# **Victoria House, Great Ancoats Street**
# Environmental Impact Assessment

## ES Vol 2 Environmental Statement

February 2020

Turley
Planning

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# Glossary

| Term / Abbreviation | Definition |
|---|---|
| Additional mitigation | Measures which may be implemented at specific points in the future or when specific events are observed |
| Air Quality Management Area (AQMA) | Area identified by the local authority, within which there may be locations where the air quality objectives are not being achieved. |
| British Standard (BS) | "British Standards" means formal consensus standards as set out in BS 0-1 paragraph 3.2 and based upon the principles of standardisation recognised inter alia in European standardisation policy. |
| Department for Transport (DfT) | DfT is a ministerial department. The department provides policy, guidance and funding to English local authorities in order to run and maintain road networks, improve passenger and freight travel and develop new major transport schemes. |
| Design Manual for Roads and Bridges (DMRB) | The “Design Manual for Roads and Bridges” was introduced in 1992 by the Overseeing Organisations specifically for Trunk Road Works throughout the UK. In England, the Overseeing Organisation is The Highways Agency. It provides a comprehensive manual system which accommodates, within a set of loose-leaf volumes, current Standards, Advice Notes and other published documents relating to Trunk Road Works. |
| Desk Based Assessment (DBA) | A Desk-based Assessment takes into consideration all known records relating to a defined area |
| Embedded mitigation | How the Proposed Development has been specifically designed to avoid or minimise the occurrence of adverse environmental effects. |
| Environment Agency (EA) | The Environment Agency is an executive non-departmental public body sponsored by Defra with responsibility for regulating major industry and waste; treatment of contaminated land; water quality and resources; fisheries; inland river, estuary and harbour navigations; conservation and ecology. |
| Environmental Impact Assessment (EIA) | The formal process used to predict the environmental consequences (positive or negative) of a plan, policy, program, or project prior to the decision to move forward with the proposed action. |
| Environmental Statement (ES) | Presents the findings of an Environmental Impact Assessment. |

| Term / Abbreviation | Definition |
|---|---|
| Environmental Statement Scoping Opinion (ESSO) | The formal opinion from MCC on the scope of the EIA. |
| Environmental Statement Scoping Report (ESSR) | Presents the proposed assessment methodologies for the EIA. |
| Flood Risk Assessment (FRA) | Report assessing flood risk from a range of sources. |
| Forshaw Land and Property Limited | The Applicant |
| Greater Manchester Archaeological Advisory Service (GMAAS) | Greater Manchester Archaeological Advisory Service (GMAAS) acts as the archaeological curator for the ten Districts of Greater Manchester. They provide advice across the county on all matters relating to archaeology and the planning process, including appropriate protection and recording measures on development sites. GMAAS also maintains the Greater Manchester Historic Environment Record to aid this planning process. |
| Greater Manchester Ecology Unit (GMEU) | Provides advice on ecological issues to local councils and holds records of protected species and local protected sites within the Greater Manchester area. |
| Highways England | Manages the strategic highway road network |
| Historic England (HE) | An executive non-departmental public body of the British Government sponsored by the Department for Culture, Media and Sport and is responsible for the management of the historic environment. |
| Historic Environment Record (HER) | Information services that seek to provide access to comprehensive and dynamic resources relating to the historic environment of a defined geographic area for public benefit and use. |
| Institute of Air Quality Management (IAQM) | Professional body for those working in air quality. |
| Institute of Environmental Management and Assessment (IEMA) | UK membership organisation for individuals involved in environmental management and assessment. |
| Inter-project cumulative effects | The potential effects of the Proposed Development arising when combined with and interacting with the effects of other major developments. |
| Intra-project cumulative effects | The potential effects between environmental topic areas of the Proposed Development. |
| Kilometres (km) | Measure of distance. |
| Lead Local Flood Authority (LLFA) | The Flood and Water Management Act (2010) assigns powers and duties to LLFAs for managing local flood risk. |

| Term / Abbreviation | Definition |
|---|---|
| | Local flood risk includes flooding from minor watercourses ('Ordinary Watercourses'), surface water and groundwater. |
| Local Highways Authority | Manages the local highway road network. |
| Lower Super Output Areas (LSOAs) | Geography designed for the collection and publication of small area statistics, with a minimum size of 1,000 residents and 400 households. |
| Lowest Observed Adverse Effect Level (LOAEL) | This is the level above which adverse effects on health and quality of life can be detected. |
| Manchester City Council (MCC) | The Local Planning Authority who will determine the planning application and Environmental Statement |
| Multi-Agency Geographic Information for the Countryside (MAGIC) | Searchable mapping website which, among other things, displays location of statutory sites of nature conservation interest and important/notable habitats. |
| National Planning Policy Framework (NPPF) | Sets out government's planning policies for England and how these are expected to be applied |
| Particulate Matter ($PM_{2.5)}$ | Small airborne particles less than 2.5 micrometres in aerodynamic diameter. |
| Particulate Matter ($PM_{10)}$ | Small airborne particles less than 10 micrometres in aerodynamic diameter. |
| Scheduled Monument (SM) | 'Scheduling' is shorthand for the process through which nationally important sites and monuments are given legal protection by being placed on a list, or 'Schedule'. |
| Site of Special Scientific Interest (SSSI) | The statutory nature conservation agencies have a duty under the Wildlife and Countryside Act 1981, as amended, to notify any area of land as SSSI, if in their opinion the land is 'of special interest' by reason of any of its flora, fauna, or geological or physiographical features'. |
| Strategic Flood Risk Assessment (SFRA) | A district wide overview of flood risks including collation of all available data. |
| Sustainable drainage systems (SUDS) | A sequence of water management practices and facilities designed to drain surface water in a manner that will provide a more sustainable approach than what has been the conventional practice of routing run-off through a pipe to a watercourse. |
| The Proposed Development (PDS) | The demolition of Victoria House and the replacement with a 25-storey tower with ground floor commercial unit (161sqm) and 177 apartments (Use Class C3) with associated shared amenity spaces, cycle parking, recycling and refuse bin storage, associated plant and public realm enhancements. |

| Term / Abbreviation | Definition |
|---|---|
| Town and Country Planning Act 1990 (TCPA1990) | The legislation under which planning permission is sought |
| Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (EIA Regulations 2017) | The legislation under which EIAs are required to be undertaken |
| Transport Assessment | Supporting transport document which accompanies the Planning Application. |
| Transport for Greater Manchester (TfGM) | Organisation responsible for implementing local transport policy. Responsible for co-ordinating public transport throughout Greater Manchester and day to day management of traffic signals on Greater Manchester's major highways. |
| UK Climate Change Projections (UKCP18) | A climate analysis tool produced by the UK Met Office and the leading source of climate information for the UK and its regions. The tool provides climate information on observed climate data, climate change projections and marine and land projections. Projections are broken down to a regional level and are shown in probabilistic form, outlining the potential range of changes and level of confidence in the predictions. |
| Water Framework Directive (WFD) | The Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy) is a European Union directive which commits European Union member states to achieve good qualitative and quantitative status of all water bodies |
| Wildlife and Countryside Act 1981 (as amended) (WCA) | The main national legislation relating to wildlife and nature conservation. Also provides for the designation and protection of SSSIs. |
| Zone of Theoretical Visibility (ZTV) | A map, usually digitally produced, showing areas of land within which a development is theoretically visible. |

# 1. Introduction

1.1 This document comprises Volume 2 of the Environmental Statement ("ES") which has been prepared on behalf of Forshaw Land and Property Group (Forshaw) ("the Applicant"), in support of an application for full planning permission for the demolition of Victoria House, Great Ancoats Street and the erection of a 25 storey residential tower with associated uses and a commercial unit at ground floor level (hereafter referred to as "the Proposed Development").

1.2 The Proposed Development Site ("PDS") comprises Victoria House which is a single storey industrial unit currently used as a safe deposit centre. The PDS is located within the boundary of Manchester City Centre along Great Ancoats Street, Longacre Street and Epworth Street.

1.3 The Proposed Development comprises the following elements:

- Single tower extending to 25 storeys in height
- 177 residential apartments for the private rental sector, to comprise a mix of one, two and three bedroom apartments (extending to a total of 15,160sqm)
- High quality shared amenity spaces, including a gym, co-working space, residential garden and shared dining space
- A commercial unit to comprise use classes A1, A2, A3, A4 and D1 extending to 161sqm

1.4 The description of development is as follows:

*"Demolition of existing buildings and erection of a residential tower (Use Class C3) with commercial space (Use Class A1, A2,A3, A4 and D1) associated shared amenity spaces, cycle parking, recycling and refuse bin storage, associated plant and public realm enhancements"*

1.5 The planning application has been submitted to Manchester City Council ('MCC') pursuant to the Town and Country Planning Act 1990 ('TCPA 1990').

1.6 This ES has been prepared in line with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) ("EIA Regulations 2017") and considers the likely significant environmental effects of the Proposed Development.

**Purpose of Environmental Impact Assessment**

1.7 The Proposed Development is of a scale which falls within Schedule 2 of the EIA Regulations 2017. In this instance the Applicant has decided to undertake the Environmental Impact Assessment (EIA) on a voluntary basis.

1.8 An Environmental Statement Scoping Opinion ("ESSO") was requested from MCC on 23 October 2018. An ESSO was received from MCC on 12 November 2018 and has informed the scope of this ES.

1.9 The purpose of the ES is to assess the likely significant environmental effects of the Proposed Development. In doing so it describes: the baseline environmental conditions; the options for development which have been considered and discounted to date; the design of the Proposed Development; and an assessment of likely significant environmental effects of the construction and operational phases of the Proposed Development in each environmental topic area. Where it has not been possible to design the Proposed Development to avoid the occurrence of likely significant adverse environmental effects, the ES describes the mitigation measures that have been identified and which will be incorporated into the scheme.

1.10 This ES has been prepared having regard to the EIA Regulations 2017 and associated best practice guidance documents.

## ES Structure and Guidance

1.11 The ES for the Proposed Development is presented in four volumes as follows:

- Volume 1: Non-Technical Summary (NTS);
- Volume 2: Environmental Statement (this document);
- Volume 3: Figures; and
- Volume 4: Technical Appendices.

1.12 The ES has been prepared by competent experts[1], fully qualified and experienced in their technical fields. A full list of those individuals and their CVs who have been responsible for preparing the ES, including undertaking relevant surveys and assessments is provided at **ES Volume 4: Appendix 1.1.**

1.13 The respective organisations who have contributed to the ES is presented below:

**Table 1.1: List of ES Consultants**

| Chapter Number | Assessment | Consultant |
|---|---|---|
| n/a | Glossary | Turley |
| 1 | Introduction | Turley |
| 2 | Site Location and Surrounding Area | Turley |
| 3 | Background and Context | Turley |
| 4 | Proposed Development | Turley |
| 5 | EIA Methodology | Turley |
| 6 | Alternatives and Design Evolution | Turley |

[1] In accordance with EIA Regulations 2017, Part 5, Section 18

| Chapter Number | Assessment | Consultant |
|---|---|---|
| 7 | Construction Programme | Turley |
| 8 | Townscape and Visual Impact | Chris Burnett Associates |
| 9 | Built Heritage | Turley Heritage |
| 10 | Archaeology | Nexus |
| 11 | Transport | Curtins |
| 12 | Air Quality | Hydrock |
| 13 | Noise and Vibration | Hydrock |
| 14 | Ground Conditions | Hydrock |
| 15 | Water Environment | WSP |
| 16 | Ecology | Penny Anderson Associates |
| 17 | TV Interference | PagerPower |
| 18 | Wind Microclimate | GIA |
| 19 | Daylight, Sunlight and Overshadowing | GIA |
| 20 | Socio-Economics | WYG |
| 21 | Human Health | WYG |
| 22 | Climate Change | WYG |
| 23 | Environmental Management and Conclusion | Turley |

## ES Figures and Technical Appendices

1.14 Volume 3 and Volume 4 of the ES comprises the various figures and technical appendices which the individual ES chapters rely on and make reference to, and which have informed the EIA process. The content of Volume 3 and Volume 4 is provided below:

**Table 1.2: List of Volume 3 Figures**

| ES Chapter No. | Environmental Statement Topic | Figures (contained within Volume 3) |
|---|---|---|
| n/a | Glossary | n/a |
| 1 | Introduction | n/a |
| 2 | Site Location and Surrounding Area | n/a |
| 3 | Background and Context | n/a |

| ES Chapter No. | Environmental Statement Topic | Figures (contained within Volume 3) |
|---|---|---|
| 4 | Proposed Development | n/a |
| 5 | EIA Methodology | n/a |
| 6 | Alternatives and Design Evolution | n/a |
| 7 | Construction Programme | n/a |
| 8 | Townscape and Visual Impact | Figure 8.1: TVIA Maps<br>Figure 8.2: Viewpoint and townscape photographs including AVR and wireline images |
| 9 | Built Heritage | n/a |
| 10 | Archaeology | Figure 10.1 Archaeology Site Location<br>Figure 10.2 Archaeology Study Area<br>Figure 10.3 Archaeology Site Plan<br>Figure 10.4 Archaeology Location of Archaeological Assets within the Study Area<br>Figure 10.5 Archaeology Location of Archaeological Events within the Study Area<br>Figure 10.6 Archaeology Map Regression 1819 – 1893<br>Figure 10.7 Map Regression 1908 -1965<br>Figure 10.8 Map Regression 1968 – 2014<br>Figure 10.9 Plan Showing Proposed Development Overlain onto Adshed's Plan 1850 |
| 11 | Transport | n/a |
| 12 | Air Quality | n/a |
| 13 | Noise and Vibration | Figure 13.1 Existing Sensitive Receptors<br>Figure 13.2 Monitoring Locations<br>Figure 13.3 Schematic Cross-Section<br>Figure 13.4 Daytime Noise Levels<br>Figure 13.5 Night time Noise Levels<br>Figure 13.6 Maximum Night time Noise Levels<br>Figure 13.7 Daytime Façade Noise Exposure |

| ES Chapter No. | Environmental Statement Topic | Figures (contained within Volume 3) |
|---|---|---|
| | | Figure 13.8 Night time Façade Noise Exposure |
| 14 | Ground Conditions | n/a |
| 15 | Water Environment | Figure 15.1 Water Environment – Flood Plan<br>Figure 15.2 Water Environment – Sewer Record |
| 16 | Ecology | n/a |
| 17 | TV Interference | n/a |
| 18 | Wind Microclimate | Figures 18.1 18.25 Wind Assessment Results |
| 19 | Daylight, Sunlight and Overshadowing | Figure 19.1 Daylight and Sunlight Site Location<br>Figure 19.2 Daylight and Sunlight Assessment Tables |
| 20 | Socio-Economics | Figure 20.1 The five component work streams of IER<br>Figure 20.2 Ancoats and Clayton Ward Profile<br>Figure 20.3 Piccadilly Ward Profile<br>Figure 20.4 Manchester Metropolitan District Profile<br>Figure 20.5 Piccadilly Ward – Population Age Structure<br>Figure 20.6 Education levels for Manchester Piccadilly Ward<br>Figure 20.7 Indices of Deprivation (IMD) data for 2016<br>Figure 20.8 Crime reports for Piccadilly Station search area for August 2018<br>Figure 20.9 Manchester City Centre – Open Spaces |
| 21 | Human Health | Figure 21.1 Ancoats and Clayton Ward Profile<br>Figure 21.2 Piccadilly Ward Profile<br>Figure 21.3 Manchester Metropolitan District Profile<br>Figure 21.4 IMR per 1,000 live births – three year period |

| ES Chapter No. | Environmental Statement Topic | Figures (contained within Volume 3) |
|---|---|---|
| | | Figure 21.5 Prevalence of obesity in primary school age by ward – 2011/2012 - 2013/2014 |
| 22 | Climate Change | Figure 22.1 Graphical representations of GHG emissions since 1990 to 2017<br>Figure 22.2 Annual mean precipitation changes for period 2020 to 2039<br>Figure 22.3 Annual mean precipitation changes for period 2030 to 2049 |
| 23 | Environmental Management and Conclusion | n/a |

**Table 1.3: List of Volume 4 Technical Appendices**

| ES Chapter No. | Environmental Statement Topic | Appendices (contained within Volume 4) |
|---|---|---|
| n/a | Glossary | n/a |
| 1 | Introduction | Appendix 1.1: CVs of ES Team |
| 2 | Site Location and Surrounding Area | n/a |
| 3 | Background and Context | n/a |
| 4 | Proposed Development | n/a |
| 5 | EIA Methodology | Appendix 5.1 MCC Scoping Opinion<br>Appendix 5.2a: List of Cumulative Schemes and Plan<br>Appendix 5.2b: Map of Cumulative Schemes and Plan |
| 6 | Alternatives and Design Evolution | n/a |
| 7 | Construction Programme | n/a |
| 8 | Townscape and Visual Impact | n/a |
| 9 | Built Heritage | Appendix 9.1 Heritage Assessment |
| 10 | Archaeology | Appendix 10.1 Archaeology Desk Based Assessment |
| 11 | Transport | Appendix 11.1 Transport Statement<br>Appendix 11.2 Interim Travel Plan |

| ES Chapter No. | Environmental Statement Topic | Appendices (contained within Volume 4) |
|---|---|---|
| 12 | Air Quality | Appendix 12.1 Air Quality Assessment |
| 13 | Noise and Vibration | Appendix 13.1 Noise Planning Report<br>Appendix 13.2 Noise Monitoring Results<br>Appendix 13.3 Construction Noise Predictions |
| 14 | Ground Conditions | Appendix 14.1 Ground Conditions Desk Study |
| 15 | Water Environment | Appendix 15.1 Flood Risk Assessment |
| 16 | Ecology | Appendix 16.1 Ecology Survey Results |
| 17 | TV Interference | Appendix 17.1 Television Desk-Based Report |
| 18 | Wind Microclimate | Appendix 18.1 Wind and Microclimate Methodology |
| 19 | Daylight, Sunlight and Overshadowing | n/a |
| 20 | Socio-Economics | n/a |
| 21 | Human Health | n/a |
| 22 | Climate Change | n/a |
| 23 | Environmental Management and Conclusion | n/a |

# 2. Site Location and Description

2.1 The PDS is located on the eastern edge of Manchester City Centre and is approximately 0.16 hectares in area.

2.2 The PDS comprises Victoria House which is a single storey industrial unit currently used as a safe deposit centre. The PDS is located within the Ancoats area of Manchester City Centre.

2.3 The PDS is broadly rectangular in shape and is bounded by Great Ancoats Street to the east, Epworth Street to the south-east, existing industrial development to the south / south-west and Longacre Street to the west / north-west.

**Figure 2.1: Site Location Plan**




*Source: Google Earth*

2.4 The PDS and its immediate surroundings to the south and west currently comprise light industrial uses, and the surrounding area to the north and east of the PDS comprises predominately residential apartments. The Ashton Canal is approximately 70 metres north of the PDS.

2.5 Great Ancoats Street is a busy road which forms part of the Ring Road route around the City Centre. Proximate to the PDS, the character of Great Ancoats Street is largely characterised by a combination of:

- High-rise, late 20th to early 21st century development in the form of commercial and residential high-rise blocks; and

- Single-storey industrial and commercial units (to the east of the site).

2.6 Epworth Street is a cul-de-sac which is characterised by low-rise industrial and commercial units including the industrial building to the south of the PDS which is owned by GBM Group. All units on this road have a fenced off carpark and contribute very little to the positive street scape within this area.

2.7 To the east, Longacre Street is characterised by mid–scale industrial and commercial units. To the west of Longacre Street is the metro-link line, high-rise 21st century development in the form of residential apartments and historic mill buildings.

2.8 The PDS is strategically located within walking distance of Piccadilly Station, the Etihad Campus, New Islington, Ancoats and the Northern Quarter and is therefore within a sustainable location for regeneration and development.

2.9 The site is well linked to sustainable transport modes with New Islington Tram Stop located approximately 300 metres northeast of the PDS and Manchester Piccadilly Train Station approximately 400 metres west of the PDS.

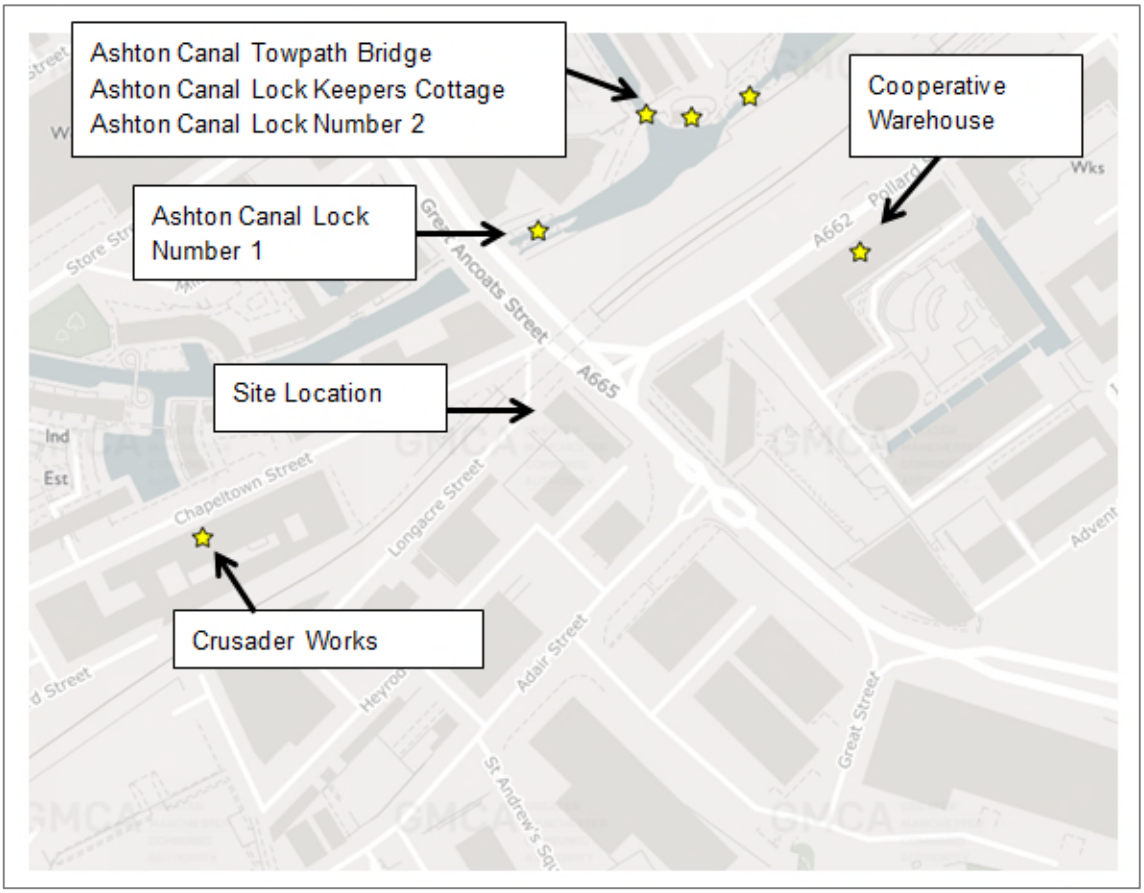
2.10 According to MAGIC[2] maps, the PDS is not within any national or local environmental designations for the protection of landscape or ecology. The PDS does not fall within a Conservation Area; however, there are a number of listed buildings surrounding the PDS as listed in the table below and shown at **Figure 2.2**.

**Table 2.1: Listed Buildings**

| Listed Building | Approximate Distance from Site proposed for the Energy Centre |
|---|---|
| Ashton Canal Lock Number 1 – Grade II | 110 metres |
| Cooperative Warehouse – Grade II | 130 metres |
| Ashton Canal Towpath Bridge Over Junction With Islington Branch Canal – Grade II | 220 metres |
| Crusader Works – Grade II | 220 metres |
| Ashton Canal Lock Keepers Cottage -Grade II | 250 metres |
| Ashton Canal Lock Number 2 Off South End Of Vesta Street - Grade II | 260 metres |

[2] Multi-Agency Geographic Information for the Countryside

**Figure 2.2: Environmental Designations (Source: Mapping GM)**




2.11 According to the Environment Agency flood mapping service, the PDS is within Flood Zone 1, defined as land having less than 1 in 1,000 annual probability of river flooding.

# 3. Background and Context

3.1 This section provides the context for the Proposed Development. In particular, it provides the context to the Applicant, Manchester, the City Centre, and the PDS and its surrounds. Further information on the context of the site and surrounding area can be found within the Planning Statement.

### Forshaw Land and Property Limited

3.2 Forshaw Land and Property Limited develops and redevelops properties assets the North West region. They have successfully delivered several flagship schemes in Manchester and Salford Quays, including the Warehouse at the Dye Works in Salford, and the River Plaza, Alumni, and Halo in Manchester. These developments set the standard for residential experience and offer a range of exclusive amenities for occupiers, including fully equipped gymnasiums, residents' lounges, roof terraces and concierge services.

### The Site and Surrounding Area

3.3 The PDS is located on the eastern edge of Manchester City Centre, within the Ancoats area. Ancoats has been the focus of regeneration, with the redevelopment of historic buildings, the development of new residential accommodation, and is home to a number of independent restaurants, bars, and food markets. The area is also characterised by light industrial uses and warehouses, a number of which are run-down and dilapidated.

3.4 The PDS is strategically located within walking distance of Piccadilly Station, the Etihad Campus, New Islington, Ancoats and the Northern Quarter and is therefore within a sustainable location for regeneration and development.

3.5 The PDS comprises an existing single storey industrial unit currently used as a safety deposit centre with a service yard to the rear. The building is lacking in architectural style and is detracts from the emerging, modern architectural high-rise developments which have been delivered along Great Ancoats Street.

### Strategic Regeneration Framework Area

3.6 The PDS forms part of the HS2 Manchester Piccadilly Strategic Regeneration Framework ('HS2 SRF'), and the Portugal Street East Strategic Regeneration Framework ('PSE SRF').

3.7 In January 2014, Manchester City Council adopted the 'HS2 Manchester Piccadilly Strategic Regeneration Framework (2014)' (HS2 SRF) following the UK Government's commitment to Phase 2 of High Speed 2.

3.8 The HS2 SRF is a high level document covering a significant land area and is intended to offer a structuring framework within which more detailed sub-area guidance could come forward. It sets great ambitions for the regeneration of the area around Piccadilly. The HS2 SRF anticipates the delivery of the following benefits:

- The connectivity associated with a best in class multimodal transport hub
- 4,500 new homes
- 625,000 sqm of commercial office space
- 100,000 sqm of retail space
- 1,000 new hotel rooms
- The creation of numerous high quality public spaces
- A string of cultural and community use buildings

**Figure 3.1: HS2 SRF Area**

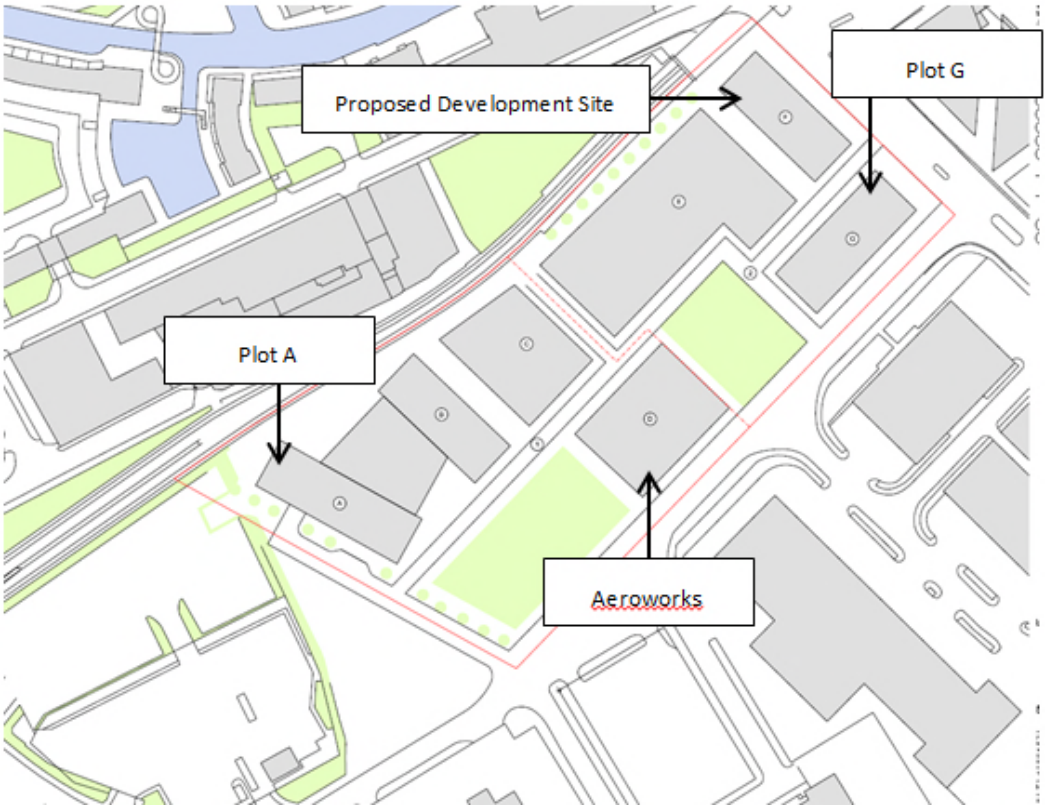



*Source: HS2 Manchester Piccadilly Strategic Regeneration Framework, 2014*

3.9 The PSE SRF Area builds on the HS2 SRF to guide the future development of this area (as shown at **Figure 3.2**). The Vision for the PSE SRF is:

*"The vision for the Portugal Street East Masterplan is to shape and realise the city's ambitions to regenerate and transform the neighbourhood surrounding the Piccadilly train station and create a sense of place for the area. The successful delivery of the masterplan will create a new vibrant mixed-use, pedestrian community, which complements the arrival of HS2 and strengthens Manchester's Eastern Gateway."*

**Figure 3.2: Portugal Street East SRF Area**




*Source: Portugal Street East Masterplan*

3.10 Currently the PSE SRF area does not provide a high quality arrival experience to the City. The SRF area currently comprises light industrial uses which have seen little investment and are generally of low architectural quality.

3.11 The purpose of the PSE SRF is to guide the future development of the area, to realise the opportunities created by HS2 and the potential of this area as a high quality neighbourhood that can act as a further catalyst to regeneration of the wider HS2 masterplan and support Manchester's wider regeneration objectives across its eastern gateway.

3.12 The PDS is located at Plot E (shown at **Figure 3.2**) and forms an integral part of the PSE SRF area. The PDS fronts Great Ancoats Street, which is a key arterial route into and through the City.

3.13 The PSE SRF was approved at MCC's Executive Meeting on 21 March 2018. At this meeting the Strategic Director (Development), in consultation with the Leader were given delegated authority to adopt the PSE SRF on the signing of the Collaboration Agreement between the landowners. The PSE SRF was formally adopted by delegated powers by MCC on 16 October 2019.

3.14 There are other known projects within the PSE SRF area for which planning permission has been granted by MCC. These projects comprise:

- Plots A and B, Portugal East Street, proposed two residential buildings 29 and 23 storeys which will provide 488 residential apartments (ref. 121099/FO/2018);
- Plot G, 1 Adair Street, proposed for a part 13 and part 14 storey Hotel (275-bedrooms) (ref. 122599/FO/2019); and
- Provision of new public realm within the PSE SRF area (ref. 121467/FO/2018).

# 4. The Proposed Development

4.1 This section provides a summary of the key components of the Proposed Development.

4.2 A full description of the scheme (including analysis of the application site and surroundings) is set out in the Design and Access Statement, and the Planning Statement.

### The Vision

4.3 Forshaw's ambition for the PDS and surrounding area is to create a new neighbourhood district that responds to the emerging residential user and required uses. This new neighbourhood will be distinctive and tailored to the PSE SRF area, creating a strong identity for the emerging neighbourhood. This requires development to change from a highways focussed environment that is anchored in the industrial history, into an area which relates to its future and setting within the context of the wider regeneration surrounding Piccadilly.

4.4 A core component of the scheme will be the delivery of a carefully considered high-quality design which will respond to the specific constraints and opportunities associated with the site to deliver a scheme which integrates with the surrounding landscape.

4.5 The gateway site and location at an intersection between New Islington Field, the Metrolink line and Ashton Canal Tow Path creates an appropriate setting for the creation of a landmark building which will formally acknowledge the importance of the Longacre Street, Great Ancoats Street corner. A landmark building in this location will provide an opportunity to terminate vistas, create a focal point and present a strong architectural presence.

4.6 The creation of an exemplar building with a strong visual profile, will make a positive contribution to the City's skyline, restore and strengthen the building line on Great Ancoats Street.

4.7 The development will respond positively with the surrounding public realm through active ground floor uses and sympathetic materiality. This will provide the setting for unique public spaces that ensure the creation of a distinctive and high-quality destination which connects to the surrounding public areas.

### The Proposal

#### Overview

4.8 The Proposed Development comprises the demolition of Victoria House to provide new high quality residential accommodation for the private rented sector market, with a commercial unit at ground floor level.

4.9 A 25-storey residential tower (Use Class C3) comprising 177 apartments (15,160sqm) (Use Class C3) and a ground floor commercial unit (161sqm) (Use Class A1, A2, A3 and D1) are proposed.

4.10 The bedroom accommodation will be supported by a number of high quality shared amenity spaces, including a gym, co-working space, and a residential garden.

4.11 The Proposed Development includes the provision of plant, servicing, recycling and refuse bin storage, and cycle storage (177 spaces).

4.12 The Proposed Development will contribute financially towards the delivery of new public realm within the PSE SRF area, including a new public square which will be situated to the south west of the PDS. The public square is proposed to be used by the residents and users of the Proposed Development, and other future developments within the SRF Area.

**The Building**

4.13 The layout aligns with the historical street grid and formally anchors the northern corner, terminating vistas and creating a focal point to the corner of Great Ancoats Street and Longacre Street. The apartment cluster has the southern corner extracted which reduces the visual form of the tall building proposal. This creates an elegant slender marker which respects the PSE SRF proposal for the new public square by creating a defined edge.

4.14 The layout for the tall building has been efficiently planned as a cluster of apartments around a central core. A total of 177 residential apartments are proposed comprising a mix of one, two and three bedroom apartments. The proportional split of apartments is as follows:

- 1-bed apartments (59 apartments / 33%);
- 2-bed apartments (113 apartments / 64%); and
- 3-bed apartments (5 apartments / 3%).

4.15 The residential layout for the building has been planned as a cluster of apartments around a central core.

4.16 The development will be 25-storeys and will sit above a three storey podium which is cut back to Great Ancoats Street providing a colonnade to articulate and emphasize the tower form.

4.17 The podium contains a 177-space cycle store on the first floor and private resident's garden on the second floor. At the ground floor, the podium contains the retail unit (161sqm), the cycle entrance, the post and welfare room, and the co-working space.

4.18 The ground floor also contains the resident's entrance and lounge, the waste disposal and recycling areas, plant and equipment, and the resident's gym. Further plant is situated at the basement level.

4.19 The uses on the ground floor provide an active frontage which will provide an improved street environment on Great Ancoats Street and for the proposed public square.

**Access and Parking**

4.20 Residential access will be taken from Great Ancoats Street and the southern elevation fronting the public realm.

4.21 Vehicular access will be taken from Longacre Street providing access to the building to allow for waste disposal and deliveries.

4.22 Access to the cycle parking for 177 bicycles will be taken from Great Ancoats Street.

4.23 No vehicle parking is proposed given the site's proximity to facilities and public transport.

4.24 Pedestrian access into the commercial unit will be provided from Great Ancoats Street, Epworth Street and the public realm.

**Design**

4.25 The vertical form and rational geometric composition of the building has informed the façade design. A regular expressed façade grid has been planned from the existing historical brickwork buildings. The expressed brickwork grid has a primary grid spanning every two floors and an inset secondary grid to intermediate floors. Further emphasis to the grids is provided through the use of stretcher and header brickwork bonds.

4.26 Deep inset floor to ceiling windows will provide extensive views from the apartments and maximise natural daylight penetration. Natural ventilation is provided through anodised aluminium rapid vents. These are full height inward opening windows, concealed with a flush finished perforated metal screen to the façade. The perforate pattern for the rapid vents is extracted from two different historical brickwork bonds which were found within the local context. Flemish has been employed for the outer facades to Great Ancoats Street and Longacre Street and Flemish Cross to the inner facades to the new public square. This provides a contextual visual reference and connection to the heritage of the site.

4.27 Chamfers (3 metres) are included on the façade of the building at the corner of Great Ancoats Street and Longacre Street, and external fins are included on the lower levels (levels 1 and 2) of the south west elevation. These are aligned with the height of the podium. The primary need for the chamfers and fins is to reduce wind acceleration and provide pedestrian comfort and safety. The chamfers and fins also act as visual interest, particularly the chamfters to the corner of Longacre & Great Ancoats Street and improves the overall slenderness and visual form of the building.

4.28 To further reduce wind acceleration and provide residents comfort and safety, a full height perimeter screen will be erected around the resident's garden and roof terrace.

**Hard and Soft Landscaping**

4.29 A private resident's garden is proposed at level 2 and is enclosed with a full height perimeter screen to provide degree of enclosure, privacy and shelter from the prevailing south westerly wind.

4.30 Landscaping is also proposed around the perimeter of the PDS.

**The Public Realm**

4.31 The public-realm proposal seeks to change the PSE SRF area from a highways focussed environment that is anchored in its past to an area which responds to its setting within the context of wider regeneration around Piccadilly Station. The landscape solution for the PSE SRF area includes the delivery a communal park and a square connected via a pedestrianised route, improved public realm along Long Acre Street, Adair Street and all other streets within the PSE SRF area. The public-realm will create a place with an identity that it unique, through the provision of spaces which will be the focus for the community. The proposal for the public realm has been granted planning permission pursuant to a separate application (ref: 121467/FO/2018).

# 5. EIA Methodology

5.1 In accordance with Part 1, Regulation 4 (2) and Schedule 4 of the EIA Regulations 2017 (as amended), the ES will identify and evaluate the likely ***significant*** environmental effects arising from the Proposed Development both in its own right and in combination with other relevant developments (i.e. the likely significant cumulative impacts) on:

*"…population, human health, biodiversity, for example flora and fauna(with particular attention to species and habitats protected under Directive 92/43/EEC(a) and Directive 2009/147/EC(b)), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions and impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape"*

**Content of the Environmental Statement**

5.2 In accordance with Part 5, Regulation 18 and Schedule 4 of the EIA Regulations 2017, the ES includes the following information:

- a description of the location of the Proposed Development (Chapter 4);
- a description of the physical characteristics of the Proposed Development (Chapter 4);
- a description of the main characteristics of the operational phase of the Proposed Development (Chapter 4 and Chapter 7);
- an estimate by type and quantity of expected residues and emissions such as air and noise during the construction and operational phases (Chapters 12 and 13);
- a description of the reasonable alternatives studied by the developer, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for the chosen option including a comparison of the environmental effects (Chapter 6);
- a description of the relevant aspects of the current state of the environment (baseline conditions) and an indication of the likely evolution thereof without implementation of the Proposed Development as far as natural changes from the baseline scenario can be assessed (Chapters 8 to 22);
- a description of the factors referred to in regulation 4(2) likely to be significantly affected by the Proposed Development (Chapters 8 to 22);
- a description of the likely significant effects of the Proposed Development on the environment resulting from, inter alia (Chapters 8 to 22):
  - Construction and operation of the Proposed Development;
  - The use of natural resources (such as land, soil, water, biodiversity);
  - The emission of pollutants (such as noise and light);
  - The risks to human health, cultural heritage or the environment;
  - The inter-project cumulative effects taking account other committed developments;
  - The impact of the Proposed Development on climate (for example through green-house gas emissions) and;

– The technologies and substances used.

- a description of effects addressing any direct and indirect, secondary, cumulative, trans-boundary, short, medium and long term, permanent and temporary, positive and negative effects of the Proposed Development (Chapters 8 to 22);
- a description of the forecasting methods or evidence used to identify and assess the significant effects of the Proposed Development is presented, as is a description of the measures envisaged to prevent, reduce or, if possible, offset any significant adverse effect and where appropriate of any proposed monitoring arrangements (Chapters 8 to 22, and Chapter 23); and
- a description of the expected significant effects of the development on the environment deriving from the vulnerability of the Proposed Development to risks of major accidents and/or disasters which are relevant to the Proposed Development (Chapter 5).

5.3 A non-technical summary of information outlined above is also provided within the Environmental Statement Non-Technical Summary (**Volume 1**).

5.4 The environmental topics are addressed under the headings detailed in column two of **Table 5.1.**

**Table 5.1: Area of Assessment within the Environmental Statement**

| EIA Regulation | Area of Assessment within the Environmental Statement |
|---|---|
| Population | Effects on the local population will be addressed in the chapters which deal with: townscape and visual effects, transportation, air quality, noise, human health, and socio-economic considerations. |
| Human Health | Effects on Human Health will be addressed in the human health, air quality and noise assessment chapters. |
| Biodiversity | The effects of the Proposed Development on biodiversity are addressed in the Ecology chapter. |
| Land / Soil / Water | Effects on these assets will be addressed in in the chapters dealing with the water environment and ground conditions. |
| Air | Effects on air will be addressed in the air quality chapter. |
| Climate | Effects in respect of climatic factors will be dealt with in the chapters dealing with air quality and climate change. |
| Material Assets | Effects to material assets will be addressed in the chapters dealing with heritage, archaeology, and townscape and visual effects. |
| Cultural Heritage (including architectural and archaeological aspects) | Effects to cultural heritage will be addressed in the chapter dealing with built heritage, archaeology and townscape and visual effects. |

| EIA Regulation | Area of Assessment within the Environmental Statement |
|---|---|
| Landscape | Effects to townscape will be addressed in the chapters dealing with townscape and visual effects. |
| Interrelationship between the above factors | To be considered within each environmental topic area. |
| Vulnerability of the Proposed Development to major accidents or disasters | Effects from major accidents or disasters are identified in this chapter (Chapter 5) and are addressed in specific topic chapters where applicable. |

5.5 This ES describes the results of the environmental assessments and identifies any significant adverse or beneficial effects as a result of the Proposed Development. In accordance with the requirements of Part 5, Regulation 18 (5) the ES has been completed by competent experts, and their CVs are provided at **ES Volume 4: Appendix 1.2**.

5.6 All environmental topics have evaluated and identified the likely significant environmental effects arising from the Proposed Development. Significant environmental effects have been identified for the construction (including demolition) and operational phases of the Proposed Development. Mitigation methods, residual effects, and intra-project and inter-project cumulative effects, have also been identified.

5.7 The design process has been influenced by the environmental impact assessment such that mitigation measures have, where possible, been "embedded" into the scheme design.

5.8 The remaining sections of this chapter describe the approach to the EIA method including the approach to: considering alternatives; considering risks from accidents and disasters; considering likely significant environmental effects; and considering cumulative effects.

## Approach to the Consideration of Alternatives

5.9 In accordance with the requirements of Schedule 4 (2) of the EIA Regulations 2017, this ES presents the reasonable alternatives considered during the iterative design and consultation process which are relevant to the Proposed Development and its specific characteristics.

5.10 **Chapter 6** of this ES explains the detailed approach to the alternatives considered and provides an explanation as to why certain alternatives have not been taken forward and why the preferred option has been selected. **Chapter 6** also includes a comparison of the environmental effects between the alternative options considered versus the proposed scheme.

## Embedded Mitigation

5.11 A description of the Proposed Development is provided at **Chapter 4** of this ES. The results of the environmental assessments have influenced the Proposed Development, and the design includes measures to avoid or to minimise the occurrence of significantly adverse environmental effects. These measures include:

- Embedded mitigation in terms of visual and townscape effects has been incorporated into the Proposed Development as part of the design process and has evolved through consultation with the Local Planning Authority and Places Matter Design Review amongst others.
- Chamfers and fins are included on the façade of the building to reduce wind acceleration and provide pedestrian comfort and safety. The chamfers and fins also act as visual interest, particularly the chamfters to the corner of Longacre & Great Ancoats Street and improves the overall slenderness and visual form of the building.

- A full height perimeter screen will be erected around the resident's garden and roof terrace to further reduce wind acceleration and provide residents comfort and safety.

- The Proposed Development will not consist of any vehicle parking spaces resulting in no additional traffic movements to the road network.
- The energy strategy is proposed to be entirely electrical based and there will be no additional emissions from CHP/boilers.
- Provision of a residential garden, which will benefit new residents in terms of lifestyle and health.
- Provision of cycle spaces, will ensure a space is available for each flat within the development and will benefit the new residents in terms of lifestyle and healthcare improvement.
- Provision of resident's gym, will benefit new residents in terms of lifestyle and health improvements.
- Incorporation of energy design measures to reduce energy demand and therefore $CO_2$ emissions.
- Incorporation of Drainage Strategy to ensure adequate capacity to remove surface and foul water.
- A Framework Travel Plan has been prepared for the Proposed Development, which contains a package of measures designed to encourage residents to travel by sustainable modes and discourage single occupancy car travel.

5.12 Such measures are 'embedded' within the scheme design rather than being required as 'add-on' mitigation.

5.13 The measures above have been taken into account in the assessment of significance and are described in further detail in the relevant assessment chapters.

## Approach to the Consideration of Risks from Major Accidents and Disasters

5.14 In accordance with the requirements of Schedule 4 (8) of the EIA Regulations 2017, this ES presents:

*"a description of the expected significant effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project…where appropriate this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies."*

5.15 The assessment process to identify the vulnerability of the Proposed Development to risks of major accidents (human causes) and/or disasters (natural causes), relevant to the scheme has been undertaken by:

- Identifying all of the potential effects from major accidents (human causes) and disasters (natural causes) that are relevant to the Proposed Development;
- Identifying the likelihood of these accidents and disasters occurring, taking into account any embedded/designed mitigation; and
- Where expected effects of the Proposed Development on the environment are likely to arise from the vulnerability of the development to risks of major accidents and/or disasters, an evaluation of their significance (using the assessment methodology described below) has been completed and is provided in relevant environmental topic chapters. Where effects are not likely, these have been scoped out of further assessments.

5.16 **Table 5.2** provides a list of the potential effects from major accidents (human causes) and disasters (natural causes) that are relevant to the Proposed Development, and the likelihood of these accidents and disasters occurring, taking into account any embedded/designed mitigation. Where applicable, the table identifies where in the ES the significance of the effects from/on the major accidents (human causes) and disasters (natural causes) have been assessed.

5.17 It is important to note that the construction industry is heavily regulated by standards pertaining to health and safety in form of *The Construction Design and Management Regulations 2015 ("*CDM 2015 Regulations"). The Applicant / the contractors of the development will appoint a Principle Designer and Principal Project Manager during construction to ensure compliance with the CDM 2015 Regulations (or any updated revision). This will include identification and mitigation of risks to the Proposed Development.

5.18 The detailed design of the Proposed Development will be designed to applicable HSE, International and British Standards, European standards and IGEM standards in order to follow best practice in respect to reducing risks through design. The applications of these standards are subject to quality systems in accordance with ISO9001, ISO 14001 and OHSAS18001.

5.19 **Table 5.2** summarises the potential accidents and disasters that could derive that are relevant to the Proposed Development. During the detailed design process the design

will be continually risk assessed by the team in order to design out risks before construction begins. It is the responsibility of the developer / operator to ensure all health and safety and design standards are complied with and appropriate evidence is made available upon request.

**Table 5.2: Major Accidents and Disasters**

| Major Accident / Disaster | Control Measure | Assessment |
|---|---|---|
| Fire | A Fire Standards Statement has been submitted with the planning application. The Fire Standards Statement includes recommendations such as Fire Alarms with remote monitoring, gas detection and automatic gas shut off and compartmentation in accordance with building regulations part B. | The strategies proposed in the Fire Report Strategy will be implemented. As such, the effects from the risk of fire are not included in the ES due to the very low likelihood of a fire occurring with design mitigation in place. |
| Flooding | The site is within Flood Zone 1 which has the lowest probability of flooding. | A Flood Risk Assessment is not required for the Proposed Development due to the location and scale of the proposal. However, flooding is considered and assessed within Chapter 15: Water Environment. The assessment concludes the Proposed Development will not cause a risk to/or be at risk from flooding. |
| Pollution of water resources / geological receptors | There is a risk of leaks and spillages during the construction and operation process. Mitigation measures are identified in the Chapter 14 (Ground Conditions) of this ES which reduce the risk of the effect occurring. These will be implemented via a Construction and Environmental Management Plan and via planning conditions. | The effects from contamination are considered in Ground Conditions section of the ES (Chapter 14). Where applicable, mitigation measures have been identified to reduce the risk of the effect occurring and these measures will be carried forward into a final Construction and Environmental Management Plan. With mitigation in place there will be a low risk of pollution to water and geological receptors. |
| Eradication of sensitive species / habitats | There is a low risk of eradication of sensitive species / habitats due to the urban nature of the site and no sensitive species being present. | An Ecological Assessment is included at Chapter 16 of this ES. There will be no effects on habitats and species as a result of the Proposed Development. |

| Major Accident / Disaster | Control Measure | Assessment |
|---|---|---|
| Structural Collapse (Natural/Unnatural causes) | The development will be designed to British Standards, Euro-codes and building regulations. The design and construction will be continually reviewed by an independent accredited building control inspector during the design and construction.<br>Structural condition surveys will be undertaken prior to works taking place within existing buildings. | The effects from the risk of structural collapse are not included in the ES due to the very low likelihood of it occurring. |
| Injury During Maintenance | The development will be designed in accordance with the CDM2015 Regulations (or any updated revision). Therefore any risks to injury will be designed out or controlled. Maintenance will be performed by appropriately trained operatives. | The effects from the risk of injury are not included in the ES due to the low likelihood of it occurring. |
| Fall from heights | Access on roof to be restricted to authorised personnel only with working at heights safe equipment and training. | The effects from the risk of falling from heights are not included in the ES due to the low likelihood of it occurring. |
| Electricity - Possible injury, shock and burns from faulty electrical equipment or installation | Regular electrical, equipment inspection and danger signs will be erected where required. Only competent persons will be permitted to carry out any electrical works. Buried services designed and protected in accordance with British Standards. | The effects from the risk of injury from electricity are not included in the ES due to the low likelihood of it occurring. |

| Major Accident / Disaster | Control Measure | Assessment |
|---|---|---|
| Access to open trenches/construction areas | All trenches will be cordoned off by high fencing and locked gating preventing unauthorised access. | The effects from the risk of accidents from access to the trenches are not included in the ES due to the low likelihood of it occurring. |
| Risk of vehicle accidents with other vehicles and pedestrians | All vehicles will be fitted with sensors, reverse beeping, and only competent persons permitted to operate vehicles on site. | The effects from the risk of accidents from vehicles are not included in the ES due to the low likelihood of it occurring. |

## Approach to the Scope of the Environmental Statement

5.20 An Environmental Statement Scoping Opinion ("ESSO") was requested from MCC on 23 October 2018 in the form of an Environmental Statement Scoping Report. An ESSO was received from MCC on 12 November 2018 and has informed the scope of this ES.

5.21 The ESSO from MCC agreed with the proposed approach and scope of the ES, and proposed additional matters to be included within the ES. MCC consulted key statutory consultees to inform their scoping opinion. A summary table of the ESSO is provided at **Table 5.3** and is provided in full at **ES Vol 2 Appendix 5.1**.

**Table 5.3:** **Summary** of Environmental Statement Scoping Opinion

| Topic | Consultee | Summary of Consultee Response | Summary of MCC ESSO | Proposed Incorporation into ES |
|---|---|---|---|---|
| Archaeology | Greater Manchester Archaeological Advisory Service | Agrees with the proposed scope of the Archaeology assessment. | Agrees with the proposed scope of the Archaeology assessment. | As per the proposed scope. ES Chapter 10. |
| Air Quality | Manchester Environmental Health Service | Agrees with the scope of the Air Quality assessment. | Agrees with the proposed scope of the Air Quality assessment. | As per the proposed scope. ES Chapter 12. . |
| Climate Change | No statutory consultee response received | - | Agrees with the proposed scope of the Climate Change assessment. | As per proposed scope. ES Chapter 22. |
| Cumulative Impacts | No statutory consultee response received | - | Agrees with the list of cumulative sites for assessment and suggests inclusion of additional sites, including:<br>• Burlington House (app ref 106021)<br>• Land at Ducie Street (app ref 120149)<br>• 27 Dale Street (app ref 116401)<br>• Red Lion Street (app ref 113713)<br>• Brownsfield Mill (app ref 115401) | The additional projects have been included within the cumulative assessments of each assessment chapter and as shown at ES Vol 4 Appendix 5.2. |

| Topic | Consultee | Summary of Consultee Response | Summary of MCC ESSO | Proposed Incorporation into ES |
|---|---|---|---|---|
| Daylight and sunlight and overshadowing | No statutory consultee received | - | As the development site is located within the regeneration area, where other sites are likely to come forward for redevelopment in the near future, conclusions should be drawn that there is no overshadowing or overlooking impacts that could impact on the viability of other sites coming forward at a later stage. | • This analysis in included within ES Chapter 19 Daylight, Sunlight and Overshadowing. |
| Ecology | Greater Manchester Ecology Unit | Agrees Ecology can be scoped out of the ES. | Agrees Ecology can be scoped out of the ES. | Ecology to be scoped out as proposed. |
| Ground Conditions | Environmental Health Service | Agrees with the proposed scope for the Ground Conditions assessment | Agrees with the proposed scope for the Ground Conditions assessment | As per proposed scope. ES Chapter 14. |
| Water Environment | Environment Agency | Should consider the impacts the development may have in terms of contamination at the site. If there are potential risks to water environment a site investigation would be required to:<br>• determine the nature and extent of contamination;<br>• carry out a risk assessment to identify any unacceptable | Agrees with proposed scope, however also states the scope should note:<br>• The site's location within the Conurbation Core Critical Drainage Area. At least 50% reduction in surface water runoff should be provided through SUDS. | This analysis in included within ES Chapter 15 Water Environment, and within Chapter 14 Ground Conditions. |

| Topic | Consultee | Summary of Consultee Response | Summary of MCC ESSO | Proposed Incorporation into ES |
|---|---|---|---|---|
| | | risks to the water environment; and<br>• prepare a remediation strategy to ensure appropriate mitigation. | • Surface water should be managed to ensure there is no increased surface water from the proposed development and runoff from extreme events should be retained within the site.<br>• Hydraulic calculations and drawings to support the design need to be provided along with proposed standards of operation and maintenance.<br>• If new surface water outfall is proposed into the River Medlock, a Land Drainage Consent will be required. | |
| | United Utilities | No comment on scope of assessment | | |
| Traffic and Transport | Manchester City Council Highways | Highways requests confirmation as to whether there will be a car park proposed within the Portugal East SRF area.<br>A complete SRF impact approach should be taken as well as a 'plot by plot' assessment.<br>Multi-modal person trip approach should be taken with vehicular trips percentage share obtained from Census data. The generated trips | Suggests additional information is required, in line with scope set out by Highways and TfGM except:<br>• In terms of funding of junction upgrades, MCC suggest an assessment of the need to fund improvements at these junctions required as a result of the development. | The proposal does not include car parking spaces due to the close proximity to public transport services.<br>The traffic and transport assessment at Chapter 11 includes the additional analysis suggested by Highways, TfGM and MCC.<br>• |

| Topic | Consultee | Summary of Consultee Response | Summary of MCC ESSO | Proposed Incorporation into ES |
|---|---|---|---|---|
| | | should be distributed on the network even if numbers are relatively small.<br>A trip distribution diagram should be provided.<br>Qualitative and quantitative description of expected travel characteristics (including pedestrian / cycle movements) of the site and wider Masterplan area should be provided.<br>Servicing strategy supported by swept paths and laybys should be proposed as necessary.<br>Funding may be required to update the pedestrian / cycle facilities at Adair Street/Great Ancoats Street junction and Pollard Street/Great Ancoats Street junction.<br>Commuted sums are required for non-standard materials – these will have to tie in with the MCC Great Ancoats Street scheme.<br>Travel Plan, Cycle Parking CMP, Accident History, Waste Management Information, Structural Drawings and calculations | MCC added that consideration should be given to:<br>• Inclusion of EV charging points within the development<br>• Impact of the development on existing public transport networks and mitigation measures<br>• Impact of the development on the public realm and infrastructure within the Portugal Street and Piccadilly SRF areas as well as the need to improve linkages to the heart of the City Centre. | |

| Topic | Consultee | Summary of Consultee Response | Summary of MCC ESSO | Proposed Incorporation into ES |
|---|---|---|---|---|
| | | for temporary and permanent support works (if the basement is proposed to be adjacent to the highway). | | |
| | Transport for Greater Manchester | TfGM will require a fully developed cross section to be drawn to indicate the relationship between the tunnel / retaining walls and the new building (including its foundations).<br>Conditions are likely to be requested to cover a construction management plan (working safely near Metrolink) and to require monitoring of the Metrolink infrastructure during construction. | | |
| Human Health | No statutory consultee comment received | - | Agrees with the proposed scope for Human Health assessment. | As per proposed scope. ES Chapter 21. |
| Noise and Vibration | Environmental Health | Agrees with the proposed scope for Noise assessment. | Agrees with the proposed scope for Noise assessment, but also suggests the ES needs to take account of noise and vibration associated with the tramway. It should be noted that the existing arrangement includes switches and crossings and these could be introduced into the proposed future Metrolink | This analysis in included within ES Chapter 13 Noise and Vibration. |

| Topic | Consultee | Summary of Consultee Response | Summary of MCC ESSO | Proposed Incorporation into ES |
|---|---|---|---|---|
| | | | works as part of further design development. | |
| Socio-economic impacts | No statutory consultee comment received | - | Agrees with the proposed scope for the Socio-Economic Impact Assessment. | As per proposed scope. ES Chapter 20. |
| Townscape and Visual Impact | No statutory consultee comment received | - | Agrees with the proposed scope for Townscape and Visual Impact Assessment but suggests that View 16 should be relocated to the junction of Baird Street and Sheffield Street or an additional view should be added here so the impacts can be understood more widely in the context of Crusader Mill. | The TVIA includes the suggested viewpoint as an additional view. ES Chapter 8. |
| TV and Telecommunications | No statutory consultee comment received | - | Agrees with proposed scope for TV and Telecommunications assessment. | As per proposed scope. ES Chapter 17. |
| Wind and Microclimate | No statutory consultee comments received | - | Agrees with the proposed scope for Wind and Microclimate assessment. | As per proposed scope. ES Chapter 18. |

## Approach to Identifying Likely Significant Environmental Effects

5.22 The identification of likely significant environmental effects was undertaken by:

- Developing an understanding of the environmental baseline;
- Identifying environmental effects and evaluating their significance (generally by evaluating magnitude of the effect and the sensitivity of the receptor);
- Considering whether cumulative effects will occur;
- Designing mitigation methods to minimise significant adverse effects; and
- Identifying residual effects.

## Approach to Assessing the Significance of Environmental Effects

5.23 To assess the overall significance of an effect it is necessary to establish the magnitude of the effect occurring i.e. the changes to the existing baseline conditions as a result of the Proposed Development, and the sensitivity or importance of the receiving environment or receptor.

5.24 Each environmental topic assessment has identified its own method to assess significance of effect although each was broadly based on the following criteria from IEMA on the approach to assessing significant environmental effects[3].

5.25 The method depends on the resource being affected and will follow published legislation, policy and good practice guidelines where practicable with any variation highlighted with reasoning.

**Magnitude of Effect**

5.26 The magnitude of potential effects (both beneficial and adverse) on environmental baseline conditions was identified through the detailed consideration of the Proposed Development taking into account the following:

- Relevant legislation, policy or guidelines;
- The degree to which the environment is potentially affected for example, whether the quality is enhanced or impaired;
- The scale or degree of change from baseline conditions as a result of the Proposed Development;
- The duration of the effect for example, whether it is temporary or permanent; and
- The reversibility of the effect.

5.27 The following criteria provide a general definition for determining the magnitude of a particular effect:

- High Magnitude – Total loss or major alteration to key elements or features of the baseline conditions to the extent that post-development character or composition of baseline conditions will be fundamentally changed

[3] IEMA: The State of Environmental Impact Assessment in the UK: IEMA, 2011

- Moderate Magnitude – Loss or alteration to one or more key elements or features of the baseline conditions to the extent that post-development character or composition of the baseline conditions will be materially changed
- Low Magnitude – Minor shift away from baseline conditions. Change arising will be detectable but not material; the underlying character or composition of the baseline conditions will be similar to the pre-development situation
- Negligible Magnitude – Very little change from baseline conditions. Change is barely distinguishable, approximating to a 'no change' situation

**Sensitivity of Receptor**

5.28 The sensitivity of the receptor is assessed with reference to the relative importance of existing environmental features on or near to the Proposed Development, and by the sensitivity of receptors which could be affected.

5.29 The criteria for the determination of sensitivity (high, medium, or low) has been established based on legislation, statutory designation, guidance and professional judgement.

5.30 The following criteria provides a general definition for determining the sensitivity of receptors:

- Very High – The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance e.g. special qualities of a Special Protection Area or National Park;
- High – The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance e.g. special qualities of Site of Special Scientific Interest or an Area of Outstanding Natural Beauty (AONB);
- Moderate – The receptor has moderate capacity to absorb change without regional importance. e.g. special qualities of a regionally important geological site;
- Low – The receptor is tolerant of change without detriment to its character, is of low environmental value, or local importance e.g. qualities of a hedgerow or industrial areas; and
- Negligible – The receptor is resistant to change or is of little environmental value

**Duration of the Effect**

5.31 The duration of effects has been taken into consideration when determining the overall significance of the effects. The timescales that will be used are shown at **Table 5.4** (these timescales will be used unless otherwise stated, in accordance with applicable guidance to the topic assessment):

**Table 5.4: Duration of Effect**

| Timescale | Duration |
|---|---|
| Short Term | 0 to 5 years including the construction period and on completion |
| Medium Term | 5 to 15 years including mitigation establishment |
| Long Term | 15 + years including long term operation of the development |

**Significance of the Effect**

5.33 The significance of effect can be determined by taking the magnitude of the likely effect and the sensitivity of the receiving receptor. The significance of the likely effects arising from the Proposed Development is categorised throughout the ES as follows (unless stated otherwise within individual topic chapters):

- Major adverse;
- Moderate adverse;
- Minor adverse;
- None;
- Minor beneficial;
- Moderate beneficial; and
- Major beneficial

**Table 5.5: Example Matrix for Assessing the Significance of Effects**

| Magnitude of Effect | Sensitivity of Receptor | | | | |
|---|---|---|---|---|---|
| | Very high | High | Moderate | Low | Negligible |
| High | Major | Major | Moderate | Moderate | Minor |
| Moderate | Major | Moderate | Moderate | Minor | None |
| Low | Moderate | Moderate | Minor | None | None |
| Negligible | Minor | Minor | None | None | None |

5.34 The above reflects the broad approach taken with respect to each topic. Where, and the extent to which assessments deviate from this approach, this is explained within the relevant chapter.

5.35 Unless otherwise stated in each topic assessment, effects are considered to be 'significant' where the results of the magnitude and sensitivity equate to a moderate or major adverse or beneficial effect.

## Approach to Consideration of Cumulative Effects

5.36 The EIA Regulations 2017 (Schedule 4) requires a description of the likely significant effects resulting from the cumulative effects to be presented in the ES.

**Cumulative Assessment: Intra-Project Effects**

5.37 Intra-project cumulative effects arise between the different environmental topics being assessed for the EIA (also known as indirect effects). The effects arise as a result of one topic assessment's proposals leading to an effect on another aspect of the environment. An example can be drawn from the impacts of increased traffic movements which may have implications for air quality and ecological receptors in terms of nitrogen deposition.

5.38 The intra-project cumulative effects assessments have been reviewed and are presented in each environmental topic chapter of the ES.

**Cumulative Effects: Inter-Project Effects**

5.39 Inter-project cumulative effects arise as a result of the Proposed Development interacting with other developments in the vicinity. An example of an inter-project cumulative effect may result from the proposed construction traffic for the Proposed Development using the same access routes as other construction traffic for another un-related major project in the vicinity. The resulting effect may be an increase in vehicles on the local road network and an increase in dust from construction vehicles.

5.40 In accordance with Schedule 4 (5) (e) the assessment of inter-project cumulative effects has had regard to the cumulation of effects between the Proposed Development and other existing and/or approved projects in the vicinity of the development.

5.41 A list of schemes which have the potential to give rise to likely significant effects on an inter-project cumulative basis has been identified and is provided in **ES Volume 4: Appendix 5.2.**

5.42 **ES Volume 4: Appendix 5.2** also includes three projects that are within the PSE SRF at Plots A and B, Plot G, and the public realm[4], and are known to be likely to come forward on a similar timescale to the Proposed Development. Under the terms of the EIA Regulations 2017, these projects do not need to be cumulatively assessed (as they are not 'existing' or 'approved' schemes); however it is prudent to assess the cumulative impacts of these projects.

5.43 There are no known details of the development of the remaining plots within the PSE SRF, and therefore no cumulative assessment has been completed for the remaining plots.

5.44 Each environmental topic chapter of the ES assesses the other projects (listed at **ES Volume 4: Appendix 5.2**) relevant to their environmental matter and presents the results of the assessment in their chapter, using the method described above for assessing significant effects.

[4] Plots A and B, Portugal East Street, proposed two residential buildings 29 and 23 storeys which will provide 488 residential apartments (ref. 121099/FO/2018);
Plot G, 1 Adair Street, proposed for a part 13 and part 14 storey Hotel (275-bedrooms) (ref. 122599/FO/2019); and
Provision of new public realm within the PSE SRF area (ref. 121467/FO/2018).

## Structure of ES Chapters

5.45 The ES environmental topic chapters are each broadly structured as follows:

**Introduction**

5.46 Each technical chapter of the ES begins by providing an overview of the subject area to be addressed.

**Legislation, Policy and Best Practice**

5.47 Following the introduction, the ES chapter then identifies those elements of legislation, policy and good practice guidance of relevance to the specific area of assessment. In the interests of brevity, such reviews consist of the identification of relevant documents. A summary of relevant provisions is either presented in the separate policy chapter or in technical appendices. Appropriate cross references to assist the reader are provided.

5.48 Relevant licences and permits required to construct, operate and maintain the development have been identified.

**Assessment Methodology**

***Study Area***

5.49 The Study Area of relevance to the environmental topic area has been defined in narrative and through cross reference to plans. Reasoning for the selection of the Study Area is presented.

***Baseline Surveys***

5.50 The means by which baseline environmental information has been gathered is defined in each technical chapter.

***Desk-Based Studies***

5.51 Desk based information sources are identified and where consultation with statutory / non-statutory bodies has been undertaken in gathering baseline information, a summary of the advice provided and subsequent action taken is presented.

***Field Surveys***

5.52 Where field surveys have been completed information is provided as to the location(s) from which baseline information has been gathered, the frequency and duration of surveys, and the survey techniques utilised particularly in respect of equipment used and its calibration. Consistency or otherwise of survey activity with legislation, policy and best practice guidance is confirmed and justified.

5.53 Where difficulties have been encountered in gathering relevant survey information the details of those difficulties are confirmed.

***Consultations***

5.54 A summary of the ESSO is provided including, where required, how the assessment has been amended in response to the ESSO.

***Method of Assessing Significance***

5.55 Each environmental topic assessment describes how the significance of effects has been identified and assessed. This follows the approach described above.

5.56 Through a series of tables, matrices and / or descriptions, the environmental topic assessments confirm:

- How the magnitude of effect on the identified receptor is measured;
- How the sensitivity of the identified receptor to that impact is measured; and
- How the significance of the environmental effect on the identified receptor having regard to both magnitude of impact and sensitivity of receptor is calibrated

5.57 A definition of each category of magnitude and sensitivity is provided, which may follow the definitions described above. It is also confirmed whether these definitions are based on published guidance or professional judgement.

5.58 What is considered to be a 'significant environmental effect' in terms of the EIA Regulations is confirmed within each environmental topic area.

5.59 The assessment of significance also takes into account the duration of the effect as shown at **Table 5.3.**

***Mitigation Methodology***

5.60 The ES Chapter describes their approach to identifying additional mitigation.

***Residual Impact Methodology***

5.61 The ES Chapter describes their approach to assessing residual (post-mitigation) effects.

**Baseline Conditions**

***Existing Baseline (2020)***

5.62 A description of the baseline environmental conditions as they have been established from desk based research, field surveys, and consultation at 2018 is set out ("the 2018 baseline").

***Predicted Baseline (2020)***

5.63 Professional judgement has been applied to predict the baseline conditions which are likely to be obtained at the date of the commencement of the construction of the development (presently expected to be 2020).

5.64 This baseline description is used as the basis for the assessment of effects in the construction phase.

***Predicted Baseline (2022)***

5.65 Professional judgement has been applied to predict the baseline conditions which are likely to be obtained at the date of the operation of the development (presently expected to be 2022).

5.66 This baseline description is used as the basis for the assessment of effects in the operational phase.

5.67 The description of predicted baselines has been predicted assuming the Proposed Development is not implemented, in so far as natural changes from the baseline scenario (2020) can be assessed.

**Assessment of Effects**

***Matters which have been Scoped Out***

5.68 Where matters have been scoped out these are described with a reasoned justification along with a brief description of the (non-significant) type of effect which would be encountered.

***Embedded Mitigation***

5.69 Each chapter describes how the Proposed Development has been specifically designed to avoid or minimise the occurrence of adverse significant environmental effects within the specific environmental topic area having regard to both current baseline conditions and those predicted for the construction and operational baselines. An example of embedded mitigation may be the incorporation of a drainage scheme to minimise risk of flooding.

5.70 A distinction will be drawn between those mitigation measures which are to be embedded within the Proposed Development from the outset and those measures which may be implemented at a specific point in the future.

***Limitations and Assumptions***

5.71 If any difficulties have been experienced in completing the assessment these will be confirmed along with any assumptions which have been made. Where it has been necessary to base the assessment on "realistic worst case scenario assumptions" appropriate definitions are provided.

**Assessment of Construction Phase Effects**

5.72 Each chapter describes the likely significant effects which are predicted to arise during the construction of the Proposed Development. The assessment is against baseline conditions predicted to obtain in 2020.

**Assessment of Operational Phase Effects**

5.73 Each chapter describes the likely significant effects which are predicted to arise during the operation of the Proposed Development. Each assessment considers the operational impact of the Proposed Development in its entirety against the baseline conditions predicted to obtain in 2022 which is when the Proposed Development is expected to fully complete and occupied.

**Assessment of Cumulative Effects**

5.74 Each topic chapter provides an assessment of the likely significant effects resulting from intra-project effects and inter-project effects.

***Intra-Project Cumulative Effects***

5.75 This section assess the likely significant environmental effects likely to arise between the different environmental topics being assessed for the EIA.

***Cumulative Effects: Inter-Project Effects***

5.76 This section assesses the likely significant environmental effects likely to arise as a result of the Proposed Development interacting with other developments in the vicinity, as identified at ES **Volume 4: Appendix 5.2**.

5.77 Likely significant cumulative effects have been considered against the current and predicted baseline conditions.

**Mitigation of Effects**

5.78 This section of each chapter of the ES sets out the means by which any likely significant environmental impacts identified in the assessment of construction and operational phase impacts is to be mitigated. The purpose of the mitigation measure is to prevent, reduce or offset any likely significant environmental effects.

5.79 The proposed mitigation measures are presented in such a way that the reader is able to relate the proposed measure back to the likely significant environmental effect identified earlier (when assessed against the current and predicted baseline conditions).

5.80 Within this section consideration is also given to the provision of any measures of environmental enhancement over and above required mitigation.

**Residual Effects**

5.81 This final stage of assessment identifies any residual environmental effects and their significance taking account of the application of the mitigation measures outlined above. The assessment of residual effects is presented in narrative format with a supporting summary table enabling the reader to understand the nature of the predicted effect, the mitigation to be applied, and the residual effect, in each instance.

**Monitoring**

5.82 Where it is considered to be necessary, environmental topic areas have identified proposals for on-going post construction monitoring. These may be needed for example, where it is necessary to check the success of applied mitigation measures.

**References**

5.83 A list of source references is presented at the end of each chapter.

# 6. Alternatives and Design Evolution

### Legislative / Policy Context

6.1 Schedule 4 of the TCPA EIA Regulations 2017, which specifies the information to be included in an Environmental Statement [ES], explains that an ES should contain *a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*[5].

6.2 This alternatives section describes the site-specific design (including size and scale) and layout alternatives considered; it does not provide a review on the location of the development or the technology, which were selected prior to the environmental impact assessment process. This section also provides a comparison of the environmental effects for the alternative designs and layouts considered.

### Context

6.3 As described in Chapter 2 of this ES, the Proposed Development Site falls within the PSE SRF which is centrally located within the HS2 SRF masterplan area, adjacent to the proposed HS2 station entrance.

6.4 The adopted HS2 SRF illustrated how high density of development could be accommodated which ensured a high quality environment for users. Massing builds up to the ring road at the perimeter, and steps down around public spaces to maximise views and natural light to residential plots and public realm. The development site which fronts the ring road is illustrated within the SRF as stepping from 8 – 12 storeys to 13 - 20 storeys. The PSE SRF (endorsed draft) updates this, and rather than specifying storey heights, identifies where landmark development may be located. The Proposed Development Site is one such location (Plot F).

6.5 The Proposed Development is located in an area supported for development by MCC. The regeneration of the PSE SRF area will assist MCC in realising the opportunities created by HS2 and the potential of this area as a high quality neighbourhood that can act as a further catalyst to regeneration of the wider Manchester Piccadilly SRF and support Manchester's wider regeneration objectives across its eastern gateway.

6.6 As described in Chapter 2 of this ES, the Proposed Development Site benefits from an exceptional level of accessibility to facilities in the regional centre and is well served by all modes of transport infrastructure.

### Key Design Principles

6.7 The design has been carefully considered to respond to the specific constraints and opportunities associated with the site to deliver a high quality design which is fully

[5] Schedule 4, Part 2, of the TCPA EIA Regulations 2017

integrated into the surrounding landscape. The following series of key principles have informed the design development:

- The prominent and highly sustainable site has a responsibility to deliver an appropriate high density landmark development which will make a positive contribution to the regeneration of the area.
- The gateway site provides an opportunity to terminate vistas, create a focal point and present a strong architectural presence. (Axially the site terminates Pollard Street.)
- The open space from New Islington Field, the Metrolink line and Ashton Canal Tow Path creates an appropriate setting for the creation of a landmark building which will formally acknowledge the importance of the Longacre Street, Great Ancoats Street corner.
- The creation of an exemplar building with a strong visual profile which makes a positive contribution to the city's skyline.
- To restore and strengthen the building line which will reinforce Great Ancoats Street as a key connection through the provision of continuous street frontage.
- To provide active ground floor uses to Great Ancoats Street, the new public square and improve pedestrian connectivity.
- To provide a suitable mix of apartment types and quantum to ensure development viability.
- To ensure all apartments meet or exceed the space standards and recommendations within Residential Design Quality Guidance including:
  - Maximising the provision of dual aspect apartments.
  - Consideration of microclimate effects of wind and sunlight / daylight.
  - Provision of high quality residential amenity spaces.

**Design Evolution**

6.8 The evolution of the design has been informed by the site's context, design principles, and inputs from the environmental assessments.

6.9 The residential layout for the tall building has been efficiently planned as a cluster of apartments around a central core. The layout aligns with the historical street grid and formally anchors the northern corner, terminating vistas and creating a focal point to the corner of Great Ancoats Street and Longacre Street. The apartment cluster has the southern corner extracted which reduces the visual form of the tall building proposal.

6.10 The vertical form and rational geometric composition of the building has informed the façade design. A regular expressed façade grid takes it materiality precedent from the existing historical brickwork buildings.

6.11 The height of the Proposed Development has evolved to ensure the proposal which reduces the visual form of the tall building proposal and creates an elegant slender marker which respects the PSE SRF proposal.

6.12 The height of the Proposed Development has evolved through the design process, with proposals ranging from 19 storeys up to 30 storeys, ultimately arriving at 25 storeys.

## Comparison of the Environmental Effects

6.13 This section provides a comparison of the likely environmental effects between the final/proposed design of the Proposed Development, versus the alternative design options considered. It identifies if the environmental effects of the alternatives would likely have the same environmental effects or different environmental effects (more or less adverse/beneficial) than the proposed scheme. In summary the alternative options reviewed are:

- Option 1: A shorter building (19 storeys) with a higher garden roof terrace.
- Option 2: A taller building (30 storeys) with garden roof terrace on the 2nd floor.

6.14 **Table 6.1** below provides a comparison of the likely environmental effects between the final/proposed design of the Proposed Development, versus the alternative design options listed above. The table is colour coded to identify the following:

- **Orange** indicates that the option is likely to have the same environmental effects when compared to the Proposed Development
- **Red** indicates that the option is likely to have more adverse environmental effects when compared to the Proposed Development
- **Green** indicates that the option is likely to have more beneficial environmental effects when compared to the Proposed Development

**Table 6.1: Alternatives Comparison of Environmental Effects**

| Alternative Design Options<br>Environmental Topic | Option 1: 19 storeys | Option 2: 30 storeys |
|---|---|---|
| TVIA | | |
| Built Heritage | | |
| Archaeology | | |
| Ecology | | |
| Transport | | |
| Air Quality | | |
| Noise and Vibration | | |
| Ground Conditions | | |
| Water Environment | | |
| Wind Micro Climate | | |
| Socio-Economics | | |
| Human Health | | |
| Climate Change | | |
| TV Reception | | |

6.15 This alternatives assessment confirms the alternative options predominately result in no worse, or better, environmental effects than the proposed scheme.

6.16 It is important to note the above assessment is a high level assessment, and in some instances where the option is likely to have more adverse or more beneficial environmental effects, this is not likely to be the case for all receptors. For instance, there is no reason to suggest that just because a building is taller it will have adverse effects on landscape and views; the effects certainly will cover a wider area and if the building obscures a landmark say from a specific viewpoint, then the effect may indeed be adverse.

# 7. Construction Programme

### Phasing and Delivery

7.1 The Proposed Development will be constructed in a single phase. It is anticipated construction will commence in 2020, and be complete and operational by 2022.

### Construction Process

7.2 A Construction and Environmental Management Plan (CEMP) will be prepared and implemented (pursuant to a planning condition) to guide the construction of the Proposed Development.

7.3 In broad terms the likely construction phasing will be:

- Demolition of the existing building;
- Site preparation and excavation including site re-profiling, implementation of the drainage strategy and associated works, including infrastructure (such as drainage mitigation), and site access and circulation;
- Construction of the foundations of the units;
- Construction of the steel work of the units;
- Construction of the building envelopes; and
- Construction of the landscaping scheme.

### Operational Process

7.4 The development will be rented on the private market. The facility will operate on a 24 hour basis.

7.5 An overall site management company will be established with responsibility for the day-to-day management of the building, responsible for ensuring communal areas of the development (shared communal spaces, footways, areas of structural landscaping and green infrastructure etc) are well maintained at all times.

# 8. Townscape and Visual Impact

## Introduction

8.1 This Chapter of the ES assesses the likely significant effects of the Proposed Development with respect to Townscape and Visual amenity. It has been prepared by Chris Burnett BSc,BLD,CMLI, Landscape Architect and Principal of Chris Burnett Associates. This Chapter also describes the methods used to assess the effects; the baseline conditions currently existing at the Proposed Development Site (PDS) and surrounding area; the mitigation measures required to prevent, reduce or offset any significant negative effects; cumulative effects and the likely residual effects. Technical appendices also support this assessment and consist of the following: (**Volume 3 of the ES)**

- Appendix 8.1: Maps
- Appendix 8.2: Viewpoint and townscape photographs including AVR and wireline images.

## Legislative Framework

### Legislation

8.2 The European Landscape Convention (ELC, 2000) (Ref. 8.1) provides a foundation for closer co-operation on landscape issues across Europe and was ratified in the UK on the 21 November 2006, and became binding on 1 March 2007. The convention identifies the need to recognise landscape in law, to develop and promote landscape policies dedicated to the protection, management and creation of landscapes, and to establish procedures for the participation of the general public and other stakeholders in the evolution and implementation of landscape policies. It also encourages the integration of landscape into all relevant areas of policy, including cultural, economic and social policies.

8.3 The ELC defines landscape under Article 1 as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. It recognises that landscape has important cultural, ecological, environmental and social dimensions and is a key element of achieving sustainable development. Article 3 states that the aims of the Convention are to promote landscape protection, management and planning and to organize European co-operation on landscape issues.

## National Planning Policy Framework

8.4 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. Revised in 2019 it sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

8.5 Key aspects of the NPPF which apply to the Townscape and Heritage Assessment are the paragraphs below*:*

*"Para 124 The creation of high quality buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities. Being clear about design expectations, and how these will be tested, is essential for achieving this. So too is effective engagement between applicants, communities, local planning authorities and other interests throughout the process Para 127 Planning policies and decisions should ensure that developments:*

*a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;*

*b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;*

*c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);*

*d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;*

*e) optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and*

*f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users46; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.*

*Para. 189 In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation." (Ref 8.2)*

## Local planning policy

8.6 The following relevant policies are set out below as extracts from Manchester City Council's Core Strategy*:*

*"The Core Strategy was adopted by Manchester City Council on 11th July 2012. It is the key document in Manchester's Local Development Framework and covers a period of 15 years from 2012 to 2027. It describes Manchester today and outlines the Council's vision for Manchester in 2027 along with the planning policies which will be used to deliver that vision.*

## Relevant Policies include:

**Policy EN 1 - Design Principles and Strategic Character Areas**
*All development in Manchester will be expected to follow the seven principles of urban design, as identified in national planning guidance and listed above and have regard to the strategic character area in which the development is located. Opportunities for good design to enhance the overall image of the City should be fully realised, particularly on major radial and orbital road and rail routes. Design and Access Statements submitted with proposals for new development must clearly detail how the proposed development addresses the design principles, reinforces and enhances the local character of that part of the City and supports the achievement of the Core Strategy Strategic Objectives."*

8.7 The City Centre Character Area is of relevance to the Proposed Development. This area has been broken down into distinct townscape character zones by Manchester City Council and the extent and nature of the impact of the Proposed Development on these zones is described in more detail later in this chapter. The Core Strategy also refers to tall buildings:

**Policy EN2 - Tall Buildings**

8.8 Tall buildings are defined as buildings which are substantially taller than their neighbourhoods and/or which significantly change the skyline.

8.9 Proposals for tall buildings will be supported where it can be demonstrated that they

- Are of excellent design quality,
- Are appropriately located,
- Contribute positively to sustainability,
- Contribute positively to place making, for example as a landmark, by terminating a view, or by signposting a facility of significance, and;
- Will bring significant regeneration benefits.
  - A fundamental design objective will be to ensure that tall buildings complement the City's key existing building assets and make a positive contribution to the evolution of a unique, attractive and distinctive Manchester, including to its skyline and approach views.
  - Suitable locations will include sites within and immediately adjacent to the City Centre with particular encouragement given to non-conservation areas and sites which can easily be served by public transport nodes.
  - Elsewhere within Manchester tall building development will only be supported where, in addition to the requirements listed above, it can be shown to play a positive role in a coordinated place-making approach to a wider area. Suitable locations are likely to relate to existing district

centres. The height of tall buildings in such locations should relate more to the local, rather than the City Centre, urban context.

– By their very size tall buildings can have a significant impact on the local environment and its micro-climate. It is therefore expected that this impact be modelled and that submissions for tall buildings also include appropriate measures to create an attractive, pedestrian friendly local environment.
– It will be necessary for the applicant/developer to demonstrate that proposals for tall buildings are viable and deliverable"

8.10 Significantly, the Core Strategy offers further guidance in relation to the development of tall buildings as follows:

- Tall Buildings can provide a sense of place and distinctiveness, however as high development can have a substantial impact on an area careful consideration should be given to each proposal.

- The NPPF requires local authorities to have regard to best practice in design, such as "By Design - Urban Design in the Planning System: Towards better practice" and "By Design – Better places to live". Policies are not to be overly prescriptive but, amongst other things, should concentrate on guiding height in relation to neighbouring buildings and the local area in general. Innovation should not be stifled but local distinctiveness should be reinforced. PPS4 directs planning authorities to set flexible policies for their centres which can respond to changing economic circumstances and encourage where appropriate high density development accessible by public transport, walking and cycling.

- In the context of ensuring sustainable development, the City Centre is clearly a location that requires the prudent use of scarce land resources. It is generally well served by public transport and one where a high density of development is consistent with its distinctive character. The City Centre is, in general, considered an appropriate area for tall buildings. The growth of the City Centre is still evolving, particularly in relation to the development of fringe sites, and proposals need to be considered having regard to the character of the places in which they are proposed. Therefore, whilst some parts of the City Centre are more or less likely to be suitable for tall buildings, the Council does not consider a site specific policy that identifies detailed locations for a tall building to be appropriate. The Council is aware that over the 15 year plan period there is a need to be flexible and to be able to respond to changing economic conditions. The above criteria based policy is therefore set out, which will together with other design policies, form the policy context against which all proposals for tall buildings will be considered.

- Elsewhere across the City, District Centres may be appropriate locations for "tall" buildings. Being generally accessible to the local population and well served by public transport, they are natural foci for developments that attract a larger number of people. The definition of tall as being in relation to neighbouring buildings should be noted, however, as the scale of development acceptable within a District Centre is unlikely ever to match that within the City Centre.

- Tall buildings by their very nature can dominate the street scene and be highly visible over long distances. They can also have an impact on the local micro-climatic conditions, for example, by creating wind tunnels. It is for these reasons that it is considered particularly important that they are designed to the highest quality, both in terms of appearance and their impact on the functioning of surrounding space."

**Policy EN3 - Heritage**

8.11 Throughout the City, the Council will encourage development that complements and takes advantage of the distinct historic and heritage features of its districts and neighbourhoods, including those of the City Centre.

8.12 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 scheduled ancient monuments, listed buildings, registered parks and gardens, conservation areas and archaeological remains.

8.13 Proposals which enable the re-use of heritage assets will be encouraged where they are considered consistent with the significance of the heritage asset." (Ref 8.3)

8.14 There are a number of extant Manchester City Council Unitary Development Plan (UDP) Policies, of which Policies 18 and 19 (relating to Conservation Areas and Listed Buildings) remain relevant. Heritage impacts are discussed and evaluated in more detail in this ES at Chapter 7 of ES Volume 2 – Built Heritage.

**Guidance**

8.10 Relevant guidance includes:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd Edition 2013 landscape Institute and Institute of Environmental Management and Assessment (Ref 8.4)
- Historic England Advice Note 4: Tall Buildings (Ref 8.5)
- Manchester Residential Quality Guidance (Ref 8.6)
- History in the View prepared for English Heritage by LUC in 2011 ( Ref 8.7)

8.15 The guidance contained in Historic England's advice note on Tall Buildings is particular germane:

*"Tall buildings need to set exemplary standards in design because of their scale, mass, wide impact and likely longevity. Good design will take the opportunities available for improving the character and quality of an area and respond to local character and history (NPPF paragraphs 58 and 64). It is important that the required high standard of architectural quality is maintained throughout the process of procurement, detailed design, and construction, through the use of conditions and reserved matters.*

*Given their likely impact on a wide area, it is important that social and environmental effects are also assessed. Consideration needs to be given to a tall building's*

*contribution to public space and facilities. This applies both internally and externally, including the provision of a mix of uses (especially on the ground floor of towers), as part of a well-designed public realm. Consideration of the impact on the local environment is also important, including microclimate, overshadowing, night-time appearance, light pollution, vehicle movements, the environment and amenity of those in the vicinity of the building, and the impact on the pedestrian experience. Well-designed tall buildings provide an inclusive environment, both internally and externally, taking opportunities to offer improved permeability, accessibility and, where appropriate, the opening up or effective closure of views to improve the legibility of the wider townscape." .(Ref 8.5)*

## Assessment Methodology

8.16 This section of the ES chapter describes the study area, how baseline information has been gathered, and the method of assessing the significance of effects.

## Study Area

8.17 The study area for this assessment comprises an area of approximately 1km in radius focussed on the PDS. In view of the scale if the development, topography, urban grain and its location this was judged to be an appropriate distance. It includes Manchester City Centre and areas to the north of the inner ring road.

## Baseline Surveys

### Desk Based Research

8.18 Research included establishing a Zone of Theoretical Visibility (ZTV) and examining appropriate guidance and policies on tall buildings issued by Manchester City Council and relevant authorities such as Historic England.

### Field Surveys

8.19 In accordance with guidance contained in GLVIA 3 field surveys were undertaken in September 2018 to explore the current baseline of Manchester City Centre Townscape Character Zones, confirm the ZTV and identify and establish a series of Representative Viewpoints for assessment including those subject to Accurate Visual Representation (AVR). Further, more precise photography and survey work was subsequently carried out by Ambiente, Architectural Visualization Specialists, details of which can be found in their Methodology Statement (Ref 8.7).

### Consultations

8.20 Representative Viewpoints were submitted to Manchester City Council as part of the EIA Scoping Report. An addition viewpoint has been assessed in response to MCC's Scoping Opinion (November 2018). This is Representative Viewpoint 20 at the junction of Baring Street with Sheffield Street.

## Significance Criteria

8.21 Both Townscape and Visual effects are the subject of this TVIA and the criteria to examine how levels of significance are assessed are now examined.

8.22 The Townscape and Visual Impact Assessment (TVIA) was undertaken in accordance with the methodology and approach set out in the 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA) Third Edition' (2013) – produced by the Landscape Institute (LI) and IEMA:

*"The GLVIA requires that a clear distinction is drawn between landscape (which includes the urban townscape) and visual effects:*

- *Townscape effects relate to the degree of change to characteristics or physical components of an urban area, which together form the character of that townscape, e.g. topography, buildings and vegetation.*
- *Visual effects relate to the degree of change to an individual receptor's or a receptor group's view of that townscape, e.g. local residents, users of public footpaths or motorists passing through the area." (Ref 8.9)*

8.23 The relationship between the effects of the Proposed Development on Townscape and Visual Issues are interdependent but not exclusively so. The effects will therefore be examined in terms of:

- Effects on Townscape character. For the purposes of this study the area immediately around the Proposed Development is examined on a character area basis based on the zonal template used by Manchester City Council. Character areas are shown on Fig 8.2, which is located at **Appendix 8.1 of Volume 3 of the ES**.
- Effects on visual receptors. This is examined through the Representative Viewpoint Approach in which the effects of the Proposed Development are assessed in short, medium and long distance views from variety of key locations.

### Townscape Character effects

8.24 The assessment of the Proposed Development on Townscape Character has been based on Manchester City Centre Strategic Character Areas and City Centre Zones. It includes an assessment of the elements which comprise it such as built form and styles, urban grain and street pattern, soft elements such as green spaces and trees and a sense of place and effect that the Proposed Development is judged to have on them. The areas which could be potentially affected by the Proposed Development are.

- Manchester City Centre Character Zones
  - Northern Quarter
  - Piccadilly Gardens
  - Eastern Gateway

- Additional Character Zones
  - Ancoats
  - Miles Platting
  - New Islington
  - Medlock Valley

8.25 The additional character zones which lie outside the Manchester City Centre Zones have been surveyed and established as part of this study and mapped on the basis of shared townscape character characteristics.

8.26 Their extent of all these zones is defined on Figure 8.2: Inner City Zones and Viewpoints (**Appendix 8.1 of Volume 3 of the ES**) and they are described in more detail in the corresponding baseline condition section.

8.27 Townscape effects can be characterised as the changes in the urban grain, character and condition of the townscape as a result of the impact of a development. Specifically, the assessment will examine:

- Direct effects on specific townscape elements
- Effects that are more subtle in nature which affect the character of the townscape
- Effects on a designated asset such as a World Heritage Site, Listed Building or Conservation Area or tourist landmark (these effects will only be noted in summary form as a more detailed assessment is supplied in the Built Heritage chapter (Chapter 7 of this ES).)

### Visual Effects

8.28 The Zone of Theoretical Visibility (ZTV) in the context of the surrounding topography and the height of the Proposed Development, has been established initially through 3D modelling using Lidar DSM data combined with 10K base mapping to produce a ZTV or Viewshed map, Fig 8.1 in **Appendix 8.1 of Volume 3 of the ES**, and then confirmed as part of the field work exercise. It covers the area immediately surrounding the Proposed Development to a distance of approximately 1km. The Proposed Development will be far from universally visible as tight urban grain, streets that are not orientated towards the development, trees and variations in topography, combine to exclude many views from the surrounding streets and public areas. The ZTV does however, provide a quick guide as to the Proposed Development's visibility.

8.29 As with other TVIAs, and in accordance with guidance issued in GLVIA, the usual, and accepted, practice of selecting and assessing of a range of "Representative Viewpoints", all publicly accessible, has been adopted as being the most appropriate and practical method of assessing and understanding the visual impact of the Proposed Development from a range of viewpoints surrounding the PDS. These viewpoint locations are marked in **Appendix 8.1 of Volume 3 of the ES** on Fig 8.1 ZTV and viewpoints and Fig. 8.2 Inner City Zones and Viewpoints and illustrated by way of photographs taken from these viewpoints which are represented in **Appendix 8.2 of Volume 3 of the ES**

8.30 Viewpoints were selected to cover a number of different locations to reflect the experience of different types of visual receptor and viewing distance. Accordingly, viewpoints ranged from immediate proximity to the Proposed Development to surrounding neighbourhoods. Viewpoints included: streets, public parks and gardens, canal towpaths and footpaths and main approach roads.

8.31 During the main field assessment process which occurred in September 2018, and January 2020baseline viewpoint photographs were taken using a Canon E500 DSLR camera in accordance with the Landscape Institutes Advice note L1/11. The advice note also offers the following guidance on field of view:

*"While a standard lens giving a horizontal field of view of about 40 degrees may be suitable for some purposes, a single-frame photograph based on this field of view is unlikely to convey the breadth of visual information required to represent a proposed development and relevant context. If the required field of view is only slightly greater than 40 degrees, a wide-angle lens or wide-angle setting on a zoom lens may be appropriate." (Ref 8.10)*

8.32 This guidance has been taken into account in and in order to illustrate as much of the surrounding context as possible photographs were taken at 1.6m height, with a lens set to 24mm which provided a field of view of around 73.6 degrees. The details of each photograph are also recorded and include location coordinates, focal length of lens and corresponding field of view. The viewing distance for all photographs when printed at A3 is a comfortable arms length.

8.33 The effect of the Proposed Development is then assessed from each of the viewpoints using the information on the height of the building provided by the architects Simpson Haugh and the accurate interpretation of this information by Ambiente in the form of a series of Accurate Verified Rendered (AVR) images or wireline outlines of the Proposed Development superimposed onto them.

## Defining Significance of Effect

8.34 The significance of townscape and visual effects, can broadly be determined by the interaction of the sensitivity of the receptor and the magnitude of effect with professional judgement playing an important part in identifying the overall significance values for each receptor.

**Townscape: Magnitude of Effect**

8.35 The magnitude of a townscape effect is assessed in terms of its size or scale, the geographical extent of the area influenced by that effect, and its duration and degree of reversibility and would be rated within the range of Major-Moderate-Minor-Negligible-No Change set out below:

**Table 8.1: Magnitude of Townscape Effect**

| Category | Criteria |
|---|---|
| Major adverse townscape effect | The proposals will result in a total change in the key characteristics of townscape character; will introduce elements totally uncharacteristic to the attributes of the receiving townscape; and/or will result in a substantial or total loss, alteration or addition of key elements/features/characteristics. |

| Category | Criteria |
|---|---|
| Moderate adverse townscape effect | The proposals will result in a partial change in the key characteristics of townscape character; will introduce elements partially uncharacteristic to the attributes of the receiving townscape; and/or will result in partial loss, alteration or addition of key elements/features/characteristics. |
| Minor adverse townscape effect | The proposals will result in a small change in the key characteristics of townscape character; will introduce elements that are not uncharacteristic to the attributes of the receiving townscape; and/or will result in a minor loss, alteration or addition of elements/features/characteristics. |
| Negligible adverse townscape effect | The proposals will result in a just discernible change to townscape character/elements/features/characteristics. |
| Negligible townscape benefit | The proposals will result in a just discernible improvement to the townscape character/elements/features/characteristics. |
| Minor townscape benefit | The proposals will achieve a degree of fit with the townscape character/elements/features/characteristics and go some way towards improving the condition or character of the townscape. |
| Moderate townscape benefit | The proposals will achieve a good fit with the townscape character/elements/features/characteristics, or would noticeably improve the condition or character of the townscape. |
| Major townscape benefit | The proposals will totally accord with the townscape character/elements/features/characteristics, or would restore, recreate or permanently benefit the condition or character of the townscape. |
| No Change | The proposals will not cause any change to the townscape character/ elements/ features/ characteristics. |

8.36 The size and/or scale of change in the townscape takes into consideration the following factors:

- the extent/proportion of townscape elements lost or added;
- the contribution of that element to townscape character and the degree to which aesthetic/perceptual aspects are altered; and
- whether the effect is likely to change the key characteristics of the townscape, which are critical to its distinctive character.

8.37 The geographical extent of effects relates to:

- the area over which townscape effects are likely to be experienced, i.e. this could be at the site level, the immediate setting of the site, or townscape character type or area;
- the area over which visual effects are likely to be visible; and duration.

**Visual: Magnitude of Effect**

8.38 The magnitude of a visual effect is assessed in terms of its size or scale, the geographical extent of the area influenced and its duration and degree of reversibility and will be rated within the range of Major-Moderate-Minor-Negligible-No Change set out below.

**Table 8.2: Magnitude of visual effect**

| Category | Criteria |
|---|---|
| Major adverse or beneficial visual effect | The proposals will cause a dominant or complete change or contrast to the view, resulting from the loss or addition of substantial features in the view and will substantially alter the appreciation of the view. |
| Moderate adverse or beneficial visual effect | The proposals will cause a clearly noticeable change or contrast to the view, which would have some effect on the composition, resulting from the loss or addition of features in the view and will noticeably alter the appreciation of the view. |
| Minor adverse or beneficial visual effect | The proposals will cause a perceptible change or contrast to the view, but which would not materially affect the composition or the appreciation of the view. |
| Negligible adverse or beneficial visual effect | The proposals will cause a barely perceptible change or contrast to the view, which would not affect the composition or the appreciation of the view. |
| No change | The proposals will cause no change to the view. |

8.39 The size or scale of change in the view relates to the degree of contrast or integration likely to result from the Proposed Development and is influenced by the relative time over which a view is experienced and whether it is a full, partial or glimpsed view.

**Townscape sensitivity**

8.40 The assessment of townscape sensitivity is a function about judgements made on the susceptibility of the townscape to change and the value of the townscape concerned.

8.41 Townscape Value is "*the relative value that is attached to different landscapes by society*" (Ref 8.11). It is assessed on the following scale along with assessment of various undesignated townscape attributes:

**Table 8.3: Townscape Value**

| Value | Description |
|---|---|
| High | Sites, features or areas of national or international importance with settings of high quality such as World Heritage Site, AONB, National |

| | |
|---|---|
| | Parks, Grade I and Grade II* Listed buildings or Registered Parks and Gardens. |
| Medium | Sites, features or areas of local or regional importance with intact character such as Grade II* and Grade II Listed Buildings or Registered Parks and Gardens, Conservation Areas, Scheduled Monuments, local nature site, long distance recreational routes. Tree Preservation Orders (TPO) and local designations that exhibit wider geographic, cultural or townscape significance. |
| Low | Areas or features of local importance such as Tree Preservation Orders (TPO), Public Right of Way (PROW) and locally listed buildings. |

8.42 The overall sensitivity of each townscape receptor would be rated within the range of High-Medium-Low and would be informed by combining the susceptibility and value as described above.

**Townscape: Sensitivity of Receptor**

8.43 The sensitivity of a townscape receptor is an expression of its ability to accommodate the Proposed Development. Sensitivity is a judgement based on a combination of the susceptibility of the type of change or development proposed and the value attached to the townscape, as set out below.

8.44 Susceptibility indicates the ability of a defined townscape receptor to accommodate the proposed development "without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies." (GLVIA, 3rd version, para 5.40). A description of how susceptibility would be evaluated for each receptor type is included below:

**Table 8.4: Table 8.4 Susceptibility of Townscape Receptor**

| Susceptibility | Criteria |
|---|---|
| High | Little ability to accommodate the proposed development without undue harm. |
| Medium | Some ability to accommodate the proposed development without undue harm. |
| Low | Substantial ability to accommodate the proposed development without undue harm. |

**Visual receptors: Sensitivity of Receptor**

8.45 In terms of assessing the baseline visual sensitivity, key factors to consider are the type of view and the likely numbers and types of viewers (the visual receptors). The type of view and the number of viewers are described in the following terms:

- Glimpsed (i.e. in passing) / Filtered / Oblique / Framed / Open Views; and Few / Moderate / Many Viewers
- The value attached to views has regard to a number of factors, including:
  - recognition through planning designations or heritage assets; and

– the popularity of the viewpoint, its appearance in guidebooks, literature or art, on tourist maps and the facilities provided for its enjoyment.

8.46 The GLVIA identifies that the susceptibility of visual receptors to changes in views and visual amenity is a function of:

- The occupation or activity of people experiencing the view at a particular location; and
- The extent to which their attention or interest may therefore be focused on the views and visual amenity they experience at particular locations.

8.47 The assessment of receptor sensitivity is rated on the scale High-Medium-Low, and combines judgements on the susceptibility of the receptor to the specific type of development proposed and the value attributed to that receptor, determined from the criteria below.

**Table 8.5: Visual Receptor Susceptibility**

| Susceptibility | Type of Receptor |
|---|---|
| High | Users of public space, including users of public rights of way, whose attention is likely to be focused on the townscape and on particular views;<br>Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience;<br>Communities where views contribute to the townscape setting enjoyed by residents; and<br>Travellers on scenic routes. |
| Medium | Travellers on road, rail or other transport routes, where the view is moderately important to the quality of the journey; and<br>Users of public space, where the view is part of the wider experience of the place. |
| Low | People at their place of work, where the setting is not important to the quality of working life;<br>Travellers on road, rail or other transport routes, where the view is fleeting and incidental to the journey; and<br>People engaged in outdoor sport or recreation, or users of a public space, which does not involve appreciation of views. |

**Table 8.6: Table 8.6 Visual Receptor value**

| Value | Criteria |
|---|---|
| High | Views from townscapes/viewpoints of national importance, or highly popular visitor attractions where the view forms an important part of the experience, or with important cultural associations. An example may be where the viewpoint features a nationally important designated asset as the main focus of the view. |

| | |
|---|---|
| Medium | Views from townscapes/viewpoints of regional/district importance or moderately popular visitor attractions where the view forms part of the experience, or with local cultural associations. The viewpoint may be a good location to view a designated asset of regional/ local importance, or where a nationally important designated asset is not the main focus of the view. |
| Low | Views from townscapes/viewpoints with limited designations, not particularly popular as a viewpoint and with minimal or no cultural associations. The viewpoint may include designated assets of regional/local importance which do not form the main focus of the view. |

**Duration of Effect**

8.48 Both Townscape and Visual effects may be experienced over a range of timescales. For this assessment, the following timescales are considered appropriate:

- Short-term: 1 year or below
- Medium-term: Between 1 and 10 years in duration
- Long-term: Greater than 10 years in duration

**Significance of Effect**

8.49 The objective of the assessment process is to identify and evaluate the likely significant effects arising from the Proposed Development for both Townscape and Visual Receptors. Significance indicates the importance or gravity of the effect. The table below, Table 8.7 is offered in support of professional judgement in determining the Significance of effect and is used as a guide to the narrative explanation of the nature and significance of both townscape and visual effects brought about by the Proposed Development.

**Table 8.7: Significance of Effect**

| | | Magnitude of Effect | | | | |
|---|---|---|---|---|---|---|
| | | Major Effect | Moderate Effect | Minor Effect | Negligible Effect | No Change |
| Sensitivity of Receptor | High | Major Significance | Moderate Significance | Moderate Significance | Minor Significance | Negligible |
| | Medium | Moderate Significance | Moderate Significance | Minor Significance | Negligible | Negligible |
| | Low | Moderate Significance | Minor Significance | Negligible | Negligible | Negligible |

8.50 For the purposes of this TVIA effects of **Moderate Significance** and above are considered to be **Significant** in the meaning of the Town and Country Planning (EIA)

Regulations 2017.Those values of Minor and below are therefore deemed to be **Not Significant**. Effects can be adverse or beneficial.

8.51 This process has been applied to provide a robust assessment in similar townscape settings, including Manchester City Centre, and is considered to be the most suitable approach in this context.

8.52 The visual impact of the Proposed Development will demonstrably change as it is constructed. As this is likely to be a very short period in relative terms in the context of its lifecycle, the impact of the building upon completion, or operational phase, is the principal focus of this study although the construction effects are also examined below. Similarly the impact pathway is direct. The building is either visible or it is not.

**Mitigation Methodology**

8.53 In terms of mitigation for the Proposed Development this has been derived by the architects Simpson Haugh as the design of the building has developed in consultation with interested parties. The process is fully described in Mitigation section below. Similarly, mitigation for the Construction Phase Effects is described in the relevant section below

**Residual Impact Methodology**

8.54 Residual Impacts are described based on the assumption that all mitigation measures have been fully deployed and are described in para.8.69.

## Baseline Conditions

**Townscape Baseline**

8.55 A summary set out below describes the main attributes and characteristics of each of the Inner City Zones and Representative Viewpoints that may be potentially affected by the Proposed Development as existing at the time of this assessment in 2018 and updated in 2020. Each character area is referenced on Fig 8.2: Inner City Zones and Viewpoints (**Appendix 8.1 of Volume 3 of the ES**). Only those areas which have the potential to be affected by the Proposed Development are included.

8.56 Much of north Manchester is currently going through a major phase of new development with construction which affects many of the areas surrounding the Proposed Development in this case. Some development, but not all, will have the capacity to alter the visual and townscape baseline more significantly than others. In terms of the baseline assessment the GLVIA advises that '*existing schemes and those under construction should be included in the baseline for both landscape* (townscape in this case) *and visual effects baseline* ' and that '*the baseline for assessing cumulative landscape (townscape) effects should include those schemes and in addition potential schemes that are not yet present in the landscape but are at various stages in the development and consenting process*.' (Ref 8.8),

8.57 For the purposes of this assessment therefore, the baseline conditions that prevail at the current time (2020) in terms of Townscape Character and Views are described below and include relevant schemes under construction at the present time. Those developments that are coming forwards and are likely to be operational between the

years of construction (2021 to 2023), the Predicted Baseline are described and assessed in the Cumulative Effects section.

8.58 A brief description is now made of the baseline townscape character of each of the affected zones with reference made to the baseline viewpoint photographs in Appendix 8.1 of Volume 3 of the ES. To reflect the updated 2020 assessment of baseline conditions, a number of new baseline photographs have been retaken for a select number of close up views where the effect to the Oxygen development is most noticeable.

**Manchester City Centre Character Zones**

***Northern Quarter***

8.59 Historically the vibrant heart of retailing and wholesaling of textiles, meat, fish and greengrocery. This area has declined since the opening of the Arndale Centre which has formed an impenetrable mass, both physically and visually severing the Northern Quarter from the main retail areas of central Manchester today.

8.60 The textile trade remains important and the numerous small retail outlets reflect this trend. Recently, however, the area has seen the growth of residential apartments. This zone has a rich architectural heritage, mostly low-rise based on a concentrated, tightly knit grid pattern of streets. This dense urban fabric affords few views out apart from axial views down the main streets. There are no large open spaces within the area, apart from Stevenson Square, although this is now a narrow, enclosed space dominated by vehicular traffic, bus lay-bys and a taxi rank.

8.61 This character zone is reflected by Representative **Viewpoint 18**

***Piccadilly Gateway***

8.62 This area is one of the region's primary gateways and often forms the first impression of the city for visitors arriving by rail. In recent years it has seen improvements to Piccadilly railway station and Piccadilly Gardens and development has continued around the Piccadilly Canal Basin. The area in front of the railway station has been redeveloped to create a mixed use primarily office development with hotels and residential uses and a bridge link to the upper levels of Station Approach.

8.63 The zone contains a number of distinct character areas. The area to the west of Piccadilly is a mix of civic and commercial buildings and formal open spaces. The Metrolink connecting Piccadilly station and the main interchange in Piccadilly Gardens bisects the area. The latter with its lawns, water features, tree planting and pavilion forms a significant public green space. The square is enclosed on all sides by large massed buildings including the landmark City Tower. The construction of One Piccadilly on a former part of the garden has helped to increase the sense of visual enclosure. Elsewhere, the building forms are generally large and in some cases tall such as 111 Piccadilly.

8.64 To the north of this zone, immediately adjacent to the Inner Ring Road and not far from the site of the Proposed Development, a major new tall building development Oxygen is partially complete and now and important feature of the baseline.

8.65 Once again, because of the dense urban grain and mostly level topography long distance views out are non-existent.

8.66 This character zone is reflected by Representative **Viewpoints 2,10 and 11.**

***Eastern Gateway***

8.67 This character area is generally occupied by light industrial and commercial premises and is generally of low quality townscape character often incoherent, disparate and fragmentary with a lack of unifying style or structure. The land falls away in a south westerly direction towards the River Medlock which runs through the lower half resulting in views of a discontinuous horizon from the lower ground.

8.68 Part of this area, known as Portugal East has been designated for regeneration as part of the HS2 SRF adopted by MCC in 2014. The Masterplan states that the objectives of this zone are:

*'…. to ensure that the Portugal Street East area develops a "sense of place" through intelligent place-making and design. The guiding development principles will ensure that the forthcoming proposals are bold and distinctive and help transform the area's profile, legibility and function as an extension to the Manchester's existing core city centre, creating a neighbourhood of choice. The Portugal Street East masterplan has evolved in recognition of the need to integrate and bind together of a number of major development initiatives for lands south and east of Piccadilly Station. The future proposals should create a high quality, landmark development that will be complemented by contemporary urban buildings and the creation of new high quality public spaces. (Ref 8.12)*

8.69 Piccadilly station sits within this zone but is orientated away from the Proposed Development with rail routes flowing in a south easterly direction. The main inner ring road also forms the northern boundary of this zone.

8.70 New residential development can, however, be found on the northern boundary of this zone manifest in Piccadilly Village a 1990's development along the Ashton canal. The Proposed Development is located in this zone.

8.71 This character zone is reflected by Representative **Viewpoints 1, 15 and 16**

**Additional Character Zones**

***Ancoats***

8.72 This zone includes a number of different character areas north east of the main inner ring road formed by Great Ancoats Street. The main historic part of the area is centred on the narrow streets of Ancoats Urban Village. Here, a mix of significant mills and old terraces have been conserved as part of Manchester's important industrial heritage. Within this area the Rochdale Canal Corridor provides one of the few opportunities for more open views of the city centre. Elsewhere, the street pattern and dense building mass and tight urban grain confine views within the area. The Rochdale Canal borders this character area to the south east.

8.73 The quality of townscape is generally high over much of this zone reflected by the fact that is has a Conservation Area which covers much of it.

8.74 This character zone is reflected by Representative **Viewpoints 13 and 19**

***Miles Platting***

8.75 This a predominantly low rise residential district of north Manchester. The urban grain is reasonably dense in most places and consist of streets of modern 2 storey terraced housing. Much of the street pattern is organic with no defined structure and development is largely modern in origin. There are no Conservation areas with this Occasionally however, high rise residential tower blocks rise above street level. The recently landscaped green open space associated with the Rochdale canal provides a welcome contrast and allows views of Manchester City centre to the south.

8.76 This character zone is reflected by Representative **Viewpoints 6 and 7**

***New Islington***

8.77 An area immediately adjacent to the PDS has been the focus of a considerable amount of regeneration since funding was secured in 2002. It includes Will Allsops Chips building, amongst other multi storey development. Typically the flat or apartment blocks are 8 storeys high and combine well with areas of green space and canal basins such as Cotton Field Park. Views of Manchester City Centre to the south can be obtained from these more open areas.

8.78 This character zone is reflected by Representative **Viewpoints 3,4,5,9 and 17**

***Medlock Valley***

8.79 Townscape character is shaped by the river Medlock which flows in shallow valley through the centre of this zone. Much of it is heavily wooded or green open space. Development is restricted to semi-detached and terraced residential dwellings of recent post war origin arranged in cul de sac road layouts but a block of historic Mill buildings, the Albion Mill, currently under residential conversion, is situated in the south west corner of this zone and forms a landmark property close to the Inner ring road.

8.80 This character zone is reflected by Representative **Viewpoints 8 and 14**

**Predicted future baseline conditions**

8.81 Development is proceeding in all zones above at the present time and those schemes predicted to have an effect on the baseline are described and assessed in the Cumulative Effects section.

## Assessment of Effects

**Matters Scoped Out**

8.82 No matters have been scoped out.

## Embedded Mitigation

8.83 Mitigation in terms of visual and townscape effects has been incorporated into the Proposed Development as part of the design process and has evolved through consultation with the Local Planning Authority, Historic England and Places Matter Design Review amongst others. Simpson Haugh, scheme architects, have articulated this in the following design statement:

*'One of early key design decisions was to position the tower at the northwest corner of Great Ancoats Street and Longacre Street in alignment with the historical street grid. This formally anchors the northern corner, terminates vistas and creates a focal point and gateway to the proposed public square formed at the end of Heyrod Street. The provision of the new square provides an appropriate amount of open public space at the base of the tower which will benefit from the drama created by the towers height and slender profile. The building rises to a height of 25 storeys, which includes a full storey height roof parapet. The building sits above a three storey podium containing active retail uses to animate the public realm and provide natural surveillance. The podium is cut back to Great Ancoats Street providing a colonnade to articulate and emphasize the tower form and provide a sense of intimacy to the retail and resident's reception. In order to create an elegant silhouette the brickwork grid of the façade is continued a further storey above the uppermost residential level 23 to form a parapet at level 24. The windows are omitted at level 24 to provide safe facade access for cleaning and maintenance and provide a lightness to the top of the building. The lift overruns are located in the centre of the plan so as not to impact on the external appearance of the building'.*

8.84 The appearance strategy was developed from an exploration of the surrounding historical context.

8.85 Material and visual references were taken from historical mills to produce an orthogonal and ordered facade fenestration. Together with the strong geometric form of the building, these references informed the design of a regular expressed facade grid. The expressed brickwork grid has been planned on a 1800mm module with a primary grid spanning every two floors and an inset secondary grid to intermediate floors. The primary grid has a brick and half (317.5mm) reveal to the window and a further half brick (112.5mm) reveal to the inset secondary grid. The reveals provide an emphasis and depth to the façade. The use of a two storey grid increases the verticality and slenderness of the building form. Further visual interest is provided through the use of different stretcher and header brickwork bonds. The deep inset floor to ceiling windows will provide extensive views from the apartments and maximise natural daylight penetration. Natural ventilation is provided through anodised aluminium rapid vents. These are full height inward opening windows, concealed with a flush finished perforated metal screen to the façade. The perforate pattern for the rapid vents is extracted from two different historical brickwork bonds which were found within the local context. Flemish has been employed for the outer facades to Great Ancoats Street and Longacre Street and Flemish Cross to the inner facades to the new public square. This provides a contextual visual reference and connection to the heritage of the site. Ventilation to ancillary plant spaces at ground and mezzanine floors is provided

through flush finished aluminium louvres. The louvres are also used to face service access doors to provide a continuous and discrete appearance.

8.86 The transparency of the ground floor glazed areas to the retail uses maximises natural daylighting to internal spaces, and creates visual depth, continuity and views into ground floor areas. This also increases passive surveillance and improves security.'

## Limitations and Assumptions

8.87 The principal limitation as far as the field survey work was concerned has been that photography was undertaken in late summer when the foliage remains on trees. In some views this has the effect of softening or obscuring the Proposed Development from view. However, the population of mature trees in inner city Manchester, especially in regard the area surrounding the Proposed Development is low and this effect is noticeable in only a small number of views**.**

## Sources of Effect

**Demolition and construction phases**

8.88 The construction of this building will clearly involve procedures and processes that are unsightly and intrusive consistent with operations on most large scale construction sites. However, this process is comparatively short lived in nature when considered in the context of the lifespan of the Proposed Development concerned. The demolition and construction programme will commence as a single operation at the start of the project and last for a 18 months The key physical activities will include:

- Site clearance.
- Construction plant such as cranes, concrete mixing plant etc.
- Mobile construction plant.
- Delivery and stockpiling of materials.
- Protective fencing and hoardings.
- Unfinished appearance of the Proposed Development and its core for the majority of the construction period.
- Traffic movements associated with the above.

## Operational phases

8.89 The source of the effect during the operation phase is concerned with the physical impact that the Proposed Development will have on views, visual and townscape receptors.

## Construction Phase (including demolition of existing buildings)

8.90 The construction phase effects, as with the Operational Phase effects are assessed against the Predicted Baseline. A summary table, Table 8.8 is produced below which summarizes the effects of the demolition on the viewpoints, and surrounding townscape character, for each of the selected 19 Representative Viewpoints in each of the Character Zones using the same sensitivity of receptor and magnitude of effect values derived in the assessment of Operational Phase effects section below. (for an

explanation of how these values have been derived see Operational Effects section below for each respective viewpoint).

8.91 The significance of effect and Significance values under EIA regulations does differ, however, in one important respect as the construction phase is likely to be unsightly operation in its own right and produces a series of adverse effects on views and townscape character as a result. However, it should be noted that the construction period, estimated at 18 months is short term and temporary in nature.

**Table 8.8: Effects of demolition and construction**

| Location | Demolition and Construction effect |
|---|---|
| 1 Longacre Street | |
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | Moderate Adverse |
| Magnitude (Townscape) | Moderate Adverse |
| Significance of effect | Minor adverse |
| Significance | Not significant |
| | |
| 2 Piccadilly Village | |
| Sensitivity (VR) | High |
| Sensitivity (Townscape) | High |
| Magnitude (VR) | Moderate Adverse |
| Magnitude (Townscape) | Moderate Adverse |
| Significance of effect | Moderate Adverse |
| Significance | Significant |
| | |
| 3 Ashton Canal Tow Path | |
| Sensitivity (VR) | Medium |
| Sensitivity (Townscape) | Medium |
| Magnitude (VR) | Moderate Adverse |
| Magnitude (Townscape) | Moderate Adverse |
| Significance of effect | Moderate Adverse |
| Significance | Significant |
| | |
| 4 Ashton Canal Tow Path | |
| Sensitivity (VR) | Medium |
| Sensitivity (Townscape) | Low |
| Magnitude( VR) | Moderate Adverse |
| Magnitude (Townscape) | Moderate Adverse |

| Location | Demolition and Construction effect |
|---|---|
| Significance of effect | Moderate Adverse |
| Significance | Significant |
| | |
| 5 Carruthers Street | |
| Sensitivity (VR) | Medium |
| Sensitivity (Townscape) | Low |
| Magnitude( VR) | Minor Adverse |
| Magnitude (Townscape) | Minor Adverse |
| Significance of effect | Negligible (T) |
| Significance | Minor adverse (VR)<br>Not significant |
| | |
| 6 Old Mill Street | |
| Sensitivity (VR) | Medium |
| Sensitivity (Townscape) | Low |
| Magnitude( VR) | Negligible |
| Magnitude (Townscape) | Negligible |
| Significance of effect | Negligible |
| Significance | Not significant |
| | |
| 7 Old Mill Street | |
| Sensitivity (VR) | Medium |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | Negligible |
| Magnitude (Townscape) | Negligible |
| Significance of effect | Negligible |
| Significance | Not significant |
| | |
| 8 Merrill Street | |
| Sensitivity VR | Medium |
| Sensitivity Townscape | Low |
| Magnitude VR | Minor Adverse |
| Magnitude Townscape | Minor Adverse |
| Significance of effect | Negligible (T) |
| Significance | |

| Location | Demolition and Construction effect |
|---|---|
| | Minor Adverse (VR)<br>Not significant |
| | |
| 9 A662 Ring Road | |
| Sensitivity (VR) | High |
| Sensitivity (Townscape) | High |
| Magnitude (VR) | Moderate Adverse |
| Magnitude (Townscape) | Moderate Adverse |
| Significance of effect | Moderate Adverse |
| Significance | Significant |
| | |
| 10 A665 Ring Road | |
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | Moderate Adverse |
| Magnitude (Townscape) | Moderate Adverse |
| Significance of effect | Minor beneficial |
| Significance | Not significant |
| | |
| 11 A665 Ring Road | |
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | No impact |
| Magnitude (Townscape) | No impact |
| Significance of effect | Negligible |
| Significance | Not Significant |
| | |
| 12 Cotton Fields Park | |
| Sensitivity (VR) | Medium |
| Sensitivity (Townscape) | High |
| Magnitude (VR) | Negligible |
| Magnitude (Townscape) | Negligible |
| Significance of effect | Minor Adverse (T) |
| Significance | Negligible (VR)<br>Not significant |
| | |
| 13 A665 Ring Road | |

| Location | Demolition and Construction effect |
|---|---|
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | Medium |
| Magnitude (VR) | No impact |
| Magnitude (Townscape) | No impact |
| Significance of effect | Negligible |
| Significance | Not Significant |
| | |
| 14 A665 Ring Road | |
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | No impact |
| Magnitude (Townscape) | No impact |
| Significance of effect | Negligible |
| Significance | Not significant |
| | |
| 15 Fairfield Street | |
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | Minor Adverse |
| Magnitude (Townscape) | Minor Adverse |
| Significance of effect | Negligible |
| Significance | Not significant |
| | |
| 16 Manchester Piccadilly | |
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | Minor Adverse |
| Magnitude (Townscape) | Minor Adverse |
| Significance of effect | Negligible |
| Significance | Not significant |
| | |
| 17 Old Mill Street | |
| Sensitivity (VR) | High |
| Sensitivity (Townscape) | Low |
| Magnitude (VR) | Negligible |
| Magnitude (Townscape) | Negligible |

| Location | Demolition and Construction effect |
|---|---|
| Significance of effect | Negligible |
| Significance | Negligible |
| | |
| 18 Lever Street | |
| Sensitivity (VR) | High |
| Sensitivity (Townscape) | High |
| Magnitude (VR) | No impact |
| Magnitude (Townscape) | No impact |
| Significance of effect | Negligible |
| Significance | Not significant |
| | |
| 19 Red Hill Street | |
| Sensitivity (VR) | Medium |
| Sensitivity (Townscape) | Medium |
| Magnitude (VR) | Minor Adverse |
| Magnitude (Townscape) | Minor Adverse |
| Significance of effect | Minor |
| Significance | Not significant |
| | |
| 20 Baird Street | |
| Sensitivity (VR) | Low |
| Sensitivity (Townscape) | medium |
| Magnitude (VR) | Minor adverse |
| Magnitude (Townscape) | Minor adverse |
| Significance of effect | Negligible |
| Significance | Not signifcant |

## Assessment of Operational Phase Effects

**Effects of completed Development on Townscape Character and Views**

8.92 The visual and townscape effects of the completed Proposed Development are now summarized with respect to the effects of the Proposed Development on the Townscape Character through a narrative description of the nature of the effect on each of the Representative Viewpoints which lie within each character area. The effects on both townscape and visual receptors is examined in each case. Selected key viewpoints have been subjected to the insertion of an Accurate Verified Representation (AVR) into a baseline photograph so that the extent of both townscape and visual effects can be judged more accurately. The results of this exercise can be found in **Appendix 8.2 of Volume 3 of the ES**. In each case the effect of the Proposed

Development is compared with the baseline condition or view and an assessment made in terms of receptor susceptibility, value of townscape setting or view, receptor sensitivity and magnitude of effect. A judgement is then made as to whether the effect is of major to negligible significance of effect using the Effect Significance Matrix in Table 8.7 and then a judgement made as to whether the effect is **significant** or **not significant** in EIA regulation terms in accordance with the methodology above. A professional judgement is then made as to whether the effect is of an adverse or beneficial nature.

8.93 The effects below are primarily concerned with the effects on townscape character and visual receptors. The effects on heritage assets, including listed buildings and Conservation Areas is dealt with in more detail in Chapter 7 – Built Heritage. Reference will be made however, to heritage assets that appear in any of the Representative Views as they often play an important part in determining townscape character but no judgement will be made as to the effect of the Proposed Development on them to avoid unnecessary duplication.

8.94 The Zone of Theoretical Visibility confirms that the Proposed Development will have no effect in the core city centre zones largely due to a number of factors namely: tight urban grain, street orientation, topography and limited scale of the Proposed Development. In a few instances the top of the building may be glimpsed but the predicted effect in such cases is negligible to no change with commensurate values of **not significant** in EIA regulation terms This situation applies to the following city centre zones:

- Victoria
- The Village
- Central Business District
- Retail Core
- Chapel Street
- Salford
- Spinningfields
- St Johns
- Petersfield
- Castlefield
- Southern Gateway
- Hulme
- The effects of the Proposed Development are now examined on the zones where it is predicted to have an effect:

**Northern Quarter**

***Viewpoint 18 Lever Street.***

8.95 Located in the heart of the Northern Quarter the townscape character is coherent with a strong urban grain and a general absence of modern development. Surrounding buildings are generally four to five stories in height and historic in origin. Susceptibility to change in both townscape and visual receptor terms is therefore high and although outside any Conservation Area townscape character remains largely intact and the area is popular and valued by residents and visitors alike. As a consequence, both

townscape and visual receptor sensitivity is judged to be high at this location. The Proposed Development however will not be visible from this location so a value of no impact is recorded which is negligible in terms of significance of effect and **not significant** in EIA terms.

**Piccadilly Gardens**

***Viewpoint 2 Piccadilly Village***

8.96 This viewpoint is located in a quiet residential district in the heart of Piccadilly Village, a development established around the Ashton Canal in 1990. It is wholly residential and reflects a character which is coherent and of high quality with a high susceptibility to change. Townscape sensitivity is judged to be high as a result. In terms of visual sensitivity, the receptors fall into the highest category of residential receptor. Visual receptor value is judged to be medium as the viewpoint is located on a bridge over an asset of regional importance: the Ashton Canal. Overall therefore, visual receptor sensitivity is judged to be high. The Proposed Development will introduce a new element into the townscape and also the view as a prominent landmark building. The height and mass of the building are not overtly dominant or overwhelming however, and the façade offers a texture and materiality which supports its role as a background feature which does not intrude unduly into this tranquil residential setting. As a consequence, both townscape and visual effect magnitude of effect values are judged to be moderate beneficial. This implies that the significance of effect values for both categories are moderate beneficial and **significant** in EIA regulation terms.

***Viewpoint 10 Inner ring road***

8.97 The townscape character of this viewpoint on the inner ring road is strongly influenced by the large quantity of recent development on both sides of the road which includes the Oxygen development the construction of which is now well advanced Townscape susceptibility to change is judged to be low as a result and the very nature and character of the ring road itself infers a low townscape value. Townscape sensitivity overall is low as a result. Visual receptor sensitivity is similarly affected by the character of the ring road location with most receptors categorized as travellers and the area is without any designation. Visual receptor value is accordingly low as a result. The Proposed Development will fit into the pattern of existing development and balance the existing development on the northern side of the ring road in a consistent way. In terms of visual effect the form and height of the building improve the composition of the view by raising the skyline and creating a wider range of visual interest. In terms of magnitude of effect therefore, the Proposed Development is judged to have a moderate beneficial effect in response to townscape and visual effects. The significance of effect value is therefore judged to be of minor significance which is **not significant** in EIA terms.

***Viewpoint 11 Inner Ring road***

8.98 Viewpoint 11 explores the dynamic relationship between the Proposed Development and the inner ring road and exhibits very similar characteristics to viewpoint 10 but the horizon is broader as the location is in a more elevated situation. Both townscape receptor and visual receptor sensitivity are judged to be similar to the values described in Viewpoint 10 and are low accordingly. The Proposed Development is now completely obscured by the Oxygen development which occupies a prominent location

on the near horizon. Values of no impact are recorded here for the magnitude of effect for both receptor categories. This also translates to a negligible significance of effect for both categories which is **not significant** in ES regulation terms.

***Viewpoint 16 rear of Piccadilly Station***

8.99 Views of the Proposed Development are not possible from the main or ancillary entrances of Piccadilly station. This is the only view that can be obtained which is from the service entrance of the station to the rear. Both townscape and visual receptor sensitivity are judged to be low at this location which represents a middle distance view from the south. The Proposed Development will add a new and prominent component to the distant horizon but in a way that is not incompatible with the existing built form, such as the emergence of the Oxygen development which is now part of the baseline or to the exclusion of historic items such as the mill chimney. A value of minor beneficial is recorded for both townscape and visual effect categories and of negligible significance in terms of significance of effect. This value is registered therefore as **not significant** in EIA terms in respect of this viewpoint.

**Eastern Gateway**

***Viewpoint 1 Longacre Street***

8.100 This viewpoint is located within an area of low townscape value and low visual receptor sensitivity. Surrounded by light industrial units and commercial premises, this viewpoint offers a close up niche view from the south. Susceptibility to change is judged to be low in townscape terms. As a result, townscape sensitivity is judged to be low also. A similar judgement can be made for visual receptor sensitivity. Most receptors fall into the low susceptibility category of people at their place of work where the setting is not an important factor. This viewpoint has no particular quality or designation implying that the overall value for receptor sensitivity is low also. The Proposed Development will introduce a new element that is both prominent and uncharacteristic feature of the surrounding townscape. The change in the context of the prevailing low quality of townscape character, is judged to be moderate beneficial however. The same applies to visual effects where the view will be improved rather than adversely affected. In terms of significance of effect the values are assessed as being of minor significance for both and **not significant** in EIA terms.

***Viewpoint 15 Fairfield Street***

8.101 Located in the heart of the commercial district dominated by garages, car repair facilities and light industry townscape sensitivity is incoherent with an open urban grain and of poor townscape quality. It is judged to have a low townscape sensitivity as a result. Visual receptor sensitivity is similarly low as most receptors fall into the place of work category and the viewpoint is not associated with any specific designated value. In terms of magnitude of effect the Proposed Development will become a prominent feature of the horizon, mirroring that of the Oxygen development which is now a prominent feature of the horizon but in a beneficial way that complements the existing townscape character. Visually the view is also improved. The magnitude of effect values for both categories are therefore judged to be minor beneficial and the significance of effect values arising from this are negligible in both cases with a value of **not significant** in EIA terms.

***Viewpoint 20 Baird Street / Sheffield Street***

8.102 Also in the commercial district immediately to the rear of Piccadilly Station, this view is orientated towards the Proposed Development with the Crusader Mill development a focal point of the view. Crusader Mill is a Grade II listed building currently undergoing redevelopment into flats. For this reason townscape sensitivity is judged to be medium influenced by the value of this important if isolated heritage asset. Visual receptor sensitivity is judged to be low, however, as this area is dominated by car parks, railway infrastructure, commercial premises or offices with most receptors at their place of work or in transit. In terms of magnitude of change the Proposed Development will mirror the Oxygen development to some extent and become a contemporary feature on the horizon. In this case the Proposed Development will rise directly behind the Mill but by virtue of its simple form and contemporary materiality does not conflict overtly with the Mill or its setting. A value of minor beneficial is registered therefore or magnitude of effect for both townscape and visual receptors for this viewpoint. This translates into minor beneficial significance of effect values for townscape and negligible beneficial for visual receptors both of which are not significant.

## Additional Character Zones

### Ancoats

***Viewpoint 13 Inner ring road***

8.103 This viewpoint at the most northerly extent of the inner road provides a channelled niche view down the road which is in direct alignment with the Proposed Development at this location. With the exception of small buildings either side of the ring road townscape character is derived from development which is wholly modern in origin. Susceptibility to change is therefore judged to be low but the viewpoint is on the fringes of Ancoats Conservation area and which is of high townscape value. Townscape sensitivity is therefore judged to be medium overall. Visual receptor sensitivity is low however as this is a busy ring road with most receptors falling into traveller or at place of work category and as this is not a designated viewpoint or a viewpoint where the character of Ancoats can be readily appreciated visual receptor sensitivity is judged to be low as a result. The Proposed Development is now completely obscured by the Oxygen development which is now a major part of the baseline. Values of no impact are recorded here for the magnitude of effect for both receptor categories. This also translates to a negligible significance of effect for both categories which is **not significant** in EIA terms.

***Viewpoint 19 Red Hill Street***

8.104 Located on Redhill Street immediately adjacent to the Ashton Canal and at the interface between Ancoats and New Islington townscape character area the townscape character is strong and coherent manifest in its designation as a Conservation Area. The Oxygen development is now a major part of the baseline. Townscape sensitivity is judged to be medium therefore. In visual receptor terms this view, directed towards the Proposed Development and across open and empty open space remains fragmentary and without cohesion or balance and dominated by recent development on the horizon. Visual receptors fall into the traveller category along the towpath of Rochdale canal but residential also in the apartments along Redhill street. Visual Receptor Sensitivity is judged to be medium also. The Proposed Development will be a

distant, back ground feature of the horizon balancing Islington Wharf, diminished somewhat by the Oxygen development, but in a positive way forming a complementary element of townscape character. Values of minor beneficial are therefore recorded for both townscape and visual categories which infers values of minor beneficial significance which is **not significant** in EIA terms.

**Miles Platting**

***Viewpoint 6 Old Mill Street***

8.105 Although the street is not orientated towards the Proposed Development this is typical and representative area of Miles Platting. In townscape terms the character is derived from late 20th century housing arranged in terraces. New development does however, feature strongly on the horizon in which the proposed development will fit seamlessly. Townscape receptor susceptibility is judged to be low therefore and value is low also as there are no townscape designations. Visual receptor sensitivity is higher as it is largely a residential district and the canal is also a feature of the neighbourhood and as a result the visual receptor is judged to be medium. The Proposed Development is however, of insufficient scale to have any magnitude of effect in both townscape or visual receptor categories. As the effects are barely perceptible, the values for both categories are judged to be negligible. As a result, the significance of effect is judged to be negligible and **not significant** in EIA regulation terms.

***Viewpoint 7 Old Mill Street***

8.106 This viewpoint explores the effects on the same neighbourhood but from a more distant perspective. The assessment of receptor sensitivity values remains broadly similar to viewpoint 6, namely low townscape sensitivity and medium visual receptor sensitivity. The Proposed Development, from this more distant perspective does have more of an effect but blends seamlessly with existing developments of the townscape and fits well with both townscape character and visual receptors. As such therefore, both the magnitude of effect and the significance of effect is judged to be negligible and **not significant** in EIA regulation terms for both categories.

***Viewpoint 8 Merrill Street***

8.107 Trams are a constant feature of this neighbourhood and this viewpoint explores a perspective view focussed on the PDS in the context of tram infrastructure, recent multi storey residential development and historic mill buildings. The result is a fragmented townscape character of low susceptibility to change, medium value, and low townscape sensitivity overall. Visual receptor sensitivity is mixed, high associated with the residential development in close proximity to the viewpoint but low in relation users of this tram network and medium overall. The Proposed Development will form a consistent part of the townscape and fits well with the recent multi storey development in the foreground. Visually it also articulates well with the historic Albion Mill building and allows a modern vertical emphasis to become part of the composition which is not in conflict with the historic origins of the Mill. Magnitude of effect is therefore judged to be minor beneficial and in townscape and visual effect terms and this effect is judged to be positive as there is a perceptible but beneficial change the effect is beneficial. Overall therefore, the significance of effect is judged to be negligible significance of effect for townscape and medium beneficial for visual and **not significant** in EIA terms.

**New Islington**

***Viewpoint 3 Ashton Canal Towpath***

8.108 Townscape character is mixed at this viewpoint. Influenced strongly by the Ashton Canal and its associated buildings, the Lock Keeper's cottage in this case. This view also illustrates the variable character of surrounding development buttressed by the Ibis Hotel in the foreground but largely characterized by low rise industrial units and office premises. Susceptibility to change is therefore judged to be low and when combined with the high value of the Ashton Canal infers a medium value overall. Visual receptor susceptibility and value are judged to be medium as the canal is an asset of regional value and the viewpoint is located close to the towpath, an important recreational route through a high density residential area. The Proposed Development is judged to be of moderate townscape and visual benefit in terms of magnitude of effect. The Proposed Development is in close proximity from this view point but echoes the forms of neighbouring more recent buildings and connects well at low and upper levels with the adjacent Ibis hotel improving the composition of the view in a noticeable way in the process. For these reasons the significance of effect from this viewpoint is judged to be **moderate beneficial** from townscape and visual receptor terms and **significant** in accordance with EIA Regulations (2017).

***Viewpoint 4 Ashton Canal Towpath***

8.109 The emerging residential context of this area is fully explored in this viewpoint which is heavily influenced by new development both in the foreground and on the horizon with residential construction evident in the immediate foreground. Susceptibility to change is judged to be low as a result but with an historic asset of regional value, the Ashton Canal, the overall sensitivity value is medium. In terms of visual receptor value the overwhelming category of receptors at this location will be a mixture of residents and those using the canal towpath. Accordingly, visual receptor sensitivity in the context of a viewpoint of regional importance is judged to be medium. A similar effect in terms of magnitude of effect can be made for this viewpoint as that made for viewpoint 3 but the effect is notably more balanced and the form of the Proposed Development blend well with the buildings under construction along the west bank of the Ashton Canal. As a result, magnitude of effect is judged to be moderate beneficial in townscape and visual receptor terms and **significant** in accordance with EIA Regulations terms.

***Viewpoint 5 Carruthers Street***

8.110 A niche view orientated towards the development between recent residential blocks of developing looking towards the city centre explores the effects of the proposed development in the context of emerging development in this area of Manchester. In townscape terms the susceptibility to change is low with much of the adjacent development recent in origin and as the area has no designation and the canal does not affect the character at this point townscape value is also judged to be low. Visual receptor sensitivity is judged to be medium with most receptors residential and susceptible to change but in an area of no designated value. The Proposed Development forms a consistent part of the townscape in this niche view and will have a good fit with townscape character and the elements that comprise it but the change will only be minor in effect. Similarly, the Proposed Development will cause a perceptible change but not materially alter the character of the view. Magnitude of

effect for both townscape and visual receptors is therefore judged to be minor beneficial. Significance of effect is therefore assessed as being negligible for townscape and minor beneficial for visual receptors but **not significant** for either category in EIA Regulations terms.

***Viewpoint 9 Pollard Street***

8.111 In close proximity to a significant heritage asset and uniquely orientated towards the Proposed Development, this viewpoint explores the relationship between old and new. Townscape sensitivity is judged to be high as a result of the dominating influence of the Albion Mill which is in the process of being converted into residential apartments. The viewpoint is also on the edge of New Islington zone, an area of coherent townscape character and recently the subject of a major regeneration initiative. Consequently, it is judged to be of high value and townscape sensitivity is judged to be high as a result. Visual receptor sensitivity is high also associated with the residential occupation and conversion of the Albion Mill and the fact that this building is of regional significance and value. The Proposed Development will become a prominent new feature in the townscape but one that is not entirely inconsistent with the existing structures as is demonstrated by Islington Wharf and the newly emerging Oxygen development which is of comparative scale and origin. The contrast with Albion Mill of course is direct and uncompromising but clearly not pastiche or confusing in its modernity and therefore can be seen as a vertical modern foil to the detailed red brick horizontal mill monolith. As a result the magnitude of effect in townscape and visual effect terms is judged to be moderate beneficial. Overall the significance of effect is judged to be moderate significance which is **significant** in EIA terms.

***Viewpoint 12 Cotton Field Park***

8.112 Located in the heart of New Islington canal basin, this location is in a tranquil high quality townscape setting dominated by the canal basin and recently landscaped green space. The emerging Oxygen development is also fast becoming a prominent feature of the baseline townscape character. The area has a coherence that provides a coherent open space of loose urban grain in the midst of an area of dense urban development. As a result, townscape sensitivity is judged to be high. Visual receptors fall into the medium category and with the area being of medium value and associated with a viewpoint which is locally valued and important. Sensitivity is therefore judged to be medium also. The proposed Development will join the existing, recent, tall building cluster including the Oxygen development and adds a distant component to the horizon. In both form and origin it is a consistent part of the townscape character in views from this location and judged to have a negligible effect on townscape character. Visually, change is also small as the view is only marginally affected or negligible in magnitude of effect terms. Significance of effect is therefore judged to be minor beneficial in townscape terms and negligible in visual effect terms or **not significant** for either category in EIA Regulations terms.

***Viewpoint 17 Old Mill Street***

8.113 This viewpoint is located in the centre of the New Islington character area. Townscape susceptibility to change in the context of new and emerging development in the foreground is judged to be low and townscape value similarly low as this viewpoint lies outside any Conservation Area. Visual receptor category is however, high, as this is a strongly residential area notable for its regeneration in recent years but with no value

in terms of designation. Magnitude of effect however is recorded as no impact in both cases as the foreground buildings conceal the Proposed Development from view. A value of negligible significance is therefore registered for both categories and a value **not significant** in EIA terms for both.

**Medlock Valley**

***Viewpoint 14 Ring Road***

8.114 A view which demonstrates the effects of the Proposed Development on the townscape character of the ring road where it coincides with the Medlock Valley character area. Townscape character is evolving at this point as new development emerges from the northern side of the ring road with a low susceptibility to change as a result. Townscape value is also judged to be low collectively producing a townscape sensitivity value of low. Visual receptors are dominated by travellers of one sort or another which, at a viewpoint without any special value or designation, results in a low visual receptor sensitivity value also. In terms of magnitude of effect however, the Proposed Development is predicted to have no impact as it will be concealed by the existing foreground development. The overall significance of effect therefore is negligible for both categories and **not significant** for either category in EIA Regulations terms.

## Assessment of Cumulative Effects

8.115 The cumulative effect of the Proposed Development is now examined in relation to intra- project and inter-project cumulative effects and also in respect of the cumulative effects on the construction and operational phases.

**Intra- project cumulative effects**

8.116 It is judged that there are no intra- project cumulative effects arising in relation to other environmental topics under consideration in this assessment.

**Inter-project cumulative effects**

8.117 In terms of inter- project cumulative effects, however, or effects arising from similar developments that are either consented or are coming forward in the planning process in close proximity to the PDS then there are developments which, cumulatively, are considered to affect the significance values for townscape and views. Table 8.9 summarises these schemes which are similar in scale to the Proposed Development and lie within a 1km radius of the PDS.

**Cumulative effects on the construction and operational phases**

8.118 The most significant cumulative effects will be during the operational phase when the Proposed Development has been completed. Before that time, during the construction phase, the cumulative effects are likely to be infinitely variable as they are reliant on the construction programme of each of the relevant cumulative schemes identified in Table 8.10 below, in relation to the construction programme of the Proposed Development. The same applies to the decommissioning phase. The table below records predicted judgments based on the assumption that the Proposed Development along with all cumulative developments are complete and represents therefore the ultimate effect.

**Table 8.9: Cumulative schemes**

| No. | Planning reference | Cumulative Scheme | No of storeys |
|---|---|---|---|
| 28 | n/a | Portugal Street East Plot A and B | 29,23 |
| 30 | n/a | Portugal Street East Plot G | 13 |
| 33 | 124495/FO/2019 | Meininger, Great Ancoats St | 12 |

8.119 The developments listed in Table 8.9 above will not have a universal effect on all of the selected viewpoints, or the townscape character. In order, therefore, to assess the cumulative effect in a more systematic way, the following Table, Table 8.10, has been compiled to summarise the effect of the Proposed Development on its own and then in respect of the relevant cumulative scheme on a viewpoint by viewpoint basis. Where a cumulative scheme is predicted to have an effect on a particular viewpoint or townscape character then the effect values are reassessed and adjusted accordingly to take the scheme or schemes into account, if it is judged that there is, in fact, a cumulative effect.

8.120 Of course as the cumulative schemes come forward then, in certain cases, visual receptor sensitivity is likely to increase as many of the developments contain apartments. However, by the same token, the magnitude of effect is likely to decline as the Proposed Development will now be seen in the context of a greater number of similar developments of equivalent scale. As a result the net effect, where the effect is deemed to be significant, is generally a lowering of the significance of effect value in cumulative terms. This is exacerbated to a value of not significant if the cumulative building obscures the view of the Proposed Development completely which occurs in a few cases.

**Table 8.10: Victoria House TVIA Cumulative Impact Assessment operational phase summary table**

| Location | Development only | Relevant cumulative scheme | Cumulative impact |
|---|---|---|---|
| 1 Longacre Street | | | |
| Sensitivity (VR) | Low | Plot G | |
| Sensitivity (Townscape) | Low | | |
| Magnitude (VR) | Moderate Beneficial | | |
| Magnitude (Townscape) | Moderate Beneficial | | |
| Significance of effect | Minor Beneficial | | Minor Beneficial |
| Significance | Not significant | | Not significant |
| | | | |
| 2 Piccadilly Village | | | |
| Sensitivity (VR) | High | Plot A | |

| Location | Development only | Relevant cumulative scheme | Cumulative impact |
|---|---|---|---|
| Sensitivity (Townscape) | High | Plot G | |
| Magnitude (VR) | Moderate Beneficial | | |
| Magnitude (Townscape) | Moderate Beneficial | | |
| Significance of effect | Moderate Beneficial | | Minor Beneficial |
| Significance | Significant | | Not significant |
| | | | |
| 3 Ashton Canal Tow Path | | | |
| Sensitivity (VR) | Medium | Plot A | |
| Sensitivity (Townscape) | Medium | Plot G | |
| Magnitude (VR) | Moderate Beneficial | | |
| Magnitude (Townscape) | Moderate Beneficial | | |
| Significance of effect | Moderate Beneficial | | Minor beneficial |
| Significance | Significant | | Not significant |
| | | | |
| 4 Ashton Canal Tow Path | | | |
| Sensitivity (VR) | Medium | Plot A | |
| Sensitivity (Townscape) | Medium | Plot G | |
| Magnitude( VR) | Moderate Beneficial | | |
| Magnitude (Townscape) | Moderate Beneficial | | |
| Significance of effect | Moderate Beneficial | | Minor beneficial |
| Significance | Significant | | Not significant |
| | | | |
| 5 Carruthers Street | | | |
| Sensitivity (VR) | Medium | Plot A | |
| Sensitivity (Townscape) | Low | | |
| Magnitude( VR) | Minor Beneficial | | |
| Magnitude (Townscape) | Minor Beneficial | | |
| Significance of effect | Negligible (T) | | |
| | Minor beneficial (VR) | | Negligible |
| Significance | Not significant | | Not Significant |
| | | | |
| 6 Old Mill Street | | | |
| Sensitivity (VR) | Medium | | |
| Sensitivity (Townscape) | Low | | |
| Magnitude( VR) | Negligible | | |
| Magnitude (Townscape) | Negligible | | |

| Location | Development only | Relevant cumulative scheme | Cumulative impact |
|---|---|---|---|
| Significance of effect | Negligible | | Negligible |
| Significance | Not significant | | Not Significant |
| | | | |
| 7 Old Mill Street | | | |
| Sensitivity (VR) | Medium | Plot A | |
| Sensitivity (Townscape) | Low | | |
| Magnitude (VR) | Negligible | | |
| Magnitude (Townscape) | Negligible | | |
| Significance of effect | Negligible | | Negligible |
| Significance | Not significant | | Not Significant |
| | | | |
| 8 Merrill Street | | | |
| Sensitivity VR | Medium | Plot A | |
| Sensitivity Townscape | Low | | |
| Magnitude VR | Minor Beneficial | | |
| Magnitude Townscape | Minor Beneficial | | |
| Significance of effect | Negligible (T) | | |
| Significance | Minor beneficial (VR) Not significant | | Negligible Not Significant |
| | | | |
| 9 A662 Ring Road | | | |
| Sensitivity (VR) | High | Plot A | |
| Sensitivity (Townscape) | High | | |
| Magnitude (VR) | Moderate Beneficial | | |
| Magnitude (Townscape) | Moderate Beneficial | | |
| Significance of effect | Moderate | | Minor Beneficial |
| Significance | Significant | | Significant |
| | | | |
| 10 A665 Ring Road | | | |
| Sensitivity (VR) | Low | Plot G | |
| Sensitivity (Townscape) | Low | | |
| Magnitude (VR) | No impact | | |
| Magnitude (Townscape) | No impact | | |
| Significance of effect | Negligible | | Negligible |
| Significance | Not significant | | Not significant |

| Location | Development only | Relevant cumulative scheme | Cumulative impact |
|---|---|---|---|
| 11 A665 Ring Road | | | |
| Sensitivity (VR) | Low | | |
| Sensitivity (Townscape) | Low | | |
| Magnitude (VR) | Minor Beneficial | | |
| Magnitude (Townscape) | Minor Beneficial | | |
| Significance of effect | Negligible | | Negligible |
| Significance | Not Significant | | Not Significant |
| | | | |
| 12 Cotton Fields Park | | | |
| Sensitivity (VR) | Medium | | |
| Sensitivity (Townscape) | High | Plot A | |
| Magnitude (VR) | Negligible | | |
| Magnitude (Townscape) | Negligible | | |
| Significance of effect | Minor Beneficial (T) | | |
| | Negligible (VR) | | Negligible |
| Significance | Not significant | | Not Significant |
| | | | |
| 13 A665 Ring Road | | | |
| Sensitivity (VR) | Low | | |
| Sensitivity (Townscape) | Medium | | |
| Magnitude (VR) | Minor Beneficial | | |
| Magnitude (Townscape) | Minor Beneficial | | |
| Significance of effect | Negligible (VR) | | |
| Significance | Minor beneficial (T) | | Minor beneficial |
| | Not Significant | | Not Significant |
| | | | |
| 14 A665 Ring Road | | | |
| Sensitivity (VR) | Low | - | - |
| Sensitivity (Townscape) | Low | | |
| Magnitude (VR) | No impact | | |
| Magnitude (Townscape) | No impact | | |
| Significance of effect | Negligible | | |
| Significance | Not significant | | |
| | | | |
| 15 Fairfield Street | | | |
| Sensitivity (VR) | Low | Plot A | |

| Location | Development only | Relevant cumulative scheme | Cumulative impact |
|---|---|---|---|
| Sensitivity (Townscape) | Low | Plot G | |
| Magnitude (VR) | Minor Beneficial | | |
| Magnitude (Townscape) | Minor Beneficial | | |
| Significance of effect | Negligible | | Negligible |
| Significance | Not significant | | Not significant |
| | | | |
| 16 Manchester Piccadilly | | | |
| Sensitivity (VR) | Low | | |
| Sensitivity (Townscape) | Low | Plot A | |
| Magnitude (VR) | Minor Beneficial | Plot G | |
| Magnitude (Townscape) | Minor Beneficial | | |
| Significance of effect | Negligible | | Negligible |
| Significance | Not significant | | Not significant |
| | | | |
| 17 Old Mill Street | | | |
| Sensitivity (VR) | High | - | |
| Sensitivity (Townscape) | Low | | |
| Magnitude (VR) | No impact | | |
| Magnitude (Townscape) | No impact | | |
| Significance of effect | Negligible | | Negligible |
| Significance | Not significant | | Not significant |
| | | | |
| 18 Lever Street | | | |
| Sensitivity (VR) | High | - | |
| Sensitivity (Townscape) | High | | |
| Magnitude (VR) | No impact | | |
| Magnitude (Townscape) | No impact | | |
| Significance of effect | Negligible | | Negligible |
| Significance | Not significant | | Not significant |
| | | | |
| 19 Red Hill Street | | | |
| Sensitivity (VR) | Medium | | |
| Sensitivity (Townscape) | Medium | Plot A | |
| Magnitude (VR) | Minor beneficial | Plot G | |
| Magnitude (Townscape) | Minor beneficial | | |
| Significance of effect | Minor beneficial | | Negligible |

| Location | Development only | Relevant cumulative scheme | Cumulative impact |
|---|---|---|---|
| Significance | Not significant | | Not significant |
| | | | |
| 20 Baird Street | | | |
| Sensitivity (VR) | Low | | |
| Sensitivity (Townscape) | Medium | | |
| Magnitude (VR) | Minor beneficial | | |
| Magnitude (Townscape) | Minor beneficial | | |
| Significance of effect (T) | Minor beneficial | | |
| Significance of effect (VR) | Negligible | | |
| Significance of effect (VR) | | | |
| Significance | Minor beneficial | | Not significant |
| | | | |
| | Not significant | | |

*(T = Townscape; VR = Visual Receptor)*

## Mitigation Measures

### Construction phase

***Mitigation of effects during the construction phase.***

8.121 Mitigating the effects of the construction phase will involve high quality hoardings that will be used to limit unsightly visual impacts during the construction phase at street level. These will secure and protect the Site and prevent views of an unsightly construction site. These will be implemented through the Construction and Environmental Management Plan pursuant to a planning condition.

***Mitigation of effects during operational phase***

8.122 Mitigation measures for the operational phase are focussed on embedded mitigation measures previously described and are an integral part of the design of the building. No further mitigation measures should therefore be required.

## Residual Effects

8.123 The TVIA has been carried out based on the assumption that all the necessary mitigation measures have been accounted for in the design process. The images for selected viewpoints illustrated in **Appendix 8.2 of Volume 3 of the ES** represent the accurate definition of the location and mass of the component parts of the Proposed Development. The predicted residual significance of effect values are therefore the same for each representative viewpoint and Townscape Character Area as the development only impact and significance effect values listed in Table 8.10 above. The duration in each case will be Long Term.

8.124 In terms of significance of effect the overwhelming residual values are either minor beneficial or negligible. This is due, in part, to low to medium sensitivity values in terms of visual receptors and townscape and the fact that this area of north Manchester has seen, or is witnessing, a surge in recent development into which the Proposed Development will fit well in both townscape and visual terms. As a result, the overwhelming value in terms of significance is not significant.

**Table 8.11: Residual Impact Table**

| Environmental receptor: townscape and visual | Description of impact and significance | Duration (S, M, L) | Mitigation | Residual impact and significance | Duration of residual impact ( S,M,L) |
|---|---|---|---|---|---|
| 1 Longacre Street | | | | | |
| Sensitivity (VR) | | L | Embedded in design | | L |
| Sensitivity (T) | Low | | | Low | |
| Magnitude (VR) | Low | | | Low | |
| Magnitude (T) | Moderate Beneficial | | | Moderate Beneficial | |
| Significance of effect | Moderate Beneficial | | | Moderate Beneficial | |
| Significance | Minor Beneficial | | | Minor Beneficial | |
| | Not significant | | | Not significant | |
| 2 Piccadilly Village | | L | Embedded in design | | L |
| Sensitivity (VR) | High | | | High | |
| Sensitivity (T) | High | | | High | |
| Magnitude (VR) | Moderate Beneficial | | | Moderate Beneficial | |
| Magnitude (T) | Moderate Beneficial | | | Moderate Beneficial | |
| Significance of effect | Moderate Beneficial | | | Moderate Beneficial | |
| Significance | Significant | | | **Significant (beneficial)** | |
| 3 Ashton Canal Tow Path | | L | Embedded in design | | L |
| Sensitivity (VR) | Medium | | | Medium | |
| Sensitivity (T) | Medium | | | Medium | |
| Magnitude (VR) | Moderate Beneficial | | | Moderate Beneficial | |
| Magnitude (T) | Moderate Beneficial | | | Moderate Beneficial | |

| Environmental receptor: townscape and visual | Description of impact and significance | Duration (S, M, L) | Mitigation | Residual impact and significance | Duration of residual impact ( S,M,L) |
|---|---|---|---|---|---|
| Significance of effect | Moderate Beneficial | | | Moderate Beneficial | |
| Significance | Significant | | | **Significant (beneficial)** | |
| | | | | | |
| 4 Ashton Canal Tow Path | | L | Embedded in design | | L |
| Sensitivity (VR) | Medium | | | Medium | |
| Sensitivity (T) | Medium | | | Medium | |
| Magnitude( VR) | Moderate Beneficial | | | Moderate Beneficial | |
| Magnitude (T) | Moderate Beneficial | | | Moderate Beneficial | |
| Significance of effect | Moderate Beneficial | | | Moderate Beneficial | |
| Significance | Significant | | | **Significant (beneficial)** | |
| | | | | | |
| 5 Carruthers Street | | L | Embedded in design | | L |
| Sensitivity (VR) | Medium | | | Medium | |
| Sensitivity (T) | Low | | | Low | |
| Magnitude( VR) | Minor Beneficial | | | Minor Beneficial | |
| Magnitude (T) | Minor Beneficial | | | Minor Beneficial | |
| Significance of effect | Negligible (T) | | | Negligible (T) | |
| | Minor beneficial (VR) | | | Minor beneficial (VR) | |
| Significance | Not significant | | | Not significant | |
| | | | | | |
| 6 Old Mill Street | | | Embedded in design | | |
| Sensitivity (VR) | | L | | | L |
| Sensitivity (T) | | | | | |
| Magnitude (VR) | Medium | | | Medium | |
| Magnitude (T) | Low | | | Low | |

| Environmental receptor: townscape and visual | Description of impact and significance | Duration (S, M, L) | Mitigation | Residual impact and significance | Duration of residual impact ( S,M,L) |
|---|---|---|---|---|---|
| Significance of effect<br>Significance | Negligible<br>Negligible<br>Negligible<br>Not significant | | | Negligible<br>Negligible<br>Negligible<br>Not significant | |
| | | | | | |
| 7 Old Mill Street<br>Sensitivity (VR)<br>Sensitivity (T)<br>Magnitude (VR)<br>Magnitude (T)<br>Significance of effect<br>Significance | <br>Medium<br>Low<br>Negligible<br>Negligible<br>Negligible<br>Not significant | <br>L | Embedded in design | <br>Medium<br>Low<br>Negligible<br>Negligible<br>Negligible<br>Not significant | <br>L |
| | | | | | |
| 8 Merrill Street<br>Sensitivity VR<br>Sensitivity (T)<br>Magnitude VR<br>Magnitude (T)<br>Significance of effect<br>Significance | <br>Medium<br>Low<br>Minor Beneficial<br>Minor Beneficial<br>Negligible (T)<br>Minor beneficial (VR)<br>Not significant | <br>L | Embedded in design | <br>Medium<br>Low<br>Minor Beneficial<br>Minor Beneficial<br>Negligible (T)<br>Minor beneficial (VR)<br>Not significant | <br>L |
| | | | | | |
| 9 A662 Ring Road<br>Sensitivity (VR)<br>Sensitivity (T)<br>Magnitude (VR)<br>Magnitude (T)<br>Significance of effect<br>Significance | <br><br>High<br>High<br>Moderate Beneficial<br>Moderate Beneficial<br>Moderate<br>Significant | <br>L | Embedded in design | <br><br>High<br>High<br>Moderate Beneficial<br>Moderate Beneficial<br>Moderate | <br>L |

| Environmental receptor: townscape and visual | Description of impact and significance | Duration (S, M, L) | Mitigation | Residual impact and significance | Duration of residual impact ( S,M,L) |
|---|---|---|---|---|---|
| | | | | **Significant (beneficial)** | |
| | | | | | |
| 10 A665 Ring Road | | L | Embedded in design | | L |
| Sensitivity (VR | Low | | | Low | |
| Sensitivity (T) | Low | | | Low | |
| Magnitude (VR) | No impact | | | No impact | |
| Magnitude (T) | No impact l | | | No impact | |
| Significance of effect | Negligible | | | Negligible | |
| Significance | Not significant | | | Not significant | |
| | | | | | |
| 11 A665 Ring Road | | L | Embedded in design | | L |
| Sensitivity (VR) | Low | | | Low | |
| Sensitivity (T) | | | | | |
| Magnitude (VR) | Low | | | Low | |
| Magnitude (T) | No impact | | | No impact | |
| Significance of effect | No impact | | | No impact | |
| Significance | Negligible | | | Negligible | |
| | Not Significant | | | Not Significant | |
| | | | | | |
| 12 Cotton Fields Park | | L | Embedded in design | | L |
| Sensitivity (VR) | Medium | | | Medium | |
| Sensitivity (T) | High | | | High | |
| Magnitude (VR) | Negligible | | | Negligible | |
| Magnitude (T) | Negligible | | | Negligible | |
| Significance of effect | Minor Beneficial (T) | | | Minor Beneficial (T) | |
| Significance | Negligible (VR) | | | Negligible (VR) | |
| | Not significant | | | Not significant | |

| Environmental receptor: townscape and visual | Description of impact and significance | Duration (S, M, L) | Mitigation | Residual impact and significance | Duration of residual impact ( S,M,L) |
|---|---|---|---|---|---|
| 13 A665 Ring Road | | L | Embedded in design | | L |
| Sensitivity (VR | Low | | | Low | |
| Sensitivity (T) | Medium | | | Medium | |
| Magnitude (VR) | Minor Beneficial | | | Minor Beneficial | |
| Magnitude (T) | Minor Beneficial | | | Minor Beneficial | |
| Significance of effect | Negligible (VR) | | | Negligible (VR) | |
| | Minor beneficial (T) | | | Minor beneficial (T) | |
| Significance | Not Significant | | | Not Significant | |
| 14 A665 Ring Road | | L | Embedded in design | | L |
| Sensitivity (VR | Low | | | Low | |
| Sensitivity (T) | Low | | | Low | |
| Magnitude (VR) | No impact | | | No impact | |
| Magnitude (T) | No impact | | | No impact | |
| Significance of effect | Negligible | | | Negligible | |
| Significance | Not significant | | | Not significant | |
| 15 Fairfield Street | | | | | |
| Sensitivity (VR | | L | Embedded in design | | L |
| Sensitivity (T) | Low | | | Low | |
| Magnitude (VR) | Low | | | Low | |
| Magnitude (T) | Minor Beneficial | | | Minor Beneficial | |
| Significance of effect | Minor Beneficial | | | Minor Beneficial | |
| | Negligible | | | Negligible | |
| Significance | | | | | |
| | Not significant | | | Not significant | |
| 16 Manchester Piccadilly | | L | Embedded in design | | L |

| Environmental receptor: townscape and visual | Description of impact and significance | Duration (S, M, L) | Mitigation | Residual impact and significance | Duration of residual impact ( S,M,L) |
|---|---|---|---|---|---|
| Sensitivity (VR | Low | | | Low | |
| Sensitivity (T) | Low | | | Low | |
| Magnitude (VR) | Minor Beneficial | | | Minor Beneficial | |
| Magnitude (T) | Minor Beneficial | | | Minor Beneficial | |
| Significance of effect | Negligible | | | Negligible | |
| Significance | Not significant | | | Not significant | |
| | | | | | |
| 17 Old Mill Street | | | Embedded in design | | |
| Sensitivity (VR | High | L | | High | L |
| Sensitivity (T) | Low | | | Low | |
| Magnitude (VR) | No impact | | | Negligible | |
| Magnitude (T) | No impact | | | Negligible | |
| Significance of effect | Negligible | | | Negligible | |
| Significance | Not significant | | | Not significant | |
| | | | | | |
| 18 Lever Street | | | Embedded in design | | |
| Sensitivity (VR | High | L | | High | L |
| Sensitivity (T) | High | | | High | |
| Magnitude (VR) | No impact | | | No impact | |
| Magnitude (T) | No impact | | | No impact | |
| Significance of effect | Negligible | | | Negligible | |
| Significance | Not significant | | | Not significant | |
| | | | | | |
| 19 Red Hill Street | | | Embedded in design | | |
| Sensitivity (VR | | L | | | L |
| Sensitivity (T) | Medium | | | Medium | |
| Magnitude (VR) | Medium | | | Medium | |
| Magnitude (T) | Minor beneficial | | | Minor beneficial | |
| Significance of effect | Minor beneficial | | | Minor beneficial | |
| Significance | Minor beneficial | | | Minor beneficial | |

| Environmental receptor: townscape and visual | Description of impact and significance | Duration (S, M, L) | Mitigation | Residual impact and significance | Duration of residual impact ( S,M,L) |
|---|---|---|---|---|---|
| | Not significant | | | Not significant | |
| 20 Baird Street | | | | | |
| Sensitivity (VR) | | | | | |
| Sensitivity (T) | Low | | | Low | |
| Magnitude (VR) | Medium | L | | Medium | L |
| Magnitude (T) | Minor beneficial | | | Minor beneficial | |
| Significance of effect (T) | Minor beneficial | | | Minor beneficial | |
| Significance of Effect (VR) | Minor beneficial | | | Minor beneficial | |
| Significance | Negligible beneficial | | | Negligible beneficial | |
| | Not significant | | | Not significant | |

**References**


| | |
|---|---|
| 8.1 | The European Landscape Convention (ELC, 2000) |
| 8.2 | National Planning Policy Framework 2019 Dept Communities and Local Government |
| 8.3 | Manchester City Council Core Strategy 2012 |
| 8.4 | Guidelines for Landscape and Visual Impact Assessment 3rd Edition 2013 landscape Institute and Institute of Environmental Management and Assessment |
| 8.5 | Historic England note on tall building 2014 |
| 8.6 | Manchester Residential Quality Guidance MCC 2017 |
| 8.7 | History in the View LUC 2011 |
| 8.8 | Victoria House Methodology Statement Ambiente 2018 |
| 8.9 | Op cit 8.4 |
| 8.10 | Landscape Institute Advice Note L1/11 2011 , Landscape Institute |
| 8.11 | Op. cit. 8.4 |
| 8.12 | HS2 Strategic Regeneration Framework 2014 |

# 9. Built Heritage

## Introduction

9.1 This chapter has been prepared by Turley Heritage and assesses the likely environmental effects of the Proposed Development on the above ground historic built environment ('Built Heritage').

9.2 The chapter describes the methods used to assess environmental effects, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect effects of the development on Built Heritage, the mitigation measures required to prevent, reduce, or offset the impacts and the residual impacts.

9.3 All designated and non-designated built heritage assets, both within the red line application boundary of the Proposed Development Site (PDS) and within approximately 500m of the site have been identified and the effect of the Proposed Development on these assets has been assessed for both the construction and operation phases of the development.

9.4 The site does not contain any designated or non-designated heritage assets. The effects arising from the Proposed Development on Built Heritage will be indirect in nature having potential to affect the significance of the identified assets through change within their setting. Therefore, in assessing heritage significance, the contribution of setting, or elements thereof, with respect to each heritage asset, has been taken into account, whilst noting that heritage setting is not itself a heritage asset or designation.

9.5 A separate Heritage Assessment has been prepared which assesses the significance (including setting) of the heritage assets within the identified Study Area and considers the impact of the Proposed Development upon these assets. The Heritage Assessment has informed this ES chapter. A copy of the Heritage Assessment is included at **ES Volume 4: Appendix 9.1** and the Heritage Asset Plan is Appendix 1 of the Heritage Assessment.

## Legislative Framework

**The Planning (Listed Buildings and Conservation Areas) Act 1990**

9.6 The Act sets out the legislative framework within which works and development affecting listed buildings and conservation areas must be considered. This states that:-

*"In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall 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" (s66(1))*

9.7 The concept of 'preserve' has been interpreted through case law to mean 'to cause no harm'.

**The National Planning Policy Framework, 2019**

9.8 The National Planning Policy Framework (NPPF) is the full statement of Government planning policies. Chapter 16 outlines the Government's guidance regarding the conservation and enhancement of the historic environment.

9.9 Paragraph 189 of the NPPF outlines the information required to support planning applications affecting heritage assets, stating that applicants should describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance.

9.10 Paragraph 192 of the NPPF states that planning authorities should take account of the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation; the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and the desirability of new development making a positive contribution to local character and distinctiveness.

9.11 Paragraph 193 states that when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. Conservation is defined as:

*"The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance."*

9.12 Paragraph 194 confirms that any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification.

9.13 Paragraph 195 states that where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

(a) the nature of the heritage asset prevents all reasonable uses of the site; and
(b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
(c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and
(d) the harm or loss is outweighed by the benefit of bringing the site back into use.

9.14 Paragraph 196 states that where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.

9.15 Paragraph 200 states that local planning authorities should look for opportunities for new development within the setting of heritage assets to enhance or better reveal

their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.

**Manchester Core Strategy**

9.16 The development plan for Manchester comprises the Core Strategy 2012-2027 and extant Unitary Development Plan (UDP) Policies and relevant development plans and supplementary planning documents.

9.17 Policy EN 2 of the Core Strategy relates to tall buildings, which are defined as *'buildings which are substantially taller than their neighbourhoods and/or which significantly change the skyline'.* It further states that proposals for tall buildings will be supported where it is demonstrated that they:

- *"Are of excellent design quality,*
- *Are appropriately located,*
- *Contribute positively to sustainability,*
- *Contribute positive to place making, for example as a landmark, terminating a view, or by signposting a facility of significance, and*
- *Will bring significant regeneration benefits."*

9.18 Policy EN3 (Heritage) of the Core Strategy states that:

*'Throughout the City, the Council will encourage development that complement and takes advantage of the distinct historic and heritage features of its districts and neighbourhoods, including those of the City Centre.*

*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 scheduled ancient monuments, listed buildings, registered parks and gardens, conservation areas and archaeological remains…'*

**Manchester Unitary Development Plan (UDP) (Saved Policies)**

9.19 Policy DC18.1 of the UDP relates to the protection of the City's conservation areas. The policy states that:

*'e. Development proposals adjacent to Conservation Areas will be granted where it can be shown that they will not harm the appearance or character of the area. This will include the protection of views into and out of Conservation Areas.'*

9.20 Policies DC19 of the UDP relates to the determination of planning applications for development which involve or have an impact on buildings of Special Architectural or Historic Interest. The council will have regard to protecting their general setting. In giving effect to this policy, the Council will:

*"d. seek to preserve and enhance the settings of listed buildings by appropriate control over the design of new development in their vicinity, control over the use of adjacent land, and where appropriate, by the preservation of trees and landscape features…"*

**Guidance: Historic England Good Practice Advice in Planning Note 3 (Second Edition) (December 2017) 'The Setting of Heritage Assets'**

9.21 Historic England has recently published revised guidance relating to the setting and views of heritage assets. The document gives general advice on understanding setting and how it may contribute to the significance of heritage assets. It also provides advice on how views play a part in setting. It suggests a staged approach to taking decisions on the level of the contribution which setting and related views make to the significance of heritage assets.

9.22 The guidance clarifies that there can be a distinction between views that are valued for reasons other than their contribution to heritage significance such as reasons of landscape character or visual amenity.

9.23 It states that the extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places. It also clarifies that the contribution that setting makes to the significance of the heritage asset does not depend on there being public rights or an ability to access or experience that setting.

9.24 Paragraph 9 of the guidance states that setting is not itself a heritage asset. Its importance lies in what it contributes to the significance of the heritage asset or to the ability to appreciate that significance.

9.25 The guidance highlights a series of other considerations that can be relevant to the assessing the impact of development such as 'change over time', 'cumulative change', 'access and setting', 'buried assets and setting, 'designed settings', 'setting and urban design', and 'setting and economic viability'.

9.26 It is identified within the guidance that views which contribute more to understanding the significance of a heritage asset include the following:

- Those where the composition within the view was a fundamental aspect of the design or function of the heritage asset.
- Those where town- or village-scape reveals views with unplanned or unintended beauty.
- Those with historical associations.
- Those with cultural associations.
- Those where relationships between the asset and other heritage assets or natural features or phenomena are particularly relevant.

9.27 As set out above, a staged approach to assessment is advocated involving identification of the assets that may be affected, assessing the degree to which setting makes a contribution to the significance of the heritage asset or allows significance to be appreciated, assessing the effects of the proposed development and exploring ways to maximise enhancement and avoid or minimise harm.

9.28 In assessing the degree to which these settings and views make a contribution to the significance of the heritage assets or allow significance to be appreciated, the key attributes of the heritage asset should be addressed and then the following considered:

- The physical surroundings of the asset and its relationship with other assets;
- The asset's intangible associations with its surroundings, and patterns of use;
- The contribution made by noise, smells etc to significance; and
- The way views allow the significance of the asset to be appreciated.

9.29 The Step 2 Checklist provides a list of potential setting attributes that may help to elucidate its contribution to significance under the headings 'The asset's physical surroundings' and 'Experience of the asset'. The Step 3 Checklist provides a list of potential attributes of a development affecting setting that may help to elucidate its implications for the significance of the heritage asset including the 'Location and siting of development', the 'Form and appearance of development', 'Wider effects of the development' and 'Permanence of the development'.

**National Planning Practice Guidance (Published in 2016 and Updated in 2018)**

9.30 Whilst not planning policy the Planning Practice Guidance provides a clear indication of the Government's approach to the application of national policy contained in the NPPF. Where there is conflict between the guidance in the PPG and previously published documents, the PPG will take precedence.

**Historic England: Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision Taking in the Historic Environment (2015)**

9.31 GPA Note 2 provides information to assist in implementing historic environment policy in the Framework and the related guidance given in the NPPG. These include; assessing the significance of heritage assets, using appropriate expertise, historic environment records, recording and furthering understanding, neglect and unauthorised works, marketing and design and distinctiveness.

## Assessment Methodology

9.32 The assessment has been carried out in accordance with the statutory duty of The Planning (Listed Buildings and Conservation Areas) Act 1990 and the policies of the National Planning Policy Framework (NPPF). The assessment of construction and operational effects is based upon the methodology set out in the *'Design Manual for Roads and Bridges'* (Volume 11, Section 2) prepared by the Highways Agency (2008).

9.33 The baseline assessment has been undertaken using a combination of desk-based study and fieldwork to identify and assess the heritage significance of the designated and non-designated heritage asset receptors and to establish the way in which their setting and the PDS contributes to the heritage significance of the asset.

**Study Area**

9.34 Baseline information has been obtained for the PDS and the surrounding area within approximately a 500m distance (the 'Study Area'). The Study Area and identified heritage assets are shown on the Heritage Asset Plan included at **ES Volume 4: Appendix 9.1**.

**Survey and Data Sources**

9.35 Baseline information has been compiled from the following sources:

- The Historic England Archives;
- National Heritage List for England (Historic England);
- Greater Manchester Historic Environment Record (HER);
- Historic Ordnance Survey Mapping;
- Manchester City Council;
- Detailed visual site inspection; and
- Other published sources of information are referred to where relevant.

**Consultation**

9.36 A request for a Scoping Opinion was submitted to MCC on 23 October 2018. The formal response dated 12 November 2018 stated that the comments within the scoping report in relation to archaeology and heritage matters were 'acceptable in terms of their consideration in the ES'.

## Method of assessing significance

9.37 In the absence of specific prescribed criteria for establishing the relative value or importance of designated and non-designated heritage asset receptors, guidance on assessing the value and importance of heritage assets is taken from *'Design Manual for Roads and Bridges'* (Volume 11, Section 2) (2008) as set out in Table 9.1. Judgements are also informed by an understanding and appreciation of the significance of each of the assets and the contribution made by their setting in accordance with Historic England's guidance '*Good Practice Advice in Planning Note 3: The Setting of Heritage Assets'* from 2017.

**Table 9.1: Value/Importance of Individual Heritage Assets**

| Value/Importance | Definition |
|---|---|
| Very High | Standing buildings inscribed as of universal importance as World Heritage Sites<br>Other buildings of recognised international importance |
| High | Scheduled monuments with standing remains<br>Grade I and II* listed buildings<br>Other listed buildings that can be shown to have exceptional qualities in their fabric or historical association not adequately reflected in the listing grade<br>Conservation areas containing very important buildings |
| Medium | Grade II listed buildings<br>Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical association<br>Conservation areas containing important buildings |

| Value/Importance | Definition |
|---|---|
| | Historic townscape or built-up areas with historic integrity in their buildings, or built settings (e.g. including street furniture and other structures) |
| Low | 'Locally listed' buildings<br>Historic (unlisted) buildings of modest quality in their fabric or historical association<br>Historic townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures) |
| Negligible | Buildings of no architectural or historic note; buildings of an intrusive character |
| Unknown | Buildings with some hidden (i.e. inaccessible) potential for historic significance |

9.38 The sensitivity of heritage assets is defined on the basis of the above table, informed by the assessments set out in the Heritage Assessment attached at **ES Volume 4: Appendix 9.1.**

9.39 The magnitude of the impact of the Proposed Development on the identified heritage assets is assessed as outlined in the criteria in Table 9.2, taken from the *'Design Manual for Roads and Bridges'* (Volume 11, Section 2) (2008).

**Table 9.2: The Magnitude of the Impact of Proposals on Heritage Assets**

| Magnitude of Cumulative Impact | Definition |
|---|---|
| Major / Substantial | Change to key historic building elements, such that the asset is totally altered and much of its significance is lost. Substantial change within the setting of an historic building leading to considerable loss of significance of the asset; |
| Moderate | Change to many key historic building elements, such that the asset is clearly modified and there is some loss of significance. Change within the setting of an historic building leading to some loss of significance of the asset; |
| Minor | Changes to key historic building elements, such that the asset is slightly altered and there is some loss of significance. Change within the setting of an historic building leading to a slight loss of significance of the asset; |
| Negligible | Slight changes to historic building elements or within its setting that hardly affect the significance of the asset; |
| No change | No substantive change to fabric or within the setting. |

9.40 The magnitude of the impact against the value of the heritage assets is assessed as outlined in the criteria in Table 9.3, also taken from the *'Design Manual for Roads and Bridges'* (Volume 11, Section 2) (2008).

**Table 9.3: Magnitude of Impact against Value (Significance of Effect)**

| Value / Importance of Asset (receptor sensitivity) | Magnitude of Impact | | | | |
|---|---|---|---|---|---|
| | No Change | Negligible | Minor | Moderate | Major/Substantial |
| Negligible | Neutral | Neutral | Neutral / Minor | Neutral / Minor | Minor |
| Low | Neutral | Neutral / Minor | Neutral / Minor | Minor | Minor / Moderate |
| Medium | Neutral | Neutral / Minor | Minor | Moderate | Moderate / Major |
| High | Neutral | Minor | Minor / Moderate | Moderate / Major | Major / Substantial |
| Very high | Neutral | Minor | Moderate / Major | Major / Substantial | Substantial |

9.41 Where the matrix provides a split in the level of effects, e.g. Minor or Moderate, the assessor has exercised professional judgment in determining which of the levels is more appropriate. It should be noted that 'moderate' to 'major/substantial' effects are defined as significant in the context of this chapter. It is considered that other effects below 'moderate' are less than significant, or could be neutral overall. Although the purpose of this chapter is to identify likely significant effects on built heritage assets, for the purpose of completeness, effects that are assessed not to be significant are also identified.

9.42 An entirely formulaic approach to quantification of effects cannot however be taken. The level of effect to heritage assets is quantified based upon the particular significance and setting of the asset and the nature of the effect. A more detailed discussion is set out within the accompanying Heritage Assessment (**Appendix 9.1 of Volume 4**).

### Identifying Harm

9.43 As well as identifying the likely significant effects the Proposed Development may have on built historic environment assets, it is also important to identify the degree of harm that may be caused to the significance of an asset, should this arise.

9.44 Planning Practice Guidance states that it is the degree of harm to the asset's significance rather than the scale of the development that needs to be assessed. The NPPF identifies that the significance/value of a heritage asset can be harmed or lost by alteration or destruction of the asset or development within its setting. The Framework makes a distinction between 'substantial harm' and 'less than substantial harm' to

designated heritage assets at paragraphs 195 and 196. Planning Practice Guidance states that *"substantial harm is a high test, so it may not arise in many cases".*

9.45 Generally, if the magnitude of impact to a designated heritage asset is high adverse, this is considered to be the equivalent of 'substantial harm'. If the magnitude of impact to a designated heritage asset is low to medium adverse, this is considered to constitute 'less than substantial harm'; however professional judgement is also applied.

9.46 The tests of 'substantial harm' and 'less than substantial harm' do not apply to non-designated heritage assets. In weighing applications that directly or indirectly affect non-designated heritage assets, Paragraph 197 of the NPPF states that a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

## Baseline Conditions

## Existing Baseline Conditions

9.47 The PDS is a broadly rectangular area of land located to the east of Manchester City Centre. It is bounded by Great Ancoats Street to the north east, Longacre Street to the north west, Epworth Street to the south west and Heyrod Street to the south east and is currently occupied by a predominantly single storey modern yellow brick building with a corrugated metal shallow pitched roof. At the south eastern end of the site is an adjoining but separately expressed taller building of three storeys with a flat roof. To the rear is a private yard secured by metal railings and a gate.

9.48 The area surrounding the PDS has a mixed character. The site has a close relationship with Great Ancoats Street (the A665) to the north east and the PDS is also close to the route of the tram network and the Ashton Canal. There is still a mix of warehousing and storage facilities in the area surrounding the site, combined with modern residential and commercial developments. New development is of increased height and has introduced a mix of modern architecture. The existing building within the PDS now appears diminutive within this context.

9.49 The closest listed building to the PDS is the former Crusader Works (grade II listed) on Chapeltown Street to the west which is currently being altered and converted into residential apartments. To the north, lining Pollard Street is the Cooperative Warehouse (also grade II listed). Within the wider area there are a number of functional heritage assets associated with the Ashton Canal and a range of other former industrial buildings, including the grade II* listed Brownsfield Mill which is also being converted into residential apartments.

### Designated Heritage Assets within the Study Area

9.50 There are no Scheduled Ancient Monuments, World Heritage Sites, Registered Parks and Gardens or Registered Battlefields within the Study Area. There are 20 Listed Buildings and 1 Conservation Area within the Study Area, these are as follows:

**Table 9.4: Listed Buildings within the Study Area**

| Name of Asset | Grade |
|---|---|
| Bridge No 4 over Ashton Canal | Grade II |
| Ashton Canal Lock No 1 | Grade II |
| Ashton Canal Towpath Bridge | Grade II |
| Former Church of All Souls | Grade II |
| Star and Garter Public House | Grade II |
| Stable Block to Junction Works | Grade II |
| Ashton Canal Lock No 2 | Grade II |
| Brownsfield Mill | Grade II* |
| Junction Works | Grade II |
| Co-operative Warehouse | Grade II |
| Rochdale Canal Lock No 83 | Grade II |
| Rochdale Canal Lock No 82 | Grade II |
| Store Street Aqueduct | Grade II* |
| Rochdale Canal Towpath Bridge | Grade II |
| Ashton Canal Lock Keepers Cottage | Grade II |
| 32 and 34 Laystall Street | Grade II |
| Train Shed at Piccadilly Station | Grade II |
| Ancoats Dispensary | Grade II |
| Ashton Canal Lock No 3 | Grade II |
| Crusader Works | Grade II |

**Table 9.5: Conservation Areas within the Study Area**

| Conservation Area |
|---|
| Ancoats Conservation Area |

**Non-Designated Heritage Assets within the Study Area**

9.51 The 'Good Practice Advice Note 2: Managing Significance in Decision-Taking' produced by Historic England (2015) states that:

*"Non-designated heritage assets include those that have been identified in a Historic Environment Record, in a local plan, through local listing or during the process of considering the application."*

9.52 An additional three extant buildings/structures were recorded as being on the Historic Environment Record and have been considered in this report. These are:

**Table 9.6: Buildings identified on the HER within the Study Area**

| Building Name | Description |
|---|---|
| Iron and Steel Warehouse | Iron Warehouse, Iron Foundry, Iron Works |
| Vulcan Works | Chemical Works, Works, Office, Iron Works |
| Former Bridge Inn Public House | Public House, Brewery |

9.53 These designated and non-designated heritage assets have been identified and confirmed through a search of the Historic Environment Record (HER) via the Greater Manchester Archaeological Advisory Service (dated 25 September 2018), the National Heritage List for England and other sources including MCC. They are illustrated on the Heritage Asset Plan included at **ES Volume 4: Appendix 9.1.**

## Assessment of Value/Importance of Heritage Assets (Summary)

9.54 The Heritage Assessment attached at **ES Volume 4: Appendix 9.1** provides a more detailed commentary on the significance and setting of the identified heritage assets and provides an assessment of the impact of the Proposed Development on those assets closest to the PDS. The below table provides a summary of the value/importance of the relevant heritage assets. This is based on the methodology set out at Table 9.1 combined with professional judgement.

**Table 9.7: Summary of Value/Importance of Heritage Assets**

| Heritage Assets | Value/Importance |
|---|---|
| Bridge No 4 over Ashton Canal | Medium |
| Ashton Canal Lock No 1 | Medium |
| Ashton Canal Towpath Bridge | Medium |
| Former Church of All Souls | Medium |
| Star and Garter Public House | Medium |
| Stable Block to Junction Works | Medium |
| Ashton Canal Lock No 2 | Medium |
| Brownsfield Mill | High |
| Junction Works | Medium |
| Co-operative Warehouse | Medium |
| Rochdale Canal Lock No 83 | Medium |
| Rochdale Canal Lock No 82 | Medium |
| Store Street Aqueduct | High |

| Heritage Assets | Value/Importance |
|---|---|
| Rochdale Canal Towpath Bridge | Medium |
| Ashton Canal Lock Keepers Cottage | Medium |
| 32 and 34 Laystall Street | Medium |
| Train Shed at Piccadilly Station | Medium |
| Ancoats Dispensary | Medium |
| Ashton Canal Lock No 3 | Medium |
| Crusader Works | Medium |
| Ancoats Conservation Area | Medium |
| Iron and Steel Warehouse | Low |
| Vulcan Works | Low |
| Former Bridge Inn Public House | Low |

## Predicted Baseline Conditions (2020 and 2022)

9.55 It is predicted that by the construction year of 2020 and the operational year of 2022 a number of the cumulative developments identified later in this Chapter will be under construction or operational. The townscape of the area surrounding the PDS and the setting of a number of the heritage assets identified within this Chapter will be changed as a result of additional new development, including tall buildings.

## Assessment of Effects

9.56 Using the guidance set out in Tables 9.1, 9.2 and 9.3, the magnitude of impact during the construction and operation phases of the Proposed Development and the effect of this against the value of the asset has been assessed for each heritage asset.

***Matters which have been Scoped Out***

9.57 Designated and non-designated heritage assets beyond the identified Study Area have not been assessed, with the exception of those captured by the existing and proposed verified views described in the Heritage Assessment at **ES Volume 4: Appendix 9.1**.

***Embedded Mitigation***

9.58 The Proposed Development has been designed in detail and this has been taken into consideration in assessing the effects of the operational phase.

***Limitations and Assumptions***

9.59 The list of heritage assets within the Study Area has been compiled from information provided by the HER, based on its calculation of the assets within a 500m radius of the Proposed Development. This is supplemented by research form the National Heritage List for England and the other sources including Manchester City Council (MCC). These records are therefore relied upon.

## Assessment of Construction Phase Effects (including demolition of existing building)

9.60 The effects of the construction phase will be short term and temporary and involve typical construction activities such as traffic movements, noise, vibration, hoardings and cranes. This section assesses the effects of the construction phase and any direct or indirect effects this may have on heritage assets.

9.61 It is concluded that the construction phase of the Proposed Development will have a **no change** magnitude of impact on the majority of designated and non-designated heritage assets identified, resulting in a **neutral** significance of effect (**Not Significant**). This is due to the significance and setting of these heritage assets, the separation distances as evident on the Heritage Asset Plan (**ES Volume 4: Appendix 9.1**), and intervening built development.

9.62 As illustrated on the Heritage Asset Plan (**ES Volume 4: Appendix 9.1**), the PDS is relatively close to the grade II listed former Co-operative Warehouse and the grade II listed Crusader Works. Given the position and orientation of Crusader Works and the fact that the PDS is only clearly visible beyond the listed works at the north eastern end of Chapeltown Street, it is not considered that the construction phase of the Proposed Development would have an adverse effect on the asset.

9.63 The PDS has a closer relationship with the former Co-operative Warehouse and is clearly visible in direct views from Pollard Street where construction activity on the PDS will be visible in conjunction with the former Warehouse. It is therefore concluded that there would be a **temporary minor adverse** effect, resulting in a **minor adverse** significance of effect (**Not Significant**) for the duration of the construction works. The non-designated Vulcan Works is located further north beyond the former Co-operative Warehouse and due to this greater degree of separation it is not considered that the construction phase would result in an adverse effect on the asset. The magnitude of effect in relation to Vulcan Works is defined as **no change**, resulting in a **neutral** significance of effect (**Not Significant**).

9.64 There are no significant effects arising from the construction phase of the Proposed Development on built heritage assets.

9.65 The assessment undertaken in Table 9.8 takes into consideration the fact that the construction phase will be temporary and will only last for the duration of construction activity at the Site.

**Table 9.8: Summary of Magnitude of Impact against Value – Construction Phase of the Proposed Development**

| Heritage Asset<br><br>Construction Phase | Value (sensitivity) | Magnitude of Impact | Magnitude of Impact against Value (Significance of Effect) |
|---|---|---|---|
| Bridge No 4 over Ashton Canal | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock No 1 | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Towpath Bridge | Medium | No Change | Neutral Effect (Not Significant) |
| Former Church of All Souls | Medium | No Change | Neutral Effect (Not Significant) |
| Star and Garter Public House | Medium | No Change | Neutral Effect (Not Significant) |
| Stable Block to Junction Works | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock No 2 | Medium | No Change | Neutral Effect (Not Significant) |
| Brownsfield Mill | Medium | No Change | Neutral Effect (Not Significant) |
| Junction Works | Medium | No Change | Neutral Effect (Not Significant) |
| Co-operative Warehouse | Medium | Minor Adverse | Minor Adverse Effect (Not Significant) |
| Rochdale Canal Lock No 83 | Medium | No Change | Neutral Effect (Not Significant) |
| Rochdale Canal Lock No 82 | Medium | No Change | Neutral Effect (Not Significant) |
| Store Street Aqueduct | Medium | No Change | Neutral Effect (Not Significant) |
| Rochdale Canal Towpath Bridge | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock Keepers Cottage | Medium | No Change | Neutral Effect (Not Significant) |
| 32 and 34 Laystall Street | Medium | No Change | Neutral Effect (Not Significant) |

| Heritage Asset<br><br>Construction Phase | Value (sensitivity) | Magnitude of Impact | Magnitude of Impact against Value (Significance of Effect) |
|---|---|---|---|
| Train Shed at Piccadilly Station | Medium | No Change | Neutral Effect (Not Significant) |
| Ancoats Dispensary | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock No 3 | Medium | No Change | Neutral Effect (Not Significant) |
| Crusader Works | Medium | No Change | Neutral Effect (Not Significant) |
| Ancoats Conservation Area | Medium | No Change | Neutral Effect (Not Significant) |
| Iron and Steel Warehouse | Low | No Change | Neutral Effect (Not Significant) |
| Vulcan Works | Low | No Change | Neutral Effect (Not Significant) |
| Former Bridge Inn Public House | Medium | No Change | Neutral Effect (Not Significant) |

**Assessment of Operational Phase Effects**

9.66 The Proposed Development will be clearly visible from a number of the heritage assets within the Study Area, it is however the effect on the significance of these assets that is judged rather than the extent of change. Having taken into consideration the significance of the identified assets, the contribution made by their setting, the relative distance between them and the PDS, the extent of intervening development and the nature of the Proposed Development, it is concluded that their significance would be sustained. There will be a **no change** magnitude of impact on the designated and non-designated heritage assets identified, resulting in a **neutral** significance of effect (Not Significant) for the operational phase. A more detailed description of the factors that have been taken into consideration in reaching this judgement is set out in the **Heritage Assessment (ES Volume 4: Appendix 9.1)**.

9.67 There are no significant effects arising from the operational phase of the Proposed Development on built heritage assets.

9.68 As set out in the Heritage Assessment at ES Volume 4: Appendix 9.1, where clearly visible the simple and ordered structure of the elevations and the proposed brick cladding in a muted and neutral tone will ensure the Proposed Development does not conflict with or detract from the former Co-operative Warehouse, Crusader Works or Vulcan Works. The listed structures associated with the Ashton Canal exist in a mixed

setting and the Proposed Development will be viewed within that context. The historic and functional significance of these assets would not be undermined.

9.69 In relation to the other heritage assets within the Study Area, due to the nature of their significance, the existing character of their setting and elements that contribute to their significance, combined with distance and intervening development (existing and proposed), it is concluded that their significance would be sustained.

9.70 For these reasons, it is concluded that the requirement of S66 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 can be satisfied if MCC grants planning permission.

9.71 The Proposed Development accords with Paragraphs 192, 193, 197 and 200 of the NPPF and complies with Policies EN2 and EN3 of the Manchester Core Strategy and Policies DC18.1 and DC19 of the saved Citywide Development Control Policies.

**Table 9.9: Summary of Magnitude of Impact against Value – Operation Phase of the Proposed Development**

| Heritage Asset<br><br>Operation Phase | Value | Magnitude of Impact | Magnitude of Impact against Value (Significance of Effect) |
|---|---|---|---|
| Bridge No 4 over Ashton Canal | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock No 1 | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Towpath Bridge | Medium | No Change | Neutral Effect (Not Significant) |
| Former Church of All Souls | Medium | No Change | Neutral Effect (Not Significant) |
| Star and Garter Public House | Medium | No Change | Neutral Effect (Not Significant) |
| Stable Block to Junction Works | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock No 2 | Medium | No Change | Neutral Effect (Not Significant) |
| Brownsfield Mill | Medium | No Change | Neutral Effect (Not Significant) |
| Junction Works | Medium | No Change | Neutral Effect (Not Significant) |
| Co-operative Warehouse | Medium | No Change | Neutral Effect (Not Significant) |
| Rochdale Canal Lock No 83 | Medium | No Change | Neutral Effect (Not Significant) |
| Rochdale Canal Lock No 82 | Medium | No Change | Neutral Effect (Not Significant) |
| Store Street Aqueduct | Medium | No Change | Neutral Effect (Not Significant) |
| Rochdale Canal Towpath Bridge | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock Keepers Cottage | Medium | No Change | Neutral Effect (Not Significant) |
| 32 and 34 Laystall Street | Medium | No Change | Neutral Effect (Not Significant) |

| Heritage Asset<br><br>Operation Phase | Value | Magnitude of Impact | Magnitude of Impact against Value (Significance of Effect) |
|---|---|---|---|
| Train Shed at Piccadilly Station | Medium | No Change | Neutral Effect (Not Significant) |
| Ancoats Dispensary | Medium | No Change | Neutral Effect (Not Significant) |
| Ashton Canal Lock No 3 | Medium | No Change | Neutral Effect (Not Significant) |
| Crusader Works | Medium | No Change | Neutral Effect (Not Significant) |
| Ancoats Conservation Area | Medium | No Change | Neutral Effect (Not Significant) |
| Iron and Steel Warehouse | Low | No Change | Neutral Effect (Not Significant) |
| Vulcan Works | Low | No Change | Neutral Effect (Not Significant) |
| Former Bridge Inn Public House | Medium | No Change | Neutral Effect (Not Significant) |

## Assessment of Cumulative Effects

***Intra-Project Cumulative Effects***

9.72 There are no intra-project cumulative effects in relation to built heritage.

***Inter-Project Effects Cumulative Effects***

9.73 Inter –project cumulative effects are those that may result from the combination of effects with the Proposed Development interacting with other approved developments in a zone of influence (ZoI). While a single activity may itself result in an insignificant impact, it may, when combined with other impacts (significant or insignificant) in the same geographical area and occurring at the same time, result in a cumulative effect that is significant.

9.74 The following development proposals are other permitted or submitted developments within the vicinity of the PDS, as listed and shown at **ES Volume 4: Appendix 5.1,** which could cumulatively impact on built heritage assets in the ZoI of the PDS. The developments outside of the ZoI will not cause a cumulative impact due to separation distances.

**X1 Eastbank Phase II (Ref: 109948/FO/2015/N2)**

9.75 The X1 development is located to the south east of the PDS and does not affect designated or non-designated heritage assets. There will be no cumulative effects in combination with the Proposed Development.

**All Souls Rectory (Ref: 113955/FO/2016**

9.76 A Planning and Heritage Statement submitted with the planning application concluded that there would be no harm to the significance of the grade II listed Former Church of All Souls and no effects on other heritage assets. There will be no cumulative effects in combination with the Proposed Development.

**Vesta (Ref: 115947/FO/2017)**

9.77 A Heritage Appraisal submitted in connection with the planning application concluded that there would be no harm to the grade II listed structures of the Ashton Canal or the Ancoats Dispensary. There will be no cumulative effects in combination with the Proposed Development.

**Islington Wharf Phase III (Ref: 109676/FO/2015/N2)**

9.78 A Heritage Impact Assessment submitted with the planning application concluded that the new development would have a generally positive impact on the listed assets identified in the report including the Bridge, Locks and Lockkeeper's Cottage of the Ashton Canal. The Proposed Development will have no effect on the significance and setting of these assets and therefore there will be no cumulative effects in combination with the Proposed Development.

**Oxygen (Ref: 115545/FO/2017)**

9.79 A Heritage Assessment and Heritage and Visual Impact Assessment ES Chapter identified temporary adverse effects in relation to the non-designated Iron and Steel Warehouse and the grade II* listed Store Street Aqueduct during the construction phase of the development. No adverse effects were identified during the operation phase. There will be no effects on the Iron and Steel Warehouse or the Store Street Viaduct during the construction phase of the Proposed Development and therefore there will be no cumulative effects in combination with the Proposed Development for either the construction and operation phases.

**Elder House (Ref: 115178/FO/2017)**

9.80 A Heritage Statement submitted with the planning application identified that there would be low adverse effects in relation to the grade II listed Rochdale Canal Entrance and the grade II* Rochdale Warehouse. These assets are distanced from the PDS, located beyond the Proposed Development Study Area and will not be affected by the Proposed Development. There will be no cumulative effects in combination with the Proposed Development.

**Dakota Hotel (Ref: 114818/FO/2016)**

9.81 A Heritage Statement submitted with the planning application identified one instance of minor adverse impact in relation to the setting of the grade II listed Rochdale Canal Entrance. This asset is distanced from the PDS, located beyond the Proposed Development Study Area and will not be affected by the Proposed Development. There will be no cumulative effects in combination with the now completed Dakota Hotel.

**Central Retail Park (Ref: 120319/DEM/2018)**

9.82 Correspondence associated with the prior approval process has not identified effects on designated or non-designated heritage assets. The demolition of former buildings

has taken place and there are no cumulative effects in combination with the Proposed Development.

**New Islington Phase II (Ref: 111587/FO/2016/N1)**

9.83 There is no published Heritage Statement in connection with this application and it is therefore assumed that there will be no effects on designated or non-designated heritage assets. On this basis there will be no cumulative effects in combination with the Proposed Development.

**Old Mill Street (Ref: 112658/FO/2016/N)**

9.84 A Heritage Appraisal submitted with the planning application concluded that the development would preserve and enhance the special architectural and historic interest of the grade II listed Ancoats Dispensary and its setting. The Proposed Development will not affect the Ancoats Dispensary during either the construction or operation phases and there will be no cumulative effects in combination with the Proposed Development.

**Lampwick (Ref: 116190/FO/2017)**

9.85 A Heritage Appraisal submitted with the planning application concluded that the development would preserve and enhance the special architectural and historic interest of the grade II listed Ancoats Dispensary and its setting. The Proposed Development will not affect the Ancoats Dispensary during either the construction or operation phases and there will be no cumulative effects in combination with the Proposed Development.

**Lomax Street, Manchester (Ref: 120149/FO/2018)**

9.86 A Heritage Statement submitted with the planning application concluded that the development would have a 'slight beneficial impact' on the grade II listed 32 to 34 Laystall Street and Junction Works. The Proposed Development will not affect these assets during either the construction or operation phases and there will be no cumulative effects in combination with the Proposed Development.

**Meininger, Great Ancoats Street (Ref: 124495/FO/2019)**

9.87 A Heritage Statement submitted with the planning application concluded that the development would sustain the significance of the grade II listed Co-operative Warehouse. There would be a minor adverse effect on the same asset during the construction phase of the Proposed Development but a neutral effect during the operation phase. It is concluded that there would be no significant cumulative effects in combination with the Proposed Development.

**Public Realm, Portugal East Street (Ref: 121467/FO/2018)**

9.88 The minor nature of the proposed enhancement works means that they are unlikely to give rise to cumulative effects on designated or non-designated heritage assets in combination with the Proposed Development.

**Plots A and B, Portugal East Street (Ref: 121099/FO/2018)**

9.89 A Heritage Statement submitted with the planning application concluded that the development would preserve the character and appearance of the Stevenson Square and Whitworth Street Conservation Areas and have a neutral effect on all other identified listed buildings and non-designated heritage assets. There will be no cumulative effects in combination with the Proposed Development for either the construction and operation phases.

9.90 **Plot G, Portugal East Street (Ref: 122599/FO/2019)**The Planning Statement submitted with the planning application stated that the development would not impact on the heritage assets within the local area but offered the opportunity for enhancement. There will be no cumulative effects in combination with the Proposed Development for either the construction and operation phases.

### Mitigation Measures

9.91 Whilst the impacts of the construction phase of the Proposed Development are considered to minor and only in respect of the former Cooperative Warehouse, the following mitigation is proposed:

- A Construction Environmental Management Plan (CEMP) should be prepared and implemented which should include standard construction methods.

### Residual Effects

9.92 The only residual effect is in relation to the former Co-op Warehouse during the construction phase. This is a minor and short term effect that will only last for the duration of the construction phase and is not significant.

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| Bridge No 4 over Ashton Canal | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Ashton Canal Lock No 1 | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Ashton Canal Towpath Bridge | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Former Church of All Souls | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Star and Garter Public House | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| Stable Block to Junction Works | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Ashton Canal Lock No 2 | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Brownsfield Mill | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Junction Works | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Co-operative Warehouse | Minor and **Not Significant** | Short Term | CEMP | Minor and **Not Significant** | Short Term |
| Rochdale Canal Lock No 83 | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Rochdale Canal Lock No 82 | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Store Street Aqueduct | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Rochdale Canal Towpath Bridge | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Ashton Canal Lock Keepers Cottage | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| 32 and 34 Laystall Street | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Train Shed at Piccadilly Station | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Ancoats Dispensary | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| Ashton Canal Lock No 3 | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Crusader Works | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Ancoats Conservation Area | Neutral effect and Not Significant | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Iron and Steel Warehouse | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Vulcan Works | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |
| Former Bridge Inn Public House | Neutral effect and **Not Significant** | Long Term | None | Neutral effect and **Not Significant** | Long Term |

## Monitoring

9.93 No monitoring programme is proposed in relation to heritage assets.

## References


| | |
|---|---|
| Ref 9.1 | The Planning (Listed Buildings and Conservation Areas) Act (1990) |
| Ref 9.2 | DCLG (2019) 'National Planning Policy Framework' |
| Ref 9.3 | Manchester City Council (2013) 'Manchester Local Plan' |
| Ref 9.4 | DCLG (2016 and 2018) 'National Planning Practice Guide' |
| Ref 9.5 | Historic England (2017) 'Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets' |
| Ref 9.6 | Historic England (2015) 'Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision-Taking in the Historic Environment' |

# 10. Archaeology

## Introduction

10.1 This chapter has been prepared by Anthony Martin BA (Hons) MA of Nexus Heritage. Anthony has 30 years' experience in private practice acting as consultant and advisor to numerous development projects in the UK, Europe and Africa. He has provided EIA input to many on-shore urban and rural residential development projects and has authored many archaeology ES chapters for major projects in England and Wales. Anthony is a member of the Chartered Institute for Archaeologists and Nexus Heritage is a Registered Organisation. The chapter illustrations have been prepared by Elizabeth Gardner MA (Hons) of Nexus Heritage. Elizabeth has more than 15 years commercial archaeological experience practicing as an archaeological illustrator for projects and publications in the UK and Ireland. She is a member of the Chartered Institute for Archaeologists and the Institute of Archaeologists of Ireland.

10.2 This chapter considers the likely significant effects on archaeology associated with the construction and operation of the Proposed Development. The specific objectives of the chapter are to:

- describe the archaeology baseline;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

10.3 This chapter is supported by Technical Appendix 10.1: Archaeological Desk-Based Assessment which can be found in Volume 4.

10.4 Figures 10.1 - 10.6 illustrate this chapter, can be found in Volume 3 and are referenced in the text where relevant.

## Legislative Framework, Policy and Guidance Documents

10.5 At the national level, the principal legislation governing the protection and enhancement of archaeological monuments of national importance is the Ancient Monuments and Archaeological Areas Act 1979. The 1979 Act provides protection to Scheduled Ancient Monuments.

10.6 Other known sites of archaeological significance, usually, but not exclusively, characterised as non-designated heritage assets can be entered onto county-based Historic Environment Records under the Town and Country Planning Act 1990 and this is the case in Manchester.

10.7 The place of non-designated archaeological sites and designated archaeological sites (Scheduled Monuments within the planning system is informed by the National Planning Policy Framework (NPPF), paras. 184 - 202. NPPF is supplemented with on-

line planning practice guidance (https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment, accessed 20 Jan. 2020).

10.8 With respect to local planning policy the Manchester Local Plan (Manchester City Council 2012) guides development within Manchester. Policies EN3 Heritage, DM1 Development Management apply. In addition some UDP policies are remain in force. Policy Dc20.1 Archaeology applies.

10.9 Policy EN3 states that *throughout the City, the Council will encourage development that complements and takes advantage of the distinct historic and heritage features of its districts and neighbourhoods, including those of the City Centre.*

10.10 Policy DM1 states that *all development should have regard to specific issues for which more detailed guidance may be given within a supplementary planning document. One of the identified issues is the effect relating to archaeological heritage.*

10.11 Using Policy DC20.1 the Council will *give particular careful consideration to development proposals which affect scheduled Ancient Monuments and sites of archaeological interest, to ensure their preservation in place. In particular:*

*(a) Applications for consent to alter scheduled Ancient Monuments or sites of archaeological interest or their settings should be accompanied by an evaluation and assessment of the implications of the proposal.*

*(b) The Council will have special regard to the desirability of securing the preservation of Ancient Monuments and other sites of archaeological interest and their setting in place. It will not permit development that, in its opinion, would adversely affect scheduled Ancient Monuments, or other sites of archaeological interests, and their settings. In exceptional cases where development is inevitable, the Council will look at the scope for combining preservation in place with limited investigation and recording.*

*(c) Where the preservation of scheduled Ancient Monuments and sites of archaeological interest in place is not appropriate, the Council will seek to gain full and proper recording of the site through early consultation between the applicant and approved archaeological organisation.*

10.12 With respect to good practice in archaeology the professional institute for archaeology in the UK (the Chartered Institute for Archaeologists) has developed a range of regulations, standards and guidelines that are binding on all members and Registered Organisations to ensure that Chartered Institute for Archaeologists members work to high ethical and professional standards.

10.13 In addition to these standards and guidance a number of English Heritage and Historic England publications inform the preparation of Environment Statements, including *Conservation Principles; Policy and Guidance for the Sustainable Management of the Historic Environment* English Heritage (2008), *Managing Significance in Decision-Taking in the Historic Environment Historic Environment Good Practice Advice in Planning Note 2 (Historic England 2015)* and *The Setting of Heritage Assets Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)* (Historic England 2017).

## Assessment Methodology

### The Study Area

10.14 The site of the Proposed Development is located in Manchester (ES Volume 3: Figure 10.1) and bounded to the north-east by Great Ancoats Street to the east by Epworth and to the south by existing industrial units. To the west the site is bounded by Longacre Street and the Metro-link line.

10.15 The Study Area (ES Volume 3: Figure 10.2) encompasses the entirety of the Proposed Development the landscape and characteristics of which are described in detail in Chapter 3. The Study Area includes a 250m buffer beyond the centre of the Proposed Development and is considered to represent an adequate spatial framework in which to undertake an assessment and is compliant with commonly applied approaches to the assessment of archaeology. The known archaeological assets in the Study Area have been identified and considered in order that the existing and potential archaeological assets of the Study Area can be placed in the broader context of the known knowledge-base of the area. However, certain assets which, although located beyond the Study Area, have also been taken into account. It is considered that the assessment process, whilst it needs to be conducted with reference to a framework defined by geographical limits, should not be rigidly constrained by such a framework and archaeological assets should not be omitted from the assessment solely on a consideration of distance from the Proposed Development. With this in mind certain assets beyond the Study Area have been taken into account.

### Baseline Surveys

#### *Desk Based Research*

10.16 In order to identify and examine the archaeological assets within the Study Area a comprehensive survey of source material was undertaken by means of consultation with a variety of data holders. The results of this element of work have been used to prepare this chapter.

10.17 The Greater Manchester Historic Environment Record (GMHER) was consulted to obtain the latest information on known sites and features of archaeological interest within the Study Area. The GMHER is the recognised regional repository of archaeological data. The GMHER data has been supplemented and cross-referenced by means of examination of historic mapping of the Study Area, aerial photographs of the Study Area and published works such as archaeological/historic journals issued by learned societies and reference books on the archaeology and history of the area. Searches were also made of data in the Manchester Central Library (MCL), a number of on-line sources such as the Heritage Gateway database, the National Heritage List, and the National Monuments Record's PastScape historic environment database. A comprehensive map-regression exercise was also undertaken including Ordnance Survey (OS) maps and other plans and projections.

#### *Field Survey Work*

10.18 The results of the desk study were complemented by a walk-over survey within the Study Area, focussed on grid reference SJ 85311 98083 and extending to radius of 250m. The aim of the walk-over survey was to undertake a visual assessment to

determine evidence of archaeological features and previous impacts to the land which may have compromised, disturbed or removed archaeological assets. The walk-over survey also included the wider landscape to establish general lines of sight towards, from and across a variety of locations which form the setting of archaeological assets. The results of this element of work have been used to prepare this chapter.

***Consultations***

10.19 The GMHER Historic Environment Record Officer (Ms. L. Dunkley) and the Heritage Management Director (Archaeology) (Mr. N. Redhead) of the Greater Manchester Archaeological Advisory Service (GMAAS) were consulted in person with respect to information on archaeological assets within the Study Area.

10.20 Manchester City Council consulted with the GMAAS with respect to an EIA Scoping Opinion on the topic of archaeology. On 21 Nov. 2018 Dr. A. Myers of GMAAS e-mailed Manchester City Council stating that the EIA Scoping Report included a section setting out the approach to the production of an archaeological desk-based assessment specifying the framework within which the significance of archaeological assets would be assessed and the means of assessing the scale of the impact of the development upon that significance. The assessment is to be scoped into the Environmental Statement, with a copy of the assessment included as an appendix to the Environmental Statement. Dr. Myers confirmed that the approach outlined in the Scoping Report was totally acceptable to GMAAS. This ES Chapter has been completed in accordance with the Scoping Opinion.

**Significance Criteria**

10.21 The nature of the effect (adverse, neutral or beneficial) on assets is the sum of the magnitude of effect (see below) and the sensitivity of the archaeological asset (see below) to which a professional judgement is applied based on the permanence, reversibility, direct/indirect and temporal term characteristics of the impact. The significance of the effect is expressed using a nine -fold scale Negligible (effects which are beneath levels of perception); Minor (slight, very short or highly localised effects); Moderate (limited effects - by magnitude, duration, reversibility, value and sensitivity of receptor); and Major (considerable effect by magnitude, duration, reversibility, value and sensitivity of receptor, which may be more than of a local significance or lead to a breach of a recognised environmental threshold, policy, legislation or standard).

***Magnitude of Effect***

10.22 Effects to archaeological assets can arise as a result of direct impact. A direct impact is a physical effect on an asset arising at the same time as, and occurring as a consequence of, physical changes to the asset. For example, groundworks associated with construction of a development directly disturbing archaeological remains. With respect to archaeological assets the pathway of a direct impact usually leads to a predictable outcome – a greater or lesser physical impact which is detrimental to the preservation and survival of a part or whole of an asset. However, the impact pathway is nevertheless significant because pathways lend themselves to varying approaches to mitigation such as elimination, prevention, control, compensation and offsetting (see below). Impacts can also be indirect, in that the setting of an asset, within or beyond the boundaries of the Proposed Development can be affected by the Proposed Development. In addition, impacts are considered beneficial or adverse, reversible or

irreversible, temporary (short, medium or long term) or permanent and the likelihood of an effect occurring, based on a scale of certain, likely or unlikely is also taken into account as well as the geographical extent of the change.

10.23 With respect to archaeological assets impacts can also be indirect, in that the setting of an asset, within or beyond the boundaries of a PDS can be affected by the Proposed Development. There can also be indirect impacts expressed as physical changes such as the induction of settlement in soils and subsoils and changes to the hydrological profile such that desiccation, decomposition affects the state of preservation and condition of sub-surface archaeological remains.

10.24 For the purposes of assessing direct impacts to archaeological assets the pre-eminent characteristic of the impact is the scale to which the impact changes the asset. This can be gauged by cross-referencing the potential impact activities with each identified asset. In addition, the type of impact is judged in order to arrive at a magnitude. The scale ranges from negligible, through minor and moderate to major and the type of impact can be beneficial or adverse. A matrix can be completed which provides a rating based upon the scale and type of impact and extent or components of the assets affected. The magnitude of impact to individual assets is a matter of professional judgment and is based on a five-fold scale (major, moderate, minor, negligible and no change) based on the Design Manual for Roads and Bridges. The range of impact magnitude is explained in Table 10.1.

**Table 10.1: Factors in the Assessment of Magnitude of Change to Archaeological Assets (based on DMRB, Vol 11 Environmental Assessment, Section3, Part 2, HA 208/7. Cultural Heritage)**

| Level of Magnitude | Description |
|---|---|
| High | Total loss of asset (adverse)<br>Comprehensive improvement to the asset through restoration or enhancement (beneficial) |
| Moderate | Partial loss of or detrimental modification to the asset, but integrity of majority of asset remains (adverse)<br>Improvement to asset condition/preservation through enhancement or protection (beneficial) |
| Low | Some measurable depreciation to the attributes and quality of asset (adverse)<br>Some measurable improvement to the attributes and quality of asset (beneficial) |
| Negligible | Very slight loss or detrimental alteration to asset (adverse)<br>Very slight benefit to condition/preservation of asset ) beneficial |

***Sensitivity of Receptor***

10.25 Archaeological assets may be valued for a number of reasons: based on criteria such as rarity or degree of preservation and the EIA process identifies this value as 'sensitivity'. Some assets, not remarkable in terms of rarity or state of preservation terms, may

nonetheless be considered to have value for a particular community, especially if they are accessible and contribute to local distinctiveness, identity or economy. For the purposes of this assessment, assets have been considered principally with reference to their value to the quality and understanding of England's history, as set out in national, legislation priorities and frameworks. However, the international, regional and local perspective has also been taken into account.

10.26 Identified assets likely to be changed by the Proposed Development are characterised according to their intrinsic importance. A six-fold scale based on the *Design Manual for Roads and Bridges* has been utilised in order to characterise the sensitivity of identified assets, incorporating any relevant designations or best-practice, so that any identified assets can be gauged according to these and assigned a value level as defined in Table 10.2:

**Table 10.2: Factors for Assessing the Sensitivity of Archaeological Heritage Assets (based on DMRB, Vol 11 Environmental Assessment, Section 3, Part 2, HA 208/7, Cultural Heritage)**

| Sensitivity | Equivalence |
|---|---|
| Very High | World Heritage Sites (including nominated sites).<br>Archaeological sites of acknowledged international importance. |
| High | Scheduled Ancient Monuments.<br>Undesignated archaeological assets of designate-able quality and importance. |
| Medium | Archaeological remains of regional/county importance. |
| Low | Archaeological remains of district/local importance and/or those sites compromised by poor preservation and/or poor survival of contextual associations. |
| Negligible | Archaeological assets which have been damaged or destroyed to the extent that they have very little or no surviving archaeological interest. |

***Duration of Effect***

10.27 The duration of the effect will be taken into consideration in line with timescales provided in the table below.

**Table 10.3: Duration of Effect**

| Timescale | Definition |
|---|---|
| Short Term | 0 to 5 years including the construction period and on completion |
| Medium Term | 5 to 15 years including mitigation establishment |
| Long Term | 15 + years including long term operation of the development |

***Significance of Effect***

10.28 The significance of the effect on assets is a combination of the sensitivity of the assets and the magnitude of the effect. The significance of the effect is expressed using a four-fold scale (Major, Moderate, Minor, None) based on the *Design Manual for Roads and Bridges*. The required combination for identified assets can be undertaken with the aid of a matrix, as shown in Table 10.4, in order to assist judgements regarding sensitivity and effect of change in order that a reasonable and balanced assessment of effect significance (either beneficial or adverse) can be reached.

10.29 An assessment matrix is used to determine the level of significance of the effect. Table 10.4 below (reproduced from DMRB 11.2.5, Table 2.4) sets out an assessment matrix to determine the level of significance of the effect. Is commonly applied to archaeological assets which have designations which have clear relative values (e.g. a designated archaeological asset is valued more highly than a non-designated archaeological asset).

10.30 In the context of EIA Regulations and with respect to significance of effect ratings, those that are assigned moderate or above are considered to be environmentally significant.

10.31 Effects to archaeological assets which are environmentally significant can be mapped across to substantial harm as identified in the NPPF. Substantial harm is a high test and the substance of the harm is a measure of the detriment to the asset's significance rather than the scale of the development.

**Table 10.4: Effect Significance Matrix for Archaeological Assets Assessing Significance of Effect (based on DMRB, Vol 11 Environmental Assessment, Section 3, Part 2, HA 208/7, Cultural Heritage)**

| Magnitude of Effect | Sensitivity of Receptors | | | | |
|---|---|---|---|---|---|
| | Very High | High | Medium | Low | Negligible |
| High | Major | Major | Moderate | Moderate | Minor |
| Moderate | Major | Moderate | Moderate | Minor | None |
| Low | Moderate | Moderate | Minor | None | None |
| Negligible | Minor | Minor | None | None | None |

## Existing Baseline Conditions

10.32 The Proposed Development Site comprises an existing single storey industrial unit, built between 1965 and 1968 and currently used as a safety deposit centre with a service yard to the rear. The Site is broadly rectangular in shape (ES Volume 3: Figure 10.3)

10.33 There are no archaeological remains on the site recorded on the GMHER (ES Volume 3: Figure 10.4), but the Site is within an area, Ancoats, which has been developed since the late 18th century and in which there have been several archaeological investigations (ES Volume 3: Figure 10.5), called 'Events', by the GMHER.

10.34 The origins of Ancoats are obscure (Rose, Falconer and Holder 2005, 5). Research suggests it was an area of land stretching north and east from the edge of the town of Manchester and was one of the eight medieval hamlets of the town and later one of its 31 townships. Land grants from the 13th century onwards mention Annecotes or Antecotes, a name which may refer to an area of enclosure fields (cotes) or to cottages (cotes) near water (an). Alternately the place-name may derive from the personal name of Anna. Whatever the derivation of the place-name, the Ancoats area was open land with scattered farms and cottages during the medieval period, with the only recorded settlement being Ancoats Hall to the north of the Study Area.

10.35 By the 1780s Manchester was expanding and the boundaries of Ancoats were defined when the Manchester and Salford Police Act of 1792 divided the towns into 14 police districts. Ancoats became Police District No. 1. It was the largest police district and when Manchester was incorporated in 1838 it became the New Cross Ward. Ancoats had a population of more than 11,000 in 1801, a number that was to rise significantly in the first half of the 19th century as it developed into one of the world's first industrial suburbs.

10.36 Rapid trade and population growth in Manchester had made the cheaper vacant land in its adjoining districts attractive to industrialists and house-builders. Ancoats landowners began to realise the increasing value of their property and in 1775 the starting point for the urban development of Ancoats began when a part of the Great Croft between Ancoats Lane and Oldham Road was developed. The transition from open, rural character to one of expanding industrial urbanisation can be traced in a cartographic sequence of maps published between 1787 and 2014– which is illustrated in ES Volume 4: Appendix 10.1.

10.37 The further development and use of the Site from the early 19th century through to the 21st century can be traced through a map regression exercise which is illustrated in ES Volume 3: Figures 10.6, 10.7 and 10.8. The landscape features shown on the schematic maps indicate what buildings and structures were on the site, when they were demolished and replaced or re-modelled and therefore provide an estimation of what potential archaeological assets may be present on the Site.

10.38 Mid-18th century maps, such as that published by Casson and Berry in 1745 (not reproduced), focus on the built environment of Manchester and Salford and the Site is sufficiently deep into the countryside that it does not feature on the map. Even on the Thomas Tinker map of 1772 (not reproduced) the site is not depicted and the thoroughfare that was to become Great Ancoats Street was merely an extension of Millers Lane. However, by the late 18th century mapping produced William Green show pockets of development in Ancoats. Green's map depicts the Site as undeveloped land within a grid of streets apparently laid out to facilitate development to the south-west of Ancoats Lane in a plot on which the name Messrs. Rigby & Co. appears. The street named as Warwick Street forms the southern boundary to the Site.

10.39 The Aston map of 1804 appears to maintain the depiction of the Site as undeveloped land and does not show the grid of streets shown by Green. The Pigot map of 1813 shows a near identical situation. The Pigot map of 1819, however, shows structures on the Site along the frontages to Ancoats Street and an un-named thoroughfare (later to

become known as Riders Row, then Longacre Street, then Long Street) defining the northern boundary of the site. There is a gap between the line of structures along the un-named thoroughfare and the much shorter structure, or structures fronting onto Great Ancaots Street. The Swire map of 1824 identifies the un-named thoroughfare defining the northern boundary of the Site as Riders Row, but no additional building is depicted.

10.40 The Bancks &Co. map of 1828 shows no change since 1824, but the Ordnance Survey (OS) map of 1848 shows a dramatic increase in the built environment of Ancoats and the development within the Site itself has expanded to fill the frontages of the three thoroughfares which define its north-western (Long Street), north-eastern (Ancoats Street) and south eastern (Wesley Street) limits. Thus, the rapid changes to the Site of the middle third of the 19th century were recorded by the OS.

10.41 The industrialisation of Ancoats continued unabated during the 19th century, with ancillary industry such as timber yards springing up to support the textile mills. The timber yard marked on the Site in the large-scale and very detailed Adshed map of 1850 is recorded in the Pigot Directory of 1838 – John Whitaker is listed at 190 Great Ancoats Street under Timber Merchant. In the accompanying street directory J. Whitaker is identified as the resident at 190 Great Ancoats Street. The Adshed map helpfully differentiates between the uses to which buildings were put and it is clear that the buildings on the Site were a mix of places of business (fronting onto Long Street and Great Ancoats Street) and private dwellings fronting onto Wesley Street and Long Street. These dwellings both on different thoroughfares, can be classified as terraced houses and appear to have built to different patterns. The two dwellings on Long Street within the footprint of the Proposed Development Site are rectangular in plan form with a small yard at the rear, itself containing a small structure - possibly a privy. The six dwelling son Wesley Street, which fall within the footprint of the Proposed Development Site are also rectangular in plan form, but are wider and deeper than those on Long Street and also have an outrigger to the rear, but a much smaller yard. The Adshed maps provides a useful milestone in the development of the Site and acts a proxy for the possible survival of archaeological remains dating to the 19th century and ES Volume 3: Figure 10.9 shows the Adshed maps overlain with the footprint of the Proposed Development to highlight the potential interactions between the Proposed Development and possible archaeological remains.

10.42 The 1851 large scale OS map for Ancoats depicts a similar scene to the Adshed map, but there is some apparent reorganisations of structures associated with the timber yard and the yards to the rear of the structures, possibly shops, fronting onto Great Ancoats Street are now occupied by small structures.

10.43 The OS mapping of 1888-91 shows yet further changes at the timber yard and a chimney is identified – suggesting the presence of a boiler (and possibly an associated engine shed) or furnace. There are two new structures fronting onto Long Street and two long, narrow structures adjoining the wall of the alley to the rear of the terraced dwellings on Wesley Street. The 1893 Ordnance Survey map shows no changes, but the 1908 OS map shows the loss of some buildings. The OS map of 1922 identifies the building in the Site's south-eastern corner (on the junction of Ancoats Street and

Wesley Street) as a public house. The Site is not recorded in any detail on the Goad insurance map of 1928.

10.44 The OS map of 1935 shows little change, but a wall appears to enclose a yard around the chimney. This map was produced within four years of the 1939 National Register and so some detail on the identity, gender, age, occupation and marital status of some of the occupants of the structures on the site can be secured (see ES Volume 4: Appendix 10.1).

10.45 The 1948 OS map tells a very different story about the Site. Structures towards the north eastern corner of the Site are no longer mapped, there appears to be no remaining vestige of the timber yard, the yard enclosing the chimney is absent and two of the structures fronting onto Ancoats Street are noted to be in a ruinous state. Whether this was due to aerial bombing during the Second World War is not known. The Record of Location of Aerial Bombs on the City of Manchester made by the Manchester City Council City Architect's Department (Building Surveyor's Division) between 1940-1941 does not show a bomb strike on the site. The public house identified on the 1935 map appears to be no longer operating and appears to have been remodelled/reused as domestic occupation. The OS map of 1953 is identical, but the 1955 OS map confirms the absence of the chimney and there are no longer any structures identified as ruins.

10.46 The OS map of 1965 confirms that there are no longer any structures on the Site fronting onto Wesley Street, which has been renamed as Epworth Street. Only four structures on the site remain – 100 Long Street and (partially) 228, 230 and 232 Great Ancoats Street. By the publication of the 1968 OS map the structures fronting onto Great Ancoats Street had been demolished and a long rectangular building is present on the site – this Victoria House. 100 Long Street remained extant in 1968. The 1977 OS confirms that all structures other than Victoria House have been demolished. The 1988 OS map shows that Great Ancoats Street has been widened, bringing the carriageway closer the Site's north-eastern boundary. Long Acre Street has also been reconfigured. The OS map shows no meaningful changes on the Site, but by the publication of the 1994 OS map Victoria House had been extended to the north-west so that its north-west facing gable end butted up to the Site's north-western boundary. The OS maps of 2002 and 2014 show no meaningful changes to the Site.

10.47 The footprint of the entire site can be considered as an archaeological site with multiple individual features related to domestic occupation and light industry which may be preserved to a greater or lesser degree. The Proposed Development Site is therefore considered as a potential, single archaeological asset, with various component parts which can be treated thematically - dwellings, industrial production, circulation areas for the movement of people/goods and the portable material culture which accompanies these components.

10.48 There have been several archaeological projects in the vicinity of the Proposed Development Site which have investigated manufacturing and also housing (ES Volume 3: Figure 10.5). These projects have shown the degree to which archaeological remains can survive the demolition of 18$^{th}$ and 19$^{th}$ century buildings and the re-use of the areas in which these buildings once stood during the 20$^{th}$ century. The outcomes of

these archaeological projects can be used as a predictor of the potential archaeological survival that may be found at the Proposed Development Site (McPhillips 2004, 2005a, 2005b and 2010; Mottershed 2007 and 2013; Cattel 2011; Miller and Healey 2004; Miller, Wild and McPhillips 2004; Miller and Wild 2004; Healey 2004; McPhillips and Wild 2007; Vallance 2010 and Gregory 2007). These projects confirmed the survival of archaeological remains in the form of sub-surface structural remains and portable material culture of a 19th century cotton mill, smaller scale manufactories such as spindle-whorl makers, toy-makers and cellared and un-cellared terraced houses.

10.49 Using the model outlined above, in which the Proposed Development Site is considered as an archaeological asset with multiple components, the sensitivity of these archaeological receptors can be gauged using the factors listed in Table 10.2 above. As no field surveys have been undertake to determine the presence/absence of archaeological remains at the site, and their character/state of preservation, should they be present, it is impossible to classify with any certainty the sensitivity of archaeological receptors. It may be the case that archaeological receptors, should they be present on the Site, have been damaged or destroyed to the extent that they have very little or no surviving archaeological interest and are of negligible sensitivity. Conversely, it may be the case that that any archaeological receptors present would qualify as remains of district/local importance or be so compromised by poor preservation and/or poor survival of contextual associations that they would be of low sensitivity.

10.50 A precautionary principle is therefore used and in the absence of evidence to the contrary, good preservation must be anticipated and therefore, the archaeological receptors would be characterised as archaeological remains of district/local importance – low sensitivity.

## Predicted Future Baseline

### Construction (2020)

10.51 The baseline conditions at the commencement of construction of the development are predicted to be identical to the existing baseline conditions.

### Operation (2022)

10.52 The baseline conditions at the operation of the development are predicted to be identical to the existing baseline conditions.

## Assessment of Effects

### Matters Scoped Out

10.53 The effect of the Proposed Development on those 22 archaeological assets outside the physical limits of the Proposed Development Site but within the Study Area, arising from development within their settings are considered to be less than significant for the reasons set out below, and are therefore scoped out of this assessment.

10.54 For the environmental effects of the Proposed Development on the heritage assets within the built environment please see ES Volume 2: Chapter 9.

10.55 Development is capable of effecting the setting of archaeological assets. However, although many archaeological assets within in any given landscape may be visible from a number of locations the majority of sight lines from, to, into and across the identified archaeological assets are incidental and are not intrinsically or intimately associated with the significance assigned to these assets. Taking into account these considerations, separation distances, and the presence of pre-existing, detracting elements in the landscape and the intervening obstructions of landform and the built environment, the settings of the 22 archaeological assets identified within the Study Area (ES Volume 3: Figure 10.4) do not require a detailed setting assessment as there is no reason to believe that environmental effects of the Proposed Development on the settings of the identified archaeological assets would be significant.

10.56 Taking into account these considerations, separation distances, and the presence of pre-existing, detracting elements in the landscape and the intervening obstructions of landform and the built, the settings of all of the archaeological assets identified in this assessment do not require a detailed setting assessment as there is no reason to believe that environmental effects of the Proposed D existing and/or approved development on the settings of the identified archaeological assets would be significant.

**Embedded Mitigation**

10.57 The Proposed Development includes no embedded mitigation for archaeological assets.

**Limitations and Assumptions**

10.58 The assessment of archaeological assets has been undertaken in the knowledge of the uncertainties that arise when trying to assess impacts on a resource that is not wholly known. It is acknowledged that there have been some previous recorded archaeological and historic assessments and surveys undertaken for certain locations within the Study Area, but such enquiries do not result in a comprehensive audit of all archaeological assets in the area and there can be weaknesses in the available information.

10.59 It should be noted that the assessment is based in large part on information held in source repositories and published data, augmented by a walk-over survey. The source repositories and published data do not represent exhaustive sources of information on the presence/absence of archaeological assets. With the exception of the walk-over survey there has been no project specific archaeological field work undertaken within the Study Area. However, from the data available it is possible to quantify and qualify the known archaeological assets and to determine the potential for as yet unknown assets to be present. These factors have been taken into consideration during this Assessment. This information has in turn been considered against the pre-existing impacts to the site of the Proposed Development which may have compromised the survival of archaeological assets.

10.60 In order that reliable conclusions can be drawn from the categorisation of the impacts and effects, the data used to establish the nature of the impact has been reviewed with respect to the following criteria:

- Confidence - how reliable is the data from a scientific and statistical perspective;

- Assumptions - were any assumptions made in identifying potential impacts and if so what were they; and
- Limitations - what are the limitations of the data that could have an influence on the confidence and the description of the nature of the impacts?

10.61 With respect to the baseline data and the assessment process there is a high confidence level that the data upon which the work is based is of high quality. The baseline data is generated and maintained by regional or national agencies with a proven track record of data capture and curation and the attributes of the data in terms of veracity and impartiality can be considered to be high.

10.62 A number of assumptions have, however, been made as to the fact of and degree to which any archaeological assets may survive within the Study Area. The precautionary principle has been adopted in which it is assumed that there is the potential for some hitherto unknown archaeological assets to be present.

10.63 There are some compromising limitations on the data that could have an influence on the confidence and the description of the nature of the effects. There were no limitations on the desk-based data collection exercise, other than the inherent weaknesses of the data set. For example, the actual identity and character of some of the assets identified by the GMHER remain unknown or unproven and so assessing sensitivity, magnitude of change and significance of effect can become problematic.

10.64 There is no meaningful limitation on the assessment of changes represented by the Proposed Development as the changes are derived from consideration of a proposal involving orthodox and previously used design and construction techniques.

### Assessment of Construction Phase Effects

10.65 The construction requires the demolition of the existing building, the grubbing out of that building's foundations and other hard obstructions representing abnormal ground conditions in order to establish a basement and foundation solution for a residential tower (Use Class C3) with commercial space (Use Class A1, A2, A3, A4 and D1) associated shared amenity spaces, cycle parking, recycling and refuse bin storage, associated plant and public realm enhancements.. The construction therefore could involve disturbance to the sub-surface stratigraphic column in which archaeological remains of 19$^{th}$ century terraced housing and a timber yard may survive. Such disturbance would lead to the total loss of the archaeological asset.

10.66 In the footprints of the basement and the ground floor there would be a high impact to archaeological assets of low sensitivity (should they be present), leading to a Slight/ Moderate adverse effect (see table 10.5 below). This corresponds to an environmentally **significant effect**. This translates to substantial harm in NPPF terms.

### Assessment of Operational Phase Effects

10.67 The operation of the Proposed Development would not give rise to any actions which would impact upon archaeological remains and would not compound impacts to archaeological assets identified for the construction phase. The operational phase of

the Proposed Development would, therefore, have no direct or indirect effects on archaeological assets.

## Assessment of Cumulative Effects

**Intra-Project Cumulative Effects**

10.68 There are no identified in-combination effects which could arise with other environmental topics.

**Inter-Project Cumulative Effects**

10.69 The cumulative impact assessment takes into account any possible cumulative environment effects of the proposed development in combination and interacting with the effects of the other existing and/or approved projects within 1km of the Proposed Development.

10.70 The assessment concludes that providing adequate consideration has been given by the Council to archaeology within the due planning process applied to the other existing and/or approved projects within a 1km vicinity of the Proposed Development site and listed in ES Volume 4: Appendix 5.2 and that, where consented, adequate mitigation measures are specified and carried out then cumulative impacts on archaeological assets arising from construction of the Proposed Development are not considered to be significant.

## Mitigation of Effects

**Construction Phase**

10.71 Where unavoidable impact to an archaeological asset is considered acceptable by a planning authority, policy allows that authority to direct the developer to record and advance understanding of the significance of the archaeological asset before it is lost, using planning conditions or other obligations as appropriate. The extent of the requirement should be proportionate to the nature and level of the asset's significance and this has been taken into account in the proposals below.

10.72 It is proposed that a detailed programme of archaeological works will be prepared for mitigation for those archaeological assets that may be impacted upon which can be conditioned to a planning permission.

10.73 The programme of archaeological works would involve three stages (the implementation and scope of the third stage would depend on the result of the first and second stages).

10.74 The first stage would be post-determination archaeological interpretation of any phase II intrusive ground investigation results, such as borehole logs and/or test pit data in order to determine if the results assist in the identification of the presence or absence of archaeological remains. Such an interrogation would inform considerations for a second stage. If warranted a second stage, in the form of an archaeological evaluation could be configured with reference to the standard and guidance published by the Institute for Archaeologists (Institute for Archaeologists 2008c). Depending on the

results of the evaluation, a third stage may be warranted, involving archaeological attendances prior to or during construction.

10.75 This programme of archaeological works would form a component part of the Proposed Development's Construction Environmental Management Plan, and its implementation will be secured by means of appropriately worded condition applied to a planning permission for the Proposed Development. The proposed mitigation for the archaeological assets on which impacts have been identified has been configured with reference to archaeological best practice and the relevant standards and guidance published by the Chartered Institute for Archaeologists. The impacts for which mitigation is proposed are direct impacts and it should be noted that there is no ability to mitigate (*sensu strictu*) for the direct loss of or disturbance to archaeological remains, as such remains would not be able to return to their original state once disturbed. However, archaeological investigation, recording, reporting, dissemination, publication and archiving may compensate for the loss of archaeological remains where the Proposed Development affects them.

**Operational Phase**

10.76 There would be no effect on archaeological assets during the operational phase and so no mitigation is required for the operation phase.

**Cumulative Effects**

10.77 There would be no cumulative effects on archaeological assets and so no mitigation is required for the cumulative effects.

## Residual Effects

10.78 The application of the suggested mitigation measures would reduce the significance of effect from moderate (significant) to slight (not significant). The residual environmental effect of the Proposed Development on archaeology is, therefore, **not significant**. This results in less than substantial harm in NPPF terms as measures would be adopted to record and advance understanding of the significance of any archaeological asset affected in a manner proportionate to its importance and to make the evidence and archive publicly accessible. The record and understanding of the significance of the archaeological asset assuages harm and reduces the consequence and degree of that harm.

**Table 10.5: Summary of Residual Effect**

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and Significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| Archaeological assets - remains of 19th century | Slight /moderate and not significant | Permanent | Archaeological fieldworks, followed by analysis of the findings and | Slight and **not significant** | Permanent |

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and Significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| terraced housing and a timber yard | | | publication and dissemination of the results in line with archaeological practice | | |

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# 11. Citizens' Association of Manchester Map of 1904 Showing Slum Property Transport

## Introduction

11.1 This chapter of the Environmental Statement (ES) has been completed by Aaron Tilley CMILT FCIHT (Associate, Curtins) to assess the likely significant effects of the Project with respect to Traffic and Transportation. This Chapter also describes the methods used to assess the significant effects; the baseline conditions currently existing at the Site and surrounding area; the mitigation measures required to prevent, reduce or offset any significant negative effects; and the likely residual effects after these measures have been adopted.

11.2 Curtins has been appointed on behalf of Forshaw Land and Property Limited to provide all traffic and transport advice in relation to a proposed residential development, with two ground floor commercial units, on Great Ancoats Street/Longacre Street, in Manchester city centre.

11.3 It should be noted that the residential and ancillary commercial elements of the Proposed Development do not have any dedicated car parking proposed and will therefore have an imperceptible traffic impact on the highway network.

11.4 Traffic flows associated with the Proposed Development would be limited to servicing/deliveries or heavy goods vehicles (HGVs) during the Construction Phase and it is recognised that these could have effects on the road network surrounding the Proposed Development Site (PDS) including those related to driver delays, delays to public transport users, pedestrian delay and amenity, fear and intimidation, severance and road safety. The magnitude and significance of effects will vary depending upon the levels of traffic generation, which will vary between the construction and operational phases.

11.5 The chapter should be read alongside an accompanying Transport Statement, document reference 68957/TS/V02 and the Framework Travel Plan, document reference 68957/FTP/V02 which also contains relevant plans and drawings referred to throughout, contained in **ES Volume 4: Appendix 11.1 and 11.2.**

## Legislative Framework, Policy and Guidance Documents

### *National Planning Policy Framework (2019)*

11.6 The National Planning Policy Framework (NPPF) (Ref:11.1) sets out the current national transport planning policy and outlines the important role that transport policies have to play in facilitating sustainable development.

11.7 Paragraph 11 states that at the heart of NPPF is a "presumption in favour of sustainable development" For decision making this means granting permission unless:

*"…any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies."*

11.8 Section 9 of the NPPF is entitled Promoting Sustainable Transport and outlines the important role that transport policies have to play in facilitating sustainable development. The section states that:

*"The planning system should actively manage patterns of growth …Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes."*

11.9 The proposals are for a residential development situated in a highly accessible location. There is good walking and cycling infrastructure adjacent to the site, and there are excellent links to public transport facilities including the multi-modal transport hub at Piccadilly Station which provides access to bus, light and heavy rail services.

11.10 Furthermore, the site is located within walking distance of major employment and retail destinations across Manchester city centre as well as educational institutions such as the University of Manchester and Manchester Metropolitan University.

11.11 The Proposed Development accords with the NPPF with regards to Traffic and Transport. The Planning Statement will review the Proposed Development in accordance with the NPPF and Development Plan.

***Manchester City Council: Core Strategy***

11.12 The MCC Core Strategy (Ref:11.2) promotes similar principles to the NPPF. It contains specific "Transport" policies, including:

- Policy T1 – Sustainable Transport;
- Policy T2 – Accessible areas of opportunity and need; and
- Policy T3 – Strategic Integration.

11.13 Policy T1 focuses on sustainable transport and access for all. The accessibility of the site would encourage users of the Proposed Development to travel by sustainable modes including various bus, light and heavy rail services at Piccadilly Station.

- Policy T2 of the MCC Core Strategy states:

*"The Council will actively manage the pattern of development to ensure that new development…Within the City Centre, provides 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."*

11.14 It is considered the proposed parking provision is reflective of the highly accessible nature of the development, whilst also considering the realistic requirements of the student users.

11.15 Policy T3 is in relation to strategic integration of developments with the sustainable transport network. The proposed development would not prejudice the

implementation of any of the strategic integration projects, and would provide potential patrons to make these projects economically viable.

***Greater Manchester Spatial Framework (GMSF) 2019 (Draft)***

11.16 The Greater Manchester Spatial Framework (GMSF) has been prepared to set out the approach to housing and employment land across Greater Manchester for the next 20 years. The plan identifies the amount of new development that will come forward, in terms of housing, offices, and industry and warehousing, and the main areas in which this will be focused.

11.17 Policy GM6 of the GMSF, titled 'Accessibility', states:

*"In order to accommodate the high levels of economic growth and the associated increase in journeys whilst reducing the congestion and environmental impacts that could adversely affect growth… Key elements of this coordinated approach will include:*

- *Designing development and neighbourhoods so as to encourage journeys to be made by walking, cycling and public transport;*
- *Locating development so as to reduce the need to travel by car and the distance travelled, and maximise accessibility by public transport;*
- *Using demand management measures to make best use of our existing highways capacity;*
- *Providing safe and convenient cycle routes that connect people to jobs, key services and recreation opportunities, supported by cycle hire and sharing schemes; and*
- *The continued improvement in public realm in town centres and local neighbourhoods to support the maximum number of local journeys in those locations to be made on foot."*

11.18 The proposed development does not contravene the plans set out by the GMSF, instead it supports the plans by having active measures in place (e.g. high level of provision of cycle parking) to encourage future residents to travel sustainably whenever possible.

***Greater Manchester Transport Strategy 2040***

11.19 In 2015, TfGM began consulting on a 2040 Vision for Transport to deliver a transport system which enables residents, businesses and visitors in Greater Manchester to travel to a wide range of different destinations and opportunities, and where sustainable transport can be a viable and attractive alternative to the car.

11.20 Under Policy 3, the Transport Strategy states that TfGM will "maintain a conurbation-wide programme of travel choices interventions, supported by journey planning tools and information, to encourage travel behaviour change and mode shift, in order to make the most efficient use of available capacity, particularly during peak periods". Such interventions comprise:

- *"Encouraging employers to allow home working on some days;*

- *Measures to encourage people to make at least some of their journeys by public transport, walking and cycling;*
- *Physical measures (bus priority measures, reallocating road space for pedestrian and cycling infrastructure, car share schemes, and constraints on long-stay parking in key centres); and*
- *Promotions and marketing to provide people and businesses with the information, training and incentives to make better informed decisions about how, when and where they travel and the impact of their choices."*

11.21 The above measures and additional initiatives have been considered in the accompanying Interim Travel Plan (Document Reference - 68957/FTP/V02).

11.22 Under Policy 4, TfGM will also "continue to work with planning authorities and developers to ensure the accessibility of new development by sustainable modes and to reduce the impact on the highway network". This will be in accordance with the principles of:

- *"Reducing the need to travel by car, and the distance travelled;*
- *Maximising accessibility by sustainable modes;*
- *Making the best use of existing infrastructure, particularly through increasing the density of development close to public transport nodes;*
- *Maximising opportunities to provide additional public transport; and*
- *Designing to encourage active travel."*

11.23 This report has demonstrated that the development proposals would not adversely impact the transport network, and instead would support the Transport Strategy by enhancing opportunities for sustainable travel by integrating into existing infrastructure.

***Institute of Environmental Assessment (IEA) Guidance***

11.24 Guidance from the Institute of Environmental Assessment (IEA) has been considered throughout this ES Chapter. The guidance document entitled "Guidelines for the Environmental Assessment of Road Traffic" has been used to inform the methodology of assessment.

***Guidelines for the Environmental Assessment of Road Traffic (1993)***

11.25 The IEA guidelines recommend that the environmental effects listed in Table 2.1 of the guidance may be considered important when considering traffic from an individual development. These effects include the following:

- Noise;
- Vibration;
- Visual Impact;
- **Severance;**
- **Driver delay;**
- **Pedestrian delay;**
- **Pedestrian amenity;**
- **Fear and Intimidation;**

- **Accidents and safety;**
- Hazardous loads;
- Air pollution;
- Dust and dirt;
- Ecological impact; and
- Heritage and conservation.

11.26 Of these effects, many are considered in chapters elsewhere within this document and wider planning application due to the specialist skills required; namely noise, vibration, visual impact, air pollution, ecological effects and heritage and conservation. Those effects highlighted in bold text are considered in this Traffic and Transportation ES chapter.

## Assessment Methodology

### The Study Area

11.27 The submitted TS (contained in **ES Volume 4: Appendix 11.1**) provides a review of the traffic generation of the Proposed Development. However, given the very limited traffic flows which the proposals are forecast to generate these traffic flows have not been assigned across the local highway network.

11.28 For this reason, a specific study area is not defined within the TS and ES, but instead provide a high level appraisal of the traffic impact of the development across local highway network that immediately surrounds the site including Great Ancoats Street and Longacre Street.

### Baseline Surveys

#### *Desk Based Research*

11.29 Desk based studies have been undertaken including determining the accessibility of the site by sustainable modes via GIS software and a review of national and local planning policy in relation to the Proposed Development.

#### *Field Survey Work*

11.30 A number of detailed site visits have been undertaken to observe the existing traffic and transport infrastructure in the vicinity of the site during the AM and PM peak periods.

#### *Consultations*

11.31 A Scoping Report was submitted to MCC with the proposed scope of the method of assessment. Highway Officers at MCC provided a response to the Scoping Report dated 30th October 2018 which is consistent with pre-application advice provided to Curtins to support the planning application. The response covered the following;

- Car Parking;
- Trip Generation;
- Junction Upgrades;
- Pedestrian/Cycle Access;
- Servicing; and
- Materials/Commuted Sums.

11.32 This ES Chapter, as well as the supporting Transport Statement (Appendix 11.1) and Framework Travel Plan (11.2) have been prepared in accordance with requirements outlined by the Scoping Opinion from MCC.

**Significance Criteria**

11.33 As mentioned in the policy section, Guidance from the Institute of Environmental Assessment (Ref: 11.4) has been considered throughout this ES Chapter to inform the methodology of assessment. The six traffic and transport effects that require consideration are:

- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity;
- Fear and Intimidation; and
- Accidents and safety;

11.34 The guidance states that the following rules should be used as a screening process to delimit the scale and extent of the assessment:

*"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%); and*

*Include any other specifically sensitive areas where traffic flows have increased by 10%, or more."*

11.35 The IEA guidelines go on to state that any increases in traffic flows of less than 10% are generally accepted as having no discernible environmental effect as daily variance in traffic flows can be of equal magnitude. The 30% threshold relates to the level at which humans may perceive change and there may therefore be an effect. Impacts above this level therefore do not suggest that there is a significant impact, only that further consideration is required to assess the significance.

11.36 On the above basis, any link which experiences an increase of traffic of less than 30% does not require further consideration in the ES as the impact on the effect will not be significant.

11.37 Prior to assessing the potential impact the Proposed Development will have on the baseline conditions, a standard approach for expressing the magnitude, sensitivity and direction of each effect is required.

**Magnitude of Effect**

11.38 To assess the overall significance of an effect it is necessary to establish the magnitude of the effect occurring i.e. the changes to the existing baseline conditions as a result of the Proposed Development, and the sensitivity or importance of the receiving environment or receptor.

11.39 The magnitude of potential effects (both beneficial and adverse) on environmental baseline conditions will be identified through the detailed consideration of the Proposed Development taking into account the following:

- Relevant legislation, policy or guidelines;
- The degree to which the environment is potentially affected for example, whether the quality is enhanced or impaired;
- The scale or degree of change from baseline conditions as a result of the Proposed Development;
- The duration of the effect for example, whether it is temporary or permanent; and
- The reversibility of the effect.

11.40 The scale of effects will be assessed for the construction and operation phases using the following suggested preliminary criteria which have been established with reference to the various guidance noted above and/ or through professional experience and judgement.

**Table 11.1: Magnitudes of Effect**

| Level of Magnitude | Effect on | Definition of Magnitude |
|---|---|---|
| High | Driver delay | Over 4 minute increase, averaged over all arms at a junction. |
| | Public transport users | Over 4 minute increase in delay along bus routes in vicinity of site. |
| | Pedestrian delay | Over 4 minute increase in delay for pedestrians at crossing point. |
| | Pedestrian amenity | Doubling of traffic flow where the footway width is sub-standard (versus current design standards). |
| | Fear and intimidation | Change in degree of hazard from moderate to extreme. |
| | Severance | Over 90% increase in traffic flows on relevant links |
| | Accidents and road safety | Over 50% increase in traffic flows at location with existing adverse accident record (blackspot). |
| Moderate | Driver delay | Between 3 – 4 minute increase in delay, averaged over all arms at a junction. |
| | Public transport users | Between 3 – 4 minute increase in delay along bus route in vicinity of site. |
| | Pedestrian delay | Between 3 - 4 minute increase in delay for pedestrians at crossing point. |
| | Pedestrian amenity | Between 50%-100% increase in traffic flow where the footway width is sub-standard. |
| | Fear and intimidation | Change in degree of hazard from great to extreme. |
| | Severance | Between 60%-90% increase in traffic flows on relevant links. |
| | Accidents and road safety | 30%-50% increase in traffic flows at location with accident rate above DMRB default for junction type. |
| Minor | Driver delay | Between 2 - 3 minute increase in delay, averaged over all arms at junction. |
| | Public transport users | Between 2 - 3 minute increase in delay along bus route in vicinity of site. |

| Level of Magnitude | Effect on | Definition of Magnitude |
|---|---|---|
| | Pedestrian delay | Between 2 - 3 minute increase in delay for pedestrians at crossing point. |
| | Pedestrian amenity | Doubling of traffic flow where the footway width is satisfactory or up to 50% increase where the footway width is sub-standard. |
| | Fear and intimidation | Change in degree of hazard from moderate to great. |
| | Severance | Between 30%-60% increase in traffic flows on relevant links. |
| | Accidents and road safety | 10%-30% increase in traffic flows at location with accident rate above DMRB default for junction type. |
| Negligible | Driver delay | Less than 2 minute increase in delay, averaged over all arms at a junction. |
| | Public transport users | Less than 2 minute increase in delay along bus route in vicinity of site. |
| | Pedestrian delay | Less than 2 minute increase in delay for pedestrians at crossing point. |
| | Pedestrian amenity | Less than doubling of traffic flow where the footway width is satisfactory. |
| | Fear and intimidation | No change in degree of hazard. |
| | Severance | Less than 30% increase in traffic flows on relevant links. |
| | Accidents and road safety | Less than 10% increase in traffic flows at location with accident rate above DMRB default for junction type. |

**Sensitivity of Receptors**

11.41 Receptors will comprise drivers and other users of the highway affected by increased traffic levels resulting from the Proposed Development, albeit given the traffic generation of the Proposed Development a material increase in traffic flow would not be expected in any location.

11.42 While it is not proposed to undertake any detailed traffic impact analysis of the local highway network as part of the TS, for the purpose of the ES chapter the following development receptors will be considered by way of a high level analysis. The importance of the receptors, based on professional judgment and experience, is as follows:

**Table 11.2: Sensitivity Receptors**

| Sensitivity of Receptor | Development Receptors |
|---|---|
| Very High | Drivers on Great Ancoats Street/Chapeltown Street/Longacre Street/Adair Street |
| High | Drivers on Great Ancoats Street/Chapeltown Street/Longacre Street/Adair Street |
| Moderate | Drivers on Great Ancoats Street/Chapeltown Street/Longacre Street/Adair Street |
| Low | Drivers on Great Ancoats Street/Chapeltown Street/Longacre Street/Adair Street |
| Negligible | None/ Beyond Study Area |

**Duration of the Effect**

11.43 The duration of effects will be taken into consideration when determining the overall significance of the effects. The timescales that will be used are shown in the table below (these timescales will be used unless stated otherwise, in accordance with applicable guidance to the topic assessment):

**Table 11.3: Duration of Effect**

| Timescale | Definition |
|---|---|
| Short Term | 0 to 5 years including the construction period and on completion |
| Medium Term | 5 to 15 years including establishment of replacement and proposed mitigation planting |
| Long Term | 15 years onwards for the life of the Proposed Development |

**Significance of the Effect**

11.44 The following matrix will be used to assess the significance of effects:

**Table 11.4: Matrix for Assessing the Significance of Effects**

| Magnitude of Effect | Sensitivity of Receptor | | | | |
|---|---|---|---|---|---|
| | Very High | High | Moderate | Low | Negligible |
| High | Major | Major | Moderate | Moderate | Minor |
| Moderate | Major | Moderate | Moderate | Minor | None |
| Minor | Moderate | Moderate | Minor | None | None |
| Negligible | Minor | Minor | None | None | None |

- Major effects on driver and bus user delay will be considered to be significant in EIA terms based on paragraph 108 of the Framework.
- A minor effect on road safety will be considered significant.

- Effects on pedestrian/cycle delay and amenity, fear and intimidation and severance that are moderate will be considered to be significant in EIA terms.

**Pedestrian Delay and Amenity**

11.45 A change in vehicular demand affects the ability of pedestrians to cross local routes, which results in an impact on delay and on an individual's desire to make a particular walking journey.

11.46 Changes in the volume, speed or composition of traffic and the physical condition at crossing points affect pedestrian amenity.

11.47 Pedestrian delay and amenity is not precisely defined, but should be made with 'knowledge of local factors and conditions'. In general, however, the Guidelines for the Assessment of Environmental Impact of Road Traffic suggest that pedestrian delay at an individual link should not exceed 40 seconds for a link without the provision of crossing facilities.

11.48 The significance of the effect is summarised in Table 11.5:

**Table 11.5: Significance of Effects**

| Significance | Impact |
|---|---|
| Major | Over 40 second increase in pedestrian delay |
| Moderate | 30-40 second increase in pedestrian delay |
| Minor | 20-30 second increase in pedestrian delay |
| Negligible | Less than 20 second increase in pedestrian delay |

**Fear and Intimidation**

11.49 Fear and intimidation can also increase as a result of rising traffic flows. This is influenced by a number of things including the volume of traffic, HGV content, nature and frequency of cycle infrastructure, and the width of the footpath.

11.50 In addition, The Guidelines for Environmental Assessment of Road Traffic (Ref: 11.4) gives the following example of fear and intimidation thresholds in Table 11.6.

**Table 11.6: Fear and Intimidation Thresholds**

| Degree of Hazard | Average Traffic Flow over 18hr Day (vehicles/hr) | Total 18hr HGV Flow | Average Speed over 18hr day (mph) |
|---|---|---|---|
| Extreme | 1,800+ | 3,000+ | 20+ |
| Great | 1,200 – 1,800 | 2,000 – 3,000 | 15 – 20 |
| Moderate | 600 – 1,200 | 1,000 – 2,000 | 10 – 15 |

11.51 The above can be equated to significance, with 'Extreme' equating to 'Major', 'Great' equating to 'Moderate' and 'Moderate' equating to 'Minor'. Negligible would equate to anything less than that set out in the above table.

**Severance**

11.52 Severance is a perceived division that occurs when a traffic link separates part of an existing community. This can occur when a road becomes too heavily trafficked (making crossing the road a problem) or when a new route divides existing land creating a physical barrier.

11.53 The Guidelines for Environmental Assessment of Road Traffic (Ref: 11.4) states that:

*"The measurement and prediction of severance is extremely difficult. The correlation between the extent of severance and the physical barrier of a road is not clear and there are no predictive formulae which give simple relationships between traffic factors and levels of severance."*

11.54 The following indicators are set out in the Guidelines:

- 30% flow increase – slight separation effects;
- 60% flow increase – moderate separation effects; and
- 90% flow increase – substantial separation effects.

11.55 The above can be equated to significance, with 'Substantial' equating to 'Major', 'Moderate' equating to 'Moderate' and 'Slight' equating to 'Minor'. Negligible would equate to anything less than that set out above.

**Accidents**

11.56 The Guidelines for Environmental Assessment of Road Traffic (Ref: 11.4) states that:

*"From knowing the expected increase in vehicle-kms on different classes of road, it will be possible to make an initial simple statistical assessment of the likely increase or decrease in the number of accidents resulting from changes in traffic flows and composition."*

11.57 The method for calculating an average annual accident rate is set out within the Design Manual for Roads and Bridges (DMRB, 2004) Volume 13, Section 1, Part 2, The Valuation of Costs and Benefits, The Valuation of Accidents at Junctions (Ref: 11.5).

11.58 The above methodology can be used to determine if additional accidents are predicted as a result of the development traffic.

11.59 The significance of the effect is summarised in Table 11.7:

**Table 11.7: Matrix for Assessing the Significance of Effects**

| Significance | Impact |
|---|---|
| Major | The development traffic results in five accidents above the base prediction |
| Moderate | The development traffic results in three accidents above the base prediction |
| Minor | The development traffic results in one accident above the base prediction |
| Negligible | The development traffic results in no accidents above the base prediction |

## Existing Baseline Conditions

11.60 The Proposed Development Site is located at the eastern edge of the Manchester city entre district and within the inner ring road. The Site is in close proximity to emerging districts including New Islington and Holt Town beside the Piccadilly train station, which can be accessed via an easily walkable journey of under 10 minutes. The Etihad Campus, Northern Quarter and Ancoats areas are also within walking distance of the Site.

11.61 The Site itself is situated to the north of the defined Portugal Street East Strategic Regeneration Framework area (PSE SRF).

***Existing Access Arrangements***

11.62 Victoria House has direct frontage onto Great Ancoats Street with access limited to pedestrians only from this aspect.

11.63 Vehicular access is provided to the rear of the building via Longacre Street with a dedicated, secure access to an area of hardstanding used for servicing. A separate, gated access point is also provided to the rear via Epworth Street facilitating access to a car parking area with a capacity to accommodate circa 10 vehicles.

11.64 Access to Epworth Street is achieved via Adair Street/Norton Street to the south/southeast of the Site.

11.65 Longacre Street and Adair Street run parallel to each other on a north-east to south-west alignment.

11.66 Adair Street serves as a connection between Manchester Piccadilly and the A665 Great Ancoats Street.

11.67 Pedestrian infrastructure exists in the form of footways of 2m wide on both sides of the roads within the PSE SRF area, along with some dropped kerbs. There is also street lighting present at regular intervals. Pedestrian infrastructure improves significantly along Portugal Street East to accommodate pedestrians crossing the Metrolink lines,

and also along the A665 Great Ancoats Street where much of the footway is protected by fencing.

11.68 There are no dedicated cycle lanes on the inner roads within the site due to the narrow width of the roads. There are also no cycle lanes on the wider Adair Street and A665 Great Ancoats Street, however the A665 Great Ancoats Street has advanced cycle stop lanes at the major junctions.

**Surrounding Highway Network**

***A665 Great Ancoats Street***

11.69 Situated to the north of the Site, Great Ancoats Street forms one of the primary vehicular routes along the eastern edge of Manchester city centre, serving as the boundary of the New Islington area on the side of the Rochdale Canal. Extending for approximately 1.4km, it links the Northern Quarter from Oldham Road to the A635 outside Ardwick.

11.70 In the vicinity of the Site, the carriageway extends along a northwest/southeast alignment, with up to three lanes in either direction. The typical total carriageway width is approximately 18m, including the central reservation and central hatching, although the road widens to accommodate various turning lanes.

11.71 There are wide footways of varying width on either side of the carriageway. These footways have additional pedestrian infrastructure such as pedestrian guard rails, dropped kerbs, tactile paving and signalised crossing points at vantage points to enable pedestrians to cross the road in a safe manner.

11.72 The A665 is subject to a 30mph speed limit in the vicinity of the site, with street lighting provided along both sides of the carriageway. Advanced cycle stop lanes are also available in both directions, along with traffic calming measures such as yellow box junctions.

11.73 There are a number of bus stops located along Great Ancoats Street within the vicinity of the Site, hosting services to various destinations in Manchester city centre and across Greater Manchester.

11.74 At the time of preparing this document, MCC has already commenced on the delivery of improvement works along Great Ancoats Street including pedestrian/cycle infrastructure, carriageway re-surfacing and landscaping. Further details are presented as part of the Future Baseline Conditions later within this document.

***Longacre Street***

11.75 Longacre Street runs along a southwest/northeast alignment, parallel to Heyrod Street, for approximately 200m and links Heyrod Street to Churchgate Buildings and Chapeltown Street.

11.76 Longacre Street is a two-way road with a carriageway width of approximately 5m for most its continuation. The road is subject to a 30mph speed limit with footways of c. 1.5m wide and street lighting provided along both sides of the carriageway.

11.77 The usable carriageway width of Longacre Street varies due to on-street parking bays, which are situated at several points along the carriageway (nine bays provided). For the majority of Longacre Street, parking is restricted by double yellow lines. It is not proposed to change the number of on-street parking bays as part of the development.

11.78 Longacre Street connects to Portugal Street East via a footway located along the northwest boundary of the site.

***Adair Street/Travis Street***

11.79 Directly south/southeast of the site, Adair Street runs in a southwest direction for a length of approximately 220m before leading to Travis Street, which in turn diverges into Fairfield Street after 270m and leads to Manchester Piccadilly or continues for a further 180m to the A6 London Road which leads to Ardwick.

11.80 Adair Street comprises a two-way, single carriageway of approximately 11m in width. The road is well-lit with wide footway provision of approximately 2.5m on both sides of the road and has dropped kerbs. The road is subject to a speed limit of 30mph.

11.81 The road narrows at Travis Street to approximately 7m wide, whereas the footways are approximately 2m wide. The road is well lit, with a bus stop outside the SquareOne office building.

11.82 To the southwest of the site, Travis Street passes under the Manchester Piccadilly rail line, therefore access is only permitted for vehicles with a height under 4.7m.

11.83 On both roads, Traffic Regulation Orders are present in the form of double yellow parking restrictions. The area is within Zone 4 of Manchester City Council's on-street parking bays, which are pay and display for up to 10 hours from Monday to Sunday (8am – 8pm, no charge on bank holidays).

***Portugal Street East***

11.84 Portugal Street East runs along a north/south alignment for an approximate length of 75m between the Metrolink line and Heyrod Street. Bollards have been provided at the meeting point between Portugal Street East and the Metrolink line to stop vehicles crossing the tramline. A turning head is provided at the western edge of the carriageway at its boundary with the Silver Street Car Park.

11.85 Portugal Street East is a two-way road with a carriageway width of approximately 5m. The road is subject to a 30mph speed limit with footways of c. 1.5m wide provided along both sides of the carriageway, and street-lighting along the western side of the carriageway.

11.86 Parking is restricted along Portugal Street East as there are double yellow lines located along both sides of the carriageway.

11.87 Portugal Street East benefits from good pedestrian infrastructure, including dropped kerbs and tactile paving to facilitate crossing, particularly for pedestrians/cyclists who have to cross the Metrolink line to access the Site.

***Heyrod Street/Epworth Street***

11.88 Heyrod Street runs along a southwest/northeast alignment for approximately 180m and connects Portugal Street East to Norton Street. It also serves as an access route for many of the buildings and uses along its length.

11.89 Heyrod Street is a two-way road with a carriageway width of approximately 5m for most its continuation. The road is subject to a 30mph speed limit with footways of c. 1.5m wide and street lighting provided along both sides of the carriageway at regular intervals.

11.90 The usable carriageway width of Heyrod Street varies due to a loading bay and on-street parking bays, which are situated at several points along the carriageway (eight bays provided). For the majority of Heyrod Street, parking is restricted by double yellow lines.

11.91 Towards the east, Heyrod Street continues as Epworth Street for c. 45m and maintains similar characteristics, with the exception of Epworth Street primarily serving as access to the parking compounds of the industrial units, including Victoria House, and taking the form of a turning head at its terminus.

***Betley Street/Norton Street***

11.92 Off Adair Street and approximately 90m apart, both Betley Street and Norton Street are parallel to each other and provide access between Heyrod Street and Adair Street by extending for lengths of c. 40m. Both roads share similar characteristics and are two-way with a carriageway width of approximately 6m.

11.93 Both roads have with footways of c. 1.5m wide, however only Norton Street has street lighting provided along one side of the carriageway.

11.94 Betley Street and Norton Street are also Controlled Parking Zones from Mondays to Fridays between 8am and 8pm, where the western side of both roads have Traffic Regulation Orders are present in the form of double yellow parking restrictions. On Betley Street, there are five pay and display bays on the eastern side of the road; whereas on Norton Street, the eastern side of the road primarily serves as access to the neighbouring industrial units and thus have double yellow parking restrictions.

11.95 This road forms a signalised junction with the A665 Ring Road. No pedestrian phases are included in signals however there is a dropped kerb crossing with central refuge island provided to enable crossing on Adair Street. Guard rails are also provided to channel pedestrians to the signalised crossing located at the A665/Pollard Street junction which is within 50m of the Pollard Street junction.

**Highway Safety**

11.96 Personal Injury Accident (PIA) data for the highway network adjacent to the Site has been obtained from Greater Manchester recorded road accident database (http://www.gmtu.gov.uk/gmaccidents/) for the most recent three years, the period being 2017 to 2019.

11.97 A breakdown of the accidents recorded in the study area is presented in Table 11.8:

**Table 11.8: Personal Injury Accident Data Summary**

| Junction/Link | Slight | Serious | Fatal | Totals |
|---|---|---|---|---|
| Portugal Street East | 0 | 0 | 0 | 0 |
| Longacre Street | 0 | 0 | 0 | 0 |
| Heyrod Street | 0 | 0 | 0 | 0 |
| Travis Street/Sheffield Street | 1 | 0 | 0 | 1 |
| Travis Street/Adair Street | 0 | 0 | 0 | 0 |
| Adair Street/A665 Great Ancoats Street | 0 | 1 | 0 | 1 |
| A665 Great Ancoats Street | 1 | 0 | 0 | 1 |
| Totals | 2 | 1 | 0 | 3 |

11.98 It can be seen from Table 11.8 that there has been a total of three accidents in the latest three-year period for which data is available. All the accidents resulted in slight or serious injuries. There were no fatal accidents recorded in the study area.

11.99 A review of the accident data does not reveal any clusters or patterns for the accidents recorded.

11.100 In light of the above, it is not considered that there is an existing safety issue that is likely to be exacerbated by the Proposed Development.

**Accessibility by Sustainable Modes of Travel**

11.101 A key element of national, regional and local policy is to ensure that new developments are located in areas where alternative modes of travel are available. It is important to ensure that developments are not isolated but are located close to complementary land uses. This supports the aims of integrating planning and transport, providing more sustainable transport choices, and reducing overall travel and car use.

11.102 The accessibility of the proposed development is considered in this context for the following modes of travel:

- Pedestrian Accessibility;
- Accessibility by Cycle; and
- Accessibility by Public Transport.

***Pedestrian Accessibility***

11.103 Research has indicated that acceptable walking distances depend on a number of factors, including the quality of the development, the type of amenity offered, the surrounding area, and other local facilities. The Chartered Institution for Highways and Transportation (CIHT) document entitled 'Providing for Journeys on Foot' suggests walking distances which are relevant to this planning application. These are reproduced in Table 11.9.

**Table 11.9: CIHT Suggested Acceptable Walking Distances**

| | Town Centres (m) | Commuting/School/ Sightseeing (m) | Elsewhere/Local Services (m) |
|---|---|---|---|
| Desirable | 200 | 500 | 400 |
| Acceptable | 400 | 1,000 | 800 |
| Preferred Maximum | 800 | 2,000 | 1,200 |

11.104 To assist in summarising the accessibility of the site by foot, an indicative pedestrian catchment plan has been produced and is included in Appendix 11.1. Plan 068957_06003 shows distances of 500m, 1,000m and 2,000m which are termed 'Desirable', 'Acceptable' and the 'Preferred Maximum' by the CIHT for commuting trips.

11.105 Within the 500m walk catchment access can be gained to parts of Manchester city centre including the key transport node of Piccadilly rail station and the Ancoats area. Within this area access can be gained to man employment opportunities, retail and leisure facilities as well as bus stops and car parks. For example, along Great Ancoats Street there is the Urban Exchange, which hosts an Aldi, Marks & Spencer, a gym, and more retail units.

11.106 The majority of the central business district is within the 1,000m catchment where access can be gained to financial services and further retail and employment opportunities. Areas of Cotton Fields, New Islington, and the Northern Quarter are also accessible within approximately 500m – 1,000m from the centre of the site, ensuring accessibility to a wide range of key complementary facilities, which are predominantly for leisure and entertainment purposes.

11.107 The 2,000m catchment encompasses the majority of the city centre and extends as far as Miles Platting in the North, Etihad Campus to the East, The University of Manchester to the South and Deansgate to the West. Key attractions include Piccadilly Gardens which is a landmark open space in the city centre, Market Street with various retail and leisure facilities, the Etihad Campus which comprises the Manchester City Football Club Stadium, Manchester Tennis and Football Centre, the HSBC UK National Cycling Centre, and Philips Park.

11.108 The Site is considered highly accessible by foot.

***Accessibility by Cycle***

11.109 In order to assist in assessing the accessibility of the Site by cycle, Plan 068957_06004 in Appendix 11.1 presents an 8km cycle catchment for the SRF area. The 8km cycling distance refers to a recommendation by Cycling England in the document 'Integrating Cycling into Development Proposals' (2009).

11.110 The catchment extends as far as Blackley in the north, Audenshaw to the east, Didsbury in the south and Salford to the west. On-road local cycle routes lead into Manchester city centre and the Northern Quarter to the northeast of the site along the A665 Great Ancoats Street. They also lead towards Miles Platting and Oldham in the northeast along the Ashton Canal.

11.111 This network of local cycle routes links to various National Cycle Routes (NCRs) and Regional Cycle Routes (RCRs) including NCR 6, NCR 55, NCR 60, NCR 66 and RCR 86. National Cycle Route 66 is the closest nationally designated route, located approximately 200m to the north of the site.

11.112 All these routes are accessible within 1 – 3km, and link future residents to the following areas:

- NCR 6 – extends through Manchester along an approximate north/south alignment to link areas such as Bury in the north to Levenshulme in the south;
- NCR 55 – extends through Manchester in a northwest direction to Preston in the northwest and Stockport/Macclesfield in the south;
- NCR 60 – extends between north and east Manchester, forming part of the Fallowfield Loop line at the Manchester City Stadium;
- NCR 66 – extends northeast from central Manchester along the Rochdale Canal towards Failsworth in both on-road and traffic-free regions;
- RCR 86 – extends east of the city centre via the Etihad Campus and Medlock Valley out to Oldham, runs off-road and is located alongside the River Medlock.

***Accessibility by Public Transport***

11.113 Plan 068957_06005 at ES Vol 4 Appendix 11.1 demonstrates those areas accessible via public transport within 20, 40 and 60 minutes journey from the Site. Accessibility by bus and light/heavy rail are considered in further detail within the subsections below.

***Bus Accessibility***

11.114 Guidance from the Chartered Institution of Highways and Transportation (CIHT) document 'Guidelines for Planning for Public Transport in Development' indicates that ideally, a bus stop should be located within 400m from a new development.

11.115 The nearest bus stop to the site is located approximately 300m walking distance from the site, along Travis Street. Table 11.10 details the services that call at this stop, and their associated frequencies:

**Table 11.10: Summary of Bus Service Frequencies from Travis Street**

| Bus Service | Route | Peak Hourly Frequency | | |
|---|---|---|---|---|
| | | Mon – Fri | Sat | Sun/Hols |
| 147 | Manchester Piccadilly - Manchester Metropolitan University - University of Manchester - St Mary's Hospital | 10 mins | - | - |

11.116 Bus service 147 serves education facilities such as Manchester Metropolitan University and University of Manchester, as well as St Mary's Hospital at regular intervals for 5 days a week. It is considered that this service will be of great use to future residents, particularly if they attend one of these universities or require access to medical facilities on a regular basis.

11.117 Bus stops are also located along Great Ancoats Street (A665) towards the southeast of the Site, and at the Manchester Piccadilly Station approximately 500m to the west. Table 11.11 details the series that call at these stops, and their associated frequencies:

**Table 11.11: Summary of Bus Service Frequencies from Great Ancoats Street and Piccadilly Station**

| Bus Service | Route | Peak Hourly Frequency | | |
|---|---|---|---|---|
| | | Mon – Fri | Sat | Sun/Hols |
| From Great Ancoats Street (A665) | | | | |
| 231 | Manchester - Clayton - Droylsden - Hartshead - Ashton | 20 mins | 30 mins | 30 mins |
| From Manchester Piccadilly Station | | | | |
| 192 | Manchester – Longsight – Levenshulme – Stockport – Stepping Hill – Hazel Grove | 10 mins | 10 mins | 10 mins |
| 201 | Manchester – Gorton – Denton – Hyde – Hattersley | 10 mins | 10 mis | 30 mins |
| 203 | Manchester – Reddish – Belle Vue – Stockport | 10 mins | 10 mins | 15 mins |
| 204 | Manchester – Gorton – Denton – Haughton Green – Hyde | Hourly in the PM | 30 mins in the PM | 30 mins |
| 205 | Manchester – West Gorton – Dane Bank – Denton | 30 mins | 30 mins | Hourly |
| 206 | Manchester – West Gorton – Denton – Haughton Green – Hyde – Gee Cross | 30 mins | 30 mins | - |
| 207 | Manchester – West Gorton – Town Lane – Haughton Green – Hyde – Gee Cross | 2 in the PM | - | - |

| Bus Service | Route | Peak Hourly Frequency | | |
|---|---|---|---|---|
| | | Mon – Fri | Sat | Sun/Hols |
| 219 | Manchester – Openshaw – Guide Bridge – Ashton – Stalybridge | 10 mins | 10 mins | 20 mins |
| 220 | Manchester – Openshaw – Audenshaw – Dukinfield – Stalybridge | 1 in the AM | - | - |
| 221 | Manchester – Openshaw – Audenshaw – Dukinfield | 3 in the PM | - | - |

**Table 11.9 –** Summary of Bus Service Frequencies from Great Ancoats Street (A665) and Manchester Piccadilly Station

11.118 In addition to the services identified above, further bus services could be assessed on Fairfield Street and A6 London Road located with 700m of the site which provides numerous and frequent bus services that provide access to further destinations including Stockport, Mottram and Hazel Grove.

11.119 Future residents can also board at the City Centre Free Bus services at Manchester Piccadilly station in order to access key city centre locations. The frequencies are detailed in Table 11.12:

**Table 11.12: City Centre Free Bus Services**

| Free Bus Service | | Peak Frequency | | |
|---|---|---|---|---|
| | | Weekday | Saturdays | Sun/Hols |
| 1 | Piccadilly – Piccadilly Gardens – Chinatown – Market Street – Deansgate – Opera House – Albert Square – New York Street – Central Coach Station circular | Every 10 mins | Every 10 mins | Every 12 mins |
| 2 | Piccadilly – Oxford Road – Deansgate – Manchester Victoria – Shudehill – Northern Quarter circular | Every 10 mins | Every 10 mins | Every 12 mins |
| 3 Evenings Only | Piccadilly – Oxford Road – Deansgate – Manchester Victoria – Shudehill – Northern Quarter circular | Every 20 mins | Every 15 mins | N/A |

***Rail Accessibility***

11.120 The nearest train station is Manchester Piccadilly, located approximately 500m to the west of the Site. A summary of rail services from Manchester Piccadilly is summarised in Table 11.13:

**Table 11.13: Summary of Rail Service from Piccadilly Station**

| Destination | Service Frequency | | |
|---|---|---|---|
| | Peak Weekday | Peak Saturday | Peak Sunday |
| Alderley Edge | 5 per hour | 5 per hour | 2 per hour |
| Birmingham | 3 per hour | 3 per hour | 3 per hour |
| Blackpool North | 3 per hour | 2 per hour | 1 per hour |
| Bournemouth | 3 per hour | 3 per hour | 2 per hour |
| Bristol Temple Meads | 2 per hour | 2 per hour | 1 per hour |
| Cardiff | 1 per hour | 1 per hour | 1 per hour |
| Carmarthen | 1 per hour | 1 per hour | 1 per hour |
| Chester | 5 per hour | 4 per hour | 1 per hour |
| Cleethorpes | 1 per hour | 1 per hour | 1 per hour |
| Crewe | 5 per hour | 5 per hour | 4 per hour |
| Edinburgh | 2 per hour | 2 per hour | 1 per hour |
| Glasgow | 2 per hour | 2 per hour | 1 per hour |
| Hazel Grove | 2 per hour | 2 per hour | 1 per hour |
| Hull | 1 per hour | 1 per hour | 1 per hour |
| Leeds | 5 per hour | 5 per hour | 4 per hour |
| Liverpool Lime Street | 4 per hour | 4 per hour | 3 per hour |
| Llandudno | 2 per hour | 1 per hour | 1 per hour |
| London Euston | 3 per hour | 3 per hour | 3 per hour |
| Manchester Airport | 7 per hour | 6 per hour | 4 per hour |
| Middlesbrough | 2 per hour | 2 per hour | 2 per hour |
| Newcastle | 4 per hour | 4 per hour | 3 per hour |
| Norwich | 2 per hour | 2 per hour | 1 per hour |
| Nottingham | 1 per hour | 1 per hour | 1 per hour |
| Preston | 4 per hour | 3 per hour | 2 per hour |
| Rose Hill | 2 per hour | 2 per hour | - |
| Scarborough | 1 per hour | 3 per hour | 2 per hour |
| Sheffield | 3 per hour | 3 per hour | 2 per hour |
| Southport | 2 per hour | 2 per hour | 2 per hour |
| Stockport | 15 per hour | 15 per hour | 8 per hour |
| Stoke On-Trent | 5 per hour | 5 per hour | 2 per hour |

| Destination | Service Frequency | | |
|---|---|---|---|
| | Peak Weekday | Peak Saturday | Peak Sunday |
| Wigan | 2 per hour | 2 per hour | 2 per hour |
| York | 4 per hour | 4 per hour | 3 per hour |

11.121 As can be seen from Table 11.13, Manchester Piccadilly Train Station provides frequent access to a considerable number of major cities, as well as a substantial number of surrounding areas within Greater Manchester.

***Metrolink (Light Rail)***

11.122 The Manchester Piccadilly Metrolink stop is located approximately 500m west of the Site. Table 11.14 outlines the frequencies of services calling at this station:

**Table 11.14: Summary of Metrolink Services from Piccadilly Station**

| Route | Mon - Thurs | Fri - Sat | Sun/Hols |
|---|---|---|---|
| Altrincham – Piccadilly | 05:49 – 23:37 | 05:49 – 00:37 | 06:49 – 23:37 |
| Ashton-under-Lyne – Eccles | 05:55 – 23:05 | 05:55 – 00:05 | 06:56 – 22:56 |
| Bury – Piccadilly | 05:52 – 23:40 | 05:52 – 00:40 | 06:52 – 23:40 |
| MediaCityUK – Ashton-under-Lyne | 05:53 – 23:03 | 05:53 – 23:03 | 05:53 – 23:03 |

11.123 Future residents can benefit greatly from the Metrolink, with services operating throughout the week at regular intervals. In addition to the Metrolink service identified above, residents could connect to other Metrolink services by changing over at Market Street, St Peters Square or Victoria Station.

***Accessibility Summary***

11.124 It is considered the Site is highly accessible by sustainable modes of transport. The surrounding area exhibits high levels of pedestrian and cycling infrastructure, and there are many public transport opportunities within acceptable walking distance of the Site.

## Anticipated Future Baseline Conditions

**Construction (2020)**

11.125 There is not expected to be any changes in comparison with the existing Baseline Conditions at the construction commencement date of 2020.

**Operation (2022)**

11.126 The following section outlines any changes between the existing (2020) Baseline Conditions and the predicted conditions in 2022 – when the Proposed Development is due to be completed and operational.

11.127 Manchester City Council is progressing with a programme of work that has been designed to improve the physical environment of Great Ancoats Street. When the work is completed it is anticipated that there will be a much more accessible link between the city centre and the Ancoats neighbourhood and the physical environment of the road will be improved.

11.128 Once completed, Great Ancoats Street will benefit from;

- Improved crossing locations for pedestrians and cyclists;
- Better access and connectivity between the city centre, Ancoats and New Islington;
- A more pleasant environment with improved street furniture and the provision of trees where possible;
- Wider footways with more standardised materials and less street furniture clutter; and
- Less noise from traffic – using innovative materials for carriageway resurfacing, designed to help cut vehicle noise by up to 40%.

11.129 The scheme commences at the Oldham Road/Great Ancoats Street junction and continue up to the Store Street/Great Ancoats Street/Old Mill Street junction. A plan indicating the full extent of the works is included within Appendix 11.1.

11.130 Cycling corridor provision will be provided via investment in two new parallel routes. The Northern and Eastern Gateway will become the second city centre cycling and walking corridor to be funded by the Greater Manchester Mayor's Challenge Fund. The route will connect the neighbourhoods of Ancoats, New Islington, New Cross, New Town, Redbank and the Green Quarter by creating a high-quality, continuous east-west walking and cycling route for the north and east city centre.

11.131 The Northern and Eastern Gateway scheme has been proposed to complement the £9.1m Great Ancoats Street scheme. It would run parallel to Great Ancoats to the north and include improvements for people travelling on foot or by bike to Thomas Street and Stevenson Square.

11.132 Further planned improvements, such as the upgrading of the Rochdale Canal towpath towards Newton Heath as an improved walking and cycling corridor, will provide a strong network of safe routes in the immediate vicinity of the Site.

11.133 Whilst the scheme will not directly alter the highways immediately surrounding the Site, the improvements to the pedestrian/cycle infrastructure will benefit future occupiers of the Proposed Development.

11.134 A planning application (App Ref: 121467/FO/2018) for the delivery of public realm works across the Portugal Street East SRF area received consent in January 2020. In order to facilitate the proposed works a number of existing highways will be permanently stopped up including;

- Part of Portugal Street East;
- Epworth Street;
- Churchgate Buildings; and

- Part of Longacre Street.

11.135 It is also proposed that Norton Street and the central section of Heyrod Street will be narrowed and new traffic regulation orders will be implemented to introduce a one-way system.

11.136 It is intended to narrow Heyrod Street and change the character of the road to provide an avenue with seating. This will enhance the pedestrian environment and provide the opportunity for a pause on the journey along Heyrod Street.

11.137 Pedestrian and cycle access will be provided primarily via the north-south routes across the SRF Area and in between each building plot, together with secondary east-west routes for enhanced accessibility. The neighbourhood is envisaged to have a strong connection to the wider pedestrian network and lies on the confluence of key walking routes between Piccadilly Station, Piccadilly Basin, New Islington and Holt Town.

11.138 The delivery of significant public realm improvements within the area immediately surrounding the Site will benefit future occupiers of the Proposed Development.

## Assessment of Effects

### Matters Scoped Out

11.139 This ES chapter does not include any junction capacity assessments or detailed assignment of traffic on the local highway network. This is on the basis that the volume of traffic generated by the Proposed Development will be so low that professional judgement can reliably be used to forecast the impact of any additional traffic upon the operational performance of the highway network.

11.140 The ES will provide no consideration of any link/junction beyond those outlined in Paragraph 25 of this chapter. This is on the basis that changes in traffic flows beyond this area will be indiscernible, albeit the changes in traffic flow at the links/junctions quoted in the aforementioned section is also expected to be immaterial.

### Embedded Mitigation

11.141 A Framework Travel Plan has been prepared for the Proposed Development, which contains a package of measures designed to encourage residents to travel by sustainable modes and discourage single occupancy car travel. This is included in **ES Volume 4: Appendix 11.2**.

11.142 Cycle Parking has been included for the Proposed Development.

### Limitations and Assumptions

11.143 In the absence of an appointed contractor and no defined construction program, it has been assumed that the number of construction vehicles accessing the site would be less than 10% of the daily flow on all links within the study area.

## Assessment of Construction Phase Effects

11.144 The volume of construction traffic is based on professional assumptions from similar scale projects. Levels of construction traffic not expected to represent a significant

increase in daily traffic, and additional flows on any one link would be below the 10% increase in traffic set out in the IEA Guidelines. Therefore, no effects will arise. The effect of traffic and transportation during the construction phase can be considered **Not Significant**.

**Table 11.15: Summary of Construction Phase Effects**

| Effect | Magnitude | Duration | Significance |
|---|---|---|---|
| Driver Delay | Negligible | Short Term | None (**Not Significant)** |
| Pedestrian Delay and Amenity | Negligible | Short Term | None (**Not Significant)** |
| Fear and Intimidation | Negligible | Short Term | None (**Not Significant)** |
| Accidents and Safety | Negligible | Short Term | None (**Not Significant)** |
| Severance | Negligible | Short Term | None (**Not Significant)** |

### Assessment of Operational Phase Effects

11.145 Once constructed, the operational phase of the Proposed Development will result in an imperceptible increase in private vehicle trips on the local highway network given that zero on-site car parking provision is provided.

11.146 The volume of operational traffic has not been determined, as it is not expected to represent a significant increase in traffic, and additional flows on any one link would be well below the 10% increase in traffic set out in the IEA Guidelines. All assessments discussed with the IEA Guidelines have been scoped out as the increases do not reach the 10% threshold.

11.147 The effect of traffic and transport during the operational phase is considered to be **Not Significant.**

**Table 11.16: Summary of Operational Phase Effects**

| Effect | Magnitude | Duration | Significance |
|---|---|---|---|
| Driver Delay | Negligible | Medium to Long Term | None (**Not Significant)** |
| Pedestrian Delay and Amenity | Negligible | Medium to Long Term | None (**Not Significant)** |
| Fear and Intimidation | Negligible | Medium to Long Term | None (**Not Significant)** |
| Accidents and Safety | Negligible | Medium to Long Term | None (**Not Significant)** |

| | | | |
|---|---|---|---|
| Severance | Negligible | Medium to Long Term | None (**Not Significant)** |

## Assessment of Cumulative Effects

### Intra-Project Cumulative Effects

***Construction and Decommissioning***

11.148 The construction of the Proposed Development will result in a temporary increase of Heavy Goods Vehicles (HGVs) and cars carrying construction workers and materials on roads surrounding the sites. This has potential effects in relation to noise, air, dust and dirt and ground conditions which are considered elsewhere within the wider ES.

11.149 The volume of construction traffic is based on professional assumptions from similar scale projects. Levels of construction traffic not expected to represent a significant increase in daily traffic, and additional flows on any one link would be below the 10% increase in traffic set out in the IEA Guidelines. Therefore, no effects will arise. The effect of traffic and transportation during the construction phase can be considered **Not Significant**.

***Operational***

11.150 As described above, due to zero on-site car parking spaces being provided and the sustainable nature of the Proposed Development, it is not envisaged that there will be any significant environmental effects on other topics due to a minimal increase in vehicular movements, therefore Intra-Project Cumulative Effects are considered to be **Not Significant**.

### Inter-Project Cumulative Effects

***Construction and Decommissioning***

11.151 A list of major developments of similar scale within 1km vicinity of the site has been considered to assess the Proposed Development interaction with other developments. The full list is provided in **ES Volume 4: Appendix 5.1**.

11.152 Due to the location of the sites within the PSE SRF area (see sites 35, 36 and 37 in **ES Volume 4: Appendix 5.1**) there may be some interaction with construction/decommissioning traffic with that associated with the Proposed Development.

11.153 The latest PSE SRF Masterplan is envisioned to shape and realise the city's ambitions to regenerate and transform the neighbourhood surrounding the Piccadilly train station, and to create a sense of place for the area. It has remained largely as it was illustrated within the original SRF, with the main adaptation being the retention of Longacre Street, serving as a key part of infrastructure for the site.

11.154 The PSE SRF establishes a series of aspirations that have informed the design of the recently approved public realm scheme (site 35), which include:

- A vibrant place making strategy;
- High quality public and private amenity spaces;

- Excellent pedestrian connections;
- Active frontages;
- Recognise streets are principal public spaces within the city;
- Recognise Manchester's historic urban grain; and
- Consideration of heritage assets.

11.155 Plot A of the PSE SRF proposes a 488 apartment residential scheme, Plot G proposes a 13 storey, 275 bedroom hotel and a separate application has been submitted to deliver areas of public open space and public realm.

11.156 It is intended to facilitate the proposed public realm works by stopping sections of the existing highway network as follows:

- Part of Portugal Street East;
- Epworth Street;
- Churchgate Buildings; and
- Part of Longacre Street.

11.157 This may increase the effects of noise and air quality, however these levels are likely to be low during the temporary construction phases. This is likely to be **Not Significant.**

11.158 It is noted that the traffic levels generated by the Proposed Development will be minimal as a result of the zero on-site car parking provided. Due to the likely increase in HGV movements during the Construction phases, potential effects may occur with relation to noise, air, dust and dirt and ground conditions. The combined effect is likely to be **Not Significant**.

***Operational***

11.159 No inter-project cumulative effects for the Operational Phase have been identified due to the low traffic generation associated with the Proposed Development.

## Mitigation of Effects

***Construction Phase***

11.160 As previously identified, no effects are predicted as a result of construction vehicles upon the traffic and transport-related environmental factors, and are therefore **Not Significant**. No specific mitigation measures are therefore proposed with the exception of a Construction Environmental Management Plan (CEMP) which will contain general good practice measures to be implemented on site. The CEMP will be submitted pursuant to a planning condition.

11.161 The Construction Environmental Management Plan will be prepared to support the development proposals and this will seek to minimise the level of any general disruption from traffic and transport aspect caused during the construction phase of the development.

11.162 Precise details of the Construction Environmental Management Plan will be agreed via planning condition, but it is envisaged that the it will predominantly consist of:

- Agreed traffic management measures to restrict construction vehicles in certain locations and routes at certain times of the day;
- Travel Plan initiatives to encourage workers to travel to the site in a sustainable manner; and
- Considerate construction practices which are considered elsewhere in the noise, air and dust and dirt section of this ES.

***Operational Phase***

11.163 As previously identified, the effects of the Operational Phase upon the traffic and transport-related environmental factors are anticipated to be **Not Significant**.

11.164 However as previously discussed, the PSE SRF will deliver enhanced public realm and public open space promoting high quality pedestrian and cycle movements.

11.165 This has the benefit of improving pedestrian amenity and encouraging sustainable modes of travel.

11.166 This will further enhance the accessibility of the site and promote sustainable modes of travel to and from the Proposed Development.

***Travel Planning***

11.167 In order to enhance the sustainable nature of the Proposed Development from a Traffic and Transportation perspective on the surrounding area, a Framework Travel Plan has been produced (document reference 68957/TP/V01 included as **ES Volume 4: Appendix 11.2**) to accompany the application.

11.168 The document contains a number of suggested initiatives designed to encourage uptake of sustainable travel for both the student residential and retail uses within the Proposed Development, and therefore reduce the number of single occupancy trips made by car to and from the Site.

11.169 The Framework Travel Plan is intended to be an 'umbrella' plan for which individual full Travel Plans can be developed following occupation.

## Residual Effects

**Construction Phase**

11.170 As previously identified, the effects of the construction vehicles upon the traffic and transport-related environmental factors are anticipated to be **Not Significant**.

**Table 11.17: Summary of Residual Effects**

| Effect | Pre-mitigation Effect | Mitigation | Post-mitigation Significance |
|---|---|---|---|
| Driver Delay | Negligible (Not Significant) | CEMP | None (Not Significant) |
| Pedestrian Delay and Amenity | Negligible (Not Significant) | CEMP | None (Not Significant) |

| | | | |
|---|---|---|---|
| Fear and Intimidation | Negligible (Not Significant) | CEMP | None (Not Significant) |
| Accidents and Safety | Negligible (Not Significant) | CEMP | None (Not Significant) |
| Severance | Negligible (Not Significant) | CEMP | None (Not Significant) |

***Operational Phase***

11.171 As previously identified, the effects of the Proposed Development during the operational phase are considered to be;

**Table 11.18: Summary of Residual Effects**

| Effect | Pre-mitigation Effect | Mitigation | Post-mitigation Significance |
|---|---|---|---|
| Driver Delay | Negligible (Not Significant) | Travel Plan | None (Not Significant) |
| Pedestrian Delay and Amenity | Negligible (Not Significant) | Travel Plan | None (Not Significant) |
| Fear and Intimidation | Negligible (Not Significant) | Travel Plan | None (Not Significant) |
| Accidents and Safety | Negligible (Not Significant) | Travel Plan | None (Not Significant) |
| Severance | Negligible (Not Significant) | Travel Plan | None (Not Significant) |

## References


11.1 Department for Communities and Local Government (2012) National Policy Planning Framework

11.2 Manchester City Council (2012) Core Strategy 2012 – 2027

11.3 Transport for Greater Manchester (2011) Local Transport Plan 3

11.4 Institute of Environmental Assessment (1993) Guidelines for the Environmental Assessment of Road Traffic

11.5 Department for Transport (2004) Design Manual for Roads and Bridges) Volume 13, Section 1, Part 2, The Valuation of Costs and Benefits, The Valuation of Accidents at Junctions

## Appendix

11.1 Transport Statement (68957/TS/V01)

11.2 Framework Travel Plan (68957/TP/V01)

# 12. Air Quality

## Introduction

12.1 This chapter considers: the air quality impacts from future traffic movements on the Proposed Development as well as construction traffic movements and impacts from construction dust. Concentrations of $NO_2$, $PM_{10}$ and $PM_{2.5}$ will be determined at site and nearby receptors, then compared against relevant National Air Quality Objectives [NAQO]. Finally, an assessment of the impact from the construction phase has been made.

12.2 This chapter has been undertaken by Hydrock's Air Quality team, which contains a Member of the Institute of Air Quality Management [MIAQM].

## Legislative Framework, Policy and Guidance Documents

***European Union Legislation***

12.3 The overriding policy document which governs air quality regulation is the EU Council Directive on ambient air quality and cleaner air for Europe [2008/50/EC] (ref 12.1), which came into force in 2008, and provides statutory guidance on air quality. This presents statutory requirements for the protection of human health and ecosystems through long and short-term limit values for: oxides of nitrogen [NOx], nitrogen dioxide [$NO_2$], sulphur dioxide [$SO_2$], particulate matter with a diameter of less than 10 microns [$PM_{10}$], particulate matter with a diameter of less than 2.5 microns [$PM_{2.5}$] carbon monoxide [CO], lead, benzene and ozone [$O_3$]. The above legislation replaces the EU's previous Three Daughter Directive.

12.4 The 4th Daughter Directive 2004/107/EC (ref 12.2) sets target values, where exposure is to be reduced to as low as reasonably possible, for arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons [PaH] within ambient air.

12.5 In addition, the Committee on the Medical Effects of Air Pollution [COMEAP] (ref 12.3), the World Health Organisation [WHO] (ref 12.4) and the United Nations Economic Commission for Europe [UNECE] (ref 12.5) provide medical and scientific evidence of the health risks to the general public and recommended concentration limits.

***United Kingdom Legislation***

12.6 The above EU limit/target values within the EU Directives 2008/50/EC and 2004/107/EC (namely, the Fourth Daughter Directive) were transposed into UK Law as part of the Air Quality Standards Regulations (ref 12.6) which came into force in 2010.

12.7 These regulations set out how the government has interpreted the above directives and sets out Air Quality Objectives [AQOs] that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale. One of the main additions to these was the addition of regulatory framework on $PM_{2.5}$.

12.8 The Air Quality Strategy 2007 Volume 1 (ref 12.7) outlines the national AQOs that should be achieved. Whilst central government is ultimately responsible for meeting

these objectives, part of the Environment Act 1995 (ref 12.8) dictates that a local authority is required to assess and periodically review their compliance with the non-binding objectives and any areas that repeatedly exceed the allowed limits should be designated Air Quality Management Areas [AQMA]. All National Air Quality Objectives applicable to this assessment have been presented in the table below:

**Table 12.1: Selected National Air Quality Objectives**

| Pollutant Description | units | Period | NAQO Limit Values | Allowable exceedances |
|---|---|---|---|---|
| Nitrogen Dioxide ($NO_2$) | $\mu g/m^3$ | Annual mean | 40 | n/a |
| | $\mu g/m^3$ | 1 hour mean | 200 | 18 |
| Particles ($PM_{10}$) | $\mu g/m^3$ | Annual mean | 40 | n/a |
| | $\mu g/m^3$ | 24-hour mean | 50 | 35 |
| Particles ($PM_{2.5}$) | $\mu g/m^3$ | Annual mean | 20 | n/a |
| Nitrogen Dioxide (NOx as $NO_2$) | $\mu g/m^3$ | Annual mean for protection of ecosystems | 30 | n/a |

12.9 The UK government have produced a draft of their Clean Air Strategy 2018 (ref 12.9) which presents how it will tackle sources of air pollution, protecting nature and boosting the economy.

12.10 Through the Local Air Quality Management [LAQM] system, local authorities are required to assess air quality in their area and designate AQMA if improvements are necessary. Where an AQMA is designated, local authorities are required to produce an air quality action plan describing the pollution reduction measures it will put in place.

12.11 In order to determine if an air quality assessment is required, Defra Local Air Quality management (LAQM) TG.16 (ref 12.10) and the IAQM Land-use Planning & Development Control: Planning for Air Quality (ref 12.11) and the Highways Agency Design Manual for Roads and Bridges (ref 12.12) is used as guidance.

12.12 The National Planning Policy Framework (ref 12.13) requires that planning decisions for any new development should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. Furthermore, planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

***Local Policy: Greater Manchester Combined Authority***

12.13 Greater Manchester Combined Authority [GMCA] has designated the centre of Manchester, its ring road and arterial road leaving the city as an AQMA. GMCA

released their Air Quality Strategy Action Plan 2016- 2021 (ref 12.14) which has the primary objective to improve air quality across Greater Manchester and to embed low-emission behaviours into the culture of our organisations and lifestyles by 2025. In order to help achieve this, GMCA have developed eight actions for managing new developments, the four most applicable actions are presented below:

- Greater Manchester councils to adopt the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction as current best practice to assess and mitigate emissions from construction sites.
- GM local authorities will adopt the most recent IAQM/EPUK guidance for air quality assessment as current best practice, to help ensure that planning applications consider potential local air quality impacts and opportunities to improve air quality are realised.
- A centralised database of significant planning applications and air quality assessments will be managed by TfGM, as a record of the cumulative effects of multiple developments and thereby facilitate combined approaches to minimising emissions.
- TfGM will work with the local authorities to encourage travel planning measures in businesses and individuals to affect a significant modal shift.

12.14 GMCA also undertakes annual air quality reporting to assessing the performance of areas of significant pollution. GMCA have released the latest diffusion tube monitoring (2018), which is available online (ref 12.15).

***Development Plan: Manchester City Council***

12.15 Manchester City Council [MCC] Core Strategy Development Plan Document (as adopted on 11 July 2012) (ref 12.16) seeks to improve the air quality of the borough and minimise harm from poor air quality through Policy EN 16 below:

*"The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant. When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas."*

## Assessment Methodology

12.16 As required by the GMCA's air quality action plan, the assessment has been carried out based on the methodologies and guidance set out in the IAQM and Environmental Protection UK (EPUK) Land-Use Planning & Development Control planning for Air Quality guidance and the IAQM Guidance on the assessment of dust from demolition and construction (ref 12.17). Consideration has also been made to the Local Air Quality Management Technical Guidance LAQM TG (16).

**The Study Area**

12.17 Residential receptors in the Proposed Development and receptors along the construction traffic route have been assessed for impacts from traffic. For the assessment of construction dust any human receptors within 350m of the site boundary; or 50m of a route used by construction vehicles up to 500m from the site entrance are considered.

**Baseline Surveys**

***Desk Based Research***

12.18 The baseline survey has been conducted in the following way:

- Review of GMCA latest review and assessment reports and air quality data for the area surrounding the Proposed Development, including data from GMCA and Defra.
- Review of transport data provided by the Department for Transport (DfT) and the Transport ES chapter.
- Review of the proposed plant and energy strategy as supplied by the project M&E Consultants.

***Field Survey Work***

12.19 As part of their obligation to monitor air quality, GMCA have installed 236 diffusion tubes and 17 automatic monitoring stations within the Greater Manchester Area. There is a representative diffusion tube approximately 250m from the Proposed Development and therefore no surveys have been undertaken as part of this assessment.

***Consultations***

12.20 Consultation has been sought from MCC through the EIA Scoping report. The response was received in November 2018 (ES Vol 4: Appendix 5.1) and is based on comments presented in the scoping report.'

*"1. There is no car parking associated with this development (operational phase) so an assessment of the traffic impacts on existing receptors will not be required, (agreed).*

*2. Emissions from any flues associated with the plant room will need to be considered at the development and in the surrounding area, if they exceed the threshold of 5mgNOx/second, (agreed).*

*3. The application site is within the Greater Manchester Air Quality Management Area (map available at: https://ukair.defra.gov.uk/aqma/maps) and future occupants of the development may be exposed to air pollution and assessment required (agreed).*

*4. The construction impacts of the Proposed Development will be undertaken with respect dust and impacts on human health, (agreed)."*

12.21 In the case of the Proposed Development there are limited traffic movements (refuse collection etc.) and the energy strategy of the building is fully electric. Therefore, there are considered to be no major emissions sources associated with the operation of the development.

12.22 The assessment will therefore focus on the future exposure of the residents and construction effects in accordance with the Scoping Opinion from MCC (ES Vol 4: Appendix 5.1).

**Construction Phase Effects Methodology**

***Construction Dust***

12.23 There is a potential for impact on local air quality during the construction phase from emissions of dust to air during the preparation of land (Earthworks and Demolition) and during construction itself. To assess the significance of dust (<75µm) and Particulate Matter (<10µm) releases, an assessment has been carried out in accordance with IAQM demolition and construction guidance.

12.24 This section provides a description of how effects from the construction phase are identified. The method for assessing the significance of the effect is provided later in this section.

12.25 Step 1 of the guidance requires the site to be screened for existing human and ecological receptors within 350m (human receptors) or 50m (ecological receptors) of the site boundary; or 50m of a route used by construction vehicles up to 500m from the site entrance.

12.26 The risk of dust effects is identified by the scale and nature of the works. Risks are determined in terms of Low, Medium and High. A matrix, which considers the distance of a source, its sensitivity and the magnitude of the works, is used to determine the likely impact of the construction stage.

12.27 The dust emissions magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine risk of impacts without mitigation applied. For those cases where the risk category is 'negligible' no mitigation measures beyond those required by legislation will be required. These tables are presented in Tables 12.4 – 12.6.

12.28 Suitable mitigation measures are then considered, if required, and the significance of dust effects is determined after the relevant mitigation.

***Construction traffic emissions***

12.29 For the assessment of construction vehicle emissions on the future concentrations of $NO_2$, $PM_{10}$ and $PM_{2.5}$, the assessment of significance has been undertaken using the same methodology as the operational traffic emissions and is based on IAQM Land-Use Planning & Development Control planning for Air Quality guidance. The methodology is summarised in the following section and will include dispersion modelling to assess the following construction scenarios:

- A baseline model with projected traffic increases in 2020, without construction traffic. This has been assessed using 2020 EF. **(Model B)**
- A model with projected traffic increases in 2020, including construction traffic. This has been assessed using 2020 EF. **(Model C)**

12.30 A conservative estimate from the transport consultants on this scheme indicates that construction vehicles will be no greater than 10% of the 2020 baseline. This equates to approximately 100 additional HGV movements per day which has been added to the construction baseline (Model B) to generate the traffic data for Model C, see table 12.3.

**Operational Phase Effects Methodology**

12.31 This section provides a description of how effects from the operational phase are identified. The method for assessing the significance of the effect is provided later in this section.

***Traffic emissions***

12.32 The focus of the operational assessment is to determine the current conditions in the area and assess the impact of future vehicle movements, and associated pollutant emissions, on the receptors introduced to the area by the Proposed Development. As the Proposed Development will not include car parking spaces, and is not anticipated to generate any vehicle trips, the impact of road traffic on nearby receptors has not been assessed.

12.33 The assessment assesses the significance of $NO_2$, $PM_{10}$ and $PM_{2.5}$ and will be based on the IAQM guidance document, Land-Use Planning & Development Control planning for Air Quality.

12.34 In order to determine the likely impact on the Proposed Development, a detailed Air Quality Assessment [AQA] has been undertaken using the air dispersion model ADMS-Roads (Version 4.1.1) to establish the air quality situation under the following scenarios:

- Verification using 2018 traffic, weather and monitoring data along with 2018[6] emissions factors [EF] to determine current conditions in the area and validate the model. **(Model A)**
- A model with projected traffic increases in 2022. This has been assessed using both 2018 and 2022 EF. **(Model D and E)**

12.35 The impacts of already committed developments have not been considered within this assessment, as the Proposed Development is not introducing any long-term emissions into the local area and is not having an impact on future emissions in the area.

12.36 ADMS-Roads is commercially available, has been validated for this type of assessment and is used extensively for AQAs. It is able to provide an estimate of air quality both before and after development, considering important input data such as background pollutant concentrations, variable emissions rates, meteorological data and traffic flows. The model output has been verified against local monitoring data carried out by GMCA.

12.37 This model considers/uses the following data:

- Background concentration data from DEFRA Automatic urban and rural network (AURN) site, located at Piccadilly Gardens.
- Annual Average Daily Flow count data taken for DFT traffic counts on the A665. Survey data has been adjusted to 2020 and 2022 using TEMPro (Ref 12.23) factors for Manchester.
- Road widths taken from Google Maps.
- Weather data for the year 2018 taken from Manchester Airport station.
- Average diurnal profiles for the AADTs taken from the DfT average.

12.38 Concentrations of $NO_2$, $PM_{10}$ and $PM_{2.5}$ have been predicted at the façades of the Proposed Development, with concentrations of $NO_2$ predicted at a diffusion tube site along the A665, for model verification purposes. For the assessment of construction traffic impacts, residential receptors have been identified along the A665. The sensitive receptors modelled are presented in Table 12.2. The location in relation to the site can be seen in **ES Volume 4: Figure 5** within the air quality technical appendix.

12.39 There is not predicted to be a significant increase in traffic due to the Proposed Development in the vicinity of any statutory habitat sites, therefore no habitat receptors have been included in this assessment.

**Table 12.2: Receptor details**

| Receptor | UTM X(m) | UTM Y(m) | Z(m) |
|---|---|---|---|
| R1 (DT) | 385161 | 398288 | 3 |
| R2 | 385309 | 398097 | 1.5 |
| R2b | 385309 | 398097 | 5.5 |
| R2c | 385309 | 398097 | 9.5 |
| R2d | 385309 | 398097 | 13.5 |
| R2e | 385309 | 398097 | 17.5 |
| R2f | 385309 | 398097 | 21.5 |
| R3 | 385326 | 398082 | 1.5 |
| R3b | 385326 | 398082 | 5.5 |
| R3c | 385326 | 398082 | 9.5 |
| R3d | 385326 | 398082 | 13.5 |
| R3e | 385326 | 398082 | 17.5 |
| R3f | 385326 | 398082 | 21.5 |
| R4 | 385443 | 398003 | 1.5 |
| R5 | 385222 | 398192 | 1.5 |
| R6 | 385207 | 398215 | 1.5 |

| Receptor | UTM X(m) | UTM Y(m) | Z(m) |
|---|---|---|---|
| R7 | 385281 | 398124 | 5.5 |

12.40 Traffic flow data was obtained from two DFT counts (7857 and 47457), one north and one south of the Proposed Development on the A665. The 2018 figures were used for model verification. The flows have been factored up to predicted 2022 levels using factors from TEMPRO for the Manchester region. The links included within the model are presented in **ES Volume 4: Figure 2**, within the air quality technical appendix.

12.41 The flows provided by the DfT were divided by 24 to get the hourly flow for input into ADMS-Roads. These figures are shown in Table 12.3.

**Table 12.3: Traffic details for each modelled link**

| Model A | | | | | |
|---|---|---|---|---|---|
| | L1 | L2 | L3 | L4 | L5 |
| LGV | 1400 | 624 | 624 | 624 | 624 |
| HGV | 38 | 22 | 22 | 22 | 22 |
| Speed (mph) | 30 | 30 | 30 | 30 | 30 |
| Model B | | | | | |
| LGV | 1448 | 645 | 645 | 645 | 645 |
| HGV | 39 | 23 | 23 | 23 | 23 |
| Speed (mph) | 30 | 30 | 30 | 30 | 30 |
| Model C | | | | | |
| LGV | 1448 | 645 | 645 | 645 | 645 |
| HGV | 43 | 25 | 25 | 25 | 25 |
| Speed (mph) | 30 | 30 | 30 | 30 | 30 |
| Model D and E | | | | | |
| LGV | 1487 | 662 | 662 | 662 | 662 |
| HGV | 40 | 23 | 23 | 23 | 23 |
| Speed (mph) | 30 | 30 | 30 | 30 | 30 |

12.42 Road widths and canyon heights were taken from Google Maps. The links were split into main sections of road and junctions. Speed data was taken from the traffic surveys with the speed at junctions assumed to be 8kmph. Where google maps indicated long queues at specific times of the day, the length of the junction was extended in order to consider the emissions of queuing traffic. This was deemed appropriate on all road links on the A665. Representation of general queuing times are shown in **ES Volume 4: Figure 3 and 4** within the air quality technical appendix.

12.43 Vehicle flow and speed data were input into the ADMS-Road model, which estimates emissions for each link using the Emission Factors Toolkit [EFT] Version 9. The average emission factor for NOx, $PM_{10}$ and $PM_{2.5}$ were calculated based on this and input into ADMS-Roads. This was input as a .fac file which ADMS uses to calculate emissions on an hourly basis throughout the year.

12.44 ADMS-Roads includes a module to model the effect of street canyons on concentrations. A street canyon is commonly used when the aspect ratio of the height of buildings along the road is greater than 1/3 the total building to building road width. No street canyons have been included within this assessment.

12.45 Conversion of NOx to $NO_2$ (or vice versa) has been undertaken twice during this assessment. Firstly, $NO_2$ concentrations taken from local diffusion tubes were

converted to NOx concentrations for comparison against modelling locations for model verification purposes. Secondly modelled NOx at nearby residential receptors have been converted to $NO_2$ for assessment against applicable NAQO. Both conversions have been undertaken using version 7.1 of the NOx to $NO_2$ conversion spreadsheet which is available on the Defra Website (ref 12.19).

12.46 All onsite power generation (CHP/CCHP), hot water and heating will be provided by electrical power. Therefore, the Proposed Development is not expected to emit any emissions via a flue and no assessment relating to emissions from stacks has been undertaken.

12.47 Hourly sequential surface observation meteorological data for the year 2018 from Manchester Airport met station[7] has been used within this assessment. A surface roughness value of 0.1 m has been used for the meteorological site and represents an area of low crops and occasional obstacles. The value chosen for the dispersion site is 1 m as the land use of the 1 km area preceding the receptors in the direction of the prevailing wind has mixed characteristic of industrial activity and high-rise buildings. A wind rose for the year 2018 is presented in **ES Volume 4: Figure 8**, within the air quality technical appendix.

**Significance criteria**

12.48 This section describes the methodology which has been used to assess the magnitude of effect and significance of effects from the Proposed Development on local air quality. These are based on relevant IAQM guidance.

**Magnitude of Effect**

***Construction Dust***

12.49 Defining the magnitude of impact from the construction of the Proposed Development will be drawn from the 2014 IAQM Assessment of dust from demolition and construction (Ref 12.17).

12.50 Firstly, receptors are screened in Step 1. In Step 2A risks are determined in terms of Small, Medium and Large for each of the 4 steps of construction works: Demolition, Earthworks, Construction and Trackout. The risk criteria are set out in Table 12.4.

**Table 12.4: Dust Emissions Magnitude Matrix**

| Stage of Construction | Dust Emission Magnitude | Site activity |
|---|---|---|
| Demolition | Large | 50,000$m^3$ building demolished, dusty material (e.g. concrete), |
| | | on-site crushing/screening, demolition >20m above ground level. |

[7] Data capture for cloud cover was below the 75% criteria, there missing data was substituted from Rostherne No. 2.

| Stage of Construction | Dust Emission Magnitude | Site activity |
|---|---|---|
| | Medium | 20,000 - 50,000$m^3$ building demolished, dusty material (e.g. concrete). |
| | Small | <20,000$m^3$ building demolished, non-dusty material (e.g metal cladding). |
| Earthworks | Large | >10,000$m^2$ site area, dusty soil type (e.g. clay), >10 earth moving |
| | | vehicles active simultaneously. |
| | Medium | 2,500 - 10,000$m^2$ site area, moderately dusty soil (e.g. silt), 5-10 earth moving |
| | | vehicles active simultaneously, 4m - 8m high bunds, |
| | | 20,000 -100,000 tonnes material moved. |
| | Small | <2,500$m^2$ site area, soil with large grain size (e.g. sand), |
| | | <5 earth moving vehicles active simultaneously, <4m high bunds, |
| | | <20,000 tonnes material moved, earthworks during wetter months |
| Construction | Large | >100,000$m^3$ building volume, on site concrete batching, sandblasting |
| | Medium | 25,000 - 100,000m3 building volume, dusty material e.g. concrete, |
| | | on site concrete batching |
| | Small | <25,000$m^3$, non-dusty material (e.g. metal cladding or timber) |
| Trackout | Large | >50 HDVs out / day, dusty surface material (e.g. clay), >100m unpaved roads |
| | Medium | 10 - 50 HDVs out / day, moderately dusty surface material (e.g. clay), |
| | | 50 - 100m unpaved roads |
| | Small | <10 HDVs out / day, non-dusty soil, < 50m unpaved roads |

12.51 For Step 2B the risk of dust effects is identified by the scale and nature of the works. Risks are determined in terms of Low, Medium and High. A matrix, which considers the distance of a source, its sensitivity and the magnitude of the works, is used to determine the likely impact of the construction for both dust soiling and human health impacts. Both Matrices for step 2B are presented below.

**Table 12.5: Sensitivity of the Area to Dust Soiling Effects**

| Receptor Sensitivity | Receptor Number | Distance from the Source | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <350 |
| High | >100 | High | High | Medium | Low |
| | 10-100 | High | Medium | Low | Low |
| | 1-10 | Medium | Low | Low | Low |
| Medium | >1 | Medium | Low | Low | Low |
| Low | >1 | Low | Low | Low | Low |

**Table 12.6: Sensitivity of the Area to human health impacts**

| Receptor Sensitivity | Annual Mean (ug/m3) | Receptor number | Distance from Source (m) | | | | |
|---|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <200 | <350 |
| High | >32 | >100 | High | High | High | Medium | Low |
| | | 10-100 | High | High | Medium | Low | Low |
| | | >1 | High | Medium | Low | Low | Low |
| | 28-32 | >100 | High | High | Medium | Low | Low |
| | | 10-100 | High | Medium | Low | Low | Low |
| | | >1 | High | Medium | Low | Low | Low |
| | 24-28 | >100 | High | Medium | Low | Low | Low |
| | | 10-100 | High | Medium | Low | Low | Low |
| | | >1 | Medium | Low | Low | Low | Low |
| | <24 | >100 | Medium | Low | Low | Low | Low |
| | | 10-100 | Low | Low | Low | Low | Low |
| | | >1 | Low | Low | Low | Low | Low |
| Medium | >32 | >10 | High | Medium | Low | Low | Low |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | >1 | Medium | Low | Low | Low | Low |
| | 28-32 | >10 | Medium | Low | Low | Low | Low |
| | | >1 | Low | Low | Low | Low | Low |
| | 24-28 | >10 | Low | Low | Low | Low | Low |
| | | >1 | Low | Low | Low | Low | Low |
| | <24 | >10 | Low | Low | Low | Low | Low |
| | | >1 | Low | Low | Low | Low | Low |
| Low | - | >1 | Low | Low | Low | Low | Low |

12.52 The dust emissions magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts without mitigation applied (Table 12.7).

**Table 12.7: Overall risk for each stage of the construction**

| Sensitivity of Surrounding Area | Dust Emission Magnitude | | |
|---|---|---|---|
| | **Large** | **Medium** | **Small** |
| Demolition | | | |
| High | High Risk | Medium Risk | Medium Risk |
| Medium | High Risk | Medium Risk | Low Risk |
| Low | Medium Risk | Low Risk | Negligible |
| Earthworks and Construction | | | |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |
| Trackout | | | |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Low Risk | Negligible |
| Low | Low Risk | Low Risk | Negligible |

***Construction Traffic emissions***

12.53 Table 12.8 presents the IAQM impact matrix for defining magnitude based on increases in pollution, in this case the change in concentration is from the 2017 baseline to the concentrations with construction traffic movements considered.

**Table 12.8: IAQM Impact criteria**

| Long term average concentration at receptor in assessment year | % Change in concentration relative to Air Quality Assessment Level (AQAL) | | | |
|---|---|---|---|---|
| | 1 | 2-5 | 6-10 | >10 |
| 75% or less of AQAL | Negligible | Negligible | Slight | Moderate |
| 76 - 94% of AQAL | Negligible | Slight | Moderate | Moderate |
| 95 - 102% of AQAL | Slight | Moderate | Moderate | Substantial |
| 103 - 109% of AQAL | Moderate | Moderate | Substantial | Substantial |

***Sensitivity of Receptors***

***Construction Sensitivity***

12.54 For construction dust assessments, multiple types of receptors are considered, their sensitivity, as listed in IAQM guidance is presented in the Table 12.9.

**Table 12.9: Construction receptor sensitivity**

| Receptor type | Receptor Sensitivity |
|---|---|
| Residential/hospital/school | High |
| Commercial/leisure | Medium |
| Industrial/manufacturing | Low |

***Operational Sensitivity***

12.55 Air quality standards apply only to areas where members of the public linger for a reasonable period of time. They do not apply to places of work, Table 12.10 summarises where the objectives do and do not apply.

**Table 12.10: Operational receptor sensitivity**

| Averaging Period | Objectives should apply at: | Objectives should generally NOT apply at: |
|---|---|---|
| Annual mean | All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc. | Building facades of offices or other places of work where members of the public do not have regular access. |
| | | Hotels, unless people live there as their permanent residence. Gardens of residential properties. |

| Averaging Period | Objectives should apply at: | Objectives should generally NOT apply at: |
|---|---|---|
| | | Kerbside sites (as opposed to other locations at the building façade) or any other location where public exposure is expected to be short term. |
| 24-hour mean and 8-hour mean | All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties | Kerbside sites (as opposed to other locations at the building façade) or any other location where public exposure is expected to be short term. |
| 1-hour mean | All locations where the annual Mean and: 24 and 8 hour mean objectives apply. Kerbside site (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railways stations etc. which are not fully enclosed, where members of the public might be expected to spend one hour or more. | Kerbside sites where the public would not be expected to have regular access. |
| | Any outdoor locations where members of the public might reasonably expected to spend one hour or longer. | |
| 15-min mean | All locations where member of the public might reasonably be exposed for a period of 15 minutes | n/a |

**Significance of effect**

***Construction Dust***

12.56 In this case high and medium risk impacts are defined as significant with low and negligible impacts defined as insignificant. However, other factors can have an influence on these criteria as described below.

| Significance | Impact |
|---|---|
| Significant | Moderate/substantial |
| Insignificant | Negligible/Low |

***Operational Traffic emissions***

12.57 In 2015 the IAQM Significance guidance (ref 12.20) was replaced by the guidance on Land-use planning and development control. This guidance does not produce specific criteria for assessing significance but draws on the impact criteria (Table 12.8) as a

starting point to determine if a development is likely to have a significant or insignificant impact on air quality in the local area.

12.58 The guidance explains the difference between impact and significance. With an impact being judged based on the predicted change in concentration at individual receptors, whereas significance is the consequence of the impact and generally looks at the local area as a whole. This is done using professional judgement and should be carried out by someone who is suitably qualified; examples of the following factors that need to be taken into consideration are:

- Current levels of air quality in the area; if the air quality is already breaching NAQO the impact is likely to be significant.
- The number of receptors and land use of the local area; is a moderate impact on one receptor significant? The future land use should also be considered here.
- The likelihood of a reduction in emissions in the future and if the impacts can be mitigated.

12.59 The focus of the operational assessment is to determine the current conditions in the area and assess the impact of future construction vehicle movements on residential receptors. In this case high and medium risk impacts are defined as significant with low and negligible impacts defined as insignificant.

12.60 The significance of the impacts on the residents being introduced to the Proposed Development is based on exceedances of any relevant NAQO, with exposure to levels above relevant NAQOs deemed significant and levels below as insignificant.

***Duration of Effect***

12.61 The construction period for this project is anticipated to be 2 years, with the impact from background air pollution on future receptors being long term. Therefore, the duration of effects will be classed as short term and long term respectively (see Table 12.11).

**Table 12.11: Timescale definition**

| Timescale | Definition |
|---|---|
| Short term | 0 to 5 years including the construction period and on completion |
| Medium term | 5 to 15 years including mitigation establishment |
| Long term | 15 + years including long term operation of the development |

## Existing Baseline Conditions (2018)

12.62 As part of their fulfilment of Part IV of the Environment Act 1995 GMCA have declared a city wide AQMA due to exceedances of the annual $NO_2$ objective. This AQMA has been declared mainly for transport related emissions due to the presence of major trunk roads, including the M62, within its borough.

12.63 The Proposed Development sits within the above mentioned AQMA.

12.64 As well as declaring an AQMA GMCA are required to monitor pollutants in the area. Within the vicinity of the Proposed Development there is one roadside diffusion tube monitoring $NO_2$. In the wider area there are also a number of diffusion tubes monitoring background and roadside locations. There are also a number of automatic monitoring stations which monitor $NO_2$, $PM_{10}$ and $PM_{2.5}$. The measurements from nearby diffusion tube monitoring is presented Table 12.12.

**Table 12.12: Local diffusion tube monitoring**

| Diffusion Tubes: $NO_2$ Annual Mean Concentration (µg/m$^3$) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Location | OS X (m) | OS Y (m) | 2014 | 2015 | 2016 | 2017 | 2018 |
| 71 (Roadside) | 385161 | 398290 | 47.39 | 45.92 | 51.2 | 50.4 | 46.6 |
| 59,60,61 (urban background) | 384310 | 398337 | 36.09 | 35.51 | 39.09 | 40.09 | n/a |
| 14 (urban background) | 387656 | 399016 | 22.92 | 21.91 | 23.27 | 22.10 | 18.8 |

12.65 As well as diffusion tube monitoring there is an AURN automatic monitoring site located in Piccadilly Gardens around 1km west of the Proposed Development. The monitoring results for the last 5 years of $NO_2$ monitoring results are presented in Table 12.13.

**Table 12.13: Local automatic monitoring concentration**

| Site ID | Site type | Distance from Kerb (m) | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| Automatic Monitoring of Nitrogen Dioxide: Annual Mean Concentration | | | | | | | |
| MAN3 | (Urban Background) | 30 | 40 | 39 | 40 | 36 | 35 |
| Automatic Monitoring of Nitrogen Dioxide: Number of Exceedances of Hourly Mean (200 µg/m$^3$) | | | | | | | |
| MAN3 | (Urban Background) | 30 | 2 | 1 | 0 | 1 | 0 |
| Automatic Monitoring of $PM_{10}$: Annual Mean Concentration | | | | | | | |
| MAN3 | (Urban Background) | 30 | 20 | 20 | 20 | 20 | 21 |
| Automatic Monitoring of $PM_{10}$: Number of Exceedances of 24 Hour Mean (50 µg/m$^3$) | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MAN3 | (Urban Background) | 30 | 5 | 3 | 3 | 3 | 2 |
| Automatic Monitoring of $PM_{2.5}$: Annual Mean Concentration | | | | | | | |
| MAN3 | (Urban Background) | 30 | 12 | 10 | 10 | 8 | 11 |

12.66 Predictions of background pollutant concentrations on a 1km by 1km grid have been produced by DEFRA for the entirety of the UK to assist local authorities in their review and assessment of air quality. The site is located at OS grid coordinates 385315, 398075 and therefore the pollutant concentrations from grid square 385500, 398500 have been used within this assessment. The most recent data for these locations, released in 2017, was downloaded from the DEFRA website for the purpose of this assessment and are summarised in the table below:

**Table 12.14: DEFRA background map concentrations**

| 2017 Defra Background maps concentrations for OS grid ref 385500, 398500 | | |
|---|---|---|
| Pollutant | Period | Concentration (µg/$m^3$) |
| Particles ($PM_{10}$) | Annual mean | 12.88 |
| Particles ($PM_{2.5}$) | Annual mean | 8.21 |
| Nitrogen Dioxide ($NO_2$) | Annual mean | 27.01 |

12.67 The $NO_2$ concentration from the DEFRA backgrounds maps is in between the levels recorded by the background diffusion tube (id:14) and the background automatic monitoring station (MAN3). The diffusion tube (id:14) is located in a residential area far away from the city centre and is registering a lower background. As a result, the urban background automatic monitoring site (MAN3) located at Piccadilly Gardens is deemed more appropriate due to its location in an urban environment similar to the Proposed Development.

12.68 In the area surrounding the Proposed Development the annual average $NO_2$ concentrations recorded in table 12.12 and 12.13 suggests that the concentrations have not exceeded 60µg/$m^3$ in the last 5 years. As a rule of thumb this is the threshold for when exceedances of the hourly $NO_2$ objective may occur (ref 12.21 and 12.22). Furthermore, exceedances of the hourly threshold are not close to exceeding 18, which is the allowable level. Therefore, only annual average concentrations of $NO_2$ have been assessed.

12.69 The correlation between the annual and short-term standard is less well defined for $PM_{10}$ than it is for $NO_2$. The 24-hour $PM_{10}$ NAQO mandates that a 24-hour average of 50g/$m^3$ is not exceeded more than 35 times per year. The Proposed Development is within an AQMA for the 24-hour $PM_{10}$ NAQO. However, a maximum of 7, 24-hour $PM_{10}$ recorded measurements greater then 50ug/$m^3$ per year in the last 5 years, have been recorded. Therefore, it is unlikely that the residents of the proposed development would be exposed to breaches of the 24-hour $PM_{10}$ NAQO. Therefore, no further assessment relating to the 24-hour $PM_{10}$ NAQO has been undertaken.

12.70 Diffusion tube 71, situated on the opposite side of Great Ancoats Street, slightly to the West of the site had a Bias adjusted Annual Average of 50.95. The unadjusted monthly results were plotted, as well as Meteorologically normalised results, in **ES Volume 4: Figure 10**, within the air quality technical appendix.

## Anticipated Future Baseline Conditions

### Construction (2020) and Operation (2022)

12.71 Predicted concentrations for the year 2020 and 2022 have been estimated by the ADMS dispersion model and are presented in Tables 12.18 – 12.20.

12.72 Since the creation of the first report, Manchester Combined Authority have published plans for a two-stage clean air zone from 2021 and 2023, which would require a charge for buses, coaches, lorries, vans, taxis, private hire vehicles, minibuses, motorhomes and motorised horseboxes that don't meet certain designated Euro Standards. The clean air zone would apply to the entire Manchester Combined Authority in an attempt not to redistribute high levels of pollution.

12.73 The Proposed Development is within the clean air zone and therefore air pollution in the area will be impacted. At this time, it is difficult to estimate the impact as it is unclear how Manchester's car fleet will change due to the implementation of the clean air zone. As this development is emissions free (both transport and energy generation), it is assumed a positive on exposure of the residents.

12.74 As a conservative assumption this assessment looks at scenarios with and without projected vehicle emission scenarios.

## Assessment of Effects

### Matters Scoped Out

12.75 There are not predicted to be any increases in traffic from the Proposed Development. Therefore, no habitat receptors have been included in this assessment. Construction impacts on statutory habitat sites have also been scoped out as there are no statutory habitat sites within 50m (ecological receptors) of the site boundary or 50m of a route used by construction vehicles up to 500m from the site entrance.

12.76 The Proposed Development does not include parking provision and will not add additional traffic movements to the road network. Furthermore, the energy strategy is proposed to be entirely electrical based and there will be no additional emissions from CHP/boilers. Therefore, the long-term impact from the Proposed Development has been scoped out.

### Embedded Mitigation

12.77 The energy strategy is proposed to be entirely electrical based and there will be no additional emissions from CHP/boilers.

### Limitations and Assumptions

12.78 A number of factors are unable to be considered in the ADMS Roads simulation:

- Stops and starts of vehicles, traffic flow is assumed to be at a continuous speed.

- As the traffic data was provided as AADTs and the same weekly profile used for the hourly and daily variation, it is not possible to model the monthly variations in flows.
- Ground terrain is assumed to be completely flat, no trees and verges are included in the model.

**Assessment of Construction Phase Effects**

***Construction Dust Emission***

12.79 Emissions of dust to air can occur during the preparation of the land and during construction. To assess the impact of, dust (<75µm) and Particulate Matter $PM_{10}$ (<10µm) releases, an assessment has been carried out in accordance with IAQM Guidance.

12.80 The stages of the construction work which IAQM guidance identify as needing assessment are construction, demolition, digging of foundations (earthworks) and disturbance caused by dust and dirt emissions from construction vehicles arriving and leaving the site (trackout).

12.81 The assessment is based on the scale and nature of the works, the proximity of the receptor and professional judgement. The methodology for conducting a construction dust assessment has been described above.

12.82 Risks are recorded in terms of Small, Medium and Large. A matrix, which considers the distance of a source, its sensitivity and the magnitude of the works, is used to determine the likely impact of construction, as described above.

12.83 The sensitivity of the area is defined by the number of receptors at certain distances from the site and the background $PM_{10}$ levels. The annual mean $PM_{10}$ concentration (14 µg/$m^3$ background).

12.84 The chosen receptors have been grouped to reduce repetition, i.e. a housing estate or block of flats will be considered as one large receptor and designated as per the closest houses (see **ES Volume 4: Figure 7** in the technical appendix). It has been assumed that construction traffic would be routed right or left the A665. Both the chosen receptors and assumed trackout route can be seen in seen in the air quality technical appendix, **ES Volume 4: Figure 7**).

12.85 The Site is currently occupied by a small warehouse. In order to construct the Proposed Development, the site building will have to be demolished, it is anticipated that the current building volume for demolition would be less than 25,000$m^3$ and therefore considered small.

12.86 Earthworks for the site would be considered small as the site area needed for foundation preparation is below 2,500$m^2$.

12.87 The construction phase is classed as large, due to the multi-storey building having a volume which is greater than 100,000$m^3$.

**Table 12.15: Table of Magnitude for each phase of the construction**

| Site Area ($m^2$) |
|---|
| <2,500 |
| Previous Building Volume ($m^3$) |
| <20,000 |
| New Building Volume ($m^3$) |
| >100,000 |
| HGV Vehicle Movements per day |
| >50 |
| Unpaved road length (m) |
| <50 |
| Annual Mean $PM_{10}$ Concentration ($\mu g/m^3$) |
| <24 |

12.88 A conservative estimate from the transport consultants on this scheme indicates that construction vehicles will be no greater than 10% of the baseline. This would be more than 50 vehicle movements per day, coupled with an unpaved road length of less than 50m the trackout for the site is considered large.

12.89 The results of this assessment can be found in the Table 12.16. Using the methodology laid out in the IAQM guidance, the estimated impact from dust soiling and potential health impacts can be established for the main sensitive receptors identified.

**Table 12.16: Table 12.16 – Results of the construction dust assessment**

| Construction impacts | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receptor # | Receptor Description | Sensitivity of Area | | | Dust | | | | Human Health | | | | |
| | | Dust | Human Health | Ecological | D | E | C | T | D | E | C | T | |
| CR1 | Hotel | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 | |
| CR2 | Residential | Low | Low | n/a | | | 1 | | | | 1 | 1 | |
| CR3 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 | |
| CR4 | Residential | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 | |
| CR5 | Residential | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 | |
| CR6 | Residential | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 | |

High
Medium
Low
Negligible

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CR7 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR8 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR9 | Commercial | Medium | Low | n/a | 1 | 1 | | 1 | | | 1 | 1 |
| CR10 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR11 | Residential | High | Low | n/a | | 1 | 3 | | | | 1 | 1 |
| CR12 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR13 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR14 | Residential | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR15 | Residential | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR16 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR17 | Residential | Low | Low | n/a | | | 1 | | | | 1 | 1 |
| CR18 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR19 | Residential | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR20 | Residential | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR21 | Commercial | Low | Low | n/a | | | 1 | 1 | | | 1 | 1 |
| CR22 | Residential | Low | Low | | | | 1 | 1 | | | 1 | 1 |

D = Demolition E = Earthworks C = Construction T = Trackout

12.90 Receptor CR11 has the potential to experience a **High** impact from construction dust during the construction phase only. With CR9 and CR11 predicted to have **Medium** impact during construction and demolition phases respectively. CR2, CR11 and CR17 are predicted to have a **Medium** impact during the trackout phase. The receptors identified are shown in technical appendix, **ES Volume 4: Figure 7**).

12.91 All other receptors are likely to experience a **Low/Negligible** impact from construction dust and **Low/Negligible** impact for human health effects from $PM_{10}$.

12.92 It is estimated that, unmitigated, dust from construction site activities at nearby residential receptors could have up to a **High** impact and deemed **significant.**

12.93 The significance for all three pollutants on the nearby receptors from the impacts of road traffic associated with construction are predicted to be **negligible** and therefore **not significant**. These have been assessed within the ADMS roads model and are subject to the same methodology as the operational assessment; the modelling results are listed in Tables 12.19 - 12.21 with the impacts in Tables 12.23.

### Assessment of Operational Phase Effects

12.94 The focus of the operational assessment is to determine the current conditions in the area and determine the impact of future vehicle movements, and future pollution

levels on the receptors introduced to the area by the proposed development. The assessment assesses the significance of changes $NO_2$, $PM_{10}$ and $PM_{2.5}$.

***Model Verification***

12.95 An important stage in the process is model verification of the road traffic model, which involves comparing the model output with measured concentrations. Because the model has been verified and adjusted, there can be reasonable confidence in the prediction of current year (2018) concentrations.

12.96 A nearby diffusion tube, located on the A665 has been used to verify the traffic model. The most recent year of monitoring data (2018) can be seen in table 12.12. The modelled and monitored verification results are given in Table 12.17. A regression graph showing the correction factor that has been applied to the modelled NOx concentrations within the road traffic assessment is provided in ES Volume 4: Figure 6.

**Table 12.17: Model verification results**

| Receptor | Modelled $NO_2$ | Monitored $NO_2$ | Modelled road NOx | Monitored road NOx | Monitored NOx/ Modelled NOx |
|---|---|---|---|---|---|
| R1 (DT) | 46.60 | 46.60 | 19.03 | 25.50 | 1.34 |
| | | | | Verification factor | 1.34 |

***Modelling Results***

12.97 In order to assess the likely impact from increased traffic emissions on air quality, due to the Proposed Development, the following models have been created:

**Table 12.18: Modelling scenarios**

| Model # | EFT Year | Description |
|---|---|---|
| Model A | 2018 | 2018 Verification |
| Model B | 2020 | 2020 Baseline |
| Model C | 2020 | 2020 Construction traffic |
| Model D | 2018 | 2022 Site operational |
| Model E | 2022 | 2022 Site operational |

12.98 The annual $NO_2$, $PM_{10}$ and $PM_{2.5}$ results at nearby sensitive receptors are presented in Tables 12.19, 12.20 and 12.21.

**Table 12.19: Annual $NO_2$ modelling results (ug/$m^3$)**

| Receptor | Model A | Model B | Model C | Model D | Model E |
|---|---|---|---|---|---|
| R1 (DT) | 46.60 | 45.34 | 45.48 | 47.21 | 43.72 |
| R2 | 43.04 | 42.14 | 42.29 | 43.50 | 41.03 |

| Receptor | Model A | Model B | Model C | Model D | Model E |
|---|---|---|---|---|---|
| R2b | 39.78 | 39.24 | 39.32 | 40.41 | 38.82 |
| R2c | 37.23 | 36.97 | 37.01 | 37.40 | 36.69 |
| R2d | 36.08 | 35.96 | 35.97 | 36.16 | 35.81 |
| R2e | 35.58 | 35.51 | 35.52 | 35.62 | 35.44 |
| R2f | 35.33 | 35.30 | 35.30 | 35.36 | 35.25 |
| R3 | 44.41 | 43.36 | 43.55 | 44.95 | 42.08 |
| R3b | 40.29 | 39.69 | 39.79 | 41.09 | 39.31 |
| R3c | 37.28 | 37.02 | 37.06 | 37.45 | 36.73 |
| R3d | 36.05 | 35.93 | 35.95 | 36.12 | 35.79 |
| R3e | 35.54 | 35.48 | 35.49 | 35.59 | 35.41 |
| R3f | 35.31 | 35.27 | 35.28 | 35.33 | 35.24 |
| R4 | 50.14 | 48.63 | 48.76 | n/a | n/a |
| R5 | 42.42 | 41.62 | 41.70 | n/a | n/a |
| R6 | 41.11 | 40.42 | 40.51 | n/a | n/a |
| R7 | 43.74 | 42.79 | 42.91 | n/a | n/a |

**Table 12.20: Annual $PM_{10}$ modelling results (ug/$m^3$)**

| Receptor | Model A | Model B | Model C | Model D | Model E |
|---|---|---|---|---|---|
| R1 (DT) | 23.11 | 23.10 | 23.13 | 23.23 | 23.10 |
| R2 | 22.08 | 22.07 | 22.08 | 22.15 | 22.06 |
| R2b | 21.63 | 21.62 | 21.63 | 21.72 | 21.66 |
| R2c | 21.30 | 21.29 | 21.30 | 21.32 | 21.30 |
| R2d | 21.15 | 21.15 | 21.15 | 21.16 | 21.15 |
| R2e | 21.08 | 21.08 | 21.08 | 21.09 | 21.08 |
| R2f | 21.05 | 21.05 | 21.05 | 21.05 | 21.05 |
| R3 | 22.16 | 22.15 | 22.16 | 22.24 | 22.14 |
| R3b | 21.66 | 21.65 | 21.66 | 21.77 | 21.71 |
| R3c | 21.30 | 21.30 | 21.30 | 21.33 | 21.30 |
| R3d | 21.15 | 21.15 | 21.15 | 21.16 | 21.15 |
| R3e | 21.08 | 21.08 | 21.08 | 21.09 | 21.08 |
| R3f | 21.05 | 21.05 | 21.05 | 21.05 | 21.05 |
| R4 | 24.15 | 24.15 | 24.18 | n/a | n/a |

| | | | | | |
|---|---|---|---|---|---|
| R5 | 22.40 | 22.40 | 22.41 | n/a | n/a |
| R6 | 21.95 | 21.94 | 21.95 | n/a | n/a |
| R7 | 22.50 | 22.50 | 22.51 | n/a | n/a |

**Table 12.21: Annual $PM_{2.5}$ modelling results (ug/$m^3$)**

| Receptor | Model A | Model B | Model C | Model D | Model E |
|---|---|---|---|---|---|
| R1 (DT) | 12.25 | 12.22 | 12.23 | 12.32 | 12.19 |
| R2 | 11.66 | 11.64 | 11.64 | 11.70 | 11.62 |
| R2b | 11.38 | 11.37 | 11.37 | 11.44 | 11.39 |
| R2c | 11.18 | 11.17 | 11.18 | 11.20 | 11.17 |
| R2d | 11.09 | 11.09 | 11.09 | 11.10 | 11.09 |
| R2e | 11.05 | 11.05 | 11.05 | 11.06 | 11.05 |
| R2f | 11.03 | 11.03 | 11.03 | 11.03 | 11.03 |
| R3 | 11.72 | 11.69 | 11.70 | 11.77 | 11.67 |
| R3b | 11.41 | 11.39 | 11.40 | 11.47 | 11.41 |
| R3c | 11.18 | 11.18 | 11.18 | 11.20 | 11.18 |
| R3d | 11.09 | 11.09 | 11.09 | 11.10 | 11.09 |
| R3e | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 |
| R3f | 11.03 | 11.03 | 11.03 | 11.03 | 11.03 |
| R4 | 12.85 | 12.81 | 12.83 | n/a | n/a |
| R5 | 11.83 | 11.81 | 11.81 | n/a | n/a |
| R6 | 11.57 | 11.55 | 11.56 | n/a | n/a |
| R7 | 11.89 | 11.87 | 11.88 | n/a | n/a |

12.99 The modelling results indicate that if emissions from the UK vehicle fleet do not improve as anticipated receptors on the ground and first floor could be exposed to $NO_2$ levels that are above the annual $NO_2$ objective. Therefore, the impact on receptors is deemed **significant**.

12.100 This would not be the case if emissions improve as predicted; only accommodation on the ground floor are predicted to exceed the annual $NO_2$ objective.

12.101 Concentrations of $PM_{10}$ and $PM_{2.5}$ will be below their relevant NAQO at all receptors.

***Impact assessment***

12.102 The IAQM/EPUK impact descriptor methodology table has been used to assess the likely impact of changes in pollutant concentrations at each receptor from construction traffic (Table 12.8). This methodology is explained in further detail in the IAQM guide "planning for Air Quality.

12.103 In order to assess the likely impact of the Proposed Development the following changes of site use have been assessed, with the impact results presented in Table 12.23.

**Table 12.22: IAQM impact assessment scenarios**

| Scenario | Model | EFT 9.0 Year | Description | | Model # | EFT 9.0 Year | Description |
|---|---|---|---|---|---|---|---|
| 1 | Model B | 2020 | 2020 No Development | vs | Model C | 2020 | 2020 construction traffic |

**Table 12.23: Annual impact assessment**

| | Scenario 1 | | |
|---|---|---|---|
| Receptor | $NO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| R2 | Negligible | Negligible | Negligible |
| R2b | Negligible | Negligible | Negligible |
| R2c | Negligible | Negligible | Negligible |
| R2d | Negligible | Negligible | Negligible |
| R2e | Negligible | Negligible | Negligible |
| R2f | Negligible | Negligible | Negligible |
| R3 | Negligible | Negligible | Negligible |
| R3b | Negligible | Negligible | Negligible |
| R3c | Negligible | Negligible | Negligible |
| R3d | Negligible | Negligible | Negligible |
| R3e | Negligible | Negligible | Negligible |
| R3f | Negligible | Negligible | Negligible |
| R4 | Negligible | Negligible | Negligible |
| R5 | Negligible | Negligible | Negligible |
| R6 | Negligible | Negligible | Negligible |
| R7 | Negligible | Negligible | Negligible |

12.104 The likely impacts associated with the construction traffic from the Proposed Development are predicted to be a **negligible** and therefore **not significant** with respect to all pollutants.

## Assessment of Cumulative Effects

### Intra-Project Cumulative Effects

12.105 As the development is not expected to produce enough traffic to trigger impact assessment criteria, there are no expected effects as a result of operational vehicles movements from the development.

12.106 There are no designated ecological receptors within the vicinity of the site, and as a result, impact on ecological receptors has not been considered.

**Inter-Project Cumulative Effects**

12.33 The impacts of already committed developments have not been considered within this assessment, as the Proposed Developments is not introducing any long-term emissions into the local area and is not having an impact on future background emissions.

## Mitigation of Effects

**Construction Phase Mitigation**

12.107 It is estimated that unmitigated dust from the construction site activities at nearby residential receptors could have a high impact; this is deemed to be a significant impact.

12.108 The 2014 guidance from the IAQM states that implementing mitigation has been proven to be effective at mitigating impacts from large scale operations.

12.109 As a result, it is recommended that mitigation measures which are considered either highly recommended or desirable by the IAQM (ref 12.17), are incorporated into a Dust Management Plan (DMP) and submitted to MCC for approval. This could be secured by a planning condition in the usual way, as necessary.

12.110 As such it is recommended that measures outlined in this guidance are incorporated into a Dust Management Plan (DMP) and submitted to MCC for approval. These measures are given below:

***Highly Recommended***

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by SBC. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time $PM_{10}$ continuous monitoring and/or visual inspections.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to SBC when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.
- Hold regular liaison meetings with other high-risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to SBC when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to SBC when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Agree dust deposition, dust flux, or real-time PM.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary which are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of SBC, where appropriate).
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Avoid bonfires and burning of waste materials.
- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).

- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

***Desirable***

- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

## Operational Phase Mitigation

12.111 It is estimated that unmitigated impacts from traffic levels, not associated with the Proposed Development, could exposure residents to $NO_2$ that are exceeding the annual $NO_2$ objective. This is deemed a significant impact. It is recommended that ground and first floor windows facing the A665 only should be fixed, with mechanical ventilation installed. Air should be drawn from a height greater than then the second floor, ideally roof level.

## Residual Effects

**Construction**

12.112 As the background levels of particulate matter are not approaching their NAQO, relevant IAQM mitigation should be sufficient to reduce the residual impact to **Negligible;** leaving the residual significance of construction impacts as **not significant.**

12.113 As the impact of construction traffic is proposed to be **Negligible** no specific mitigation is required. As a result, the post mitigation impact is proposed to be **Negligible** and residual significance of construction traffic is proposed to be **not significant.**

**Operational**

12.114 In order to prevent the residents of the Proposed Development from being exposed to levels of $NO_2$ that exceed the annual objective, it is recommended that windows are fixed shut and mechanical ventilation used in road side ground and first floor flats. If this is undertaken the residual impact is proposed to be **Negligible;** leaving the impacts on future residents as **not significant.**

12.115 The impacts and residual significance of the Proposed Development are summarised in Table 12.24.

**Table 12.24: Impact and significance summary**

| Construction / Operational | Receptor Type | Impact | Significance | mitigation | Residual Impact | Residual Significance | Duration of Residual impact |
|---|---|---|---|---|---|---|---|
| Construction dust | Nearby residential and commercial | High | Significant | Required - DMP | Negligible | Not significant | short term |
| Construction traffic | Nearby residential | Negligible | Not significant | Not required | Negligible | Not significant | short term |
| Operational | Development Residential | High | Significant | Required – Fixed windows | Negligible | Not significant | Long term |

## References


| | |
|---|---|
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| Ref 12.5 | UNECE, "Air Pollution - Air Pollution - Environmental Policy - UNECE," 2016, http://www.unece.org/env/lrtap/welcome.html. |
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Ref 12.22 Duncan Laxen and Ben Marner, “Analysis of the Relationship Between 1-Hour and Annual Mean Nitrogen Dioxide at UK Roadside and Kerbside Monitoring Sites,” July 2003, https://uk-air.defra.gov.uk/assets/documents/reports/cat06/1hr_NO2_rpt_Final_b.pdf.

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# 13. Noise and Vibration

## Introduction

13.1 This chapter of the ES has been prepared by Hydrock and assesses the likely significant noise and vibration effects associated with the Development at Existing Sensitive Receptors (ESRs) and Proposed Sensitive Receptors (PSRs). The chapter also includes commentary on the suitability of the site for residential development.

13.2 This chapter is supported by the following figures, included in **Vol 3** of this Environmental Impact Assessment (EIA):

- **Figure 13.1:** Existing Sensitive Receptors;
- **Figure 13.2:** Monitoring Locations;
- **Figure 13.3:** Schematic Cross Section;
- **Figure 13.4:** Daytime Noise Levels at the Proposed Development;
- **Figure 13.5:** Night Time Noise Levels at the Proposed Development;
- **Figure 13.6:** Night Time Maximum Noise Levels at the Proposed Development;
- **Figure 13.7:** Daytime Façade Noise Exposure; and,
- **Figure 13.8:** Night Time Façade Exposure.

13.3 This chapter is also supported by the following technical appendices, included in **Vol 4** of this EIA:

- **Appendix 13.1**: Legislative Framework, Policy and Guidance;
- **Appendix 13.2**: Noise Monitoring Results; and,
- **Appendix 13.2**: Construction Noise Predictions.

13.4 This chapter describes the methods used to assess noise and vibration impacts; the current baseline conditions at and in the vicinity of the Proposed Development; the potential direct and indirect noise and vibration impacts associated with the Proposed Development; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed.

## Competence

13.5 This chapter was prepared by Eddy Goldsmith, a Principal Acoustic Consultant at Hydrock Consultants Ltd. (Hydrock), who holds a Bachelor's of Engineering BEng (Hons) degree in Acoustics from the University of Salford, is a full Member of the Institute of Acoustics (MIOA), and has over 6 years of professional consultancy experience.

### Legislative Framework, Policy and Guidance Documents

13.6 A summary of relevant legislation, policy and guidance is provided below, and an appropriate summary is presented in **ES Vol 4 Appendix 13.1.**

## Legislative Framework

13.7 The key legislation relevant to the Development are:

- Control of Pollution Act[13.1], 1974 (COPA); and,
- Environmental Noise (England) Regulations[13.2], 2006

### Policy

***National***

13.8 The following national planning policy is considered applicable:

- National Planning Policy Framework[13.3], 2019; and,
- Noise Policy Statement for England[13.4], 2010.

***Local***

13.9 The following local planning policy is considered applicable:

- Manchester's Local Development Framework – Core Strategy[13.5], 2012; and,
- Manchester Unitary Development Plan – Extant Policies[13.6], 1995.

### Guidance

***International***

13.10 The following international guidance is considered applicable:

- World Health Organisation (WHO) Guidelines for Community Noise[13.7], 1999.

***National***

13.11 The following national guidance is considered applicable:

- Planning Practice Guidance (Live Document)[13.8];
- British Standards 5228:2009 + A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise[13.9] and Part 2: Vibration[13.10] (BS5228-1 and -2);
- BRE Controlling particles, vapour and noise pollution from construction sites[13.11] (Part 1 to 5), 2003;
- Design Manual for Roads and Bridges[13.12], Volume 11, Section 3, Part 7, 2011 (DMRB);
- British Standards 8233: 2014[13.13] 'Sound insulation and noise reduction for buildings – Code of practice' (BS8233);
- Professional Practice Guidance: Planning and Noise[13.14], 2017 (ProPG);
- British Standard 4142:2014 + A1:2019[13.15] 'Methods for rating and assessing industrial and commercial sound' (BS4142);
- British Standard 6472-1:2008[13.16] 'Guide to evaluation of human exposure to vibration in buildings. Part 1: Vibration sources other than blasting' (BS6472);
- Department of Transport – Calculation of Road Traffic Noise[13.17] ,1988 (CRTN);
- Institute of Environmental Management and Assessment (IEMA) – Guidelines for Environmental Noise Impact Assessment[13.18], 2014.

***Local***

13.12 The following local guidance is considered applicable:

- Manchester City Council Planning and Noise – Technical Guidance[13.19], 2015.

## Assessment Methodology

**The Study Area**

13.13 The study area for the assessment includes ESRs identified in **Table 13.1** and **ES Vol 3 Figure 13.1**, the Proposed Development and relevant cumulative schemes which are set out within **ES Vol 4 Appendix 5.2 Cumulative Schemes January 2020**.

**Table 13.1: Existing Sensitive Receptors**

| Receptor | Description | Building Occupancy | Bearing from Site | Distance from Site |
|---|---|---|---|---|
| ESR1 | Islington Wharf | Residential | North | 80m |
| ESR2 | 2-6 Chapeltown Street | Residential | North west | 25m |
| ESR3 | GBM Group | Offices | South west | 25m |
| ESR4 | Armstrong Office Furniture | Retail shop | South | 10m |
| ESR5 | Ibis Hotel | Residential | North east | 20m |

13.14 For the purposes of this assessment, the occupants of ESRs in the vicinity of the Proposed Development are considered to be the receptors most likely to be affected by noise associated with construction and demolition phase, and operation phase of the Proposed Development.

**Baseline Surveys**

***Desk Based Research***

13.15 The potential major sources of noise contributing to baseline conditions were identified through a desktop study of the Proposed Development Site and surrounding land uses using available maps and aerial photography. Road traffic on Great Ancoats Street, tram movements on the nearby Metrolink Line, and the remainder of the local transport network were identified as major sources of noise contributing to the baseline environment.

***Noise and Vibration Surveys***

13.16 Unattended noise monitoring was undertaken at the Proposed Development Site, between 08:30 on 2 November 2018 and 07:30 on 5 November 2018. Vibration monitoring was also undertaken at the Proposed Development Site between 13:00 on 17 January 2020 and 13:00 20 January 2020.

***Noise***

13.17 Noise measurements were undertaken at two Monitoring Locations (MLs) as shown in **ES Vol 3 Figure 13.2**:

- ML1: Adjacent to the north eastern site boundary and Great Ancoats Street. This location was selected to be representative of PSRs in the northern part of the site and ESRs closest to, and with a direct line of sight to, Great Ancoats Street; and,
- ML2: In the southern part of the site, with direct line of sight to the local road network and nearby commercial premises to the south of the Site. This location was selected to be representative of PSRs in the southern part of the site.

13.18 The noise measurements were made using two Class 1, integrating sound level meters. The microphones were mounted out of 2nd floor windows of the existing building, at a height of approximately 10m above ground and at 1m from the existing façade. The sound level meters were calibrated to a reference level of 94dB at 1kHz both before, and on completion of, the noise survey. No drift in the calibration was noted during the survey (<0.5 dB).

13.19 A-weighted $L_{eq}$ noise levels were measured to comply with the requirements of BS8233. A-weighted $L_{90}$ and $L_{10}$ noise levels, together with the maximum and minimum sound pressure levels, were also measured to provide additional information. The measured noise levels are set out in full in **ES Vol 4 Appendix 13.2 Monitoring Results**.

13.20 Noise measurements were supplemented with weather monitoring. The weather conditions recorded during the survey were as follows:

- Wind speed between 0ms$^{-1}$ and 1.5ms$^{-1}$;
- Negligible precipitation; and,
- Temperature between 4˚C and 16˚C.

***Vibration***

13.21 Noise measurements were undertaken at one Monitoring Location (ML) as shown in **ES Vol 3 Figure 13.2**:

- ML3: In the western corner of the site, closest to the Metrolink line between Piccadilly and New Islington stations. This location was selected to be representative of PSRs closest to, and most likely to be affected by, tram movements on the Metrolink line.

13.22 Vibration measurements were taken using a 01dB ORION triaxial transducer which coupled to the existing external concrete floor slab at the Proposed Development Site. Measurements were carried out at an approximate perpendicular distance of 10m, from the closest Metrolink line.

## Consultations

13.23 A request for a scoping opinion was submitted to Manchester City Council (MCC) detailing the proposed scope of works to be included within the assessment. The potential noise and vibration impacts outlined within the scoping document were agreed, as set out below:

***Construction and Demolition Phase***

- An assessment will be undertaken to determine the impact of noise and vibration associated with construction activities on nearby ESRs. The assessment will be carried out in accordance with guidance provided within BS5228-1:2009.
- The significance of construction noise and vibration effects will be determined through the guidance of BS 5228 Part 1 Annex E and BS 5228 Part 2. The assessment of noise levels due to construction activity and their significance of effects will be dependent on the prevailing ambient and construction noise levels, as well as the magnitude, duration, time of occurrence and frequency of the noise change.

***Operational Phase***

- An assessment of the impact of operational noise sources, such as external fixed plant, externally exhausting plant and any equipment associated with the Proposed Development at existing noise sensitive receptors, the Proposed Development itself and the Associated Development will be undertaken using measurement data collected during field studies, and design documentation for any fixed equipment proposed.
- Consideration will be given to existing and potential increases in road traffic noise with regard to impact on existing receptors and the Proposed Development and Associated Development, it should be noted that as the Proposed Development does not include a car park there is not at present expected to be significant increases in road traffic directly as a result of proposals.

13.24 A scoping opinion letter was received from MCC, together with relevant feedback from other relevant bodies and individuals, with regards to noise and vibration, summarised as follows:

***Opinion on Scope of an Environmental Statement – MCC, 12 November 2018***

- *"… The ES needs to take account of noise and vibration associated with the tramway. It should be noted that the existing arrangement includes switches and crossings and these could be introduced into the proposed future Metrolink works as part of further design development (switches and crossings would typically generate higher noise levels than plain line)."*
- *"The development is in close proximity to the Metrolink Gt Ancoats Street Tunnel and approach retaining walls. Accordingly [Transport for Greater Manchester] TfGM will require a fully developed cross section to be drawing to indicate the relationship between the tunnel/retaining walls and the new building (including its foundations/basement). Conditions are likely to be requested to cover a construction management plan (working safely near Metrolink) and to require monitoring of the Metrolink infrastructure during construction."*

13.25 In response to the above comments, relating to noise and vibration, further consultation was carried out with Sue Jones, Environmental Health Officer at MCC. It was agreed that vibration from the Metrolink line should be assessed, however noise associated with existing or proposed Metrolink switches and crossings can be screened out of the assessment. This was discussed via telephone and subsequently the following statement was agreed via email:

***Email Consultation – Sue Jones of MCC, 23 January 2019***

*13.26* The proposed development site is located approximately 10m from the existing Metrolink line at Great Ancoats Street Tunnel, between New Islington and Piccadilly stations. The closest Metrolink switches and crossings to the site have been identified as approximately 200m to the south west, around the entrance/exit to Piccadilly Station. Given the separation distance, it is unlikely that noise associated specifically with these switches and crossings would affect the site. Although there are general plans to expand the current Metrolink network across Greater Manchester, there are no details regarding specific locations of improvement or expansion. Furthermore, as the closest section of Metrolink line to the site is situated underground, at the Great Ancoats Street Tunnel, it is considered unlikely that any additional switches or crossings would occur along this section (or within at least 100m of the proposed development site). Therefore, based on current information, any potential noise impacts associated with additional switches and crossings to be implemented along the Metrolink line, between New Islington and Piccadilly Station, are considered to be negligible.

13.27 To summarise, the agreed scope of this ES chapter is as follows:

- The potential effects of noise and vibration associated with the demolition and construction phase, at ESRs;
- The potential effects associated with existing noise and vibration sources, on PSRs at the Proposed Development;
- The potential impact of changes in noise environment, as a result of the Proposed Development, at ESRs and PSRs.

## Significance Criteria

**Construction and Demolition Phase**

13.28 The generic construction sequence of works which are considered to be the most likely to give rise to significant noise effects can be divided into three specific activities:

- Demolition;
- Enabling Works;
- Piling;
- Building Construction; and,
- Landscaping and External Infrastructure Works.

13.29 The likely significant effects of noise from construction and demolition works have been assessed in accordance with the 'ABC Method' of BS5228-1.

13.30 This method defines category threshold values which are determined by the time of day and existing monitored ambient noise levels in the vicinity of ESRs (rounded to the nearest 5dB). Noise likely to be generated by construction and demolition activities, known as the 'total noise level', is then compared with the 'threshold value'. If the total noise level exceeds the 'threshold value', a significant effect is deemed likely to occur.

13.31 **Table 13.2** summarises the significance effect threshold values at receptors, recommended by BS5228-1. The relevant statistics

**Table 13.2: Thresholds of Significant Effect at Residential Receptors in Accordance with the ABC Method of BS5228-1**

| Assessment Category and Threshold Value Period ($L_{Aeq,T}$) | Threshold Value, dB | | |
|---|---|---|---|
| | Category A *1 | Category B *2 | Category C *3 |
| Weekday Daytime (07:00 to 19:00) and Saturdays (07:00 to 13:00) | 65 | 70 | 75 |

*1 Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than this value.

*2 Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.

*3 Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are more than this value.

***Construction and Demolition Vibration***

13.32 Damage to buildings associated solely with groundborne vibration is uncommon, and although vibration may be noticeable, there is little evidence to suggest that cosmetic damage can occur, such as a crack in plaster, unless the magnitude of the vibration is extremely high. The most likely impact, where elevated levels of vibration do occur during the demolition and construction phases of development, is associated with perceptibility.

13.33 Where groundborne vibration is of a relatively continuous nature, there is a greater likelihood of structural damage occurring, compared to transient vibration; for example, that caused by transiting vehicles or piling. The only current national guidance document which provides a methodology for predicting levels of vibration from construction activities is BS5228- 2. The prediction method provided relates specifically to percussive, or vibratory, rolling and piling only.

13.34 Therefore, it is not possible to accurately predict levels of vibration during the Site preparation and the construction phase of Development. However, vibration impacts during Site activities other than piling are uncommon. As such, to control the impact of vibration during Site preparation and construction of a Development, limits relating to the perceptibility of vibration are typically set.

13.35 Piling is likely to be required during the construction of the Proposed Development therefore, a prediction of vibration associated with potential piling at nearby ESRs has been included within this assessment.

13.36 As stated in BS5228-2 and as generally accepted, the threshold of vibration perception for humans is typically in the Peak Particle Velocity (PPV) range of 0.14 $mms^{-1}$ to 0.3mm/s, which forms the basis of the recommend maximum permitted vibration levels of 1 $mms^{-1}$ PPV within occupied residential dwellings.

13.37 BS5228-2 also sets out the distances (based on historical field measurements) at which certain activities could give rise to a just perceptible level of vibration. These distances are presented in **Table 13.3**.

**Table 13.3: Distance at which Vibration may just be Perceptible**

| Construction activity | Distance from activity when vibration may just be perceptible, metres |
|---|---|
| Excavation | 10-15 |
| Heavy Vehicles (e.g. dump trucks) | 5-10 |
| Hydraulic Breaker | 15-20 |
| Rotary Bored Piling | 20-30 |

**Table 13.4:**

***Operational Phase Road Traffic***

13.38 DMRB provides guidance on defining the magnitude of noise impacts associated with changes in road traffic flows, related to the Proposed Development.

13.39 The magnitude of effect can be determined on the basis of a change in road traffic noise level, in terms of $L_{Aeq, 18hour}$, as detailed in **Table 13.3.** However, it is considered that the absolute level of road traffic noise is also relevant in the determining of noise impacts.

**Table 13.5: Short-Term and Long-Term Magnitude of Change in Road Traffic Noise, according to DMRB**

| Level of Magnitude | Short Term Change in Noise Level $L_{A10,18hour}$ dB | Long Term Change in Noise Level $L_{A10,18hour}$ dB | Significance of Impact – as described in DMRB |
|---|---|---|---|
| High | ≥5.0 | ≥10.0 | Major |
| Moderate | 3.0-4.9 | 5.0-9.9 | Moderate |
| Low | 1.0-2.9 | 3.0-4.9 | Minor |
| Negligible | 0.1-0.9 | 0.1-2.9 | Negligible |
| | 0.0 | 0.0 | No Change |

***Building Services Noise***

13.40 Noise levels from building services plant associated with the Development would need to be controlled to ensure that it would not have an adverse effect on PSRs, relative to the background noise level. Criteria for the assessment are set in accordance with BS 4142:2014. Using the baseline noise levels recorded at existing and future sensitive

receptors, noise limits for building services plant have been calculated to ensure the requirements are met.

***Vibration from Metrolink***

13.41 An assessment of vibration attributed to movements on the Metrolink line to the west of the site is included within this assessment.

13.42 The potential impact of vibration from passing trams has been measured at a location closest to the Metrolink line. The measured Vibration Dose Value (VDV) vibration levels have been compared against the criteria in BS6472, described below in **Table 13.5**.

**Table 13.6: Vibration dose value ranges which might result in various probabilities of adverse comment within residential buildings**

| Description | Low probability of adverse comment, $m/s^{-1.75}$ | Low probability of adverse comment, $m/s^{-1.75}$ | Low probability of adverse comment, $m/s^{-1.75}$ |
|---|---|---|---|
| Residential buildings during the daytime (07:00 to 23:00) | 0.2 to 0.4 | 0.4 to 0.8 | 0.8 to 0.16 |
| Residential buildings during the daytime (23:00 to 07:00) | 0.1 to 0.2 | 0.2 to 0.4 | 0.4 to 0.8 |

***Magnitude of Effect***

13.43 **Table 13.6** describes the magnitude of noise and vibration impact effects. These magnitude descriptors are based upon IEMA Guidelines for Environmental Noise Impact Assessment, and the descriptions based on the Noise Exposure Hierarchy in PPG-Noise.

**Table 13.7: Magnitude of Impact**

| Descriptor | Description |
|---|---|
| Large | Impact resulting in a considerable change in baseline environmental conditions predicted either to cause statutory objectives to be significantly exceeded or to result in severe undesirable/desirable consequences on the receiving environment. |
| Medium | Impact resulting in a discernible change in baseline environmental conditions predicted either to cause statutory objectives to be marginally exceeded or to result in undesirable/desirable consequences on the receiving environment. |

| Descriptor | Description |
|---|---|
| Small | Impact resulting in a change in baseline environmental conditions with undesirable/desirable conditions that can be tolerated. |
| Negligible | No discernible change in baseline environmental conditions. |

***Sensitivity of Receptor***

**Table 13.8: Sensitivity of Receptor**

| Descriptor | Description |
|---|---|
| High | Receptor/resource has little ability to absorb change without fundamentally altering its present character, or of international or national importance. For example, hospitals, residential care homes, and internationally and nationally designated nature conservation sites which are also known to contain noise sensitive species (i.e. noise may change breeding habits or threaten species in some other way). |
| Medium | Receptor/resource has moderate capacity to absorb change without significantly altering its present character. For example, residential dwellings, offices, schools, and play areas. Locally designated nature conservation sites which are also known to contain noise sensitive species (i.e. noise may change breeding habits or threaten species in some other way). |
| Low | Receptor/resources is tolerant of change without detriment to its character or is of low or local importance. For example, industrial estates. |
| Negligible | Receptor/resource is not sensitive to noise. |

***Significance of Effect***

13.44 The significance of effect is determined by the interaction between magnitude of impact (**Table 13.6**) and sensitivity of receptor (**Table 13.7).** Magnitude descriptors are based upon IEMA Guidelines for Environmental Noise Impact Assessment, and the descriptions based on the Noise Exposure Hierarchy in PPG-Noise.

**Table 13.9: Significance of Effect Matric, according to IEMA Guidelines**

| **Magnitude of Effect** | **Sensitivity of Receptors** | | | |
|---|---|---|---|---|
| | High | Medium | Low | Negligible |
| **High** | Very Substantial | Substantial | Moderate | Minor |
| **Medium** | Substantial | Substantial | Moderate | None |

| | | | | |
|---|---|---|---|---|
| **Small** | Moderate | Moderate | Slight | None |
| **Negligible** | Minor | None | None | None |

13.45 The threshold between insignificant and significant lies between *'Moderate'* and *'Substantial'* as identified within **Table 13.8**. Moderate impacts may be noticeable and intrusive but may cause a small change in behaviour. Whereas Substantial impacts are likely to be noticeable and disruptive, and might cause a material change in behaviour or attitude.

## Baseline Conditions

### Existing Baseline Conditions

***Noise (2018)***

13.46 Observations made at the site during the noise and vibration surveys allowed any significant existing noise sources which contribute the measured levels, to be identified. The observations identified the following:

- **Road Traffic Noise:** Noise from road traffic on Great Ancoats Street was dominant across the development Site.
- **Metrolink Noise:** Noise from Metrolink movements was occasionally audible, but not dominant, during quieter periods; and,
- **Other:** No noise from ancillary equipment associated with nearby commercial premises was observed to be audible.

13.47 Measured noise levels at each ML have been separated in to daytime (07:00 to 23:00 hours) and night-time (23:00 to 07:00 hours) categories, as appropriate.

13.48 Where possible 16-hour daytime and 8 hour night-time periods were measured, however daytime noise monitoring undertaken on Friday 2 November 2018 covered a 14.5-hour period (08:30 to 23:00). This average noise levels measured during the 14.5-hour measurement period is considered to be representative of a 16-hour daytime, for the purposes of this assessment. $L_{Aeq,16hour}$ and $L_{Aeq,\ 8hour}$ values measured at ML1 and ML2 are presented in **Table 13.8** and **Table 13.10**, respectively.

13.49 Noise monitoring results are presented in **ES Vol 4 Appendix 13.2.**

**Table 13.10: Summary Noise Levels – Monitoring Location 1**

| Day | Period | Time | dB $L_{Aeq,T}$ |
|---|---|---|---|
| Friday (02/11/2018) | Day | 08:30-23:00 | 77 |
| | Night | 23:00-07:00 | 74 |
| Saturday (03/11/2018) | Day | 07:00-23:00 | 76 |
| | Night | 23:00-07:00 | 74 |

| | | | |
|---|---|---|---|
| Sunday (04/11/2018) | Day | 07:00-23:00 | 75 |
| | Night | 23:00-07:00 | 73 |

**Table 13.11: Summary Noise Levels – Monitoring Location 2**

| Day | Period | Time | Average dB $L_{Aeq,T}$ |
|---|---|---|---|
| Friday (02/11/2018) | Day | 08:30-23:00 | 61 |
| | Night | 23:00-07:00 | 58 |
| Saturday (03/11/2018) | Day | 07:00-23:00 | 62 |
| | Night | 23:00-07:00 | 59 |
| Sunday (04/11/2018) | Day | 07:00-23:00 | 60 |
| | Night | 23:00-07:00 | 56 |

13.50 The highest measured daytime and night time, noise levels are taken to be representative of typical $L_{Aeq,\ 16hour}$ and $L_{Aeq,\ 8hour}$

13.51 The typical measured night time maxima at ML1 and ML2 are summarised in **Table 13.11**. Measured night time $L_{AFmax}$ levels which are not representative of typical noise environment, including passing emergency vehicles, have been eliminated from this assessment, in accordance with ProPG and BS8233.

**Table 13.12: Summary of Typical Night Time Maxima**

| Monitoring Location | Typical Night Time $L_{AFmax}$ |
|---|---|
| ML1 | 89 |
| ML2 | 74 |

***Vibration (2020)***

13.52 The measured vibration levels at ML3, expressed in terms of daytime and night time Vibration Dose Values (VDV), are presented in **Table 13.12** below.

**Table 13.13: Summary Vibration Levels – Monitoring Location 3**

| Description | Measured VDV $mms^{-1.75}$ | | |
|---|---|---|---|
| | X | Y | Z |
| Daytime VDV – 17/01/20* | 0.0025 | 0.0192 | 0.0316 |
| Night Time VDV – | 0.0026 | 0.0193 | 0.0338 |
| Daytime VDV – 18/01/20 | 0.0026 | 0.0193 | 0.0341 |
| Night Time VDV – | 0.0025 | 0.0023 | 0.0332 |
| Daytime VDV – 19/01/20 | 0.0025 | 0.0023 | 0.0333 |
| Night Time VDV – | 0.0024 | 0.0021 | 0.0286 |
| Daytime VDV – 20/01/20* | 0.0025 | 0.0021 | 0.0300 |

*Denotes estimated daytime VDV values based on the measured hourly daytime

## Anticipated Future Baseline Conditions

### Operation (2022)

13.53 Traffic flow data for the section of Great Ancoats Street adjacent to the Proposed Development Site has been obtained from the Department for Transport (DfT) website (Site Number: 7857).

13.54 Manual traffic counts undertaken by DfT in 2018 indicate that this section of road facilitates 34,518 vehicles, in terms of Annual Average Weekday Traffic (AAWT), 2% of which are Heavy Goods Vehicles (HGVs).

13.55 2022 baseline AAWT traffic data has been predicted based on the 2018 AAWT data described above, with the application of a TEMPro growth factor for that region (1.0505), which represents a 5% increase in AAWT traffic flow. A change in average traffic flows of 5% would be imperceptible, and equate to a change of <0.5dB.

13.56 Therefore, the measured noise levels are considered to be representative of the future noise environment when the Proposed Development is operational.

## Assessment of Effects

### Matters Scoped Out

***Development Generated Road Traffic***

13.57 The Proposed Development provides no on-site parking, therefore there will be no development generated road traffic associated with the scheme. Furthermore, the existing site includes parking provisions for the current occupiers, The Safe Deposit Centre, therefore a net-decrease in traffic flows associated with the Proposed Development is predicted to occur.

13.58 No specific assessment of development generated road traffic is therefore required.

***Existing Commercial/Industrial Noise***

13.59 The results of the noise survey, including a review of audio recordings, indicates that no existing commercial/industrial noise sources are audible at the Proposed Development Site.

13.60 Therefore, no specific assessment of existing commercial/industrial noise is required.

## Limitations and Assumptions

13.61 To reduce the level of uncertainty within the assessment the following steps have been taken:

- Road traffic noise at existing and proposed receptors have been predicted using CadnaA, taking into account 1st and 2nd order reflections from buildings and other large surfaces;

- All noise sources measured during the survey are considered to be typical of the surrounding noise environment;
- Rail noise predictions do not account for any potential future changes to the adjacent rail network;
- The noise and vibration measurement locations were selected to be representative of the noise level at the closest point of the receptors to existing sources;
- The distance between the source and nearest receptors has been measured from scale plans;
- Noise measurements were undertaken during suitable weather conditions, during the proposed operational hours of the Development; and,
- Noise measurements were made using Class 1, integrating sound level meters, which are accurate to 0.1dB;

13.62 Demolition and construction noise and vibration assessments are based on predicted equipment schedules and timing anticipated to be used on a development of this scale for Piling and Building Façade and Structure Construction.

13.63 Further assessment of impacts may be required, once formal demolition and construction phasing and equipment proposals are available, should proposals deviate from those included within this assessment.

## Embedded Mitigation

13.64 Noise associated with proposed commercial unit is to be controlled through standard construction techniques, based on the standard requirements of MCC for noise break-out and internal noise transfer.

## Assessment of Construction Phase Effects

### Noise from Demolition and Construction Activities

13.65 The activities associated with the demolition and construction phase of the Proposed Development have the potential to generate noise and generate some impact on the surrounding area. The effects are varied and are complicated further by the nature of the Site works, which would be characterised by mobile noise sources that would change location throughout the construction period. The duration of construction works is also an important consideration. Higher noise levels may be acceptable if it is known that the levels would occur for a limited period.

13.66 During the demolition and construction phase, any work carried out at the Site is likely to generate noise that may propagate beyond the boundary of the Site. Detailed information regarding the nature and timescales of activities likely to take place during the demolition and construction phase are not currently available, however a noise assessment has been carried out based on predicted equipment schedules and timing anticipated to be used for a development of this scale, as detailed in **ES Vol 4 Appendix 13.3**.

13.67 Activities on the Site that could give rise to construction related noise impacts include (but are not limited to) the following:

- Demolition and site preparation (e.g. demolition, ground excavation, levelling of ground, trenching, trench filling, unloading and levelling of hardcore and compacting filling); and,
- Construction activities, including piling, the creation of access roads, fabrication processes (e.g. planning, sanding, routing, cutting, drilling and laying foundations).

13.68 The contractor undertaking the enabling and construction works has not yet been appointed, therefore, for the purposes of this assessment it is assumed that the enabling and construction works will be restricted to daytime hours (i.e. between 08:00 and 18:00 hours Monday to Friday and 08:00 to 13:00 hours on a Saturday, with no work on Sunday and Bank Holidays). Based upon the expected ambient noise levels during the daytime period, the appropriate category value has been determined for ESRs detailed in **Table 13.1**.

13.69 Based on measured $L_{Aeq, 16hour}$ noise levels at the site, as detailed in **Table 13.9** and **Table 13.10**, the appropriate category value for each of the ESRs has been determined and the 'in principle' demolition and construction noise levels assessed as presented in **ES Vol 4 Appendix 13.3**. The assessment indicates that average noise levels associated with demolition and construction is likely to result in a **negligible** impact at all nearby ESRs.

13.70 Transient noise associated with demolition and construction may result in short-term **moderate** impacts, prior to the implementation of any mitigation measures. However suitable mitigation measures (as discussed within the Mitigation Measures section) would, therefore, be identified and implemented to reduce the significance of the effect.

### Vibration from Demolition and Construction Activities

13.71 The nearest ESRs to the proposed construction works, as detailed in **Table 13.1** would vary depending upon the part of the Development under construction. As a worst-case scenario, earthworks and construction works may potentially take place at a distance less than 10m from existing residential properties. At this distance, it is considered possible that vibration due to the operation of construction machinery may be above the threshold of complaint. However, this would be transient only and for very limited periods during the works.

13.72 It is likely that piling would be required given the nature of the Proposed Development. At this time, the type(s) of piling to be used during the construction phase is not known and it is likely that the contractor responsible for undertaking construction works at the Site would decide the appropriate method of piling required.

13.73 BS5228-2 recognises that the most common form of vibration associated with piling is the intermittent type derived from conventional driven piling. The intensity of vibration disturbance, which may be registered at a receptor, would be a function of many factors. These are set out in BS5228-2 and include:

- Energy per blow or cycle;
- Distance between source and receptor;

- Soil structure interaction (i.e. nature of connection between soil and structure being monitored); and,
- Construction of structure and location of measuring points (e.g. soil surface, building foundation and internal structural element).

13.74 As the responsible contractor has not yet been appointed, detailed information regarding the above is not known. However, the proposed bridge between the northern and southern developable areas of the development Site is considered likely to be constructed using piling techniques.

13.75 Typically, modern construction methods would implement either Continuous Flight Auger (CFA) piling or rotary bored piling techniques. These methods use trawler mounted drill rigs to insert the pile in to the ground, and do not use vibratory hammers. These methods therefore don't emit high intensity transient vibration and generally emit low level constant vibration.

13.76 It is considered likely that either CFA or rotary bored piling methods will be used during the construction of the Development. However, a 'worst case' prediction of vibration impact, as a result of vibratory hammer driven piles being used, has been carried out at the nearest existing residential receptor, using the methodology outlined within Annex E of BS5228-2.

13.77 The prediction assumes the following:

- 33% probability that predicted PPV will be exceeded. Kv = 126;
- The piling rig (vibratory hammer) is located in at the location of the proposed bridge. x=70; and,
- 'All operations' criterion is used from BS5228-2. Δ=1.3. Less impact is likely during 'start up' and 'run down' situations. More impact is likely during steady state operation.

13.78 The predicted worst case PPV at ESR4, Armstrong Office Furniture, is 0.5 $mms^{-1}$. In accordance with BS5228-2, this indicates that vibration might just be perceptible at this ESR. Furthermore, this predicted level is significantly less than the guideline value for the threshold of building damage, outlined within BS7385-2.

13.79 The vibration level of the construction works is likely to result in an impact between **moderate** and **negligible** (i.e. not significant).

*13.80 Noise from Construction Phase Traffic*

13.81 Based on currently available information, development generated road traffic associated with the construction phase is likely to be less than 10% of baseline traffic flows (assuming a 'worst case scenario' of approximately 100HGV movements per day).

13.82 Noise arising from changes in traffic flows as a result of the Proposed Development affecting existing residents within the local area have been assessed on this basis.

13.83 Using this assumption, any increase in road traffic noise associated with the constriction phase would be less than 1dB, and therefore be imperceptible. This would result in a **negligible** impact (i.e. not significant).

## Assessment of Operational Phase Effects

### Site Suitability – Noise Levels in Gardens

13.84 The Proposed Site Plan indicates that a shared residential garden will be constructed at 2nd floor level.

13.85 Measured daytime ambient noise levels attach site range between 77dB and 62dB $L_{Aeq, 16hour}$ and exceed the recommended upper guideline level of 55dB provided by BS8233. However BS8233 also recognises that guideline values are not achievable in all situations, stating:

*"… it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as convenience of living in the locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve lowest practicable levels in the external amenity spaces, but should not be prohibited.*

*Other locations such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate…"*

13.86 The potential noise impact within the proposed garden is considered to be **negligible** (i.e. **not significant**), as it is not a requirement of current guidance, when considering the site in context.

13.87 However, a perimeter screen is proposed to be implemented as part of the scheme which would provide some reduction to noise levels within the proposed residential garden, and improving functionality for residents.

### Site Suitability – Daytime Internal Noise Levels

13.88 **Figure 13.4** shows the daytime $L_{Aeq,16hour}$ noise levels affecting the Proposed Development, and **Table 13.13** summarises the attenuation requirements for living rooms and bedrooms during the daytime period.

**Table 13.14: Daytime Façade Noise Levels at Proposed Development and Required Attenuation**

| Proposed Sensitive Receptors | Daytime Façade Level, $L_{Aeq,T}$ dB | Minimum Composite Sound Reduction of Façade, $D_w$ dB |
|---|---|---|
| Proposed sensitive receptors on the north eastern façade of the Development, closest to and with a direct line of sight to Great Ancoats Street. **ML1.** | 77 | 42 |
| Properties on the south western façade of the proposed development, screened from Great Ancoats Street. **ML2** | 62 | 27 |

13.89 Without the implementation of mitigation measures the potential impacts within living rooms and bedrooms during the daytime would be would be **substantial (significant)**. Mitigation measures required to reduce potential effects to an acceptable level are explored the mitigation of effects section of this Chapter.

**Site Suitability – Night Time Internal Noise Levels**

13.90 **Figure 13.5** shows the daytime $L_{Aeq,16hour}$ noise levels affecting the Proposed Development, and **Table 13.14** summarises the attenuation requirements for living rooms and bedrooms during the daytime period.

**Table 13.15: Night Time Façade Noise Levels at Proposed Development and Required Attenuation**

| Proposed Sensitive Receptors | Night Time Façade Level, $L_{Aeq,T}$ dB | Maximum Night-time Façade Noise Level, $L_{Aeq,T}$ dB | Minimum Composite Sound Reduction of Façade, $D_w$ dB |
|---|---|---|---|
| Proposed sensitive receptors on the north eastern façade of the Development, closest to and with a direct line of sight to Great Ancoats Street. **ML1.** | 74 | 89 | 44 |
| Properties on the south western façade of the proposed development, screened from Great Ancoats Street. **ML2** | 59 | 74 | 29 |

13.91 Without the implementation of mitigation measures the potential impacts within bedrooms during the night time would be would be **substantial (significant)**. Mitigation measures required to reduce potential effects to an acceptable level are explored the mitigation of effects section of this Chapter.

### Noise from Proposed Commercial Activities

13.92 The operation of the commercial premise at ground floor level has the potential to cause a noise impact at PSRs once occupied, therefore an industrial noise impact assessment has been carried out in accordance with BS4142.

13.93 Details regarding potential occupiers of the commercial unit and associated noise outputs are unavailable. It is considered likely that operations associated with the commercial units would include the following activities:

- Loading / unloading of deliveries; and,
- Atmospheric noise emissions from externally mounted plant (i.e. ventilation/chillers).

13.94 As details of proposed noise sources are not currently available, associated noise emissions cannot be stated. It is therefore considered to be more appropriate to set a noise 'limit' for future operations, to be maintained at the boundary of ESRs and PSRs.

13.95 Any tonal, impulsive or intermittent noise that might be audible at the existing and/or future sensitive receptors should be designed out through the use of appropriate mitigation measures. Mitigation measures would need to be identified and applied on a case-by-case basis.

13.96 If it is not possible to mitigate against such acoustic features, then an appropriate weighting must be applied to the specific noise in accordance with BS4142. At this stage of the design, no weighting would be applied to the noise level limit. However, standard ventilation/cooling systems associated with commercial units typically do not contain any characteristics which are readily distinctive above the residual acoustic environment, in a city centre context.

13.97 Without the implementation of mitigation measures associated impacts at PSRs have the potential to be between **substantial (significant)** and **negligible (not significant),** depending upon the details of proposed ancillary equipment.

13.98 Standard mitigation measures will be incorporated into the site design as appropriate, to ensure the noise impacts of the proposed premise are reduced to acceptable levels at the ESRs and PSRs. The detailed design of the areas described will include mitigation measures to reduce noise levels generated wherever practicable.

### Vibration from Metrolink

13.99 The measured vibration levels at the Site are significantly less than the criteria for low probability of an adverse effect, in accordance with BS6472. Therefore, the potential impacts are considered to be **negligible** (i.e. not significant) and no specific mitigation measures are required to reduce vibration at PSRs.

## Assessment of Cumulative Effects

### Intra-Project Cumulative Effects

13.100 In order to determine the intra-project cumulative effects, it is necessary to consider which effects will occur at the same time. In this respect, noise due to demolition and construction, and vibration due to demolition and construction, as well as traffic noise from demolition and construction will occur at the same time and it is therefore necessary to assess the cumulative effects of these.

13.101 Noise associated with construction traffic movements, and operations during the demolition and construction phase are intermittent in nature. Therefore, the likelihood of multiple sources affecting the site simultaneously is relatively low.

13.102 Furthermore, impacts associated with the demolition and construction phase are predicted to be **negligible**, in accordance with current guidance, therefore no additional affects are likely to occur as a result of cumulative impacts, during this phase.

13.103 In conjunction with the predicted demolition and construction noise levels which are currently predicted to at present to not increase existing ambient noise levels, the effect of the combination of both sources of noise is considered to be short-term of negligible magnitude and significant, and therefore no more significant than for demolition and construction noise alone.

### Inter-Project Cumulative Effects

13.104 Inter-project cumulative effects have been assessed based on a review of the consented schemes in the surrounding areas as listed at **ES Volume 4: Appendix 5.2**. Given that the Proposed Development is predicted to generate **negligible** impacts, in accordance with current guidance, it is considered that any impacts associated with committed schemes would have been considered sufficiently within their respective planning submissions.

## Mitigation of Effects

### Noise from Demolition and Construction

13.105 In order to reduce the potential impact of noise generated by the demolition and construction phase of the proposed Development at ESRs, mitigation measures will be required. Methods of best working practice should be implemented.

13.106 The construction works would follow the guidelines in BS5228-1 and the guidance in BRE Controlling particles, vapour and noise pollution from construction sites, Parts 1 to 5, 2003. The following measures will be put in place to minimise noise emissions and implemented via a Construction Environmental Management Plan (CEMP):

- When works are taking place within close proximity to the sensitive receptors identified, the screening of noise sources via the erection of temporary screens would be employed;
- All machinery will be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers;

- Site staff will be made aware that they are working adjacent to a sensitive area and avoid all unnecessary noise due to misuse of tools and equipment, unnecessary shouting and radios;
- As far as possible, the avoidance of two noisy operations occurring simultaneously in close proximity to the same sensitive receptor;
- Adherence to any time limits imposed on noisy works by the local authority;
- Implement set working hours during the week and at weekends;
- Ensure engines are turned off when possible; and
- Should demolition and construction activities need to be carried out during night-time hours, the local authority may include a planning condition that requests advance notice and details of any night working to provided.

**Vibration from Demolition and Construction**

13.107 BS5228-2 recognises that the most common form of vibration associated with piling is the intermittent type derived from conventional driven piles. Whilst it is recognised that the piling process would need to be selected on the basis of the strata to be encountered, the loads to be supported and the economics of the system, careful consideration (by the appointed developer(s)) would be given to the type of piling to be used in order to minimise the potential for vibration impacts.

13.108 The receptors likely to be affected by piling would vary over the course of the Proposed Development under construction. Once the precise building locations and ground conditions for each location and type(s) of piling are confirmed, vibration levels would be estimated and recommendations for control made as appropriate.

13.109 To keep ground borne vibration to a minimum the following measures (as referred to in BS5228-2) would be put in place:

- Substitution: Where reasonably practicable, plant and or methods of work likely to cause significant levels of vibration at the receptors identified would be replaced by less intrusive plant/methods of working; and
- Isolation of plant at source: This may prove a viable option where the plant is stationary (e.g. a compressor, generator) and located close to a receptor.

13.110 There are a number of measures that can be implemented, depending upon the type of piling chosen (e.g. continuous flight auger (CFA) piling produces significantly less vibration than conventional driven piling and, therefore, fewer mitigation measures would be required if CFA piling were chosen as the preferred method). Additionally, the distance between the piling rig and the receptors has a significant bearing upon the likely impact. The vibration produced by piling is transient and only occurs in any one location for a limited period of time.

13.111 BS5228-2 indicates that mitigation might include the use of alternative methods, removal of obstructions, provision of cut-off trenches, reduction of energy input per blow, reduction of resistance to penetration. As the construction programme and methodologies become more defined, earthworks and construction vibration would be reviewed and a more detailed strategy for control would be devised and implemented via the CEMP.

13.112 Vibration mitigation is therefore likely to vary depending upon the type, location and duration of any piling undertaken.

**Proposed Receptors – Glazing and Ventilation Scheme**

13.113 The noise attenuation requirements for living rooms and bedrooms, are summarised in **Table 13.13** and **Table 13.14**, respectively.

13.114 At this early stage of the project, detailed information has not yet been developed regarding façade construction, ventilation strategy etc. The guidance contained herein is therefore subject to development during technical design, and should not be used for tender purposes.

13.115 The preliminary ventilation guidance outlined below is based on the understanding that the preferred approach, would be to include trickle ventilators and constant Mechanical Extract Ventilation (MEV) (Building Regulations Approved Document F - System 3).

13.116 When carrying out internal noise level predictions, the following assumptions have been made:

- Windows are closed, but trickle ventilators are operational i.e. open;
- A reverberation time of 0.5 seconds in habitable rooms;
- External walls will provide a sound reduction performance that is at least 5 dB better than the specified glazing; and
- A single trickle ventilator (circa 2,500 $mm^2$) per habitable room where trickle ventilators are feasible.

13.117 A suggested minimum sound insulation performance of the non-glazed elements of the building façade is outlined in **Table 13.15**.

**Table 13.16: Suggested Non-Glazed Façade Element Sound Insulation**

| Description | Sound Insulation Values (R, dB) per Octave Band (Hz) | | | | | | | $R_w + C_{tr}$ |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | |
| Non-Glazed Façade Element | • | • | • | • | • | • | • | • |

13.118 **Table 13.16** provides a summary of example glazing and ventilation schemes, depending on level of façade noise exposure. **Figure 13.7** and **Figure 13.8** presents a summary of noise exposure levels at proposed façades during the daytime and night time periods, respectively.

**Table 13.17: Summary of Glazing and Ventilation Requirements**

| Façade Noise Exposure | Example Suitable Configuration |
|---|---|
| High | • 6mm / 16mm argon / 8.8mm laminated double-glazed unit in suitable frame; and,<br>• Mechanical Ventilation (e.g. MVHR). |

| | |
|---|---|
| Moderate | • 6mm / 16mm argon / 8.8mm laminated double-glazed unit in suitable frame; and,<br>• Acoustic trickle vent. |
| Low | • 10mm / 6-16mm / 6mm standard double-glazed unit in suitable frame;<br>• Acoustic trickle vent. |

**Noise from Proposed Commercial Sources**

13.119 Noise from proposed commercial sources can be controlled via the use of standard mitigation measures, such as acoustic attenuators, enclosures and louvres with sizing and performance established during the design phase.

13.120 It is recommended that noise emissions associated with any ancillary equipment should be limited to the values presented in **Table 13.17**, in order to ensure any commercial noise does not exceed the existing average background noise level at the site.

**Table 13.18: Plant Noise Emission Limits**

| | Maximum Noise Rating Levels $L_{Ar, Tr}$ | |
|---|---|---|
| | Daytime (0700:2300) $L_{Ar, 1 hour}$ | Night Time (2300-0700) $L_{Ar,15min}$ |
| Proposed Development | 51 | 47 |

13.121 However, impacts associated with commercial noise sources should be determined on a case-by-case basis, taking in to account the context, including factors such as exceedance of sound over background level, absolute level of sound, character of sound and sensitivity of receptors.

## Residual Effects

**Residual Effects during Construction Phase**

13.122 In order to minimise the potential impact during demolition and construction works, appropriate mitigation measures (including restrictions on working hours, the implementation of temporary screening (where possible) and best working practices as detailed in the mitigation section of this Chapter) would be put in place. This will be implemented effectively by means of a Construction Environmental Management Plan (CEMP).

***Noise from Demolition and Construction Activities***

13.123 The Proposed Development changes in road traffic noise at ESRs as a result of development led road traffic are **negligible** (Not Significant)..

13.124 The activities carried out during the demolition and construction phase of the Proposed Development have the potential to generate short-term increases in noise levels above the recommended noise limits (set in accordance with current guidance), at ESRs in the vicinity of the Site, with the inclusion of mitigation. This would result in

**negligible** impacts for the majority of the time, with occasional short-term **moderate** impacts (i.e. **not significant**).

***Vibration from Demolition and Construction Activities***

13.125 The use of heavy plant machinery associated with the demolition and construction works has the potential to give rise to groundborne vibration.

13.126 In addition to demolition and construction, it is possible that piling would be required. At this stage detailed information regarding the type of piling has not been confirmed. In order to minimise the potential for vibration to be generated by piling, it is recommended that careful consideration be given to the type of piling used.

13.127 Following the implementation of mitigation measures, there is potential of short-term localised **moderate** impacts, which is are considered to be **not significant**, in accordance with the impact significant matrix in **Table 13.8** and IEMA guidance.

***Noise from Construction Phase Traffic***

13.128 Noise associated with construction phase road traffic, affecting ESRs, would result in a **negligible** impact (i.e. **not significant**).

**Residual Effects during Operational Phase**

***Development Generated Road Traffic***

13.129 The Proposed Development provides no on-site parking, therefore there will be no development generated road traffic associated with the scheme. Furthermore, the existing site includes parking provisions for the current occupiers, The Safe Deposit Centre, therefore a net-decrease in traffic flows associated with the Proposed Development is predicted to occur.

13.130 Changes in road traffic noise at ESRs as a result of development led road traffic are considered to be **negligible**, and **not significant,** in accordance with the impact significant matrix in **Table 13.8** and IEMA guidance

***Proposed Garden***

13.131 Proposed sensitive areas of the Development (i.e. the future residential areas) would be subjected to noise from existing and proposed sources. The dominant source of noise is road traffic on the Great Ancoats Street.

***Proposed Habitable Rooms***

13.132 The results of the baseline noise survey and noise prediction calculations indicate that the noise levels at the Development should not be a determining factor in refusing planning permission in accordance with current guidance. Relatively standard mitigation measures would be incorporated into the Site design in order to ensure that guideline internal daytime and night time noise levels, are achieved within proposed habitable rooms.

13.133 With mitigation measures in place, internal noise levels within living rooms and bedrooms noise impacts will achieve recommended guideline noise levels, in accordance with current guidance. Therefore, potential impacts within habitable rooms

are considered to be **negligible**, and **not significant** in accordance with the impact significant matrix in **Table 13.8** and IEMA guidance.

***Nosie from Proposed Commercial Sources***

13.134 Providing noise emissions associated with any ancillary equipment is limited to the recommended values presented in **Table 13.17,** via the implementation of standard mitigation measures, impacts associated with commercial noise sources are likely to be **negligible** and **not significant**.

13.135 However, it should be noted that, when determining noise impacts associated with commercial sources, factors such as exceedance of sound over background level, absolute level of sound, character of sound and sensitivity of receptors should be taken in to account.

***Vibration from Metrolink***

13.136 The measured vibration levels at the Site are significantly less than the criteria for low probability of an adverse effect, in accordance with BS6472. Therefore, no specific mitigation is required and the residual effects are considered to be **negligible** (i.e. not significant).

## References


| | |
|---|---|
| 13.1 | Control of Pollution Act, 1974 (COPA) |
| 13.2 | Environmental Noise (England) Regulations, 2006 |
| 13.3 | National Planning Policy Framework, 2019 |
| 13.4 | Noise Policy Statement for England, 2010. |
| 13.5 | Manchester's Local Development Framework – Core Strategy, 2012 |
| 13.6 | Manchester Unitary Development Plan – Extant Policies, 1995 |
| 13.7 | World Health Organisation (WHO) Guidelines for Community Noise, 1999 |
| 13.8 | Planning Practice Guidance (Live Document) |
| 13.9 | British Standards 5228:2009 + A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise |
| 13.10 | British Standards 5228:2009 + A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration |
| 13.11 | BRE Controlling particles, vapour and noise pollution from construction sites (Part 1 to 5), 2003 |
| 13.12 | Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, 2011 |
| 13.13 | British Standards 8233: 2014 'Sound insulation and noise reduction for buildings – Code of practice' |
| 13.14 | Professional Practice Guidance: Planning and Noise, 2017 |
| 13.15 | British Standard 4142:2014 + A1:2019 'Methods for rating and assessing industrial and commercial sound' |

| | |
|---|---|
| 13.16 | British Standard 6472-1:2008 'Guide to evaluation of human exposure to vibration in buildings. Part 1: Vibration sources other than blasting' |
| 13.17 | Department of Transport – Calculation of Road Traffic Noise ,1988 |
| 13.18 | Institute of Environmental Management and Assessment (IEMA) – Guidelines for Environmental Noise Impact Assessment, 2014 |
| 13.19 | Manchester City Council Planning and Noise – Technical Guidance, 2015 |

# 14. Ground Conditions

## Introduction

14.1 This Environmental Statement Chapter on Ground Conditions has been prepared by Hydrock Consultants Ltd. The content of this chapter relies upon the findings of Hydrock report reference VHM-HYD-XX-DS-RP-GE-0001 dated 24 January 2020 titled Victoria House Manchester: Ground Conditions Desk Study. As detailed in the Document Production Record, this report was prepared, checked, and approved by competent professionals. The report is presented as a technical appendix to this Chapter (ES Vol 4 Appendix 14.1).

14.2 This Chapter has been completed by the Hydrock team. It was written by Eric Cooper, a SiLC accredited Land Quality specialist and checked/approved by Danny Hope, who is also a SiLC accredited Land Quality specialist.

14.3 The Chapter presents an assessment of the potential environmental impacts related to ground conditions at the Victoria House development site. Particular consideration is given to the issues of potentially contaminated land and groundwater, ground gas, and geotechnical issues relating to stability of the building. The purpose of the assessment is to ensure that impacts on human health and the wider environment are comprehensively assessed and that, where necessary, any perceived adverse effects of significance are mitigated.

## Legislative Framework, Policy and Guidance Documents

14.4 The content of this Chapter recognises the following legislation, policy and good practice guidance:

- 14.1 Model Procedures for the Management of Land Contamination, Environment Agency (2004);
- 14.2 Section 78A of Part 2A of the Environmental Protection Act of 1990;
- 14.3 The National Planning Policy Framework (NPPF) (2018);
- 14.4 Manchester City Council Core Strategy 2012;
- 14.5 Planning Practice Guidance (PPG): Land Affected by Contamination, 2014;
- 14.6 Planning Guidance in Relation to Ground Contamination: Guidance Note for Applicants, Developers, Land Owners and Consultants, Manchester City Council, Version 6, September 2016.
- 14.6 BS10175: 2017 Investigation of Contaminated Sites: Code of Practice;
- 14.7 BS5930: 2015 Code of Practice for Ground Investigations;
- 14.8 Design Manual for Roads and Bridges, Volume 4 Geotechnics and Drainage, Managing Geotechnical Risk HD22/08, 2008;
- 14.9 CL:AIRE, Definition of Waste: Development Industry Code of Practice Version 2, 2011.
- 14.10 CIRIA C552 2001; Contaminated Land Risk Assessment. A guide to Good Practice

- 14.11 NATHANAIL P., JONES A., OGDEN, R., AND ROBERTSON A. 2014. Asbestos in soil and made ground: a guide to understanding and managing risks. CIRIA Report C733 Contaminated Land: Applications in Real Environments, London.
- 14.12 Environment Agency 2001: Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention.

14.5 The Model Procedures, (ref 14.1), specify the requirement for a Preliminary Risk Assessment as an outcome of a Desk Study and Site Reconnaissance. The report presented as a technical appendix to this Chapter (ES Vol 4 Appendix 14.1) is compliant with the specified procedure.

14.6 Section 78A of Part 2A of the Environmental Protection Act of 1990, (ref 14.2), commonly referred to a 'Part 2A', is a regime for the identification and, where necessary, the remediation of, contaminated land. This legislation is currently implemented by the Contaminated Land (England) (Amendment) Regulations of 2012. Contaminated land is defined in terms of the harm it might cause, such as to human health, the water environment, ecosystems and property. The primary responsibility for determining whether or not land is Contaminated rests with the Local Authority, which may enforce remediation to reduce the risk that the contaminated land imparts. The National Planning Policy Framework (NPPF) (ref 14.3) requires that, on completion of a development, as a minimum, land should not be capable of being determined as Contaminated Land under Part 2A. Compliance with the above also ensures compliance with the Government's Planning Practice Guidance of 2014 on Land Affected by Contamination, 2014 (ref 14.5).

14.7 Policy EN 18 – Contaminated Land and Ground Stability – of the Manchester City Council Core Strategy 2012, (ref 14.4), requires that any proposal for development of contaminated land must be accompanied by a Health Risk Assessment. In addition, EN 18 requires that 'all new development within former mining areas shall undertake an assessment of any associated risk and, if necessary, incorporate appropriate mitigation measures'. These requirements are echoed in the City Council's 'Planning Guidance in Relation to Ground Contamination: Guidance Note for Applicants, Developers, Land Owners and Consultants', Version 6, September 2016 (ref 14.6). The requirements are already addressed in the Hydrock report which is presented as a technical appendix to this Chapter (ES Vol 4 Appendix 14.1), in this ES and will be further strengthened by a phase of intrusive site investigation and risk assessment to be completed after the existing building is demolished.

14.8 Reference items 14.7 – 14.11 are good practice guidance that applies when the project moves forward to physical (intrusive) site investigation, risk assessment, and geotechnical design. A commitment to compliance with this guidance is made in this ES.

14.9 Reference item 14.11 will be applied if risks presented by asbestos in soils are identified during the physical (intrusive) site investigation and risk assessment phase. A commitment to compliance with this guidance is made in this ES.

14.10 Reference item 14.12 will be referenced and adhered to subsequent to the physical (intrusive) site investigation, risk assessment and geotechnical design phase, when the

proposed foundation technique is known. A commitment to compliance with this guidance is made in this ES.

## Assessment Methodology

### The Study Area

14.11 The study area (shown below, image reproduced under licence ©Bing Maps) and shown on Simpson Hough Proposed Site Plan Drawing No. 10122-A-B5D9-G100-P-00-003 dated January 2020 included in ES Volume 3 Appendix 2.1 is limited spatially to the site boundary in terms of the intrusive ground investigations that are to be undertaken at a later date, but in terms of desk-based studies, the area extends to 250m from the site boundary to include reference to nearby associated development. A radial distance of 250m from the site boundary is a distance beyond which, no effects of the development in terms of Ground Conditions can be reasonably expected.



### Baseline Surveys

#### *Desk Based Research*

14.12 Surveys to define baseline conditions are currently restricted to the tasks described in the Hydrock report presented as a technical appendix to this Chapter (ES Vol 4 Appendix 14.1). The format of this report is compliant with the requirements of a Preliminary Risk Assessment stage of the CLR11 Model Procedures (ref: 14.1) and the following process elements are evident:

(a) Compilation of data from published and unpublished sources to determine physical ground conditions (ground and groundwater) to develop a Preliminary Ground Model;

(b) Review of historical maps and other records to check for evidence of historic contaminative use;

(c) Reconnaissance site visit (undertaken in accordance with reference 14.7 on 1st October 2018) to determine current conditions and to check for visual and/or

olfactory evidence of ground contamination associated with current and past uses;

(d) Identification of current and future potential receptors that might be harmed as a result of contamination being present (people, the water environment, infrastructure, buildings etc);

(e) Formation of an Preliminary Conceptual Site Model wherein all potential pollution linkages are identified, (that is, Source-Pathway-Receptor relationships that may result in harm to the designated receptor);

(f) Provision of an assessment of external factors (principally current and historic land use) that might pose a risk to the proposed development or vice versa;

(g) A preliminary assessment of the risk associated with each identified linkage;

(h) A qualitative assessment of the geotechnical risks and constraints associated with the proposed development based on the Preliminary Ground Model, including foundation requirements and past mining activities; and

(i) Identification of uncertainties that require resolution as part of the Phase 2 intrusive investigation.

***Field Survey Work***

14.13 Field survey work was restricted to a reconnaissance-level site inspection carried out by Hydrock as described above.

***Consultations***

14.14 A request for an Environmental Impact Assessment Regulations (2017) scoping opinion was submitted to Manchester City Council ("the Council") on 23rd October 2018. Part of this scoping opinion submission related to Ground Conditions. The Council's Scoping Opinion (ES Vol 4: Appendix 5.1) noted the comments made and considered them to be acceptable. No further comments were made.

14.15 Further liaison will be undertaken with the Environmental Health Department of Manchester City Council and the local office of the Environment Agency in order to confirm the required assessment methods and findings of the desk study and the subsequent intrusive investigations.

14.16 During the ground investigation and subsequent design phases, consultation with the Metrolink operator will be required to ensure that procedures with regard to ground investigation and construction techniques which are in close proximity to the Metrolink system are adhered to.

***Magnitude of Effect***

14.17 In the context of Ground Conditions, the Magnitude of Effect criteria shown in Table 14.1 are deemed to apply:

**Table 14.1: Magnitude of Effect Criteria**

| Magnitude | Criteria | Examples |
|---|---|---|
| Major | Results in loss of an attribute and likely to cause failure to meet statutory objectives and/or breaches of legislation | Category 1 – soil contamination resulting in a 'contaminated land' designation under Part 2A<br>Or<br>A change of planning use deems that the concentrations of contaminants in the land may be harmful to receptors and remedial action under Part 2A would be required |
| Moderate | Results in impact on integrity of attribute or loss of part of attribute possibly with/without failure to meet statutory objectives or with/without breaches in legislation | Category 2 – soil contamination providing a strong case for considering that the risks are of significant concern so as to be designated as 'contaminated land' under Part IIA<br>Or<br>A change of planning use deems that the concentrations of contaminants in the land may be harmful to receptors and remedial action under Part IIA would be required on a precautionary basis |
| Minor | Results in a minor impact on attribute | Category 3 – soil contamination exists but the concentrations would not be considered significant or that there is a low likelihood of serious pollution<br>Or<br>A change of planning use deems that the concentrations of contaminants in the land are not capable of harming receptors |
| Negligible | Results in no discernible change or an impact on attribute of insufficient magnitude to affect the use/integrity | Soil contaminants present, but risk assessment suggests negligible/low risk to human health or controlled waters |

***Sensitivity of Receptor***

14.18 In the context of Ground Conditions, the Sensitivity of Receptor criteria shown in Table 14.2 are deemed to apply:

**Table 14.2: Sensitivity of Receptor Criteria**

| Sensitivity | Definition/example | |
|---|---|---|
| | Human Health Context | Controlled Waters |
| Very high | Construction workers, Residential/Healthcare end-use | Waters used for drinking water (surface or groundwater) |
| High | Education end-use | Waters of high ecological importance; groundwaters in source protection Zones II and III |
| Moderate | Office end-use | Natural watercourses, urban environment, low water quality; naturally low-quality aquifers |
| Low | Commercial, Retail end-use | Man-made drainage systems in urban areas; naturally low-quality/low productivity aquifers |
| Negligible | Industrial end-use | Small, intermittent, accumulations of surface water, groundwater in Made Ground |

***Duration of effect***

14.19 Based on Table 14.3 below, the duration effect of the proposed assessment is long term. This is based upon professional judgement and the likely operation of the proposed development for over 15 years.

**Table 14.3: Duration of Effect**

| Timescale | Definition |
|---|---|
| Short term | 0 to 5 years including the construction period and on completion |
| Medium term | 5 to 15 years including mitigation establishment |
| Long term | 15 + years including long term operation of the development |

**Significance of Effect**

14.20 The significance of an effect is estimated as a function of the magnitude of the effect and the sensitivity of the receptor, in accordance with the matrix shown in Table 14.4 below:

**Table 14.4: Significance of Effect Matrix**

| Magnitude of Effect | Receptor Sensitivity<br>Very High | High | Moderate | Low | Negligible |
|---|---|---|---|---|---|
| High | Major | Major | Moderate | Moderate | Minor |
| Medium | Major | Moderate | Moderate | Minor | None |
| Low | Moderate | Moderate | Minor | None | None |
| Negligible | Minor | Minor | None | None | None |

14.21 For the purposes of this assessment, effects assessed as Major or Moderate will be regarded as Significant and effects assessed as Minor or below that will be regarded as Not Significant. The assessment is made on the basis of experienced professional judgement with due consideration to published guidance on such matters.

14.22 Mitigation measures are also based on professional judgement using professional experience of designing remedial measures to deal with unacceptably high risks associated with ground contamination and geotechnical constraints.

## Existing Baseline Conditions

14.23 Existing baseline conditions are evident from the findings of the Hydrock report presented as a technical appendix to this Chapter (ES Vol 4 Appendix 14.1) and are summarised below:

(a) The site is currently occupied by office premises including a building (Victoria House) and associated car parking.

(b) The anticipated geological sequence is Made Ground over Glacial Till over rocks of the Chester Formation.

(c) Made Ground is material of anthropogenic origin associated with current and previous developments at the site and is expected to comprise concrete, other forms of hardstanding, sub-base materials and 'hard-core'-type general fill.

(d) Glacial Till is material formed during the last ice age and comprises a substantial thickness (10-20m) of stiff clay interspersed with layers of sandy, gravelly clay.

(e) The Chester Formation is a sandstone and is likely to be fissured.

(f) Groundwater may occur intermittently in the Made Ground and in the sandier parts of the Till but the Chester Formation, a Principal Aquifer, is likely to contain groundwater which is confined by the low permeability till above it. Groundwater in the sandstone may be artesian. There are no licensed groundwater abstractions within 1km of the development site boundary.

(g) All coal mining beneath the site is historic and the worked seams are at considerable depth (>350m below ground level). The development site is not in

an area that could be affected by shallow workings and the coal seams at depth have a sufficient covering of rock not to pose a stability risk to developments constructed at the surface.

(h) The current development dates back to the early 1990's, prior to which, the site was characterised by unspecified small-scale urban-industrial use including a timber yard. The surrounding land has a similar urban-industrial history. Site history suggests that this is not a site that would be expected to be characterised by a significant level of contamination.

(i) Nor are the ground conditions likely to impart a significant geotechnical constraint although the close proximity of a Metrolink underpass is an important issue to consider.

## Predicted Future Baseline Conditions

### Construction (2020)

14.24 Construction will comprise demolition of the existing building and construction of the new one. When the site is cleared it will be subject to intrusive investigation for geo-environmental (contamination) and geotechnical (earthworks and foundations) purposes. The new building will include a basement on the western half of the site founded approximately 4m below existing ground level which will require excavation. The entire building will be founded on piles, the design of which (number, depth, method of installation) will be an output of an interpretation of data obtained from the intrusive investigations and testing followed by geotechnical design. However, the piles are likely to be end-bearing on the sandstone bedrock.

14.25 It is expected that most of the materials excavated to form the basement will need to be taken off site. Materials of anthropogenic origin (Made Ground) will be sent to landfill, the location of which will be determined based on chemical testing of the material prior to its disposal. Clean, naturally-occurring materials, will be similarly disposed of as inert material unless a use for it as fill material on a different site can be located. Any opportunity to re-use material on site rather than export it will be taken.

### Operation (2022)

14.26 Future baseline conditions comprise a completed 25-storey building with a basement (occupying the western part of the building footprint only), a ground-floor development that includes a retail unit and refuse storage, 177 residential apartments with associated ancillary development comprising a residential garden, resident's gym, co-working space, resident's entrance and lounge, cinema room and a cycle store.

## Assessment of Effects

### Matters Scoped Out

14.27 No matters relating to ground conditions have been scoped out of this assessment.

### Embedded Mitigation

14.28 The occupied development is almost entirely hardscape with no opportunity for contact between building users and any contamination associated with Made Ground left on site beneath the non-basement area.

14.29 The site will be drained to the public storm drainage network and that arrangement together with the presence of an impermeable construction layer (principally, a concrete slab) will prevent infiltration of water to and through Made Ground such that no leaching of contaminants will occur.

14.30 It is an inherent condition of the site that a thick layer of low permeability glacial till (clay) separates the Chester Formation Principal Aquifer from any contamination present in the Made Ground.

14.31 The depth of potentially worked coal seams and the extent of the cover of bedrock are such that there is an inherently negligible risk of building instability due to past mining.

**Limitations and Assumptions**

*14.32 No significant limitations or assumptions apply to this assessment.*

## Assessment of Construction Phase Effects

14.33 In accordance with the scoping report reasonable 'worst case' conditions have been assumed in this assessment.

**Human Health Risks**

14.34 The age of the existing building is such that it has the potential to contain asbestos. In the absence of the removal of asbestos in a controlled manner prior to demolition, asbestos may be present in demolition residues. In addition, asbestos fibres may be present in the Made Ground on which the current building was founded.

14.35 The receptors for asbestos fibres by inhalation are construction workers involved in demolition and construction activities (especially groundworkers) together with users of/visitors to neighbouring off-site properties and passers-by. The sensitivity of these receptors is Very High and the magnitude of the effect (serious illness) is High so the significance of the effect is **Major**.

14.36 The same receptors apply to any chemical contaminants present in the existing Made Ground, although the Desk Study findings indicate that the widespread presence of toxic substances is unlikely. In the case of construction workers, the principal pathways are skin contact, accidental ingestion, and dust inhalation. The sensitivity of the receptor is Very High and the magnitude of the effect is in this case Medium indicating a **Major** effect.

14.37 Regarding off-site human health receptors (users of/visitors to neighbouring off-site properties and passers-by) the exposure is via inhalation of wind-blown dust from the construction site. For this pollution linkage the sensitivity of the receptor is High and the magnitude of the effect Medium indicating an effect of **Moderate** significance.

**Controlled Waters**

14.38 The likelihood that the site is not characterised by significant contamination and protection of the Principal Aquifer is afforded by the low-permeability till, the base of which will not be exposed by the basement excavation. In addition, there is no local use of groundwater from the aquifer. On that basis the sensitivity of the receptor is Moderate and the magnitude of the effect is also Low so the effect is **not significant**.

14.39 Piles are likely to be end-bearing on the top of the sandstone, which potentially creates a pathway for contaminants at the surface to reach the Principal Aquifer. However, the likelihood of contaminants migrating down the pile shaft are low given the thickness of the low permeability clay which will seal against the pile shaft. In addition, given the low risk of contamination in the existing Made Ground the Magnitude of the effect is, at worst, Medium, and as the sensitivity of the receptor is Low, the significance of the effect is deemed **not significant**.

14.40 The closest open natural surface water feature to the site is the River Medlock which is 250m away to the south east at its closest point. Whilst the sensitivity of the receptor may be conservatively assessed as High, the distance over which pollution (e.g. from a spillage) would have to travel creates an attenuation opportunity that renders the magnitude of the effect as negligible so the effect is **not significant**.

14.41 The Ashton Canal is 50m away from the site to the north west. Again, whilst the sensitivity of the receptor may be conservatively assessed as High, the distance over which pollution would have to travel creates an attenuation opportunity that renders the magnitude of the effect as Low so the effect is **not significant**.

**Stability of the Building**

14.42 With respect to the effects of past coal mining the sensitivity of the receptor (during construction) is High but the magnitude of the effect under current site conditions is Negligible so the Significance is assessed as **Minor**.

14.43 With respect to foundations (including the proximity to the Metrolink Tunnel) and the risk of these being designed and/or installed incorrectly, the sensitivity of the receptor (during construction) is High and the magnitude of the effect under current site conditions is Low so the Significance is assessed as **Moderate**.

## Assessment of Operational Phase Effects

14.44 In accordance with the scoping report reasonable 'worst case' conditions have been assumed in this assessment.

**Human Health Risk**

14.45 The built environment ensures no pathway linking potential sources of contamination at depth below the structure with users of the building or neighbours. The sensitivity of the receptor is High but the magnitude of the effect is Negligible so the effect is minor and **not significant**.

14.46 The presence of Made Ground creates the potential for ground gases, especially methane (an explosive) and carbon dioxide (an asphyxiant) to form and accumulate in the new building. Whilst the anticipated inorganic nature of the Made Ground is such that such gases are unlikely to be produced, the proposed post-demolition site investigation will confirm the presence of gas or otherwise and if gas risk is anticipated, gas protection measures can be incorporated into the building design. In the absence of such measures the sensitivity of the receptor is High and the magnitude of the effect Low, resulting in **Moderate** significance.

**Controlled Waters**

14.47 The built environment and routine use of the site means that there is no pollution linkage with respect to surface water or groundwater so whilst the sensitivity of the receptors may be High, the magnitude of the effect is negligible so the effect is Minor and **not significant**.

**Stability of the Building**

14.48 With respect to foundations (including the proximity to the Metrolink Tunnel) and the risk of these being designed and/or installed incorrectly, the sensitivity of the receptor (during construction) is High and the magnitude of the effect under current site conditions is High so the Significance is assessed as **Major**.

## Assessment of Cumulative Effects

**Intra-Project Cumulative Effects**

14.49 As related to ground conditions, effects on human health and the water environment (assessed further in Chapter 15) are assessed in this chapter and no potential intra-project cumulative effects have been identified.

14.50 In respect of ecology (assessed further in Chapter 16), the only conceivable effect is that to the surface water environment via an on-site source of pollution. However, as concluded in (47) above, the magnitude of any such effect is assessed as negligible and it follows that the ecological effect is also **not significant**.

14.51 Therefore, no intra-project cumulative effects relating to ground conditions have been identified.

**Inter-Project Cumulative Effects**

14.52 No inter-project effects relating to contamination have been identified. All potential inter-project effects relating to ground conditions concern the stability of the proposed building and that of neighbouring buildings and infrastructure.

14.53 In terms of the stability of the proposed building and the stability of neighbouring buildings (either built or planned) and infrastructure, the following assessment applies.

14.54 The proposed building is located close to a point where the Manchester Metrolink is in tunnel as it passes beneath Great Ancoats Street. Both the construction of a basement and piling works associated with the proposed building create the potential for instability of the Metrolink tunnel structure. The sensitivity of the tunnel as a receptor is considered to be High and the potential magnitude of the effect High so the significance of the effect is assessed as **Major**.

14.55 The proposed development is high-rise with a basement structure and the potential exists for similar developments to be progressed in the area. Stability of buildings with basements is an issue to consider when new buildings, also with basements, are being designed and constructed but it is generally the case that the risk applies to immediately adjacent structures. In the absence of specific proposals, the following precautionary assessment of impact on either building is: sensitivity of receptor: Very High; Magnitude of effect: High; significance of risk: **Major**.

14.56 The potential impact of the development on existing or future low-rise buildings without basements is not likely to be significant. The sensitivity of the receptor is Moderate and the magnitude of the effect is Low so the significance of the effect is **Minor**.

## Mitigation of Effects

**Construction Phase: Human Health**

14.57 Prior to demolition, the existing building will be subject to an asbestos survey to identify if asbestos is present. If so, demolition would be preceded by removal of asbestos by licensed contractors and no asbestos will remain. All risks associated with asbestos in demolition materials will thus be mitigated.

14.58 When the site has been demolished and cleared it will be subject to intrusive site investigation (boreholes and trial pits) which will cover: the presence of contaminants in soils (i.e. residual Made Ground); the presence of groundwater (levels and quality); the presence of ground gases (if any); geotechnical properties of the ground. The site works will be followed by the laboratory testing of soils for contaminants and geotechnical properties, and a period of monitoring for groundwater levels, groundwater quality, and ground gas (concentrations and flows). The data obtained will allow an assessment of the geo-environmental risk and mitigation requirements as well as data that will permit safe and effective foundation solutions to be determined for the new building.

14.59 As with demolition and clearance, earthworks will be carried out by qualified and experienced contractors working to an industry-standard specification which will include a requirement for dust-suppression measures and mandatory use of PPE by the workforce. All Human Health risks associated with contaminants in residual Made Ground will thus be mitigated.

14.60 Earthworks will be designed such that they result in the most sustainable solution being adopted, normally one that minimises the need for off-site disposal by re-use of materials on site. Where such as a solution is possible, the works will be undertaken in compliance with a Materials Management Plan prepared in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (Reference 14.9).

**Construction Phase – Controlled Waters**

14.61 As noted previously, no significant effect on controlled waters is anticipated but even if the effect of piling on the Principal Aquifer is not regarded as being significant, a Piling Risk Assessment is likely to be required by the regulatory authorities written in accordance with guidance contained within reference 14.8.

14.62 Whilst any spillages or leaks at the site are unlikely to have a significant effect on controlled waters, adherence to good standards of housekeeping will be a construction contract requirement (especially in respect of materials storage).

**Construction Phase – Stability of the Building**

14.63 The post-demolition site investigation will provide data for robust foundation design requirements based on ground conditions encountered and the structural loads imparted by the building. The design work will be undertaken by experienced

professionals. The overall effect is mitigation of the risk of building instability during the construction phase.

14.64 The geotechnical design exercise would be expected to identify construction methods that will mitigate any adverse effects on nearby buildings or infrastructure (including the Metrolink tunnel) during construction. The Metrolink operator will be consulted to ensure that appropriate construction techniques are used.

**Operational Phase – Human Health**

14.65 The built environment mitigates any potentially adverse Human Health effect associated with ground contamination.

14.66 In the unlikely event that ground gas risk is considered to be significant, the required level of gas protection measures determined from the site investigation data will be incorporated into the design of the building to mitigate the effect.

**Operational Phase – Controlled Waters**

14.67 The built environment mitigates any potentially adverse effect on controlled waters associated with ground contamination.

**Operational Phase – Stability of the Building**

14.68 As applies to the construction phase, the post-demolition site investigation will provide data for robust foundation design requirements based on ground conditions encountered and the structural loads imparted by the building. The design work will be undertaken by experienced professionals. The overall effect is mitigation of the risk of building instability during the operational phase.

14.69 The geotechnical design work would be expected to lead to construction methods that will mitigate any adverse effects on nearby buildings or infrastructure (including the Metrolink tunnel) during operation.

## Residual Effects

14.70 When the mitigation measures are applied to reduce any effects regarded as significant, no significant residual effects are anticipated. A summary is presented in Table 14.5 below:

**Table 14.5: Residual Effects**

| Receptor | Nature of Impact | Significance of Impact | Duration | Mitigation | Residual Impact and Significance | Duration of Residual Impact |
|---|---|---|---|---|---|---|
| Demolition workers<br>Off-site users of buildings | Exposure to asbestos in demolished building materials | Major and **significant** | Short term | Pre-demolition asbestos survey and removal as necessary | No residual impact and **not significant** | Not applicable |
| Demolition workers<br>Off-site users of buildings | Exposure to asbestos in residual Made Ground | Major and **significant** | Short term | Use of PPE by groundworkers ; dust suppression measures | No residual impact and **not significant** | Not applicable |
| Building and occupants | Instability of structure due to settlement | Moderate and **significant** | Medium Term and Long-term | Site investigation to provide data that will be used by professionals to design foundations correctly | No residual impact and **not significant** | Not applicable |
| Metrolink Tunnel and other nearby current/future developments with basements | Instability due to construction activities and basement structure | Major and **significant** | Medium Term and Long-term | Site investigation to provide data that will be used by professionals to design foundations to avoid impacts. | No residual impact and **not significant** | Not applicable |
| Building and occupants | Ground gas risk | Moderate and **significant** | Long-term | Site investigation to provide data that will be used by professionals to design gas protection measures as necessary. | No residual impact and **not significant** | Not applicable |

## References


| | |
|---|---|
| 14.1 | Model Procedures for the Management of Land Contamination, Environment Agency (2004); |
| 14.2 | Section 78A of Part 2A of the Environmental Protection Act of 1990; |
| 14.3 | The National Planning Policy Framework (NPPF) (2018); |
| 14.4 | Manchester City Council Core Strategy 2012; |
| 14.5 | Planning Practice Guidance (PPG): Land Affected by Contamination, 2014; |
| 14.6 | Planning Guidance in Relation to Ground Contamination: Guidance Note for Applicants, Developers, Land Owners and Consultants, Manchester City Council, Version 6, September 2016. |
| 14.6 | BS10175: 2017 Investigation of Contaminated Sites: Code of Practice; |
| 14.7 | BS5930: 2015 Code of Practice for Ground Investigations; |
| 14.8 | Design Manual for Roads and Bridges, Volume 4 Geotechnics and Drainage, Managing Geotechnical Risk HD22/08, 2008; |
| 14.9 | CL:AIRE, Definition of Waste: Development Industry Code of Practice Version 2, 2011. |
| 14.10 | CIRIA C552 2001; Contaminated Land Risk Assessment. A guide to Good Practice |
| 14.11 | NATHANAIL P., JONES A., OGDEN, R., AND ROBERTSON A. 2014. Asbestos in soil and made ground: a guide to understanding and managing risks. CIRIA Report C733 Contaminated Land: Applications in Real Environments, London. |
| 14.12 | Environment Agency 2001: Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. |

# 15. Water Environment

## Introduction

15.1 This chapter of the ES assesses the effects of the Proposed Development on the Water Environment in terms of Water Resources and Flood Risk (including all potential sources of flooding and surface water management) and is supported by a flood risk assessment and drainage strategy written in accordance with National Planning Policy Framework (Ref 12.1). The chapter has been completed by Trefor Hillas MPhil MSc BSc on behalf of WSP and will sit alongside the Flood Risk Assessment and Drainage Statement for the site provided at **ES Volume 4: Appendix 15.1** and **ES Volume 3: Figure 15.1**.

15.2 The chapter describes the assessment methodology, the baseline conditions existing at the Proposed Development Site (PDS) and surroundings, the likely significant environmental effects, the mitigation measures required to prevent, reduce or offset any significant adverse effects and the likely residual effects after these measures have been employed. This chapter has been prepared by WSP UK Ltd.

15.3 This chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment, and reference should be made to Chapters 1 – 23 as required.

## Legislative Framework, Policy and Guidance Documents

15.4 The applicable legislative framework is summarised as follows:

- National Planning Policy Framework, 2018 sets out the national framework for delivering sustainable development, Chapter 14 “Meeting the challenge of climate change, flooding and coastal change” para 148 to 165. (Ref 15.1);
- Building Regulations Part H (Drainage and Waste Disposal), 2000. Statutory guidance for building drainage and sewerage. (Ref 15.2);
- CIRIA C753: The SuDS Manual, 2015. Statutory guidance for Sustainable Urban Drainage. (Ref 15.3);
- Manchester Core Strategy – relevant policies (EN*, EN14, EN17, DM1) (Ref 15.4);
- Water Resources Act, 1991. Sets out the regulatory controls and restrictions that provide protection to the water environment through controls on abstraction, impounding and discharges as well as identifying water quality and drought provisions. (Ref. 15.5);
- Land Drainage Act, 1991. Places responsibility for maintaining flows in watercourses on landowners (Ref. 15.6);
- Environmental Act, 1995. Establishes basic terms of reference for the Environment Agency. (Ref. 15.7);
- Water Act, 2003. Formalises the Government’s commitment to the sustainable management and use of water resources. (Ref. 15.8);
- The Water Environment (Water Framework Directive (2000/60/EC) WFD) (England & Wales) Regulations, 2003. These Regulations establish a framework for protecting the water environment, with the aim of achieving chemical and ecological water quality targets. (Ref. 15.9);

- Floods Directive (2007/60/EC), 2007. Its aim is to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. (Ref. 15.10);
- House of Commons: Written Statement (HCWS161) – Sustainable Drainage (2014), strengthens existing planning policy relating to the use of SuDS within 'major' planning applications. From the 6th April 2015, all 'major' planning applications (as defined by Town and Country Planning (Development Management Procedure) (England) Order 2010) will be required to consider using SuDS as part of the development's management of surface water run-off, unless it can be demonstrated to be inappropriate. (Ref. 15.11);
- Flood Risk and Coastal Change Planning Practice Guidance (PPG), 2014 provides guidance on how the suitability of incorporating SuDS into a new development should be assessed within a planning application's site-specific Flood Risk Assessment. Para 051, 079 & 080. (Ref 15.12);
- Non-Statutory Sustainable Drainage Technical Standards (2015) provides a set of technical standards for which all future SuDS are recommended to be designed to in order to achieve the aims (in relation to surface water management and flood risk) of current National planning policy. (Ref 15.13);
- The North West River Basin District, within which the Proposed Development Site sits, has a River Basin Management Plan (RBMP) prepared under the WFD, which focuses on the protection, improvement and sustainable use of the water environment. (Ref. 15.14); and Environment Agency Report SC030219 Rainfall Runoff Management for Developments (2013) provides advice on the management of stormwater drainage for developments and in particular to assist in sizing of storage elements for the control and treatment of stormwater runoff. (Ref. 15.15)
- National Planning Policy Framework Technical Guidance to the National Planning Policy Framework (2019), provides additional guidance to ensure the effective implementation of the planning policy for development in areas at risk of flooding (Ref. 15.16)
- Environment Agency Online Flood Mapping tool – Delineates areas on the basis of High, medium and low risk areas and includes risk from both fluvial and surface water sources. (Ref. 15.17)
- British Geological Survey (BGS) mapping – online mapping tool indicating predominant underlying geology of Britain, and at a site/area specific level (Ref 15.18)
- LandIS - Land Information System - Soilscapes Viewer - online mapping tool indicating predominant underlying geology of Britain, and at a site/area specific level (Ref 15.19)
- Manchester City Council Strategic Flood Risk Assessment (SFRA) 2011 provides guidance on local flood risk and surface water management issues as well as local policy requirements for managing surface water run-off from proposed development sites (Ref 15.20).

## Assessment Methodology

### The Study Area

15.5 The spatial scope of this assessment is the Proposed Development Site (PDS). However, where it is relevant to consider issues at a wider catchment level, it is explicitly identified in this chapter.

15.6 The geographical scope of the assessment has been based on the likely area to which the PDS could impact upon the water environment. Primarily, this will be any receptor within the PDS itself (likely to undergo the greatest impact) along with encompassing the associated development of the square adjacent to the Victoria House site. The wider catchment level has also been considered to include potential secondary impacts such as the discharge and surface and foul water from the PDS. The approach has been undertaken based on the expected severity of impacts across separate geographic areas.

### Baseline Surveys

15.7 The scope of this chapter includes a review of the available baseline information on the Proposed Development Site (PDS) setting with specific regards to Water Resources and Flood Risk. The method of data collection for the baseline condition will be made up of the following elements.

#### *Desk Based Research*

15.8 A desk-based study and review of available information was undertaken to determine the existing baseline conditions at the PDS.

15.9 The information reviewed included the following:

- Environment Agency flood map for fluvial sources
- Environment Agency flood map for surface water sources
- United Utilities Sewer Records
- British Geological Survey (BGS) mapping
- Cranfield University LandIS soils map (http://www.landis.org.uk/)

15.10 The scope of data review was defined to ensure an NPPF (REF 15.1 Chapter 14, para 148 to 165) compliant Flood Risk Assessment and drainage strategy was provided, and also to ensure that the best practice outlined in Environment Agency Report SC030219 Rainfall runoff management for developments (REF 15.2) and National Planning Policy Framework Technical Guidance (REF 15.13 para 2 to 6) is adhered to.

#### *Field Survey Work*

15.11 No field survey work or site visit was undertaken as part of this assessment.

#### *Consultations*

**15.12** An EIA Scoping Opinion was received from Manchester City Council in November 2018 (**ES Volume 4: Appendix 5.1**). The Scoping Opinion was informed by consultees including United Utilities as the water authority, along with Manchester City Council as Lead Local Flood Authority. The Scoping Opinion agreed with the scope of the EIA for the water environment assessment. It also noted management measures that have been considered as part of the proposal and this assessment.

**Significance Criteria**

15.13 The assessment of potential effects of the PDS has taken into account both the construction and operational phases of the Proposed Development. The significance level attributed to each effect has been assessed based on the magnitude of change and the importance of the affected receptor/receiving environment.

15.14 Magnitude of change at an affected receptor/receiving environment is assessed on a scale of high, medium and low. Importance is defined by a scale of International / National, County / Regional and District / Local.

***Magnitude of Effect***

15.15 Magnitude of change at an affected receptor/receiving environment will be assessed on a scale of high, moderate, low and negligible. The example magnitude effects are summarised in summarised in Table 15.1 below. These are defined by professional judgements within WSP and based on previous experience of undertaking Environmental Statement chapters within the Greater Manchester area and the wider region, and based on adherence to the Manchester Core Strategy policies EN14, EN17, DM1 (Ref 15.4).

**Table 15.1: Magnitude Definition**

| Level of Magnitude | Definition of Magnitude | Typical Examples |
|---|---|---|
| High | Results in loss of attribute and/or quality and integrity of the attribute. | Loss or extensive change to a fishery, loss or extensive change to a designated nature conservation site.<br>Increased risk of whole catchment flooding and/or significant loss of functional floodplain.<br>Significant permanent deterioration of water quality, habitat quality or flow characteristics of a watercourse or groundwater body.<br>Loss of, or extensive change to, an aquifer.<br>Imposition on water resources such that it restricts water resources in other areas. |
| Moderate | Results in effect on integrity of attribute, or loss of part of attribute. Results in some measurable change in attributes quality or vulnerability | Partial loss in productivity of a fishery, Partial loss or change to an aquifer.<br>Increase in flood risk affecting the PDS and its immediate vicinity.<br>Moderate deterioration to the habitat quality or flow characteristics of a watercourse.<br>Severe temporary reduction in the quality of surface water and water resources. |
| Low | Results in some measurable change in attribute's quality or vulnerability | Minor increase in flood risk to the PDS.<br>Minor deterioration to habitat quality or flow characteristics of a watercourse. |

| | | |
|---|---|---|
| | | Minor local scale reduction in the quality of surface water and water resources, reversible with time. |
| Negligible | Results in effect on attribute, but of insufficient magnitude to affect the use or integrity | Unlikely to affect the integrity of the water environment.<br>No appreciable impact on surface water drainage regime, water quality, existing flood risk or available water resources. |

***Sensitivity of Receptor***

15.16 Sensitivity of Receptor Importance is defined on a scale of very high, high, medium and low. Example magnitude effects are summarised in Table 15.2 below. These are defined by professional judgements within WSP and based on previous experience of undertaking Environmental Statement chapters within the Greater Manchester are and the wider region, and based on adherence to the Manchester Core Strategy policies EN*, EN14, EN17, DM1 (Ref 15.4).

**Table 15.2: Receptor Sensitivity Definition**

| Sensitivity of Receptor | Definition of Magnitude | Typical Examples |
|---|---|---|
| Very High | Receptor has a high quality and rarity on a regional or national scale | • EC designated salmonid / cyprinid fishery.<br>• Water Framework Directive watercourse class 'High'.<br>• Site protected / designated under EU or UK habitat legislation (SAC, SPA, SSSI, WPZ, Ramsar site).<br>• Species protected by EU Legislation.<br>• Groundwater Source Protection Zone 1.<br>• Flood Zone 3b (functional floodplain) or flood defence protecting more than 100 properties.<br>• Deficit in future water resources predicted. |
| High | Receptor has a high quality and rarity on a local scale | • Water Framework Directive watercourse class 'good'.<br>• Major cyprinid fishery.<br>• Species protected under EU or UK habitat legislation.<br>• Groundwater Source Protection Zone 2.<br>• Flood Zone 3a or flood defence protecting between 1 and 100 properties.<br>• Deficit in future predicted water resources, but with identified measures that may resolve issue. |
| Medium | Receptor has a medium quality | • Water Framework Directive watercourse class moderate.<br>• Groundwater source protection zone 3. |

| Sensitivity of Receptor | Definition of Magnitude | Typical Examples |
|---|---|---|
| | and rarity on a local scale | • Flood zone 2 or flood defence protecting land/industry.<br>• Balanced water resources in region requiring active management. |
| Low | Receptor has a low quality and rarity on a local scale | • Water Framework Directive watercourse class poor.<br>• Unproductive ground for groundwater.<br>• Flood Zone 1.<br>• Sufficient headroom in available water resources. |

15.17 The following have been identified as the sensitive receptors which will be assessed in the following assessment:

- adjacent Waterbodies (Ashton Canal) – considered to be of **regional importance**;
- water supply infrastructure – the sensitivity of the United Utilities potable water supply infrastructure within the vicinity of the Proposed Development Site is considered to be of **local importance**;
- sewerage infrastructure – the sensitivity of the sewerage networks within the vicinity of the site are considered to be of **local importance;**
- construction contractors - considered to be of **national importance;** and
- site occupants - considered to be of **national importance.**

***Duration of Effect***

15.18 The following is the significance matrix that will be used to determine the extent of the effect on each sensitivity receptor, defined by professional judgements within WSP – see Table 15.3 below.

**Table 15.3: Table 15.3: Duration Definition**

| Level of Magnitude | Definition of Magnitude |
|---|---|
| Low | 0 to 5 years including the construction period and on completion |
| Moderate | 5 to 15 years including mitigation establishment |
| High | 15 + years including long term operation of the development |

***Significance of Effect***

15.19 For the purpose of this assessment, the following terms have been used to define the significance of the effects identified; and each has been designated in terms of correlation to the Magnitude Definition as defined in Table 15.1. These terms are defined based on professional judgements within WSP, and are as follows

- Major effect: where the Proposed Development could be expected to have a very significant effect (either beneficial or adverse) – corresponding to High Magnitude and considered a 'Significant effect' in EIA terms
- Moderate effect: where the Proposed Development could be expected to have a noticeable effect (either beneficial or adverse); - corresponding to Moderate Magnitude and considered a 'Significant effect' in EIA terms;
- Minor effect: where the Proposed Development could be expected to result in a small, barely noticeable effect (either beneficial or adverse) - corresponding to Low Magnitude and considered a 'Not -Significant effect' in EIA terms;
- Negligible: where no discernible effect is expected as a result of the Proposed Development - corresponding to Negligible Magnitude and considered a 'Not Significant effect' in EIA terms; and
- Neutral: where no effect is expected as a result of the Proposed Development - corresponding to Negligible Magnitude and considered a 'Not Significant effect' in EIA terms.

15.20 The above is based on both published policy and professional judgements within WSP, and based on adherence to the Manchester Core Strategy policies EN*, EN14, EN17, DM1 (Ref 15.4).

- **Table 15.4** The outlines the significance matrix that will be used to determine the extent of the effect on each receptor.

**Table 15.4: Significance Matrix**

| Sensitivity / Value of Receptor | Magnitude of Effect | | | |
|---|---|---|---|---|
| | High | Medium | Low | Negligible |
| Very High (England/UK/International) | Major | Major | Moderate | Minor |
| High (England/UK/International) | Major | Major/ Moderate | Moderate | Minor |
| Medium (County/Regional) | Major/ Moderate | Moderate | Moderate/ Minor | Negligible |
| Low (District / Local) | Moderate | Moderate/ Minor | Minor | Negligible |

## Existing Baseline Conditions

***Topography and Surface Cover***

15.21 The PDS lies at an elevation of between 48.8mAOD (meters above ordnance datum) which falls from east to west away from the site frontage to Great Ancoats Street. There is an observable fall of approximately 0.5m across the PDS.

15.22 Refer to Chapter 3 (Site and Surrounding Area) for more information on the characteristics of the existing site.

***Existing Watercourses***

15.23 The PDS is located approximately 80m south west of the Ashton Canal (see ES Flooding Plan included in ES Volume 3: Figure 15.1).

15.24 There are no other watercourses located in the vicinity of PDS.

***Existing Drainage***

15.25 The extent of public sewerage infrastructure in the vicinity of the site was established from a review of the United Utilities public sewer records, including as ES Volume 4: Appendix 15.1.

15.26 The PDS and immediately surrounding area is served by a combined system which conveys both surface and foul water. This system was most likely of Victorian construction and sewerage of this type is synonymous with city centre areas within the United Kingdom.

15.27 The system consists of a 450mm pipe located within the Great Ancoats Street to the front of the Proposed Development Site. This sewer line then turns 45 degrees south east and runs down Longacre Street where it becomes a 600mm pipe and then a 750mm x 520mm brick culvert.

15.28 The network then continues in a westerly direction through a series of pipes and culverts to Boad Street, where the network extends beyond the extent of the sewer record mapping.

***Geology***

15.29 A review of the British Geological Survey (BGS) maps indicate the PDS is underlain by the Chester Sandstone Formation. This was formed approximately 247 to 250 million years ago in the Triassic Period, and represents how the local area was previously dominated by fluvial depositional environments. More information on the geology of the PDS can be found in Chapter 14 (Ground Conditions).

15.30 In relation to the Water Environment, the significance of the underlying geology is that due it being granular in nature and as a result having high porosity, there is a high conductivity between surface water and groundwater, and any pollution at surface level could be readily dispersed.

**Flood Defences and Other Structures**

15.31 A review of the Environment Agency flood mapping (Ref 15.4) indicates there are no flood defences located within the vicinity of the Proposed Development Site.

## Anticipated Future Baseline Conditions

**Construction (2020)**

15.32 The anticipated construction activities will not cause a material change in the baseline conditions as described above.

**Operation (2022)**

15.33 The impact in water management terms are expected be broadly as follows:

- Decreased loading on combined sewer network due to build out of the Proposed Development and associated drainage system; which will adhere to a 50% reduction in peak flows compared to current discharges.

15.34 The anticipated future conditions described above will be considered as part of the impact assessment.

## Assessment of Effects

### Matters Scoped Out

15.35 The Flood Risk Assessment has identified that the risk of flooding from rivers, groundwater and reservoirs is low. As a result, these sources of flooding have been 'scoped out' of this assessment.

15.36 The risk of surface water and sewer flooding will be assessed during the construction and operational phases as it potentially affects the construction workers and site occupants.

15.37 As the PDS does not require any water abstractions from local water resources, the effect on local water resources (in terms of water abstraction) has been 'scoped out' of this assessment.

15.38 The potential effects of contaminated groundwater on adjacent waterbodies are assessed in Chapter 14 (Ground Conditions and Contamination) and are therefore scoped out of this Chapter.

### Embedded Mitigation

15.39 The strategy for managing flood risk, surface and foul water and overall water management will be based on adhering to the relevant local, regional and national best practice. Specifically, in the case of flood risk this will involve fully assessing flooding from all potential sources, and ensuring that these risks can be safely managed over the lifetime of the development.

15.40 The Flood Risk Assessment report (**ES Volume 4: Appendix 15.1**) contains full details of the strategy for managing flood risk, surface and foul water. Specifically, a series of mitigation measures are outlined which demonstrate how flood risk along with surface and foul water can be sustainably managed over the lifetime of the development.

15.41 Similarly, surface and foul water will be managed in accordance with the requirements set out by United Utilities provided by the Developer Service Team in response to a developer enquiry, which will in turn relate to ensuring that the local drainage infrastructure has adequate capacity to remove surface and foul water from the development.

### Limitations and Assumptions

15.42 The study area extent covers the redline planning boundary, along with encompassing the associated development of the square adjacent to the PDS.

15.43 The assessment of existing drainage systems is based on a review of available records. Detailed connectivity surveys and hydraulic and structural assessments of existing drainage have not been undertaken as part of this assessment.

15.44 The assessment of the existing flood risk is based an appraisal process comprising a desk study, data research and consultation with regulatory bodies and third parties.

**Assessment of Construction Phase Effects**

**Contaminants and Suspended Sediments in Surface Water Runoff Entering the local Drainage Infrastructure**

15.45 During the site preparation, demolition, earthworks and construction phase of the Proposed Development there will be a number of activities which could cause sedimentation and contamination of surface water runoff. The impact of effects during the construction phase will be assessed against the baseline conditions. These activities include:

- excavation and foundation construction within the PDS and site preparation;
- installation of temporary and permanent infrastructure and roads;
- construction of proposed buildings;
- construction of drainage runs and utilities duct runs; and
- movement and use of static and mobile plant / construction vehicles.

15.46 The activities that will be undertaken on PDS during this phase may lead to the disturbance and mobilisation of sediments (e.g. dust and muds). In particular, during periods of heavy rainfall, vehicle movements resulting in damage to soil structure may generate increased sedimentation within surface water runoff. In addition, during periods of dry, windy weather, wind-blown dusts generated by the excavation of soils have the potential to directly affect surface water features.

15.47 The change of land use may result in sediments directly or indirectly entering the existing public sewerage. The subsequent sediment accumulation may reduce capacity and locally increase the potential for flooding.

15.48 The effect of the PDS on the local sewer network is considered to be of local importance (medium sensitivity level), and that the magnitude of change prior to mitigation is high. Therefore, there is the potential for a direct, temporary, short-term adverse effect of **moderate significance** (**Significant in EIA terms**) prior to the implementation of mitigation measures.

***Risk of Flooding to Construction Workers and site occupants***

15.49 As a result of the site preparation, demolition, earthworks and construction phase there is potential for the risk of surface water flooding from overland flows to increase. This is in response to sediment and soil emanating from the PDS entering and reducing the capacity of local drainage infrastructure, including both pipes and collection gullies/traps. The impact and occurrence of these effects will be assessed against the baseline conditions.

15.50 Flooding, especially after extreme rainfall events, has the potential to cause ponding to depths that generally would be low based on existing ground levels. However, the

excavations for foundations, service ducts and drainage runs could fill with water presenting a more significant hazard to construction workers occupying construction trenches.

15.51 As the safety of construction contractors is considered to be of national importance (very high sensitivity) and the magnitude of effect is medium; there is the potential for a direct, temporary, short-term adverse effect of **moderate to major significance (Significant in EIA terms)** prior to the implementation of mitigation measures.

**Assessment of Operational Phase Effects**

***Risk of Flooding to Employees***

15.52 The design of the Proposed Development will include a number of aspects that will inherently lead to surface water flood risk being reduced when compared to the baseline situation. These are described briefly as follows:

- design and installation of a new fit-for-purpose drainage system with capacity to safely remove surface water from storms up to and including the 1 in 100-year event, plus a 40% allowance for climate change;
- gradients of external areas, where possible, will be designed to fall away from buildings, such that any overland flow resulting from extreme events would be channelled away from the entrances; and
- where operational requirements demand ground levels to fall towards buildings, suitable drainage will be provided to intercept surface water runoff.

15.53 As the safety of employees is considered to be of national importance (very high sensitivity) and the magnitude of change, prior to mitigation, is negligible there is the potential for a direct, permanent, medium-term beneficial effect of **negligible significance (not significant in EIA terms)** prior to the implementation of mitigation measures.

***Increase in Foul Flows and Associated Capacity Requirements in the Off-site Sewerage System***

15.54 It is anticipated that The Proposed Development will produce additional foul sewerage compared to the baseline situation, which will discharge to the United Utilities public sewer. No information has yet been provided as part of the initial data request from United Utilities in relation to capacity within the existing network.

15.55 Further consultation with United Utilities will be necessary prior to connecting any new foul sewerage to their network to confirm capacity is available, or any requisite upgrades are in place.

15.56 As the effect of the Proposed Development on the public sewer network is of local importance (medium sensitivity level) and the magnitude of change prior to mitigation is negligible; there is the potential for a direct, permanent, long-term adverse effect of **negligible significance (not significant in EIA terms))** prior to the implementation of any mitigation measures.

***Increase in potable water demand and associated capacity requirements of the offsite water supply network***

15.57 The Proposed Development will increase the potable water demand on the United Utilities network compared to the existing situation.

15.58 A new supply enquiry response from United Utilities had not been received at the time of writing, which would confirm that the Proposed Development can be supplied with potable water from the existing infrastructure within Great Ancoats Street without requiring any reinforcement works or diversions.

15.59 As the effect of the Proposed Development on the potable water network is of local importance (medium sensitivity level) and the magnitude of change prior to mitigation is negligible; there is the potential for a direct, permanent, long-term adverse effect of **negligible significance (not significant in EIA terms)** prior to the implementation of mitigation measures.

## Assessment of Cumulative Effects

**Inter-Project Cumulative Effects**

15.60 The projects listed in ES Volume 4: Appendix 5.2 have been cumulatively assessed.

15.61 The following schemes are considered to potentially impact cumulatively:

- Map ref 5 - X1 Eastbank Phase II - Erection of part 10, part 8, part 7, part 6, part 5 storey building to form 201 residential apartments with ancillary ground floor gym
- Map ref 6 - All Souls Rectory (6) - 4 storey building to form 10 apartments with associated landscaping, parking,
- Map ref 7 - Vesta - Erection of part 9, part 8, part 7 storey building to form residential apartments with 3 x 3 storey residential dwellings
- Map ref 8 - Islington Wharf Phase III – erection of three buildings comprising 101 residential units (10 storey, part 5 part 3 storey, 8 storey), associated vehicular access and landscaping.
- Map ref 9 - demolition of existing buildings and erection of 12 townhouses and 345 apartments with ground floor commercial and leisure uses
- Map ref 28: erection of 11 storey building comprising 91 residential apartments
- Map ref 29: erection of 7 to 8 storey residential building (Class C3) to provide 41 apartments with associated landscaping and other works
- Map ref 30: erection of 6 storey building (plus plant level) to create office accommodation Class B1 at 1st to 5th floors and ground floor and basement (A1, A3 and A4 use) with repair up to second floor and reinstatement from 2nd floor to roof of former central feature above former entrance block
- Map ref 31: erection of 3, 5, 7 and 8 and 11 storey buildings to comprise 38 residential apartments above ground floor commercial space and B1 (Office)
- Map ref 32: conversion of building to 31 x apartments with 19 parking spaces, 31 cycle parking spaces and elevational alterations to include creation of private garden and courtyard spaces
- Map ref 33: erection of a 12-storey building to create a 212-bedroom hotel on Meininger, Great Ancoats Street

- Map ref 34: erection of a part 4, part 5, part 6 storey extension to existing student accommodation building to form 25 additional student flats at Unite Students, Kincardine Court
- Map ref 35: public realm within the Portugal Street East Regeneration Framework - Public Open Space and Public realm
- Map ref 36: Former Fairfax Building Construction of two residential buildings (Use Class C3) comprising Block 1 (29 storeys, 224 apartments) and Block 2 (23 storeys, 264 apartments) along with shared amenity space, 27 car parking spaces, 492 cycle spaces and landscaping
- Map ref 37: Plot G of the Portugal Street East Regeneration Framework - Demolition of existing building and erection of a 13 / part 14 (plant level) storey building to create a 275-bedroom hotel

15.62 The potential inter-projects effects are summarised below.

15.63 The following have been considered as potential inter-project effects:

15.64 **Cumulative demand on water supply:** The individual impact of increased demand caused by the Proposed Development will be exacerbated by the introduction of other new developments to the area. This impact however will be mitigated through the continued upgrade of water distribution network by United Utilities under their statutory water undertaker obligations. As the effect of the Inter-Project Cumulative Effects on the potable water network is of local importance (medium sensitivity level) and the magnitude of change prior to mitigation is negligible; there is the potential for a direct, permanent, long-term adverse effect of **negligible significance (not significant in EIA terms)**.

15.65 **Cumulative demand on public sewer networks:** By complying with National and Local policy for managing surface water run-off from new developments the PDS, along with the other new developments being assessed, will have to reduce the rate at which they discharge into the local public sewer networks. As the effect of the Inter-Project Cumulative Effects on the public sewer network is of local importance (medium sensitivity level) and the magnitude of change prior to mitigation is low; there is the potential for a direct, permanent, long-term positive effect of **low significance**.

**Intra-Project Cumulative Effects**

15.66 The following have been considered as potential intra-project effects:

- Possible impact on **Ground Conditions: (chapter 14)** as a result of a change in impermeable area as a result of the Proposed Development. Briefly, this would be caused by a change in the volume of water which could infiltrate to the ground. However, as the site is currently 100% impermeable and there is no planned change to this, the impact on ground conditions is likely to be negligible.

- The impact of **Climate Change: (chapter 21)** represents a significant risk to future water resources and flood risk, as the occurrence of high intensity summer storms has the potential to increase loading on the combined sewer network. Equally, this could cause the capacity of the site drainage to be exceeded. In mitigating the latter, a 40% increase in peak rainfall intensity has

been included into the surface water storage calculation which allows for such an increase.

## Mitigation of Effects

### Construction

***Contaminants and Suspended Sediments in Surface Water Runoff entering Drainage Infrastructure***

15.67 Due cognisance will be taken of the construction phasing and suitable protection/treatment will be included to control surface water runoff in accordance with good practice to ensure compliance with environmental and Environment Agency regulations.

15.68 In addition, there should be an adherence to good environmental site practices. These will be detailed in the Construction Environmental Management Plan (CEMP) which it is anticipated will be included within the planning application and are likely to include:

- installation of systems such as silt traps designed to trap silty water including adequate maintenance and monitoring of these to ensure effectiveness, particularly after adverse weather conditions;
- foul sewage from construction site offices, etc should be properly collected, stored and removed from site for appropriate disposal until such time as a formal connection can be made to the United Utilities public sewer;
- working areas shall be clearly defined to ensure the disturbance of soils is minimised;
- haul routes and accesses shall be clearly defined to minimise the risk of accidents;
- the cleaning of vehicle wheels prior to leaving site;
- controlled and covered waste storage areas;
- dust suppression (i.e. damping down);
- provision of environmental awareness training for site workers;
- programme and phasing details of works; and
- detailed site layout arrangements (including requirements for temporary works), plans for storage, accommodation, vehicular movements, delivery and access.

***Risk of Surface Flooding to Construction Contractors***

15.69 At the commencement of the construction phase, site surface water runoff will be controlled to mitigate flood risk across the Proposed Development Site. Additionally, surface water flow paths will be established and groundwater levels monitored to establish the risk of surface water inundating excavations. Suitable measures including pumping/dewatering will be employed as necessary.

15.70 It is recommended that the risk of surface water flooding should be considered within any Health and Safety Plan for the Proposed Development Site. This should include localised hazards such as flooding to excavations, working near to or within existing and new drainage features as well as adequate and safe access to and egress from the site both for workers on site and emergency services plus the potential for contamination of flood water.

15.71 Workers on-site should be made aware of risks and how to mitigate them during the site preparation, demolition, earthworks and construction phase.

**Operation**

***Risk of Surface Water Flooding to Site Occupants***

15.72 All appropriate mitigation will be built into the Proposed Development during the design process so to comply with the mitigation measures.

***Increase in Foul Flows***

15.73 No mitigation is required, subject to response from United Utilities.

***Increase in Potable Water Demand***

15.74 No mitigation is required, subject to response from United Utilities.

***Monitoring and follow up***

15.75 The CEMP or alternative suitable document should be adopted and developed by the contractors on site to incorporate a risk register to effectively identify, control and manage the potential risks at the PDS through the preparatory and construction stages of the development.

15.76 It will incorporate the mitigation measures recommended above to reduce the significance and, where possible, eliminate the identified effects. It will be a live document setting out the construction management system to be adopted on-site. Detailed risk assessments will be produced for all operations from which a safe system of work shall be developed. Contractors will be required to monitor this process and develop assessments and working methods appropriate to changes in work activities. Intrusive soil investigation will be undertaken to characterise the ground conditions at the site which include the monitoring and documentation of groundwater flows.

## Residual Effects

**Construction**

***Contaminants and Suspended Sediments in Surface Water and Groundwater Runoff Entering the and Drainage Infrastructure***

15.77 Following the implementation of the mitigation measures, the risk of surface water runoff being contaminated with suspended solids and flowing uncontrolled in the drainage network is low.

15.78 As the failing WFD status of Ashton Canal controlled water receptors is considered to be regionally important, and that the magnitude of change is considered to be negligible, there is the potential for a direct, temporary, medium-term effect of **negligible significance (not significant in EIA terms)** following the implementation of the mitigation measures.

***Risk of Surface Flooding to Construction Contractors***

15.79 Following the implementation of the mitigation measures, the risk of surface water flooding is reduced for the construction works.

15.80 As the safety of construction contractors is considered to be of national importance and the magnitude of effect following mitigation is low there, is the potential for a direct, permanent, long-term beneficial effect of moderate significance (beneficial significant in EIA terms ) following the implementation of mitigation measures.

15.81 The residual risk associated with large storm events will be mitigated to negligible (not significant in EIA terms) by the location and layout of the Proposed Development and its associated works, and through the design of the site surface water drainage system.

**Operational Residual Effects**

***Risk of Surface Water Flooding to Site Occupants***

15.82 No mitigation is required beyond the implementation of measures designed into the scheme, and therefore the effects remain as **negligible significance (not significant** in EIA terms).

***Contaminants and Suspended Sediments in Surface Water and Groundwater Runoff Entering the Surrounding Watercourses and Drainage Infrastructure***

15.83 Following the implementation of the surface water drainage system and the recommendations, the risk of surface water runoff being contaminated with suspended solids and flowing uncontrolled to Ashton Canal is reduced.

15.84 As the failing status, under the Water Framework Directive, of Ashton Canal controlled water receptors is considered to be regionally important and that the magnitude of change is considered to be of low, there is the potential for a direct, permanent, long-term beneficial effect of moderate significance (beneficial significant in EIA terms) following the implementation of the mitigation measures.

***Increase in Foul Flows and Associated Capacity Requirements in the Offsite Sewerage System***

15.85 As no mitigation is understood to be required at current time, the effect of the Proposed Development Site on the public sewer network is of local importance and the magnitude of change, is negligible. There is therefore the potential for a direct, permanent, long-term adverse effect of negligible significance (not significant) following the construction of the Proposed Development Site.

***Increase in potable water demand and associated capacity requirements of the offsite water supply network***

15.86 A response from United Utilities to the pre-planning enquiry for the PDSPDS is awaited at the time of writing this chapter. The response from United Utilities will determine the extent of reinforcement works required (if any) in order to allow the PDSPDS to connect to the potable water network.

15.87 As the effect of the PDSPDS on the potable water network is of local importance and the magnitude of change is negligible (once any required upgrade works have taken place), there is the potential for a direct, permanent, long-term adverse effect of negligible significance (not significant) following the construction of the PDS.

***Summary of Residual Effects***

15.88 The assessment of residual effects is supported by summary Table 15.5 below.

**Table 15.5: Summary of Residual Effects**

| *Receptor Effect* | *Description of Impact and Significance/Magnitude* | *Duration* | *Mitigation* | *Residual Impact and significance* | *Duration of Residual Impact* |
|---|---|---|---|---|---|
| *Construction Phase* | | | | | |
| Receiving Public Sewer Contamination of run-off | Moderate adverse significance (Signifcant) | Short term | Adherence to good environmental site practices. These will be detailed in the Construction Environmental Management Plan (CEMP) | Negligible and Not Significant | Short term |
| Risk to construction workers | Moderate to major adverse significance (Significant) | Short term | Surface water flow paths will be established and groundwater levels monitored to establish the risk of surface water inundating excavations. Suitable measures including pumping/dewatering will be employed as necessary.<br><br>Health and Safety Plan should include localised hazards such as flooding to excavations, working near to or within existing and | Beneficial moderate significance (beneficial significant) | Short term |

| *Receptor Effect* | *Description of Impact and Significance/Magnitude* | *Duration* | *Mitigation* | *Residual Impact and significance* | *Duration of Residual Impact* |
|---|---|---|---|---|---|
| | | | new drainage features as well as adequate and safe access to and egress from the site both for workers on site and emergency services plus the potential for contamination of flood water | | |
| *Operational Phase* | | | | | |
| Risk of Surface Water Flooding to Site Occupants and Employees | Negligible significance (not significant in EIA terms) | Long Term | No mitigation is required beyond the implementation of measures designed into the scheme | Negligible significance and not significant | Long Term |
| *Increase in Foul Flows* | Negligible significance and not significant | Long Term | None Required | Negligible significance and not significant | Long Term |
| *Increase in potable water demand* | Negligible significance and not significant | Long Term | None Required | Negligible significance and not significant | Long Term |

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# 16. Ecology

## Introduction

16.1 The assessment of effects on ecology will consider the potential effects of the Proposed Development on designated sites, habitats and species. The assessment seeks to identify sensitive ecological receptors and the likely effects of the Proposed Development on those receptors. Where significant adverse effects are identified the assessment sets out mitigation measures to avoid, reduce or off-set those effects. Any residual effects are identified. The assessment also considers inter-project and intra-project cumulative effects on ecology.

16.2 This chapter has been prepared by Sacha Rogers, Managing Director, Penny Anderson Associates Ltd. Sacha holds a BSc (Hons) degree in Rural Environment Studies and is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management.

## Legislative Framework, Policy and Guidance Documents

### Legislation

16.3 The following legislative framework will inform the assessment of effects on ecology:

- Conservation of Habitats & Species Regulations 2017 (the 'Habitat Regulations');
- Wildlife and Countryside Act 1981 (as amended); and
- The Natural Environment and Rural Communities (NERC) Act, 2006.

16.4 The Habitat Regulations 2017 replaced The Conservation (Natural Habitats, etc.) Regulations 1994 (as amended and transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora ('EU Habitats Directive'), and Council Directive 79/409/EEC on the Conservation of Wild Birds ('Birds Directive') into UK law.

16.5 Regulation 41 of the Habitat Regulations 2017 makes it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2 (European protected species of animals), or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4 (European protected species of plant). Development that would contravene the protection afforded to European protected species requires a derogation (in the form of a licence) from the provisions of the Habitats Directive.

16.6 The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in England. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention').

16.7 The NERC Act 2006 states that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Biodiversity Action Plans provide a framework for prioritising conservation actions for biodiversity.

16.8 Section 41 of the NERC Act 2006 requires the Secretary of State to publish a list of species of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity. The list, a result of the most comprehensive analysis ever undertaken in the UK, currently contains 1,149 species, including for example, hedgehog (*Erinaceus europaeus*) and 65 habitats that were listed as priorities for conservation action under the now defunct UK Biodiversity Action Plan (UK BAP).

16.9 As a response to the Convention on Biological Diversity (CBD) Strategic Plan for Biodiversity 2011-2020 and EU Biodiversity Strategy (EUBS) the UK BAP was devolved and succeeded by the UK Post-2010 Biodiversity Framework (and Biodiversity 2020 strategy in England). This list (now referred to as the list of Species and Habitats of Principal Importance in England) will be used to guide decision-makers such as public bodies, including local and regional authorities in implementing their duty under Section 41 of the NERC Act 2006 *'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions'*.

**Policy**

16.10 The National Planning Policy Framework (NPPF) 2019 sets out the Government's planning policies for England, including how plans and decisions are expected to apply a presumption in favour of sustainable development. The NPPF focuses on conservation and enhancement of the natural environment. The NPPF acknowledges the importance of protecting and improving green corridors and ecological connectivity, providing strategic green infrastructure gains, factoring in overall enhancement of natural capital.

16.11 Relevant Local Plan policies are set out in the Manchester's Local Development Framework: Core Strategy Development Plan Document (2012). These are:

- Policy DM1 *'Development Management'* which requires all development to have regard to effects on biodiversity;
- Policy EN9 *'Green Infrastructure'* which expects new development to maintain existing green infrastructure in terms of its quantity, quality and multiple function; and
- Policy EN15 *'Biodiversity and Geological Conservation'* which seeks to maintain or enhance sites of biological and geological value throughout the city. Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity on or adjacent to the site and contribute to existing or potential ecological linkages.

**Good Practice**

16.12 Baseline surveys of the study area have been undertaken in accordance with best practice guidance comprising the Handbook for Phase 1 Habitat Survey (JNCC), Baseline Ecological Assessment (IEA) and Bat Conservation Trust Good Practice Guidelines (Collins).

## Assessment Methodology

**The Study Area**

16.13 The study area for the ecology assessment comprised the Proposed Development Site (PDS) for field surveys and a 1km buffer from the centre of the PDS for the desk study.

16.14 The study area comprises a predominantly built up urban environment in Greater Manchester bisected by two green corridors which comprise the River Medlock and associated woodland in the south of the study area and the Ashton Canal and Rochdale Canal in the north of the study area. The study area is illustrated in **ES Volume 4: Appendix 16.1.**

16.15 A 1km study area is considered appropriate to capture desk study records for the more mobile species, namely birds and bats which have the potential to utilise habitats within the PDS as part of their wider foraging and dispersal territories. In addition, a 1km study area is considered sufficiently large to capture records of designated sites which could potentially be affected directly or indirectly by the Proposed Development.

16.16 It is considered highly unlikely that the effects of the Proposed Development on ecology would extend beyond 1km from the PDS.

**Baseline Surveys**

***Desk Based Research***

16.17 The Multi-Agency Information for the Countryside (MAGIC) website has also been consulted for details of statutory designated sites and Priority Habitats within a 1km search area from the centre of the PDS.

**Field Survey Work**

***Extended Phase 1 Habitat Survey***

16.18 An Extended Phase 1 Habitat Survey (JNCC) was conducted during a single visit on 2 July 2018. The survey took approximately two hours. The survey encompassed all land within the PDS boundary (National Grid Reference: SJ 842 973). The habitats present were recorded on to a field map with written target notes providing supplementary information on, for example, species composition structure and management where relevant.

16.19 The survey was 'extended' (IEA 1995) to include notes on fauna and habitats which could potentially support protected and notable species. The presence of, or potential for, protected and notable species was noted on the field map and in the written target notes during the survey.

***Building Assessment for Bats***

16.20 A single building within the PDS (National Grid Reference: SJ 842 973) was assessed for potential to support bat roosts, following established best practice guidance as set out in Bat Surveys Good Practice Guidelines (Collins). The building inspection for bats was conducted during a single visit on 2 July 2018 and took approximately two hours to complete. The survey was conducted using high-powered torches and clos-focusing binoculars to illuminate and examine potential roosting features and potential roost access points. Ladders were used where necessary to access lofts or external features such as fascia boards and soffits.

16.21 At the same time any evidence of nesting birds e.g. active nests and old nest remains was also recorded.

***Consultations***

16.22 Consultation was undertaken with Greater Manchester Ecology Unit (GMEU) in July 2018 to obtain details of locally designated sites and protected and notable species within a 1km search area from the centre of the PDS.

16.23 No further consultation will be undertaken to inform the assessment of effects on ecology.

**Significance Criteria**

16.24 A number of relevant guidance documents will be drawn upon throughout the assessment process.

16.25 The overall approach will be guided by the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM) referred to hereafter as ‘the CIEEM guidelines'. The CIEEM guidelines are intended to promote good practice in ecological assessment relating to terrestrial, freshwater, coastal and marine environments within the UK.

16.26 The CIEEM guidelines have been developed with reference to various existing guidance including Byron (2000), Oxford (2001) and Institute of Environmental Management and Assessment (2004). The guidance is in line with Planning Policy Statement 9 on Biodiversity and Geological Conservation (ODPM, 2005) which is now replaced by the NPPF.

16.27 The assessment approach will broadly comprise the following steps:

- Identification of the ecological features of interest both within the PDS and within the 1km desk study search area;
- Assigning a value to each ecological receptor, including legal protection where applicable;
- Identifying the potential effect on each ecological receptor, including the magnitude, duration, reversibility and timing/frequency of the effect;
- Assessing the significance of the potential effect on each ecological receptor;
- Assessing cumulative effects;
- Identifying appropriate mitigation or compensatory measures; and
- Identifying any residual effects remaining after mitigation or compensatory measures are in place.

***Magnitude of Effect***

16.28 The magnitude of effect upon a sensitive receptor will be ascribed using the criteria set out in **Table 16.1.**

16.29 The approach draws upon the CIEEM guidelines and the Department for Transport 'Transport Appraisal Guidance' (TAG) framework (2015). The interpretation of the magnitude of the effect will draw upon characteristics such as:

- Confidence that the effect will occur (certain, probable, unlikely, highly unlikely);
- Reversibility of the effect (temporary, permanent); and
- Timing/frequency of the effect (occurring at a critical stage in lifecycle, regular or irregular).

**Table 16.1: Framework for Categorisation of the Magnitude of the Effect**

| Magnitude | Criteria |
|---|---|
| Major positive | Likely to represent a key factor in the decision making process with effects generally associated with features of national importance. |
| Moderate positive | Beneficial effects associated with regional or district scale considerations, which are likely to be important issues in the decision process. |
| Minor positive | Positive effects important at local scale but not likely to be key issues in the decision process. |
| Negligible | No effect or none of significance. |
| Minor negative | Effects important at local scale but not likely to be key issues in the decision process (generally capable of amelioration by mitigation measures). |
| Moderate negative | Effects associated with regional or district scale considerations which are likely to be important issues in the decision process. Mitigation measures required may not be successful / adequate. |
| Major negative | Likely to represent a key factor in the decision making process with effects generally associated with features of national importance. Mitigation measures are likely to be inadequate. |

**Sensitivity of Receptor**

16.30 The evaluation of designated sites, habitats and species will be carried out by placing each sensitive receptor within a geographical frame of reference. The TAG framework assigns each of the sensitive receptors to one of five geographical frames of reference. i.e. National, County etc. In addition, each site or feature can also be assessed in terms of its designation or protected status. In this instance, the CIEEM geographical frames of reference have been aligned to the evaluation criteria set out in the TAG framework and are presented in **Table 16.2.**

16.31 The CIEEM categories for Regional, County and District have been accorded the same status and, for ease of reference, this category is referred to as Medium value. Where an ecological feature falls into more than one category of scale e.g. a site designated at both the International and National level, then the highest category is always selected for evaluation purposes.

16.32 The CIEEM guidelines also require the identification of various characteristics for each ecological feature that are important in terms of biodiversity, but which are not necessarily related to the geographical frame of reference or designation status.

16.33 The characteristics identified by the guidelines comprise:

- Animal or plant species, subspecies or varieties that are rare or uncommon, either internationally, nationally or more locally;
- Endemic species or locally distinct sub-populations of a species;
- Ecosystems and their component parts, which provide the habitats required by the above species, populations and/or assemblages;
- Habitat diversity, connectivity and/or synergistic associations (e.g. networks of hedges and areas of species-poor pasture that might provide important feeding habitat for rare species such as the greater horseshoe bat (*Rhinolophus ferrumequinum*);

- Notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context;
- Plant communities (and their associated animals) considered typical of valued natural/semi-natural vegetation types - these will include examples of naturally species-poor communities;
- Species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change;
- Species-rich assemblages of plants or animals; and
- Typical faunal assemblages characteristic of homogenous habitats.

16.34 A number of sources of information will be used to assess the importance of ecological including national, regional and local Biodiversity Action Plans (BAPs), local flora and faunal atlases and lists of species of nature conservation concern. The resulting analysis will inform the final value assigned to each ecological feature **(see Table 16.2).**

**Table 16.2: The Nature Conservation Evaluation Framework in Relation to the Geographical Framework and the Designation of Sites and Features, based on CIEEM 2018 and TAG 2015**

| Geographic Framework | Relevant Ecological Site or Feature within each Class | Sensitivity |
|---|---|---|
| International | All internationally important sites such as European designated sites – Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) and Ramsar sites.<br>Species receiving the highest level of protection within the UK legislative framework – European Protected Species (EPS) | Very High |
| National | Sites of Special Scientific Interest (SSSI) and other nationally important sites such as National Nature Reserves (NNR).<br>Species receiving protection under the Wildlife and Countryside Act (WCA) 1981 and its amendments.<br>Priority Species and Habitats in the national Biodiversity Action Plan although subject to other considerations such as diversity and rarity. | High |
| Regional, County, District (or Unitary Authority, or Borough) | These categories typically relate to sites that may be classified as non-statutory 'Local sites', as defined by DEFRA (2006). They are resources that are already, or would merit consideration for designation as, local wildlife sites.<br>Site of Biological Importance (SBI), Local Nature Reserves (LNR), and County Wildlife Site (CWS).<br>Regional or Local BAP species and habitats.<br>Birds of high or medium conservation concern (Red- or Amber-listed). | Medium |
| Local | Typically within the scale of a parish.<br>Species or species assemblages of local interest as identified from local atlases for flora and fauna. | Low |

| Geographic Framework | Relevant Ecological Site or Feature within each Class | Sensitivity |
|---|---|---|
| Within zone of influence/on the site | Ecological resources of value within the boundaries of the site, or extending to its zone of influence for the feature concerned.<br>Badgers as protected under the Protection of Badgers Act 1992.<br>Invasive plant species as identified under Schedule 9 of the WCA 1981 and its amendments. | Low |

**Duration of Effect**

16.35 The duration of the effect would be taken into consideration in accordance with the timescales defined in **Table 16.3** and using professional judgement.

**Table 16.3: Definition of Timescales Considered in the Ecology Assessment**

| Timescale | Definition |
|---|---|
| Short term | 0 to 5 years including the construction period and on completion |
| Medium term | 5 to 15 years including mitigation establishment |
| Long term | 15+ years including long term operation of the site |

**Significance of Effect**

16.36 The assessment of the significance of effects will consider both the likely magnitude of the effect and the sensitivity of the receptor to derive an overall 'Relative Significance Level'. This is presented in **Table 16.4** and again is drawn from the TAG guidance (2015).

**Table 16.4: Relative Significance Level**

| | | Sensitivity of Receptor | | | |
|---|---|---|---|---|---|
| | | Low | Medium | High | Very High |
| Magnitude of Effect | **Negligible** | Negligible | Negligible | Negligible | Negligible |
| | **Minor** | Minor | Minor | Moderate | Moderate |
| | **Moderate** | Minor | Moderate | Moderate | Major |
| | **Major** | Moderate | Moderate | Major | Major |

16.37 In order to categorise the significance of effects the following definitions of significance have been adopted based on professional judgement:

- Major (Beneficial or Adverse) - An effect on one or more receptor(s) of International, European, UK or National Value (i.e. High or Very High). Only Major effects on features of Very High or High value will normally assigned this level of significance. They should be considered to represent key factors in the decision-making process.
- Moderate (Beneficial or Adverse) - An effect on one or more receptor(s) of Regional, County or Unitary Authority Area (i.e. Medium) Value. These effects may be important, but are not likely to be key decision-making factors.

- Minor (Beneficial or Adverse) - An effect on one or more receptor(s) of Local (i.e. Low or Lower) Value. These effects are unlikely to factor in the decision-making process, but are important in enhancing the subsequent design of the Proposed Development.
- Negligible - No significant effects on key nature conservation receptors. Absence of effects, or only those effects that are beneath levels of perception.

16.38 In this assessment, a residual effect of Moderate or Major Adverse will be considered as 'significant' in terms of the decision making process.

16.39 Residual (post-mitigation) effects would be identified once mitigation has been taken into account. Residual effects are those which cannot be avoided through the adoption of suitable mitigation measures.

### Existing Baseline Conditions

16.40 The full results of baseline desk study and field surveys are presented in **ES Volume 4: Appendix 16.1.**

16.41 In summary, the results of the desk study confirm that there are no statutory sites within the 1km search area. There are two locally designated sites referred to as 'Sites of Biological Importance' (SBIs) in Greater Manchester within the search area. These are:

- Rochdale Canal Stotts's Lane - Ducie Street Basin located approximately 50m north of the PDS; and
- Ashton Canal (West) located approximately 100m north of the PDS.

16.42 The only Priority Habitat located within the 1km search area comprises the River Medlock and its associated wooded corridor, located approximately 250m south east of the PDS, and too distant to be affected by the Proposed Development.

16.43 The desk study data returned by GMEU has identified the following species records within the 1km search zone:

- A single record of badger (*Meles meles*) located approximately 800m to the east;
- A number of bat roosts for common pipistrelle (*Pipistrellus pipistrellus),* soprano pipistrelle (*P. pygmaeus*), pipistrelle (*Pipistrellus sp.)* and brown long eared bat (*Plecotus auritus),* the nearest being a brown long eared roost located approximately 100m south west of the PDS;
- Priority bird species including lapwing (*Vanellus vanellus*), song thrush (*Turdus philomelos*), house sparrow (*Passer domesticus*) and dunnock (*Prunella modularis*), the nearest record to the PDS being lapwing located approximately 150m to the north adjacent to Ashton Canal (West) SBI;
- Priority plant species grass-wrack pondweed (*Potomogeton compressus*) located approximately 150m north within the Ashton Canal (West) SBI;
- Schedule 1 bird species, the nearest to the PDS being little ringed plover (*Charadrius dubius*) recorded approximately 150m north of the PDS adjacent to Ashton Canal (West) SBI; and
- Floating water plantain *(Luronium natans*) which is listed in Annex II of the Habitats Directive, also associated with Ashton Canal (West) SBI some 500m to the north west of the PDS.
- There are no notable or protected species records from within or immediately adjacent to the PDS itself.

16.44 The PDS comprises hardstanding and a single building. Vegetation comprises a narrow, sparsely vegetated strip with a small number of ephemeral/short perennial species located along the toe of the western aspect of the building. The botanical species recorded along the toe of the building were all common and widespread species typically of disturbed ground in urban locations and included common ragwort (*Senecio jacobaea*), broad leaved willowherb (*Epilobium montanum*), creeping bent (*Agrostis capillaris*), wall lettuce (*Lactuca muralis*) and groundsel (*Senecio vulgaris*).

16.45 The building was found to have no evidence of, or potential for, roosting bats and the PDS and adjacent habitats had limited potential to support foraging or commuting bats due to a lack of semi-natural habitat.

16.46 No evidence of other protected species, including nesting birds, was found during the Extended Phase 1 Habitat survey and the PDS was considered highly unsuitable for protected and notable species due to a lack of semi-natural vegetation. Opportunities for nesting birds associated with the building were limited due to a lack of suitable access points and perching or nesting locations.

## Predicted Future Baseline Conditions

### Construction (2020)

16.47 It is considered unlikely that the PDS would change significantly, from an ecological perspective, between the date of baseline survey and construction in 2020.

### Operation (2022)

16.48 It is considered unlikely that the PDS would change significantly, from an ecological perspective, between the date of baseline survey and commencement of operation in 2022.

## Assessment of Effects

### Matters Scoped Out

16.49 The need for further ecological surveys has been scoped out using professional judgement and based on the results of the Extended Phase 1 Habitat Survey which concluded that the site supported no ecological features of interest.

16.50 Protected and notable species records within the 1km study area have been scoped out of the assessment using professional judgement. This is because the species records returned by the desk study consultation are considered too distant from the PDS, namely 100m or more from the PDS, to be likely to experience significant effects.

16.51 The assessments scoped out of this ES were agreed with MCC as confirmed in the EIA Scoping Opinion 12 November 2019 (ES Vol 4 Appendix 5.1).

### Embedded Mitigation

16.52 No embedded mitigation is required in respect of ecology.

### Limitations and Assumptions

16.53 A small loft void above the offices at the eastern end of the building could not be accessed for internal inspection due to a lack of a suitable support to lean a ladder against. However, the loft hatch appeared well sealed and likely to be of elevated temperature and loft dwelling bat species were considered very unlikely to be present. The lack of access to this loft space was therefore not considered to be a significant constraint to the survey.

**Assessment of Construction Phase Effects**

16.54 The following features of ecological interest occur within the study area with the potential to be affected by the construction phase of the Proposed Development:

- Rochdale Canal Stotts Lane - Ducie Street Basin SBI (hereafter referred to for the purposes of this report as the 'Rochdale Canal SBI') located approximately 50m of the site;
- Ashton Canal (West) SBI (hereafter referred to for the purposes of this report as the 'Ashton Canal SBI') located approximately 100m north of the site;

16.55 The SBIs are features of 'medium' ecological value.

16.56 There are no features of ecological interest within the PDS itself and this is considered unlikely to have changed from the baseline (2018) conditions by the time of commencement of construction. Habitats within the PDS comprising common and widespread plant species within the strip of ephemeral/short perennial vegetation and a single building with negligible potential to support roosting bats and nesting birds are considered to be of negligible ecological value. However, these features have been included in the assessment of effects to ensure that the assessment is robust and complete.

16.57 The Proposed Development has the potential to affect features of ecological interest during the construction phase arising from demolition of the existing building and construction of the Proposed Development.

16.58 Potential construction related effects on features of ecological interest comprise:

- Direct habitat loss;
- Generation of noise and vibration;
- Changes in air quality e.g. generation of dust;
- Changes in water quality e.g. accidental spillage or discharge of surface water; and
- Shading.
- The potential effects on each feature of ecological interest (or in the case of habitats within the PDS, of negligible ecological interest) are considered below.

**Ephemeral/Short Perennial Vegetation**

16.59 Demolition and construction activities would result in the loss of a narrow strip of ephemeral/short perennial vegetation with a low number of common and widespread plant species. Since this feature is of negligible ecological interest the effect is considered to be not significant. The effect is permanent and long term.

**Building**

16.60 Demolition and would result in the loss of single building with negligible potential to support roosting bats and nesting birds. Since this feature is of negligible ecological interest the effect is considered to be not significant. The effect is permanent and long term.

**Rochdale Canal SBI**

16.61 The Rochdale Canal SBI is located approximately 50m to the north of the PDS and is separated from the PDS by existing hard standing, roads and residential flats. It is considered highly unlikely that noise, vibration, dust, changes in water quality and shading effects arising at the PDS would extend to the Rochdale Canal SBI due its distance from the site and presence of physical barriers (hardstanding, roads and existing built development) between the PDS and the SBI.

16.62 Construction phase effects on the Rochdale Canal SBI are therefore considered to be neutral and not significant. Effects are temporary and of short term duration.

**Ashton Canal SBI**

16.63 The Rochdale Canal SBI is located approximately 100m to the north of the PDS and is separated from the PDS by existing hard standing, roads and residential flats. It is considered highly unlikely that noise, vibration, dust, changes in water quality and shading effects arising at the PDS would extend to the Ashton Canal SBI due its distance from the site and presence of physical barriers (hardstanding, roads and existing built development) between the PDS and the SBI.

16.64 Construction phase effects on the Ashton Canal SBI are therefore considered to be neutral and not significant. Effects are temporary and of short term duration.

**Assessment of Operational Phase Effects**

16.65 The following features of ecological interest occur within the study area with the potential to be affected by the operational phase of the Proposed Development:

- Rochdale Canal Stotts Lane - Ducie Street Basin SBI (hereafter referred to for the purposes of this report as the 'Rochdale Canal SBI') located approximately 50m of the site;
- Ashton Canal (West) SBI (hereafter referred to for the purposes of this report as the 'Ashton Canal SBI') located approximately 100m north of the site;

16.66 A narrow strip of ephemeral/short perennial vegetation and a single building of negligible ecological interest within the PDS would have been removed at the construction stage and therefore no longer present during the operational phase of development.

16.67 The Proposed Development has the potential to affect features of ecological interest during the operational phase arising from occupation and use of the Proposed Development.

16.68 Potential operational effects on features of ecological interest comprise:

- Lighting.

16.69 The potential effects on each feature of ecological interest are considered below.

**Rochdale Canal SBI**

16.70 The Rochdale Canal SBI is located approximately 50m to the north of the PDS and is separated from the PDS by existing hard standing, roads and residential flats. It is considered highly unlikely that lighting associated with the PDS would extend to the Rochdale Canal SBI due its distance from the site and presence of physical barriers (hardstanding, roads and existing built development) between the PDS and the SBI.

16.71 Operational phase effects on the Rochdale Canal SBI are therefore considered to be neutral and not significant. Effects are permanent and of long term duration.

**Ashton Canal SBI**

16.72 The Ashton Canal SBI is located approximately 100m to the north of the PDS and is separated from the PDS by existing hard standing, roads and residential flats. It is considered highly unlikely that lighting associated with the PDS would extend to the Ashton Canal SBI due its distance from the site and presence of physical barriers (hardstanding, roads and existing built development) between the PDS and the SBI.

16.73 Operational phase effects on the Ashton Canal SBI are therefore considered to be neutral and not significant. Effects are permanent and of long term duration.

## Assessment of Cumulative Effects

### Intra-Project Cumulative Effects

16.74 There are not anticipated to be any intra-project cumulative effects on ecology. This is because there are no features of ecological interest located within the PDS and this is considered unlikely to change from the current baseline (2018) to the time of commencement and operation of Proposed Development.

16.75 In addition, only two ecological features of interest have been identified which have the potential to be affected by the Proposed Development within the wider study area. These are the Rochdale Canal SBI located approximately 50m north of the PDS and Ashton Canal SBI located approximately 100m north of the PDS. In the assessment of construction phase effects it was concluded that both SBIs are too distant from the PDS and separated from it by physical barriers comprising hardstanding, roads and existing built development, to be likely to be affected by the Proposed Development.

16.76 Since the Proposed Development is predicted to have a neutral effect on features of ecological interest, it is concluded that there would be no intra-project cumulative effects.

### Inter-Project Cumulative Effects

16.77 There are not anticipated to be any intra-project cumulative effects on ecology. This is because there are no features of ecological interest located within the PDS and this is considered unlikely to change from the current baseline (2018) to the time of commencement and operation of Proposed Development.

16.78 In addition, only two ecological features of interest have been identified which have the potential to be affected by the Proposed Development within the wider study area. These are the Rochdale Canal SBI located approximately 50m north of the PDS and Ashton Canal SBI located approximately 100m north of the PDS. In the assessment of construction phase effects it was concluded that both SBIs are too distant from the PDS and separated from it by physical barriers comprising hardstanding, roads and existing built development, to be likely to be affected by the Proposed Development.

16.79 Since the Proposed Development is predicted to have a neutral effect on features of ecological interest, it is concluded that there would be no inter-project cumulative effects.

## Mitigation of Effects

16.80 No mitigation is required in relation to ecology.

### Residual Effects

16.81 A summary of residual effects is presented in Table 15.5 below.

**Table 16.5: Summary of Residual Effects**

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and Significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| Ephemeral/short perennial vegetation | Neutral and not significant | Long term | Non required | Neutral and not significant | Long term |

| | | | | | |
|---|---|---|---|---|---|
| Building | Neutral and not significant | Long term | Non required | Neutral and not significant | Long term |
| Rochdale Canal SBI | Neutral and not significant | Long term | Non required | Neutral and not significant | Long term |
| Ashton Canal SBI | Neutral and not significant | Long term | Non required | Neutral and not significant | Long term |

**References**


| | |
|---|---|
| Ref 16.1 | The Conservation of Habitats and Species Regulations 2017 (accessed via www.legislation.gov.uk). |
| Ref 16.2 | Wildlife and Countryside Act 1981 (as amended) (accessed via www.legislation.gov.uk). |
| Ref 16.3 | Natural Environment and Rural Communities Act 2006 (accessed via www.legislation.gov.uk). |
| Ref 16.4 | EC Council Directive 92/43/EEC (1992) The Conservation of Natural Habitats and of Wild Fauna and Flora. Official Journal L206, 22/07/1992 0007-0050 The European Commission Official Journal. |
| Ref 16.5 | Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds Official Journal L103, 25/04/1979 0001-0018. |
| Ref 16.6 | Council of Europe (1979) The Conservation of European Wildlife and Natural Habitats (the 'Bern Convention'). |
| Ref 16.6 | JNCC The UK Biodiversity Action Plan: 1992-2012 (accessed via www.jncc.defra.gov.uk/ukbap). |
| Ref 16.7 | JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. UK Post-2010 Biodiversity Framework. July 2012 (accessed via www.jncc.defra.gov.uk). |
| Ref 16.8 | Ministry of Housing Communities and Local Government (2018) National Planning Policy Framework (accessed via www.gov.uk/government/publications). |
| Ref 16.9 | Manchester City Council (2012) Manchester's Local Development Framework: Core Strategy Development Plan Document Adopted 11th July 2012 (accessed via www.secure.manchester.gov.uk). |
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| | |
|---|---|
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| Ref 16.16 | ODPM (2005) Planning Policy Statement PPS9: Biodiversity and Geological Conservation. |
| Ref 16.17 | Department for Transport (2015) Transport Appraisal Guidance Unit A3: Environmental Impact Assessment. Department for Transport, London. |
| Ref 16.18 | Defra (2006) Local Sites Guidance on their Identification, Selection and Management, Defra, London. |
| Ref 16.19 | Birds of Conservation Concern 4: the Red List for Birds (accessed via www.bto.org). |
| Ref 16.20 | Protection of Badgers Act 1992 (accessed via www.legislation.gov.uk). |

# 17. TV Interference

## Introduction

17.1 This Chapter of the ES assesses the likely significant effects as a result of all phases of the Proposed Development with respect to terrestrial television reception services (Freeview) and satellite television services (such as Sky and Freesat) in relation to surrounding receptors (local television viewers). This Chapter also describes the methods used to assess the effects; determination of the baseline conditions currently existing at the Proposed Development Site and surrounding area; the mitigation measures required to prevent, reduce or offset any significant negative effects, and the likely residual effects after these measures have been implemented. Impacts and effects to analogue television broadcasts have not been assessed because all analogue television services were switched off in the Manchester area during 2009.

17.2 Any large obstruction has the potential to adversely affect broadcast television services. The Proposed Development has the potential to affect television transmissions in the surrounding area, particularly the area behind the Proposed Development with respect to the television transmitter (the shadow zone). This applies to both terrestrial and satellite services. The analysis relates specifically to the Proposed Development, which will have a height of 77.76 metres above ground level.

17.3 The Chapter was produced by Pager Power. The company undertakes television, radio and mobile phone reception surveys (pre and post-construction) for structures including large building and wind developments. Pager Power has extensive experience undertaking technical television and telecommunications assessments within Manchester, the UK and internationally.

## Legislative Framework, Policy and Guidance Documents

17.4 The current edition of the National Planning Policy Framework[8]. The guidance is produced by the Department for Communities and Local Government. There is no reference to television reception specifically within the document however, it is stated in paragraph 114 (Section 10) that:

*17.5* "*[Local planning authorities should ensure that] they have considered the possibility of the construction of new buildings or other structures interfering with broadcast and electronic communications services."*

17.6 Locally, under Manchester City Council planning guidance[9], it is stated:

*"Television Reception: Information on TV and radio reception and interference. Please provide a report on the possible interference created by the proposed development on TV and radio reception within the area."*

17.7 There is little technical guidance on how potential interference should be quantified. The document produced by Ofcom[10] provides some guidance on determining key interference zones for television (terrestrial and satellite) and these have been produced for the Proposed Development.

[8] National Planning Policy Framework, 2019. Department for Communities and Local Government.
[9] Full, Outline, Reserved Matters & Variation/Removal of Conditions Planning Applications. Is Your Application Valid? September 2018. Manchester City Council.
[10] Tall structures and their impact on broadcast and other wireless services, 2009. Ofcom.

17.8 The assessment is based on best practice and professional judgement.

## Assessment Methodology

17.9 Best practice includes initial assessment and investigation of the potential for television interference i.e. modelling with a television baseline reception survey to understand the baseline conditions. If interference is reported, then a post-construction survey should be completed to investigate and validate any complaints. An understanding of the baseline conditions means effective comparisons can be made and suitable mitigation can be implemented for restoration of baseline conditions.

### The Study Area

17.10 The television interference zones have been modelled within the desk-based report for terrestrial and satellite television services. The interference zones have been modelled relative to the Winter Hill main transmitter which serves the area around the Proposed Development and for the most appropriate satellites.

17.11 The Ofcom guidance states there are generally three interference zones for terrestrial television transmissions:

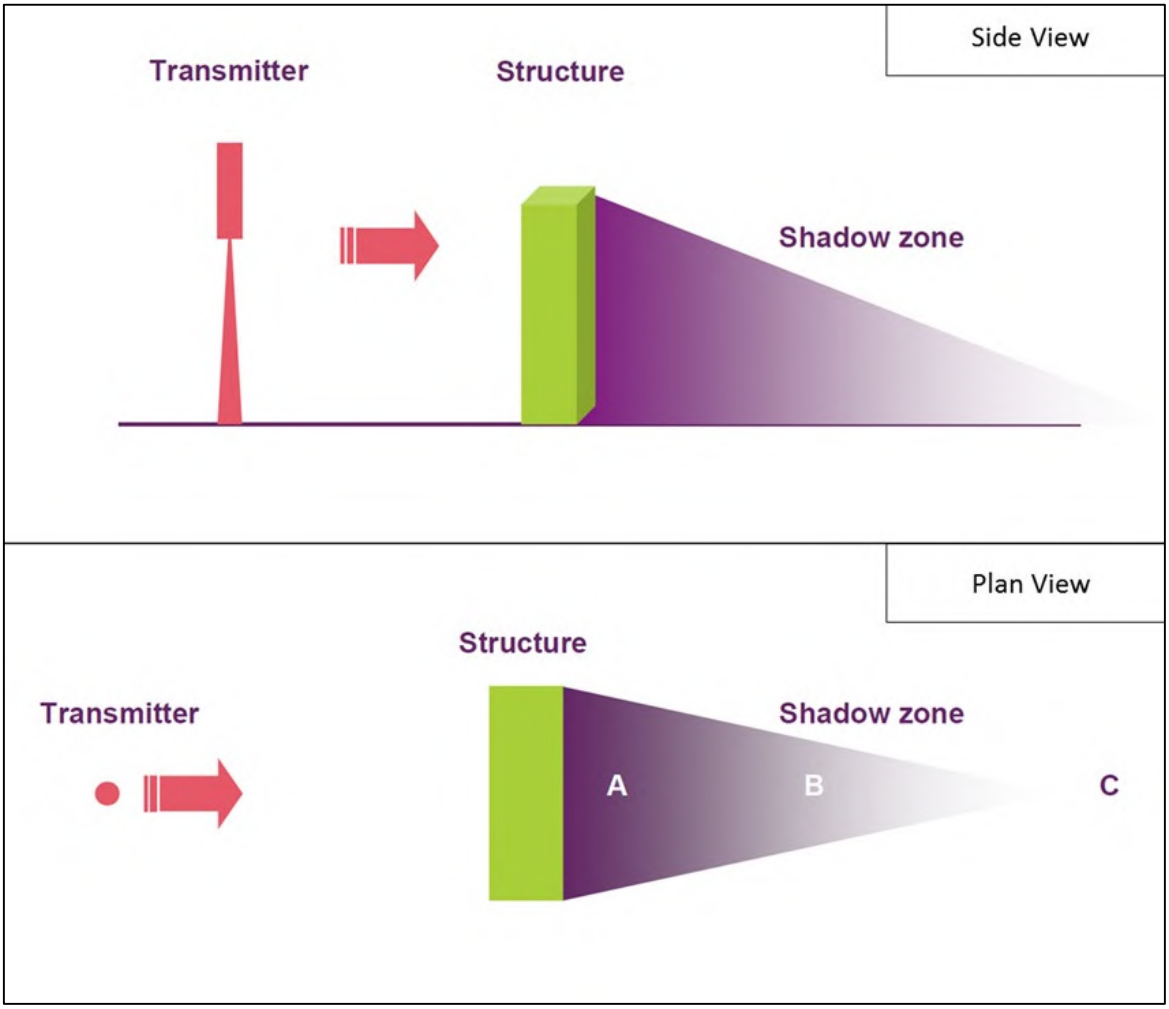
*17.12* "*Zone A - close behind the structure (typically a few tens of metres) there may be a large reduction in signal level with a possible complete loss of reception*

*17.13 Zone B - further away (typically a few hundred metres) the signal reduction is less severe and the shadow will be smaller as diffraction effects partially fill in the shadow. Depending on the size of the structure, some locations could still lose reception completely*

17.14 *Zone C - some distance away (1-5km) the shadow will effectively have disappeared.*"

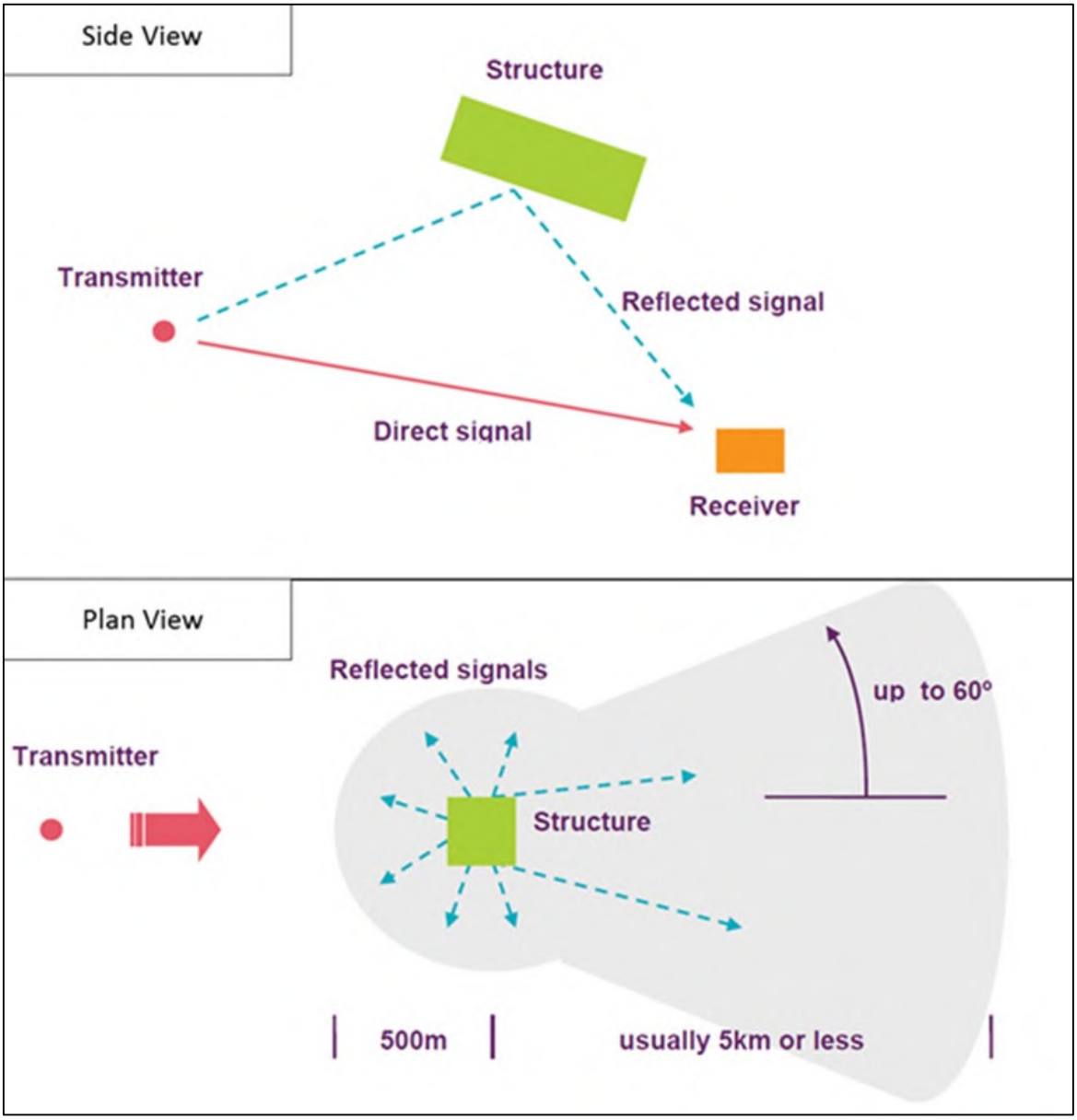
17.15 These zones are illustrated in **Figure 17.1** on the following page, which is taken from Section 3.2 of the Ofcom paper.

**Figure 17.1: Diffraction Loss Zone**




17.16 For large developments with straight edges, the transmitted signal can be reflected by the building itself. This causes an effect known as 'multipath interference' whereby the signal is received twice by an aerial at different times. The direct signal arrives first because it has a shorter distance to travel. **Figure 17.2** on the following page taken again from the Section 3.3 of the Ofcom document referenced previously, illustrates this effect.

**Figure 17.2: Reflection Zone**




17.17 In practice, it is considered highly unlikely that reflections will have an effect for receivers in front of the building or on either side when viewed from the location of the transmitter. For digital transmissions in particular, it is unlikely that issues will occur if the angle between the direct signal and the reflected signal is more than 30 degrees[11] .

17.18 The reflection zone has been constructed in accordance with the Ofcom approach, however the angle considered is 30 degrees rather than 60 degrees. This is in order to represent a more realistic scenario for digital transmissions. It should be noted that no location can be affected by both diffraction (shadowing) and direct reflections.

17.19 The principle of shadowing for terrestrial services is also applicable to satellite however signals from a satellite tend to come from a much steeper angle than those from a terrestrial

[11] This is known to be the angle that Arqiva considers when safeguarding its Television Re-Broadcast Links with regard to reflections from wind turbines – whilst wind turbines cause issues that are different to buildings this particular issue is similar for the two.

transmitter. Receivers located in close proximity to an obstruction however could still be affected. The Ofcom guidance states that:

*"Satellite TV reception is not generally affected by new structures unless the development blocks the 'line-of-sight' between a dish antenna and the satellite in the sky. While terrestrial TV aerials are generally mounted to receive signals in line with the horizon, and are therefore liable to be blocked by taller structures, satellite signals are received from a much higher elevation. This means that disruption to satellite reception is usually limited only to cases where a tall building is erected very close to an existing building."*

17.20 In summary, the study area for terrestrial television services includes a shadow zone and a 'key hole' shape reflection zone (as shown in **Figure 17.2**) both extending out to a maximum of 5km south east of the Proposed Development (relative to the Winter Hill transmitter). The shadow zone's width will be equal to the width of the Proposed Development relative to the transmitter.

17.21 Potential interference zones for satellite television services have been modelled based on the height of the Proposed Development and the typical elevation angle of satellite dishes in Manchester. The shadow zone for the Proposed Development extends north-northwest of the proposed development (due to location of satellites being south of the Proposed Development).

**Baseline Surveys**

***Desk Based Research***

17.22 Desk-based modelling of the interference zones for the Proposed Development was completed for terrestrial and satellite television services.

17.23 Diffraction modelling and a television coverage assessment was also completed for terrestrial television services. The diffraction calculations produce a conservative estimate of the signal power losses in the shadow zone of the Proposed Development. The results showed that losses would be greatest within 1km of the Proposed Development. The coverage assessment revealed that reflection effects are not expected. Therefore, it was determined that interference is most likely to occur within 1km of the Proposed Development within its shadow zone relative to the Winter Hill main Transmitter.

17.24 For satellite television services, it was determined that interference would most likely occur within 180m north-northwest of the Proposed Development.

17.25 For both terrestrial and satellite television services, receptor's closest the Proposed Development are more likely to be affected.

***Field Survey Work***

17.26 A television baseline reception survey was completed prior to construction of the Proposed Development. The survey locations were selected in advance of the survey being undertaken and were concentrated around the key interference areas identified within the desk-based report. The chosen locations were subject to safety and access on the day.

17.27 The aim of the television baseline reception survey was to determine the condition of the terrestrial television signal in key interference areas and to more accurately assess whether an effect upon terrestrial television signals may be expected. The television baseline reception survey established the current signal quality in areas where interference issues are possible.

17.28 Each television baseline reception survey measurement was captured by extending a terrestrial television aerial, connected to an advanced signal analyser, to 10 metres above ground level. The following measurements were taken for terrestrial services:

- Digital signal strength;
- Subjective assessment of picture/audio quality.

17.29 For satellite television, satellite dishes were identified within the shadow zones.

17.30 The television baseline reception survey supplements the desk-based modelling in order to further better understand the likelihood of interference occurring and to allow for a 'before and after' comparison in the event of a complaint being received.

17.31 A post-construction television reception survey can also be completed to validate any interference complaint. If interference is deemed attributable to the Proposed Development, mitigation will be implemented.

***Consultations***

17.32 No specific consultation was considered necessary to complete the television analysis for the Proposed Development. The understanding of television interference in Manchester has been acquired over numerous surveys completed in Manchester and nationally over 10 years.

17.33 A review of the Manchester City Council (MCC) Scoping Opinion (issued November 2018) was completed with respect to television interference. The response stated, 'the comments within your scoping report are acceptable in terms of their consideration in the ES'. There are no further comments or considerations with respect to the MCC response.

**Significance Criteria**

***Magnitude of Effect***

17.34 Each effect is assessed based on its magnitude and the sensitivity of the affected receptor (terrestrial or satellite television user). The classifications of effect magnitude are presented in **Table 17.1** below.

**Table 17.1: Defining Magnitude of Effect**

| Magnitude of Impact | Criteria for assessing impact |
|---|---|
| **High** | Total loss or substantial alteration to key features of the baseline conditions such that receptor attributes will be fundamentally changed. |
| **Moderate** | Loss or alteration to one or more key features of the baseline conditions such that receptor attributes will be materially changed. |
| **Low** | A minor shift away from baseline conditions. Change arising from the alteration will be discernible but not material. The underlying attributes of the baseline condition will be largely unchanged. |
| **Negligible** | Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation. |

17.35 The definitions are based on best practice and project experience.

***Sensitivity of Receptor***

17.36 The classifications of receptor sensitivity are presented in **Table 17.2** below.

**Table 17.2: Defining Sensitivity of Receptor**

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

17.37 The definitions are based on best practice and project experience.

***Significance of Effect***

17.38 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity. The Effect Significance Matrix is set out in **Table 17.3** below.

**Table 17.3: Matrix for Assessing Significance of Effect**

| Magnitude | Sensitivity | | |
|---|---|---|---|
| | **High** | **Medium** | **Low** |
| **High** | Major adverse | Major adverse | Moderate adverse |
| **Moderate** | Major adverse | Moderate adverse | Moderate adverse |
| **Low** | Minor adverse | Minor adverse | Minor adverse |
| **Negligible** | Negligible | Negligible | Negligible |

17.39 The definitions are based on best practice and project experience.

17.40 The effect of television interference for a viewer of terrestrial or satellite television services is dependent on numerous factors including the height of the receiving equipment and the quality of the aerial/cables. Therefore, the resulting effect on individual receivers will vary.

17.41 A 'Moderate' or higher magnitude of effect to television services would be considered significant. This is where a loss or alteration to the baseline television reception conditions would materially change the receptor attributes i.e. television services were significantly affected such that they were unwatchable.

17.42 With regard to receptor sensitivity, any location where television interference was significantly affected beyond baseline conditions (such that a requested channel was rendered unwatchable), a significant effect would occur. This could be for a single dwelling or apartment building, where mitigation would be required for both. Therefore any legal permanent receptor where television signals were previously received are considered to be of 'Medium' sensitivity.

17.43 Overall the level of effect which would be considered 'significant' with respect to EIA if the resultant significance of effect was 'Moderate Adverse' however it is best practice monitor television interference through a planning condition, television written scheme and post-construction reception survey.

**Existing Baseline Conditions**

17.44 A television baseline reception survey was undertaken prior to the construction of the Proposed Development. It confirmed that coverage is provided by the Winter Hill main transmitter. It also confirmed that residences receive television services from a variety of sources (satellite and/or terrestrial services).

## Anticipated Future Baseline Conditions

### Construction (2020)

17.45 The anticipated future baseline for the construction of the Proposed Development in 2020 onwards is predicted to be similar or marginally worse to that of the existing baseline. Any significant interference to television signals would be mitigated thus ensuring baseline conditions remain. The mitigation may however change the way television services are provided.

### Operation (2022)

17.46 The future baseline for 2022 is as per the anticipated future baseline for 2020.

## Assessment of Effects

### Embedded Mitigation

17.47 There is no embedded mitigation within the designs for the Proposed Development.

### Limitations and Assumptions

17.48 The following assumptions and limitations apply to the television desk-based report:

- The shadow zones for terrestrial and satellite television signals are modelled as rectangular in shape – this is a conservative assumption because it presents a worst case. In reality the width of the shadow zone would decrease with distance from the Proposed Development;
- The shadow zones for terrestrial and satellite television signals have been considered in two dimensions. This is a conservative assumption because it presents a worst case;
- The satellite television shadow zones are based on a typical elevation angle for satellite dishes in Manchester. The assessment has assumed a dish height of three metres above ground level. In reality, satellite dishes in the shadow zones are likely to be much higher based on a review of the available imagery and as viewed whilst surveying around the Proposed Development.

## Assessment of Construction Phase Effects

17.49 The interference mechanisms during construction are, in principle, the same during operation.

17.50 In practice, effects may be less noticeable during construction because there will be less physical obstruction of the signal whilst the Proposed Development is incomplete.

17.51 Effects during operation – or towards the end of construction – are likely to be the most impactful, therefore the technical assessments and mitigation options are focussed predominantly on the operational phase.

## Assessment of Operational Phase Effects

17.52 The technical assessment concluded that the terrestrial television services are most likely to be weakened for receptors within one kilometre of the Proposed Development and within its shadow zone.

17.53 For satellite television services, the area most likely to be affected were within 180m north-northwest of the Proposed Development and within its shadow zone.

17.54 The effect of shadowing for a viewer of terrestrial and satellite television services is dependent on numerous factors including the height of the receiving equipment and the quality of the aerial/cables. Furthermore, receivers that utilise an alternate television service provider in a

potential interference area would not experience any visible interference. Therefore, the resulting impact on individual receivers will vary.

17.55 The sensitivity of the receptor for terrestrial television services is categorised as 'Medium'. This is because provision of such services is important, but transmissions are tolerant to losses from environmental features.

17.56 The magnitude of the impact for terrestrial television services is categorised as 'Minor', because potential effects are restricted to a relatively small area and may not give rise to noticeable effects.

17.57 The sensitivity of the receptor for satellite television services is categorised as 'Medium'. This is because provision of such services is important. Transmissions have a degree of tolerance to interference, in part because such systems must work in varying weather conditions. Satellite dishes are typically not obstructed by parts of a building.

17.58 The magnitude of the impact for satellite television services is categorised as 'Minor', because potential effects are restricted to a small area and may not give rise to noticeable effects.

17.59 The resulting impact significance for terrestrial and television satellite television services is therefore Minor Adverse and **Not Significant**.

17.60 Mitigation options are presented within this Chapter.

## Assessment of Cumulative Effects

**Intra-Project Cumulative Effects**

17.61 There will be no intra-relationship effects with other topic areas.

**Inter-Project Cumulative Effects**

17.62 The Proposed Development will be constructed in an urbanised area where many buildings already exist, are under construction or have planning permission. Therefore, considering the interference mechanisms for television interference, individual and cumulative effects may be possible. The cumulative effect is inherently captured within the television baseline reception survey which was completed in December 2018. Any cumulative impact experienced from developments in-situ before this date are inherently captured within this reading.

17.63 If interference to television signals does occur due to the Proposed Development, the interference would only be observable after construction of the Proposed Development has begun. Interference would have to be investigated and found to be attributable to the Proposed Development. If interference occurs once any effect of the Proposed Development is mitigated, any further effects due to subsequent buildings will be the responsibility of the developers of those buildings. Therefore inter-relationship effects are inherently covered within the scheduled television baseline reception survey and any mitigation implemented as a result of the Proposed Development in isolation.

## Mitigation of Effects

17.64 Below is a list of standard actions to mitigate terrestrial and satellite television reception issues caused by a building development.

17.65 Mitigation options for terrestrial television may include:

- Replacement of receiving aerial with a more directional or higher gain aerial;

- Repositioning the receiving aerial so that the received signal is stronger;
- Directing the receiving aerial to an alternative transmitter that covers the area and retuning the television accordingly;
- Upgrading antenna cabling and connections;
- Installation of signal amplifiers;
- Development of a bespoke local solution using a receiving aerial some distance from the dwelling;
- Replacing terrestrial reception equipment with satellite reception equipment or cable;
- Provision of television services via the internet.

17.66 Mitigation options for satellite television may include:

- Increase the height of the receiving dish;
- Provision of cable television;
- Provision of a bespoke receiving solution e.g. a system to receive and re-distribute the satellite television signal;
- Provision of television services via the internet.

17.67 The requirement for the implementation of such measures will be addressed on a case-by-case basis.

## Residual Effects

17.68 There will be no residual effects once mitigation is applied.

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| *Construction Phase* | | | | | |
| Effects during construction are likely to be less noticeable than during operation because there will be less physical obstruction of the signal whilst the Proposed Development is incomplete | | | | | |
| Operational Phase | | | | | |
| Terrestrial Television | Minor Adverse and Not Significant | Long term | Restoration of the baseline television service | Minor Adverse and Not Significant | Not Significant |
| Satellite Television | Minor Adverse and Not Significant | Long term | Restoration of the baseline television service | Minor Adverse and Not Significant | Not Significant |
| Cumulative Impacts | | | | | |
| Inter-relationship effects are inherently covered within the scheduled television baseline reception survey and any mitigation implemented as a result of the Proposed Development in isolation | | | | | |

## References

The following published works have been considered in the process of devising Pager Power's modelling approach:

- National Planning Policy Framework, 2019. Department for Communities and Local Government;
- Full, Outline, Reserved Matters & Variation/Removal of Conditions Planning Applications. Is Your Application Valid? September 2018. Manchester City Council;
- National Policy Statements for energy infrastructure, June 2011. Department of Energy & Climate Change;
- Tall Structures and their impact on broadcast and other wireless services, 2009. Ofcom;
- Assessment of impairment caused to television reception by a wind turbine, Recommendation ITU-R BT805*, 1992. International Telecommunications Union;
- A Methodology to Assess Interference to TV Reception due to Wind Farms, 2005. S Vila-Moreno, (RES);

# 18. The impact of large buildings and structures (including wind farms) on terrestrial televisions reception. BBC.Wind Microclimate

## Introduction

18.1 This chapter, which was prepared by Dr Jon Winchester of Wirth Research, presents an assessment of the likely wind microclimate effects for the Proposed Development. In particular, consideration is given to the likely significant effects of wind upon pedestrian comfort and safety.

18.2 Dr Jon Winchester holds a BSc in Mathematics, MSc in Mechanical Engineering and PhD in Mechanical Engineering. Jon has been working for Wirth Research for 8 years and has 7 years of experience of CFD for built environment, developing methods for pedestrian comfort analysis, wind loading and natural ventilation. Jon has led multiple architectural CFD projects, including notable projects such as 22 Bishopsgate in the City of London and New City Court in Southwark, London.

18.3 This chapter provides a description of the assessment methodology; a description of the relevant baseline conditions of the site and surrounding area; and an assessment of the likely significant effects of the Proposed Development, that could arise during construction, once the Proposed Development is completed and operational, and during decommissioning.

18.4 Where appropriate, the need for mitigation measures is identified to avoid, reduce or offset adverse effects and/or enhance likely beneficial effects.

## Legislation, Policy and Guidance

18.5 The assessment was performed using the London Docklands Development Corporation (LDDC) variant of the Lawson Comfort Criteria. The Lawson Criteria are well-established in the UK for quantifying wind conditions in relation to build developments and, although not a UK 'standard', the criteria are recognised by local authorities as a suitable benchmark for wind assessments. The LDDC variant is established as the most practically applicable variant of the Lawson criteria, and is used industry wide. The Lawson Criteria (LDDC variant) have been adopted for this assessment.

*18.6* The assessment will have due regard to the provisions of the following policy and guidance.

## National Planning Policy

### National Planning Policy Framework

18.7 The National Planning Policy Framework (NPFF) was revised in February 2019 by the Department of Communities and Local Government (DCLG). The relevant paragraphs are as follows:

18.8 Paragraph 127 of the National Planning Policy Framework states that:

*"Planning policies and decisions should ensure that developments:*

*(i) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;*

*(ii) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;*

*(iii) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);*

*(iv) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;*

*(v) optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and*

*(vi) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience."*

18.9 There is no specific planning policy guidance dealing with microclimate in terms of pedestrian comfort set out in the revised NPPF.

### Planning Practice Guidance (2018)

The Department for Communities and Local Government (DCLG) web-based Planning Practice Guidance resource includes a section on design and sets out how a building's size and shape can affect the wind microclimate. The section addressing Design - How should buildings and the spaces between them be considered? 'Consider scale' Paragraph O26, states that: "Account should be taken of local climatic conditions, including daylight and sunlight, wind, temperature and frost pockets."

### Local Planning Policy

**Manchester Core Strategy (2012 – 2027)**

18.10 **Policy EN2** – **Tall Buildings** – States that, by their very size, tall buildings can have a significant impact on the local environment and its micro-climate. It is therefore expected that this impact be modelled and that submissions for tall buildings also include appropriate measures to create an attractive, pedestrian friendly local environment.

### Assessment Methodology

18.11 The assessment was performed using Wirth Research's high-resolution Computational Fluid Dynamics (CFD) modelling.

18.12 CFD is a computer-based modelling technique, which simulates the effect of wind on the built environment. The air is divided into hundreds of millions of "cells", within which the equations of motion are solved. Wirth Research use a high-performance supercomputer, 500 times faster than a standard desktop, to achieve market leading accuracy. The CFD modelling delivers a detailed assessment of wind conditions in and around a site for all wind directions in terms of pedestrian comfort and strong winds.

18.13 Wirth Research use an in-house method to account for gusts, which has been correlated against world leading wind tunnels, which ensures that the effect of gusts is predicted.

18.14 A full description of the test methodology is included in **ES Vol 4 Appendix 181**.

### Establishing Baseline Conditions

18.15 Baseline conditions were established using a high resolution CFD model, extending at least 500m from the Site in each direction.

18.16 The model was built using 3D CAD, supplied by GIA.

18.17 A model of the Proposed Development was included within the CFD model and tested to determine the conditions at and around the Site.

18.18 It should be noted that trees were not included in the initial model. As trees may reasonably be expected to provide a calming effect on the wind, this model can be viewed as a worst-case scenario.

18.19 The model was run at full scale from 24 wind angles, spaced using 10° or 30° increments such that no sector contributes more than 10% of the annual wind. The wind angles which were run are indicated in **ES Vol 4 Appendix 18.1**.

18.20 Wind speeds were measured at 1.5m above any surfaces expected to be used for pedestrian activity.

18.21 On-site and local wind speeds were combined with 30 years-worth of weather data for Manchester airport, corrected for terrain local to the airport and the Site, to obtain annual and seasonal frequency and magnitude of wind speeds across the model. This allows the 'grading' of the pedestrian level winds according to the Lawson Comfort Criteria, which are explained later in this chapter.

18.22 Seasonal wind roses for the airport are shown in **ES Vol 4 Appendix 18.1**. The dominant wind direction is from the south, with a secondary dominant direction from the west.

18.23 The correction factors between the airport (measured 10m above ground) and the Site (at a reference height of 120m) are shown in Table 18.1. It should be noted that the terrain analysis has been performed using sectors of 30°, which is presented here.

**Table 18.1: Site Wind Correction Factors**

| 0° | 30° | 60° | 90° | 120° | 150° | 180° | 210° | 240° | 270° | 300° | 330° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.43 | 1.44 | 1.43 | 1.44 | 1.38 | 1.38 | 1.38 | 1.39 | 1.44 | 1.45 | 1.45 | 1.40 |

18.24 The wind microclimate effects are assessed annually, for the summer months (June, July, August) and for the winter months (December, January and February). Summer conditions are reported as this is the season when the largest amount of pedestrian activity is expected. Winter conditions are reported as this is the season when the strongest winds are expected.

**Target Conditions**

18.25 For a mixed-use urban area within which the Site is located, the desired wind microclimate would typically need to have areas acceptable for sitting, standing (including at entrances of buildings) and walking use. A description of the comfort categories to classify wind conditions in accordance with is given below.

**Table 18.2: Lawson Comfort Criteria (LDDC variant)**

| Key | Comfort Category | Mean Wind Speed (5% exceedance) | Description |
|---|---|---|---|
| | Sitting | 4 m/s | Acceptable for outdoor sitting use (e.g. cafes, benches, balconies) |
| | Standing | 6 m/s | Acceptable for main building entrances, pick-up / drop-off points and bus stops |
| | Walking (leisure) | 8 m/s | Acceptable for strolling |
| | Walking (business) | 10 m/s | Acceptable for external pavements, walking purposefully without lingering |
| | Uncomfortable | >10 m/s | Not comfortable for regular pedestrian access |

**Table 18.3: Lawson Safety Criteria (LDDC variant)**

| Key | Comfort Category | Mean Wind Speed (0.0022% exceedance) | Description |
|---|---|---|---|
| | No Safety Exceedance | <15 m/s | |
| | S15 (Distress) | >15 m/s | Unsafe for frail individuals, or cyclists |
| | S20 (Safety) | > 20 m/s | Wind conditions considered unsafe for all users |

18.26 During operation, exceedance of either S15 or S20 will be classified as unsafe.

18.27 During construction or decommission, it can reasonably be assumed that the Site will be occupied by busy construction workers, who are unlikely to be frail individuals. As such, only S20 exceedances are classified as unsafe for on-site effects during these phases.

18.28 Any areas which show up as either unsafe (annually) or uncomfortable (for winter) are considered unsuitable, unless they are in locations where pedestrian access can be controlled in the event of strong winds. This applies to all thoroughfares (for pedestrians) and roads (for cyclists) around the Proposed Development.

18.29 There is an external terrace at level 2, which is targeted to be suitable for a mixture of occasional sitting and standing during the summer months. This will allow user to choose to sit in “calmer” areas and engage in more active pursuits in “windier” areas.

18.30 There is a proposed public square to the south east of the development, which is targeted to be suitable for standing during the summer months and leisure walking in the winter months.

18.31 The areas immediately outside any building entrances should be suitable for standing use during winter to provide a “buffer” between the still conditions in interior spaces and the general thoroughfare. If an entrance is within a recess, then this can reasonably be assumed to provide the buffer, and walking is acceptable (unless the recess is explicitly modelled in the CFD analysis).

### *Scenarios Assessed*

18.32 The following scenarios have been assessed and are reported within this Chapter of the ES:

- Baseline: The Site (as existing) with the baseline conditions surrounding the Site.
- Proposed Development, existing surrounds: The completed and operational Proposed Development, with the baseline conditions surrounding the Site.
- Proposed Development, cumulative surrounds: The completed and operational Proposed Development, with the baseline and cumulative schemes.
- Proposed Development, existing surrounds with wind mitigation measures: The completed and operational Proposed Development, with the baseline conditions surrounding the Site, as well as wind mitigation measures as outlined in the “Mitigation of Effects” section of this chapter.
- Proposed Development, cumulative surrounds with wind mitigation measures: The completed and operational Proposed Development, with the baseline and cumulative

schemes, as well as wind mitigation measures as outlined in the "Mitigation of Effects" section of this chapter.

### Significance Criteria

18.33 The significance of any wind effects will determine whether the wind effects require mitigation. The method outlined below for determining significance is in accordance with current industry best practice.

18.34 The significance of on-site wind effects is defined by comparing the wind comfort/safety levels with the intended pedestrian activity. Any effect which is defined as requiring mitigation in the tables below is considered significant. i.e. a wind issue is **significant** if it is a moderate or major adverse on-site effect or a major adverse off-site effect

**Table 18.4: Table 18.4: Significance Criteria for On-Site Wind Effects**

| Significance | Trigger | Mitigation Required |
|---|---|---|
| Major Adverse | Conditions are "unsafe" | Yes |
| Moderate Adverse | Conditions are "unsuitable" (in terms of comfort) for the intended pedestrian use | Yes |
| Negligible | Conditions are "suitable" for the intended pedestrian use | No |
| Moderate Beneficial | Conditions are calmer than required for the intended pedestrian use (by at least one comfort category) | No |

18.35 The significance of off-site wind effects is defined by both comparing the wind comfort levels with the intended pedestrian activity, and also comparing the condition to those experienced prior to the introduction of the Proposed Development.

**Table 18.5: Significance Criteria for Off-Site Wind Effects**

| Significance | Trigger | Mitigation Required |
|---|---|---|
| Major Adverse | Conditions that were "safe" in the baseline scenario become "unsafe" as a result of the Proposed Development<br>OR<br>Conditions that were "suitable" in terms of comfort become "unsuitable" as a result of the Proposed Development<br>OR<br>Conditions that were "unsafe" in the baseline scenario are made worse as a result of the Proposed Development | Yes |
| Moderate Adverse | Conditions that were "suitable" in terms of comfort in the baseline scenario are made windier (by at least one comfort category) as a result of the Proposed Development, but remain "suitable" for the intended pedestrian activity. | No |
| Negligible | Conditions remain the same in the baseline scenario | No |

| Significance | Trigger | Mitigation Required |
|---|---|---|
| Moderate Beneficial | Conditions that were “unsuitable” in terms of comfort in the baseline scenario become “suitable” as a result of the Proposed Development<br>OR<br>Conditions that were “unsafe” in the baseline scenario are made better as a result of the Proposed Development (but not so as to make them “safe”) | No |
| Major Beneficial | Conditions that were “unsafe” in the baseline scenario become “safe” as a result of the Proposed Development | No |

## Existing Baseline Conditions

18.36 **ES Vol 3: Figures 18.2, 18.3 and 18.4** show the annual wind safety, winter wind comfort and summer wind comfort conditions at ground level for the baseline scenario.

18.37 Summer conditions are suitable for a mixture of sitting and standing, and winter conditions are suitable for a mixture of sitting, standing and leisure walking. There are no safety exceedances on or around the Site.

## Predicted Future Baseline Conditions (2022)

18.38 The future baseline differs from the existing baseline through the inclusion of the following consented schemes (as shown at **ES Vol 4 Appendix 5.2**):

- All Souls Rectory
- Vesta
- Elder House
- New Islington Place
- Lomax Street
- Plot A
- 212 Bedroom Hotel on Land at Great Ancoats Street Manchester M4 7DB

18.39 The above schemes are of sufficient distance from the Site that it can be reasonably asserted that future baseline conditions will be comparable to the existing baseline conditions.

18.40 A comparison of the “existing” and “cumulative” surrounds is shown in **ES Vol 3 Figure 18.5**.

## Assessment of Effects

### Limitations and Assumptions

18.41 The accuracy of the results is dependent upon the accuracy of the CAD used to construct the model.

18.42 There is an inherent assumption that on-site wind speeds will scale linearly with the measured wind speeds at the airport.

18.43 There is an inherent assumption that the wind speed statistics for the past 30 years will remain applicable for the foreseeable future.

18.44 It should be noted that the above assumptions would also be true of a wind tunnel based assessment.

### Assessment of Construction Phase Effects

18.45 As the baseline conditions are relatively calm, and the existing on-site building is not of significance height, the demolition of the existing building should not reasonably be expected to have an impact on local conditions. This would result in an **effect of negligible significance (not significant).**

18.46 During the construction of the Proposed Development, a region of S15 exceedance will grow as the Proposed Development reaches its full height. This region (as shown in ES Vol 3 Figure 18.6 and described in the Assessment of Operational Phase Effects section below), will be limited to on-site (and therefore suitable for the intended use until the site is accessible to the general public) whilst the hoardings. Therefore, during the Construction Phase this can reasonably be treated as an **effect of negligible significance (not significant).**

### Assessment of Operational Phase Effects

18.47 ES Vol 3 Figures 18.6, 18.7 and 18.8 show the annual wind safety, winter wind comfort and summer wind comfort conditions at ground level for the Proposed Development with existing surrounds.

### Local Thoroughfares

18.48 Summer conditions are suitable for a mixture of sitting, standing and leisure walking, and winter conditions are suitable for a mixture of sitting, standing and walking and business walking. This is up to a category windier than the baseline conditions, but still suitable for the intended use, which is a **minor-moderate adverse effect** but is **not significant** and will not require mitigation.

18.49 There is a region of S15 safety exceedance highlighted in Figure 6. This is an **adverse effect of major significance (significant)** and will require mitigation.

### Building Entrances

18.50 All of the entrances for the Proposed Development are suitable for either sitting or standing. This is suitable for the intended use and is an **effect of negligible significance (not significant).**

### Public Square

18.51 The conditions in the public square are suitable for a mixture of sitting and standing in summer, and a mixture of sitting, standing and leisure walking in winter. This is suitable for the intended use and is an **effect of negligible significance (not significant).**

### Level 2 Terrace

18.52 ES Vol 3 Figure 18.9 and Figure 18.10 show the annual wind safety and summer wind comfort conditions on the level 2 terrace for the Proposed Development with existing surrounds.

18.53 Summer conditions are suitable for a mixture of sitting, standing and leisure walking. This is one category windier than required and is an **adverse effect of moderate significance (significant)**, which will require mitigation.

18.54 There is a region of S15 exceedance along the western perimeter of the terrace. This is an **adverse effect of major significance (significant)**, which will require mitigation.

## Assessment of Likely Significant Cumulative Effects.

18.55 ES Vol 3 Figures 18.11, 18.12 and 18.13 show the annual wind safety, winter wind comfort and summer wind comfort conditions at ground level for the Proposed Development with cumulative surrounds.

**Local Thoroughfares**

18.56 Summer conditions are suitable for a mixture of sitting, standing and leisure walking, and winter conditions are suitable for a mixture of sitting, standing and walking and business walking. This is up to a category windier than the baseline conditions, but still suitable for the intended use, which is a **minor-moderate adverse effect** but is **not significant** and will not require mitigation.

18.57 There is a region of S15 safety exceedance highlighted in Figure 11. This is an **adverse effect of major significance (significant)** and will require mitigation.

18.58 It should be noted that the wind effects on the local thoroughfares are consistent with those measured with the existing surrounds, although the cumulative wind effects are of marginally reduced severity and extent.

**Building Entrances**

18.59 All of the entrances for the Proposed Development are suitable for either sitting or standing. This is suitable for the intended use and is an **effect of negligible significance (not significant).**

**Public Square**

18.60 The conditions in the public square are suitable for a mixture of sitting and standing in summer, and a mixture of sitting, standing and leisure walking in winter. This is suitable for the intended use and is an **effect of negligible significance (not significant).**

**Level 2 Terrace**

18.61 ES Vol 3 Figure 18.14 and Figure 18.15 show the annual wind safety and summer wind comfort conditions on the level 2 terrace for the Proposed Development with cumulative surrounds.

18.62 Summer conditions are suitable for a mixture of sitting, standing and leisure walking. This is one category windier than required and is an **adverse effect of moderate significance (significant)**, which will require mitigation.

18.63 There is a region of S15 exceedance along the western perimeter of the terrace. This is an **adverse effect of major significance (significant)**, which will require mitigation.

18.64 It should be noted that the wind effects on the terrace are consistent with those measured with the existing surrounds, although the cumulative wind effects are of marginally increased severity and extent.

## Mitigation of Effects

18.65 To mitigate against the major adverse wind effects described above, the following mitigation measures are required.

18.66 Trees and soft landscaping planted in accordance with the layout shown in Simpson Haugh drawing no. 10122-A-G710-SK-010 (as shown in Figure 18.1). This mitigation will be incorporated into the public realm design, which will be implemented pursuant a separate planning

permission. An application for the public realm has been submitted (ref. 121467/FO/2018). The Proposed Development will contribute financially towards the delivery of new public realm.

18.67 A series of 50% porous wind breaks at ground level, level 1 and level 2, protruding 600mm from the western façade (as show in Figure 18.2). These wind breaks have been incorporated into the design of the Proposed Development.

18.68 Installation of glass screening within the perimeter balustrade of the level 2 terrace (as shown in Figure 18.3). The screen has been incorporated into the design of the Proposed Development.

**Figure 18.1: Tree and Soft Landscaping Plan for Wind Mitigation**

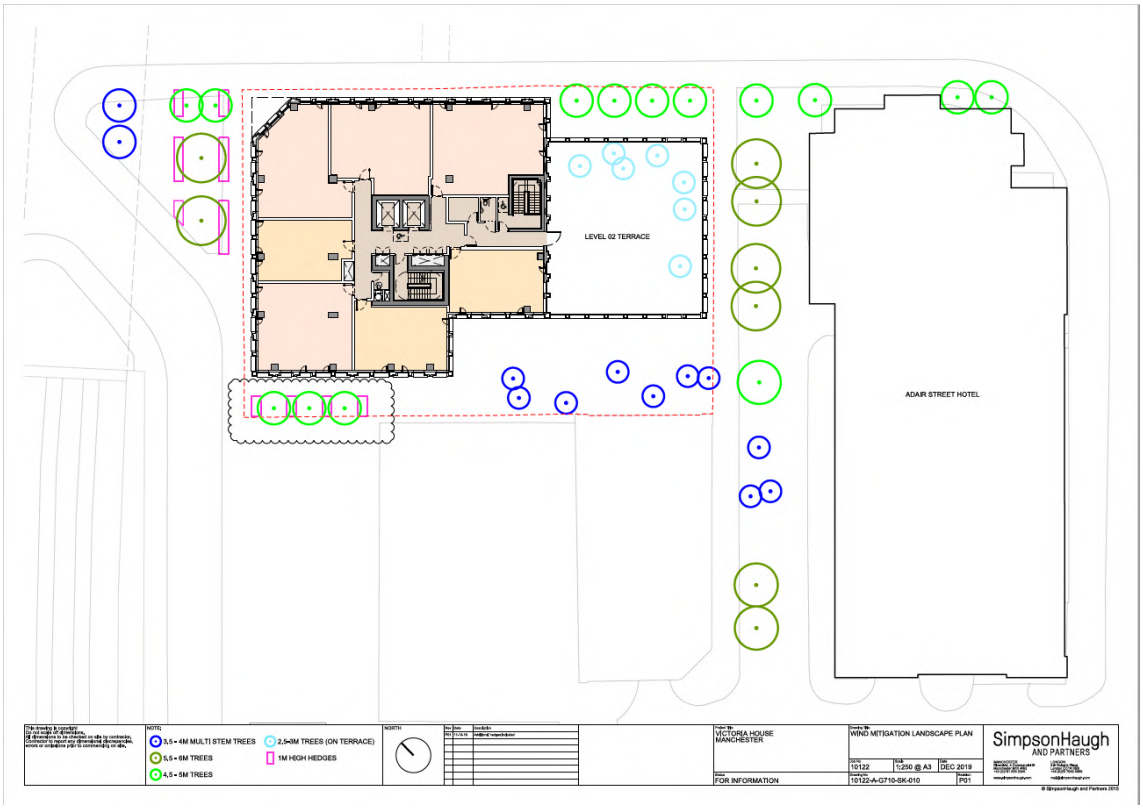


**Figure 18.2: 50% Porous Fins, Protruding 600mm from Façade (shown in red)**

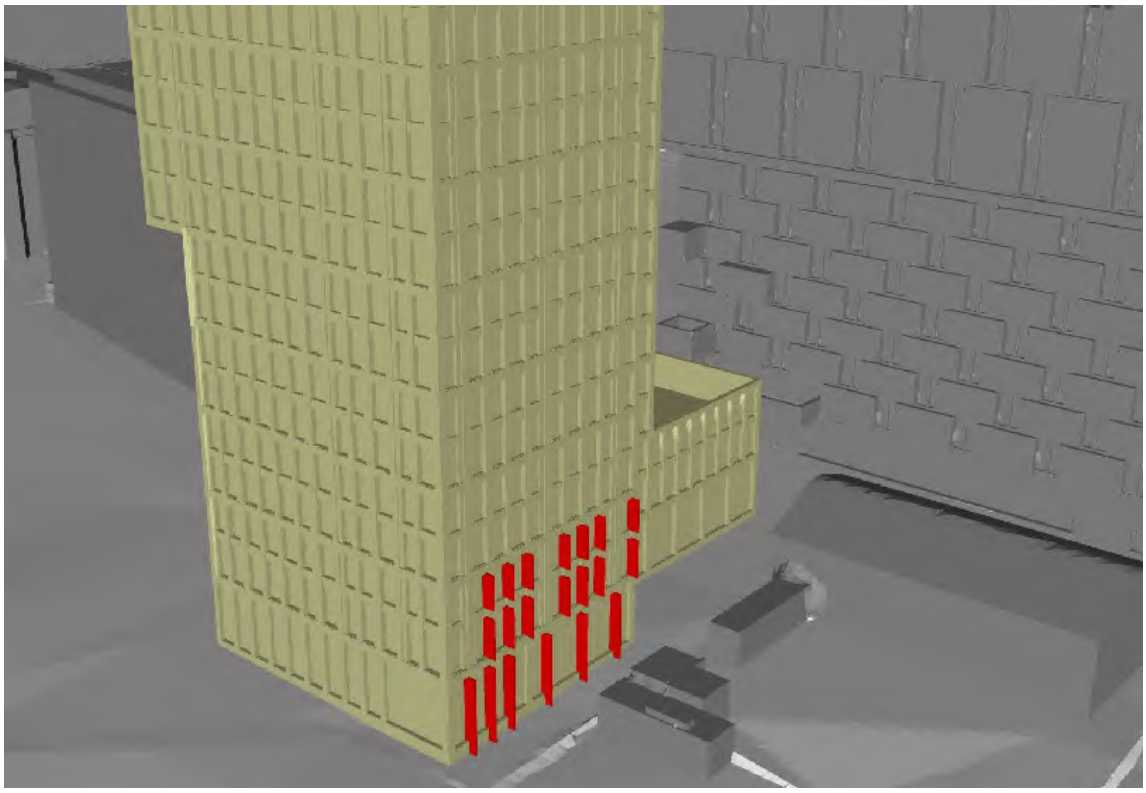
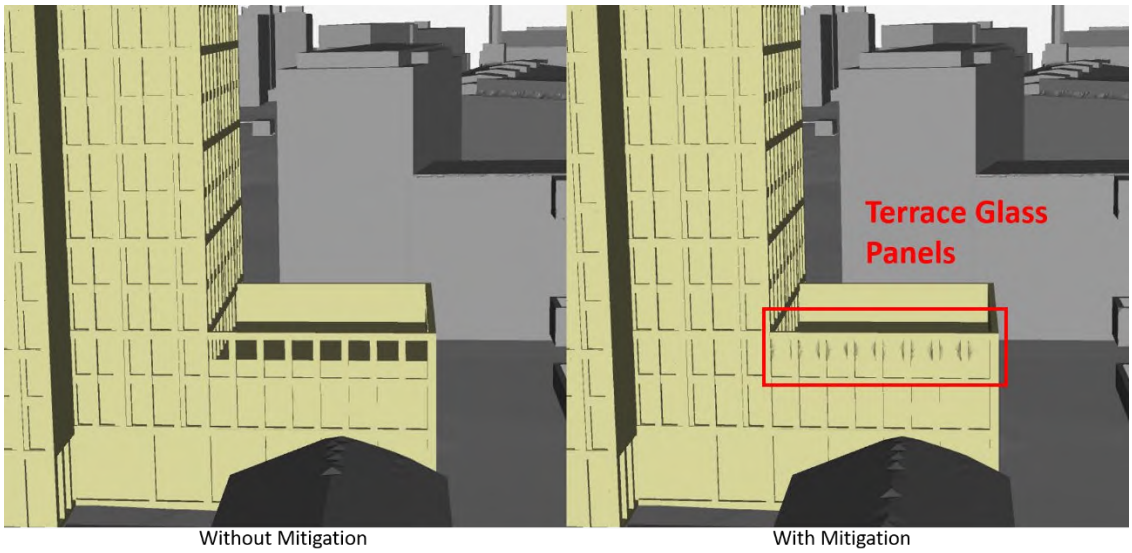


**Figure 18.3: Glass Screening Added to Terrace Perimeter**




## Residual Impacts

18.69 ES Vol 3 Figures 18.16, 18.17 and 18.18 show the annual wind safety, winter wind comfort and summer wind comfort conditions at ground level for the Proposed Development with existing surrounds and wind mitigation. The S15 exceedances are ground level have been eradicated. Ground level is now suitable for its intended use and the **residual effects are of negligible significance (not significant)**.

18.70 ES Vol 3 Figures 18.19 and 18.20 show the annual wind safety and summer wind comfort conditions at the level 2 terrace for the Proposed Development with existing surrounds and wind

mitigation. The terrace is suitable for a mixture of sitting and standing, and the S15 exceedances on the terrace have been eradicated. The level 2 terrace is now suitable for its intended use and the **residual effects are of negligible significance (not significant)**.

18.71 ES Vol 3 Figures 18.21, 18.22 and 18.23 show the annual wind safety, winter wind comfort and summer wind comfort conditions at ground level for the Proposed Development with cumulative surrounds and wind mitigation. The S15 exceedances are ground level have been eradicated. Ground level is now suitable for its intended use and the **residual effects are of negligible significance (not significant)**.

**18.72** ES Vol 3 Figures 18.24 and 18.25 show the annual wind safety and summer wind comfort conditions at the level 2 terrace for the Proposed Development with cumulative surrounds and wind mitigation. The terrace is suitable for a mixture of sitting and standing, and the S15 exceedances on the terrace have been eradicated. The level 2 terrace is now suitable for its intended use and the **residual effects are of negligible significance (not significant).**

18.73 The residual wind effects are summarised in the table below:

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| **Wind Effects** | | | | | |
| Local Thoroughfares | Minor-moderate adverse (not significant) | Long term | n/a | Minor - moderate adverse (not significant) | Long term |
| Local Thoroughfares | Major Adverse (significant) effect by western corner of proposed development | Long term | Trees and soft landscaping (Figure 18.1)<br><br>50% porous wind breaks (Figure 18.2) | Negligible (not significant) | Long term |
| Building Entrances | negligible (not significant) | Long term | n/a | negligible (not significant) | Long term |
| Public Square | negligible (not significant) | Long term | n/a | negligible (not significant) | Long term |
| Level 2 Terrace | Major Adverse (significant) effect by western perimeter of terrace | Long term | Glass screens in ballustrades around perimeter of level 2 terrace | negligible (not significant) | Long term |
| **Cumulative Wind Effects** | | | | | |
| Local Thoroughfares | Minor-moderate | Long term | n/a | Minor-moderate | Long term |

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| | adverse (not significant) | | | adverse (not significant) | |
| Local Thoroughfares | Major Adverse (significant) effect by western corner of proposed development | Long term | Trees and soft landscaping (Figure 18.1)<br><br>50% porous wind breaks (Figure 18.2) | Negligible (not significant) | Long term |
| Building Entrances | negligible (not significant) | Long term | n/a | negligible (not significant) | Long term |
| Public Square | negligible (not significant) | Long term | n/a | negligible (not significant) | Long term |
| Level 2 Terrace | Major Adverse (significant) effect by western perimeter of terrace | Long term | Glass screens in ballustrades around perimeter of level 2 terrace | negligible (not significant) | Long term |

## References


18.1 Manchester City Council (2012). Manchester Core Strategy (2012 – 2027). See: http://www.manchester.gov.uk/downloads/download/4964/core_strategy_development_plan (visited 11th September 2017)

18.2 **Manchester City Council (2007). Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007). See: http://www.manchester.gov.uk/site/scripts/download_info.php?downloadID=644&fileID=1424 (visited 11th September 2017)**

# 19. Daylight, Sunlight and Overshadowing

## Introduction

1. An assessment of the likely significant effects of the Proposed Development on daylight, sunlight and overshadowing during the construction and operational phases has been undertaken by Sam Wallis BSc (Hons) MRICS of GIA.

2. The chapter describes the proposed method of assessment for identifying any likely significant effects and the results of the assessment which has been completed. Where significant effects are likely to be experienced mitigation measures are identified and the residual effects, having regard to said mitigation, specified. The proposed approach has been informed by published best practice guidance.

## Legislation, Policy and Guidance

19.1 The assessment will have due regard to the provisions of the following policy and guidance.

## National Planning Policy

### National Planning Policy Framework

*19.2* The National Planning Policy Framework (NPPF) adopted on the 27th March 2012, and updated on 19 February 2019 stipulates that "…planning policies and decisions should always seek to secure a good standard of amenity for existing and future occupants of land and buildings."

19.3 Paragraph 123, states:

*"Where there is an existing or anticipated shortage of land for meeting identified housing needs, it is especially important that planning policies and decisions avoid homes being built at low densities, and ensure that developments make optimal use of the potential of each site. In these circumstances:*

*c) In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."*

## Planning Practice Guidance

19.4 The National Planning Practice Guidance (NPPG) – Making Effective Use of Land, published on 22 July 2019, Paragraph: 006 Reference ID: 66-006-20190722 states that:

*"Where a planning application is submitted, local planning authorities will need to consider whether the proposed development would have an unreasonable impact on the daylight and sunlight levels enjoyed by neighbouring occupiers, as well as assessing whether daylight and sunlight within the development itself will provide satisfactory living conditions for future occupants."*

19.5 Paragraph 007 Reference ID: 66-007-20190722 also states:

*"All developments should maintain acceptable living standards. What this means in practice, in relation to assessing appropriate levels of sunlight and daylight, will depend to some extent on*

*the context for the development as well as its detailed design. For example in areas of high-density historic buildings, or city centre locations where tall modern buildings predominate, lower daylight and daylight and sunlight levels at some windows may be unavoidable if new developments are to be in keeping with the general form of their surroundings."*

## Local Planning Policy

**Manchester Core Strategy (2012 – 2027)**

19.6 **Policy DM1 – Development Management** – States that all developments should have regard to the effects on amenity including privacy, light, noise, vibration, air quality and odours.

19.7 **Policy EN2** – **Tall Buildings** – States that, by their very size, tall buildings can have a significant impact on the local environment and its micro-climate. It is therefore expected that this impact be modelled and that submissions for tall buildings also include appropriate measures to create an attractive, pedestrian friendly local environment.

**Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007)**

The SPD sets out a series of design principles which should be considered and implemented where necessary, those measures relevant to this assessment are:

- Minimise reliance on energy-using equipment for heating, cooling, lighting and natural ventilation.
- Site layout and building design principles should maximise the capture and use of daylight and passive solar energy, whilst avoiding excessive solar gain in the summer.
- Consider the impacts of overshadowing.

## Guidance:

**Building Research Establishment (BRE) 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice', Second Edition, 2011**

The Building Research Establishment (BRE) Guidelines 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice 2011, 2nd edition' (released October 2011) provides advice on site layout planning to achieve good sunlighting and daylighting within buildings, and in the open spaces between them. It is intended for use by building designers, developers, consultants and Local Planning Authorities (LPAs). The advice it gives is not mandatory and should not be used as an instrument of planning policy, it states:

*"This guide is a comprehensive revision of the 1991 edition of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice. It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location." (Summary v).*

19.8 It also states:

*"The advice is given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. In special circumstances the developer or planning authority may wish to use different target values… in an area with modern*

*high rise buildings, a higher degree of obstruction maybe unavoidable if new developments are to match the height and proportions of existing building" (para.1.6).* [12]

19.9 In addition, the BRE Guidelines state (para. 1.3) that "it is intended to be read in conjunction with the interior daylighting recommendations in the British Standard 8206-2 Code of practice for daylighting, and in the CIBSE publication Lighting guide: daylighting and window design".

## British Standard (BS) 8206-2:2008: 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'

19.10 The British Standard 8206 part 2 provides recommendations regarding the design for daylight in buildings and sets out various methods for assessing daylight. The document states:

*"Daylighting gives to a building a unique variety and interest. An interior which looks gloomy, or which does not have a view to the outside when this could reasonably be expected, will be considered unsatisfactory by its users."*

## Assessment Methodology

### Study Area

19.11 The BRE Guidelines suggest that residential properties have the highest requirement for daylight and sunlight and states that:

*"the guidelines are intended for use for rooms in adjoining dwellings where light is required, including living rooms, kitchens and bedrooms."*

19.12 For sunlight, "all main living rooms of dwellings…should be checked if they have a window facing within 90° of due south."

19.13 On this basis, the following properties have been considered, as they comprise require light, have windows serving living rooms, kitchens and bedrooms and lie within close proximity to the Proposed Development. Only those surrounding properties which have windows facing towards the site are included in the assessment. If a nearby property has no windows facing the site, these properties would not be affected by the Proposed Development in terms of light. The following existing and consented properties are included in this assessment:

- Quantum Apartments – approximately 35m to the north west of the Proposed Development
- Ibis Hotel – approximately 22m to the north east of the Proposed Development
- 121099/FO/2018 – Land at Portugal Street East - Plot G of the Portugal Street East Regeneration Framework approximately 130m to the south west of the Proposed Development
- 122599/FO/2019 – 1 Adair Street - Plot A of the Portugal Street East Regeneration Framework - approximately 12m to the south east of the Proposed Development

19.14 As only living rooms should be checked for sunlight, no sunlight assessment has been undertaken to the Ibis Hotel or the Adair Street Hotel.

19.15 There are no other existing residential developments that could be impacted due to the orientation or proximity to the Proposed Development.

[12] Emphasis added.

19.16 The proposed public open space and public realm within the Portugal Street East Regeneration Framework is located to the south of the Proposed Development. Due to the orientation, there is a very low probability of any direct impact from the Proposed Development, and so the areas have not been assessed.

19.17 There are no known details of the development of the remaining plots within the Portugal Street East Strategic Regeneration Framework Area, and therefore no cumulative assessment has been completed for the remaining plots.

**Baseline Surveys**

***Desk Surveys***

19.18 Desk based surveys including Planning portal and letting agent research has been undertaken to obtain layout plans and room uses for the properties that are being assessed in detail.

***Field Surveys***

19.19 Field surveys have been undertaken to determine potential room use and layouts in relevant buildings surrounding the Proposed Development. These surveys have comprised a photographic survey of the surrounding existing buildings. It would not be practical to inspect all rooms surrounding a development of this scale, and it is ordinary industry practice for some assumptions to be made on the surrounding room layout and use.

***Scenarios Assessed***

19.20 The following scenarios have been assessed and are reported within this Chapter of the ES:

- Baseline – this is the current daylight and sunlight levels received at the existing properties;
- Proposed Development - this is the change in the daylight and sunlight levels that would occur to the baseline levels, as a direct result of the Proposed Development; and
- Cumulative – this is the change in the daylight and sunlight levels that would occur to the baseline levels, as a result of the Proposed Development and the Cumulative Developments.

***Modelling***

19.21 The technical analysis carried out to inform the daylight and sunlight assessment have been undertaken by creating a digital three-dimensional (3D) model of the existing site and Proposed Development, based on photogrammetry and photographic survey data, provided by Vertex Modelling.

19.22 The 3D model uses Waldram Diagrams to establish the Vertical Sky Component (VSC) and 3D geometric calculations for daylight distribution. This model, which is orientated to north, enables the path of the sun to be tracked throughout the year to establish the shadow cast by the existing and proposed buildings and thus calculate the sun hours on ground and annual probable sunlight hours (APSH) in each scenario.

19.23 Only those surrounding properties which have windows facing towards the site were included in the assessment. If a nearby property has no windows facing the site, these properties would not be affected by the Proposed Development in terms of light.

19.24 The following approaches are undertaken to assess the effect on the sensitive receptors of surrounding properties when the proposed development is completed and operational:

- Daylight
  - Vertical Sky Component (VSC); and

- No Sky Line (NSL) Method.

- Sunlight
  - Annual Probable Sunlight Hours (APSH).

### Daylight: Vertical Sky Component (VSC) Method

19.25 The VSC method of assessment is defined in the BRE Guidelines as the:

*"ratio of that part of illuminance at a point on a given vertical plane that is received directly from a CIE (Commission Internationale de L'Eclairage) standard overcast sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky".*

19.26 This ratio is the percentage of the total unobstructed view that is available, once obstructions (e.g. the Proposed Development), are placed in front of the point of view.

19.27 The assessment is calculated from the centre of a window on the outward face and measures the amount of light available on a vertical wall or window following the introduction of visible barriers, such as buildings. The VSC has been calculated by using a 'Waldram Diagram'.

19.28 The Waldram Diagram is effectively a snapshot taken from that point of the sky in front of the window, together with all relevant obstructions to it, i.e. the buildings. For calculation purposes, trees may be ignored unless they form dense continuous belts.

19.29 The maximum VSC value is almost 40% for a completely unobstructed vertical wall or window. In terms of assessment criteria, the BRE Guidelines state that:

*"if the VSC, with the development in place, is both less than 27% and less than 0.8 times its former value, occupants of the existing building will notice the reduction in the amount of skylight. The area lit by the window may appear gloomier and electric lighting will be needed more of the time". (para 2.2.7)*

### No Sky Line (NSL) Method

19.30 The BRE Guidelines provide that where room layouts are known, the effect on the daylight distribution can be calculated by plotting the NSL. In terms of the surrounding receptors, it has not been possible to obtain room layouts for all of the properties and therefore layouts have been assumed where information is not available.

19.31 The NSL method is a measure of the distribution of daylight at the 'working plane' within a room. The 'working plane' means a horizontal 'desktop' plane 0.85m in height for residential properties. The NSL divides those areas of the working plane which can receive direct sky light from those which cannot. If a significant area of the working plane lies beyond the NSL (i.e. it receives no direct sky light), then the distribution of daylight in the room will be poor and supplementary electric lighting may be required.

19.32 The potential effects of daylighting distribution in an existing building can be found by plotting the NSL in each of the main rooms. For houses, this will include living rooms, dining rooms and kitchens. Bedrooms should also be analysed, although they are less important. The BRE Guidelines identify that if the area of a room that does receive direct sky light is reduced to less than 0.8 times its former value, then this would be noticeable to its occupants.

19.33 BS 8206 Part 2 states (para 5.7) that the:

*"uniformity of daylight is considered to be unsatisfactory if a significant part of the working plane (normally more than 20%) lies behind the no-sky line".*

19.34 Therefore, it is implied that an NSL of at least 80% would be considered satisfactory.

19.35 In regards to deep rooms which are lit by windows on one side, the BRE Guidelines state (para. 2.2.10):

*"If an existing building contains rooms lit from one side only and greater than 5m deep, then a greater movement of the no sky line may be unavoidable."*

**Sunlight: Annual Probable Sunlight Hours (APSH)**

19.36 Sunlight is measured using a sun indicator which contains 100 spots, each representing 1% of APSH. Therefore, where no obstruction exists the total annual probable sunlight hours would amount to 1486 and therefore each spot equates to 14.86 hours of the total annual sunlight hours.

19.37 The number of spots is calculated for the baseline and proposed development scenarios during the year and also during the winter period, and a comparison made between the two. This provides a percentage of APSH for each of the time periods for each window assessed.

19.38 The BRE Guidelines note that:

- *"In housing, the main requirement for sunlight is in living rooms, where it is valued at any time of day, but especially in the afternoon." (para 3.1.2).*
- *"all main living rooms of dwellings…should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun". (para 3.2.3).*
- *"If the main living room to a dwelling has a main window facing within 90° of due north, but a secondary window facing within 90° of due south, sunlight to the secondary window should be checked." (para 3.2.4).*
- *"…a south facing window will, in general, receive most sunlight, while a north facing one will receive it only on a handful of occasions. East and west facing windows will receive sunlight only at certain times of day*". (para 3.1.6).

19.39 In regards to existing surrounding receptors, the BRE Guidelines provide that a window may be adversely affected if a point at the centre of the window receives for the whole year, less than 25% of the APSH, including at least 5% of the APSH during the winter months (21st September to 21st March) and less than 0.8 times its former sunlight hours during either period, and if there is a reduction in total APSH which is greater than 4%.

19.40 BS 8206 Part 2 (section 5.2) states that:

*"Provided that the entry of sunlight is properly controlled, it is generally welcome in most buildings in the UK. Dissatisfaction can arise as much from the permanent exclusion of sunlight as from its excess. The provision of sunlight is important in dwellings, particularly during winter months. Sunlight is especially valued in habitable rooms used for long periods during the day."*

*"Interiors in which the occupants have a reasonable expectation of direct sunlight should receive at least 25% of probable sunlight hours (see 2.10.2). At least 5% of probable sunlight hours should*

*be received during the winter months, between 21 September and 21 March. Sunlight is taken to enter an interior when it reaches one or more window reference points."*

19.41 As is often the case, it is not possible to determine the room uses within each of the neighbouring properties, nor is it clear which window should be considered as the 'main windows'. Therefore, regardless of use, all the rooms with windows facing the site and within 90 degrees of due south have been considered in the assessment.

**Table 19.1: Summary of Daylight and Sunlight Assessment Criteria**

| Method | BRE Criteria |
|---|---|
| VSC | A window may be adversely affected if its VSC measured at the centre of the window is less than 27% and less than 0.8 times its former value |
| NSL | A room may be adversely affected if the daylight distribution (NSL) is reduced beyond 0.8 times its existing area. |
| APSH | A window may be adversely affected if a point at the centre of the window received for the whole year, less than 25% of the APSH including at least 5% of the APSH during the winter months (21st September to 21st March) and less than 0.8 times its former sunlight hours during either period, and for existing neighbouring buildings, if there is a reduction in total APSH which is greater than 4%. |

## Significance Criteria

**Daylight and Sunlight Magnitude of Effect**

19.42 For daylight and sunlight, the BRE Guidelines outline the approach within the accompanying Appendix I, in terms of assigning criteria to assess the effects (para I3-I8):

*"Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required…The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied."*

*"Where the loss of skylight or sunlight fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows or limited area of open space lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows or open space are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight and sunlight in the affected building or open space."*

*"Where the loss of skylight or sunlight does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:*

- *Only a small number of windows are affected;*
- *The loss of light is only marginally outside the guidelines;*
- *An affected room has other sources of skylight or sunlight; and*
- *The affected building only has a low level of requirement for skylight or sunlight."*

19.43 The classification of major adverse is documented within Paragraph 7 of the BRE Guidelines:

*"Factors tending towards a major adverse impact include:*

- *a large number of windows are affected;*
- *the loss of light is substantially outside the guidelines;*
- *all the windows in a particular property are affected; and*
- *the affected indoor spaces have a particular strong requirement for skylight or sunlight, e.g. a living room in a dwelling".*

*Beneficial impacts occur when there is a significant increase in the amount of skylight and sunlight reaching an existing building. Beneficial impacts should be worked out on the same principals as adverse impacts."*

19.44 Therefore, best practice guidance and professional judgment will be used to determine any impacts based on the guidance set out in Appendix I of the BRE Guidelines. Potential effects will be identified as beneficial, adverse or negligible, and their magnitude of effects will be set out as Minor, Moderate and Major.

19.45 The initial numerical criteria for determining the magnitude of effect is based on percentage alterations, as follows:

**Table 19.2: Daylight & Sunlight Magnitude of Effect**

| Magnitude of Effect | Percentage Alteration |
|---|---|
| Negligible | 0-20% |
| Minor | 20-29.9% |
| Moderate | 30-39.9% |
| Major | 40%+ |

### Sensitivity of Identified Receptor

19.46 It is important that the location and nature of the development site and surrounding is considered when determining the significance of any impacts identified. The BRE Guide is very clear that the targets provided are not mandatory. This scope and view should also be followed through to the sensitivity of the surrounding receptors. There should be an expectation that a higher degree of obstruction is inevitable in an area with modern high-rise buildings. The nature of the short term stays of guests in the Ibis Hotel is also different from long term residential owner/occupiers.

19.47 For these reasons, the surrounding receptors may have a lower sensitivity to change in an urban location, than those located in sub-urban, less dense areas. Sensitivity classification is assigned on how the proposed receptor is able to accommodate or adapt to the effect of the development. The existing residential receptors surrounding the development site reside in a city centre location where there is an expectation for a higher density of development, and the occupants are more transient.

19.48 The following sensitivity level is defined for the assessment receptors:

- The Ibis Hotel is defined as having a low sensitivity;
- 1 Adair Street is defined as having a low sensitivity;
- Land at Portugal Street East is defined as having a medium sensitivity; and
- Quantum Apartments is defined as having a medium sensitivity.

## Significance of Effects

19.49 The significance of any identified environmental effects is determined by the assessment of their magnitude against their sensitivity. The table below illustrates how the sensitivity of the receptors and the magnitude of any effect combine to confirm significance.

**Table 19.3: Significance of Effect**

| Magnitude | Sensitivity<br>High | Medium | Low |
|---|---|---|---|
| **Major** | Major<br>Adverse / Beneficial | Major- Moderate<br>Adverse / Beneficial | Moderate-Minor<br>Adverse / Beneficial |
| **Moderate** | Moderate<br>Adverse / Beneficial | Moderate-Minor<br>Adverse / Beneficial | Minor<br>Adverse / Beneficial |
| **Minor** | Moderate – Minor<br>Adverse / Beneficial | Minor<br>Adverse / Beneficial | Minor – Negligible |
| **Negligible** | Negligible | Negligible | Negligible |

| | | |
|---|---|---|
| **Key** | | Significant in terms of EIA regulations |
| | | Not significant |

19.50 When assigning significance criteria for daylight and sunlight effects, professional judgement has been used. Consideration has been given to the proportion of rooms/windows affected, as well as the percentage alterations, absolute changes, sensitivity of the receptor, and any other relevant factors, such as there may be mitigating factors such as location and nature of development, balconies, overhangs or design features which may also affect the determination of assigning the criteria.

## Existing Baseline Conditions

19.51 Presented below are the baseline conditions as they exist in 2020.

19.52 In order to assess the potential impacts of the Proposed Development, it is necessary to determine the environmental conditions, resources and receptors that currently exist on the site and in the surrounding area. These are known as 'baseline conditions' and should be considered in the context of each assessment.

19.53 With regard to the existing levels of daylight and sunlight for the four sensitive receptors, Table 19.4 below provides an indication of the baseline (existing) results for those properties that are considered to be sensitive in terms of daylight and sunlight. A total of 614 windows serving 412 rooms within four buildings have been assessed for daylight and 86 windows within one property has been assessed for sunlight.

**Table 19.4: Baseline Daylight and Sunlight results**

| Property | Total no. windows that meet VSC criteria (>27%) | | Total no. of rooms that receive NSL in excess of 80% | | Total no. of windows that meet APSH criteria | |
|---|---|---|---|---|---|---|
| | **Pass** | **Total** | **Pass** | **Total** | **Pass** | **Total** |
| Quantum Apartments | 73 | 94 | 61 | 68 | 40 | 40 |
| Ibis Hotel | 136 | 136 | 90 | 126 | - | - |
| 1 Adair Street | 143 | 178 | 143 | 151 | - | - |
| Land at Portugal Street East | 121 | 206 | 66 | 67 | 46 | 46 |
| **Total** | **473** | **614** | **360** | **412** | **86** | **86** |

19.54 Out of the 614 windows assessed, 473 (77%) windows have a baseline VSC equal or greater than 27%, whereas 360 (87%) out of the 412 rooms assessed have a daylight distribution to at least 80% of the total room area. With regard to sunlight, out of all of the 86 windows assessed, 86 (100%) meet the BRE guidelines for sunlight in the baseline.

19.55 The results of the baseline assessment therefore indicate relatively high levels of BRE compliance for daylight and sunlight, which is unusual for the urban location of the site.

## Predicted Future Baseline Conditions

19.56 Baseline conditions in the construction year in 2020 will be the same as the 2020 baseline conditions. The baseline conditions at the predicted time that the Proposed Development will be fully complete (2022) are also expected to be the same. No additional receptors have been identified for the future baseline years.

## Assessment of Effects

### Matters which have been Scoped Out

19.57 Due to the orientation, there is a very low probability of any direct impact from the Proposed Development on the proposed public open space and public realm within the Portugal Street East Regeneration Framework, and so the areas have not been assessed.

19.58 There are no other matters that have been scoped out or excluded from technical assessment. All technical assessments have been undertaken fully in line with the requirements of The Building Research Establishment (BRE) Guidelines 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice 2011, 2nd edition'.

### Embedded Mitigation

19.59 The design of the Proposed Development has evolved iteratively, ensuring that established architectural design principles have been utilised to minimise the impact on the existing surrounding properties' amenity.

### Limitations and Assumptions

19.60 It has not been possible to obtain access to receptor locations and thus the assessment is based upon realistic worst-case assumptions as to the internal layouts of the rooms behind the fenestration based upon the building form and architecture. This is normal practice where access

to adjoining properties is not available. Unless the building form dictates otherwise, we assume a standard 4.2m deep room (14ft).

19.61 Floor levels have also been assumed for the adjoining properties. This dictates the level of the working place which is relevant for the No Skyline assessment. Again, realistic worst-case assumptions have been applied.

19.62 As is often the case, it is not possible to determine all of the room uses within each of the neighbouring properties, nor is it clear which window should be considered as the 'main windows' for the purpose of the APSH sunlight assessment. Therefore, in Quantum Apartments, regardless of use, all the rooms with windows facing the site and within 90 degrees of due south have been considered in the assessment.

**Assessment of Construction Phase Effects**

19.63 The construction scenario considers the conditions in 2020 as this is the point at which construction of the Proposed Development is expected to be commenced.

19.64 The effect to the daylight and sunlight on the surrounding properties would vary throughout any construction phase (including demolition works), depending on the level of obstruction caused. The effects during the demolition and construction would almost certainly be less than that of the operation of the Proposed Development, given that the extent of permanent massing would increase throughout the construction phase, until the building is complete.

19.65 The demolition of the existing structures would have a negligible magnitude of effect on the surrounding buildings (which are of a moderate and low sensitivity), which would result in a **negligible significance of effect (not significant)** in terms of daylight and sunlight to the surrounding properties.

19.66 The construction of the new building on the site would have a gradual effect upon the levels of daylight and sunlight as the massing of the Proposed Development increases over time.

19.67 The assessment of the effects of the completed and occupied Proposed Development (see below) provides a 'worst case' assessment of construction effects. Therefore, reference should be made to the assessments of the Proposed Development discussed in the sections below.

19.68 It identifies that no significant effects are expected. The same conclusion can therefore be reached in respect of the construction phase i.e. the construction of the Proposed Development will cause **no adverse significant impacts** in terms of daylight and sunlight to the surrounding properties.

**Assessment of Operational Phase Effects**

19.69 The operational scenario considers the conditions in 2022 as this is the point at which construction of the Proposed Development is expected to be completed.

**Daylight Effects to Surrounding Properties**

19.70 Full details of the daylight assessments can be found in **ES Volume 3: Appendix 19.1** and the results for VSC and NSL are shown in Table 19.6 and 19.7.

19.71 Out of the total 614 windows assessed, 473 (77%) currently meet the BRE criteria for VSC daylight (baseline position – see table 19.4) and out of the total 412 rooms assessed, 360 (87%) presently meet the BRE criteria for NSL daylight (baseline position – see table 19.4). This NSL baseline demonstrates a relatively high level of compliance given the city centre location of the site. The VSC baseline demonstrates a relatively high level of compliance, given the city centre location.

**Table 19.5: VSC Daylight Results – Operational Phase Assessment**

| Property | VSC | | | | |
|---|---|---|---|---|---|
| | Total no. of windows | No. windows that meet BRE criteria | Minor 20-30% reduction | Moderate 30-40% reduction | Major 40%+ reduction |
| Quantum Apartments | 94 | 59 | 35 | 0 | 0 |
| Ibis Hotel | 136 | 101 | 14 | 21 | 0 |
| 1 Adair Street | 178 | 41 | 36 | 43 | 58 |
| Land at Portugal Street East | 206 | 206 | 0 | 0 | 0 |
| **Total** | **614** | **407** | **85** | **64** | **58** |

**Table 19.6: Table 19.6: NSL Daylight Results – Operational Phase Assessment**

| Property | NSL | | | | |
|---|---|---|---|---|---|
| | Total no. of rooms | No. rooms that meet BRE criteria | Minor 20-30% reduction | Moderate 30-40% reduction | Major 40%+ reduction |
| Quantum Apartments | 68 | 68 | 0 | 0 | 0 |
| Ibis Hotel | 126 | 115 | 4 | 4 | 3 |
| 1 Adair Street | 151 | 69 | 18 | 16 | 48 |
| Land at Portugal Street East | 67 | 67 | 0 | 0 | 0 |
| **Total** | **412** | **319** | **22** | **20** | **51** |

19.72 Each of the buildings are discussed in more detail below.

### Quantum Apartments

19.73 In terms of the daylight assessment, a total of 94 windows serving 68 rooms were assessed within this property.

19.74 In regards to VSC, 59 (63%) of the 94 windows assessed will meet the BRE guidelines.

19.75 35 of the affected windows will experience alterations between 20-30% (a minor magnitude of impact).

19.76 For NSL, 68 (100%) out of the 68 rooms assessed meet the BRE guidelines.

19.77 Therefore overall, the significance of effect on daylight to this property (which has a medium sensitivity) is considered to be **minor adverse (not significant)**. This is not considered to be a significant effect in terms of the EIA Regulations.

### Ibis Hotel

19.78 A total of 136 windows serving 126 rooms were assessed within this property.

19.79 In regards to VSC, 101 (74%) of the 136 windows assessed will meet the BRE guidelines.

19.80 14 of the affected windows will experience alterations between 20-30% (a minor magnitude of impact) and 21 of the affected windows will experience alterations between 30-40% (moderate magnitude of effect).

19.81 For NSL, 115 (91%) out of the 126 rooms assessed meet the BRE guidelines. Four of the affected rooms will experience alterations between 20-30% (minor magnitude of effect), Four of the affected rooms will experience alterations between 30-40% (moderate magnitude of effect) and the remaining three affected rooms will experience alterations in excess of 40% (major magnitude of effect).

19.82 Whilst the magnitude of change includes moderate and major impacts, the Ibis Hotel is a defined as having a low sensitivity to change. Furthermore, these daylight impacts are to bedrooms, which also have a lower requirement for daylight.

19.83 Therefore overall, the significance of effect on daylight to this property is considered to be **minor adverse (not significant)**. This not considered to be a significant impact in terms of the EIA regulations.

**1 Adair Street**

19.84 A total of 178 windows serving 151 rooms were assessed within this property.

19.85 In regards to VSC, 41 (23%) of the 178 windows assessed will meet the BRE guidelines.

19.86 36 of the affected windows will experience alterations between 20-30% (minor magnitude of effect), 43 of the affected windows will experience alterations between 30-40% (moderate magnitude of effect) and the remaining 58 affected windows will experience alterations in excess of 40% (major magnitude of effect).

19.87 For NSL, 69 (46%) out of the 151 rooms assessed meet the BRE guidelines. 18 of the affected rooms will experience alterations between 20-30% (minor magnitude of effect), 16 of the affected rooms will experience alterations between 30-40% (moderate magnitude of effect) and the remaining 48 affected rooms will experience alterations in excess of 40% (major magnitude of effect).

19.88 Whilst the magnitude of change includes moderate and major impacts, 1 Adair Street is a defined as having a low sensitivity to change. Furthermore, these daylight impacts are to bedrooms, which also have a lower requirement for daylight.

19.89 Therefore overall, the significance of effect on daylight to this property is considered to be **minor adverse (not significant)**. This not considered to be a significant impact in terms of the EIA regulations.

**Land at Portugal Street East**

19.90 A total of 206 windows serving 67 rooms were assessed within this property.

19.91 In regards to VSC, 206 (100%) of the 206 windows assessed will meet the BRE guidelines.

19.92 For NSL, 67 (100%) out of the 67 rooms assessed meet the BRE guidelines.

19.93 Therefore overall, the significance of effect on daylight to this property is considered to be **negligible (not significant)**. This not considered to be a significant impact in terms of the EIA regulations.

**Table 19.7: Summary of Significance of Daylight Impacts**

| Property | Significance of Daylight Impacts | Significance in Terms of EIA Regulations |
|---|---|---|
| Quantum Apartments | Moderate-minor adverse | Not significant |
| Ibis Hotel | Minor adverse | Not significant |
| 1 Adair Street | Minor adverse | Not significant |
| Land at Portugal Street East | Negligible | Not significant |

## Sunlight Effects to Surrounding Properties

19.94 Full details of the sunlight assessment can be found in **ES Volume 3: Appendix 19.1** and are shown in Table 19.8 below. As only living rooms should be checked for sunlight, therefore no sunlight assessment has been undertaken to the Ibis Hotel and 1 Adair Street.

19.95 Out of the total 173 windows assessed, 173 (100%) meet the BRE criteria for both Winter and Annual PSH.

**Table 19.8: APSH Sunlight Results**

| Property | Total no. of Windows | No. of Windows that meet the BRE criteria | Windows which do not meet the BRE sunlight criteria | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **Below threshold for Winter PSH** | | | **Below threshold for Annual PSH** | | |
| | | | **20-30% reduction** | **30-40% reduction** | **40%+ reduction** | **20-30% reduction** | **30-40% reduction** | **40%+ reduction** |
| Quantum Apartments | 40 | 40 | 0 | 0 | 0 | 0 | 0 | 0 |
| Land at Portugal Street East | 46 | 46 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **86** | **86** | **0** | **0** | **0** | **0** | **0** | **0** |

## Quantum Apartments

19.96 A total of 40 windows were assessed for sunlight within this property.

19.97 40 (100%) of the windows assessed will meet the BRE criteria for both Winter and Annual PSH.

19.98 The magnitude of effect will be negligible on a moderately sensitive property. Overall, the effect on sunlight to this property is considered to be **negligible (not significant)**. This not considered to be a significant impact in terms of the EIA regulations.

**Land at Portugal Street East**

19.99 A total of 46 windows were assessed for sunlight within this property.

19.100 46 (100%) of the windows assessed will meet the BRE criteria for both Winter and Annual PSH.

19.101 The magnitude of effect will be negligible on a moderately sensitive property. Overall, the effect on sunlight to this property is considered to be **negligible (not significant)**. This not considered to be a significant impact in terms of the EIA regulations.

**Table 19.9: Summary of Significance of Sunlight Impacts**

| Property | Summary of Sunlight Impacts | Significance in Terms of EIA Regulations |
|---|---|---|
| Quantum Apartments | Negligible | Not significant |
| Land at Portugal Street East | Negligible | Not significant |

## Assessment of Likely Significant Cumulative Effects

**Intra-Project Cumulative Effects**

19.102 The assessment of daylight and sunlight amenity to surrounding existing buildings is because of mass and density obstructing a view of the sky, or direct sunlight. The other environmental topics would not alter this mass and density of the Proposed Development and so there will be no intra project effects.

**Inter-Project Effects**

19.103 Consideration has been given to 'cumulative impacts'. These are impacts that result from incremental changes caused by other developments together with the Proposed Development on surrounding properties. The adjacent consented developments have already been included with the baseline assessment. There are no known details of the development of the remaining plots within the Portugal Street East Strategic Regeneration Framework Area, and therefore no further cumulative assessment has been completed.

19.104 This is in line with the recommendations set out in the BRE Guidelines.

## Mitigation of Effects

19.105 The design for the Proposed Development has evolved through a series of massing studies to mitigate the effects on the surrounding properties and limit the effect on the surrounding daylight and sunlight receptors.

19.106 Whilst the BRE benchmarks are widely used, these criteria should not be seen as an instrument of planning policy. As stated in the BRE Guide:

*'…..The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in sit layout design. In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings….'*

19.107 It is important to set some additional background to the BRE Guide, so that the results of the assessment can be fully considered.

19.108 The Guide aims to provide advice on site layout planning to achieve good daylight and sunlight. The advice given in the Guide is not mandatory and it should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout and design.

19.109 Another important issue is the sensitivity of the surrounding receptors. The Guide also recognises that in an urban area, with modern high-rise buildings, a higher degree of obstruction may be unavoidable, if new developments are to match the height and proportions of other existing surrounding buildings.

19.110 For these reasons, the surrounding receptors may have a lower sensitivity to change in an urban location, than those located in sub-urban, less dense areas.

19.111 The assessment identifies that no significant effects will arise as a result of the Proposed Development on daylight and sunlight during the construction and operational phases. Consequently, no further mitigation measures have been identified as being necessary.

### Residual Impacts

19.112 As no mitigation is proposed, the residual assessment is as assessed above.

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| **Daylight Effects** | | | | | |
| Ibis Hotel | Minor adverse (not significant) | Long term | n/a | Minor adverse (not significant) | Long term |
| Quantum Apartments | Moderate-minor adverse (not significant) | Long term | n/a | Moderate-minor adverse (not significant) | Long term |
| 1 Adair Street | Minor adverse (not significant) | Long term | n/a | Minor adverse (not significant) | Long term |
| Land at Portugal Street East | Negligible (not significant) | Long term | n/a | Negligible (not significant) | Long term |
| **Sunlight Effects** | | | | | |
| Quantum Apartments | Negligible (not significant) | Long term | n/a | Negligible (not significant) | Long term |
| Land at Portugal Street East | Negligible (not significant) | Long term | n/a | Negligible (not significant) | Long term |

## References


19.1 Manchester City Council (2012). Manchester Core Strategy (2012 – 2027). See: http://www.manchester.gov.uk/downloads/download/4964/core_strategy_development_plan (visited 11th September 2017)

19.2 **Manchester City Council (2007). Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007). See: http://www.manchester.gov.uk/site/scripts/download_info.php?downloadID=644&fileID=1424 (visited 11th September 2017)**

19.3 **Littlefair, P J (2011). 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice'. Building Research Establishment (BRE).**

19.4 **BS 8206-2:2008 (2008). 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'. BSi British Standards.**

# 20. Socio-Economics

## Introduction

20.1 This Socio-Economic chapter was prepared by Anastasia Fleming (Bsc, PIEMA), WYG EIA Consultant and verified by Ross Phillips (BSc, MRes, PIEMA, MCIEEM) Associate at WYG and assesses the potential effects of the Proposed Development on the socio-economic baseline.

20.2 The assessment identifies short-term and long-term effects during the construction and operational phases of the development. The significance of all identified effects is based on the significance of effects matrix illustrated in the methodology section and is grounded primarily on professional judgement.

## Legislative Framework, Policy and Guidance Documents

### National Planning Policy Framework (NPFF) 2019 (ref. 20.1)

20.3 The National Planning Policy Framework (NPPF) February 2019 places a strong emphasis on sustainable development and for the planning system to support economic growth. Economic, environmental and social gains are sought jointly and simultaneously through the plan-making and development management processes in order to achieve sustainable development. Paragraph 8 outlines three core objectives in relation to overarching economic, social and environmental objectives that planning should follow.

*"a) An Economic Objective - Proactively help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*

*"b) A Social Objective - Proactively support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being"; and,*

*"c) An Environmental Objective - Proactively contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".*

20.4 Paragraph 20 emphasis that:

*"All strategic policies should make sufficient provision in favour of sustainable development for housing (including affordable housing), employment, retail, leisure and other commercial development".*

20.5 Paragraph 67 states that:

*"Strategic policy-making authorities should have a clear understanding of the land available in the area and identify a sufficient supply and mix of sites, taking into account their availability, suitability and likely economic viability".*

20.6 Paragraph 91 emphasis that planning policies should aim to achieve healthy, inclusive and safe places by:

*"enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling".*

**Manchester City Council Core Strategy Framework 2012 to 2027 (ref. 20.2)**

20.7 This document seeks to address key issues facing the city of Manchester and outlines a list of strategic visions and spatial strategies set for the period of 2012 to 2027.

20.8 **Table 20.1** highlights a summary of the strategies and spatial objectives outlined in Manchester City Core Strategy Plan 2012-2027.

**Table 20.1: Core Strategy Plans related to the Proposed Development**

| Strategy | Context |
|---|---|
| EC1 - Employment and Economic Growth in Manchester | A minimum of 200 ha of employment land will be developed between 2010 and 2027 for offices (B1a), research and development (B1b), light industrial (B1c), general industry (B2) and distribution and warehousing (B8).<br>• Offices (B1a) - 140ha;<br>• Research and Development and Industry (B1b, B1c and B2) - 25 ha; and,<br>• Distribution and Warehousing (B8) - 35ha |
| EC3 – Regional Centre | Within the Regional Centre development for employment generating uses including offices and other commercial development will be encouraged. Office developments will be appropriate providing that:<br>• They are in locations which are well connected by sustainable transport to both the City Centre and residential areas; and,<br>• The scale and type of office development does not undermine delivery of employment space within the City Centre.<br>The Regional Centre is an appropriate location for large scale leisure uses, for which City Centre sites are unsuitable. |
| CC1 – Primary Economic Development Focus: City Centre and Fringe | Support a significant further improvement of the City's economic performance and spread the benefits of this growth across the City to reduce economic, environmental and social disparities, and to help create inclusive sustainable communities.<br>A minimum of 200ha of employment will be developed between 2010 and 2027 for offices (B1a), research and development (B1b), light industrial (B1c), general industry (B2) and distribution and warehousing (B8). |
| CC3- Housing | Provide a significant increase in high quality housing provision at sustainable locations throughout the City, to both address demographic needs and to support economic growth.<br>The emphasis will be on providing a good range of high-quality housing (in terms of size, type, tenure, accessibility and price) including affordable housing across the City; to create sustainable lifetime neighbourhoods with |

| Strategy | Context |
|---|---|
| | high quality environment, good local facilities and with easy access to employment opportunities.<br>The City Centre will see the most intensive development of housing in the City. It is expected that a minimum of 16,500 new units will be provided from 2010-2027. Key locations for the residential development will be Castlefield, Piccadilly, the Southern Gateway and the Northern Quarter.<br>Residential development in the City Centre will comprise apartment schemes. The Council will encourage accommodation of a high standard which offers accommodation which is large enough to suit a range of occupants, in terms of both the number of rooms and their size. |
| CC5 - Transport | Improve the physical connectivity of the City, through sustainable and accessible transport networks, to enhance its functioning and competitiveness and provide access to jobs, education, services, retail, leisure and recreation. |
| CC2 - Retail | The Council will promote the growth and improvement of retail provision in the City Centre.<br>• Approximately 70,000 square metres net of new comparison retail floorspace will be provided in the City Centre over the plan period.<br>• A minimum of 4,500 square metres net of convenience floorspace will be provided in the City Centre over the plan period. |
| CC4 – Tourism, Culture and Leisure | The City Centre will be the focus for culture and leisure in the City Region. Proposals to improve the appearance, use and accessibility of all cultural and visitor attractions and associated facilities will be supported. The improvement of facilities for business visitors will also be supported. |
| EN 10 – Safeguarding Open Space, Sport and Recreation Facilities | The Council will seek to retain and improve existing open spaces, sport and recreation facilities to the standards set out above and provide a network of diverse, multi-functional open spaces. Proposals will be supported that:<br>• improve the quality and quantity of accessible open space, sport and recreation in the local area;<br>• provide innovative solutions to improving the network of existing open spaces, increase accessibility to green corridors, and enhance biodiversity; and,<br>• improve access to open space for disabled people. |

**Additionality Guide (Homes and Communities Agency, 2014) (ref. 20.3)**

20.9 The Additionality guide produced by Homes and Community Agency, 2014 outlines methods on how to assess the additional impact or additionality of local economic growth and housing interventions. The guide highlights that the level of additional outputs and outcomes of an intervention as a result of the development will highly depend on the area of focus and the Proposed Development. In this case, **Table 20.2** outlines the factors taken into consideration when assessing additionality by intervention type.

**Table 20.2: Assessing additionality of outputs by intervention type**

| Intervention type | Leakage | Displacement | Substitution | Multiplier effect | Reference case (deadweight) |
|---|---|---|---|---|---|
| Housing | Always need to assess | May be displacement within housing market | May be relevant | May exist depending on local labour and materials used in construction. Generally, not likely to be relevant except as part of long-term development multiplier effects | Always need to assess |

20.10 The guide defines the components of additionality as:

- Reference case: estimate of what level of target outputs/outcomes would be produced if the intervention did not go ahead. It is the 'do nothing' or 'do minimum' option;
- Leakage effect: the number or proportion of outputs that benefit those outside of the intervention's target area;
- Substitution effect: arises where a firm substitutes one activity for a similar one; and
- Multiplier effect: further economic activity associated with additional local income, local supplier purchases and longer-term development effects.

**Employment Density Guide (Homes and Communities Agency (HCA), 2015) (ref. 20.4)**

20.11 This guide was used to calculate the jobs generated by a particular use/building (in this case the Proposed Development) using employment densities and floorspace. To identify the potential number of Full Time Employee (FTE) generated as part of the Proposed Development, an employment density matrix provided as part of the guide was used.

**The Northern Powerhouse Independent Economic Review (SQW, 2016) (ref. 20.5)**

20.12 The Independent Economic Review (IER) was undertaken between late-October 2015 and March 2016. It focused on five clearly defined but interrelated Workstreams which sought to understand the scale, nature and causes of the North's 'performance gap', distinctive sectoral strengths and capabilities at the level of the North, and future growth prospects for the North. These are outlined in **ES Volume 3 Figure 20.1**.

## Assessment Methodology

20.13 The assessment first establishes the baseline position of local economic conditions and the current provision of education, health, leisure and community facilities. The assessment then examines the potential impacts of the Proposed Development and their significance. Opportunities for mitigation and the enhancement of positive effects are then examined, including any built-in mitigation elements of the scheme, such as open space and social infrastructure facilities.

20.14 This assessment draws upon published Government and Local Authority statistics. In May 2018, the ward names and boundaries were changed by Manchester City Council. In the case where information for the current ward was not available, data related to the previous ward was used in the assessment. In particular, this includes data from the 2011 Census **(ref.20.6)** and other published national statistics **(ref.20.7)**.

**The Study Area**

20.15 Given the potential economic linkages and commute times, some effects as a result of the Proposed Development are anticipated to spread over a larger area. As the site is located on the border of Piccadilly Ward and the boundary, and name of this was changed from *Ancoats and Clayton* to *Piccadilly* in May 2018, the spatial area of assessment was based on both ward profiles.

20.16 The following definitions have been adopted for the geographical extent of effects for the purpose of this socio-economic assessment:

- Where applicable, previous ward profile: Ancoats and Clayton **(ES Volume 3: Figure 20.2**);
- Ward Level: Piccadilly Ward – ward name changed as per May 2018 **(ES Volume 3: Figure 20.3);**
- District Level: Manchester Metropolitan District (**ES Volume 3: Figure 20.4**); and,
- National Level: England.

**Baseline Surveys**

20.17 Piccadilly Ward and former Ancoats and Clayton Ward are anticipated to be the main areas affected by the development. To ensure all areas are considered and assessed, the data available for Piccadilly Ward, in which the application site is located was also compared against information for Manchester City and Manchester Metropolitan District (**ref.20.11**). To appreciate the national context, where suitable, the data was also compared to National datasets (**ref.20.6**).

***Desk Based Research***

20.18 Desk-based studies involved a thorough analysis of the socio-economic profile of the ward associated with the development, compared to district and national levels. The desk-based research involved the consideration of the following aspects:

- Population: Information derived from Nomis **(ref. 20.6)** and Manchester City Council Intelligence Hub (**ref. 20.11)**;
- Employment: Information derived from ASHE, 2019 **(ref. 20.7)**
- Education: Information derived from Department of Education School Capacity 2019 report **(ref. 20.8)**;
- Deprivation: Information derived from Ministry of Housing, Communities and Local Government **(ref. 20.9)**; and,
- Open space: Information derived from Manchester City Wide Open Spaces, Sport and Recreation Study 2008 **(ref. 20.10)**.

***Field Survey Work***

20.19 No field surveys were required as part of the socio-economic assessment.

***Consultations***

20.20 Formal consultation was undertaken with Manchester City Council during the scoping exercise as part of the EIA Process. MCC agreed with the scope and method of the socio-economic assessment. This ES has been completed in accordance with the Scoping Opinion (**ES Vol 4: Appendix 5.1**). .

**Significance Criteria**

20.21 The significance of effects combines the magnitude of change against the sensitivity of the receptor. Thus, as a simple example, the introduction of a large employment generating development in any area of high unemployment should have a substantial impact in area of high sensitivity and thus the significance of the effect would be major and beneficial.

***Magnitude of Effect***

20.22 The magnitude of effects are those that will be caused or influenced by the development and are assessed in relation to the established baseline conditions. The impacts are assessed in relation to their magnitude and are additionally assessed after mitigation if necessary or relevant. The magnitude of effects may be beneficial, neutral or adverse. In terms of temporal scope, the magnitude of effects can be temporal or permanent and can be experience over short, medium or long term. Indicators of magnitude of effects, based on professional judgement and experience are outlined in **Table 20.3**.

**Table 20.3: Level of Magnitude**

| Level of Magnitude | Definition of Magnitude |
|---|---|
| Substantial | Large absolute and/or percentage change in socio economic indicators. |
| Moderate | Noteworthy change |
| Slight | Measurable but not significantly influential change. |
| Negligible | No determinable change. |

***Sensitivity of Receptor***

20.23 Different socio-economic landscapes are affected in different ways depending upon the political and economic profile of the locality. This can be explored in differing ways and used to extrapolate the impact of any proposal. Impacts are defined by their degree of influence on certain receptors. Receptors include, but are not limited to, the overall population (including the total number of residents), working population, non-working population (those in education, retired or unemployed), skills of residents, indices of deprivation and the overall health of the economy.

20.24 On a strategic basis, the report considers the degree to which a location (in this case, the Piccadilly Ward) can accommodate change without detrimental effects on known receptors and the degree to which individual receptors will be affected by the change.

**20.25** The sensitivity of a receptor explores the challenges relating to the particular issue and are attributed weight according to their severity and relationship with national, regional and local norms. As an example, a receptor relating to deprivation levels in an area of high unemployment and poor education compared to the national average would be considered to have very high sensitivity. A receptor with average levels of employment and education but poor ethnic diversity may be considered to have medium or low-level sensitivity. Evidence and indicators of socio-economic sensitivity can be broken down as outlined in **Table 20.4.**

**Table 20.4: Criteria for Sensitivity Assessment**

| Sensitivity | Evidence for Sensitivity Assessment |
|---|---|
| Very High | Substantial evidence of direct and significant socio-economic challenges relating to receptor. These challenges are large relative to regional and national comparators. Accorded a high priority in local, regional or national economic and regeneration policy. |
| High | Evidence of socio-economic challenges linked to receptor, which may be indirect. Change relating to receptor has high priority in local, regional and national economic and regeneration policy. |
| Medium | Some evidence of socio-economic challenges relating to receptor. Receptor is accorded a medium priority in local, regional and national economic and regeneration policy. |
| Low | Little or no evidence of socio-economic issues relating to receptor. Receptor is not considered a priority in local, regional and national economic development and regeneration policy. |
| Negligible | No evidence of socio-economic issues relating to receptor. Receptor is not considered a priority in local, regional and national economic development and regeneration policy. |

***Duration of effect***

20.26 Assessing the duration of effect will be undertaken in line with **Table 20.5.**

**Table 20.5: Duration of Effect**

| Timescale | Definition |
|---|---|
| Short-term | 0 to 5 years including the construction period and on completion |
| Medium-term | 5 to 15 years including mitigation establishment |
| Long-term | 15+ years including long term operation of the development |

***Significance of Effect***

20.27 The significance of effects combines the magnitude of change against the sensitivity of the receptor. Thus, as a simple example, the introduction of a large employment generating development in any area of high unemployment should have a substantial impact in area of high sensitivity and thus the significance of the effect would be major and beneficial.

20.28 The significance matrix set out in **Table 20.6** has been applied. Effects have been defined as either 'significant' or 'not significant'. Significant effects that are Major or Intermediate would be considered material to the planning decision process.

20.29 It should be noted that the significance of effects criteria does not imply a value judgement, and the scale as to when the effect is considered significant is primarily based on professional judgement.

**Table 20.6: Significance of effects**

| | | Magnitude of Impact | | | |
|---|---|---|---|---|---|
| | | Substantial magnitude | Moderate magnitude | Slight magnitude | Negligible magnitude |
| Sensitivity of Receptor | Very High | **Major** | **Major** | **Intermediate** | Neutral |
| | High | **Major** | **Intermediate** | Minor | Neutral |
| | Medium | **Major** | **Intermediate** | Minor | Neutral |
| | Low | **Intermediate** | Minor | Neutral | Neutral |
| | Sensitivity | Minor | Neutral | Neutral | Neutral |

20.30 Additional mitigation, where possible, will be outlined for significant effects. Following this, the significance of effects will be reassessed in light of the mitigation and the residual significant effects identified.

## Existing Baseline Conditions (2020)

20.31 This section establishes the socio-economic context of the development site and its surrounding area. It outlines the current conditions and existing provision of community and other facilities within the development area. The Site is located within the eastern edge of Manchester City and Manchester City Ring Road, an area of great social and economic value.

20.32 The Site is located within Piccadilly Ward (as per May 2018). Prior to this, the Site was located in Ancoats and Clayton Ward. The Site is also located within the wider Manchester Metropolitan District, which is the North West's regional centre for finance, commerce, retail, culture and leisure, home to a major international airport and one of the largest student populations in Europe.

**Population**

20.33 Based on the latest 2018 Census statistics, the population of Piccadilly Ward totals 17,600 people compared to 547,600 people living in Manchester District. The population growth within the metropolitan district is expected to continue, with the population projected to rise to 636,000 by 2025.

20.34 As indicated in **ES Volume 3 Figure 20.5**, age structure in Piccadilly ward is primarily dominated by 20 to 29 age group, with 20 to 24 age group representing the highest proportion of the population.

**Employment**

20.35 No data on economic activity was found for Piccadilly ward due to the ward changes, therefore in this case relevant data was focused on Ancoats and Clayton Ward 2011 Census.

20.36 Ancoats and Clayton Ward has a higher level of economically active people in employment (65.2%) than Manchester District (58.8%). However, this represents a value lower than the national average (71%). Of the remaining 27.1% of economically inactive population, 9.4% are students, 7.3% are long-term sick or disabled and 2.4% are retired.

20.37 Weekly earnings are slightly lower than those for Greater Manchester, the north-west and national averages, suggesting that many of the more highly paid jobs in the City are in the City centre and are held by commuters and not Manchester residents. Based on ASHE (2019)

**(ref.20.7)** survey datasets, gross weekly earning for Manchester's' full-time employed residents equals approximately £601 compared to the £585 national median gross monthly salary for 2019.

**Education**

20.38 In terms of educational levels, **ES Volume 3 Figure 20.6** illustrates the NVQ educational levels for all ages. No data on education for Piccadilly Ward was found due to the ward changes in May 2018. Therefore, the educational profile was based on Ancoats and Clayton Ward.

20.39 As per **ES Volume 3 Figure 20.6** above, it is noted that Level 4 qualifications as well as no qualifications groups are higher than Manchester District and national levels. The remaining groups are lower than national and district levels.

**Education Provision**

20.40 Based on the Department of Education School Capacity 2019 report **(ref. 20.8)**, for the 2017/18 academic year there were 49,187 pupils enrolled in primary education and 27,826 pupils enrolled in secondary education in Manchester Metropolitan District.

20.41 Currently, there are some primary and secondary age schools located within the ward and within 2km radius of the Proposed Development. **Table 20.7** and **Table 20.8** outline the number of schools found within the selected 2km buffer.

**Table 20.7: Primary Schools located in vicinity of the proposed Site (ref. 20.8)**

| School Name | Local Authority | School Capacity | Pupils on roll | Net capacity |
|---|---|---|---|---|
| St Ann's RC Primary School | Manchester | 218 | 223 | -5 |
| New Islington Free School | Manchester | 420 | 281 | 139 |
| Medlock Primary School | Manchester | 500 | 471 | +29 |
| Ashbury Meadow Primary School | Manchester | 463 | 462 | +1 |
| St Patrick's RC Primary School | Manchester | 250 | 211 | +39 |
| Park View Community Primary | Manchester | 459 | 420 | +39 |
| Abbott Community Primary School | Manchester | 240 | 234 | +6 |
| CofE School of Resurrection | Manchester | 210 | 247 | -37 |
| | | | | **211** |

**Table 20.8: Secondary Schools & Higher Education facilities located in vicinity of the proposed Site (Academic Year 2016-2017) (ref. 20.8)**

| School Name | Local Authority | School/ college Capacity | Pupils on roll | Net Capacity |
|---|---|---|---|---|
| Trinity CofE High School | Manchester | 1500 | 1384 | 116 |
| **Total** | | | | **116** |

**Health**

20.42 The baseline related to human health is addressed within **Chapter 21 - Human Health**, therefore is not assessed within this chapter**.**

**House Prices**

20.43 Manchester City Council Sustainability Appraisal 2011 **(ref. 20.12)** emphasises the reduced potential for property affordability within Ancoats and Clayton Ward. This is reflected in the low rate of home ownership of 22.2% as per 2011 Census. The remaining households within the Ward are either privately rented (42.9) or socially rented (32.3%), where 13.8% are rented from the Council; shared ownership with 1.1% or living rent free with 1.6%.

**Deprivation**

20.44 Local levels of deprivation are measured by the Index of Multiple Deprivation (IMD). This uses a range of data to rank areas in seven categories, ranging from income to health, which are then combined to create a multiple deprivation score for each area where 1 is the most deprived.

20.45 The Proposed Development falls within Manchester 055E Ward which is ranked at 10,895 out of the 32,844 LSOA and is amongst the 30% most deprived neighbourhoods in the country.

20.46 As illustrated in **ES Volume Figure 20.7 (ref.20.8)** the most deprived areas adjacent to the site are located on the outskirts of Manchester City Centre and are located to the east and north of the site.

20.47 **Table 20.9** illustrates the deprivation rates across several separate indices of Manchester 055E Ward.

**Table 20.9: Index of multiple Deprivation and Domains and Deprivation for Manchester 055E Ward (ref. 20.9)**

| Ward | Deprivation Indicators | IMD Rank (of 32,844, where 1 is most deprived) | Quartile lower, medium, high, (where 1 to 11,000 is lower) |
|---|---|---|---|
| Manchester 055E | Index of Multiple Deprivation (IMD) | 9,703 | Lower |
| | Income | 18,721 | Medium |
| | Employment | 27,673 | Higher |

| Ward | Deprivation Indicators | IMD Rank (of 32,844, where 1 is most deprived) | Quartile lower, medium, high, (where 1 to 11,000 is lower) |
|---|---|---|---|
| | Education, Skills and Training | 23,989 | Higher |
| | Health, Deprivation and Disability | 1,157 | Lower |
| | Crime | 7,263 | Lower |
| | Barriers to Housing and Services | 6,802 | Lower |
| | Living Environment | 1,174 | Lower |
| | Income Deprivation Affecting Children Index (IDACI) | 22,956 | Higher |
| | Income Deprivation Affecting Older People Index (IDAOPI) | 262 | Lower |

**Crime**

20.48 The application site is located within Piccadilly Station crime search area and is covered by Greater Manchester Police. As per **ES Volume 3 Figure 20.8,** limited crimes were reported around the Site, with most crimes occurring around the Piccadilly Station and Manchester City Centre areas.

20.49 Based on the datasets provided by Police.UK **(ref. 20.13)** majority of crimes reported at Old Mill Street located in high proximity to the site were robberies and burglaries.

**Tourism**

20.50 Manchester is known to have an increasing popularity in the tourism industry, with major attractions located within and near the City centre. The baseline forecast for Manchester District outlines an increase of 18,000 employment opportunities within the hospitality and tourism sector by 2035. Currently, this sector accounts for 9% of Manchester's economy and required approximately 17,000 employees per annum for the total area of the district.

**Open space**

20.51 **Table 20.10** illustrates all parks and outdoor facilities found within a 1km radius of the proposed site.

**Table 20.10: Outdoor facilities located within the vicinity of the proposed site (ref. 20.10).**

| Open Space Name | Distance from the proposed Site (m) | Description |
|---|---|---|
| Grosvenor Street | 700 | Open Space |
| Chippenham Court | 750 | Children's play area |
| Ardwick Green | 750 | Children's play area |
| New Cross Park | 850 | Park |
| Medlock Play Area | 850 | Children's playground |
| Sackville Gardens | 900 | Memorial garden |

| Open Space Name | Distance from the proposed Site (m) | Description |
|---|---|---|
| Gartside Gardens | 1,000 | Garden: Multi-use sports area and tennis court |

20.52 **ES Volume 3 Figure 20.9** (**ref.20.10**) illustrates open space, sport and recreation facilities across the total area of Manchester City Centre, as per 2009 guidelines.

**Predicted Future Baseline Conditions**

20.53 Manchester City Council is currently considering a variety of options to improve local communities, businesses and local infrastructure, particularly in respect to high-storey residential developments.

**Construction (2020)**

20.54 During the construction period of the Proposed Development, as outlined within the Core Strategy, the following developments are planned:

- Provision of approximately 43,000m$^2$ net of new retail floorspace, including 4,500m$^2$ net of convenience floorspace (Manchester Arndale) (in line with Policy CC2 (2010-2022)); and
- Delivery of 7,420 residential units (in line with Policy CC3 (2011-2021)).

**Operation (2022)**

20.55 During the operational period of the Proposed Development, as outlined within the Core Strategy, the following developments are planned:

- Provision of a range of economic development uses (19ha)– retail, leisure, entertainment, cultural and tourism facilities (In line with Policy C1 (2020-2027));
- Provision of approximately 27,000m$^2$ net of new retail floorspace (Manchester Arndale) (In line with Policy CC2 (2022-2027)); and
- Delivery of 8,880 residential units (in line with Policy CC3 (2021-2027)).

Demographic changes

20.56 Manchester **Table 20.11** below shows the predicted population in Manchester District according to the Office for National Statistics, 2016 sub-national population projections **(ref. 20.16).**

**Table 20.11: Projected Population in Manchester District**

| Year | Projected Population (thousands) |
|---|---|
| 2014 | 498 |
| 2019 | 529 |
| 2024 | 548 |
| 2029 | 568 |

20.57 As per Ministry of Housing, Communities & Local Government, **Table 20.12** illustrates the change in household size from 2014 to 2039 in Manchester City **(ref. 20.17)**.

**Table 20.12: Household size projections in Manchester District**

| Year | Manchester |
|---|---|
| 2014 | 2.34 |
| 2019 | 2.32 |
| 2024 | 2.28 |
| 2029 | 2.25 |

**Assessment of Effects**

20.58 The assessment considers the scale and nature of the socio-economic impacts arising from the Proposed Development, at both construction and operational stages. It considers baseline data outlined above in relation to the significance of effects in accordance with the methodology mentioned above. Specifically, it sets out whether the development will have a negligible, minor, moderate or major effect and consideration as to whether that effect will be positive, negative or neutral.

**Matters Scoped Out**

20.59 The EIA Regulations **(ref. 20.14)** prescribe a requirement to only assess likely significant environmental effects. If it is considered that an environmental effect is likely to be less than significant then this can be scoped out of the assessment. In this case, based on the existing baseline and on the domains of deprivation in the study area, the following socio-economic aspects have been scoped out:

- Impact on the local labour market;
- Expenditure Impacts;
- Fiscal Applications;
- Tourism.

20.60 The baseline and environmental effects related to human health are addressed within **Chapter 21 - Human Health**, therefore these are also scoped out of this chapter**.**

## Embedded Mitigation

20.61 The Proposed Development includes a number of provisions which will provide social and economic benefits for future residents. The characteristics of the Proposed Development are detailed in **ES Volume 2: Chapter 4**, but those of which will provide social and economic benefits includes:

- provision of 177 dwellings - will add diversity to the housing stock and offer an increased variety of types of accommodation for residents;
- one commercial unit of c.161m$^2$ - will provide additional employment opportunities within the communal area and its surroundings;
- a residential garden - will benefit new residents in terms of lifestyle and health;
- resident's gymnasium - will benefit new residents in terms of lifestyle and health; and,
- 177 cycle storage facility - will benefit new residents in terms of lifestyle and health.

**Limitations and Assumptions**

20.62 Due to limitations in the availability of data at a sub-local authority level, it is not possible to review all of the relevant indicators. Additionally, due to the change of ward name and boundaries in May 2018, not all data could be applied to the recent ward – Piccadilly. In this case,

where practical, data from the previous ward – Ancoats and Clayton was used. Despite this, it is considered that the information available has been sufficient to be able to accurately assess the likely significant effects.

20.63 The spatial levels have been assessed where data is available and/or where it is considered most informative based on professional judgement. Where data has not been available at the identified levels, alternative spatial data deemed relevant and appropriate has been used.

## Assessment of Construction Phase Effects

### Employment during construction

20.64 A construction period of approximately two years (2020-2022) is anticipated for the Proposed Development.

20.65 A number of recent studies have sought to quantify the number of direct jobs created by house building activity across the UK. Research by NLP for the National Housing Federation (2015) **(ref. 20.15)** suggests an average of 1.2 full time jobs per dwelling. This would therefore mean that the Proposed Development may be supporting up to 212 full time construction jobs for the total 2-year construction period, which would equal to potential 106 jobs created per year.

20.66 Given that national construction firms sometimes use their own permanent workforce on projects, but also employ contractors with a proportion of construction workers drawn locally, it is difficult to identify the likely source of workers to fill these construction jobs before contracts have been let. However, based on experience elsewhere it would be reasonable to expect that a proportion of the construction jobs created by the Proposed Development could be taken up by the local workforce, particularly if measures are in place to encourage local recruitment and to raise local skills levels.

### Indirect and Induced Employment

20.67 In addition to direct on-site employment, it is widely recognised that the house building industry has a large supply chain. Annual expenditure on suppliers (i.e. providing goods, services and materials) across the UK house building industry is estimated to total £5.5 billion. The construction of the Proposed Development will require support by activities such as concrete production, which is likely to benefit regionally.

20.68 It is also necessary to take into account induced employment effects – i.e. employment supported by the wage spending of construction and supply chain workers in shops, services and other businesses throughout the UK economy. These local businesses could benefit to some extent from temporary increases in expenditure.

20.69 Research by Centre for Economics and Business Research (CEBR) for the National Housing Federation (2018) indicates that for every 1 construction job, 1.51 indirect and induced jobs are supported elsewhere in the supply chain and wider UK economy. This therefore indicates that a further 321 indirect/induced jobs could be supported in the region over the 2-year construction period, which would equal to approximately 160 indirect or induced jobs created per year across the expected 2-year construction period.

- Manchester Metropolitan District has a smaller proportion (2.3%) of people employed in the construction industry compared to the national average of 4.6%, as per 2017 census. The construction industry has a strong track record of providing employment opportunities, especially for younger workers and those wishing to re-enter the labour market. Taking all this into account and considering that Piccadilly ward has high

proportion of its population aged between 20 and 25; the sensitivity of the receptor is therefore assessed as **high**.

- Drawing these together, the construction of the new development could create up to 106 direct construction jobs as well as 160 induced and indirect jobs. This would equal to a total of 266 additional jobs per year in the target area. The magnitude of the effect is therefore considered to be **moderate**.
- This will be of **intermediate** beneficial significance which is **significant** in EIA terms, but temporary and short-term in duration.

## Assessment of Operational Phase Effects

### Population

20.70 Based on the statistics provided in **Table 20.12** and the proposed operational year of 2023, the projected household size in year 2023 is expected to total approximately 2.29 residents per household. On this basis, it is anticipated that the proposed 177 dwellings will contribute to an addition of approximately 405 new residents in 2022.

20.71 The significance of the population increase will depend on their implications with other factors, such as health and education. These impacts would not necessarily be negative, provided that the community infrastructure that is available can accommodate the additional needs generated by the scheme. In addition, the income of and expenditure by residents will have positive economic impacts which will be important in helping to sustain the economic viability of local services and facilities.

- Given the high proportion of 20 to 39 age group population living within Manchester city, the sensitivity of the receptor is assessed as **high**.
- The provision of a 25-storey modern apartment block will add diversity to the housing stock and offer an increased variety of types of accommodation for residents and provide a broad cross-section of population. On this basis, the impact of the population increase is considered to be positive and of **moderate** impact.
- This will be beneficial, permanent and long-term and of **intermediate** significance and is **significant** in EIA terms.

### Housing

20.72 The main impact on the local housing market will be the provision of 177 additional dwellings, as part of the delivery of 8,880 residential units as part of Policy CC3 between 2021 and 2027.

- Based on the requirements for housing within the metropolitan district, the sensitivity of the receptor is considered **high**.
- Given that the population projections listed in **Table 12.11** show an increase in population numbers in Manchester, the provision of additional housing of a range of types would be important in maintaining a broad cross-section of the population. Based on the targeted number of dwellings to be delivered between 2021 and 2027 in line with Policy CC3, the development is likely to accommodate 2% of the total 8,880 targeted for wider Manchester. The housing impact of the Proposed Development is considered to be positive and of a **slight** magnitude as they will play an important role in contributing towards the local housing supply.
- This will be of permanent, beneficial and of **minor** significance which is **not significant** in EIA terms.

**Direct Employment**

20.73 To calculate the employment generated from the Proposed Development, HCA Employment Density Guidance 2015 **(ref. 20.4)** has been used (see **Table 20.12**). The guidance assumes the number of jobs created against Use Class types by applying a standard density of one FTE per specified area in sqm (depending on the use class).

20.74 The Proposed Development will comprise a 25-storey residential tower, with 177 dwellings of mixed sizes, one retail unit (161m$^2$), cycle storage and residential amenities.

**Table 20.13: THCA Employment Density Guidance**

| Use Class | Sub Category | Sub Sector | Density of Jobs (sqm per FTE) |
|---|---|---|---|
| A1 | Retail | High Street | 15-20 |
| | | Food store | 15-20 |
| | | Retail Warehouse | 90 |
| A3 | Restaurants & Cafes | | 15-20 |
| A4 | Drinking Establishments | | 12-16 |
| B1a | General Office | Corporate | 13 |
| | | Professional services | 12 |
| | | Public sector | 12 |
| | | TMT | 11 |
| | | Finance & Insurance | 10 |
| | Call Centres | | 8 |
| B1b | R&D Space | | 40-60 |
| B1c | Light Industrial | | 47 |

20.75 It is not yet known what type of retail the proposed units will comprise; however, it is assumed that these will either comprise local high street shops or food stores. In this case, to assume the worst-case scenario, the density jobs provided per 1 FTE is presumed to be 16m$^2$.

20.76 Based on the information provided in **Table 20.13** and given the potential for the proposed retail units to provide part-time and flexible work opportunities, it is assumed that that average number of jobs for general retail uses will generate a total of 10 jobs.

- Within Manchester Metropolitan District 5.2% of economically active people are unemployed. Given that these levels are higher the national average, the sensitivity of the receptor is considered **high**.

- Based upon these matters, the additional employment opportunities proposed as part of the development are considered to be positive and of a **slight** magnitude as they will play a role in contributing towards the local economy.
- This will be permanent, long-term, beneficial and of **minor** significance which is **not significant** in EIA terms.

**Education**

20.77 The precise impact of the Proposed Development on education provision will depend upon the number of additional school age children that would live in the new homes, the availability of spare school places in the area and general trends in the number of school children in the area over the period of housing delivery.

20.78 Based on the Homes England property model, a development will give rise to 42 children per every 100 new dwellings and 38 secondary school age children per every 100 new dwellings. This equals to 80 children per every 100 new dwellings, and thus 162 school-age children for the proposed 177 residential units. Given that 33% of the development will be one-bedroom apartments which are unlikely to contain children, using the Homes England model, it is considered that the development would result in 114 school aged children within the 118 two-bedroom or larger apartments.

**Primary**

20.79 There are 8 primary age facilities within a 2km radius of the application. As detailed in **Table 20.6**, six of these schools still have multiple surplus spaces and two of these exceed their capacity.

- The sensitivity of the receptor is therefore considered as medium.
- As the local planning area shows a surplus in multiple primary school places, it is considered the Proposed Development would result in a **negligible** effect.
- This will be permanent, long-term, **neutral** and is **not significant** in EIA terms.

**Secondary**

20.80 There is one secondary age facility within a 2km radius of the application site. As detailed in **Table 20.7** there is a surplus of secondary school places within the chosen area.

- There is currently secondary capacity within the chosen area, potential demand for places in the foreseeable future is not anticipated. As such, the sensitivity of the receptor is considered to be **medium**.
- As the local planning area shows a surplus in secondary school places, it is considered the Proposed Development would result in a **negligible** effect.
- This will be permanent, long-term, **neutral** and is **not significant** in EIA terms.

20.81 As above, the assessment is based on the Homes England property model which does not represent the exact educational demand of the immediate development area proportionately. It is however considered that the significance identified above would apply to the assessment in light of this.

**Open Spaces**

20.82 Based on the Manchester City Wide Open Spaces, Sport and Recreation Study 2009 **(ref. 20.10)**, **Table 20.13** illustrates the quantity provision of open spaces per 1000 population and the number of sites currently available in the areas adjacent to the Proposed Development.

20.83 The City Centre contains the following open/green spaces outlined in **Table 20.14**.

**Table 20.14: Open Space standards across Manchester City Centre**

| Analysis Area | Type of open space | Hectares per 1,000 population (based on 2011 census) | Number of Sites | Total Provision (hectares) |
|---|---|---|---|---|
| Manchester City | City Parks | 0 | 0 | 0 |
| | Local Parks | 0.12 | 3 | 1.17 |
| | Natural and Semi-natural open space | 0.02 | 1 | 0.21 |
| | Amenity Green Space | 0.44 | 18 | 4.40 |
| | Provision for children | 0 | 0 | 0 |
| | Provision for young people (grass pitches, tennis courts and bowling greens, athletic facilities and turf pitches) | 0 | 0 | 0 |
| | Allotments | 0 | 0 | 0 |
| | Civic spaces | 0.95 | 28 | 9.44 |
| **Overall** | | **1.53** | **50** | **15.22** |

20.84 The additional residents within the new development are expected to place additional demand upon open spaces, recreation and outdoor facilities.

- Based on the high demand for green infrastructure within the city centre, the sensitivity of the receptor is considered to be **high**.
- The Proposed Development will increase the pressure on local recreation areas, however, as the Proposed Development includes a resident's garden, which will aid in the delivery of the adjacent public realm improvements, this is due to provide a significant benefit for future residents and local communities. On balance, the Proposed Development will result in a **negligible** effect.
- This will be permanent and long-term, of **neutral** significance and is **not significant** in EIA terms.

**Crime and Disorder**

20.85 The Proposed Development will result in an increase in population and potentially crime and disorder.

20.86 The new residential population along with the provision of high-quality public realm would likely have a beneficial effect on safety and perception of security by increasing activity on-site and increasing levels of natural surveillance. The mix of residential and commercial uses would ensure activity in the area in the evenings and at the weekends, creating a more balanced mix of land uses and levels of activity throughout the day and night. In addition, improved accessibility would

be delivered across the application site, supplemented by night time illumination to facilitate safe and easy navigation.

20.87 The Proposed Development is designed in such a way as to ensure pedestrian routes are well overlooked and sufficiently well-lit to deter crime and anti-social behaviour.

- There are currently high levels of crime and disorder recorded within the vicinity of the site, therefore the sensitivity of the receptor is assessed as **high**.
- The provision of high-quality public realm would likely have a beneficial effect on safety and perception of security by increasing activity on-site and increasing levels of natural surveillance. On balance, the effects of the Proposed Development upon crime and deprivation are expected to be of **slight** adverse local scale magnitude.
- This will be of **minor** adverse significance and which is **not significant** in EIA terms, but permanent and long-term.

## Assessment of Cumulative Effects

20.88 Cumulative effects are considered relevant in socio-economic terms with regard to construction employment generation, operational employment creation, housing provision, demand for school places at both primary and secondary levels, demand for healthcare provision, and demand for open space and play space.

**Intra-Project Cumulative Effects**

20.89 Open space and landscaping as identified in the visual and townscape assessment will contribute to a positive socio-economic environment associated with the Proposed Development.

20.90 The development includes the provision of sustainable transport, including cycle spaces which will promote healthy behaviour.

20.91 It is considered that the above would provide a **slight** beneficial effect which would **not** be **significant**.

## Inter-Project Cumulative Effects

**Construction**

20.92 If all the schemes were approved at the same time and commenced simultaneously then the areas that currently have a positive impact would receive further benefit. However, the negative impact areas would also be further affected.

20.93 Based on the information gathered from the Manchester City Council planning strategies, it is possible that the construction phases of all the listed cumulative schemes would overlap with that of the Proposed Development.

20.94 All schemes would generate construction employment. There may be some competition for locally sourced construction employment with the potential for construction workers to be employed from outside the target area. For general construction employment, this is considered to result in a **Negligible Adverse** cumulative effect. However, with the likely overlap in construction phases of the cumulative schemes there is potential for apprentices to move between schemes and complete their apprenticeships within the local area. These are particularly beneficial as many apprenticeships require a three-year duration which can be difficult to achieve on shorter duration build projects. Therefore, having overlapping projects within the local area is considered to be an **slight beneficial** cumulative effect, which is considered **not significant** in EIA terms.

**Operational**

**Housing Provision**

20.95 Cumulative developments providing residential units are outlined in the **Table 20.15.**

**Table 20.15: Additional Residential Units**

| Site | Reference | Status | Additional Units |
|---|---|---|---|
| London Road Fire Station, 50 London Road, M1 2PH | 116099/FO/2017 | Approved | 21 |
| Princess Street/ Whitworth Street | 110346/FO/2015/C2 | Approved | 238 |
| Princess Street/ Whitworth Street | 114585/FO/2016 | Approved | 351 |
| Former Manchester Metropolitan University Aytoun Campus | 112034/FO/2016/C2 | Approved | 478 |
| Minshull House and Minto & Turner Building, Former Manchester Metropolitan University Aytoun Street Campus, Chorlton Street | 115570/FO/2017 | Approved | 58 |
| Land adjacent to 275 Great Ancoats Street | 106249/FO/2014/N 2 | Approved | 111 |
| Land bounded by Great Ancoats Street, Isaac Way and Advent Way | 109948/FO/2015/N 2 | Approved | 201 |
| All Souls Rectory, Every Street | 113955/FO/2016 | Approved | 10 |
| Land bounded by Old Mill Street, the Islington Branch Canal Arm, Public footpath adjacent to Ashton Canal and 141-155 Great Ancoats Street | 109676/FO/2015/N 2 | Approved | 101 |
| Land between Millbank Street and Store Street | 115545/FO/2017 | Approved | 345 |
| Car Park between 57 and 59 Ducie Street | 120149/FO/2018 | Submitted (validated 11 June 2018) | 41 |
| Part site of existing car park bounded by Ducie Street, the Rochdale Canal, Peak Street, Tariff Street (multi-storey car park) and remainder of surface car park M1 2JL | 115178/FO/2017 | Approved | 128 |

| Site | Reference | Status | Additional Units |
|---|---|---|---|
| Land to rear of 56 Dale Street, Mangle Street | 115529/FO/2017 | Approved | 14 |
| 47-47A Spear Street | 118233/FO/2017 | Approved | 5 |
| 60 Oldham Street | 120878/FO/2018 | Approved | 5 |
| 47 Houldsworth Street | 109784/FO/2015/C2 | Approved | 119 |
| 74-88 Great Ancoats Street | 111276/FO/2016/C2 | Approved | 135 |
| Land bounded by Tarriff Street / Jacksons Warehouse and Rochdale Canal | 106021/FO/2014/C2 | Approved | 91 |
| Land between New Islington Marina, Coppersmith Road and Winder Drive (Phase 2 New Islington) | 111587/FO/2016/N 1 | Approved | 44 |
| Land bounded by Old Mill Street, Weybridge Road, Coppersmith Road and New Islington Marina | 112658/FO/2016/N 1 | Approved | 201 |
| Land bounded by Old Mill Street, Ashton Canal and Upper Kirby Street | 116190/FO/2017 | Approved | 213 |
| Corner of Old Mill Street, Upper Kirby Street and Lampwick Lane | 120837/FO/2018 | Submitted (validated 30 July 2018) | 40 |
| Land bounded by Vesta Street, Old Mill Street, Ashton<br>Canal Basin and Ashton Canal Towpath | 115947/FO/2017 | Approved | 169 |
| Land bounded by George Leigh Street, Bengal Street, Blossom Street and Sherrat Street | 111742/FO/2016/N 1 | Approved | 199 |
| Land bounded by Bengal Street, Jersey Street, Murray Street and Blossom Street | 110077/FO/2015/N 1 | Approved | 158 |
| Land bounded by St Michaels Church, Loom Street, Sherratt Street and George Leigh Street | 107484/FO/2014/N 1 | Approved | 14 |

| Site | Reference | Status | Additional Units |
|---|---|---|---|
| Edinburgh Castle pub, 15 Blossom Street | 109467/FO/2015/N 1 | Approved | 21 |
| Land at Hood Street | 109593/FO/2015/N 1 | Approved | 28 |
| Murrays Mills Complex | 108566/FO/2015/N2 | Approved | 124 |
| New Little Mill | 116300/FO/2017 | Approved | 68 |
| Burlington House | 106021/FO/2014/C2 | Approved | 91 |
| Lomax Street Manchester | 120149/FO/2018 | Approved | 41 |
| Red Lion Street | 113713/FO/2016 | Approved | 38 |
| Brownsfield Mill | 115401/FO/2017 | Approved | 31 |
| Plots A and B, Portugal East Street | 121099/FO/2018 | Validated Aug 2019 | 488 |
| **Total Number of Units** | | | **4,420** |

20.96 **Table 20.15** shows that as well as the proposed 177 apartment units brought forward as part of the development, cumulative schemes will also provide an additional 4,420 properties into the area. This is considered to have a **major** beneficial cumulative effect on housing provision within Manchester City which is considered **significant**.

***Population Impacts***

20.97 The provision of a large proportion of purposely built modern housing will add diversity to the housing stock and offer an increased variety of types of accommodation for residents. On this basis, the impact of the population increase is considered to be beneficial and of **Intermediate** significance which is **significant** in EIA terms.

***Direct Employment Opportunities***

20.98 During the operational phases of the cumulative developments, various cumulative developments include the provision of employment floorspace for multiple use classes and therefore will also have a beneficial effect on the economical profile of Manchester. The overall cumulative effect is therefore considered to be beneficial and of **slight** significance which is **not significant** in EIA terms.

***Deprivation***

20.99 The cumulative impact on deprivation within Manchester City is considered to be beneficial and of **intermediate** significance and **significant** in EIA terms.

***School Provision***

20.100 Application 104709/FO/2014/N1 'Land to rear of Central Retail Park adjacent to Rochdale Canal' includs the provision of a new 2FE school. This has been constructed and is the 'New Islington Free School'.

20.101 It is assumed that the child yield brought forward within the cumulative schemes would be catered accordingly within each individual development. Therefore, the cumulative effects in terms of primary and secondary educational facilities would be neutral **negligible** and **not significant** in EIA terms.

***Crime and Disorder***

20.102 It is considered that crime would be dealt with appropriately within each cumulative scheme in response to the Manchester's requirements.

## Mitigation of Effects

**Employment**

20.103 There is potential to maximise the economic benefits of the employment opportunities associated with the Proposed Development through encouraging local recruitment for new job opportunities, including apprenticeships and skills development.

20.104 Specific initiatives to be considered in relation to construction employment for the local population would include:

- Providing the opportunity for local labour resources to be used where possible, including encouraging recruitment through local press and job centres; and,
- Where possible, encouraging products and services to be procured locally.

**Crime and Disorder**

20.105 Specific initiatives to be considered in relation to crime and disorder include:

- Ensure surveillance of gaps between buildings and clearly define the use of external spaces to avoid criminal misuse or abuse;
- Design rainwater pipes to prevent use as climbing aids;
- Install street and open space lighting; and
- Attain 'Secured by Design' accreditation through detail design considerations in taller buildings, such locations of letterboxes and technical specification of doors and windows.

**Residual Effects**

20.106 This section considers the residual effects of the development assuming the adoption of the mitigation proposed above.

20.107 The assessment identifies several significant beneficial impacts, these include:

- Direct and Induced employment during the construction phase; and,
- Population.

20.108 The residual effects are summarised in **Table 20.16** below.

**Table 20.16: Assessment of residual effects summary**

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and Significance | Duration of Residual Effect |
|---|---|---|---|---|---|
| Construction | | | | | |
| Direct and Induced Employment | Intermediate beneficial, **significant** | Temporary and short-term | Providing the opportunity for local labour resources to be used where possible, including encouraging recruitment through local press and job centres; and,<br>Encouraging products and services to be procured locally. | Intermediate beneficial and **significant** | Short-term |
| Operation | | | | | |
| Population | Intermediate beneficial, **significant** | Permanent and long-term | None | Intermediate beneficial, **significant** | Long-term |
| Housing | Minor beneficial, **not significant** | Permanent and long-term | None | Minor beneficial, **not significant** | Long-term |
| Direct Employment | Minor beneficial, **not significant** | Permanent and long-term | None | Minor beneficial, **not significant** | Long-term |
| Primary Education provision | Neutral, **not significant** | Permanent and long-term | None | Neutral, **not significant** | Long-term |
| Secondary Education Provision | Neutral, **not significant** | Permanent and long-term | None | Neutral, **not significant** | Long-term |
| Open Spaces | Neutral, **not significant** | Permanent and long-term | None | Neutral, **not significant** | Long-term |

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and Significance | Duration of Residual Effect |
|---|---|---|---|---|---|
| Crime and Disorder | Minor adverse, **not significant** | Permanent and long-term | Ensure surveillance of gaps between buildings and clearly define the use of external spaces to avoid criminal misuse or abuse;<br>Design rainwater pipes to prevent use as climbing aids;<br>Install street and open space lighting | Neutral, **not significant** | Long-term |

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# 21. Human Health

## Introduction

21.1 This chapter has been prepared by Anastasia Fleming (BSc, PIEMA) of WYG and verified by Ross Phillips (BSc, MRes, PIEMA, MCIEEM), Associate at WYG. It assesses the potential effects of the Proposed Development on human health and wellbeing, and considers both short-term and long-term effects during construction and operation of the development.

## Legislative Framework, Policy and Guidance Documents

### Legislation

***EIA Directive 2014/52/EU (ref. 21.1)***

21.2 EU Directive 2014/52/EU amends EIA Directive 2011/92/EU which was transposed into UK law in May 2017 by the Town and Country Planning (Environmental Impact Assessment) Regulations. The Directive introduced clear references to the assessment of human health effects:

*"In order to ensure a high level of protection of the environment and human health, screening procedures and environmental impact assessments should take account of the impact of the whole project in question, including, where relevant, its subsurface and underground, during the construction, operational and, where relevant, demolition phases".*

21.3 Article 3 of the EIA Directive 2014/52/EU states that:

*"The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*

*a) population and human health…"*

***The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (ref. 21.2)***

21.4 Schedule 4 of the EIA Regulations (Section 5) outlines that likely significant effects in relation to human health are required to be included in environmental statements. Paragraph 4 states:

"A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take) …".

21.5 Paragraph 5 emphasis that:

*"A description of the likely significant effects of the development on the environment resulting from, inter alia:*

*d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)."*

**Policy**

***The National Planning Policy Framework (NPPF) (ref. 21.3)***

21.6 The NPPF was updated in February 2019 and supports the role of planning to create healthy, inclusive communities by supporting local strategies to improve health, social and cultural wellbeing for all.

21.7 Section 2 of the NPPF outlines three objectives that planning system must follow to achieve a sustainable development, of which objective two states:

*"a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being".*

21.8 Paragraph 91 emphasis that planning policies should aim to achieve healthy, inclusive and safe places by:

*"enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling".*

***Healthy Lives, Healthy People: our strategy for public health in England (ref 21.4)***

21.9 Published in November 2010, the White Paper sets out the Government's long-term vision for the future of public health in England. The White Paper sets out radical approaches to:

*"a. protect the population from health threats – led by central government, with a strong system to the frontline;*

*b. empower local leadership and encourage wide responsibility across society to improve everyone's health and wellbeing, and tackle the wider factors that influence it;*

*c. focus on key outcomes, doing what works to deliver them, with transparency of outcomes to enable accountability through a proposed new public health outcomes framework;*

*d. reflect the Government's core values of freedom, fairness and responsibility by strengthening self-esteem, confidence and personal responsibility; positively promoting healthy behaviours and lifestyles; and adapting the environment to make healthy choices easier; and,*

*e. balance the freedoms of individuals and organisations with the need to avoid harm to others, use a 'ladder' of interventions to determine the least intrusive approach necessary to achieve the desired effect and aim to make voluntary approaches work before resorting to regulation.*

**Local**

***Manchester City Council Core Strategy 2012 to 2027 (ref 21.5)***

21.10 **Table 21.1** outlines a number of the policies within the Core Strategy in relation to health.

**Table 21.1: Core Strategy policies that refer to human health related to the proposed development**

| Policy | Context |
|---|---|
| Policy Objective 5 'Transport'; | Excellent transport services, facilities and connections are vital for the City to:<br>attract a growing, stable population;<br>support existing and new businesses within the City, and thereby, to help contribute to sustainable economic growth;<br>ensure good access to employment, education, leisure, retail, cultural opportunities and facilities;<br>foster community cohesion and a sense of well-being and equality;<br>improve residents' health;<br>develop tourism; and,<br>address the issue of climate change |
| Policy T2 'Accessible areas of opportunity and need'; and, | The Council will actively manage the pattern of development to ensure that new<br>development:<br>Is easily accessible by walking, cycling and public transport; connecting residents to jobs, centres, health, leisure, open space and educational opportunities. |
| Policy DM1 'Development Management'. | All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:<br>Accessibility: buildings and neighbourhoods fully accessible to disabled people, access to new development by sustainable transport modes;<br>Community safety and crime prevention; and,<br>Design for health. |
| Objective 4 'Centres' | Provide a network of distinctive, attractive and high-quality centres, strengthening local identify, providing essential services close to homes and local access to healthy food. |

***Manchester Joint Health and Wellbeing Strategy 2016 (ref. 21.6)***

21.11 The Joint Health and Wellbeing Strategy is the city's overarching plan for reducing health inequalities and improving health outcomes for Manchester residents. It sets out a ten-year vision for health and wellbeing, and the strategic priorities to support this vision. To achieve this vision, the strategy prioritises the following:

- getting the youngest people in our communities off to the best start;
- improving people's mental health and wellbeing;

- bringing people into employment and ensuring good work for all;
- enabling people to keep well and live independently as they grow older;
- turning round the lives of troubled families as part of the Confident and Achieving Manchester programme;
- one health and care system – right care, right place, right time; and,
- self-care.

**Good Practice**

21.12 Good practice documents which this assessment will take into account include:

***Health in Environmental Impact Assessment (ref. 21.7)***

21.13 This guidance is designed for EIA professionals and is structured around three themes:

- Practical challenges and opportunities arising from the need to consider population and health effectively and consistently;
- Principles suggested to guide EIA coverage of population and human health; and,
- Key messages and recommendations to develop guidance and best practice for EIA coverage of population and human health across the UK.

***Rapid Health Impact Assessment Tool (ref. 21.8)***

21.14 This tool is designed to assess the likely health impacts of development plans and proposals, including planning frameworks and masterplans for large areas including outline and detailed planning applications. The tool helps identify determinants of health which are likely to be influenced by the proposals and focuses on the built environment and issues directly or indirectly influenced by planning decisions.

## Assessment Methodology

21.15 The assessment first establishes the baseline position in relation to the community health profile, lifestyle and provision of healthcare. The assessment then examines the potential impacts of the Proposed Development and their significance. Opportunities for mitigation of any adverse effects and the enhancement of positive effects are then identified, including any in-built mitigation elements of the scheme, such as open space.

## The Study Area

21.16 The study area of the assessment will consider the ward of the Proposed Development Site. The ward boundary in which the Proposed Development is situated was changed in May 2018 from Ancoats and Clayton to Piccadilly, therefore the spatial area of assessment is based on both ward profiles as it is considered the most representative approach for the assessment.

21.17 The following definitions have been adopted in relation to the geographical extent of effects for the purpose of this socio-economic assessment:

- Where applicable, previous ward profiles was used: Ancoats and Clayton (**ES Volume 3: Figure 21.1**)
- Ward Level: Piccadilly Ward – ward name changed as per May 2018 (**ES Volume 3: Figure 21.2**)
- District Level: Manchester Metropolitan District (**ES Volume 3: Figure 21.3**); and,
- National Level: England.

**Baseline Surveys**

21.18 Information to inform the baseline will draw upon published Government and local authority statistics. In particular, data from the 2011 Census and other published national statistics have been used. At the local level, relevant data published by Manchester City Council will also been considered.

21.19 Piccadilly Ward and Ancoats and Clayton Ward are anticipated to be the main areas affected by the Proposed Development. To ensure all health topics are considered and assessed, the data available for Piccadilly Ward, in which the Proposed Development Site is located was also compared against information for Manchester Metropolitan District. To appreciate the national context, where suitable, the data was also compared to the National datasets.

21.20 Information presented within the Socio-economic baseline (Chapter 20) in relation to population, employment, education, deprivation and open space will also inform the health assessment. Cross reference will be made to the air quality, noise, water, landscape and traffic ES chapters.

***Desk Based Research***

21.21 Desk-based studies involved a thorough analysis of the health and lifestyle profile of the wards in which the development is located and compared these to county and national levels. This included a thorough assessment of local healthcare services, physical activity levels and general health profile in the study area and its surroundings. To ensure that all aspects were covered, and all receptors were considered, these were divided into three separate categories and involved the consideration of the following aspects:

(i) Children;

- Infant Mortality (the number of deaths under the age of one year);
- Health (obesity and lifestyle);
- Education ((education levels and those Not in Education, Employment or Training); and,
- Safeguarding and Deprivation (Violence, abuse and Income Deprivation Affecting Children Index).

(ii) Adults;

- Health demographics;
- life expectancy;
- health conditions (including mental health);
- deprivation (Index of Multiple Health and Disability Deprivation);
- education (addressed within the socio-economic ES Volume 2: Chapter 19); and,
- lifestyle (physical activity).

(iii) Elderly;

- Health (health conditions); and,
- accidents and death.

21.22 To assess the aspects contributing to the general healthcare in the area, provision of local healthcare services, air and noise pollution were also assessed as part of the baseline.

21.23 It should be noted that open space infrastructure is assessed as part of the Socio-Economic assessment in **Volume 2 – Chapter 20**, as such it was scoped out in this chapter.

***Field Survey Work***

21.24 No field surveys were required as part of the Health Impact assessment.

***Consultations***

21.25 Formal consultation was undertaken with Manchester City Council during the scoping exercise as part of the EIA process. MCC agreed with the proposed method and scope of the human health assessment (**ES Vol 4: Appendix 5.1**). The assessment has been undertaken in accordance with the Scoping Opinion and results presented in this ES.

***Significance Criteria***

21.26 There is currently no guidance for considering population and health in UK EIA practice. Therefore, the criteria outlined below to determine the significance of effects is based on the significance used for the socio-economic assessment (Chapter 20) as population is the main receptor in both of these assessments.

***Magnitude of Effect***

21.27 The magnitude of effects are those that will be caused or influenced by the development and are assessed in relation to the established baseline conditions. The magnitude of effects may be beneficial, neutral or adverse and can be temporal or permanent.

21.28 Indicators of magnitude of effects, based on professional judgement and experience are outlined in **Table 21.2.**

**Table 21.2: Level of Magnitude**

| Level of Magnitude | Definition of Magnitude |
|---|---|
| Substantial | Large absolute and/or percentage change in socio economic indicators. |
| Moderate | Noteworthy change |
| Slight | Measurable but not significantly influential change. |
| Negligible | No determinable change. |

***Sensitivity of Receptor***

21.29 The sensitivity of a receptor is attributed weight according to the severity of effect and relationship with national, regional and local norms. For example, a receptor relating to physical activity levels in an area of low health care provision compared to the national average would be considered to have very high sensitivity. A receptor with average levels of health care provision but poor lifestyle may be considered to have medium or low-level sensitivity.

21.30 The criteria for the sensitivity assessment are outlined in **Table 21.3.**

**Table 21.3: Criteria for sensitivity assessment**

| Sensitivity | Evidence for Sensitivity Assessment |
|---|---|
| Very High | Substantial evidence of direct and significant socio-economic challenges relating to receptor. These challenges are large relative to regional and national comparators. Accorded a high priority in local, regional or national economic and regeneration policy. |
| High | Evidence of socio-economic challenges linked to receptor, which may be indirect. Change relating to receptor has high priority in local, regional and national economic and regeneration policy. |
| Medium | Some evidence of socio-economic challenges relating to receptor. Receptor is accorded a medium priority in local, regional and national economic and regeneration policy. |
| Low | Little or no evidence of socio-economic issues relating to receptor. Receptor is not considered a priority in local, regional and national economic development and regeneration policy. |
| Negligible | No evidence of socio-economic issues relating to receptor. Receptor is not considered a priority in local, regional and national economic development and regeneration policy. |

***Duration of effect***

21.31 Assessing the duration of effect will be undertaken in line with **Table 21.4.**

**Table 21.4: Duration of Effect**

| Timescale | Definition |
|---|---|
| Short-term | 0 to 5 years including the construction period and on completion |
| Medium-term | 5 to 15 years including mitigation establishment |
| Long-term | 15+ years including long term operation of the development |

***Significance of Effect***

21.32 The significance of effects combines the magnitude of change against the sensitivity of the receptor.

21.33 The significance matrix set out in **Table 21.5** has been applied. Effects have been defined as either 'significant' or 'not significant'. Major or Intermediate effects are considered to be 'Significant' in EIA terms and would be considered material to the planning decision process.

**Table 21.5: Significance of effects matrix**

| Sensitivity of Receptor | Magnitude of Impact: Substantial magnitude | Moderate magnitude | Slight magnitude | Negligible magnitude |
|---|---|---|---|---|
| Very High | Major | Major | Intermediate | Neutral |
| High | Major | Intermediate | Minor | Neutral |
| Medium | Major | Intermediate | Minor | Neutral |
| Low | Intermediate | Minor | Neutral | Neutral |
| Sensitivity | Minor | Neutral | Neutral | Neutral |

## Existing Baseline Conditions

3. Due to the change of ward name and boundaries in May 2018, not all data could be applied to the recent ward – Piccadilly. In this case, where practical, data from the previous ward – Ancoats and Clayton was used.

4. Based on the latest 2018 Census statistics, the population of Piccadilly Ward totals 17,600 people compared to 547,600 people living in Manchester District. The population growth within the metropolitan district is expected to continue, with the population projected to rise to 636,000 by 2025.

**Children**

21.34 Children aged 0 to 19 represent approximately 19% of the Ancoats ward's population, compared to 25.6% living with the Manchester District overall.

21.35 Between 2001 and 2011, the estimated child population of Manchester grew by an average of 1.3% per year, reaching 3% growth in 2009. Nonetheless, there was a reduction in the numbers of 10 to 14-years olds between 2001 and 2014. As per ONS MID Year Estimates 2016 **(ref. 21.10)** the total number of children aged 0 to 19 equals approximately 1,210.

***Infant Mortality***

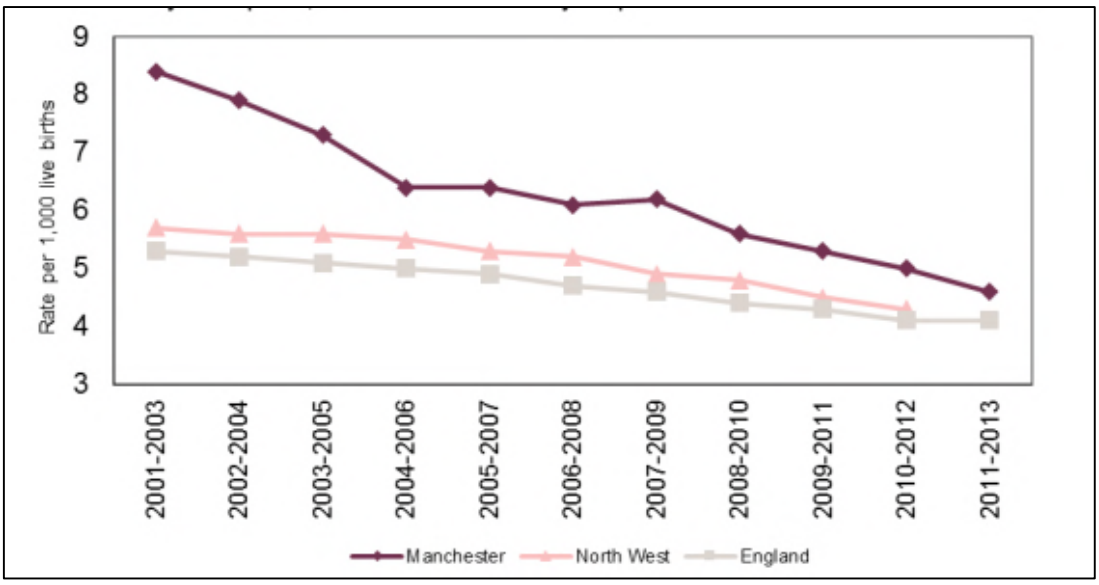
21.36 The Infant Mortality Rate (IMR) is defined as the number of deaths under the age of one year, per 1,000 live births. IMR has two separate components:

- The neonatal mortality rate: the number of deaths occurring during the first 28 days of life per 1,000 live births; and,
- The post-neonatal mortality rate: the number of infants who die between 28 days and less than one year, per 1,000 live births.

21.37 Mortality during the neonatal period is considered a good indicator of the rate of healthcare infrastructure for both maternal and new-born. Nationally, infant mortality remains a high value (4.1 in every 1,000 births), with over 70% of these occurring in the neonatal period. As per JSNA 2015/2016 Infant Mortality report **(ref. 21.11)** Manchester City shows a much higher rate of Infant Mortality compared to both other areas within Manchester District and national averages, totalling 5 deaths per every 1,000 births. Manchester has a higher rate of smoking status at the time of delivery than nationally and a lower level of breastfeeding initiation, which are the major causes of high IMRs.

21.38 Nonetheless, as per **Figure 21.1**, these rates have shown a gradual decrease since early 21st century.

**Figure 21.1: IMR per 1,000 live births – three year period**




***Health***

21.39 Levels of obesity in Manchester continue to be high compared to north west and national levels, with 10.8% of children under 5 classed as obese, rising to 24.3% among 10- and 11-year olds (2014/15 JSNA data **(ref. 21.12)**) Children Obesity JSNA report highlights that Manchester's child obesity levels correlate to deprivation rates across the district, where Ancoats and Clayton Ward shows a higher level of obesity prevalence than other regions in the district (**ES Volume 3: Figure 21.4**).

21.40 In terms of children's lifestyle, Manchester's data for 2014/2015 shows that the area has a higher average of 15 year olds being reported as smokers (8.9%) compared to the national average of 8.2%. A similar survey produced by What About YOUth **(ref. 21.13)** for alcohol and drug use by young people, 43.8% of 15-year olds reported to have had alcohol at least once, compared to the national average of 62.4%. Nonetheless, 12.7% of young people reported having tried cannabis, representing a higher proportion to 10.9% national average (**ref 21.14)**.

***Education***

21.41 The number of children in Manchester achieving a Good Level of Development at Early Years Foundation Stage has increased from 46% in 2013 to 60.9% in 2014 but is still below the national average of 66%. The percentage of pupils achieving five or more A*-C grades (5+ A*-C) including GCSE English and Maths in Manchester was lower than the England average in 2013/14.

21.42 The NEET (not in education, employment or training) JSNA shows that in Manchester 6.5% of 16-18 year olds were NEET at the end of 2014, 2% higher than the national average **(ref. 21.15)**.

***Safeguarding and Deprivation***

21.43 Manchester has higher rates of domestic violence and abuse compared to other core cities. A total of 3,308 victim-based crimes reported across the city between April 2013 and March 2014 were flagged as domestic abuse – an increase of 7.3% on the previous year.

21.44 The Income Deprivation Affecting Children Index (IDACI) measures the proportion of all children ages 0 to 15 living in income deprived families. These are defined as families who are out-of-work as well as those families who are in work but who have low earnings. On average, 34.3% of children aged under-16 years are classed as living in poverty (compared to 19.2% nationally), making Manchester the 5$^{th}$ most deprived local authority in England **(ref. 21.16)**. Looking at other areas within Manchester, the neighbourhood with the highest proportion of children affected by income deprivation is LSOA 5133 (013D) which is in Ancoats (located to the east of the Proposed Development Site), where around two thirds of children are living in deprivation.

**Adults**

21.45 Adults aged 19 to 64 represent approximately 73% of the overall ward population, with 20 to 49 age group representing 63.2% of the adult population.

***Health Demographics***

21.46 A Health and Care ward profile was conducted by Pubic Health England in 2019 **(ref. 21.17)**. As this was produced after the ward boundary change, the datasets relate to Piccadilly ward and are compared to Manchester District overall.

21.47 For this series of profiles, the population was divided using data related to their history of accessing primary care (GP). The datasets provided showed that adults aged 16-64 living within the ward were less likely to be in good health conditions compared to overall Manchester population (29.8% compared to 37.3%). The provided information highlighted that poorer health within the ward highly correlated with the proportion of adults with wider determinants of needs (56.2%).

***Life expectancy***

21.48 Based on the ONS 2013 statistics **(ref. 21.18)**, a female born in Manchester District region is expected to live until the age of 79.4 on average, and 75.5 for all males. Based on the same statistics, it is known that Ancoats and Clayton ward has a life expectancy lower than the district averages, with 76.5 for females and 73.6 for males, which is a lower life expectancy than the national average of 83.1 for females and 79.5 for males. These datasets were further updated by the Health and Care ward profile (**ref. 21.17**) in 2019. The life expectancy for Piccadilly ward has since shown an increase in life expectancy for both males and females, which was calculated at 80.7 for males and 91.7 for females. The wider district life expectancy also showed a slight increase to 75.7 for males and 79.7 for females.

***Health conditions***

21.49 Based on local indicators it is noted that rates in Manchester are higher. 18.7% in north Manchester, 15.4% in central and 15% in south report moderate or extreme anxiety or depression, compared to 12% nationally.

21.50 Based on the information provided by Manchester Population Health Plan Compendium of Population Health Statistics 2018 **(ref. 21.19)** approximately 1,000 people living with Ancoats and Clayton Ward claim out of work benefits. Of these, 52.1% receive benefit claimants with a mental health disorder. It is also estimated that between 10 to 13% of all Manchester adults are prescribed antidepressant medication.

***Deprivation***

21.51 The proportion and numbers of residents claiming a health-related benefit has increased over the past year, with 44,340 Manchester's District residents claiming out of work benefit in 2016 **(ref 21.18)**. Based on the 2015 Index of Multiple Health and Disability Deprivation rates, the proposed site is located amongst the 10% most deprived neighbourhoods in the country, having a score of 1,157 out of 32,844 LSOAs in England, where 1 is the most deprived. Similarly, the chosen area is amongst the 10% most deprived neighbourhoods in the country based on its living environment deprivation domain, having a score of 1,174 out of the 32,844 LSOAs.

***Education***

21.52 The existing baseline related to education is covered within **Socio Economic (ES Volume 2: Chapter 19)**, therefore this is not assessed within this chapter.

***Lifestyle***

21.53 Physical inactivity is the 4$^{th}$ leading risk factor for global mortality accounting to 6% of deaths nationally. The proportion of physically active adults living within Manchester City represents 65.1% of the total population, compared to 66% nationally. Based on the Physical Health JSNA for Manchester District **(ref. 21.20)**, 22.7% of Manchester's residents smoke compared to 16.9% across England. This results to high proportion of deaths related to smoking, averaging 458 per every 100,000 residents compared to 274.8 per every 100,000 across England.

**Elderly**

***Health***

21.54 Ancoats and Clayton ward has a lower than average older population 65+ (7% compared to 9.3% in Manchester District), but there are high levels of disadvantage and ill health among older people in the city.

21.55 According to 2014 estimates, less than two thirds (62%) of the estimated 3,650 people with dementia in Manchester had received a diagnosis of the condition from their GP. This means that a substantial number of older people in Manchester may be living with undiagnosed dementia. Ancoats and Clayton Ward also has the highest cancer incidence ratio (135 per every 100,000) when compared to other wards across Manchester District.

***Accidents & Death***

21.56 Compared with England as a whole, Manchester has a higher rate of hospital admissions (and emergency hospital admissions) due to an unintentional fall in elderly people aged 65+. Falls are the largest cause of emergency hospital admissions for older people and the major cause for elderlies to move from their own home to long-term nursing or residential care. Based on the 2016 Hospital Episode Statistics, the rate of hospital admissions related to falls per 100,000 people represented 2,540.4 in 2016/17 compared to the national rates of 2,113.8 per 100,000.

21.57 Based on the statistics related to the number of deaths by underlaying cause, circulatory diseases represent the highest percentage of deaths in Manchester (27.2%). This value is followed by

cancer (malignant neoplasms) with 26.9%, diseases of respiratory system with 14.5% and other cancers at 14.5%.

**Air Quality**

21.58 Manchester City Council maintains continuous monitoring sites for $NO_2$ at Manchester Piccadilly, Oxford Road and in the south of the city. The Manchester Piccadilly site breached the 40µg/m³ threshold after falling below it in 2015 and previously showing an overall downward trend in concentrations since the early 1990s.

21.59 In 2015, around 4.3% of all deaths in people aged 30 and over in Manchester were attributed to long-term exposure to the current levels of man-made particulate air pollution. The figure for Manchester is similar to the England average (4.7%) and equates to an estimated 151 deaths in Manchester that are in some way associated with air pollution **(ref. 21.21)**.

21.60 Exposure to air pollution is known to exacerbate symptoms for those suffering from asthma and one possible indicator is child admissions for asthma, although this is influenced by a range of other factors. In 2015/16, there were 734 emergency admissions with a primary diagnosis of asthma among children aged under 19 years living in Manchester - a rate of 592 per 100,000 children aged 0-19 years. The rate of emergency admissions for asthma in children in Manchester shows an upward trend and is consistently worse than the England average.

**Healthcare provision**

21.61 There are a number of local healthcare services within the Scheme area as outlined in **Table 21.6**.

**Table 21.6: Health services within 2km of the development**

| Healthcare Service | Number within 2 km of the Scheme |
|---|---|
| Hospitals | 6 |
| GP surgeries and Health Centres | 14 |
| Dentists | 15 |
| Opticians | 13 |
| Pharmacies | 25 |

21.62 **Table 21.6** sets out the most recent available data showing patient list size and capacity of the surgeries identified within 2km of the Proposed Development Site (data obtained from the Health and Social Care Information Centre GP Level Indicator Tool and supplemented by the NHS Choices website and the practices' own websites). This enables a capacity assessment to be undertaken against the best practice list size of 1,800 patients per GP.

21.63 A best practice list size figure recommended by the General Medical Council (GMC) and used by the Department of Health (DoH) and Clinical Commissioning Groups (CCGs) is 1,800 people per GP, the average list size for the UK.

21.64 There are presently 14 GP surgeries within 2 km of the Site. As per **Table 21.7,** these are currently accepting new patients, however some are operating above national thresholds of 1,800 people per GP.

**Table 21.7: Provision of healthcare**

| GP Practice Name | Number of patients registered | Number of GPs | Patients per GP | Meeting the national threshold ratio | Currently accepting new patients |
|---|---|---|---|---|---|
| Ancoats Urban Village Medical Practice | 10947 | 13 | 842 | Yes | Yes |
| New Islington Medical Centre | 6670 | 3 | 2223 | No | Yes |
| The Vallance Centre | 8021 | 3 | 2673 | No | Yes |
| The Docs | 8021 | 3 | 2673 | No | Yes |
| Victoria Mill Medical Centre | 2839 | 2 | 1419 | Yes | Yes |
| City Health Centre | 13174 | 7 | 1882 | No | Yes |
| Rochdale Road Surgery | 11988 | 3 | 3996 | No | Yes |
| Cornerstone Family Practice | 7225 | 2 | 3613 | No | Yes |
| Whitley Road Medical Centre | 6712 | 4 | 1678 | Yes | Yes |
| Cornbrook Medical Practice – Boundary Surgery | 13610 | 3 | 4537 | No | Yes |
| West Gorton Medical Practice | 7190 | 5 | 1438 | Yes | Yes |
| Cornerstone Family Practice | 7225 | 2 | 3613 | No | Yes |

| GP Practice Name | Number of patients registered | Number of GPs | Patients per GP | Meeting the national threshold ratio | Currently accepting new patients |
|---|---|---|---|---|---|
| Five Oaks Family Practice | 9205 | 6 | 1535 | Yes | Yes |
| Blackfriars Medical Practice | 10679 | 7 | 1526 | Yes | Yes |

**Anticipated Future Baseline Conditions**

21.65 Manchester City Council is currently considering a variety of options to improve local community lifestyles, health and open space infrastructure. Due to the short-time period between construction and operational phases in terms of health and lifestyle aspects, these stages were assessed together.

***Construction (2021) & Operation (2023)***

21.66 During the Construction and Operational phases of the Proposed Development, the Council is due to provide the following:

- Public Open Space and Public realm within the Portugal Street East Regeneration Framework;

21.67 Additionally, the Council is due to provide environmental improvements in line with the following policies:

- AB11: Ardwick Green Park. The public open spaces will be enhanced as recreational areas to safeguard and improve local amenities and confirm the permanent use.
- HC7b: The Council will carry out schemes to enhance other open spaces remaining within the area, with a high priority being given to St Michael's Flags. The element of the improvements will be determined in a brief to be produced by the Council prior the regeneration stage.;
- CC4: The Council intends to enhance the character of Cheetham Hill Road and Great Duchie Street. A high standard will be expected from new developments in order to restore the unity and particular character of the roads, and to improve the setting of listed and other important buildings. In addition, the Council will encourage the conservation and refurbishment of buildings of character and quality.; and,
- HC5a: Improvements will be made to benefit nearby communities and produce linear pedestrian and cycle routes, with these being positioned near the river wherever practical. Particular scheme to benefit from these environment improvements includes Collyhurst Road/ Fitzgeorge Street.

21.68 These environment improvements are anticipated to benefit the health profile of Manchester City through improvement of health care infrastructure and lifestyle. Although the scale of improvement cannot be predicted, it is anticipated that the health baseline of the area and its surroundings could benefit from the above policies via access to open space and direct effects to lifestyle and general health.

## Assessment of Effects

21.69 This assessment considers the scale and nature of the main health impacts arising from the Proposed Development, at both construction and operational stages. It considers baseline data outlined above in relation to the significance of effects in accordance with the methodology mentioned above. Specifically, it sets out whether the Proposed Development will have a negligible, minor, moderate or major effect and consideration as to whether that effect will be positive, negative or neutral, and whether the effect is 'significant'.

### Matters Scoped Out

21.70 The EIA Regulations (ref. 21) require the assessment of likely significant environmental effects. If it is considered that an environmental effect is likely to be less than significant then this can be scoped out of the assessment. In this case, based on the existing health baseline, overall lifestyle of the population, site proposals and aspects assessed in other chapters of the ES, the following aspects of health assessment were scoped out:

- education;
- Infant mortality;
- Safeguarding;
- life expectancy;
- accidents and death;
- deprivation; and
- life expectancy.

21.71 Therefore, the scope of the assessment includes:

- Air Quality and Noise;
- Health care provision (not likely to be affected during the construction phase, therefore scoped out for this stage).

### Embedded Mitigation

21.72 The Proposed Development includes a number of provisions which will provide benefits for the local community in relation to health and lifestyle. The characteristics of the Proposed Development are detailed in Chapter 4, but those of which will provide health benefits include:

- provision of a residential garden, which will benefit new residents in terms of lifestyle and health;
- provision of 158 cycle spaces, will ensure a space is available for each flat within the development and will benefit the new residents in terms of lifestyle and healthcare improvement;
- provision of resident's gym, will also benefit new residents in terms of lifestyle and health improvements; and,
- resident's dining facilities, which are anticipated to cater some "healthier" facilities.

### Limitations and Assumptions

21.73 Due to the change of ward name and boundaries in May 2018, not all data could be applied to the recent ward – Piccadilly. In this case, where practical, data from the previous ward – Ancoats and Clayton was used. Despite this, the information available has been sufficient to be able to accurately assess the likely significant effects of the Proposed Development.

21.74 The spatial levels have been assessed where data is available and/or where it is considered most informative based on professional judgement. Where data has not been available at the identified levels, alternative spatial data deemed relevant and appropriate has been used.

## Assessment of Construction Phase Effects

### Air Quality and Noise

21.75 Other than negligible emissions from construction vehicles and equipment the main emissions during construction are likely to be dust and particulate matter generated during earth moving (particularly during dry months), or from construction materials. As the current health profile in Manchester city centre is already highly affected by exposure to air pollution, the sensitivity of the receptor is considered to be **high**.

21.76 Construction activities can give rise to short term elevated dust/$PM_{10}$ concentrations in neighbouring areas. This may arise from vehicle movements, soiling of the public highway, demolition or windblown stockpiles. In this case, the potential effect on the health profile of the surrounding area as a result of the construction of the Proposed Development is considered to be **slight**.

21.77 The effects will be temporary, short-term, adverse and **minor** and **not significant** in EIA terms.

## Assessment of Operational Phase Effects

### Air Quality

21.78 Additional vehicle movements associated with the Proposed Development will generate additional exhaust emissions, such as $NO_2$, $PM_{10}$ and $PM_{2.5}$, on the local and regional road networks and therefore may potentially continue to contribute to health baseline of the study area.

21.79 Based on the Air Quality Assessment – **Volume 2 – Chapter 12** and the results from the traffic assessment, no increase in $NO^2$ concentrations is predicted at nearby residential receptors due to increase in traffic flow as a result of the proposed development. However, it was predicted that some ground floor residents which are facing the A665 may experience an exceedance in the annual $NO^2$ objective, therefore, the sensitivity of the receptor is considered to be **high**.

21.80 Although air quality identified no significant effects as a result of proposed development traffic, some residential receptors are predicted to be affected by dust pollution on a medium scale which could have an indirect effect on health profile. On this basis, the magnitude of change is considered to be **moderate**.

21.81 Effects of air and dust pollution on health are considered to be adverse, permanent and long-term and of **intermediate** significance, which is **significant** in EIA terms.

### Healthcare provision

21.82 As estimated in **Chapter 20 (Socio-economic)**, the gross increase in the resident population resulting from the planned new dwellings will amount to c.405 people.

21.83 There are 15 dental practices within 2km of the Proposed Development Site. If the demand for dental services does exceed the current supply, it is anticipated that the existing practices would expand, or new practices may be established, creating additional jobs within the area. Similarly,

any additional demand for opticians and pharmacies could be satisfied through the opening of new facilities.

- The sensitivity of the receptor is considered to be **high**.

- The study area is known to be located amongst the 10% most deprived areas in terms of healthcare deprivation. However, the current baseline shows that only six of the 14 nearby GP surgeries are within their recommended capacity, with the remaining facilities being slightly or majorly over capacity. It is anticipated that the Proposed Development will increase the existing pressure on the local facilities. Nonetheless, given that the nearest GP surgery is Ancoats Urban Village Medical Practice, which currently can accommodate approximately another 1,000 patients, and the residents of the development are likely to use this facility, the overall effect is considered to be of a **slight** magnitude.

- Effects on healthcare are considered to be adverse, permanent and long term but of **minor** significance which is **not significant** in EIA terms.

## Assessment of Cumulative Effects

### Intra-Project Cumulative Effects

***Air Quality and Noise pollution***

21.84 Although, the effects of air and noise pollution on human health is known to be one of the major issues within Manchester City Centre, due to the short duration of the proposed development's construction period, the effect of air quality and noise on human health is anticipated to be **negligible** and **not significant** in EIA terms.

***Transport***

21.85 Due to zero on-site car parking spaces being provided and the sustainable nature of the Proposed Development, it is not envisaged that there will be any significant effects on health. Additionally, as per **Volume 2: Chapter 11** a Framework Travel Plan highlights strategies to encourage sustainable travel which will directly improve general lifestyle in the area.

***Other Environmental Topics***

21.86 The majority of the other environmental topics assessed can be interrelated to health impacts. Daylight and sunlight, in particular, low winter sun or potent summer sunshine can result in headaches or fatigue. Flooding or heatwaves as a result of climate change has the potential to impact on the health of residents though such impacts are loosely inter-related to health therefore are not considered to require further assessment, and are assessed in the applicable chapters contained within this ES.

### Inter-Project Cumulative Effects

21.87 As described in Chapter 5 of this ES and provided at ES Volume 4: Appendix 5.1, it is anticipated that the construction phases of the cumulative schemes within the Portugal Street East Regeneration Area would overlap with that of the Proposed Development. In this case, it is possible that the operational phase for this will commence simultaneously. Other cumulative schemes in the City may also occur simultaneously with the Proposed Development.

21.88 Cumulative developments providing residential units will increase the number of residents within the local area, subsequently putting pressure on health services are outlined in the **Table 21.8.**

**Table 21.8: Additional Residential Units**

| Site | Reference | Status | Additional Units |
|---|---|---|---|
| London Road Fire Station, 50 London Road, M1 2PH | 116099/FO/2017 | Approved | 21 |
| Princess Street/ Whitworth Street | 110346/FO/2015/C2 | Approved | 238 |
| Princess Street/ Whitworth Street | 114585/FO/2016 | Approved | 351 |
| Former Manchester Metropolitan University Aytoun Campus | 112034/FO/2016/C2 | Approved | 478 |
| Minshull House and Minto & Turner Building, Former Manchester Metropolitan University Aytoun Street Campus, Chorlton Street | 115570/FO/2017 | Approved | 58 |
| Land adjacent to 275 Great Ancoats Street | 106249/FO/2014/N 2 | Approved | 111 |
| Land bounded by Great Ancoats Street, Isaac Way and Advent Way | 109948/FO/2015/N 2 | Approved | 201 |
| All Souls Rectory, Every Street | 113955/FO/2016 | Approved | 10 |
| Land bounded by Old Mill Street, the Islington Branch Canal Arm, Public footpath adjacent to Ashton Canal and 141-155 Great Ancoats Street | 109676/FO/2015/N 2 | Approved | 101 |
| Land between Millbank Street and Store Street | 115545/FO/2017 | Approved | 345 |
| Car Park between 57 and 59 Ducie Street | 120149/FO/2018 | Submitted (validated 11 June 2018) | 41 |
| Part site of existing car park bounded by Ducie Street, the Rochdale Canal, Peak Street, Tariff Street (multi-storey car | 115178/FO/2017 | Approved | 128 |

| Site | Reference | Status | Additional Units |
|---|---|---|---|
| park) and remainder of surface car park M1 2JL | | | |
| Land to rear of 56 Dale Street, Mangle Street | 115529/FO/2017 | Approved | 14 |
| 47-47A Spear Street | 118233/FO/2017 | Approved | 5 |
| 60 Oldham Street | 120878/FO/2018 | Approved | 5 |
| 47 Houldsworth Street | 109784/FO/2015/C2 | Approved | 119 |
| 74-88 Great Ancoats Street | 111276/FO/2016/C2 | Approved | 135 |
| Land bounded by Tarriff Street / Jacksons Warehouse and Rochdale Canal | 106021/FO/2014/C2 | Approved | 91 |
| Land between New Islington Marina, Coppersmith Road and Winder Drive (Phase 2 New Islington) | 111587/FO/2016/N 1 | Approved | 44 |
| Land bounded by Old Mill Street, Weybridge Road, Coppersmith Road and New Islington Marina | 112658/FO/2016/N 1 | Approved | 201 |
| Land bounded by Old Mill Street, Ashton Canal and Upper Kirby Street | 116190/FO/2017 | Approved | 213 |
| Corner of Old Mill Street, Upper Kirby Street and Lampwick Lane | 120837/FO/2018 | Submitted (validated 30 July 2018) | 40 |
| Land bounded by Vesta Street, Old Mill Street, Ashton<br>Canal Basin and Ashton Canal Towpath | 115947/FO/2017 | Approved | 169 |
| Land bounded by George Leigh Street, Bengal Street, Blossom Street and Sherrat Street | 111742/FO/2016/N 1 | Approved | 199 |
| Land bounded by Bengal Street, Jersey Street, | 110077/FO/2015/N 1 | Approved | 158 |

| Site | Reference | Status | Additional Units |
|---|---|---|---|
| Murray Street and Blossom Street | | | |
| Land bounded by St Michaels Church, Loom Street, Sherratt Street and George Leigh Street | 107484/FO/2014/N 1 | Approved | 14 |
| Edinburgh Castle pub, 15 Blossom Street | 109467/FO/2015/N 1 | Approved | 21 |
| Land at Hood Street | 109593/FO/2015/N 1 | Approved | 28 |
| **Total Number of Units** | | | **3,539** |

**Health Provision**

21.89 The increase in population as a result of the additional 3,539 dwellings arising from the cumulative schemes will increase the pressure on existing GP practices. However, as per Manchester Core Strategy Policy PA 1 - Developer Contributions **(ref. 21.5)**:

*'Where needs arise as a result of development, the Council will seek to secure planning obligations in line with Circular 5/2005, Community Infrastructure Levy regulations. Through such obligations, the Council may seek contributions towards all required community facilities, including health and wellbeing facilities.'*

21.90 On this basis, the cumulative impact on healthcare provision is considered to be **minor** neutral which is **not significant** as each of the schemes detailed above will have separately considered any requirement for healthcare infrastructure via developer contributions policy.

**Mitigation of effects**

21.91 Good practice mitigation measures will be implemented and should become part of the approved Construction Environmental Management Plan (CEMP) for the Proposed Development, to ensure all potential effects derived from noise and air pollution are mitigated. Some of the mitigation strategies are, but not limited to:

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible; and,
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.

21.92 Additionally, separate mitigation measures should be addressed to avoid/reduce the potential air quality and subsequent health effects on ground floor residents. As such, as addressed in Air Quality, **Volume 2- Chapter 12**, windows on the A665, Great Ancoats side of the building should be fixed.

21.93 With the standard good practice measures mentioned above, it is not considered that any additional mitigation within the construction phase will be required. During the operation phase, the population and housing effects brought forward as part of the development will largely be positive and will not give rise to further mitigation measures related to human health.

**Residual Effects**

21.94 Providing that mitigation strategies recommended in the Air Quality, **Volume 2- Chapter 12** are followed, any indirect effects related to health will be minimised to a **minor** level and therefore is considered **not significant** in EIA terms.

21.95 All other residual effects are summarised in **Table 21.9** below.

**Table 21.9: Assessment of residual effects summary**

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and Significance | Duration of Residual Effect |
|---|---|---|---|---|---|
| **Construction** | | | | | |
| Air Quality related effects on human health | Minor adverse and not significant | Temporary and short-term | Implementation of a CEMP | Minor, Adverse and not significant | Temporary and Short-term |
| **Operation** | | | | | |
| Air Quality | Intermediate adverse and Significant | Permanent and long-term | Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;<br>Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;<br>Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible; and,<br>Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.<br>Windows on the A665, Great Ancoats side of the building should be fixed. | Minor, adverse and not significant | Permanent Long-term |

| | | | | | |
|---|---|---|---|---|---|
| Healthcare provision | Minor adverse and not significant | Permanent and long-term | None | Minor adverse and not significant | Long-term |
| **Cumulative** | | | | | |
| Healthcare provision | Minor neutral and not significant | Permanent and long-term | Mitigate any pressure on health services by following the guidance in Circular 5/2005, planning obligations under Section 106 of the Town and Country Planning Act 1990. | Minor neutral and not significant | Long-term |

## References


| | |
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|---|---|
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# 22. Climate Change

## Introduction

22.1 This climate change chapter has been prepared by Stephanie Hands (MEnvSci, PIEMA) of WYG and by Anastasia Fleming (BSc, PIEMA) of WYG, and verified by Ross Phillips (BSc, MRes, MCIEEM, PIEMA) of WYG. This chapter assesses the contribution of the Proposed Development to climate change as a result of greenhouse gas (GHG) emissions produced during the construction and operational phases of the Proposed Development ('effects on climate'). In addition, the vulnerability of the Proposed Development to changes in climate ('vulnerability to climate change') are considered using UKCP18 projections.

## Legislative Framework, Policy and Guidance Documents

### *EIA Directive 2014/52/EU*

22.2 EU Directive 2014/52/EU amends EIA Directive 2011/92/EU which was transposed into UK law in May 2017 by the Town and Country Planning (Environmental Impact Assessment) Regulations. The Directive introduced clear references to the assessment of climate change effects.

### *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017*

22.3 Schedule 4 of the EIA Regulations (Section 5) outlines that the likely significant effects of the development on the environment in relation to the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change should be included within ES.

### *Climate Change Act (2008)*

22.4 The Climate Change Act 2008 forms part of the UK government's plan to reduce GHG emissions, committing the Government to a reduction of GHGs by at least 80% of 1990 levels by 2050. The Act established a framework to develop an economically credible emissions reduction path and strengthened the UK's leadership internationally by highlighting the role it would take in contributing to urgent collective action to tackle climate change under the Kyoto Protocol.

22.5 Key provisions of the Act in respect to climate change mitigation include the requirement for the Government to set legally binding 'carbon budgets' capping the amount of GHGs emitted in the UK over a five-year period. The UK is the first country to set legally binding carbon budgets for which five carbon budgets have been put into legislation and run up to 2032.

22.6 The Committee on Climate Change was set up to advise the Government on emissions targets, and report to Parliament on progress made in reducing GHG emissions. It

includes the Adaptation Sub-Committee which scrutinises and advises on the Government's programme for adapting to climate change.

### *The Carbon Plan – Delivering our Low Carbon Future ("Carbon Plan")*

22.7 In 2011, the Government published an updated Carbon Plan setting out how the UK will make the transition to a low carbon economy. This objective is set within a framework of mitigating and adapting to climate change and maintaining energy security in a way that minimises costs and maximises benefits to the economy.

22.8 The Carbon Plan presents the UK Government's approach to promoting the delivery of low carbon, resilient and adaptive buildings.

### *National Planning Policy Framework*

22.9 The National Planning Policy Framework (NPPF) was updated in February 2019. Mitigating and adapting to climate change is outlined as key to the environmental objective encompassing the working towards sustainable development.

22.10 Section 14 focuses on 'Meeting the challenge of climate change, flooding and coastal change', outlining that new development should be planned for in ways that:

(a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and
(b) can help to reduce GHG emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards. To help increase the use and supply of renewable and low carbon energy and heat, plans should:
(c) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily;
(d) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and,
(e) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

### *National Adaptation Programme 2018*

22.11 The second National Adaptation Programme published in 2018 sets out Government's response to the second Climate Change Risk Assessment (CCRA), showing the actions government is, and will be, taking to address the risks and opportunities posed by climate change. It forms part of the five-yearly cycle of requirements laid down in the Climate Change Act 2008 to drive a dynamic and adaptive approach to building our resilience to climate change.

22.12 In the CCRA evidence report, six priority areas of climate change risks for the UK were outlined, each topic comprising numerous actions. Topics relevant to the Proposed Development include the following:

(i) Flooding and coastal change risks to communities, businesses and infrastructure. Key actions;
(ii) Risks to health, well-being and productivity from high temperatures;
(iii) Risks of shortages in the public water supply for agriculture, energy generation and industry; and,
(iv) Risks to natural capital including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity.

***Manchester Core Strategy 2012 to 2027***

22.13 Reducing the contribution to and mitigating effects of climate change is identified as a citywide challenge to be addressed in order to achieve the Sustainable Community Strategy Vision.

22.14 It is stated that by 2027, Manchester will be meeting the challenge of climate change at the forefront of environmental initiatives and improvements and continuing to deliver sustainable development and a more effective Green Infrastructure

***Policy EC1 Employment and Economic Growth in Manchester***

22.15 This policy outlines that development proposals should have regard to climate change resilience demonstrating how $CO_2$ emissions will be minimised with an aim of zero carbon emissions, through energy efficiency, renewable energy and contributing to low and zero carbon decentralised energy infrastructure.

***Policy EN4 Reducing CO2 Emissions***

22.16 By enabling Low and Zero Carbon Development, this policy requires all development to follow the principle of the Energy Hierarchy, being designed:

- To reduce the need for energy through design features that provide passive heating, natural lighting and cooling;
- To reduce the need for energy through energy efficient features such as improved insulation and glazing; and,

*22.17* To meet residual energy requirements through the use of low or zero carbon energy generating technologies.

***Policy EN6 Target Framework for CO2 reductions from low or zero carbon energy supplies***

22.18 Applications for residential development of 10 or more units and all other development over 1,000 sq m will be expected as a minimum to meet the target of CHP/district heating anchor or connection or where not feasible a 15% increase on Part L 2010, unless this can be shown not to be viable.

***Policy EN8 Adaptation to Climate Change***

22.19 This policy outlines that All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate

change developers should have regard to the following, although this is not an exhaustive list:

- Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rain water permeability;
- Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways;
- The need to control overheating of buildings through passive design; and
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.

22.20 Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with $CO_2$ mitigation under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance.

***Zero Carbon Manchester***

22.21 In March 2016 the Our Manchester Strategy was launched, setting out the vision for Manchester to 'be in the top flight of world-class cities by 2025' and committing the city to 'playing our full part in limiting the impacts of climate change'.

22.22 The Manchester Climate Change Board made four proposals to Manchester City Council and the city more widely:

(i) Manchester adopts the Tyndall Centre's proposed targets and definition of zero carbon and includes them formally in the Our Manchester and Manchester City Council policy framework. Namely: a limited carbon budget of 15m tonnes CO2 for 2018-2100; 13% year-on-year reductions in CO2 from 2018; zero carbon by 2038.

(ii) Manchester recognises that action on climate change is a fundamental part of achieving the city's 2025 vision and objectives. And by taking urgent action to become a zero carbon city, starting in 2018, we will achieve more benefits for Manchester's residents and businesses up to 2025 and beyond.

(iii) Manchester accelerates its efforts to mobilise all residents, businesses and other stakeholders to take action on climate change, starting in 2018.

(iv) Manchester puts in place an action plan and the resources needed to stay within the proposed carbon budget, starting in 2018.

**Guidance documents**

***Assessing greenhouse gas emissions and evaluating their significance' (IEMA and Arup, 2017) (ref 22.1)***

22.23 Published in 2017, the guidance provides thoughts, guidance and areas of consideration for practitioners assessing GHG emissions and evaluating their significance. The guidance document provides a suggested methodology for the assessment of GHG emissions within EIA. It provides a number of key recommended steps along with guidance for practitioners to address each of the key stages.

***'Climate Change Resilience and adaptation' (IEMA, 2015) (ref 22.2)***

22.24 Published in 2015, this document provides thoughts, guidance and areas of consideration for practitioners assessing climate change resilience and adaptation. The Climate Change Adaptation Methodology section presents in greater detail those areas where the guidance is implemented within this assessment.

## Assessment Methodology

### The Study Area

22.25 GHG emissions and predictions are not available for specific regions therefore UK emissions and predictions will form the study area for effects on climate.

22.26 The Met Office regional climate information for the region of North West England and the Isle of Man are the smallest regional areas of historic climate information available therefore form the baseline for the vulnerability of the project to climate. UKCP018 projections (**ref. 22.3**) for the North West England region form the future baseline.

### Baseline Surveys

***Desk Based Research***

22.27 This assessment has been based entirely on desk based research in relation to:

- Global GHG emissions since 1990 (Source: Department for Business, Energy and Industrial Strategy);
- Predicted GHG emissions until 2035 (Source: Department for Business, Energy and Industrial Strategy);
- The historic climate baseline over a 30 year averaging period of 1981-2010 (Source: The Met Office); and,
- Future climate projections for the study area under the high emissions scenario (Source: UKCP18 projections).

### Field Survey Work

22.28 No field surveys have been undertaken nor are required for this assessment.

### Consultations

22.29 Formal consultation was undertaken with Manchester City Council during the scoping exercise as part of the EIA process. MCC agreed with the proposed method and scope of the climate change assessment (ES Vol 4: Appendix 5.1). The assessment has been undertaken in accordance with the Scoping Opinion and the results are presented in this ES. .

### Significance Criteria

22.30 There is at present no single accepted methodology for the assessment of climate change within EIA. The proposed assessment methodology outlined below is therefore based on professional judgement and existing sources of guidance.

22.31 In the absence of quantitative GHG emissions predictions associated with the Proposed Development, the assessment of the effects of the Proposed Development on climate has been undertaken qualitatively by considering the anticipated sources of GHG emissions and energy consumption of the construction and operation of the Proposed

Development and where possible, assessing this in relation to wider sources of emissions. In addition, the provision of mitigation measures within the Proposed Development to minimise energy use have been considered within this assessment.

22.32 The assessment for the vulnerability of the Proposed Development to climate change considers the effect of predicted changes in climate change on the development during the construction period and during operation of the development, up to the 2100s, as per the availability of UKCP18 data. In addition, the in-combination effects of climate change on the environmental receptors will be considered.

**Magnitude of Effect**

***Effects on Climate***

22.33 The magnitude of impact for the effects on climate is categorised as shown in **Table 22.1**, based on WYG's professional judgement.

**Table 22.1: Determining Magnitude of Impact for the assessment of effects on climate**

| Magnitude | Impact |
|---|---|
| Moderate to Substantial Adverse | An increase in GHG emissions and sources of emissions, contributing substantially to local and global GHG emissions. |
| Slight Adverse | A small increase in GHG emissions and sources of emissions, contributing to local and global GHG emissions. |
| Negligible / None | No increase in local and global baseline emissions. |
| Slight Beneficial | A small reduction in GHG emissions and sources of emissions, contributing to the reduction in anticipated local and global GHG emissions. |
| Moderate to Substantial Beneficial | A reduction in GHG emissions and sources of emissions, contributing to the reduction in anticipated local and global GHG emissions. |

***Vulnerability to Climate Change***

22.34 The Department for Transport and Infrastructure (Australia)'s Climate Change Adaptation – Guideline for Asset Management (2015) (ref 22.4) is one of few methods for determining the magnitude of impact of vulnerability to climate change and therefore has been adapted as outlined in **Table 22.2** for use in this assessment.

**Table 22.2: Determining Magnitude of Impact for the assessment of the vulnerability of the project to climate change**

| Magnitude | Impact |
|---|---|
| Moderate to Substantial Adverse | Loss of receptor and/or considerable permanent damage/alteration to the characteristics, features or elements of the receptor; substantial permanent damage/alteration to key characteristics, features or elements. |
| Slight Adverse | Some measurable damage/alteration to key characteristics, features or elements of the receptor. |
| Negligible / None | Minor loss or damage/alteration to the characteristics, features or elements of the receptor. |
| Slight Beneficial | Some measurable benefits to the characteristics, features or elements of the receptor. |

*Source: Adapted from Department for Transport and Infrastructure (Australia), Climate Change Adaptation – Guideline for Asset Management, April 2015*

**Sensitivity of Receptor**

***Effects on Climate***

22.35 The earth's atmosphere / climate is the receptor for the assessment of the effects on climate and is categorised as being of Very High Sensitivity, given the potentially global effects of climate change and the UK's legally binding commitments to reduce GHG emissions.

***Vulnerability to Climate Change***

22.36 The Proposed Development and the environmental topics assessed within this ES are the receptors for the assessment of the vulnerability of the Proposed Development to climate change and are categorised as being of Very High Sensitivity.

***Duration of Effect***

***22.37*** As identified in Table 22.3, the climate change assessment considers the short-term duration of effects in relation to the construction phase. Medium to longer term effects are considered in relation to the Proposed Development's overall contribution to climate change and vulnerability to climate change throughout its proposed life.

**Table 22.3: Duration of Effect**

| Timescale | Definition |
|---|---|
| Short-term | 0 to 5 years including the construction period and on completion |
| Medium-term | 5 to 15 years including mitigation establishment |
| Long-term | 15+ years including long term operation of the development |

***Significance of Effect***

22.38 Effects that are 'Intermediate' or greater are defined as significant in EIA terms for the purpose of this assessment.

22.39 The significance matrix to be applied has been set out in **Table 22.4.**

**Table 22.4: Significance of effects matrix**

| | | Magnitude of Impact | | | |
|---|---|---|---|---|---|
| | | **Moderate to Substantial Adverse** | **Slight Adverse** | **Negligible/None** | **Slight Beneficial** |
| Sensitivity of Receptor | Very High | **Major** | **Intermediate** | Neutral | Neutral |

## Existing Baseline Conditions (2020)

**Effects on Climate**

22.40 Global GHG emissions due to human activities are estimated to have grown significantly since pre-industrial times. Carbon dioxide ($CO_2$) is the most important anthropogenic GHG and in 2017 it accounted for 81% of the UK's GHG emissions.

22.41 The UK compiles an annual inventory of its GHG emissions in order to monitor progress against domestic and international targets such as the carbon budgets and Kyoto Protocol respectively, and the datasets provided for up to year 2017 are the most recent final national statistics outlining the changes in climate since the industrial levels.

22.42 Graphical representations of $CO_2$ emissions and GHG emissions since 1990 are shown in **Figure 22.1** (ref.22.5)[6]. The GHG emissions used to calculate the estimates represented on the graph, are allocated into sectors as follows:

- Energy supply;
- Business;
- Transport;
- Public;
- Residential;
- Agriculture;
- Industrial processes;
- Land use, land use change and forestry; and,
- Waste management.

22.43 In 2017, UK emissions of seven GHG gases covered by the Kyoto Protocol were estimated to be 460.2 million tonnes $CO_2$ equivalent, a decrease of 2.7% compared to the 2016 figure of 473.1 million tonnes.

22.44 The residential sector contributed to 15% of UK GHG emissions in 2017, the fourth largest sector responsible for GHG emissions with the largest sector contributing 27% being transport (ref 22.6).

22.45 The residential sector consists of emissions from fuel combustion for heating and cooking, garden machinery, and fluorinated gases released from aerosols and metered dose inhalers. Carbon dioxide is the most prominent gas for this sector (96 per cent). In general, carbon dioxide emissions from this sector are particularly heavily influenced by external temperatures, with the main source of emissions from this sector being the use of natural gas for cooking and heating.

**Vulnerability to Climate Change**

22.46 The Met office contains regional projections for which Manchester is located within the region of North West England and Isle of Man. High-level climate observations for North West England and Isle of Man (ref 22.7) over a 30-year averaging period of 1981-2010 are presented in Table 22.5 below.

**Table 22.5: Historic Climate Baseline for North West England and Isle of Man (1981-2010)**

| Climatic Conditions | Climate Observations |
|---|---|
| Temperature | The mean annual temperature of the region is approximately 10°C. Mean daily minimum temperatures in winter are approximately 1°C, whilst summer daily maximum temperatures are in the region of 18 to 21°C. |
| Rainfall | Annual rainfall averages at 830mm in Manchester. Monthly rainfall is variable, but is highest in the winter months with approximately 50-60 days with rainfall totals greater than 1mm, dropping to less than 40-45 days in summer. |
| Wind | NW England and the Isle of Man are among the more exposed parts of the UK, being relatively close to the Atlantic and containing large upland areas. The strongest winds are associated with the passage of deep areas of low pressure close to or across the UK. The frequency and strength of these depressions is greatest in the winter half of the year when mean speeds and gusts are strongest. |
| Sunshine | Average annual sunshine totals are approximately 1400 hours. |
| Air Frost | The average number of days with air frost is around 45 days per year. |

## Anticipated Future Baseline Conditions

## Construction (2020) and Operation (2022)

**Effects on Climate**

22.47 GHG emissions from the domestic residential sector in the UK are projected to rise by 7 $MtCO_2e$ (10%) by 2035 (ref 22.8)[8].

**Vulnerability to Climate Change**

22.48 The current climatic baseline is based on the long-term average data from the Met Office (**ref. 22.3**).

22.49 UKCP18 uses scenarios for future GHG called RCPs which cover a more up-to-date range of assumptions around future population and economic development. Each pathway also comprises different sets of likelihood ranging from 5$^{th}$ percentile (likely) to 90$^{th}$ percentile (very likely).

22.50 Each pathway drives a different range of simulated global mean temperature increases over the 21$^{st}$ century. The four RCPs provided within the model, capture a range of potential alternative futures, spanning a range of projected mean temperature increases based on the rise in GHG. These are outlined and explained in Table 22.6 below.

**Table 22.6: Baseline Climate Data**

| RCP | Increase in global mean surface temperature (˚C) by 2081-2100 | Range of increase in global surface temperature (˚C) by 2081-2100 |
|---|---|---|
| RCP2.6 | 1.6 | 0.9-2.3 |
| RCP4.5 | 2.4 | 1.7-3.2 |
| RCP6.0 | 2.8 | 2.0-3.7 |
| RCP8.5 | 4.3 | 3.2-5.4 |

22.51 RCP2.6 represent a future in which UK aims for and is able to implement sizeable reduction in emissions of GHG. Following this scenario, UK has a chance of limiting average warming to near 2˚C above pre-industrial levels, which is consistent with the existing UK's targets.

22.52 For England, the summer and winter changes by the 2070s are precited to comprise the following based on two emission scenarios:

22.53 High emissions Scenario:

- 57% drier to 3% wetter summer rainfall change;
- 2% drier to 33% wetter winter precipitation change;
- 1.1˚C warmer to 5.8˚C warmer summer temperature change; and,
- 0.7˚C warmer to 4.2˚C warmer winter temperature change.

22.54 The Met Office contains regional and national land projections outlining seasonal temperature and precipitation changes under each pathway level. Given that RCP2.6 only represents a GHG emission rate that is heavily reduced through various mitigation, a worst-case scenario was assumed using RCP8.5 pathway level with a 50$^{th}$ percentile likelihood, which represents a high stabilisation level with no mitigation in place and with a continued rise in temperatures at a medium likelihood.

22.55 For the North West region in which the Proposed Development is located, the predicted changes in line with RCP 8.5 for the period of 2020 to 2039 are as follows:

- Mean annual temperature: ranging from 0.3℃ (5th percentile) to 1.3℃ (90th percentile);
- Mean winter precipitation: ranging from -8% to 16%; and,
- Mean summer precipitation: ranging from -23% to 13%.

22.56 **ES Vol 3: Figure 22.2** illustrates the annual mean temperature changes compared to 1981-2000 in the North West England for year 2020-2039 if temperatures continue to rise in line with RCP 8.5. As per predictions based on the 50th percentile chance, temperatures are likely to rise up to 2 degrees in the north eastern edge of the NW region.

22.57 A later period from 2030-2049 is predicted to outline further changes in temperature and precipitation and comprises the following estimates:

- Mean annual temperature: ranging from 0.4C (5th percentile) to 2.3℃ (90th percentile);
- Mean winter precipitation: ranging from -10% to 17%; and,
- Mean summer precipitation: ranging from -28% to 4%.

22.58 As illustrated in **ES Vol 3: Figure 22.3**, the mean temperature changes are greater for the wider North West region, rising up 2℃ under the 50% percentile likelihood.

## Assessment of Effects

### Matters Scoped Out

22.59 There have been no matters scoped out of the climate change assessment.

### Embedded Mitigation

22.60 The Environmental Standards and Energy Statement report submitted as part of the planning application for the Proposed Development provides detail of the embedded mitigation in relation to energy and carbon dioxide emission reductions and should be referred to for further detail. A summary of the embedded mitigation of relevance to this assessment is outlined below.

#### *Construction*

22.61 The development will reduce the lifecycle impact of materials used in construction by ensuring:

- The use of materials with low environmental impact throughout their lifecycle;
- That materials are responsibly sourced from suppliers operating an Environmental Management System or procuring timber from FSC and PEFC sources, for example will be prioritised;
- Consideration will be given to local sourcing of construction materials where feasible; and
- Consideration will be given to local sourcing of construction materials where feasible, which will minimise the impact of carbon dioxide emissions associated with the transportation of materials.

**Design**

***Effects on climate***

22.62 The Proposed Development is anticipated to incorporate energy design measures to reduce energy demand and therefore $CO_2$ emissions. Both passive and active energy measures are considered to reduce energy demand.

22.63 As the Proposed Development includes the provision of cycle storage and does not include parking for residents, this will encourage residents to cycle or use public transport, thereby reducing their individual GHG emissions.

*22.64 Sustainable Construction*

22.65 A new build development signifies the building regulations Approved Document Part L1A (2013) will be referred to with regards to the relevant legal requirements, general guidance and compliance standards. New homes will be required to achieve compliance with L1A: Conservation of fuel and power in new dwellings of the building regulations.

***Passive Design Measures***

22.66 The following design parameters have been included to ensure sustainability features and energy efficient methods are considered for the development;

- **Increased fabric performance**; improving the fabric performance to give a significant improvement on the notional fabric specification detailed in Approved Document L1A (2013). A key focus of the design will be provision of low u values, minimised cold bridging and very low air permeability, thereby limiting heat losses by uncontrolled ventilation. The dwelling emissions and thermal envelope energy efficiency performance associated with the proposed 'fabric led' specification demonstrate that the dwelling emission rate reduction for the residential element of the scheme is likely to be 2% better than Part L1A 2013 compliance requirements.

- **Solar gain**; glazing specifications (for example, g values and frit patterns) will be optimised to allow the maximum amount of solar energy to enter the apartments without compromising occupant comfort or giving rise to the need for active cooling within the properties.

- **Natural Daylighting;** the proportions and distribution of glazing are expected to ensure good levels of daylight, helping to reduce electricity consumption through artificial lighting.

- **Mechanical Ventilation with Heat Recovery**; the scheme will be designed and built to maintain healthy living environments in accordance with building regulation Part F criteria and minimise the risk of summer overheating without the use of comfort cooling. The dwellings will be mechanically ventilated with extracts in the kitchen and WC/bathrooms – heat from the stale extracted air is returned to the property in the fresh air supply to the living areas. These systems limit the dwelling energy demand for space heating.

***Active Design Measures***

- **Energy efficient lighting;** the dwellings will be fitted with 100% dedicated energy efficient light fittings to reduce energy consumption.

- **Efficient electric panel heaters** fitted within individual dwellings will consume electricity with 100% efficiency. This will help to reduce energy consumption for space heating loads.

- **Efficient hot water immersion cylinders** with high specification insulation will be installed within each individual dwelling, consuming electricity with 100% efficiency and limiting **very standing losses (**waste heat lost from the system). This will help to reduce energy consumption for domestic hot water loads.

- **Local heating control;** the dwellings will be controlled with thermostatic sensors. The meters will record heating consumption rather than a flat rate charging system. These are important measures to optimise heating demand and ensure that building services are not in operation when they are not needed.

- **Enhanced pipework thermal insulation;** the thermal distribution network will be insulated beyond the requirements of the relevant standards to reduce distribution losses

- **Energy metering;** will be provided in all units.

***BREEAM***

22.67 The target BREEAM rating for this scheme is BREEAM 'Very Good'. This broadly represents the top 25% of UK new non-domestic buildings (advanced good practice). As detailed within the Environmental Standards and Energy Statement report, a BREEAM UK New Construction 2018 (shell only) Pre-Assessment report has been prepared for the non-domestic retail space within the Proposed Development to determine the potential BREEAM rating.

22.68 The initial BREEAM review demonstrated that the new non-domestic retail space in the building are able, in principle, to achieve an overall BREEAM Very Good rating.

***Unregulated Energy***

22.69 Overall there is very limited design control over the un-regulated energy use at the development. Un-regulated energy consumption is not considered in the building regulations part L1A. However, an effort will be made to reduce the un-regulated energy uses (e.g. small power, security lighting etc.) through the following measures:

- **Energy-efficient white goods;** Where provided, white goods and kitchen equipment are to be energy efficient:
  - Minimum of A+-rating for fridges and freezers or fridge-freezers;
  - Minimum of A rating for washing machines and dishwashers; and,
  - Minimum of A rating for washer-dryers or tumble dryers.

- **External Lighting;** All external lighting will be energy efficient and will incorporate the appropriate controls such as photocells, passive infra-red and

timers in order to ensure that these are not switched on when not required.

**Vulnerability to climate change**

22.70 The flood risk assessment (refer to **ES Volume 2: Chapter 14**) takes into account an allowance for climate change in accordance with Environment Agency guidance (2017) (ref 22.10).

22.71 The residential garden on Level 2 of approximately 206m$^2$ in size is anticipated to include a variety of planting which would increase the resilience of the Proposed Development to rainfall events by reducing runoff.

22.72 It is anticipated that the choice of building material and types of planting within the Proposed Development will be considered for their vulnerability and their ability to adapt to the changing climate.

**Limitations and Assumptions**

22.73 At this stage of the Proposed Development only indicative details of the proposed construction methods and materials and the design of the development are available, rendering only a high level assessment available to be undertaken.

***Climate Projections***

22.74 Information on the climate baseline and future projections are based on freely available information from third parties, including the historical meteorological variables recorded by the Met Office and the UKCP18 developed by the Met Office. In addition, the assessment has been informed by a selected range of existing climate change research and literature available at the time of writing this assessment.

22.75 Climate projections are not predictions or forecasts but simulations of potential scenarios of future climate, under a range of hypothetical emissions scenarios and assumptions. Therefore, the results from running the climate models cannot be treated as exact or factual, but projection options. They represent internally consistent representations of how the climate may evolve in response to a range of potential forcing scenarios, and their reliability varies between climate variables.

22.76 WYG has not independently verified the climate projections and does not accept responsibility or liability for any inaccuracies or shortcomings in this information. Should the information sources be modified by the third parties we assume no responsibility for any of the resulting inaccuracies in any of our reports. Issued reports are relevant to the project information provided and are not intended to address changes in project configuration or modifications which occur over time.

22.77 The recommended approach in using emissions scenarios in the UK is representative concentration pathway (RCP) 8.5, which represents the highest emissions scenario and consequently the worst-case scenario. Additionally, UKCP18 projections give a range of possible climate change outcomes and their relative likelihoods, which typically give climate information that is considered the unlikely, likely or very likely (ranging across the 10$^{th}$ to 90$^{th}$ percentiles). As per updated IEMA Guidance (2019), the recommended likelihood is 50$^{th}$ percentile of the RCP8.5 climate scenario. This means that the overall effect may not always represent the potential significance on a specific receptor and therefore represents an uncertainty of the overall effect.

22.78 Accordingly, any further research, analysis or decision-making should take account of the nature of the data sources and climate projections and should consider the range of literature, additional observational data, evidence and research available, and any recent developments in these.

22.79 It is not expected that any of the above limitations, if addressed at significant extra assessment effort, would change the conclusion of the impact assessment.

**Assessment of Construction Phase Effects**

***Effects on Climate***

22.80 It is recognised that GHG emissions will be generated during the construction phase from the following sources:

- Use of fuel in the transportation of people and materials around the Site and off-site;
- Use of light and other power in the welfare facilities, construction compound, and in the use of machinery around the Site;
- Use of quantities of other resource materials during the construction; and,
- The removal, disturbance and disposal of embodied energy that is locked up within the existing materials present on the Site (e.g. soils and living vegetation etc.).

22.81 A fully detailed and quantified assessment was not undertaken due to the professional opinion that relatively short term temporary release of GHGs associated with construction, are expected to be minimal in terms of the contribution to climate change effects. Also, at this stage of the Proposed Development only indicative details of the proposed construction methods and materials are available.

22.82 The construction works will be temporary and short term in nature therefore taking this into account, it is expected that construction of the Proposed Development will result in a Negligible magnitude of impact at the local, regional, national or global level.

22.83 Considering the scale and length of construction and in comparison to the wider extent of emissions contributing to climate change, it is considered that GHG emissions during construction will be neutral and therefore **not significant.**

***Vulnerability to Climate Change***

22.84 During the construction phase, climate change is not expected to bring about a substantial change in the risk of severe weather between now and the start of the period of construction. Despite this, the construction site and the environmental receptors identified within this ES may be vulnerable to extremes of weather, leading to the risk of delay in construction activities. Given the unpredictability of extreme weather events and assessing the worst case risk to the construction of the development, this has the potential to result in a slight adverse magnitude of impact, therefore would be of intermediate significance and **would be significant.**

**Assessment of Operational Phase Effects**

***Effects on Climate***

22.85 During operation of the Proposed Development, the use of electricity within residential dwellings and communal areas would generate GHGs. In comparison to emissions scenarios at regional, national and international scales, emissions from the Proposed Development will be low. In relation to climate change effects, these mainly manifest themselves at a national and global scale. It is considered that the Proposed Development would result in a Slight Adverse magnitude of effect, as emissions will contribute to local emission levels only.

22.86 The Institute of Environmental Management and Assessment (IEMA) states that 'GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit, as such any GHG emissions or reductions from a project might be considered to be significant'. Given the embedded mitigation within the design, in particular, the proposed 'fabric led' specification which demonstrates that the dwelling emission rate reduction for the residential element of the scheme is likely to be 2% better than Part L1A 2013 compliance requirements of 6%, GHG emissions during the operation of the development are considered to be **not significant**.

***Vulnerability to Climate Change***

22.87 During operation, the Proposed Development would be vulnerable to the changes in climate as outlined above. This has the potential to pose a risk to the Proposed Development assets such as;

- increased precipitation resulting in flooding;
- increased precipitation resulting in increased erosion of the residential garden;
- increases in temperature have the potential to result in an increased risk of materials failure;
- increases in temperature may result in increased heat within the Proposed Development; and,
- increases in temperature, precipitation and extreme weather events could impact on the physical structure and materials of the buildings.

22.88 Considering the embedded mitigation within the Proposed Development, overall, the vulnerability to climate change would result in a Negligible magnitude of effect on the Proposed Development during its operational lifespan. Although the uncertainty surrounding the effects and timescales of effects of climate change should be kept in consideration.

22.89 The effect is therefore neutral, which would be **not significant**.

**Assessment of Cumulative Effects**

**Intra-Project Cumulative Effects**

***Effects on Climate***

***Construction***

22.90 Due to the short term nature of the construction period, it is not considered that there would be any significant intra-project cumulative effects.

***Operation***

22.91 It is not considered that there would be any intra-project greenhouse gas emissions generated from the environmental receptors identified within this ES therefore there would be no significant intra-project effects on climate.

**Vulnerability to Climate Change**

***Construction***

22.92 Due to the short term nature of the construction period, it is not considered that there would be any significant intra-project cumulative effects.

***Operation***

22.93 During operation, the environmental receptors identified within this ES have the potential to be affected by changes in climate, for example, through:

- increased precipitation and changes in temperature impacting species and ecological features within the site vicinity;
- increases in temperature, precipitation and extreme weather events could adversely impact the characteristics of the landscape surrounding the development; and,
- increase in frequency of precipitation events resulting in higher runoff rates and impacts to flood risk.

22.94 Considering the embedded mitigation within the Proposed Development, overall, the vulnerability to climate change would result in a Negligible magnitude of effect on the development during its operational lifespan. The Effect is therefore neutral, which would be **not significant**.

**Inter-Project Cumulative Effects**

22.95 Cumulative effects are considered relevant in climate change terms with regard to GHG emissions and impacts of changes in climate on the Proposed Development in consideration of the additional proposed developments in the area.

22.96 However, because climate change is a global issue, all development taking place across the world results in net increases in GHG emissions and can be considered to operate cumulatively.

***Effects on Climate***

***Construction***

22.97 Construction of all of the listed cumulative schemes (**ES Volume 4: Appendix 5.1**) would all produce GHG emissions, contributing to climate change.

22.98 It is anticipated that the cumulative schemes will all have relatively short construction periods and that all measures practicable to reduce greenhouse gas emissions during construction would be implemented. Therefore the Proposed Development, in accumulation with all the other developments proposed in the locality, would result in a Negligible magnitude of effect which would **not give rise to significant** GHG emissions.

***Operation***

22.99 During operation of the all of the listed cumulative schemes (**ES Volume 4: Appendix 5.1**), GHG emissions would inevitably be produced by the users of the developments.

22.100 Given the policies within the Manchester Core Strategy in relation to the emissions reduction targets, it is anticipated that the cumulative schemes will meet these targets and therefore the Proposed Development, in accumulation with all the other developments proposed in the locality, would result in a Negligible magnitude of effect which would **not give rise to significant** GHG emissions.

***Vulnerability to Climate Change***

***Construction***

22.101 The construction phases of the cumulative schemes would all be vulnerable to changes in climate however the extent of this would depend on their lengths of construction. It is considered that adaptation to climate change during construction would be dealt with appropriately within each cumulative scheme. However, there is not sufficient information to assess the cumulative effect.

***Operation***

22.102 The cumulative schemes would all be vulnerable to changes in climate and whilst it is considered that all developments would incorporate forms of embedded climate change mitigation, the extent of this would be dependent on their design in terms of resilience to changes in climate and adaptive capacity. However, there is not sufficient information to assess the cumulative effect.

**Mitigation of Effects**

***Construction***

***Effects on climate***

22.103 A Construction Environmental Management Plan (CEMP) should be produced, with measures to reduce GHG emissions such as the recycling and reuse of materials where possible, the use of local suppliers and ensuring vehicle engines and plant motors are switched off when not in use.

***Vulnerability to climate change***

22.104 The CEMP would be anticipated to contain measures to ensure the construction site is able to adapt extreme weather events. Measures could include ensuring construction materials are covered when stored and pro-active planning of works to minimise adverse effects.

**Operation**

22.105 There are no additional mitigation measures.

**Inter-Project Cumulative Mitigation of Effects**

***Construction***

***Effects on climate and Vulnerability to climate change***

22.106 It is anticipated that a CEMP will be produced for all of the individual cumulative developments. The measures identified above to reduce GHG emissions and ensure the developments are less vulnerable to climate change should be included in the CEMPs. This would reduce the cumulative greenhouse gas emissions produced from the construction of the developments to a level that is not significant.

**Residual Effects**

22.107 Adaptation measures included in the CEMP such as ensuring the implementation of a construction drainage management to prevent flash floods or surface water flooding, and pro-active planning would minimise adverse effects, resulting in a Negligible magnitude of impact. Therefore, changes in climate are not expected to impact on construction of the Proposed Development and would neutral and therefore **not significant.**

22.108 As outlined above, the developer will seek to achieve BREEAM 'Very Good' or above. Should this be achieved, this will help to offset greenhouse gas emissions produced. It is considered that this would still remain a significant adverse effect unless emissions calculations (or the like) are undertaken for the Proposed Development to identify a reduction in greenhouse gas emissions as a result of the measures.

22.109 The residual effects are identified in Table 22.7.

**Table 22.7: Residual Effects**

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| ***Construction*** | | | | | |
| *Effects on Climate Change* | Neutral, not significant | Short term | Measures included within a CEMP | Neutral, not significant | Short term |

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| *Vulnerability to Climate Change* | Intermediate adverse, significant | Short term | Measures included within a CEMP | Neutral, not significant | Short term |
| ***Operation*** | | | | | |
| *Effects on Climate Change* | Neutral, not significant | Medium to Long term | No additional mitigation other than embedded mitigation within the design | Neutral, not significant | Medium to Long term |
| *Vulnerability to Climate Change* | Neutral, not significant | Medium to Long term | No additional mitigation other than embedded mitigation within the design | Neutral, not significant | Medium to Long term |
| ***Cumulative*** | | | | | |
| ***Intra-project cumulative effects*** | | | | | |
| ***Construction*** | | | | | |
| *Effects on Climate Change* | Neutral, not significant | Short term | Measures included within a CEMP | Neutral, not significant | Short term |
| *Vulnerability to Climate Change* | Neutral, not significant | Short term | Measures included within a CEMP | Neutral, not significant | Short term |
| ***Operation*** | | | | | |
| *Effects on Climate Change* | Neutral, not significant | Medium to Long term | No additional mitigation other than embedded mitigation within the design | Neutral, not significant | Medium to Long term |
| *Vulnerability to Climate Change* | Neutral, not significant | Medium to Long term | No additional mitigation other than embedded mitigation within the design | Neutral, not significant | Medium to Long term |
| ***Inter-project cumulative effects*** | | | | | |
| ***Construction*** | | | | | |

| Environmental Receptor | Description of Impact and Significance | Duration | Mitigation | Residual Impact and significance | Duration of Residual Impact |
|---|---|---|---|---|---|
| *Effects on Climate Change* | Neutral, not significant | Short term | CEMPs produced for all individual developments. | Neutral, not significant | Short term |
| *Vulnerability to Climate Change* | Insufficient information to assess | Short term | CEMPs produced for all individual developments. | Insufficient information to assess | Short term |
| ***Operation*** | | | | | |
| *Effects on Climate Change* | Neutral, not significant | Medium to Long term | N/A | Neutral, not significant | Medium to Long term |
| *Vulnerability to Climate Change* | Insufficient information to assess | Medium to Long term | N/A | Insufficient information to assess | Medium to Long term |

## References


Ref. 22.1 IEMA and Arup (2017) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance.

Ref. 22.2 IEMA (2015) Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation.

Ref. 22.3 Met Office (2018) 2018 UK Climate Change Projections. https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/key-results

Ref. 22.4 Department of Planning, Transport and Infrastructure (Australia) (2015) Climate Change Adaptation Guideline for Asset Management.

Ref. 22.5 Department for Business, Energy and Industrial Strategy (2018a) 2017 UK Greenhouse Gas Emissions, Provisional Figures.

Ref. 22.6 Department for Business, Energy and Industrial Strategy (2019) 2017 UK Greenhouse Gas Emissions, Final Figures. https://data.gov.uk/dataset/9568363e-57e5-4c33-9e00-31dc528fcc5a/final-uk-greenhouse-gas-emissions-national-statistics

Ref. 22.7 The Met Office (2016) North West England and Isle of Man: climate https://www.metoffice.gov.uk/climate/uk/regional-climates/nw (accessed 30/10/2018).

Ref. 22.8 Department for Business, Energy and Industrial Strategy (2019) Updated Energy and Emissions Projections 2018.

Ref. 22.9 Committee on Climate Change (2017) UK Climate Change Risk Assessment 2017. https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf (accessed 16/11/18)

Ref. 22.10 Environment Agency (2017) Flood Risk Assessments: Climate Change Allowances https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances (accessed 11/10/2017).

# 23. Environmental Management and Conclusions

## Introduction

23.1 This chapter presents a summary of the measures which have been identified within the Environmental Statement (ES) to mitigate any likely significant (adverse) environmental effects arising during the construction or operation of the Proposed Development.

23.2 In addition, mitigation has also been proposed where the effect is not significant in EIA terms, but the identified mitigation will secure environmental best practice.

23.3 Bringing each of the proposed mitigation measures into this single location chapter will assist the decision maker in drafting the planning conditions which will be required to secure the mitigation measures identified in this ES.

23.4 This chapter also presents a summary of the residual effects identified within this ES which are expected to occur following application of the mitigation measures.

## Embedded Mitigation

23.5 The most effective form of mitigation is to design a project to avoid environmental effects at source. From the outset, the design of the Proposed Development has been informed by a thorough understanding of the baseline environmental conditions and particular constraints and opportunities of the development site.

23.6 An iterative design process has been followed where by the Proposed Development has been designed as far as practicable to avoid or minimise the occurrence of significantly adverse environmental effects. This type of mitigation is 'embedded' into the scheme design, rather than being an 'add-on'.

23.7 The following aspects of the Proposed Development, which have been used to complete this EIA, and are regarded as 'embedded mitigation':

- Embedded mitigation in terms of visual and townscape effects has been incorporated into the Proposed Development as part of the design process and has evolved through consultation with the Local Planning Authority, Historic England and Places Matter Design Review amongst others.
- The Proposed Development will not consist of any vehicle parking spaces resulting in no additional traffic movements to the road network.
- The energy strategy is proposed to be entirely electrical based and there will be no additional emissions from CHP/boilers.
- Provision of a residential garden, which will benefit new residents in terms of lifestyle and health.
- Provision of cycle spaces, will ensure a space is available for each flat within the development and will benefit the new residents in terms of lifestyle and healthcare improvement.
- Provision of resident's gym, will benefit new residents in terms of lifestyle and health improvements.

- Incorporation of energy design measures to reduce energy demand and therefore $CO_2$ emissions, including building fabric, layout, lighting and heating.
- Incorporation of Drainage Strategy to ensure adequate capacity to remove surface and foul water.
- Chamfers and fins are included on the façade of the building to reduce wind acceleration and provide pedestrian comfort and safety. The chamfers and fins also act as visual interest, particularly the chamfters to the corner of Longacre & Great Ancoats Street and improves the overall slenderness and visual form of the building.
- A full height perimeter screen will be erected around the resident's garden and roof terrace to further reduce wind acceleration and provide residents comfort and safety.
- A Framework Travel Plan has been prepared for the Proposed Development, which contains a package of measures designed to encourage residents to travel by sustainable modes and discourage single occupancy car travel.

23.8 Each environmental assessment refers to the embedded mitigation measures that are applicable to their assessment.

23.9 This commitment to embedded mitigation has resulted in relatively few likely significant environmental effects being identified. A small number of likely significant effects do however arise and, for these, additional mitigation over and above that which is 'embedded' is proposed to reduce the significance of the effect.

**Additional Mitigation**

23.10 Beyond the 'embedded' mitigation measures of the Proposed Development, additional mitigation measures have been identified by the environmental assessments to reduce significant effects. In addition, mitigation has also been proposed where the effect is not significant in EIA terms, but the identified mitigation will secure environmental best practice. In summary, the additional mitigation comprises:

- Preparing and implementing a Construction Environmental Management Plan (CEMP) to manage the construction of the Proposed Development.
- Implementation (through the CEMP) to include high quality hoardings that will be used to limit visual impacts during the construction phase at street level.
- Completion of archaeological fieldworks, followed by analysis of the findings and publication and dissemination of the results in line with archaeological practice.
- Implementation of Dust Management Plan as part of the CEMP.
- Ground and first floor windows facing the A665 should be fixed, with mechanical ventilation installed. Air should be drawn from a height greater than then the second floor, ideally roof level.
- Pre-demolition asbestos survey to be completed and removed as necessary.
- Use of PPE by ground workers and dust suppression measures.
- Enabling and construction works will be restricted to daytime hours (i.e. between 08:00 and 18:00 hours Monday to Friday and 08:00 to 13:00 hours on a Saturday, with no work on Sunday and Bank Holidays).
- Use temporary screens during construction activities which are taking place within close proximity to noise sensitive receptors.

- All machinery will be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers.
- Site staff will be made aware that they are working adjacent to a sensitive area and avoid all unnecessary noise due to misuse of tools and equipment, unnecessary shouting and radios.
- As far as possible, the avoidance of two noisy operations occurring simultaneously in close proximity to the same sensitive receptor.
- Ensure engines are turned off when possible.
- Where reasonably practicable, plant and or methods of work likely to cause significant levels of vibration at the receptors identified will be replaced by less intrusive plant/methods of working. A detailed strategy will be prepared to mitigate effects from piling once the piling method is known.
- Include trickle ventilators and constant Mechanical Extract Ventilation (MEV) systems into the development.
- Sound insulation performance of the non-glazed elements of the building façade will meet the following levels:

**Suggested Non-Glazed Façade Element Sound Insulation**

| Description | Sound Insulation Values (R, dB) per Octave Band (Hz) | | | | | | | $R_{w+C_{tr}}$ |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | |
| Non-Glazed Façade Element | 30 | 39 | 50 | 60 | 65 | 65 | 65 | 55 |

23.11 Limit noise emissions associated with any ancillary equipment will be limited to the values presented in the table below:

| | Maximum Noise Rating Levels $L_{Ar, Tr}$ | |
|---|---|---|
| | Daytime (0700:2300) $L_{Ar, 1\ hour}$ | Night Time (2300-0700) $L_{Ar,15min}$ |
| Proposed Development | • 51 | • 47 |

- Completion of a Site investigation to provide data that will be used by professionals to design foundations correctly.
- Completion of a Site investigation to provide data that will be used by professionals to design gas protection measures as necessary.
- Completion of a pre-demolition asbestos survey and removal as necessary.
- Restoration of the baseline television service (if affected by development).
- Providing the opportunity for local labour resources to be used where possible, including encouraging recruitment through local press and job centres.
- Encouraging products and services to be procured locally.
- Ensure surveillance of gaps between buildings and clearly define the use of external spaces to avoid criminal misuse or abuse.
- Design rainwater pipes to prevent use as climbing aids.
- Installation of street and open space lighting.

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Plan the construction site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Surface water flow paths will be established and groundwater levels monitored to establish the risk of surface water inundating excavations. Suitable measures including pumping/dewatering will be implemented as necessary.
- Implementation of a Health and Safety Plan including localised hazards such as flooding to excavations, working near to or within existing and new drainage features as well as adequate and safe access to and egress from the site both for workers on site and emergency services plus the potential for contamination of flood water.
- Preparation and implementation of a Wind Mitigation Strategy prior to the construction of the Proposed Development.
- Restoration of the baseline television service.
- Trees and soft landscaping will be incorporated into the public realm design, which will be implemented pursuant a separate planning permission. An application for the public realm has been submitted (ref. 121467/FO/2018). The Proposed Development will contribute financially towards the delivery of new public realm.

23.12 Full details of the additional mitigation measures can be found within the individual assessment chapters of the ES.

## Implementation, Management and Monitoring

23.13 The implementation of the mitigation measures will be secured by way of planning condition.

23.14 The implementation of the embedded and additional mitigation measures will be managed and monitored through various techniques applicable to the specific type of mitigation. Where relevant, the implementation and monitoring to be undertaken has been identified in each technical chapter.

23.15 Construction will be monitored to ensure that works are in line with the appropriate method statements. This will be the responsibility of the Main Contractor and the Construction (Design & Management) Co-ordinator for the works.

**Table 23.1: Environmental Management and Residual Effects**

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Townscape and Visual | | | | |
| **Construction Phase** | | | | |
| 1 Longacre Street | Minor adverse<br>Not significant | Implementation of a CEMP to include high quality hoardings that will be used to limit visual impacts during the construction phase at street level | Minor adverse<br>Not significant | Not significant |
| 2 Piccadilly Village | Moderate Adverse<br>Significant | | Moderate Adverse<br>Significant | **Significant Adverse** |
| 3 Ashton Canal Tow Path | Moderate Adverse<br>Significant | | Moderate Adverse<br>Significant | **Significant Adverse** |
| 4 Ashton Canal Tow Path | Moderate Adverse<br>Significant | | Moderate Adverse<br>Significant | **Significant Adverse** |
| 5 Carruthers Street | Minor adverse<br>Not significant | | Minor adverse<br>Not significant | Not significant |
| 6 Old Mill Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 7 Old Mill Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 8 Merrill Street | Minor Adverse<br>Not significant | | Minor Adverse<br>Not significant | Not significant |

[13] Taking embedded mitigation measures into account

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| 9 A662 Ring Road | Moderate Adverse<br>Significant | | Moderate Adverse<br>Significant | **Significant Adverse** |
| 10 A665 Ring Road | Minor beneficial<br>Not significant | | Minor beneficial<br>Not significant | Not significant |
| 11 A665 Ring Road | Negligible<br>Not Significant | | Negligible<br>Not Significant | Not significant |
| 12 Cotton Fields Park | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 13 A665 Ring Road | Minor beneficial<br>Not Significant | | Minor beneficial<br>Not Significant | Not significant |
| 14 A665 Ring Road | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 15 Fairfield Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 16 Manchester Piccadilly | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 17 Old Mill Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 18 Lever Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| 19 Red Hill Street | Minor<br>Not significant | | Minor<br>Not significant | Not significant |
| 20 Baird Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| **Operational Phase** | | | | |
| 1 Longacre Street | Minor Beneficial<br>Not significant | Not applicable | Minor Beneficial<br>Not significant | Not significant |
| 2 Piccadilly Village | Moderate Beneficial<br>Significant | | Moderate Beneficial<br>Significant | **Significant (Beneficial)** |
| 3 Ashton Canal Tow Path | Moderate Beneficial<br>Significant | | Moderate Beneficial<br>Significant | **Significant (Beneficial)** |
| 4 Ashton Canal Tow Path | Moderate Beneficial<br>Significant | | Moderate Beneficial<br>Significant | **Significant (Beneficial)** |
| 5 Carruthers Street | Minor Beneficial<br>Not significant | | Minor Beneficial<br>Not significant | Not significant |
| 6 Old Mill Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 7 Old Mill Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 8 Merrill Street | Minor Beneficial | | Minor Beneficial | Not significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| | Not significant | | Not significant | |
| 9 A662 Ring Road | Moderate Beneficial<br>Significant | | Moderate Beneficial<br>Significant | **Significant (Beneficial)** |
| 10 A665 Ring Road | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 11 A665 Ring Road | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 12 Cotton Fields Park | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 13 A665 Ring Road | Minor Beneficial<br>Not significant | | Minor Beneficial<br>Not significant | Not significant |
| 14 A665 Ring Road | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 15 Fairfield Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 16 Manchester Piccadilly | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 17 Old Mill Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| 18 Lever Street | Negligible | | Negligible | Not significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| | Not significant | | Not significant | |
| 19 Red Hill Street | Minor Beneficial<br>Not significant | | Minor Beneficial<br>Not significant | Not significant |
| 20 Baird Street | Negligible<br>Not significant | | Negligible<br>Not significant | Not significant |
| **Cumulative** | | | | |
| Same assessment results as operational phase | | | | |
| Built Heritage | | | | |
| **Construction Phase** | | | | |
| Grade II listed former Co-operative Warehouse | Minor adverse significance of effect (Not Significant) | A Construction Environmental Management Plan (CEMP) should be prepared and implemented which should include standard construction methods | Minor adverse significance of effect (Not Significant) | Not Significant |
| All other assets | Neutral Effect (Not Significant) | | Neutral Effect (Not Significant) | Not Significant |
| **Operational Phase** | | | | |
| All assets | Neutral Effect (Not Significant) | No mitigation required | Neutral Effect (Not Significant) | Not Significant |
| **Cumulative** | | | | |
| All assets | Minor Adverse (Not Significant) to Neutral Effect (Not Significant) | No mitigation required | Minor Adverse (Not Significant) to Neutral Effect (Not Significant) | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Archaeology | | | | |
| **Construction Phase** | | | | |
| Archaeological assets - remains of 19th century terraced housing and a timber yard | Slight /moderate Significant (adverse) | Archaeological fieldworks, followed by analysis of the findings and publication and dissemination of the results in line with archaeological practice – to form part of the CEMP | Slight and not significant | Not Significant |
| **Operational Phase** | | | | |
| No operational effects | | | | |
| **Cumulative** | | | | |
| No cumulative effects | | | | |
| Transport | | | | |
| **Construction Phase** | | | | |
| Driver Delay | Negligible (Not Significant) | Implementation of the CEMP, including:<br>Agreed traffic management measures to restrict construction vehicles in certain locations and routes at certain times of the day;<br>Travel Plan initiatives to encourage workers to travel to the site in a sustainable manner; and | None (Not Significant) | Not Significant |
| Pedestrian Delay and Amenity | Negligible (Not Significant) | | None (Not Significant) | Not Significant |
| Fear and Intimidation | Negligible (Not Significant) | | None (Not Significant) | Not Significant |
| Accidents and Safety | Negligible (Not Significant) | | None (Not Significant) | Not Significant |
| Severance | Negligible (Not Significant) | | None (Not Significant) | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| | | Considerate construction practices in relation to noise, air and dust and dirt | | |
| **Operational Phase** | | | | |
| Driver Delay | Negligible (Not Significant) | Implementation of the Travel Plan | None (Not Significant) | Not Significant |
| Pedestrian Delay and Amenity | Negligible (Not Significant) | | None (Not Significant) | Not Significant |
| Fear and Intimidation | Negligible (Not Significant) | | None (Not Significant) | Not Significant |
| Accidents and Safety | Negligible (Not Significant) | | None (Not Significant) | Not Significant |
| Severance | Negligible (Not Significant) | | None (Not Significant) | Not Significant |
| **Cumulative** | | | | |
| No significant cumulative effects will arise as a result of the Proposed Development in combination with other schemes. | | | | |
| Air Quality | | | | |
| **Construction Phase** | | | | |
| Construction Dust on nearby residential and commercial | High (Significant) | Implementation of Dust Management Plan as part of the CEMP | Negligible (Not Significant) | Not Significant |
| Construction traffic on nearby residential | Negligible (Not Significant) | n/a | Negligible (Not Significant) | Not Significant |
| **Operational Phase** | | | | |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Development residential | High (Significant) | Ground and first floor windows facing the A665 should be fixed, with mechanical ventilation installed. Air should be drawn from a height greater than then the second floor, ideally roof level | Negligible (Not Significant) | Not Significant |
| **Cumulative** | | | | |
| The Proposed Developments is not introducing any long-term emissions into the local area and is not having an impact on future background emissions | | | | |
| Noise and Vibration | | | | |
| **Construction Phase** | | | | |
| Construction<br>Noise | Negligible to Moderate Adverse (Not Significant) | Implementation of CEMP (including restrictions on working hours, the implementation of temporary screening (where possible) and best working practices) | Moderate Adverse/<br>Not Significant | Not Significant |
| Construction<br>Traffic | Negligible (Not Significant) | Implementation of CEMP (including ensuring engines are turned off when possible) | Negligible/<br>Not Significant | Not Significant |
| Construction Vibration | Moderate Adverse (**Significant**) | Based on assumptions regarding use of CFA piling<br>Implementation of CEMP | Short-term localised moderate impacts (Not Significant) | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| **Operational Phase** | | | | |
| Operational Traffic | Negligible (Not Significant) | No mitigation required beyond the proposed no car parking | Negligible /Not Significant | Not Significant |
| Operational HVAC | Minor Adverse (Not Significant) | Use of acoustic attenuators, enclosures and louvres with sizing and performance established during the design phase | Negligible/Minor/Not Significant | Not Significant |
| Operational Commercial Activity | Minor Adverse (Not Significant) | Use of appropriate acoustic design to the building fabric | Negligible / Not Significant | Not Significant |
| Vibration from Metrolink | Negligible (Not Significant) | No specific mitigation is required | Negligible / Not Significant | Not Significant |
| Proposed residential receptors | Substantial (Significant) | Appropriate glazing and ventilation scheme | Negligible / Not Significant | Not Significant |
| **Cumulative** | | | | |
| No material increase in noise level at the various receptor locations | | | | |
| Geology | | | | |
| **Construction Phase** | | | | |
| Demolition workers and Off-site users of buildings: Exposure to asbestos in demolished building materials | Major adverse and **significant** | Pre-demolition asbestos survey and removal as necessary | Negligible and not significant | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Demolition workers and Off-site users of buildings: Exposure to asbestos in residual Made Ground | Major adverse and **significant** | Use of PPE by ground workers and dust suppression measures | Negligible and not significant | Not Significant |
| **Operational Phase** | | | | |
| Building and occupants: Instability of structure due to settlement | Moderate adverse and **significant** | Site investigation to provide data that will be used by professionals to design foundations correctly | Negligible and not significant | Not Significant |
| Metrolink Tunnel and other nearby current/future developments with basements: Instability due to construction activities and basement structure | Major adverse and **significant** | Site investigation to provide data that will be used by professionals to design foundations to avoid impacts. | Negligible and not significant | Not Significant |
| Building and occupants: Ground gas risk | Moderate adverse and **significant** | Site investigation to provide data that will be used by professionals to design gas protection measures as necessary. | Negligible and not significant | Not Significant |
| **Cumulative** | | | | |
| No inter-project effects relating to contamination have been identified | | | | |
| Stability of the proposed building and that of neighbouring buildings and infrastructure | Minor and not significant | n/a | Minor and not significant | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Water Environment | | | | |
| **Construction Phase** | | | | |
| Receiving Public Sewer Contamination of run-off | Moderate adverse significance (Significant) | Adherence to good environmental site practices. These will be detailed in the Construction Environmental Management Plan (CEMP) | Negligible and Not Significant | Not Significant |
| Risk to construction workers | Moderate to major adverse significance (Significant) | Surface water flow paths will be established and groundwater levels monitored to establish the risk of surface water inundating excavations. Suitable measures including pumping/dewatering will be employed as necessary.<br><br>Health and Safety Plan should include localised hazards such as flooding to excavations, working near to or within existing and new drainage features as well as adequate and safe access to and egress from the site both for workers on site and emergency services plus the potential for contamination of flood water | Beneficial moderate significance (beneficial significant) | **Significant (Beneficial)** |
| **Operational Phase** | | | | |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Risk of Surface Water Flooding to Site Occupants and Employees | Negligible significance (not significant in EIA terms) | No mitigation is required beyond the implementation of measures designed into the scheme | Negligible significance and not significant | Not Significant |
| Increase in Foul Flows | Negligible significance (not significant in EIA terms) | No mitigation is required | Negligible significance and not significant | Not Significant |
| Increase in potable water demand | Negligible significance (not significant in EIA terms) | No mitigation is required | Negligible significance and not significant | Not Significant |
| **Cumulative** | | | | |
| Demand on water supply | Negligible significance (not significant in EIA terms) | No mitigation is required | Negligible significance and not significant | Not Significant |
| Ecology | | | | |
| **Construction Phase** | | | | |
| Ephemeral/Short Perennial Vegetation | Neutral and not significant | No mitigation is required | Neutral and not significant | Not Significant |
| Demolition of Existing Building | Neutral and not significant | No mitigation is required | Neutral and not significant | Not Significant |
| Rochdale Canal SBI | Neutral and not significant | No mitigation is required | Neutral and not significant | Not Significant |
| Ashton Canal SBI | Neutral and not significant | No mitigation is required | Neutral and not significant | Not Significant |
| **Operational Phase** | | | | |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Rochdale Canal SBI | Neutral and not significant | No mitigation is required | Neutral and not significant | Not Significant |
| Ashton Canal SBI | Neutral and not significant | No mitigation is required | Neutral and not significant | Not Significant |
| **Cumulative** | | | | |
| Since the Proposed Development is predicted to have a neutral effect on features of ecological interest, it is concluded that there would be no inter-project cumulative effects. | | | | |
| TV Interference | | | | |
| **Construction Phase** | | | | |
| Effects during construction are likely to be less noticeable during construction because there will be less physical obstruction of the signal whilst the Proposed Development is incomplete | | | | |
| **Operational Phase** | | | | |
| Terrestrial Television | Minor Adverse and Not Significant | Restoration of the baseline television service | Minor Adverse and Not Significant | Not Significant |
| Satellite Television | Minor Adverse and Not Significant | Restoration of the baseline television service | Minor Adverse and Not Significant | Not Significant |
| **Cumulative** | | | | |
| Inter-relationship effects are inherently covered within the scheduled television baseline reception survey and any mitigation implemented as a result of the Proposed Development in isolation | | | | |
| Wind Microclimate | | | | |
| **Construction Phase** | | | | |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Construction Site Users | Negligible (Not Significant), | n/a | Negligible (Not Significant) | Not Significant |
| **Operational Phase** | | | | |
| Thoroughfare locations where wind conditions are suitable for walking use | Minor-moderate adverse (not significant) | n/a | Minor-moderate adverse (not significant) | Not Significant |
| | Major Adverse (significant) effect by western corner of Proposed Development | Trees and soft landscaping within the public realm;<br>50% porous wind breaks on the Proposed Development | Negligible (not significant) | Not Significant |
| Wind conditions at entrance locations | Negligible (Not Significant) | n/a | Negligible (Not Significant) | Not Significant |
| Wind conditions at level 2 terrace | Major Adverse (significant) effect by western perimeter of terrace | Glass screens in balustrades around perimeter of level 2 terrace | Negligible (Not Significant) | Not Significant |
| Wind conditions at the public realm | Negligible (Not Significant) | n/a | Negligible (Not Significant) | Not Significant |
| **Cumulative** | | | | |
| Local Thoroughfares | Minor-moderate adverse (not significant) | n/a | Minor-moderate adverse (not significant) | Not Significant |
| | Major Adverse (significant) effect by western corner of proposed development | Trees and soft landscaping within the public realm; | Negligible (not significant) | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| | | 50% porous wind breaks on the Proposed Development | | |
| Building Entrances | Negligible (Not Significant) | n/a | Negligible (Not Significant) | Not Significant |
| Public realm | Negligible (Not Significant) | n/a | Negligible (Not Significant) | Not Significant |
| Level 2 Terrace | Major Adverse (significant) effect by western perimeter of terrace | Glass screens in balustrades around perimeter of level 2 terrace | Negligible (Not Significant) | Not Significant |
| Daylight, Sunlight and Overshadowing | | | | |
| **Construction Phase** | | | | |
| Demolition of the existing structures | Negligible significance of effect (not significant) | n/a | Negligible significance of effect (not significant) | Not Significant |
| Construction of the new building | Negligible significance of effect (not significant) | n/a | Negligible significance of effect (not significant) | Not Significant |
| **Operational Phase** | | | | |
| Daylight Effects: Ibis Hotel | Minor adverse (not significant) | n/a | Minor adverse (not significant) | Not Significant |
| Daylight Effects: Quantum Apartments | Moderate-minor adverse (not significant) | n/a | Moderate-minor adverse (not significant) | Not Significant |
| Daylight Effects: 1 Adair Street | Minor adverse (not significant) | n/a | Minor adverse (not significant) | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Daylight Effects: Land at Portugal Street East | Negligible (not significant) | n/a | Negligible (not significant) | Not Significant |
| Sunlight Effects: Quantum Apartments | Negligible significance of effect (not significant) | n/a | Negligible significance of effect (not significant) | Not Significant |
| Sunlight Effects: Land at Portugal Street East | Negligible (not significant) | n/a | Negligible (not significant) | Not Significant |
| **Cumulative** | | | | |
| Developments considered as part of baseline assessment and results are as per assessments above. | | | | |
| Socio-Economics | | | | |
| **Construction Phase** | | | | |
| Direct and Induced Employment | Intermediate beneficial, **significant** | Providing the opportunity for local labour resources to be used where possible, including encouraging recruitment through local press and job centres; and,<br>Encouraging products and services to be procured locally. | Intermediate beneficial and **significant** | **Significant (beneficial)** |
| **Operational Phase** | | | | |
| Population | Intermediate beneficial, **significant** | None | Intermediate beneficial and **significant** | **Significant (beneficial)** |
| Housing | Minor beneficial, **not significant** | None | Minor beneficial, **not significant** | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Direct Employment | Minor beneficial, not significant | None | Minor beneficial, not significant | Not Significant |
| Primary Education provision | Neutral, not significant | None | Neutral, not significant | Not Significant |
| Secondary Education Provision | Neutral, not significant | None | Neutral, not significant | Not Significant |
| Open Spaces | Neutral, not significant | None | Neutral, not significant | Not Significant |
| Crime and Disorder | Minor adverse, not significant | Ensure surveillance of gaps between buildings and clearly define the use of external spaces to avoid criminal misuse or abuse;<br><br>Design rainwater pipes to prevent use as climbing aids;<br><br>Install street and open space lighting | Minor adverse, not significant | Not Significant |
| **Cumulative** | | | | |
| Construction employment | Intermediate beneficial, **significant** | None | Intermediate beneficial and **significant** | **Significant (beneficial)** |
| Housing Provision | Major beneficial, **significant** | None | Major beneficial, **significant** | **Significant (beneficial)** |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Population impacts | Major beneficial, **significant** | None | Major beneficial, **significant** | **Significant (beneficial)** |
| Direct employment opportunities | Intermediate beneficial, **significant** | None | Intermediate beneficial and **significant** | **Significant (beneficial)** |
| Deprivation | Intermediate beneficial, **significant** | None | Intermediate beneficial and **significant** | **Significant (beneficial)** |
| School provision | Negligible (not significant) | None | Negligible (not significant) | Not Significant |
| Crime and Disorder | Negligible (not significant) | None | Negligible (not significant) | Not Significant |
| Human Health | | | | |
| **Construction Phase** | | | | |
| Air Quality related effects on human health | Minor adverse and not significant | Implementation of CEMP | Minor adverse and not significant | Not Significant |
| **Operational Phase** | | | | |
| Air Quality | Intermediate adverse and **Significant** | Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;<br>Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken; | Minor, adverse and not significant | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| | | Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible; and,<br>Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.<br>Windows on the A665, Great Ancoats side of the building should be fixed | | |
| Healthcare provision | Minor adverse and not significant | None | Minor adverse and not significant | Not Significant |
| **Cumulative** | | | | |
| Healthcare provision | Minor neutral and not significant | Mitigate any pressure on health services by following the guidance in Circular 5/2005, planning obligations under Section 106 of the Town and Country Planning Act 1990 | Minor neutral and not significant | Not Significant |
| Climate Change | | | | |
| **Construction Phase** | | | | |
| Effects on Climate Change | Neutral, not significant | Measures included within a CEMP | Neutral, not significant | Not Significant |
| Vulnerability to Climate Change | Intermediate adverse, **significant** | Measures included within a CEMP | Neutral, not significant | Not Significant |
| **Operational Phase** | | | | |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Effects on Climate Change | Neutral, not significant | No additional measures | Neutral, not significant | Not Significant |
| Vulnerability to Climate Change | Neutral, not significant | No additional measures | Neutral, not significant | Not Significant |
| **Cumulative** | | | | |
| **Intra-project cumulative effects** | | | | |
| Construction: Effects on Climate Change | Neutral, not significant | Measures included within a CEMP | Neutral, not significant | Not Significant |
| Construction: Vulnerability to Climate Change | Neutral, not significant | Measures included within a CEMP | Neutral, not significant | Not Significant |
| Operation: Effects on Climate Change | Neutral, not significant | None | Neutral, not significant | Not Significant |
| Operation: Vulnerability to Climate Change | Neutral, not significant | None | Neutral, not significant | Not Significant |
| **Inter project cumulative effects** | | | | |
| Construction: Effects on Climate Change | Neutral, not significant | CEMPs produced for all individual developments | Neutral, not significant | Not Significant |
| Construction: Vulnerability to Climate Change | Insufficient information to assess | | | |
| Operation: Effects on Climate Change | Neutral, not significant | No additional mitigation other than embedded mitigation within the design | Neutral, not significant | Not Significant |

| Environmental Receptor | Initial Assessment of Significance of Effect[13] | Additional Mitigation | Residual Effect | Significant |
|---|---|---|---|---|
| Operation: Vulnerability to Climate Change | Insufficient information to assess | | | |

## Summary and Conclusion

23.16 The Proposed Development is being brought forward in the context of an evolving area being driven by the PSE SRF. Forshaw's ambition for the PDS and surrounding area is to create a new neighbourhood district that responds to the emerging residential user and required uses. This new neighbourhood will be distinctive and tailored to the PSE SRF area, creating a strong identity for the emerging neighbourhood. This requires development to change from a highways focussed environment that is anchored in the industrial history, into an area which relates to its future and setting within the context of the wider regeneration surrounding Piccadilly.

23.17 The Proposed Development will deliver **significant beneficial effects** of an intermediate scale during the construction phase on employment, and during the operational phase on the population. The cumulative impacts with other developments in the area will also result in **significant beneficial effects** on construction employment, other employment, housing provision, population, and deprivation.

23.18 The Proposed Development will deliver **significant beneficial effects** of a moderate scale on the long term townscape and views from Piccadilly Village, Ashton Canal Tow Path, and the A662 Ring Road. There will be some **significant adverse effects** to the townscape and visual receptors during the construction of the Proposed Development of a moderate scale. These will be short term in duration for the construction period, and are unavoidable for a development of this scale and nature, and are reversible.

23.19 There will be a **beneficial significant effect** of a moderate scale effect on the safety of construction workers following the implementation of mitigation measures to reduce risk of flooding. Following mitigation, there are no other beneficial or adverse significant effects as a result of, or on, the water environment.

23.20

23.21 Following the implementation of mitigation measures, the following environmental assessments do not identify any significant (adverse or beneficial) effects as a result of the construction or operation of the Proposed Development: built heritage, archaeology, transport, noise and vibration, ecology, air quality, ground conditions, day light and sunlight, noise and vibration, wind micro-climate, climate change, TV receptions, and human health.

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