1:250 @A1	06/07/2015

Drawing No	Revision
7326-A-MP-G100-P-00-099	

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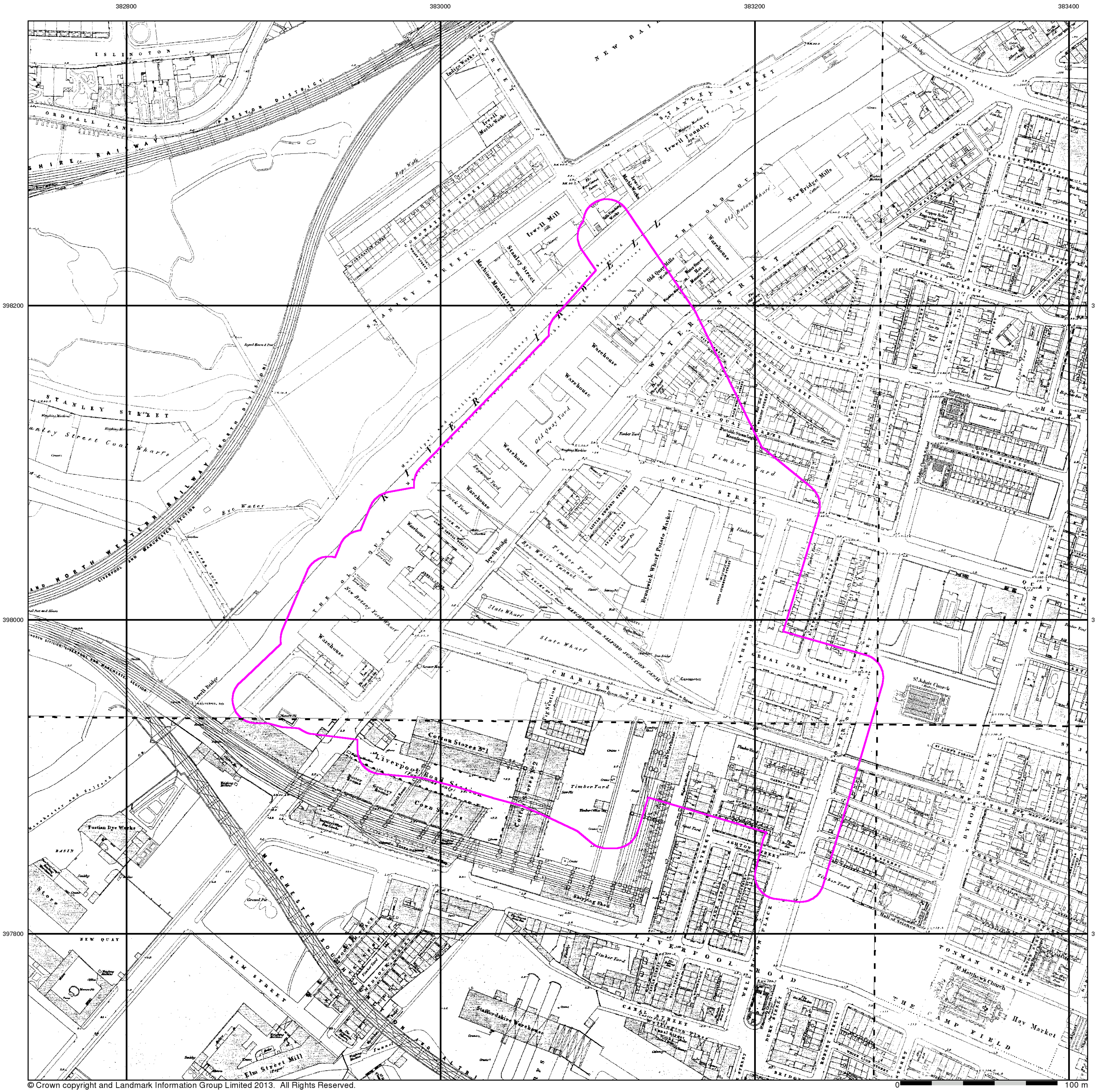
APPENDIX B - HISTORICAL MAPS


382800
383000
383200
383400
398200
398000
397800
ISLINGTON
ORDSALL LANE
PRESTON DISTRICT
SHIRE RAILWAY
NEW BAILEY
STANLEY STREET
Irwell Foundry
New Bridge Mills
THE OLD QUAY
Irwell Mill
Stanley Street
RIVER IRWELL
WATER STREET
Warehouse
Old Quay Yard
STANLEY STREET
Stanley Street Coal Wharfs
GRAND NORTH WESTERN RAILWAY
LIVERPOOL AND MANCHESTER SECTION
NORTH DIVISION
QUAY STREET
Timber Yard
Brunswick Wharf Potato Market
Irwell Bridge
Bye Water Tunnel
Slate Wharf
MANCHESTER AND SALFORD JUNCTION CANAL
GREAT JOHN STREET
CHARLES STREET
St. John's Church
Cotton Stores No 1
Liverpool Road Station
Corn Stores
Timber Yard
Fustian Dye Works
BASIN
Store
NEW QUAY
ELM STREET
Elm Street Mill
MANCHESTER AND ALTRINCHAM
LIVERPOOL ROAD
CANAL STREET
Staffordshire Warehouse
THE CAMP FIELD
TONMAN STREET
St. Matthew's Church
Hay Market
ALBERT BRIDGE
ALBERT PLACE
BYROM STREET
DEANSGATE
0
100 m

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RoC CONSULTING

Lancashire And Furness

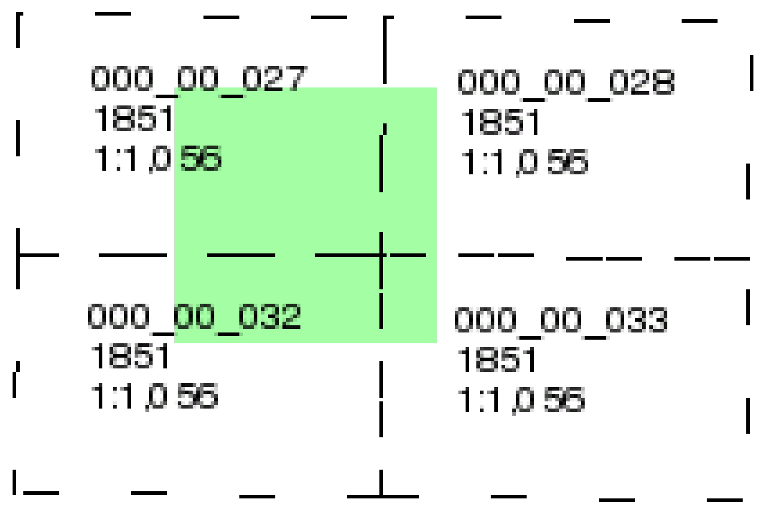
Published 1851

Source map scale - 1:1,056

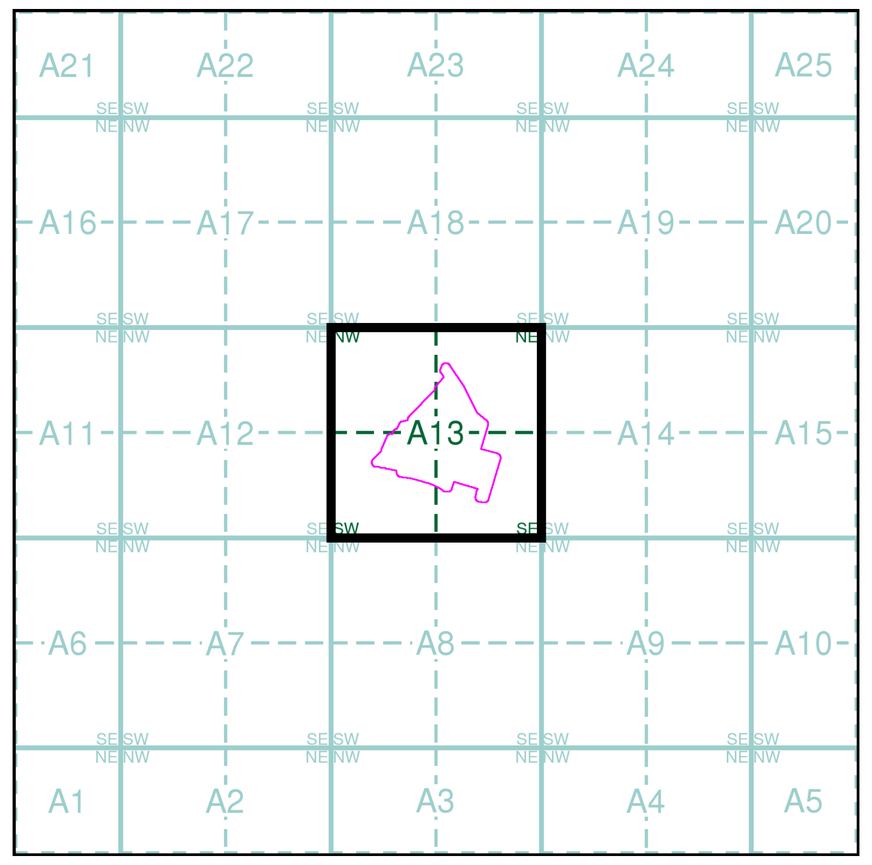
The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the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

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

Map Name(s) and Date(s)


000_00_027
1851
1:1,056
000_00_028
1851
1:1,056
000_00_032
1851
1:1,056
000_00_033
1851
1:1,056

Historical Town Plan - Segment A13


A21
A22
A23
A24
A25
A16
A17
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A20
A11
A12
A13
A14
A15
A6
A7
A8
A9
A10
A1
A2
A3
A4
A5
N

Order Details

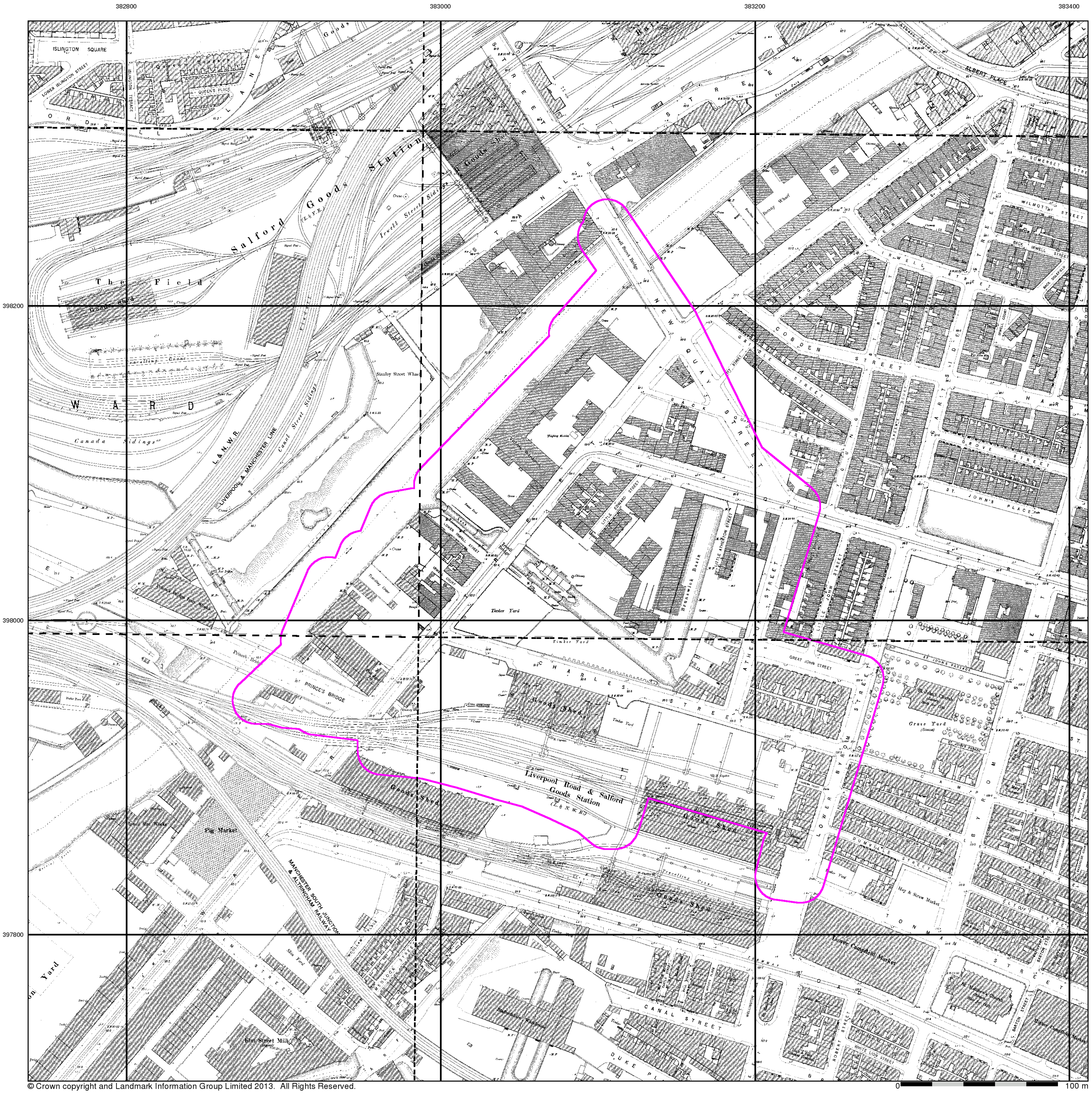
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	0

Site Details

Water Street, Manchester, M3 4JQ

Landmark
Information Group

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



382800
383000
383200
383400
398200
398000
397800
Islington Square
Queen's Place
Salford Goods Station (L.&Y.R.)
Irwell Street Sidings
The Field
Goods Shed
Stanley Street Wharf
Ward
Canada Sidings
Canal Street Sidings
L.&N.W.R.
Liverpool & Manchester Line
New Bailey Street
Trafford Bridge
Albert Place
Bonney Wharf
Cobden Street
New Quay Street
Back Quay Street
Little Atherton Street
Atherton Street
Great John Street
St. John's Place
Grove Street
Wilmott Street
Tanner Yard
Timber Yard
Princes Bridge
Charles Street
Goods Shed
Liverpool Road & Salford Goods Station (L.&N.W.R.)
Grave Yard
St. John's Passage
Lower Byrom Street
Byrom Street
Hay & Straw Market
Pig Market
Manchester South Junction & Altrincham Railway
Canal Street
Lower Campfield Market
Duke Place
Elm Street Mill
0
100 m

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RoC CONSULTING

Lancashire And Furness

Published 1891

Source map scale - 1:500

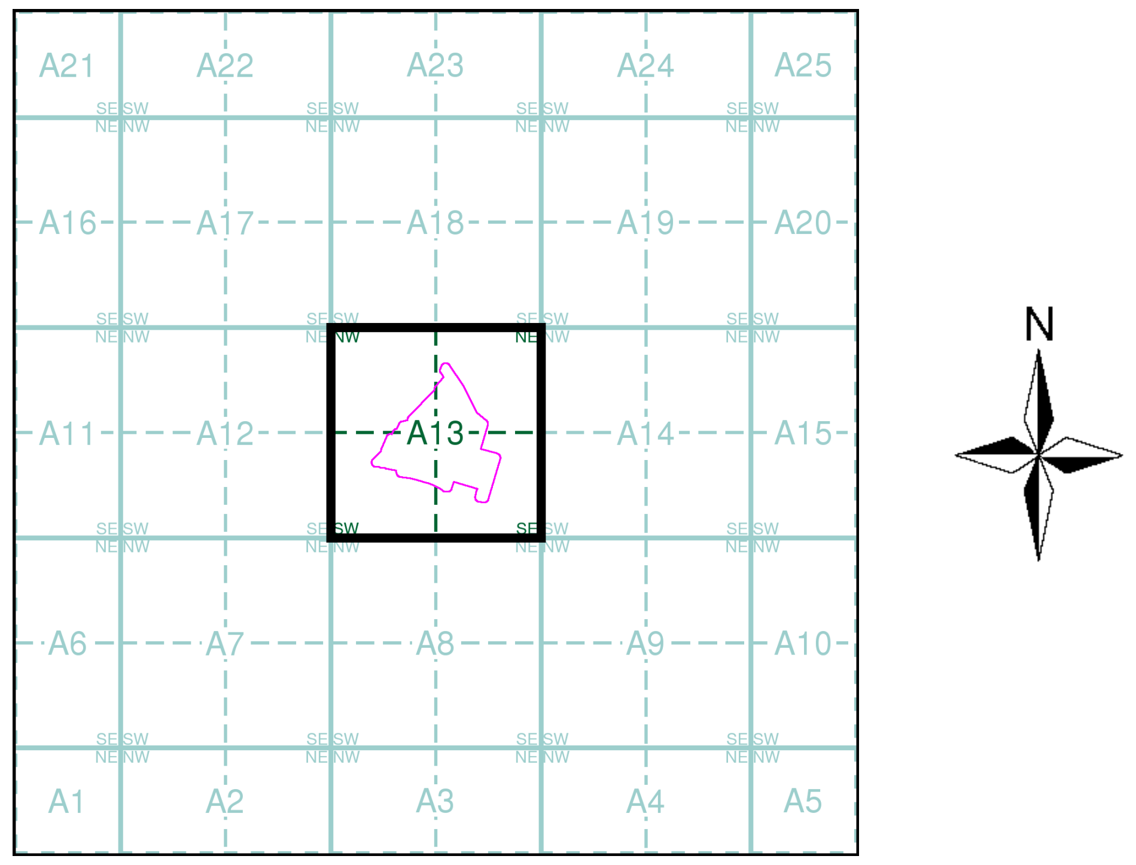
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to compliment the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped 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_06_022 1891 1:500	104_06_023 1891 1:500
104_10_002 1891 1:500	104_10_003 1891 1:500
104_10_007 1891 1:500	104_10_008 1891 1:500

Historical Town Plan - Segment A13



A21
A22
A23
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Order Details

Order Number: 61378999_1_1
Customer Ref: 3233
National Grid Reference: 383090, 398020
Slice: A
Site Area (Ha): 9.23
Search Buffer (m): 0

Site Details

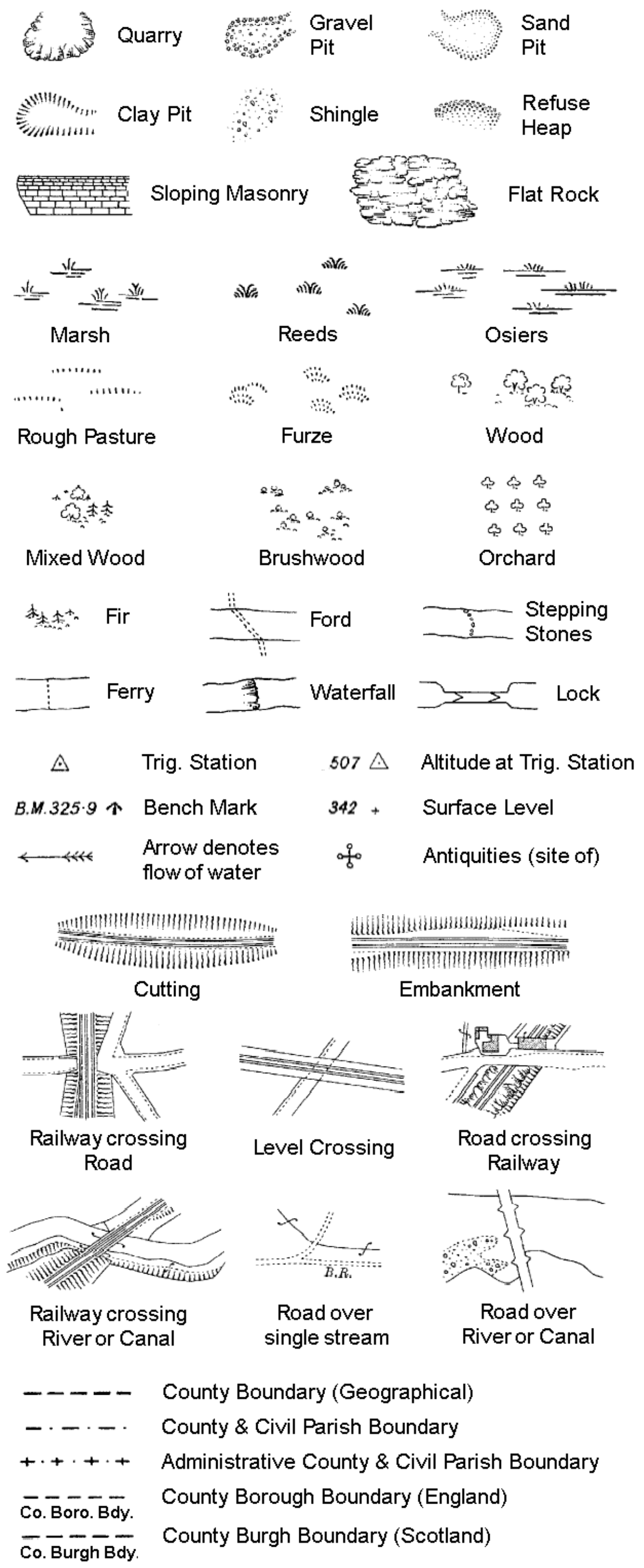
Water Street, Manchester, M3 4JQ

Landmark Information Group

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

Historical Mapping Legends

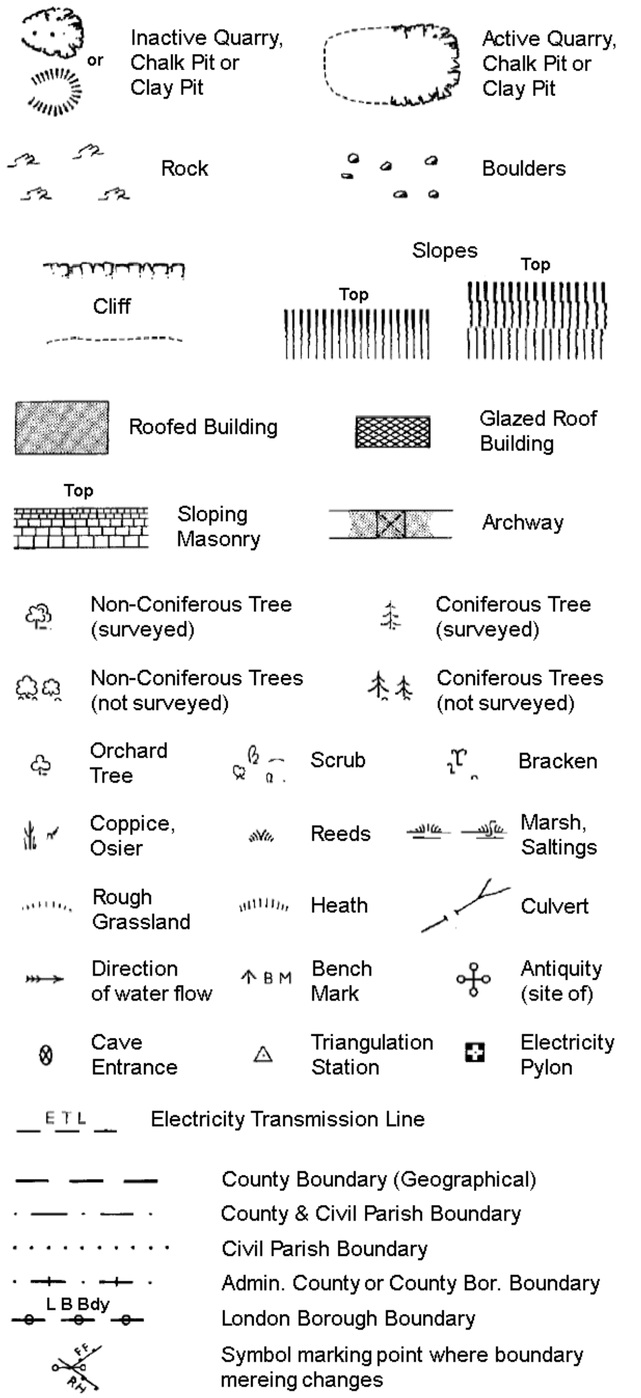
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



Quarry
Gravel Pit
Sand Pit
Clay Pit
Shingle
Refuse Heap
Sloping Masonry
Flat Rock
Marsh
Reeds
Osiers
Rough Pasture
Furze
Wood
Mixed Wood
Brushwood
Orchard
Fir
Ford
Stepping Stones
Ferry
Waterfall
Lock
Trig. Station
507 Altitude at Trig. Station
B.M.325·9 Bench Mark
342 Surface Level
Arrow denotes flow of water
Antiquities (site of)
Cutting
Embankment
Railway crossing Road
Level Crossing
Road crossing Railway
Railway crossing River or Canal
Road over single stream
Road over River or Canal
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

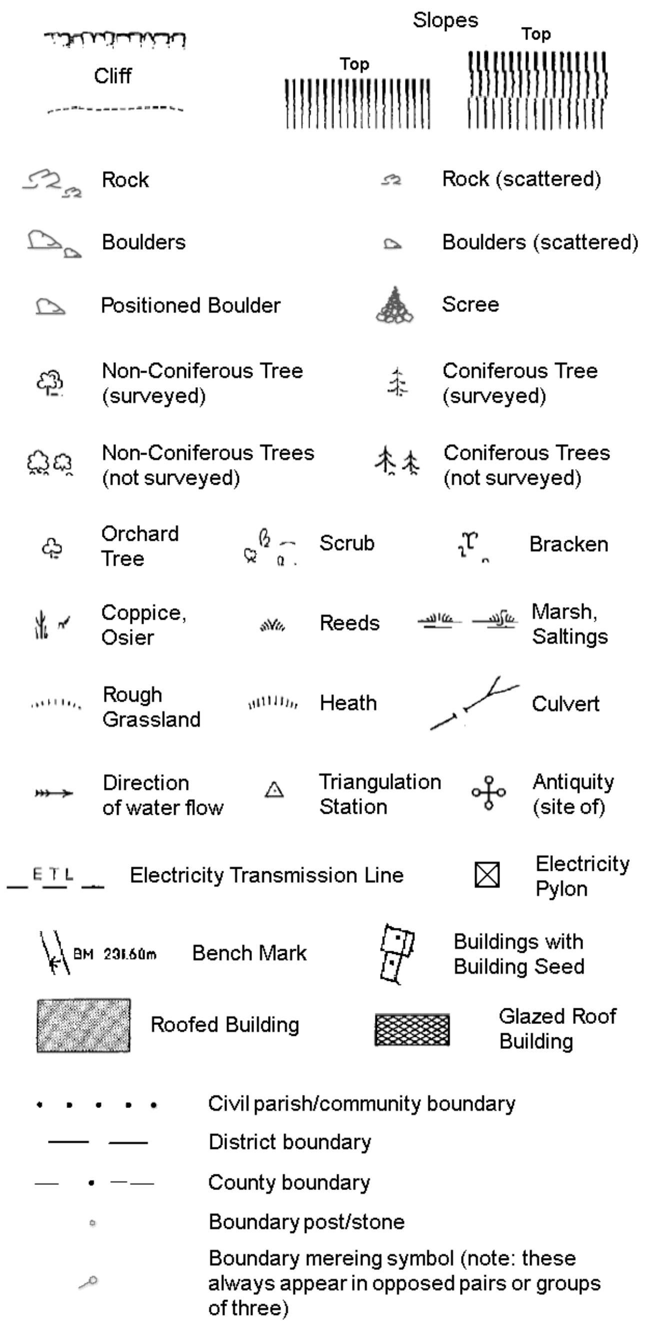
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Rock
Boulders
Cliff
Slopes
Top
Roofed Building
Glazed Roof Building
Sloping Masonry
Archway
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
B M Bench Mark
Antiquity (site of)
Cave Entrance
Triangulation Station
Electricity Pylon
E T L Electricity Transmission Line
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



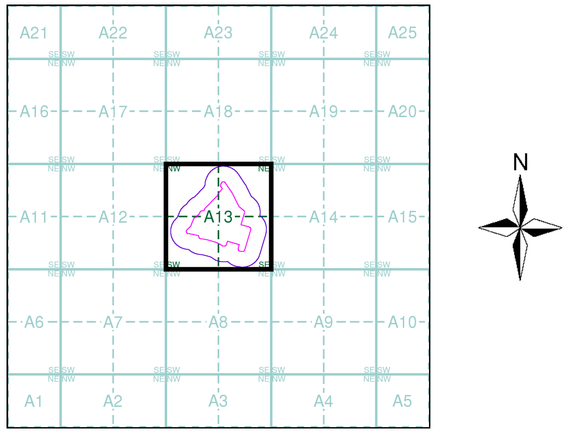
Slopes
Top
Cliff
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Positioned Boulder
Scree
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
Triangulation Station
Antiquity (site of)
E T L Electricity Transmission Line
Electricity Pylon
BM 231.60m Bench Mark
Buildings with Building Seed
Roofed Building
Glazed Roof Building
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

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1892	2
Lancashire And Furness	1:2,500	1908	3
Lancashire And Furness	1:2,500	1922 - 1933	4
Ordnance Survey Plan	1:1,250	1948 - 1949	5
Ordnance Survey Plan	1:2,500	1950 - 1951	6
Ordnance Survey Plan	1:1,250	1953 - 1957	7
Ordnance Survey Plan	1:2,500	1956 - 1965	8
Ordnance Survey Plan	1:1,250	1962 - 1980	9
Ordnance Survey Plan	1:2,500	1963 - 1965	10
Ordnance Survey Plan	1:2,500	1971	11
Ordnance Survey Plan	1:1,250	1973 - 1981	12
Supply of Unpublished Survey Information	1:1,250	1974 - 1975	13
Additional SIMs	1:1,250	1978 - 1984	14
Additional SIMs	1:1,250	1986 - 1990	15
Additional SIMs	1:1,250	1990	16
Additional SIMs	1:1,250	1990	17
Large-Scale National Grid Data	1:1,250	1992	18
Large-Scale National Grid Data	1:1,250	1993 - 1994	19
Large-Scale National Grid Data	1:1,250	1993 - 1995	20
Large-Scale National Grid Data	1:1,250	1994 - 1995	21
Large-Scale National Grid Data	1:1,250	1995	22
Large-Scale National Grid Data	1:1,250	1996	23

Historical Map - Segment A13



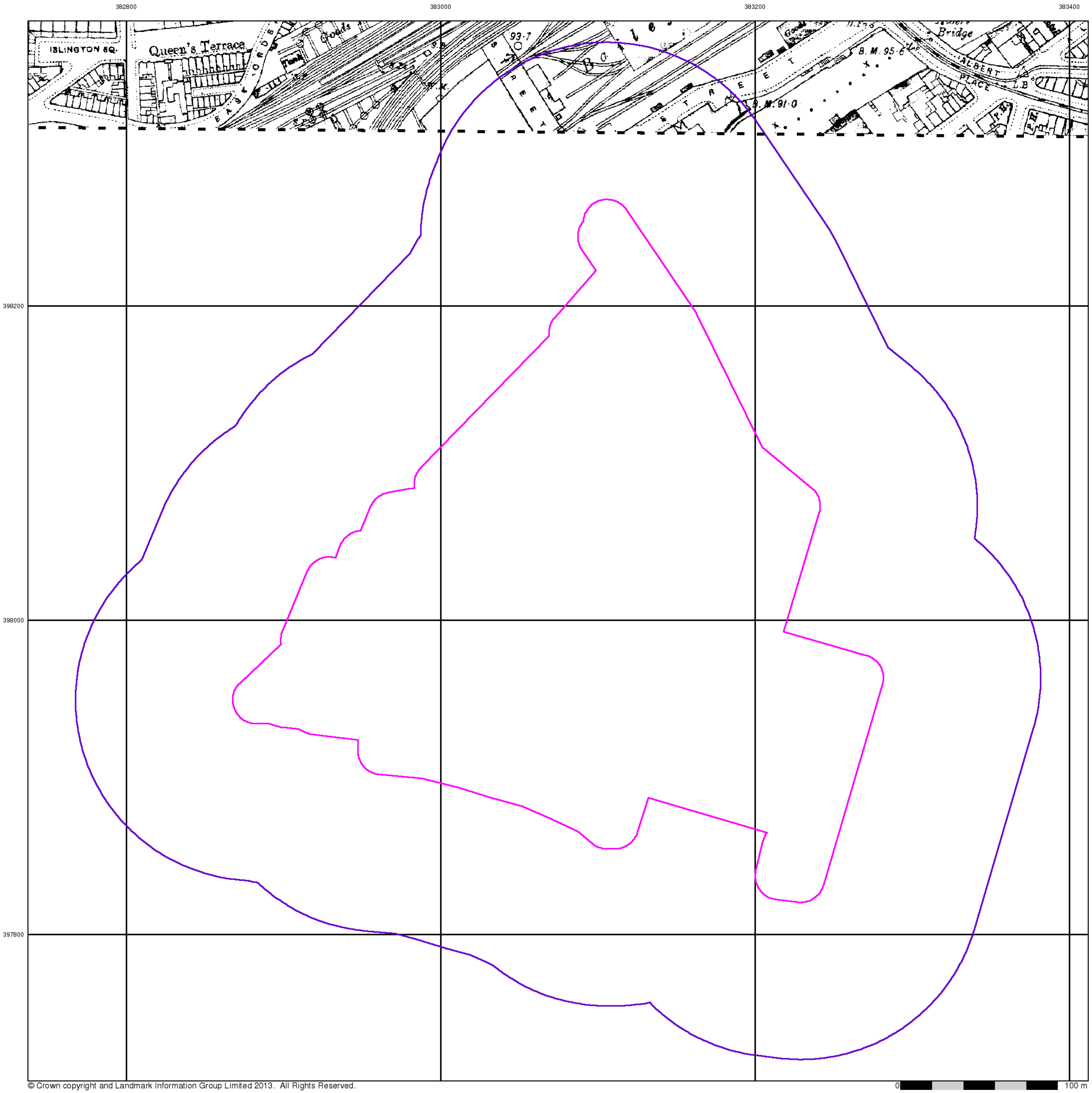
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

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


382800
383000
383200
383400
398200
398000
397800
ISLINGTON SQ.
Queen's Terrace
Goods
Tank
93·7
STREET
B.M. 95·6
B.M. 91·0
Bridge
ALBERT PLACE
L.B
P.H.

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0 100 m

Lancashire And Furness

Published 1892

Source map scale - 1:2,500

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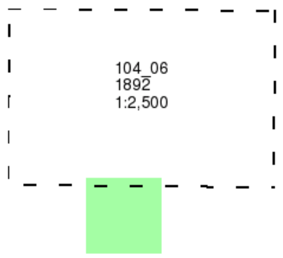
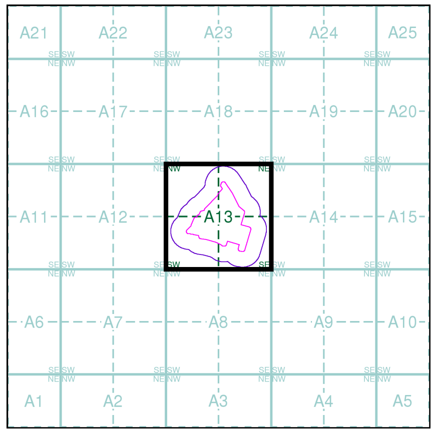
Map Name(s) and Date(s)


104_06
1892
1:2,500

Historical Map - Segment A13


A21
A22
A23
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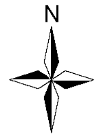
A5

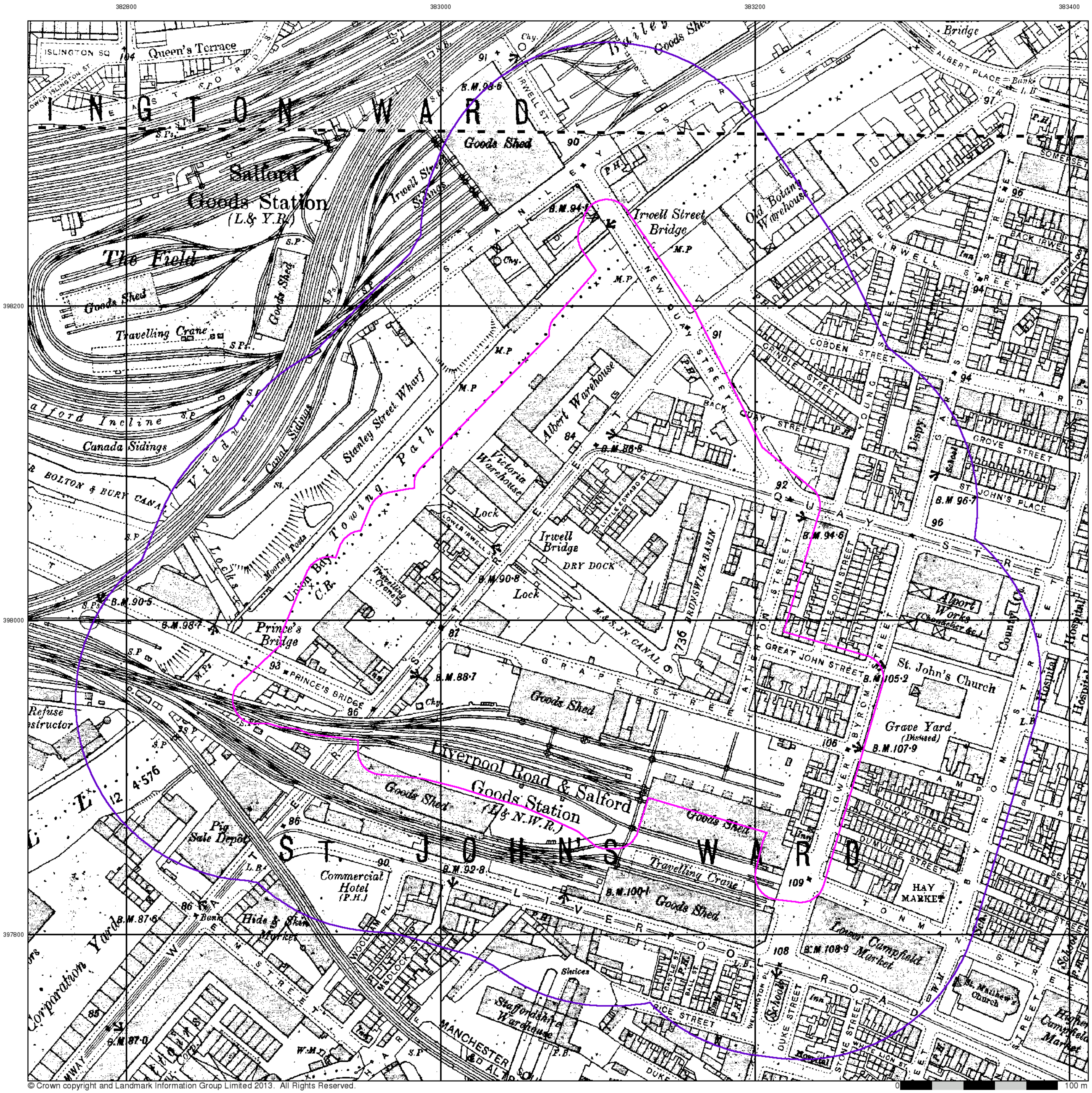


Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ



382800
383000
383200
383400
398200
398000
397800
ISLINGTON SQ
Queen's Terrace
INGTON WARD
Salford Goods Station (L.& Y.R.)
The Field
Goods Shed
Travelling Crane
Salford Incline
Canada Sidings
BOLTON & BURY CANAL
Viaduct
Irwell Street Sidings
Irwell St.
Goods Shed
Irwell Street Bridge
Old Bonded Warehouse
New Quay Street
Stanley Street Wharf
Towing Path
Canal Sidings
Mooring Posts
Locks
Union Bay
Albert Warehouse
Victoria Warehouse
Lock
Irwell Bridge
Dry Dock
Lower Irwell St.
Travelling Crane
M.S. & J.N. Canal
Brunswick Basin
Cobden Street
Grindle Street
Back Quay Street
Quay Street
Young Street
Grove Street
St. John's Place
Back Irwell Street
Irwell Street
Somerset
Albert Place
Bridge
Dispy.
School
Albert Works (Chandelier &c.)
County Ct.
Hospital
Great John Street
Little John Street
Atherton Street
Byrom Street
St. John's Church
Grave Yard (Disused)
Gillow Street
Dumville Street
Hay Market
Camp Street
Lower Campfield Market
St. Matthew's Church
Higher Campfield Market
Prince's Bridge
Grape Street
Goods Shed
Liverpool Road & Salford Goods Station (L.& N.W.R.)
Goods Shed
Travelling Crane
ST. JOHN'S WARD
Liverpool Road
Refuse Destructor
Pig Sale Depot
Commercial Hotel (P.H.)
Hide & Skin Market
Corporation Yard
Staffordshire Warehouse
Sluices
Rice Street
Manchester & Altr.
Duke Street
Water Street
B.M. 90·5
B.M. 98·7
B.M. 88·7
B.M. 92·8
B.M. 100·1
B.M. 105·2
B.M. 107·9
B.M. 108·9
B.M. 94·6
B.M. 96·7
B.M. 90·8
B.M. 94·1
B.M. 87·6
B.M. 87·0
4·576
0
100 m

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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_06
1908
1:2,500

104_10
1908
1:2,500

Historical Map - Segment A13

A21	A22	A23	A24	A25
A16	A17	A18	A19	A20
A11	A12	A13	A14	A15
A6	A7	A8	A9	A10
A1	A2	A3	A4	A5

N

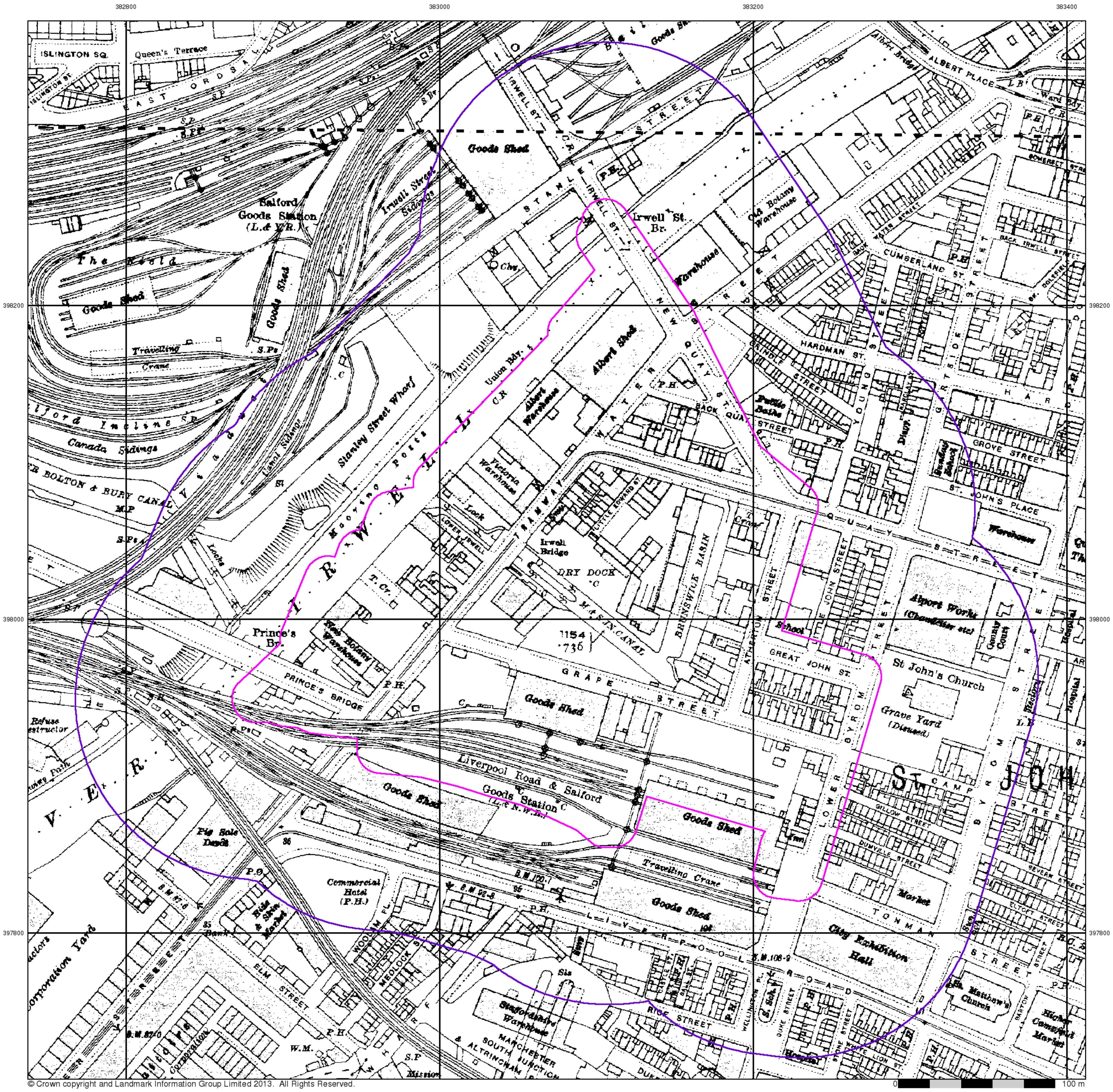
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

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



382800
383000
383200
383400
398200
398000
397800
ISLINGTON SQ.
Queen's Terrace
EAST ORDSALL
Salford Goods Station (L.& Y.R.)
Irwell Street Sidings
The Field
Goods Shed
Travelling Crane
Canada Sidings
Bolton & Bury Canal
Stanley Street Wharf
Mooring Posts
River Irwell
Union Bdy.
Goods Shed
Stanley Street
Irwell St.
Irwell St. Br.
Old Botany Warehouse
Warehouse
Albert Bridge
Albert Place
Albert Shed
Albert Warehouse
New Quay Street
Water Street
Victoria Warehouse
Tramway
Irwell Bridge
Dry Dock
Manchester, Bolton & Bury Canal
Brunswick Basin
Prince's Br.
New Botany Warehouse
Prince's Bridge
Grape Street
Goods Shed
Liverpool Road & Salford Goods Station (L.& N.W.R.)
Goods Shed
Travelling Crane
Goods Shed
Refuse Destructor
River Irwell
Pig Sale Dock
Commercial Hotel (P.H.)
Corporation Yard
Elm Street
Medlock Street
Stafford Warehouse
Manchester South Junction & Altrincham Railway
Rice Street
City Exhibition Hall
Market
St. Matthew's Church
Higher Campfield Market
Hardman St.
Grindle Street
Public Baths
Back Quay Street
Grove Street
St. John's Place
Quay Street
Warehouse
Airport Works (Chandler etc)
County Court
Great John St.
St John's Church
Grave Yard (Disused)
Byrom Street
Lower Byrom Street
St John's
Gillow Street
Dumville Street
Cumberland St.
Atherton Street
John Street
Young Street
Gartside Street
Hospital
Severn Street
Tonman Street
Sunday School
School
Liverpool Road
Deansgate
Duke Street
Wellington
0
100 m

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RoC CONSULTING

Lancashire And Furness

Published 1922 - 1933

Source map scale - 1:2,500

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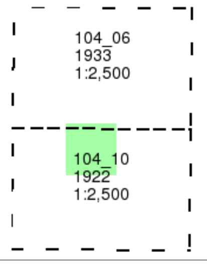
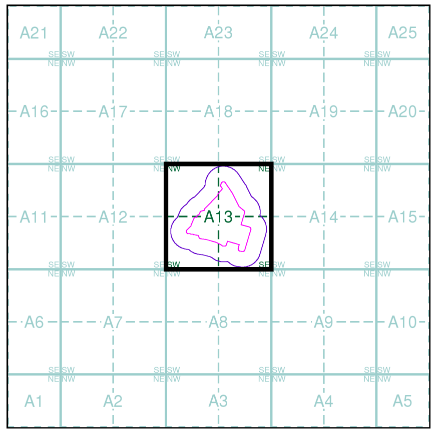
Map Name(s) and Date(s)



104_06
1933
1:2,500
104_10
1922
1:2,500

Historical Map - Segment A13



A21
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A9
A10
A1
A2
A3
A4
A5
N

Order Details

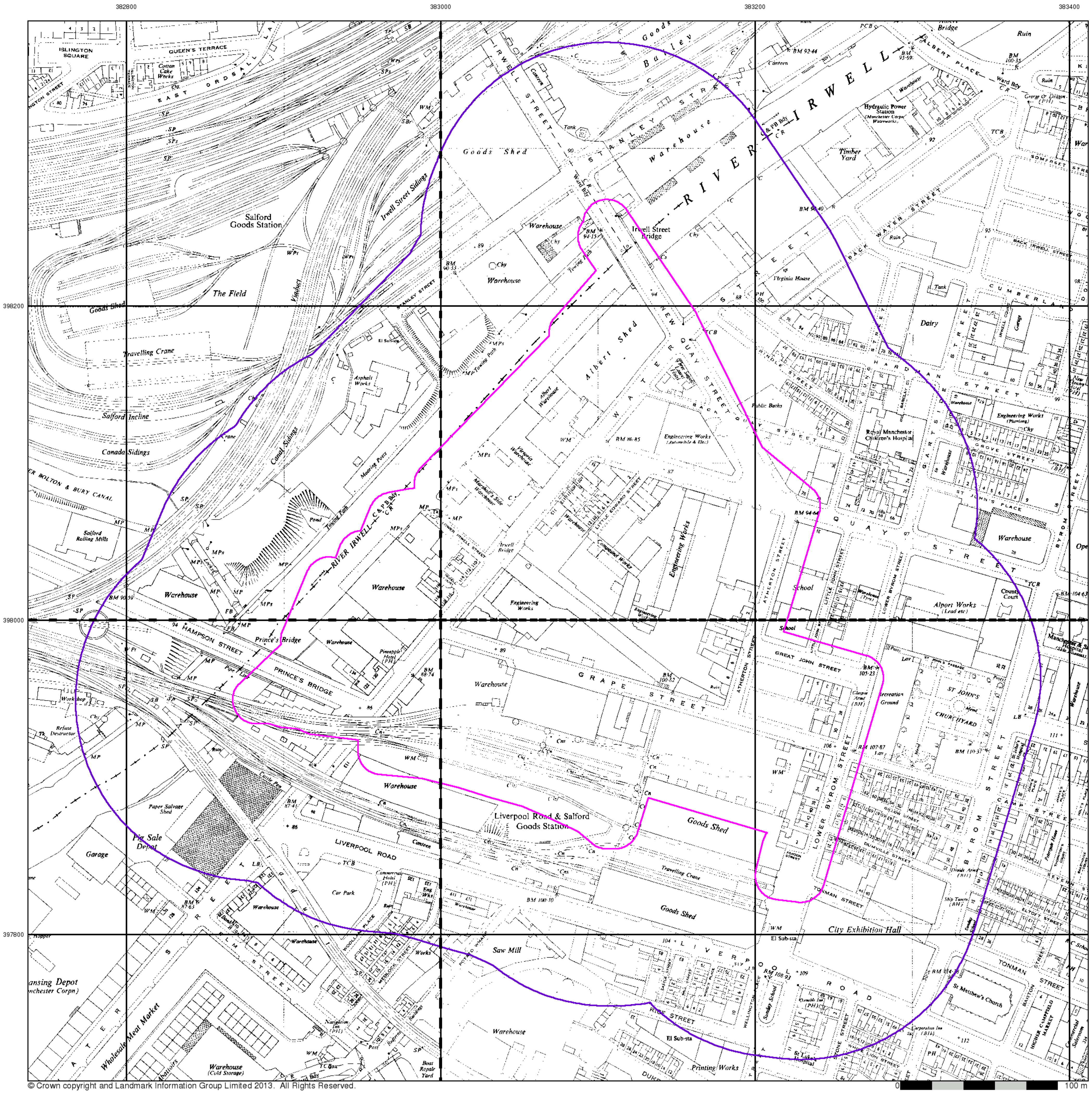
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

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



382800
383000
383200
383400
398200
398000
397800
ISLINGTON SQUARE
QUEEN'S TERRACE
Cotton Cake Works
EAST ORDSALL LANE
Salford Goods Station
Irwell Street Sidings
The Field
Viaduct
Goods Shed
Travelling Crane
Salford Incline
Canada Sidings
Canal Sidings
BOLTON & BURY CANAL
Salford Rolling Mills
Warehouse
HAMPSON STREET
PRINCE'S BRIDGE
Prince's Bridge
Pineapple Hotel (P.H.)
Workshop
Refuse Destructor
Paper Salvage Shed
Pig Sale Depot
Garage
LIVERPOOL ROAD
Car Park
Canteen
Liverpool Road & Salford Goods Station
Goods Shed
Travelling Crane
GRAPE STREET
IRWELL STREET
STANLEY STREET
Goods Shed
Warehouse
RIVER IRWELL
Irwell Street Bridge
Towing Path
Albert Shed
Albert Warehouse
Engineering Works
Engineering Works (Automobile & Elec.)
NEW QUAY STREET
WATER STREET
Asphalt Works
Mooring Posts
Pond
Marshall's Side Warehouse
Victoria Warehouse
Irwell Bridge
Compound Works
LITTLE EDWARD STREET
ATHERTON STREET
QUAY STREET
School
Public Baths
Royal Manchester Children's Hospital
GARTSIDE STREET
HARDMAN STREET
CUMBERLAND STREET
Dairy
Timber Yard
Hydraulic Power Station (Manchester Corpn Waterworks)
Canteen
Virginia House
BACK WATER STREET
ALBERT PLACE
Ruin
George & Dragon (P.H.)
SOMERSET STREET
Engineering Works (Plumbing)
ST JOHN'S PLACE
Warehouse
County Court
Alport Works (Lead etc)
GREAT JOHN STREET
Recreation Ground
Glasgow Arms (P.H.)
ST JOHN'S CHURCHYARD
BYROM STREET
LOWER BYROM STREET
DUNVILLE STREET
TONMAN STREET
City Exhibition Hall
Ship Tavern (P.H.)
ST JOHN STREET
Manchester Royal Hospital
St Matthew's Church
Wholesale Meat Market
Warehouse (Cold Storage)
Lansing Depot (Manchester Corpn)
Saw Mill
Printing Works
El Sub-sta
LIVERPOOL ROAD
Corporation Inn (P.H.)
Boat Repair Yard
WATER STREET
Navigation Inn (P.H.)
Commercial Hotel (P.H.)

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0 100 m

Ordnance Survey Plan

Published 1948 - 1949

Source map scale - 1:1,250

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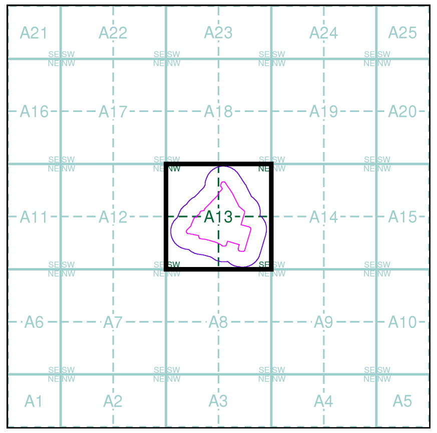
Map Name(s) and Date(s)

SJ8298SE 1948 1:1,250	SJ8398SW 1948 1:1,250
SJ8297NE 1949 1:1,250	SJ8397NW 1949 1:1,250

Historical Map - Segment A13



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A5
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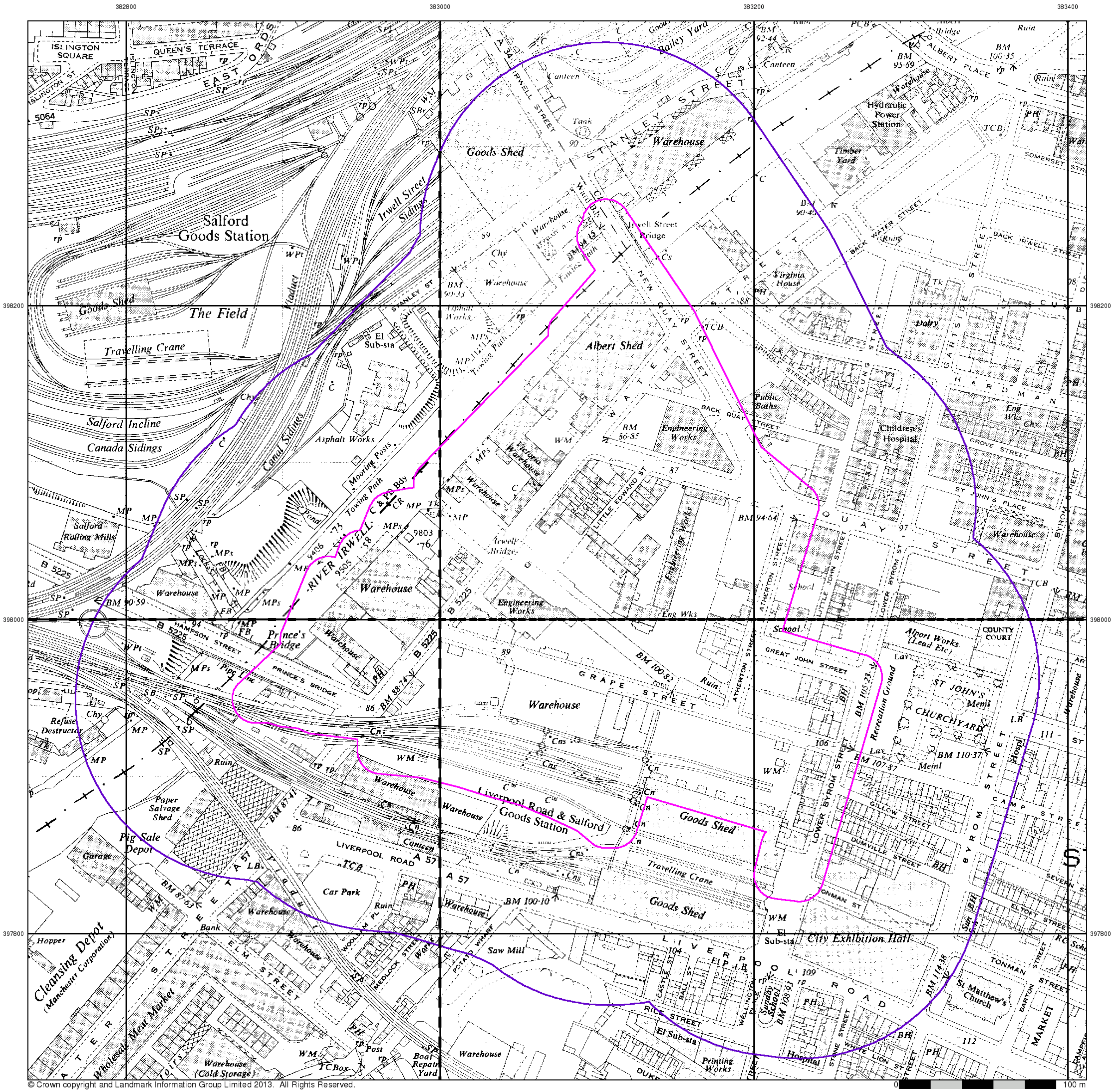
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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ISLINGTON SQUARE
QUEEN'S TERRACE
EAST
ISLINGTON ST
5064
Salford Goods Station
The Field
Goods Shed
Travelling Crane
Salford Incline
Canada Sidings
Canal Sidings
Irwell Street Sidings
Viaduct
Asphalt Works
El Sub-sta
Salford Rolling Mills
B 5225
Goods Shed
IRWELL STREET
STANLEY STREET
Bailey Yard
Warehouse
Canteen
Tank
Irwell Street Bridge
Towing Path
Albert Shed
NEW QUAY STREET
WATER STREET
Engineering Works
Victoria Warehouse
LITTLE EDWARD ST
RIVER IRWELL
Mooring Posts
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Warehouse
GRAPE STREET
Liverpool Road & Salford Goods Station
Goods Shed
Travelling Crane
LIVERPOOL ROAD
A 57
Car Park
Pig Sale Depot
Paper Salvage Shed
Refuse Destructor
Garage
Cleansing Depot (Manchester Corporation)
Wholesale Meat Market
Warehouse (Cold Storage)
WATER STREET
Saw Mill
City Exhibition Hall
Sunday School
Printing Works
Hospital
RICE STREET
El Sub-sta
St Matthew's Church
TONMAN STREET
SARTON
MARKET
St JOHN'S CHURCHYARD
Recreation Ground
LOWER BYROM STREET
GREAT JOHN STREET
ATHERTON STREET
School
Alport Works (Lead Etc)
COUNTY COURT
QUAY STREET
ST JOHN'S PLACE
GROVE STREET
HARDMAN STREET
Children's Hospital
Public Baths
SPINDLE STREET
Virginia House
Timber Yard
Hydraulic Power Station
ALBERT PLACE
SOMERSET STREET
BACK WATER STREET
BACK IRWELL STREET
BACK QUAY STREET
GARTSIDE STREET
Dairy
Eng Wks
YOUNG STREET
BYROM STREET
GILLOW STREET
DUMVILLE STREET
ELTOFT STREET
CAMP STREET
SEVERN STREET
BM 105·23
BM 107·87
BM 110·37
BM 114·38
BM 100·10
BM 94·64
BM 100·82
BM 98·74
BM 90·59
BM 87·41
BM 87·63
0
100 m

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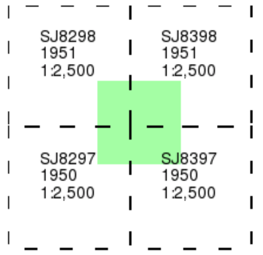
Ordnance Survey Plan

Published 1950 - 1951

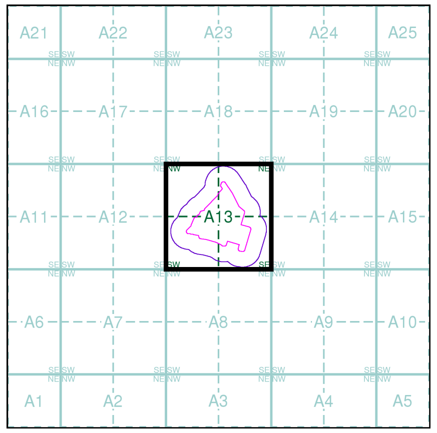
Source map scale - 1:2,500

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

Map Name(s) and Date(s)


SJ8298
1951
1:2,500
SJ8398
1951
1:2,500
SJ8297
1950
1:2,500
SJ8397
1950
1:2,500

Historical Map - Segment A13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A2
A3
A4
A5
N

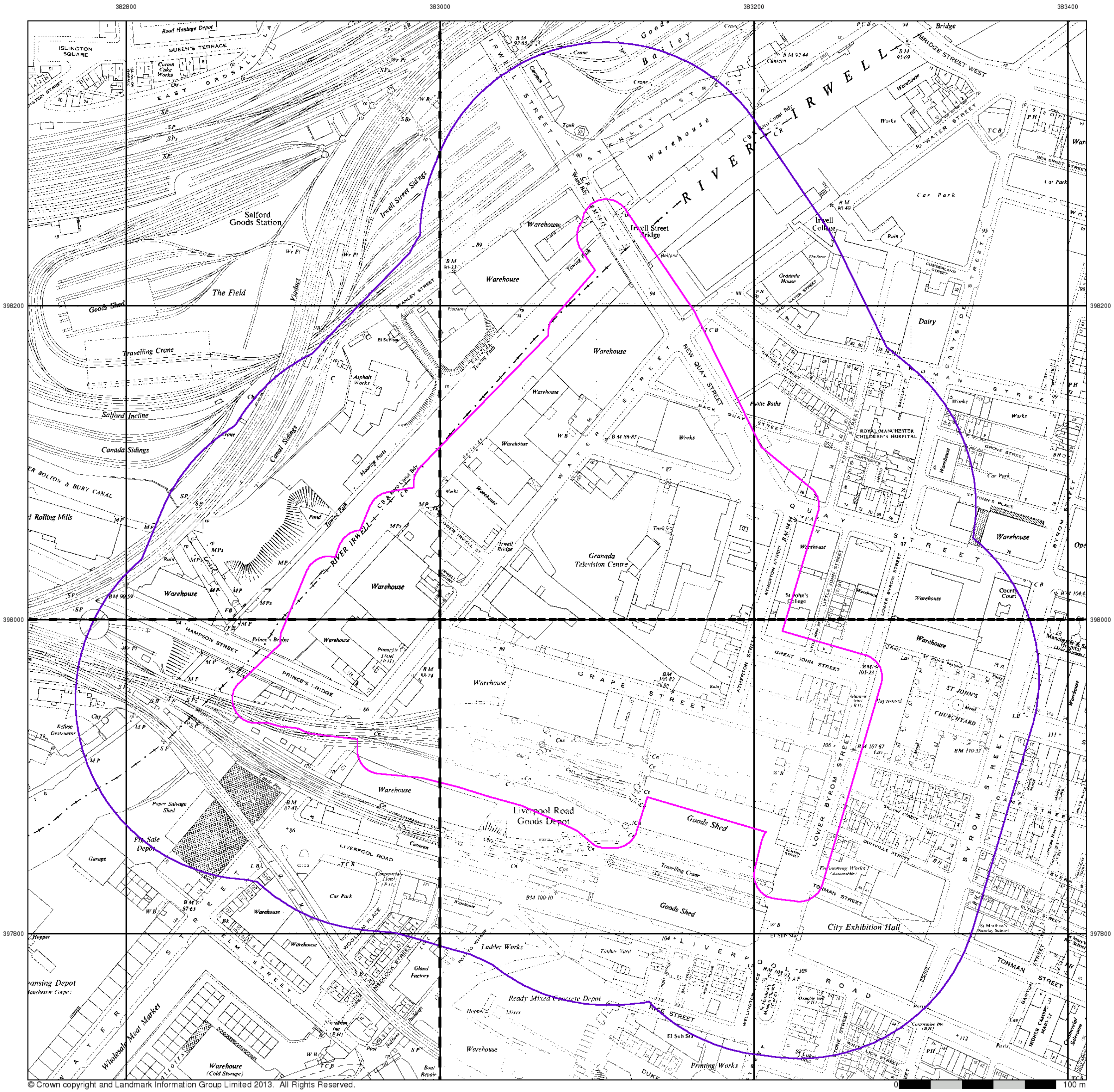
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

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



382800
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383200
383400
398200
398000
397800
Islington Square
Queen's Terrace
Road Haulage Depot
Cotton Cake Works
East Ordsall Lane
Salford Goods Station
Irwell Street Sidings
The Field
Goods Shed
Travelling Crane
Salford Incline
Canada Sidings
Canal Sidings
Bolton & Bury Canal
Rolling Mills
Asphalt Works
Mooring Posts
Towing Path
River Irwell
Warehouse
Irwell Street
Stanley Street
Irwell Street Bridge
Water Street
Granada House
Granada Television Centre
Dairy
Hardman Street
Car Park
Irwell College
Bridge Street West
Royal Manchester Children's Hospital
Public Baths
St John's Place
St John's Churchyard
Great John Street
Grape Street
Quay Street
New Quay Street
Lower Byrom Street
Byrom Street
Atherton Street
St John's College
County Court
Hampson Street
Prince's Bridge
Liverpool Road Goods Depot
Liverpool Road
City Exhibition Hall
Tonman Street
Refuse Destructor
Paper Salvage Shed
Pig Sale Depot
Garage
Wholesale Meat Market
Ready Mixed Concrete Depot
Ladder Works
Timber Yard
Printing Works
Gland Factory
Woollen Place
Warehouse (Cold Storage)
Bridge
0
100 m

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Ordnance Survey Plan

Published 1953 - 1957

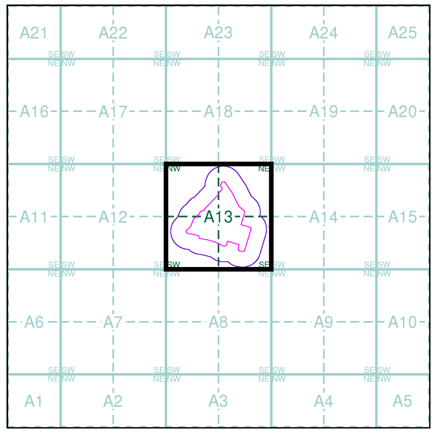
Source map scale - 1:1,250

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)

SJ8298SE 1954 1:1,250	SJ8398SW 1957 1:1,250
SJ8297NE 1953 1:1,250	SJ8397NW 1955 1:1,250

Historical Map - Segment A13



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A5

Order Details

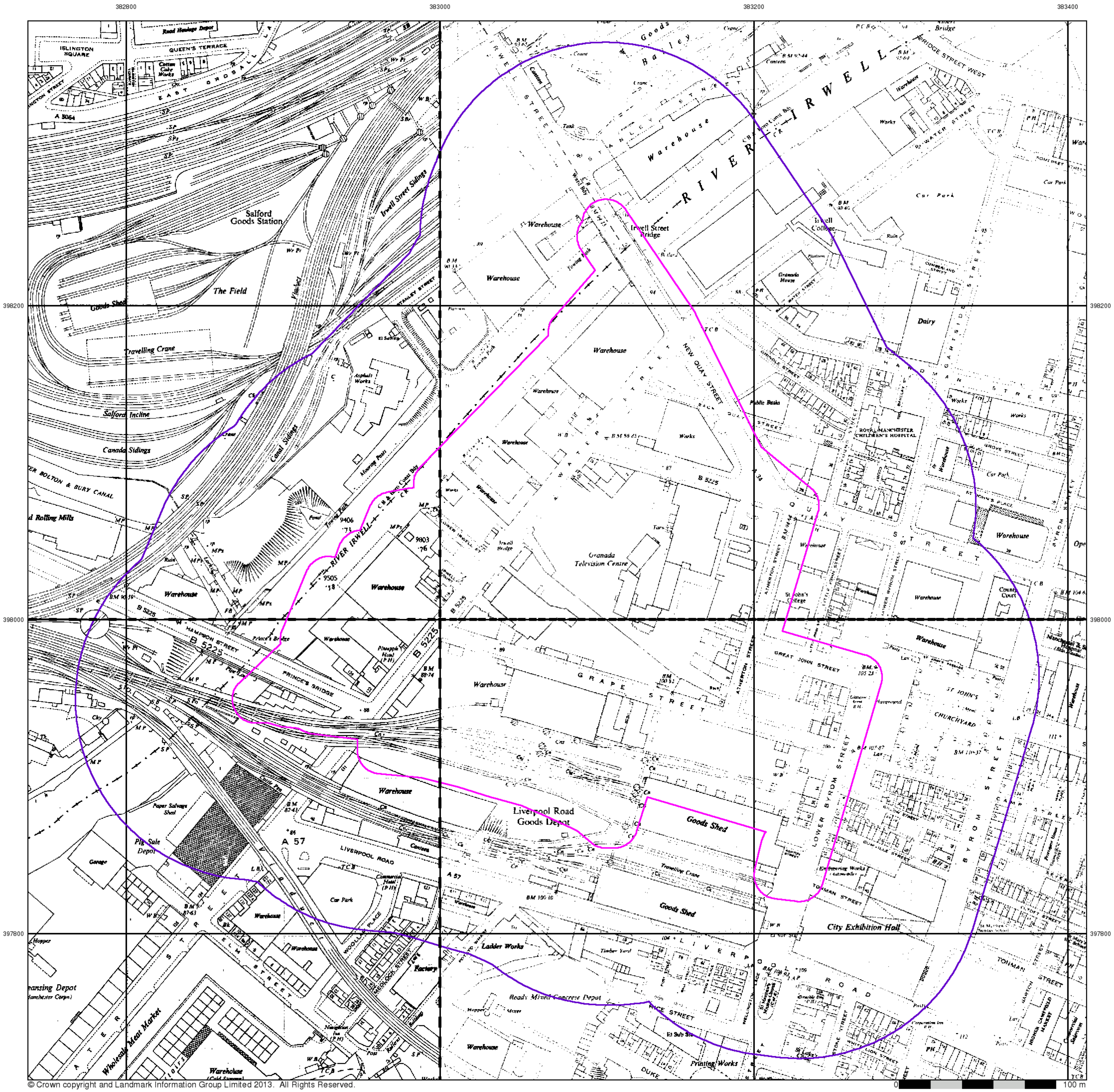
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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383000
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398200
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397800
RIVER IRWELL
Salford Goods Station
The Field
Irwell Street Sidings
Travelling Crane
Salford Incline
Canada Sidings
Irwell Street Bridge
Warehouse
Granada Television Centre
Liverpool Road Goods Depot
Goods Shed
City Exhibition Hall
WATER STREET
GRAPE STREET
GREAT JOHN STREET
NEW QUAY STREET
QUAY STREET
BYROM STREET
LOWER BYROM STREET
LIVERPOOL ROAD
HAMPSON STREET
PRINCE'S BRIDGE
B 5225
A 57
TONMAN STREET
RICE STREET
ST JOHN'S CHURCHYARD
ROYAL MANCHESTER CHILDREN'S HOSPITAL
Dairy
Ladder Works
Ready Mixed Concrete Depot
Wholesale Meat Market
Printing Works
Pig Sale Depot
Paper Salvage Shed
Garage
Car Park
0
100 m

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Ordnance Survey Plan

Published 1956 - 1965

Source map scale - 1:2,500

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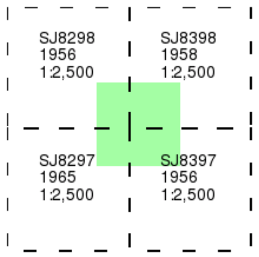
Map Name(s) and Date(s)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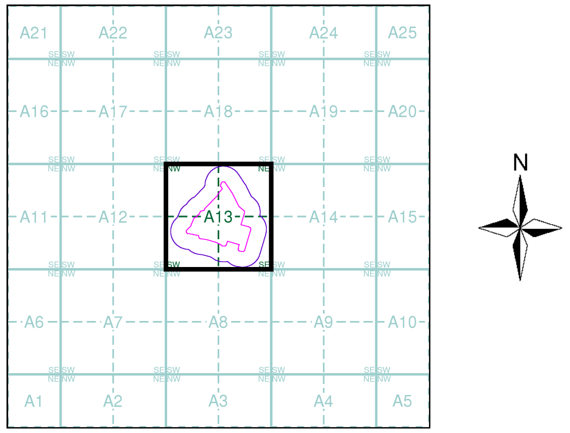
1956
1:2,500
SJ8398
1958
1:2,500
SJ8297
1965
1:2,500
SJ8397
1956
1:2,500

Historical Map - Segment A13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A5
N

Order Details

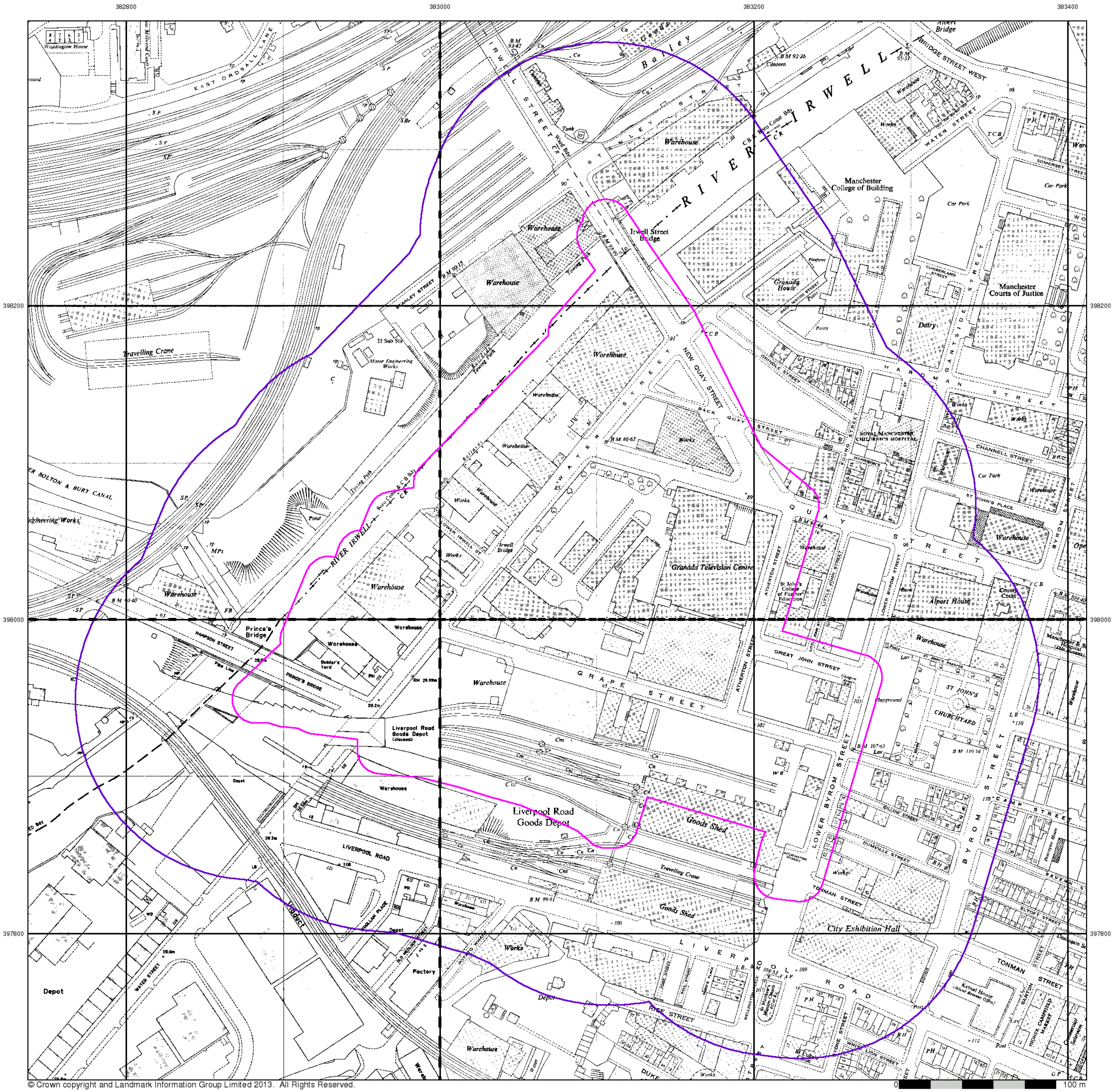
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark
Information Group

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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383000
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383400
398200
398000
397800
RIVER IRWELL
IRWELL STREET
Irwell Street Bridge
STANLEY STREET
WATER STREET
NEW QUAY STREET
QUAY STREET
BACK QUAY STREET
GRAPE STREET
GREAT JOHN STREET
ATHERTON STREET
LOWER BYROM STREET
BYROM STREET
LIVERPOOL ROAD
Liverpool Road Goods Depot
Goods Shed
Granada Television Centre
Granada House
Manchester College of Building
Manchester Courts of Justice
ROYAL MANCHESTER CHILDREN'S HOSPITAL
ST JOHN'S CHURCHYARD
Alport House
City Exhibition Hall
Prince's Bridge
PRINCE'S BRIDGE
HAMPSON STREET
BOLTON & BURY CANAL
EAST ORDSALL LANE
BRIDGE STREET WEST
Albert Bridge
HARDMAN STREET
CHANNELL STREET
TONMAN STREET
CAMP STREET
DUKE STREET
Travelling Crane
Warehouse
Works
Depot
Viaduct
0
100 m

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Ordnance Survey Plan

Published 1962 - 1980

Source map scale - 1:1,250

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Map Name(s) and Date(s)

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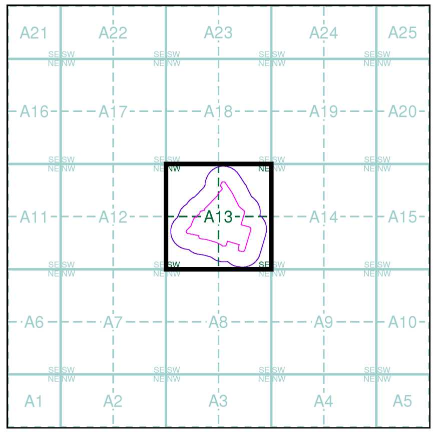
SJ8297NE 1980 1:1,250	SJ8397NW 1963 1:1,250

Historical Map - Segment A13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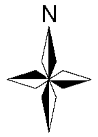


Order Details

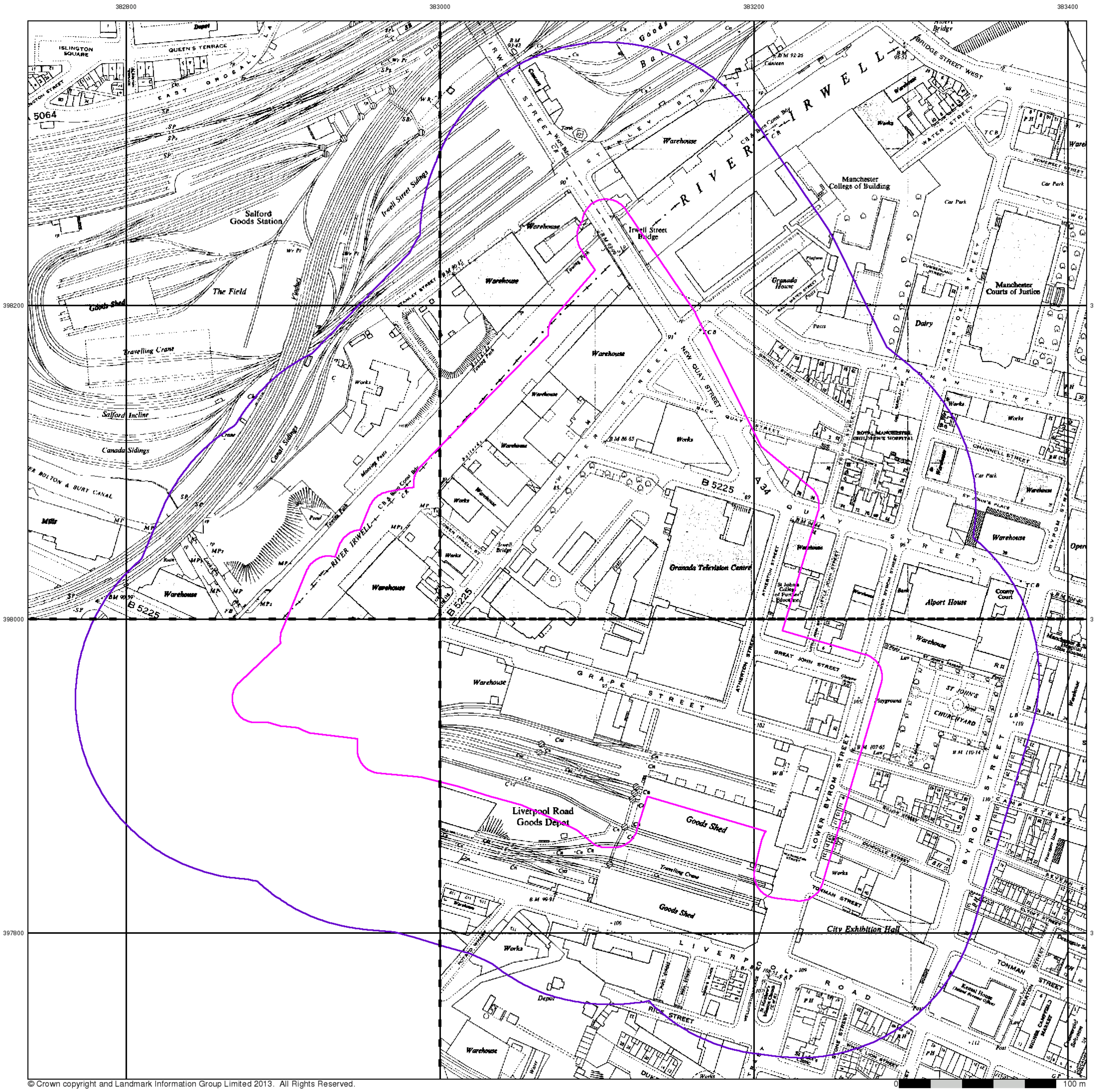
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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383400
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398000
397800
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Queen's Terrace
Depot
5064
Salford Goods Station
The Field
Goods Shed
Travelling Crane
Salford Incline
Canada Sidings
Canal Sidings
Irwell Street Sidings
Bolton & Bury Canal
Mills
River Irwell
Irwell Street
Irwell Street Bridge
Bridge Street West
Water Street
Warehouse
Works
Manchester College of Building
Granada House
Car Park
Manchester Courts of Justice
Dairy
New Quay Street
Quay Street
Royal Manchester Children's Hospital
Granada Television Centre
Atherton Street
Lower Byrom Street
Byrom Street
St John's Place
Channell Street
Alport House
County Court
Great John Street
Grape Street
St John's Churchyard
Liverpool Road Goods Depot
Goods Shed
Travelling Crane
City Exhibition Hall
Liverpool Road
Tonman Street
Depot
B 5225
A 34
0
100 m

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Ordnance Survey Plan
Published 1963 - 1965
Source map scale - 1:2,500

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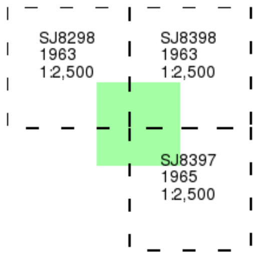
Map Name(s) and Date(s)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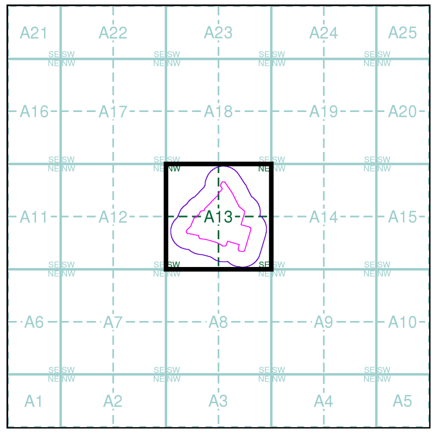
1963
1:2,500
SJ8398
1963
1:2,500
SJ8397
1965
1:2,500

Historical Map - Segment A13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A5

N

Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

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Landmark
Information Group

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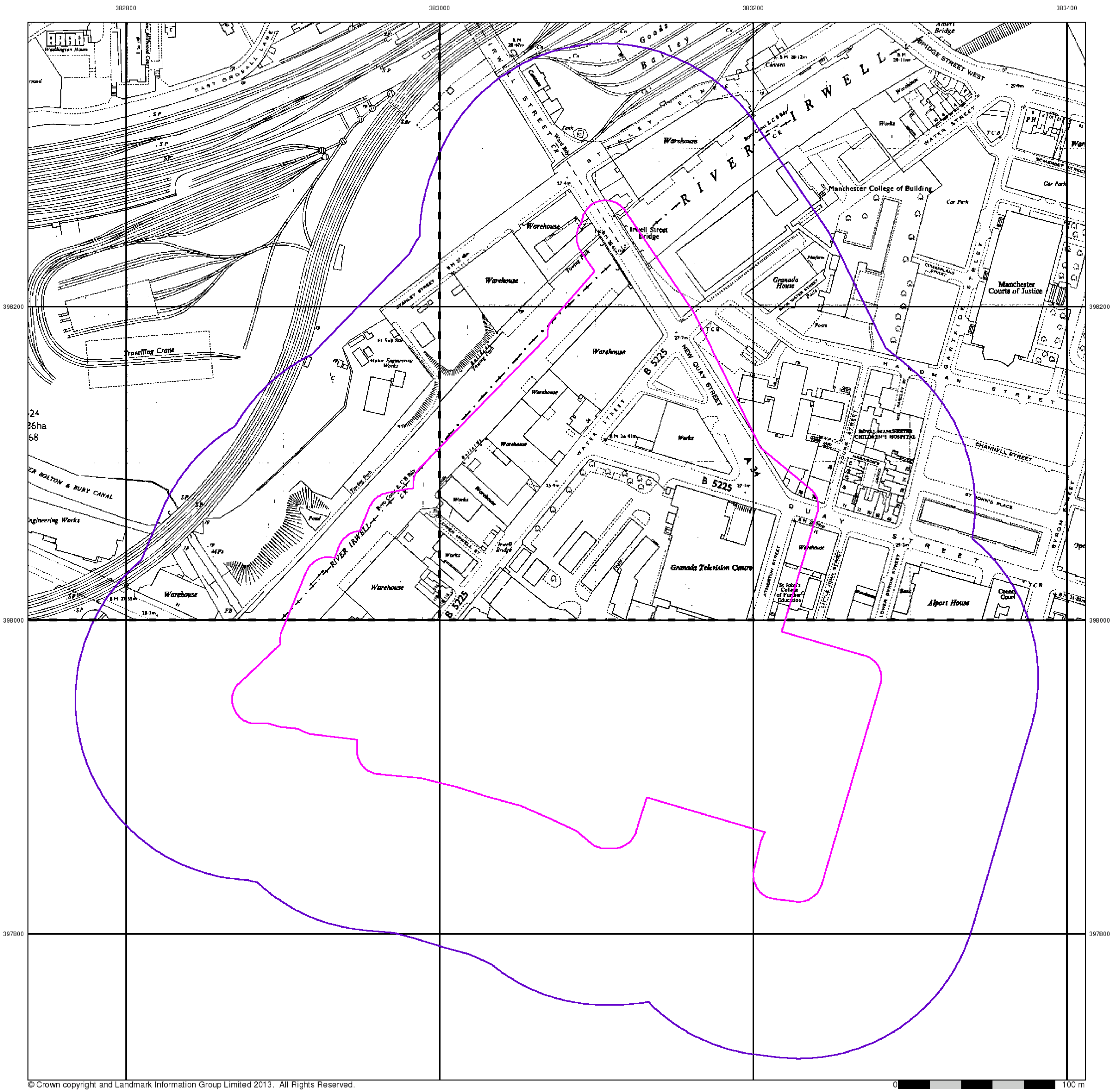
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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383000
383200
383400
398200
398000
397800
East Ordsall Lane
Goods
Bailey Street
River Irwell
Bridge Street West
Albert Bridge
Water Street
Irwell Street
Irwell Street Bridge
Warehouse
Manchester College of Building
Car Park
Granada House
Manchester Courts of Justice
Travelling Crane
El Sub Sta
Motor Engineering Works
B 5225
New Quay Street
Hardman Street
Royal Manchester Children's Hospital
Gartside Street
Chanelle Street
St John's Place
Bolton & Bury Canal
Engineering Works
Towing Path
Quay Street
Works
Granada Television Centre
Atherton Street
St John's College of Further Education
Alport House
Byrom Street
Lower Byrom Street
0
100 m

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RoC CONSULTING

Ordnance Survey Plan

Published 1971

Source map scale - 1:2,500

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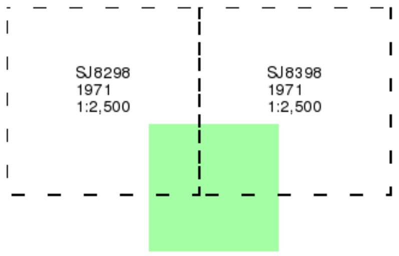
Map Name(s) and Date(s)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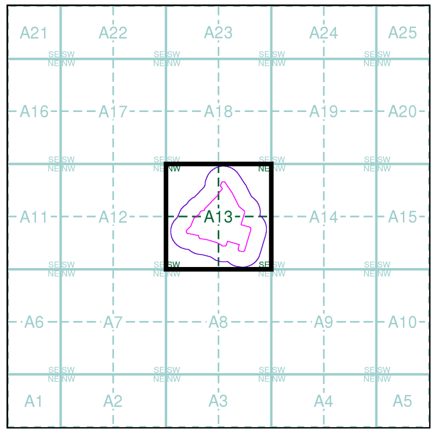
1971
1:2,500
SJ8398
1971
1:2,500

Historical Map - Segment A13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A5

N

Order Details

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Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

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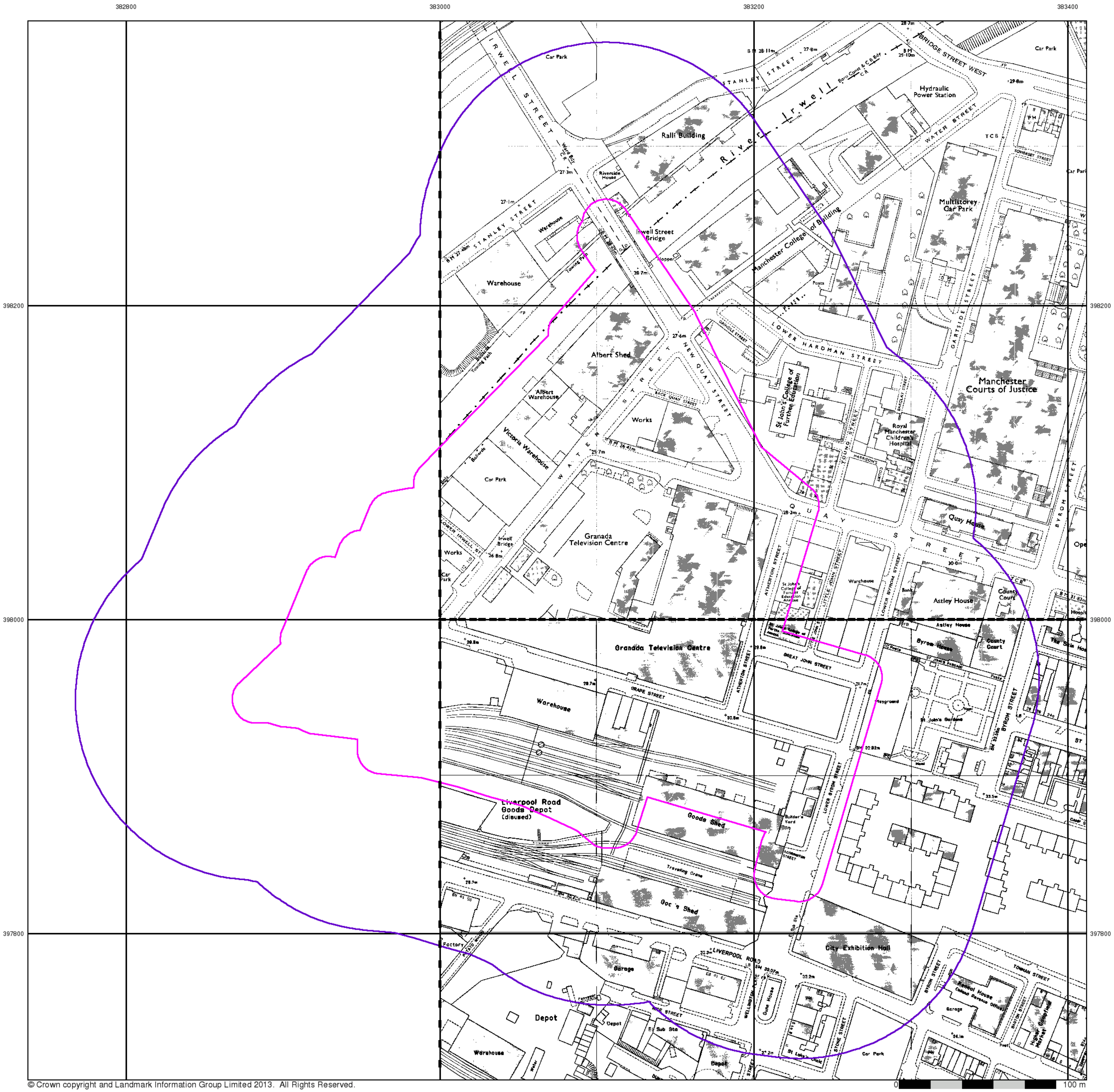
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Car Park
Ralli Building
Riverside House
Irwell Street Bridge
River Irwell
Stanley Street
Irwell Street
Bridge Street West
Hydraulic Power Station
Water Street
Multistorey Car Park
Manchester College of Building
Warehouse
Albert Shed
Albert Warehouse
Victoria Warehouse
Works
New Quay Street
Lower Hardman Street
St John's College of Further Education
Manchester Courts of Justice
Royal Manchester Children's Hospital
Quay House
Quay Street
Granada Television Centre
Astley House
County Court
Byron House
Great John Street
Grape Street
Warehouse
St John's Gardens
Byrom Street
Liverpool Road Goods Depot (disused)
Goods Shed
Traveling Crane
City Exhibition Hall
Liverpool Road
Garage
Depot
Factory
Warehouse
Atherton Street
Lower Byrom Street
0
100 m

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RoC CONSULTING

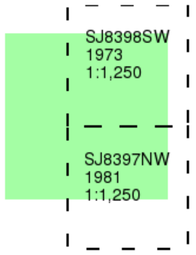
Ordnance Survey Plan

Published 1973 - 1981

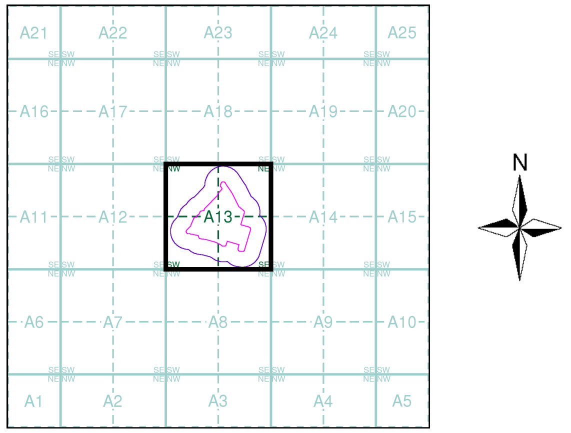
Source map scale - 1:1,250

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)


SJ8398SW
1973
1:1,250
SJ8397NW
1981
1:1,250

Historical Map - Segment A13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A8
A9
A10
A1
A2
A3
A4
A5
N

Order Details

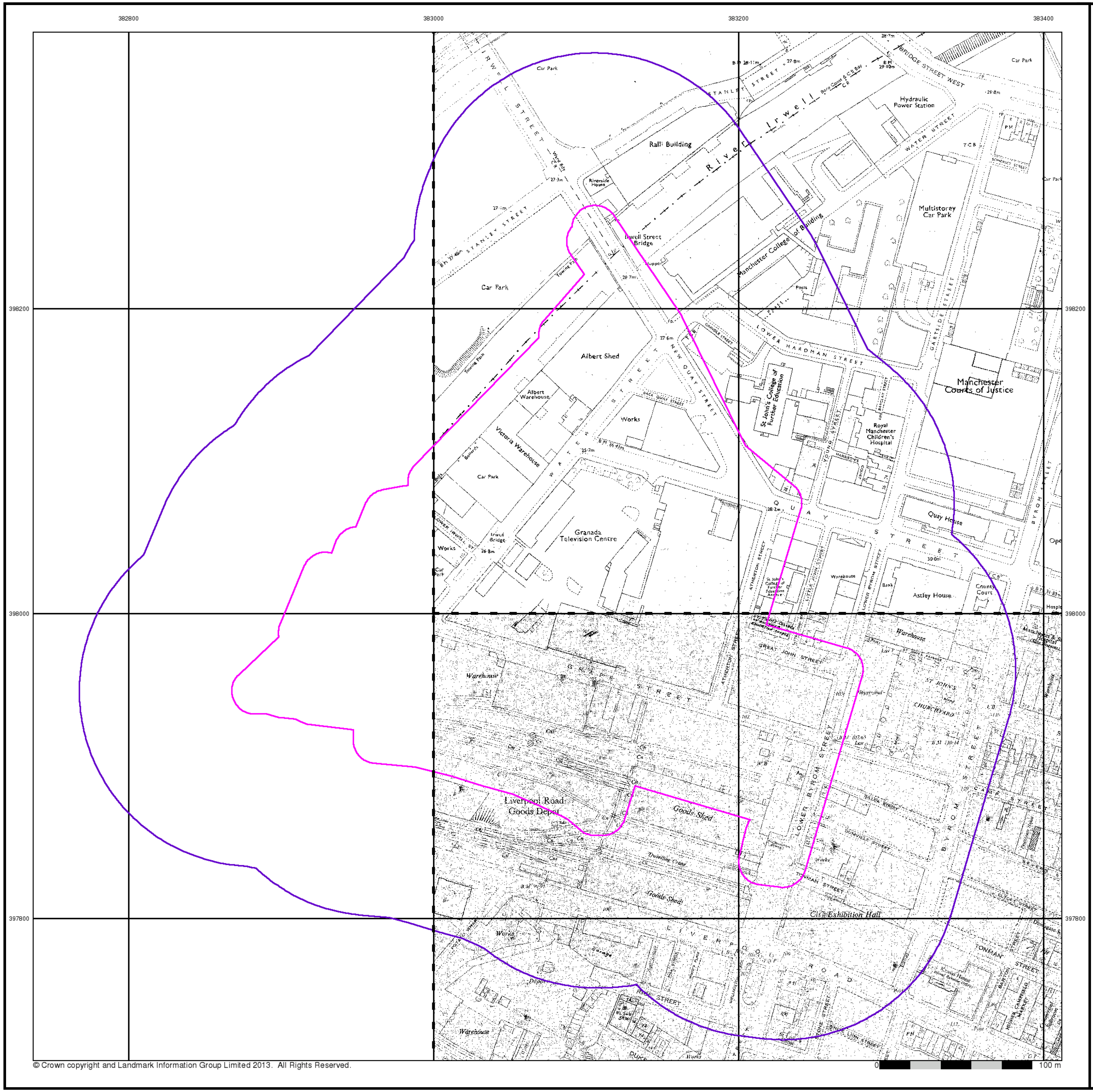
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

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


382800
383000
383200
383400
398200
398000
397800
Car Park
Ralli Building
River Irwell
Irwell Street Bridge
Stanley Street
Water Street
Hydraulic Power Station
Bridge Street West
Multistorey Car Park
Manchester College of Building
Albert Shed
Albert Warehouse
Victoria Warehouse
Works
Granada Television Centre
New Quay Street
Lower Hardman Street
St John's College of Further Education
Royal Manchester Children's Hospital
Manchester Courts of Justice
Quay House
Quay Street
Astley House
Warehouse
Great John Street
St John's Churchyard
Liverpool Road Goods Depot
Goods Shed
Lower Byrom Street
Byrom Street
City Exhibition Hall
Liverpool Road
Tonman Street
0
100 m

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RoC CONSULTING

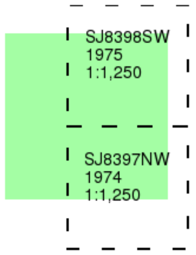
Supply of Unpublished Survey Information

Published 1974 - 1975

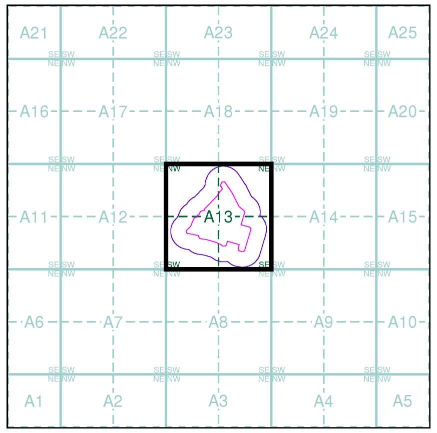
Source map scale - 1:1,250

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

Map Name(s) and Date(s)


SJ8398SW
1975
1:1,250
SJ8397NW
1974
1:1,250

Historical Map - Segment A13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A1
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A5

N

Order Details

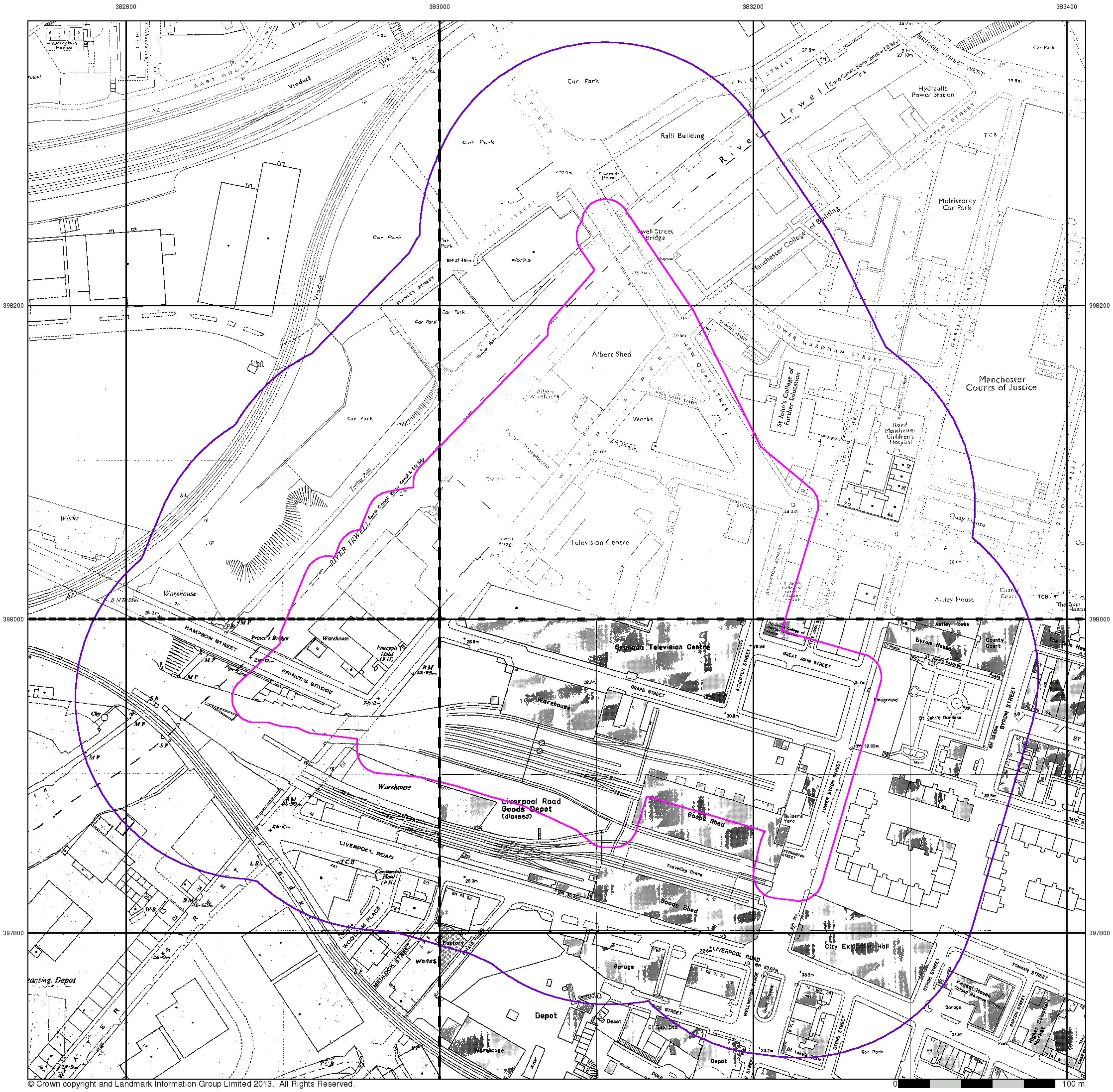
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark
Information Group

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


382800
383000
383200
383400
398200
398000
397800
Car Park
Ralli Building
River Irwell
Hydraulic Power Station
Water Street
Multistorey Car Park
Manchester College of Building
Irwell Street Bridge
Works
Viaduct
Albert Shed
Albert Warehouse
New Quay Street
Lower Hardman Street
Manchester Courts of Justice
St John's College of Further Education
Royal Manchester Children's Hospital
Quay House
Television Centre
Astley House
Warehouse
Prince's Bridge
Hampson Street
Granada Television Centre
Great John Street
Grape Street
Liverpool Road Goods Depot (disused)
Goods Shed
Liverpool Road
City Exhibition Hall
Depot
Garage
Byrom Street
St John's Gardens
Transing Depot
0
100 m

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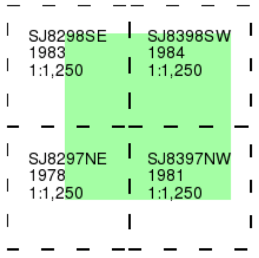
Additional SIMs

Published 1978 - 1984

Source map scale - 1:1,250

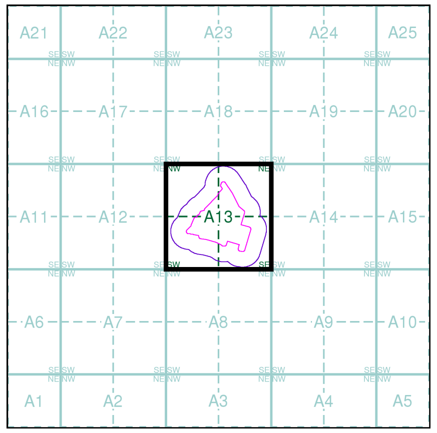
The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



SJ8298SE 1983 1:1,250	SJ8398SW 1984 1:1,250
SJ8297NE 1978 1:1,250	SJ8397NW 1981 1:1,250

Historical Map - Segment A13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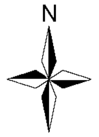


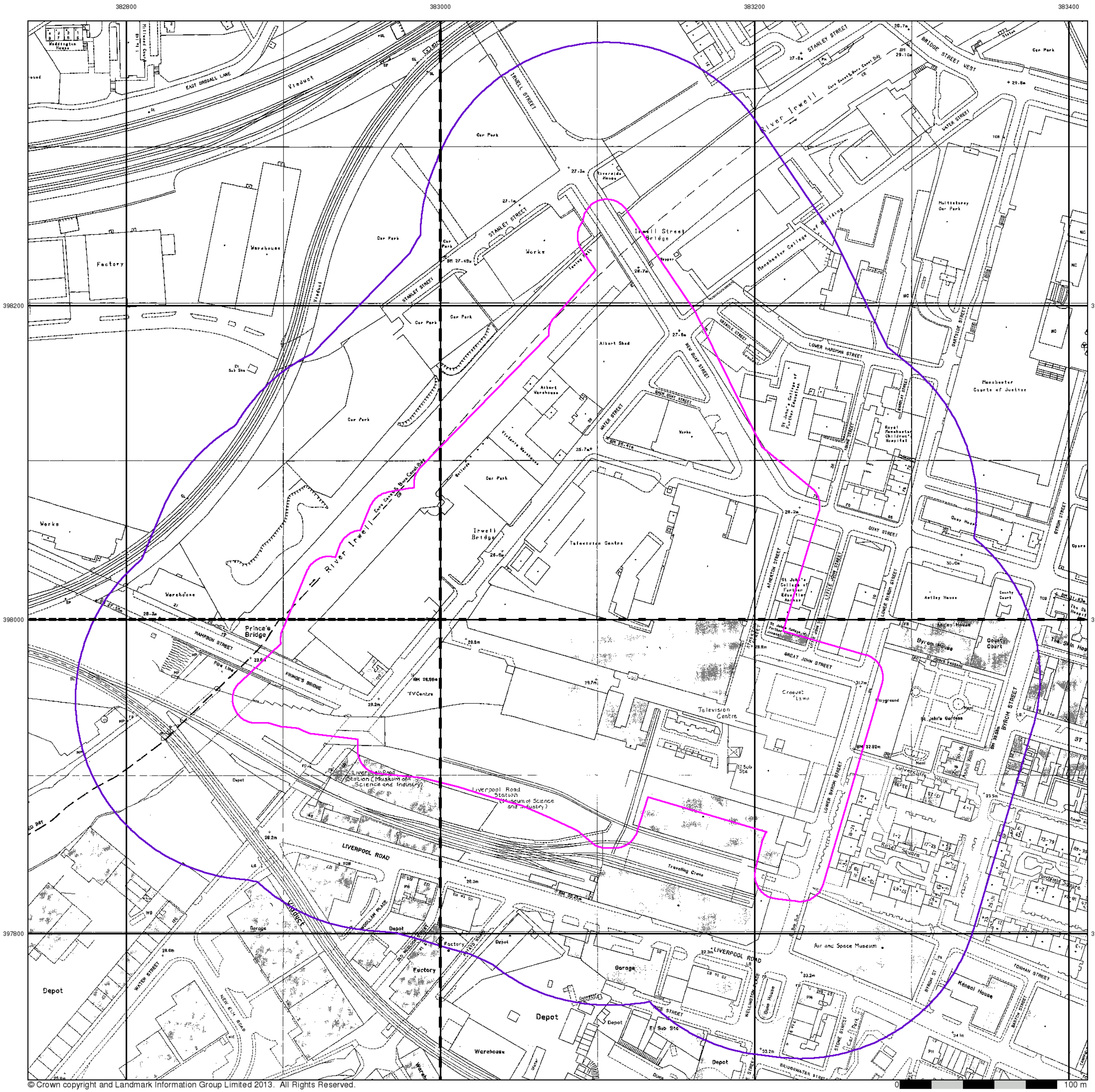
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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383000
383200
383400
398200
398000
397800
River Irwell
Irwell Street Bridge
Liverpool Road Station (Museum of Science and Industry)
Television Centre
Prince's Bridge
Manchester Courts of Justice
Air and Space Museum
LIVERPOOL ROAD
WATER STREET
STANLEY STREET
QUAY STREET
BYROM STREET
0
100 m

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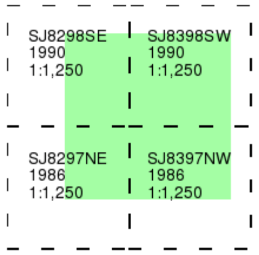
Additional SIMs

Published 1986 - 1990

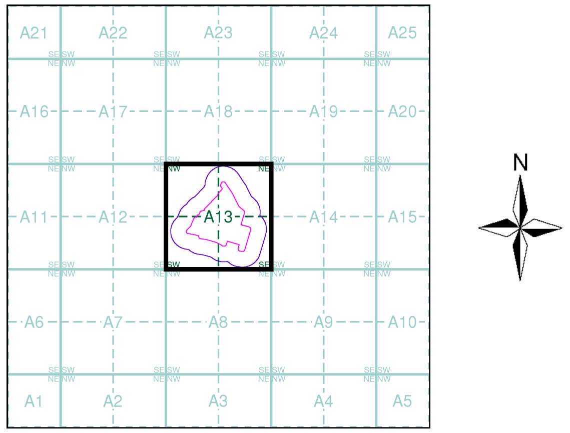
Source map scale - 1:1,250

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)


SJ8298SE
1990
1:1,250
SJ8398SW
1990
1:1,250
SJ8297NE
1986
1:1,250
SJ8397NW
1986
1:1,250

Historical Map - Segment A13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A1
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A4
A5
N

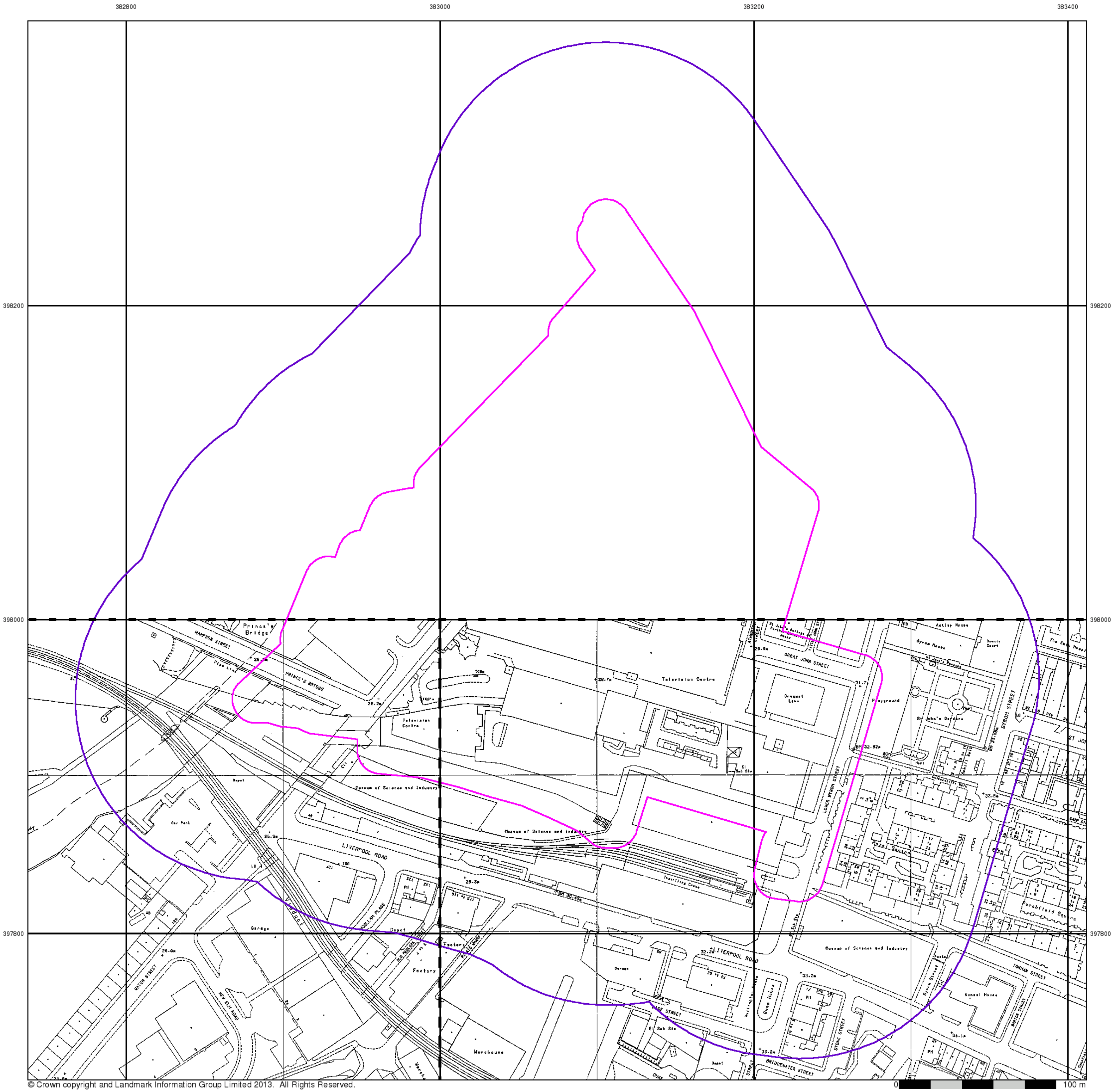
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

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


382800
383000
383200
383400
398200
398000
397800
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
LIVERPOOL ROAD
GREAT JOHN STREET
Croquet Lawn
Playground
St John's Gardens
BYROM STREET
LOWER BYROM STREET
QUAY STREET
ST JOHN STREET
TONMAN STREET
BRIDGEWATER STREET
WATER STREET
NEW ELM ROAD
Warehouse
Factory
Garage
Car Park
Depot
Astley House
Byron House
0
100 m

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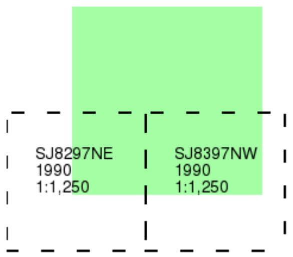
Additional SIMs

Published 1990

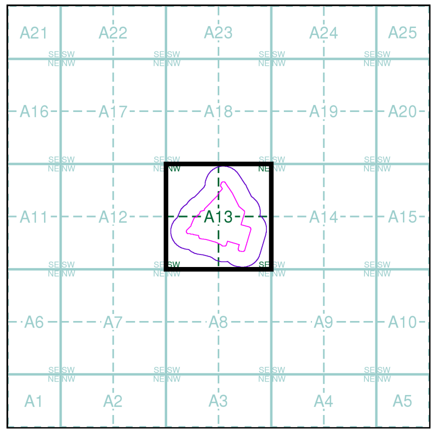
Source map scale - 1:1,250

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)


SJ8297NE
1990
1:1,250
SJ8397NW
1990
1:1,250

Historical Map - Segment A13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A4
A5

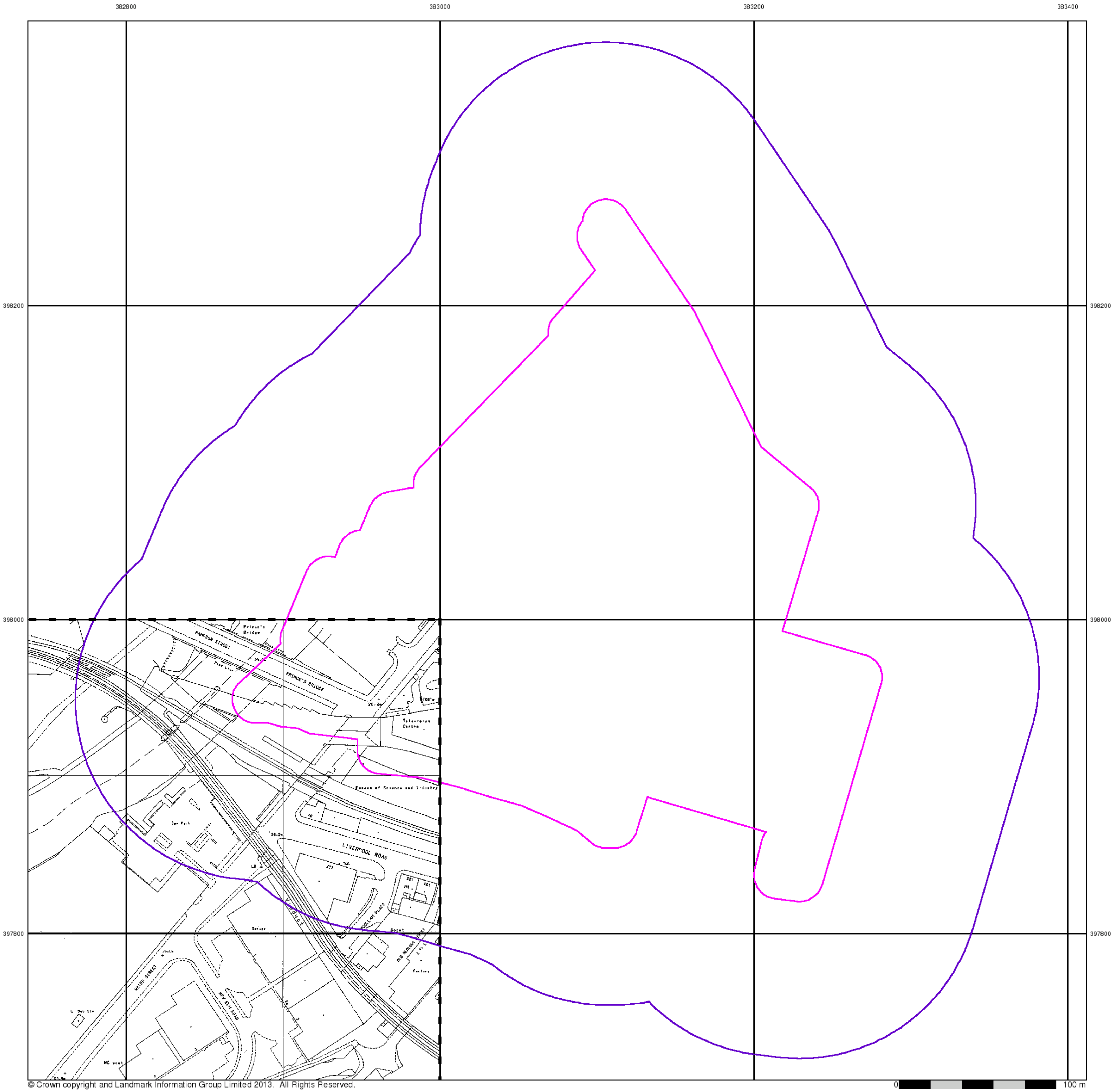
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

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



382800
383000
383200
383400
398200
398000
397800
Prince's Bridge
HAMPSON STREET
Pipe Line
29.0m
PRINCE'S BRIDGE
26.2m
TCB's
Television Centre
Museum of Science and Industry
Car Park
26.2m
48
LIVERPOOL ROAD
LB
127
TCB
PH
Viaduct
WOLLAM PLACE
Garage
Depot
OLD MEDLOCK STREET
Factory
26.0m
WATER STREET
NEW ELM ROAD
El Sub Sta
MC
25.9m
0
100 m

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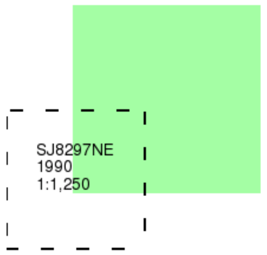
Additional SIMs

Published 1990

Source map scale - 1:1,250

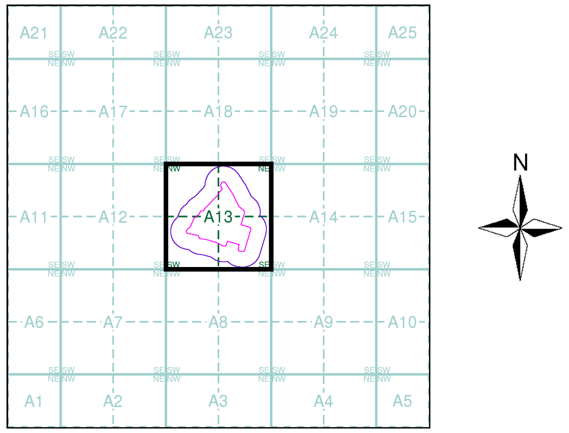
The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



SJ8297NE
1990
1:1,250

Historical Map - Segment A13



A21
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A4
A5
N

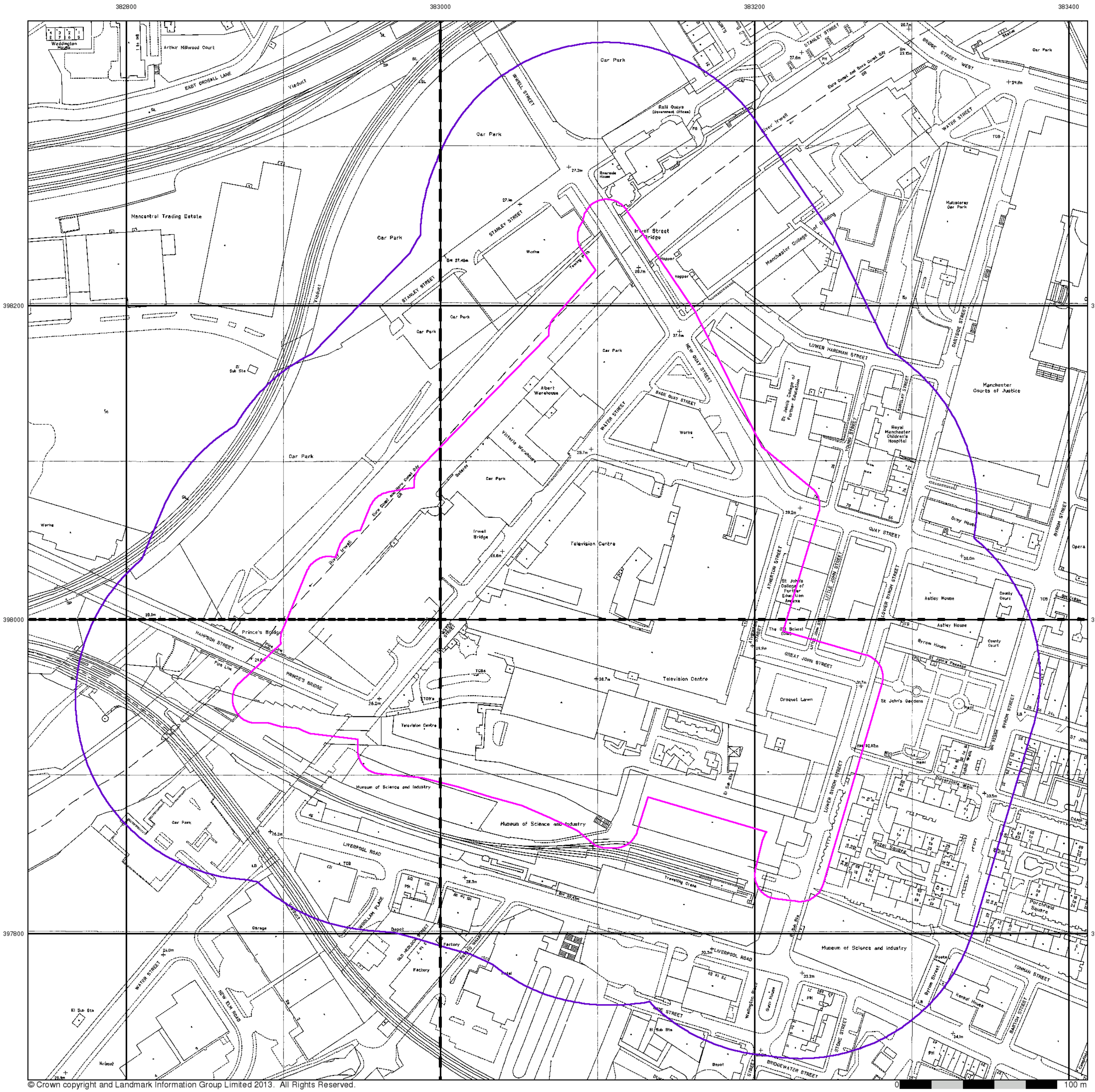
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

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


382800
383000
383200
383400
398200
398000
397800
Waddington House
Arthur Millwood Court
EAST ORDSALL LANE
Viaduct
Mancentral Trading Estate
Car Park
STANLEY STREET
Works
Irwell Street Bridge
Hopper
Riverside House
Manchester College of Building
BRIDGE STREET WEST
WATER STREET
Multistorey Car Park
Albert Warehouse
Victoria Warehouse
NEW QUAY STREET
BACK QUAY STREET
LOWER HARDMAN STREET
St John's College of Further Education
Royal Manchester Children's Hospital
Manchester Courts of Justice
GARTSIDE STREET
Irwell Bridge
Television Centre
QUAY STREET
Quay House
Opera
BYROM STREET
ATHERTON STREET
LOWER BYROM STREET
St John's College of Further Education Annexe
Astley House
County Court
Byrom House
The Old School
GREAT JOHN STREET
Croquet Lawn
St John's Gardens
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Museum of Science and Industry
Travelling Crane
LIVERPOOL ROAD
Car Park
Garage
Depot
Factory
WATER STREET
NEW ELM ROAD
El Sub Sta
Museum of Science and Industry
BRIDGEWATER STREET
TONMAN STREET
BARTON STREET
Kennel House
0
100 m

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ROC CONSULTING

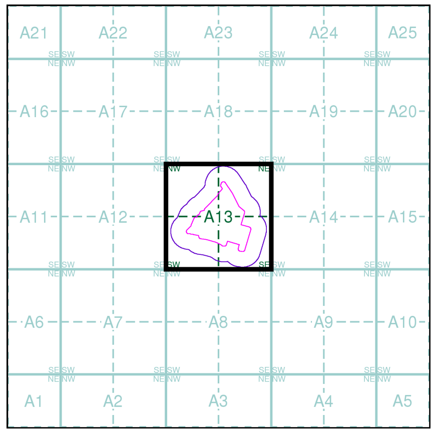
Large-Scale National Grid Data
Published 1992
Source map scale - 1:1,250

'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)

SJ8298SE 1992 1:1,250	SJ8398SW 1992 1:1,250
SJ8297NE 1992 1:1,250	SJ8397NW 1992 1:1,250

Historical Map - Segment A13


A21
A22
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A6
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A8
A9
A10
A1
A2
A3
A4
A5
N

Order Details

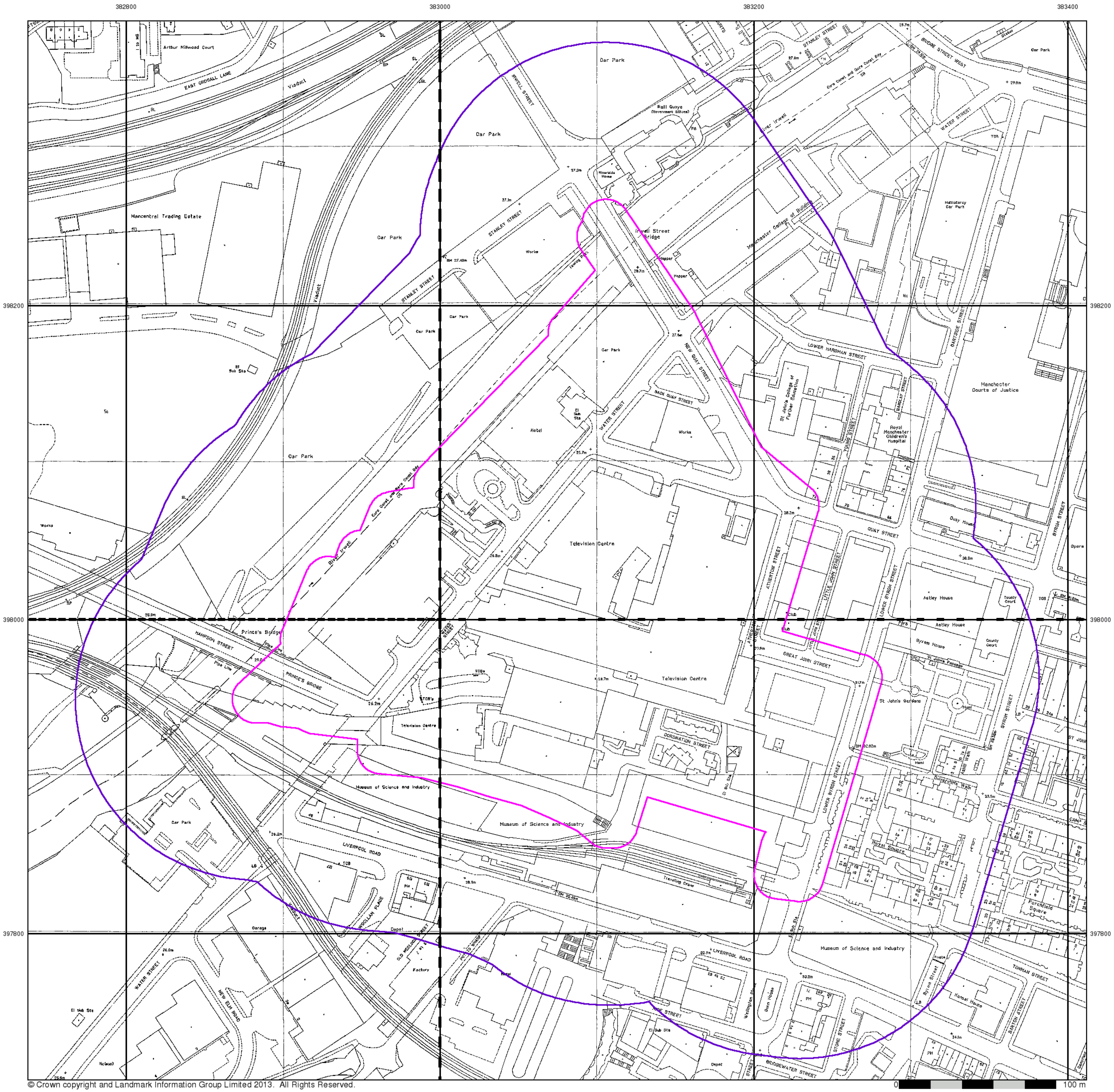
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark
Information Group

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


382800
383000
383200
383400
398200
398000
397800
Arthur Millwood Court
EAST ORDSALL LANE
Viaduct
Mancentral Trading Estate
Car Park
IRWELL STREET
Rail Quays (Government Offices)
Riverside House
STANLEY STREET
Works
Irwell Street Bridge
River Irwell
Manchester College of Building
WATER STREET
Multistorey Car Park
LOWER HARDMAN STREET
Manchester Courts of Justice
NEW QUAY STREET
BACK QUAY STREET
Hotel
Television Centre
Royal Manchester Children's Hospital
QUAY STREET
Quay House
Astley House
Byrom House
GREAT JOHN STREET
St John's Gardens
Prince's Bridge
HAMPSON STREET
PRINCES GROVE
CORONATION STREET
Museum of Science and Industry
LIVERPOOL ROAD
Car Park
Travelling Crane
Depot
Factory
WATER STREET
NEW ELM ROAD
LOWER BYROM STREET
BRIDGEWATER STREET
TONMAN STREET
Opera
El Sub Sta
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100 m

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ROC CONSULTING

Large-Scale National Grid Data

Published 1993 - 1994

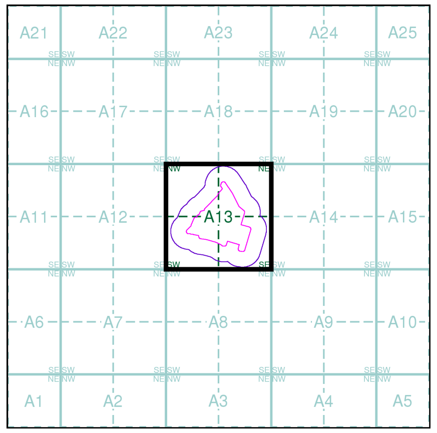
Source map scale - 1:1,250

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

Map Name(s) and Date(s)

SJ8298SE 1993 1:1,250	SJ8398SW 1994 1:1,250
SJ8297NE 1993 1:1,250	SJ8397NW 1994 1:1,250

Historical Map - Segment A13


A21
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A10
A1
A2
A3
A4
A5
N

Order Details

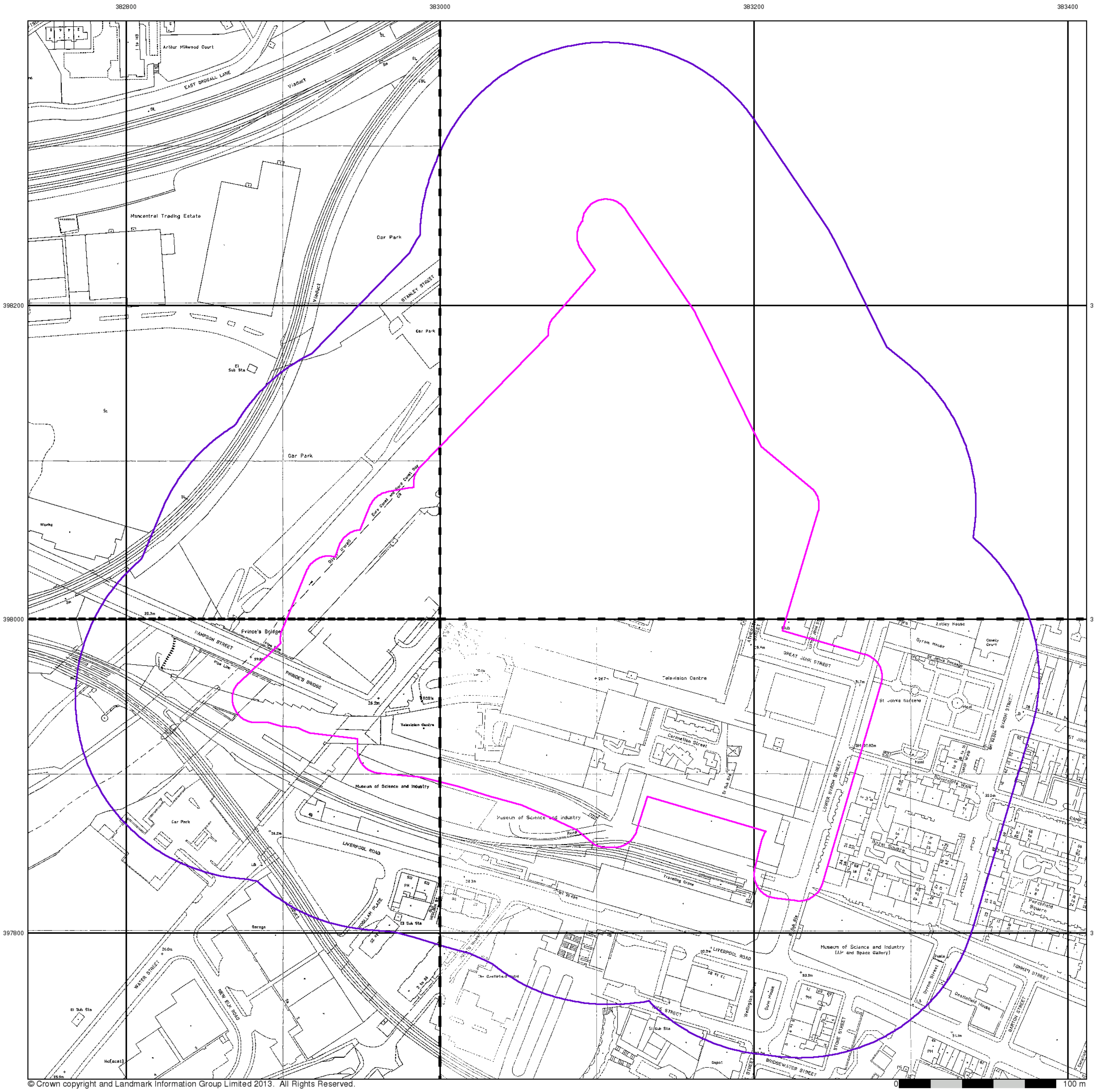
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

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



382800
383000
383200
383400
398200
398000
397800
Arthur Millwood Court
EAST ORDSALL LANE
Viaduct
Mancentral Trading Estate
Car Park
STANLEY STREET
El Sub Sta
Car Park
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
GREAT JOHN STREET
St Johns Gardens
Byrom House
Coronation Street
LOWER BYROM STREET
LIVERPOOL ROAD
Car Park
WATER STREET
NEW ELM ROAD
Museum of Science and Industry (Air and Space Gallery)
TONMAN STREET
BRIDGEWATER STREET
Works
El Sub Sta
Depot
0
100 m

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RoC CONSULTING

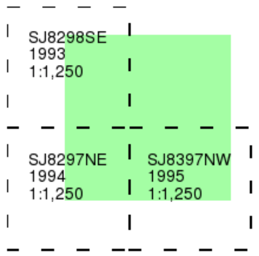
Large-Scale National Grid Data

Published 1993 - 1995

Source map scale - 1:1,250

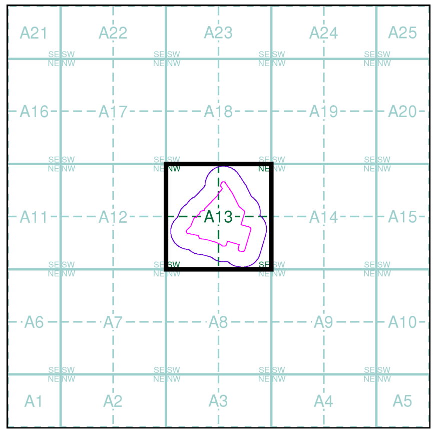
'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

Map Name(s) and Date(s)



SJ8298SE
1993
1:1,250
SJ8297NE
1994
1:1,250
SJ8397NW
1995
1:1,250

Historical Map - Segment A13



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A5
N

Order Details

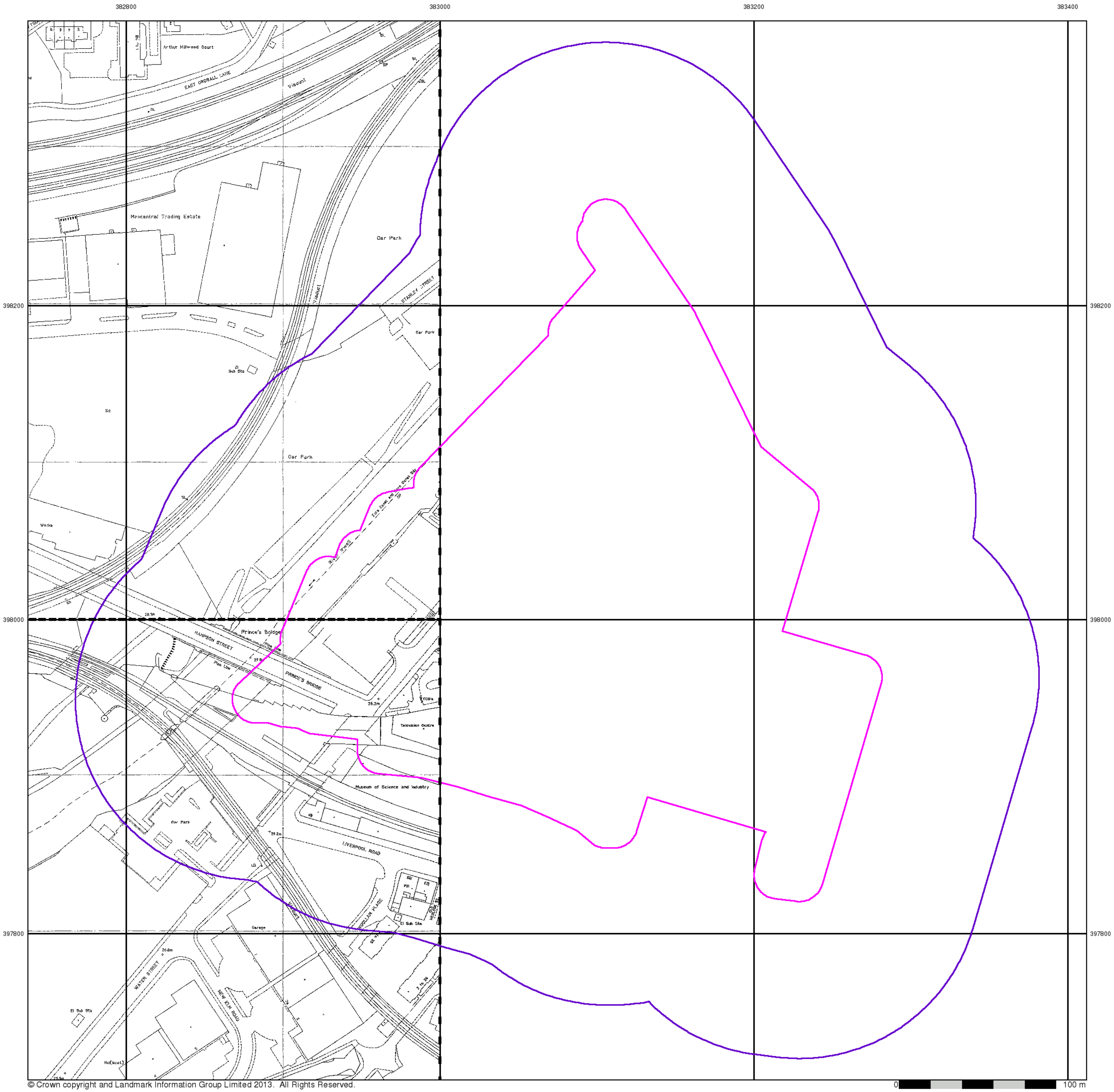
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	100

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

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


382800
383000
383200
383400
398200
398000
397800
Arthur Millwood Court
EAST ORDSALL LANE
Viaduct
Mancentral Trading Estate
Car Park
STANLEY STREET
Viaduct
Car Park
Sub Sta
Car Park
Works
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
Car Park
LIVERPOOL ROAD
Garage
El Sub Sta
WATER STREET
NEW ELM ROAD
El Sub Sta

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0 100 m

R2C CONSULTING

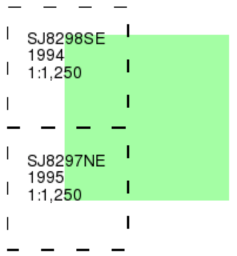
Large-Scale National Grid Data

Published 1994 - 1995

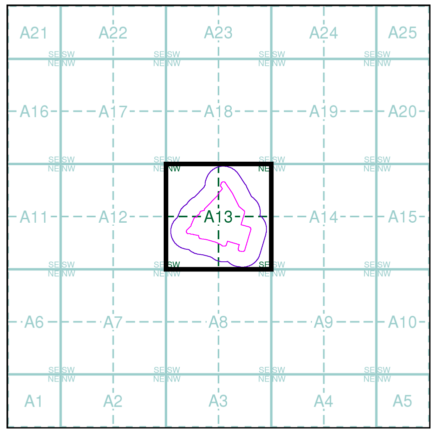
Source map scale - 1:1,250

'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)


SJ8298SE
1994
1:1,250
SJ8297NE
1995
1:1,250

Historical Map - Segment A13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N

Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
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Site Area (Ha):	9.23
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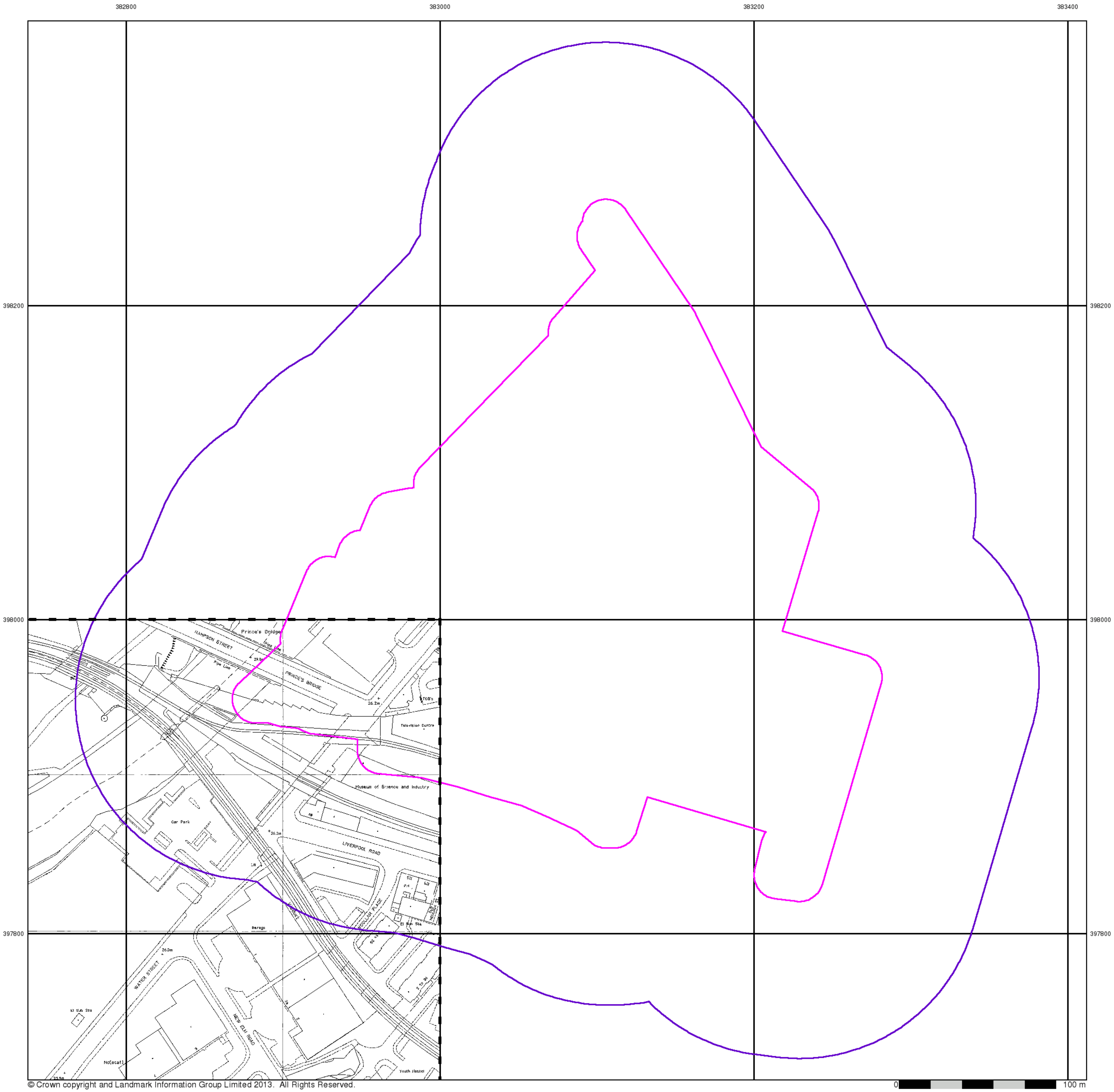
382800
383000
383200
383400
398200
398000
397800
Prince's Bridge
HAMPSON STREET
PRINCE'S BRIDGE
Television Centre
Museum of Science and Industry
Car Park
LIVERPOOL ROAD
WATER STREET
NEW ELM ROAD
Garage
El Sub Sta
Youth Hostel
26.2m
26.3m
0
100 m

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Large-Scale National Grid Data

Published 1995

Source map scale - 1:1,250

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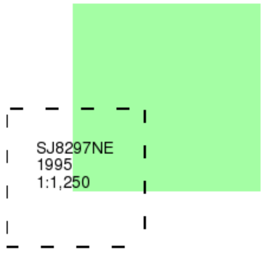
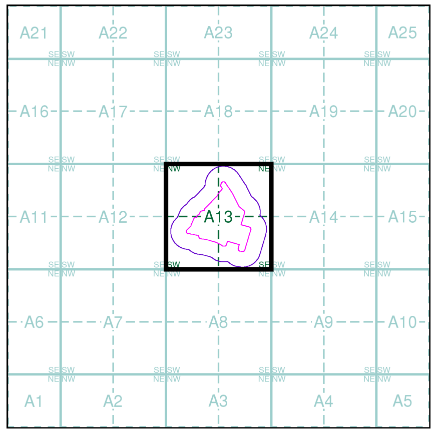
Map Name(s) and Date(s)


SJ8297NE
1995
1:1,250

Historical Map - Segment A13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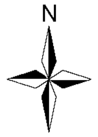


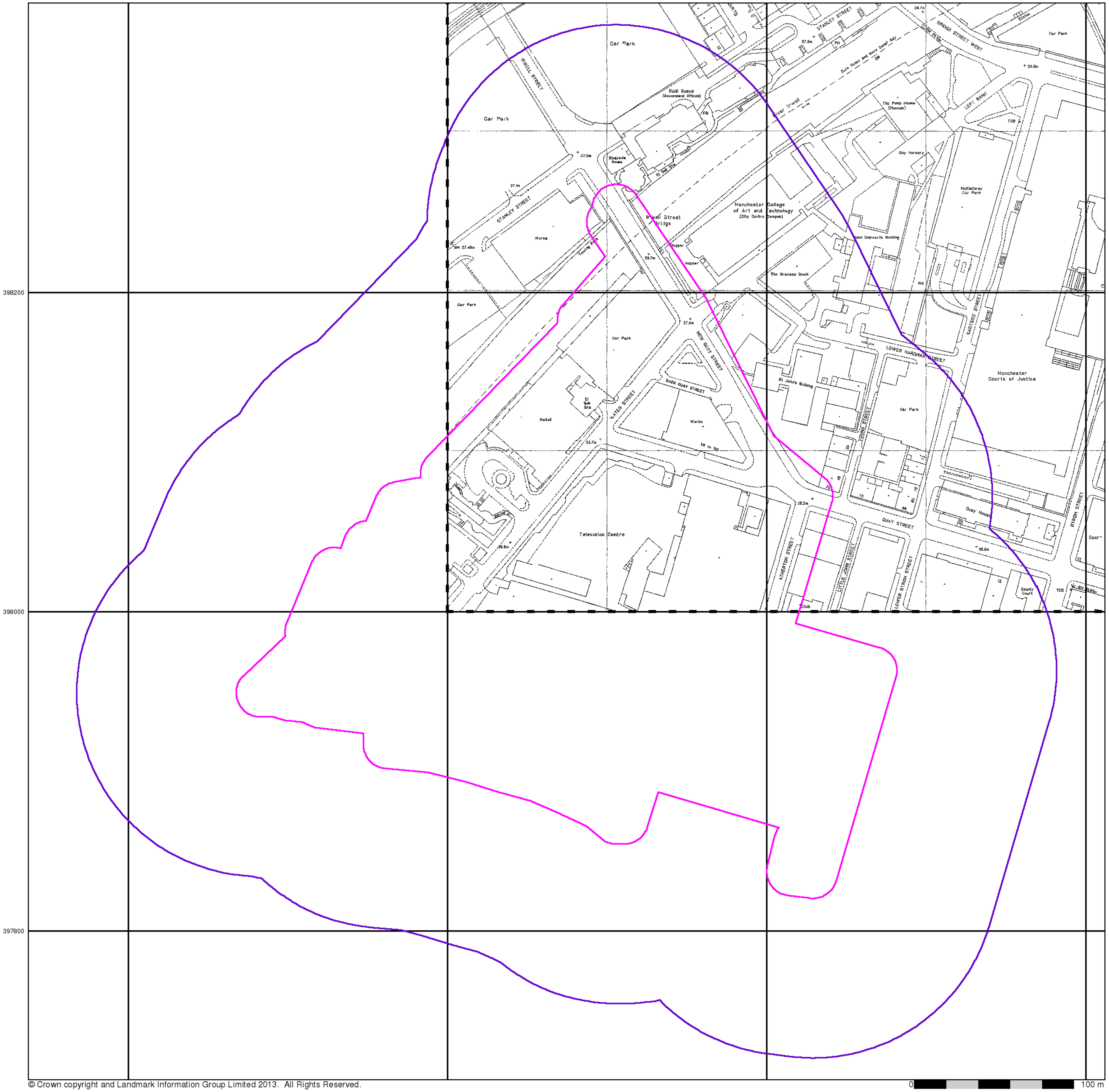
Order Details

Order Number: 61378999_1_1
Customer Ref: 3233
National Grid Reference: 383090, 398020
Slice: A
Site Area (Ha): 9.23
Search Buffer (m): 100

Site Details

Water Street, Manchester, M3 4JQ

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



398200
398000
397800
Car Park
Stanley Street
Irwell Street
Manchester College of Art and Technology (City Centre Campus)
Irwell Street Bridge
Works
Car Park
New Quay Street
Back Quay Street
Water Street
Hotel
Television Centre
Lower Hardman Street
Manchester Courts of Justice
Car Park
Quay Street
Quay House
Atherton Street
Little John Street
Lower Byrom Street
Byrom Street
Gartside Street
Multistorey Car Park
Day Nursery
The Granada Book
0
100 m

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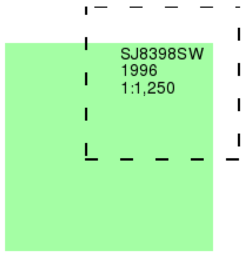
Large-Scale National Grid Data

Published 1996

Source map scale - 1:1,250

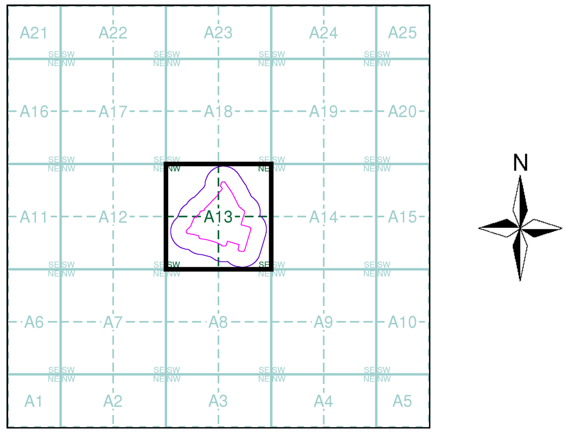
'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

Map Name(s) and Date(s)



SJ8398SW
1996
1:1,250

Historical Map - Segment A13



A21
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N

Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
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Site Area (Ha):	9.23
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Water Street, Manchester, M3 4JQ

Landmark®
Information Group

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

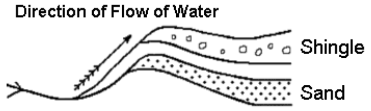
Historical Mapping Legends

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)
- RD. 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
- Glasshouse



- Sloping Masonry
- Pylon; Pole; Electricity Transmission Line
- 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

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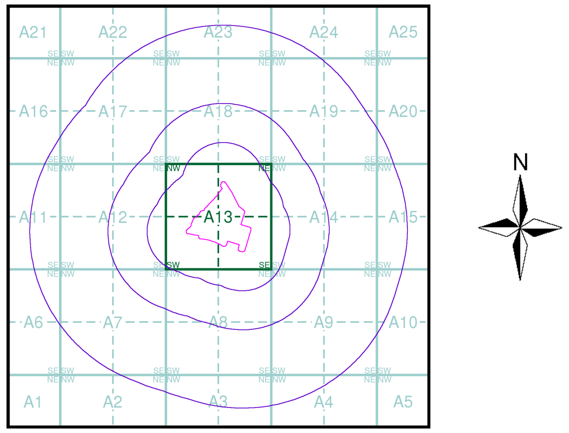
Historical Mapping & Photography included:

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	1972	11
Manchester	1:25,000	1975	12
Ordnance Survey Plan	1:10,000	1980	13
Ordnance Survey Plan	1:10,000	1985	14
Ordnance Survey Plan	1:10,000	1989	15
Ordnance Survey Plan	1:10,000	1994	16
10K Raster Mapping	1:10,000	1999	17
10K Raster Mapping	1:10,000	2006	18
VectorMap Local	1:10,000	2014	19

Historical Map - Slice A



Order Details

Order Number: 61378999_1_1
Customer Ref: 3233
National Grid Reference: 383090, 398020
Slice: A
Site Area (Ha): 9.23
Search Buffer (m): 1000

Site Details

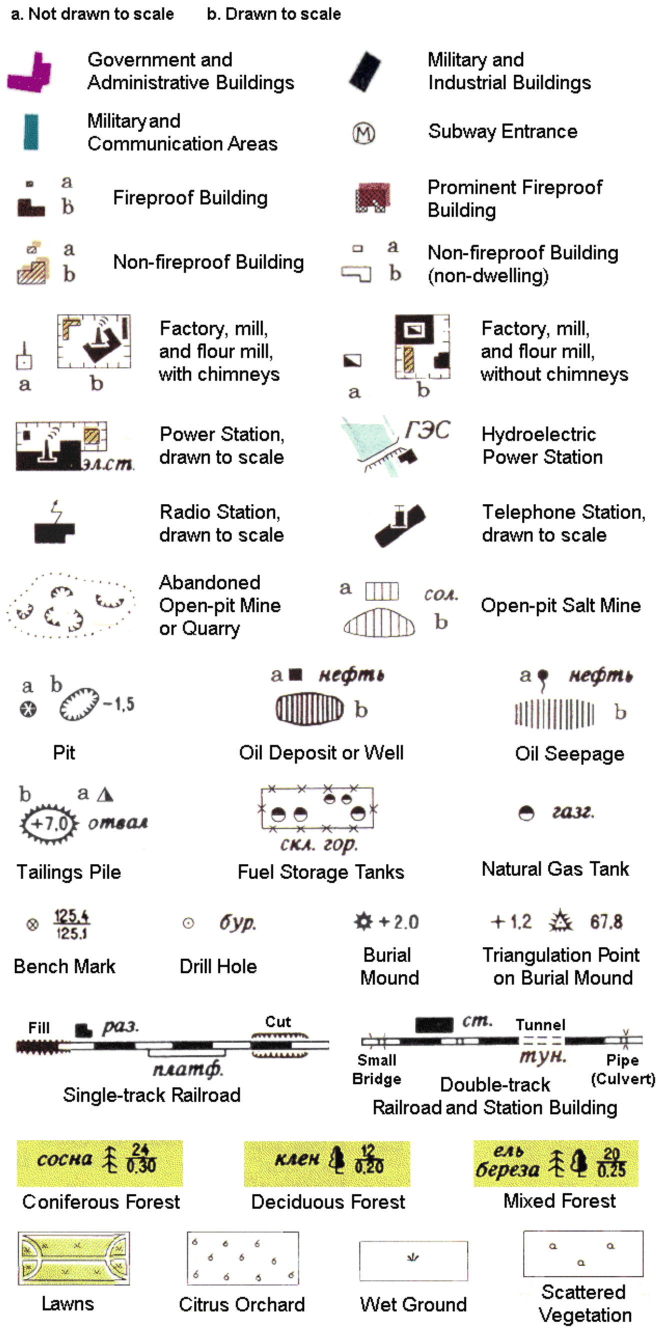
Water Street, Manchester, M3 4JQ

Landmark Information Group

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

Russian Military Mapping Legends

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

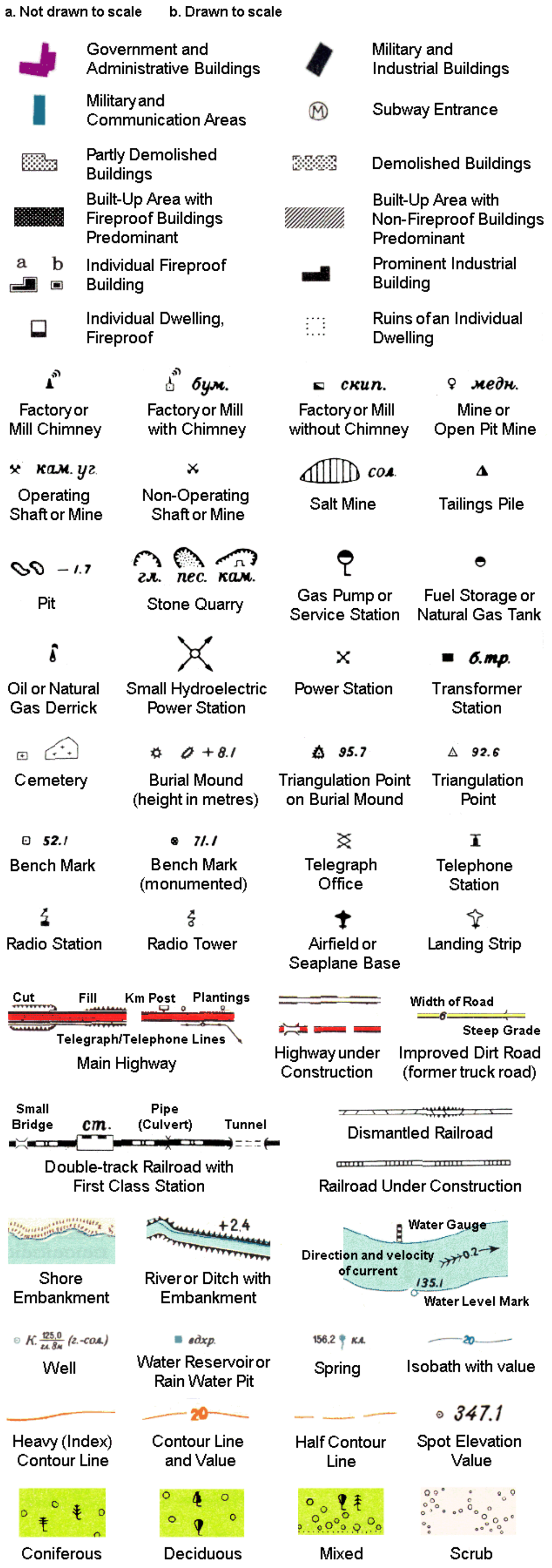

a. Not drawn to scale
b. Drawn to scale
Government and Administrative Buildings
Military and Industrial Buildings
Military and Communication Areas
Subway Entrance
a b Fireproof Building
Prominent Fireproof Building
a b Non-fireproof Building
a b Non-fireproof Building (non-dwelling)
a b Factory, mill, and flour mill, with chimneys
a b Factory, mill, and flour mill, without chimneys
эл.ст. Power Station, drawn to scale
ГЭС Hydroelectric Power Station
Radio Station, drawn to scale
Telephone Station, drawn to scale
Abandoned Open-pit Mine or Quarry
a b сол. Open-pit Salt Mine
a b −1,5 Pit
a b нефть Oil Deposit or Well
a b нефть Oil Seepage
b a +7,0 отвал Tailings Pile
скл. гор. Fuel Storage Tanks
газг. Natural Gas Tank
125,4 125,1 Bench Mark
бур. Drill Hole
+2,0 Burial Mound
+1,2 67,8 Triangulation Point on Burial Mound
Fill раз. Cut платф. Single-track Railroad
ст. Tunnel Small Bridge туп. Pipe (Culvert) Double-track Railroad and Station Building
сосна 24/0,30 Coniferous Forest
клен 12/0,20 Deciduous Forest
ель береза 20/0,25 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
180/12 180/12	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
a b Individual Fireproof Building
Prominent Industrial Building
Individual Dwelling, Fireproof
Ruins of an Individual Dwelling
Factory or Mill Chimney
бум. Factory or Mill with Chimney
скип. Factory or Mill without Chimney
медн. Mine or Open Pit Mine
кам. уг. Operating Shaft or Mine
Non-Operating Shaft or Mine
сол. Salt Mine
Tailings Pile
−1.7 Pit
гл. пес. кам. Stone Quarry
Gas Pump or Service Station
Fuel Storage or Natural Gas Tank
Oil or Natural Gas Derrick
Small Hydroelectric Power Station
Power Station
б.тр. Transformer Station
Cemetery
+8.1 Burial Mound (height in metres)
95.7 Triangulation Point on Burial Mound
92.6 Triangulation Point
52.1 Bench Mark
71.1 Bench Mark (monumented)
Telegraph Office
Telephone Station
Radio Station
Radio Tower
Airfield or Seaplane Base
Landing Strip
Cut Fill Km Post Plantings Telegraph/Telephone Lines Main Highway
Highway under Construction
Width of Road Steep Grade Improved Dirt Road (former truck road)
Small Bridge ст. Pipe (Culvert) Tunnel Double-track Railroad with First Class Station
Dismantled Railroad
Railroad Under Construction
Shore Embankment
+2.4 River or Ditch with Embankment
Water Gauge Direction and velocity of current 0.2 135.1 Water Level Mark
К 125.0/2.6 (г.-сол.) Well
вдхр. Water Reservoir or Rain Water Pit
156.2 кл. Spring
20 Isobath with value
Heavy (Index) Contour Line
20 Contour Line and Value
Half Contour Line
347.1 Spot Elevation Value
Coniferous
Deciduous
Mixed
Scrub

Key to Numbers on Mapping

SJ89_Manchester

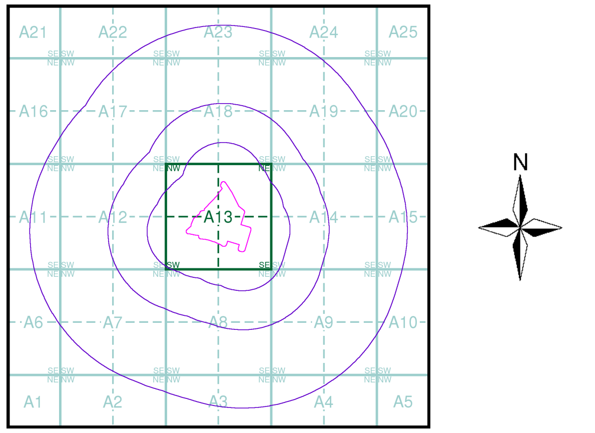
No.	Description
1	Airfield/Airport
6	Railway Station
62	Factory (Gas)
66	Factory (Gas)
94	Factory (Metal Works)
158	Police Station/Headquarters
168	Post Office
197	Railway Station

RoC CONSULTING

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	1972	11
Manchester	1:25,000	1975	12
Ordnance Survey Plan	1:10,000	1980	13
Ordnance Survey Plan	1:10,000	1985	14
Ordnance Survey Plan	1:10,000	1989	15
Ordnance Survey Plan	1:10,000	1994	16
10K Raster Mapping	1:10,000	1999	17
10K Raster Mapping	1:10,000	2006	18
VectorMap Local	1:10,000	2014	19

Russian Map - Slice A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A5
N

Order Details

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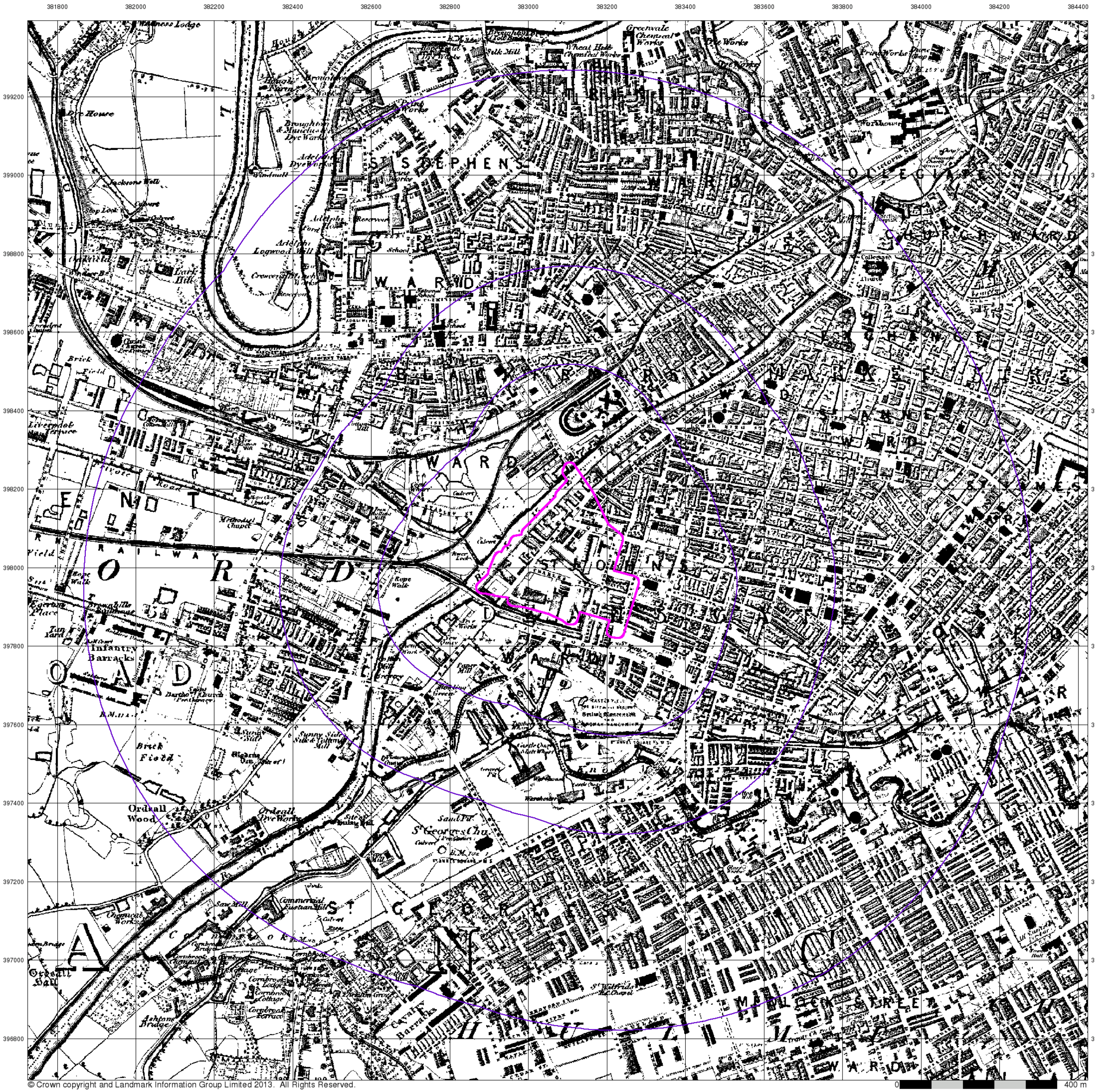
381800
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382400
382600
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383800
384000
384200
384400
399200
399000
398800
398600
398400
398200
398000
397800
397600
397400
397200
397000
396800
Wilderness Lodge
Dye House
Jacksons Well
Broughton & Manchester Dye Works
Adelphi Dye Works
St STEPHENS WARD
Adelphi Reservoir
Logwood Mill
Crescent
Greenvale Chemical Works
Wheat Hall Chemical Works
Dye Works
Print Works
COLLEGIATE CHURCH WARD
Victoria Station
BLACKFRIARS WARD
EXCHANGE WARD
MARKET STREET WARD
ST JAMES
Liverpool Terrace
Irwell
RAILWAY
ORDSALL
Infantry Barracks
ST JOHNS WARD
DEANSGATE WARD
Castle Field
Bridgewater Canal
Ordsall Wood
Ordsall Dye Works
St Georges Ch.
Commercial Fustian Mill
ST GEORGES
Cornbrook
Cavalry Barracks
St Wilfrids R.C. Chapel
MEDLOCK STREET
Ashton Bridge
Ordsall Hall
Saw Mill
Chemical Works
Brick Field
Sunny Side Silk & Cotton Mill
Rope Walk
Methodist Chapel
Tan Yard
0
400 m
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RoC CONSULTING

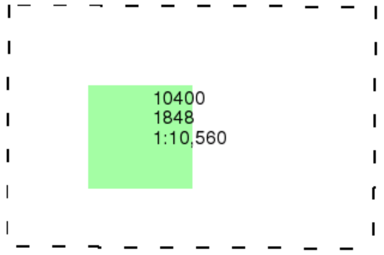
Lancashire And Furness

Published 1848

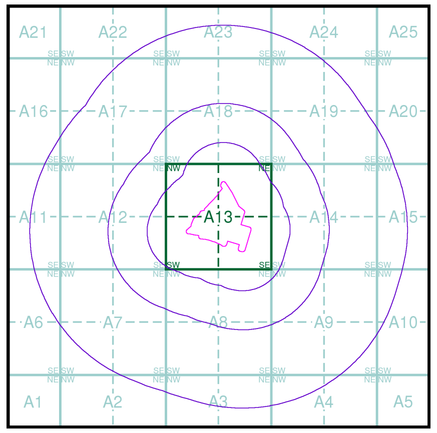
Source map scale - 1:10,560

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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A5
NW
NE
SW
SE

N

Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

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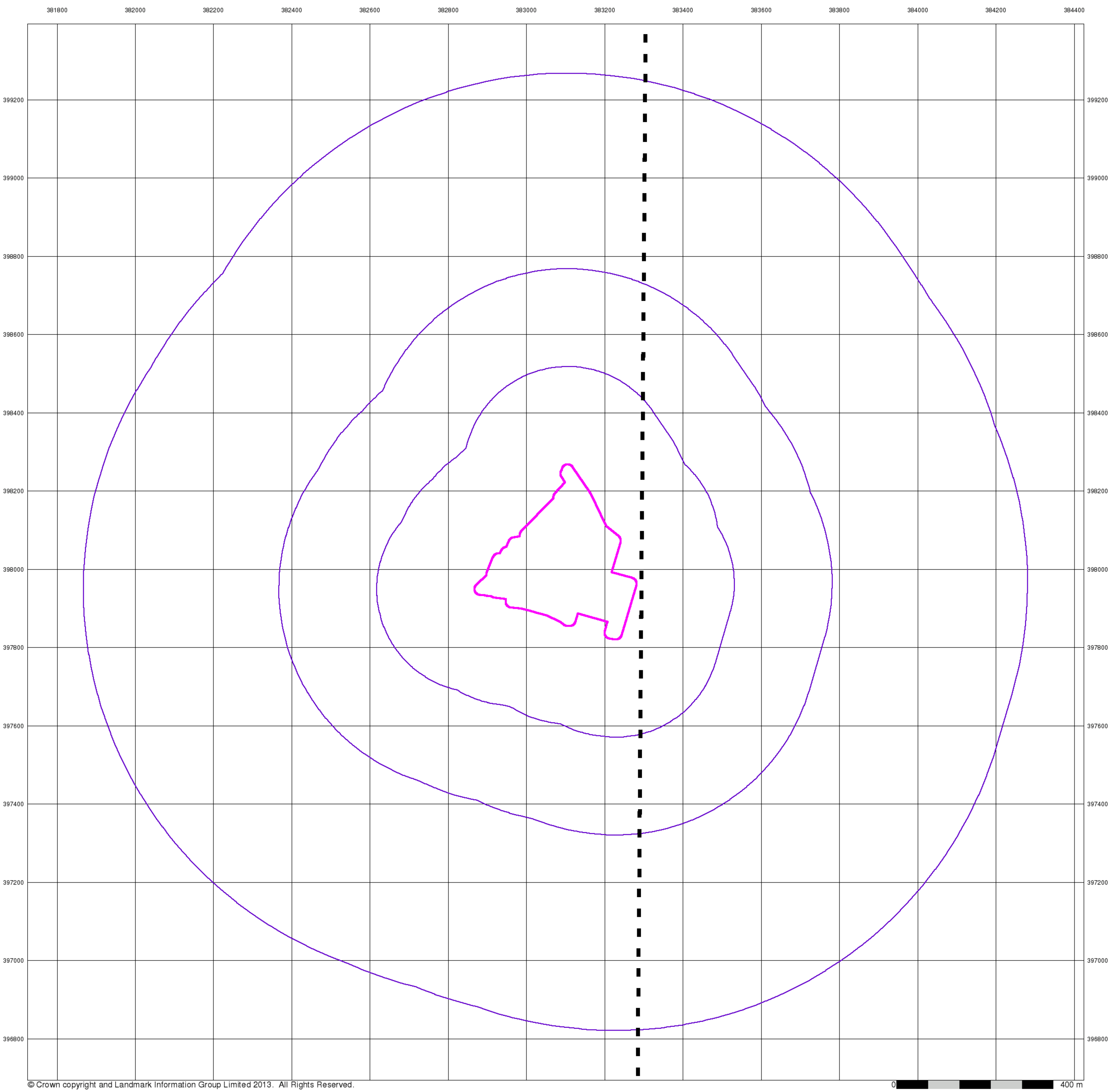
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397000
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R²C CONSULTING

Cheshire

Published 1882

Source map scale - 1:10,560

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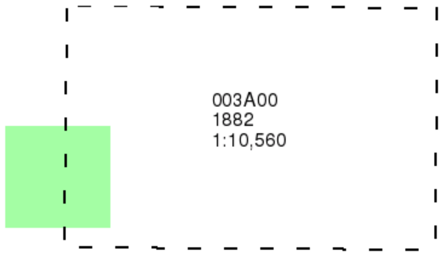
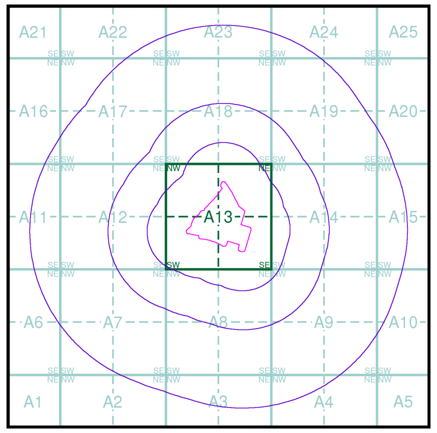
Map Name(s) and Date(s)


003A00
1882
1:10,560

Historical Map - Slice A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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

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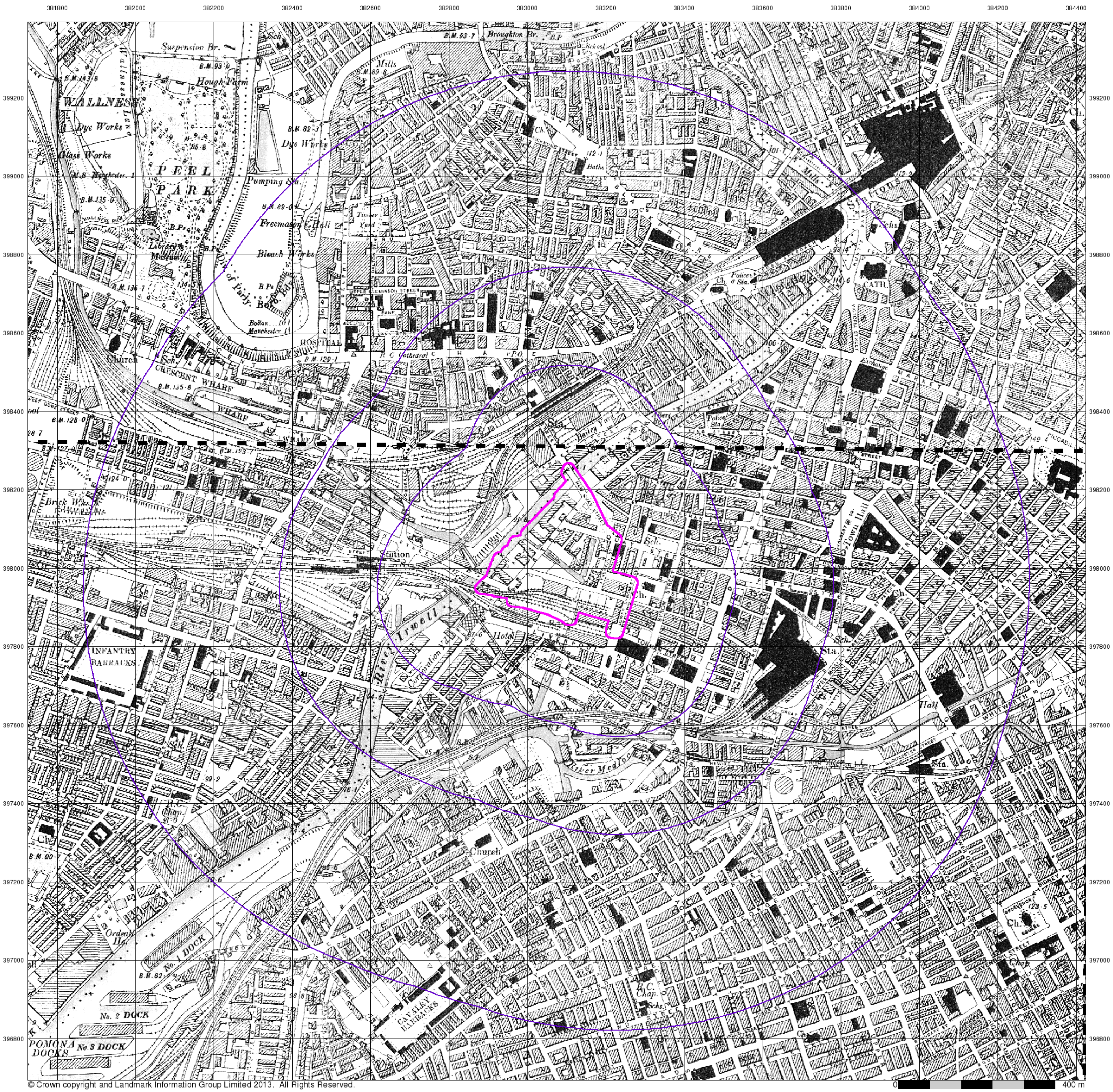
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396800
Suspension Br.
Broughton Br.
Hough Farm
WALLNESS
Dye Works
Glass Works
PEEL PARK
Pumping Sta.
Freemasons' Hall
Bleach Works
Library & Museum
HOSPITAL
Church
CRESCENT WHARF
WHARF
Brick Wks.
Station
River Irwell
Hotel
INFANTRY BARRACKS
River Medlock
Hall
CATH.
Sta.
Church
No. 1 DOCK
No. 2 DOCK
No. 3 DOCK
POMONA DOCKS
CAVALRY BARRACKS
0
400 m

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RoC CONSULTING

Lancashire And Furness
Published 1894 - 1896
Source map scale - 1:10,560

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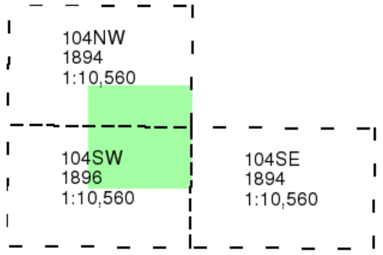
Map Name(s) and Date(s)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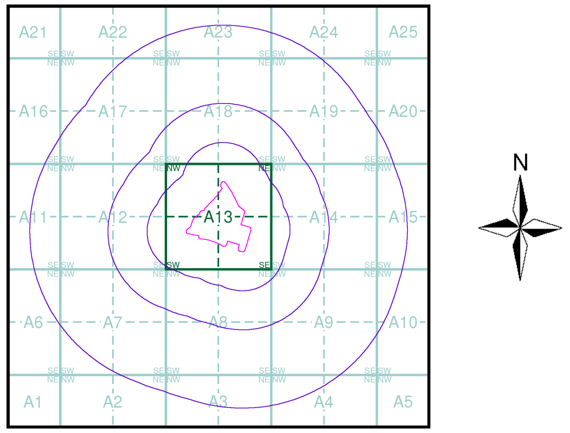
1894
1:10,560
104SW
1896
1:10,560
104SE
1894
1:10,560

Historical Map - Slice A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Order Details

Order Number:	61378999_1_1
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Search Buffer (m):	1000

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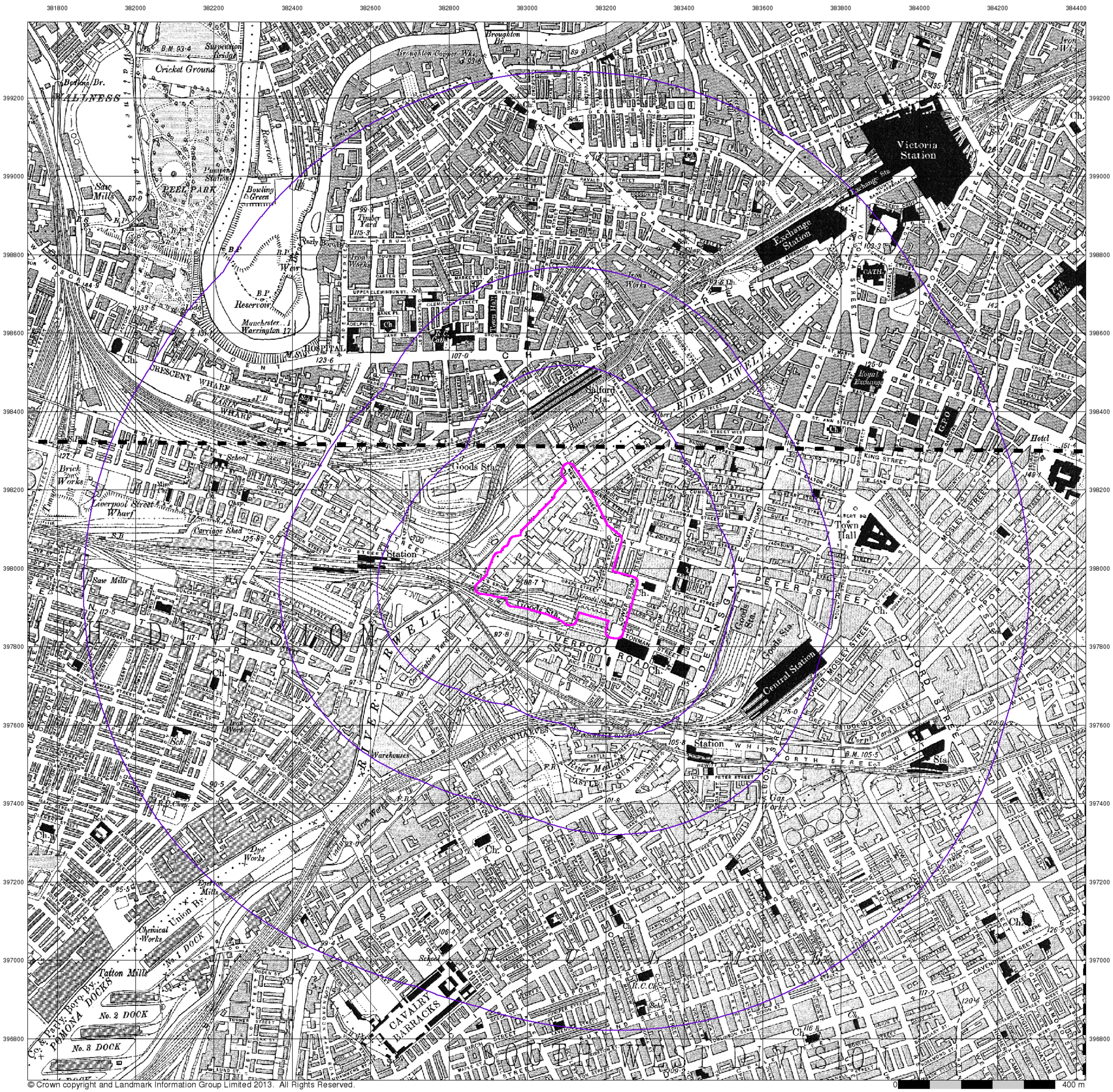
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397200
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396800
Cricket Ground
Suspension Bridge
WALLNESS
PEEL PARK
Saw Mills
Bowling Green
Reservoir
Manchester & Warrington
HOSPITAL
CRESCENT WHARF
BASIN WHARF
Broughton Bridge
Broughton Copper Wks.
Victoria Station
Exchange Station
CATH.
CHAPEL
Salford Sta.
RIVER IRWELL
Royal Exchange
G.P.O.
Hotel
Brick Works
Liverpool Street Wharf
Carriage Shed
Saw Mills
Goods Sta.
Station
Goods Sta.
LIVERPOOL ROAD
Town Hall
PETER STREET
Goods Sta.
Central Station
OXFORD STREET
Castlefield Wharves
River Medlock
Warehouses
Station
WHITWORTH STREET WEST
Gas Works
Dye Works
Iron Works
Chemical Works
Egerton Mills
Tatton Mills
POMONA DOCKS
No. 1 DOCK
No. 2 DOCK
No. 3 DOCK
CAVALRY BARRACKS
SOUTH WEST DIVISION
0
400 m

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R2C CONSULTING

Lancashire And Furness

Published 1909

Source map scale - 1:10,560

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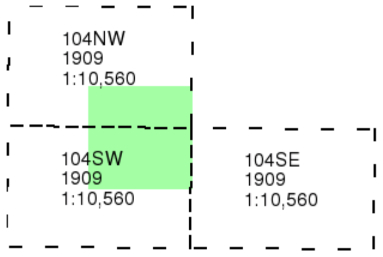
Map Name(s) and Date(s)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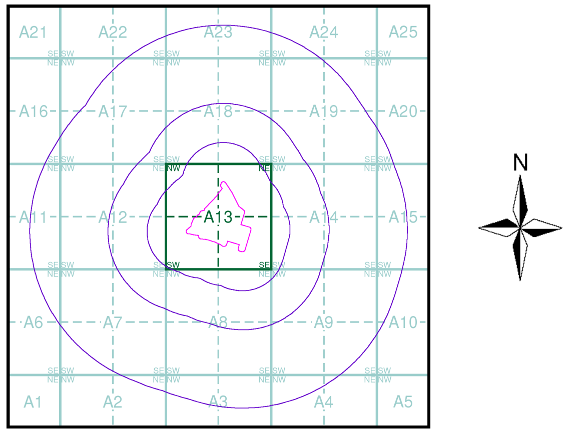
1909
1:10,560
104SW
1909
1:10,560
104SE
1909
1:10,560

Historical Map - Slice A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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

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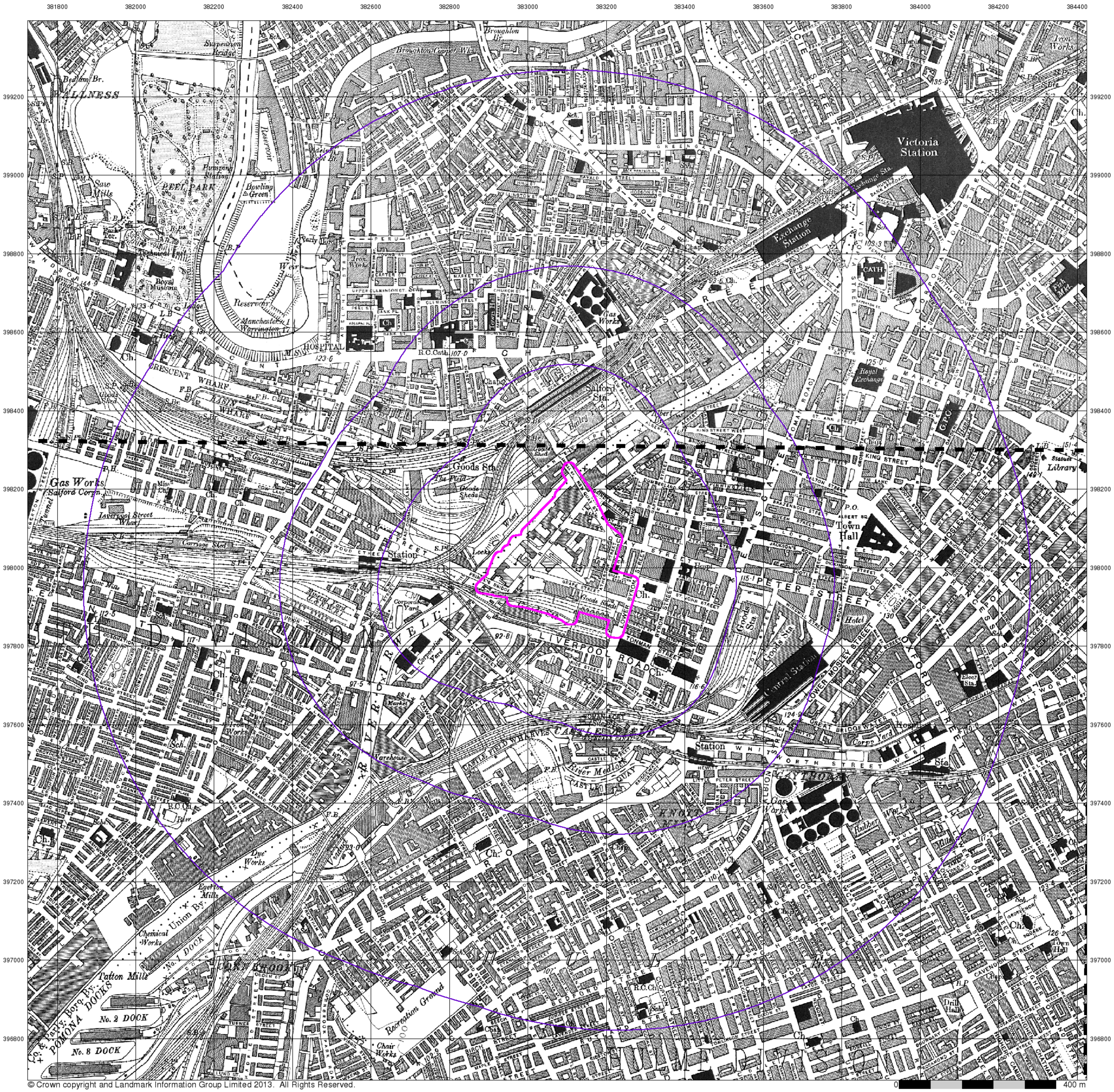
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396800
Victoria Station
Exchange Station
PEEL PARK
Royal Museum
Reservoir
Salford Sta.
Goods Sta.
Gas Works Salford Corpn.
Liverpool Street Wharf
Station
Town Hall
Royal Exchange
LIVERPOOL ROAD
PETER STREET
Central Station
CASTLE FIELD WHARVES
River Medlock
KING STREET
Statue Library
Corporation Yard
RIVER IRWELL
POMONA DOCKS
No. 2 DOCK
No. 3 DOCK
Tatton Mills
Chemical Works
Union Br.
Recreation Ground
Drill Hall
0
400 m

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Lancashire And Furness

Published 1923

Source map scale - 1:10,560

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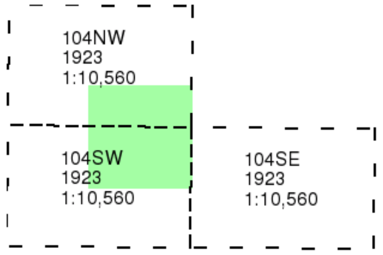
Map Name(s) and Date(s)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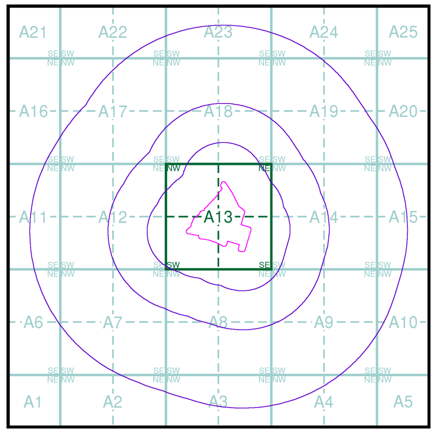
1923
1:10,560
104SW
1923
1:10,560
104SE
1923
1:10,560

Historical Map - Slice A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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Tel:	0844 844 9952
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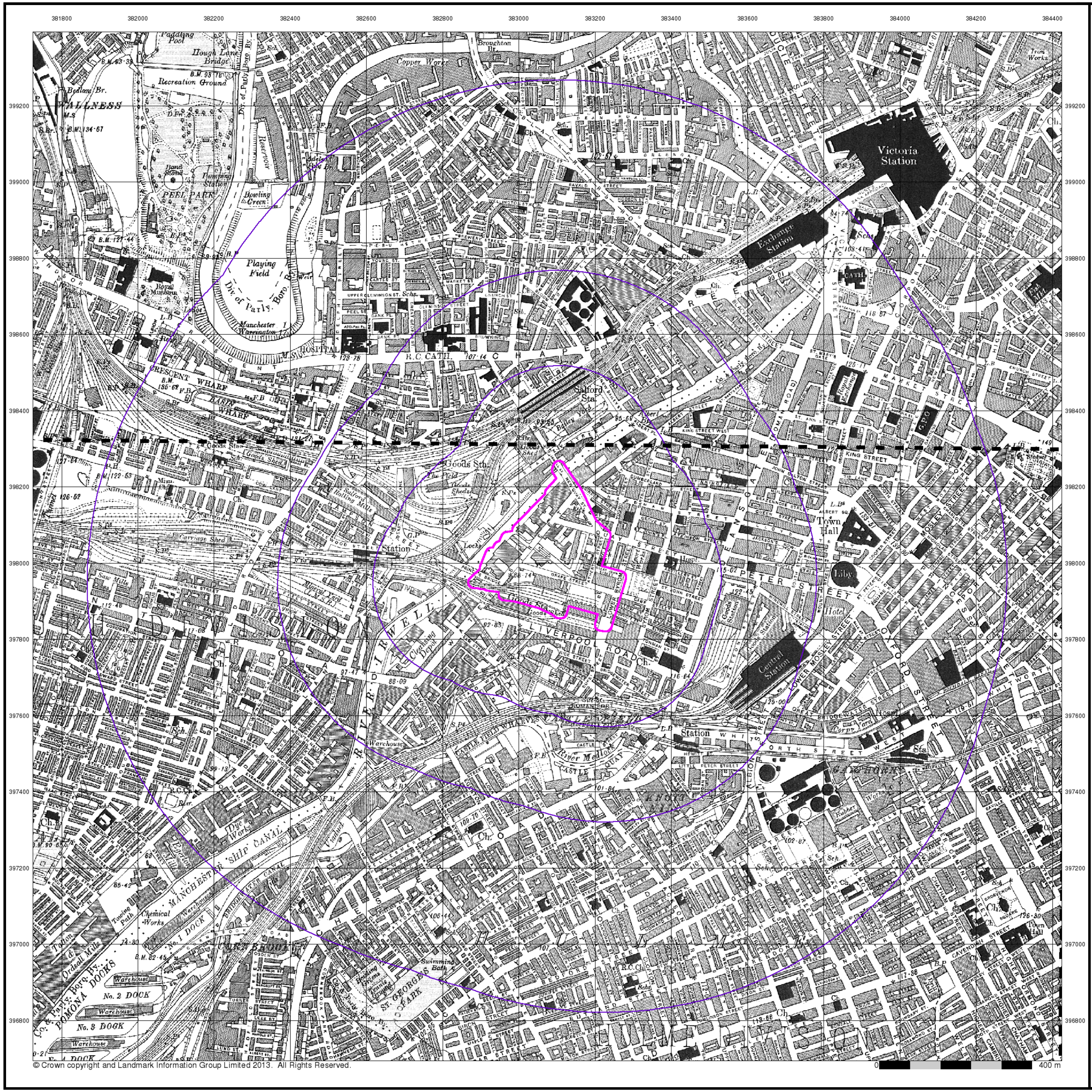
Web:	www.envirocheck.co.uk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396800
Peel Park
Playing Field
Recreation Ground
Victoria Station
Exchange Station
Salford Sta.
Central Station
Town Hall
Liby.
Peter Street
Liverpool Road
River Irwell
Crescent Wharf
Manchester Ship Canal
Pomona Docks
No. 2 Dock
No. 3 Dock
St. George's Park
Castle Field
River Medlock
0
400 m

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Lancashire And Furness

Published 1931 - 1933

Source map scale - 1:10,560

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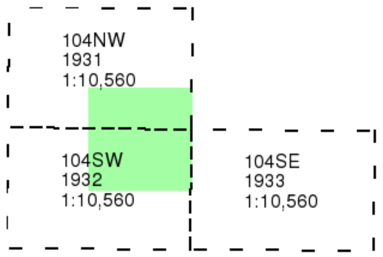
Map Name(s) and Date(s)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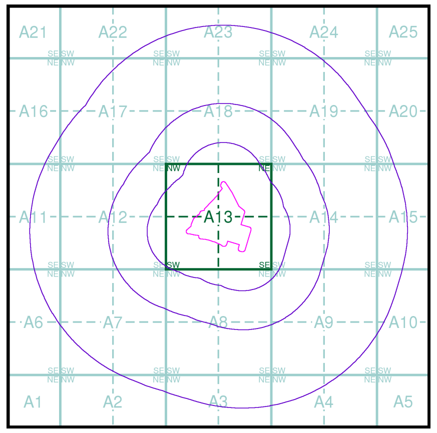
1931
1:10,560
104SW
1932
1:10,560
104SE
1933
1:10,560

Historical Map - Slice A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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Tel:	0844 844 9952
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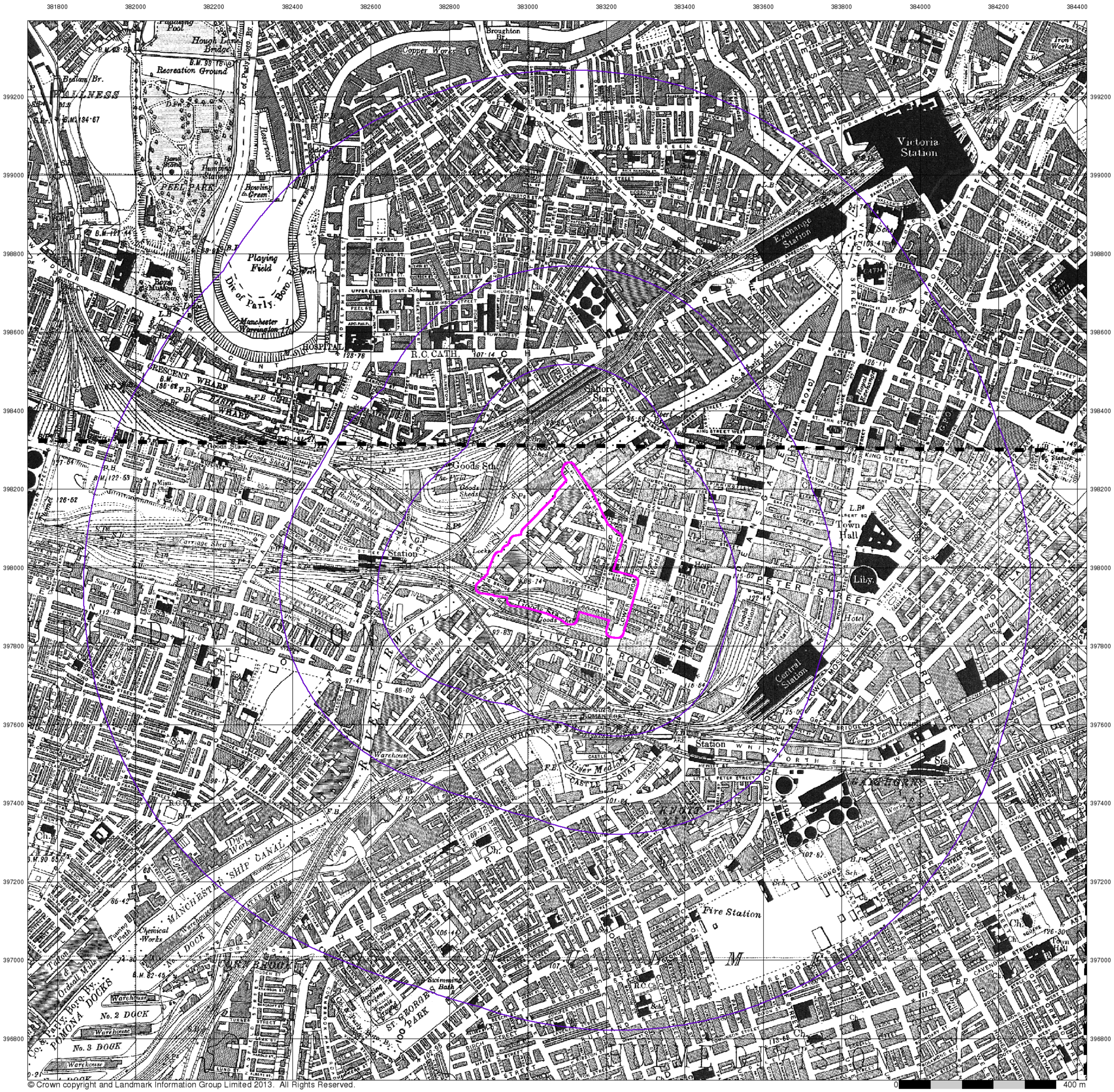
Web:	www.envirocheck.co.uk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396800
Victoria Station
Exchange Station
Salford Sta.
Playing Field
PEEL PARK
Recreation Ground
CRESCENT WHARF
Goods Shed
Station
LIVERPOOL ROAD
Central Station
Town Hall
Liby.
PETER STREET
KING STREET
RIVER IRWELL
MANCHESTER SHIP CANAL
POMONA DOCKS
No. 2 DOCK
No. 3 DOCK
Fire Station
ST. GEORGE'S PARK
R.C. CATH.
Broughton Br.
Copper Wks.
Iron Works
Hough Lane Bridge
Castle Field Wharves
Chemical Works
Warehouse
N

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ROC CONSULTING

Lancashire And Furness

Published 1938

Source map scale - 1:10,560

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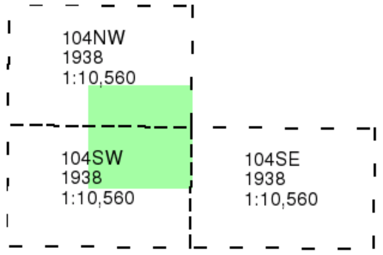
Map Name(s) and Date(s)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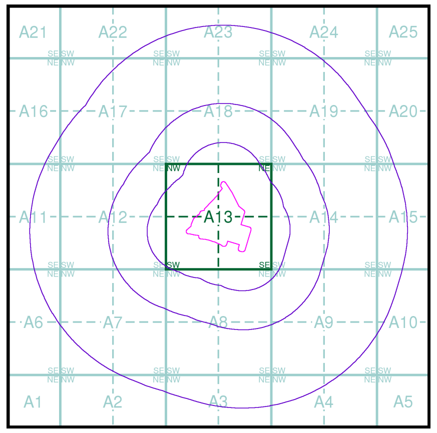
1938
1:10,560
104SW
1938
1:10,560
104SE
1938
1:10,560

Historical Map - Slice A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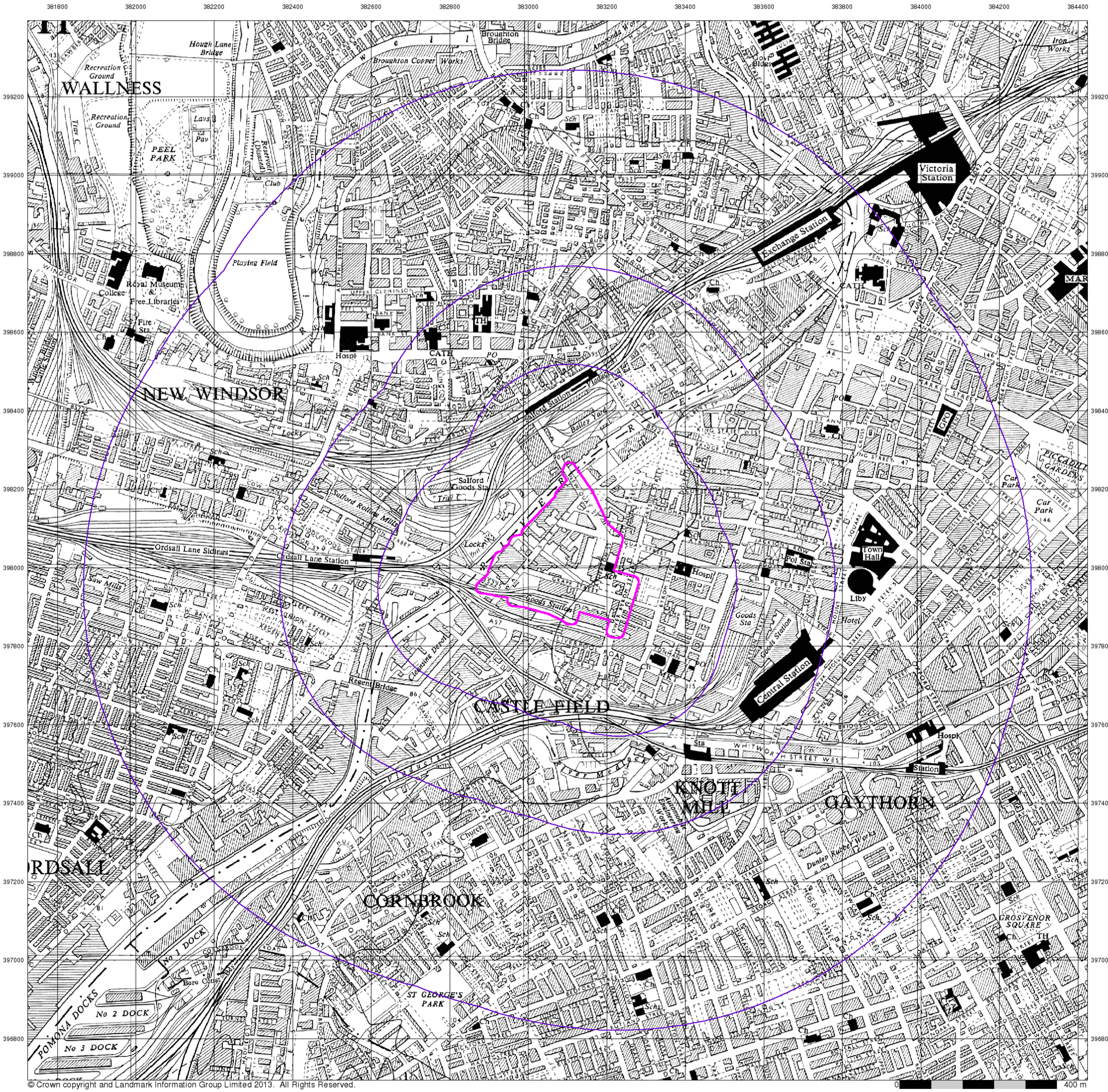

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397600
397400
397200
397000
396800
WALLNESS
PEEL PARK
Recreation Ground
Playing Field
Royal Museum & Free Libraries
College
Hospl
CATH
NEW WINDSOR
Broughton Bridge
Broughton Copper Works
Victoria Station
Exchange Station
Salford Station
Salford Goods Sta
Ordsall Lane Sidings
Ordsall Lane Station
Salford Rolling Mills
Goods Station
CASTLE FIELD
Central Station
Town Hall
Liby
KNOTT MILL
GAYTHORN
ORDSALL
CORNBROOK
ST GEORGE'S PARK
POMONA DOCKS
No 1 DOCK
No 2 DOCK
No 3 DOCK
GROSVENOR SQUARE
PICCADILLY GARDENS
Car Park
Dunlop Rubber Works
Regent Bridge
Whitworth Street West
0
400 m

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RoC CONSULTING

Ordnance Survey Plan

Published 1956

Source map scale - 1:10,000

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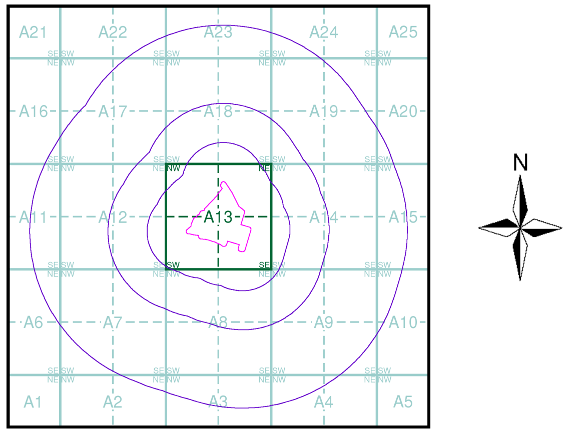
Map Name(s) and Date(s)

SJ89NW
1956
1:10,560

Historical Map - Slice A



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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

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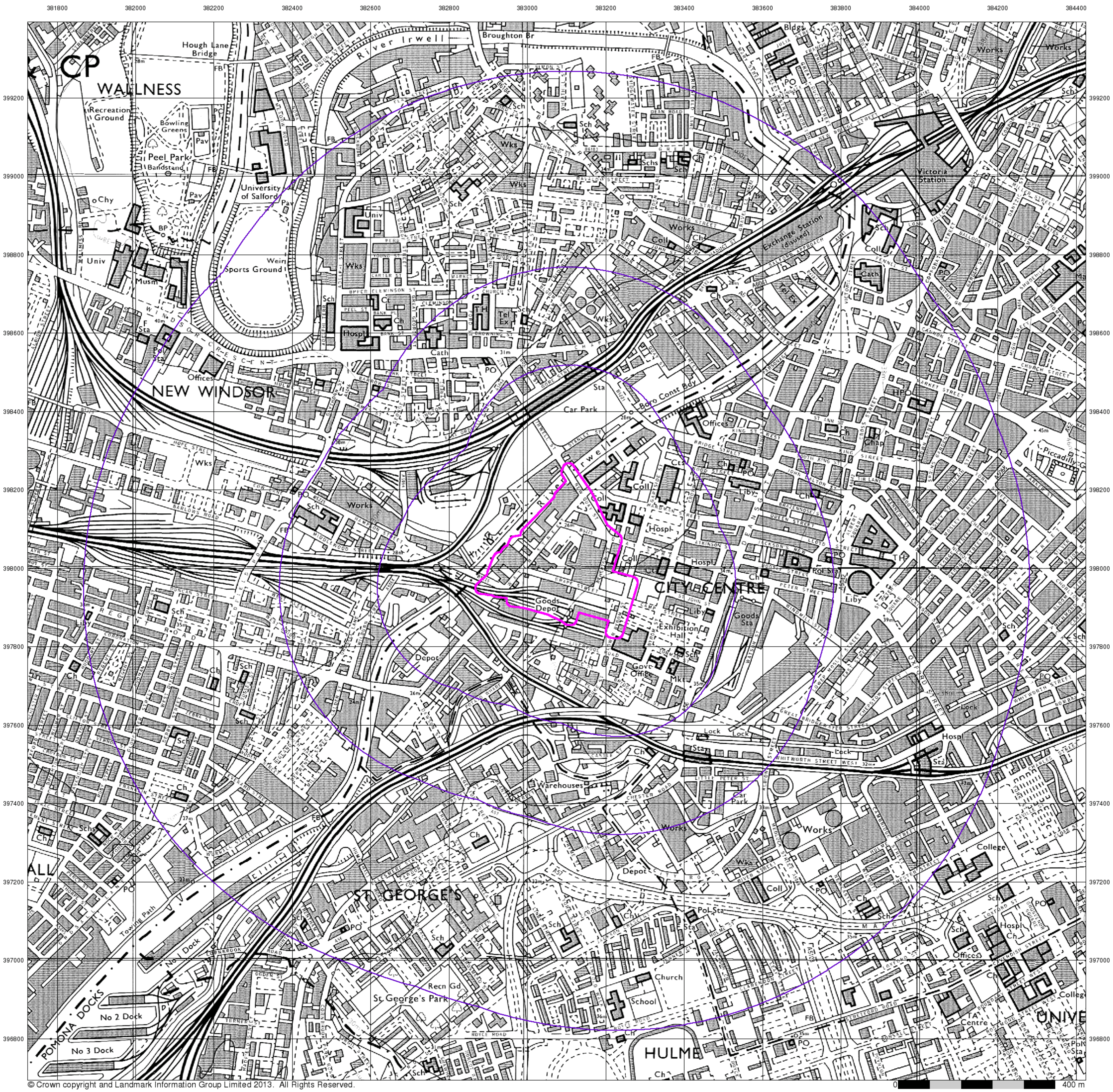
Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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WALLNESS
Recreation Ground
Bowling Greens
Peel Park
Bandstand
Hough Lane Bridge
River Irwell
Broughton Br
University of Salford
Weir
Sports Ground
Univ
Musm
NEW WINDSOR
Offices
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Tel Ex
Car Park
Boro Const Dep
Victoria Station
Exchange Station (disused)
Works
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Hospl
Goods Depot
CITY CENTRE
Exhibition Hall
Goods Sta
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Liby
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Piccadilly
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Car Park
Lock
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No 1 Dock
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No 3 Dock
POMONA DOCKS
HULME
Church
School
College
Centre
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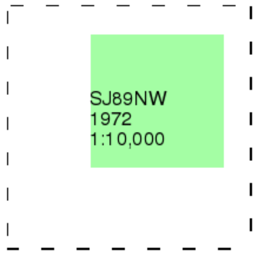
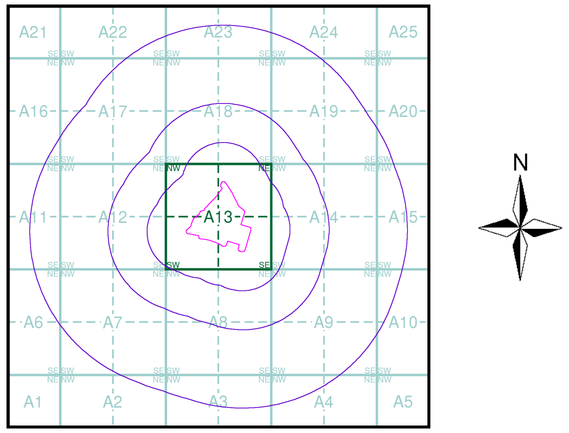
Ordnance Survey Plan
Published 1972
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)


SJ89NW
1972
1:10,000

Historical Map - Slice A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Order Details

Order Number:	61378999_1_1
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Slice:	A
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Search Buffer (m):	1000

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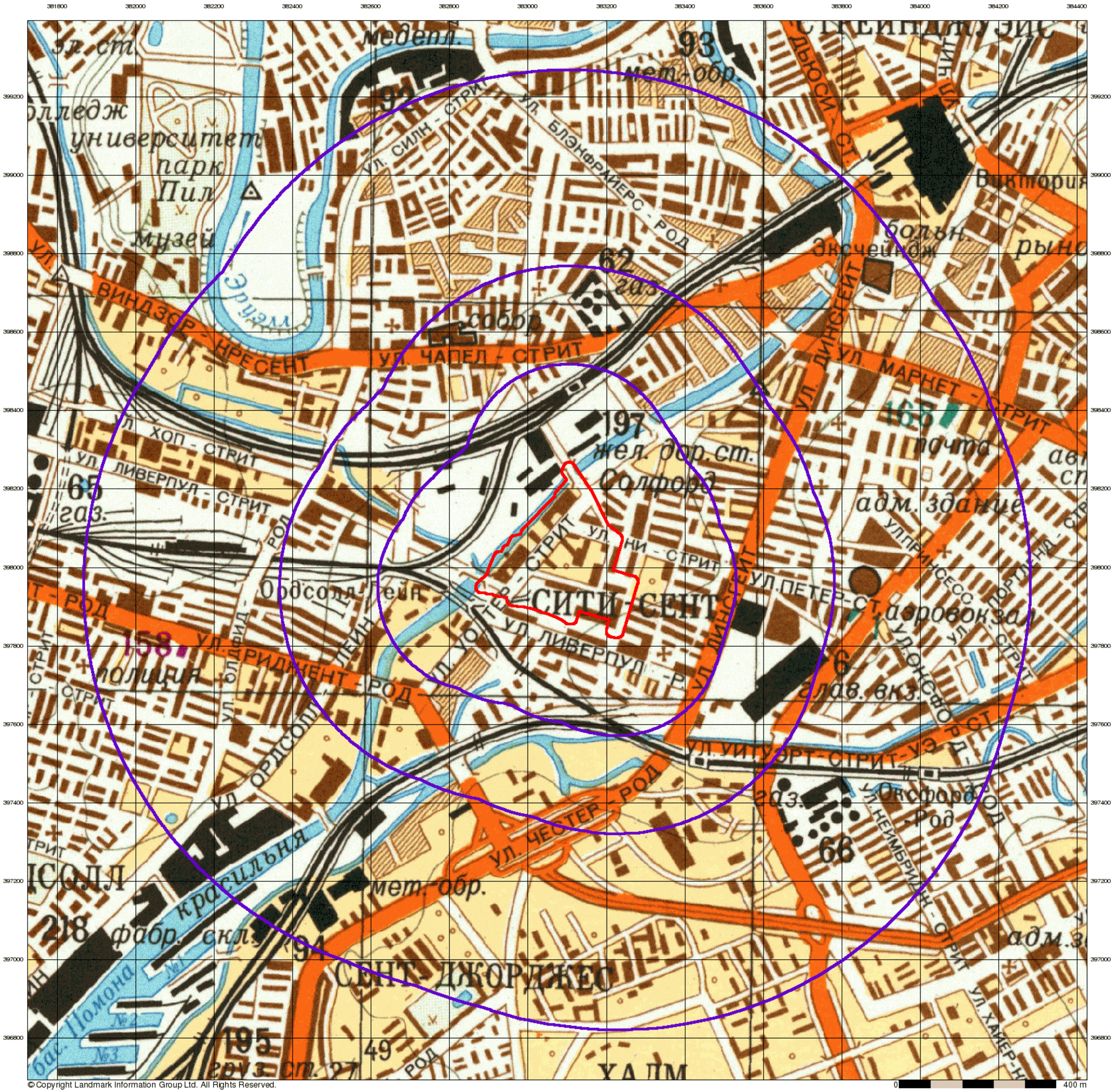
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Эруэлл
УЛ. СИЛН - СТРИТ
УЛ. БЛЭНФОРД - ХАЙЕРС - РОД
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собор
УЛ. ЧАПЕЛ - СТРИТ
ВИНДЗОР - КРЕСЕНТ
ХОП - СТРИТ
УЛ. ЛИВЕРПУЛ - СТРИТ
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газ.
197
жел. дор. ст.
Солфорд
УЛ. КИ - СТРИТ
СИТИ-СЕНТ
Одсолл - Лейн
158
полиция
УЛ. ТРИДЕНТ - РОД
УЛ. ЛИВЕРПУЛ
УЛ. ДИНСГЕЙТ
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почта
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мет.-обр.
Красильня
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фабр.
скл.
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СЕНТ - ДЖОРДЖЕС
Помона
№1
№2
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бас.
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РОД
ХАЛМ
УЛ. НЕЙМБРИДЖ - СТРИТ
УЛ. ХАЙЕР-Н
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0 400 m

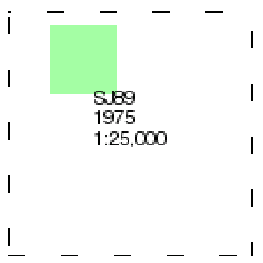
Manchester

Published 1975

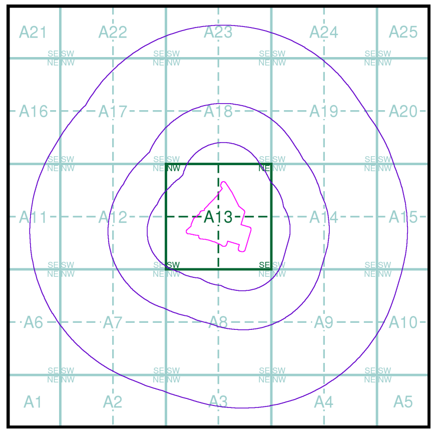
Source map scale - 1:25,000

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)


SJ89
1975
1:25,000

Russian Map - Slice A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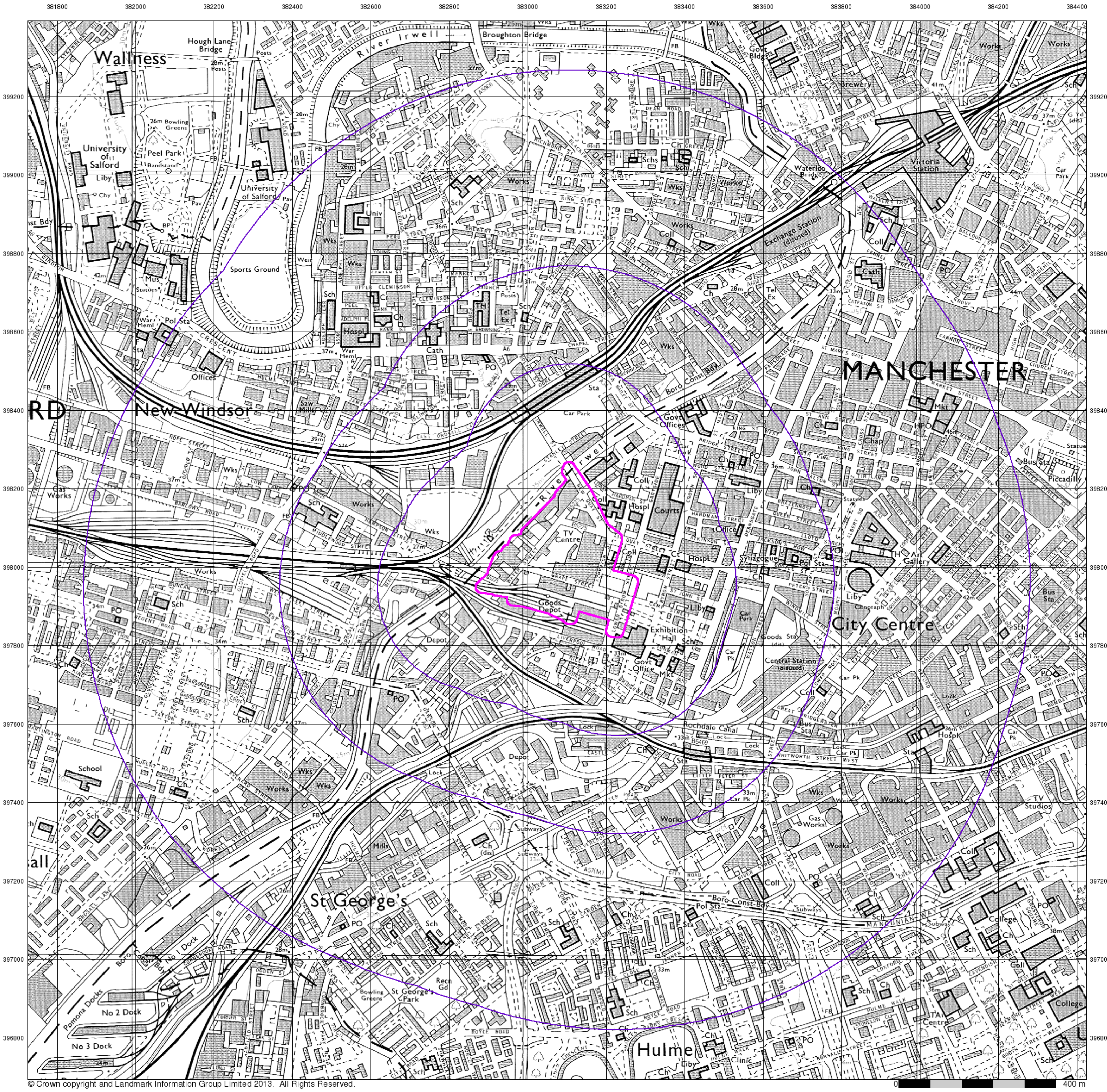
Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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Wallness
Hough Lane Bridge
River Irwell
Broughton Bridge
University of Salford
Peel Park
Sports Ground
New Windsor
Waterloo Bridge
Victoria Station
Exchange Station (disused)
MANCHESTER
Cath
TV Centre
Goods Depot
Courts
Exhibition Hall
Central Station (disused)
City Centre
Piccadilly
Art Gallery
Rochdale Canal
St George's
Hulme
Pomona Docks
No 2 Dock
No 3 Dock
Gas Works
TV Studios
0
400 m

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Ordnance Survey Plan

Published 1980

Source map scale - 1:10,000

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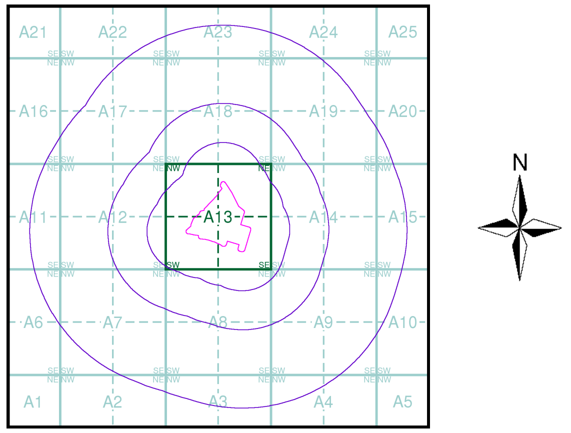
Map Name(s) and Date(s)

SJ89NW
1980
1:10,000

Historical Map - Slice A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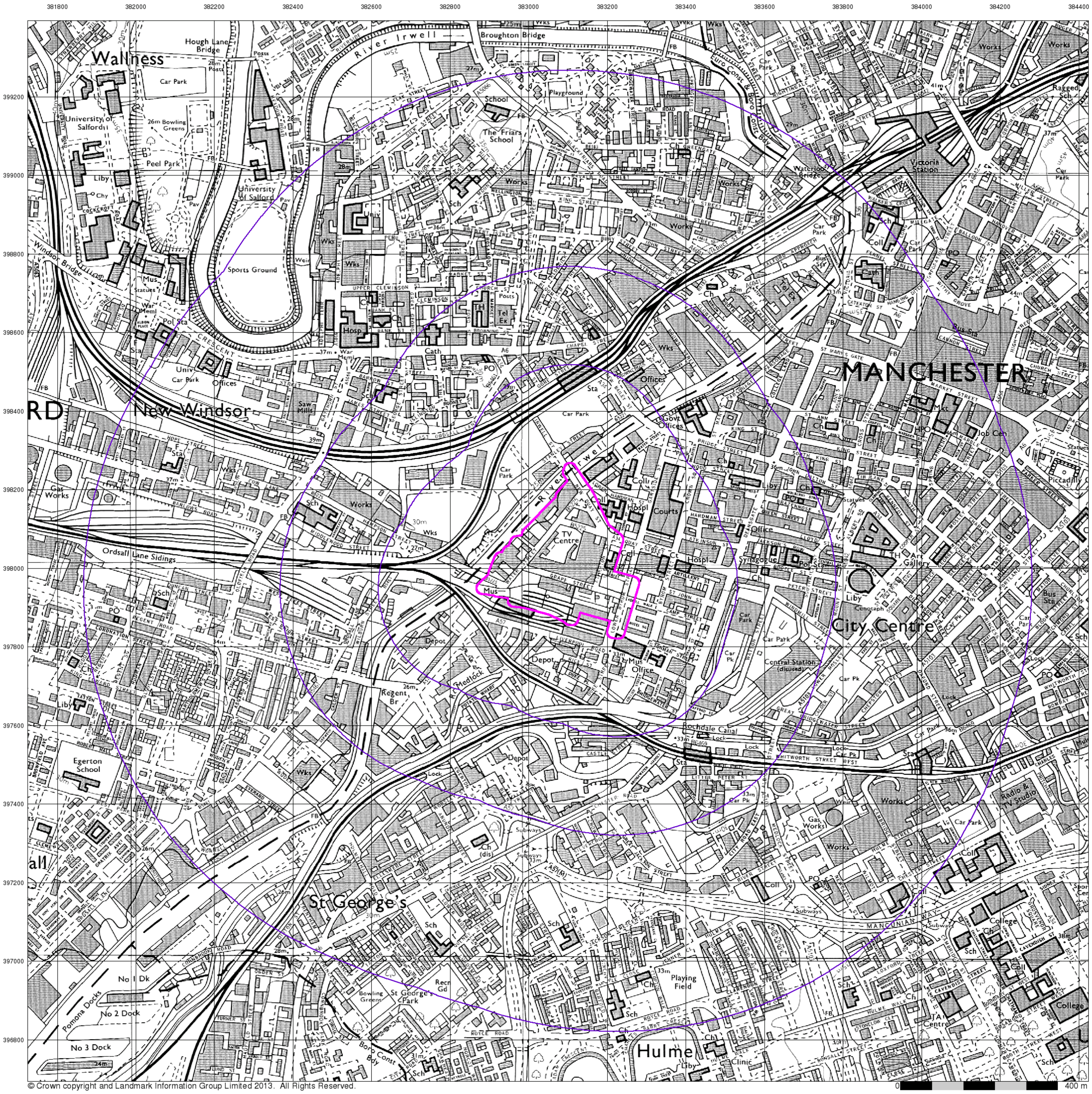
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Hough Lane Bridge
River Irwell
Broughton Bridge
University of Salford
Peel Park
Sports Ground
The Friars School
Victoria Station
Waterloo Bridge
MANCHESTER
New Windsor
Ordsall Lane Sidings
TV Centre
Courts
City Centre
Central Station (disused)
Rochdale Canal
Regent Br
Egerton School
St George's
St George's Park
Pomona Docks
No 1 Dk
No 2 Dock
No 3 Dock
Hulme
Playing Field
Gas Works
Radio & TV Studio
Piccadilly
Art Gallery
Job Cen
Windsor Bridge
Mancunian Way
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Ordnance Survey Plan

Published 1985

Source map scale - 1:10,000

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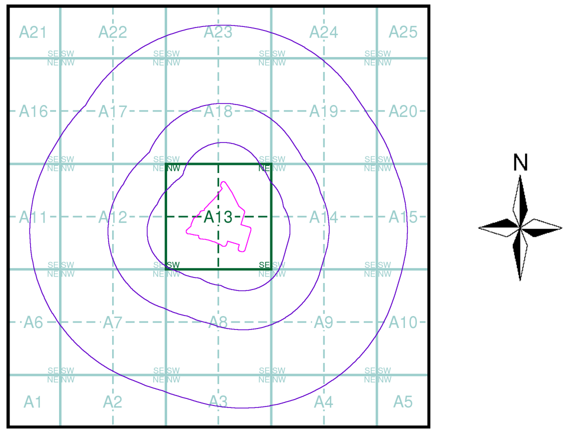
Map Name(s) and Date(s)

SJ89NW
1985
1:10,000

Historical Map - Slice A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Order Details

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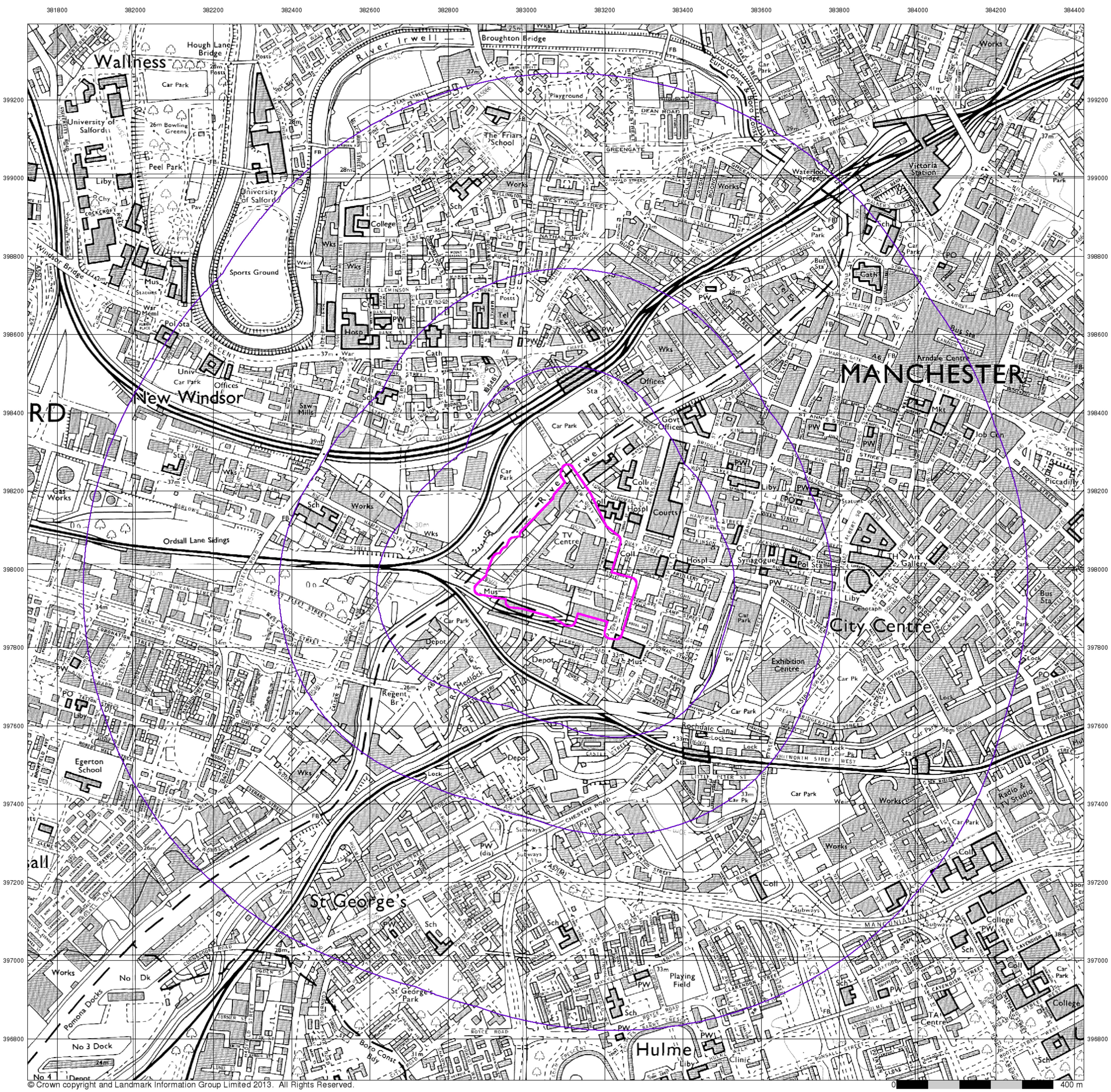
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Sports Ground
Victoria Station
MANCHESTER
New Windsor
Ordsall Lane Sidings
TV Centre
City Centre
Exhibition Centre
Rochdale Canal
Egerton School
St George's
St George's Park
Hulme
Pomona Docks
No 3 Dock
Playing Field
Piccadilly

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0 400 m

R⁰C CONSULTING

Ordnance Survey Plan

Published 1989

Source map scale - 1:10,000

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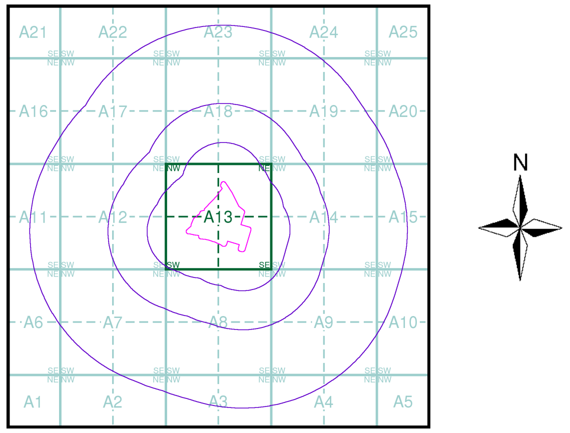
Map Name(s) and Date(s)

SJ89NW
1989
1:10,000

Historical Map - Slice A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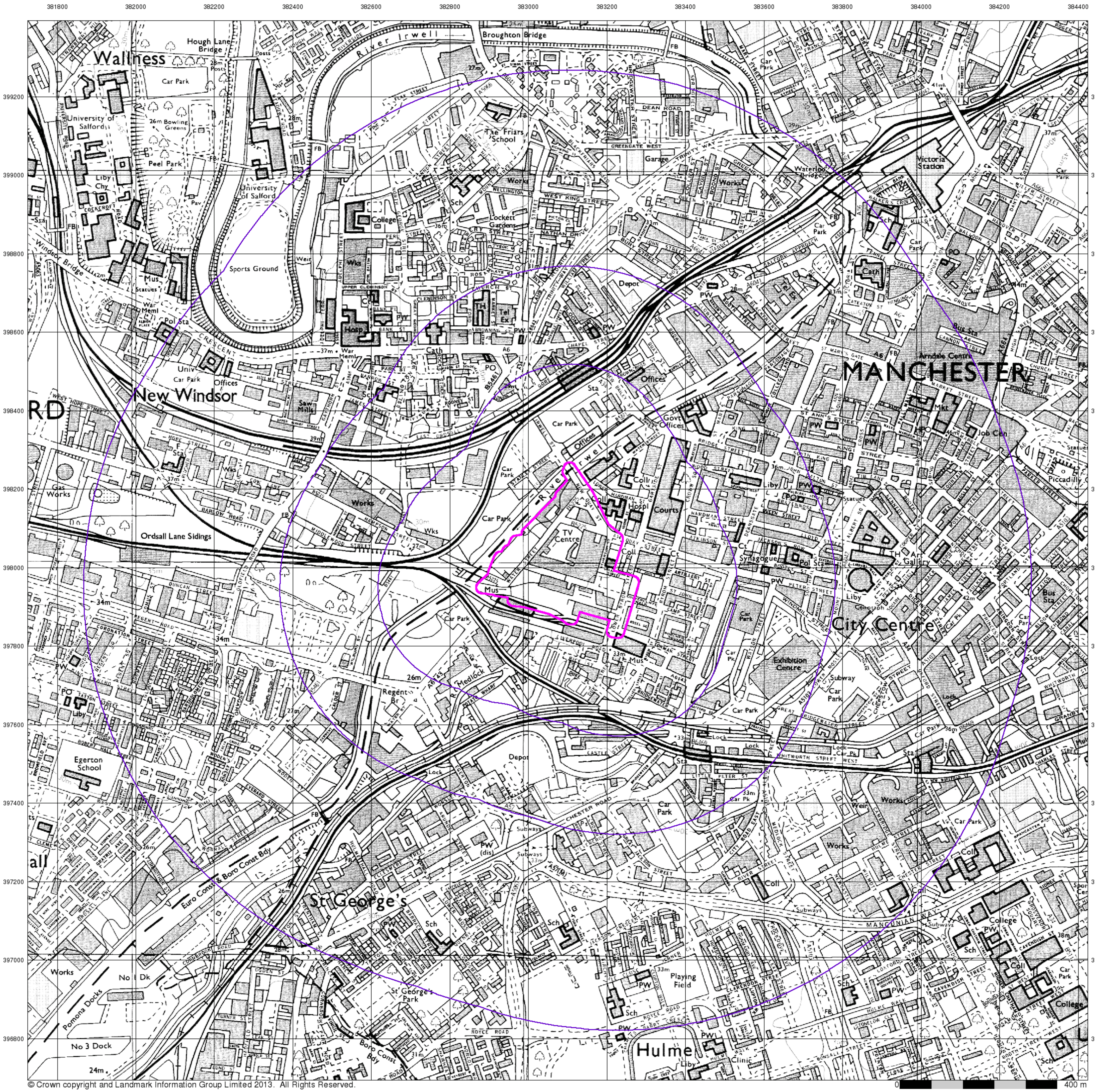
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Broughton Bridge
The Friars School
Victoria Station
MANCHESTER
New Windsor
Arndale Centre
Piccadilly
Ordsall Lane Sidings
TV Centre
Courts
Art Gallery
City Centre
Exhibition Centre
Regent Br
St George's
St George's Park
Hulme
Egerton School
Pomona Docks
No 3 Dock
Playing Field
Euro Const & Boro Const Bdy
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Ordnance Survey Plan

Published 1994

Source map scale - 1:10,000

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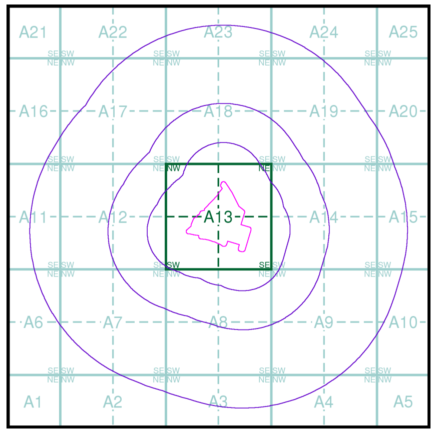
Map Name(s) and Date(s)

SJ89NW
1994
1:10,000

Historical Map - Slice A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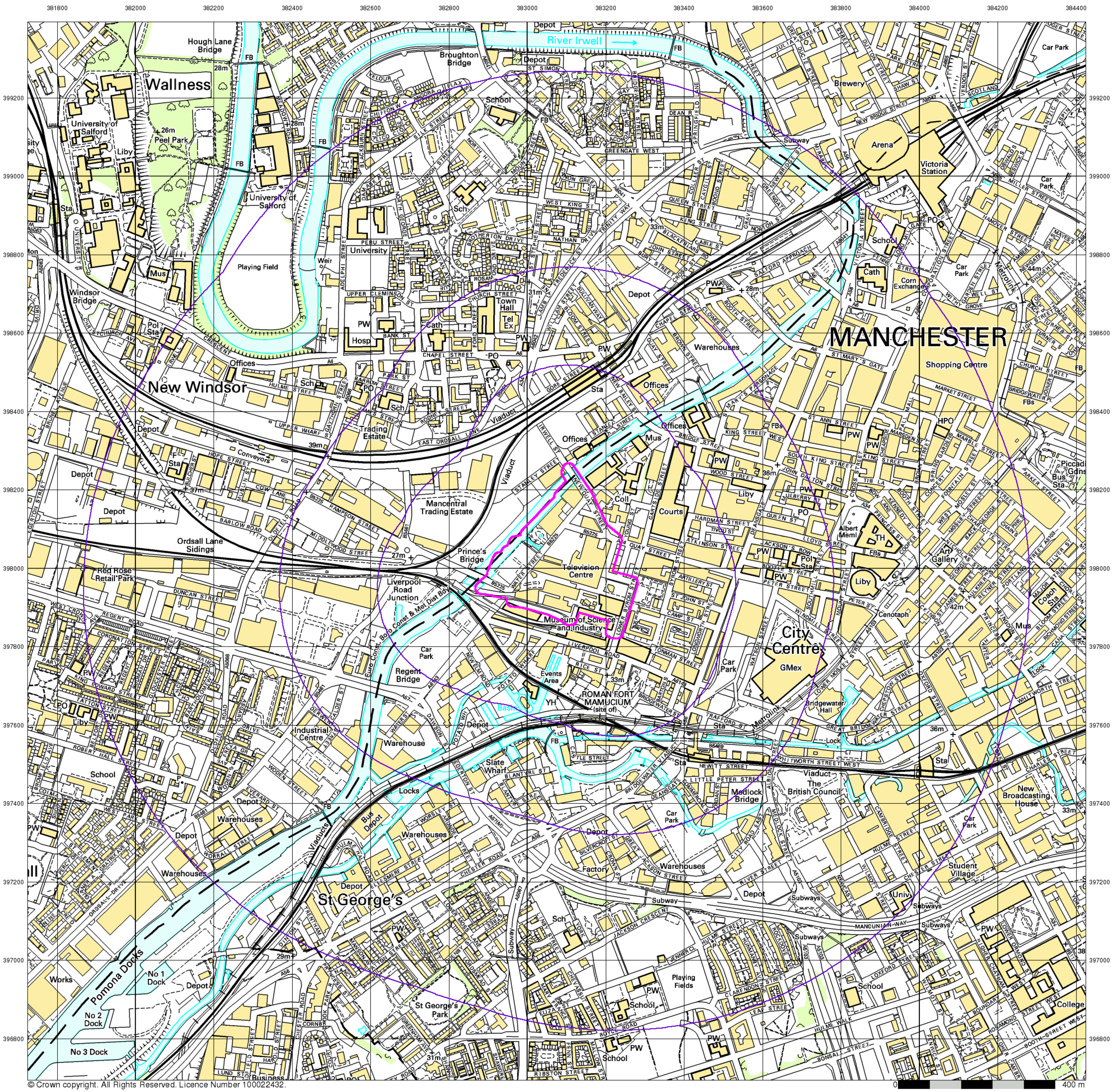

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Wallness
University of Salford
Peel Park
Broughton Bridge
Hough Lane Bridge
Playing Field
Victoria Station
Arena
Brewery
MANCHESTER
Shopping Centre
New Windsor
Windsor Bridge
Ordsall Lane Sidings
Red Rose Retail Park
Mancentral Trading Estate
Prince's Bridge
Liverpool Road Junction
Television Centre
Museum of Science and Industry
Regent Bridge
Events Area
ROMAN FORT MAMUCIUM (site of)
City Centre
GMex
Bridgewater Hall
Metrolink
Piccadilly Gdns
Cath
Corn Exchange
Town Hall
Albert Meml
Liby
Art Gallery
Cenotaph
Coach Sta
St George's
St George's Park
Pomona Docks
No 1 Dock
No 2 Dock
No 3 Dock
Medlock Bridge
The British Council
New Broadcasting House
Student Village
Playing Fields
Slate Wharf
Locks
Bus Depot
Industrial Centre
Warehouses
Trading Estate
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RoC CONSULTING

10k Raster Mapping

Published 1999

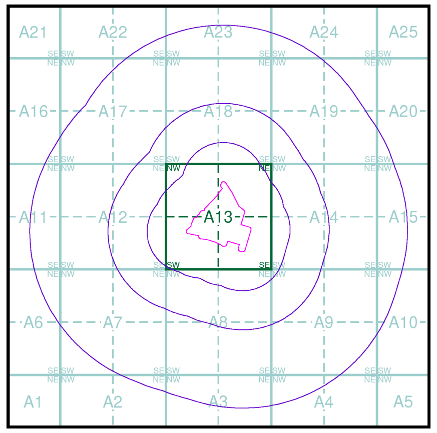
Source map scale - 1:10,000

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)

SJ89NW
1999
1:10,000

Historical Map - Slice A



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Order Details

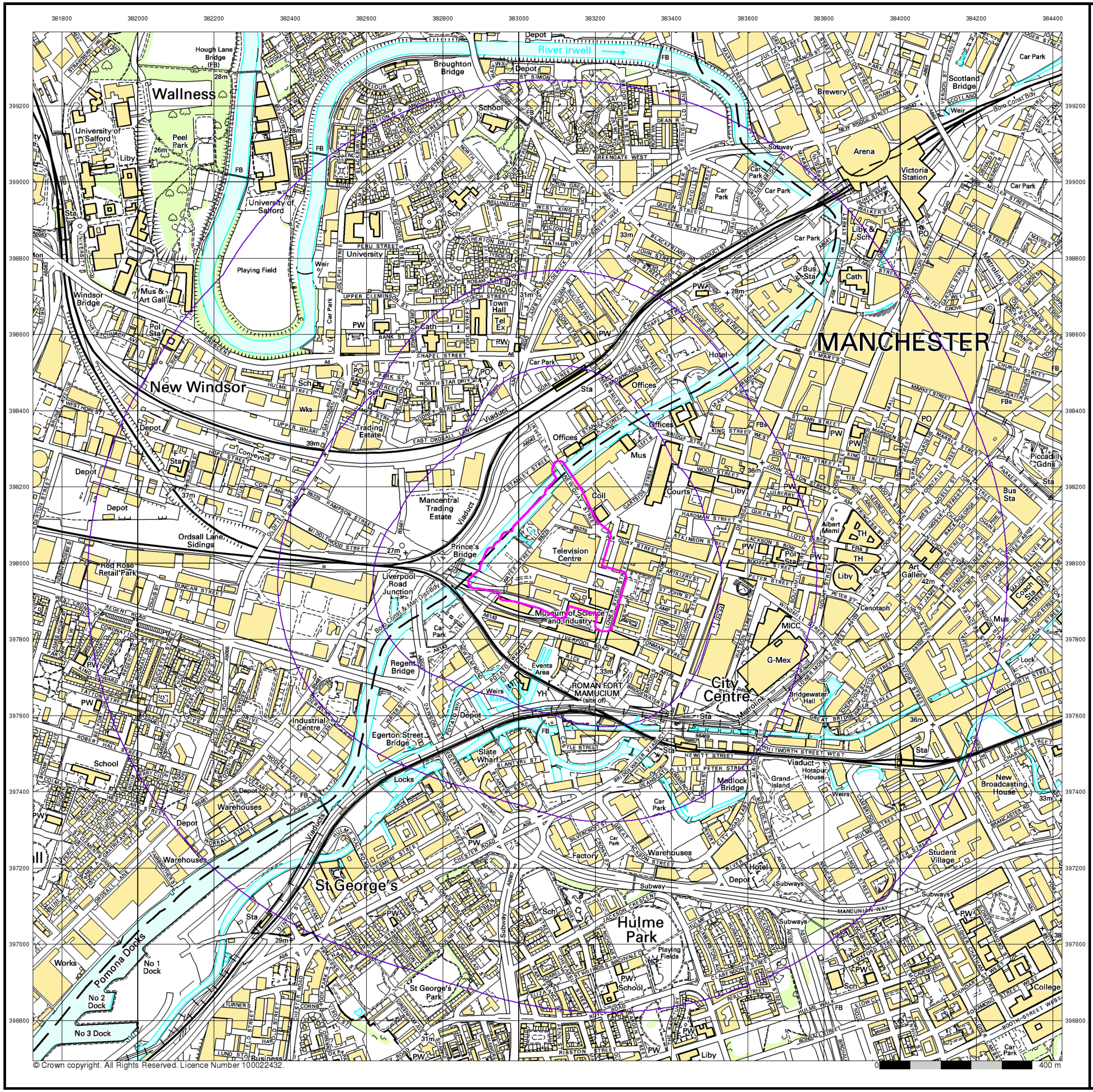
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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River Irwell
Wallness
University of Salford
Peel Park
Hough Lane Bridge (FB)
Broughton Bridge
Scotland Bridge
Brewery
Arena
Victoria Station
Playing Field
Mus & Art Gall
Windsor Bridge
New Windsor
MANCHESTER
Cath
Town Hall
Tel Ex
Trading Estate
Mancentral Trading Estate
Orsdall Lane Sidings
Red Rose Retail Park
Liverpool Road Junction
Prince's Bridge
Television Centre
Museum of Science and Industry
Courts
Coll
Mus
Albert Meml
Art Gallery
Piccadilly Gdns
Cenotaph
G-Mex
MICC
City Centre
ROMAN FORT MAMUCIUM (site of)
Events Area
Regent Bridge
Industrial Centre
Egerton Street Bridge
Slate Wharf
Locks
Medlock Bridge
Grand Island
Viaduct
Hotspur House
New Broadcasting House
Student Village
Warehouses
St George's
St George's Park
Hulme Park
Playing Fields
Pomona Docks
No 1 Dock
No 2 Dock
No 3 Dock
Works
School
Depot
0
400 m

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RoC CONSULTING

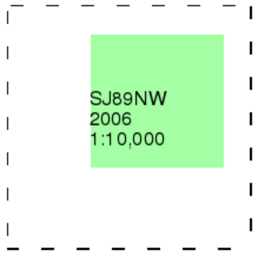
10k Raster Mapping

Published 2006

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)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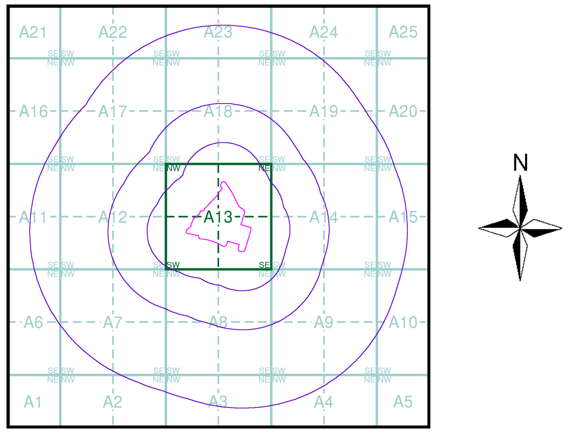
2006
1:10,000

Historical Map - Slice A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Order Details

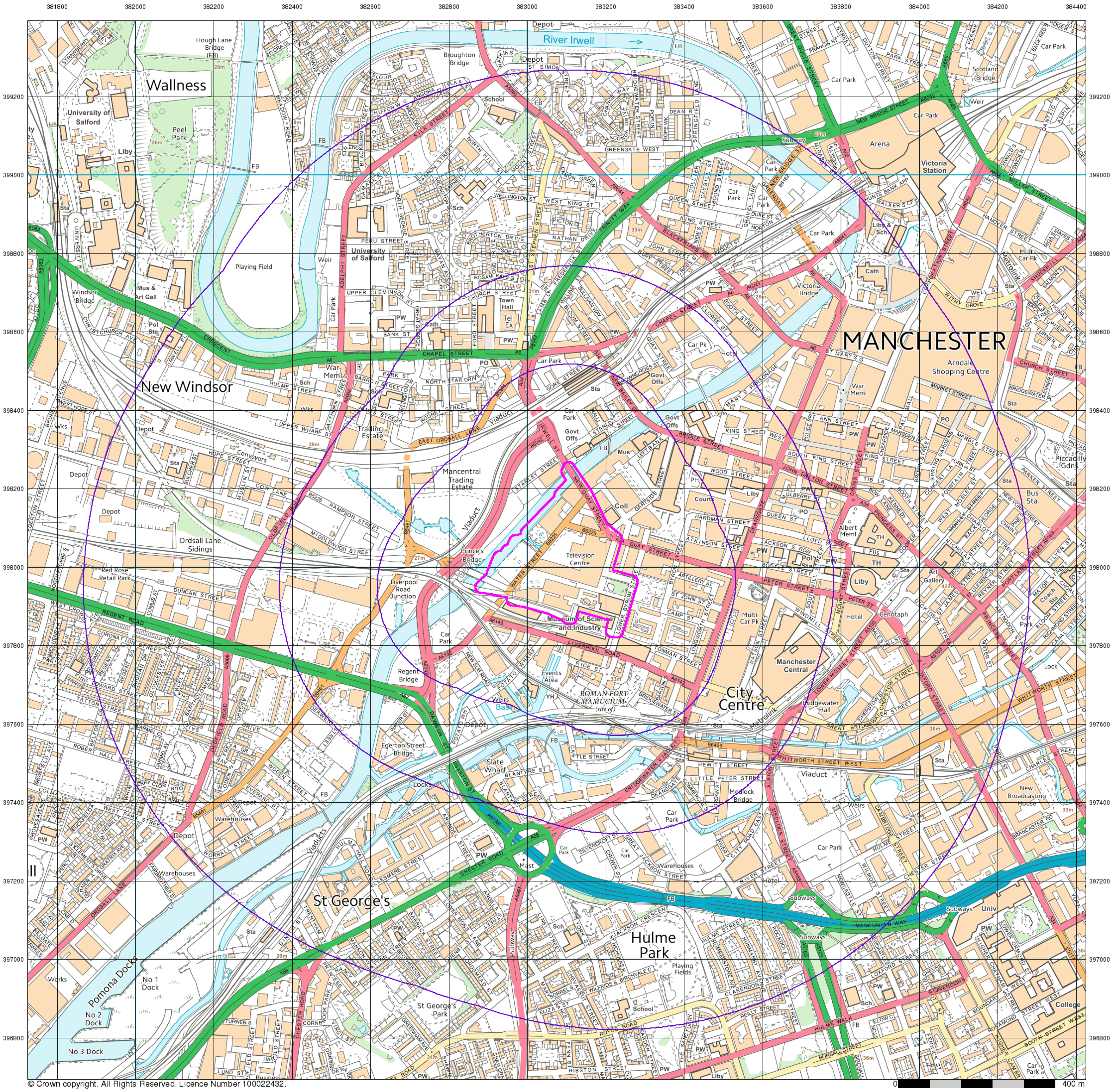
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Landmark
Information Group

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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River Irwell
Wallness
University of Salford
Peel Park
Broughton Bridge
Playing Field
Windsor Bridge
New Windsor
Ordsall Lane Sidings
Mancentral Trading Estate
Television Centre
Museum of Science and Industry
Victoria Station
Arena
MANCHESTER
Arndale Shopping Centre
Manchester Central
ROMAN FORT MAMUCIUM (site of)
City Centre
St George's
Hulme Park
Pomona Docks
No 1 Dock
No 2 Dock
No 3 Dock
New Broadcasting House
400 m
0

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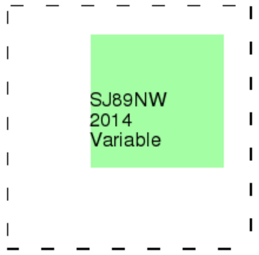
VectorMap Local
Published 2014
Source map scale - 1:10,000

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)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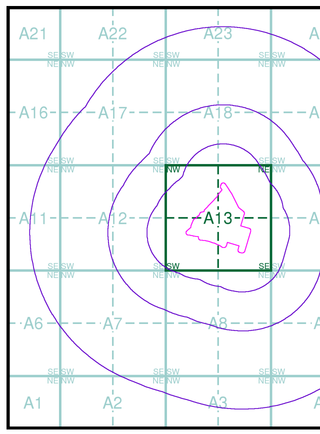
2014
Variable

Historical Map - Slice A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NE
SW
SE

Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

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

APPENDIX C - ENVIROCHECK REPORT AND DATASHEETS

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
61378999_1_1

Customer Reference:
3233

National Grid Reference:
383090, 398020

Slice:
A

Site Area (Ha):
9.23

Search Buffer (m):
1000

Site Details:

Water Street
Manchester
M3 4JQ

Client Details:

Mr J Bradley
Roc Consulting
81/83 Chapel Street
Salford
Manchester
M3 5DF

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	53
Hazardous Substances	60
Geological	61
Industrial Land Use	76
Sensitive Land Use	111
Data Currency	112
Data Suppliers	118
Useful Contacts	119

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/Natural Resources Wales 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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Site of Special Scientific Interest, National Nature Reserve, Ramsar, Special Protection Area, Special Conservation Area, Marine Nature Reserve data (derived from Ordnance Survey 1:10000 raster) is provided by, and used with the permission of, Natural England who retain the copyright and Intellectual Property Rights for the data.

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Peter Brett Associates Copyright Notice

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Radon Potential dataset Copyright Notice

Information supplied from a joint dataset compiled by The British Geological Survey and Public Health England.

Report Version v49.0

Data Type	**Page Number**	**On Site**	**0 to 250m**	**251 to 500m**	**501 to 1000m (*up to 2000m)**
Agency & Hydrological					
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1	5	16	21	48
Enforcement and Prohibition Notices	pg 23		1		
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 23		1	3	20
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 26	Yes			
Pollution Incidents to Controlled Waters	pg 27			4	31
Prosecutions Relating to Authorised Processes	pg 32				2
Prosecutions Relating to Controlled Waters					
Registered Radioactive Substances	pg 33			1	5
River Quality	pg 34	1		4	2
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points	pg 35			1	
Substantiated Pollution Incident Register	pg 35				1
Water Abstractions	pg 36		2		10 (*41)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 49	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 49	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 49	Yes	n/a	n/a	n/a
Source Protection Zones	pg 49			1	
Extreme Flooding from Rivers or Sea without Defences	pg 49	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 49	Yes	Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Detailed River Network Lines	pg 50	Yes	Yes	Yes	n/a
Detailed River Network Offline Drainage					n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 53		1		1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 53		1		7
Local Authority Recorded Landfill Sites					
Registered Landfill Sites	pg 56				1
Registered Waste Transfer Sites	pg 56		2		2
Registered Waste Treatment or Disposal Sites	pg 58		1		1
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)	pg 60				2
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)	pg 60				1
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 61	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 61	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 70				1
BGS Urban Soil Chemistry	pg 70	Yes	Yes	Yes	Yes
BGS Urban Soil Chemistry Averages	pg 74	Yes			
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas	pg 74	Yes	n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities	pg 74				1
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 74	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 74		Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 74	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 74	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 75		Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 76		34	70	293
Fuel Station Entries	pg 110			2	5
Sensitive Land Use					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 111			1	1
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Discharge Consents				
1	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Grape Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01man0170 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Approximate location provided by supplier	A13SW (W)	0	3	383000 398000
	Discharge Consents				
1	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Grape Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0170 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A13SW (W)	0	3	383000 398000
	Discharge Consents				
2	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water St/New Quay St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993831 Permit Version: 1 Effective Date: 21st March 2006 Issued Date: 21st March 2006 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Irwell **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (N)	0	3	383080 398170
	Discharge Consents				
3	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water St/New Quay St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 01MAN0172 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: 1st January 1995 Revocation Date: 20th March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A13NE (N)	0	3	383120 398220

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water Street Cso, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982993 Permit Version: 1 Effective Date: 23rd June 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A13SW (W)	0	3	382950 398030
5	**Discharge Consents** Operator: Fearnley Developments Ltd Property Type: General Construction Work Location: Fearnley Developments Ltd, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991429 Permit Version: 1 Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: 1st November 1994 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A13NE (N)	24	3	383140 398270
6	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water St/Liverpool Rd Cso, St George'S, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993597 Permit Version: 2 Effective Date: 31st August 2014 Issued Date: 24th March 2014 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	50	3	382836 397905
6	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water St/Liverpool Rd Cso, St George'S, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993597 Permit Version: 1 Effective Date: 5th October 2004 Issued Date: 5th October 2004 Revocation Date: 31st May 2014 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	72	3	382820 397890

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water St/Liverpool Rd Cso, St George'S, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01man0169 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 25th October 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	72	3	382820 397890
7	**Discharge Consents** Operator: Fearnley Developments Ltd Property Type: General Construction Work Location: Fearnley Developments Ltd, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991429 Permit Version: 1 Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: 1st November 1994 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A13NE (N)	79	3	383180 398310
8	**Discharge Consents** Operator: Rmc Roadstone Ltd - North West Property Type: Manufacture Of Cement, Lime Plaster Location: Ready Mixed Concrete Depot, Liverpool Road, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016990275 Permit Version: 1 Effective Date: 10th March 1977 Issued Date: Not Supplied Revocation Date: 31st August 1989 Discharge Type: Trade Discharge - Process Water Discharge Environment: Canal Receiving Water: Bridgewater Canal **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	160	3	383000 397730
9	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Pumping Station - Water Company Location: Rice St Near Castle St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01man0171 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Canal Receiving Water: Bridgewater Canal **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	161	3	383120 397690

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Discharge Consents** Operator: Charles Topham (Developments) Ltd Property Type: Domestic Property (Multiple) Location: Topham Res Development Swo, Liverpool Road/Potato Wharf, Castlefield, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991276 Permit Version: 1 Effective Date: 18th May 1988 Issued Date: Not Supplied Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Canal Receiving Water: Bridgewater Canal **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NW (S)	185	3	383000 397700
11	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Hampton St/Ordsall Lane, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01SAL0183 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	200	3	382680 398020
12	**Discharge Consents** Operator: The Lord Chancellor Property Type: Trade (Unknown/Other) Location: Manchester Civil Justice Centre, Gartside Street, Manchester, M3 3el Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993601 Permit Version: 2 Effective Date: 1st January 2007 Issued Date: 26th April 2006 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	209	3	383310 398350
12	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water St/Bridge St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993550 Permit Version: 1 Effective Date: 12th April 2006 Issued Date: 12th April 2006 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Irwell **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	223	3	383320 398360

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Water St/Bridge St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 01MAN0174 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: 1st January 1995 Revocation Date: 11th April 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	223	3	383320 398360
12	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Bridge Street Cso, Bridge Street, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982898 Permit Version: 3 Effective Date: 14th November 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	231	3	383330 398360
12	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Bridge Street Cso, Bridge Street, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982898 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 10th May 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	231	3	383330 398360
12	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Bridge Street Cso, Bridge Street, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982898 Permit Version: 2 Effective Date: 11th May 1995 Issued Date: Not Supplied Revocation Date: 13th November 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	231	3	383330 398360

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Discharge Consents** Operator: Bovis Lend Lease Limited Property Type: Trade (Unknown/Other) Location: Manchester Civil Justice Centre, Gartside Street, Manchester, M3 3el Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993601 Permit Version: 1 Effective Date: 1st January 2007 Issued Date: 5th October 2004 Revocation Date: 25th April 2006 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	242	3	383350 398350
13	**Discharge Consents** Operator: J Sainsbury Plc Property Type: Sewage Disposal Works - Other Location: J Sainsbury Plc Swo Regent Road, End Of Ordsall Alne, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991422 Permit Version: 1 Effective Date: 1st November 1994 Issued Date: Not Supplied Revocation Date: 1st November 1994 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A12SE (SW)	284	3	382630 397790
14	**Discharge Consents** Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 0175/5 Permit Version: 1 Effective Date: 20th January 1975 Issued Date: Not Supplied Revocation Date: 31st March 1991 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	328	3	383300 397500
14	**Discharge Consents** Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 0175/5 Permit Version: 2 Effective Date: 1st April 1991 Issued Date: Not Supplied Revocation Date: 31st December 1994 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	328	3	383300 397500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Discharge Consents				
14	Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 0175/5 Permit Version: 3 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 30th June 1995 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	328	3	383300 397500
	Discharge Consents				
14	Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 0175/5 Permit Version: 4 Effective Date: 1st July 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	328	3	383300 397500
	Discharge Consents				
15	Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 0175/5 Permit Version: 1 Effective Date: 20th January 1975 Issued Date: Not Supplied Revocation Date: 31st March 1991 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Authorisation revokedRevoked** Positional Accuracy: Manually corrected supplier location	A8NW (SW)	341	3	382800 397600
	Discharge Consents				
15	Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 0175/5 Permit Version: 4 Effective Date: 1st July 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	341	3	382800 397600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**Discharge Consents** Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 0175/5 Permit Version: 3 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 30th June 1995 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	341	3	382800 397600
15	**Discharge Consents** Operator: Hanson Quarry Products Europe Limited Property Type: Sewage Disposal Works - Other Location: Potato Wharf, Off Liverpool Rd, Manchester, Greater Manchester, M3 4la Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 0175/5 Permit Version: 2 Effective Date: 1st April 1991 Issued Date: Not Supplied Revocation Date: 31st December 1994 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Crowton Brook **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	341	3	382800 397600
16	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Deansgate, L. Peter St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01man0157 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Tunnel To Medlock **Status:** **Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	396	3	383370 397450
16	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Deansgate, L. Peter St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0157 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Into And/Or Watercourse Receiving Water: Tunnel To Medlock **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	396	3	383370 397450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Chester Rd At Owen St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0276 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 1st December 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	412	3	383360 397430
16	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Chester Rd At Owen St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982719 Permit Version: 1 Effective Date: 30th September 1994 Issued Date: Not Supplied Revocation Date: 30th November 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Manually corrected supplier location	A8NE (SE)	412	3	383360 397430
16	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Chester Rd At Owen St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982719 Permit Version: 2 Effective Date: 1st December 1999 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	416	3	383360 397425
17	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Egerton St/Worsley St Cso, Cornbrook, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016983277 Permit Version: 1 Effective Date: 1st November 1999 Issued Date: 19th February 1999 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Medlock **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	408	3	382791 397530

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Chester Rd At York St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982720 Permit Version: 1 Effective Date: 30th September 1994 Issued Date: Not Supplied Revocation Date: 18th February 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	409	3	382790 397530
17	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Chester Rd/York St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0279 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 19th December 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	409	3	382790 397530
17	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Egerton St/Elesmere St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01man0180 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 12th August 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	409	3	382790 397530
17	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Chester Rd At York St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982720 Permit Version: 2 Effective Date: 19th February 1999 Issued Date: Not Supplied Revocation Date: 14th July 2000 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	409	3	382790 397530

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Egerton St/Worsley St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0181 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	413	3	382780 397530
18	**Discharge Consents** Operator: Acroy Ltd Property Type: Trade (Unknown/Other) Location: Chapel Wharf, Dearmans Place, Salford, Manchester, M3 5lh Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993796 Permit Version: 1 Effective Date: 22nd June 2005 Issued Date: 22nd June 2005 Revocation Date: 10th June 2008 Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Via Ditch To River Irwell **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	487	3	383530 398520
19	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Pumping Station - Water Company Location: Trumpet Street, Sso, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01man0168 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Tib Culvert-Medlock **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	553	3	383720 397550
20	**Discharge Consents** Operator: Dandara Limited Property Type: Sewage Disposal Works - Other Location: St Georges Island Projects Office, Hulme Hall Road, Manchester, M15 4ly Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993598 Permit Version: 1 Effective Date: 14th September 2004 Issued Date: 14th September 2004 Revocation Date: 14th January 2005 Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Consent expired** Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	554	3	382610 397450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Albion Street/Hewitt St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0251 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status: Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	582	3	383700 397470
21	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Albion Street/Hewitt St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982706 Permit Version: 1 Effective Date: 30th September 1994 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	585	3	383700 397465
22	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Booth Street Cso, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982902 Permit Version: 3 Effective Date: 14th November 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	587	3	383610 398580
22	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Booth Street Cso, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982902 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 10th May 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	587	3	383610 398580

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
22	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Booth Street Cso, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982902 Permit Version: 2 Effective Date: 11th May 1995 Issued Date: Not Supplied Revocation Date: 13th November 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	587	3	383610 398580
23	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Great Bridgewater St, Opposite Chepstow Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01man0163 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Tib Culvert **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	590	3	383790 397610
24	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Mancunian Way Roundabout, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0368 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A8SW (S)	593	3	382960 397280
25	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Blackfriars Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01man0156 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	650	3	383680 398590

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Blackfriars Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0156 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	650	3	383680 398590
26	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: City Rd Cso, Hulme, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982954 Permit Version: 3 Effective Date: 1st January 2015 Issued Date: 29th March 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	677	3	382520 397360
26	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Junction Rolls Cres/Yew Street Cso, Hulme, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982958 Permit Version: 3 Effective Date: 1st January 2015 Issued Date: 29th March 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	677	3	382520 397360
26	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Stretford Rd/Upper Moss Lane Cso, Hulme, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01man0365 Permit Version: 3 Effective Date: 1st January 2015 Issued Date: 29th March 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	677	3	382520 397360

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Discharge Consents				
26	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Junction Rolls Cres/Yew Street Cso, Hulme, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982958 Permit Version: 2 Effective Date: 31st March 2005 Issued Date: 14th March 2005 Revocation Date: 31st December 2014 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	677	3	382520 397360
	Discharge Consents				
26	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: City Rd Cso, Hulme, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982954 Permit Version: 2 Effective Date: 31st March 2005 Issued Date: 7th March 2005 Revocation Date: 31st December 2014 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	677	3	382520 397360
	Discharge Consents				
26	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Stretford Rd/Upper Moss Lane Cso, Hulme, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01man0365 Permit Version: 2 Effective Date: 31st March 2005 Issued Date: 7th March 2005 Revocation Date: 31st December 2014 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	677	3	382520 397360
	Discharge Consents				
26	Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: City Rd Cso, Hulme, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982954 Permit Version: 1 Effective Date: 23rd June 1995 Issued Date: Not Supplied Revocation Date: 30th March 2005 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	677	3	382520 397360

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Marple St/Rolls Cres Cso, Hulme, Greater Manchester, M15 5ft Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982958 Permit Version: 1 Effective Date: 8th August 1995 Issued Date: Not Supplied Revocation Date: 30th March 2005 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Canal Receiving Water: Manchester Ship Canal **Status:** **Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	677	3	382520 397360
27	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Great Bridgewater St, Opposite Chepstow Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0252 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	677	3	383810 397460
27	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Great Bridgewater St, Opposite Chepstow Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982707 Permit Version: 1 Effective Date: 30th September 1994 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	680	3	383810 397455
28	**Discharge Consents** Operator: Riverside Developments Property Type: Domestic Property (Multiple) Location: Riverside Res Development Swo, The Crescent/Adelphi Street, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991216 Permit Version: 1 Effective Date: 1st July 1991 Issued Date: Not Supplied Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	684	3	382500 398600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	**Discharge Consents** Operator: British Telecommunications Public Limited Company Property Type: Business Services Location: Pumping System @ Bt Dial House Exchange Building, 21 Chapel Street, ., Salford, M3 7ba Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: Eprtb3638al Permit Version: 1 Effective Date: 29th May 2013 Issued Date: 29th May 2013 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	703	3	383690 398670
30	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Wilmott St @ River St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0184 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 18th October 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	728	3	383830 397400
30	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Lower Cambridge St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982721 Permit Version: 1 Effective Date: 30th September 1994 Issued Date: Not Supplied Revocation Date: 14th November 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Manually corrected supplier location	A9NE (SE)	728	3	383830 397400
30	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Lower Cambridge St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0285 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 15th November 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	731	3	383830 397395

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Cambridge Street Cso, Gaythorn, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982721 Permit Version: 2 Effective Date: 15th November 1999 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	738	3	383850 397410
31	**Discharge Consents** Operator: North Western Road Car Co Ltd Property Type: Sewage Disposal Works - Other Location: Garage @ Hulme Hall Rd Hulme Hall Road, Stockport, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 0168/800 Permit Version: 1 Effective Date: 1st April 1991 Issued Date: Not Supplied Revocation Date: 31st December 1994 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	771	3	382492 397268
31	**Discharge Consents** Operator: Peel Investments (North) Limited Property Type: Sewage Disposal Works - Other Location: Garage @ Hulme Hall Rd Hulme Hall Road, Stockport, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 0168/800 Permit Version: 2 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 16th April 2002 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	771	3	382492 397268
32	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Victoria Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01man0155 Permit Version: 2 Effective Date: 14th April 2009 Issued Date: 14th April 2009 Revocation Date: 3rd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	781	3	383770 398690

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
32	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Victoria Street, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0155 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 13th April 2009 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	781	3	383770 398690
33	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Newcastle St/Chester St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0361 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	782	3	383780 397260
34	**Discharge Consents** Operator: Mr P Lane Property Type: Public Houses & Bars Location: Food & Wine Bar Swo Railway Arches, Chapel Street, Salford, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991311 Permit Version: 1 Effective Date: 1st November 1994 Issued Date: Not Supplied Revocation Date: 1st November 1994 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	793	3	383700 398800
35	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Victoria Arches, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0357 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A19NE (NE)	856	3	383820 398750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Pumping Station - Water Company Location: Subway - Victoria Avenue, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01man0175 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Irk **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A19NE (NE)	875	3	383850 398740
36	**Discharge Consents** Operator: Swinton Insurance Property Type: Sewage Disposal Works - Other Location: Car Pk, Malborough St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991176 Permit Version: 1 Effective Date: 8th September 1987 Issued Date: Not Supplied Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Manually corrected supplier location	A9NE (SE)	871	3	384000 397400
37	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Lower Ormomd St/Hulme St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0282 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	952	3	384070 397360
37	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Chester Street Cso, Gaythorn, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016983278 Permit Version: 1 Effective Date: 1st December 1999 Issued Date: 19th February 1999 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Medlock **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A9SE (SE)	965	3	384080 397350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Great Ducie St/New Brg St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 01MAN0051 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: 1st January 1995 Revocation Date: 30th March 2008 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	968	3	383680 399050
38	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Great Ducie St/New Brg St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993837 Permit Version: 1 Effective Date: 31st March 2008 Issued Date: 20th April 2006 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: The River Irwell **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A24SW (NE)	970	3	383670 399060
39	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Oxford Rd/Grosvenor St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01man0189 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A10NW (SE)	980	3	384150 397460
39	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Oxford/New Wakefild St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01man0165 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 31st March 1998 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A10NW (SE)	980	3	384150 397460

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
39	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Oxford Rd/Grosvenor St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0189 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A10NW (SE)	980	3	384150 397460
39	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Mallard St Off Charles St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982736 Permit Version: 1 Effective Date: 30th September 1994 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A10NW (SE)	984	3	384170 397500
39	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Medlock St(Off Charles St), Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0343 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A10NW (SE)	984	3	384170 397500
39	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: York St/Charles St, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0281 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A10NW (SE)	994	3	384180 397500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Oxford Rd, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01MAN0342 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 19th December 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A10NW (SE)	988	3	384150 397440
40	**Discharge Consents** Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Oxford Rd, Manchester, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982631 Permit Version: 1 Effective Date: 30th September 1994 Issued Date: Not Supplied Revocation Date: 19th December 1999 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Medlock **Status:** **Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Manually corrected supplier location	A10NW (SE)	988	3	384150 397440
41	**Enforcement and Prohibition Notices** Location: Manchester Children's Hospital, Gartside Street, MANCHESTER, M3 3FJ Permit Reference: Not Given Enforcement Date: 4th August 1995 Details: Press Release HM269, Breach of conditions relating to accumulation & disposal of radioactive wastes; under RSA93. Positional Accuracy: Unknown	A13NE (NE)	67	3	383285 398129
42	**Local Authority Pollution Prevention and Controls** Name: Hanson Aggregates Location: Potato Wharf, Off Liverpool Road, MANCHESTER, M3 4NB Authority: Manchester City Council, Environmental Health Department Permit Reference: PPC/B/03/05/AW Dated: 7th August 1992 Process Type: Local Authority Air Pollution Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A8NW (S)	183	4	382997 397705
43	**Local Authority Pollution Prevention and Controls** Name: Sainsbury'S Plc Location: 100 Regent Road, SALFORD, Lancashire, M5 4QU Authority: Salford City Council, Environmental Health Department Permit Reference: 23071/010311 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A12SE (W)	364	5	382524 397829
44	**Local Authority Pollution Prevention and Controls** Name: Granada Dry Cleaners Location: 71-73 Bridge Street, Manchester Authority: Manchester City Council, Environmental Health Department Permit Reference: PPC/DC/RM/20/07 Dated: 26th February 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Permitted** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	388	4	383558 398300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
45	**Local Authority Pollution Prevention and Controls** Name: Tom Garner Motors Location: Chester Road, MANCHESTER, Lancashire, M15 4GA Authority: Manchester City Council, Environmental Health Department Permit Reference: 43/93 Dated: 21st June 1993 Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status:** **Authorised** Positional Accuracy: Automatically positioned to the address	A8SE (S)	455	4	383280 397369
46	**Local Authority Pollution Prevention and Controls** Name: Shell Phoenix Location: Regent Road, SALFORD, Lancashire, M5 4TS Authority: Salford City Council, Environmental Health Department Permit Reference: 23188/090210 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Automatically positioned to the address	A12SW (W)	571	5	382339 397732
47	**Local Authority Pollution Prevention and Controls** Name: Timpson Ltd (Sainsbury) Location: 100 Regent Road, Salford, M5 4qu Authority: Salford City Council, Environmental Health Department Permit Reference: 123814/241007 Dated: 24th October 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the address or location	A12SW (W)	574	5	382305 397835
48	**Local Authority Pollution Prevention and Controls** Name: Concept Automotive Services Location: Upper Wharfe Street, SALFORD, Lancashire, M5 4TY Authority: Salford City Council, Environmental Health Department Permit Reference: NOT GIVEN Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status:** **Authorised** Positional Accuracy: Manually positioned to the road within the address or location	A12NE (NW)	587	5	382425 398354
48	**Local Authority Pollution Prevention and Controls** Name: Citroen UK Ltd Location: Upper Wharf Street, SALFORD, Lancashire, M5 4PG Authority: Salford City Council, Environmental Health Department Permit Reference: 29/56 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status:** **Authorised** Positional Accuracy: Manually positioned to the road within the address or location	A12NE (NW)	610	5	382400 398357
49	**Local Authority Pollution Prevention and Controls** Name: Johnson Cleaners Uk Ltd - Manchester Location: 59 Cross Street, Albert Square, Manchester Authority: Manchester City Council, Environmental Health Department Permit Reference: PPC/DC/RM/12/07 Dated: 1st February 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Permitted** Positional Accuracy: Located by supplier to within 10m	A14NE (E)	610	4	383845 398199
50	**Local Authority Pollution Prevention and Controls** Name: Cemex Uk Materials Ltd - Readymix Location: Hope Street, SALFORD, Lancashire, M5 4WN Authority: Salford City Council, Environmental Health Department Permit Reference: 7235/040707 Dated: 10th August 1993 Process Type: Local Authority Air Pollution Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	630	5	382332 398285

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
50	**Local Authority Pollution Prevention and Controls** Name: Cemex Uk Materials Ltd - Aggregates Location: Hope Street, SALFORD, Lancashire, M5 4WN Authority: Salford City Council, Environmental Health Department Permit Reference: 8186/170108 Dated: 28th October 1993 Process Type: Local Authority Air Pollution Control Description: Part B - General Mineral Process (No Specific Reference) **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	658	5	382306 398296
51	**Local Authority Pollution Prevention and Controls** Name: Synergie - Texaco Service Station Location: Oldfield Road, SALFORD, Lancashire, M5 4NE Authority: Salford City Council, Environmental Health Department Permit Reference: 23297/19012 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A12SW (W)	635	5	382233 397934
51	**Local Authority Pollution Prevention and Controls** Name: H Jackson Company Location: 84 Oldfield Road, SALFORD, Lancashire, M5 3SR Authority: Salford City Council, Environmental Health Department Permit Reference: 29/33 Dated: 16th June 1994 Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status:** **Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the address or location	A12SW (W)	651	5	382220 397888
52	**Local Authority Pollution Prevention and Controls** Name: Henry Sutcliffe Location: Hulme Street, SALFORD, Lancashire, M5 Authority: Salford City Council, Environmental Health Department Permit Reference: 30/17 Dated: 30th April 1993 Process Type: Local Authority Air Pollution Control Description: PG6/2 Manufacture of timber and wood-based products **Status:** **Authorised** Positional Accuracy: Manually positioned to the road within the address or location	A17SE (NW)	636	5	382434 398447
53	**Local Authority Pollution Prevention and Controls** Name: The Laundry Shop (Manchester Ltd) Location: Unit 5 Peter House, Oxford Street, Manchester Authority: Manchester City Council, Environmental Health Department Permit Reference: PPC/DC/RM/01/09 Dated: 1st February 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 10m	A14SE (E)	646	4	383915 397839
54	**Local Authority Pollution Prevention and Controls** Name: Ryland Honda Location: Blackfriars Road, SALFORD, Lancashire, M3 7AP Authority: Salford City Council, Environmental Health Department Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A18NE (N)	663	5	383408 398859
55	**Local Authority Pollution Prevention and Controls** Name: Salford Quays Laundry & Dry Cleaning Location: 6 Muslin Street, Salford, M5 4nf Authority: Salford City Council, Environmental Health Department Permit Reference: 122043/280907 Dated: 28th September 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Permitted** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	673	5	382254 398228

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
56	**Local Authority Pollution Prevention and Controls** Name: Renault (Manchester) Ltd Location: Trinity Way, Blackfriars Road, SALFORD, Greater Manchester, M3 7FT Authority: Salford City Council, Environmental Health Department Permit Reference: 8363/040408 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A18NE (N)	744	5	383272 398993
56	**Local Authority Pollution Prevention and Controls** Name: Renault Manchester Location: 72 Blackfriars Road, SALFORD, Lancashire, M3 7FT Authority: Salford City Council, Environmental Health Department Permit Reference: 29/50 Dated: 15th December 1994 Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A18NE (N)	774	5	383293 399019
57	**Local Authority Pollution Prevention and Controls** Name: Dunlop LtdGrg Division Location: P O Box 151, MANCHESTER, Lancashire, M60 1PD Authority: Manchester City Council, Environmental Health Department Permit Reference: PPC/58/93 Dated: 2nd December 1993 Process Type: Local Authority Air Pollution Control Description: PG6/28 Rubber processes **Status: Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the address or location	A9SE (SE)	843	4	383890 397289
58	**Local Authority Pollution Prevention and Controls** Name: Hydraulic Transmission Services Ltd Location: 9 Cannon Street, Salford, Lancashire, M3 6jh Authority: Salford City Council, Environmental Health Department Permit Reference: 25939/261109 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A23SW (N)	849	5	382840 399075
59	**Local Authority Pollution Prevention and Controls** Name: Jessop & Baird Ltd Location: Medlock House, Hulme Street, Hulme, MANCHESTER, Lancashire, M15 6AL Authority: Manchester City Council, Environmental Health Department Permit Reference: 41/93 Dated: 14th June 1993 Process Type: Local Authority Air Pollution Control Description: PG6/32 Adhesive coating **Status: Authorisation revokedRevoked** Positional Accuracy: Automatically positioned to the address	A9SE (SE)	860	4	383796 397169
60	**Local Authority Pollution Prevention and Controls** Name: Horners Accident Repair Centre Location: 21 Hope Street, SALFORD, M5 4WN Authority: Salford City Council, Environmental Health Department Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	862	5	382078 398297
61	**Local Authority Pollution Prevention and Controls** Name: Greengate Polymer Coatings Ltd Location: Greengate Works, SALFORD, M3 7WS Authority: Salford City Council, Environmental Health Department Permit Reference: 28/36 Dated: 16th February 1995 Process Type: Local Authority Air Pollution Control Description: PG6/10 Coating manufacturing **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	865	5	383527 399025
	Nearest Surface Water Feature	A13NW (NW)	0	-	382985 398068

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
62	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 8th July 1992 Incident Reference: 92611241 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	362	3	383400 397500
63	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Inert Suspended Solids Note: River Medlock; Cement Washings Incident Date: 21st February 1995 Incident Reference: 95650362 Catchment Area: Medlock Receiving Water: Not Given Cause of Incident: Land Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	427	3	383300 397400
64	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Unknown Sewage Note: River Irwell Incident Date: 14th May 1993 Incident Reference: 93611003 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	451	3	383500 398500
65	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Moorefield Cres, LOWTON Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Stream Discoloured Incident Date: 30th May 1998 Incident Reference: SO980959 Catchment Area: Glaze Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	453	3	383400 397400
66	**Pollution Incidents to Controlled Waters** Property Type: Pollution Found Source Not Determined Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Unknown Note: River Irwell Incident Date: 26th May 1992 Incident Reference: 92610872 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	533	3	383600 398500
67	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: None Pollution Found Incident Date: 11th March 1996 Incident Reference: 96610444 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	582	3	383500 398700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
68	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Colour Note: Not Supplied Incident Date: 12th May 1995 Incident Reference: 95611111 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	590	3	383600 398600
68	**Pollution Incidents to Controlled Waters** Property Type: No Premises Identified Location: St Marys Parsonage, Off Blackfriars Street, Manchester City Centre, MANCHESTER, Greater Manchester Authority: Environment Agency, North West Region Pollutant: Contaminated Material : Fire Fighting Run Off Note: Not Supplied Incident Date: 2nd May 1999 Incident Reference: 28749 Catchment Area: Irwell Receiving Water: River Stretch (Freshwater) Cause of Incident: Fire Incident Severity: Category 3 - Minor Incident Positional Accuracy: Manually positioned to the road within the address or location	A19SW (NE)	621	3	383629 398613
69	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: Manchester Ship Canal; Detergent Incident Date: 1st February 1996 Incident Reference: 96650187 Catchment Area: Manchester Ship Canal Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	603	3	382600 397400
70	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: River Irwell Incident Date: 10th May 1993 Incident Reference: 93610965 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	652	3	383600 398700
71	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Other Oil Note: Engine Oil Incident Date: 8th January 1995 Incident Reference: 95650025 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Land Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	656	3	382505 397395
71	**Pollution Incidents to Controlled Waters** Property Type: Connection To Surface Drains Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 2nd November 1995 Incident Reference: 95652741 Catchment Area: Manchester Ship Canal Receiving Water: Not Given Cause of Incident: Wrong Connection Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	659	3	382500 397395

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
72	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 27th October 1992 Incident Reference: 92741897 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	656	3	382700 397300
73	**Pollution Incidents to Controlled Waters** Property Type: Pollution Found Source Not Determined Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: River Irwell Incident Date: 5th September 1995 Incident Reference: 95612250 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	660	3	382600 398700
74	**Pollution Incidents to Controlled Waters** Property Type: Road Location: Mancunian Way , HULME Authority: Environment Agency, North West Region Pollutant: Chemicals - Unknown Note: 20 Litres Of Chemical Irgasol In Drains Incident Date: 7th September 1998 Incident Reference: SO981631 Catchment Area: Manchester Ship Canal Receiving Water: Freshwater Stream/River Cause of Incident: Road Traffic Accident Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	676	3	383500 397200
75	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: River Irwell; Foam Incident Date: 31st January 1996 Incident Reference: 96610198 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	684	3	382500 398600
76	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage: Sewage Works And Septic Tanks Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 8th November 1992 Incident Reference: 92611933 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	693	3	382600 397300
76	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Not Given Note: None Pollution Found Incident Date: 27th October 1992 Incident Reference: 92741898 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	696	3	382605 397295

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
76	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: Bridgewater Canal Incident Date: 20th April 1995 Incident Reference: 95650862 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	698	3	382600 397295
77	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: River Irwell Incident Date: 13th January 1993 Incident Reference: 93610055 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	738	3	382500 398700
78	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 27th October 1992 Incident Reference: 92741896 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	739	3	382500 397300
78	**Pollution Incidents to Controlled Waters** Property Type: Road Location: Chester Road , OLD TRAFFORD Authority: Environment Agency, North West Region Pollutant: Oils - Diesel (Including Agricultural) Note: Diesel Spillage; Bridgewater Incident Date: 19th July 1997 Incident Reference: 97651312 Catchment Area: Bridgewater Canal Receiving Water: Canal Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	741	3	382505 397295
78	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Oils - Diesel (Including Agricultural) Note: Bridge Water Canal; Oily Site Drainage Incident Date: 14th May 1996 Incident Reference: 96651037 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Wrong Connection Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	743	3	382500 397295
79	**Pollution Incidents to Controlled Waters** Property Type: Spillage; Accident - Static Site Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Fire water / Foam Note: River Irwell; Fire Water Run Off Incident Date: 28th January 1996 Incident Reference: 96610168 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Fire Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	740	3	383000 399000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
80	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 15th March 1991 Incident Reference: 91510370 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	794	3	382400 397300
80	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Oils - Waste Oil Note: Bridgewater Canal; Oil Incident Date: 9th September 1996 Incident Reference: 96651986 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	798	3	382400 397295
81	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Industrial Effluent Note: River Irwell; Drum Washings Incident Date: 4th November 1991 Incident Reference: 91611716 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	807	3	382100 398200
82	**Pollution Incidents to Controlled Waters** Property Type: Pollution Found Source Not Determined Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Other Note: General Debris Incident Date: 13th September 1994 Incident Reference: 94652060 Catchment Area: Manchester Ship Canal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A3NW (S)	850	3	383000 397000
83	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 29th November 1995 Incident Reference: 95612868 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A23SW (N)	857	3	382900 399100
84	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: Not Supplied Incident Date: 11th July 1995 Incident Reference: 95611699 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11SE (W)	869	3	382000 398000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
85	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Not Given Note: Not Supplied Incident Date: 16th March 1992 Incident Reference: 92610433 Catchment Area: Irk Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NE (NE)	950	3	383900 398800
86	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: None Affected; None Pollution Found Incident Date: 8th December 1995 Incident Reference: 95653071 Catchment Area: Bridgewater Canal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	962	3	382400 397100
87	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Fire water / Foam Note: Not Supplied Incident Date: 17th March 1995 Incident Reference: 95610557 Catchment Area: Manchester Ship Canal Receiving Water: Not Given Cause of Incident: Fire Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11SE (W)	969	3	381900 397900
88	**Pollution Incidents to Controlled Waters** Property Type: Education: Universities Location: River Irwell, Greater Manchester Authority: Environment Agency, North West Region Pollutant: Organic Chemicals : Fuel Oils (domestic) Note: Not Supplied Incident Date: 20th October 1999 Incident Reference: 33415 Catchment Area: Irwell Receiving Water: River Stretch (Freshwater) Cause of Incident: Containment Failure : Overfilling / Transfer Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	979	3	382200 398700
89	**Pollution Incidents to Controlled Waters** Property Type: Pollution Found Source Not Determined Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Minor Oil Film Incident Date: 22nd August 1995 Incident Reference: 95612163 Catchment Area: Manchester Ship Canal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SW (SW)	999	3	382200 397200
90	**Prosecutions Relating to Authorised Processes** Location: Hope Street, SALFORD, Lancashire, M5 4WN Prosecution Text: Failure to use BPM to prevent the release of offensive & noxious substances to atmosphere. Prosecution Act: HSWA74 Hearing Date: 7th January 1994 Verdict: Guilty Fine: 8000 Costs: 11000 Positional Accuracy: Manually positioned to the address or location	A12NW (W)	712	3	382249 398305

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
91	**Prosecutions Relating to Authorised Processes** Location: Comus Street, Salford, Lancashire, M5 3bq Prosecution Text: Company Found Guilty Of Using An Unregistered Radioactive Substance, Polonium 210 Prosecution Act: Rsa93 S32(1)(A) Hearing Date: 26th September 2002 Verdict: Guilty Fine: 3000 Costs: 1377 Positional Accuracy: Manually positioned to the road within the address or location	A11SE (W)	834	3	382035 397901
92	**Registered Radioactive Substances** Name: National Vulcan Eng Ins Group Ltd Location: St Marys Parsonage, MANCHESTER, M60 9AP Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/3/023 Dated: 24th April 1980 Process Type: Registration under S10 RSA for the keeping and use of mobile Radioactive sources (was RSA60 S3) Description: Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991 **Status:** **Not Given** Positional Accuracy: Manually positioned to the road within the address or location	A19SW (NE)	437	6	383532 398427
93	**Registered Radioactive Substances** Name: University Of Salford Location: Faraday House, 43, Crescent, Salford, M5 4WT Authority: Environment Agency, North West Region Permit Reference: CB6704 Dated: 10th December 2007 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status:** **Application has been authorised and any conditions apply to the operatorAuthorised** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	947	3	382136 398570
93	**Registered Radioactive Substances** Name: University Of Salford Location: Faraday House, 43, Crescent, Salford, M5 4WT Authority: Environment Agency, North West Region Permit Reference: Bw5870 Dated: 1st December 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status:** **Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	947	3	382136 398570
93	**Registered Radioactive Substances** Name: University Of Salford Location: Faraday House, 43, Crescent, Salford, M5 4WT Authority: Environment Agency, North West Region Permit Reference: AZ8315 Dated: 13th February 1998 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status:** **Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	947	3	382136 398570
93	**Registered Radioactive Substances** Name: University Of Salford Location: Faraday House, 43, Crescent, Salford, M5 4WT Authority: Environment Agency, North West Region Permit Reference: AH6155 Dated: 19th July 1993 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Minor variation to a registration under the Act of an open source which is also the subject of an authorisation **Status:** **Application has been authorised and any conditions apply to the operatorAuthorised** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	947	3	382136 398570

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
93	**Registered Radioactive Substances** Name: University Of Salford Location: Faraday House, 43, Crescent, Salford, M5 4WT Authority: Environment Agency, North West Region Permit Reference: AD0201 Dated: 31st March 1991 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	947	3	382136 398570
	River Quality Name: Irwell (Msc) GQA Grade: River Quality E Reach: Salford University To Salford Docks Estimated Distance (km): 8.2 Flow Rate: Flow less than 40 cumecs Flow Type: River Year: 2000	A13NW (NW)	0	3	383035 398078
	River Quality Name: Bridgewater Canal GQA Grade: River Quality B Reach: Waters Meeting To Conf Rochdale Canal Estimated Distance (km): 3.6 Flow Rate: Flow greater than 80 cumecs Flow Type: Canal Year: 2000	A8NW (S)	375	3	382988 397498
	River Quality Name: Bridgewater Canal GQA Grade: River Quality B Reach: Conf Rochdale Canal To Tilting Weir Estimated Distance (km): .4 Flow Rate: Flow greater than 80 cumecs Flow Type: Canal Year: 2000	A8NW (S)	375	3	382988 397498
	River Quality Name: Rochdale Canal GQA Grade: River Quality B Reach: Ashton Canal To Knott Mill Estimated Distance (km): 1.8 Flow Rate: Flow greater than 80 cumecs Flow Type: Canal Year: 2000	A9NW (SE)	384	3	383458 397510
	River Quality Name: Medlock GQA Grade: River Quality E Reach: Lords Bk To Irwell Estimated Distance (km): 9.5 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A8NE (S)	426	3	383178 397398
	River Quality Name: Irk GQA Grade: River Quality E Reach: Moston Bk To Irwell Estimated Distance (km): 1.7 Flow Rate: Flow less than 2.5 cumecs Flow Type: River Year: 2000	A19NW (NE)	862	3	383705 398893
	River Quality Name: Corn Bk GQA Grade: River Quality C Reach: Qsl At Openshaw To Msc Estimated Distance (km): 5.6 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A4NW (S)	952	3	383458 396896

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
94	**River Quality Chemistry Sampling Points** Name: Rochdale Canal Reach: Ashton Canal To Knott Mill Estimated Distance: 1.80 Objective: Not Supplied Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1994 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1995 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 1996 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 1997 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 1998 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 1999 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2000 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2001 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2002 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2003 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2004 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2005 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2006 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2007 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2008 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2009 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied	A8NE (SE)	281	3	383330 397558
95	**Substantiated Pollution Incident Register** Authority: Environment Agency - North West Region, South Area Incident Date: 14th August 2013 Incident Reference: 1147703 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: General Biodegradable : Other	A12NW (W)	672	3	382248 398211

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
96	**Water Abstractions** Operator: Her Majesty'S Court Service Licence Number: 2569007089 Permit Version: 2 Location: 2 Boreholes At Gartside Street Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Gartside Street Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 10th July 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	208	3	383335 398310
96	**Water Abstractions** Operator: Bovis Lend Lease Ltd Licence Number: 2569007089 Permit Version: 1 Location: 2 Boreholes At Gartside Street Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Gartside Street Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 28th January 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	208	3	383335 398310
97	**Water Abstractions** Operator: Threlfalls (Salford) Ltd. Licence Number: 2569006009 Permit Version: Not Supplied Location: Four Boreholes, Cook Street, SALFORD Authority: Environment Agency, North West Region Abstraction: Cooling & Manufacturing Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 977 Yearly Rate (m3): 227300 Details: Additional Purpose: Cooling; Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A18NE (N)	541	3	383200 398800
98	**Water Abstractions** Operator: Cds Computer Design Systems Ltd Licence Number: 2569007053 Permit Version: 100 Location: R Irwell At Irwell Works, Ordsall Lane, Salford Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 455 Yearly Rate (m3): 22730 Details: Irwell Works, Ordsall Lane, Salford Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st November 1987 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	655	3	382500 397400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	**Water Abstractions** Operator: British Telecommunications Plc Licence Number: 2569007070 Permit Version: 101 Location: Borehole At Dial House Chapel Street Salford Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Dial House, Salford Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	729	3	383700 398700
99	**Water Abstractions** Operator: British Telecom Licence Number: 2569007070 Permit Version: 100 Location: Borehole At Dial House, Chapel St, Salford Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 30 Yearly Rate (m3): 45 Details: Premises At Dial House, Salford Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th January 1971 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	729	3	383700 398700
100	**Water Abstractions** Operator: Cemex Uk Materials Ltd Licence Number: 2569007085 Permit Version: 3 Location: Borehole At Hope Street, Salford, Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Hope Street, Salford, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th October 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NW (W)	776	3	382190 398330
100	**Water Abstractions** Operator: Cemex Uk Materials Ltd Licence Number: 2569007085 Permit Version: 2 Location: Borehole At Hope Street, Salford, Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Hope Street, Salford, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 22nd March 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NW (W)	776	3	382190 398330

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
100	**Water Abstractions** Operator: Ready Mixed Concrete (North West) Limited Licence Number: 2569007085 Permit Version: 1 Location: Borehole At Hope Street, Salford, Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Hope Street, Salford, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st November 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NW (W)	776	3	382190 398330
101	**Water Abstractions** Operator: British Telecommunications Plc Licence Number: 2569007069 Permit Version: 100 Location: Borehole At George St, Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 860 Yearly Rate (m3): 1100 Details: Premises At Rutherford Hse, York St Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A15SW (E)	820	3	384100 398000
102	**Water Abstractions** Operator: North Western Electricity Board Licence Number: 2569006023 Permit Version: Not Supplied Location: Rochdale Canal, Dickinson Street, MANCHESTER Authority: Environment Agency, North West Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 82 Yearly Rate (m3): 25230 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A10NW (E)	859	3	384100 397700
103	**Water Abstractions** Operator: Dunlop Rubber Co Limited Licence Number: 2569007027 Permit Version: Not Supplied Location: Borehole, Cambridge Street, MANCHESTER Authority: Environment Agency, North West Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 1811 Yearly Rate (m3): 154564 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	985	3	384000 397200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: West Contracting Licence Number: Nw0690006001 Permit Version: 1 Location: Boreholes At Origin Developments, Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 May Authorised End: 30 September Permit Start Date: 19th January 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A15SW (E)	1120	3	384378 397733
	Water Abstractions Operator: West Contracting Licence Number: Nw/069/0006/001 Permit Version: 1 Location: Boreholes At Origin Developments, Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 May Authorised End: 30 September Permit Start Date: 19th January 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A15SW (E)	1120	3	384378 397733
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 2 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1164	3	383820 399190
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole (No 2) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1164	3	383820 399190

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 2 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1164	3	383820 399190
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 2 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1164	3	383820 399190
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 101 Location: Borehole (No 2) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 682 Yearly Rate (m3): 194755 Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1164	3	383820 399190
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 101 Location: Borehole (No 2) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1164	3	383820 399190

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Manchester Metropolitan University Licence Number: Nw/069/0004/003 Permit Version: 1 Location: Borehole At Manchester Metropolitan University Authority: Environment Agency, North West Region Abstraction: Schools and Colleges: Heat Pump Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 20th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NW (SE)	1178	3	383715 396746
	Water Abstractions Operator: Manchester Metropolitan University Licence Number: Nw/069/0004/003 Permit Version: 1 Location: Borehole At Manchester Metropolitan University Authority: Environment Agency, North West Region Abstraction: Schools and Colleges: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 20th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NW (SE)	1178	3	383715 396746
	Water Abstractions Operator: Manchester Metropolitan University Licence Number: Nw/069/0006/003 Permit Version: 2 Location: Borehole 1 At Lower Chatham Street Authority: Environment Agency, North West Region Abstraction: Schools and Colleges: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 4th April 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A10SW (SE)	1193	3	384180 397091
	Water Abstractions Operator: Manchester Metropolitan University Licence Number: Nw/069/0006/003 Permit Version: 2 Location: Borehole 1 At Lower Chatham Street Authority: Environment Agency, North West Region Abstraction: Schools and Colleges: Heat Pump Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 4th April 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A10SW (SE)	1193	3	384180 397091

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Manchester Metropolitan University Licence Number: Nw/069/0006/003 Permit Version: 1 Location: Borehole 1 At Lower Chatham Street Authority: Environment Agency, North West Region Abstraction: Schools and Colleges: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st April 2011 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A10SW (SE)	1193	3	384180 397091
	Water Abstractions Operator: Manchester Metropolitan University Licence Number: Nw/069/0006/003 Permit Version: 1 Location: Borehole 1 At Lower Chatham Street Authority: Environment Agency, North West Region Abstraction: Schools and Colleges: Heat Pump Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st April 2011 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A10SW (SE)	1193	3	384180 397091
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 3 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1194	3	383830 399220
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 3 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1194	3	383830 399220

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 3 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1194	3	383830 399220
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole (No 3) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Borehole At Strangeways Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1194	3	383830 399220
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 101 Location: Borehole (No 3) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1194	3	383830 399220
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 101 Location: Borehole (No 3) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1194	3	383830 399220

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 1 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1230	3	383850 399250
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole (No 1) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1230	3	383850 399250
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole (No 1) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Borehole At Strangeways, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1230	3	383850 399250
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 102 Location: Borehole Number 1 At Premises Strangeways Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1230	3	383850 399250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 101 Location: Borehole (No 1) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1230	3	383850 399250
	Water Abstractions Operator: Interbrew Uk Ltd Licence Number: 2569004023 Permit Version: 101 Location: Borehole (No 1) At Premises, Strangeways, Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Strangeways Brewery, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SE (NE)	1230	3	383850 399250
	Water Abstractions Operator: Lancashire Dairies Ltd Licence Number: 2569004021 Permit Version: 100 Location: Borehole At Premises, Derby Street, Cheetham, Manchester Authority: Environment Agency, North West Region Abstraction: Dairies: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 436 Yearly Rate (m3): 159110 Details: Premises At Derby St,Cheetham Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 1993 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(NE)	1725	3	383900 399800
	Water Abstractions Operator: Lancashire Dairies Ltd Licence Number: 2569004021 Permit Version: 100 Location: Borehole At Premises, Derby Street, Cheetham, Manchester Authority: Environment Agency, North West Region Abstraction: Dairies: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Derby St,Cheetham Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 1993 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NE)	1725	3	383900 399800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Joseph Holt Ltd Licence Number: 2569004011 Permit Version: 100 Location: Borehole At Derby Brewery, Cheetham, Manchester 3 Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 182 Yearly Rate (m3): 45460 Details: Derby Brewery, Cheetham, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th February 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A25NW (NE)	1741	3	384100 399700
	Water Abstractions Operator: Joseph Holt Ltd Licence Number: 2569004011 Permit Version: 100 Location: Borehole At Derby Brewery, Cheetham, Manchester 3 Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Derby Brewery, Cheetham, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th February 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A25NW (NE)	1741	3	384100 399700
	Water Abstractions Operator: Cerep Iii Investment R Sarl Licence Number: 2569007001 Permit Version: 102 Location: Manchester Ship Canal At Premises Ordsall Lane Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At 371 Ordsall Lane Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 29th October 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A1NW (SW)	1776	3	381600 396700
	Water Abstractions Operator: Cerep Iii Investment R Sarl Licence Number: 2569007002 Permit Version: 102 Location: Borehole At 371 Ordsall Lane, Manchester 5 Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At 371 Ordsall Lane Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 29th October 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A1NW (SW)	1776	3	381600 396700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Colgate-Palmolive Manufacturing (Uk) Ltd Licence Number: 2569007001 Permit Version: 101 Location: Manchester Ship Canal At Premises Ordsall Lane Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 4910 Yearly Rate (m3): 1363800 Details: Premises At 371 Ordsall Lane Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A1NW (SW)	1776	3	381600 396700
	Water Abstractions Operator: Colgate-Palmolive Manufacturing (Uk) Ltd Licence Number: 2569007002 Permit Version: 101 Location: Borehole At 371 Ordsall Lane, Manchester 5 Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At 371 Ordsall Lane Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A1NW (SW)	1776	3	381600 396700
	Water Abstractions Operator: Colgate Palmolive Ltd Licence Number: 2569007001 Permit Version: 100 Location: Manchester Ship Canal At Premises Ordsall Lane Manchester Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 4910 Yearly Rate (m3): 1363800 Details: Premises At 371 Ordsall Lane Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th April 1992 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A1NW (SW)	1776	3	381600 396700
	Water Abstractions Operator: Colgate Palmolive Ltd Licence Number: 2569007002 Permit Version: 100 Location: Borehole At 371 Ordsall Lane, Manchester 5 Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 1637 Yearly Rate (m3): 409140 Details: Premises At 371 Ordsall Lane Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 5th December 1985 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A1NW (SW)	1776	3	381605 396695

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Vita Industrial Polymers Limited Licence Number: 2569004046 Permit Version: 101 Location: Borehole At Seaford Road, Salford Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land & Premises At Seaford Road Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 30th May 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(NW)	1887	3	382000 399800
	Water Abstractions Operator: Vita Salford Licence Number: 2569004046 Permit Version: 100 Location: Borehole At Seaford Road, Salford Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 196 Yearly Rate (m3): 31822 Details: Land & Premises At Seaford Road Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th February 1992 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(NW)	1887	3	382000 399800
	Water Abstractions Operator: Hydes Brewery Ltd Licence Number: 2569007009 Permit Version: 102 Location: Borehole At Premises, Moss Lane West Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: 46 Moss Lane West, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th April 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1971	3	383220 395850
	Water Abstractions Operator: Hydes Brewery Ltd Licence Number: 2569007009 Permit Version: 101 Location: Borehole At Premises, Moss Lane West Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 373 Yearly Rate (m3): 66826 Details: 46 Moss Lane West, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 7th October 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1971	3	383220 395850

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Hydes Brewery Ltd Licence Number: 2569007009 Permit Version: 101 Location: Borehole At Premises, Moss Lane West Manchester Authority: Environment Agency, North West Region Abstraction: Breweries/Wine: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: 46 Moss Lane West, Manchester Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 7th October 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1971	3	383220 395850
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 17 Derbyshire & North Staffordshire Scale: 1:100,000	A13SE (NE)	0	3	383092 398018
	Drift Deposits Drift Deposit: Low permeability drift deposits occuring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium Map Sheet: Sheet 17 Derbyshire & North Staffordshire Scale: 1:100,000	A13NW (NW)	0	3	382967 398092
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A13SE (NE)	0	2	383092 398018
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (NE)	0	2	383092 398018
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (NW)	0	2	382998 398101
104	**Source Protection Zones** Name: Moss Side Source: Environment Agency, Head Office Reference: Nw097 Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A14SW (SE)	443	3	383679 397745
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (NE)	0	3	383092 398018
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	124	3	383241 398301
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A8NE (S)	236	3	383241 397574
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (NW)	0	3	383039 398055
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (N)	0	3	383134 398226
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (W)	0	3	382892 397959

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	47	3	382838 397906
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A12SE (W)	166	3	382719 397873
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	178	3	382945 397726
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A8NW (SW)	212	3	382889 397703
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	221	3	383327 398365
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
105	**Detailed River Network Lines** River Type: Primary River River Name: River Irwell Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Currently Undefined Water Course Name: Not Supplied Water Course Reference: Not Supplied	A13NW (NW)	0	3	382992 398105
106	**Detailed River Network Lines** River Type: Secondary River River Name: River Medlock Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A13SW (SW)	182	3	382947 397721
107	**Detailed River Network Lines** River Type: Canal River Name: Albion Mill Lock Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A8NE (S)	251	3	383126 397567

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Detailed River Network Lines				
108	River Type: Canal River Name: Bridgewater Canal Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Currently Undefined Water Course Name: Not Supplied Water Course Reference: Not Supplied	A8NW (S)	286	3	383030 397579
	Detailed River Network Lines				
109	River Type: Canal River Name: Bridgewater Canal Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A8NE (S)	291	3	383283 397535
	Detailed River Network Lines				
110	River Type: Canal River Name: Bridgewater Canal Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Currently Undefined Water Course Name: Not Supplied Water Course Reference: Not Supplied	A8NW (S)	298	3	383060 397561
	Detailed River Network Lines				
111	River Type: Primary River River Name: River Medlock Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Currently Undefined Water Course Name: MEDLOCK Water Course Reference: MEDL	A8NE (S)	311	3	383271 397513
	Detailed River Network Lines				
112	River Type: Canal River Name: Bridgewater Canal Hydrographic Area: D011 River Flow Type: Secondary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A8NW (SW)	466	3	382790 397468
	Detailed River Network Lines				
113	River Type: Primary River River Name: Hulme Locks Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Currently Undefined Water Course Name: Not Supplied Water Course Reference: Not Supplied	A8NW (SW)	466	3	382790 397468

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Detailed River Network Offline Drainage None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Historical Landfill Sites				
114	Licence Holder: Not Supplied Location: Salford, Greater Manchester Name: Wilburn Street Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16529 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: E052	A13SW (W)	63	3	382806 397938
	Historical Landfill Sites				
115	Licence Holder: British Rail Property Board Location: Oldfield Road, Salford, Greater Manchester Name: Former Ordsall Lane Sidings Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16525 First Input Date: 1st May 1986 Last Input Date: 31st December 1986 Specified Waste Type: Deposited Waste included Inert Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4200/9121 BGS Ref: Not Supplied Other Ref: E020, RD/LIC/414/85	A12NW (W)	553	3	382327 398064
	Licensed Waste Management Facilities (Locations)				
116	Licence Number: 50480 Location: Mobile Plant Permit Operator Name: Soil & Water Remediation Ltd Operator Location: Not Supplied Authority: Environment Agency - South East Region, Solent & South Downs Area Site Category: Mobile Plant **Licence Status: Transferred** Issued: 12th December 2006 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	200	3	382841 397739
	Licensed Waste Management Facilities (Locations)				
117	Licence Number: 53487 Location: Manchester Tippers And Aggregates, Upper Wharf Street, Salford, Lancashire, M5 4TY Operator Name: Landfill Restoration (Northern) Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: Physical Treatment Facilities **Licence Status: Modified** Issued: 17th August 1998 Last Modified: 2nd December 2013 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NW (NW)	612	3	382389 398344

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
118	**Licensed Waste Management Facilities (Locations)** Licence Number: 53734 Location: 2a Hulme Street, Salford, Lancashire, M5 4PY Operator Name: A Cohen & Co Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: Metal Recycling Sites (Mixed) **Licence Status: Surrendered** Issued: 17th May 1994 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 25th March 2002 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	632	3	382428 398434
119	**Licensed Waste Management Facilities (Locations)** Licence Number: 104096 Location: Duncan Street Ind Est, Duncan Street, Salford, Lancs, M5 3SQ Operator Name: Recovered Fuels Shipping Limited Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status: Modified** Issued: 28th February 2013 Last Modified: 2nd December 2013 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11SE (W)	831	3	382038 397995
120	**Licensed Waste Management Facilities (Locations)** Licence Number: 50191 Location: Little Ireland Phase B, Great Marlborough Street, Manchester, M1 5NN Operator Name: Terra Vac (uk) Ltd Operator Location: Strategic Business Centre, Blue Ridge Park, Thunderhead Ridge, Glasshoughton, Castleford, WF10 4UA Authority: Environment Agency - North East Region, Ridings Area Site Category: Mobile Plant **Licence Status: Issued** Issued: 17th June 2002 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	882	3	383998 397374
121	**Licensed Waste Management Facilities (Locations)** Licence Number: 50251 Location: Land/premises At, Trentham Street, Cornbrook, Manchester, M15 4LW Operator Name: P A Bennett, B Bennett, R J Bennett, J A Pesticcio Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: End of Life Vehicles **Licence Status: Issued** Issued: 16th July 2004 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A7SW (SW)	901	3	382380 397184

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
122	**Licensed Waste Management Facilities (Locations)** Licence Number: 50065 Location: Land/premises At, West Egerton Street, Salford, Manchester, M5 4LQ Operator Name: European Metal Recycling Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: Metal Recycling Sites (Mixed) **Licence Status: Modified** Issued: 18th July 2002 Last Modified: 11th December 2009 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A11NE (W)	903	3	382000 398200
123	**Licensed Waste Management Facilities (Locations)** Licence Number: 50325 Location: Afos Car Dismantlers, Dinton Street, Cornbrook, Manchester, M15 4WA Operator Name: Mr Arthur Kirk And Mr Wilfred Smith Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: Vehicle Depollution Facility <5000 tps **Licence Status: Modified** Issued: 19th May 2005 Last Modified: 29th July 2013 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	992	3	382410 397060
	Local Authority Landfill Coverage Name: Salford Metropolitan District Council - Has no landfill data to supply		0	5	382996 398108
	Local Authority Landfill Coverage Name: Manchester City Council - Had landfill data but passed it to the relevant environment agency		0	12	383092 398018
	Local Authority Landfill Coverage Name: Trafford Metropolitan Borough Council - Has not been able to supply Landfill data		693	13	382486 397364

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
124	**Registered Landfill Sites** Licence Holder: B.R. London Midland Region Licence Reference: 00414/85 Site Location: Ordsall Lane Sidings, Oldfield Road, Salford, Greater Manchester Licence Easting: 382100 Licence Northing: 398100 Operator Location: 67/87 Hampstead Road, Camden, London Authority: Environment Agency - North West Region, South Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st May 1986 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Accuracy: Not Applicable Authorised Waste Brick,Concrete,Slate Ceramic Materials Construction Industry Waste Fibreglass Glass Metals Non Leachate Forming Wastes Plastics Soil,Clay,Sand,Stone Wood Prohibited Waste Animal Flesh Chemical Wastes Foodstuffs Liquid Wastes Mat'L Giving Rise To Pollut'G Leachate Paper/Cardboard Plasterboard Sawdust Sludge Wastes Textiles Vegetable Matter Waste At Temp.Endangering People	A12NW (W)	782	3	382100 398100
125	**Registered Waste Transfer Sites** Licence Holder: Spray Shop Supplies Ltd Licence Reference: 00858/92 Site Location: 2A Manchester Trading Estate, New Elm Road, Water Street, MANCHESTER, Greater Manchester, M3 4JV Operator Location: As Site Address Authority: Environment Agency - North West Region, South Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Site exempt from licenceExempt Dated: 1st May 1993 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste Max.Storage In Licence Solvents & Thinners Prohibited Waste Explosive Waste Malodorous Waste Pressurized Containers/Waste Therein Violently Reactive Wastes Waste N.O.S.	A13SW (SW)	159	3	382903 397754

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Registered Waste Transfer Sites				
126	Licence Holder: Supertune Automotive Ltd Licence Reference: 00604/90 Site Location: Gore Street, SALFORD, Greater Manchester, M3 5FP Operator Location: Oldham Central Trading Park, Coulton Close, OLDHAM, Lancashire, OL1 4EB Authority: Environment Agency - North West Region, South Area Site Category: Transfer Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Licence Status: Site exempt from licenceExempt Dated: 1st August 1990 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Hydrocarbons Oxygen Containing Organic Compounds Paint Waste $	A18SE (N)	213	3	383100 398480
	Registered Waste Transfer Sites				
127	Licence Holder: Manchester Tippers & Aggregates Ltd Licence Reference: 80041 Site Location: Upper Wharf Street, Oldfield Road, SALFORD, Greater Manchester, M5 4TY Operator Location: As Site Address Authority: Environment Agency - North West Region, South Area Site Category: Transfer Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 17th August 1998 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Inert Solid Waste Comprising Max.Storage In Licence Max.Waste Permitted By Licence Uncontam. Concrete Uncontam. Sand Uncontam. Soil/Subsoil Prohibited Waste: Asbestos Batteries Bulk Powders Clinical Wastes Contaminated Materials Contaminated Soils Foundry/Moulding Sand Pressurised Containers Sand Filter Materials Spec.Waste (Epa'90:S62/1996 Regs) Waste In Drums Waste In Pressurised Containers Waste N.O.S.	A12NW (NW)	616	3	382395 398360

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
128	**Registered Waste Transfer Sites** Licence Holder: E & N Gregson & Co Licence Reference: 00191 Site Location: Ravald Street, Salford, Greater Manchester Operator Location: Ravald School, Salford, Greater Manchester Authority: Environment Agency - North West Region, South Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 27th November 1981 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Latex, Latex/Rubber Sol'Ns/Susp'Ns Oxygen Containing Organic Compounds Paint Waste $ Soaps & Detergents Waste From Ink Manufacture And Use Water (Contaminated)	A18NE (N)	727	3	383228 398984
129	**Registered Waste Treatment or Disposal Sites** Licence Holder: Manchester Wharf Steel Ltd Licence Reference: 00587 Site Location: Potato Wharf, MANCHESTER, Greater Manchester, M3 4LA Operator Location: As Site Address Authority: Environment Agency - North West Region, South Area Site Category: Scrapyard Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st May 1996 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Associated Non-Scrap Max.Storage Of Ferrous Scrap Pre-Sorted Scrap Metal Incl. Scrap Vehicles Prohibited Waste: Asbestos (Other Than Integral To Veh.) Bulk Powders Clinical Wastes Explosive Waste Highly Reactive Wastes Pcbs And Analogues Pressurised Wastes Or Cont'Rs Special Wastes N.O.S. Waste Drums (Unless Pre-Cleaned) Waste N.O.S.	A13SW (SW)	181	3	382960 397720

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Registered Waste Treatment or Disposal Sites				
130	Licence Holder: A Cohen & Co (GB) Ltd Licence Reference: 00933 Site Location: 2A Hulme Street, SALFORD, Greater Manchester, M5 4PY Operator Location: Clareville House, 25/27 Oxenden Street, LONDON, Greater London, SW1Y 4EL Authority: Environment Agency - North West Region, South Area Site Category: Scrapyard Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Site dormant Dated: 1st May 1994 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Copper Compounds From Wire Drawing Lead/Acid Batteries (Incl.Plastic) Max.Waste Permitted By Licence Scrap Mach'Y/Equip. - Non-Ferrous Prohibited Waste: Explosive Waste Liquid Waste N.O.S. Press'D Containers Or Waste Therein Waste N.O.S Whether/Not Pack.'Pre-Trt Waste Reacting Violently With Water	A17SE (NW)	589	3	382500 398450

Hazardous Substances

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
131	**Control of Major Accident Hazards Sites (COMAH)** Name: British Gas TransCo (North & East) Location: Site A, Salford Holder Station, Liverpool Street, SALFORD, Lancashire, M5 4LQ Reference: Not Supplied Type: Lower Tier **Status:** **Record Ceased To Be Supplied Under COMAH Regulations** Positional Accuracy: Automatically positioned to the address	A11NE (W)	984	7	381925 398232
131	**Control of Major Accident Hazards Sites (COMAH)** Name: Transco Plc Location: Liverpool Street, Salford, MANCHESTER, Lancashire, M5 4LQ Reference: 1036510 Type: Lower Tier **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A11NE (W)	984	7	381925 398232
132	**Notification of Installations Handling Hazardous Substances (NIHHS)** Name: Transco Location: Site A, Salford Holder Station, Liverpool Street, SALFORD, Lancashire, M5 4LQ **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A11NE (W)	982	7	381925 398227

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Permian and Triassic sandstones, undifferentiated,including Bunter and Keuper	A13SE (NE)	0	2	383092 398018
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SE (NE)	0	8	383092 398018
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SW (W)	0	8	383000 398018
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NW (NW)	0	8	382999 398101
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NW (NW)	0	8	383000 398102
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SW (W)	0	8	382906 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SW (W)	0	8	383000 398000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SE (S)	0	8	383092 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SW (S)	70	8	383063 397792
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SW (S)	121	8	383000 397771
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (E)	156	8	383396 398094
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SW (E)	181	8	383459 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NE (NE)	205	8	383287 398379

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NE (NE)	206	8	383382 398269
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SE (SW)	222	8	382678 397830
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SW (E)	310	8	383589 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SW (E)	335	8	383614 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SW (E)	366	8	383646 397927
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SW (E)	370	8	383651 397958

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SW (E)	379	8	383659 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SW (SE)	402	8	383646 397777
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8NW (S)	417	8	382990 397454
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18SW (N)	463	8	383000 398718
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SW (NE)	497	8	383544 398537
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SW (NE)	507	8	383582 398498

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14NE (NE)	576	8	383769 398306
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A17SE (NW)	705	8	382474 398601
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SE (E)	719	8	384000 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SE (E)	720	8	384000 398018
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14NE (E)	727	8	384000 398070
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NE (N)	733	8	383092 399000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NW (N)	733	8	383071 399000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	737	8	383923 397548
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NW (N)	740	8	383000 399000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	786	8	383985 397570
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SE (E)	790	8	384070 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A23SW (N)	796	8	383000 399057

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	800	8	384000 397573
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NW (N)	802	8	382776 399000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	807	8	384000 397551
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A3NE (S)	821	8	383092 397000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NW (N)	835	8	382741 399020
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NW (N)	836	8	382755 399028

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	837	8	384000 397473
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A3NW (S)	850	8	383000 397000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SE (W)	868	8	382000 398000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SE (W)	869	8	382000 398018
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A23SE (N)	876	8	383186 399140
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9SE (SE)	891	8	383936 397269

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A23SW (N)	905	8	382884 399146
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A23SW (N)	907	8	383000 399169
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 150 - 300 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9SE (SE)	915	8	384000 397316
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A6NE (W)	974	8	381975 397559
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A6NE (SW)	977	8	382000 397497
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A23SW (N)	980	8	383000 399242

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A10SW (SE)	983	8	384098 397345
133	**BGS Recorded Mineral Sites** Site Name: Pendleton Rail Depot Location: Hope Street, Pendleton, Salford Source: British Geological Survey, National Geoscience Information Service Reference: 31708 Type: Rail Depot **Status:** **Active** Operator: Cemex Uk Materials Ltd Operator Location: Cemex Uk Materials Ltd, Cemex House, Coldharbour Lane, Thorpe, Egham, Surrey, Tw20 8td Periodic Type: Carboniferous Geology: Carboniferous Limestone Supergroup From Dove Holes Commodity: Crushed Rock Positional Accuracy: Located by supplier to within 10m	A12NW (W)	689	2	382285 398320
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383120, 398090 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 28.00 mg/kg Cadmium Measured Concentration: 0.90 mg/kg Chromium Measured Concentration: 66.00 mg/kg Lead Measured Concentration: 436.00 mg/kg Nickel Measured Concentration: 32.00 mg/kg	A13NE (N)	0	2	383120 398090
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383250, 397700 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 16.00 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 49.00 mg/kg Lead Measured Concentration: 148.00 mg/kg Nickel Measured Concentration: 21.00 mg/kg	A8NE (SE)	123	2	383250 397700
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 382820, 397770 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 20.00 mg/kg Cadmium Measured Concentration: 1.00 mg/kg Chromium Measured Concentration: 68.00 mg/kg Lead Measured Concentration: 233.00 mg/kg Nickel Measured Concentration: 26.00 mg/kg	A13SW (SW)	175	2	382820 397770

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 382710, 398200 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 18.00 mg/kg Cadmium Measured Concentration: 0.80 mg/kg Chromium Measured Concentration: 51.00 mg/kg Lead Measured Concentration: 215.00 mg/kg Nickel Measured Concentration: 19.00 mg/kg	A12NE (NW)	266	2	382710 398200
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383240, 398740 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 26.00 mg/kg Cadmium Measured Concentration: 1.00 mg/kg Chromium Measured Concentration: 91.00 mg/kg Lead Measured Concentration: 212.00 mg/kg Nickel Measured Concentration: 33.00 mg/kg	A18NE (N)	491	2	383240 398740
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383620, 398440 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 25.00 mg/kg Cadmium Measured Concentration: 2.20 mg/kg Chromium Measured Concentration: 74.00 mg/kg Lead Measured Concentration: 377.00 mg/kg Nickel Measured Concentration: 26.00 mg/kg	A19SW (NE)	519	2	383620 398440
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383880, 397770 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 12.00 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 56.00 mg/kg Lead Measured Concentration: 102.00 mg/kg Nickel Measured Concentration: 18.00 mg/kg	A14SE (E)	628	2	383880 397770
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383070, 397210 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 18.00 mg/kg Cadmium Measured Concentration: 0.70 mg/kg Chromium Measured Concentration: 64.00 mg/kg Lead Measured Concentration: 159.00 mg/kg Nickel Measured Concentration: 27.00 mg/kg	A8SW (S)	629	2	383070 397210

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 382770, 398840 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 19.00 mg/kg Cadmium Measured Concentration: 1.20 mg/kg Chromium Measured Concentration: 67.00 mg/kg Lead Measured Concentration: 317.00 mg/kg Nickel Measured Concentration: 30.00 mg/kg	A18NW (N)	662	2	382770 398840
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 382250, 397680 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 13.00 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 53.00 mg/kg Lead Measured Concentration: 99.00 mg/kg Nickel Measured Concentration: 16.00 mg/kg	A7NW (W)	673	2	382250 397680
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 382220, 398190 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 44.00 mg/kg Cadmium Measured Concentration: 3.60 mg/kg Chromium Measured Concentration: 397.00 mg/kg Lead Measured Concentration: 713.00 mg/kg Nickel Measured Concentration: 42.00 mg/kg	A12NW (W)	690	2	382220 398190
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 382680, 397160 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 15.00 mg/kg Cadmium Measured Concentration: 0.70 mg/kg Chromium Measured Concentration: 56.00 mg/kg Lead Measured Concentration: 209.00 mg/kg Nickel Measured Concentration: 18.00 mg/kg	A7SE (SW)	793	2	382680 397160
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383750, 397170 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 23.00 mg/kg Cadmium Measured Concentration: 1.10 mg/kg Chromium Measured Concentration: 109.00 mg/kg Lead Measured Concentration: 284.00 mg/kg Nickel Measured Concentration: 31.00 mg/kg	A9SE (SE)	831	2	383750 397170

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383870, 398810 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 10.00 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 44.00 mg/kg Lead Measured Concentration: 67.00 mg/kg Nickel Measured Concentration: 13.00 mg/kg	A19NE (NE)	931	2	383870 398810
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 381930, 397710 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 19.00 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 71.00 mg/kg Lead Measured Concentration: 371.00 mg/kg Nickel Measured Concentration: 32.00 mg/kg	A11SE (W)	968	2	381930 397710
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 382150, 397290 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 16.00 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 49.00 mg/kg Lead Measured Concentration: 172.00 mg/kg Nickel Measured Concentration: 19.00 mg/kg	A7SW (SW)	971	2	382150 397290
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 383270, 399230 Soil Sample Type: Topsoil Sample Area: Manchester Arsenic Measured Concentration: 18.00 mg/kg Cadmium Measured Concentration: 0.90 mg/kg Chromium Measured Concentration: 86.00 mg/kg Lead Measured Concentration: 298.00 mg/kg Nickel Measured Concentration: 21.00 mg/kg	A23SE (N)	976	2	383270 399230

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages Source: British Geological Survey, National Geoscience Information Service Sample Area: Manchester Count Id: 300 Arsenic Minimum Concentration: 3.00 mg/kg Arsenic Average Concentration: 28.00 mg/kg Arsenic Maximum Concentration: 1008.00 mg/kg Cadmium Minimum Concentration: 0.30 mg/kg Cadmium Average Concentration: 1.40 mg/kg Cadmium Maximum Concentration: 80.30 mg/kg Chromium Minimum Concentration: 29.00 mg/kg Chromium Average Concentration: 92.00 mg/kg Chromium Maximum Concentration: 1252.00 mg/kg Lead Minimum Concentration: 21.00 mg/kg Lead Average Concentration: 270.00 mg/kg Lead Maximum Concentration: 2687.00 mg/kg Nickel Minimum Concentration: 6.00 mg/kg Nickel Average Concentration: 32.00 mg/kg Nickel Maximum Concentration: 137.00 mg/kg	A13SE (NE)	0	2	383092 398018
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13SE (NE)	0	9	383092 398018
	Man-Made Mining Cavities Easting: 382200 Northing: 397400 Distance: 861 Quadrant Reference: A7 Quadrant Reference: NW Bearing Ref: SW Cavity Type: Adit Entry Sandstone Mines Commodity: Sandstone Solid Geology Detail: BUNTER SANDSTONE Superficial Geology Detail: Glacial Gravel	A7NW (SW)	861	10	382200 397400
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	383053 398071
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A14SW (E)	236	2	383510 397885
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	383053 398071
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	66	2	383348 397955
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SE (W)	202	2	382670 397906
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	110	2	382767 398010
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	2	383092 398018

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
134	**Contemporary Trade Directory Entries** Name: Gazprom Marketing & Trading Retail Ltd Location: 27, Quay Street, Manchester, M3 3GY Classification: Gas Suppliers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A13SE (E)	2	-	383232 398036
134	**Contemporary Trade Directory Entries** Name: Gazprom Marketing & Trading Location: 27, Quay Street, Manchester, M3 3GY Classification: Gas Companies **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	2	-	383232 398036
134	**Contemporary Trade Directory Entries** Name: Gazprom Marketing & Trading Retail Ltd Location: Quay St, Manchester, Lancashire, M3 3GY Classification: Gas Suppliers **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (E)	31	-	383270 398058
135	**Contemporary Trade Directory Entries** Name: Atlantis Location: 121, Water Street, Manchester, M3 4JU Classification: Dry Cleaners **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	25	-	382909 397904
136	**Contemporary Trade Directory Entries** Name: Atlantis Piccadilly Laundry Services Location: 121 Woollam Pl, Manchester, M3 4JJ Classification: Laundries & Launderettes **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SW (SW)	65	-	382968 397836
137	**Contemporary Trade Directory Entries** Name: Servicepoint Location: 73-83 Liverpool Rd, Manchester, Lancashire, M3 4AQ Classification: Copying & Duplicating Services **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	73	-	383162 397768
138	**Contemporary Trade Directory Entries** Name: Parkgate Shipping Ltd Location: Third Floor, Byrom House, 21, Quay Street, Manchester, M3 3JD Classification: Freight Forwarders **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	79	-	383345 398013
138	**Contemporary Trade Directory Entries** Name: Direct Line Rescue Location: 17, Quay Street, Manchester, M3 3HN Classification: Car Breakdown & Recovery Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	120	-	383394 398004
139	**Contemporary Trade Directory Entries** Name: Manchester Pathology Group Location: 27, Byrom Street, Manchester, M3 4PF Classification: Medical & Dental Laboratories **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	98	-	383367 397905
140	**Contemporary Trade Directory Entries** Name: Fleetwood Agencies Ltd Location: 6, Porchfield Square, Manchester, M3 4FG Classification: Rubber & Plastic Products - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	130	-	383376 397824
141	**Contemporary Trade Directory Entries** Name: Spray Shop Supplies Location: 2a, New Elm Road, Manchester, M3 4JH Classification: Car Paint & Lacquer Manufacturers & Suppliers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	141	-	382914 397769
142	**Contemporary Trade Directory Entries** Name: Dr'S Batley & Bisset Location: 11, St. John Street, Manchester, M3 4DW Classification: X-Ray Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (E)	148	-	383419 397905

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
143	**Contemporary Trade Directory Entries** Name: Car Care Express Location: Arch 4, Irwell Street, Salford, Lancashire, M3 5EN Classification: Car Body Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	177	-	382967 398385
143	**Contemporary Trade Directory Entries** Name: Zico Cars Location: Arch 4, Irwell Street, Salford, M3 5EN Classification: Car Dealers - Used **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	177	-	382967 398385
144	**Contemporary Trade Directory Entries** Name: E E Chrisp Location: 6, Southern Street, Manchester, M3 4WP Classification: Printers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	190	-	383368 397686
144	**Contemporary Trade Directory Entries** Name: Holt Springs (Manchester) Ltd Location: 16, Bridgewater Street, Manchester, M3 4NH Classification: Spring Manufacturers & Distributors **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	201	-	383347 397656
145	**Contemporary Trade Directory Entries** Name: Robins & Day Location: Unit 3, Manchester Industrial Centre, Water Street, Manchester, Lancashire, M3 4JW Classification: Car Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	200	-	382841 397739
146	**Contemporary Trade Directory Entries** Name: Hanson Premix Location: Potato Wharf, Manchester, M3 4NB Classification: Concrete & Mortar Ready Mixed **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A8NW (SW)	215	-	382928 397690
147	**Contemporary Trade Directory Entries** Name: Hobs On Site Location: 244, Deansgate, Manchester, Lancashire, M3 4BQ Classification: Copying & Duplicating Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	223	-	383503 397945
147	**Contemporary Trade Directory Entries** Name: Lotus (Manchester) Location: 229-235, Deansgate, Manchester, Lancashire, M3 4EN Classification: Car Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (E)	249	-	383524 397905
148	**Contemporary Trade Directory Entries** Name: Burofloor Location: 3, Hardman Street, Manchester, M3 3AW Classification: Carpets & Rugs - Manufacturers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	228	-	383454 398156
148	**Contemporary Trade Directory Entries** Name: Merlin Specialists Repairs Ltd Location: 3, Hardman Street, Manchester, M3 3HF Classification: Bath Resurfacing **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	228	-	383454 398156
149	**Contemporary Trade Directory Entries** Name: Timberwise (Uk) Ltd Location: Great Northern Warehouse, 275, Deansgate, Manchester, M3 4EW Classification: Damp & Dry Rot Control **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	241	-	383476 397770

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
149	**Contemporary Trade Directory Entries** Name: Bright & Beautiful Location: Great Northern Warehouse, 275, Deansgate, Manchester, M3 4EL Classification: Cleaning Services - Domestic **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	243	-	383478 397769
149	**Contemporary Trade Directory Entries** Name: Docutech Solutions Location: Great Northern Warehouse, 275, Deansgate, Manchester, M3 4EL Classification: Photographic Equipment Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	243	-	383478 397769
149	**Contemporary Trade Directory Entries** Name: Studio Macs Location: Great Northern Warehouse, 275, Deansgate, Manchester, M3 4EL Classification: Electrical Heating Equipment & Systems **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	243	-	383478 397769
149	**Contemporary Trade Directory Entries** Name: Accountancy & Payroll Services Location: Great Northern Warehouse, 275, Deansgate, Manchester, Lancashire, M3 4EL Classification: Commercial Cleaning Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	243	-	383478 397769
149	**Contemporary Trade Directory Entries** Name: Automation Providers Location: Great Northern Warehouse, 275, Deansgate, Manchester, Lancashire, M3 4EW Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	243	-	383478 397769
149	**Contemporary Trade Directory Entries** Name: Dalton Automation Ltd Location: Great Northern Warehouse, 275, Deansgate, Manchester, Lancashire, M3 4EL Classification: Automation Systems & Equipment **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14SW (SE)	243	-	383478 397769
149	**Contemporary Trade Directory Entries** Name: Docutech Solutions Ltd Location: Great Northern Warehouse, 275, Deansgate, Manchester, M3 4EL Classification: Photocopiers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14SW (SE)	243	-	383478 397769
149	**Contemporary Trade Directory Entries** Name: Rimo Designs Location: 269-273, Deansgate, Manchester, M3 4EW Classification: Carpets & Rugs - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	244	-	383484 397787
150	**Contemporary Trade Directory Entries** Name: Buildings 2 Clean Location: 249, Deansgate, Manchester, M3 4EN Classification: Commercial Cleaning Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14SW (E)	241	-	383500 397851
151	**Contemporary Trade Directory Entries** Name: Autopaint International Location: 293, Deansgate, Manchester, M3 4EW Classification: Car Painters & Sprayers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	245	-	383458 397713
152	**Contemporary Trade Directory Entries** Name: Pps Print Communications Location: 198, Deansgate, Manchester, M3 3NE Classification: Copying & Duplicating Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14SW (E)	250	-	383526 398016

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
152	**Contemporary Trade Directory Entries** Name: Northern Image Centre Location: Invicta House, 2-4, Atkinson Street, Manchester, Lancashire, M3 3HH Classification: Copying & Duplicating Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	257	-	383520 398062
153	**Contemporary Trade Directory Entries** Name: Gliptone Leather Care Location: 5, Bridgewater Street, Manchester, M3 4NH Classification: Leather Products - Manufacturers & Suppliers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	254	-	383381 397613
154	**Contemporary Trade Directory Entries** Name: Arletti Ltd Location: Grafton Works, Oldham Street, Salford, Lancashire, M5 4NN Classification: Tool Design, Manufacturers & Makers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	256	-	382636 398059
155	**Contemporary Trade Directory Entries** Name: James & Taylor Ltd Location: Eastagte, 2, Castle Street, Manchester, M3 4LZ Classification: Cladding Suppliers & Installers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (S)	267	-	383235 397554
156	**Contemporary Trade Directory Entries** Name: Stratstone Saab Location: Unit 5, Manchester Industrial Centre, Water Street, Manchester, M3 4JW Classification: Car Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	268	-	382792 397682
156	**Contemporary Trade Directory Entries** Name: E A P International Ltd Location: Unit 6, Manchester Industrial Centre, Water Street, Manchester, Lancashire, M3 4JW Classification: Rubber & Plastic Products - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	313	-	382793 397634
156	**Contemporary Trade Directory Entries** Name: Robins & Day Location: Unit 6, Manchester Industrial Centre, Water Street, Manchester, M3 4JW Classification: Car Dealers - Used **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	313	-	382793 397634
157	**Contemporary Trade Directory Entries** Name: City Auto Service (Manchester) Location: 15, New Bailey Street, Salford, M3 5FS Classification: Mot Testing Centres **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	272	-	383221 398516
158	**Contemporary Trade Directory Entries** Name: Pallets Wanted Location: Mancentral Indust Est,47c East Ordsall La, Salford, Lancashire, M5 4RW Classification: Pallets, Crates & Packing Cases **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12NE (NW)	290	-	382692 398216
159	**Contemporary Trade Directory Entries** Name: Egerton Narrow Boat Ltd Location: The Arches Boatyard, Potato Wharf, Manchester, M3 4NB Classification: Boatbuilders & Repairers **Status:** **Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A8NW (S)	306	-	382932 397597
160	**Contemporary Trade Directory Entries** Name: John Roberts Location: Chapel House, 172, Chapel Street, Salford, M3 6BG Classification: Printers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	310	-	383089 398577

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
160	**Contemporary Trade Directory Entries** Name: Printing.Com Location: 2, City Point, 156, Chapel Street, Salford, Lancashire, M3 6BF Classification: Printers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A18SW (N)	331	-	383064 398596
160	**Contemporary Trade Directory Entries** Name: M C W Plant Location: City Point,156 Chapel St, Salford, Lancashire, M3 6ET Classification: Plant & Machinery Repairs **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A18SW (N)	331	-	383064 398596
161	**Contemporary Trade Directory Entries** Name: M G Trading Castlefield Location: Flat 1, Ship Canal House, 25, Slate Wharf, Manchester, M15 4SX Classification: Toiletries **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	311	-	383027 397554
162	**Contemporary Trade Directory Entries** Name: Clifton Eyewear Ltd Location: 1, St. Stephen Street, Salford, M3 6AY Classification: Optical Goods - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	323	-	382971 398563
163	**Contemporary Trade Directory Entries** Name: Bright & Clean Manchester Location: 26, Wood Street, Manchester, M3 3EF Classification: Cleaning Services - Domestic **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	340	-	383535 398245
163	**Contemporary Trade Directory Entries** Name: National Cleaning & Painting Location: 52, Bridge Street, Manchester, M3 3BW Classification: Cleaning Services - Commercial **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	359	-	383539 398277
163	**Contemporary Trade Directory Entries** Name: National Cleaning Location: 52, Bridge Street, Manchester, M3 3BW Classification: Cleaning Services - Commercial **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	359	-	383539 398277
163	**Contemporary Trade Directory Entries** Name: National Cleaning Location: 52, Bridge Street, MANCHESTER, M3 3BW Classification: Commercial Cleaning Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	359	-	383539 398277
163	**Contemporary Trade Directory Entries** Name: Granada Dry Cleaners Ltd Location: 71-73, Bridge Street, Manchester, M3 2RH Classification: Dry Cleaners **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	389	-	383560 398299
164	**Contemporary Trade Directory Entries** Name: Duffy Motors (Manchester) Ltd Location: Arch 16-17, Watson Street, Manchester, M3 4LP Classification: Garage Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	345	-	383563 397703
164	**Contemporary Trade Directory Entries** Name: Manchester Radiator Co Ltd Location: Arch 19, Watson Street, Manchester, M3 4LP Classification: Car Radiator Servicing & Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	351	-	383561 397683
165	**Contemporary Trade Directory Entries** Name: Greengate Motors Location: 57, Middlewood Street, Salford, M5 4RF Classification: Car Body Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	352	-	382534 398063

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
166	**Contemporary Trade Directory Entries** Name: Bridgewater Ales Location: 142, Chapel Street, Salford, M3 6AF Classification: Brewers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	353	-	383192 398610
166	**Contemporary Trade Directory Entries** Name: Manchester City Clean Location: Apartment 710, Fresh, 138, Chapel Street, Salford, M3 6DE Classification: Commercial Cleaning Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	362	-	383235 398607
167	**Contemporary Trade Directory Entries** Name: Office World Location: Regents Park, Ordsall Lane, Salford, Lancashire, M5 3TP Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (W)	361	-	382507 397938
167	**Contemporary Trade Directory Entries** Name: Office World Location: Regents Park, Ordsall Lane, Salford, Lancashire, M5 3TP Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (W)	361	-	382507 397938
168	**Contemporary Trade Directory Entries** Name: Kinnarps (Uk) Ltd Location: Colchester House, 38-40, Peter Street, Manchester, M2 5GP Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (E)	364	-	383644 397937
168	**Contemporary Trade Directory Entries** Name: R M R I Ltd Location: 44, Peter Street, Manchester, Lancashire, M2 5GP Classification: Materials Handling Equipment **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14SW (E)	381	-	383661 397930
169	**Contemporary Trade Directory Entries** Name: Entwistle Location: 27-29, King Street West, Manchester, M3 2PN Classification: Copying & Duplicating Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	386	-	383511 398361
169	**Contemporary Trade Directory Entries** Name: Blue Print Reprographics Location: 27-29, King Street West, Manchester, M3 2PN Classification: Copying & Duplicating Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	386	-	383511 398361
169	**Contemporary Trade Directory Entries** Name: Simply Nails Location: 38, King Street West, Manchester, Lancashire, M3 2WZ Classification: Shop Fittings Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (NE)	390	-	383538 398330
169	**Contemporary Trade Directory Entries** Name: K B Cleaning Location: 31-33 King Street West, Manchester, M3 2PN Classification: Cleaning Services - Commercial **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (NE)	398	-	383518 398374
169	**Contemporary Trade Directory Entries** Name: Toye Kenning & Spencer Ltd Location: Reedham House, 31, King Street West, Manchester, M3 2PJ Classification: Clothing & Fabrics - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	399	-	383518 398375
170	**Contemporary Trade Directory Entries** Name: William Street Motors Location: 32, William Street, Salford, M3 6AU Classification: Car Body Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	394	-	383085 398660

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
171	**Contemporary Trade Directory Entries** Name: M & M Office Cleaning Services Ltd Location: Grampian House, 144, Deansgate, Manchester, M3 3EE Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	395	-	383603 398234
171	**Contemporary Trade Directory Entries** Name: Mbnk Ltd Location: 123, Deansgate, Manchester, M3 2BY Classification: Cookers - Sales & Service **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	423	-	383642 398209
171	**Contemporary Trade Directory Entries** Name: Pharma Karma Location: 123, Deansgate, Manchester, M3 2BY Classification: Pharmaceutical Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	423	-	383642 398209
172	**Contemporary Trade Directory Entries** Name: The Leaflet Co Ltd Location: Croxley House, 14, Lloyd Street, Manchester, Lancashire, M2 5ND Classification: Distribution Services **Status: Active** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	401	-	383667 398074
173	**Contemporary Trade Directory Entries** Name: A Kenny Asphalt Ltd Location: Unit 4, The Cottages, Deva Centre, Trinity Way, Salford, Lancashire, M3 7BE Classification: Asphalt & Coated Macadam Laying Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	410	-	383242 398655
173	**Contemporary Trade Directory Entries** Name: E B Office Interiors Location: The Cottages,Unit 4a Deva Centre,Trinity Way, Salford, Lancashire, M3 7BE Classification: Office Furniture & Equipment **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A18SE (N)	413	-	383252 398655
174	**Contemporary Trade Directory Entries** Name: John C Hewitt Location: Hewitt Street, Manchester, M15 4GB Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	413	-	383462 397477
174	**Contemporary Trade Directory Entries** Name: Texco Location: 10, Little Peter Street, Manchester, Lancashire, M15 4PS Classification: Textile Manufacturing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	433	-	383457 397450
174	**Contemporary Trade Directory Entries** Name: G & M Fabrics Location: Symco House,Little Peter St, Manchester, M15 4PS Classification: Pattern Makers - Paper **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	444	-	383493 397460
175	**Contemporary Trade Directory Entries** Name: Bauer Millett & Co Ltd Location: Lawrence House, 8, Albion Street, Manchester, M1 5NZ Classification: Car Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	415	-	383592 397607
175	**Contemporary Trade Directory Entries** Name: Grand Central Autos Location: 19 Trafford St, Manchester, M1 5LH Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	445	-	383608 397575
176	**Contemporary Trade Directory Entries** Name: Ace Decor Location: Unit 4, Regent Trading Estate, Oldfield Road, Salford, M5 4DE Classification: Painting & Decorating Supplies **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	422	-	382606 398318

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
177	**Contemporary Trade Directory Entries** Name: Hobs Legal Docs Location: 4, Whitworth Street West, Manchester, M1 5WY Classification: Copying & Duplicating Services **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A9NW (SE)	423	-	383532 397520
178	**Contemporary Trade Directory Entries** Name: Colloides Naturels Ltd Location: 121 Deansgate, Manchester, M3 2BW Classification: Food Colouring, Flavouring & Additive Manufacturers & Distributors **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	437	-	383650 398230
178	**Contemporary Trade Directory Entries** Name: Apollo Blinds Location: 9, John Dalton Street, Manchester, M2 6FW Classification: Blinds, Awnings & Canopies **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	478	-	383683 398258
178	**Contemporary Trade Directory Entries** Name: Klick Location: 103 Deansgate, Manchester, Lancashire, M3 2BQ Classification: Photographic Processors **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (NE)	485	-	383672 398298
178	**Contemporary Trade Directory Entries** Name: The Flight Centre Location: 103 Deansgate, Manchester, Lancashire, M3 2BQ Classification: Airports **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (NE)	485	-	383672 398298
178	**Contemporary Trade Directory Entries** Name: Scavolini Store Location: 19 John Dalton St, Manchester, Lancashire, M2 6FW Classification: Kitchen Furniture Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	503	-	383713 398248
178	**Contemporary Trade Directory Entries** Name: Advanced Photo Location: 25, John Dalton Street, Manchester, M2 6FW Classification: Photographic Processors **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	507	-	383719 398245
179	**Contemporary Trade Directory Entries** Name: Pressed & Polished Location: The Fusion,Middlewood St, Salford, Lancashire, M5 4LW Classification: Cleaning Services - Domestic **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A12NE (W)	441	-	382457 398113
180	**Contemporary Trade Directory Entries** Name: Amek Systems & Controls Ltd Location: Regent Trading Estate, Oldfield Road, Salford, M5 4DE Classification: Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A12NE (NW)	445	-	382581 398324
180	**Contemporary Trade Directory Entries** Name: J Cash Metals Ltd Location: Unit 2-3, Regent Trading Estate, Oldfield Road, Salford, M5 4DE Classification: Scrap Metal Merchants **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	475	-	382540 398322
181	**Contemporary Trade Directory Entries** Name: Manchester Chemicals & Pigments Ltd Location: Lloyds House, 18-22, Lloyd Street, Manchester, Lancashire, M2 5WA Classification: Chemicals - Distributors & Wholesalers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	446	-	383718 398054
182	**Contemporary Trade Directory Entries** Name: Hulley & Kirkwood Consulting Engineers Location: 2 Commercial St, Manchester, Lancashire, M15 4RQ Classification: Mechanical Engineers **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A8NE (SE)	450	-	383405 397406

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
183	**Contemporary Trade Directory Entries** Name: Cbi Transportation Ltd Location: Cardinal House, 20, St. Marys Parsonage, Manchester, M3 2LY Classification: Freight Forwarders **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	451	-	383531 398454
183	**Contemporary Trade Directory Entries** Name: The Bedding Company Location: Cardinal House, 20, St. Marys Parsonage, Manchester, M3 2LG Classification: Bed & Mattress Manufacturers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	451	-	383531 398454
184	**Contemporary Trade Directory Entries** Name: Recycle Nw Location: Fourth Floor,Brazennose House, Brazennose Street, Manchester, Lancashire, M2 5AS Classification: Office Furniture & Equipment **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A14NW (E)	452	-	383683 398174
184	**Contemporary Trade Directory Entries** Name: Instadrinks Ltd Location: Ridgefield House, 14, John Dalton Street, Manchester, Lancashire, M2 6JR Classification: Vending Machine Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	480	-	383705 398200
184	**Contemporary Trade Directory Entries** Name: Commercial Facilities Location: Ridgefield House, 14, John Dalton Street, Manchester, Lancashire, M2 6JR Classification: Cleaning Services - Commercial **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	480	-	383705 398200
185	**Contemporary Trade Directory Entries** Name: One69a Location: Islington Mill, James Street, Salford, M3 5HW Classification: Screen Process Printers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	454	-	382620 398380
186	**Contemporary Trade Directory Entries** Name: Tom Garner Location: Chester Road, Manchester, M15 4GA Classification: Car Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	455	-	383280 397369
187	**Contemporary Trade Directory Entries** Name: Down Under Location: 47, Peter Street, Manchester, Lancashire, M2 3NG Classification: Abattoirs **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	460	-	383742 397958
187	**Contemporary Trade Directory Entries** Name: Strong Mechanical Services Location: Peter St, Manchester, Lancashire, M2 3NQ Classification: Mechanical Engineers **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A14SE (E)	490	-	383770 397932
188	**Contemporary Trade Directory Entries** Name: A Wise Move Waste Location: Unit 4 Allwood St, Salford, Lancashire, M5 4GL Classification: Waste Disposal Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12NE (W)	466	-	382502 398246
189	**Contemporary Trade Directory Entries** Name: Avon Tyres Ltd Location: 8, Blantyre Street, Manchester, M15 4LH Classification: Tyre Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	472	-	383021 397391

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
190	**Contemporary Trade Directory Entries** Name: E F G Matthews Office Furniture Ltd Location: Albion Street, Manchester, M1 5LL Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	490	-	383661 397574
190	**Contemporary Trade Directory Entries** Name: Claire Giles Location: Albion Wharf, 19, Albion Street, Manchester, Lancashire, M1 5LN Classification: Greeting Card Publishers & Wholesalers **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A9NW (SE)	490	-	383661 397574
191	**Contemporary Trade Directory Entries** Name: Pro2col Location: 101-115, Chapel Street, Salford, M3 5DN Classification: Photographic Processors **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	504	-	383445 398645
191	**Contemporary Trade Directory Entries** Name: Silk Thomas Made To Measure Shirts Location: Caxton Hall, 88-92, Chapel Street, Salford, Lancashire, M3 5DW Classification: Shirt Makers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	523	-	383423 398686
191	**Contemporary Trade Directory Entries** Name: The Graphics Location: Caxton Hall, 88-92, Chapel Street, Salford, Lancashire, M3 5DW Classification: Printers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	523	-	383423 398686
192	**Contemporary Trade Directory Entries** Name: Dale Garages Location: 45-47, Oldfield Road, Salford, M5 4NE Classification: Car Body Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	506	-	382555 398388
192	**Contemporary Trade Directory Entries** Name: Total Location: 45-47, Oldfield Road, Salford, M5 4NE Classification: Petrol Filling Stations **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	506	-	382555 398388
193	**Contemporary Trade Directory Entries** Name: Windsor Garage Location: 2, Oldfield Road, Salford, M5 4WB Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	518	-	382453 398264
194	**Contemporary Trade Directory Entries** Name: Boniecki Motors Location: 272-280, Chapel Street, Salford, M3 5JZ Classification: Car Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	518	-	382670 398560
195	**Contemporary Trade Directory Entries** Name: Derwent Industrial Services Ltd Location: Derwent Ho,Derwent St, Salford, Lancashire, M5 4RE Classification: Blast Cleaning **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A7NE (SW)	518	-	382504 397575
195	**Contemporary Trade Directory Entries** Name: H C Slingsby Plc Location: Unit 1, Derwent Street Trading Estate, Salford, M5 4RE Classification: Machinery - Industrial & Commercial **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	521	-	382510 397564
196	**Contemporary Trade Directory Entries** Name: Aaa Office Emporium Location: Pryme Works, Silvercroft Street, Manchester, M15 4WG Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	525	-	383117 397307

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
197	**Contemporary Trade Directory Entries** Name: Precast Concrete Structures Location: Oldfield Rd, Salford, Lancashire, M5 4LZ Classification: Concrete Products **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12NW (W)	533	-	382352 398084
197	**Contemporary Trade Directory Entries** Name: Youngs Investment Location: Ivy House,1 Liverpool St, Salford, Lancashire, M5 4LY Classification: Printers **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A12NW (W)	577	-	382315 398115
198	**Contemporary Trade Directory Entries** Name: Smart Alex Location: 16 Barlow's Croft, Salford, Lancashire, M3 5DY Classification: Dry Cleaners **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A19SW (NE)	541	-	383494 398650
198	**Contemporary Trade Directory Entries** Name: Manchester Executive Cleaners Ltd Location: Hilton House, 71-73, Chapel Street, Salford, M3 5BZ Classification: Commercial Cleaning Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	589	-	383530 398682
198	**Contemporary Trade Directory Entries** Name: Koot Ltd Location: Hilton House,71-73 Chapel St, Salford, Lancashire, M3 5BZ Classification: Commercial Cleaning Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	589	-	383530 398682
198	**Contemporary Trade Directory Entries** Name: Glyns Collections Location: Conavon Court, 12, Blackfriars Street, Salford, M3 5BQ Classification: Leather Garments & Products **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	599	-	383567 398657
198	**Contemporary Trade Directory Entries** Name: Spi Materials Ltd Location: Conavon Court, 12, Blackfriars Street, Salford, Lancashire, M3 5PP Classification: Tungsten Tool Manufacturers & Distributors **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	599	-	383567 398657
198	**Contemporary Trade Directory Entries** Name: I A S Trading Location: Conavon Court, 12, Blackfriars Street, Salford, Lancashire, M3 5BQ Classification: Computer Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	599	-	383567 398657
199	**Contemporary Trade Directory Entries** Name: Colour Point (Manchester) Ltd Location: Unit 4, Olympia Trading Estate, Great Jackson Street, Manchester, M15 4NP Classification: Photographic Processors **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	545	-	383320 397283
199	**Contemporary Trade Directory Entries** Name: Pro2col Imaging Ltd Location: Unit 4, Olympia Trading Estate, Great Jackson Street, Manchester, Lancashire, M15 4NP Classification: Photo & Digital Imaging Bureaus **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	545	-	383320 397283
200	**Contemporary Trade Directory Entries** Name: Paul Moy Associates Location: Unit 5, Brewery Yard, Deva Centre, Trinity Way, Salford, M3 7BB Classification: Mechanical Engineers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	545	-	383322 398768

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
201	**Contemporary Trade Directory Entries** Name: Davidson Powell Design Location: 40, John Dalton Street, Manchester, M2 6LE Classification: Jewellery Manufacturers & Repairers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	547	-	383781 398190
202	**Contemporary Trade Directory Entries** Name: Texaco Location: Oldfield Rd, Salford, Lancashire, M5 4NE Classification: Petrol Filling Stations - 24 Hour **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17SE (NW)	563	-	382548 398462
203	**Contemporary Trade Directory Entries** Name: Access Pest Control Location: 16, Peter Street, Manchester, M60 2DS Classification: Pest & Vermin Control **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14SE (E)	563	-	383833 397848
204	**Contemporary Trade Directory Entries** Name: C G (Europe) Ltd Location: Enterprise House, 15, Whitworth Street West, Manchester, Lancashire, M1 5WG Classification: China & Glassware Manufacturers & Repairs **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A9NW (SE)	567	-	383721 397526
205	**Contemporary Trade Directory Entries** Name: Fires R Us Location: Unit 7, Slough Industrial Estate, Ordsall Lane, Salford, Lancashire, M5 4SZ Classification: Fireplaces & Mantelpieces **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	570	-	382419 397593
205	**Contemporary Trade Directory Entries** Name: The Snack Co Location: Unit 16/18, Slough Industrial Estate, Ordsall Lane, Salford, M5 4SZ Classification: Food Products - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	572	-	382446 397557
206	**Contemporary Trade Directory Entries** Name: Shell Uk Ltd Location: Regent Road, Salford, M5 4TS Classification: Petrol Filling Stations - 24 Hour **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12SW (W)	571	-	382339 397732
207	**Contemporary Trade Directory Entries** Name: Timsons Location: 100, Regent Road, Salford, M5 4QU Classification: Dry Cleaners **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	573	-	382306 397835
208	**Contemporary Trade Directory Entries** Name: M P L G Ltd Location: Solmar House, 2, Cross Street, Salford, M3 7AX Classification: Bags, Belts & Accessories - Manufacturers & Suppliers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	575	-	383414 398756
208	**Contemporary Trade Directory Entries** Name: B M Tec Ltd Location: 43 & 44 Union Street,Off Cross Street, Salford, Lancashire, M3 7AX Classification: Garage Services **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A18NE (NE)	585	-	383408 398770
208	**Contemporary Trade Directory Entries** Name: Brayziers Technical Tubes Ltd Location: Ferguson House, 11, Blackfriars Road, Salford, Lancashire, M3 7AG Classification: Engineers - General **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A18NE (N)	616	-	383411 398805

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
208	**Contemporary Trade Directory Entries** Name: Samuel Bruce Location: 21, Blackfriars Road, Salford, M3 7AQ Classification: Furniture Manufacturers - Home & Office **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	618	-	383396 398814
209	**Contemporary Trade Directory Entries** Name: Newlock Tool Co Location: Casket Works,Cow La, Salford, Lancashire, M5 4NB Classification: Tool Design, Manufacturers & Makers **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12NW (W)	584	-	382338 398198
209	**Contemporary Trade Directory Entries** Name: J Cocker Ltd Location: Cow Lane, SALFORD, M5 4NB Classification: Sheet Metal Work **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	614	-	382322 398232
209	**Contemporary Trade Directory Entries** Name: Lga Europe Ltd Location: Cow Lane, Salford, M5 4NB Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	614	-	382322 398232
210	**Contemporary Trade Directory Entries** Name: Manchester Radiators Location: St. Georges House, 36, Ellesmere Street, Manchester, M15 4JW Classification: Boilers - Servicing, Replacements & Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	587	-	382834 397329
210	**Contemporary Trade Directory Entries** Name: Futura Tech (Uk) Location: St. Georges House, 36, Ellesmere Street, Manchester, M15 4JW Classification: Plastics - Raw Materials **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	587	-	382834 397329
210	**Contemporary Trade Directory Entries** Name: Urban Angel Designs Location: St. Georges House, 36, Ellesmere Street, Manchester, Lancashire, M15 4JW Classification: Stationery Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A8SW (S)	587	-	382834 397329
210	**Contemporary Trade Directory Entries** Name: A Bigger Splash (Manchester) Ltd Location: 40, Ellesmere Street, Manchester, M15 4JY Classification: Greeting Card Publishers & Wholesalers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (SW)	601	-	382787 397327
211	**Contemporary Trade Directory Entries** Name: Watt Energy Ltd Location: River Pl,City Rd East, Manchester, M15 4PG Classification: Gas Suppliers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	590	-	383510 397300
212	**Contemporary Trade Directory Entries** Name: Renault Service Centre Location: 56, Bury Street, Salford, M3 7DA Classification: Mot Testing Centres **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A18NE (N)	591	-	383232 398846
213	**Contemporary Trade Directory Entries** Name: Concept Automotive Services Ltd Location: Upper Wharfe St, Salford, Lancashire, M5 4PQ Classification: Car Body Repairs **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12NE (NW)	591	-	382420 398354
214	**Contemporary Trade Directory Entries** Name: Easy Cars Location: 5, Hulme Street, Salford, Lancashire, M5 4PX Classification: Car Dealers - Used **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	591	-	382470 398420

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
215	**Contemporary Trade Directory Entries** Name: Glyns Collections Location: 26, Blackfriars Street, Salford, M3 5BQ Classification: Furriers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	598	-	383602 398613
215	**Contemporary Trade Directory Entries** Name: Bullen Healthcare Group Location: 26, Blackfriars Street, Salford, M3 5BQ Classification: Disability Equipment - Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	598	-	383602 398613
216	**Contemporary Trade Directory Entries** Name: Manchester City Council Location: Town Hall, Albert Square, Manchester, Lancashire, M2 5DB Classification: Waste Disposal Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	599	-	383867 398089
217	**Contemporary Trade Directory Entries** Name: Texaco Location: Oldfield Rd, Salford, Lancashire, M5 4NE Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	600	-	382268 397924
218	**Contemporary Trade Directory Entries** Name: Thomas Pink Ltd Location: 58, King Street, Manchester, Lancashire, M2 4LY Classification: Shirt Makers **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	600	-	383803 398286
218	**Contemporary Trade Directory Entries** Name: Jonathan Kaye Location: Third Floor, James Binney House, 52, Cross Street, Manchester, M2 7AR Classification: Jewellery Manufacturers & Repairers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (NE)	635	-	383826 398323
218	**Contemporary Trade Directory Entries** Name: Now Time Location: James Binney House, 52, Cross Street, Manchester, M2 7AR Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (NE)	635	-	383826 398323
218	**Contemporary Trade Directory Entries** Name: Pure Beauty Location: 49, King Street, Manchester, Lancashire, M2 7AY Classification: Toiletries **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	636	-	383832 398310
218	**Contemporary Trade Directory Entries** Name: Harrisons Cleaning Specialists Location: National House, 36, St. Ann Street, Manchester, M60 8HF Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (NE)	654	-	383838 398343
219	**Contemporary Trade Directory Entries** Name: Johnson Cleaners (Uk) Ltd Location: 61, Cross Street, Manchester, M2 4JW Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	605	-	383843 398190
219	**Contemporary Trade Directory Entries** Name: Max Spielmann Location: 59a, Cross Street, Manchester, Lancashire, M2 4JW Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	608	-	383845 398194
219	**Contemporary Trade Directory Entries** Name: Cannon Electrical Contractors (Manchester) Ltd Location: 8, Clarence Street, Manchester, M2 4DW Classification: Electrical Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	629	-	383872 398182

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
219	**Contemporary Trade Directory Entries** Name: Inpeto Ltd Location: Northern Assurance Building, 9-21, Princess Street, Manchester, Lancashire, M2 4DN Classification: Pet Foods & Animal Feeds **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	629	-	383872 398182
220	**Contemporary Trade Directory Entries** Name: Valentine Bags Ltd Location: 7-9, Blackfriars Road, Salford, M3 7AG Classification: Leather Garments & Products **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	610	-	383442 398779
220	**Contemporary Trade Directory Entries** Name: A L Everall Location: 3, Blackfriars Road, SALFORD, M3 7AG Classification: Garage Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	618	-	383465 398773
221	**Contemporary Trade Directory Entries** Name: Harrison Cleaning Specialists Location: ST ANNES STREET, Manchester, Lancashire, M60 6AQ Classification: Commercial Cleaning Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A14NE (NE)	610	-	383774 398373
221	**Contemporary Trade Directory Entries** Name: Currys Digital Location: 22, St. Anns Square, Manchester, M2 7JB Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	618	-	383764 398406
221	**Contemporary Trade Directory Entries** Name: Sandys (Uk) Ltd Location: 6, St. Anns Square, Manchester, M2 7HN Classification: Sports Equipment Manufacturers & Distributors **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	650	-	383772 398452
222	**Contemporary Trade Directory Entries** Name: Lexcorp Group Location: 31 Blackfriars Rd, Salford, Lancashire, M3 7AQ Classification: Distribution Services **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A18NE (N)	614	-	383364 398826
223	**Contemporary Trade Directory Entries** Name: Greengate Motors Ltd Location: 57, Canal Street, Salford, M5 4ST Classification: Car Body Repairs **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	618	-	382344 398282
224	**Contemporary Trade Directory Entries** Name: Colloides Naturels (Uk) Ltd Location: Regency Court, 62-66, Deansgate, Manchester, Lancashire, M3 2EN Classification: Food Colouring, Flavouring & Additive Manufacturers & Distributors **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	630	-	383716 398497
224	**Contemporary Trade Directory Entries** Name: A K A Bespoke Jewellers Location: 61-63, Barton Arcade, Manchester, M3 2BJ Classification: Jewellery Manufacturers & Repairers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	637	-	383747 398465
225	**Contemporary Trade Directory Entries** Name: Sheldons Manchester Ltd Location: 26, Liverpool Street, Salford, M5 4LE Classification: Alloys **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	631	-	382282 398187

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
225	**Contemporary Trade Directory Entries** Name: M A P Engineers Ltd Location: 26, Liverpool Street, Salford, M5 4LE Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	631	-	382282 398187
225	**Contemporary Trade Directory Entries** Name: Sheldon Location: 26, Liverpool Street, Salford, M5 4LE Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	631	-	382282 398187
225	**Contemporary Trade Directory Entries** Name: Ecosky Enviromental Solutions Location: 38, Liverpool Street, Salford, M5 4LT Classification: Plastics - Extrusion **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	671	-	382240 398189
226	**Contemporary Trade Directory Entries** Name: Copybook Press Ltd Location: 45-47 City Road East, Manchester, M15 4PN Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A9SW (SE)	647	-	383522 397242
227	**Contemporary Trade Directory Entries** Name: Autogas Cars Direct Location: 1, City Road East, Manchester, Lancashire, M15 4PN Classification: Car Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A9SW (SE)	648	-	383625 397305
228	**Contemporary Trade Directory Entries** Name: M G S Location: Blackfriars Rd, Salford, Lancashire, M3 7AQ Classification: Garage Services **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A18NE (N)	651	-	383320 398883
229	**Contemporary Trade Directory Entries** Name: Pest Solutions Ltd Location: Peter House,Oxford St, Manchester, Lancashire, M1 5AN Classification: Pest & Vermin Control **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A14SE (E)	654	-	383925 397847
229	**Contemporary Trade Directory Entries** Name: Twistflix Location: Peter House, Oxford Street, Manchester, M1 5AN Classification: Damp Course Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A14SE (E)	654	-	383925 397847
229	**Contemporary Trade Directory Entries** Name: Laundry Shop Location: Peter House, Oxford Street, Manchester, Lancashire, M1 5AN Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A14SE (E)	654	-	383925 397847
229	**Contemporary Trade Directory Entries** Name: Energy Feat Location: Peter House, Oxford Street, Manchester, M1 5AN Classification: Energy Efficient Products and Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SE (E)	654	-	383925 397847
229	**Contemporary Trade Directory Entries** Name: Wise Pharmaceuticals Ltd Location: Oxford House, 16, Oxford Street, Manchester, M1 5AE Classification: Pharmaceutical Manufacturers & Distributors **Status: Active** Positional Accuracy: Automatically positioned to the address	A14SE (E)	681	-	383944 397803
230	**Contemporary Trade Directory Entries** Name: Pumpcare Technical Services Location: Unit 3, Cornbrook Estate, Ellesmere Street, Manchester, M15 4JY Classification: Pump Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	662	-	382792 397262

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
230	**Contemporary Trade Directory Entries** Name: Seal Services Ltd Location: Unit 3, Cornbrook Estate, Ellesmere Street, Manchester, M15 4JY Classification: Pumps - Sales, Servicing & Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	662	-	382792 397262
231	**Contemporary Trade Directory Entries** Name: Frank Rostron Location: 39, Princess Street, Manchester, M2 4FN Classification: Shirt Makers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	663	-	383924 398130
231	**Contemporary Trade Directory Entries** Name: Cheshire Shirtmakers Ltd Location: 39, Princess Street, Manchester, Lancashire, M2 4FN Classification: Shirt Makers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	663	-	383924 398130
231	**Contemporary Trade Directory Entries** Name: Steelcase Solutions Location: Booth St, Manchester, Lancashire, M2 4AW Classification: Furniture Manufacturers - Home & Office **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A14NE (E)	697	-	383947 398171
232	**Contemporary Trade Directory Entries** Name: Multi Metal Stockholders Ltd Location: 7-19, Hulme Street, Salford, M5 4PY Classification: Non-Ferrous Metals **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	663	-	382393 398439
233	**Contemporary Trade Directory Entries** Name: Andrew'S Auto Repairs Location: Unit 6, Bentinck Street Industrial Estate, Bentinck Street Ind Est, Manchester, Lancashire, M15 4LN Classification: Garage Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	666	-	382839 397243
233	**Contemporary Trade Directory Entries** Name: Peter Stone Co Ltd Location: Unit 6, Bentinck Street Industrial Estate, Manchester, M15 4LN Classification: Printers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	666	-	382839 397243
234	**Contemporary Trade Directory Entries** Name: Arnold Clark Location: Blackfriars Road, Salford, M3 7AP Classification: Car Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	669	-	383411 398865
235	**Contemporary Trade Directory Entries** Name: Atlas Office Equipment Ltd Location: 52, Chapel Street, Salford, Lancashire, M3 7AA Classification: Seating Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	670	-	383591 398736
235	**Contemporary Trade Directory Entries** Name: George Ellis & Sons Ltd Location: 54-60, Chapel Street, Salford, M3 7AA Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	671	-	383591 398736
235	**Contemporary Trade Directory Entries** Name: George Ellis & Sons Ltd Location: 54-60, Chapel Street, Salford, M3 7AA Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	671	-	383591 398736

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
236	**Contemporary Trade Directory Entries** Name: Victoria Ceramics Ltd Location: A, 1, Cleminson Street, Salford, M3 6EJ Classification: Medical & Dental Laboratories **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	671	-	382575 398687
237	**Contemporary Trade Directory Entries** Name: In Situ Location: Talbot Mill,44 Ellesmere St, Manchester, Lancashire, M15 4FY Classification: Salvage Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	675	-	382720 397271
237	**Contemporary Trade Directory Entries** Name: Hayes Location: Unit 2,Ellesmere St, Manchester, Lancashire, M15 4FY Classification: Bed & Mattress Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	677	-	382735 397264
237	**Contemporary Trade Directory Entries** Name: Batian Engineering Location: Talbot Mill, 44, Ellesmere Street, Manchester, M15 4JY Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	679	-	382717 397268
237	**Contemporary Trade Directory Entries** Name: A & M Reproductions Location: Talbot Mill, 44, Ellesmere Street, Manchester, M15 4JY Classification: Furniture - Reproduction **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	679	-	382717 397268
237	**Contemporary Trade Directory Entries** Name: Advance Knitwear Location: Talbot Mill, 44, Ellesmere Street, Manchester, M15 4JY Classification: Knitwear Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	679	-	382717 397268
237	**Contemporary Trade Directory Entries** Name: M & R Textiles Ltd Location: Talbot Mill, 44, Ellesmere Street, Manchester, Lancashire, M15 4JY Classification: Knitwear Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	679	-	382717 397268
237	**Contemporary Trade Directory Entries** Name: Vacuum Scientific Services Ltd Location: Talbot Mill, 44, Ellesmere Street, Manchester, M15 4JY Classification: Scientific Apparatus & Instruments - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	679	-	382717 397268
237	**Contemporary Trade Directory Entries** Name: S Ryan Location: Talbot Mill, 44, Ellesmere Street, Manchester, M15 4JY Classification: Window Frame Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	679	-	382717 397268
237	**Contemporary Trade Directory Entries** Name: Kyran Hall Art Glass Studio Location: Talbot Mill, 44, Ellesmere Street, Manchester, Lancashire, M15 4JY Classification: Stained Glass Designers & Producers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	679	-	382717 397268
237	**Contemporary Trade Directory Entries** Name: Fast Track Upvc Location: Floor 1, Unit 2,Talbot Mill,Ellesmere St, Manchester, Lancashire, M15 4JY Classification: Window Frame Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	685	-	382683 397275
238	**Contemporary Trade Directory Entries** Name: Rf Tyres Location: 34 Duncan St, Salford, Lancashire, M5 3SQ Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SW (W)	700	-	382168 397953

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
238	**Contemporary Trade Directory Entries** Name: Manchester Auto Electrical Ltd Location: 30, Duncan Street, Salford, M5 3SQ Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (W)	700	-	382168 397953
238	**Contemporary Trade Directory Entries** Name: Creative Logistics Ltd Location: Duncan Street, SALFORD, M5 3SQ Classification: Freight Forwarders **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	706	-	382162 397929
238	**Contemporary Trade Directory Entries** Name: Deliverall Direct Location: Duncan St, Salford, Lancashire, M5 3SQ Classification: Distribution Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	707	-	382161 397928
238	**Contemporary Trade Directory Entries** Name: Ali Autos Location: Unit 34,Duncan St, Salford, Lancashire, M5 3SQ Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	716	-	382152 397930
238	**Contemporary Trade Directory Entries** Name: Ali Autos Location: 34 Duncan St, Salford, Lancashire, M5 3SQ Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	725	-	382143 397932
238	**Contemporary Trade Directory Entries** Name: I S S Service Systems Ltd Location: Duncan St, Salford, Lancashire, M5 3SQ Classification: Cleaning Services - Commercial **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	740	-	382128 397936
239	**Contemporary Trade Directory Entries** Name: P & A Autobodies Location: 49-51 Queen St, Salford, Lancashire, M3 7DQ Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18NE (N)	701	-	383365 398920
239	**Contemporary Trade Directory Entries** Name: A C Body Services Location: 49, Queen Street, Salford, M3 7DQ Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	702	-	383365 398921
239	**Contemporary Trade Directory Entries** Name: Queen Street Motors Location: 49, Queen Street, SALFORD, M3 7DQ Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	702	-	383365 398921
239	**Contemporary Trade Directory Entries** Name: E & C Motor Location: 49 Queen St, Salford, Lancashire, M3 7DQ Classification: Garage Services **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A18NE (N)	725	-	383378 398940
240	**Contemporary Trade Directory Entries** Name: Wsc Cleaning Location: 82 King St, Manchester, Lancashire, M2 4WQ Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A14NE (E)	704	-	383923 398256
240	**Contemporary Trade Directory Entries** Name: Mxm Location: 82, King Street, Manchester, Lancashire, M2 4WQ Classification: Medical Equipment Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	704	-	383923 398256

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
240	**Contemporary Trade Directory Entries** Name: Firemart Location: 82, King Street, Manchester, M2 4WQ Classification: Firefighting Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	705	-	383923 398256
241	**Contemporary Trade Directory Entries** Name: Molton Brown (Manchester) Store Location: 7, St. Anns Square, Manchester, M2 7EF Classification: Homefurnishings - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	704	-	383843 398443
242	**Contemporary Trade Directory Entries** Name: A & B Polishers Location: 65, Blackfriars Road, Salford, M3 7DB Classification: French Polishing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	708	-	383202 398969
243	**Contemporary Trade Directory Entries** Name: George Woodhead & Co Ltd Location: 2, Gloucester Street, Manchester, M1 5GP Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	708	-	383844 397455
243	**Contemporary Trade Directory Entries** Name: John Sherratt & Co Ltd Location: Hotspur House, 2, Gloucester Street, Manchester, M1 5QR Classification: Bookbinding & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	708	-	383844 397455
243	**Contemporary Trade Directory Entries** Name: Aaa Location: 2, Gloucester Street, Manchester, M1 5GP Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	708	-	383844 397455
243	**Contemporary Trade Directory Entries** Name: 24 Design Ltd Location: Hotspur House, 2, Gloucester Street, Manchester, Lancashire, M1 5QR Classification: Furniture Manufacturers - Home & Office **Status: Active** Positional Accuracy: Manually positioned to the address or location	A9NE (SE)	708	-	383844 397455
244	**Contemporary Trade Directory Entries** Name: Cemex (Uk) Ltd Location: Hope Street, Salford, M5 4WN Classification: Asphalt & Macadam Suppliers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	712	-	382248 398304
245	**Contemporary Trade Directory Entries** Name: Ramboll Location: Kings Court, 2-4, Exchange Street, Manchester, M2 7HA Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	712	-	383813 398501
246	**Contemporary Trade Directory Entries** Name: Jook Design Location: Unit 2, Manchester, Lancashire, M15 4LN Classification: Soft Furnishings - Manufacturers **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A8SW (S)	717	-	382776 397209
247	**Contemporary Trade Directory Entries** Name: Lee'S Motors Location: New Kings Head Yard,Chapel St, Salford, Lancashire, M3 7AA Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	724	-	383644 398758
247	**Contemporary Trade Directory Entries** Name: Rayners Autocraft Location: 15c Chapel St, Salford, Lancashire, M3 7AA Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	746	-	383679 398752

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
248	**Contemporary Trade Directory Entries** Name: Kmg Ltd Location: Ivy House, Liverpool Street, Salford, M5 4LY Classification: Nuts, Bolts & Fixings **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	728	-	382171 398162
249	**Contemporary Trade Directory Entries** Name: Till & Whitehead Ltd Location: Ellesmere Street, Manchester, Lancashire, M15 4JX Classification: Hardware **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	736	-	382690 397218
249	**Contemporary Trade Directory Entries** Name: Grove Galleries Ltd Location: Phoenix House, Ellesmere Street, Manchester, M15 4JY Classification: Art Restoration & Picture Cleaning **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	750	-	382671 397210
249	**Contemporary Trade Directory Entries** Name: G & M Knitwear Ltd Location: Hulme Hall Road, Manchester, M15 4LY Classification: Knitwear Manufacturers & Wholesalers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	785	-	382634 397188
250	**Contemporary Trade Directory Entries** Name: P & K Taxi Services Location: 51, Hulme Hall Road, Manchester, Lancashire, M15 4LY Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	737	-	382508 397297
251	**Contemporary Trade Directory Entries** Name: Renault Ltd Location: Trinity Way, Salford, M3 7FT Classification: Car Dealers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A18NE (N)	739	-	383284 398985
252	**Contemporary Trade Directory Entries** Name: R Lewtas Shopfitters Ltd Location: Unit 12, Bentinck Street Industrial Estate, Manchester, Lancashire, M15 4LN Classification: Joinery Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A8SW (SW)	744	-	382743 397191
252	**Contemporary Trade Directory Entries** Name: Star Auto Glass Location: Unit 12, Bentinck Street Industrial Estate, Manchester, M15 4LN Classification: Car Customisation & Conversion Specialists **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (SW)	744	-	382743 397191
252	**Contemporary Trade Directory Entries** Name: Lloyd Worrall (Manchester) Ltd Location: Unit 1/2, Bentinck Street Industrial Estate, Manchester, M15 4LN Classification: Hardware **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	780	-	382702 397166
253	**Contemporary Trade Directory Entries** Name: Whitecliffs Group Location: 61-63, Brown Street, Manchester, Lancashire, M2 2JG Classification: Electrolysis **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	744	-	383995 398172
253	**Contemporary Trade Directory Entries** Name: Tetra Pak Business Services Ltd Location: The Chancery,58 Spring Gdns, Manchester, M2 1EW Classification: Boxes & Cartons **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	763	-	384010 398190
254	**Contemporary Trade Directory Entries** Name: Brenca Metals Ltd Location: Ship Canal House, 98, King Street, Manchester, M2 4WU Classification: Scrap Metal Merchants **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	745	-	383976 398234

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
254	**Contemporary Trade Directory Entries** Name: Haughton Engineering Services Location: Ship Canal House, 98, King Street, Manchester, Lancashire, M2 4WU Classification: Engineering Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	745	-	383976 398234
255	**Contemporary Trade Directory Entries** Name: Ludwig Chocolate Ltd Location: 27, The Crescent, Salford, M5 4PF Classification: Confectionery Manufacturers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	750	-	382323 398491
256	**Contemporary Trade Directory Entries** Name: Tenens Location: Duncan St, Salford, Lancashire, M5 3SQ Classification: Road Haulage Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	750	-	382118 397937
257	**Contemporary Trade Directory Entries** Name: New Look Location: 30, Chancel Avenue, Salford, M5 3SJ Classification: Waste Disposal Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	751	-	382148 397732
257	**Contemporary Trade Directory Entries** Name: New Look Location: 30, Chancel Avenue, Salford, M5 3SJ Classification: Waste Disposal Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12SW (W)	751	-	382148 397732
258	**Contemporary Trade Directory Entries** Name: Lamscot Textile Manufacturing Location: Linden Court House, 52, Liverpool Street, Salford, Lancashire, M5 4LT Classification: Textile Manufacturing **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	754	-	382182 398266
258	**Contemporary Trade Directory Entries** Name: Zedkay Textiles Ltd Location: 52 Liverpool St, Salford, Lancashire, M5 4LT Classification: Textile Manufacturing **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	754	-	382180 398260
259	**Contemporary Trade Directory Entries** Name: Penhaligons Location: Royal Exchange, Manchester, M2 7TT Classification: Perfume Suppliers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	755	-	383872 398491
259	**Contemporary Trade Directory Entries** Name: The Antique Fireplace Location: Royal Exchange Shopping Centre, Manchester, Lancashire, M2 7DB Classification: Fireplaces & Mantelpieces **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	759	-	383866 398508
260	**Contemporary Trade Directory Entries** Name: Johnstone'S Layland Decorating Centre Location: Regent Road, Salford, M5 4SX Classification: Painting & Decorating Supplies **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12SW (W)	757	-	382115 397868
260	**Contemporary Trade Directory Entries** Name: Garage Equipment Location: Draftwell House, 2, Duncan Street, Salford, Lancashire, M5 3SQ Classification: Garage Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	790	-	382080 397885
260	**Contemporary Trade Directory Entries** Name: Lancashire Footwear Ltd Location: Duncan Street, SALFORD, M5 3SQ Classification: Footwear Manufacturers & Wholesale **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A12SW (W)	791	-	382080 397884

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
260	**Contemporary Trade Directory Entries** Name: British Cement Location: Duncan Street, Salford, M5 3SQ Classification: Cement Manufacturers & Distributors **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A12SW (W)	791	-	382080 397884
261	**Contemporary Trade Directory Entries** Name: J M B Professional Location: Pall Mall Court, 61-67, King Street, Manchester, M2 4PD Classification: Commercial Cleaning Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	772	-	383979 398299
262	**Contemporary Trade Directory Entries** Name: Graham'S Motors Location: 59, Whitworth Street West, Manchester, Lancashire, M1 5WW Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A9NE (SE)	773	-	383939 397495
262	**Contemporary Trade Directory Entries** Name: J E Gordon Ltd Location: 60, Whitworth Street West, Manchester, M1 5WW Classification: Sheet Metal Work **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	790	-	383963 397507
263	**Contemporary Trade Directory Entries** Name: All Vaux Location: Unit 4,Norton St, Salford, Lancashire, M3 7NW Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	779	-	383604 398870
263	**Contemporary Trade Directory Entries** Name: Bruntwood Wrought Iron Location: Unit 5 Norton St, Salford, Lancashire, M3 7NW Classification: Gate Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	785	-	383612 398872
263	**Contemporary Trade Directory Entries** Name: Salford Diesel Services Location: Unit 2, Norton Street, Salford, M3 7NW Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	792	-	383622 398873
263	**Contemporary Trade Directory Entries** Name: New Pit Stop Garage Location: 1, Norton Street, Salford, Lancashire, M3 7NW Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	792	-	383622 398873
263	**Contemporary Trade Directory Entries** Name: Royal Sun Alliance Engineers Location: 7-8, Norton Street, SALFORD, M3 7NW Classification: X-Ray Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	792	-	383622 398873
264	**Contemporary Trade Directory Entries** Name: Zed Two Location: 131-133 Portland St, Manchester, Lancashire, M1 4PZ Classification: Toys, Games & Sporting Goods - Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A14SE (E)	780	-	384027 397732
265	**Contemporary Trade Directory Entries** Name: F Higginbottom & Son Ltd Location: 10, Hulme Hall Road, Manchester, M15 4LY Classification: Bookbinders **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	786	-	382584 397207
265	**Contemporary Trade Directory Entries** Name: Higginbottom & Son Ltd Location: 10, Hulme Hall Road, Manchester, M15 4LY Classification: Bookbinders **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	786	-	382584 397207

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
266	**Contemporary Trade Directory Entries** Name: Kiddycare International Location: Unit R30,Marsden Way South, Manchester, Lancashire, M4 3AT Classification: Children & Babywear - Manufacturers & Wholesalers **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A19SE (NE)	791	-	383924 398476
266	**Contemporary Trade Directory Entries** Name: Max Spielmann Location: Uk12,Marsden Way South, Manchester, Lancashire, M4 3AT Classification: Photographic Processors **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A19SE (NE)	813	-	383931 398506
267	**Contemporary Trade Directory Entries** Name: Harverson'S Cleaning & Ironing Service Location: 9, Gloucester Street, Salford, M5 3SG Classification: Ironing & Home Laundry Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A12SW (W)	804	-	382089 397750
268	**Contemporary Trade Directory Entries** Name: William Hodgson & Co Location: Sixth Floor, Churchgate House, 56, Oxford Street, Manchester, Lancashire, M1 6EU Classification: Oils - Edible **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A9NE (E)	805	-	384028 397647
269	**Contemporary Trade Directory Entries** Name: In Our Coats Location: 225, Hulme Street, Hulme, Manchester, M15 5EF Classification: Greeting Card Publishers & Wholesalers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	812	-	383555 397075
270	**Contemporary Trade Directory Entries** Name: Ops International Ltd Location: Brook House, 64-72, Spring Gardens, Manchester, M2 2BQ Classification: Oil Companies **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	815	-	384072 398164
271	**Contemporary Trade Directory Entries** Name: Anywaste Uk Location: St. James Court, 30, Brown Street, Manchester, M2 1DH Classification: Waste Disposal Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	820	-	384013 398350
271	**Contemporary Trade Directory Entries** Name: Wastelift Location: St. James Court, 30, Brown Street, Manchester, M2 1DH Classification: Waste Disposal Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	820	-	384013 398350
271	**Contemporary Trade Directory Entries** Name: M60 Rescue & Recovery Location: 406 St James Ct,Brown St, Manchester, Lancashire, M2 2JG Classification: Commercial Vehicle Breakdown & Recovery Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A14NE (E)	829	-	384026 398341
271	**Contemporary Trade Directory Entries** Name: Octapharma Ltd Location: The Zenith Building, 26, Spring Gardens, Manchester, Lancashire, M2 1AB Classification: Pharmaceutical Manufacturers & Distributors **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	860	-	384054 398354
271	**Contemporary Trade Directory Entries** Name: Universal Utilities Location: Third Floor, Tootal House, 19-21, Spring Gardens, Manchester, M2 1FB Classification: Gas Suppliers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (E)	890	-	384093 398331

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
272	**Contemporary Trade Directory Entries** Name: Q Street Domestic Appliances Location: 45, Quenby Street, Manchester, M15 4HX Classification: Vacuum Cleaners - Sales & Service **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	822	-	382895 397060
272	**Contemporary Trade Directory Entries** Name: Q Street Domestic Appliances Location: 45, Quenby Street, Manchester, M15 4HX Classification: Washing Machines - Servicing & Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	822	-	382895 397060
273	**Contemporary Trade Directory Entries** Name: Vath Engineering Co Ltd Location: North Hill Street, Salford, M3 6LS Classification: Engineers - General **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A23SW (N)	829	-	382851 399057
273	**Contemporary Trade Directory Entries** Name: Hts Ltd Location: 9, Cannon Street, Salford, Lancashire, M3 6JH Classification: Seal & Joint Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A23SW (N)	849	-	382842 399075
273	**Contemporary Trade Directory Entries** Name: Hydraulic Transmission Services Ltd Location: Cannon St, Salford, Lancashire, M3 6JH Classification: Hydraulic Systems & Equipment Manufacturers **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A23SW (N)	869	-	382824 399090
274	**Contemporary Trade Directory Entries** Name: Pentel Contracts Ltd Location: Dyer Street, Salford, M5 4TB Classification: Blinds, Awnings & Canopies **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	832	-	382245 397392
275	**Contemporary Trade Directory Entries** Name: Prontaprint Location: 71a, Mosley Street, Manchester, M2 3JN Classification: Printers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (E)	834	-	384105 398090
275	**Contemporary Trade Directory Entries** Name: Prontaprint Location: 71a, Mosley Street, Manchester, M2 3JN Classification: Printers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (E)	836	-	384107 398094
275	**Contemporary Trade Directory Entries** Name: Sofas4u Location: George House, 48, George Street, Manchester, Lancashire, M1 4HF Classification: Furniture - Reproduction **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A15NW (E)	865	-	384140 398073
275	**Contemporary Trade Directory Entries** Name: Oakland Fabrics Ltd Location: 44, George Street, Manchester, M1 4HF Classification: Textile Manufacturing **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (E)	876	-	384149 398085
276	**Contemporary Trade Directory Entries** Name: Serck Intertruck Location: Worrall Street, Salford, M5 4TA Classification: Car Radiator Servicing & Repairs **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	834	-	382325 397309
276	**Contemporary Trade Directory Entries** Name: Warton Freight Services (Northern) Ltd Location: 14, Worrall Street, Salford, Lancashire, M5 4TH Classification: Road Haulage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	834	-	382325 397309

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
277	**Contemporary Trade Directory Entries** Name: Liverpool Street Motors Location: 71 Liverpool St, Salford, Lancashire, M5 4LG Classification: Car Dealers - Used **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12NW (W)	837	-	382074 398217
278	**Contemporary Trade Directory Entries** Name: The Color Co Location: 41, Spring Gardens, Manchester, M2 2BG Classification: Copying & Duplicating Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	838	-	384065 398263
278	**Contemporary Trade Directory Entries** Name: The Color Co Location: 41, Spring Gardens, Manchester, M2 2BG Classification: Copying & Duplicating Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	838	-	384065 398263
278	**Contemporary Trade Directory Entries** Name: D C Motor Engineers Location: 1-3, York Street, Manchester, Lancashire, M1 7DE Classification: Garage Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	867	-	384082 398298
279	**Contemporary Trade Directory Entries** Name: National Tyres Chester Road Location: 25, Ellesmere Street, Manchester, M15 4LZ Classification: Tyre Dealers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	839	-	382609 397140
279	**Contemporary Trade Directory Entries** Name: National Tyres And Autocare Location: 200 Chester Rd, Hulme, Manchester, Lancashire, M15 4LZ Classification: Tyre Dealers **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	839	-	382609 397140
280	**Contemporary Trade Directory Entries** Name: Acorn Location: St. James Buildings, 79, Oxford Street, Manchester, Lancashire, M1 6FQ Classification: Commercial Cleaning Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A9NE (E)	841	-	384075 397678
280	**Contemporary Trade Directory Entries** Name: Faupel Plc Location: St. James Buildings, 79, Oxford Street, Manchester, Lancashire, M1 6FQ Classification: Soft Furnishings - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9NE (E)	841	-	384075 397678
280	**Contemporary Trade Directory Entries** Name: Jany (Uk) Location: St. James Buildings, 79, Oxford Street, Manchester, Lancashire, M1 6FQ Classification: Commercial Vehicle Bodybuilders & Repairers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A9NE (E)	841	-	384075 397678
281	**Contemporary Trade Directory Entries** Name: M Leyden Ltd Location: 5 Gravel La, Salford, Lancashire, M3 7WQ Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	849	-	383579 398975
281	**Contemporary Trade Directory Entries** Name: David Bentley Ltd Location: Greengate, SALFORD, M3 7NS Classification: Textile Manufacturing **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	866	-	383596 398984
281	**Contemporary Trade Directory Entries** Name: Modern Rollers Ltd Location: Greengate, Salford, Lancashire, M3 7NS Classification: Machinery - Industrial & Commercial **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	866	-	383596 398984

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
282	**Contemporary Trade Directory Entries** Name: Klick Location: 27 Market St, Manchester, Lancashire, M1 1WR Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	853	-	383984 398496
282	**Contemporary Trade Directory Entries** Name: The Perfume Shop Location: 9a, Arndale Centre, Manchester, M4 3AB Classification: Perfume Suppliers **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	854	-	383985 398496
282	**Contemporary Trade Directory Entries** Name: Klick Photopoint Location: 27, Market Street, Manchester, Lancashire, M1 1WR Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	854	-	383985 398496
283	**Contemporary Trade Directory Entries** Name: V T G Location: Gainsborough House, 109, Portland Street, Manchester, Lancashire, M1 6DN Classification: Lift Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (E)	853	-	384124 397827
283	**Contemporary Trade Directory Entries** Name: Operations Abroad Ltd Location: Gainsborough House, 109, Portland Street, Manchester, M1 6DN Classification: Hospitals **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (E)	853	-	384124 397827
284	**Contemporary Trade Directory Entries** Name: Trident Ltd Location: 95, Greengate, Salford, M3 7NG Classification: Lighting Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (N)	857	-	383476 399042
285	**Contemporary Trade Directory Entries** Name: Redgrave Motors Location: 91-97, Liverpool Street, Salford, M5 4LG Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11NE (W)	859	-	382043 398188
285	**Contemporary Trade Directory Entries** Name: Salford Salvage Location: 99-101, Liverpool Street, Salford, M5 4LG Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NE (W)	898	-	382011 398221
285	**Contemporary Trade Directory Entries** Name: Salford Salvage Location: 99-101, Liverpool Street, Salford, M5 4LG Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NE (W)	898	-	382011 398221
286	**Contemporary Trade Directory Entries** Name: Dunlop G R G Holdings Ltd Location: Greengate Works, Greengate, Salford, M3 7WS Classification: Marine Equipment & Supplies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	859	-	383538 399013
287	**Contemporary Trade Directory Entries** Name: Manchester Accident Repair Centre Location: 21, Hope Street, Salford, M5 4WN Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	860	-	382080 398297
288	**Contemporary Trade Directory Entries** Name: Hunters Contracts Ltd Location: Macintosh House,4A, Manchester, Lancashire, M1 5GG Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9SE (SE)	860	-	383930 397312

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
289	**Contemporary Trade Directory Entries** Name: Comus Waste Location: 15a Gorton St, Salford, Lancashire, M3 7WN Classification: Waste Disposal Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	863	-	383676 398920
289	**Contemporary Trade Directory Entries** Name: Upton Auto Body Repairs Location: 15a Gorton St, Salford, Lancashire, M3 7WN Classification: Car Body Repairs **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	866	-	383678 398922
290	**Contemporary Trade Directory Entries** Name: Msl Interiors Location: Barnett House, 53, Fountain Street, Manchester, M2 2AN Classification: Office Furniture & Equipment **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A15NW (E)	865	-	384112 398208
290	**Contemporary Trade Directory Entries** Name: Fast Carpet Cleaners Location: Barnett House, 53, Fountain Street, Manchester, M2 2AN Classification: Carpet, Curtain & Upholstery Cleaners **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A15NW (E)	865	-	384112 398208
290	**Contemporary Trade Directory Entries** Name: Project Print Solutions Ltd Location: Barnett House, 53, Fountain Street, Manchester, M2 2AN Classification: Printers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A15NW (E)	865	-	384112 398208
290	**Contemporary Trade Directory Entries** Name: We Print Group Location: Barnett House, 53, Fountain Street, Manchester, M2 2AN Classification: Printers **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A15NW (E)	866	-	384112 398208
291	**Contemporary Trade Directory Entries** Name: B B G R Ltd Location: Comus Street, Salford, M5 3BQ Classification: Optical Goods - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (W)	870	-	381998 397940
291	**Contemporary Trade Directory Entries** Name: Barloworld Handling Ltd Location: Red Rose Retail Centre, Regent Road, Salford, Lancashire, M5 3GR Classification: Fork Lift Trucks **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (W)	900	-	381969 397910
292	**Contemporary Trade Directory Entries** Name: Paromatta Tool & Gauge Co Ltd Location: 3, Worrall Street, Salford, M5 4TH Classification: Tool Design, Manufacturers & Makers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	878	-	382283 397288
292	**Contemporary Trade Directory Entries** Name: S Y Electronics Location: 7, Worrall Street, Salford, Lancashire, M5 4TH Classification: Electronic Component Manufacturers & Distributors **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	887	-	382242 397314
292	**Contemporary Trade Directory Entries** Name: Centre Glass & Hygiene Location: Worrall St, Salford, Lancashire, M5 4TH Classification: Cleaning Materials & Equipment **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A7SW (SW)	905	-	382247 397284
292	**Contemporary Trade Directory Entries** Name: Resistance Technology Ltd Location: 8 Worrall St, Salford, Lancashire, M5 4TH Classification: Manufacturers **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A7SW (SW)	920	-	382234 397276

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
292	**Contemporary Trade Directory Entries** Name: Warton Freight Services (Northern) Ltd Location: 14, Worrall Street, Salford, M5 4TH Classification: Freight Forwarders **Status:** **Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A7SW (SW)	921	-	382209 397300
292	**Contemporary Trade Directory Entries** Name: Warton Freight Services Location: 14, Worrall Street, Salford, M5 4TH Classification: Road Haulage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A7SW (SW)	921	-	382209 397300
292	**Contemporary Trade Directory Entries** Name: Meridian Reprographics Location: 5, Worrall Street, Salford, M5 4TH Classification: Printers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	924	-	382210 397293
292	**Contemporary Trade Directory Entries** Name: Crystal Print Ltd Location: Graphic House,Worrall St, Salford, Lancashire, M5 4TH Classification: Printers **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A7SW (SW)	933	-	382222 397270
293	**Contemporary Trade Directory Entries** Name: Bright House Trading Location: Flat 46, Ledburn Court, Ledburn Close, Manchester, M15 4HR Classification: Cleaning Services - Domestic **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A3NW (S)	886	-	382944 396979
293	**Contemporary Trade Directory Entries** Name: Greenhalls Location: Flat 33, Ledburn Court, Ledburn Close, Manchester, M15 4HR Classification: Breakdown and Recovery **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A3NW (S)	886	-	382944 396979
294	**Contemporary Trade Directory Entries** Name: Richard Conrad & Co Ltd Location: 36-38, Fountain Street, Manchester, M2 2BE Classification: Office Furniture & Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (E)	891	-	384114 398283
295	**Contemporary Trade Directory Entries** Name: Duty Free Location: R26-R27, Unit, Marsden Way South, Manchester, Lancashire, M4 3AT Classification: Perfume Suppliers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	892	-	383986 398567
295	**Contemporary Trade Directory Entries** Name: Swatch Location: Unit 27 Arndale Centre,Market St, Manchester, Lancashire, M2 1NP Classification: Clocks & Watches - Manufacturers & Wholesalers **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A19SE (NE)	917	-	383984 398614
295	**Contemporary Trade Directory Entries** Name: The Perfume Shop Location: 9A Arndale Centre, Manchester, Lancashire, M4 2EA Classification: Perfume Suppliers **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A19SE (NE)	918	-	383988 398610
296	**Contemporary Trade Directory Entries** Name: Complete Office Printer Support Location: Birchvale Cl, Manchester, Lancashire, M15 5BJ Classification: Office Equipment Servicing & Maintenance **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A3NE (S)	892	-	383282 396930
297	**Contemporary Trade Directory Entries** Name: Licence Trade Consultants Location: Imex House, 40, Princess Street, Manchester, Lancashire, M1 6DE Classification: Brewers' Equipment & Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (E)	897	-	384170 397844

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
297	**Contemporary Trade Directory Entries** Name: Northern Consultancy Of Medical Management Ltd Location: Imex House, 40, Princess Street, Manchester, Lancashire, M1 6DE Classification: Medical & Dental Laboratories **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (E)	897	-	384170 397844
297	**Contemporary Trade Directory Entries** Name: R S I S Projects Ltd Location: Imex House, 40, Princess Street, Manchester, Lancashire, M1 6DE Classification: Railways **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (E)	897	-	384170 397844
297	**Contemporary Trade Directory Entries** Name: Patriot Advertising Solutions Location: Imex House, 40, Princess Street, Manchester, M1 6DE Classification: Distribution Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	897	-	384170 397844
297	**Contemporary Trade Directory Entries** Name: Dunbar & Boardman Partnership Location: Imex House, 40, Princess Street, Manchester, Lancashire, M1 6DE Classification: Lift Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	897	-	384170 397844
297	**Contemporary Trade Directory Entries** Name: London Global Location: 40 Princess St, Manchester, Lancashire, M1 6DE Classification: Printers **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A15SW (E)	897	-	384170 397844
297	**Contemporary Trade Directory Entries** Name: Scootabout International Location: 101, Princess Street, Manchester, Lancashire, M1 6DD Classification: Materials Handling Equipment **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (E)	932	-	384208 397860
298	**Contemporary Trade Directory Entries** Name: Bass Leisure Retail Location: 29, Ellesmere Street, Manchester, M15 4LZ Classification: Brewers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	915	-	382540 397085
298	**Contemporary Trade Directory Entries** Name: Pun Enterprises Location: Phoenix House, Ellesmere Street, Manchester, M15 4JY Classification: Clothing & Fabrics - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	915	-	382540 397085
298	**Contemporary Trade Directory Entries** Name: Kyran Hall Art Glass Studio Location: 252, Chester Road, Manchester, M15 4EX Classification: Stained Glass Designers & Producers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	955	-	382503 397057
299	**Contemporary Trade Directory Entries** Name: Calvin Assett Management Ltd Location: 19, Spring Gardens, Manchester, M2 1FB Classification: Meter Manufacturers & Suppliers **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A15NW (E)	915	-	384111 398358
299	**Contemporary Trade Directory Entries** Name: Pulse Laser Hairaesthetics Location: 18-20, Fountain Street, Manchester, M2 2AA Classification: Electrolysis **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A15NW (E)	939	-	384140 398346
300	**Contemporary Trade Directory Entries** Name: Aesthetic Services Soda Blasting Location: Devonshire House, 36, George Street, Manchester, M1 4HA Classification: Blast Cleaning **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A15NW (E)	917	-	384185 398122

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
301	**Contemporary Trade Directory Entries** Name: Riverside Garage Location: West Works, Adelphi Street, Salford, M3 6EN Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	917	-	382509 398969
301	**Contemporary Trade Directory Entries** Name: W G Condliffe Location: 2 Aldelphi St, Salford, Lancashire, M3 6HA Classification: Wire Products - Manufacturers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	917	-	382508 398968
302	**Contemporary Trade Directory Entries** Name: Harrison Motors Location: 51 New Wakefield St, Manchester, Lancashire, M1 5NP Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9NE (SE)	917	-	384080 397457
303	**Contemporary Trade Directory Entries** Name: T Walker & Co Location: Top Floor,University House,Peel Park Campus,, Salford, Lancashire, M5 4WT Classification: Bookbinding & Equipment **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A17SW (NW)	919	-	382140 398524
303	**Contemporary Trade Directory Entries** Name: Walker & Co Location: House,43 Cr, Salford, Lancashire, M5 4WT Classification: Bookbinding & Equipment **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A17SW (NW)	947	-	382136 398570
304	**Contemporary Trade Directory Entries** Name: Villerstrand Ltd Location: Ellesmere Street, Manchester, M15 4LT Classification: Freight Forwarders **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	927	-	382466 397104
304	**Contemporary Trade Directory Entries** Name: Roche Design Ltd Location: Ellesmere Street, Manchester, M15 4LT Classification: Furniture Manufacturers - Home & Office **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	927	-	382466 397104
304	**Contemporary Trade Directory Entries** Name: M D Motors Location: 72 Trentham St, Manchester, Lancashire, M15 4LW Classification: Garage Services **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	952	-	382464 397078
305	**Contemporary Trade Directory Entries** Name: First North Western Location: Bridgewater House, 58, Whitworth Street, Manchester, M1 6LS Classification: Railways **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A10NW (E)	933	-	384158 397633
306	**Contemporary Trade Directory Entries** Name: Ats Euromaster Ltd Location: 20, Wilmott Street, Manchester, Lancashire, M15 6BE Classification: Tyre Dealers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9SE (SE)	946	-	383881 397130
307	**Contemporary Trade Directory Entries** Name: Comet Location: 19a Arndale Centre, Manchester, Lancashire, M4 2HU Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A19SE (NE)	947	-	384059 398554
307	**Contemporary Trade Directory Entries** Name: Currys Location: 165-166, Arndale Centre, Manchester, M4 3AB Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	947	-	384059 398554

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
307	**Contemporary Trade Directory Entries** Name: Willie'S Location: 85, Arndale Centre, Manchester, Lancashire, M4 2HU Classification: Wallpapers & Wall Coverings **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	947	-	384059 398554
307	**Contemporary Trade Directory Entries** Name: The Fast Picture Show Location: 142-143, Market Hall, Arndale Centre, Manchester, M4 2EB Classification: Photographic Processors **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	947	-	384059 398554
307	**Contemporary Trade Directory Entries** Name: Home Design Store Location: 136, Arndale Centre, Manchester, Lancashire, M4 2EA Classification: Gunsmiths **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	947	-	384059 398554
307	**Contemporary Trade Directory Entries** Name: Bodycare (Health & Beauty) Location: 111-112, Arndale Centre, Manchester, M4 2EA Classification: Toiletries **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	947	-	384059 398554
307	**Contemporary Trade Directory Entries** Name: The Sony Centre Location: 162, Arndale Centre, Manchester, Lancashire, M4 3AB Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	947	-	384059 398554
307	**Contemporary Trade Directory Entries** Name: Image Gallery Location: Arndale House, Arndale Centre, Manchester, Lancashire, M4 3AQ Classification: Photo & Digital Imaging Bureaus **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	947	-	384059 398554
307	**Contemporary Trade Directory Entries** Name: Xcover Location: Unit 10,Lower Mall,Arndale Centre, Manchester, Lancashire, M4 2EA Classification: Mobile Phone Accessories and Car Kits **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A19SE (NE)	947	-	384059 398554
308	**Contemporary Trade Directory Entries** Name: Manchester Salford Repairs Location: Apartment 20, Springfield Court, 2, Dean Road, Salford, M3 7EH Classification: Domestic Appliances - Servicing, Repairs & Parts **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A23SE (N)	952	-	383395 399175
309	**Contemporary Trade Directory Entries** Name: Norman Disney & Young Location: St. James House, 7, Charlotte Street, Manchester, Lancashire, M1 4DZ Classification: Mechanical Engineers **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A15NW (E)	953	-	384227 398079
310	**Contemporary Trade Directory Entries** Name: Epos Now Location: The Corn Exchange, 37, Hanging Ditch, Manchester, M4 3TR Classification: Cash Registers & Check-Out Equipment **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A19NE (NE)	960	-	383957 398734
311	**Contemporary Trade Directory Entries** Name: Spi Materials Location: 105 Princess St, Manchester, Lancashire, M1 6DD Classification: Electricity Companies **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (E)	972	-	384240 397804
312	**Contemporary Trade Directory Entries** Name: Gls Ceramics Location: 2a, Mirabel Street, Manchester, Lancashire, M3 1PJ Classification: Ceramic Manufacturers, Supplies & Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A19NE (NE)	975	-	383769 398987

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
312	**Contemporary Trade Directory Entries** Name: City Laundry Location: Unit 4,Mirabel St, Manchester, Lancashire, M3 1PJ Classification: Laundries & Launderettes **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NE (NE)	996	-	383766 399018
312	**Contemporary Trade Directory Entries** Name: Needs Electrical Location: Unit 3, Mirabel Street, Manchester, M3 1PJ Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A19NE (NE)	997	-	383810 398978
313	**Contemporary Trade Directory Entries** Name: Danebridge Engineering Co Ltd Location: 3, Lower Chatham Street, Manchester, M1 5QL Classification: Air Conditioning Equipment & Systems **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9SE (SE)	976	-	384044 397273
313	**Contemporary Trade Directory Entries** Name: Sundream International Location: 8, Chester Street, Manchester, M1 5GE Classification: Builders' Merchants **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A9SE (SE)	991	-	384072 397287
314	**Contemporary Trade Directory Entries** Name: Ormond Street Motors Location: 2-4, Lower Ormond Street, Manchester, M1 5QF Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9SE (SE)	979	-	384078 397320
314	**Contemporary Trade Directory Entries** Name: Manchester Print Co Location: 8, Lower Ormond Street, Manchester, M1 5QF Classification: T-Shirts **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A9SE (SE)	979	-	384078 397320
315	**Contemporary Trade Directory Entries** Name: Afos Location: Dinton Street, Manchester, Lancashire, M15 4WA Classification: Car Breakers & Dismantlers **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	979	-	382402 397079
315	**Contemporary Trade Directory Entries** Name: Afos Location: Dinton St, Manchester, Lancashire, M15 4WA Classification: Scrap Metal Merchants **Status:** **Active** Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	982	-	382401 397077
316	**Contemporary Trade Directory Entries** Name: Cromech Engineering Co Ltd Location: Springfield Lane, Salford, M3 7JS Classification: Engineers - General **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A24SW (N)	982	-	383471 399180
316	**Contemporary Trade Directory Entries** Name: Citroen World Location: Unit 5 & 6 Springfield Business Centre,Springfield La, Salford, Lancashire, M3 7JS Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A24SW (N)	982	-	383470 399180
317	**Contemporary Trade Directory Entries** Name: A & B Containers Ltd Location: Liverpool Street, Salford, M5 4LQ Classification: Pallets, Crates & Packing Cases **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A11NE (W)	984	-	381925 398232

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
317	**Contemporary Trade Directory Entries** Name: Hunt & Merriman Location: Liverpool St, Salford, Lancashire, M5 4LQ Classification: Road Haulage Services **Status:** **Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A11NE (W)	987	-	381930 398258
318	**Contemporary Trade Directory Entries** Name: Crown Fire Equipment Location: 23, Whimberry Close, Salford, M5 3WL Classification: Firefighting Equipment **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	985	-	382029 397429
319	**Contemporary Trade Directory Entries** Name: C T T Motors Location: 2, Westminster Street, Manchester, M15 4FX Classification: Garage Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	989	-	382457 397040
320	**Contemporary Trade Directory Entries** Name: Bookbind Location: 2-4, Oxford Road, Manchester, Lancashire, M1 5QA Classification: Bookbinders **Status:** **Inactive** Positional Accuracy: Manually positioned to the address or location	A10NW (SE)	991	-	384146 397423
321	**Contemporary Trade Directory Entries** Name: Uk Platforms Location: 2, Worrall Street, Salford, Lancashire, M5 4TH Classification: Scaffolding & Work Platforms **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	994	-	382122 397286
322	**Contemporary Trade Directory Entries** Name: Rentokil Specialist Hygiene Location: Faulkner House, Faulkner Street, Manchester, M1 4DY Classification: Commercial Cleaning Services **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A15NW (E)	995	-	384264 398118
323	**Contemporary Trade Directory Entries** Name: Leaflet Distribution Manchester Location: Portland Tower,Portland Street, Manchester, Lancashire, M1 3LF Classification: Distribution Services **Status:** **Active** Positional Accuracy: Manually positioned within the geographical locality	A15SW (E)	999	-	384280 397963
323	**Contemporary Trade Directory Entries** Name: Scrap A Car For Cash Manchester Location: Portland Tower, Portland Street, Manchester, M1 3LD Classification: Car Breakers & Dismantlers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	999	-	384280 397963
323	**Contemporary Trade Directory Entries** Name: Debs Europe Liason Office Location: Portland Tower, Portland Street, Manchester, M1 3LD Classification: Clothing & Fabrics - Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	999	-	384280 397963
323	**Contemporary Trade Directory Entries** Name: Beverley Clifton Morris Location: Portland Tower, Portland Street, Manchester, Lancashire, M1 3LF Classification: Mechanical Engineers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	999	-	384280 397963
323	**Contemporary Trade Directory Entries** Name: Scrap Cars For Cash Manchester Location: Portland St, Manchester, Lancashire, M1 3LF Classification: Car Breakers & Dismantlers **Status:** **Inactive** Positional Accuracy: Manually positioned within the geographical locality	A15SW (E)	999	-	384280 397963

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
324	**Fuel Station Entries** Name: Sainsburys Salford Location: 100 Regent Road, Ordsall Lane, Salford, Lancashire, M5 4QU Brand: Sainsburys Premises Type: Hypermarket **Status:** **Open** Positional Accuracy: Manually positioned to the address or location	A12SE (W)	364	-	382524 397829
325	**Fuel Station Entries** Name: Castlefield Travellers Check Location: Dawson Street, Manchester, M3 4JZ Brand: OBSOLETE Premises Type: Not Applicable **Status:** **Obsolete** Positional Accuracy: Approximate location provided by supplier	A8NW (SW)	463	-	382813 397463
326	**Fuel Station Entries** Name: Castlefield Service Station Location: 14 Great Jackson Street, Castlefield, Manchester, M15 4NG Brand: Obsolete Premises Type: Not Applicable **Status:** **Obsolete** Positional Accuracy: Automatically positioned to the address	A8SE (S)	542	-	383248 397279
327	**Fuel Station Entries** Name: Shell Phoenix Location: Regent Road, Salford, Lancashire, M5 4TS Brand: SHELL Premises Type: Petrol Station **Status:** **Open** Positional Accuracy: Automatically positioned to the address	A12SW (W)	571	-	382339 397732
328	**Fuel Station Entries** Name: Salford Service Station Location: Oldfield Road, Salford, M5 4NE Brand: Texaco Premises Type: Petrol Station **Status:** **Open** Positional Accuracy: Automatically positioned to the address	A12SW (W)	635	-	382233 397934
329	**Fuel Station Entries** Name: Redgrave Motors Location: 91-97 Liverpool Street, SALFORD, Lancashire, M5 4LG Brand: UNBRANDED Premises Type: Petrol Station **Status:** **Closed** Positional Accuracy: Manually positioned to the address or location	A11NE (W)	865	-	382035 398184
330	**Fuel Station Entries** Name: Ormond Street Motors Location: 2-4 Lower Ormond Street, Manchester, M1 5QF Brand: Obsolete Premises Type: Not Applicable **Status:** **Obsolete** Positional Accuracy: Automatically positioned to the address	A9SE (SE)	979	-	384078 397320

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
331	**Nitrate Vulnerable Zones** Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A17SE (NW)	412	11	382700 398400
332	**Nitrate Vulnerable Zones** Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A19SE (NE)	936	11	383950 398700

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Tameside Metropolitan Borough Council - Environmental Health Department	May 2013	Annual Rolling Update
Salford City Council - Environmental Health Department	November 2013	Annual Rolling Update
Trafford Metropolitan Borough Council - Renewal and Environmental Protection	November 2013	Annual Rolling Update
Rochdale Metropolitan Borough Council - Environmental Health Department	November 2013	Annually
Bury Metropolitan Borough Council - Environmental Health Department	October 2013	Annual Rolling Update
Manchester City Council - Environmental Health Department	September 2014	Annual Rolling Update
Discharge Consents		
Environment Agency - North West Region	August 2014	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - North West Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - North West Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - North West Region	August 2014	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Bury Metropolitan Borough Council - Environmental Health Department	April 2013	Annual Rolling Update
Tameside Metropolitan Borough Council - Environmental Health Department	February 2013	Annual Rolling Update
Rochdale Metropolitan Borough Council - Environmental Health Department	July 2014	Annual Rolling Update
Trafford Metropolitan Borough Council - Environmental Health Department	October 2014	Annual Rolling Update
Salford City Council - Environmental Health Department	September 2013	Annual Rolling Update
Manchester City Council - Environmental Health Department	September 2014	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
Bury Metropolitan Borough Council - Environmental Health Department	April 2013	Annual Rolling Update
Tameside Metropolitan Borough Council - Environmental Health Department	February 2013	Annual Rolling Update
Trafford Metropolitan Borough Council - Environmental Health Department	January 2013	Annual Rolling Update
Rochdale Metropolitan Borough Council - Environmental Health Department	July 2014	Annual Rolling Update
Salford City Council - Environmental Health Department	September 2013	Annual Rolling Update
Manchester City Council - Environmental Health Department	September 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Bury Metropolitan Borough Council - Environmental Health Department	April 2013	Annual Rolling Update
Tameside Metropolitan Borough Council - Environmental Health Department	February 2013	Annual Rolling Update
Rochdale Metropolitan Borough Council - Environmental Health Department	July 2014	Annual Rolling Update
Trafford Metropolitan Borough Council - Environmental Health Department	October 2014	Annual Rolling Update
Salford City Council - Environmental Health Department	September 2013	Annual Rolling Update
Manchester City Council - Environmental Health Department	September 2014	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	July 2012	Quarterly
Pollution Incidents to Controlled Waters		
Environment Agency - North West Region	January 2000	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - North West Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - North West Region	March 2013	As notified
Registered Radioactive Substances		
Environment Agency - North West Region	August 2014	Quarterly
Scottish Environment Protection Agency - Head Office	January 1998	Not Applicable
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually

Agency & Hydrological	Version	Update Cycle
Substantiated Pollution Incident Register Environment Agency - North West Region - South Area	August 2014	Quarterly
Water Abstractions Environment Agency - North West Region	July 2014	Quarterly
Water Industry Act Referrals Environment Agency - North West Region	August 2014	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	October 2012	Annually
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	October 2012	Annually
Source Protection Zones Environment Agency - Head Office	August 2014	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2014	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2014	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	August 2014	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	August 2014	Quarterly
Flood Defences Environment Agency - Head Office	August 2014	Quarterly
Detailed River Network Lines Environment Agency - Head Office	March 2012	Annually
Detailed River Network Offline Drainage Environment Agency - Head Office	March 2012	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - North West Region - South Area	May 2014	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North West Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North West Region - South Area	August 2014	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North East Region - Ridings Area	August 2014	Quarterly
Environment Agency - North West Region - South Area	August 2014	Quarterly
Environment Agency - South East Region - Solent & South Downs Area	August 2014	Quarterly
Local Authority Landfill Coverage		
Bury Metropolitan Borough Council	May 2000	Not Applicable
Manchester City Council - Planning Department	May 2000	Not Applicable
Rochdale Metropolitan Borough Council - Environmental Health Department	May 2000	Not Applicable
Salford City Council - Environmental Health Department	May 2000	Not Applicable
Tameside Metropolitan Borough Council	May 2000	Not Applicable
Trafford Metropolitan Borough Council - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Bury Metropolitan Borough Council	May 2000	Not Applicable
Manchester City Council - Planning Department	May 2000	Not Applicable
Rochdale Metropolitan Borough Council - Environmental Health Department	May 2000	Not Applicable
Salford City Council - Environmental Health Department	May 2000	Not Applicable
Tameside Metropolitan Borough Council	May 2000	Not Applicable
Trafford Metropolitan Borough Council - Environmental Health Department	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - North West Region - South Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North West Region - South Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - North West Region - South Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	August 2014	Bi-Annually
Explosive Sites		
Health and Safety Executive	October 2014	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Trafford Metropolitan Borough Council	March 2013	Annual Rolling Update
Bury Metropolitan Borough Council	September 2013	Annual Rolling Update
Manchester City Council - Planning Department	September 2014	Annual Rolling Update
Rochdale Metropolitan Borough Council	September 2014	Annual Rolling Update
Salford City Council	September 2014	Annual Rolling Update
Tameside Metropolitan Borough Council - Planning and Building Control	September 2014	Annual Rolling Update
Planning Hazardous Substance Consents		
Trafford Metropolitan Borough Council	March 2013	Annual Rolling Update
Bury Metropolitan Borough Council	September 2013	Annual Rolling Update
Manchester City Council - Planning Department	September 2014	Annual Rolling Update
Rochdale Metropolitan Borough Council	September 2014	Annual Rolling Update
Salford City Council	September 2014	Annual Rolling Update
Tameside Metropolitan Borough Council - Planning and Building Control	September 2014	Annual Rolling Update

Data Currency

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	January 2010	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2014	Bi-Annually
BGS Urban Soil Chemistry British Geological Survey - National Geoscience Information Service	June 2011	Annually
BGS Urban Soil Chemistry Averages British Geological Survey - National Geoscience Information Service	June 2011	Annually
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	December 2013	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	July 2014	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2014	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2014	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2014	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2014	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2014	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2014	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	August 2014	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2014	Quarterly

Data Currency

Sensitive Land Use	Version	Update Cycle
Areas of Adopted Green Belt		
Bury Metropolitan Borough Council	August 2014	As notified
Manchester City Council	August 2014	As notified
Rochdale Metropolitan Borough Council	August 2014	As notified
Salford City Council	August 2014	As notified
Tameside Metropolitan Borough Council	August 2014	As notified
Trafford Metropolitan Borough Council	August 2014	As notified
Areas of Unadopted Green Belt		
Bury Metropolitan Borough Council	August 2014	As notified
Manchester City Council	August 2014	As notified
Rochdale Metropolitan Borough Council	August 2014	As notified
Salford City Council	August 2014	As notified
Tameside Metropolitan Borough Council	August 2014	As notified
Trafford Metropolitan Borough Council	August 2014	As notified
Areas of Outstanding Natural Beauty		
Natural England	August 2014	Bi-Annually
Environmentally Sensitive Areas		
Natural England	August 2014	Annually
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	October 2014	Bi-Annually
Marine Nature Reserves		
Natural England	July 2013	Bi-Annually
National Nature Reserves		
Natural England	September 2014	Bi-Annually
National Parks		
Natural England	August 2014	Bi-Annually
Nitrate Sensitive Areas		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	July 2014	Annually
Ramsar Sites		
Natural England	March 2014	Bi-Annually
Sites of Special Scientific Interest		
Natural England	September 2014	Bi-Annually
Special Areas of Conservation		
Natural England	March 2014	Bi-Annually
Special Protection Areas		
Natural England	September 2014	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

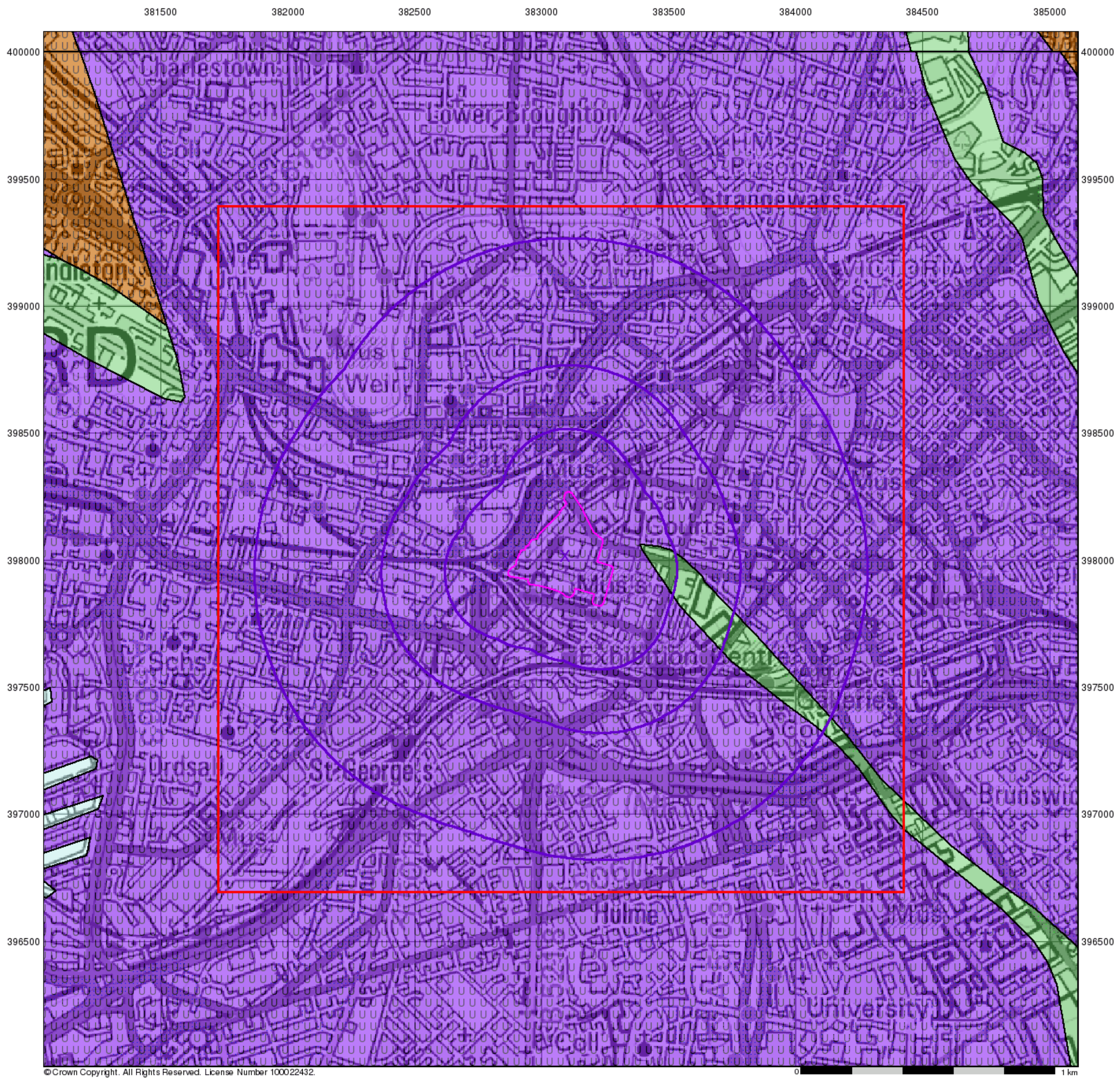
Data Supplier	Data Supplier Logo
Ordnance Survey	Ordnance Survey® Licensed Partner
Environment Agency	Environment Agency
Scottish Environment Protection Agency	SEPA Scottish Environment Protection Agency
The Coal Authority	THE COAL AUTHORITY
British Geological Survey	BGS 1835 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	CEH Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	Cyfoeth Naturiol Cymru Natural Resources Wales
Scottish Natural Heritage	SCOTTISH NATURAL HERITAGE
Natural England	NATURAL ENGLAND
Public Health England	Public Health England
Ove Arup	ARUP
Peter Brett Associates	pba peterbrett

Useful Contacts

Contact	Name and Address	Contact Details
2	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
3	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
4	**Manchester City Council - Environmental Health Department** PO Box 463, Town Hall Extension, Albert Square, Manchester, Greater Manchester, M60 3NY	Telephone: 0161 234 4884 / 234 4873. Fax: 0161 234 4508 Website: www.manchester.gov.uk
5	**Salford City Council - Environmental Health Department** Crompton House, 100 Chorley Road, Swinton, Manchester, Greater Manchester, M27 2ES	Telephone: 0161 7370551 Fax: 0161 728 1956 Website: www.salford.gov.uk
6	**Scottish Environment Protection Agency - Head Office** Erskine Court, The Castle Business Park, Stirling, Stirlingshire, FK9 4TR	Telephone: 01786 457700 Fax: 01786 446885
7	**Health and Safety Executive** 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
8	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
9	**The Coal Authority - Mining Report Service** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0845 7626848 Email: thecoalauthority@coal.gov.uk
10	**Peter Brett Associates** Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
11	**Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)** Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
12	**Manchester City Council - Planning Department** Town Hall, Manchester, Greater Manchester, M60 2LA	Telephone: 0161 234 5000 Fax: 0161 234 4508 Website: www.manchester.gov.uk
13	**Trafford Metropolitan Borough Council - Environmental Health Department** P O Box 14, Trafford Town Hall, Talbot Road, Stretford, Greater Manchester, M32 0YJ	Telephone: 0161 912 4566 Fax: 0161 873 7783 Website: www.trafford.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

APPENDIX D – ENVIRONMENTAL MAPS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ROC CONSULTING

Groundwater Vulnerability

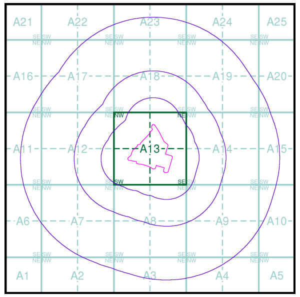
General

Specified Site
Specified Buffer(s)
X Bearing Reference Point
☐ Slice
8 Map ID

Agency and Hydrological

Geological Classes		Soil Classes
Major Aquifer (Highly Permeable)	■	High (H) 1, 2, 3, U
	■	Intermediate (I) 1, 2
	■	Low
Minor Aquifer (Variably Permeable)	■	High (H) 1, 2, 3, U
	■	Intermediate (I) 1, 2
	■	Low
Non Aquifer (Negligibly Permeable)	■	
Water or Sea	☐	
Drift Deposit	⁙	

Site Sensitivity Context Map - Slice A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Order Details

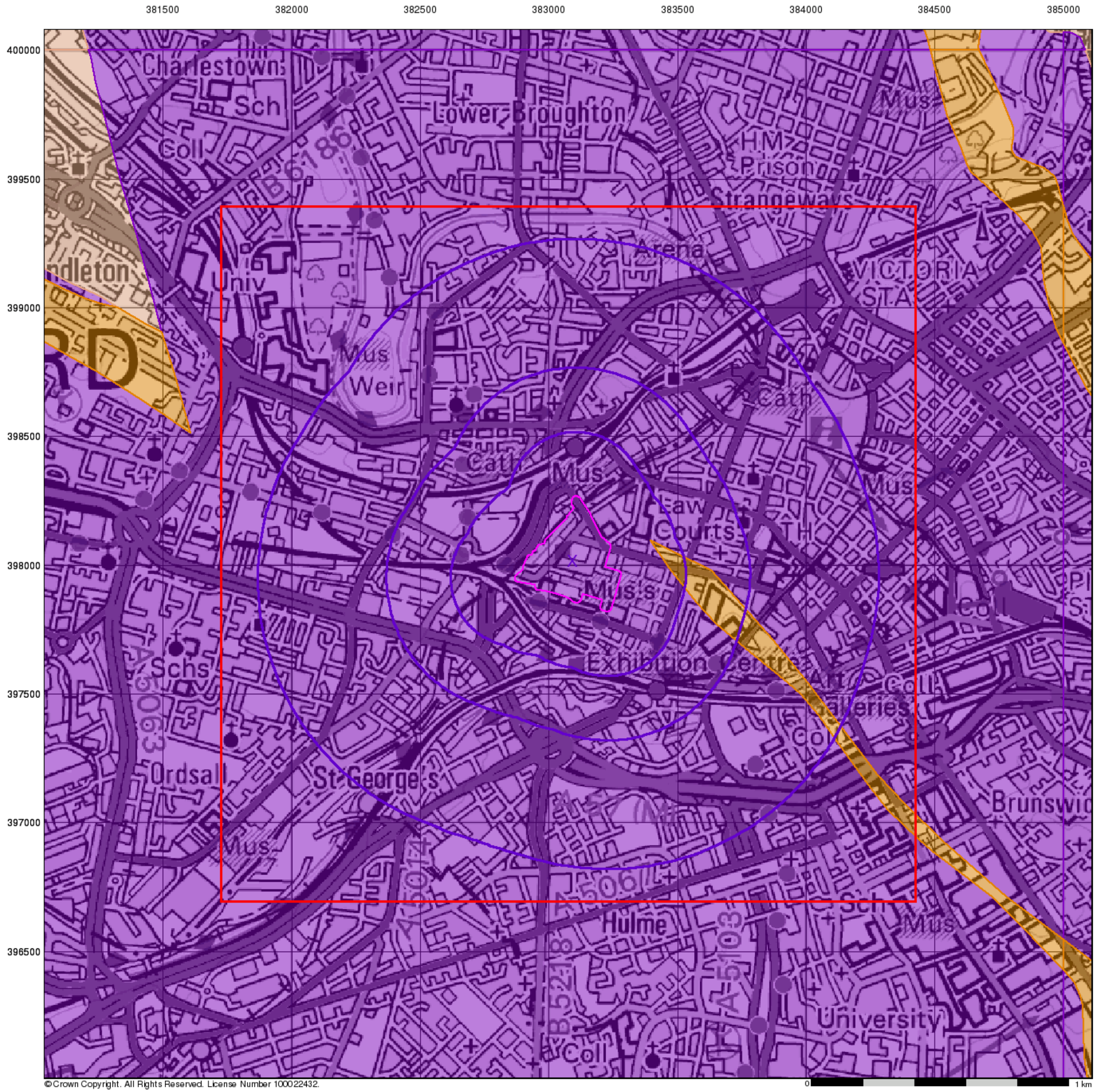
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Landmark® Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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Law Courts
Exhibition Centre
Art Galleries
St George's
Ordsall
Hulme
University
Brunswick
0
1 km

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ROC CONSULTING

Bedrock Aquifer Designation

General

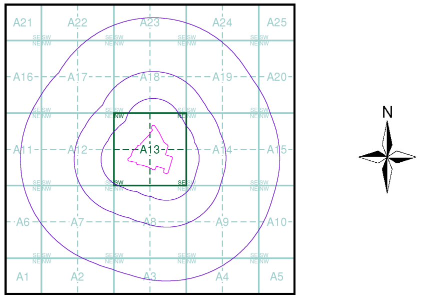
Specified Site
Specified Buffer(s)
X Bearing Reference Point
☐ Slice
8 Map ID

Agency and Hydrological

Geological Classes

🟪 Principal Aquifer
🟫 Secondary A Aquifer
🟧 Secondary B Aquifer
🟨 Secondary Undifferentiated
⬜ Unproductive Strata
🟩 Unknown

Site Sensitivity Context Map - Slice A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Order Details

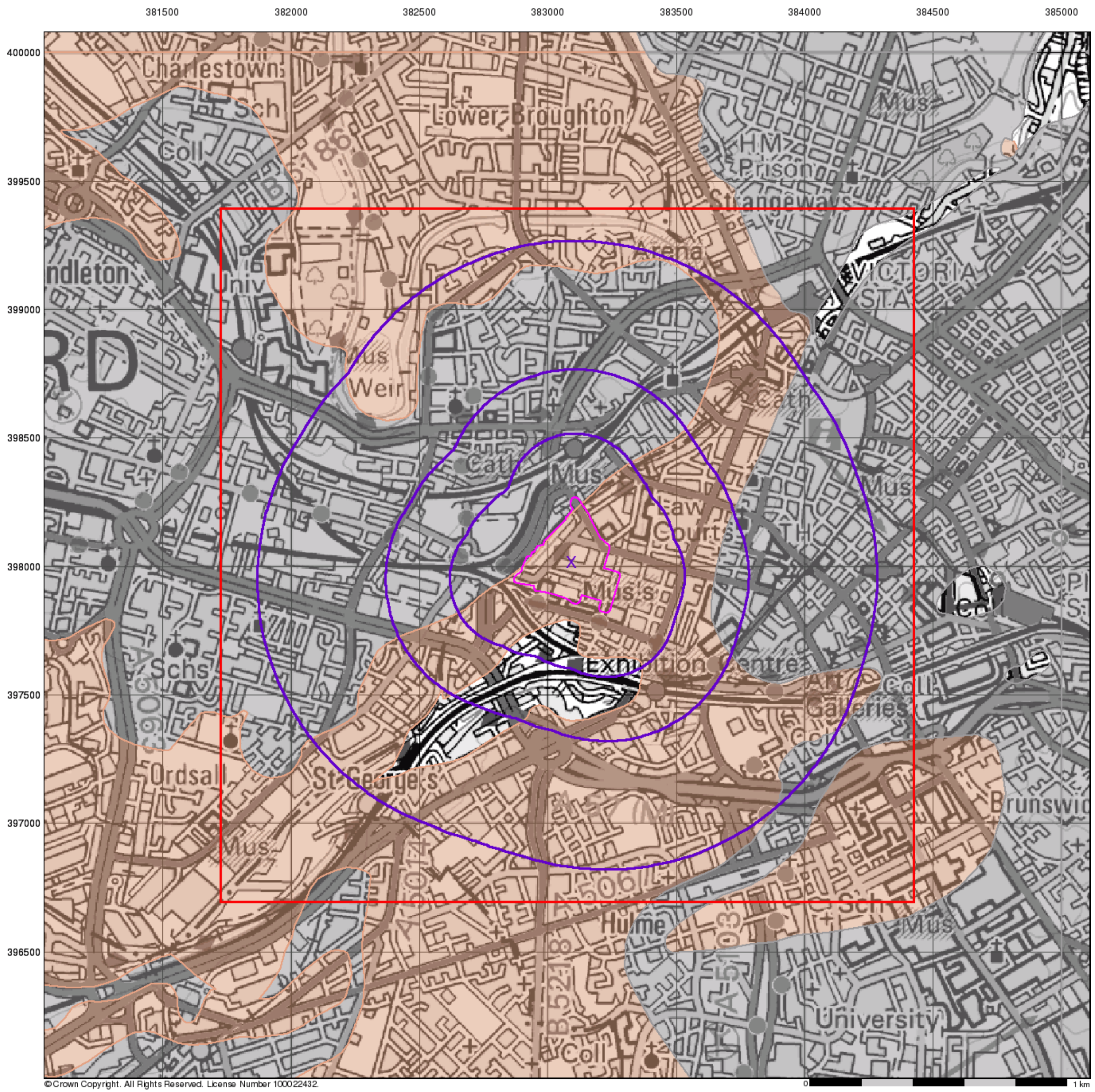
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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Exhibition Centre
Galleries
St George's
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Hulme
Brunswick
University
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RoC CONSULTING

Superficial Aquifer Designation

General

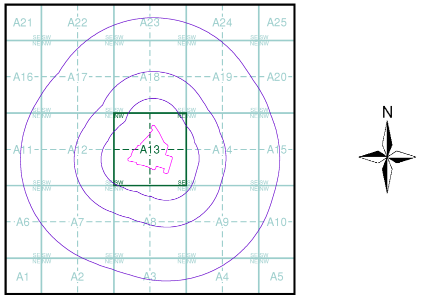
Specified Site	Specified Buffer(s)	X Bearing Reference Point
☐ Slice	8 Map ID	

Agency and Hydrological

Geological Classes

- 🟪 Principal Aquifer
- ▨ Secondary A Aquifer
- 🟧 Secondary B Aquifer
- 🟨 Secondary Undifferentiated
- ▨ Unproductive Strata
- 🟩 Unknown

Site Sensitivity Context Map - Slice A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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

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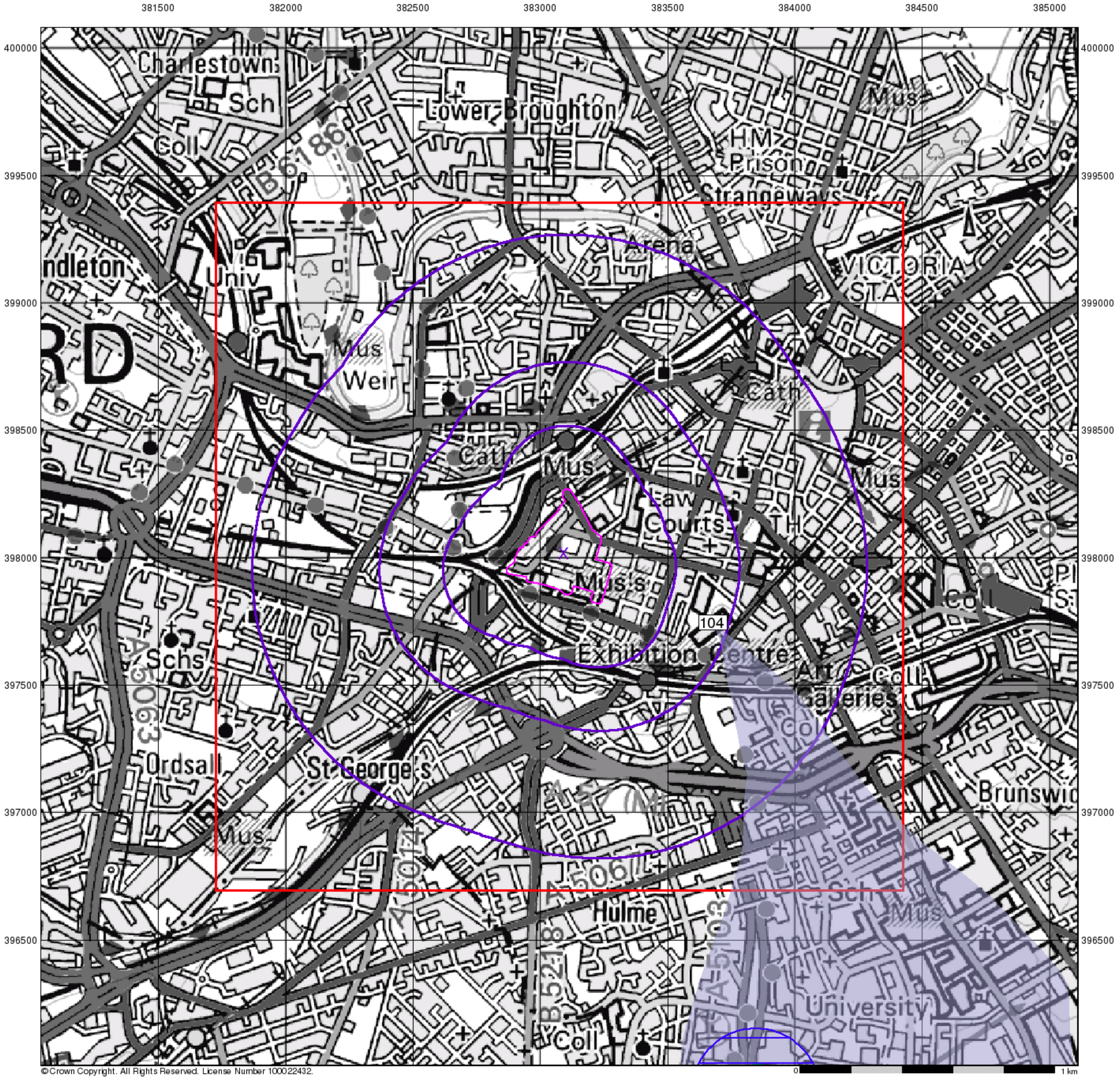
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Source Protection Zones

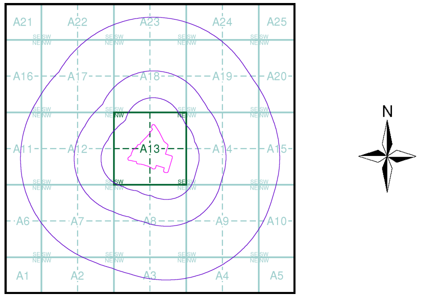
General

Specified Site
Specified Buffer(s)
X Bearing Reference Point
☐ Slice
8 Map ID

Agency and Hydrological

▥ Source Protection Zone I
▤ Source Protection Zone II
■ Source Protection Zone III
▨ Zone of Special Interest
🟥 Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

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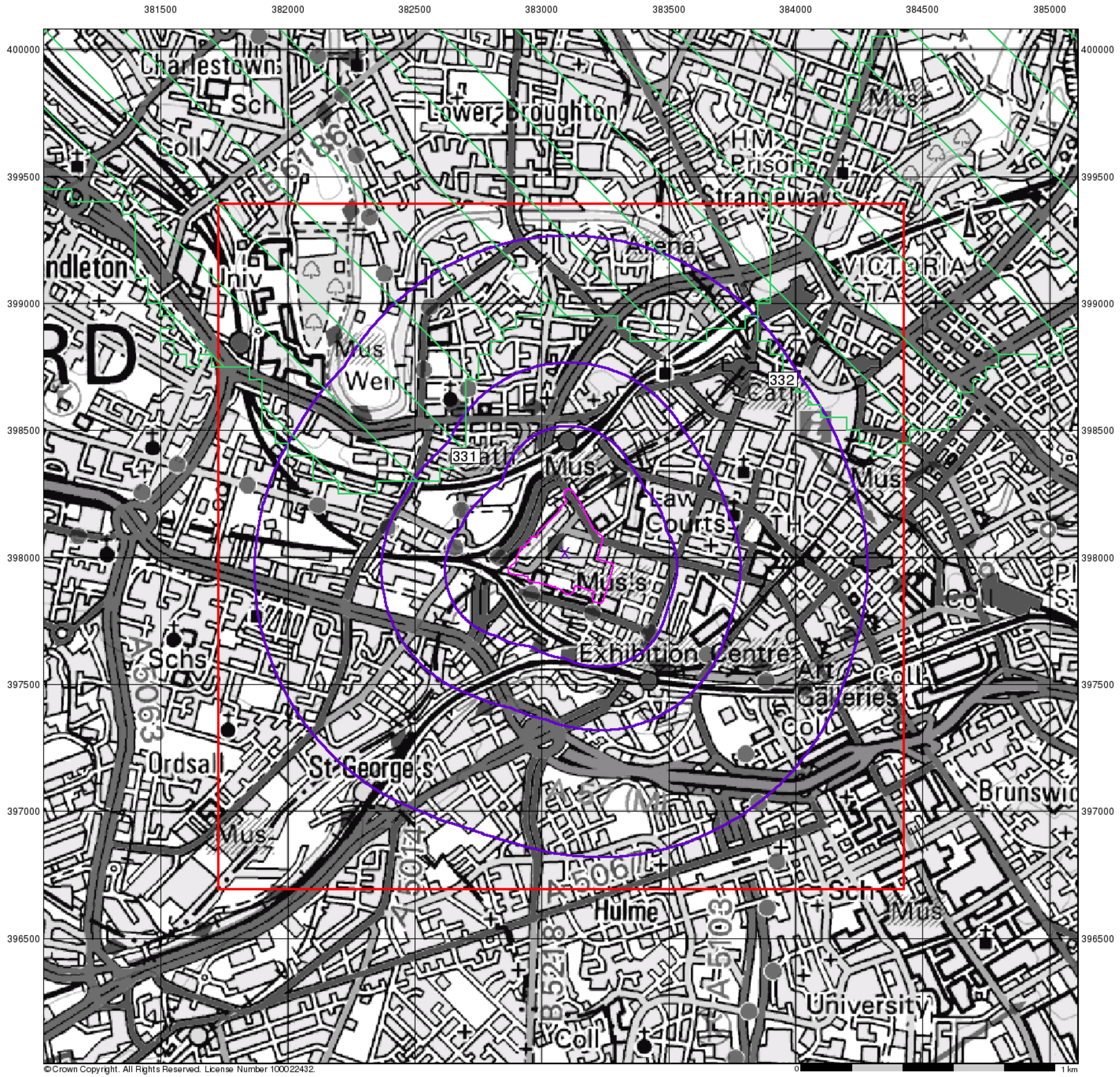
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Brunswick
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Sensitive Land Uses

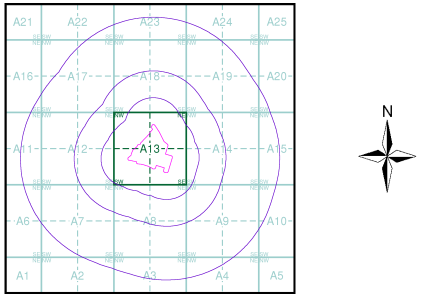
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A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Order Details

Order Number:	61378999_1_1
Customer Ref:	3233
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Slice:	A
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Search Buffer (m):	1000

Site Details

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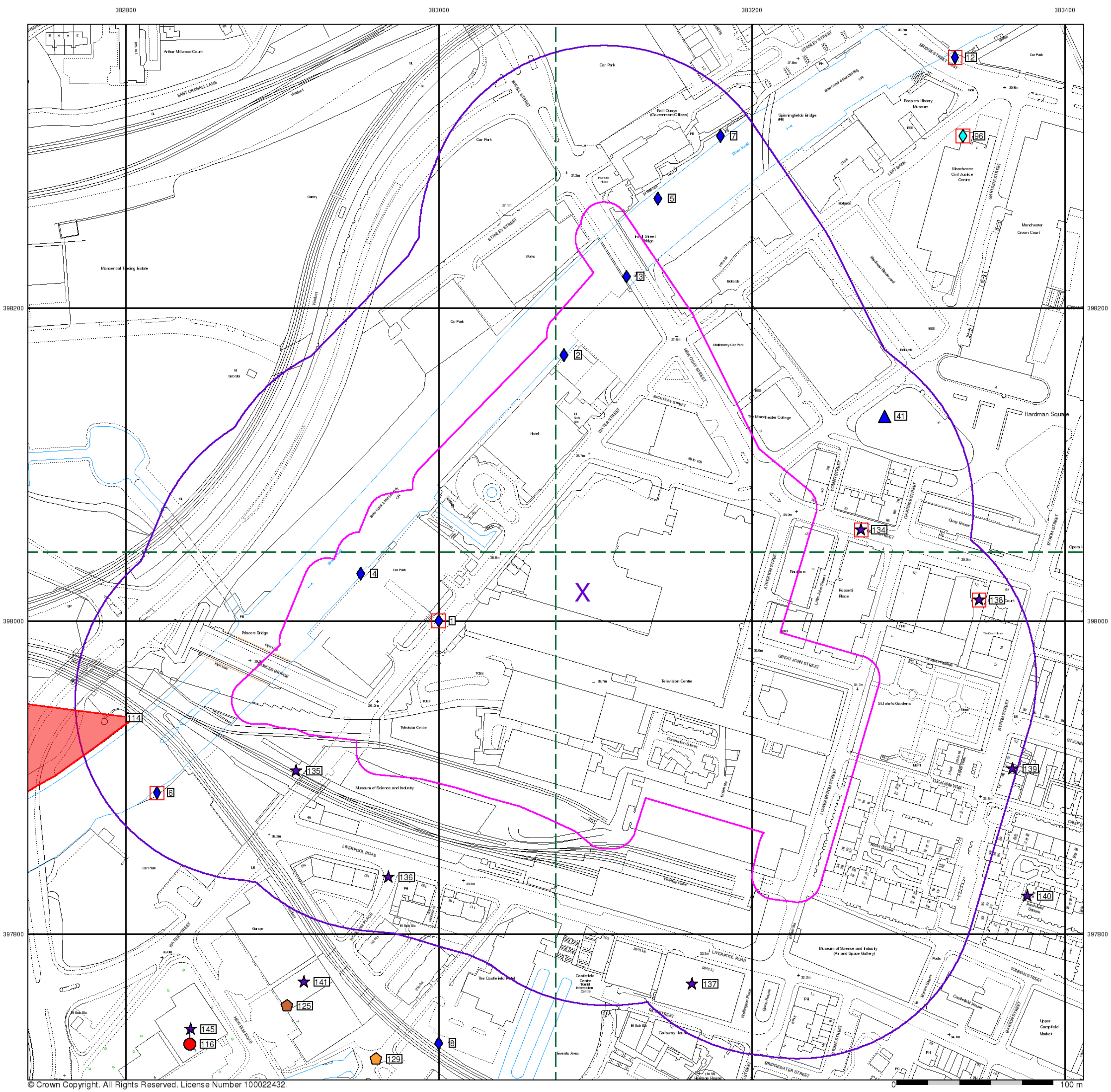
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Car Park
Manchester Civil Justice Centre
Manchester Crown Court
People's History Museum
Hardman Square
Television Centre
Museum of Science and Industry
St Johns Gardens
Prince's Bridge
LIVERPOOL ROAD
GREAT JOHN STREET
WATER STREET
BRIDGE STREET
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100 m

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R&C CONSULTING

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- 8 Map ID
- ☐ Several of Type at Location
- 🟧 Pylon
- Overhead Transmission Line

Agency and Hydrological

- ● Contaminated Land Register Entry or Notice (Location)
- ▨ Contaminated Land Register Entry or Notice
- ◆ Discharge Consent
- ▲ Enforcement or Prohibition Notice
- ▲ Integrated Pollution Control
- 🟩 Integrated Pollution Prevention Control
- ■ Local Authority Integrated Pollution Prevention and Control
- △ Local Authority Pollution Prevention and Control
- ▽ Local Authority Pollution Prevention and Control Enforcement
- ● Pollution Incident to Controlled Waters
- ▼ Prosecution Relating to Authorised Processes
- ◆ Prosecution Relating to Controlled Waters
- ▲ Registered Radioactive Substance
- River Network or Water Feature
- ✚ River Quality Sampling Point
- ⬟ Substantiated Pollution Incident Register
- ◆ Water Abstraction
- ◆ Water Industry Act Referral

Geological

- ▼ BGS Recorded Mineral Site

Industrial Land Use

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry

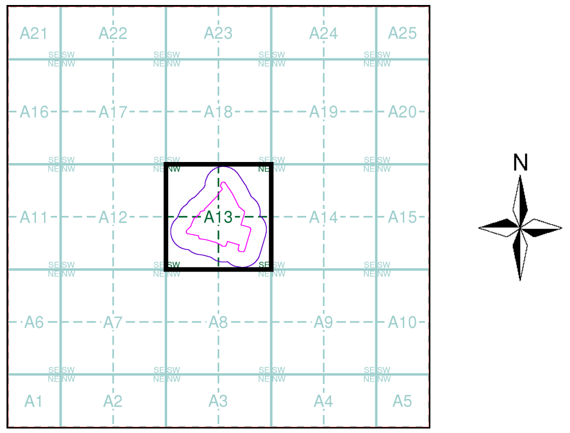
Waste

- ▼ BGS Recorded Landfill Site (Location)
- ▨ BGS Recorded Landfill Site
- ● EA Historic Landfill (Buffered Point)
- 🟥 EA Historic Landfill (Polygon)
- ▲ Integrated Pollution Control Registered Waste Site
- ▨ Licensed Waste Management Facility (Landfill Boundary)
- ● Licensed Waste Management Facility (Location)
- 🟥 Local Authority Recorded Landfill Site (Location)
- ▥ Local Authority Recorded Landfill Site
- ▨ Registered Landfill Site
- ▶ Registered Landfill Site (Location)
- ▤ Registered Landfill Site (Point Buffered to 100m)
- ▤ Registered Landfill Site (Point Buffered to 250m)
- ⬟ Registered Waste Transfer Site (Location)
- ▥ Registered Waste Transfer Site
- ⬟ Registered Waste Treatment or Disposal Site (Location)
- ▤ Registered Waste Treatment or Disposal Site

Hazardous Substances

- ✚ COMAH Site
- ✚ Explosive Site
- ✚ NIHHS Site
- ✖ Planning Hazardous Substance Consent
- ✖ Planning Hazardous Substance Enforcement

Site Sensitivity Map - Segment A13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Order Details

Order Number: 61378999_1_1
Customer Ref: 3233
National Grid Reference: 383090, 398020
Slice: A
Site Area (Ha): 9.23
Plot Buffer (m): 100

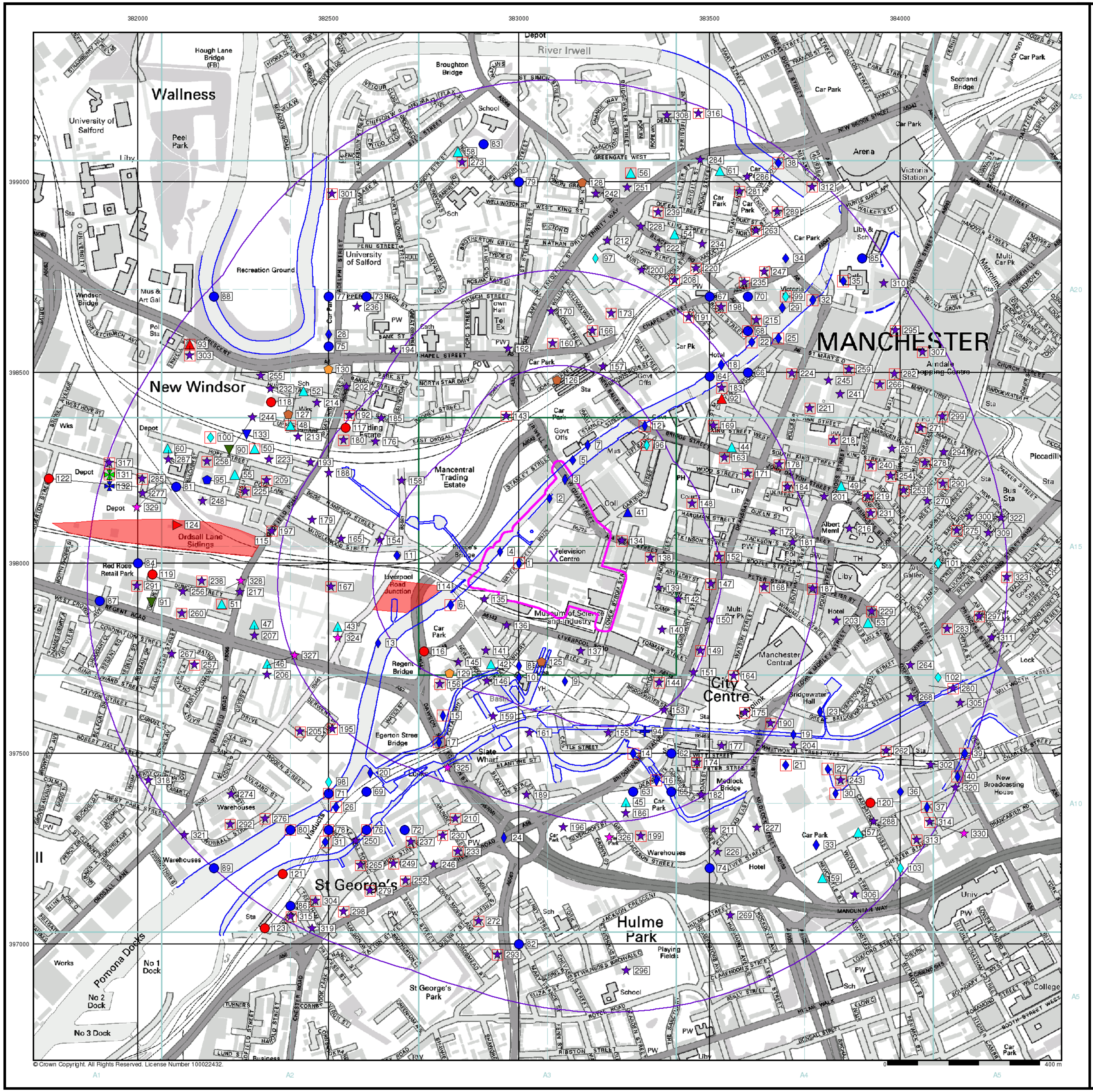
Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

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

A Landmark Information Group Service v47.0 22-Oct-2014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Wallness
New Windsor
MANCHESTER
City Centre
Hulme Park
St George's
River Irwell
University of Salford
Peel Park
Recreation Ground
Ordsall Lane Sidings
Mancentral Trading Estate
Museum of Science and Industry
Television Centre
Manchester Central
Piccadilly
Arena
Victoria Station
Arndale Shopping Centre
Pomona Docks
No 1 Dock
No 2 Dock
No 3 Dock
Playing Fields
Regent Bridge
Egerton Street Bridge
Slate Wharf
Castlefield Basin
New Broadcasting House
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400 m
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RoC CONSULTING

General

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

Agency and Hydrological

- ● Contaminated Land Register Entry or Notice (Location)
- ▨ Contaminated Land Register Entry or Notice
- ◆ Discharge Consent
- ▲ Enforcement or Prohibition Notice
- ▲ Integrated Pollution Control
- ■ Integrated Pollution Prevention Control
- ■ Local Authority Integrated Pollution Prevention and Control
- △ Local Authority Pollution Prevention and Control
- ▽ Local Authority Pollution Prevention and Control Enforcement
- ● Pollution Incident to Controlled Waters
- ▼ Prosecution Relating to Authorised Processes
- ◆ Prosecution Relating to Controlled Waters
- ▲ Registered Radioactive Substance
- ~ River Network or Water Feature
- ✚ River Quality Sampling Point
- ⬟ Substantiated Pollution Incident Register
- ◆ Water Abstraction
- ◆ Water Industry Act Referral

Geological

- ▼ BGS Recorded Mineral Site

Industrial Land Use

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry

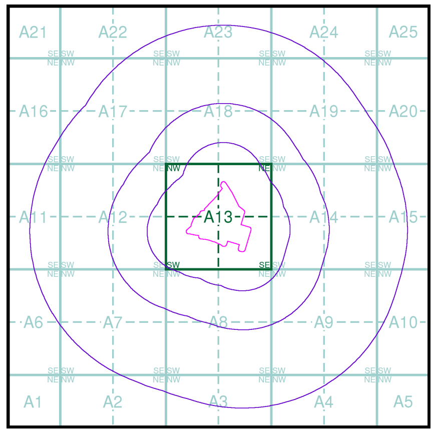
Waste

- ▼ BGS Recorded Landfill Site (Location)
- ▨ BGS Recorded Landfill Site
- ● EA Historic Landfill (Buffered Point)
- ■ EA Historic Landfill (Polygon)
- ▲ Integrated Pollution Control Registered Waste Site
- ▩ Licensed Waste Management Facility (Landfill Boundary)
- ● Licensed Waste Management Facility (Location)
- ■ Local Authority Recorded Landfill Site (Location)
- ▥ Local Authority Recorded Landfill Site
- ▨ Registered Landfill Site
- ▶ Registered Landfill Site (Location)
- ▤ Registered Landfill Site (Point Buffered to 100m)
- ▤ Registered Landfill Site (Point Buffered to 250m)
- ⬟ Registered Waste Transfer Site (Location)
- ▥ Registered Waste Transfer Site
- ⬟ Registered Waste Treatment or Disposal Site (Location)
- ▤ Registered Waste Treatment or Disposal Site

Hazardous Substances

- ✚ COMAH Site
- ✚ Explosive Site
- ✚ NIHHS Site
- ✖ Planning Hazardous Substance Consent
- ✖ Planning Hazardous Substance Enforcement

Site Sensitivity Map - Slice A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Order Details

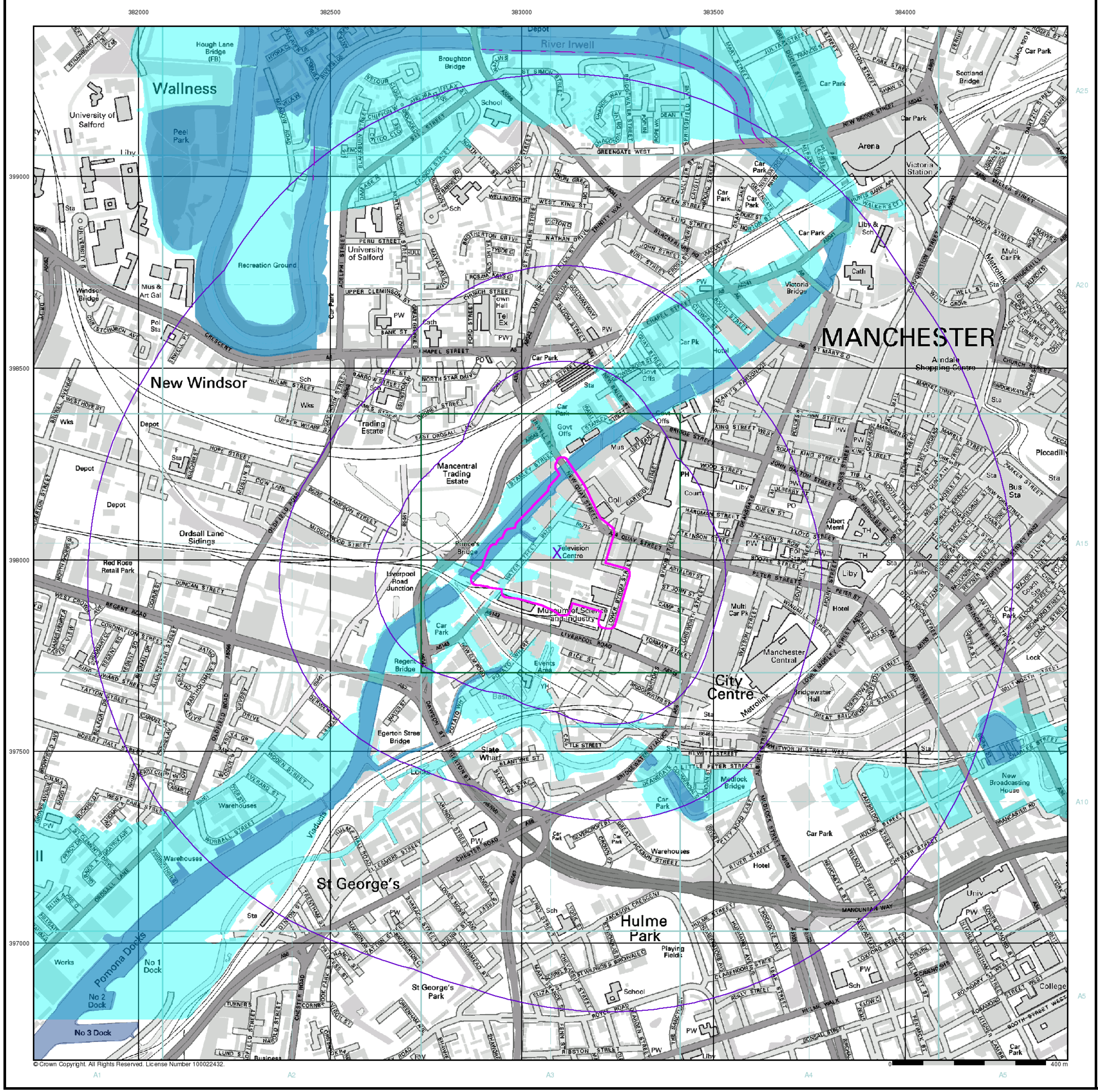
Order Number:	61378999_1_1
Customer Ref:	3233
National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk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River Irwell
Wallness
Peel Park
University of Salford
Recreation Ground
Broughton Bridge
Hough Lane Bridge (FB)
Arena
Victoria Station
MANCHESTER
Arndale Shopping Centre
New Windsor
Mancentral Trading Estate
Ordsall Lane Sidings
Red Rose Retail Park
Liverpool Road Junction
Prince's Bridge
Television Centre
Museum of Science and Industry
Regent Bridge
Events Area
City Centre
Manchester Central
Bridgewater Hall
Egerton Street Bridge
Slate Wharf
Medlock Bridge
New Broadcasting House
St George's
St George's Park
Hulme Park
Pomona Docks
No 1 Dock
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No 3 Dock
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ROC CONSULTING

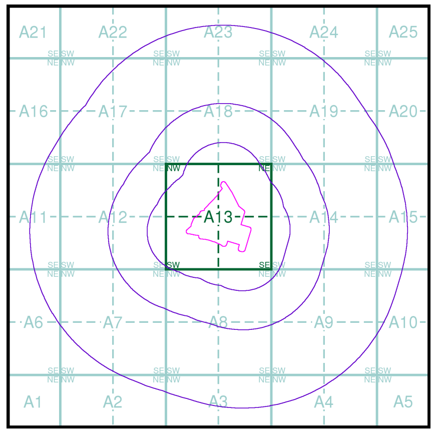
General

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

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- ▨ Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A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Order Details

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Landmark
Information Group

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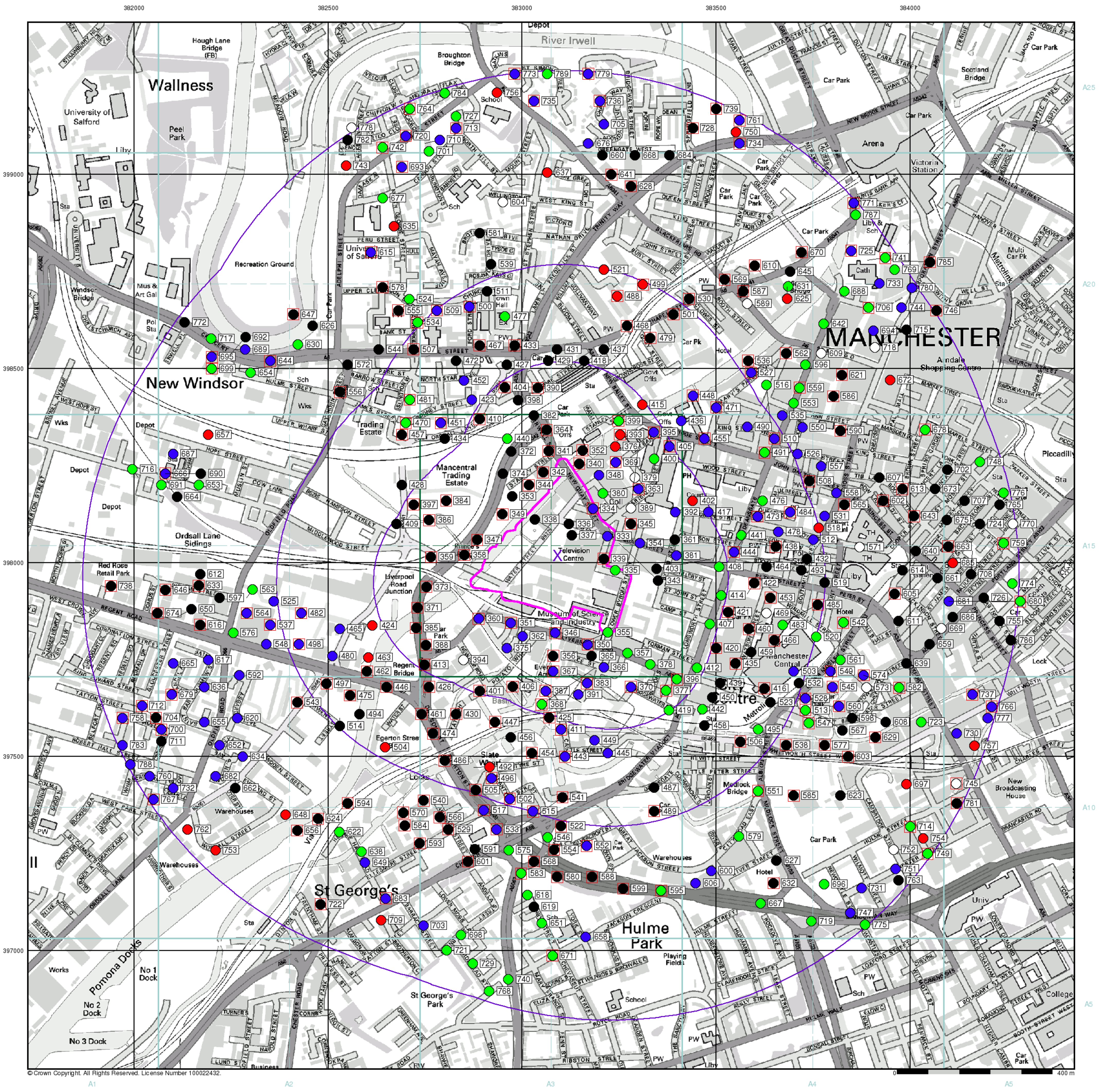
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MANCHESTER
St George's
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Arndale Shopping Centre
Piccadilly
Victoria Station
Ordsall Lane Sidings
St George's Park
Pomona Docks
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General

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

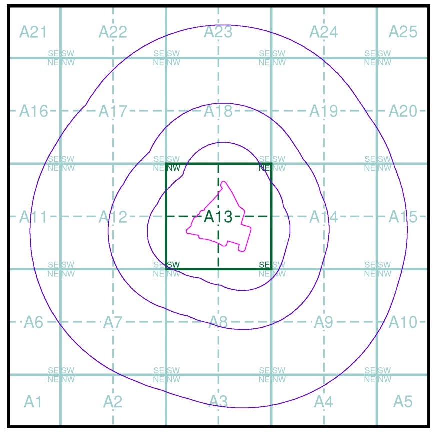
Agency and Hydrological (Boreholes)

- ● BGS Borehole Depth 0 - 10m
- ● BGS Borehole Depth 10 - 30m
- ● BGS Borehole Depth 30m +
- ● Confidential
- ○ Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A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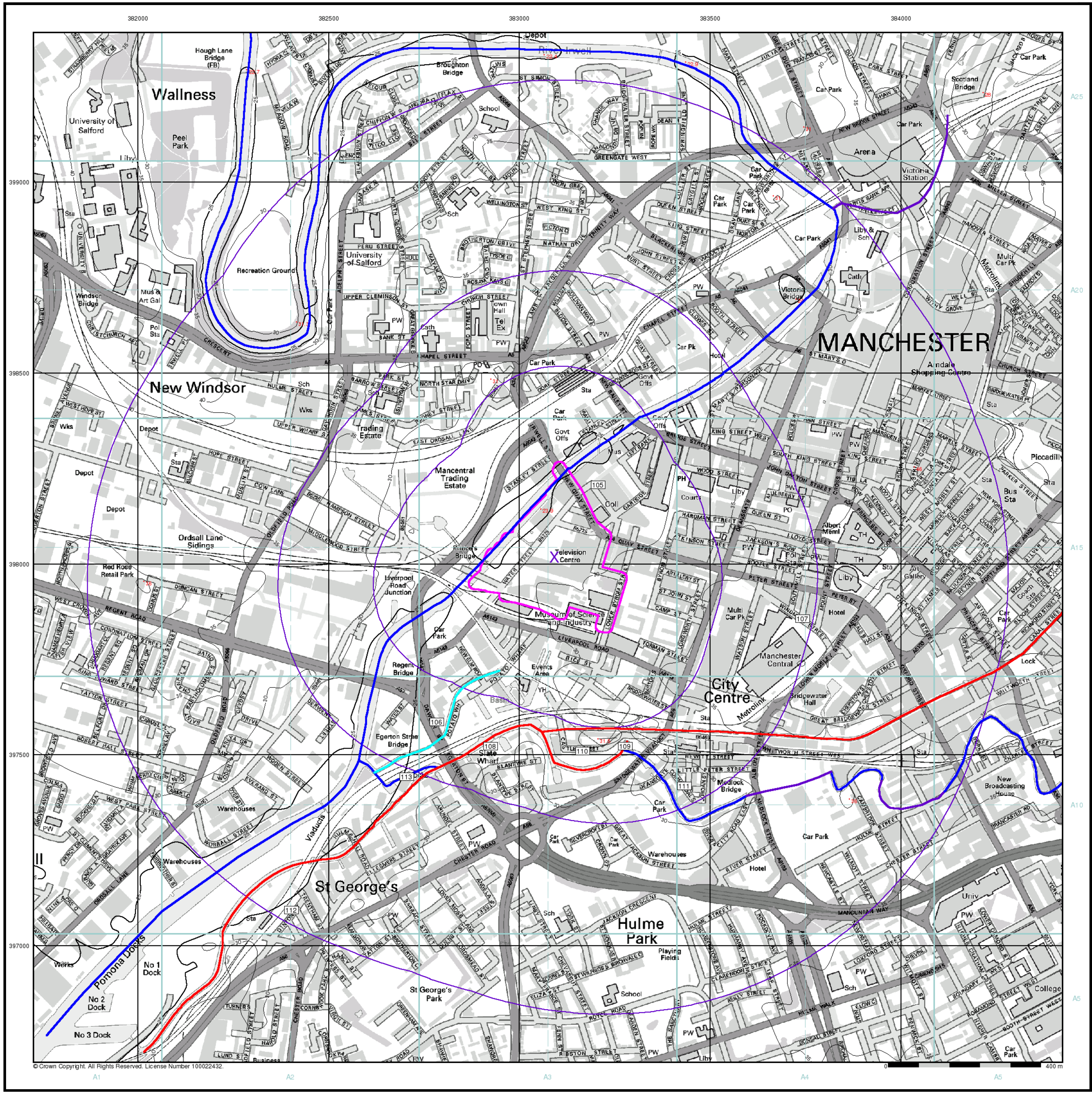
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Wallness
University of Salford
Peel Park
Hough Lane Bridge (FB)
Broughton Bridge
River Irwell
Scotland Bridge
Car Park
Arena
Victoria Station
Recreation Ground
University of Salford
Windsor Bridge
Mus & Art Gal
School
Sch
Town Hall
Cath
MANCHESTER
Arndale Shopping Centre
New Windsor
Trading Estate
Mancentral Trading Estate
Depot
Ordsall Lane Sidings
Red Rose Retail Park
Princes Bridge
Television Centre
Museum of Science and Industry
Liverpool Road Junction
Regent Bridge
Events Area
Egerton Street Bridge
Slate Wharf
Basin
City Centre
Metrolink
Manchester Central
Bridgewater Hall
Medlock Bridge
New Broadcasting House
Piccadilly
Bus Sta
Lock
Warehouses
Viaducts
St George's
Hulme Park
Playing Fields
St George's Park
Pomona Docks
No 1 Dock
No 2 Dock
No 3 Dock
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General

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

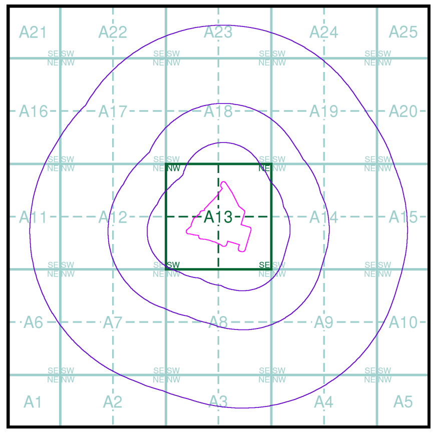
Detailed River Network Data

- Primary River
- Secondary River
- Tertiary River
- Canal
- Canal Tunnel
- Undefined River
- Lake/Reservoir
- Offline Drainage Feature
- Extended Culvert (greater than 50m)
- Underground River (inferred)
- Underground River (local knowledge)
- Downstream of High Water Mark
- Downstream of Seaward Extension
- Not assigned River feature

Contours (height in metres)

- Standard Contour — 105
- Master Contour — 100 — 95
- Spot Height — 167.3
- MLW Mean Low Water
- MHW Mean High Water

EA/NRW Detailed River Network Map - Slice A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National Grid Reference:	383090, 398020
Slice:	A
Site Area (Ha):	9.23
Search Buffer (m):	1000

Site Details

Water Street, Manchester, M3 4JQ

Landmark Information Group

Tel:	0844 844 9952
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Appendix 13.1

Flood Risk Assessment and Surface Water Drainage Statement

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CONSULTANT OF CHOICE
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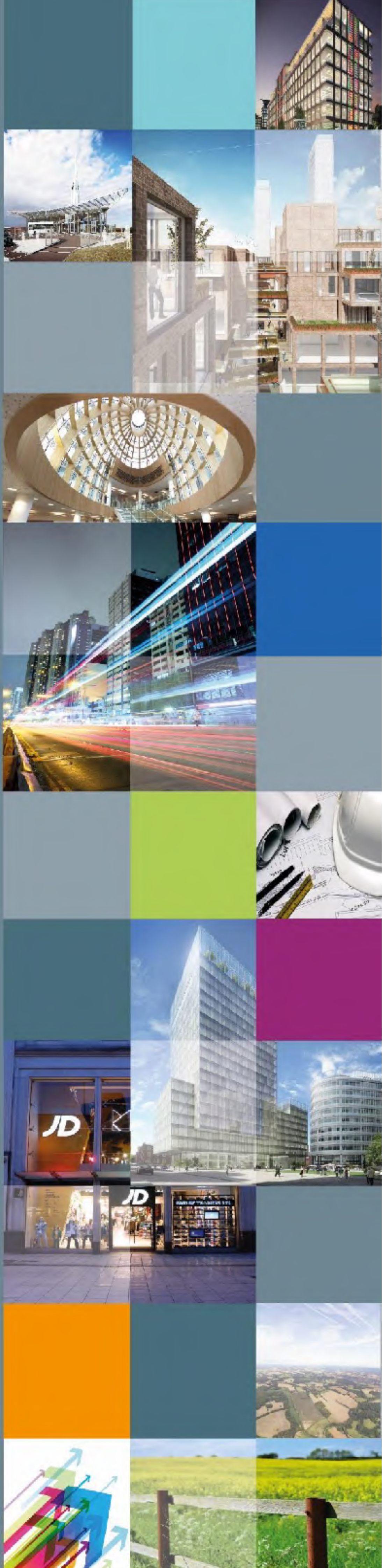

Flood Risk Assessment & Surface Water Drainage Statement

On

Factory, Manchester

For

Manchester City Council

August 2016

RoC CONSULTING
EXCELLENCE IN ENGINEERING
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ADDING VALUE

FLOOD RISK ASSESSMENT & SURFACE WATER DRAINAGE STATEMENT

ON

FACTORY, MANCHESTER

FOR

MANCHESTER CITY COUNCIL

TITLE	**NAME**	**SIGNATURE**	**DATE**
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REPORT REFERENCE	*AR/NAK/3519/AUGUST 2016*		
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CLIENT	*MANCHESTER CITY COUNCIL*		

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1.0 INTRODUCTION

RºC Consulting has been commissioned by Manchester City Council to provide a Flood Risk Assessment and Surface Water Drainage Statement (FRA&DS) for the Factory development site. This site sits within the wider St John's development

Although these sites are separate developments, due to their proximity, it is proposed that they will share a single drainage strategy. The FRA&DS will be written in accordance with the requirement of the National Planning Policy Framework (NPPF) and the associated Planning Policy Guidance (PPG). This document will review the following:

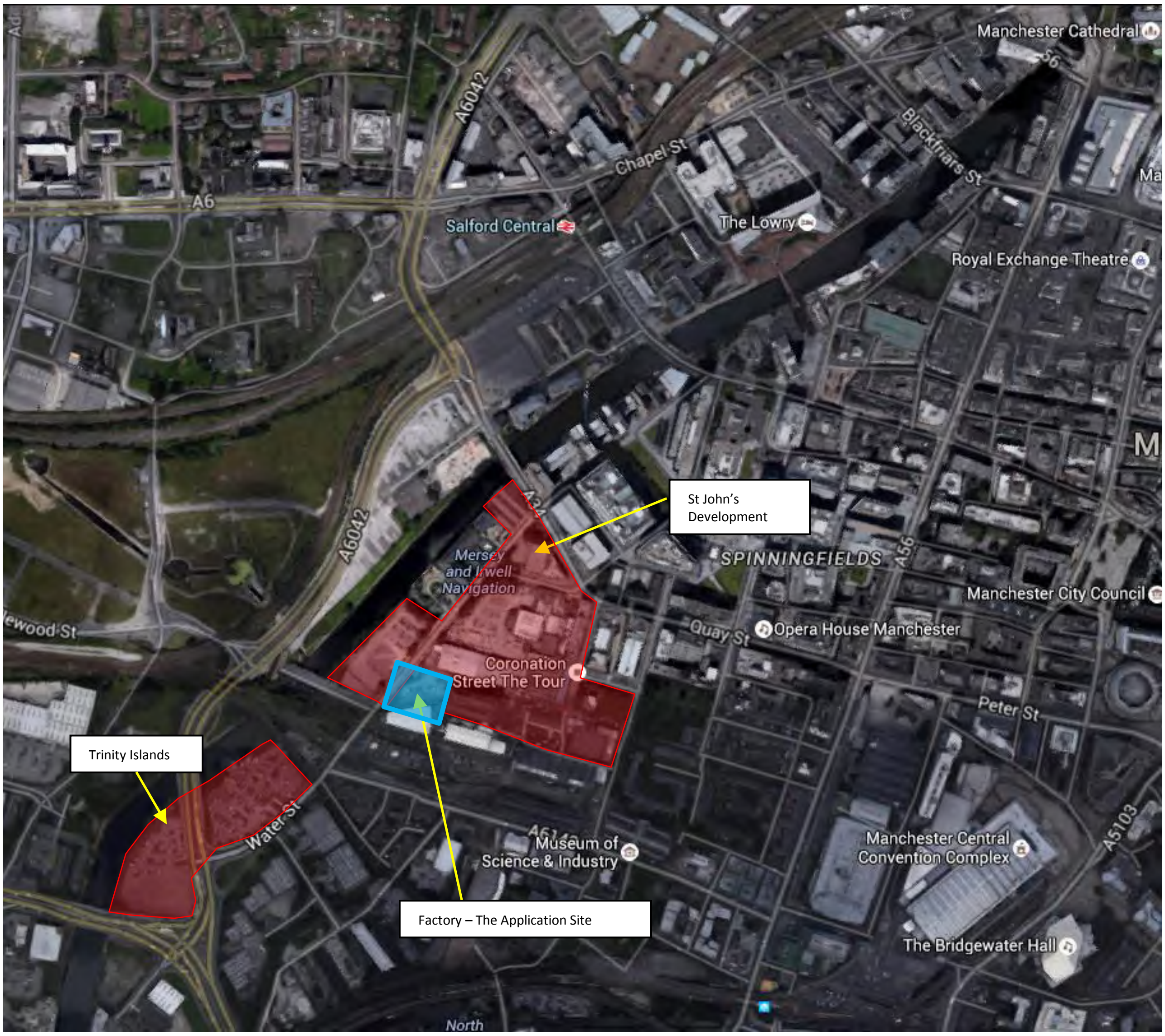
- Applicable policy
- The operation of the existing sites
- The proposed development and associated drainage strategy
- Flood risk to the site from various sources, and
- Residual flood risk and flood management including the ability to use SUD's

As part of the development of this FRA&DS, an approaches have been made to United Utilities (UU), the Manchester Ship Canal and Manchester City Council flood management team and a review carried out of the online Environment Agency mapping information.

The flooding information used within this report has been obtained from the Environment Agency online flood maps and as applicable the detailed information provided within the Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA.

A general location plan is provided below:

Figure 1.0 – General Location Plan


Manchester Cathedral
A6042
Chapel St
Blackfriars St
A6
Salford Central
The Lowry
Royal Exchange Theatre
A6042
Mersey and Irwell Navigation
SPINNINGFIELDS
A56
Manchester City Council
Quay St
Opera House Manchester
Coronation Street The Tour
Peter St
Water St
Museum of Science & Industry
Manchester Central Convention Complex
A5103
The Bridgewater Hall
North

St John's Development

Trinity Islands

Factory – The Application Site

2.0 POLICY AND GUIDANCE

2.1 National Planning Policy Frameworks

The National Planning Policy Framework (NPPF) was published in England in March 2012. As a result all previous Planning Policy Guidance (PPG) and Planning Policy Statements (PPS) were superseded. This included PPS25: Development and Flood Risk.

One of the key aims of the NPPF is to ensure that a flood risk is taken into account at all stages of the planning process to avoid inappropriate development in areas at risk of flooding and directing development away from areas of high risk.

It advises that where development is necessary in areas of higher risk, it should be safe and that flood resilience should also be incorporated into the design. It also advises of the fact that new developments should not increase flood risk elsewhere and new developments should aid in mitigating flood risk to the wider area.

2.2 Planning Practice Guidance – Climate Change, Flood Risk & Costal Change

These documents supersede the original technical guidance in March 2014 and expand on the content of the NPPF. This guidance borrows heavily from the NPPF technical guidance document with regard to:

- Usage classification
- Flood zone categories
- Flood zone / usage compatibility
- The sequential test
- The exception test

As part of the requirements noted within these guidance documents is how climate change should be assessed and accounted for within the context of the development. This was updated in February 2016 and is a function of;

- River Basin District
- Allowance Category: A factor dependent upon the usage of the development
- The likely development life span

2.3 Manchester City, Salford City and Trafford Councils Level 2 Hybrid (SFRA)

Local Planning Authorities are required to produce Local Development Frameworks, which are a portfolio of Local Development documents that collectively deliver the spatial planning strategy.

The Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA is one of these documents and it assesses the risks associated with all types of flooding and is used to identify the amount and types of suitable developments permitted in an area.

The Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA is a combined Level 1 and Level 2 SFRA providing both comments on the wider flooding issues and detailed review of specific development plots.

The above document was prepared by JBA Consulting on behalf of Manchester City, Salford City and Trafford Councils with the final version of the report issued in March 2011.

Within the SFRA the proposed site is not designated for redevelopment and is therefore not considered specifically within the SFRA Level 2 analysis.

2.4 CIRIA Guidance

2.4.1 C624 Development and Flood Risk

The CIRIA Guidance publication “C624 Development and Flood Risk – Guidance for the Construction Industry” defines 3 levels of FRA which can be undertaken:

- Level 1 – Screening Study
- Level 2 – Scoping Study
- Level 3 – Detailed Study

For this proposed development, a Level 2 Scoping Study Flood Risk Assessment (FRA) combined with an overarching drainage statement is considered appropriate because of the proximity of the River Irwell and the flood zone classification.

2.4.2 C697 The SuDS Manual

This document provides best practice guidance on the planning, design, construction, operation and maintenance of sustainable drainage systems (SuDS). This document provides detail on all the typical sustainable drainage systems and details on how they can be interconnected to not only provide the required drainage performance but also act as pollution control while enhancing the site wide Masterplan proposals.

On this site where the ground conditions have been reviewed, it has been ascertained that the use of infiltration as a method of disposal of surface water is not appropriate. As such two drainage strategies are in development, the first disposing to the River Irwell which flows within close proximity to the development site and the second discharging to the adopted sewer network which surrounds and crosses the development sites. A combined approach based on C697 using SuDS as a way of conveying the surface water around the site and providing the required attenuation volume will form the basis of the drainage strategy.

Currently no physical testing has been completed at the site and the statement above is based on the conclusion of desktop studies and third party borehole information obtained from the British Geological Society (BGS). Phase 2 intrusive investigations are required for each development plot and infiltration testing will be included. A review of the ability to include SUD's within the drainage strategy upon receipt of the result of said testing.

2.4.3 Sustainable Drainage Systems, Non-Statutory Technical Standards for Sustainable Drainage Systems

Within this document it is defined how the surface water discharge from the development should be derived and provides desirable discharge rates based on storm events. Peak flow rates and volume controls are discussed and consideration needs to be given within the design of the surface water system to ensure that both peak flows and volumes do not exceed that of the pre-development case.

3.0 EXISTING SITE

The sites for which this FRA&DS has been commissioned are located on the east side of Manchester City Centre.

The Factory site is centred around NGR: 383008E, 397938N.

A general location plan showing the application site within the context of the wider St John's development is provided in Appendix A.

Site Context –Factory

The Factory forms part of the St. John's Masterplan area in Manchester City Centre. St. John's comprises the former ITV Quay Street estate in Manchester City Centre. The site was acquired in March 2014 by Manchester Quays Limited (MQL), a joint venture between Allied London and Manchester City Council, and is the subject of long term regeneration proposals that involve both conversion of existing buildings and redevelopment of other plots to create a new neighbourhood of the City.

The redevelopment of the site is supported by the St. John's Masterplan and Strategic Regeneration Framework (SRF), which were formally adopted by Manchester City Council's Executive Committee in February 2015. An update to the SRF was presented to Manchester City Council's Executive Committee in July 2016.

Area –Factory (The St John's Development is split into a number of application Sites)	**Factory** Area schedule: • Factory – 1.80 hectares The proposed development site lies within a Critical Drainage Area (CDA) as defined within the Manchester City Councils SFRA and noted by United Utilities.
Existing Surfacing and Current Use	The proposals relate to an area located within the south western part of the St. John's Masterplan, on a site broadly bounded by the River Irwell and surface car parking (currently in use for construction of the Ordsall Chord) to the west, Grape Street and the Bonded Warehouse to the east, the Museum of Science and Industry (MSI) complex, including the 1830 Warehouse (Grade I Listed) to the south and Water Street and surface car parking to the north. The site is approximately 1.80 ha and is currently occupied by

		surface car parking, the Starlight theatre (formerly in use by ITV for filming and events), Water Street and the Grade II Listed Colonnaded Railway Viaduct (in part), which was also in use by ITV for filming and storage. A site location plan is contained within Appendix A of this report. The area around the Site is defined by a mix of leisure, commercial and residential uses including Spinningfields to the north, the Great Northern Warehouse and Deansgate to the east and MSI to the south. It is also situated 750m from the Deansgate / Castlefield Metrolink stop and a range of bus and Metroshuttle services. Nearby listed buildings include the 1830 Warehouse (Grade I Listed), as well as the former Liverpool Road Station Master's House (Grade I Listed) and the Railway Bridge over the River Irwell (Grade I Listed) to the south, the MSI Warehouse to the east (Grade II Listed). The site is located with the Castlefield Conservation area and approximately 500m to the west of the St John Street Conservation Area.
Boundaries	North	Grape Street and the Proposed Central Village Development
	South	Museum of Science and Industry (MOSI) & The Grade II Listed Colonnaded Railway Viaduct
	East	Grade I listed 1830 warehouse and the Grade II list MSI Warehouse
	West	Water Street
Access	Vehicles	Access for vehicles is restricted to the to specific entrance point which is controlled.
	Pedestrians	St John's Place – There is limited access from the western bank of the River Irwell and from Water Quay. Core Site – As the site is still operating albeit at a much reduced occupancy pedestrian access is controlled on to site specific locations.

A more detailed site plan for aforementioned development is provided within Appendix B.

With reference to flood mapping obtained from the Environmental Agency online flood mapping the Factory development site is identified as being located in flood zone 2. Flood zone 2 is defined within the NPPF as a site having between a 1 in 100 and 1 in 1000 (1% - 0.1%) probability of river or coastal flooding in any one year. This is considered as a medium probability.

An extract from the Environmental Agency online flood maps is contained in Appendix C.

Topography –Factory

The site in general falls from north east to south west towards Water Street and River Irwell beyond. The highest part of the site is set at a level of approximately 27.25m and the lowest identified point adjacent to Water Street is at a level of 26.08m.

A copy of the relevant topographical survey for the development sites is contained within Appendix D.

A site wide phase 1 desk study has been completed and an intrusive investigation completed for the South Village site. The results of can be used to inform the likely ground condition below the application site. The report suggests the site is underlain by relatively shallow fluvio glacial sand and gravels underlain by the Principal Sandstone bedrock aquifer. The site is not said to be located within any Environment Agency groundwater source protection zones, although the River Irwell water course is present along the sites western boundary.

Theoretically the use of soakaway drainage methods could be applied to the site (subject to completion of the infiltration test). However, from the intrusive investigation completed for the South Village groundwater was encountered at a depth of 7.0m below ground level. Based on the typical hydraulic gradient of the site this depth will only reduce as you approach the River Irwell. This is likely to constrain infiltration potential, water storage and drain down times which are crucial in the operation of soakaways when they are required to address the run-off associated multiple storms occurring in a truncated timescale. In addition, the site has a long standing industrial heritage and the use of infiltration techniques has the potential to mobilise sources of contamination within site soils which could, in turn, have an impact on surface water quality with the adjacent River Irwell.

When reviewing the underlying ground conditions with regard to both Ground Vulnerability and Aquifers the site classification is split:

- Bedrock Aquifer: The whole site is defined as a principal aquifer
- Superficial Aquifer: The site is classed as a secondary aquifer
- Groundwater Vulnerability: The site is classified as a major aquifer with variable permeability
- Groundwater Source Protection: The site is not located within any groundwater source protection zones

As advised in the site description section above the Factory site is developed and fully impermeable and is therefore defined as being “Brownfield” Sites.

The existing discharge limits for Brownfield sites can be determined in two ways, the first through the development of a hydraulic model for the existing network which can then be interrogated. The alternative where the existing drainage network is not available is to use calculated rainfall intensity. In both cases the 1 in 30 year storm event is used to derive the flow rates.

Sewer records for the development site has been obtained from United Utilities and these identify combined sewers of varying sizes running both along Water Street which forms the western boundary of the development and also the development in the alignment of the former Grape Street. Extending away from the site the sewerage record also identifies two Combined Sewer Overflows. These extend from the main trunk sewers with a run within Water Street, the first crossing the St John Place development site and the second crossing the Trinity Islands development site, both discharge in to the River Irwell.

A copy of the United Utilities sewer records is provided in Appendix E.

The local planning authority (LPA) for this development is Manchester City Council, who is also the Lead Local Flood Authority.

4.0 DEVELOPMENT PROPOSALS

Proposed – Factory

The proposals involve the demolition of the Starlight theatre and other structures, together with works to the Grade II Listed Colonnaded Railway Viaduct, to facilitate the development of approximately 13,500 sq. m. of development comprising two flexible auditorium spaces to be used for theatre, music, dance, art and other performance-related events, conferences and associated facilities, including retail and restaurant use, office, administrative and back of house function, training and educational facilities, servicing and access arrangements, circulation and external landscaped areas.

Under the PPG "Table 2 – Flood Risk Vulnerability Classification" which accompanies the NPPF the usage above is defined as follows:

Assembly and Leisure – "Less Vulnerable"

As identified previously the flood zone classification for both development sites is Flood Zone 2.

Through the PPG Table 3 "Flood risk vulnerability and flood zone 'compatibility' these types of usage classification in this level of flood zone is considered appropriate. A copy of Table 3 has been provided below, which confirms compatibility.

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood Zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate

× Development should not be permitted

The fact that the site is considered appropriate means that the sequential test has been passed and as such there is no requirement to apply the second stage of the assessment, the exception test.

At the time of writing this FRA&DS a preliminary site level strategy has been determined but only in consideration of the setting of preliminary building levels and how they will respond to the following;

- Tie into the existing adopted highway (Water Street) which in general forms the Western boundaries of the development site and will act as a major pedestrian access onto the site
- Address the 1.2m change in the level that occurs across the development site
- Attaining the required minimum flood level for the development sit, without compromising the ability to provide disabled access.

As touched on previously in section 3.0 Topographic Description, Water Street defines the western boundary of the development. This adopted highways will remain at their current levels and the proposed development will tie into the back of pavement levels.

The setting of development ground floor levels will therefore have to account for the points of tie-in with the adopted footways and the requirements to provide DDA compliant access. This will limit the ability to raise the building ground floor level to a point which sits above the available flood level information as supplied by the Environment Agency. This strategy in setting the building levels has been discussed and agreed with the Lead Flood Authority – Manchester City Council.

The preliminary ground floor level for proposed development is 26.720m AOD. This the height ground floor level that can be achieved while maintaining the ability to connect the frontage of the building into the levels along Water Street via a DDA compliant access route.

A section showing the general ground floor arrangement with the flood level imposed on it is provided within Appendix B.

5.0 PROPOSED SURFACE WATER STRATEGY

This FRA&DS will be submitted as one of two. This FRA covers the Factory development:

The second FRA will cover the following areas;

- St John's Place
- Trinity Islands
- Southern Village
- Central Village
- The Riverside
- Energy Centre
- Bonded Warehouse
- The Manchester Grande

Although separate in terms of planning application the drainage strategy will cover the entire site.

When reviewing the strategy for the disposal of surface water, due cognisance needs to be taken of the hierarchy for discharge as defined in the PPG paragraph 80.

Preferred Discharge Location – To Ground

As defined previously the ground conditions prohibit the use of infiltration as a method of disposal for any surface water run-off generated by the development.

As noted in the previous section 3.0 the potentially high water table can limit the performance of infiltration methods of surface water disposal. When teamed with the potential for ground contamination and the associated leachate issues and the limit on available area which is not underlain by basements the use of soakaways has been precluded.

Second Discharge Option – To Watercourse

The nearest watercourse is the River Irwell, which runs along the western development boundary of both developments.

Last Option – To Sewer (1st Option to Surface Water Network, if Available. 2nd Option to Combined Sewer)

Running around both developments and in the case of the St John's development running through the development are a number of United Utilities adopted sewers. These sewers are combined and are various sizes, ranging from 225mm to in excess of 1.0m.

Based on the hierarchy above there are two surface water drainage strategies which are currently under investigation to determine if they are achievable.

The preferred option would be to discharge all the surface water from both the development sites in to the River Irwell. This would require the installation of a dedicated private surface water network which would pick up the generated flows and discharge them through the creation of a number of new outfalls into the River Irwell. Through initial discussions with the navigation authority (Manchester Ship Canal Company – MSCC) it is likely that there would be no requirement to limit the peak flows but there would be a requirement to limit the discharged velocity. In order to prevent the outfall interfering with craft using the River Irwell the flow velocity cannot exceed 3m/s.

The possibility of using an un-restricted outfall in to the River Irwell has also been discussed with the Lead Flood Authority, Manchester City Council. They have advised that they would have no objection to the proposed. This agreement however did carry the following caveats;

1. Formal Agreement – Peel / Manchester Ship Canal
2. Confirmation that the proposed outfall will not have a detrimental effect on the existing spur of the Manchester and Salford junction canal which still connects to the River Irwell

In order to assess the viability of providing a surface water outfall into the River Irwell, a preliminary design for the outfall has been completed. This design could serve both the Factory and the wider St. John's development. The Factory would connect back into the network at pipe 1.003.

The final detail of the outfall would be provided at the detailed design phase of the St. John's masterplan. This assessment would also include a hydraulic review of the canal spur into which it is intended to create the surface water outfall. This hydraulic review would determine the potential impact of the outfall and ensure through its design that the flood risk within the vicinity of the spur, and downstream of the connection, is not increased.

In accordance with the requirements of DEFRA's - SuD's Non-statutory technical standards for SuD's, section S1 the stretch of the River Irwell which passes to the west of the development site is hydraulically modelled and the associated out of channel flood risk is defined by the Manchester Ship Canal Company (MSC). The ability to provide a free discharge is subject to a final agreement that the River Irwell (Body of Water) can accept un-restricted flows from the proposed development without an increase in flood risk.

Based on the above, the resultant surface water from the factory development and the wider St John's development plots will drain as follows:

Development Plot	Surface Water Discharge Regime
Factory	This will connect in its entirety into the proposed southern outfall which runs within Grape Street.
Wider Development Sub Plot Definitions	**Surface Water Discharge Regime**
St Johns Place – East of Water Street	Via a New northern outfall which crosses Water Street and runs through the basement of the St John's Place (west of Water Street) development footprint.
St Johns Place – West of Water Street	Connects into the northern outfall as it passes through the basement.
Central Village	All surface water flows will run south and connect into the southern outfall which runs within Grape Street, crosses Water Street and discharges in the existing spur of the Manchester and Salford Junction Canal just upstream of its confluence with the River Irwell.
Granada House	This is an existing building which is to remain, albeit that the western side of its footprint is to be demolished and re-constructed. As such the remaining eastern section will continue to drain as per the current case which is assumed to be into Atherton Street. The eastern areas as part of the re-construction will have a new outfall which will head south and connect into the proposed southern outfall running within Grape Street.
Southern Village	This will connect in its entirety into the proposed southern outfall which runs within Grape Street.
Bonded Warehouse	This existing building is to remain and will undergo some changes internally. It is hoped that the existing surface water outfalls can be intercepted and connected into the proposed southern outfall within Grape Street. If this turns out not to be the case, then the sites discharge will remain as per the current scenario.
Riverside	This site has a direct adjacency to the River Irwell along its western boundary. This site will have a separate dedicated outfall into the River Irwell. It will be constrained in terms of discharge velocity as per the main outfalls.
Trinity Islands – Site C	This site has a direct adjacency to the River Irwell along its western boundary. This site will have a separate dedicated outfall into the River Irwell. It will be constrained in terms of discharge velocity as per the main outfalls.

Trinity Islands – Site D	This site has a direct adjacency to the River Irwell along its western boundary. This site will have a separate dedicated outfall into the River Irwell. It will be constrained in terms of discharge velocity as per the main outfalls.

Agreement in principle to the above drainage strategy proposal has been provided by:

i) Manchester City Council
ii) Peel / Manchester Shipping Canal
iii) United Utilities

Copies of all relevant correspondence has been provided in Appendix K.

If the above constraints cannot be overcome then the alternative option would be to create a hybrid solution utilising outfalls into the River Irwell where the sites have direct links, in general this applies to sites which are river side of Water Street, and outfalls into the adopted sewer network for the remaining sites.

Should this strategy be implemented the following will have to be accounted for directly by the Factory development:

1) The development is located within a critical drainage area (CDA) referenced as Conurbation Core within the SFRA

2) In order to comply with the requirements of the CDA there is a requirement to reduce the proposed peak discharge rates to 50% of the existing / current discharge rate. The reduction in flow means there is a requirement to provide both vortex flow controls to manage the peak discharge rates and attenuation to provide the necessary storage to prevent flooding. This flooding can occur during the higher order storm events which create flows in excess of the reduced discharge rates.

3) The connection of this limited flow would be directly to the existing brick sewer which runs within the former Grape Street.

Drainage Strategy schematics for the outfall design assuming a discharge into the River Irwell are included with Appendix F.

Also provided in Appendix F is a spreadsheet detailing the flow calculation prepared for the St johns Development. As noted above the Factory development would sit alone from the remainder of St Johns assuming that this strategy was implemented. As such the Factory has been assessed separately and the results contained on page 2 of the spreadsheet.

The use of SUD's within this development has not be precluded, however the options to use infiltration as a method of surface water disposal currently appears limited if at all possible. Please refer to section 7.1 for SUD's options.

6.0 SOURCES OF FLOOD RISK

6.1 Fluvial Flood Risk

Information relating to flood risk at the site has been obtained from the Environment Agency online flood maps and from within the Manchester SFRA which confirms that the site is located within flood zone 2. In general, the area designated as flood zone 2 is located adjacent to the River Irwell or in the low spot as determined by the topographic survey on the opposite of Water Street within which the proposed Factory development is located.

The development proposal (less vulnerable uses) is compatible with the flood zone within which it is located.

The Environment Agency detailed hydraulic model for the River Irwell predicts a 1 in 100yr plus climate change water level of 26.6m AOD.

In accordance with the requirement of BE EN 8533:2011 "Assessing and Managing The Flood Risk in Development – Code of Practice" we can where applicable apply a freeboard to this level to account for modelling anomalies of 300mm rather than the 600mm as proposed by the Environment Agency because of the confidence in the modelling predictions. As such the preferred ground floor levels for any new buildings is 26.9m AOD. Where uses are located below the identified flooding level, flood resilient measures with regard to construction and material choices will be implemented. These include:

- Locating the critical infrastructure above the flood levels
- Running local infrastructure within the ceiling and then cabling and piping down from the ceiling to raised connection points
- Material choices that can be washed down or easily replaced
- Horizontal installation of boarding

The risk of flooding from rivers or seas is therefore considered **medium**, but is mitigated to low through the appropriateness of the uses typical to the flood zone classification and the intention to implement flood resilient construction techniques to areas of the building which are situation below a level of 26.9m AOD

As you will note from section 2.2 of this report the method in the application of climate change to subsequent river levels has changed and is now based on a number of factors. In contacting the EA we were advised that the required river flood level information was not available. This was due to the fact that the various model runs hadn't been completed which included with the calculated percentage increases to account for climate change. This has been advised back to Manchester City Council's Flood team, who have advised that reverting back to available/provided flood level information is suitable in the case of this development.

6.2 Pluvial Flood Risk

Pluvial flooding is defined as flooding resulting from rainfall-generated overland flows before they enter any watercourse or sewer. Surface water flooding is identified within the Manchester SFRA within the location of these proposed developments; however the areas affected are smaller and generally abut Water Street. Any issues with this type of flooding will be addressed as part of the detailed levels strategy for the development as noted in the following paragraph.

When reviewing the topography of the site in general it falls from the south east diagonally across the development to west / northwest. Although the level strategy for the development site has yet to be confirmed it will be developed such that all landscaped areas are profiled such that they convey water away from the building and basement car park entrance and into lower lying areas served by the site surface water drainage network. As such the risk from Pluvial flooding is considered **low.**

6.3 Sewer Flood Risk

As noted previously within this FRA&DS there are a number of large diameter adopted United Utility trunk sewers running both around and across the development site. Within the SFRA this area is also defined as being part of the critical drainage area (CDA) referenced as Conurbation Core. This would suggest that there are significant issues with regard to the capacity of the adopted sewer network within this area.

A copy of the Critical Drainage Area map is provided as part of the Manchester SFRA which is contained within Appendix G.

It is with this in mind that there are currently two surface water drainage strategies under development, the preferred being to remove all of the surface water generated by this development area out of the sewer network and into the River Irwell. The fall-back position being that over the entire development a 50% reduction in peak flow to the sewer is achieved. Each of these strategies not only benefits this development, but it also aids in reducing the flood risk to the wider catchment area.

In addition to the above, the sewer records indicate two Combined Sewer Overflows (CSO's) which run from the trunk sewers in Water Street and outfall into the River Irwell. The purpose of these overflows is to protect the sewer network from surface flooding. A weir structure within the associated manhole allows the surcharging in the sewers to be dissipated by release excess surface water direct in the river.

On site, the proposed surface water drainage system will be designed such that there is no flooding up to the 1 in 30 year storm event and that any surface water flooding associated with the 1 in 100 year plus an allowance for climate change will be controlled. The term controlled means that the flooding will be contained within the site boundary and will not inundate buildings. As part of the design for the 1 in 30 year event and 1 in 100 year event we will also include a surcharge to the outfall pipe.

Reviewing the above suggests that the risk of sewer flooding is Medium, however through the development of a beneficial drainage strategy, considered on site drainage design and the protection offered by the CSO's the risk is mitigated too Low.

Based on the above, the risk of flooding from sewers is therefore considered **low.**

6.4 Groundwater Flood Risk

In general terms groundwater flooding can occur from three main sources, raised water table, seepage, percolation and groundwater recovery or rebound.

Within the SFRA issues with Groundwater Flooding for the whole catchment area is identified. This area is not considered to be at risk of flooding from Ground Water.

A copy of the groundwater flooding map is provided within the Manchester SFRA which is provided within Appendix H.

The risk of flooding due to groundwater is considered **low**.

6.5 Flooding from Other Sources

Non-natural or artificial sources of flooding can include reservoirs, lakes and canals based on a breach scenario.

The risk of flooding from artificial sources (canal breach and reservoirs) has been reviewed considering the online information available from the Environment Agency, the results are as follows:

- The site does sit within an area which is affected by a breach occurring to one of the reservoirs located upstream of the development site. This is confirmed by the mapping available online from the Environment Agency website
- The site is not at risk of flooding due to a breach occurring to one of the adjacent canals

The extent of the resultant flooding is commensurate with the extent of the flood zone 2 boundaries. As such the issues associated with this type of flooding are already mitigated through the strategy which has been developed to account for the flood zone designation.

A copy of the online Environment Agency flooding map resulting from a reservoir breach and the SFRA map detailing the predicted area which would be affected through a breach on the canal networks are contained in Appendix I.

The risk of flooding from other sources is considered **low**.

6.6 Historical and Anecdotal Flooding

Historic flooding information is detailed within table 2.5 in section 2.8 of the SFRA. The detailed information notes a number of flooding events, none of which however affect the proposed development sites.

6.7 Flood Risk and Vulnerability

Source	Likelihood and Compatibility
Fluvial	Risk: medium Development Types: Less Vulnerable Flood Zone 2 **Development Appropriate**
Coastal Sea and Estuarine	Not Applicable
Pluvial / Surface Water	Risk: Low
Sewers	Risk: Low
Groundwater	Risk: Low
Other Sources	Risk: Low
Historic Flooding	No Events Reported or Logged

7.0 RESIDUAL RISK AND IMPACT

7.1 Flood Risk Management Measures

As defined in Section 5.0 the control/restriction and attenuation of surface water flows from the development site will be dependent upon the chosen surface water drainage strategy. In general, the available area within the development which can be set aside to accommodate SUD's is limited, which is typical for an inner-city development of this type. The following types of SUD's are therefore precluded from use within this development:

- Ponds
- Swales
- Filter Strips

The use of the following SUD's however will be considered and again are dependent upon the drainage strategy which is implemented:

- Pervious Pavements with 30% void sub-base and permeable paving – Could be implemented with either drainage options to slow down the mitigation of surface water. A further advantage would be the attenuation volume that is provided within the foundation of the pavement, if the option to discharge to the sewer network is adopted.
- Oversized pipes – More likely to be used when discharging to the sewer network as the oversizing of the pipes provides attenuation. These may however be needed to form the outfall into the River Irwell if this option is adopted in order to reduce the velocity of the surface water.
- Proprietary below ground attenuation tanks – This would only be used when discharging to the sewer network as the crates provide a cost effective attenuation solution.

The permeable paved surface will require regular maintenance and cleaning to ensure its effectiveness.

The profile of the hard standing which surrounds the proposed building will be designed to convey water away from the buildings.

When reviewing the flood velocity and depth maps provided within the Manchester SFRA, the only area which is shown as being affected is adjacent to Water Street. The flood depth in this area is less than 0.6m. Access from the proposed development up onto the Viaduct and at the higher level into the St John's development site will therefore provide the necessary safe/dry access and egress to the development. The higher level access provided from the St John's site will also allow the movement of vehicles during storm events.

A copy of the SFRA flood depth map is contained within Appendix J.

7.2 Off Site Impacts

The regime for the discharge of surface water from the development is currently under development. As detailed in section 5.0, two strategies are being investigated, the preferred option being to discharge to the River Irwell, the second “Fall-Back” solution being to discharge into surrounding adopted sewer network albeit at a restricted rate. As the development site is currently fully developed and positively drained any reduction in flows will positively impact on the wider area. In this case, the fact that the area is defined as a critical drainage area and we are providing a 50% reduction in flows will have a significant beneficial impact removing in excess of 600l/s of surface water from the network during the higher order storm events. The ability to accept the foul and surface water flows from the development has been reviewed with United Utilities and confirmation received that the sewer network within the location of the development has the available capacity.

A copy of the correspondence with United Utilities is provided in Appendix K.

7.3 Residual Risk

The development and its drainage system will be designed to cope with intense storm events up to and including the 1 in 100 year return period rainfall event, which includes an allowance for climate change. If an extreme rainfall event occurs which exceeds this event, then it is likely that there will be an increase in overland flows due to the additional rainwater being unable to enter the drainage network. It is therefore important that these potential overland flows are catered for within the design of the external areas.

Any overland flows generated by the proposed development must be directed away from any properties and towards the highway network and soft landscaped areas, where it can be stored until the peak of the storm has passed and capacity becomes available within the onsite drainage network.

As with any drainage system, blockages within the network have the potential to cause flooding and disruption. It is important that any drainage system not offered for adoption has appropriate trash screens and a maintenance regime included within the operation and maintenance (O & M) manuals for the development.

8.0 SUMMARY

Information has been sourced from the Environment Agency online information, United Utilities Asset Management and the Manchester SFRA.

This FRA&DS has been written in accordance with the following:

- National Planning Policy Framework (NPPF)
- Planning Practise Guidance (PPG)
- Manchester City, Salford City and Trafford Councils, Level 2 Hybrid Strategic Flood Risk Assessment (SFRA)
- CIRIA Guidance
- The SUD's Manual

The underlying geology for the development site and its proximity to the River Irwell is likely to prevent the use of SUD's infiltration techniques.

The total site area is 1.80ha, the usages of the proposed development is classed as less vulnerable and the site is located in both flood zone 2. The development classification is compatible with the flood zone.

There are two drainage strategies currently under development for the proposed development:

Option 001 – Discharge to River Irwell (Preferred Option)

Discharge into the River Irwell via a separate private surface water network – The peak discharge will not be limited and there will be limited requirements for attenuation. The outflow will be limited to 3.0m/s. – Removal of the vast majority of the existing drainage catchment area from the existing adopted sewer network.

The Factory development will connect into the wider St John's development private surface water network

Option 002 – Discharge to Adopted Sewer Network

This is currently how the existing sites operate, however the area is defined as a Critical Drainage Area (CDA) and therefore any regeneration of the area needs to include for a 50% reduction in peak flows when discharging to sewers only. To achieve this reduction various discharges options are required which includes the riverside developments connecting directly to the River Irwell. Flow control through the introduction of vortex flow controls and attenuation will be required.

Flood risk:

- Fluvial – Medium, mitigated to low
- Pluvial/Surface Water – low
- Sewers – low
- Groundwater – low
- Other (Reservoirs & Canals) – low

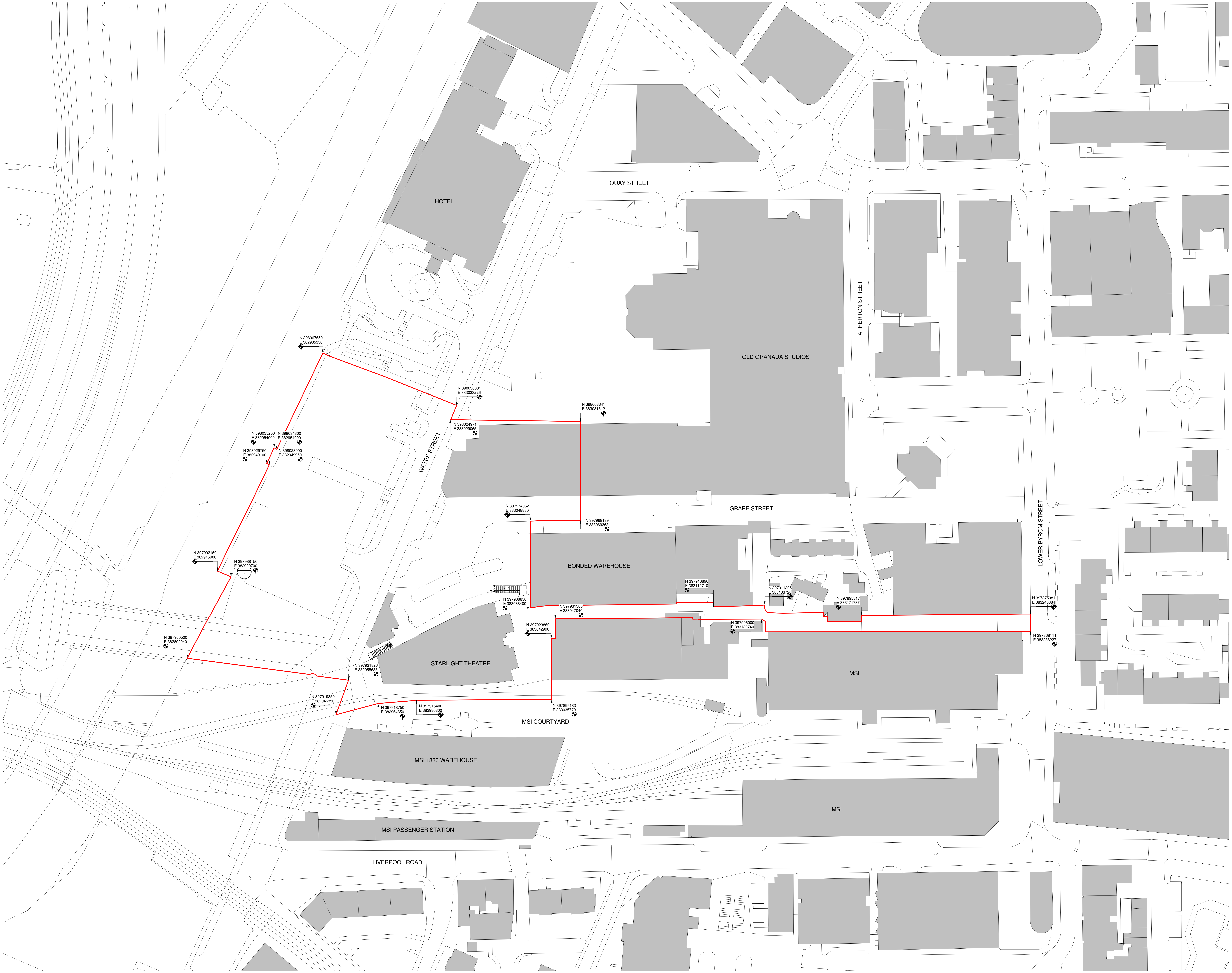
Table 2.5 contained within section 2.8 of the Manchester SFRA contains a review of the known historic flood events, none of which has affected this development site.

If it is the case that the drainage strategy chosen includes connecting back to the existing adopted sewer network then attenuation can be provided. This can take various forms which includes SUD's suitable to this type of inner city regeneration. The attenuation details can also be interconnected to provide pollution control.

The levels strategy for the development site will mitigate the flood risk associated with higher order storms in excess of the 1 in 100 years plus climate change events. These mitigation measures will direct the increased surface water run-off away from buildings and towards soft landscaped areas. The soft landscaped areas will provide additional storage until capacity becomes available in the onsite drainage network allowing the additional surface water to be conveyed away from the development.

Private sewer networks and SUD's systems should be subject to a regular maintenance strategy, to prevent reductions in performance and blockages due to debris.

APPENDIX A – GENERAL LOCATION PLANS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OLD GRANADA STUDIOS
ATHERTON STREET
WATER STREET
GRAPE STREET
LOWER BYROM STREET
BONDED WAREHOUSE
STARLIGHT THEATRE
MSI
MSI COURTYARD
MSI 1830 WAREHOUSE
MSI PASSENGER STATION
LIVERPOOL ROAD
N 398067650 E 382985350
N 398030031 E 383033226
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N 397919350 E 382946350
N 397918750 E 382964850
N 397915400 E 382980800
N 397899183 E 383035779

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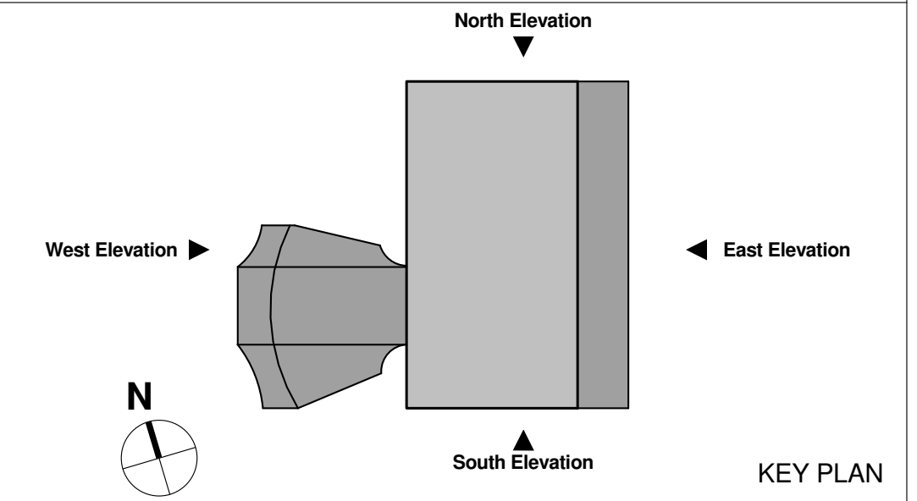
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West Elevation
East Elevation
South Elevation
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KEY PLAN

DRAWN BY	Author	CHECKED BY	Checker	APPROVED BY	Approver

EXISTING SITE PLAN
SITE BOUNDARY

DRAWING NAME

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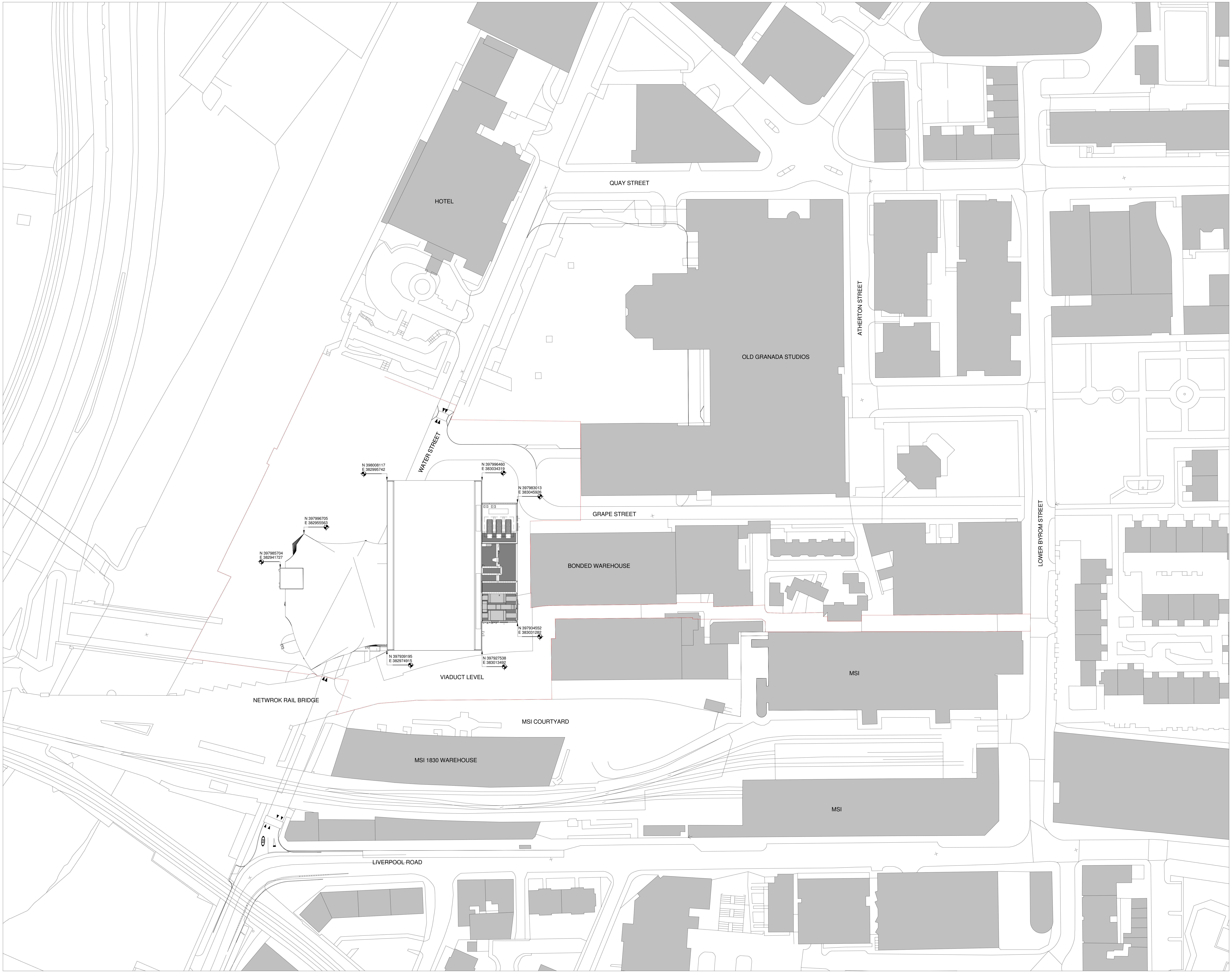
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N 397927538
E 383013492
VIADUCT LEVEL
MSI
NETWROK RAIL BRIDGE
MSI COURTYARD
MSI 1830 WAREHOUSE
MSI
LIVERPOOL ROAD

FACTORY MANCHESTER

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BURO HAPPOLD 230 Lower Bristol Road BA2 3DQ Bath, United Kingdom T: +44 (0) 122 532 0600	MECHANICAL AND ELECTRICAL ENGINEER
BURO HAPPOLD 230 Lower Bristol Road BA2 3DQ Bath, United Kingdom T: +44 (0) 122 532 0600	FACADE ENGINEER
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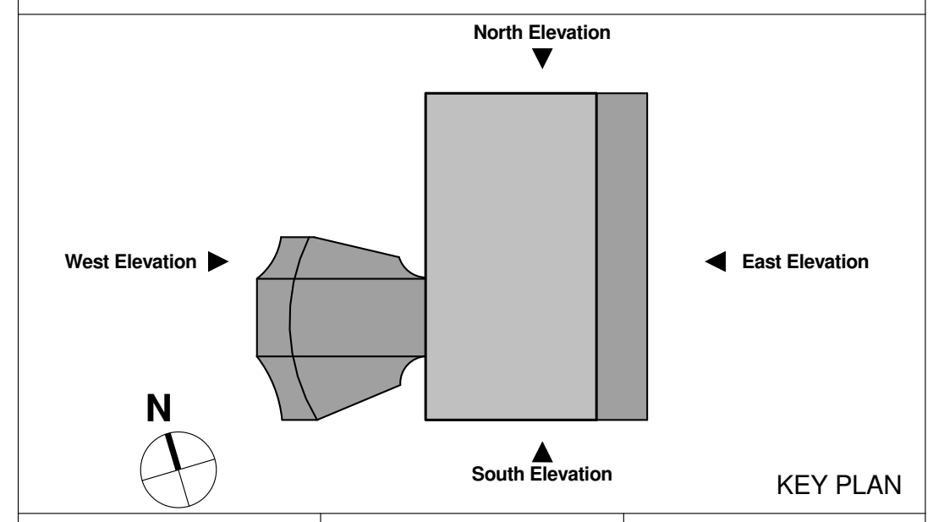
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West Elevation
East Elevation
South Elevation
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KEY PLAN

DRAWN BY	Author	CHECKED BY	Checker	APPROVED BY	Approver

EXISTING SITE PLAN
PROPOSED ROOF PLAN

DRAWING NAME

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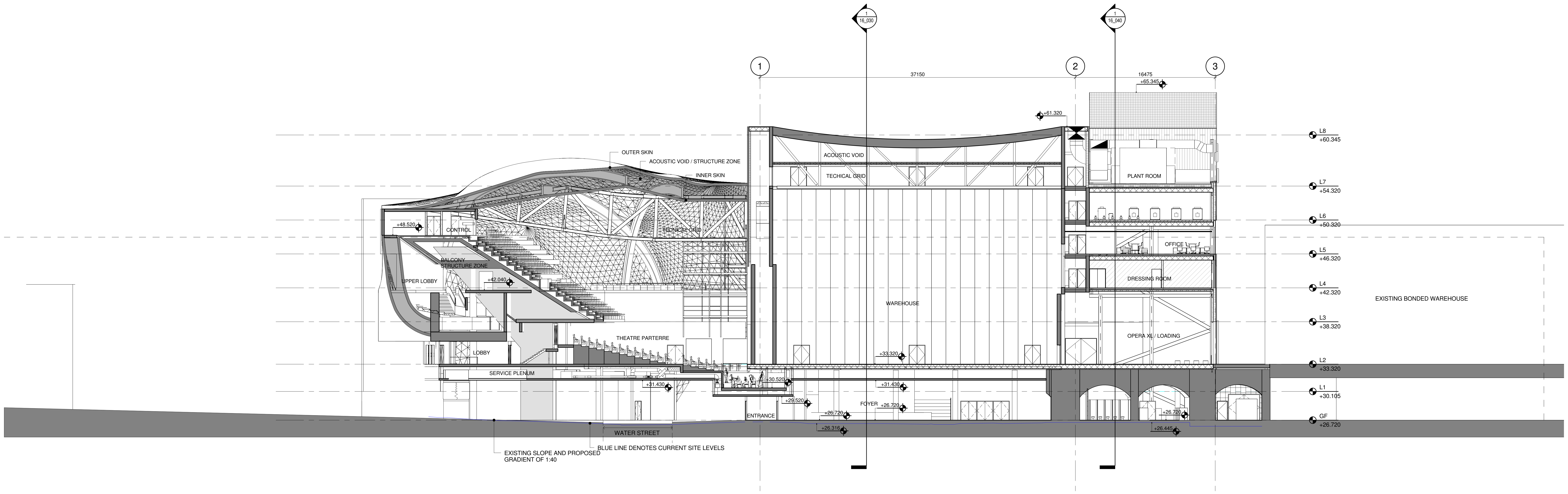
APPENDIX B – FACTORY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16_040
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2
3
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+61.320
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INNER SKIN
ACOUSTIC VOID
TECHICAL GRID
TECNICAL GRID
PLANT ROOM
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CONTROL
BALCONY
STRUCTURE ZONE
UPPER LOBBY
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OFFICE
DRESSING ROOM
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THEATRE PARTERRE
OPERA XL / LOADING
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WATER STREET
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L2
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L1
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GF
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1 SECTION AA
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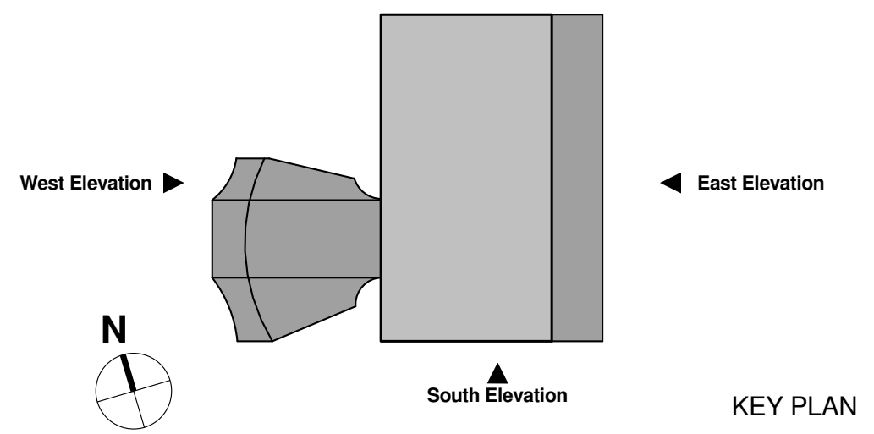
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KEY PLAN

DRAWN BY	Author	CHECKED BY	Checker	APPROVED BY	Approver

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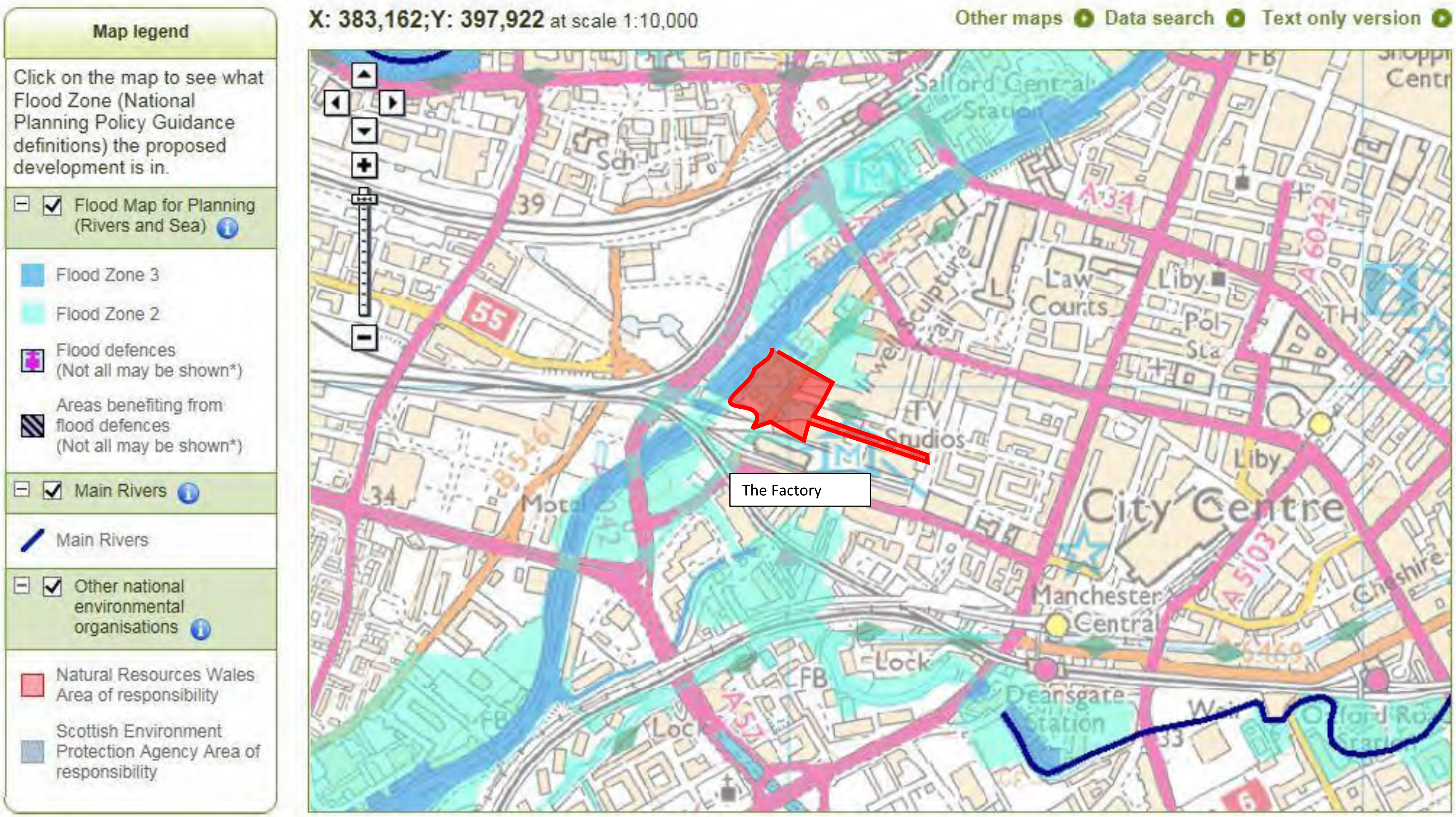
APPENDIX C – EA & SFRA FLOOD MAPS



Map legend

Click on the map to see what Flood Zone (National Planning Policy Guidance definitions) the proposed development is in.

X: 383,162;Y: 397,922 at scale 1:10,000

⊟ ☑ Flood Map for Planning (Rivers and Sea)

- 🟦 Flood Zone 3
- 🟦 Flood Zone 2
- ▨ Flood defences (Not all may be shown*)
- ▨ Areas benefiting from flood defences (Not all may be shown*)

⊟ ☑ Main Rivers

- / Main Rivers

⊟ ☑ Other national environmental organisations

- 🟥 Natural Resources Wales Area of responsibility
- ▨ Scottish Environment Protection Agency Area of responsibility

Other maps
Data search
Text only version
The Factory
Salford Central Station
Sch
39
55
34
A 34
A 6042
Law Courts
Liby
Pol Sta
TH
TV Studios
Sculpture Trail
City Centre
Liby
Manchester Central
Deansgate Station
Lock
FB
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Cheshire
Oxford Road Station
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RoC CONSULTING

CIVIL ENGINEERING SKETCH

INFORMATION

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Sketch No:	FRA001
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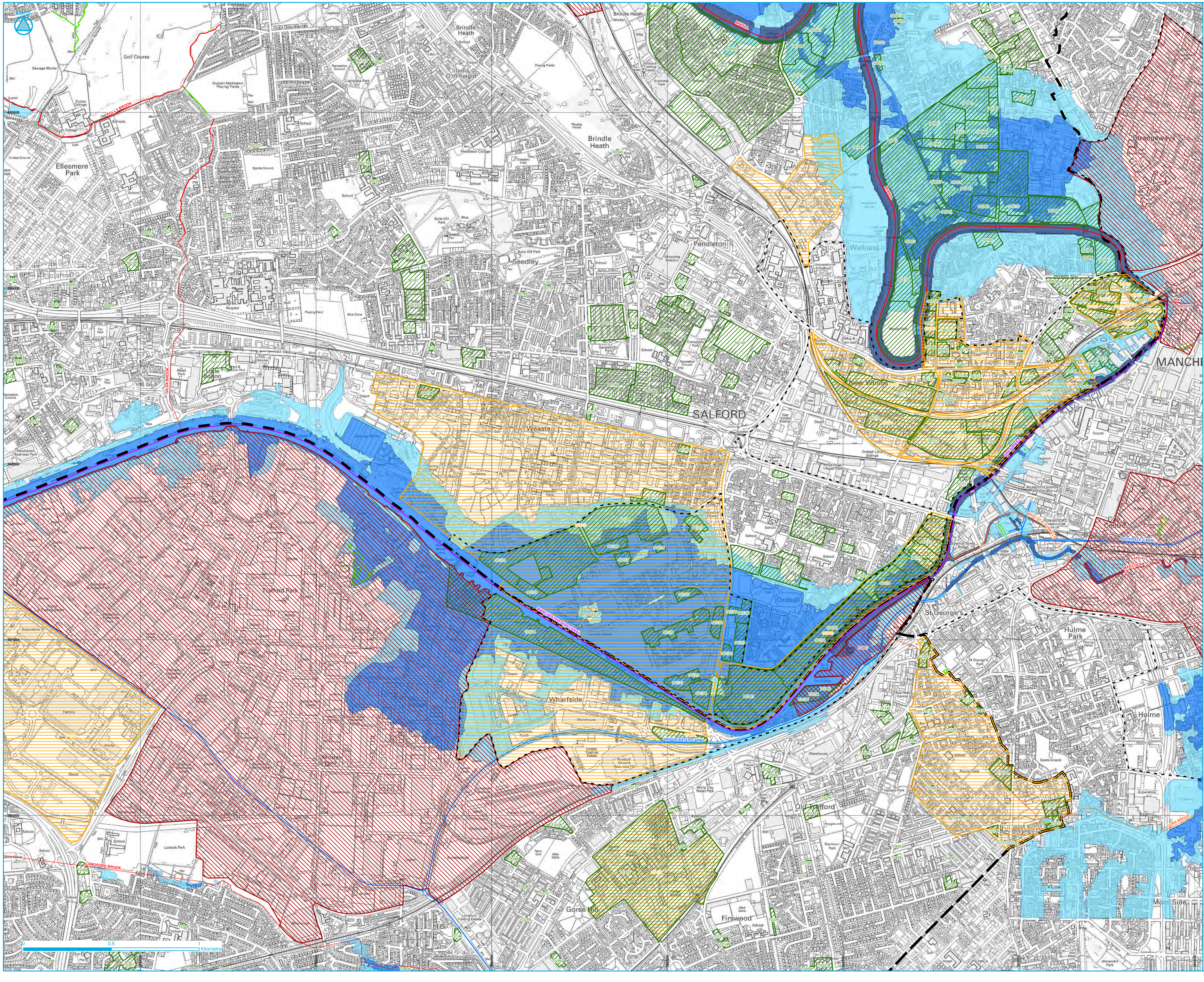
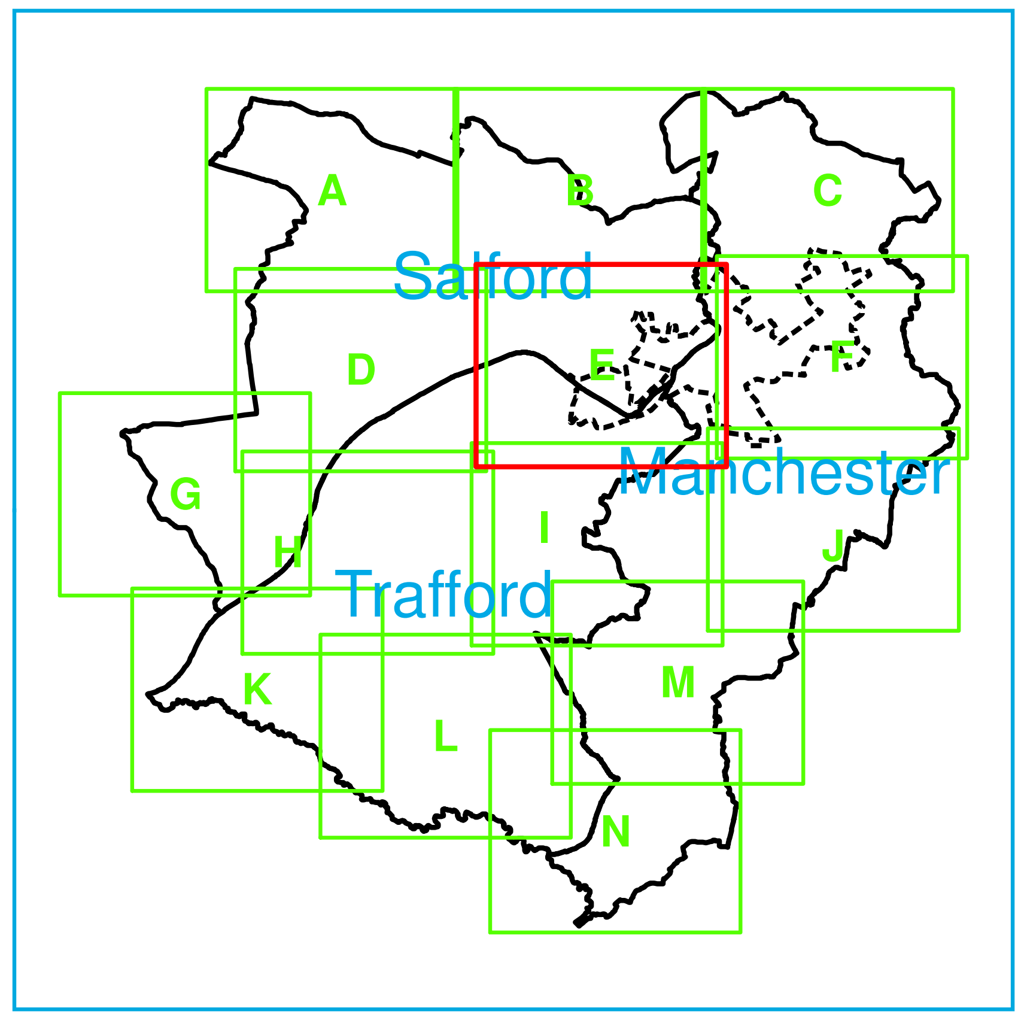
Drawn by:	AR – 24/8/2016





▮ ▬	Council Boundary

Flood Zones

🟦	Flood Zone 3b (Functional Floodplain)
🟦	Flood Zone 3a (V3.15)
🟦	Flood Zone 2 (V3.15)

Potential Development Sites / Locations

▨	Employment
▨	Housing
▤	Mixed Use
▥	Other
⬚	Regional Centre Boundary

—	Ashton, Bridgewater and Rochdale Canals
—	Manchester Ship Canal / Grey Irwell
—	Other Waterbodies

Main Rivers (V8.0)

┈	Culverted
—	Open

Digitised River Lines

┈	Culverted
—	Open

This map has been produced in accordance with PPS25: Development and Flood Risk and its Practice Guide.

It is a Level 1 SFRA key output which shows Main Rivers, other watercourses and Flood Zones, including the Functional Floodplain (as defined in annex D table D.1 of PPS25), overlaid by previously allocated development sites or sites to be considered in the future.

PPS25 divides the country into three basic Flood Zones; Flood Zones 1, 2 and 3, corresponding to areas of low, medium and high flood risk, respectively. The Flood Zones provided are based upon the Environment Agency's Flood Map (version 3.15 issued in September 2009). They refer to the probability of flooding from rivers and ignore the presence of defences because these can be breached, overtopped or fail to operate during the lifetime of the development. They do not consider other forms of flooding and do not take account of climate change.

The Flood Zone maps also contain the undefended modelled outlines for the Manchester Ship Canal and outlines for the Grey Irwell. It is understood that the Grey Irwell outlines were integrated into the national Flood Map in March 2010 and the undefended model outlines for parts of the Sinderland and Timperley Brooks will become integrated into the national Flood Map in June 2010.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The River Irwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

This map should be used to facilitate the undertaking of the Sequential Test by planners and developers. The SFRA has produced a further suite of flood maps following its assessment of other sources of flooding and the implications of climate change and these should be used in conjunction with this map.

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for

Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA

PPS25 Flood Zones

Drawn by: J Cheetham	Date: 16/11/2010		
Checked by: J Dimelow	Date: 22/11/2010		
Approved by: H O'Callaghan	Date: 22/11/2010		

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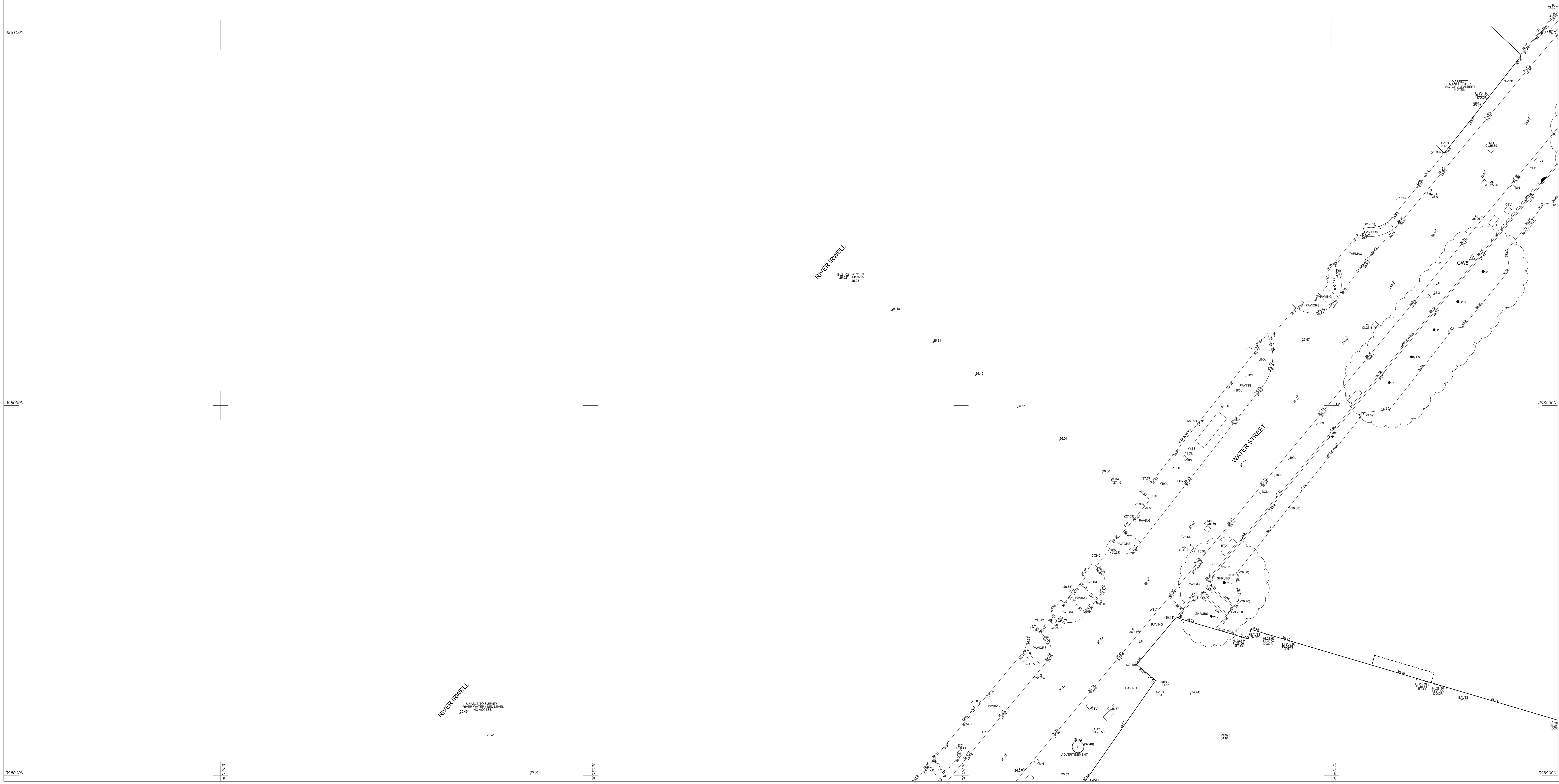
Original @ A1

APPENDIX D – TOPOGRAPHIC SURVEY

STANDARD REFERENCE & ABBREVIATIONS

(AR)	Assumed Route
AB	Air Brick
AV	Air Valve
B/W	Barbed Wire
BAR	Barrier
BB	Belisha Beacon
BH	Borehole
BL	Bed Level
BOL	Bollard
BS	Bus Stop
BT Box	British Telecom Box
BT	British Telecom IC
BRTW	Brick Retaining Wall
BW	Brick Wall
C/B	Close Boarded
C/I	Corrugated Iron
C/P	Chestnut Paling
CB	Control Box
CBW	Concrete Block Wall
CCTV	Closed Circuit TV
CD	Cable Duct
CEL	Cellar Light
CH/L	Chain Link
CHY	Chimney
CL	Cover Level
CM	Cable Marker
COL	Column
CONC	Concrete
CP	Catch Pit
CRTW	Concrete Retaining Wall
CTV	Cable Television
CUL	Culvert
CW	Concrete Block Wall
DC	Drainage Channel
DPC	Damp Proof Course
DR	Drain
DSW	Dry Stone Wall
ECP	Electricity Cable Pit
EIC	Electricity Inspection Cover
EJ	Expansion Joint
EJB	Electricity Junction Box
EL SUB STN	Electricity Sub Station
EL	Eaves Level
ELB	Electricity Box
EP	Electricity Pole
ER	Earth Rod
ETL	Electricity Transmission Line
FB	Flower Bed
FH	Fire Hydrant
FL	Floor Level
FP	Flagpole
G*.*	Girth (of tree)
G	Gulley
GAB	Gabion
GIP	Gas Inlet Pipe
GMKR	Gas Marker
GST	Gas Stop Tap (Domestic)
GSV	Gas Stop Valve (Mains)
HSE	Housing
Ht	Height
HV	High Voltage
I/R	Iron Railing
IC	Inspection Cover
IL	Invert Level
IP	Inlet Pipe
KO	Kerb Outlet
LB	Letter Box
LP	Lamp Post
MG	Multi-Girth
MH	Manhole
MKR	Marker
MP	Mooring Point
NP	Street Name Plate
O/H	Overhead
O/P	Open Paling
OE	Overhead Electric Wire
OP	Outfall Pipe
OSBM	Ordnance Survey Bench Mark
OT	Overhead Telecom Wire
P/C	Post & Chain
P/R	Post & Rail
P/W	Post & Wire
PAV	Paving
PB	Pillar Box
PC	Pedestrian Crossing
PP	Petrol Pump
PT	Post or Pillar
RE	Rodding Eye
RS	Road Sign
RTW	Retaining Wall
RWP	Rain Water Pipe
SAP	Sapling
SL	Sump Level
SoL	Soffit Level
SP	Sign Post
SPL	Springing Level
SRTW	Stone Retaining Wall
SV	Stop Valve (unspecified)
SVP	Soil Vent Pipe
SW	Stone Wall
TAC	Tactile Paving
TB	Traffic Bollard
TBM	Temporary Bench Mark
TCB	Telephone Call Box
TFR	Taken From Records
TIE	Anchor Point (Masts/Poles)
TL	Traffic Light
TLB	Traffic Light Control Box
TM	Ticket Machine
TMC	Tarmac
TP	Telecommunications Pole
TPIT	Trial Pit
TS	Trash Screen
U/C	Under Construction
U/G	Underground
UTL	Unable to Lift (MH,IC etc)
UTS	Unable to Survey
VDP	Vehicle Detector Pad
VP	Vent Pipe
W/M	Wire Mesh
WL	Water Level
WM	Water Meter
WO	Wash Out
WP	Waste Pipe
WST	Water Stop Tap (domestic)
WSV	Water Stop Valve (mains)



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Note:
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Survey Control Markers established for
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used for Construction without the written
approval of Survey Operations Ltd.

Levels in parenthesis indicate top of walls

SURVEY STATIONS

Name	Easting	Northing	Height
CW1	383263.80	397956.37	31.61
CW2	383237.69	397869.12	33.07
CW3	383207.18	397771.97	32.95
CW4	383102.86	397803.53	30.33
CW5	383001.12	397843.51	28.03
CW6	382893.27	397877.75	26.22
CW7	382971.13	397971.46	26.25
CW8	383069.09	398069.93	26.21
CW9	383144.89	398181.38	27.75
CW10	383208.42	398075.02	27.95
SO12	383288.98	398045.86	29.37
SO13	383302.96	398093.10	28.97
CW11	383228.56	398079.33	28.32

	1	
2	3	
4	5	
	6	

SurveY OPERATIONS

Smith Street, Skelmersdale, Lancs. WN8 8LN
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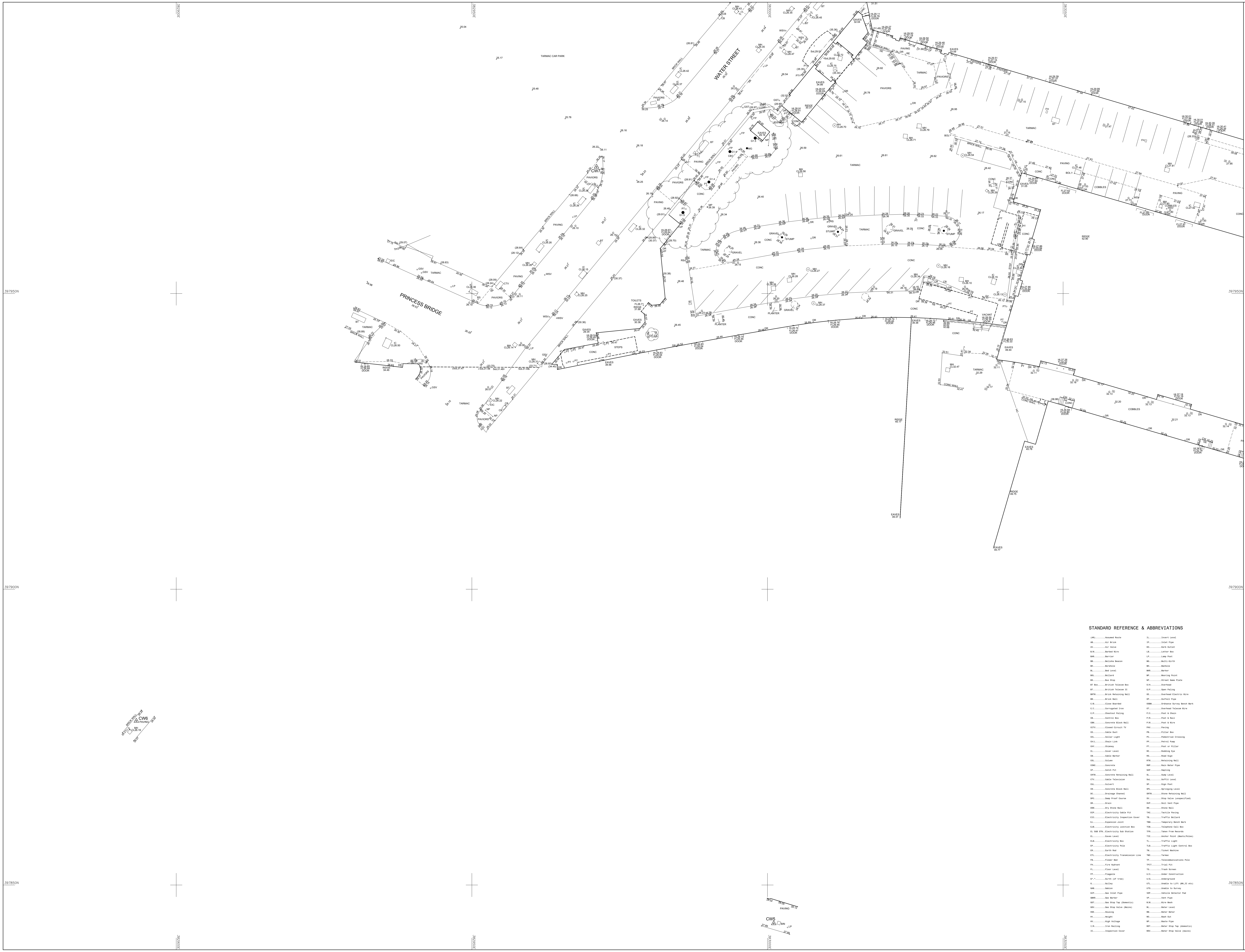
MANAGEMENT
SYSTEMS
008

Client
ROC Consulting

Drawing Title
Topographical Survey of Land at:
St Johns Development,
Manchester.

Scale(s)	1:200	Surveyor	CW
Date	Jan 15	Drawn	AW
Job Number	14J171	Checked	MG

Sheet Size & Drg Number & Revision
A0 14J171/002



STANDARD REFERENCE & ABBREVIATIONS

(AR)........Assumed Route
AB.........Air Brick
AV.........Air Valve
B/W........Barbed Wire
BAR........Barrier
BB.........Belisha Beacon
BH.........Borehole
BL.........Bed Level
BOL........Bollard
BS.........Bus Stop
BT Box......British Telecom Box
BT.........British Telecom IC
BRTW.......Brick Retaining Wall
BW.........Brick Wall
C/B........Close Boarded
C/I........Corrugated Iron
C/P........Chestnut Paling
CB.........Control Box
CBW........Concrete Block Wall
CCTV.......Closed Circuit TV
CD.........Cable Duct
CEL........Cellar Light
CH/L.......Chain Link
CHY........Chimney
CL.........Cover Level
CM.........Cable Marker
COL........Column
CONC.......Concrete
CP.........Catch Pit
CRTW.......Concrete Retaining Wall
CTV........Cable Television
CUL........Culvert
CW.........Concrete Block Wall
DC.........Drainage Channel
DPC........Damp Proof Course
DR.........Drain
DSW........Dry Stone Wall
ECP........Electricity Cable Pit
EIC........Electricity Inspection Cover
EJ.........Expansion Joint
EJB........Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.........Eaves Level
ELB........Electricity Box
EP.........Electricity Pole
ER.........Earth Rod
ETL........Electricity Transmission Line
FB.........Flower Bed
FH.........Fire Hydrant
FL.........Floor Level
FP.........Flagpole
G*.*.......Girth (of tree)
G..........Gulley
GAB........Gabion
GIP........Gas Inlet Pipe
GMKR.......Gas Marker
GST........Gas Stop Tap (Domestic)
GSV........Gas Stop Valve (Mains)
HSE........Housing
Ht.........Height
HV.........High Voltage
I/R........Iron Railing
IC.........Inspection Cover

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WL.........Water Level
WM.........Water Meter
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WP.........Waste Pipe
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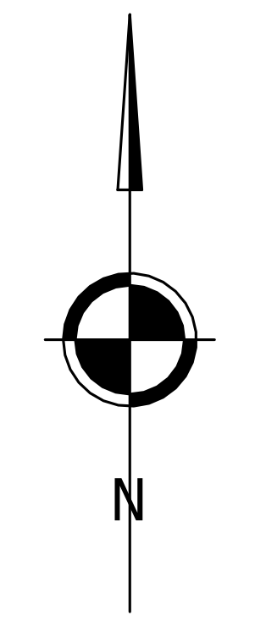

Note:
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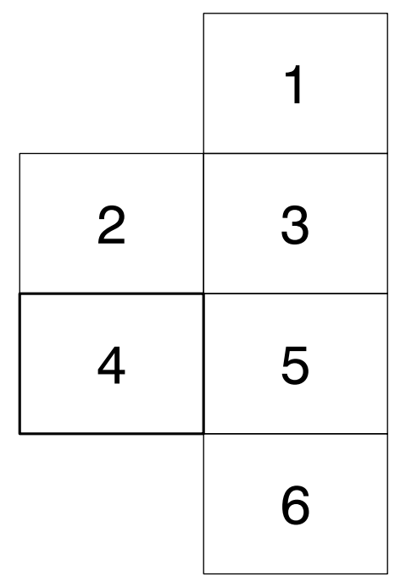
CW11	383228.56	398079.33	28.32



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UKAS MANAGEMENT SYSTEMS
008

Client
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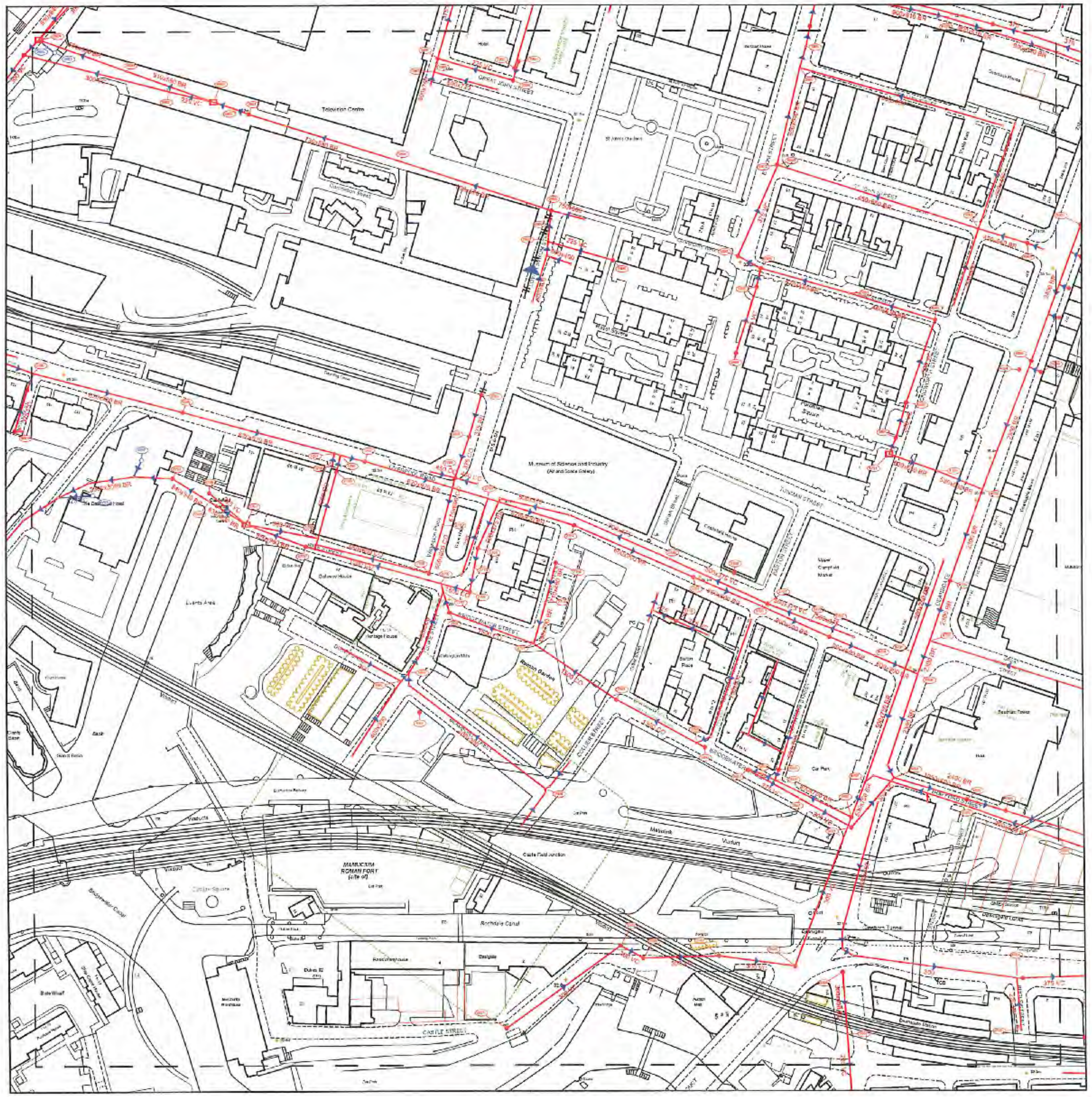
Sheet Size & Drg Number & Revision
A0 14J171/004

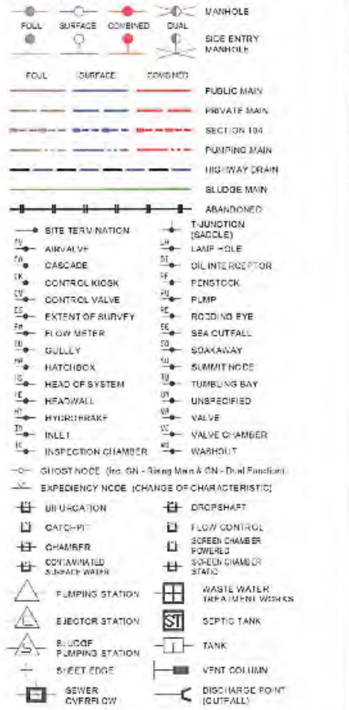
APPENDIX E – SEWER RECORDS



Refno	Cover	Func	Type	Invert	Size.x	Size.y	Shape	Matl	Grad	Length
9701	25.6	S	M	24.47	225		C	VC		17.03
9702	25.59	S	M	24.74	225		C	VC		8.94
9703	25.81	O	M	22.78	2300	3080	U	BR		19.03
9704	26.25	C	M	23.77	225		C	VC	81	23.64
9705		O	G		2300	3080	U	BR		20.25
9706		O	G		2300	3080	U	BR		22.2
9707		O	G		2300	3080	U	BR		16.65
9708		O	Q		840	540	U	BR		21.1
9865	29.54	C	M	22.25	620	920	E	BR		76.66
9890		C	J		620	920	E	BR		75.43
9901	26.69	S	M	23.4	400		C	VC	26	5
9902		C	L	23.63	300		C	VC	488	73.25
9903		C	V	24.76	610	580	F	BR	52	45.24
9903		C	V	25.45	225		C	VC	12	22.25
9904		C	V	23.47	300		C	VC	-1022	10.22
9904		C	V		530	640	E	BR		26.07
9965		S	Q	23.21	500	700	U	BR	27	5.11
9966		C	Q	23.39	560	630	U	BR	52	45.54
9967		C	Q	24.9	640	570	F	BR	98	9.70
1601	33.23	C	M							
1602		C	G		400	300	U			43.27
1603		C	J		400	300	U			5.68
1604		C	G		400	300	U			5
1605		C	J		400	300	U			13.04
1700		C	J		1500		C	CO		3.16
1701		C	V	23.41	300		C	VC		35.66
1701		C	V		630	930	F	BR		21.18
1702		C	G		450		C	CO		12.37
1703	31.59	C	M	22.21	620	920	E	BR		52.64
1704		C	G		300		U			33.12
1705		C	G		400	300	U			29.73
1706		C	L	27.23	300	375	E	BR		6.08
1707		C	J		620	920	E	BR		3.16
1708	32.67	C	M	26.15	650	600	U	CO		56.75
1709	31.39	C	M	22.87	1500		C	CO		5.26
1799		C	J		620	920	E	BR		12.37
1791	29.37	C	M	24.12	550	950	F	BR	100	30.95
1792		C	J		1500		C	CO		33.74
1801	28.95	C	M	25	750	490	F	BR	85	8.54
1802		C	G		500	750	U			8.42
1803		C	J		500	720	U			4.14
1804		C	Q	27.09	730	550	F	BR	37	77.49
1805		C	Q		720	510	F	BR		2.56
1806		C	M	25.83	375		C	VC	81	39.1
2501	31.09	C	M	24.85	300		C	VC	399	63.82
2502	29.53	C	M	24.7	300		C	VC	-1253	12.53
2503	27.18	C	M	24.89	300		C	VC	-8	37.01
2601	33.75	C	M	26.77	1500		C	CO		48.78
2602		C	G							39
2603		C	G							15.62
2604		C	J		400	300	U			82.8
2605		C	G							2.24
2606		C	G							2
2701	33.05	C	M	28.12	1520		U	BR	-4	10.2
2702	33.12	C	M	25.87	1500		C	CO		14.55
2703	33.04	C	M	25.9	1500		C	CO		10.44
2704	33.44	C	M	30.30	710	460	F	BR		19.65
2705		C	G		500	375	U			34.93
2706	32.91	C	M	29.87	675	600	C	CO	-18	23.77
2707	33.5	C	M	22.19	600	900	E	BR	1263	53.10
2708		C	G		500	375	U	BR		25.4
2709		C	J		620	920	E	BR		43.97
2710		C	G		225		U			39.22
2711		C	G		450		C	CO		11.4
2712		C	J		1500		C	CO		4.12
2713		C	Q	30.62	1500		C	CO		11.18
2714		C	Q		400	700	U	BR		20.86
2715		C	Q	31.22	550	600	U	CO		24.04
2790		C	J		1500		C	CO		63.89
2791		C	J		1500		C	CO		43.66
2800		C	G		800	400	U			12.28
2801	33.17	C	M	30.87	375		F	BR	64	20.88
2802		C	J							
2803		C	G							
2804		C	G							
2806	33.42	C	M	31.38	225		C	VC		32.7
2807		C	G		600	400	U			23.22
2808		C	M	30.28	375		C	CO	64	21.18
2809		C	J		600	400	U			15.07
2890		C	J		600	400	U			6.77
2901		C	M		225		C	VC		9.54
2902		C	M							66.76
2903	32.21	C	M	29.18	690	520	F	BR	37	77.79
2904		C	G		500	720	U			32.35
2905		C	Q							
2906		C	M		225		C	VC		38.34

Refno	Cover	Func	Type	Invert	Size.x	Size.y	Shape	Matl	Grad	Length
3100		C	Q		150		C	VC		38.81
3501	32.11	C	M	29.33	300		C	VC	4	37.34
3502		C	G		830	550	U			0
3503	32.24	C	M	29.49	300		C	VC		77.25
3504	31.9	C	M	30	300	400	E	VC	15	30.07
3505		C	G		830	550	U			5.83
3506		C	G		300		U			80.75
3507		C	Q	27.83	225		C	VC	15	30.07
3600		C	Q		150		C	VC		3.78
3601	34.38	C	M	26.9	375		C	VC	-9	26.85
3602		C	J		500	750	U	BR		8.71
3603		C	M		560	760	U	BR		5.39
3604		C	G		560	760	U			31.62
3605		C	G		750	500	U			7.62
3606		C	J		1500		C	CO		44.20
3607		C	Q	30.15	300		C	VC		28.65
3608		C	Q		300		C	VC		7.28
3609		C	Q		150		C	VC		10.61
3610		C	J							
3690	34.2	C	M	27.14	1500		C	CO		4.47
3691	33.4	C	M		300		C	VC		31.80
3692	33.74	C	M		600	750	U	BR		41.16
3701	34.12	C	M	22.12	600	900	E	BR	3585	35.66
3702	34.7	C	M	22.03	900	600	E	BR		23.77
3703	34.32	C	M							
3704		C	G		750	500	U			60.46
3705		C	Q	22.11	900	600	E	BR	3625	36.26
3706		C	Q		600	375	U			52.39
3707	34.62	C	M	30.84	600	375	C	VC		52.8
3708		C	Q		600	375	C	VC		22.47
3709		C	Z		225		C	VC		17.33
3710		C	M		225		C			12.82
3711		C	Z		225		C	BR		5.35
3712		C	Q		225		C	BR		5.53
3713		C	Q							
3801		C	Q	30.95	570	430	F	BR	83	44.64
3804	34.07	C	M	33.04	225		C	VC	17	33.53
3805	33.63	C	M	31.01	225		C	VC	33	8.72
3806	33.49	C	M	30.45	550	440	F	BR	-1253	12.53
3807	33.44	C	M	30.27	375		C	VC		46
3901	33.26	C	M	29.58	650	540	F	BR		45.27
3902		C	J		650	540	F	BR		10.44
3903		C	J							
3905		C	G		670	500	E	BR		10.2
4501	33.52	C	M	28.52	375		C	VC	-1260	38.01
4502		C	R	27.31	225		C	VC	37	25.08
4601		C	G		2300		C	BR		6.71
4602		C	G		1050	600	U	BR		5
4603		C	G		830	550	U			64.56
4604		C	O		800	900	E	BR		22.85
4605		C	O		1050	900	U	BR		48.38
4606		C	Z		150		C	VC		3.95
4607		C	J							
4608		C	M		2400		C	BR		27.9
4609		C	M		2400		C	BR		19.89
4690		C	J		2300		C	BR		40.49
4691		C	J		2400		C	BR		36.69
4692		C	J		500	750	U	BR		10.35
4701		C	V	31.33	610	550	U	BR		24.72
4701		C	V	31.95	300		C	VC	-426	8.52
4702		C	J		2300		C	BR		17.09
4703		C	G		500	375	U			22.47
4704	35.36	C	M	21.81	2300		C	BR		39.56
4705		C	G		550	650	U	BR		23.77
4790		C	J		2300		C	BR		46.87
4791		C	J		500	750	U	BR		67.97
4792		C	G		550	750	U	BR		46.82
4800		C	J							
4801	34.39	C	M	31.94	300		C	VC	104	17.72
4802	34.21	C	M	31.75	300		C	VC	202	42.35
4803	34.44	C	M	31.43	460	630	U	BR	92	43.07
4804	35.23	C	M							
4805	35.27	C	M	21.7	2300		C	BR		96.48
4806		C	G		600	450	U			38.8
4807		C	G		450	690	U	BR		8.54
4808	35.15	C	M	31.85	450	690	U	BR		25
4809		C	M				C			8.15
4810		C	J							
4901		C	G		600	450	U			54.08
4902		C	G		600	450	U			102.88
4903		C	J		450	660	U	BR		102.44
4904		C	G		375		C			20.86
4905		C	G		900	610	E	BR		26.25
6400		C	J		1500		C	CO		4.52
6400		C	J		1500		C	CO		2.28
9026		C	Q		750	600	U			16.81

WASTE WATER SYMBOLOGY



MANHOLE
FOUL
SURFACE
COMBINED
DUAL
SIDE ENTRY MANHOLE
FOUL
SURFACE
COMBINED
PUBLIC MAIN
PRIVATE MAIN
SECTION 104
PUMPING MAIN
HIGHWAY DRAIN
SLUDGE MAIN
ABANDONED
SITE TERMINATION
T-JUNCTION (SADDLE)
AIRVALVE
LAMP HOLE
CASCADE
OIL INTERCEPTOR
CONTROL KIOSK
PENSTOCK
CONTROL VALVE
PUMP
EXTENT OF SURVEY
RODDING EYE
FLOW METER
SEA OUTFALL
GULLEY
SOAKAWAY
HATCHBOX
SUMMIT NODE
HEAD OF SYSTEM
TUMBLING BAY
HEADWALL
UNSPECIFIED
HYDROBRAKE
VALVE
INLET
VALVE CHAMBER
INSPECTION CHAMBER
WASHOUT
GHOST NODE (inc. GN - Rising Main & GN - Dual Function)
EXPEDIENCY NODE (CHANGE OF CHARACTERISTIC)
BIFURCATION
DROPSHAFT
CATCHPIT
FLOW CONTROL
CHAMBER
SCREEN CHAMBER POWERED
CONTAMINATED SURFACE WATER
SCREEN CHAMBER STATIC
PUMPING STATION
WASTE WATER TREATMENT WORKS
EJECTOR STATION
SEPTIC TANK
SLUDGE PUMPING STATION
TANK
SHEET EDGE
VENT COLUMN
SEWER OVERFLOW
DISCHARGE POINT (OUTFALL)

Note - ALL flow direction arrows are BLUE - colour not significant

NODE TABLE ABBREVIATIONS

MANHOLE FUNCTION

F Foul
S Surface
C Combined
T Transition
O Overflow
U Unspecified

MANHOLE / NODE TYPE

M Manhole
J Junction
L Lamphole
H Hatchbox
R Rodding Eye
F Outfall
V Combined Sewer Overflow
P Pumping Station
S Soakaway
D Dual Function Manhole
W Treatment Works
Z Ghost in Rising Main
C Cascade
Y Gulley
E Ejector
O Oil Injector
I Inlet
B Hydrobrake
T Vent Column
X Valve
U Unspecified
Q Expediency Node
G Ghost (to allow pipe bends)

SEWER SHAPE

C Circular
E Egg
O Oval
F Flat Top
R Rectangular
S Square
T Trapezoidal
A Arch
B Barrel
H Horseshoe
U Unspecified

SEWER MATERIAL

AC Asbestos Cement
BR Brick
CI Cast Iron
SI Spun (Grey) Iron
CO Concrete
CS Concrete Segments (Bolted)
CS Concrete Segments (Unbolted)
CC Concrete Box Culvert
DI Ductile Iron
GR Glass Reinforced Concrete
GR Glass Reinforced Plastic
PS Plastic / Steel Composite
PV Polyvinyl Chloride
PE Polyethylene
RP Reinforced Plastic Matrix
ST Steel
VC Vitrified Clay (All Clayware)
PP Polypropylene
PF Pitch Fibre
MA Masonry - In Regular Courses
MA Masonry - Randomly Coursed
U Unspecified

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OS Sheet No: SJ8397NW

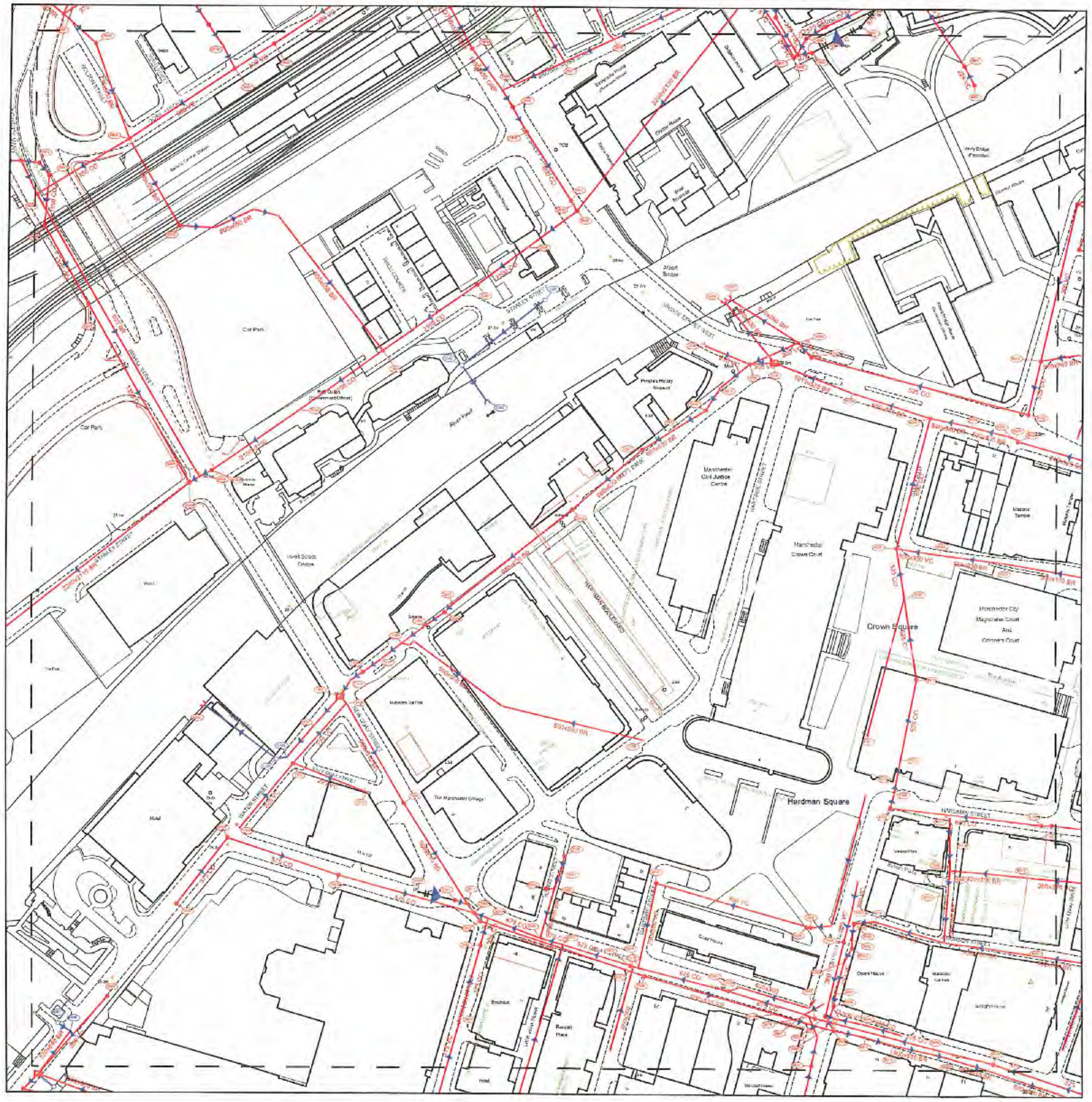
Scale 1:1250 Date: 25-Jul-2013
172 Nodes
Sheet 1 of 1

United Utilities
SEWER RECORDS

OS Sheet No: SJ8397NW

Scale 1:1250 Date: 25-Jul-2013

Printed by: Lea Robertson


Crown Square
Hardman Square
Car Park

OS Sheet No: SJ8398SW

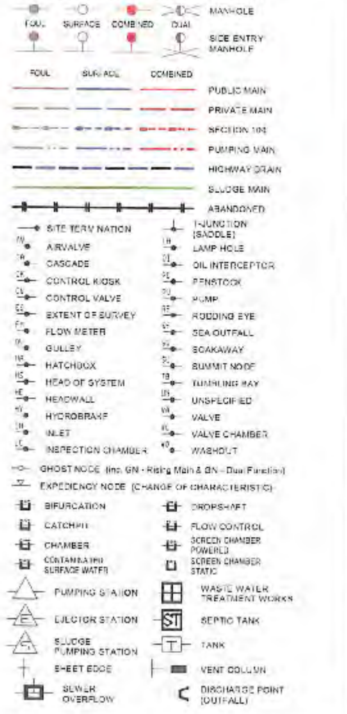
Scale 1:1250 Date: 25-Jul-2013

Printed by: Lea Robertson

Refno	Cover	Func	Type	Invert	Size.x	Size.y	Shape	Matl	Grad	Length
0001	26.17	S	M	23.81	225		C	VC		7.21
0002	26.85	C	M	23.66	300		C	VC	255	50.87
0003	25.85	C	M	23.9	375		C	CO	226	40.81
0004		S	J							
0101	25.65	C	M	23.67	375		C	CO	250	58.02
0102		O	F							
0200		C	J	24.33	600		C	BR		3.81
0201	27.49	C	M		2100					9.71
0202		C	M		2240	2110	E	BR		138.22
0203		C	J		600			BR		5.83
0301		C	M		1350		C	CO		98.48
0400	29.18	C	M	20.53	1350		C	CO		92.48
0401	29.25	C	M	25.1	300		C	VC	180	81.29
0402		C	G		900	650	E	BR		21.02
0403		C	M		900	680	E	BR		17.03
0404		C	M		600		C	BR		154.69
0405		C	G		700	580	E	BR		46.65
0406		C	M		1350		C	CO		43.91
0407		C	M		1350		C	CO		24.08
0408		C	M		1350		C	CO		7.81
0409		C	M		730	500	E	BR		49.04
0410		C	Q	26.42	1000	450	F	BR	-179	12.53
1001	26.7	C	M	23.4	875		C	CO		66.41
1002		C	L							
1101		C	R	23.73	225		C	VC	136	40.46
1102	26.43	C	M	23.41	225		C	VC		38.95
1103		C	L	24.18	225		C	VC	52	38.63
1104	27.31	C	M	23.02	810	660	E	BR		7.21
1105		C	V	22.88	900	610	E	BR		4.42
1105		C	V		1220	670	R	BR		10.06
1106	27.86	C	M	22.82	900	610	F	BR		57.98
1108		S	M		1200	650	U			43.5
1109		S	J		630	1220	F	BR		5.1
1111		C	Q		950	670	R	BR		9.45
1112		C	Q		1260	840	F	BR		12.21
1113		O	Q		1200	850	U	BR		10.86
1190		C	J		900	610	E	BR		55.57
1201		C	Q		820	820	E	BR		13.6
1202		C	G		500	500	S	BR		4.12
1203		C	G		500	500	S	BR		2.83
1290		C	J		820	820	E	BR		11.4
1301	27.47	C	M		2100		C	CO		60.22
1302		C	Q		2100	2100	S			61.04
1400	29.28	C	M	25.29	300		C	VC	118	22.47
1401		C	G		900	550	E	BR		12.37
1402		C	G		900	550	E	BR		83.24
2001	27.9	C	M							6.32
2002	28.04	C	M	22.74	900	610	E	BR	1402	84.12
2003	28.3	C	M	25.97	675		C	CO		34.48
2004	28.35	C	M	22.66	900	610	E	BR		66.48
2005	28.13	C	M	23.27	375		C	CO		13.67
2006	28.56	C	M	26.22	150		C	VC		4
2007		C	M		900	610	E	BR		5
2008		C	J		700	460	E	BR		25
2009		C	G		450	300	U			40.82
2010		C	J		675		C	CO		7.24
2011		C	J		900	610	E	BR		5
2012		C	Q		675			CO		14.58
2013		C	J		675		C	CO		11.4
2014		C	J		675		C	CO		4.12
2015		C	J		450	300	U	VC		1
2016		C	G	25.45	375		C	CO	76	36.41
2017		C	G		700	460	U	BR		5.54
2018		C	Q		450	300	E	VC		1.48
2090		C	J		675		C	CO		25.94
2102	26.41	C	M	25.48	730	460	E	BR		8.25
2104		C	Q		500	500	S	BR		70.83
2190		C	G		500	500	S	BR		53.01
2201	27.65	C	M	23.58	960	620	E	BR	69	44.09
2202	27.41	C	M	23.07	960	620	E	BR		74.03
2203	26.62	C	M	22.95	960	620	E	BR		12.21
2206		C	J		960	620	E	BR		5.96
2300	27.47	C	M	18.82	2100		C	CO		58.04
2301		S	M							51.22
2302		S	M							20.81
2303		S	F							
2304		C	Q	18.84	2100		C	CO	3066	30
2400	28.37	C	M	18.64	2280			BR		30
2401	28.33	C	M	22.83	600		C	CO	-131	2.83
2402	28.08	C	M	23.24	600		C	CO	97	39.66
2403	28.1	C	M	23.34	1000	450	O	GRP	130	13.38
2404	28.16	C	M	23.69	1000	450	O	GRP		25
2405		C	J		1000	450	O	GRP		9.43
2406		C	J		1000			GRP		20.4
2407		C	J		1000			GRP		33.11
2408		C	Q	22.85	600		C	DI	-320	3.2

Refno	Cover	Func	Type	Invert	Size.x	Size.y	Shape	Matl	Grad	Length
2512		C	G		950			BR		18.84
2513		C	G		1000			GRP		4.24
3001		C	G		400	300	U			2.24
3003	29	C	M	23.4	750	500	U	VC		41.98
3004	30.09	C	M		300		C	VC		77.08
3005	30.09	C	M	28.08	225		C	VC		2
3006	30.86	C	M	27.63	300		C	VC	181	37.11
3007	30.93	C	M	27.38	300		C	VC	17	8.06
3008	30.99	C	M	22.48	900	610	E	BR		15.3
3009	30.93	C	M	23.25	450		C	VC		11.7
3010		C	G		400	300	U			35.44
3011	30.95	C	M	27.85	675		C	CO		3.16
3012	31.73	C	M		400	300	U			14.32
3013		C	G		400	300	U			5
3014		C	J		675		C	CO		2.24
3015		C	G		400	300	U			10.77
3016		C	G				U			10.3
3017		C	G		300			VC		10.05
3018		C	J		450		C	VC		16.52
3019		C	J		900	610	E	BR		25
3020		C	J		450		C	VC		6.08
3021		C	J		675		C	CO		36.5
3022		C	Q		400	300	C			3.16
3090		C	J		900	610	R	BR		4.12
3091	30.2	C	M	27.02	675		C	CO		45.36
3301	30.16	C	M	24.27	525		C	CO		9.51
3302	29.16	C	M	23.35	730	620	R	BR	606	18.17
3303	28.28	C	M	23.33	850	600	R	BR	-135	17.49
3304		C	L	24.43	225		C	VC	40	22.86
3305		C	V	23.95	300		C	VC		11.92
3305		C	V		870	630	E	BR		37.83
3306	29.93	C	M	24.14	300		C	VC		16.34
3306	29.93	C	M		610	860	R	BR		39.13
3307		C	F							
3308		C	G		300		C	VC		9.29
3309		C	F							
3311		C	Q	23.32	830	600	E	BR	852	13.04
3312		C	Q	23.46	960	620	E	BR	-145	18.87
3491		C	M		375		C	VC		17.84
3492		C	M		375		C	VC		7.13
3493		C	M		375		C			7.36
3494	22.27	C	M		375		C	CO		8.78
4001		C	Q		220	350	E	BR		35.13
4002		C	Q		500	700	E	BR		37.34
4003	30.83	C	M	26.11	450		C	VC		8.06
4004		C	Q	28.42	300		C	VC	21	19.42
4005		C	Q		225		C	VC		15.52
4013		C	M		375		C	CO		89.74
4014		C	J		300		C	VC		10.05
4015		C	G		300		C	VC		14.32
4016		C	J		220	350	E	BR		23.09
4017		C	J		500	810	E	BR		14.59
4018		C	J		500	810	E	BR		19.42
4019		C	J		500	810	E	BR		8.25
4020		C	J		500	810	E	BR		30.39
4021		C	M		450		C	VC		8.00
4022		C	J		450		C	VC		4
4023		C	J		220	350	E	BR		2
4090		C	G		300		C	VC		35.44
4091		C	J		220	350	E	BR		12.04
4092		C	G		300		C	CO		10.68
4101		C	R	29.16			U			60.41
4102	33.97	C	M	27.42	770	550	E	BR		7.26
4103	31.14	C	M	26.84	525		C	CO		39.46
4104		C	Q		590	770	U	BR		6.06
4110		C	M		1500		C	CO		5
4111		C	R	30.23			U			15
4113		C	G		300			VC		65.25
4115		C	J		220	300	E	BR		10
4122		C	J		525		C	CO		39.61
4123		C	J		590	770	U	BR		10.2
4190	37.98	C	M	28.27	600		C	CO	60	74.43
4201	33.53	C	M	25.74	600		C	CO	217	65
4205		C	J		600	330	E	BR		32.25
4206		C	J		525		C	CO		24.33
4207		C	J		600	330	E	VC		21.21
4301	33.01	C	M	27.17	525		C	CO	167	26.68
4302	32.79	C	M	26.99	525		C	CO	254	109.38
4303	33.01	C	M	25.94	780	460	E	CO		1.41
4304	31.03	C	M	25.29	850	510	E	BR	59	39.79
4305		C	J		530	630	E	BR		20.62
4306		C	Q		480	770	E	BR		2.24
4307		C	Q	24.82	1010	820	E	BR	61	40.55
4308		C	Q		840	540	E	BR		20.4
4401		C	M		225		C	VC		10.3
4402		C	M		225		C	VC		56.84

WASTE WATER SYMBOLOGY


MANHOLE
FOUL
SURFACE
COMBINED
DUAL
SIDE ENTRY MANHOLE
FOUL
SURFACE
COMBINED
PUBLIC MAIN
PRIVATE MAIN
SECTION 104
PUMPING MAIN
HIGHWAY DRAIN
SLUDGE MAIN
ABANDONED
SITE TERMINATION
T-JUNCTION (SADDLE)
AIRVALVE
LAMP HOLE
CASCADE
OIL INTERCEPTOR
CONTROL KIOSK
PENSTOCK
CONTROL VALVE
PUMP
EXTENT OF SURVEY
RODDING EYE
FLOW METER
SEA OUTFALL
GULLEY
SOAKAWAY
HATCHBOX
SUMMIT NODE
HEAD OF SYSTEM
TUMBLING BAY
HEADWALL
UNSPECIFIED
HYDROBRAKE
VALVE
INLET
VALVE CHAMBER
INSPECTION CHAMBER
WASHOUT
GHOST NODE (inc. GN - Rising Main & GN - Dual Function)
EXPEDIENCY NODE (CHANGE OF CHARACTERISTIC)
BIFURCATION
DROPSHAFT
CATCHPIT
FLOW CONTROL
CHAMBER
SCREEN CHAMBER POWERED
CONTAMINATED SURFACE WATER
SCREEN CHAMBER STATIC
PUMPING STATION
WASTE WATER TREATMENT WORKS
EJECTOR STATION
SEPTIC TANK
SLUDGE PUMPING STATION
TANK
SHEET EDGE
VENT COLUMN
SEWER OVERFLOW
DISCHARGE POINT (OUTFALL)
ST
T

Note - ALL flow direction arrows are BLUE - colour not significant

NODE TABLE ABBREVIATIONS

MANHOLE FUNCTION

F Foul	T Transition
S Surface	O Overflow
C Combined	U Unspecified

MANHOLE / NODE TYPE

M Manhole	Z Ghost in Rising Main
J Junction	C Cascade
L Lamphole	Y Gulley
H Hatchbox	E Ejector
R Rodding Eye	O Oil Injector
F Outfall	I Inlet
V Combined Sewer Overflow	B Hydrobrake
	T Vent Column
P Pumping Station	X Valve
S Soakaway	U Unspecified
D Dual Function Manhole	Q Expediency Node
	G Ghost (to allow pipe bends)
W Treatment Works	

SEWER SHAPE

C Circular	T Trapezoidal
E Egg	A Arch
O Oval	B Barrel
F Flat Top	H Horseshoe
R Rectangular	U Unspecified
S Square	

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
CI	Cast Iron
SI	Spun (Grey) Iron
CO	Concrete
CS	Concrete Segments (Bolted)
CS	Concrete Segments (Unbolted)
CC	Concrete Box Culvert
DI	Ductile Iron
GR	Glass Reinforced Concrete
GR	Glass Reinforced Plastic
PS	Plastic / Steel Composite
PV	Polyvinyl Chloride
PE	Polyethylene
RP	Reinforced Plastic Matrix
ST	Steel
VC	Vitrified Clay (All Clayware)
PP	Polypropylene
PF	Pitch Fibre
MA	Masonry - In Regular Courses
MA	Masonry - Randomly Coursed
U	Unspecified

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OS Sheet No: SJ8398SW

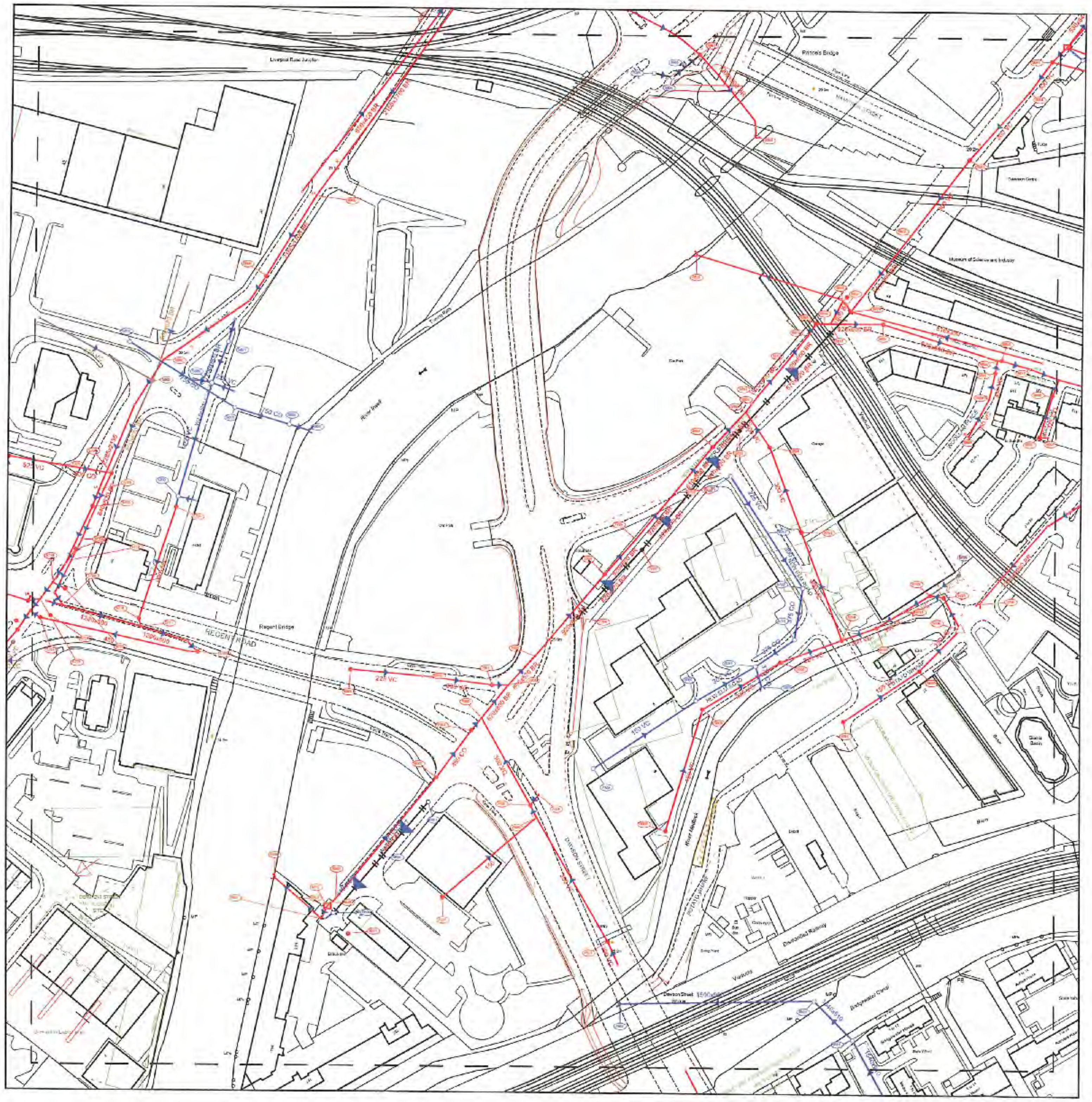
Scale 1:1250 Date: 25-Jul-2013

172 Nodes

Sheet 1 of 1

United Utilities

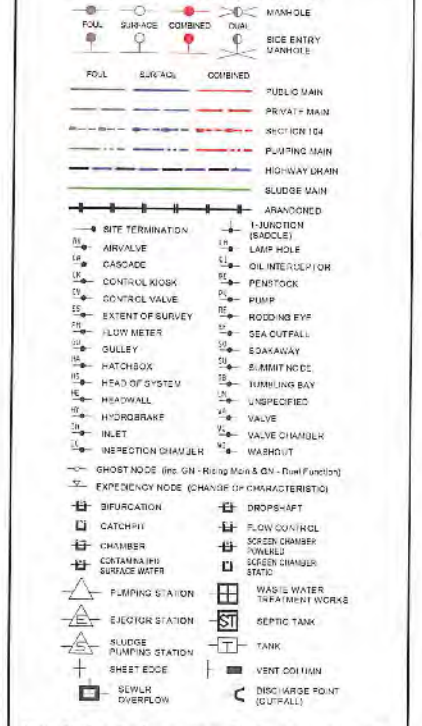
SEWER RECORDS


REGENT ROAD
Regent Bridge

Refno	Cover	Func	Type	Invert	Size.x	Size.y	Shape	Matl	Grad	Length
5700	28.88	S	M	26.1	750	600	R	BR		5.1
5701		C	Q	27.84	690		C	CO	25	25.32
5702	30.06	C	M	18.73	150			VC		30.87
5703		C	L		2286					8.54
5704	30.74	C	M	26.5	840	620	E	BR		24.17
5705		C	M		450		C			4
5706		C	M		990	680	E			56.92
5707		C	M		450			BR		5.83
5708		C	M		150			VC		6.71
5709		C	M		150		C	VC		8.8
5710		S	G		150		C	VC		9.22
5711		C	J		1200	800	E			24.04
5712		C	G		1200	800	E			7.07
5713		C	G		450		C			74.73
5714		C	M		1200	800	E			4.12
5715		C	G		1200	800	E			8.26
5716		C	G							7.21
5717		C	J							17.86
5718		C	J		150			VC		10
5719		C	Q		1000	660	E			11.18
5720		C	G		840	620	F	BR		10.77
5722		C	G		150			VC		10.83
5723		C	J		700			BR		7.81
5724		C	M							
5725		C	J		1200	800	E			39.29
5800	29.06	S	M	25.86	450		C	VC	83	57.28
5801	29.21	S	M		750	600	R	BR		21.54
5802		C	L		2150			BR		26.05
5803	30.93	F	M	27.03	800	620	E	BR	115	49.24
5804		S	G		225		C	VC		9.22
5805		S	G		225		C	VC		11.7
5806		F	G		800	620	E	BR		49.98
5807		C	G		2285	2135	E			44.38
5808		S	G		750	600	R	BR		11.4
5809		F	G		300		C	VC		63.53
5810	30.67	S	M		750		C	CO		60.57
5811	29	S	M		750		C	CO		28
6501	25.1	C	M							
6502		C	V	23.19	470	470	R	BR		2.79
6502		C	V		300		C	VC		8.81
6503		C	Q		450		C	CO		2.83
6504	25	S	M	21.55	610	1550	H	BR		5
6505		C	J		450		C	CO		76.69
6506		S	G		610	1550	H	BR		2
6507		O	Q		610	1500	H	BR		16.62
6590		O	F							
6591		O	J		610	1550	E	BR		14.87
6601	25.54	S	M							
6602	25.54	C	M	22.86	450		C	CO	1430	28.6
6603	27.8	C	M	24	225		C	VC	110	35.13
6604		S	Q							
6605		C	Q	23.68	300		C	VC	107	34.23
6800	28.66	C	M		2150	1700	A	BR		14.42
6801		C	G		2150			BR		61.04
6802		S	F							
6803	25.78	S	M		750		C	CO		10.21
6900		C	L		2150	1700	A	BR		45.79
6901		C	G		650	450	E	BR		95.5
6911		C	G		650	450	E	BR		30
7501	26.1	C	M	23.41	300		C	VC	888	80.46
7502		S	F							
7503		C	G		300		C	VC		12.08
7504		C	M		150		U			60.31
7601	26.07	C	M	23.34	300		C	VC		8
7604		C	R	23.71	225		C	VC	11	5.4
7605	26.65	C	M	23.09	300		C	VC		45.37
7606		C	L	23.33	300		C	VC	31	6.71
7607	26.21	C	M	22.82	600	600	E	BR		7.31
7608		C	J		920	600	E	BR		52.5
7609	26.52	S	M	23.71	150		C	VC	-102	50.91

Refno	Cover	Func	Type	Invert	Size.x	Size.y	Shape	Matl	Grad	Length
7690		C	J		620	500	E	BR		20.62
7691		C	J		600	520	E	BR		19.1
7702	25.89	C	M							
7703	25.81	C	M	22.83	920	600	E	BR		22.07
7704	25.94	C	M							
7705		C	J		920	600	E	BR		29.63
8501		S	M		1500	900	U			95.02
8600		C	M		150			VC		44.49
8601	26.41	S	M	23.12	375		C	CO		10.44
8603		S	F							
8606	26.45	C	M	24.07	225		C	VC	178	44.42
8607	26.44	S	M	24.38	300		C	VC	29	33.62
8608	26.42	C	M	23.8	225		C	VC	97	31.95
8609		C	M		150		C	VC		61.68
8701	26.44	S	M	23.44	375		C	CO	77	23.02
8702	26.47	S	M	23.83	375		C	CO	68	25.32
8703	26.25	C	M	23.33	300		C	VC	330	44.01
8704	26.52	C	M	23.45	300		C	VC	667	55.71
8705	26.12	S	M	24.73	225		C	VC	74	32.45
8706		C	Q							
8707		S	Q	24.29	300		C	VC	74	32.46
8708		C	Q		610	920	E	BR		26.43
8801	25.83	C	M	22.55	610	920	E	BR		23.35
8802		C	Q	22.46	1000		C	BR	19	2.83
8803	26.04	C	M							
8804	27.05	C	M	23.15	300		C	VC		20.81
8805		C	Q		920	600	E	BR		5
8808	26.07	C	M	22.52	920	600	E	BR		4
8809	26.17	C	M	22.84	610	300	E	VC	24	3.01
8810	26.1	C	M	22.32	1000		C	BR		12.55
8810	26.1	C	M		1000			BR		1.41
8811		C	J		920	600	E	BR		10.44
8812		C	J		920	600	E	BR		19.21
8813		C	J		920	600	E	BR		7.21
8814		C	J		920	600	E	BR		3
8815		O	F							
8816		O	G		1000			BR		74.04
8817		C	J		920	600	E	BR		25
8890		C	J		600	920	E	BR		5
8901		O	M		1200	900	E	BR		40.53
8902		C	F							
8903		S	M							9.13
8904		S	M							8.43
8905		S	O							8.79
9501		S	M		1540	910	U			26.75
9600		C	M		150			VC		26.35
9700		C	P		150			VC		17.33
9701		C	Q	21.34	300		C	VC	-7	15.26
9702	25.88	C	M	21.58	300		C	VC	164	18.03
9703	25.88	C	M	19.09	250		C	VC	-7	16.26
9704		C	M		150			VC		6.72
9705	25.83	F	M	23.86	225		C	VC	4	17.2
9707		O	G		2300	3060	U	BR		59.33
9790		O	F							
9801		C	R	24.45	150		C	VC	5	4
9802	27.01	C	M	23.15	375		C	CO	60	20.88
9803		C	R	25.5	150		C	VC	9	20.59
9804		C	R	23.32	300		C	VC	46	13.34
9805	27.41	C	M	23.01	300		C	VC		6.06
9806	27.47	C	M	22.79	375		C	CO		8.54
9807	28.57	C	M	22.49	920	600	E	BR		58.52
9808	27.58	C	M	22.37	920	600	E	BR		14.55
9809		C	J		920	600	E	BR		2
9810		C	G		610	390	U			87.02
9811		C	Q		600	920	E	BR		14.87
9901	26.17	C	M	23.18	300		C	VC	178	46.4
9902		C	Q	22.93	510	390	E	BR	191	47.01
9903	26.37	C	M	23.46	300		C	VC		10.8
9904		C	J		300		C	VC		43.93

WASTE WATER SYMBOLOGY


FOUL
SURFACE
COMBINED
DUAL
MANHOLE
SIDE ENTRY MANHOLE
FOUL
SURFACE
COMBINED
PUBLIC MAIN
PRIVATE MAIN
SECTION 104
PUMPING MAIN
HIGHWAY DRAIN
SLUDGE MAIN
ABANDONED
SITE TERMINATION
AIRVALVE
CASCADE
CONTROL KIOSK
CONTROL VALVE
EXTENT OF SURVEY
FLOW METER
GULLEY
HATCHBOX
HEAD OF SYSTEM
HEADWALL
HYDROBRAKE
INLET
INSPECTION CHAMBER
T-JUNCTION (SADDLE)
LAMP HOLE
OIL INTERCEPTOR
PENSTOCK
PUMP
RODDING EYE
SEA OUTFALL
SOAKAWAY
SUMMIT NODE
TUMBLING BAY
UNSPECIFIED
VALVE
VALVE CHAMBER
WASHOUT
GHOST NODE (inc. GN - Rising Main & GN - Dual Function)
EXPEDIENCY NODE (CHANGE OF CHARACTERISTIC)
BIFURCATION
CATCHPIT
CHAMBER
CONTAMINATED SURFACE WATER
DROPSHAFT
FLOW CONTROL
SCREEN CHAMBER POWERED
SCREEN CHAMBER STATIC
PUMPING STATION
EJECTOR STATION
SLUDGE PUMPING STATION
SHEET EDGE
SEWER OVERFLOW
WASTE WATER TREATMENT WORKS
SEPTIC TANK
TANK
VENT COLUMN
DISCHARGE POINT (OUTFALL)

Note - ALL flow direction arrows are BLUE - colour not significant

NODE TABLE ABBREVIATIONS

MANHOLE FUNCTION

F Foul
S Surface
C Combined
I Transition
O Overflow
U Unspecified

MANHOLE / NODE TYPE

M Manhole
J Junction
L Lamphole
H Hatchbox
R Rodding Eye
F Outfall
V Combined Sewer Overflow
P Pumping Station
S Soakaway
D Dual Function Manhole
W Treatment Works
Z Ghost in Rising Main
C Cascade
Y Gulley
E Ejector
O Oil Injector
I Inlet
B Hydrobrake
T Vent Column
X Valve
U Unspecified
Q Expediency Node
G Ghost (to allow pipe bends)

SEWER SHAPE

C Circular
E Egg
O Oval
F Flat Top
R Rectangular
S Square
T Trapezoidal
A Arch
B Barrel
H Horseshoe
U Unspecified

SEWER MATERIAL

AC Asbestos Cement
BR Brick
CI Cast Iron
SI Spun (Grey) Iron
CO Concrete
CS Concrete Segments (Bolted)
CS Concrete Segments (Unbolted)
CC Concrete Box Culvert
DI Ductile Iron
GR Glass Reinforced Concrete
GR Glass Reinforced Plastic
PS Plastic / Steel Composite
PV Polyvinyl Chloride
PE Polyethylene
RP Reinforced Plastic Matrix
ST Steel
VC Vitrified Clay (All Clayware)
PP Polypropylene
PF Pitch Fibre
MA Masonry - In Regular Courses
MA Masonry - Randomly Coursed
U Unspecified

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OS Sheet No: SJ8297NE
Scale 1:1250 Date: 25-Jul-2013
139 Nodes
Sheet 1 of 1

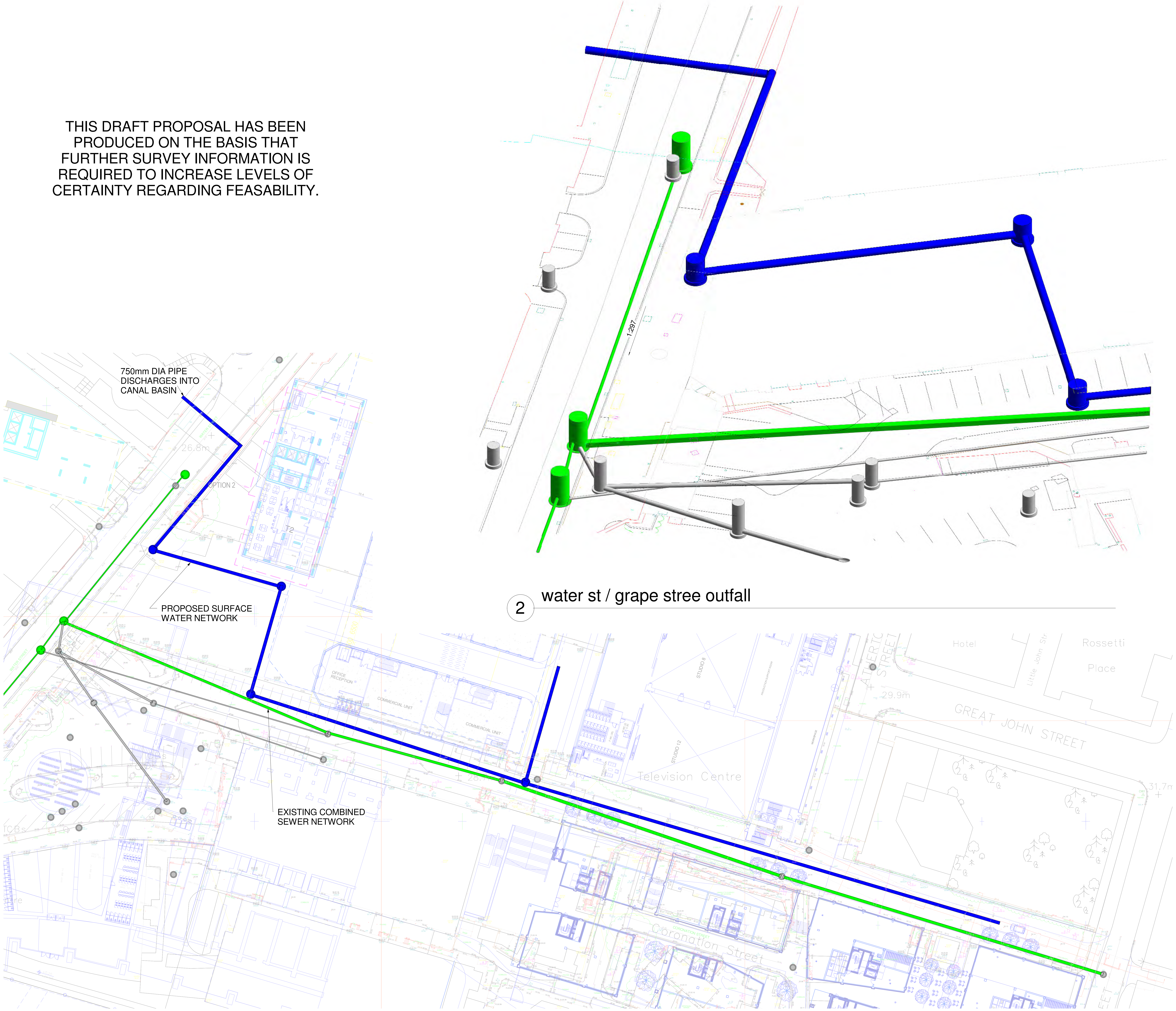
United Utilities
SEWER RECORDS

OS Sheet No: SJ8297NE
Scale 1:1250 Date: 25-Jul-2013

Printed by: Lea Robertson

APPENDIX F – DRAINAGE STRATEGY AND CALCULATIONS

THIS DRAFT PROPOSAL HAS BEEN
PRODUCED ON THE BASIS THAT
FURTHER SURVEY INFORMATION IS
REQUIRED TO INCREASE LEVELS OF
CERTAINTY REGARDING FEASABILITY.


750mm DIA PIPE
DISCHARGES INTO
CANAL BASIN
26.8m
OPTION 2
PROPOSED SURFACE
WATER NETWORK
EXISTING COMBINED
SEWER NETWORK
1:297
Hotel
Rossetti
Place
Little John St
GREAT JOHN STREET
29.9m
31.7m
STUDIO 8
STUDIO 12
OFFICE RECEPTION
COMMERCIAL UNIT
COMMERCIAL UNIT
Television Centre
Coronation Street

2 water st / grape stree outfall

1 water street / grape street outfall

1 : 500

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WORK IN PROGRESS (Tender)

The information on this drawing is an optimised solution based upon external information . It may be subject to change through external influences such as client brief and scope changes, services BWIC, sub-contractor requirements etc. Therefore a suitable contingent approach must be applied where the information is used for strategic decision making, procurement or construction in advance of final design requirements from other designers and sub-contractors.

NOTES

1. RoC drawings are to be read in conjunction with relevant documents, specifications, architectural and services drawings, including approved builders work drawings. The contractor should notify CA of any discrepancies between the structural drawings and specifications or other drawings.

2. Do not scale from the drawings or the computer digital date. Only figured dimensions are to be used.

3. It is the responsibility of the lead consultant (architect) to check the setting out provided on these drawings and the co-ordination of the frame with the evnvelope & other elements of the building.

4. All dimensions are in millimetres unless noted otherwise.

5. All levels are in metres above Ordnance Datum unless noted otherwise.

6. This drawing is to be read in conjunction with General Notes Drawing. No 001

REV	DETAILS	DATE	DRN	CHK

DRAWING STATUS
STAGE 3

Civil & Structural Engineers
6 Commercial Street, Manchester, M15 4PZ
Tel: 0161 214 5390

DRAWN SJB	DATE 03.16	SCALES 1 : 500
CHECKED AR	DATE 03.16	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE
APPRVD -	DATE 03.16	EMAIL FOR DRAWINGS: drawings@rocconsulting.com

CLIENT
Allied London

PROJECT TITLE
MANCHESTER AND SALFORD JUNCTION CANAL TUNNEL

DRAWING TITLE
OUTFALL - GRAPE ST / WATER ST

PROJECT No.	DRAWING No.	REV.
3518	OF-01	

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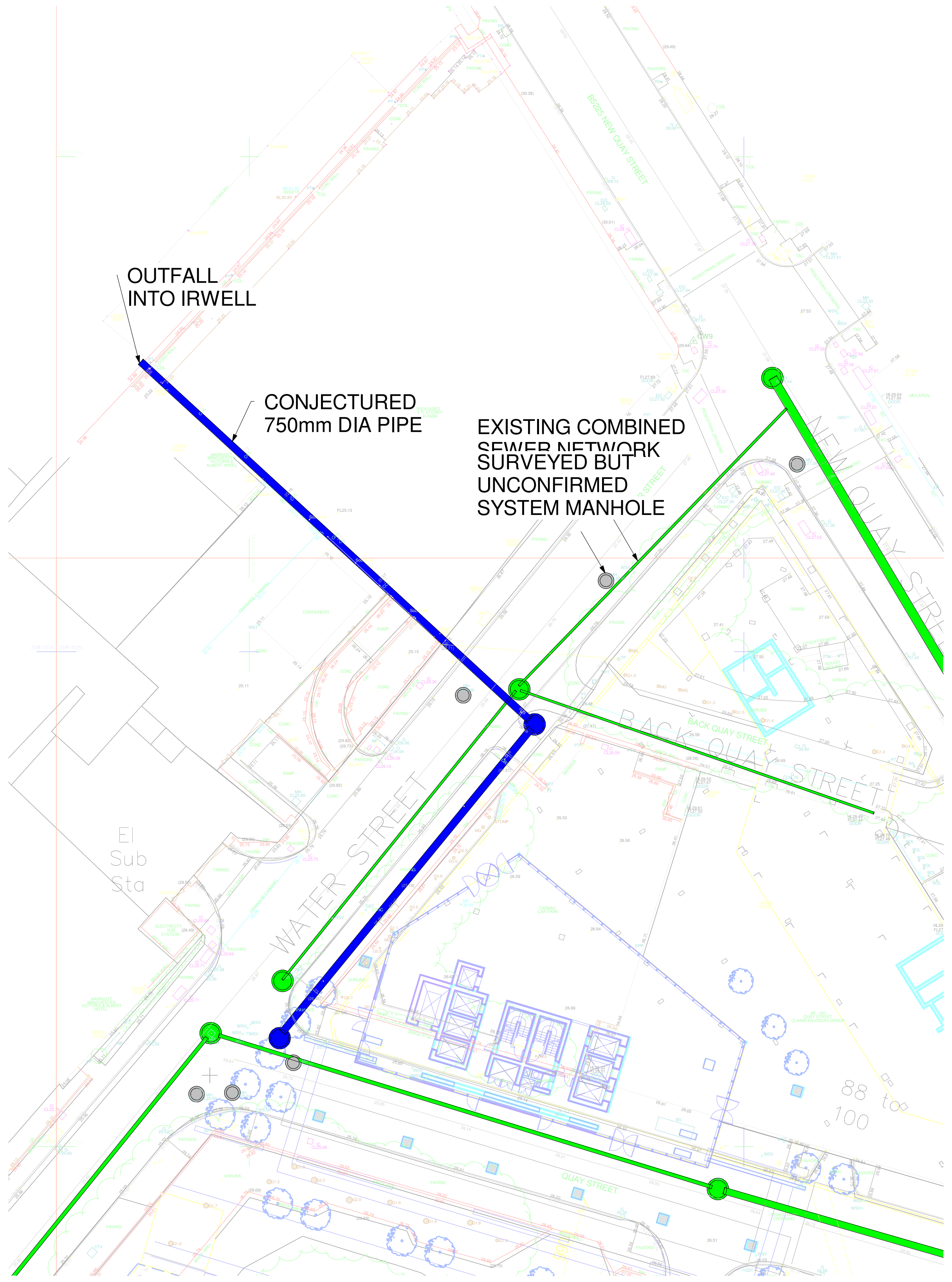
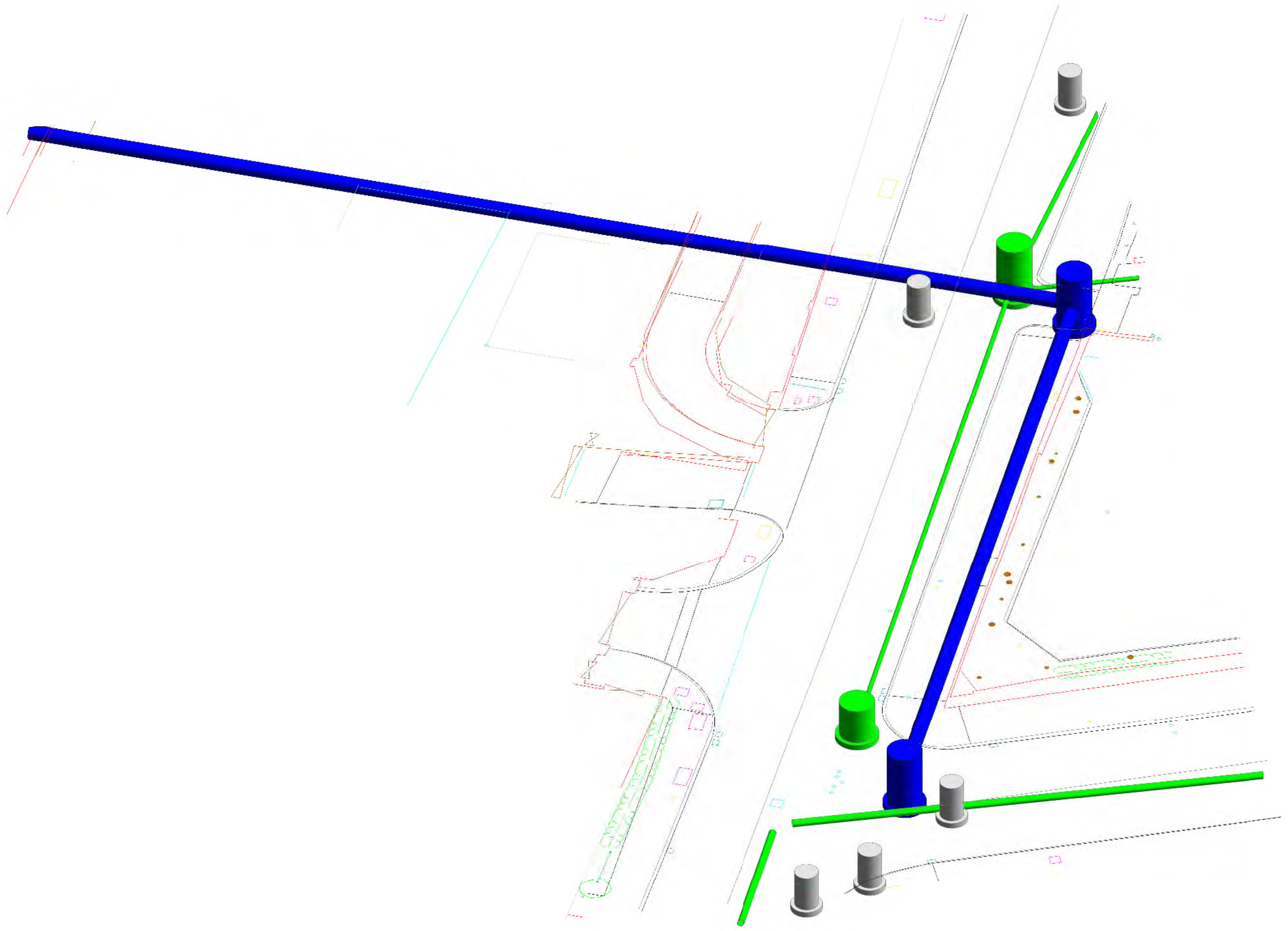
Consulting



1 water street / back quay street outfall

1 : 500



2 water st / back quay outfall

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NOTES

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4. All dimensions are in millimetres unless noted otherwise.

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6. This drawing is to be read in conjunction with General Notes Drawing. No 001

REV	DETAILS	DATE	DRN	CHK

DRAWING STATUS
STAGE 3

RoC CONSULTING

Civil & Structural Engineers
6 Commercial Street, Manchester, M15 4PZ
Tel: 0161 214 5390

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CHECKED AR	DATE 03.16	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE
APPRVD -	DATE 03.16	EMAIL FOR DRAWINGS: drawings@rocconsulting.com

CLIENT
Allied London

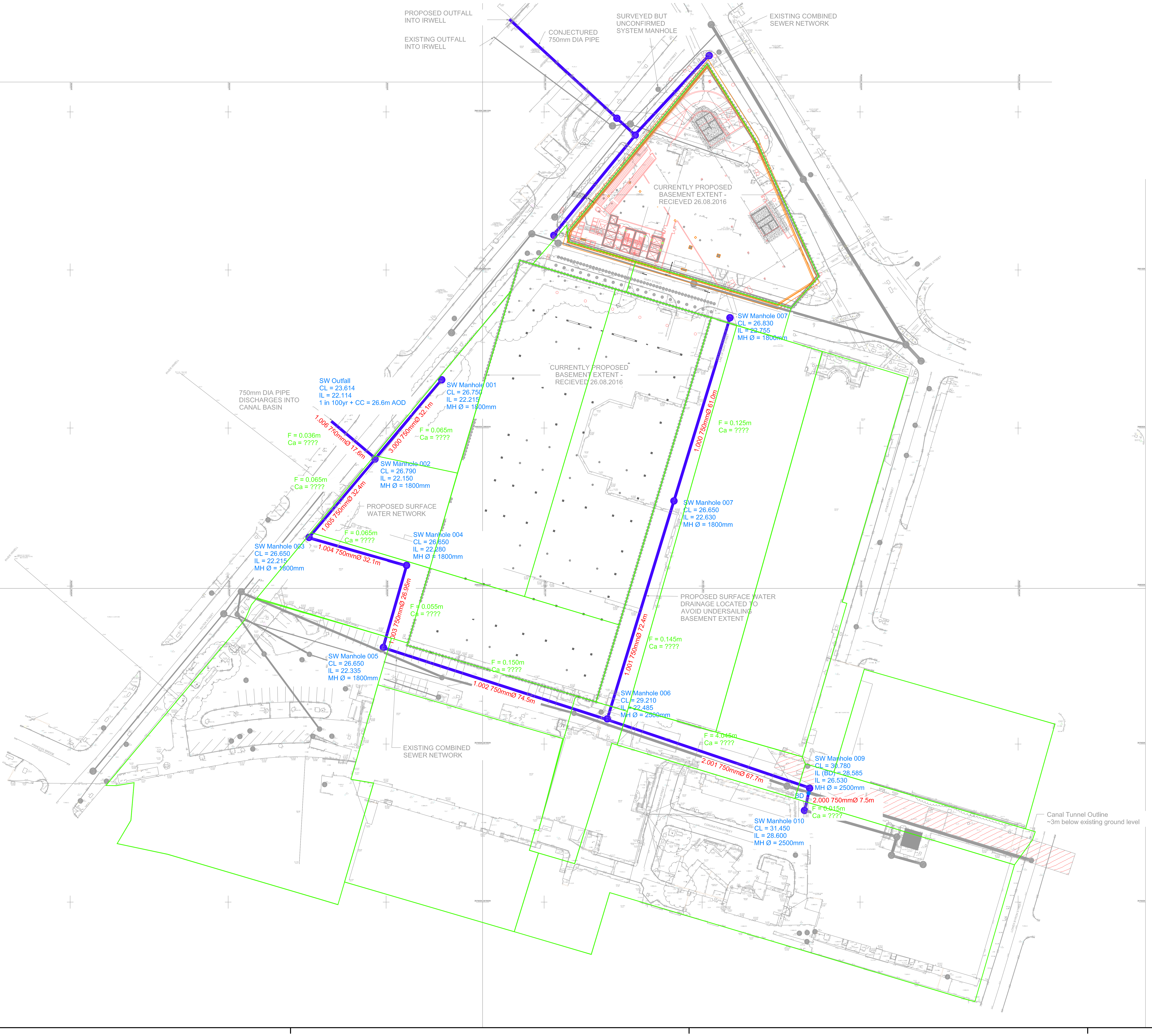
PROJECT TITLE
MANCHESTER AND
SALFORD JUNCTION
CANAL TUNNEL

DRAWING TITLE
OUTFALL - WATER ST /
BACK QUAY ST

PROJECT No.	DRAWING No.	REV.
3518	OF-02	

ⓒ RoCp Ltd.

Consulting


PROPOSED OUTFALL
INTO IRWELL
EXISTING OUTFALL
INTO IRWELL
CONJECTURED
750mm DIA PIPE
SURVEYED BUT
UNCONFIRMED
SYSTEM MANHOLE
EXISTING COMBINED
SEWER NETWORK
CURRENTLY PROPOSED
BASEMENT EXTENT -
RECIEVED 26.08.2016
SW Manhole 007
CL = 26.830
IL = 22.755
MH Ø = 1800mm
CURRENTLY PROPOSED
BASEMENT EXTENT -
RECIEVED 26.08.2016
SW Outfall
CL = 23.614
IL = 22.114
1 in 100yr + CC = 26.6m AOD
750mm DIA PIPE
DISCHARGES INTO
CANAL BASIN
SW Manhole 001
CL = 26.750
IL = 22.215
MH Ø = 1800mm
1.006 750mmØ 17.6m
3.000 750mmØ 32.1m
F = 0.036m
Ca = ????
F = 0.065m
Ca = ????
1.000 750mmØ 61.0m
F = 0.125m
Ca = ????
SW Manhole 002
CL = 26.790
IL = 22.150
MH Ø = 1800mm
F = 0.065m
Ca = ????
1.005 750mmØ 32.4m
PROPOSED SURFACE
WATER NETWORK
SW Manhole 007
CL = 26.650
IL = 22.630
MH Ø = 1800mm
F = 0.065m
Ca = ????
SW Manhole 004
CL = 26.650
IL = 22.280
MH Ø = 1800mm
SW Manhole 003
CL = 26.650
IL = 22.215
MH Ø = 1800mm
1.004 750mmØ 32.1m
1.003 750mmØ 26.95m
F = 0.055m
Ca = ????
PROPOSED SURFACE WATER
DRAINAGE LOCATED TO
AVOID UNDERSAILING
BASEMENT EXTENT
1.001 750mmØ 72.4m
F = 0.145m
Ca = ????
SW Manhole 005
CL = 26.650
IL = 22.335
MH Ø = 1800mm
F = 0.150m
Ca = ????
1.002 750mmØ 74.5m
SW Manhole 006
CL = 29.210
IL = 22.485
MH Ø = 2500mm
EXISTING COMBINED
SEWER NETWORK
F = 4.045m
Ca = ????
SW Manhole 009
CL = 30.780
IL (BD) = 28.585
IL = 26.530
MH Ø = 2500mm
2.001 750mmØ 67.7m
BD
2.000 750mmØ 7.5m
F = 0.015m
Ca = ????
SW Manhole 010
CL = 31.450
IL = 28.600
MH Ø = 2500mm
Canal Tunnel Outline
~3m below existing ground level
QUAY STREET
WATER STREET
BACK QUAY
B5225 NEW QUAY STREET
ROSAMUND STREET
CORONATION STREET
CAR PARK EXTENDED UP TO
LINE OF QUAY STREET

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NOTES

REV.	DATE	DETAILS	DRN.	CHK.

DRAWING STATUS
FOR INFORMATION

RoC CONSULTING
Civil & Structural Engineers
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Tel: 0161 214 5390

DRAWN ARR	DATE OCT16	SCALES 1:500 @ A1
CHECKED	DATE	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE
APPRVD.	DATE	EMAIL FOR DRAWINGS drawings@rocconsulting.com

CLIENT
ALLIED LONDON
PROPERTIES

PROJECT TITLE
ST JOHNS
INFRASTRUCTURE
MASTERPLAN

DRAWING TITLE
SURFACE WATER DRAINAGE
CATCHMENT PLAN
SOUTHERN OUTFALL GA

PROJECT No.	DRAWING No.	REV.
3233	DR100	-

Ⓒ RoCp Ltd.

RoC Consulting

ACADFILE

PLOT DATE: PLOTDATE

St Johns Masterplan

Drainage Strategy

Plot Reference	Catchment Area (m^2)	Catchment Area (ha)	Proposed Discharge Locations	Rainfall Instensity 1 in 30yr Storm Event				Rainfall Instensity 1 in 100yr Storm Event (Only used to detemine total discahrge)		Critical - For the Derivation of Discharge Limits (Up to 30yr)	$Q_{existing}$ l/s	Cirtical for Total Flow to prevent surface water flooding	$Q_{existing}$ l/s
				15mins - Summer	30mins - Summer	15mins - Winter	30mins - Winter	15mins	30min				
Zone1 - Alberts Wharf	2980.00	0.298	Irwell	65.5	43.5	65.5	43.5	110	74	65.5	54.26		
	5100.00	0.51	Sewer	65.5	43.5	65.5	43.5	110	74	65.5	92.87	110	155.96
Zone 2 - Grande Hotel	9100.00	0.91	Sewer	65.5	43.5	65.5	43.5	110	74	65.5	165.70	110	278.28
Zone 3 - Annex	3675.00	0.3675	Sewer	65.5	43.5	65.5	43.5	110	74	65.5	66.92	N/A	
Zone 4 - Village Phase 1	6335.00												
	660.00												
	6995.00	0.6995	Sewer	65.5	43.5	65.5	43.5	110	74	65.5	127.37	N/A	
Zone 5 - Bonded Warehouse	4125.00	0.4125	Sewer	65.5	43.5	65.5	43.5	110	74	65.5	75.11	110	126.14
Zone 6 - Village Phase 2	10250.00	1.025	Sewer	65.5	43.5	65.5	43.5	110	74	65.5	186.64	N/A	
Zone 7 - Village Phase 3	6885.00	0.6885	Irwel	65.5	43.5	65.5	43.5	110	74	65.5	125.37	N/A	
Zone 8	9600.00	0.96	Irwell	65.5	43.5	65.5	43.5	110	74	65.5	174.81	N/A	
Zone 9	9405.00	0.9405	Irwell	65.5	43.5	65.5	43.5	110	74	65.5	171.26	N/A	
										Total (Development) - L/s	1240.31		560.38

Note:
In the proposed design a number of the site will drain to the River Irwell, these sites are as follows:

Plot Reference	Catchment Area (ha)	Qexisting l/s
Zone1 - Alberts Wharf	0.30	54.26
Zone 7 - Village Phase 3	0.69	125.37
Zone 8	0.96	174.81
Zone 9	0.94	171.26
	Total	525.69

The total reduction in flow from the proposed development based on the requirements of the SFRA (50% betterment) is

Total (Development) - L/s	1240.31 l/s
Betterment - L/s	620.15 l/s

Re-Alignment of the diacharge allowance to account for the fact that particular zones cannot provide attenuation

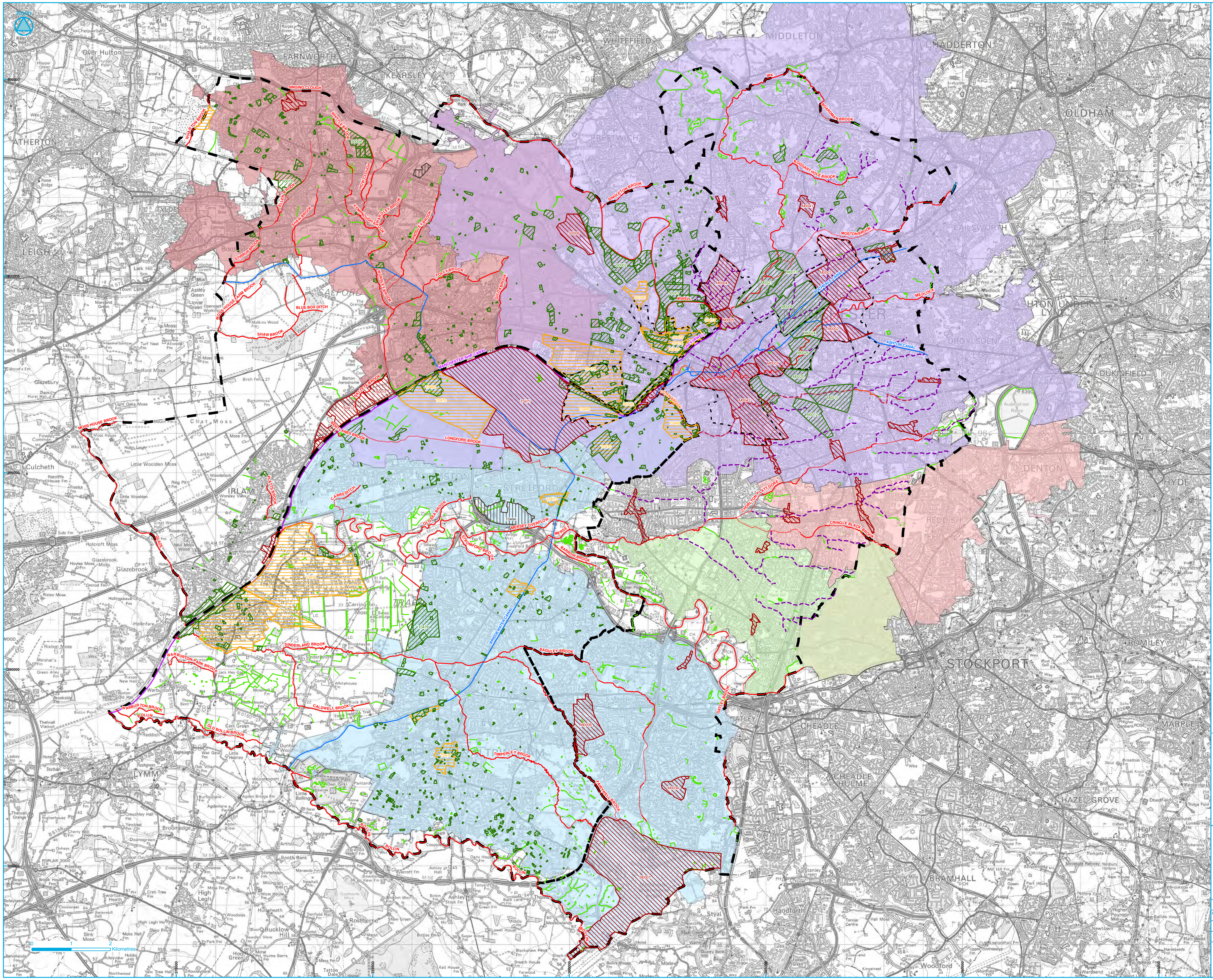
Plot Reference	Catchment Area (m^2)	Discharge Location	Discharge Limit l/s	Attenuation Requirements - 1:100yr +30% Climate Change	
				Lower Limit	Upper Limit
Zone1 - Alberts Wharf	2980.00	Irwell	Unlimited		
	5100.00	Sewer	155.96 (Unlimited)		
Zone 2 - Grande Hotel*	9100.00	Sewer	278.28 (Unlimited)		
Zone 3 - Annex	3675.00	Sewer	10.50	108	171
Zone 4 - Village Phase 1	6335.00				
	660.00				
	6995.00	Sewer	19.99	207	326
Zone 5 - Bonded Warehouse*	4125.00	Sewer	126.14 (Unlimited)		
Zone 6 - Village Phase 2	10250.00	Sewer	29.29	305	480
Zone 7 - Village Phase 3	6885.00	Irwell	Unlimied		
Zone 8	9600.00	Irwell	Unlimited		
Zone 9	9405.00	Irwell	Unlimited		
					977

Total Unrestricted Flow (1:100yr + Climate Change)	560.38	l/s
Flow Remaining to Distribute Between the Three Restricted Site	59.77	l/s
Total Area to Drain	20920.00	m^2
Flow / m^2	0.002857219	l/s

Plot Reference	Catchment Area (m^2)	Catchment Area (ha)	Proposed Discharge Locations	Rainfall Instensity 1 in 30yr Storm Event				Rainfall Instensity 1 in 100yr Storm Event		Critical - For the Derivation of Discharge Limits (Up to 30yr)	$Q_{existing}$ l/s	Cirtical for Total Flow to prevent surface water flooding	$Q_{existing}$ l/s
				15mins - Summer	30mins - Summer	15mins - Winter	30mins - Winter	15mins	30min				
The Factory	18000.00	0.9	Sewer	65.5	43.5	65.5	43.5	110	74	65.5	163.88	110	275.22
		0.9	Irwell	65.5	43.5	65.5	43.5	110	74	65.5	163.88		

Plot Reference	Catchment Area (m^2)	Discharge Location	Discharge Limit l/s	Attenuation Requirements - 1:100yr +30% Climate	
				Lower Limit	Upper Limit
The Factory	9000.00	Irwell	Unlimited		
	9000.00	Sewer	81.94	143	277

APPENDIX G – CRITICAL DRAINAGE AREA MAP



WHITEFIELD
MIDDLETON
CHADDERTON
FARNWORTH
KEARSLEY
OLDHAM
ATHERTON
LEIGH
FAILSWORTH
ASHTON-UNDER-LYNE
DROYLSDEN
DUKINFIELD
DENTON
HYDE
IRLAM
STRETFORD
STOCKPORT
CHEADLE
CHEADLE HULME
HAZEL GROVE
BRAMHALL
MARPLE
ROMILEY
LYMM
SINGING CLOUGH
SINGLETON BROOK
BOGGART HOLE BROOK
MOSTON BROOK
MEDLOCK
ASHTON CANAL
IRWELL
MANCHESTER SHIP CANAL
LONGFORD BROOK
MOSS HOUSE BROOK
BLUE BOX DITCH
SHAW BROOK
MERSEY OVERFLOW
CRINGLE BROOK
SINDERLAND BROOK
WARBURTON BROOK
BAGULEY BROOK
TIMPERLEY BROOK
FAIRYWELL BROOK
BOLLIN
0
1
2
Kilometres

Salford
Manchester
Trafford

- ▬ ▬ Council Boundary
- - - - Lost Watercourses

Critical Drainage Areas

- 🟪 Conurbation Core
- 🟩 Didsbury
- 🟥 Levenshulme and Fallowfield
- 🟦 Manchester and Trafford South
- 🟥 Salford North West

Potential Development Sites / Locations

- ▨ Employment
- ▨ Housing
- ▤ Mixed Use
- ▥ Other
- - - - Regional Centre Boundary

- — Ashton, Bridgewater and Rochdale Canals
- — Manchester Ship Canal / Grey Irwell
- — Other Waterbodies

Main Rivers (V8.0)

- ········ Culverted
- — Open

Digitised River Lines

- ········ Culverted
- — Open

This map has been produced in accordance with PPS25: Development and Flood Risk.

Certain locations are particularly sensitive to an increase in the rate of surface water runoff and/or volume from new development. There are generally known local flooding problems associated with these areas. These areas have been defined as Critical Drainage Areas in the SFRA. Specific drainage requirements are required in these areas to help reduce local flood risk.

Chapter 5 of the Level 2 SFRA covers the flooding from surface water and sewers and how Critical Drainage Areas have been defined.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The River Irwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

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for

Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA

Critical Drainage Areas

Drawn by:	J Cheetham	Date:	16/03/2011
Checked by:	J Dimelow	Date:	01/02/2011
Approved by:	J Cooper	Date:	01/02/2011

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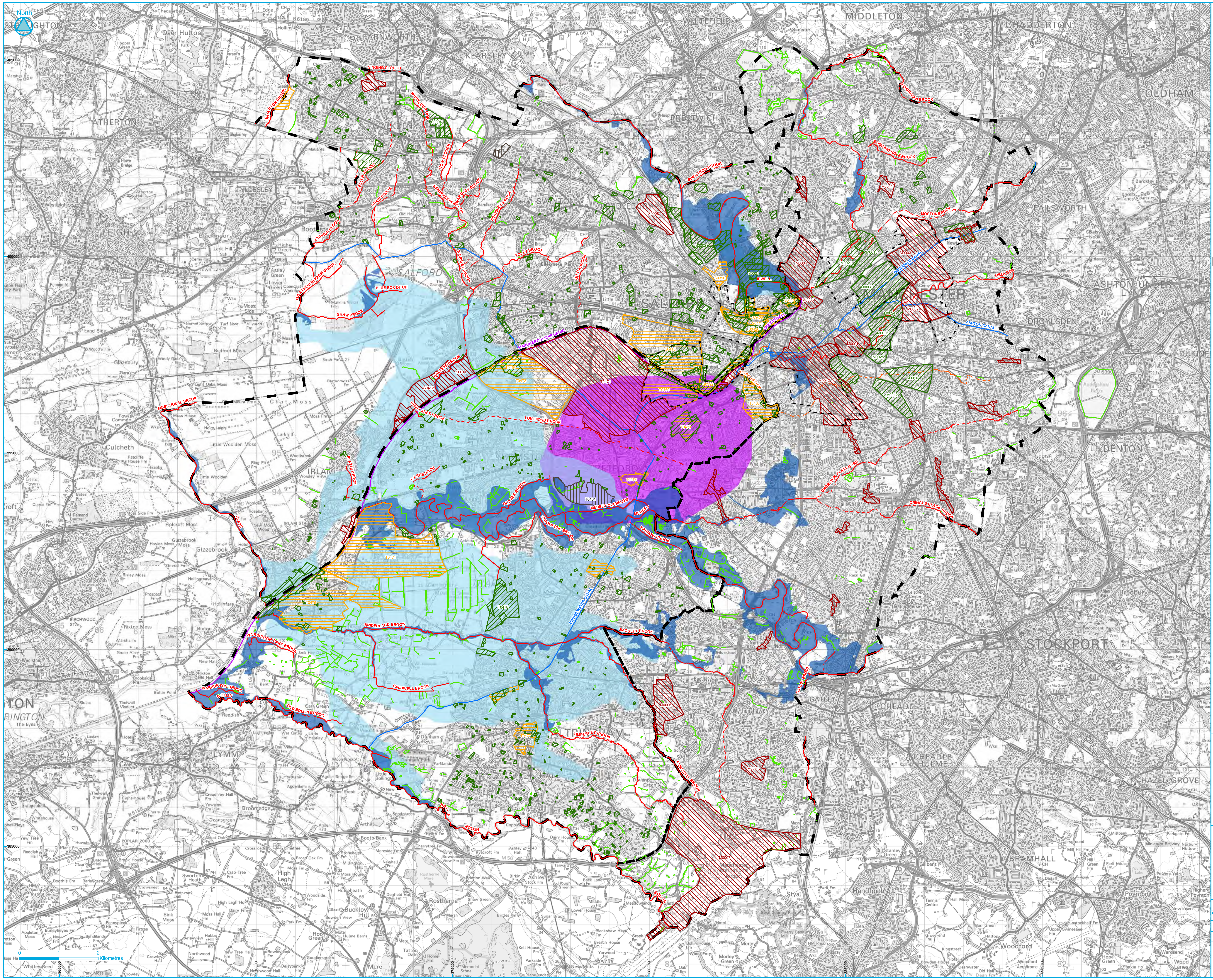
File Name: ...ArcView\Mapping\Level2\MST_CDA_Current_V1.2.mxd

Drawing Number:	Status:	Scale:
SS_4.5	FINAL	1:45,000

Original @ A1

APPENDIX H – GROUND WATER FLOODING MAP


North
MIDDLETON
CHADDERTON
FARNWORTH
KEARSLEY
WHITEFIELD
OLDHAM
ATHERTON
WALKDEN
PRESTWICH
TYLDESLEY
SWINTON
FAILSWORTH
LEIGH
SALFORD
ASHTON UNDER LYNE
MANCHESTER
DROYLSDEN
DUKINFIELD
DENTON
STRETFORD
REDDISH
IRLAM
SALE
STOCKPORT
ALTRINCHAM
CHEADLE
CHEADLE HULME
HAZEL GROVE
BRAMHALL
LYMM
MANCHESTER SHIP CANAL
BRIDGEWATER CANAL
ASHTON CANAL
IRWELL
MERSEY
MEDLOCK
BOLLIN
SINDERLAND BROOK
BAGULEY BROOK
TIMPERLEY BROOK
WARBURTON BROOK
CALDWELL BROOK
LONGFORD BROOK
SHAW BROOK
BLUE BOX DITCH
MOSTON BROOK
SINGING CLOUGH
0 2 Kilometres

Salford
Manchester
Trafford

▚ Council Boundary

Groundwater Issue

🟦 Areas at risk of GW Flooding

🟦 Areas of shallow GW

🟪 Areas at risk of GW rebound

Potential Development Sites / Locations

▨ Employment

▨ Housing

▤ Mixed Use

▥ Other

⬚ Regional Centre Boundary

— Ashton, Bridgewater and Rochdale Canals

— Manchester Ship Canal / Grey Irwell

— Other Waterbodies

Main Rivers (V8.0)

┈ Culverted

— Open

Digitised River Lines

┈ Culverted

— Open

The map has been produced in accordance with PPS25: Development and Flood Risk and its Practice Guide. This map shows areas that are potentially at risk from groundwater flooding and should be used to scope suitable mitigation measures in a site specific Flood Risk Assessment.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The information on the map is based on Environment Agency potential groundwater rebound areas, data from the Coal Authority, BGS drift geology mapping and Defra Groundwater Emergence Maps.

The River Irwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

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United Kingdom

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for

Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA

Groundwater Flooding

Drawn by: J Cheetham	**Date:** 08/03/2011		
Checked by: J Dimelow	**Date:** 01/02/2011		
Approved by: J Cooper	**Date:** 01/02/2011		
File Name: ..ArcView\Mapping\Level1\MST_GroundwaterFlooding_V1.3.mxd			
Drawing Number: GW_2.1	**Status:** FINAL	**Scale:** 1:45,000 Original @ A1	

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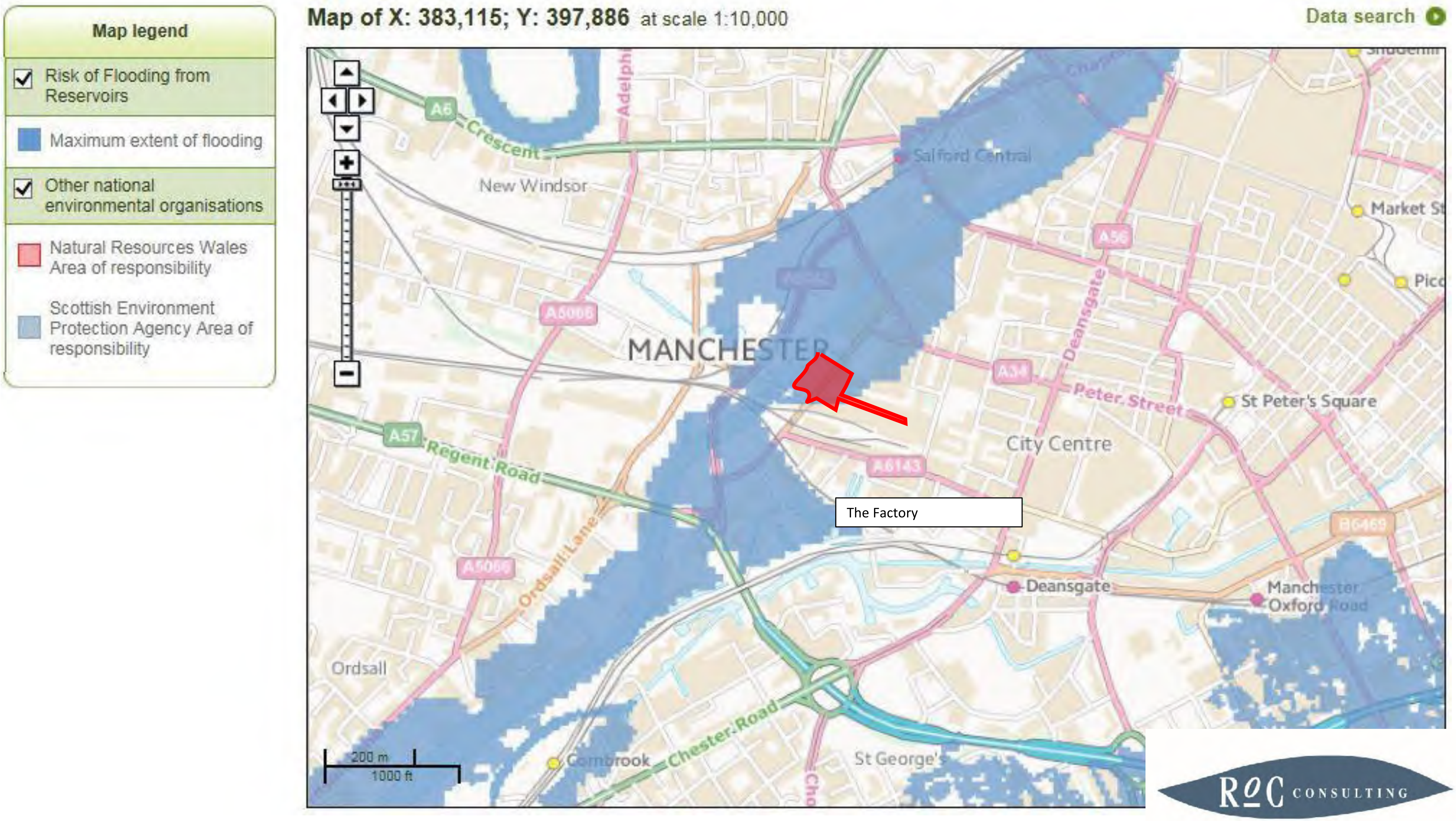
APPENDIX I – RESERVOIR AND CANAL BREACH FLOOD MAP



Map legend

☑ Risk of Flooding from Reservoirs

🟦 Maximum extent of flooding

☑ Other national environmental organisations

🟥 Natural Resources Wales Area of responsibility

🟦 Scottish Environment Protection Agency Area of responsibility

Map of X: 383,115; Y: 397,886 at scale 1:10,000

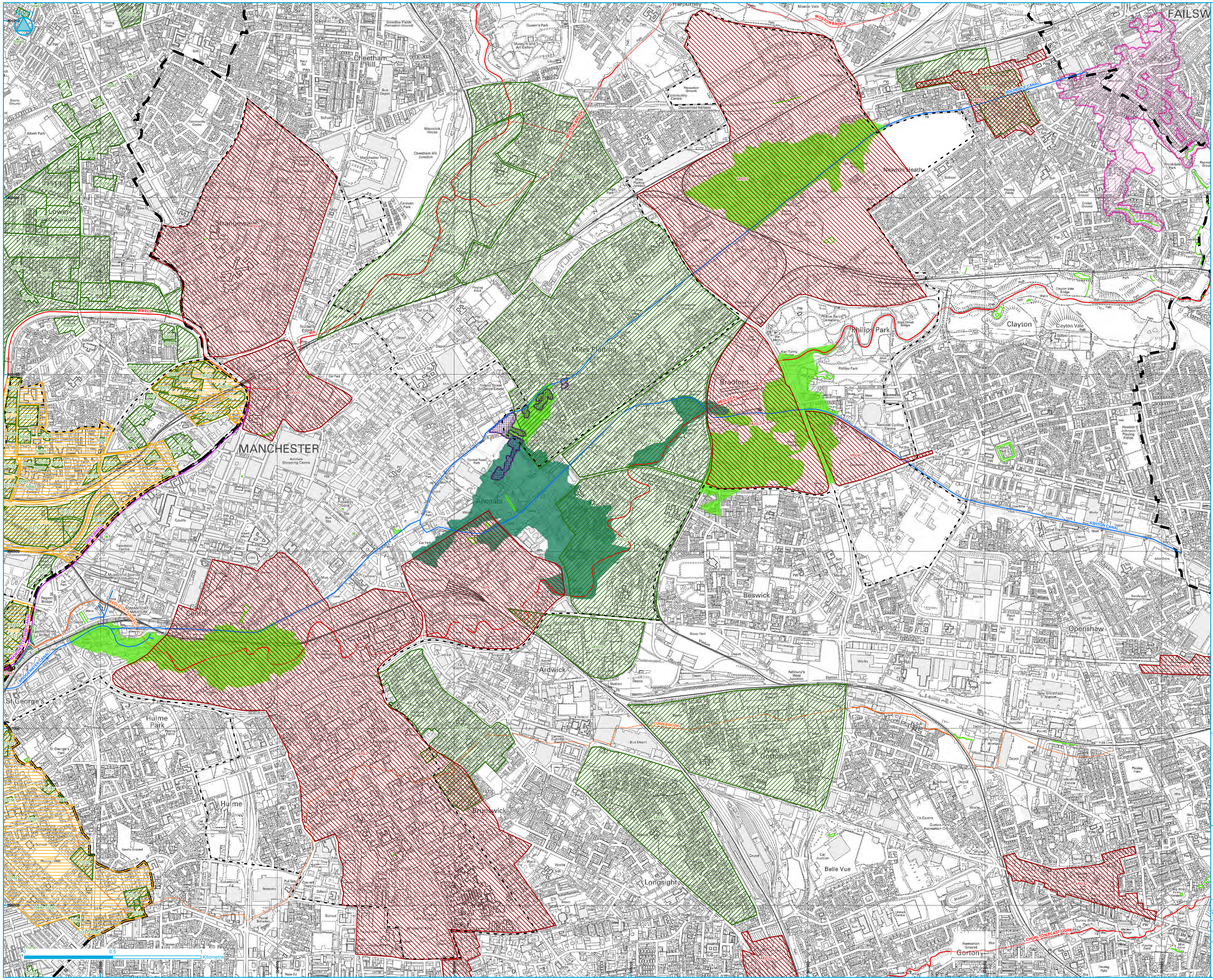
Data search
A6
Crescent
Adelphi
New Windsor
Salford Central
Market St
Picc
A56
Deansgate
A34
Peter Street
St Peter's Square
MANCHESTER
A5066
A57
Regent Road
A6143
City Centre
The Factory
B6469
Deansgate
Manchester Oxford Road
Ordsall Lane
A5066
Ordsall
Cornbrook
Chester Road
St George's
200 m
1000 ft

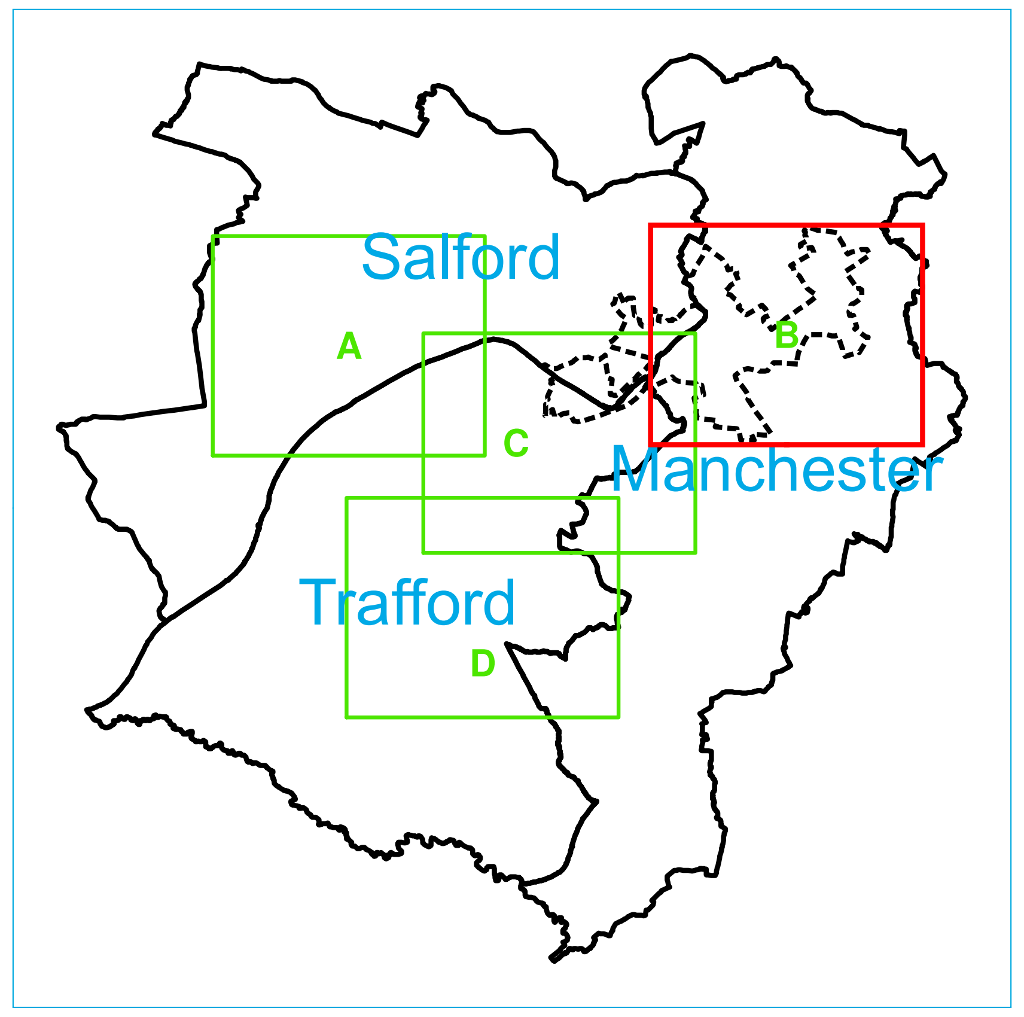
RoC CONSULTING

CIVIL ENGINEERING SKETCH

INFORMATION

Job No:	3233
Project Title:	The Factory - FRA
Sketch No:	FRA002
Sketch Title	EA Online Reservoir Breach Maps
Drawn by:	AR – 14/7/2015





- Council Boundary

Canal Overtop Hazard Zone

- ▦ Canal Overtop Hazard Zone

Canal Breach Hazard Zone

- 🟩 Canal Breach Zone A
- 🟩 Canal Breach Zone B
- ▨ Oldham SFRA Canal Hazard Zone

Potential Development Sites / Locations

- ▨ Employment
- ▨ Housing
- ▤ Mixed Use
- ▥ Other
- Regional Centre Boundary

- Ashton, Bridgewater and Rochdale Canals
- Manchester Ship Canal / Grey Irwell
- Other Waterbodies

Main Rivers (V8.0)

- Culverted
- Open

Digitised River Lines

- Culverted
- Open

This map has been produced in accordance with PPS25: Development and Flood Risk.

Two indicative "Canal Hazard Zones" have been created for the Bridgewater, Ashton and Rochdale Canals. These have been generated using broadscale 2D modelling to show areas that could potentially be affected by flooding in the event of
•Canal Overtop Hazard Zone
•Canal Breach Hazard Zone.

The potential breach locations / areas were sub-divided into two Canal Breach Zones:
•Canal Breach Zone A. A walkover survey of the canal was undertaken to identify the embankments more likely to breach, based on their height and width. This zone shows those areas that would be affected by a breach of one of these embankments. In this zone a detailed examination of canal breach flood risks is required in a site specific FRA.
•Canal Breach Zone B. Less likely breach locations, such as at wide, low or very low embankments, were identified by a walkover survey of the canal. At such locations it is more likely that this source of risk could be scoped out within any site specific FRA.

It should be noted that these outlines are based on broadscale modelling techniques and should only be taken as an indication of areas that might be at risk and inform Flood Risk Assessments. There are a number of uncertainties associated with the simulation of flooding from canals in either overtopping or breach conditions. The assumptions behind the modelling should be considered when using and reviewing the hazard zones that have been produced. Full details of the methodology used to derive Canal Hazard Zones is provided in Chapter 3 of the Level 2 SFRA and guidance on the use of the Canal Hazard Zones is provided in Chapter 3 of the SFRA User Guide.

The Canal Hazard Zone resulting in a breach from the Rochdale Canal in Oldham has also been included on the map and has been taken from the Oldham SFRA (2010). This was based on a similar broadscale methodology.

Interactions between the Bridgewater Canal and the River Medlock in Castlefield may result in overtopping of the Canal during severe weather events, as shown elsewhere in the SFRA.

For further information please see the Level 2 SFRA Chapter 3.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The River Irwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

The map should be considered when applying the Sequential Test and used to scope the inclusion of canal flood risk within a site specific FRA.

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for

Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA

Canal Hazard Zones

Drawn by:	J Cheetham	**Date:**	15/03/2011
Checked by:	J Dimelow	**Date:**	01/02/2011
Approved by:	J Cooper	**Date:**	01/02/2011

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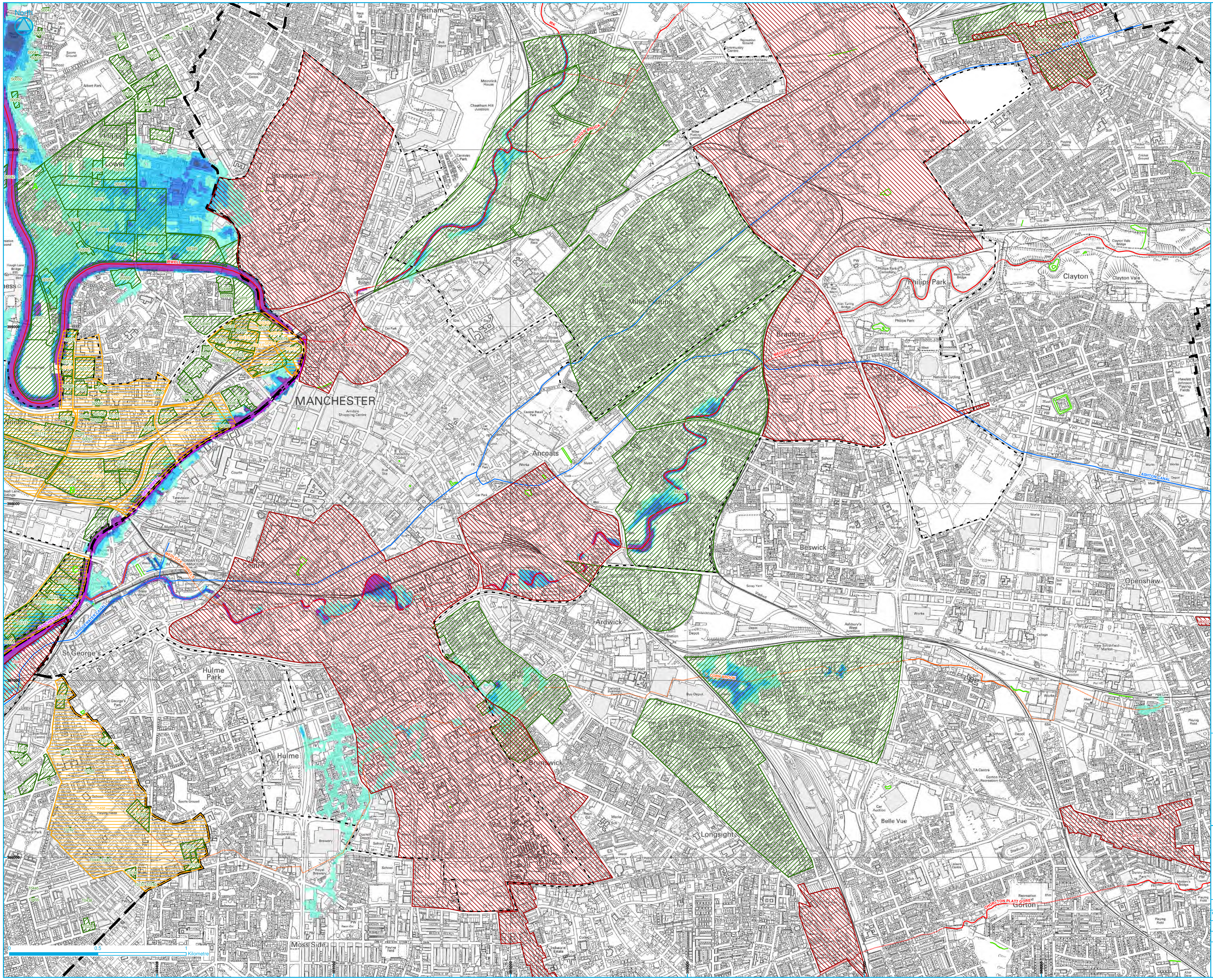
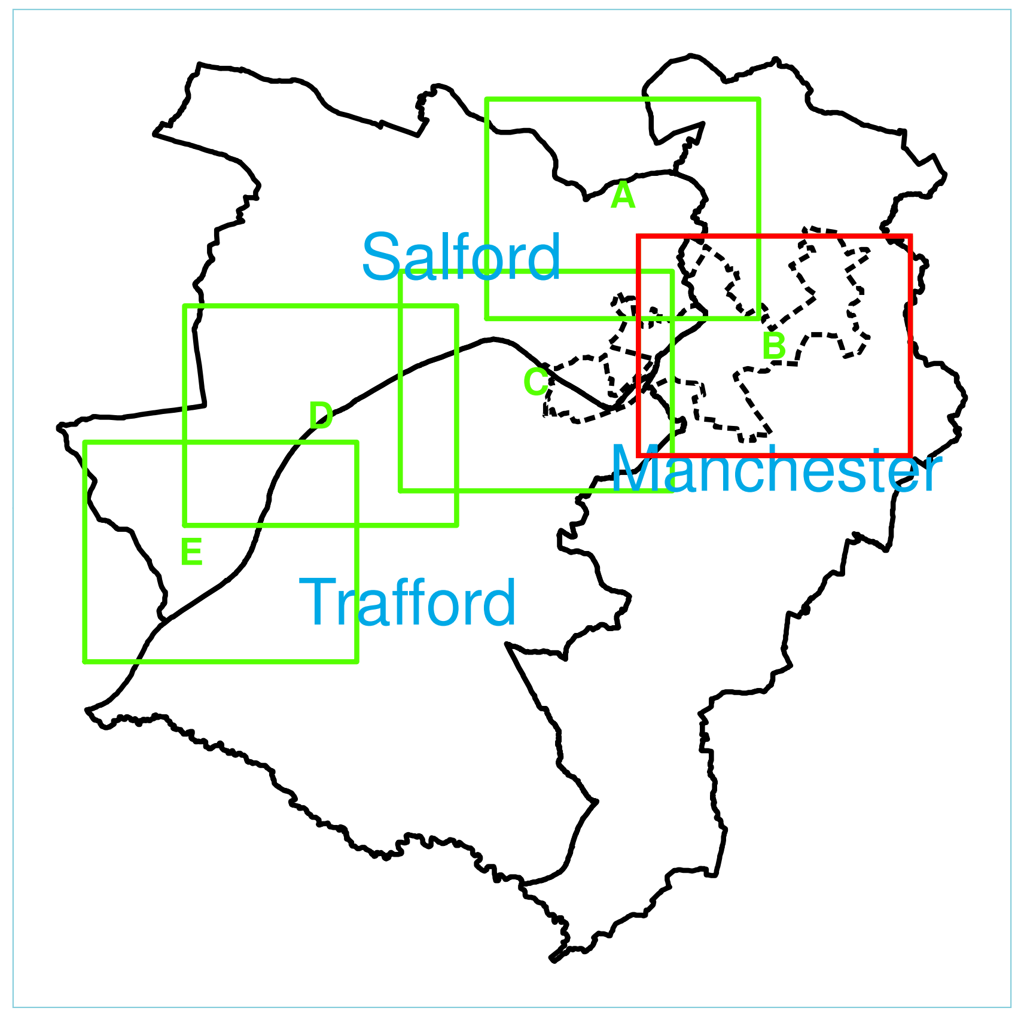
File Name: ...ArcView\Mapping\Level2\MST_Canal_Hazard_V1.3.mxd

Drawing Number:	**Status:**	**Scale:**
MM_3.2B	FINAL	1:10,000

Original @ A1

APPENDIX J – FLOOD DEPTH MAP


North
Cheetham Hill
Strangeways
Newton Heath
Miles Platting
Philips Park
Clayton
Bradford
MANCHESTER
Ancoats
Beswick
Openshaw
Ardwick
West Gorton
St George's
Hulme Park
Hulme
Brunswick
Longsight
Belle Vue
Gorton
Moss Side
IRWELL
ASHTON CANAL
0
0.5
1
Kilometre


Salford
Manchester
Trafford
A
B
C
D
E

▬ ▬ Council Boundary

Maximum Flood Depth (m)

- 🟦 <0.5
- 🟦 0.5 - 1
- 🟦 1 - 1.5
- 🟦 1.5 - 2
- 🟪 >2

Potential Development Sites / Locations

- ▨ Employment
- ▨ Housing
- ▤ Mixed Use
- ▥ Other

- ▭ Regional Centre Boundary

— Ashton, Bridgewater and Rochdale Canals

— Manchester Ship Canal / Grey Irwell

— Other Waterbodies

Main Rivers (V8.0)

- ⋯ Culverted
- — Open

Digitised River Lines

- ⋯ Culverted
- — Open

This map has been produced in accordance with PPS25: Development and Flood Risk and its Practice Guide.

The map identifies the estimated flood depths using the modelling outputs produced for this SFRA. The SFRA modelled reaches are shown on Figure 1.1 of the Maps Index. This map can used to identify those areas sensitive to increases in flood depth in the future.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The River Irwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

The map should be used to apply the Sequential Test and Exception Test.

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Fluvial 1 in 100 Year With Climate Change Flood Depth

Drawn by: J Cheetham	**Date:** 25/11/2010		
Checked by: J Dimelow	**Date:** 07/01/2011		
Approved by: J Cooper	**Date:** 13/01/2011		
File Name: ...ArcView\Mapping\Level2\MST_Fluvial_Q100_CC_Depth_V1.2.mxd			
Drawing Number: FL_1.7B	**Status:** FINAL	**Scale:** 1:10,000	Original @ A1

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APPENDIX K – CORRESPONDENCE

From: Andy Rain
To: O'Brien, Neil
Cc: DocumentController
Subject: RE: Meeting with UU - Various Projects
Date: 17 February 2015 12:50:00
Attachments: image003.jpg
image004.png
image005.jpg
image006.png

Neil,

You're not being a pain we would always complete the developer enquire forms, just wanted to make sure I don't go off at a complete tangent to your requirements before submission.

I will carry out some further investigation on the Airports preferred operation when it comes to their drainage network.

Kind regards

Andy Rain BEng(Hons) CEng MICE
Civil Engineering Director
On behalf of R^{O}C Consulting
07947 434 859
www.rocconsulting.com

New Year Signature 2015

Click for more information:

cid:image004.png@01D00E33.49046490

From: O'Brien, Neil [mailto:Neil.O'Brien@uuplc.co.uk]
Sent: 13 February 2015 09:40
To: Andy Rain
Cc: DocumentController
Subject: RE: Meeting with UU - Various Projects

Andy,

Sorry, to be a pain but could you complete a pre-development enquiry form for each of the sites below and send it to wastewaterdeveloperservices@uuplc.co.uk. That way you will receive a form response and a DE reference number. Also a file will be set up and the information stored on a central server for further reference.

One of the issues on Manchester Airport was that the airport did not know whether they wanted to put the on-site drainage forward for adoption. My understand is that Manchester Airport acts like a mini water company and charges the properties within the airport site water and sewerage fees. Clearly if the sewers are adopted by UU then the charges will go to UU.

The previous proposal included a large foul pumping station with a deep wet, which was location close to a building. This was not acceptable to UU.

Regards

Neil

From: Andy Rain [mailto:andy.rain@rocconsulting.com]
Sent: 12 February 2015 09:16
To: O'Brien, Neil
Cc: Perry, Graham; DocumentController
Subject: Meeting with UU - Various Projects

Neil,

Thank-you for meeting with me yesterday and apologies for being late.

Just to confirm our discussion ahead of the submission of the developer agreement:

1No Spinningfields:

- Free discharge, no requirement for flow restrictions and therefore attenuation
- Connection direct to the surrounding UU adopted network. Currently the preferred connection location are in Byrom Street and Gartside Street.

Whitworth:

- Free discharge, no requirement for flow restrictions and therefore attenuation
- Connection direct to the surrounding UU adopted network. Proposed connection into Whitworth Street.

St Johns:

-
There are currently two proposals, the first discharging all the surface water into the River Irwell and the second into the surrounding adopted network with a 50% reduction in flow. The issue with the first option is that the majority of the site sits behind Water Street which is an adopted highway and creates a legislative barrier preventing private drainage networks crossing it.

We understand UU's preferred option would be for the discharge of all surface water to the River Irwell, which we will continue to develop, however as a falls back provided we demonstrate the 50% reduction in flows UU would not object to connection of the surface water networks into the surround adopted sewer network.

In all the above cases the foul flows can discharge feely into the adopted sewer network.

Airport City North:

-
This scheme has been previously reviewed by UU for a different consultant. I will supply under the cover of separate email the current scheme details.

As an aside to the above could you please advise on the connection requirements into the UU sewer. Our preferred method would be to provide a separate surface and foul water drainage network within the footprint of the development site and then combine these at the most downstream manhole on the network (after any surface water restrictions). From this manhole we would then make a single combined connection onto the combined adopted sewer.

By return could you please confirm the content of this email and advise on the connection requirement. Should you require any further clarification on the information above, please do not hesitate to contact me.

Kind regards

Andy Rain BEng(Hons) CEng MICE
Civil Engineering Director
On behalf of R$^{\underline{O}}$C Consulting

07947 434 859
www.rocconsulting.com

New Year Signature 2015

Click for more information:

cid:image004.png@01D00E33.49046490

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Andy Rain

From: Neil Adair <nadair@peel.co.uk>
Sent: 18 April 2016 16:34
To: Andy Rain
Subject: RE: 3233, St Johns Development - Salford and Junction Canal

Categories: Filed by Newforma

Andy,

Thanks for the e-mail.
Please see below my response to your questions.
I'm happy to come over and meet up to discuss further if necessary.

Kind regards

Neil

Neil Adair
Senior Asset Manager

Peel Utilities Holdings Limited
Peel Dome, intu Trafford Centre, TRAFFORD**CITY**,Manchester M17 8PL

Telephone: 0161 629 8353
Mobile: 07825 513 990
Fax: 0161 629 8332
Email: nadair@peel.co.uk **Web:** www.peel.co.uk

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From: Andy Rain [mailto:andy.rain@rocconsulting.com]
Sent: 18 April 2016 07:52
To: Neil Adair
Subject: 3233, St Johns Development - Salford and Junction Canal

Neil,

When reviewing the details for the St John's development and particular the route for the Surface Water Outfall into the River Irwell, there is the potential that the path of least constraint would be to discharge into the Spur of the Manchester and Salford Junction Canal before it connects to the River Irwell. This is located just to the South of the Victoria and Albert Hotel drop off. Could you please provide any details that you make have in relation to the following:

1) Land Ownership – This land is not owned by the MSCC
2) Navigation Authority – MSCC are the navigational authority for this part of the River Irwell, so a licence will be required for this discharge via the disused lock into the river
3) Limits on Discharge (Will this remain as if we were connecting direct to the Irwell). I will need to check with the engineers on this point, but I do not believe any restriction would be needed. I would need to understand further the way the discharge from the lock to the river will occur – is this an open link between the two, or are the lock gates closed off and the discharge via an opening / outfall from the old lock into the River? The main potential issue will be the velocity of the discharge into the canal.
4) Any further issues associated with the existing lock infrastructure that remains within the Channel of the Canal. The lock infrastructure is not within the ownership of MSCC, so we are not able to advise on this.

I am in Portsmouth today but please do not hesitate to give me call should you require any clarification on my request above.

Regards and thanks,

Andy Rain BEng(Hons) CEng MICE
Civil Engineering Director
On behalf of RºC Consulting

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www.rocconsulting.com

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St John's Place Manchester
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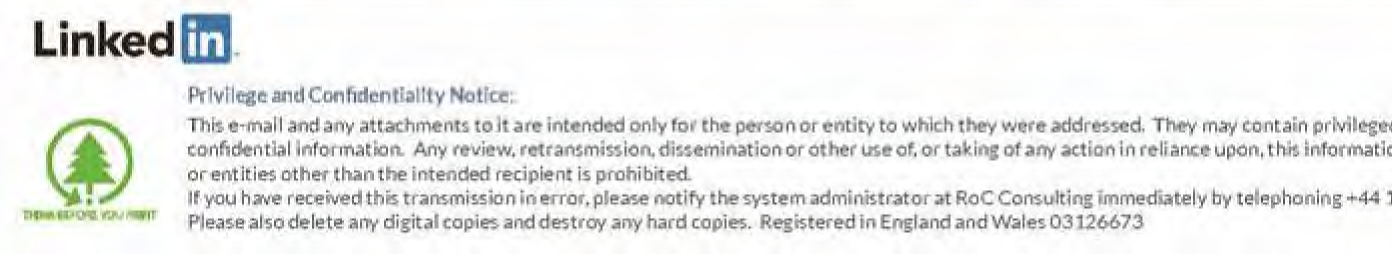
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MEETING MINUTES

JOB REFERENCE	**CONTRACT**	**SUBJECT**
3233	St John's	Flood Risk Mitigation Strategy
MEETING	**DATE**	**VENUE**
NO. 01	15 June 2016	MCC – Town Hall Extension
PRESENT	Esther Goodship - MCC (EG) Andy Rain – RoC Consulting (AR)	

		ACTION
1.0	**FLOOD WARNING SYSTEM**	
	When reviewing the general masterplan, the development plots most affected by flooding are The Factory and Zone 7 (Riverside). These plots are within flood zone 2 and Zone 7 is not afforded a dry excess / egress, because of the levels of Water Street.	
	EG enquired as to the option of tapping into the existing Environment Agency flood warning system. AR advised that the Environment Agency's control of the River Irwell terminates some distance upstream of the St John's redevelopment location. This had been discussed with the Environment Agency previously but was feasible (as defined by the Environment Agency). EG is going to speak with the Environment Agency further on this as it will not only apply to St John's, but also future developments within the general Manchester region.	
	AR will review the available proprietary flood warning systems available.	
2.0	**FLOODING & BUILDING LEVELS**	
	AR noted the response from the Environment Agency in respect of the proposed flooding levels for the River Irwell and the inclusion of various levels (percentages) of climate change. EG noted the response and was comfortable with the following strategy;	
	• Within the development proposal there is no intention to locate residential (steeping accommodation) at ground level or below within a basement. As such only commercial uses would be affected / at risk of flooding.	
	• Building levels should be set as high as is physically possible accounting for the surround constraints (Water Street) and the requirement to provide DDA compliant access. Individual plot therefore need to be assessed separately and MCC advise of the floor levels that can be achieved rather than stipulated a floor level across the entire development.	
	• The ramp provided into the central village should maintain its current proposal level which is set above the 1 in 100 yr plus climate changing flood level.	

	• Where it is likely that the ground floor level of the building will be below the 1 in 100 yr and climate change flood level. Flood resilient measures should be included, these include; a) Wiring to run from ceiling down b) Connections points from IT, electric etc should be located above the flood level c) Key infrastructure, power, services etc should be located above the flood level d) Plaster board should be laid horizontal e) Floor and wall coverings should be easily cleaned or replaced f) Potential connection points for flood barriers should be provided which allow temporary flood barrier to be installed quickly if necessary g) Non return valves on drainage (F/W and S/W) h) Plastic and stainless steel materials instead of wood i) Detail of elevation treatments to include for the resistance of water penetration j) Seals around doors to be specified such that they aid in water exclusion	
3.0	**DISCHARGE**	
	AR advised of the two options which had been developed for the disposal of S/W from the St John's development; a) Option A – to sewers b) Option B – to private outfall into the River Irwell	
	AR advised that option B was preferred but could be cost prohibitive and was space prohibitive in terms of any requirements for attenuation. As such would Manchester City Council accept an un-restricted discharge into the River Irwell subject to approval by Peel. EG advised that in this case that would be accepted based on the following; a) Acceptance of flows, discharge rates, volumes and velocities by Peel b) Confirmation of the impact (if any) on the existing canal spur c) The connection point into the River Irwell is close enough to the confluence with the Manchester Ship Canal that Manchester City Council will accept MSC / Peel discussion over the discharge of S/W	
4.0	**GENERAL SUDS WITHIN THE DEVELOPMENT**	
	Options to include; a) Green Roofs b) Rainwater Harvesting – potentially suitable within the public realm for irrigation and cleaning c) Permeable Paving d) Water Gardens – options to be reviewed in and around the pits	

5.0	MAINTENANCE	
	As the network will be private and will include a licence from Manchester City Council to cross Water Street, it will be maintained by ALP and their internal property management team.	

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SPECIAL PROJECTS

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