



Environmental Statement – Volume 1

Port Street

December 2021

Important notice: This Environmental Statement has been prepared for Manchester (Port Street) Limited by Deloitte, with technical input from Renaker Build Limited, WSP, GIA, Stephen Levrant Heritage Architecture, Enfusion, Fisher Acoustics, Amion, and Reform “the Consultants”. Chapter 1, Volume 1 of this Environmental Statement sets out the parties responsible for preparing each Chapter and associated figures and appendices.

Although we have read the Consultants’ reports for consistency and provide our observations based on our knowledge and experience, we accept no liability or responsibility for the Consultant’s Reports and will not be responsible for the technical content of Chapters 5-13, Volume 1, nor Volumes 2 – 3, nor the technical content of the associated separate Non-Technical Summary.

The information contained within this report is provided to assist Manchester (Port Street) Limited with this Planning Application. The report makes use of a range of third party data sources. Whilst every reasonable care has been taken in compiling this report, Deloitte LLP and the Consultants cannot guarantee its accuracy.

All copyright and other proprietary rights in the report remain the property of Deloitte LLP, Renaker Build Limited, WSP, GIA, Stephen Levrant Heritage Architecture, Enfusion, Fisher Acoustics, Amion, and Reform and any rights not expressly granted in these terms or in the contract between Deloitte LLP and Manchester (Port Street) Limited are reserved.

No party other than Manchester (Port Street) Limited is entitled to rely on the report for any purpose whatsoever and thus Deloitte LLP and the Consultants accept no liability to any other party who is shown or gains access to this document.

Deloitte LLP is a limited liability partnership registered in England and Wales with registered number OC303675 and its registered office at 1 New Street Square, London, EC4A 3HQ, United Kingdom.

Deloitte LLP is the United Kingdom affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee (“DTTL”). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients. Please see www.deloitte.com/about to learn more about our global network of member firms. Real Estate Services regulated by RICS.

© 2021 Deloitte LLP. All rights reserved.

Contents

List of Appendices

List of Figures

1.	Introduction	1
2.	Environmental Impact Assessment Methodology	8
3.	Alternatives and Design Evolution	15
4.	Site, Surroundings and Description of Proposals	19
5.	Construction Management and Phasing	28
6.	Climate Change	37
7.	Daylight, Sunlight and Overshadowing	68
8.	Heritage	88
9.	Human Health	101
10.	Noise and Vibration	118
11.	Socio-Economic Impact	140
12.	Townscape and Visual Impacts	160
13.	Wind Microclimate	217
14.	Summary of Residual Impacts	228
15.	Type 1 Cumulative Impacts	238

List of Appendices

Chapter 1: Introduction

No appendices

Chapter 2: Environmental Impact Assessment Methodology

Appendix 2.1 – ES Scoping Report

Appendix 2.2 – Committed Developments

Appendix 2.3 – ES Scoping Opinion

Chapter 3: Alternatives and Design Evolution

No appendices

Chapter 4: Site, Surroundings and Description of Proposals

No appendices

Chapter 5: Construction Management and Phasing

No appendices

Chapter 6: Climate Change

No appendices

Chapter 7: Daylight, Sunlight and Overshadowing

Appendix 7.1 – Drawings of the Baseline and Proposed Scenario;

Appendix 7.2 – Daylight and Sunlight Results for Baseline v Proposed;

Appendix 7.3 – Drawings of the Piccadilly Basin Strategic Regeneration Framework massing; and

Appendix 7.4 – Daylight and Sunlight results for the Piccadilly Basin Strategic Regeneration Framework massing.

Chapter 8: Heritage

Appendix 8.1 - Heritage Statement

Chapter 9: Human Health

No appendices

Chapter 10: Noise

Appendix 10.1 – Acoustic Report

Chapter 11: Socio-Economic

Appendix 11.1 - Socio-economic baseline assessment

Appendix 11.2 – Socio-economic Receptor Plan

Chapter 12: Townscape and Visual Impact

Appendix 12.1 – Figures

Appendix 12.2 – TVA Assessment Methodology

Appendix 12.3 - Methodology for producing views and photomontages

Appendix 12.4 - Committed Developments

Appendix 12.5 - Accurate Visual Representations

Chapter 13: Wind Microclimate

Appendix 13.1 - Wind Microclimate Detailed Methodology

List of Figures

Chapter 1: Introduction

Figure 1.1 – Site Location Plan

Chapter 2: Environmental Impact Assessment Methodology

No figures.

Chapter 3: Alternatives and Design Evolution

Figure 3.1 – Manchester City Council Brownfield Land Register 2020

Chapter 4: Site, Surroundings and Description of Proposals

Figure 4.1. - Listed Buildings and Structures

Chapter 5: Construction Management and Phasing

Figure 5.1 – Logistics Plan

Chapter 6: Climate Change

Figure 6.1 – Site Location Plan

Figure 6.2 – Proposed Ground Floor plan

Chapter 7: Daylight, Sunlight and Overshadowing

Figure 7.1 - Alternative Baseline Using SRF Massing

Figure 7.2 - Alternative Baseline Using SRF Massing

Chapter 8: Heritage

Figure 8.1 - Listed Buildings and Structures

Chapter 9: Human Health

Figure 9.1 - The Determinants of Health and Wellbeing

Chapter 10: Noise

Figure 10.1 – Nearest noise sensitive residential premises

Figure 10.2 – Transient vibration guide values for cosmetic damage

Figure 10.3 – Noise survey measurement locations

Chapter 11: Socio-Economic

Figure 11.1 - Approach to calculating net additional impact

Figure 11.2 - Indexed population change for Manchester (2011-2020)

Figure 11.3 - Unemployment rate (2011-2021)

Figure 11.4 - English Indices of Deprivation – Manchester

Chapter 12: Townscape and Visual Impact

Figure 12.1 – Study Area

Figure 12.2 – Zone of Theoretical Visibility (ZTV)

Figure 12.3 – Urban Grain

Figure 12.4 – Existing Building Heights

Figure 12.5 – Heritage Designations

Figure 12.6 – Strategic Designations (SRF)

Figure 12.7 – Movement Typologies

Figure 12.8 – Topography

Figure 12.9 – Cumulative Sites

Figure 12.10 – Townscape Character Areas (TCAs)

Figure 12.11 - Viewpoints

Chapter 13: Wind Microclimate

No figures

1. Introduction

- 1.1. This Environmental Statement ('ES') accompanies an application for Full Planning Permission to deliver a residential-led development with ground floor commercial uses, car and cycle parking and public realm at Port Street ('the Site'). The Applicant is Manchester (Port Street) Limited.
- 1.2. The Site comprises 0.48 hectares of previously developed land located within the northern edge of Manchester City Centre and falls within the Piccadilly Basin Strategic Regeneration Framework (SRF) area. The Site is bounded by Great Ancoats Street to the north, Brownsfield Mill and a surface car park to the east, a surface car park to the south and Port Street to the west.
- 1.3. The Site currently comprises brownfield land in the form of a surface level car. A site location plan is shown at Figure 1.1.
- 1.4. The Planning Application seeks permission for the following description of development:
- "Full Planning Permission for the erection of a part-34, part-11 storey residential building with associated residents' amenity space including gym (Use Class C3), commercial space (Use Class E), basement car parking, cycle parking, landscaping, and other associated works"*
- 1.5. The Proposed Development is outlined in detail at Chapter 4 of this ES and is hereafter referred to as the 'Proposed Development'.
- 1.6. The ES sets out the findings of an Environmental Impact Assessment (EIA) carried out in respect of the Proposed Development of the Site.

Requirements for EIA

- 1.7. The EIA process is the mechanism by which development proposals are appraised in terms of their likely environmental effects, in addition to engineering and technical considerations.
- 1.8. The purpose of the EIA is to establish the nature of the Proposed Development and the environment in which it is likely to take place, during both construction and operational phases, so as to identify the likely significant effects on the environment. The assessment compares the existing situation at the start of the work (baseline) with the situation during demolition (as relevant) and construction, and when the Proposed Development is operational.
- 1.9. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the "EIA Regulations") require that any Proposed Development falling within the description of a 'Schedule 2 development' (as defined within the meaning of the EIA Regulations), will be subject to an EIA where such development is likely to have 'significant' effects on the environment by virtue of such factors as its nature, size or location (EIA Regulation Schedule 3).
- 1.10. The Proposed Development is considered to fall under the category of 'urban development projects' (EIA Regulations Schedule 2, 10, (b)) where:
- The development includes more than 1 hectare of urban development which is not a dwellinghouse development; or
 - The development includes more than 150 dwellings; or
 - The overall area of the development exceeds 5 hectares.
- 1.11. In accordance with the EIA Regulations, this ES sets out the following information:

- A description of the development, including in particular:
 - a) a description of the location of the development;
 - b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;
 - c) a description of the main characteristics of the operational phase of the development; and,
 - d) an estimate, by type and quantity, of expected residues and emissions during the construction and operation phases.
- A description of the reasonable alternatives studied, 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.
- A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.
- A description of the factors specified in regulation 4(2) likely to be significantly affected by the development.
- A description of the likely significant effects of the development on the environment resulting from, inter alia:
 - a) the construction and existence of the development, including, where relevant, demolition works;
 - b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;
 - c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;
 - d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);
 - e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;
 - f) 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; and,
 - g) the technologies and the substances used.
- A description of the likely significant effects on the factors specified in Regulation 4(2) that covers the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
- A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.
- A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis).
- A description of the expected significant adverse 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 concerned.
- A non-technical summary of the information.
- A reference list detailing the sources used for the descriptions and assessments included.

Project Team

- 1.12. Deloitte has extensive experience and expertise in managing the EIA process and holds the IEMA EIA Quality Mark. Deloitte has managed the EIA process and the production of the ES for Port Street and has received technical input from a range of suitably qualified and experienced technical consultees, together “the Consultants”.

Table 1.1 ES Project Team

Topic	Assessment carried out by	Qualifications
Town Planning, EIA Coordination	Deloitte LLP	RTPI, RICS, IEMA EIA Quality Mark
Architect	Simpson Haugh and Partners	RIBA
Climate Change	WSP	BSc, BArch, MSc, Qualified BREEAM Assessor, CIBSE Affiliate Member, BREEAM AP, CEnv.
Daylight, Sunlight and Overshadowing	GIA	BSc, MSc, CIHT, CILT
Heritage	Stephen Levrant Heritage Architecture	BA(Hons), MA, MSc, IHBC
Human Health	Enfusion	BSc, MSc, CEnv, FIEMA
Noise and Vibration	Matt Fisher Acoustics	BEng (Hons) CEng MIOA
Socio-Economic Issues	Amion	MSc
Townscape and Visual Impact	ReForm	BA (Hons), BSc (Hons), MA, BLA, CMLI, MA
Wind Microclimate	GIA	MEng, CEng, FICE

Organisation of the Environmental Statement

- 1.13. This ES comprises 15 chapters and is supported by figures (located at the back of each chapter within Volume 1) and technical appendices (within a separate Volume 2). A Non-Technical Summary (‘NTS’) of the full ES is provided as a separate standalone document.
- 1.14. Figures have been referenced using the chapter numbers as a prefix followed by the number of the figure within a given chapter. Appendices have been referenced in the same way but due to their size they are constrained separately in Volume 2.
- 1.15. **Important notice:** This Environmental Statement has been prepared by Deloitte, with technical input from the Consultants. Table 1.2 below sets out the parties responsible for the technical content within Chapters 5-13 of this ES. Although we have read the Consultants’ reports for consistency and provide our observations based on our knowledge and experience, we accept no liability or responsibility for the Consultants’ Reports and the technical content within Chapters 5-13 of this ES.
- 1.16. Table 1.2 sets out the structure of the ES.

Table 1.2 ES Structure

Chapter No.	Chapter Title	Responsibility	Description
Volume 1			
1.	Introduction	Deloitte	Introduction to the ES, EIA requirements, details of the project team, ES organisation and availability.
2.	EIA Methodology	Deloitte	Methods used to prepare each chapter, description of ES structure and content, generic significance criteria, scoping and consultation.
3.	Alternatives and Design Evolution	Deloitte with input from Simpson Haugh and Partners ('SHP')	Outline of the main alternatives considered by the Applicant.
4.	Site, Surroundings and Description of Development	Deloitte with input from SHP	Site description and details of the Proposed Development.
5.	Construction Management and Phasing	Renaker Build Ltd	Details of anticipated programme for development and construction methodology are also included.
6.	Climate Change	WSP	Assessment of the Proposed Development and its potential impact in relation to climate change.
7.	Daylight, Sunlight and Overshadowing	GIA	Assess the effects of the Proposed Development on sunlight and daylight as well as overshadowing impacts on amenity areas/public spaces.
8.	Heritage	Stephen Levrant Heritage Architecture	Assess the potential impact the Proposed Development may have on the nearby historical setting.
9.	Human Health	Enfusion	Assess the potential impact the Proposed Development may have on human health.
10.	Noise and Vibration	Matt Fisher Acoustics	Assessment of effects relating to noise and vibration.
11.	Socio-Economic Issues	Amion	Effects of the Proposed Development on socio-economic receptors
12.	Townscape and Visual Impact	Reform	Potential impacts and likely effects of the Proposed Development on the townscape character and visual amenity of the site and the surrounding area.
13.	Wind Microclimate	GIA	Assess impacts on pedestrian comfort and safety as a consequence of wind effects.
14.	Residual Impacts	Based on conclusions of technical chapters	Summary of the effects that remain after mitigation.
15.	Type 1 Cumulative Impacts	Deloitte	Review of inter project effects, which are combined effects arising from the Proposed Development on defined sensitive receptors.

Chapter No.	Chapter Title	Responsibility	Description
	Volume 2 – Technical Appendices		
	Volume 3 - Non-Technical Summary		

Other Documents

- 1.17. Together with the ES, the following documents in Table 1.3 will be submitted to Manchester City Council (MCC) and the Local Planning Authority (LPA) in support of the Planning Application.

Table 1.3: List of documents submitted in support of this Planning Application.

Document	Prepared By
Location Plan	SHP
Existing Site Plans	SHP
Proposed Application Drawings – Proposed Plans, Elevations and Sections, including accommodation schedule.	SHP
Public Realm Strategy	Reform
Fully verified photomontages	Our Studio
Planning and Tall Building Statement	Deloitte
Statement of Consultation	Deloitte
Design and Access Statement	SHP
Air Quality Assessment	Hoare Lee
Archaeological Desktop Assessment	Salford Archaeology
Blue and Green Infrastructure Statement	Deloitte
Broadband Connectivity Assessment	Pager Power
Crime Impact Statement	GMP
Ground Conditions Report	WSP
Ecological Appraisal	Penny Anderson
Environmental Standards Statement	WSP
Energy Statement	FutureServ
Sustainability Statement	WSP
Fire Strategy	Design Fire Consultants
Flood Risk and Drainage Strategy	WSP

Document	Prepared By
Local Labour Agreement – Statement of Intent	Vita
Management Strategy	Vita
Site Waste Management and Servicing Strategy	Curtins
TV Reception Survey	Pager Power
Transport Statement	Curtins
Travel Plan	Curtins
Ventilation Strategy	Futureserv
Viability Assessment	Vita

Environmental Statement Availability

- 1.18. The ES is available for public viewing on MCC's Public Access website at the following address:
<http://pa.manchester.gov.uk/online-applications/> once the application has been submitted and validated.
- 1.19. The ES may be purchased in volumes, the costs of which are set out below:
- Volume 1: ES Main Text and Figures - £150
 - Volume 2: ES Appendices - £150
 - Volume 3: Non-Technical Summary (NTS) - £15
 - Full Copy (Volumes 1, 2 and 3) of the ES on CD - £15
- 1.20. For copies of any of the above, please contact the Manchester Planning Team at Deloitte:
- Port Street Team – Planning and EIA
Deloitte
The Hanover Building
Corporation Street
Manchester
M4 4AH

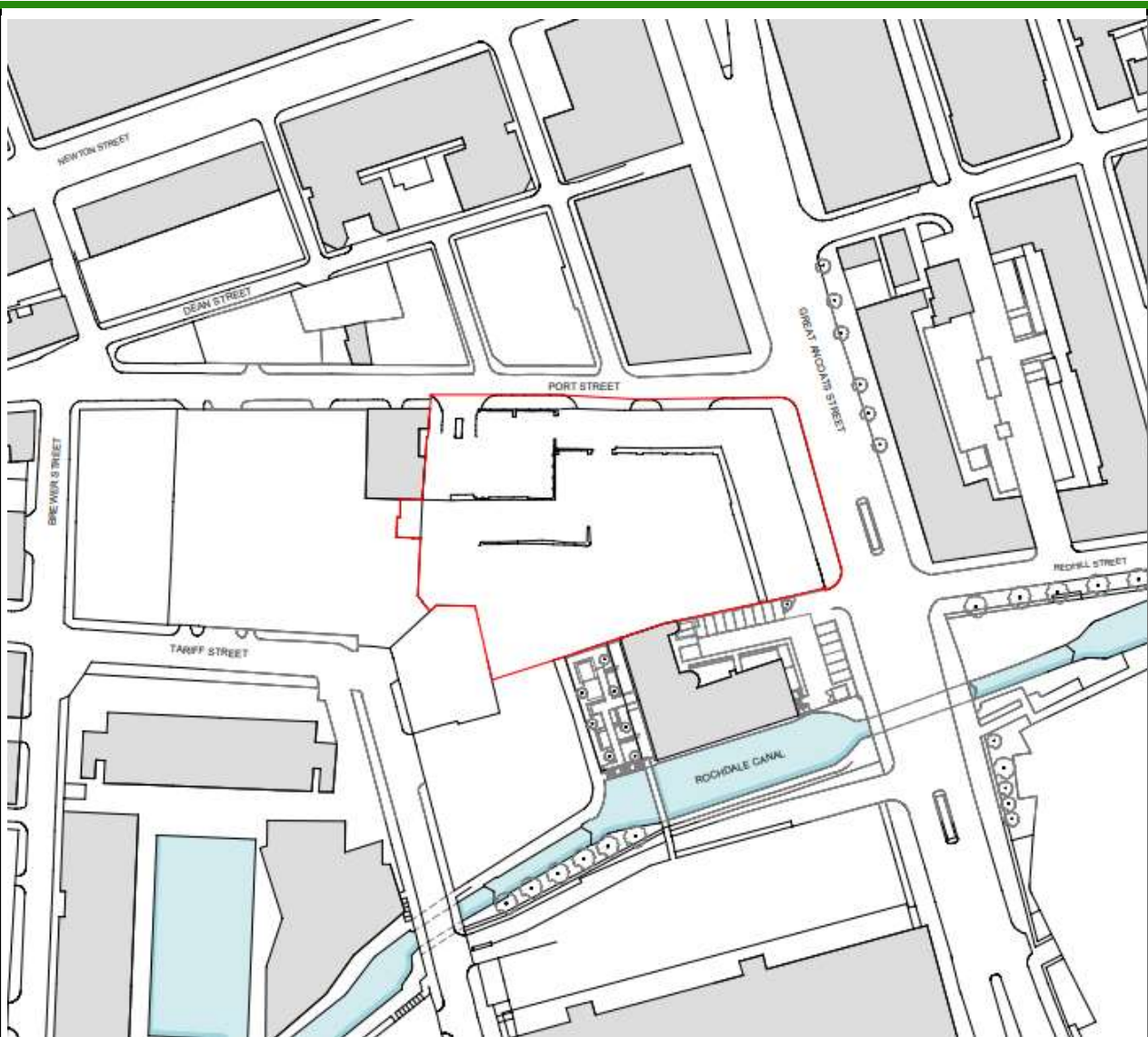


	Figure:	1.1		
	Title:	Site Plan (Simpson Haugh)		
	Project:	Port Street		
	Date:	November 2021	Scale:	NTS

2. Environmental Impact Assessment Methodology

Introduction

- 2.1. This Chapter sets out the methodology used to prepare each Chapter of the ES and describes its structure and content. In particular, it sets out the process of identifying and assessing the likely significant effects of the Proposed Development on the environment as defined in Chapter 1 and described in detail in Chapter 4.
- 2.2. It is accompanied by the following technical appendices:
- Appendix 2.1 –ES Scoping Report
 - Appendix 2.2 – Committed Developments
 - Appendix 2.3 – ES Scoping Opinion

Legislation and Guidance

- 2.3. The ES has been prepared to comply with EIA Regulations, which implement European Council Directive No. 85/337/EEC as amended by Directive 2014/52/EU and entered into force on 17 May 2017.
- 2.4. Reference has also been made to currently available good practice guidance in EIA including:
- The European Commission’s numerous EIA guidance documents available here: <http://ec.europa.eu/environment/eia/eia-support.htm>
 - National Planning Practice Guidance – Department for Communities and Local Government (March 2014 and continuously updated as a ‘live’ resource)
 - Reference has been made to the Institute of Environmental Management and Assessment (IEMA) publications, including:
 - IEMA ES Review Criteria
 - IEMA Guidelines for Environmental Impact Assessment (2004)
 - IEMA Special Report into the State of Environmental Impact Assessment Practice in the UK (2011)
 - IEMA Shaping Quality Development (2015)
 - IEMA Delivering Quality Development (2016)
 - IEMA Delivering a Proportionate EIA (2017)
- 2.5. The ES has also had regard to the National Planning Policy Framework 2021 (NPPF). The NPPF sets out the Government’s economic, environmental and social planning policies for England, articulating the Government’s aspiration for sustainable development. The NPPF has been considered where it is relevant to EIA.
- 2.6. It is considered that there is no relevant regional planning policy and guidance of relevance to this ES.
- 2.7. As relevant to the ES technical chapter’s scope, methodology and assessment of effects, key local planning policy and guidance documents have been considered. These include:
- Manchester City Council Core Strategy (2012)

- Saved Unitary Development Plan Policies (1995)
- 2.8. Any additional planning policy or guidance documents considered relevant have been identified within the relevant technical chapters.

Screening, Scoping and Consultation

- 2.9. An EIA Scoping Opinion Request was issued to MCC on the 12 October 2021 (see Appendix 2.1) and a formal scoping opinion was received on 16 November 2021 (see Appendix 2.3). As part of this process the EIA set out that the following disciplines were found to not give rise to likely significant effects on the environment and would therefore not require inclusion in the ES. An explanation for each discipline is provided in the EIA Scoping Report in Appendix 2.1.

Non-Significant Effects

- 2.10. As part of this scoping process the following topics have been scoped out:

- Agricultural circumstances;
- Air quality and dust;
- Archaeology;
- Ecology and nature conservation;
- Lighting;
- Transport and Access;
- Ground conditions;
- Flood Risk and Drainage
- Waste;
- Accidents and disasters;
- Solar Glare; and
- TV and Telecommunications.

Approach to Technical Studies

- 2.11. Various technical studies were commenced at an early stage in the development process. The findings of the baseline environmental studies have played an important role in the design of the Proposed Development by defining the environmental sensitivities, constraints and opportunities associated with the Site.
- 2.12. Design team reviews, attended by members of the project team, were held throughout the pre-application process. These reviews provided a valuable forum for the exchange of information and ensured that the design team was fully aware of the environmental constraints and opportunities and of the interactions between disciplines. Meetings were also held with MCC as the Local Planning and Highway Authority.
- 2.13. The technical studies have been undertaken in accordance with current best practice. Specific guidance used is referenced within each of the respective assessment chapters.
- 2.14. The majority of assessments involved consultations with statutory and non-statutory bodies, desk-based research, site inspections and surveys, impact prediction and mitigation.
- 2.15. The assessment and conclusions of the ES are based on the description of the Proposed Development provided in Chapter 4.

Structure of Technical Chapters

- 2.16. Each technical chapter of the ES (Chapters 6 to 13) has been set out broadly in line with Table 2.1; any variation from this structure is explained within the chapter.

Table 2.1: Structure of ES Technical Chapters

Technical Chapter Structure	
Introduction	Each of the technical chapters begins with an introduction providing context to the EIA completed.
Policy Context	This section includes a summary of legislation and of national and local policies relevant to the environmental discipline and explains its purpose in the context of the Proposed Development and the ES.
Assessment Methodology and Significance Criteria	This section describes the method or approach employed in the assessment of impacts, the criteria against which the significance of effects has been evaluated, the sources of information used and any technical difficulties encountered. Relevant legislation is also identified.
Assumptions and Limitations	This section describes any assumptions and limitations which have been made that are relevant to the environmental disciplines.
Baseline Conditions	This section describes and evaluates the baseline environmental conditions i.e. the current situation and anticipated changes over time assuming the Site remains unchanged. This is a critical part of the EIA process as it provides a measure against which potential environmental effects can be assessed.
Identification and Evaluation of Key Impacts	This section identifies the likely significant effects on the environment resulting from the Proposed Development. A description of the likely effects of the Proposed Development and an assessment of their predicted significance is provided. The assessment of effect significance has been undertaken using appropriate national and international quality standards. Where no such standards exist, the judgments that underpin the attribution of significance are described. The guidelines, methods and techniques used in the process of determining significance of effects are contained within each of the technical chapters presented.
Mitigation Measures	One of the main aims of the EIA process is to develop suitable mitigation measures to avoid, reduce or compensate for any significant adverse effects of a project. This section of each technical chapter describes the measures which would be implemented to mitigate potential adverse effects. Where possible, enhancement measures have also been proposed.
Cumulative Effects	This section considers the cumulative effects of the Proposed Development identified within the vicinity of the Site. Any likely significant effects on the environment arising in this respect are set out in this section. There are two distinct types of cumulative effects: Type 1 - Cumulative effects are the interactions between effects of the Proposed Development on a single receptor. These are addressed in Chapter 16.

Technical Chapter Structure	
	Type 2 - Cumulative effects are those that arise from incremental changes caused by other consented or reasonably foreseeable activities ('committed developments') together with the Proposed Development.
Residual Effects	The residual effects, i.e. the remaining effects of the Proposed Development assuming implementation of the proposed mitigation measures, have been estimated and presented. The methods used to make these estimates are described and proposed methods of treatment for any residual effects have been identified and quantified where possible.
Summary	Each technical chapter concludes with a brief summary outlining the potential residual effects of the Proposed Development.

- 2.17. Chapter 5 provides information to allow the construction phase of the Proposed Development to be assessed by the disciplines set out in Chapters 6 to 13.

Assessment and Evaluation of Significant Effects

- 2.18. The assessment of effect significance has been undertaken using appropriate national and international quality standards. Where no such standards exist, the judgments that underpin the attribution of significance are described. The guidelines, methods and techniques used in the process of determining significance of effects are contained within each of the technical chapters presented.

Magnitude

- 2.19. The methodology for determining the scale, or magnitude of effect as set out in Table 2.2.

Table 2.2: Methodology for Assessing Magnitude

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

Sensitivity

- 2.20. The sensitivity of a receptor is based upon the relative importance of the receptor using the scale in Table 2.3.

Table 2.3: Methodology for Assessing Sensitivity

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

Significance

- 2.21. The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the impacts can be positive or negative. Table 2.4 below shows how magnitude and sensitivity interact to derive effect significance.

Table 0.1: Methodology for Assessing Significance

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

- 2.22. The above magnitude and significance criteria have been provided as a guide for technical specialists to assess impact significance. Where discipline specific methodology has been applied that differs from the generic criteria above, this has been clearly explained within the given chapter under the heading of 'Assessment Methodology and Significance Criteria'.
- 2.23. For the purposes of this ES, an effect will be considered to be 'significant' if it is classed as either 'moderate' or 'major'.

Baseline Conditions

- 2.24. Each technical chapter includes a section which describes and evaluates the baseline environmental conditions (i.e. the current situation and anticipated changes over time assuming the Site remains unchanged). Baseline data has been obtained from a variety of sources, including published documents, maps, historical information and site survey data. Given the complex nature of the Site and surroundings, each technical chapter (Chapters 6 to 13) includes a clear description of what is assumed as the baseline against which the assessment is being made.
- 2.25. The baseline includes nearby schemes under construction.

- 2.26. The method used to obtain baseline information, where relevant and possible, has been clearly identified within each technical chapter and agreed in advance with statutory consultees.

Mitigation

- 2.27. Any adverse environmental effects have been considered for mitigation at the design stage and, where practicable, specific measures have been put forward. Measures have been considered based on the following hierarchy of mitigation:
- Avoidance.
 - Reduction.
 - Compensation.
 - Remediation.
 - Enhancement.
- 2.28. Where the effectiveness of the mitigation proposed has been considered uncertain, or where it depends upon assumptions of operating procedures, data and/or professional judgement has been introduced to support these assumptions.
- 2.29. Detailed mitigation recommended during the construction phase will be set out in the Construction Environmental Management Plan (CEMP) to be agreed with MCC prior to the commencement of work and implemented throughout the duration of the works. Outline mitigation measures to be included in a future CEMP are set out in Chapter 5: Construction Methodology and Programme.
- 2.30. Mitigation to be implemented during the operational phase will be secured through approved documents, planning conditions and obligations.

Residual Effects

- 2.31. The likely significant effects on the environment, assuming the successful implementation of mitigation measures proposed, have been estimated within each chapter. These are termed 'residual effects'.

Cumulative Effects

- 2.32. The ES considers the potential for likely significant effects on the environment resulting from consented or reasonably foreseeable activities or developments in the area, which could lead to potentially significant cumulative effects in conjunction with the Proposed Development ('Committed Developments').
- 2.33. These include:
- Approved but unimplemented projects;
 - Plans or projects for which an application has been made and which are under consideration by the consenting authorities; and,
 - Certain projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative effects.
- 2.34. A search of MCC's planning applications database and knowledge of the area has identified a number of schemes for which cumulative effects are considered likely. A full list, as of November 2021, is contained at Appendix 2.2.
- 2.35. Each technical chapter (Chapters 6 -13) has assessed the potential for likely significant effects on the environment as a result of the above committed developments, together with the Proposed Development.

2.36. In addition, Chapter 15 assesses the Type 1 Cumulative effects.

Assumptions and Limitations

2.37. The principal assumptions that have been made and any limitations that have been identified in preparing the ES are set out in each technical chapter. General assumptions include the following:

- All of the principal land uses adjoining the Site remain. Where redevelopment proposals have been granted Planning Permission, the effect of those proposals are considered as part of the Cumulative Impacts;
- Baseline conditions have been established in 2021 from a variety of sources, including historical data, but due to the dynamic nature of certain aspects of the environment, conditions will change during the Proposed Development;
- Information received from third parties is complete and up to date;
- The various stages of the Proposed Development will satisfy minimum environmental standards, consistent with contemporary legislation, practice and knowledge;
- Assessments are based upon, and conclude, the “worst case” effects that would arise from the application as defined by the description of development set out in Chapter 4, Site Surroundings and Description of the proposals;
- Construction and demolition methods and phasing will follow the timetable and methods set out in Chapter 5, Construction Management and Phasing.
- Conditions will be attached to the Planning Permission that will control disturbance during the Proposed Development; and
- Necessary off-site services infrastructure for the Proposed Development will be provided by statutory undertakers.

Objectivity

2.38. The technical studies undertaken within the ES have been progressed in a transparent, impartial and unbiased way with equal weight attached, as appropriate, to beneficial and adverse effects. Where possible, this has been based upon quantitative and accepted criteria together with the use of value judgements and expert interpretations.

3. Alternatives and Design Evolution

Introduction

- 3.1. Regulation 18(3) and Paragraph 2 of Schedule 4 of the EIA Regulations requires the Applicant to provide an outline of the main alternatives studied and an indication of the main reasons for the choice made, taking into account the environmental effects.
- 3.2. The form of the Proposed Development has been influenced by a range of factors, including location, surrounding land use and input from MCC, Statutory and Non-Statutory Consultees and other stakeholders.
- 3.3. This chapter reviews the principal land use and siting options explored and the reasoning for the selection of the current design for the Proposed Development which forms the subject of assessment within the ES.
- 3.4. This chapter considers the following four options in the context of the existing Development Brief:
 - The ‘do nothing’ alternative where the Proposed Development is not progressed.
 - Alternative locations for the Proposed Development.
 - Alternative Uses for the Site.
 - Alternative Scale and Massing for the Proposed Development.

The ‘do nothing’ Alternative

- 3.5. The ‘do nothing’ scenario refers to the option of leaving the Site in its current state, as described below in Section 4.
- 3.6. The Site is located within a highly strategic and sustainable location within the heart of Manchester City Centre and is therefore not making an efficient use of land in its existing condition as a surface car park. The existing surface level car park does not enhance the character of the area and effectively creates a ‘gap-site’ between highly-attractive, recently developed sites such as Brownsfield Mill, The Astley and the overall Piccadilly Basin.
- 3.7. The Site has been identified within MCC’s Brownfield Land Register (2020) and as part of the SHLAA as a Capacity Site. The Brownfield site is identified in Figure 3.1 below and is approximately 1.44 hectares (covering a wider extent than the Site boundary). These records indicate the Site as being suitable to deliver a minimum of approximately 840 residential units. The Proposed Development will be able to deliver a majority of the identified capacity by providing 485 high-quality residential dwellings. In this way, the Site requires re-development to contribute to Manchester’s housing supply and meet demand from the anticipated population growth.
- 3.8. The Site is also identified within the Piccadilly Basin (2016) SRF area as a pivotal development site that will help to meet the regeneration ambitions sought by MCC within this part of the City Centre. A majority of key developments, including Avro (Brownsfield Mill), Burlington House, Dakota and the Urban Exchange Retail Park have come forward in recent years and therefore the Site presents part of the next phases required to complete this process. The Site itself will help to contribute to these ambitions by creating a new, best-in-class residential community within a ‘neighbourhood of choice’ on land that is currently limited by its existing use. By providing ground floor commercial spaces, the Proposed Development will also help to increase the

vibrancy of the immediate area whilst providing an extra level of amenity to the residents and the overall local community as a whole.

- 3.9. Therefore, the 'do nothing' scenario has been discounted due to the established need for regeneration of this part of the City Centre, the Site's listing on the Brownfield Land Register, as well as providing suitable land for new housing required by Manchester's growing population.

Consideration of Alternative Locations

- 3.10. The Proposed Development is directly associated in addressing the under-utilisation and strategic location of the Site. The Site is in a highly accessible City Centre location and identified for redevelopment within the Piccadilly Basin SRF (2016). These characteristics make the Site a suitable location for the Proposed Development. Residential development in this location is supported by its identification in MCC's 2020 Strategic Housing Land Availability Assessment (SHLAA) and within the Piccadilly Basin SRF (2016) which is endorsed by MCC.
- 3.11. The principle of development at the Site has also been established by previous planning permission. In 2007, MCC approved proposals for the erection of two 6-storey blocks with ground floor commercial uses, 159 residential units above together with ancillary parking, servicing, public space and landscaping. The proposals did not progress and the Site has since been acquired by Select Property Group who will be applying their demonstrable track record and experience to bring forward a viable development that will contribute the ongoing regeneration in this area.
- 3.12. Therefore, this Chapter does not consider alternative sites within the context of the planning application as there is an identified need to redevelop this specific site as a key contributor to the realisation of the regeneration area.

Consideration of Alternative Uses for the Site

- 3.13. The Site is situated within a key regeneration area which at present comprises a mix of medium and high-density developments comprising a mixture of residential and commercial uses as well as a number of other development sites.
- 3.14. The Proposed Development is a residential-led scheme with commercial uses within the lower levels. There is an identified need for City Centre housing in order to meeting as identified within MCC's Core Strategy and Greater Manchester Combined Authorities Draft 'Places for Everyone' (2021) plan. As aforementioned, residential uses are identified by MCC's 2020 SHLAA as well as within the Piccadilly Basin SRF (2016). In addition, the SRF identifies the need for a commercial use within new developments to support residents and increase the overall offer within the area.
- 3.15. Furthermore, previous planning applications for similar developments have been approved by MCC on the Site. These previous applications were residential-led and included ground floor commercial uses. In this way, the principle of the proposed uses on the Site have been accepted by the Local Authority and are fully justified by this planning application.
- 3.16. For the reasons above, alternative uses were discounted as the proposed residential-led scheme with commercial uses at lower levels is the most appropriate in the context of location and responds to identified regeneration priorities and housing need.

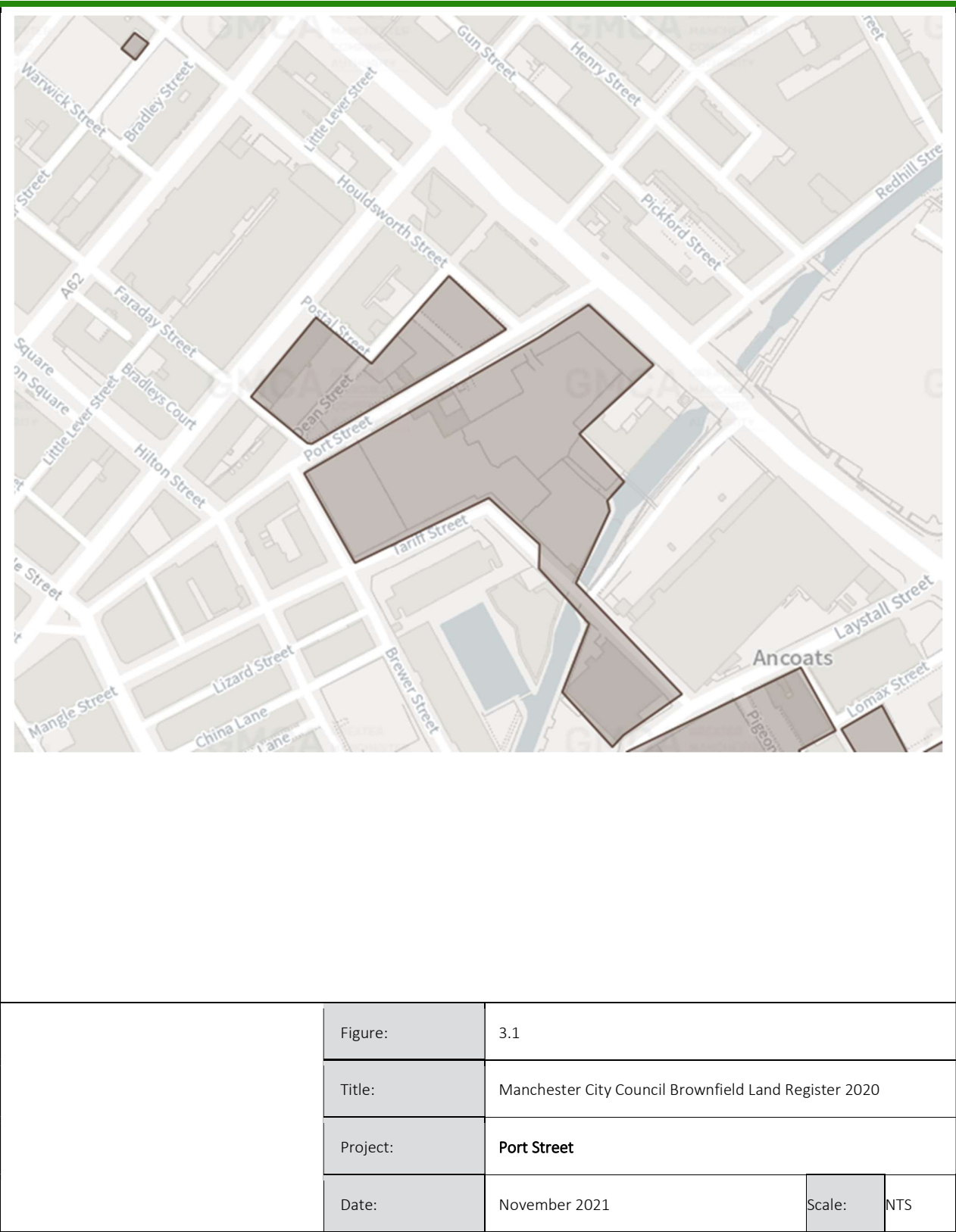
Consideration of Alternative Scale and Massing

- 3.17. Different scales and massing options have been considered for the Proposed Development, the aim of which is to maximise the suitable use of the Site to create a viable scheme and minimise any negative impacts on adjacent land uses and the environment, whilst providing public benefits, including a significant amount of high quality public realm.

- 3.18. The design team have undertaken detailed analysis informed by expert heritage, overshadowing and wind microclimate advice to design a more sensitive, fitting response to the Site's context. Many options have been considered to find the best solution that delivers a high quality building that respects both its historic context and neighbouring communities.
- 3.19. Rather than two towers, as envisaged in the SRF, a single tower is proposed, offset from the road, with a lower perimeter block that repairs the streetscape. The key benefits of this move are:
- Reducing the visual impact on nearby historic buildings, reducing overshadowing of neighbouring buildings, and improving the wind environment on the streets around the building.
 - The offset taller element with a lower perimeter block ties the building into its existing context and creates a more human scale along Great Ancoats Street and Port Street.
 - A new public open space is created in the heart of the Piccadilly Basin, creating the opportunity to make new connections through the area and to the canal when neighbouring development sites come forward.
- 3.20. Podium mass is defined by the historic urban grain and the existing streetscape. The base of the tower is located to reduce the impact from overshadowing on the neighbouring sites and creates private and public pockets of landscape.
- 3.21. The facade and roofscape are articulated with two-storey steps to break up the massing. The tower is located away from the street frontage to maintain the building line along Port Street and link into the proposed SRF massing.
- 3.22. For further information please refer to the Design and Access Statement Prepared by SHP.

Summary

- 3.23. Where possible, alternative options have been considered throughout the design process. The above has set out why the Site is considered suitable for the Proposed Development. This process has been informed by the Piccadilly SRF, viability, and the desire to create a positive relationship with the surrounding developments. The Proposed Development has been influenced by pre-application consultation with key stakeholders including local landowners, residents, businesses, statutory consultees, as well as with MCC. On this basis, Regulation 18(3) and Paragraph 2 of Schedule 4 of the EIA Regulations has been considered.



4. Site, Surroundings and Description of Proposals

- 4.1. This Chapter includes a description of the Site, its surrounding context, a more detailed description of the Proposed Development as well as the Site's suitability for the Proposed Development.

The Site

- 4.2. The Proposed Development Site ("the Site") is located on the corner of Great Ancoats Street and Port Street and is within the neighbourhood of Ancoats on the northern part of Manchester City Centre.
- 4.3. The Site extends to approximately 0.48 hectares (4,845 sqm) and is bound by Great Ancoats Street to the north, Brownsfield Mill and a surface car park to the east, surface car park to the south and Port Street to the west.
- 4.4. The Site is comprised of a surface level car park of low-quality hardstanding. The site levels drop by circa 2m from the northern and western boundaries to a lower level which also forms part of the car park. There is very limited vegetation on site. The Site can be accessed by foot or on vehicle by using the car park entrances on Port Street.
- 4.5. The Site is situated in the Piccadilly Ward and is adjacent to the Ancoats and Beswick Ward immediately on the northern boundary.

Site Regeneration Context

- 4.6. The Site falls within the Piccadilly Basin and therefore forms part of the Piccadilly Basin SRF that was endorsed by Manchester City Council (MCC) in 2016 to "reinforce the grain, acknowledging the scale of neighbouring city blocks and reinvigorating connections that existed in the past. The use mix in this area would be governed by demand but a variety of residential development, focused on the canal basins, would be encouraged. Opportunity to invigorate this very under used section of the canal network and improve the pedestrian connection between the Ashton and Rochdale canals."
- 4.7. The SRF envisions Piccadilly Basin as an area that presents the opportunity to create a well-connected neighbourhood community with a mix of office, residential, retail and leisure and has the potential to develop a strong identity due to the presence of the Rochdale Canal and a number of historical assets.
- 4.8. The vision for the SRF area is now being realised. To date, a number of key developments have already come forward in the area including the Urban Exchange Retail Park and a multi-storey car park which complement other residential developments that have recently been brought forward and supporting future development coming forward.
- 4.9. The opportunity for a mixture of uses contained within a taller, denser structures has been identified within the Piccadilly Basin SRF and will be critical to its success. Several planning permissions have granted for large mixed-use proposals, including on this Site; however, to date, it has not been possible to deliver. The masterplan is therefore missing a critical component which will be addressed by the Proposed Development.

Wider Context

- 4.10. Manchester's ambition and vision for the city for the next decade is to be in the top flight of world-class cities by 2025 (State of the City Report 2021). It is one of the fastest growing cities in Europe and by 2024 the population of the City is expected to reach over 570,000. This growth in population will be supported by

employment growth, which is expected to see 15,000 more workers within the City Centre alone over the next ten years.

- 4.11. Residential development in the City Centre therefore has a key role to play in the city achieving this aspiration. The City Centre performs a number of key functions for both the City and the Greater Manchester City Region and is a driver of economic growth through an increasingly popular residential centre and its associated access to work, leisure facilities and high-quality public transport connections.
- 4.12. In addition to being located within the Piccadilly Basin area, the Site is located in close proximity to various defined areas within Manchester City Centre. These defined areas are characterised by their proximity to the City Centre, their built environment and mix of uses. In particular, these include:
- **Ancoats:** Ancoats is located adjacent to the Site on the northern boundary, across Great Ancoats Street. Ancoats is a former industrial district that is located within the northern part of Manchester City Centre. Ancoats is considered a cradle of the Industrial Revolution and has been called "the world's first industrial suburb". For many years, from the late 18th century onwards, Ancoats was a thriving industrial district. Ancoats has been designated by MCC as a Conservation Area, owing to its historical context and its vast number of Listed Buildings and structures. Most of these Listed Buildings are former mill buildings which have been carefully refurbished to create high quality apartments with additional uses concentrated on ground level.
 - **New Islington:** The area to the south of Ancoats, wedged between the Rochdale and Ashton Canals has witnessed substantial investment and regeneration activity which has led to it being branded as New Islington, by UK property developers Urban Splash who have delivered a number of residential-led schemes including Cotton Field Wharf and recently completed Mansion House. These developments face onto the highly visited eco-park Cotton Field Park providing a number of green spaces as well as the formation of a marina in Manchester City Centre.
 - **Northern Quarter:** The Northern Quarter is a unique part of the City Centre located immediately to the west of the Site. It can be characterised by its distinctive architecture, red brick alleys and converted grand warehouses. It is widely regarded that the Northern Quarter is the 'cultural heart' of Manchester as it is home to multiple live music venues, studios and art exhibits. It is also supported by a strong presence of independent retail and leisure outlets, including a highly active night time economy clustered around Stevenson Square in the heart of the neighbourhood and throughout into surrounding streets. Stevenson Square is also classified as a Conservation Area and is located approximately 100m to the west, comprising buildings of architectural or historic interest within the Victorian or early-20th century. Most are related to the cotton industry, often warehouses, showrooms or workshops.
- 4.13. The Site is located on one of Manchester's key arterial roads, Great Ancoats Street which has recently been subject to improvement works that are now fully completed. These improvement works comprised a number of measures including resurfacing and reconfiguration of the highway and pavements, installation of new junctions and crossing as well as tree planting. This has provided a number of benefits including:
- Safer crossings from the city centre to the surrounding neighbourhoods
 - A greener, more pleasant environment
 - A quieter street for residents and pedestrians
 - Increase economic growth in and around the city centre.
- 4.14. The Site is situated within a highly strategic location along Great Ancoats Street which presents a clear opportunity to deliver a high-quality, tall building which can effectively create a prominent, visual marker and gateway into the City Centre.

Transport and Accessibility

- 4.15. The Site is in a highly sustainable location within the north of the City Centre, being close Manchester's main transport hub, Piccadilly Station and other modes of transport. There are also a number of bus services that

run along Great Ancoats Street and a Metrolink stop in New Islington. Manchester is a compact and walkable City Centre and the Site also therefore has excellent access to the services and facilities it has to offer.

Pedestrian

- 4.16. The Site is well connected to key destinations by a comprehensive network of pedestrian routes, typical of a City Centre location. Key leisure, cultural, business and retail facilities in the Northern Quarter and the heart of the City Centre are within easy reach of the Site. There are a number of local shops within a short walk from the Site which include Aldi (immediately to the east) and the Co-op (up to 5 minutes walk) on Blossom Street in Ancoats. The Primary Shopping Area is approximately a 5 minute walk from the Site and provide a wide variety of retail and leisure uses.
- 4.17. There are a number of additional amenity and leisure facilities within a 5 to 20 minute walk of the Site, including:
- Urban Exchange Retail Park – Immediately to the east.
 - Cutting Room Square – 4 minutes
 - Piccadilly Gardens – 5 minutes
 - Cotton Field Park – 6 minutes
 - Mackie Mayor Foodhall – 6 minutes
 - Afflecks Department Store – 7 minutes
 - Ducie Street Warehouse – 8 minutes
 - Arndale Shopping Centre – 10 minutes

Cycle

- 4.18. The Site is well served by immediate access to cycling routes, connecting the Site to the remainder of the City Centre as well as other areas located within Greater Manchester. On Great Ancoats Street, Beelines cycleways are provided in the form of a dedicated and separated cycle route on the highway providing linkages to various parts of the City Centre.
- 4.19. The Ashton Canal Cycleway is located 200m to the East which links East Manchester through a dedicated cycle route to this part of the City Centre.

Public Transport

Rail

- 4.20. Manchester Piccadilly Station (approximately 10 minute walk from the Site) is approximately 0.5 miles to the south of the Site providing both rail and tram access to a range of destinations across Greater Manchester and the rest of the country. These include cross-city links to Manchester Oxford Road, Deansgate and Manchester Victoria stations.
- 4.21. Manchester Piccadilly is the rail hub for the North West with frequent and rapid services between Manchester and to a wide range of locations in the UK. Destinations include London with an average journey time of only 2 hours 10 minutes. High Speed Rail 2 (HS2) is due to open at Piccadilly Station in 2033 and will further increase Manchester's connectivity to other major population areas and reduce journey times.
- 4.22. The Transpennine Express line at Manchester Piccadilly links all major cities in the North of England (and Scotland) including Newcastle, Liverpool, Leeds and Hull. For instance, there are 46 services to Liverpool and 62 services to Leeds every day. Trains to Birmingham run every half hour and Manchester Airport benefits from up to 8-9 services an hour, with services operating 24 hours a day.

- 4.23. Manchester Oxford Road Railway Station, the second busiest train station in Manchester serves the southern part of the City Centre on a line which moves westwards towards Warrington, Chester, Liverpool, Preston and Blackpool, and eastwards through to Piccadilly.
- 4.24. Manchester Victoria Station is a major regional interchange serving destinations to the north and east of Manchester, including direct rail services to Liverpool (with a fast service at 36 minutes journey time) and Leeds (approximately 49 minutes journey time).

Metrolink

- 4.25. Over 43 million Metrolink journeys were made to and from the City Centre in 2019/20. The Metrolink has been the subject of significant ongoing investment and expansion of routes in recent years. Recent changes include the introduction of contactless payments using smart meters in July 2019.
- 4.26. More recently, the Metrolink has expanded to extend the Metrolink to the Trafford Centre; known as the Trafford Park Line. The Trafford Park line has six new tram stops and launched in March 2020. The line runs from the existing Pomona Metrolink stop, through Trafford Park, terminating at Trafford Centre.
- 4.27. The New Islington and Piccadilly Metrolink stops are both approximately 10 minutes' walk from the Site whilst the Piccadilly Gardens stop is only 6 minutes away. Existing Metrolink services provide direct high-frequency services on the Altrincham, Eccles, East Didsbury, Media City, Ashton, Rochdale, Bury lines and connecting services to a wider range of destinations including Manchester Airport.

Bus

- 4.28. There are two bus stops located immediately on the northern boundary of the Site on Great Ancoats Street providing access to various areas across Greater Manchester.
- 4.29. The Manchester Piccadilly Gardens Bus Station is located approximately 6 minutes walk from the Site and provides services across Greater Manchester.
- 4.30. In addition, the Shudehill Interchange is situated approximately 10 minutes' walk from the Site.

Free Bus

- 4.31. The Free Bus service ran by Transport for Greater Manchester has three different routes serving most of the City Centre.
- 4.32. The Metroshuttle Route 1 has a stop outside of Piccadilly Station (10 minutes walk), which provides a route from the station, through the City Centre core along to Spinningfields. At peak Monday to Friday hours, the route extends out to Salford Central.
- 4.33. The Metroshuttle Route 2 has a stop outside of Piccadilly Station (10 minutes walk), Shudehill (10 minutes walk) and on Church Street (7 minutes walk). This links areas including Victoria Station, Deansgate, Spinningfields, St Peters Square as well as the Oxford Road Corridor.
- 4.34. The Metroshuttle Route 3 (evening service) has a stop on Dale Street (approximately 200m south) which provides an evening route to through to Piccadilly Train Station which also extends to Deansgate and Castlefield on the eastern part of the City Centre.
- 4.35. The Site is therefore well served by public transport both in terms of connectivity within Greater Manchester and further afield.

Vehicle

- 4.36. The Site is well placed for access to the City's arterial ring road with Great Ancoats Street on the northern boundary of the Site. This provides quick access to other major arterial routes and to the wider motorway network.

Historic Context

- 4.37. The Site is not located within a Conservation Area and there are no Listed Buildings within the Site. The Site is located adjacent to the Ancoats Conservation Area to the north and the Stevenson Square Conservation Area is located circa 90m west of the Site. A number of Listed Buildings and structures have been identified in Figure 4.1 (which should be read in accordance with Table 4.1).

Table 4.1 Listed Buildings and Structures

Number on Figure 4.1	Name	Designation and Grade
1	72-76, NEWTON STREET	Grade II Listed Building
2	ROYAL MILL	Grade II* Listed Building
3	FORMER WAREHOUSE AND OFFICES OF OLD MILL, DECKER MILL, AND NEW MILL	Grade II Listed Building
4	NEWTON BUILDINGS	Grade II Listed Building
5	BRADLEY HOUSE	Grade II Listed Building
6	ROCHDALE CANAL RETAINING WALL ON SOUTH SIDE OF REDHILL STREET, WEST OF UNION STREET BRIDGE	Grade II Listed Building
7	Nos. 69-77, LEVER STREET and No. 10, BRADLEY STREET	Grade II Listed Building
8	LANGLEY BUILDING	Grade II Listed Building
9	DERROS BUILDING	Grade II Listed Building
10	50-62 PORT STREET	Grade II Listed Building
11	BROWNSFIELD MILL	Grade II* Listed Building
12	Nos. 49 – 51 DALE STREET	Grade II Listed Building
13	SEDGWICK MILL	Grade II Listed Building
14	49 NEWTON STREET	Grade II Listed Building
15	45, 47 and 47A HILTON STREET	Grade II Listed Building
16	ROCHDALE CANAL LOCK NUMBER 82, TO EAST OF GREAT ANCOATS STREET	Grade II Listed Building
17	32 AND 34 LAYSTALL STREET	Grade II Listed Building
18	ROCHDALE CANAL LOCK NUMBER 83, TO THE EAST OF TARIFF STREET	Grade II Listed Building
19	45 AND 47 NEWTON STREET	Grade II Listed Building
20	ROCHDALE CANAL TOWPATH FOOTBRIDGE AND ASSOCIATED RAMPS OPPOSITE BROWNSFIELD MILL	Grade II Listed Building
21	MARLSBRO HOUSE	Grade II Listed Building
22	FORMER JUNCTION WORKS AT PARADISE WHARF	Grade II Listed Building
23	FORMER NEWTON POLICE STATION	Grade II Listed Building

Number on Figure 4.1	Name	Designation and Grade
24	PARAGON MILL	Grade II* Listed Building
25	35 DALE STREET	Grade II Listed Building
26	FORMER ROCHDALE CANAL WAREHOUSE	Grade II* Listed Building
27	FOURWAYS HOUSE	Grade II Listed Building
28	NUMBERS 4, 6 & 8 AND ATTACHED SCREEN WALLS	Grade II Listed Building
Green	Stevenson Square Conservation Area	Conservation Area
Purple	Ancoats Conservation Area	Conservation Area
Yellow	Smithfield Conservation Area	Conservation Area

4.38. For further information regarding the historic use of the Site and surrounding area please refer to Chapter 8: Heritage of this ES and the Desktop Archaeological Assessment being submitted as part of this planning application.

Planning History

4.39. The approved planning permissions of most relevance on Site are set out in Table 4.2 below.

Table 4.2: Planning History

Reference	Description	Status
083678/FO/2007/C3	Erection of two 6 storey blocks with ground (plus mezzanine) floor commercial uses (including retail, use class A1 and offices use class B1) with 159 residential units above (Use Class C3) together with ancillary parking, servicing, public space and landscaping	14 September 2007
054382/FO/CITY3/98	A mixed use development of housing, A1 retail, licensed retail & studio offices including works to listed buildings & canal structures.	Approved 10 August 1998
043345/DT/CMDC/93	Redevelopment of land at canal gardens for office development, mixed office/ leisure/retail and student accommodation	Refused 25 June 1993

Flood Risk

- 4.40. According to the Environment Agency Flood Map, the Site is located within Flood Zone 1 which is defined as land having less than 1 in 1,000 annual probability of river or sea flooding. The Rochdale Canal is located circa 50m southeast of the Site, behind Brownsfield Mill.
- 4.41. The Site also falls within the Conurbation Core Critical Drainage Area in the Salford and Trafford Critical Drainage Area (CDA), designated in 2011.

Ecology

- 4.42. There are no statutory designated sites for nature conservation within or immediately adjacent to the Site. The Site and adjacent land are not identified as a Priority Habitat.
- 4.43. The Site lies within 4.9 km to Rochdale Canal Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), 6.3 km of the Hollinwood Branch Canal SSSI and 8.7km Huddersfield Narrow Canal SSSI. The

Site lies within the SSSI Impact Risk Zones for the above sites. The Proposed Development does not meet SSSI Impact Risk Zone criteria for which the LPA must consult with Natural England.

Ground Conditions

- 4.44. A Phase 2 Interpretative Ground Investigation Report has been undertaken by WSP in September 2021 and is submitted in support of this Planning Application. This identified a number of contaminants of concern including arsenic, lead, cyanide and benzo(a)pyrene as well as a small sample of asbestos fibre bundles. More detailed information on these contaminants and their levels can be found within the submitted Phase 2 report.
- 4.45. However, it was concluded that the identified contamination within the made ground at the Site will require a number of remediation measures to mitigate the risks to human health. These are outlined within 12.2.2 of the Phase 2 Report.

Air Quality

- 4.46. The Site is located within the Greater Manchester Air Quality Management Area.

The Proposed Development

- 4.47. The description of the Proposed Development is as follows:
“Full Planning Permission for the erection of a part-34, part-11 storey residential building with associated residents’ amenity space including gym (Use Class C3), commercial space (Use Class E), basement car parking, cycle parking, landscaping, and other associated works”.
- 4.48. The proposed uses, mix, number of residential units and commercial floorspace within each building is broken down in Table 4.3.

Table 4.3: Proposed Development Parameters

Measurement	Proposal
Proposed Site Area	0.48 hectares
Development Floorspace	48,870 sq.m. (GIA)
Residential (Use Class C3)	Total: 485 homes 1 Bed 1 person (12.8%) 1 Bed 2 persons (19.8%) 2 Bed (63.7%) 3 Bed (7%) Residential Amenity: 681m ²
Commercial (Use Class E)	595m ²
Height	Ground plus 33 storeys (+152.500m AOD)
External Areas	2,005 m ²
Car and Cycle Parking Spaces	485 secure cycle parking spaces 47 car parking spaces (including 10 disabled spaces / 10 EV charging, with all spaces future proofed for adaption)

- 4.49. The operator of the commercial units is unknown at this stage, accordingly operating hours will be agreed by pre-occupation condition via an operational management plan.

Scale and Massing

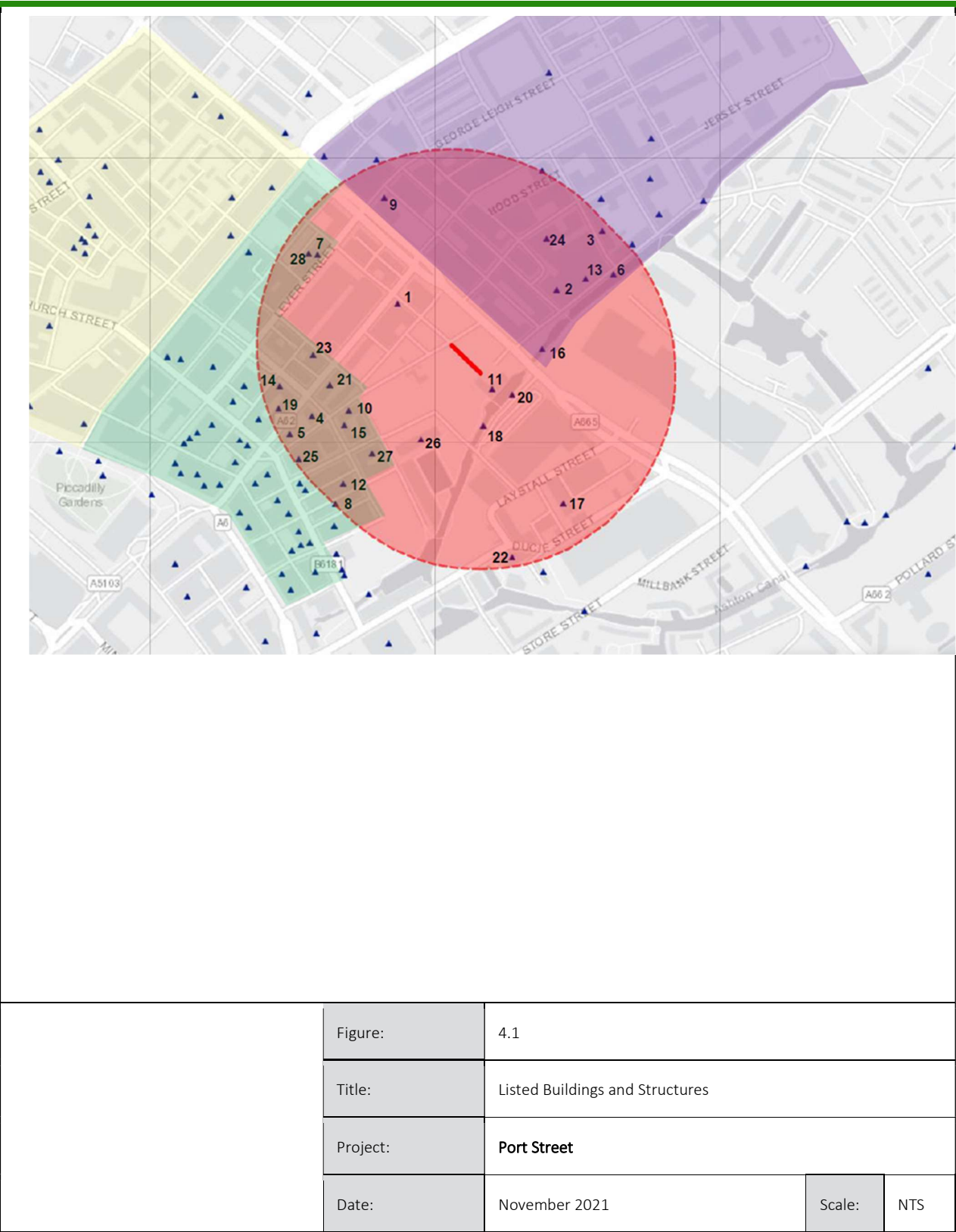
- 4.50. The proposal includes a ground plus 33-storey residential tower with a podium level containing residential units, residential amenity as well as commercial uses and is supported by underground car parking. Section 5 of the Design and Access Statement sets out the process undertaken to arrive at the chosen scale and massing. It sets out that a number of options were explored in order to choose the most suitable building form on the Site. The final design has been influenced by a number of factors including wind microclimate, public realm provision and the potential impact on the townscape and visual character of the area.
- 4.51. The Site has been identified within the Piccadilly Basin SRF as being suitable for approximately 32 storeys in height. By using height to its advantage, the Site is able to deliver a higher number of dwellings whilst retaining a significant amount of space to provide high-quality public realm as well as complementary commercial uses and residential amenity space. A more detailed assessment of the building's height can be found within the Chapter 7: Tall Building Statement of the Planning Statement being submitted with this application.

Layout

- 4.52. Section 5 of the Design and Access Statement outlines the proposed layout of the scheme. The building includes a basement element which accommodates car parking, cycle parking and services.

Landscaping

- 4.53. The public realm and landscape design of the Site has been carefully considered so that it integrates cohesively into the character of the Piccadilly Basin as well as to positively contribute to and set a precedent for further development within the neighbourhood and City Centre fringe. Public realm and the landscape are a fundamental part of the character of the Proposed Development, included in the scheme as a publicly accessible hard and soft landscaped area as well as a smaller residential courtyard.
- 4.54. The Proposed Development incorporates high quality public realm, of c. 2005 sqm, that will serve future and existing residents within the Piccadilly Basin SRF area, surrounding existing communities in Ancoats and New Islington, the Northern Quarter, as well as visitors. This public realm will improve the pedestrian and cyclist linkages through the framework area from the adjacent communities, in particular linking the majority of the Piccadilly Basin with Great Ancoats Street and onto Ancoats and New Islington. This provides improved pedestrian and cyclist links to the existing area of green infrastructure at Cotton Field Park whilst increasing the attractiveness of the nearby canalside setting by forming the potential for future access.
- 4.55. The chosen pathways will be DDA compliant, providing efficient access between the Piccadilly Basin.



5. Construction Management and Phasing

Introduction

- 5.1. This Chapter of the ES has been prepared by Renaker Build Ltd and describes the proposed construction programme and key activities that will be undertaken. Detailed consideration of potential impacts during the construction process and any necessary mitigation measures are provided in each relevant chapter of the ES.
- 5.2. The following figure is included with this Chapter:
- Figure 5.1 – Logistics plan
- 5.3. The main aim throughout the construction period is to minimise the impact on the surrounding properties and roadways for the duration of the work. Close collaboration with all project teams of all construction projects will be maintained at all times to achieve this aim.
- 5.4. The following narrative explains this methodology and timescales envisaged at the time of the planning application. More detailed proposals will be developed once contractors are appointed and prior to commencement on Site. This will include preparation of detailed plans to incorporate Construction Management, Construction Phase Health and Safety, Environmental Management as well as Site Waste Management, Logistics and Traffic Management.

Programme

- 5.5. The total construction programme will span a period of approximately three and a half years within which there will be elements of ground works, foundations, frame construction, façade cladding and internal fit out. The scheme is anticipated to be delivered in a single phase.
- 5.6. This is an indicative construction programme and the Applicant highlights that there are multiple risks involved in the development process. The Applicant notes that this programme may ultimately be extended in the event delays caused by sustained periods of poor weather, unexpected ground conditions or other abnormalities, volatility in economic and housing markets, political uncertainty, and the availability of funding.
- 5.7. The programme is based upon normal working hours in line with Manchester City Council Guidance of 7.30hrs to 1800hrs Monday to Friday and 0800hrs to 1400hrs on Saturdays.
- 5.8. On Sundays and Bank Holidays noisy working will generally not be planned. On some occasions there are certain operations that maybe required to proceed during these periods, for example tower crane erection and dismantling. These will be infrequent and will be agreed with the Environmental Health Officer (EHO) and local residents through a series of neighbourly engagements. The frequency of these will vary and respond to demand. Access to the Site will be permitted 30 minutes prior to working day commencing with noise being kept to a minimum for the first half hour of each day.
- 5.9. We acknowledge the close proximity of the neighbouring residents and as such will endeavour at all times to ensure the working hours are adhered to in order to protect their residential amenity.

Construction Methodology

- 5.10. The following is a brief overview of the methodology to be adopted for the construction and fit out of the Proposed Development. The section also considers general logistics as well as traffic management for the movement of material to the disposal of waste.

Site Logistics

- 5.11. The Site has been cleared previously and was recently used for public car parking. It is proposed to temporarily close a short section of road on Port Street. This will be a hoarded delivery bay with a gate in and gate out. Traffic will arrive along one way Port Street and depart onto Great Ancoats Street. The gates will be manned during working hours.
- 5.12. It is envisaged that the temporary site establishment and welfare space will consist of good quality temporary cabins branded with the Renaker Build Limited logo. The welfare facilities will be suitably sized to suit the anticipated number of operatives. The welfare facilities will be located close to the Site.
- 5.13. Material storage will be generally contained within the Site boundary with access through the site entrance gates for deliveries. When the concrete frame reaches podium level, small low height forklift trucks will be employed to store materials both within the below ground floor car parking provision for the façade construction and fit out elements of the works.
- 5.14. Any temporary public road or footpath closures associated with the construction phase will be agreed with Manchester City Council highways department and relevant diversion signage put in place.
- 5.15. Access to the site entrances will be controlled by biometric scanner through a secure metal turnstile. This will monitor Renaker operative's movements and prevent unauthorised public access to the Site. The main gates will be locked secured at all times with the exception of when a delivery is being made. The gates will be manned by qualified banksmen who will co-ordinate traffic, bank deliveries as well as ensure the road and pavement areas are kept clean.
- 5.16. Where required, appropriate wheel and vehicle wash facilities will be in place to ensure delivery wagons leave the Site clean and tidy with regular cleaning of Port Street using road sweepers.
- 5.17. Loading and unloading of material deliveries will occur within the site boundary unless exceptional circumstances require special measures to be instigated.
- 5.18. Waste materials will be placed in skips and these will be removed on a regular basis. Food waste from canteens and eating areas will be contained within a smaller covered skip to prevent vermin.
- 5.19. The Site will employ security guards as appropriate to prevent and discourage nuisance. Regular patrols will take place throughout the shift. As an additional measure, CCTV will be installed to elements of the Site to aid early identification of potential issues.

Construction

- 5.20. The works generally comprise of the following:
- Creation of piling mat substrate and formation of tower crane bases.
 - CFA & bored piling to the Site perimeter with associated temporary propping.
 - Bearing pad construction, ring beams and basement car park slab and drainage.
 - Installation of tower crane(s).
 - Construction of in-situ concrete frame, concrete stair cores and floors to roof level by concrete pump and jump-form construction.

- Roof coverings.
- Installation of unitised facades including windows and MVHR grilles.
- Installation of internal mechanical and electrical systems including main lifts.
- Fit out of apartments including walls, floors, ceilings, bathrooms kitchens and final finishes.
- Installation of BMU
- Removal of tower crane.
- Completion of internal finishes to communal space.
- Phased completion of communal external space and links.
- Removal of permanent hoardings and temporary gates.
- Completion of public realm and S.278 works
- Phased decant from Site leading to the full opening of the Proposed Development.

Infrastructure

- 5.21. The works generally comprise of the following:
- Drainage connections to a UU main foul drain from Great Ancoats Street.
 - Electrical supply entering at Great Ancoats Street and following a designated service route around the perimeter service road to each substation location.
 - Mains water will be sourced from the identified supply currently in Great Ancoats Street.
 - Telecoms and data infrastructure as above.

Traffic Management Plan

- 5.22. The Site is served well from Port Street. It is envisaged that deliveries will arrive via the one-way Port Street route as shown in Figure 5.1. Traffic will return to Great Ancoats Street via Little Pitt Street, Dean Street and Houldsworth Street.
- 5.23. A full traffic management plan will be developed to address the following issues:
- Integration of traffic management scheme with surrounding construction developments and calming measures.
 - Access, egress, drop off and turning areas.
 - Temporary and/or permanent alterations to local traffic routes (both vehicular and pedestrian).
 - Additions, alterations and positions of any temporary signage, road markings or protection barriers.
 - Pedestrian access around site and relevant protection, lighting and signage schemes.
 - Temporary suspension / relocation of any parking bays or bus stops.
 - Segregation of plant, materials and pedestrians on site and safe access routes between welfare and site areas.
 - The provision of car parking, off and on site, and public transport strategy for staff and operatives
 - Loading bays, hoist positions and tower crane areas.
 - Any other measures to ensure the safe integration of pedestrians, cyclists and road users both on, off and surrounding the Proposed Development.
- 5.24. In preparation of the above document, Renaker Build Limited Protocol for timed and booked deliveries, off peak deliveries and prefabrication will be incorporated.

Deliveries

- 5.25. Delivery routes for the major materials and items of plant will be as per the section above, they will access from the Faraday Street side of Port Street and will endeavour to deliver outside of peak traffic hours to minimise local disruption and the normal workings of the surrounding properties. The concrete supply will be from Renaker's Great Jackson Street batching plant which due to its close proximity to the Site, minimises disruption to the road network.

Parking

- 5.26. There will be a limited number of visitor and key staff parking within the compound area. Site personnel will be encouraged to utilise the extensive public transport options available to them. Any personnel who have to attend by car will be asked to avoid parking in residential areas and instead utilise both the formal surface parking bays and the multi-storey car park around the Tariff Street area.

Health and Safety

- 5.27. The project will be carried out in accordance with the Construction, (Design and Management) Regulations 2015, and all other relevant legislation and guidance.
- 5.28. Renaker Build Limited will be the Principal Contractor. Their track record demonstrates their competency in the management and execution of Health and Safety. Renaker Build Limited have the appropriately trained management resource and procedures in place to oversee the activities of a complex, high rise city centre construction project.
- 5.29. As demonstrated by the appointment prior to the planning application, the Principal Contractor will work closely with the Principal Designer at this early stage of the project and will influence the detailed design to remove construction and residual safety risks.
- 5.30. The Principal Contractor will produce a Construction Phase Health and Safety Plan prior to works commencing on site that will be reviewed and signed off by the client and their Principal Designer. This document will form the basis of the procedure for managing health and safety during the construction phase and will be periodically reviewed as the work progresses.

Construction Materials

- 5.31. The materials selected at this stage of the design process do not generate a risk to construction personnel using the appropriate PPE and following manufacturers guidance.

Site Security and Safety

- 5.32. Protecting the public from risks to their health and safety arising from the construction work is a high priority. Every care will be exercised to prevent risk to members of the public and appropriate action, including dust & noise control & the erection of perimeter fencing to a specified standard, will be taken.
- 5.33. Vandalism and theft of plant, equipment, materials and fuel is possible throughout the duration of the development. Renaker Build Limited will take appropriate action, as described in previous sections, to ensure the site is secure at all times from unauthorised access. As described previously, the site will have metal turnstile access system controlled by an individual proximity fob system. In the event of a lost or stolen data the system can be updated to prevent fraudulent use.
- 5.34. The provision of CCTV would be considered if required to main site points and compound areas to assist in the prevention of unauthorised activities.

Environmental Management

- 5.35. An Environmental Plan, in line with the Renaker Build Limited environmental management system, will be developed to address and monitor the following issues:
- Applicable environmental legislation.
 - Pollution.
 - Nuisance (Noise, vibration, dust, emission and light).
 - Public relations.

Environmental Legislation

- 5.36. Applicable environmental legislation will be identified in a register, to ensure that appropriate systems are put in place in order to comply with the legal requirements in question.

Pollution

- 5.37. Renaker Build Limited will establish procedures, to ensure the prevention of water and ground pollution, relating to the following risk activities:
- De-watering of the Site (if required).
 - Soil contamination remediation.
 - Earthworks (including piling, spoil movement and removal, and movement of contaminated soils).
 - Concrete works (including washing out of concrete delivery vehicles and pumps).
 - Storage and movement of fuels, oils, chemicals and other such fluids.
 - Cleaning (including plant, machinery and wheel washing).

Nuisance (Noise, Vibration & Dust)

Noise and Vibration

- 5.38. The principal concerns relating to the nuisances of noise and vibration come from construction activities such as demolition, excavation, cutting, breaking out and plant movements. Mitigation measures will be considered to include low noise options, noise attenuation techniques and carrying out certain activities during agreed hours of the day.
- 5.39. In order to minimise the noise, Renaker Build Limited will provide the following:
- Any compressors brought on to the Site to be silenced or sound reduced models fitted with acoustic enclosures;
 - All pneumatic tools to be fitted with silencers or mufflers where available;
 - Care to be taken when erecting or striking scaffolds to avoid impact noise from banging steel. All operatives undertaking such activities to be instructed on the importance of handling the scaffolds to reduce noise to a minimum;
 - The majority of deliveries to be programmed to arrive during normal working hours only. Care to be taken when unloading vehicles to minimise noise. Delivery vehicles to be routed so as to minimise disturbance to local residents. Delivery vehicles to be prohibited from waiting within or in the vicinity of the Site with their engines running;
 - All plant items to be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise;

- Where possible, all plant to be sited so that the noise impact at nearby noise sensitive properties is minimised;
- Local hoarding, screens or barriers to be erected as necessary to shield particularly noisy activities; and,
- Problems concerning noise from construction works can often be avoided by taking a considerate and neighbourly approach to relations with the local residents. Where possible, works should only take place during given periods, e.g. during normal construction hours and not at night.

5.40. In order to minimise the vibration, Renaker Build Limited will provide the following;

- Adoption of low vibration working methods. Consideration should be given to use of the most suitable plant;
- Where processes could potentially give rise to significant levels of vibration, on - site vibration levels should be monitored regularly by a suitably qualified person;
- Where piling is to take place, any obstructions should first be removed;
- The provision of cut-off trenches in order to interrupt the direct transmission path of vibrations; and,
- Application of piling techniques aimed at reducing resistance to penetration e.g. pre-boring for driven piles and adding water to the hole for impact bored piles.

Dust

5.41. The principal concerns relating to air quality and emissions from construction activities are in the form of dust and fumes. The degree of dust deposition is usually dependant on the nature of the works. Increased levels of dust are most likely to occur during site activities related to demolition (of which there are none planned on site) piling, moving construction traffic and ground works.

5.42. In order to minimise the dust and fumes, Renaker Build will provide the following:

- Providing a hard surface where vehicle movements occur;
- Control measures and dust suppression techniques;
- Minimising stock piling and positioning in a manner that reduces risk of dust arising through wind action;
- Measures such as screening and covering;
- Installation of appropriate wheel and body wash facilities;
- Keeping of adjacent roads and pavements clean;
- Ensure plant is turned off and not left running when not in use; and,
- Selection of electrically powered plant where possible in lieu of diesel or petrol plant.

Public Relations

5.43. The contractor will ensure that regular contact is made with local residents and community groups to ensure they are kept up to date with general progress on the site. This is especially important for major work elements such as piling and tower crane erection due to the close proximity to adjacent residential schemes. Renaker Build will display a contact number on hoardings which will be operational 24/7.

Waste Management Strategy

5.44. In line with the “Site Waste Management Plan Regulations 2008”, a site waste management plan (SWMP) will be developed by the principal contractor and agreed with Manchester City Council.

Operational Waste Removal

- 5.45. Waste generated during the construction phase is to be cleared on a daily basis to a main holding skip. Each floor plate will have a designated waste area that will see bins located within it that can be emptied at the end of each shift. During high waste activities, such as dry lining, this waste removal may need to occur several times a day via the hoists and as such general operatives will be employed to ensure this will occur. Hazardous waste will be stored and disposed of separately but main waste will enter a common skip where our supplier will sort at their transfer station before issuing us recycling percentages and data.
- 5.46. To reduce the volume of waste sent to landfill, waste from Site will be segregated at the waste transfer station into the following categories.
- CAT A: Hazardous waste – Paint tins, mastic etc
 - CAT B: Metal
 - CAT C: Timber
 - CAT D: Plasterboard
 - CAT E: General Waste
- 5.47. All carriers of waste will hold a valid waste transfer licence and provide certification to the main contractor for all elements of the process.

Summary

- 5.48. The Construction (Design and Management) Regulations 2015 will apply to this project and all appropriate controls and systems will be in place to comply with the standards of the Regulations and associated guidance.
- 5.49. Every stage of the project will be pre risk assessed and appropriate controls applied, sub-contractors will be pre vetted and will be subject to extensive pre contract requirements of information transfer and risk assessment.
- 5.50. A fundamental aspect of the Principal Contractor's role is the development of a Construction Management Plan, which will take account of all known risks, which have been identified at pre-construction stage by the Principal Designer/CDM Consultant, the Design Team and also through site investigations.
- 5.51. Renaker Build have been appointed as contractor on the scheme. They have an extensive successful track record in Manchester and further afield.
- 5.52. The Construction Management Plan will describe arrangements and procedures for managing these key risk areas in more detail, as well as any future risk, and also the resources, including personnel, which will be applied to the scheme and which will ensure the Health and Safety of all those working on or affected by the project works.
- 5.53. Renaker Build Limited will have an on-going process of monitoring health and safety standards throughout its organisation. This is normally done directly (on site) by the site management team through regular inspections, toolbox talks etc. and also via the risk assessment process both during the completion of risk assessments and then by monitoring the effectiveness of risk control measures, which have been implemented. Site managers will also undertake regular reviews of safety on site, including any accidents or incidents and any matters raised will be dealt with accordingly.
- 5.54. Health and safety is also incorporated as a fundamental aspect of the overall project review, and Renaker Build Limited can demonstrate competency in the management and execution of Health and Safety. Renaker will work closely with the Principal Designer at this early stage of the project and will influence the detailed design to remove construction and residual safety risks.

- 5.55. In addition, Renaker Build will at the earliest possible stage of the project enter into dialogue with all relevant parties, including neighbours to ensure there is effective coordination throughout all stages of construction.

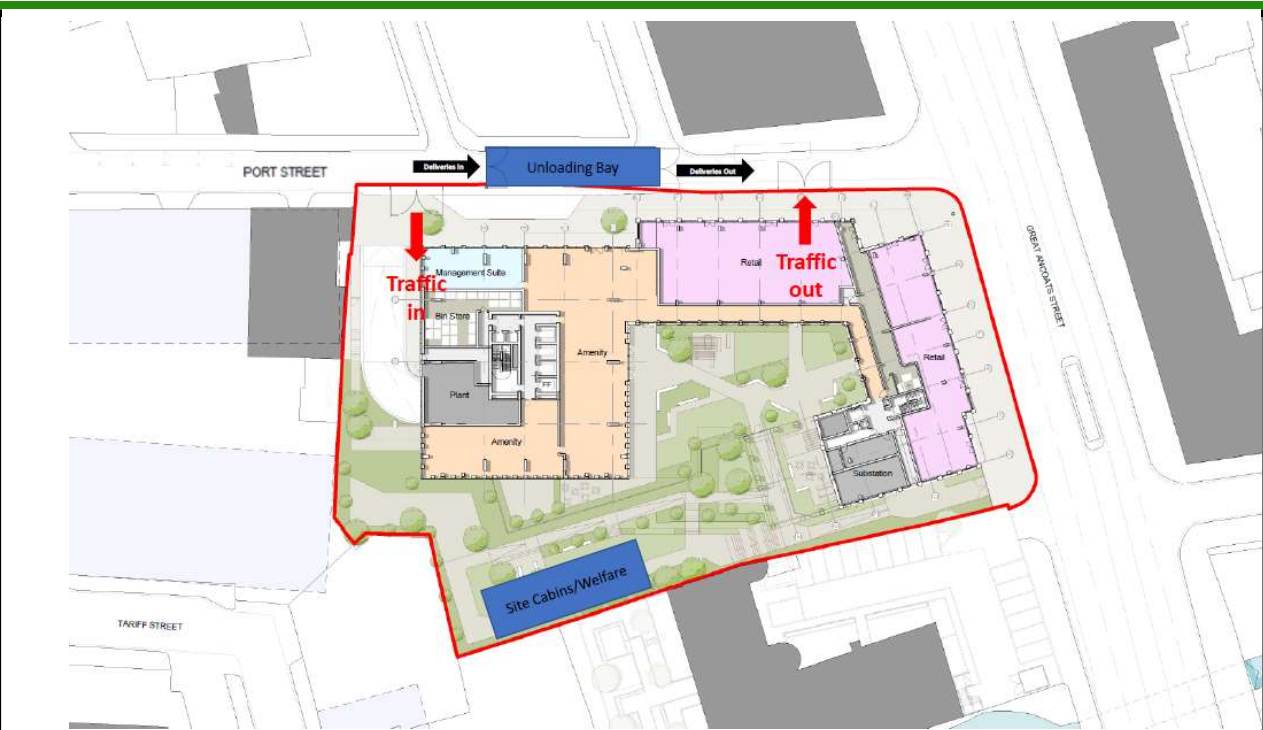


	Figure:	5.1		
	Title:	Logistics Plan		
	Project:	Port Street		
	Date:	November 2021	Scale:	NTS

6. Climate Change

- 6.1. This Chapter of the ES has been prepared by WSP and assesses the likely the impacts of the Proposed Development on the climate by providing an assessment of GHG emissions, that concludes on the significance of the Proposed Development in terms of climate change.
- 6.2. The Chapter describes the assessment methodology and the baseline conditions relevant to the assessment. It includes a summary of the likely significant effects leading to the additional mitigation measures required to avoid, prevent, reduce or, if possible, offset any likely significant adverse effects, and the likely residual effects and any required monitoring after these measures have been employed.
- 6.3. This Chapter has been prepared by members of the WSP Sustainability and Climate Change Team who have been responsible for undertaking the assessments reported, contributing to the information described and for compiling the document. Table 6.1 provides details of the experts who have contributed.

Table 6.1: Competent Expert Evidence

Name	Competent Expert Evidence
Yanis Savvopoulos (Technical Reviewer)	• Masters in Architecture • MSc Environmental Design & Engineering, Accredited Energy and Carbon Assessor by CIBSE (LCC, LCEA) • MCIBSE, CEng, ARB • 7 years of experience
Angelos Kokkalis	• MSc Environmental Design & Engineering, Accredited Energy and Carbon Assessor by CIBSE (LCC, LCEA) • 6 years of experience
Danae Petrou	• Masters in Architecture • MSc Environmental Design & Engineering • ARB, LEED GA, WELL AP • 2 years of experience

Legislative framework, policy and guidance

Legislative framework

- 6.4. The applicable legislative framework comprises:
- Climate Change Act 2008 (2050 Target Amendment) Order 2019: introduce a net zero target for at least 100% reduction in GHG emissions (compared to 1990 levels) in the UK by 2050;
 - Planning and Energy Act 2008;
 - The Carbon Plan: Delivering our Low Carbon Future, 2011;
 - UK Climate Change Risk Assessment, 2017;
 - Carbon Budgets, 2016; and
 - Building Regulations 2010, Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments.

Climate Change Act 2008 (2050 Target Amendment)

- 6.5. The Climate Change Act 2008 sets targets for reducing the UK's impacts on climate change and the need to prepare for managing the impacts. The Act sets a target of 80% carbon dioxide (CO₂) emissions reduction by 2050 (against a 1990 baseline) and sets interim targets to ensure progress towards this target. The Act also requires a Climate Change Risk Assessment (CCRA) to be used to assess the risks from the impact of climate change to the UK. The first CCRA in the UK was presented to Parliament in an Evidence Report in 2012, with the second presented in 2017. The overall aim of the Reports was to assess the urgency of further action to tackle current and future risks, and realise opportunities, arising for the UK, from climate change. The Act also requires the production of a national adaptation plan for the UK Government to implement to be ready for the challenges of climate change and a variety of organisations with key responsibilities (i.e. deemed to have adaptation reporting powers, ARP), were required to submit an ARP report of the steps they were and are taking to prepare for climate change.

UK and Local Carbon Budgets

- 6.6. Carbon budgets place restrictions on the amount of GHG emissions the UK can emit over a five-year period. The UK is the first country to set legally binding carbon budgets. Every tonne of human induced GHG emitted between now and 2050 will be counted towards the budget. If emissions rise in one sector, the UK will have to reduce emissions in another sector to balance the budget. The carbon budget for the 2018–2022 budgetary period is 2,544 million tonnes (Mt) of CO₂e; and for the 2023–2027 budgetary period, it is 1,950 MtCO₂e. The Government has set the fifth budgetary period covering 2028 to 2032 at 1,725 MtCO₂e. Note, 'CO₂e' describes a wider range of GHGs than just CO₂. It includes the equivalent from GHGs such as methane and nitrous oxide, which usually occur in smaller volumes than CO₂ but have a greater warming potential.
- 6.7. Carbon emissions of the Proposed Development have also been compared with the Local Carbon budgets¹ produced by the University of Manchester and Tyndall Centre for local authorities which presents climate change targets for Manchester that are derived from the commitments enshrined in the Paris Agreement. These are informed by the latest science on climate change and defined in terms of science-based carbon setting. The report provides Manchester with budgets for CO₂ emissions and from the energy system for 2020 to 2100 and recommends the following:
- To stay within a maximum cumulative carbon dioxide emissions budget of 18 MtCO₂ for the period of 2018 to 2100;
 - To initiate an immediate programme of CO₂ mitigation to deliver cuts in GHG emissions averaging a minimum of -12.4% per year to deliver a Paris-aligned (the Paris Agreement, 2015) carbon budget;
 - To reach zero or near zero carbon no later than 2043.

Planning Policy

- 6.8. The following policy documents have been considered in defining the scope and focus of the assessment presented in this chapter:
- National Planning Policy Framework (2021);
 - Building Regulations 2010, Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendment; and
 - Great Manchester Combined Authority (GMCA) Climate Emergency Declaration in July 2019, aiming to achieve carbon neutrality by 2038.

¹ <https://carbonbudget.manchester.ac.uk/reports/E09000002/print/> (Accessed: 22/07/2021)

National Planning Policy Framework (NPPF) 2021

- 6.9. The NPPF 2021 sets out the Government’s planning policies for England and how these are to be applied. Guidance relating to the reduction of greenhouse gases is mainly set out in Section 14 “Meeting the Challenge of Climate Change, Flooding and Coastal Change”. Within paragraph eight, the document confirms that the purpose of the planning system is to contribute to the achievement of sustainable development, which includes economic, social and environmental dimensions.

Building Regulations

- 6.10. The Building Regulations Part L governs the conservation of fuel and power in both new construction and refurbishment of the England and Wales building stock. Compliance with the Building Regulations is a regulatory requirement for all new developments. Carbon emissions of a development comparative to compliance with Part L is the key performance indicator for achieving many carbon targets.

GMCA Climate Emergency Declaration

- 6.11. The Greater Manchester Combined Authority (GMCA) has declared a climate emergency after a motion was agreed at the full CA meeting in Oldham on Friday 26 July, aiming to reach to carbon neutrality by 2038.
- 6.12. As part of the carbon neutrality path, a five-year environment plan was launched by the GMCA in March 2019 following 12 months of collaboration and consultation with representatives from across the city-region. The Paris-aligned, science based, plan sets out how Greater Manchester will become one of the globes healthiest, cleanest and greenest city-regions. This includes:
- The largest Clean Air Zone outside of London, covering a population of nearly three million people across 500 square miles.
 - GM is also the first English region to come up with detailed proposals to substitute fossil fuels with low-carbon energy alternatives by 2038; as part of this all of the region’s ten councils are implementing planning policies which create a ‘presumption’ against fracking.
 - The Greater Manchester Spatial Framework sets out plans for homes, jobs and the environment to support the city region’s 2038 carbon neutral commitment. A key element of this is to require all new development to be net zero carbon by 2028, as well as new measures for greater energy efficiency and on-site energy generation in new developments well before then.
 - The investment in building retrofit and renewable energy required to meet Greater Manchester’s ambition could create 55,000 local jobs. This includes training the city region’s workforce with the skills to make Greater Manchester a global leader in the industry.
 - Greater Manchester has also produced the first city-region wide plan to drive down avoidable single-use plastics. #PlasticFreeGM asks businesses, organisations and individuals to pledge to take action. More than 80 tourism and hospitality businesses have already discarded the use of plastic straws for the more sustainable ‘bee straw’, with nearly half a million sold to date.

Guidance

- 6.13. The following guidance documents have been used during the preparation of this chapter:
- Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA);
 - RIBA 2030 Climate Challenge (version 2-2021);
 - National Planning Practice Guidance on Climate Change
 - Mayor’s Transport Strategy; and
 - RICS guidance on Whole Life Carbon Assessment for the Built Environment (2017).

Consultation

6.14. No consultation has been required for the production of this GHG assessment.

Methodology / Scope of the assessment

6.15. This section of the Chapter sets out the scope of the assessment.

6.16. The emissions sources, described as elements with their associated Lifecycle Stage during the Proposed Development lifespan, have been identified using guidance from IEMA. Professional judgement has been used to determine which sources to scope in and out of further assessment, as outlined in Table 6.2.

6.17. The scope of the assessment is consistent with the framework for the quantification of GHG emissions presented in British Standard (BS) EN 15978:2011 'Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method.

Table 6.2– Summary of Assessment of Scope

Receptor	Impact	Potential Effect	Scoped In / Out
Product stage (manufacture and transport of raw materials to suppliers) A1-3	GHG emissions during the construction phase of the Proposed Development.	Raw materials required for the Proposed Development will result in embodied emissions and have the potential to be large.	Scoped In
Transport of materials to site A4	GHG emissions during the construction phase of the Proposed Development.	Construction stage emissions from fuel / energy consumption due to the delivery of material to site have the potential to be large.	Scoped In
Plant and equipment use during construction A5	GHG emissions during the construction phase of the Proposed Development.	Fuel / energy consumption of plant and equipment used during construction would generate GHG emissions.	Scoped In
Land use, land use change and forestry A5	GHG emissions during the construction phase of the Proposed Development.	Emissions from the disposal of biomass are not expected to be large.	Scoped Out
Disposal of waste A5	GHG emissions during the construction phase of the Proposed Development.	Emissions from the disposal of waste are unlikely to be large, due to a large proportion of construction waste being inert.	Scoped In
Replacement and refurbishment B2-5	GHG emissions during the operation phase of the Proposed Development.	The replacement and refurbishment of the Proposed Development would release a potentially large magnitude of emissions.	Scoped In
Operational Energy Use B6	GHG emissions during the operation phase of the Proposed Development.	In-use electricity emissions will be released on an annual basis due to the building use.	Scoped In
End-user emissions (regional traffic flows) – traffic B9/D	GHG emissions during the operation phase of the Proposed Development.	Changes to regional traffic flows are expected and this has the potential to result in a large change in GHG emissions.	Scoped In
In-use Emissions B1	GHG emissions during the operation phase of the Proposed Development.	This is not considered to be a large emission source.	Scoped Out

Receptor	Impact	Potential Effect	Scoped In / Out
Maintenance B2-5	GHG emissions during the operation phase of the Proposed Development.	Maintenance associated with the Proposed Development is not considered to be a large emissions source as only a small amount will be additional to the maintenance that already takes place within the region.	Scoped Out
Repair B2-5	GHG emissions during the operation phase of the Proposed Development.	The Proposed Development is designed to be maintained rather than repaired, therefore subsequent repair emissions sources are not considered to be large.	Scoped Out
Land use, land use change and forestry B8	GHG emissions during the operation phase of the Proposed Development.	The reduction in carbon sequestration due to the Proposed Development is not considered to be large.	Scoped Out
Decommissioning process C1-C4	GHG emissions during the end of life phase of the Proposed Development.	Any emissions arising from decommissioning, stripping out, disassembly, deconstruction and demolition operations as well as from transport, processing and disposal of materials at the end of life of the project.	Scoped In

Study area

- 6.18. The GHG emissions assessment has not been restricted by geographical area but has instead included any increase or decrease in emissions as a result of the Proposed Development, wherever that may be. This includes:
- Construction emissions - from the Application Site footprint, but also related to the transport of materials to and from the Application Site and their manufacture (this may be distant from the Proposed Development location);
 - Operational emissions - (increase or reduction) which result from the end-use of the Proposed Development and any shifts in transport modes/patterns which may occur. Such emissions include those for traffic using the Proposed Development as well as the surrounding regional road network to gain access; and
 - Decommissioning process - Any emissions arising from decommissioning, stripping out, disassembly, deconstruction and demolition operations as well as from transport, processing and disposal of materials at the end of life of the project.

Desk study – Baseline data collection

- 6.19. The GHG assessment has included a desk study using the following sources of baseline data:
- The Masterplan Drawings which set the parameters of the Proposed Development;
 - Illustrative Schedule of Accommodation;
 - The Energy Strategy prepared by FutureServ;
 - SAP 2012 and SAP 10.1 emission factors for operational energy related building emissions;
 - RIBA 2030 Climate Challenge (version 2-2021);
 - One Click Software - Embodied Carbon Calculation;
 - Department for Business, Energy & Industrial Strategy, 2021 Government GHG Conversion Factors for Company Reporting;

- Department for Business, Energy & Industrial Strategy, 2021, Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal - Data tables 1 to 19: supporting the toolkit and the guidance;
- Department for Business, Energy & Industrial Strategy, 2005 to 2017 UK local and regional CO2 emissions – data tables, 2018;
- Traffic data provided by Curtins, in alignment with the Transport Statement and Interim Travel Plan;
- National Travel Survey statistics (2020);
- Road freight statistics (2020); and
- Transport Assessment Guidance (TAG) Data Book

Site visits and surveys

6.20. For the purpose of this assessment, no site visit or survey was required.

Assessment methodology

- 6.21. The assessment follows the emerging best practice. Current best practice is reflected in IEMA (2017) Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance². This guidance advocates a ‘good practice’ approach where GHG emissions are always considered and reported but at varying degrees of detail depending on the EIA and the project in question.
- 6.22. In line with the guidance, this chapter sets out the methodological approach that has been taken to address GHG emissions associated with the Proposed Development. This means providing the assessment approach, calculating the baseline, determining the significance of each GHG emission source scoped into the assessment and setting out strategies for mitigation.
- 6.23. Existing sources of GHG emissions prior to construction and operation of the Proposed Development (i.e. without development) are identified to assess the current baseline. Sources of GHG emissions following the construction and during operation of the Proposed Development are then assessed, from which the significance, mitigation measures and residual effects are determined.
- 6.24. The environmental effects assessed are:
- **Whole Life Embodied emissions:** This includes embodied carbon emissions related to materials and construction process throughout the lifespan of the building, including upfront emissions during constructions, construction transport emissions, emissions from replacements/repairs during the operational phase and end-of-life emissions.
 - **Operational Building emissions** (from energy use): This includes emission related to the energy consumption of the building, throughout its operational phase.
 - **Operational Transport emissions:** This includes emission related to the transport, throughout its operational phase.
- 6.25. More details on these three assessed effects are provided below, organised per construction, operational and end-of-life phase.

² IEMA (2017), Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance, Online Available at: https://www.iaia.org/pdf/wab/EIA%20Guide_GHG%20Assessment%20and%20Significance_IEMA_16May17.pdf

Construction phase

- 6.26. The construction phase is anticipated to take place between 2022 and 2024. The scheme is anticipated to be delivered in a single phase.

Embodied Emissions (incl. construction transport)

- 6.27. An assessment of the whole life embodied emissions has been undertaken.
- 6.28. The analysis has been carried out to align with the requirements of RICS Professional Statement “Whole Life Carbon Assessment for the Built Environment” (2017). The approach to the assessment covers the ‘cradle to grave’ stages of the building life cycle, including A1-3 Product stage, A4-5 Construction process stage, B1-5 Use stage and C1-4 End of life stage.
- 6.29. The building elements included in the scope of the assessment are aligned with the ‘Embodied Carbon Target Alignment’ work (2021) and RICS Professional Statement “Whole Life Carbon Assessment for the Built Environment” (2017). Elements 1-Substructure, 2-Superstructure and were assessed based on material quantities derived from the Revit models provided by the architects and from the structure consultant. The elements 3-Finishes, 4-FF&E, 5-Services and 8-External works were added as separate % allowances of the A1-5 and B-C embodied emissions, based on data from GLA’s Whole Life Carbon (WLC) Guidance (Consultation version, Oct 2020). This is an acceptable approach for the concept design stage where such detailed material quantities and specifications are not yet available for all the in-scope building elements.
- 6.30. The LCA tool ‘OneClickLCA’ has been used to source carbon databases and perform LCA calculations. The OneClickLCA tool utilised is the ‘Carbon assessment, RICS’, while the materials were chosen from the associated database.
- 6.31. To assess the magnitude of impact for this effect, a comparison has been done with the RIBA targets for whole life embodied carbon (including construction, replacements during operation and end-of-life phase).

Operational phase

- 6.32. The operational phase of the Proposed Development is assumed to start on 2025. Since the expected lifespan of this development for this assessment has been assumed to be 60 years, then the operational part of the assessment covers the period 2025-2084.
- 6.33. The assessment of significance of the effects from operational building and transport emissions is undertaken on an annual basis. The results for the whole 60-year lifespan of the Proposed Development (2025-2084) are also provided for the proposed development on a contextual basis.

Embodied Emissions

- 6.34. The same procedure has been followed as described above in paragraphs. The results refer to the replacement/refurbishment of building parts during use stage. The RICS³ assumptions on material and building component lifespans have been used for this assessment.
- 6.35. To assess the magnitude of impact for this effect, a comparison has been done with the RIBA targets for whole life embodied carbon (including construction, operation and end-of-life phase), as described in the table Table 6.4 below.

³ RICS 2017, Whole life carbon assessment for the built environment. Online Available at: <https://www.rics.org/globalassets/rics-website/media/news/whole-life-carbon-assessment-for-the-built-environment-november-2017.pdf>. Data from Table 9 – Indicative component lifespans have been derived

Building Emissions

- 6.36. For the regulated carbon emissions from the new buildings during the operational stage, an Energy statement was prepared by Future Serv.
- 6.37. The building energy use has been tested for compliance with both Part L (Conservation of Fuel and Power) of the Building Regulations 2010 (2013 edition with 2016 amendments) and the upcoming Part L 2021 (see Energy Statement). The first methodology uses SAP 2012 emission factors for electricity, while the second one uses the SAP 10.1 factors. In both methodologies, the effect of energy efficiency improvements and the low carbon technologies have been considered.
- 6.38. To assess the magnitude of impact for this effect, a comparison has been done with the RIBA targets for operational energy consumption, as described in the tables below. Since the target by RIBA is based on energy consumption and not on carbon emissions, for the purpose of this assessment the energy consumption figures deriving from DER results have been calculated to energy figures using SAP 10.1 factors.
- 6.39. Besides assessing the magnitude of impact of effects, it is also important to contextualise the operational building emissions over the Proposed Development's lifespan. As per IEMA Guidance on Assessing GHG emissions and evaluating their significance⁴, it is down to the practitioner's professional judgement on how best to contextualise a project's GHG impact, against sectoral, local or national carbon budgets. For this purpose, the operational emissions are estimated over the 60-year lifespan of the Proposed Development, from the opening year (2025) until 2084. The emissions factor used for this calculation takes into consideration the grid decarbonisation, because the development has followed an all-electric approach, using air-source heat pumps instead of gas boilers. The average electricity emissions factor for the period 2025-2084 has been calculated and used for this assessment, based on the predicted electricity emissions factors published by the government⁵, as summarised in Table 6.2.

Table 6.2– Predicted electricity emissions factors over the operational phase of the Proposed Development

Year	Electricity emissions factor (kgCO ₂ e/kWh)	Year	Electricity emissions factor (kgCO ₂ e/kWh)	Year	Electricity emissions factor (kgCO ₂ e/kWh)
2025	0.125	2045	0.010	2065	0.007
2026	0.092	2046	0.009	2066	0.007
2027	0.076	2047	0.008	2067	0.007
2028	0.071	2048	0.008	2068	0.007
2029	0.066	2049	0.007	2069	0.007
2030	0.053	2050	0.007	2070	0.007
2031	0.042	2051	0.007	2071	0.007
2032	0.036	2052	0.007	2072	0.007
2033	0.031	2053	0.007	2073	0.007
2034	0.028	2054	0.007	2074	0.007
2035	0.025	2055	0.007	2075	0.007
2036	0.021	2056	0.007	2076	0.007
2037	0.019	2057	0.007	2077	0.007
2038	0.018	2058	0.007	2078	0.007
2039	0.017	2059	0.007	2079	0.007
2040	0.016	2060	0.007	2080	0.007
2041	0.013	2061	0.007	2081	0.007
2042	0.012	2062	0.007	2082	0.007
2043	0.012	2063	0.007	2083	0.007
2044	0.011	2064	0.007	2084	0.007

⁴ IEMA 2017. Environmental Impact Assessment Guide to: Assessing GHG emissions and evaluating their significance. Available at: <https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance>

⁵ The Grid Average consumption based carbon intensity figures for Domestic developments were used, as published by the UK government (<https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>)

- 6.40. The calculation of the operational building emissions for the Proposed Development over its lifespan does not serve the purpose of assessing the magnitude of impact, as this is assessed based on the annual operational energy consumption targets, and it is estimated with the purpose of contextualising.

Transport Emissions

- 6.41. In order to calculate the operational traffic associated with the Proposed Development, the number of trips per vehicle/transport mode, and the average trip distance have been multiplied by emissions factors for each key vehicle type. The data required has been provided by Curtins, and aligns with the Transport Assessment and Interim Travel Plan. The 2021 Defra emissions factor selected for each vehicle type represents the closest match. This is summarised in the table below.

Table 6.3– Transport Emissions Calculation Methodology

Metric	Unit	Personal Vehicle	Transport Mode
Total Distance (A)	km / year	$A=C \times D$	$A=B \times D$
Total Person Trips (B)	people trips / year	-	B
Total Vehicle Trips (C)	vehicle trips / year	C	-
Average Trip Length (D)	km / trip	D	D
Emissions Factor Value (E)	kg CO_2e/km	E	E
Total (T)	kg CO_2e	$T = E \times A$	$T = E \times A$

- 6.42. The use of electric vehicles has been assessed based on the traffic data on personal vehicles provided by Curtin, which is estimated to be around 3% of all personal vehicle trips.

End of life phase

Embodied Emissions

- 6.43. The same procedure has been followed as described above. The results refer to the end of life of materials.
- 6.44. To assess the magnitude of impact for this effect, a comparison has been done with the RIBA targets for whole life embodied carbon (including construction, operation, and end-of-life phase), as described in Table 6.4.

Significance criteria

Receptors

- 6.45. The sensitive receptor relevant to this assessment is the global climate, which is impacted by the creation and release of GHG emissions.

Determining Significant Criteria

Sensitivity of receptor and Nature of impact

- 6.46. There are currently no agreed thresholds for what level of GHG emissions is considered significant in the context of the EIA Regulations. With regards to assigning significance, the IEMA guidance provides guidance on how to assess GHG emissions in EIA:

“When evaluating significance, all new GHG emissions contribute to a significant negative environmental effect; however, some projects will replace existing development that have higher GHG profiles. The significance of a project’s emissions should therefore be based on its net impact, which may be positive or negative.....

.... Whilst there is no single preferred method to evaluate significance, extensive research is being undertaken to explore significance, thresholds for GHG emission assessments, and science-based targets. “

- 6.47. Following the rationale of IEMA guidance above, the sensitivity of the receptor (which is the climate) is considered to be high and all effects are considered to be adverse.

Assessing the magnitude of impact

- 6.48. There are currently no agreed thresholds for what level of GHG emissions is considered significant in the context of the EIA Regulations. With regards to assigning significance, the IEMA guidance provides guidance on how to assess GHG emissions in EIA and on contextualising a project’s GHG emissions:

“Under the principle that all GHG emissions might be considered significant, and the ongoing research of how to actually measure significance, it is down to the practitioner’s professional judgement on how best to contextualise a project’s GHG impact.

Generating a project’s carbon contribution, will enable the impact of your project, to be contextualised against sectoral, local or national carbon budgets. This will provide the practitioner and the Local Planning Authority with a sense of scale.”

- 6.49. Therefore, to contextualise and assess the carbon emissions of the Proposed Development, these have been compared to:

- **Royal Institute of British Architects (RIBA) 2030 Climate Challenge** (Table 6.4) targets – with the purpose to assess the magnitude of impact of the effects. This has been undertaken for the whole life embodied emission and operational building emissions from energy
- **Regional Transport Carbon Emission data** (Table 6.5) – with the purpose to assess the magnitude of impact of the effects. In the absence of specific targets related to transport carbon emissions from new developments, the transport carbon emissions from the Proposed Development have been compared with the regional transport carbon emissions

- 6.50. The following paragraphs describe these three significance criteria for determining the magnitude of impact.

- 6.51. The RIBA has developed targets 6 for embodied carbon and operational energy use. These consider the latest recommendations from the Green Construction Board and have been developed by the RIBA in consultation with other UK professional bodies. The targets (summarised in Table 6.5) are progressive yet realistic, and a vital first step to ensure the construction industry has delivered the significant reductions necessary by 2030 in order to have a realistic prospect of achieving net zero carbon for the whole UK building stock by 2050.

⁶ We have been using the latest version of this targets: RIBA (2021). RIBA 2030 Climate Change Challenge – Version 2. Online Available at: <https://www.architecture.com/-/media/files/Climate-action/RIBA-2030-Climate-Challenge.pdf>

Table 6.4– RIBA 2030 Climate Challenge target metrics for domestic buildings

RIBA Sustainable Outcome Metrics	Business as Usual	2025 Targets	2030 Targets
Whole life Embodied Carbon (kgCO ₂ e/m ²)	1200	< 800	< 625
Operational Energy (kWh/m ² /y)	120	< 60	< 35

- 6.52. A comparison with the RIBA 2030 target, 2025 target and Business-As-Usual benchmark has been undertaken with the purpose to assess the magnitude of impact of the whole life carbon emissions and the operational emissions from energy, as below:
- **Major magnitude of impact:** where the Proposed Development exceeds the “Business as Usual” for embodied carbon and operational energy performance respectively as defined by the RIBA guidance
 - **Moderate magnitude of impact:** where the Proposed Development meets the “Business as Usual” for embodied carbon and operational energy performance respectively as defined by the RIBA guidance
 - **Minor magnitude of impact:** where the Proposed Development meets the “2025 Targets” for embodied carbon and operational energy performance respectively as defined by the RIBA guidance
 - **Negligible magnitude of impact:** where the Proposed Development meets the “2030 Targets” for the embodied carbon and operational energy performance respectively defined by the RIBA guidance
- 6.53. The regional transport GHG emissions for Great Manchester have been quantified, as per national statistics (Table 6.5)⁷. The operational transport emissions of the Proposed Development are contextualised by comparing with the regional transport GHG emissions to provide a sense of scale.

Table 6.5– Regional GHG emissions, Manchester, 2016 (MtCO₂e)

Manchester, 2016	GHG emissions (kt CO ₂)
Industry and Commercial (total)	857
Domestic (total)	645
Transport (total)	676
Grand total	2,178

- 6.54. In absence of relevant guidance and benchmarks and using the author’s professional experience, all operational emissions from transport are considered to be of moderate magnitude of impact.

⁷ Department for Business, Energy & Industrial Strategy 2018. UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2016. Available at: <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2016>

Assessing the significance of effects

- 6.55. The matrix to assess the significance of effects (which are the embodied, building and transport emissions) based on the sensitivity of receptor (which is high for climate) and the magnitude of impact (as explained above) is shown in Table 6.6.
- 6.56. Effects of Major and Major-Moderate significance are considered 'significant' in EIA terms. Effects of Moderate-Minor significance are considered 'not-significant' in EIA terms.

Table 6.6– Matrix to assess significance of effects, based on sensitivity of receptor and magnitude of impact of each effect

Magnitude of impact	Sensitivity		
	High	Low	Medium
Major	Major	Major-moderate	Moderate-Minor
Moderate	Major - Moderate	Moderate - Minor	Minor
Minor	Moderate - Minor	Minor	Minor - Negligible

Contextualising against regional and national carbon budgets

- 6.57. Carbon budgets place restrictions on the amount of GHG emissions the UK can emit over a five-year period - expressed in millions of tonnes of carbon dioxide equivalents (MtCO_{2e}). The UK is the first country to set legally binding carbon budgets. Every tonne of GHG emitted between now and 2050 will be counted towards the budget. If emissions rise in one sector, the UK will have to reduce emissions in another sector to balance the budget. Then the UK carbon budget is apportioned locally, including Great Manchester.
- 6.58. A comparison with the UK and Great Manchester Carbon Budgets has been undertaken with the purpose to contextualise the effect of the sum of whole life carbon emissions, the operational emissions from energy and transport emissions throughout consecutive 5-year periods of the development's lifespan until 2037.

Table 6.7– National and regional carbon budgets (MtCO_{2e})

Carbon Budget Period	UK Carbon Budget (MtCO _{2e}) ⁸	Great Manchester Carbon Budget (MtCO _{2e}) ⁹
Third: 2018-2022	2,544	36
Fourth: 2023-2027	1,950	17
Fifth: 2028-2032	1,725	8
Sixth: 2033-2037	965	4

Assumptions and limitations

- 6.59. The construction phase is assumed to be between 2022 and 2024.

⁸ Department for Business, Energy & Industrial Strategy 2021. Guidance: Carbon Budgets. Available at: <https://www.gov.uk/guidance/carbon-budgets>
⁹ <https://www.manchesterclimate.com/sites/default/files/Greater%20Manchester%20Carbon%20Budget.pdf>

- 6.60. The operational phase of the development is assumed to start on 2025. Since the expected lifespan of this development for this assessment has been assumed to be 60 years, then the operational part of the assessment covers the period 2025-2084.
- 6.61. It should be noted that within the 2025-2084 period, the first three decades up to 2050 are the most critical ones regarding their impact on climate. This is because in June 2019, Parliament passed legislation requiring the government to reduce the UK's net emissions of greenhouse gases by 100% relative to 1990 levels by 2050. Doing so would make the UK a 'net zero' emitter. Prior to this, the UK was committed to reducing net greenhouse gas emissions by at least 80% of their 1990 levels, also by 2050.
- 6.62. Regarding embodied carbon calculations, it should be noted that this is a preliminary estimate utilising estimated quantities and generic material data for the Proposed Development, that would produce a conservative set of results that would be expected to improve with more detailed information during the later design stages.
- 6.63. Regarding operational building emissions, the RIBA targets that are used for benchmarking include both regulated and unregulated loads. Regarding the regulated energy consumption, data has been derived from the Energy Statement provided by Futureserv. For the assessment of the unregulated energy loads, the findings of the "Embodied and whole life carbon assessment for architects" report by Sturgis S. and RIBA (2019), according to which unregulated building emissions are 29% of the regulated building emissions. This finding is also referenced in the RIBA Sustainable Outcomes Guide 2019. It should be noted that the unregulated carbon emissions can be highly unpredictable, as they depend on the future tenants of the residential units.
- 6.64. The assessment of the operational building emissions takes into consideration the national grid decarbonisation which will largely take place between today and 2050. This is because the Proposed Development has followed an all-electric approach so it will be in a position to benefit from the decarbonisation of the electricity and gradually reduce its operational building emissions over the years (although the energy consumption will remain the same). To account for this benefit, the electricity emission factor used is the average of the electricity emission factors for the period 2025-2084, based on the emissions factors published by the government.
- 6.65. Regarding the assessment of the operational transport carbon emissions, the on demand approach in EV charging infrastructure installation has been assessed as part of the additional mitigation measures. To assess the mitigation effect of this approach, the projections from Transport Assessment Guidance (TAG) Data Book has been used. For this assessment, the ratio between different types of electric vehicles has been assumed to be the same as the traffic data provided by Curtins (Battery Electric Vehicles -18.2 % of EVs, Plug-in Hybrid Electric Vehicles-19.3% of EVs, Hybrid- 62.4%). The percentage of EV trips is changing every year according to these projections while slowly increasing. Therefore the EV trips per year are calculated and then the total EV trips throughout the lifetime of the proposed development is estimated. An annual average which incorporates this trend is used for the assessment of the annual transport emissions of the development. It should be noted that after 2050 (when UK's net emissions of greenhouse gases should be reduced by 100% relative to 1990 levels), the projections available on EV use are limited. Therefore, it has been assumed that the Proposed Development's EV usage after 2050 are stable to 2050's levels, under the assumption that decarbonisation and electrification would be largely achieved by then.
- 6.66. No further analysis has been undertaken as to the long-term increases in vehicle efficiency and possible increase in autonomous vehicle use. These would likely reduce the total GHG emissions associated with the Proposed Development.

Baseline Conditions

Existing Baseline

- 6.67. In the baseline scenario, GHG emissions occur constantly and widely as a result of human and natural activity including energy consumption (fuel, power), industrial processes, land use and land use change. The GHG

assessment only considers instances in which the Proposed Development results in additional or avoided emissions in comparison to the baseline scenario and its assumed evolution.

- 6.68. The current land use of the Site is a surface level car park. Therefore, the current use of the Site is likely to generate some traffic flows and associated carbon emissions, which are summarised in Table 6.8 below.
- 6.69. The operation and management of the Site will likely require some components and bulk materials for minor maintenance works and repairs. These materials will have embodied emissions associated with them, and the transport emissions to and on the Site. The associated energy and embodied baseline emissions are anticipated to be small, and as such will not be quantified.
- 6.70. As a result, there are some transport GHG emissions but zero operational and embodied GHG emissions associated with the existing baseline of the Site.

Table 6.8– Transport Emissions for the existing baseline

Metric	Unit	Car (petrol)	Car (diesel)	Car (BEV)	Car (PHEV)	Car (Hybrid)
Total distance	km/year	446,480	446,480	5,398	5,725	18,468
Total vehicle trips	vehicle trips/yr	36,500	36,500	441	468	1,510
Total person trips	person trips/yr	-	-	-	-	-
Average Trip length	km/trip	12	12	12	12	12
Emissions factor description	kgCO ₂ e/km	Average car, Petrol, per km	Average car, Diesel, per km	Average car, Battery Electric Vehicle, per km	Average car, Plug in Hybrid Electric Vehicle, per km	Average car, Hybrid, per km
Emissions factor value	kgCO ₂ e/km	0.2805	0.2711	0.0503	0.0948	0.1195
Transport emissions per vehicle	kgCO ₂ e	125,251	121,032	272	543	2,207
					Total tCO ₂ e	249

Future baseline

- 6.71. The future baseline scenario for traffic emissions is assumed to be the same as the current baseline scenario, as per the transport assessment undertaken by Curtins.

Assessment of Potential effects

Construction Phase

Embodied Emissions (incl. construction transport)

- 6.72. Activities during the construction phase would generate GHG emissions, particularly from the manufacture of construction materials, but also from transport to the construction site and from on-site works.
- 6.73. The calculations for the embodied carbon emissions generated during the construction phase of the Proposed Development is provided in the table below.

Table 6.9 – Embodied and transport carbon emissions during construction phase

Type	Carbon emissions (t CO ₂ e)
Emissions related to A1-A3 Product Stage	20,953
Emissions related to A4 Transport to Site	614.9
Emissions related to A5 On-site construction works	933
Total	22,500.9

- 6.74. The total tonnes of embodied carbon estimated to be generated during construction phase by the Proposed Development are **22,500.9 tCO₂e**.

Operational Phase

Embodied Emissions

- 6.75. Activities during the operational phase would generate GHG emissions, particularly from the replacement and/or refurbishment of building elements.
- 6.76. The calculations for the embodied carbon emissions generated during the operational phase are provided in the table below.

Table 6.10 – Calculations for the embodied carbon emissions during operation

Type	Carbon emissions (t CO ₂ e)
Emissions related to B4: Replacement, B5: Refurbishment	602.9

- 6.77. The total tonnes of embodied carbon estimated to be generated during operational phase by the Proposed Development is are **602.9 tCO₂e**.

Building Emissions

- 6.78. The calculations for the building emissions during the operational phase related to the first operational year of the Proposed Development are provided in the table below.

Table 6.11– Operational building energy consumption and GHG emissions – annually

	Regulated	Unregulated	Total
Energy			
Energy consumption (MWh/yr)	1,678.5	486.8	2,165.2
Energy consumption intensity (kWh/m ² /yr)	39.6	11.5	51.1
Carbon emissions - A. with SAP 10.1			
Carbon emissions (t CO ₂ /yr)	228.3	66.2	294.5
Carbon emissions intensity -BER (kgCO ₂ /m ² /yr)	5.4	1.6	7.0
Carbon emissions - B. with decarbonising grid			
Carbon emissions (t CO ₂ /yr)	29.9	8.7	38.6

Carbon emissions intensity -BER (kgCO ₂ /m ² /yr)	0.7	0.2	0.9
---	-----	-----	-----

- 6.79. The annual regulated energy consumption rate of the Proposed Development is 1,678.5 MWh/year and its annual energy consumption intensity per m² is 39.6 kWh/m²/year. The annual unregulated energy consumption rate of the Proposed Development is 486.8 MWh/year and its annual energy consumption intensity per m² is 11.5 kWh/m²/year. The total tonnes of operational emissions estimated to be generated by the Proposed Development is 294.5 tCO_{2e}/year when using the SAP 10.1 emissions factor.
- 6.80. However, since the Proposed Development has followed an all-electric approach using air source heat pumps, then it is realistic to account for the benefits of decarbonising electricity grid when calculating its emissions over the the lifetime of the Proposed Development. Therefore using the projected electricity carbon factors as published by the UK Government, then the annual operational building emissions are reduced to 38.6 t CO_{2e}/year.

Transport Emissions

- 6.81. The calculations for the annual transport emissions during the operational phase are provided in detail in Table 6.12-6.14 and in summary in

Metric	Unit	Tram	Train	Bus	Taxi	Bicycle	On foot
Total distance	<i>km/year</i>	1,103,092	9,443,463	1,002,463	17,813	349,991	1,408,565
Total vehicle trips	<i>vehicle trips/yr</i>	-	-	-	-	47,456	586,213
Total person trips	<i>person trips/yr</i>	79,175	160,373	132,257	2,320	-	-
Average Trip length	<i>km/trip</i>	14	59	8	8	7	2
Emissions factor description	<i>kgCO_{2e}/km</i>	Light rail and tram, per passenger.km	National rail, per passenger.km	Average local bus, per passenger.km	Regular taxi per passenger.km	Conventional bike, per passenger km	On foot
Emissions factor value	<i>kgCO_{2e}/km</i>	0.0281	0.0355	0.1023	0.1488	0.0049	0.0098
Total kgCO_{2e}		31,030	335,148	102,522	2,650	1,715	13,804
						Total tCO_{2e}	487

- 6.82. Table 6.15 below.

Table 6.12 – Transport emissions for vehicles during the operational phase - Good vehicles

Metric	Unit	LGV	LGV (EV)	OGV
Total distance	<i>km/year</i>	3,193,463	12,774	189,242
Total vehicle trips	<i>vehicle trips/yr</i>	54,126	217	3,207
Total person trips	<i>person trips/yr</i>	-	-	-

Average Trip length	km/trip	59	59	59
Emissions factor description	kgCO ₂ e/km	Average van (<3.5 tonnes), unknown fuel, per km	Average van (<3.5 tonnes), Battery EV, per km	Diesel HGV, Rigid (3.5-7.5 tonnes), Average laden, per km
Emissions factor value	kgCO ₂ e/km	0.2402	0.0502	0.4584
Total kgCO ₂ e		766,974	641	86,739
			Total tCO ₂ e	854

Table 6.13 – Transport emissions for vehicles during the operational phase - Personal vehicles

Metric	Unit	Car (petrol)	Car (diesel)	Car (BEV)	Car (PHEV)	Car (Hybrid)	Motorcycle
Total distance	km/year	355,321	355,321	4,296	4,556	14,697	8,201
Total vehicle trips	vehicle trips/yr	29,048	29,048	351	372	1,202	773
Total person trips	person trips/yr	-	0	-	-	-	-
Average Trip length	km/trip	12	12	12	12	12	11
Emissions factor description	kgCO ₂ e/km	Average car, Petrol, per km	Average car, Diesel, per km	Average car, Battery Electric Vehicle, per km	Average car, Plug in Hybrid Electric Vehicle, per km	Average car, Hybrid, per km	Average motorbike, per km
Emissions factor value	kgCO ₂ e/km	0.2805	0.2711	0.0503	0.0948	0.1195	0.1136
Total kgCO ₂ e		99,678	96,320	216	432	1,757	931
						Total tCO ₂ e	199

Table 6.14 – Transport emissions for vehicles during the operational phase - Public and active transport

Metric	Unit	Tram	Train	Bus	Taxi	Bicycle	On foot
Total distance	km/year	1,103,092	9,443,463	1,002,463	17,813	349,991	1,408,565
Total vehicle trips	vehicle trips/yr	-	-	-	-	47,456	586,213
Total person trips	person trips/yr	79,175	160,373	132,257	2,320	-	-
Average Trip length	km/trip	14	59	8	8	7	2

Emissions factor description	kgCO ₂ e/km	Light rail and tram, per passenger.km	National rail, per passenger.km	Average local bus, per passenger.km	Regular taxi per passenger.km	Conventional bike, per passenger km	On foot
Emissions factor value	kgCO ₂ e/km	0.0281	0.0355	0.1023	0.1488	0.0049	0.0098
Total kgCO ₂ e		31,030	335,148	102,522	2,650	1,715	13,804
						Total tCO ₂ e	487

Table 6.15 – Transport emissions for vehicles during the operational phase – Summary

Category	tCO ₂ e
Good vehicles	854
Personal vehicles	199
Public and Active Transport	487
Total - Annual	1,541
Total – 60 years	92,433

- 6.83. The total tonnes of transport emissions estimated to be generated by the Proposed Development during the operational phase is **1,541 t CO₂e** per year. This annual emission rate would generate **92,433 t CO₂e** throughout the 60-year lifetime of the Proposed Development.

End of Life Phase

Embodied Emissions

- 6.84. Activities during the end of life phase of the Proposed Development would generate GHG emissions, particularly from the demolition, waste processing and the disposal of building elements.
- 6.85. The calculations for the embodied carbon emissions generated during the end of life phase are provided in the table below.

Table 6.16 – Embodied carbon emissions during end of life

Type	Carbon emissions (t CO ₂ e)
Emissions related to C1: De-construction, Demolition, C2: Transport, C3: Waste processing, C4: Disposal	805.1

- 6.86. The total tonnes of embodied carbon estimated to be generated during the end of life of the Proposed Development is **805.1 t CO₂e**.

Summary of assessment of potential effects

- 6.87. Table 6.17 below summarises the embodied, operational and transport emissions per life stage of the development (construction, operation, end-of-life).

Table 6.17 – Summary of embodied, operational and transport emissions per life stage

Stages	Category	Value	Units
Construction	Embodied A1-3 - Product and Materials	20,953	t CO2e
	Embodied A4 - Transport-to-site	614.9	t CO2e
	Embodied A5 - On-site works	933	t CO2e
Operation	Embodied B4 - Replacements	602.9	t CO2e
	Operational Energy B6 - Embedded Mitigation - Decarbonising grid	38.6	t CO2/year
		2,165	MWh/year
	Operational Transport - Embedded Mitigation (3% EV charging)	1,541	t CO2/year
End-of-life	Embodied C1-C4 - End-of-life	805.1	t CO2e

6.88. Table 6.18 below summarises the total embodied, operational and transport emissions during the construction phase, operational phase and end-of-life phase, taking into consideration the embedded mitigation measures (significant public and active transport options and limited EV charging infrastructure).

Table 6.18 – Summary of total embodied, operational and transport emissions over 60 years

Construction (2022-2026), Operation (2027-2086) and End-of-life (2086) phases		
Embedded Mitigation (Grid decarbonisation, 10% EV charging)		
Category	Value	Units
Whole life Embodied emissions (A-C)	32,608.1	t CO2
Operational Building emissions (<i>Grid decarbonisation</i>)	2,317	t CO2
Transport Operational Carbon (<i>10% EV charging</i>)	92,433	t CO2
Total	127,358	t CO2

- 6.89. The total tonnes of embodied carbon estimated to be generated during the end of life of the Proposed Development is 32,608.1 t CO2e.
- 6.90. The annual energy consumption rate of the Proposed Development is estimated to be 51.1 kWh/m² per year. Since the Proposed Development has followed an all-electric approach using air source heat pumps, then it is realistic to account for the benefits of decarbonising electricity grid when calculating its emissions over the period 2025-2084. Therefore using the projected electricity carbon factors as published by the UK Government, then the annual operational building emissions are estimated to be 38.6 t CO2e/year or 2,317 t CO2e over 60 years.
- 6.91. The total operational transport emissions throughout the lifetime of the Proposed Development are estimated to be 1,541 t CO2e/year or 92,433 t CO2e over 60 years. The results show that transport carbon emissions are the largest share of all the emission categories for the Proposed Development.

Assessment of Significance of Effects

Significance of Effect per effect category

- 6.92. In order to assess the significance of the GHG emissions generated by the Proposed Development in terms of embodied carbon, operational carbon (energy) and transport carbon, the comparisons below have been undertaken.

Whole Life Embodied emissions

- 6.93. The whole-life embodied carbon emissions of the Proposed Development (including the construction transport emissions) are estimated to be **702.8 kgCO_{2e}/m²**. This complies with the RIBA **2025** Climate Challenge target (800 kgCO₂/m²), but it doesn't reach the RIBA 2030 Climate Challenge target (625 kgCO₂/m²). Therefore, the embodied carbon emissions are likely to have an effect of **minor** magnitude of impact on climate and therefore the significance of effect of the embodied carbon emissions will be **moderate-minor (adverse)** prior to the implementation of mitigation measures set out below for the construction, operation and end of life phases.

Operational Building emissions

- 6.94. The annual energy consumption of the Proposed Development is estimated to be **51.5 kWh/m² per year**. This complies with the RIBA **2025** Climate Challenge target (60 kWh/m² per year). Therefore, the operational

carbon emissions is likely to have an effect of **minor** magnitude of impact on climate and therefore the significance of effect of the operational building emissions will be **moderate-minor (adverse)**, prior to the implementation of mitigation measures set out below.

Operational Transport emissions

- 6.95. The operational transport emissions of the Proposed Development are estimated to be **1,541 tCO₂e/year**. This exceeds the existing baseline of transport carbon emission associated with the current use of the Site, with an increase of **518%**. However, when compared to the annual regional transport carbon emission data for Manchester (676 ktCO₂e), the annual transport emissions from the Proposed Development have a share of **0.88%**.
- 6.96. There is no method to assess the significance of transport carbon emissions of the Proposed Development. Based on the author's professional experience, the operational transport carbon emissions are likely to have an effect of **moderate (adverse)** magnitude of impact on climate prior to the implementation of additional mitigation measures set out below.

Summary of significance of effects

- 6.97. The significance of these three effects (whole life embodied, operational building and operational transport emissions) on the climate is summarised in the Table 6.19.

Table 6.19 – Summary of significance of effects on the climate (prior to mitigation)

Environmental Effect	Sensitivity of Receptor	Nature of Impact	Impact Magnitude	Significance
Whole Life Embodied emissions (<i>incl. construction transport</i>)	High	Adverse	Minor	Moderate - Minor Adverse
Operational Building emissions	High	Adverse	Minor	Moderate - Minor Adverse
Operational Transport emissions	High	Adverse	Moderate	Major - Moderate Adverse

Local Carbon Budget Effect

- 6.98. In order to contextualise the GHG emissions generated by the Proposed Development during the operation phase and provide a sense of scale, the results on the assessment of potential effects have been compared against the local Carbon Budgets of Manchester.
- 6.99. The total emissions during each of the Carbon Budget 5-year periods is presented in Table 6.20 and compared in percentage terms to the respective budget.

Table 6.20 – Proposed Development impacts on the local Carbon Budgets

Carbon Budget Period	Great Manchester (GM) Carbon Budget (Mt CO ₂ e)	Carbon emissions from the proposed development (Mt CO ₂ e)	% share from GM Carbon budget
Third: 2018-2022	36	0.0099	0.0274%
Fourth: 2023-2027	17	0.0250	0.1469%
Fifth: 2028-2032	8	0.0083	0.1035%
Sixth: 2033-2037	4	0.0053	0.1331%

- 6.100. The Proposed Development is not expected to influence the achievement of Great Manchester carbon budgets prior to the implementation of mitigation measures set out below for the construction, operation and end of life phases.

UK Carbon Budget Effect

- 6.101. In order to contextualise the GHG emissions generated by the Proposed Development during the operation phase and provide a sense of scale, the results on the assessment of potential effects have been compared against the UK Carbon Budgets.
- 6.102. The total emissions during each of the UK Carbon Budget 5-year periods is presented in Table 6.21 and compared in percentage terms to the respective budget.

Table 6.21 – Proposed Development impacts on the UK Carbon Budgets

Carbon Budget Period	UK Carbon Budget (Mt CO ₂ e)	Carbon emissions from the proposed development (Mt CO ₂ e)	% share from UK Carbon budget
Third: 2018-2022	2,544	0.0099	0.00039%
Fourth: 2023-2027	1,950	0.0250	0.00128%
Fifth: 2028-2032	1,725	0.0083	0.00048%
Sixth: 2033-2037	965	0.0053	0.00055%

- 6.103. The Proposed Development is not expected to influence the achievement of national carbon budgets prior to the implementation of mitigation measures set out below for the construction, operation and end of life phases.

Mitigation Measures

Whole Life Embodied Emissions

- 6.104. The effect from embodied emissions on climate has been assessed to be of minor (adverse) significance. This section identifies further enhancement measures that could be explored during the later design stages for further reduction of embodied carbon emissions.
- 6.105. As the majority of the emissions are related to the product stage, the raw material supply, transport and manufacturing selection is an important element of mitigation.
- 6.106. Consideration during later design stages where possible should also be given to the Circular Economy principles recommended by GLA in the Circular Economy Statement Guidance (Draft for consultation, September 2020), which are presented in the table below.

Table 6.22 – Circular economy principles recommended by GLA in the Circular Economy Statement Guidance (Draft consultation, September 2020)

Principle	Develop commitments to...
1. Conserve resources, increase efficiency and source sustainably	1.1 Minimise the quantities of materials used
	1.2 Minimise the quantities of other resources used
	1.3 Specify and source materials and other resources responsibly and sustainably

Principle	Develop commitments to...
2. Design to eliminate waste (and for ease of maintenance)	2.1 Design for longevity, adaptability or flexibility and reusability or recoverability
	2.2 Design out construction, demolition, excavation and municipal waste arising
3. Manage waste sustainably and at the highest value	3.1 Manage demolition waste
	3.2 Manage excavation waste
	3.3 Manage construction waste
	3.4 Manage municipal waste (and industrial waste, if applicable)

6.107. Also, the next design stages of Proposed Development can align where possible with the Whole Life Carbon reduction principles as recommended by GLA in the Whole Life Carbon Assessment Guidance (Draft for consultation, September 2020), presented in the table below.

Table 6.23 – Principles for reducing WLC emissions recommended by GLA in the Whole Life Carbon Assessment Guidance (Draft for consultation, September 2020)

WLC reduction principles	Key benefits
1 Reuse and retrofit of existing buildings	Significant retention and reuse of structures is carbon efficient and reduces construction costs.
2 Use recycled or repurposed material	Reduces carbon emissions and reduces waste.
3 Material selection	Appropriate material choices is key to carbon reduction. Ensuring that there is synchronicity between materials selected and planned life expectancy of the building reduces waste and the need for replacement, thus reducing in use costs.
4 Minimise operational energy use	A 'fabric first' approach should be prioritised to minimise energy demand and reduce carbon and in-use costs.
5 Minimise operational water use	Choice of materials and durability of systems, to avoid leakage and subsequent building damage, contribute to reducing the carbon cost of water use.
6 Disassembly and reuse	Designing for future disassembly ensures that products do not become future waste and maintain their environmental and economic value.
7 Building shape and form	Compact efficient shapes help minimise both operational and embodied carbon emissions for a given floor area. This means a more efficient building overall resulting in lower construction and in use costs.
8 Regenerative design	Removing CO2 from the atmosphere through materials and systems absorbing it makes a direct positive contribution to carbon reduction.
9 Designing for durability and flexibility	Durability means that repair and replacement is reduced which in turn helps reduce life-time building costs. A building designed for flexibility can respond with minimum environmental impact to future changing requirements and a changing climate, thus avoiding obsolescence which also underwrites future building value.
10 Optimisation of the relationship between	Optimising the operational/embodied carbon relationship contributes directly to resource efficiency and overall cost reduction.

WLC reduction principles		Key benefits
operational and embodied carbon		
11	Building life expectancy	Defining building life expectancy gives guidance to project teams as to the most efficient choices for materials and products. This aids overall resource efficiency, including cost efficiency and helps future proof asset value.
12	Local sourcing	Sourcing local materials reduces transport distances and supply chain lengths and has associated local social and economic benefits.
13	Minimising waste	Waste represents an unnecessary and avoidable carbon cost. Buildings should be designed to minimise fabrication and construction waste, and to ease repair and replacement with minimum waste, which helps reduce initial and in-use costs.
14	Efficient fabrication	Efficient construction methods (e.g. modular systems, precision manufacturing and modern methods of construction) contribute to better build quality, reduce construction phase waste and reduce the need for repairs during post completion and the defects period (snagging).
15	Lightweight construction	Lightweight construction uses less material which reduces the carbon footprint of the building as there is less material to source, fabricate and deliver to site.
16	Circular economy	The circular economy principle focusses on a more efficient use of materials which in turn leads to carbon and financial efficiencies.

6.108. The effects could be reduced further through a monitoring tool that will enable contractors and managers to reliably and effectively benchmark, monitor, and acquire a better understanding of the expected and released embodied carbon footprint of the Proposed Development.

6.109. Therefore, when additional mitigation is considered the operational carbon emissions is likely to remain having a residual effect of **Minor (adverse)** magnitude of impact on climate.

Operational Building Emissions

6.110. Proposed embedded mitigation measures are included in the Environmental Standards Statement prepared by Future Serv and focus on regulated energy.

6.111. An indicative summary of the measures related with the fabric first approach are:

- Maximising air-tightness: An airtightness of 2.4 m³/hr/m² @50Pa is targeted for this development in order to minimise uncontrolled ventilation.
- Using Super-high insulation.
- Optimising solar gain through the provision of openings and shading.
- Optimising natural ventilation

6.112. The proposed fabric values of the construction elements are summarised below:

Table 6.24 – Proposed fabric values for key construction elements

Construction Element	Building Regulation Specification	Development Specification	Improvement over Part L1a Building Regulations
Floor	0.25 W/m ² K	0.12 W/m ² K	52% improved
External Wall	0.30 W/m ² K	0.13 W/m ² K	56% improved

Construction Element	Building Regulation Specification	Development Specification	Improvement over Part L1a Building Regulations
Roof	0.20 W/m ² K	0.12 W/m ² K	40% improved
Unitised Façade/ Curtain Walling	2.00 W/m ² K	0.9 W/m ² K	55% improved
Window	2.0 W/m ² K	1.2 W/m ² K	40% improved
Airtightness/ Permeability	10 m3/h/m2	2.4 m3/h/m2	76% improved

6.113. An indicative summary of the embedded mitigation measures related with the energy efficiency are:

- **Increased Hot Water Generating Efficiencies** – It is currently proposed that the heat energy for the domestic hot water will be generated using individual electrical hot water cylinders located within each apartment.
- Reduced Standing Losses from Pipes and Cylinders;
- **Energy Efficient LED Lighting and Improved Lighting Controls** – All internal lighting installations will make use of low energy technologies combined with presence and absence detection in conjunction with timed setbacks. 100% low energy lighting provision will be included within the development. Photo switching and automatic dimming will be specified to the communal areas of the building in order to improve the efficiency of the lighting system
- **Low Energy Motors in Pumps and Fans** – All fans, motors and pumps shall be specified to incorporate ECA accredited technology and appropriate controls.
- **Efficient Heat Recovery in relevant systems** – The ventilation will be via whole dwelling Mechanical Heat Recovery Ventilation (MVHR) units in each apartment. These will provide extract ventilation to kitchens and bathrooms, and balanced supply ventilation to all occupied rooms. Purge ventilation will be via openable windows, giving the occupants the final control over the environment in their homes. Communal and general areas of the building will be ventilated and potentially cooled as required by detailed calculations, with dedicated mechanical ventilation heat recovery units or air handling units.
- **Enhanced heating controls** – The space heating will be via electric panel heaters or similar in all residential areas of the building. These will be complete with thermostatic and time controllers.

6.114. The proposed system specifications are summarised below:

Table 6.25 – Proposed key system specifications

Construction Element	Specification
Ventilation	Natural Ventilation supplemented with MVHR
Lighting	100% low energy fittings
Space Heating	Electric Panel Heaters
Heating Control	Thermostatic and time controlled
Water Heating	Electric domestic hot water cylinders

6.115. Proposed enhancement mitigation measures comprise of the following:

- Robust monitoring of energy consumption (i.e. smart metering);
- Procurement of energy efficient equipment;

- Monitoring of In-Use Energy Consumption and comparison against the RIBA 2030 targets during later design stages.

Operational Transport Emissions

- 6.116. Proposed embedded mitigation measures includes the initiatives proposed in the Transport Assessment and the accompanied Interim Travel Plan (ITP) submitted in support of the planning application, to encourage future residents to travel to and from the Proposed Development in a sustainable manner.
- 6.117. Considering the high levels of accessibility of the Site, it is considered the vast majority of residents will travel to / from the Site via sustainable modes of travel.
- 6.118. It has been demonstrated within Section 4 of the Interim Travel Plan (ITP) that there is a good level of pedestrian infrastructure in the surrounding area, with access to local services on foot. The following measures will be provided in order to encourage residents to walk:
- Promote / raise awareness of the health benefits of walking;
 - Clear signing of pedestrian routes within and adjacent to the Site to main destinations and bus stops;
 - General lighting to be installed within the Site to provide a safe and secure environment;
 - Regularly review and update information (if necessary) provided within the Welcome Pack / notice boards, such as:
 - The Greater Manchester Walking website at gmwalking.co.uk/ which provides resources on routes, tips, local walking groups; and
 - The www.plotaroute.com website for journey planning on foot.
 - Consider setting up a social walking / 'walking buddy' group if there is enough interest.
- 6.119. It has been demonstrated throughout Section 4 of the Interim Travel Plan (ITP) that the Site is conducive to cycling. There will also be secure and sheltered cycle parking provided at the development as part of the development proposals. The following measures will be provided in order to encourage residents to cycle:
- Promote / raise awareness of the health and wellbeing benefits of cycling;
 - Provision of signage within and around the Site;
 - Regularly review and update information (if necessary) provided within the Welcome Pack / notice boards, such as:
 - Cycle information, including route maps and useful tips and guidance, on the Sustrans website www.sustrans.org.uk;
 - Local information on cycle training, parking, paths, maps, hire, or bringing bicycles on public transport on the TfGM website tfgm.com/cycling-and-walking;
 - Details of local cycle shops;
 - Marketing campaigns such as "National Bike Week";
 - The www.cyclestreets.net website for journey planning by bike.
 - Consider setting up a social cycling group / Bicycle User Group (BUG) if there is enough interest
- 6.120. It has been demonstrated throughout Section 4 of the Interim Travel Plan (ITP) that the Site is highly accessible by public transport, and that there are further opportunities for wider public transport travel throughout Manchester City Centre. The following measures will be provided in order to encourage residents to travel by public transport:
- Regularly review and update information (if necessary) provided within the Welcome Pack / notice boards, such as:

- TfGM's online journey planning resources: tfgm.com/plan-a-journey;
- The Traveline Journey Planning tool, i.e. by phoning 0871 200 223 and the Traveline website at www.traveline-northwest.co.uk; and
- A map showing local bus and rail stations in the vicinity of the Site.

6.121. In addition, measures have been considered to encourage the use of car sharing, car clubs and electric vehicles:

- **Car Sharing** – There are car sharing organisations which offer a matching service. Residents would be able to use the website; www.carsharegm.com, which has been developed by TfGM, to organise car shares. Notwithstanding this, CarshareGM is an employer-based car sharing scheme, therefore residents would need to work for an employer that has signed up to the scheme to benefit from this. Alternatively, www.liftshare.com/uk is a public website where prospective car sharers can search for matches on their own by filtering via location and time of departure, for example. This scheme could be promoted by the Travel Plan Coordinator (TPC)
- **Car Club** - The nearest Car Club bay is located at Tariff Street, M1 2FJ, which is an approximate 200m walking distance (2 minutes' walk) towards the south-west of the Site. It is considered that the Car Club could therefore be a highly attractive facility for residents who require occasional private car use, therefore minimising the highway impact
- **Electric Vehicle (EV) Charging Provision** - 5 of the parking spaces in the vicinity of the Site which will be equipped with active electric vehicle (EV) charging facilities. It is envisaged that the provision of EV charge points and infrastructure would encourage residents to consider switching to EVs should they still require to rely on the private car, but wish to reduce their carbon footprint. Alongside promoting these charging spaces, it would be appropriate to raise awareness of car ownership costs and highlight the benefits of car sharing and EVs through advertising around the Site. In the long term, it is also the responsibility of the TPC to monitor the uptake of EV spaces (such as via feedback from the travel surveys) and plan to increase the availability of EV charge points if applicable

6.122. Therefore, additional mitigation recommended as part of this assessment includes EV charging infrastructure which is gradually increasing on-demand throughout the lifetime of the development and in alignment with the increasing trends in EV usage. To assess the mitigation effect of this approach, the projections from Transport Assessment Guidance (TAG) Data Book has been used. For this assessment, the ration between different types of electric vehicles has been assumed to be the same as the traffic data provided by Curtins (Battery Electric Vehicles -18.2 % of EVs, Plug-in Hybrid Electric Vehicles-19.3% of EVs, Hybrid- 62.4%). The percentage of EV trips is changing every year according to these projections while slowly increasing. Therefore, the EV trips per year are calculated and then the total EV trips throughout the lifetime of the proposed development is estimated. An annual average which incorporates this trend is used for the assessment of the annual transport emissions of the development. It should be noted that after 2050 (when UK's net emissions of greenhouse gases should be reduced by 100% relative to 1990 levels), the projections available on EV use are limited. Therefore, it has been assumed that the development's EV usage after 2050 are stable to 2050's levels, under the assumption that decarbonisation and electrification would be largely achieved by then. No further analysis has been undertaken as to the long-term increases in vehicle efficiency and possible increase in autonomous vehicle use. These would likely further reduce the total GHG emissions associated with the Proposed Development.

Table 6.26 – Transport emissions for car vehicle movements during the operational phase after additional mitigation – Traffic data provided by Curtins with EV data projection as per Transport Assessment Guidance-TAG Data Book

Metric	Unit	Car (petrol)	Car (diesel)	Car (BEV)	Car (PHEV)	Car (Hybrid)	Motorcycle
Total distance	km/year	301,007	166,323	48,680	51,627	166,553	8,201
Total vehicle trips	vehicle trips/yr	24,608	13,597	3,980	4,221	13,616	773

Metric	Unit	Car (petrol)	Car (diesel)	Car (BEV)	Car (PHEV)	Car (Hybrid)	Motorcycle
Total person trips	<i>person trips/yr</i>	0	0	0	0	0	0
Average Trip length	<i>km/trip</i>	12	12	12	12	12	11
Emissions factor description	<i>kgCO₂e/km</i>	Average car, Petrol, per km	Average car, Diesel, per km	Average car, Battery Electric Vehicle, per km	Average car, Plug in Hybrid Electric Vehicle, per km	Average car, Hybrid, per km	Average motorbike, per km
Emissions factor value	<i>kgCO₂e/km</i>	0.2805	0.2711	0.0503	0.0948	0.1195	0.1136
Transport emissions per type	<i>kgCO₂e</i>	84,442	45,087	2,449	4,896	19,906	931
						Total tCO ₂ e	158

Table 6.27 – Transport emissions for vehicles during the operational phase - Summary

Category	tCO ₂ e
Good vehicles	854
Personal vehicles	158
Public and Active Transport	487
Total – Annual	1,499
Total – 60 years	89,936

- 6.123. When the on-demand EV charging infrastructure approach on additional mitigation is followed, the Proposed Development is considered to be following a future-ready approach. This future-ready approach will allow for the Proposed Development to benefit in the future from the increased use of electric vehicles and stay aligned with current best-practice in transport trends. Therefore, the operational transport emissions are expected to gradually reduce in the future. Therefore, when additional mitigation is considered the operational carbon emissions is likely to have a residual effect of **Moderate - Minor** (adverse) magnitude of impact on climate.

Residual Effects

- 6.124. All effects assessed are likely to have a residual minor magnitude of impact and therefore a **Moderate-Minor (adverse)** residual significance on the climate. This is considered to be 'not-significant' in EIA terms. A summary is provided in the table below.

Table 6.28– Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Environmental Effect	Sensitivity of Receptor	Nature of Impact	Magnitude of impact	Significance	Additional Mitigation	Residual Magnitude of impact	Residual Significance
Whole Life Embodied emissions ((incl. construction transport)	High	Adverse	Minor	Moderate - Minor Adverse	Enhancement only: Whole life carbon and construction reduction measures and further optimisation of the construction transport schedule further explored in later design stages, where possible	Minor	Moderate - Minor Adverse
Operational Building emissions	High	Adverse	Minor	Moderate - Minor Adverse	Enhancement only: Smart energy metering, Procurement of energy efficient equipment, Comparison against the RIBA 2030 targets during later design stages	Minor	Moderate - Minor Adverse
Operational Transport emissions	High	Adverse	Moderate	Major - Moderate Adverse	Future-ready approach to benefit from increasing future EV use	Minor	Moderate - Minor Adverse

References

HM Government, Climate Change Act 2008. Available at: <https://www.legislation.gov.uk/ukpga/2008/27/introduction>

HM Government, Planning and Energy Act 2008. Available at: <https://www.legislation.gov.uk/ukpga/2008/21/introduction>

DECC (2011). The Carbon Plan: Delivering our Low Carbon Future. Available at: <https://www.ukgbc.org/sites/default/files/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf>

HM Government (2017). UK Climate Change Risk Assessment 2017. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584281/uk-climate-change-risk-assess-2017.pdf

HM Government, 2016. The Carbon Budgets Order 2016

HM Government, 2016. The Building Regulations 2010, Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/540326/BR_PDF_AD_L1A_2013_with_2016_amendments.pdf

<https://carbonbudget.manchester.ac.uk/reports/E09000002/print/> (Accessed: 22/07/2021)

Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

HM Government, 2016. The Building Regulations 2010, Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/540326/BR_PDF_AD__L1A__2013_with_2016_amendments.pdf (Accessed: 27/04/2021)

<https://www.greatermanchester-ca.gov.uk/news/combined-authority-declares-climate-emergency/>

Institute of Environmental Management and Assessment (2017). Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: <https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance>

Royal Institute of British Architects, 2021. RIBA 2030 Climate Challenge. Available at: <https://www.architecture.com/-/media/files/Climate-action/RIBA-2030-Climate-Challenge.pdf>.

Department for Communities and Local Government. National Planning Practice Guidance. Available at: <https://www.gov.uk/government/collections/planningpractice-guidance>

Mayor Of London, (2018). Mayor's transport Strategy. <https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf>

RICS (2017). RICS professional standards and guidance, UK Whole life carbon assessment for the built environment.

British Standards Institution (2011). BS EN 15978:2011, Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method.

Department for Business Energy & Industrial Strategy (BEIS) (2018). The Government's Standard Assessment Procedure for Energy Rating of Dwellings – SAP 2012 version 9.92 (October 2013). Available at: https://www.bre.co.uk/filelibrary/SAP/2012/SAP-2012_9-92.pdf (Accessed: 24/03/2021)

Royal Institute of British Architects, 2021. RIBA 2030 Climate Challenge. Available at: <https://www.architecture.com/-/media/files/Climate-action/RIBA-2030-Climate-Challenge.pdf>.

One Click Software- Embodied Carbon Calculation- Version: 27.06.2021, Database version: 7.6

Department for Business, Energy & Industrial Strategy (2021). Government GHG Conversion Factors for Company Reporting, Online Available at: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021>

Department for Business, Energy & Industrial Strategy (2021). Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal - Data tables 1 to 19: supporting the toolkit and the guidance. Available at: <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal> (Accessed: 27/08/2021)

Department for Business, Energy & Industrial Strategy (2019). 2005 to 2017 UK local and regional CO2 emissions - data tables, Online Available at: <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017>

Department for Transport (2020). National Travel Survey. Available at: <https://www.gov.uk/government/collections/national-travel-survey-statistics> (Accessed: 27/08/2021)

Department for Transport (2020). Road Freight Statistics. Available at: <https://www.gov.uk/government/statistics/road-freight-statistics-2020> (Accessed: 27/08/2021)

Department of Transport, 2021. Transport Assessment Guidance (TAG) Data Book - July 2021, v.1.15. Table A 1.3.9. – Proportion of vehicle kilometres per fuel type. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1007435/tag-data-book.xlsm (Accessed: 13/09/2021)

HEMA (2017), Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance, Online Available at: https://www.iaia.org/pdf/wab/EIA%20Guide_GHG%20Assessment%20and%20Significance_IEMA_16May17.pdf

RICS 2017, Whole life carbon assessment for the built environment. Online Available at: <https://www.rics.org/globalassets/rics-website/media/news/whole-life-carbon-assessment-for-the-built-environment-november-2017.pdf> Data from Table 9 – Indicative component lifespans have been derived

HEMA 2017. Environmental Impact Assessment Guide to: Assessing GHG emissions and evaluating their significance. Available at: <https://www.ima.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance>

The Grid Average consumption based carbon intensity figures for Domestic developments were used, as published by the UK government (<https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>)

We have been using the latest version of this targets: RIBA (2021). RIBA 2030 Climate Change Challenge – Version 2. Online Available at: <https://www.architecture.com/-/media/files/Climate-action/RIBA-2030-Climate-Challenge.pdf>

Department for Business, Energy & Industrial Strategy 2021. Guidance: Carbon Budgets. Available at: <https://www.gov.uk/guidance/carbon-budgets>

<https://www.manchesterclimate.com/sites/default/files/Greater%20Manchester%20Carbon%20Budget.pdf>

Sturgis S. and RIBA, 2019. Embodied and whole life carbon assessment for architects. Online Available at: <https://www.architecture.com/-/media/gathercontent/whole-life-carbon-assessment-for-architects/additional-documents/11241wholelifecarbonguidancev7.pdf>.

RIBA, 2019. RIBA Sustainable Outcomes Guide. Available at: <https://www.architecture.com/-/media/GatherContent/Test-resources-page/Additional-Documents/RIBASustainableOutcomesGuide2019pdf> (Accessed: 05/11/2021)

7. Daylight, Sunlight and Overshadowing

Introduction

- 7.1. This Chapter of the ES has been prepared by GIA and assesses the likely daylight, sunlight and overshadowing impacts of the Proposed Development upon the Site and surrounding area. This Chapter also describes the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant negative impacts and the likely residual impacts after these methods have been adopted.
- 7.2. This assessment and ES chapter has been produced by GIA and is supported by the following technical results within Appendix 11:
- Appendix 11.1 – Drawings of the Baseline and Proposed Scenario;
 - Appendix 11.2 – Daylight and Sunlight Results for Baseline v Proposed;
 - Appendix 11.3 – Drawings of the Piccadilly Basin Strategic Regeneration Framework massing; and
 - Appendix 11.4 – Daylight and Sunlight results for the Piccadilly Basin Strategic Regeneration Framework massing.
- 7.3. This Chapter of the ES was written by Michael Beatty BSc (Hons) MRICS. Michael is a chartered surveyor with six years' experience specialising in daylight and sunlight. GIA are the largest specialist daylight and sunlight advisor in the UK, with over 25 years of specialisation and expertise, having advised on some of the largest developments within Greater Manchester.

Legislative and Policy Context

National Planning Policy

Revised National Planning Policy Framework 2021

- 7.4. The National Planning Policy Framework stipulates that “...Planning policies and decisions should ensure that developments... 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.”
- 7.5. The document also states that “...planning policies and decisions should always seek to secure a good standard of amenity for existing and future occupants of land and buildings.”
- 7.6. Paragraph 125 further 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) 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).”*

The National Planning Policy Guidance (NPPG) 2019

- 7.7. The National Planning Practice Guidance (NPPG) – Making Efficient 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.”*
- 7.8. 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”.*

Local Planning Policy

Manchester Core Strategy (2012 – 2027)

- 7.9. 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.
- 7.10. 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.

Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007)

- 7.11. 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 Documents and Standards

Building Research Establishment (BRE) ‘Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice’, Second Edition, 2011

- 7.12. 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.”*
- 7.13. 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).

- 7.14. 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’

- 7.15. 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.”

EN17037:2019 Daylight in Buildings (December 2018)

- 7.16. The new European Standard for Daylighting, or EN17037, was published in December 2018. Most local authorities continue to refer to the BRE guidelines. The BRE had planned to secure funding and re-write the BRE guidelines in the financial year beginning April 2019, with the view of a revised publication in 2020, albeit this did not materialise. There remains a fair degree of ambiguity as to when the new European Standard will become part of planning policy and what the transition between standards will be. In the meantime, the BRE guidelines and BS8206 remain the relevant tests, and this approach is accepted by Manchester City Council.

Assessment Methodology and Significance Criteria

Methodology for Determining Baseline Conditions and Sensitive Receptors

- 7.17. 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.”

- 7.18. The scope of residential properties that have been assessed has been determined through professional judgement, considering their orientation and proximity to the Proposed Development.

- 7.19. The following properties are defined as sensitive receptors and will be considered due to their proximity to the Site, and their residential use:

- Jacksons Warehouse
- Avro Apartments (formerly known as Brownsfield Mill)
- The Astley
- Burlington House
- Wentwood Apartments
- MM2 Apartments

- 7.20. These properties are identified in the drawings contained at Appendix 7.1.

- 7.21. The assessment has considered other adjacent residential properties and due to the distance and orientation from the Proposed Development, they are unlikely to be affected, so they have not been assessed in detail.
- 7.22. The waterway and waterway users have been defined as a sensitive receptor and the potential impact of overshadowing on the waterways has been considered. The waterways are located to the south/south east of the Site and, as such, there is no potential for the Proposed Development to cause overshadowing to the area. An overshadowing assessment of the waterways has therefore been scoped out of the assessment.
- 7.23. There are no amenity areas located in close proximity to the Site. As such, no overshadowing assessment of surrounding amenity areas is required.

Scenarios Assessed

- 7.24. The following scenarios have been assessed and are reported within this Chapter of the ES:
- Baseline configuration (pre-development); and
 - Proposed Development
- 7.25. Where consented schemes have the potential to be affected by the Proposed Development, or cause cumulative impact to the existing surrounding residential buildings, these have been included in the baseline scenario and assessed individually in detail, so no separate technical assessment of the cumulative impact is required. This approach is in line with the BRE Guidelines.
- 7.26. The Baseline scenario considers the current baseline condition (as can be seen in November 2021). This scenario is depicted on drawing nos. 1380/01-03 (Appendix 7.1).
- 7.27. The Proposed Development is illustrated on drawing nos. 1380/04-06 (Appendix 7.1).

Methodology for Determining Demolition and Construction Effects

- 7.28. Since the potential daylight and sunlight effects relating to demolition and construction works will vary throughout the construction programme and gradually increase to the potential effects identified for the completed Proposed Development, the interim construction effects are not assessed quantitatively as it is considered that the completed Proposed Development represents the worst case assessment in terms of likely daylight and sunlight impacts.

Methodology for Determining Operational Effects

- 7.29. 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).

Outline Approach for Daylight, Sunlight and Overshadowing Assessments

- 7.30. The technical analyses 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 measured survey data.

- 7.31. The 3D model uses Waldram Diagrams to establish the VSC and 3D geometric calculations for daylight distribution. This model (which is orientated to north by the use of Ordnance Survey (OS) information) 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 in each scenario.
- 7.32. In accordance with the BRE Guidance, 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.

Daylight

Vertical Sky Component (VSC) Method

- 7.33. 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 standard overcast sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky”.*
- 7.34. 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.
- 7.35. 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 using a 'Waldram Diagram'.
- 7.36. 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.
- 7.37. Due to the limitations of peripheral vision, 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 more gloomy and electric lighting will be needed more of the time”.*

No Sky Line (NSL) Method

- 7.38. 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.
- 7.39. 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.
- 7.40. 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 the BRE state that 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 baseline value, then this would be noticeable to its occupants.
- 7.41. 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”.*

- 7.42. Therefore, it is implied that an NSL of at least 80% would be considered satisfactory.
- 7.43. In regard 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

- 7.44. 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 each spot equates to 14.86 hours of the total annual sunlight hours.
- 7.45. 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.
- 7.46. 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."
"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".
"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."
"...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".
- 7.47. 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 less than 25% of the APSH, including at least 5% of the APSH during the winter months (21 September to 21 March), or less than 0.8 times its baseline sunlight hours during either period, or if there is a reduction in total APSH which is greater than 4%.
- 7.48. 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."
- 7.49. 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, unless the rooms use is known through plans, all the rooms with windows facing the Site and within 90 degrees of due south have been considered in the assessment. Windows that do not face within 90 degrees of due south do not have a realistic expectation of direct sunlight, due to their orientation and the sunlight path in the northern hemisphere.

Summary of Criteria for Daylight and Sunlight

7.50. The following table provides a summary of the criteria set out within the BRE Guidelines for daylight and sunlight.

Table 7.1– 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 (21 September to 21 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 Evaluation Methodology

Daylight and Sunlight Magnitude of Effect

7.51. For daylight and sunlight, the BRE Guidelines outline the approach within the accompanying appendix, in terms of assigning criteria to assess the effects:

“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.”*

7.52. 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.”

7.53. The BRE Guidelines do not provide any guidance on what constitutes a moderate adverse impact.

- 7.54. Therefore, best practice guidance and professional judgment has been used to determine any impacts based on the guidance set out in Appendix I of the BRE Guidelines. Potential effects are identified as beneficial, adverse or negligible, and their magnitude of effects are set out as Minor, Moderate and Major.
- 7.55. The initial numerical criteria for determining the magnitude of effect is based on percentage alterations, as follows:

Table 7.2 – Daylight & Sunlight Magnitude of Effect

Magnitude of Effect	Percentage Alteration from Baseline
Negligible	0-20%
Minor	20-29.9%
Moderate	30-39.9%
Major	40%+

Sensitivity of Identified Receptor

- 7.56. It is important that the location and nature of the Site and surroundings are considered when determining the significance of any impacts identified. The BRE Guide is very clear that the targets provided are not mandatory. The location of the development could be deemed to be special circumstances in which the planning authority may wish to use different target values. 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. This point is also made in the NPPF and NPPG.
- 7.57. 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 Site reside in a city centre location where there is an expectation for a higher density of development, as identified by the Piccadilly Basin Strategic Regeneration Framework (the SRF). The Site is currently cleared, meaning it is underdeveloped and has an unusually open aspect given the city centre location. The surrounding receptors are therefore deemed to have a medium sensitivity.
- 7.58. The following existing receptors are defined as having a medium sensitivity:
- Jacksons Warehouse
 - Avro Apartments (formerly known as Brownsfield Mill)
 - The Astley
 - Burlington House
 - Wentwood Apartments
 - MM2 Apartments

Significance of Effects

- 7.59. 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 7.3 – Significance of Effect

Magnitude	Sensitivity High	Medium	Low
Major	Major Adverse / Beneficial*	Major Adverse / Beneficial*	Moderate Adverse / Beneficial
Moderate	Moderate Adverse / Beneficial*	Moderate Adverse / Beneficial	Minor Adverse / Beneficial
Minor	Minor – Minor Adverse / Beneficial	Minor Adverse / Beneficial	Minor – Negligible
Negligible	Negligible	Negligible	Negligible
Key	*Significant in terms of EIA regulations		

- 7.60. 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. 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.

Significance of Effects in Context to the Locality

- 7.61. The context of the Site and surrounding area is key to understanding the sensitivity of the surrounding receptors and significance of daylight and sunlight effects.
- 7.62. The Site is located within the Piccadilly Basin Strategic Regeneration Framework (October 2016). This document aims to create “a best in class City Centre neighbourhood community with a vibrant mix of office, residential, retail and leisure accommodation”. More specifically to the Site, the SRF identifies the opportunity to “increase scale and massing towards Great Ancoats Street...responding to the scale of adjoining developments”, and the Site is identified for a residential-led, mixed use development of up to 32 storeys in that document.
- 7.63. The nature of the Site and surrounding area, and aspirations for its redevelopment, are therefore critical in understanding the daylight and sunlight effects in context. The NPPG acknowledges that lower daylight and sunlight levels may be considered acceptable in areas such as this, where tall modern buildings predominate, if new developments are to be in keeping with their surroundings.
- 7.64. The emerging height and density brought about by the area’s regeneration, as endorsed by the Piccadilly Basin Strategic Regeneration Framework, therefore alters the context of the site, and sets a benchmark whereby lower daylight and sunlight levels to surrounding receptors would be considered acceptable against other development scenarios.

Limitations and Assumptions

- 7.65. Where actual room layouts were available on the planning portal, these have been considered when modelling of the internal layouts within the existing surrounding properties. Where layout information was not available, assumptions have been made as to the use and internal configuration of the rooms (from external observations during a site inspection) behind the fenestration observed.
- 7.66. In such cases a standard 4.2 metre (m) (14ft) room depth has been assumed, unless the building form dictated otherwise. This is common practice where access to buildings for surveying is unavailable. Obtaining these room layouts enables precise evaluation of the diffuse levels of daylight within each of the rooms via the NSL).
- 7.67. Floor levels have been assumed for adjoining properties assessed, where access has not been obtained. This dictates the level of the working plane which is relevant for the NSL assessments.

Baseline Conditions

Daylight & Sunlight

- 7.68. The full Baseline Daylight and Sunlight results can be found in Appendix 7.2 and are summarised in Table 7.4 below.
- 7.69. A total of 835 windows facing the Site serving 503 rooms within six buildings were assessed for VSC and NSL for daylight and 238 rooms were assessed for APSH for sunlight within six buildings.
- 7.70. Out of the 835 windows assessed for daylight, 529 (63%) meet the BRE guidelines for VSC. For NSL, 422 (84%) of the 503 rooms assessed meet the BRE criteria. For sunlight, 218 (92%) of the 238 rooms assessed meet the BRE criteria for both Winter and Annual APSH.
- 7.71. Overall, this baseline scenario is considered a moderate level of compliance due to the city centre context of the Site.
- 7.72. The Site is underdeveloped in context to its city centre location and the SRF, and is therefore unusually open aspect, which contributes to higher baseline results to the surrounding receptors.

Table 7.4 – Baseline Daylight and Sunlight results to surrounding sensitive receptors

Address	Total No. Windows That Meet VSC Criteria		Total No. of Rooms That Meet NSL Criteria		Total no. of Rooms That Meet APSH Criteria	
	Pass	Total	Pass	Total	Pass	Total
Jacksons Warehouse	95	113	61	72	1	5
Avro Apartments	62	100	38	39	8	11
The Astley	104	149	90	99	47	47
Burlington House	89	135	57	61	5	5
Wentood Apartments	92	189	90	144	95	106
MM2 Apartments	87	149	86	88	62	64
Total	529	835	422	503	218	238

- 7.73. The assessment of baseline levels to the surrounding properties considers whether a window/room already meets the BRE criteria in the existing scenario only, whilst the BRE guide states that a window/room should not be reduced by any more than 0.8 times its former value (a 20% reduction) in the proposed scenario. As such, as the VSC target is 27%, if a window in the baseline has 25% VSC, it will be classed as not meeting the BRE targets. In the proposed scenario, if the same window is reduced to 24%, it will be classed as meeting the VSC target as it is within 0.8 times its former value. Therefore, some windows/rooms may not meet the target criteria in the baseline but will in the proposed scenario.

Identification and Evaluation of Significant Effects

Daylight to Surrounding Sensitive Receptors

- 7.74. The full Proposed Development daylight results can be found within Appendix 7.2 and are summarised in Tables 7.5 and 7.6 below.
- 7.75. A total of 835 windows serving 503 rooms were assessed for daylight within six buildings considered to be sensitive receptors.
- 7.76. The breakdown of the baseline results against the Proposed Development for each of the individual buildings forming part of this assessment are discussed in more detail below.

Table 7.5 – Summary of VSC Daylight Results

Address	VSC				
			Below BRE Guidelines		
	Total No. of Windows	No. of Windows That Meet BRE	Minor Adverse	Moderate Adverse	Major Adverse
Jacksons Warehouse	113	104	4	1	4
Avro Apartments	100	45	8	4	43
The Astley	149	53	3	35	58
Burlington House	135	105	23	6	1
Wentood Apartments	189	114	35	36	4
MM2 Apartments	149	103	2	14	30
Total	835	524	75	96	140

Table 7.6 – Summary of NSL Daylight Results

Address	NSL				
			Below BRE Guidelines		
	Total No. of Rooms	No. of Rooms That Meet BRE	Minor Adverse	Moderate Adverse	Major Adverse
Jacksons Warehouse	72	72	0	0	0
Avro Apartments	39	14	2	4	19
The Astley	99	64	1	3	31
Burlington House	61	60	1	0	0
Wentood Apartments	144	138	6	0	0
MM2 Apartments	88	65	9	7	7
Total	503	413	19	14	57

Jacksons Warehouse

- 7.77. A total of 113 windows serving 72 rooms were assessed for daylight within this building to compare the existing baseline against the Proposed Development.
- 7.78. For VSC, 104 (92%) of the 113 windows meet the BRE criteria. Four of the affected windows will experience an alteration between 20-30%, one of the affected windows will experience an alteration between 30-40%, and the remaining four windows will experience alterations in excess of 40% from the baseline value.
- 7.79. For NSL, 72 (100%) of the 72 rooms assessed will meet the BRE criteria.
- 7.80. Four of the windows which do not meet the BRE criteria for VSC daylight are reduced by less than 25%, against a target of 20%, which is considered to be a minor impact given the city centre location.
- 7.81. Furthermore, all of the windows which are reduced by in excess of 40% receive very low baseline levels in the existing scenario. These windows receive between 8.5% to 9.3% VSC, against a target of 27%, without the Proposed Development in place, which places a high burden on the development to maintain already low levels of VSC daylight.
- 7.82. Notwithstanding the above, the property will retain average VSC daylight levels of 28.54% with the Proposed Development in place, which is considered excellent given the city centre location. The property will also fully accord with the BRE criteria for NSL daylight.
- 7.83. Overall, considering the limited impacts, the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on daylight to this property is considered to be minor adverse in significance.
- 7.84. The effect on daylight is considered non-significant in EIA terms for the following reasons:

- The building evidences a high level of compliance against VSC and NSL daylight target criteria, with only minor deviations identified;
- Where impacts are identified, these are limited and minor in context to the city centre location; and
- The receptor will retain excellent average VSC daylight levels with the Proposed Development in place.

Avro Apartments

- 7.85. A total of 100 windows serving 39 rooms were assessed for daylight within this building to compare the baseline against the Proposed Development.
- 7.86. For VSC, 45 (45%) of the 100 windows meet the BRE criteria. Eight of the affected windows will experience an alteration between 20-30%, four of the affected windows will experience an alteration between 30-40%, and the remaining 43 windows will experience alterations in excess of 40% from the baseline value.
- 7.87. For NSL, 14 (36%) of the 39 rooms assessed will meet the BRE criteria. Two of the affected rooms will experience an alteration between 20-30%, four of the affected rooms will experience an alteration between 30-40%, and the remaining 19 rooms will experience alterations in excess of 40% from the baseline value.
- 7.88. 25 of the windows that do not meet the target criteria for VSC daylight, and 20 of the rooms which do not meet the target criteria for NSL daylight, are bedrooms, which are considered as having a lesser requirement for daylight by the BRE.
- 7.89. The remaining 30 windows which do not meet the VSC daylight criteria serve 10 living kitchen diners which are provided with multiple windows. The BRE Guide states that where a room is served by more than one window of similar sizes, the mean VSC can be calculated. As such, whilst some windows may not meet the BRE target, when the mean VSC is calculated between all windows, the room does overall. Of the 10 living kitchen diners served by multiple windows, seven rooms will meet the target criteria for VSC daylight, meaning that only three of the living kitchen diners assessed do not meet the BRE criteria. This is a minor impact in context to the receptor as a whole, as the assessment only considers windows which face the Site and have potential to be impacted by the Proposed Development. All other windows will therefore be unaffected.
- 7.90. Similarly, five living kitchen diners do not meet the target criteria for NSL daylight, which is a minor impact in context the receptor as a whole. All but one of these will continue to receive a view of the sky to in excess of 60% of the room area, which is considered acceptable given the city centre location and emerging height and density in the locality.
- 7.91. Overall, considering the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on daylight to this property is considered to be moderate adverse.
- 7.92. The effect on daylight is considered non-significant in EIA terms for the following reasons:
- Several of the windows/rooms which do not meet the VSC or NSL daylight criteria are bedrooms, which are considered as having a lesser requirement for daylight;
 - The impact on principal habitable rooms is limited, and only a small number of living kitchen diners do not meet the VSC or NSL daylight criteria; and
 - The overall impact is limited in context to the receptor as a whole, given that the assessment only considers only those windows/rooms which face the Site.

The Astley

- 7.93. A total of 149 windows serving 99 rooms were assessed for daylight within this building to compare the baseline against the Proposed Development.
- 7.94. For VSC, 53 (36%) of the 149 windows assessed meet the BRE criteria. Three of the affected windows will experience an alteration between 20-30%, 35 of the affected windows will experience an alteration between 30-40%, and the remaining 58 windows will experience alterations in excess of 40% from the baseline value.
- 7.95. For NSL, 64 (65%) of the 99 rooms assessed will meet the BRE criteria. One of the affected rooms will experience an alteration between 20-30%, three of the affected rooms will experience an alteration between 30-40%, and the remaining 31 rooms will experience alterations in excess of 40% from the Baseline value.
- 7.96. 32 of the windows that do not meet the target criteria for VSC daylight, and 20 of the rooms which do not meet the target criteria for NSL daylight, are bedrooms, which are considered as having a lesser requirement for daylight by the BRE.
- 7.97. The design of The Astley is such that several deep, single aspect rooms are located on the boundary facing the Site, a number of which are recessed beneath balconies.
- 7.98. The BRE discusses the neighbourliness of surrounding properties, stating that “another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light”.
- 7.99. The BRE states further that “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”. The design of The Astley is such that it places a high burden on the development site to maintain the existing levels and leads to a number of rooms not meeting the daylight criteria. Reductions in daylight to the windows and rooms overlooking the Site are therefore inevitable given The Astley’s design, and this should not result in steralising development on the Site.
- 7.100. Finally, The Astley will continue to receive average VSC daylight levels of 19.43% with the Proposed Development in place, which is acceptable given the city centre context.
- 7.101. Overall, considering the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on daylight to this property is considered to be moderate adverse in significance.
- 7.102. The effect on daylight is considered non-significant in EIA terms for the following reasons:
- The building is unneighbourly in its design which places a high burden on the Proposed Development to maintain existing daylight levels;
 - Any viable development on the Site will result in impacts to the deep, single aspect rooms located on the boundary of The Astley; and
 - The building will continue to receive acceptable average VSC daylight levels given the city centre context.

Burlington House

- 7.103. A total of 135 windows serving 61 rooms were assessed for daylight within this building to compare the baseline against the Proposed Development.

- 7.104. For VSC, 105 (78%) of the 135 windows meet the BRE criteria. 26 of the affected windows will experience an alteration between 20-30%, three of the affected windows will experience an alteration between 30-40%, and the remaining one window will experience alterations in excess of 40% from the baseline value.
- 7.105. For NSL, 60 (98%) of the 61 rooms assessed will meet the BRE criteria. The one affected room will experience an alteration between 20-30% from the baseline value.
- 7.106. 17 of the windows that do not meet the target criteria for VSC daylight, and the one room which does not meet the target criteria for NSL daylight, are bedrooms, which are considered as having a lesser requirement for daylight by the BRE.
- 7.107. The remaining eight windows which do not meet the VSC daylight criteria serve four living kitchen diners which are provided with multiple windows. The BRE Guide states that where a room is served by more than one window of similar sizes, the mean VSC can be calculated. As such, whilst some windows may not meet the BRE target, when the mean VSC is calculated between all windows, the room does overall. Of the four living kitchen diners served by multiple windows, three rooms will meet the target criteria for VSC daylight, meaning that only one of the living kitchen diners assessed do not meet the BRE criteria. This living kitchen diner is reduced by 23.9% overall, against a target of 20%, which is a minor impact.
- 7.108. Overall, considering the limited impacts, city centre location and emerging height and density anticipated in the locality, the effect on daylight to this property is considered to be minor adverse in significance.
- 7.109. The effect on daylight is considered non-significant in EIA terms for the following reasons:
- Several of the windows/rooms which do not meet the VSC or NSL daylight criteria are bedrooms, which are considered as having a lesser requirement for daylight;
 - All but one living kitchen diner meets the target criteria for VSC daylight, and the living kitchen diner which does not is impacted to a minor degree; and
 - One bedroom does not meet the NSL daylight criteria and all other rooms assessed do.

Wentwood Apartments

- 7.110. A total of 189 windows serving 144 rooms were assessed for daylight within this building to compare the baseline against the Proposed Development.
- 7.111. For VSC, 114 (60%) of the 189 windows meet the BRE criteria. 35 of the affected windows will experience an alteration between 20-30%, 36 of the affected windows will experience an alteration between 30-40%, and the remaining four windows will experience an alteration in excess of 40% from the baseline value.
- 7.112. For NSL, 138 (96%) of the 144 rooms assessed will meet the BRE criteria. The six affected rooms will experience an alteration between 20-30% from the baseline value.
- 7.113. 35 of the windows which do not meet the VSC daylight criteria, and all of the rooms which do not meet the NSL daylight criteria, are reduced by between 20-30%, which is considered a minor impact when considering the city centre location.
- 7.114. The property has low retained baseline daylight levels, and 48% of windows and 62% of rooms meet the BRE criteria for VSC and NSL daylight respectively. This places a high burden on the development site to maintain existing levels, and it means that relatively small changes in daylight levels represent large proportional changes. This is evidenced by the fact the average baseline VSC level is 29.53%, and the average level with the proposal built out is 24.92% VSC. This is a reduction of 16%, so it is within the BRE target reduction of 20%. Furthermore, the retained average VSC daylight levels of 24.92% are good given the dense, urban nature of the site.

- 7.115. Overall, considering the the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on daylight to this property is considered to be minor adverse in significance.
- 7.116. The effect on daylight is considered non-significant in EIA terms for the following reasons:
- The impacts on VSC daylight are predominantly minor to moderate adverse in significance and only one window is impacted to a major adverse degree;
 - The property has low baseline daylight levels which places a high burden on the Proposed Development to maintain existing levels; and
 - Average retained VSC daylight levels are reduced by less than 20% with the Proposed Development in place.

MM2 Apartments

- 7.117. A total of 149 windows serving 88 rooms were assessed for daylight within this building to compare the baseline against the Proposed Development.
- 7.118. For VSC, 103 (69%) of the 149 windows meet the BRE criteria. Two of the affected windows will experience an alteration between 20-30%, 14 of the affected windows will experience an alteration between 30-40%, and the remaining 30 windows will experience alterations in excess of 40% from the baseline value.
- 7.119. For NSL, 65 (74%) of the 88 rooms assessed will meet the BRE criteria. Nine of the affected rooms will experience an alteration between 20-30%, seven of the affected rooms will experience an alteration between 30-40%, and the remaining seven rooms will experience alterations in excess of 40% from the Baseline value.
- 7.120. 25 of the windows that do not meet the target criteria for VSC daylight, and 22 rooms which do not meet the target criteria for NSL daylight, are bedrooms, which are considered as having a lesser requirement for daylight by the BRE.
- 7.121. The property will retain good average VSC daylight values with the Proposed Development in place. Retained VSC daylight values are 27.47% in the baseline scenario, whilst they remain at 22.68% with the proposal built out. This is a reduction of 21%, which is marginally outside the 20% target reduction anticipated by the BRE, and is considered acceptable given the city centre location and emerging height and density in the area. Furthermore, only one living kitchen diner does not meet the NSL daylight criteria, which is a minor impact in context to the receptor as a whole.
- 7.122. Overall, considering the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on daylight to this property is considered to be moderate adverse in significance.
- 7.123. The effect on daylight is considered non-significant in EIA terms for the following reasons:
- Several of the windows and rooms which do not meet the VSC and NSL daylight criteria are bedrooms, which are considered as having a lesser requirement for daylight;
 - One living kitchen diner does not meet the NSL daylight criteria, which is a minor impact;
 - Average retained VSC daylight levels are reduced by 21% with the Proposed Development in place, which is marginally short of the BRE target; and
 - MM2 Apartments will retain very good average daylight levels with the Proposed Development in place given the city centre location.

Sunlight to Surrounding Sensitive Receptors

- 7.124. The Full Proposed Development Sunlight results can be found within Appendix 7.2 and are summarised in Tables 7.7 and 7.8 below.
- 7.125. A total of 238 rooms were assessed for sunlight within six buildings considered sensitive receptors.
- 7.126. Windows that are not within 90 degrees of due south, or do not serve living rooms, were excluded from the assessment.
- 7.127. The buildings are discussed in more detail below.

Table 7.7 – Summary of Annual Sunlight Results

Address	APSH				
			Below threshold for Total APSH		
	Total No. of Rooms	No. of Rooms That Meet BRE	Minor Adverse	Moderate Adverse	Major Adverse
Jackson Warehouse	5	5	0	0	0
Avro Apartments	11	8	0	1	2
The Astley	47	34	5	0	4
Burlington House	5	5	0	0	0
Wentood Apartments	106	96	0	3	6
MM2 Apartments	64	54	0	0	8
Total	238	202	5	4	20

Table 7.8 – Summary of Winter Sunlight Results

Address	Winter PSH				
			Below threshold for Total APSH		
	Total No. of Rooms	No. of Rooms That Meet BRE	Minor Adverse	Moderate Adverse	Major Adverse
Jacksons Warehouse	5	5	0	0	0
Avro Apartments	11	8	0	0	0
The Astley	47	34	0	0	12
Burlington House	5	5	0	0	0
Wentood Apartments	106	96	0	0	8
MM2 Apartments	64	54	0	0	2
Total	238	202	0	0	22

Jacksons Warehouse

- 7.128. A total of five rooms within this building were assessed for sunlight to compare the baseline against the Proposed Development.
- 7.129. Five (100%) of the five rooms meet the BRE criteria for both annual and winter PSH.
- 7.130. The effect on sunlight to this receptor is therefore considered to be negligible in significance.

Avro Apartments

- 7.131. A total of 11 rooms within this building were assessed for sunlight to compare the baseline against the Proposed Development.

- 7.132. Eight (73%) of the 11 rooms meet the BRE criteria. For annual PSH, one of the affected rooms will experience an alteration between 30-40% and the remaining two rooms will experience alterations in excess of 40% from the baseline value.
- 7.133. For winter PSH, all rooms meet the BRE criteria.
- 7.134. None of the affected rooms meet the BRE criteria for either annual or winter PSH in the baseline scenario, and the baseline levels for these rooms are very low, which places a high burden on the Proposed Development to maintain existing levels. However, in context to the receptor as a whole, the impact is limited, and all of the remaining rooms assessed receive sunlight levels well in excess of the published BRE targets.
- 7.135. Overall, considering the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on sunlight to this property is considered to be minor adverse in significance.
- 7.136. The effect on sunlight is considered non-significant in EIA terms for the following reasons:
- The impact on sunlight is limited in context to the property as a whole;
 - All of the rooms meet the BRE criteria for winter PSH; and
 - All of the remaining rooms assessed receive sunlight levels well in excess of the published BRE targets.

The Astley

- 7.137. A total of 47 rooms within this building were assessed for sunlight to compare the baseline against the Proposed Development.
- 7.138. 34 (72%) of the 47 rooms meet the BRE criteria. For annual PSH, five of the affected rooms will experience an alteration between 20-30% and the remaining four rooms will experience alterations in excess of 40% from the baseline value.
- 7.139. For winter PSH, twelve rooms will experience an alteration in excess of 40% from the baseline value.
- 7.140. As discussed above, the design of The Astley is such that several deep, single aspect rooms are located on the boundary facing the development site, a number of which are recessed beneath balconies. This places a high burden on the development site to maintain existing sunlight levels.
- 7.141. Four of the 47 rooms assessed will be reduced by in excess of 40% for annual PSH, which is a small proportion. The remaining five rooms which do not meet the annual PSH criteria are reduced by 20-30%, which is marginally outside the target reduction of 20%.
- 7.142. Ten of the rooms which do not meet the BRE criteria for winter PSH achieve 3% PSH with the proposal built out, against a target of 5%, and the impacts are therefore considered minor given the city centre location and regeneration proposals for the area.
- 7.143. Overall, considering the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on sunlight to this property is considered to be minor adverse in significance.
- 7.144. The effect on sunlight is considered non-significant in EIA terms for the following reasons:
- The building is unneighbourly in its design which places a high burden on the Proposed Development to maintain existing sunlight levels; and

- The overall impacts are limited in context to the receptor as a whole and acceptable given the city centre location.

Burlington House

- 7.145. A total of five rooms within this building were assessed for sunlight to compare the baseline against the Proposed Development.
- 7.146. Five (100%) of the five rooms meet the BRE criteria for both annual and winter PSH.
- 7.147. The effect on sunlight to this receptor is therefore considered to be negligible in significance.

Wentwood Apartments

- 7.148. A total of 106 rooms within this building were assessed for sunlight to compare the baseline against the Proposed Development.
- 7.149. 96 (91%) of the 106 rooms meet the BRE criteria. For annual PSH, three of the affected rooms will experience an alteration between 30-40% and the remaining six rooms will experience alterations in excess of 40% from the baseline value.
- 7.150. For winter PSH, eight rooms will experience an alteration in excess of 40% from the baseline value.
- 7.151. The impacts on sunlight to this property are minor in context to the receptor as a whole, and the rooms which do not meet the BRE criteria represent just 9% of those assessed. Furthermore, the property will retain excellent average daylight levels with the Proposed Development in place. The rooms will continue to receive average annual PSH of 43.81%, against a target of 25%, and average winter PSH of 15.83%, against a target of 5%. This is considered excellent given the city centre location.
- 7.152. Overall, considering the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on sunlight to this property is considered to be minor adverse in significance.
- 7.153. The effect on sunlight is considered non-significant in EIA terms for the following reasons:
- The impacts on sunlight are minor in context to the receptor as a whole, and only a small proportion of rooms assessed do not meet the BRE criteria; and
 - The property will continue to receive very good levels of sunlight for a city centre residential dwelling with the Proposed Development in place.

MM2 Apartments

- 7.154. A total of 64 rooms within this building were assessed for sunlight to compare the baseline against the Proposed Development.
- 7.155. 54 (84%) of the 64 rooms meet the BRE criteria. For annual PSH, eight rooms will experience alterations in excess of 40% from the baseline value.
- 7.156. For winter PSH, two rooms will experience an alteration in excess of 40% from the baseline value.
- 7.157. All but two of the rooms assessed will meet the BRE target criteria for winter PSH. These rooms will continue to receive 3% and 4% winter PSH, against a target of 5%, with the proposal built out, which is considered to be acceptable given the city centre location and emerging height and density in the area.

- 7.158. All of the rooms which do not meet the annual PSH criteria will meet the criteria for winter PSH. As such, eight of the rooms assessed to this property do not meet the criteria for annual PSH. This represents 12% of all rooms included in the assessment, which is a small proportion of the building as a whole.
- 7.159. Furthermore, the property will continue to receive average annual PSH levels of 51.54%, against a target of 25%, and 14.92% winter PSH, against a target of 5%, which is considered excellent for a city centre location.
- 7.160. Overall, considering the city centre location, emerging height and density anticipated in the locality and the flexibility with which the BRE is intended to be used, the effect on sunlight to this property is considered to be minor adverse in significance.
- 7.161. The effect on sunlight is considered non-significant in EIA terms for the following reasons:
- The impacts on sunlight are minor in context to the receptor as a whole, and only a small proportion of rooms assessed do not meet the BRE criteria; and
 - The property will continue to receive very good levels of sunlight for a city centre residential dwelling with the Proposed Development in place.
- 7.162. Overall, the impact on daylight impacts to the surrounding properties is considered negligible to moderate adverse and the impact on sunlight is considered negligible to minor adverse. Overall, this is considered to result in non-significant effects. Given the context of the Site and nature of effects, no further mitigation is considered necessary.

Cumulative Effects

- 7.163. There are no consented schemes that have the potential to be affected by the Proposed Development. As such, none have been included in the assessment.

Residual Effects

Table 7.10 Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Daylight	Scoped Out	-	-	-
Sunlight	Scoped Out	-	-	-
Operational Phase				
Daylight	Surrounding Residential Properties	None Required	N/A	Negligible to Moderate Permanent Adverse (Non-Significant Effect)
Sunlight	Surrounding Residential Properties	None Required	N/A	Negligible to Minor Permanent Adverse (Non-Significant Effect)

Reference List

7.164. This ES Chapter has been prepared by reference to the following:

- Revised National Planning Policy Framework (2019);
- National Planning Practice Guidance (NPPG) 2019;
- Manchester Core Strategy (2012 – 2027);
- Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007);
- Building Research Establishment (BRE) 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice', Second Edition, 2011; and
- British Standard (BS) 8206-2:2008: 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'.

8. Heritage

Introduction

- 8.1. This Chapter of the ES has been prepared by Heritage Architecture Ltd. The aim of the following chapter is to assess the likely impacts of the proposals upon the site and surrounding area, with particular regard to impact upon built heritage. This Chapter also describes the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce, or offset any significant negative impacts and the likely residual impacts after these methods have been adopted.
- 8.2. This chapter is accompanied by one technical appendix, a Heritage Statement (Appendix 8.1).
- 8.3. The author of the chapter has over 15 years experience in preparing Built Heritage chapters for EIA developments. They are a full member of the IHBC and have an MSc and a MA in heritage related courses.

Legislative and Policy Context

Planning (Listed Buildings and Conservation Areas) Act 1990

- 8.4. The Planning (Listed Buildings and Conservation Areas) Act 1990 is of relevance to the proposals as it provides specific protection for buildings and areas of special architectural or historic interest, over and above that provided by development management.
- 8.5. The Site is situated within the setting of a number of listed buildings, Section 66 of the Act is of relevance, as it requires the LPA to “have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses,” when considering whether to grant planning permission.
- 8.6. Section 72 of the Act must also be recognised in line with the proposals, as it embodies the ‘general duty as respects conservation areas in exercise of planning functions.’ As the Site is situated within the setting of the Stevenson Square Conservation Area and the Ancoats Conservation Area, it will be clear any proposed development of considerable height on the Site will have some potential to impact external views within the designated areas.

National Planning Policy 2021

- 8.7. Section 16 of the National Planning Policy Framework (NPPF) sets out the Government’s planning policies on the conservation of the historic environment.
- 8.8. The policies in the NPPF constitute the Government’s view of what sustainable development in England means in practice. In these terms, development proposals which fail to give due weight to the conservation of heritage assets are deemed not to be sustainable development and consequently should not be supported. This is because one of the key dimensions of sustainability is protecting and enhancing our historic environment.
- 8.9. In accordance with the legislation, the NPPF’s core principles, which underpin decision-taking, require that Planning decisions should contribute to conserving designated heritage assets in a manner proportionate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations (paragraph 189).
- 8.10. The NPPF stresses that “great weight” should be given to the conservation of designated heritage assets (NPPF paragraph 199), emphasising the need to avoid substantial harm, in terms of demolition, alteration or the compromise of its setting. It will be clear that the redevelopment of a site adjacent to heritage assets could affect the setting of them, and that could be either beneficial or harmful. The fundamental objective is

to ensure that the balance of the impact on the heritage assets is demonstrably beneficial, minimising any negative impact on their significance.

- 8.11. The NPPF establishes a clear hierarchy of significance for heritage assets, which is reflected in the adopted local policy (see below) and Historic England's guidance on measuring impact. Consequently, it is important that the relevant hierarchy of heritage assets surrounding the Site is understood, in order to apply proportionate consideration to the Proposals.
- 8.12. The 'designated heritage asset' status of the identified Listed Buildings and Conservation Areas requires that any potential 'harm' must be weighted and balanced against the potential advantages of the particular development. It is thus necessary to establish whether the effects of the proposals outweigh any perceived harm, in the context of the statutory duties set out above.

Local Planning Policy: Manchester City Council Unitary Development Plan (1995) and Core Strategy (2012)

- 8.13. The relevant, local heritage Planning policy maintains the same focus as the NPPF. The City Council's heritage policies focus on the fundamental importance of "preserving or, where possible, enhancing the historic environment". The following policies from Manchester's Core Strategy (2012) are of importance to the heritage assets considered within this statement.
- 8.14. Policy CC9 (Design and Heritage) states that development in Manchester City Centre should preserve or enhance the heritage assets that have been identified, including listed buildings, conservation areas and scheduled ancient monuments. The policy also establishes that new development must support the range of uses the Council expects in the City Centre and contribute to a coherent and integrated physical environment.
- 8.15. Policy EN3 (Heritage) states that throughout the City, MCC will encourage development that complements and takes advantage of the distinct historic and heritage features of its districts and neighbourhoods. New developments must be designed to support MCC in preserving or, where possible, enhancing the historic environment, the character, setting and accessibility of areas and buildings of acknowledged importance.
- 8.16. The Council's key regeneration objective is tempered by the need to ensure that: "historic sites and areas of particular heritage value should be both safeguarded for the future and, where possible, enhanced for their own heritage merits and as part of wider heritage regeneration proposals" (paragraph 12.21, Policy EN3). The policy thus evidently requires development proposals to be sensitive to the inherent values of the designated heritage asset, with any impact justified by clear, documentary evidence. This report aims to demonstrate how this requirement is addressed by the current proposal.

Guidance

- 8.17. Assessment of the Built Heritage resource accords with the requirements of the NPPF, and the guidance set out in Historic England's Advice Note 12, *'Statements of Heritage Significance: Analysing Significance in heritage Assets'* (October 2019). The recent guidance calls for a staged approach, which provides relevant and proportionate information sufficient to inform decision-making.
- 8.18. In 2015 Historic England released three Good Practice Advice notes supporting the implementation of national policy and the related guidance in the PPG. The advice notes do not constitute a statement of Government policy itself, nor do they seek to prescribe a single methodology or particular data sources. Good Practice Advice Note 2 (Managing Significance in Decision-Taking in the Historic Environment – March 2015) and Good Practice Advice Note 3 (The Setting of Heritage Assets – as amended December 2017) were both utilised as part of this assessment in order to gain a full understanding of the relevant issues, alongside the NPPF and PPG.
- 8.19. In particular, the present assessment takes account of the advice contained within the revised version of Advice Note 3 on understanding what constitutes the setting of a Listed Building, Conservation Area or other heritage asset, and the selection of assets the settings of which may be considered to be affected by

development in a particular location, as well as the approach to the selection of indicative key views of a proposed development in context with existing heritage assets.

- 8.20. The ICOMOS Guidance on 'Heritage Impact Assessments' (Jan.2011) and Planning Practice Guidance (July, 2019) has also been utilised as part of this assessment.

Assessment Methodology and Significance Criteria

- 8.21. This assesses the effect of the Proposed Development on designated built heritage assets within a 250m study area.
- 8.22. Due to the proposed scale of the Proposed Development, an initial study area of a 500m radius was proposed. Following on-site surveys and the information provided by the Zone of Visual Influence (ZVI) study (Simpson Haugh), the study area was reduced to 250m. This is considered to be proportionate due to the dense urban environment which characterises the city centre to the west of the Site which subsequently limits views across the townscape.

Baseline Assessment

- 8.23. The baseline assessment was undertaken using a combination of desk-based study, research and fieldwork to identify and assess the heritage significance of the designated and non-designated heritage asset receptors. It also establishes the way in which the settings and the Site contribute to the heritage significance of these assets.
- 8.24. The above receptors are valued and the impact on them assessed giving a significance of effect. Individual viewpoints from which to undertake the Visual Impact assessment were determined following site inspection and discussion with Historic England.
- 8.25. In order to predict the magnitude and significance of visual impact the following criteria is considered:
- The sensitivity and proximity of receptors;
 - The nature of the existing views;
 - The degree of change to existing views and visibility of the Proposed Development; and
 - The availability and amenity of alternative views.

Assessment Methodology

- 8.26. The assessment methodology for the Historic Environment and Visual Impact is a synthesis of established guidance, best practice and professional judgement. In accordance with an adapted form of the methodology set out in the Department for Transport's Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 2 Cultural Heritage HA 208/07, all receptors identified in the baseline which might be affected by the Proposed Development are valued and the impact on them is assessed in order to give a significance of effect. The following Historic England (formerly English Heritage) guidance has also been utilised for the assessment:
- DCMS's Principles of Selection for Listing Buildings (2010);
 - Historic England's Conservation Principles, Policies and Guidance (2008);
 - Historic England's Good Practice Advice Note 3: The Setting of Heritage Assets (2015); and
 - Historic England's Good Practice Advice Note 4: Tall Buildings (2016).
- 8.27. The aim of this assessment has been:
- To establish the baseline environment regarding designated heritage assets related to the historic built environment, i.e. Listed Buildings and Conservation Areas.
 - Assessment of the significance of the known resource.

- Evaluation of the magnitude of impacts on identified resources.
 - Identification of mitigation in the form of further surveys, investigation and recording to be undertaken in light of the identified impacts.
- 8.28. Identification and description of the baseline environment has involved a combination of desk-based review of plans, maps, records and other documents, consultation with Historic England and visual survey.
- 8.29. Consideration has also been given to the historical development, non-designated heritage assets, building types and materials, key views to the notable historic buildings which contribute to the identification of the built form, and understanding of the special interest of the area.
- 8.30. For the purposes of this assessment, consideration has been given within a 250m radius of the Site. The study area provides a focus for assessment but is not intended to be prescriptive; buildings outside the boundary of the study area are considered where relevant.
- 8.31. The characterisation appraisal, of the study area, which informed the selection of key views for the visual impact assessment, took into account the following factors regarding character and distinctiveness of the area surrounding the Site: open spaces, public realm, materials, views into and from the Site, current and historic uses and the urban grain. The key views were also agreed with Historic England.
- 8.32. Information was collated from a number of online and primary sources including:
- The National Heritage List (Historic England).
 - Manchester City Council Website.
 - Manchester University Library website.

Significance Criteria

- 8.33. Criteria have been established to appraise a heritage asset's significance. Statutory criteria, as set out in the '*Principles of Selection for Listing Buildings*', DCMS, 2010 (revised 2018), provides a list of principles of assessing significance based on architectural and historic interest, age and rarity, aesthetic merits, selectivity and national interest. Historic England (formerly English Heritage)'s criteria outlined in 'Conservation Principles, Policies and Guidance,' are also considered in this assessment.
- 8.34. Evaluation of significance has been informed primarily by the designation of the assets at an international, national, regional or local level as well as their ability to contribute to an understanding of the past. This value rating had also been applied when considering sensitivity of views containing heritage assets. Indicative definitions for each of these ratings are outlined in Table 8.1:

Table 8.1 – Significance Criteria for Determining the Value of Heritage Assets

Significance	Definition
High	Grade I and Grade II* listed buildings. Other buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade. Conservation Areas containing very important buildings.
Medium	Grade II listed buildings. Historic buildings that can be shown to have exceptional qualities in their fabric or historical associations. Conservation areas containing buildings that contribute significantly to its historic character.
Low	Locally listed buildings.

Significance	Definition
	Historic buildings of modest quality in their fabric or historical association.

Assessment of Effects and Evaluation of the Magnitude of Impact

- 8.35. Impacts may be beneficial or adverse. If the Proposed Development will enhance heritage values or the ability to appreciate them, as expressed in the first stage of the assessment, then the impact on heritage significance will be deemed to be beneficial; however, if they fail to sustain heritage values or impair their appreciation then the impact will be deemed to be adverse.
- 8.36. Table 8.2 summarises the factors to be taken into account when assessing the magnitude of impact. The criteria are not intended to be prescriptive and the weighting to be accorded to each requires professional judgement.

Table 8.2 – Criteria for Determining Magnitude of Impact

Magnitude of impact	Criteria for assessing impact
Major beneficial	The development considerably enhances the heritage values of the heritage assets, or the ability to appreciate those values.
Moderate beneficial	The development enhances to a clearly discernible extent the heritage values of the heritage assets, or the ability to appreciate those values.
Minor beneficial	The development enhances to a minor extent the heritage values of the heritage assets, or the ability to appreciate those values.
Negligible beneficial	The development would imperceptibly enhance the intrinsic values of the identified heritage assets, or the experience and appreciation of the buildings or the designated area.
Neutral	The development may result in some visual change but does not affect the heritage values of the heritage assets in the view, or the ability to appreciate those values.
Negligible adverse	The development would alter, but not diminish, the intrinsic values of the identified heritage assets, or the experience and appreciation of the buildings or the designated area to any appreciable degree.
Minor adverse	The development erodes to a minor extent the heritage values of the heritage assets, or the ability to appreciate those values.
Moderate adverse	The development erodes to a clearly discernible extent the heritage values of the heritage assets, or the ability to appreciate those values.
Major adverse	The development severely erodes the heritage values of the heritage assets, or the ability to appreciate those values.

Significance of Effect

- 8.37. Derived by combining the significance rating of the resource with the magnitude of impact for each asset, Table 8.3 illustrates how information on the significance of the asset and the magnitude of the impact has been combined to arrive at an assessment of the significance of effect. The matrix is not intended to 'mechanise' judgment of the significance of effect but act as a check to ensure that judgments regarding value, magnitude of impact and significance of effect are reasonable and balanced.
- 8.38. The tabulated matrix below is generally consistent with recognised criteria as defined within ICOMOS Guidance (2011). This is not, however, intended to be prescriptive, and does not take into account the existing character of the areas around the site. Scale or severity of impacts or changes can be judged taking

into account their direct and indirect effects and whether they are temporary or permanent, reversible or irreversible. The cumulative effect of separate impacts should also be considered. The scale or severity of impact can be ranked without regard to the value of the asset.

Table 8.3 – Significance of Effect Matrix

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

Limitations and Assumptions

8.39. Survey of the identified heritage assets within the study area was from publicly accessible areas. As such the study is limited to assessment from ground level.

8.40. Assessment of below ground archaeology does not form part of this assessment.

Baseline Conditions

8.41. The Site is located on the corner of Great Ancoats Street and Port Street and is within the neighbourhood of Ancoats on the northern part of Manchester City Centre.

8.42. The Site extends to approximately 0.48 hectares (4845 sqm) and is bound by Great Ancoats Street to the north, Brownsfield Mill and a surface car park to the east, surface car park to the south and Port Street to the west.

8.43. The Site is comprised of a surface level car park of low-quality hardstanding. The site levels drop by circa 2m from the northern and western boundaries to a lower level which also forms part of the car park. There is a very limited amount of vegetation site. The Site can be accessed by foot or on vehicle by using the car park entrances on Port Street.

8.44. The assessment has identified 31 no. heritage assets within the study area (Table 8.4 and Figure 8.1). It should be noted that only 14 heritage assets in total were scoped in for further assessment (Nos.1,4,5,7,8,12,14,17,19,21,22,23,24,25,27,28, and Smithfield Conservation Area) were scoped out due to factors such as distance and relationship to the Proposed Development Site).

Table 8.4 – Heritage Assets and their value

Number, Figure 1	Name	Designation and Grade	Value of Heritage Asset	Potential to be indirectly impacted by the Proposed Development and scoped in for assessment
1	72-76, NEWTON STREET	Grade II Listed Building	Medium	No
2	ROYAL MILL	Grade II* Listed Building	High	Yes

Number, Figure 1	Name	Designation and Grade	Value of Heritage Asset	Potential to be indirectly impacted by the Proposed Development and scoped in for assessment
3	FORMER WAREHOUSE AND OFFICES OF OLD MILL, DECKER MILL, AND NEW MILL	Grade II Listed Building	Medium	Yes
4	NEWTON BUILDINGS	Grade II Listed Building	Medium	No
5	BRADLEY HOUSE	Grade II Listed Building	Medium	No
6	ROCHDALE CANAL RETAINING WALL ON SOUTH SIDE OF REDHILL STREET, WEST OF UNION STREET BRIDGE	Grade II Listed Building	Medium	Yes
7	Nos. 69-77, LEVER STREET and No. 10, BRADLEY STREET	Grade II Listed Building	Medium	No
8	LANGLEY BUILDING	Grade II Listed Building	Medium	No
9	DERROS BUILDING	Grade II Listed Building	Medium	Yes
10	50-62 PORT STREET	Grade II Listed Building	Medium	Yes
11	BROWNSFIELD MILL	Grade II* Listed Building	High	Yes
12	Nos. 49 – 51 DALE STREET	Grade II Listed Building	Medium	No
13	SEDGWICK MILL	Grade II Listed Building	Medium	Yes
14	49 NEWTON STREET	Grade II Listed Building	Medium	No
15	45, 47 and 47A HILTON STREET	Grade II Listed Building	Medium	Yes
16	ROCHDALE CANAL LOCK NUMBER 82, TO EAST OF GREAT ANCOATS STREET	Grade II Listed Building	Medium	Yes
17	32 AND 34 LAYSTALL STREET	Grade II Listed Building	Medium	No
18	ROCHDALE CANAL LOCK NUMBER 83, TO THE EAST OF TARIFF STREET	Grade II Listed Building	Medium	Yes
19	45 AND 47 NEWTON STREET	Grade II Listed Building	Medium	No
20	ROCHDALE CANAL TOWPATH FOOTBRIDGE AND ASSOCIATED RAMPS OPPOSITE BROWNSFIELD MILL	Grade II Listed Building	Medium	Yes
21	MARLSBRO HOUSE	Grade II Listed Building	Medium	No
22	FORMER JUNCTION WORKS AT PARADISE WHARF	Grade II Listed Building	Medium	No
23	FORMER NEWTON POLICE STATION	Grade II Listed Building	Medium	No
24	PARAGON MILL	Grade II* Listed Building	Medium	No

Number, Figure 1	Name	Designation and Grade	Value of Heritage Asset	Potential to be indirectly impacted by the Proposed Development and scoped in for assessment
25	35 DALE STREET	Grade II Listed Building	Medium	No
26	FORMER ROCHDALE CANAL WAREHOUSE	Grade II* Listed Building	High	Yes
27	FOURWAYS HOUSE	Grade II Listed Building	Medium	No
28	NUMBERS 4, 6 & 8 AND ATTACHED SCREEN WALLS	Grade II Listed Building	Medium	No
Green	Stevenson Square Conservation Area	Conservation Area	High	Yes
Purple	Ancoats Conservation Area	Conservation Area	High	Yes
Yellow	Smithfield Conservation Area	Conservation Area	High	No

Summary of History and Development of the Site

- 8.45. The Site comprises an undeveloped plot of land, adjacent to the Rochdale Canal and Grade II* Listed Brownsfield Mill.
- 8.46. There are no buildings remaining within the Site boundary area.
- 8.47. The plot of land which forms the present-day Site was initially defined by the development opportunities offered by the cutting of the Rochdale Canal and its canal arms adjacent to, and through the site in the 1790s/1800s.
- 8.48. The surviving parts of the Rochdale Canal are intrinsically connected with the development of the urban and industrial expansion of Manchester in the late 18th – early 19th century.
- 8.49. The historic map regression (Section 4.4, Appendix 8.1) illustrates the development of the Site, which originally developed in the late-18th/early-19th century as the location of a number of industrial premises such as timber and marble sawmills to the west of the Site and shops/houses to the east, which turned their back to the industrial parts of the Site.
- 8.50. Throughout the latter 19th and early 20th centuries, the character of the Site and the surrounding area continued to be largely defined by industrial use, which included packing case manufacturers, hay and straw warehousing, and machinery manufacturers.
- 8.51. By the early decades of the 20th century the decline in the manufacturing and cotton industries resulted in the two canal arms being infilled and their locations becoming used as a motor garage.
- 8.52. Further decline in the manufacturing industry in the city centre of Manchester, in the mid-to-late 20th century, saw the Rochdale Canal becoming obsolete and neglected, and the former early-19th century shops to the east of the Site being demolished.
- 8.53. With the return of a resident population to the city centre from the 1980s onwards, the Site and its immediate surrounding area have undergone various stages of change and regeneration from the 2000s to the present day.

Statement of Significance

- 8.54. The statement of significance provides a summary of the Site's relative architectural and historic interest. Please refer to Section 5 of the Heritage Statement for further detailed analysis (Appendix 8.1).
- 8.55. The Site comprises a vacant plot of land to the south-west side of the junction of Port Street and Great Ancoats Street.
- 8.56. Historically, the Site housed numerous commercial and industrial buildings, associated with the adjacent Rochdale Canal and linked canal basin that formerly crossed the site, prior to the infilling of the canal arms and demolition of the buildings throughout the mid-to-late-20th century. As the Site no longer contains any evidence of built form or historic fabric, it yields no heritage interest.
- 8.57. The Site is adjacent to the Grade II* listed Brownsfield Mill, within the setting of eleven (11no.) other listed buildings and two conservation areas.
- 8.58. As a surface car park, with no hard or soft landscaping, it has an adverse impact on the setting of the Grade II* Brownsfield Mill as it highlights the fragmented nature of the urban form in this location.

Identification and Evaluation of Significant Effects

- 8.59. Heritage assets are susceptible to numerous forms of development and non-development impacts both during the construction process and as a consequence of the operational life of the Proposed Development. The potential effects in relation to the current Proposed Development have been deemed to relate to impacts on the setting of the identified heritage assets only.
- 8.60. Detailed evaluation of the impacts of the identified heritage assets are provided within the Impact Assessment set out in Section 6 of the Heritage Statement within Appendix 8.1.

Construction Phase

- 8.61. The assessment methodology and approach to the relative impact on heritage assets during the construction phase is based on evidence-based assumptions in relation to common issues such as demolition, dust, noise, site hoarding and scaffolding.
- 8.62. Due to the proximity of the Grade II* Listed Brownsfield Mill (No.11, Table 8.4), the potential effects of the demolition and construction phase will result in temporary, localised minor adverse impacts on the ability to understand and appreciate the setting of this building.

Operational Phase

- 8.63. It will be clear that the proposals will result in a number of minor to negligible adverse impacts upon surrounding designated heritage assets, with some slightly higher instances of minor-to-moderate and moderate adverse impact occurring nearer to the site. The instance of moderate adverse impact is in relation to the visual impact on the understanding and experience of the setting of the Grade II listed 50-62 Port Street. The instance of minor-to-moderate adverse impact is in relation to the visual impact on the understanding and experience of the setting of the Grade II* listed Brownsfield Mill.
- 8.64. The potential effects of the Proposed Development are considered in full within the Visual Impact Assessment in Section 6 of the Heritage Statement, Appendix 8.1.

Mitigation Measures

- 8.65. Heritage considerations have been integral to the design of the proposals. Enlisting appropriate specialists and consultation with the local authority has informed the design development and assessment process to ensure potential adverse visual impacts on the identified heritage assets are minimised.

- 8.66. The identification of key heritage viewpoints has been one of the principal factors in identifying where impact may occur, and therefore allowing for an understanding of how best to minimise and mitigate harm. These have been informed by on-going consultation with Historic England, the LPA, and Zone of Visual studies which provide an objective evidence base on which informed conclusions can be made.
- 8.67. Consideration has been given to the Public Benefits that will be delivered by the Proposed Development.

Cumulative Effects

- 8.68. The impact of each of the committed developments has been tested separately and accepted. The overall cumulative effects of these committed developments, alongside the Proposed Development is not considered to cause any additional significant impact on the baseline historic built environment.

Residual Impacts

Table 8.5 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Construction Phase				
Minor adverse	Brownsfield Mill	Construction methodology and programme	n/a	Minor Adverse - temporary
Operational Phase				
Minor adverse	Royal Mill	Public benefits	n/a	Minor adverse - permanent
Minor adverse	Former Warehouse And Offices Of Old Mill, Decker Mill, And New Mill	Public benefits	n/a	Minor adverse - permanent
Negligible adverse	Rochdale Canal Retaining Wall On South Side Of Redhill Street, West Of Union Street Bridge	Public benefits	n/a	Negligible adverse - permanent
Neutral	Derros Building,	Public benefits	n/a	Neutral
Moderate adverse	50-62 Port Street	Public benefits	n/a	Moderate adverse - permanent
Minor-to-moderate adverse	Brownsfield Mill	Public benefits	n/a	Minor-to-moderate adverse - permanent
Minor adverse	Sedgwick Mill	Public benefits	n/a	Minor adverse - permanent

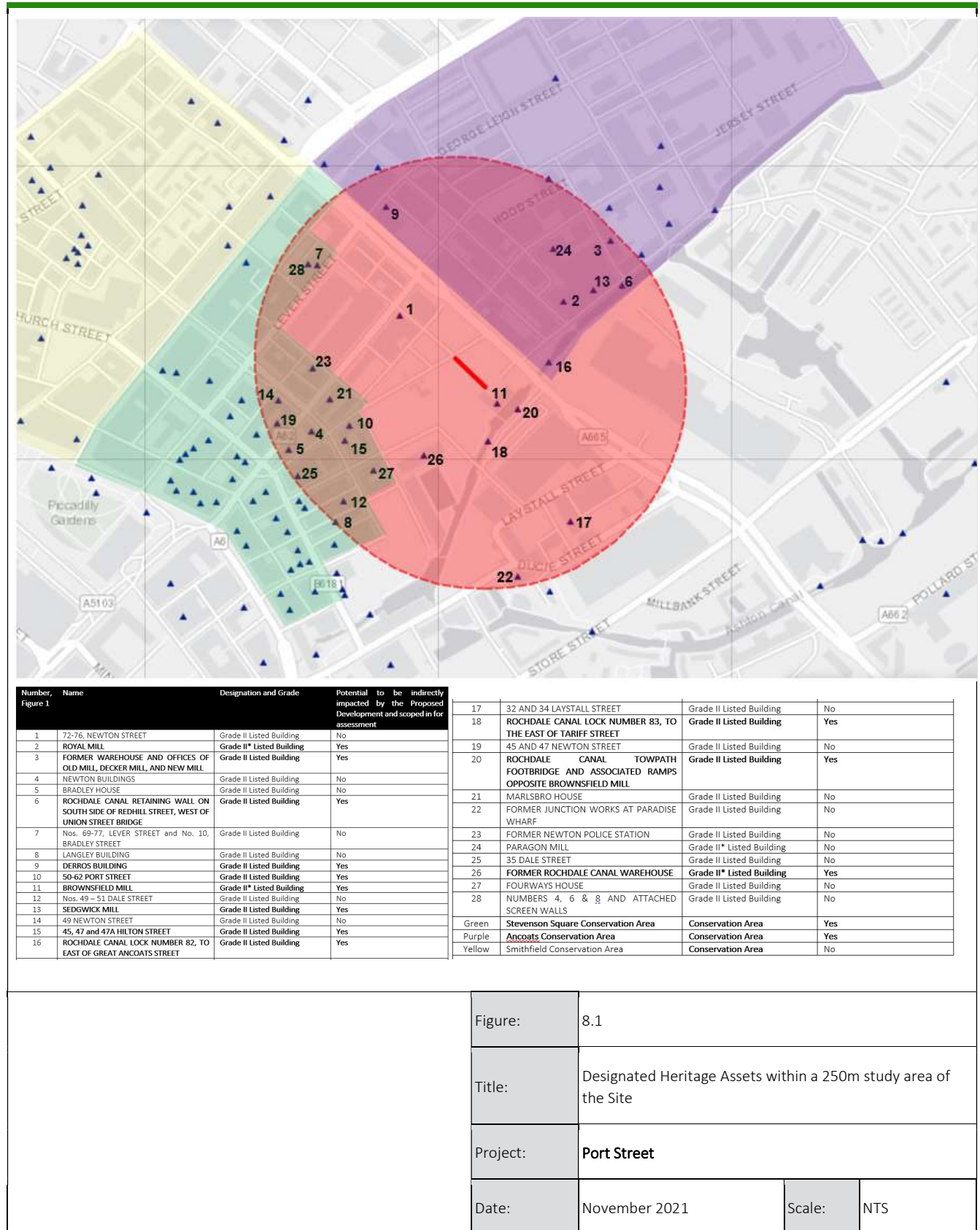
Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Negligible adverse	45, 47 And 47A Hilton Street	Public benefits	n/a	Negligible adverse - permanent
Negligible adverse	Rochdale Canal Lock Number 82, To East Of Great Ancoats Street	n/a	n/a	Negligible adverse - permanent
Negligible adverse	Rochdale Canal Lock Number 83, To The East Of Tariff Street	Public benefits	n/a	Negligible adverse – permanent
Negligible adverse	Rochdale Canal Towpath Footbridge And Associated Ramps Opposite Brownsfield Mill	Public benefits	n/a	Negligible adverse - permanent
Neutral	Former Rochdale Canal Warehouse	Public benefits	n/a	Neutral
Negligible adverse	Ancoats Conservation Area	Public benefits	n/a	Negligible adverse - permanent
Minor adverse	Stevenson Square Conservation Area	Public benefits	n/a	Minor adverse - permanent

Reference List

8.69. This ES Chapter has been prepared by reference to the following:

- Highways Agency. 2007. Design Manual for Roads and Bridges, Volume 11, Section 3, Part 2 HA 208/07 – Cultural Heritage;
- Planning (Listed Buildings & Conservation Areas Act 1990.
- Department of Communities and Local Government (2021). National Planning Policy Framework.
- Department of Communities and Local Government (2019) Planning Practice Guide. Conserving and enhancing the historic environment.
- DCMS's Principles of Selection for Listing Buildings (2010);
- Historic England's Conservation Principles, Policies and Guidance (2008);
- Historic England's Good Practice Advice Note 2: Managing Significance in Decision-Taking in the Historic Environment (March 2015);
- Historic England's Good Practice Advice Note 3: The Setting of Heritage Assets (2017);
- Historic England's Good Practice Advice Note 4: Tall Buildings (2016); and

- Historic England's Understanding Place: Conservation Area Designation, Appraisal and Management (2017).



9. Human Health

Introduction

- 9.1. This Chapter of the ES has been prepared by Enfusion and assesses the likely impacts of the proposals upon human health for the site and surrounding area. This Chapter also describes the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant negative impacts and the likely residual impacts after these methods have been adopted.
- 9.2. The chapter has been prepared by Barbara Carroll BSc MSc CEnv FIEMA with over 25 years' experience of assessing plans and projects for their impacts on the environment, including effects on human health and wellbeing. She has prepared health chapters for other Environmental Statements supporting development project proposals in Manchester. She is a co-author of the practical guide - The EIA Handbook (Telfords, Third Edition, November 2019).

Legislative and Policy Context

National Planning Policy

National Planning Policy Framework (NPPF, updated 2019 & revised 2021)

- 9.3. The revised NPPF acknowledges the importance of considering health impacts during the planning process and covers many issues that are directly related to the determinants of health. The NPPF identifies the three overarching objectives – economic, social and environmental – that are interdependent and need to be pursued in mutually supportive ways in order to achieve sustainable development (paragraph 8). The social objective should support “strong, vibrant and healthy communities... by creating a high quality built environment, with accessible local services that reflect the community’s needs and support its health, social and cultural well-being.’
- 9.4. Chapter 8 covers promoting healthy and safe communities, acknowledging that planning policies and decisions should aim to achieve healthy, inclusive and safe places which:
- “a) promote social interaction, including opportunities for meetings between people who might not otherwise come into contact with each other – for example through mixed-use developments, strong neighbourhood centres, street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages.*
- “b) are safe and accessible, so that crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion – for example through the use of clear and legible pedestrian routes, and high quality public space, which encourage the active and continual use of public areas; and*
- “c) 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.” (paragraph 92).*
- 9.5. Social, recreational and cultural facilities and services should support the delivery of local strategies to improve health, social and cultural wellbeing for all sections of the community (paragraph 93). It is important that sufficient choice of school places is available to meet the needs of existing and new communities (paragraph 95). Public safety should be promoted and “take into account wider security and defence requirements” (paragraph 97).
- 9.6. “Access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and wellbeing of communities” (paragraph 98). Sustainable transport should be promoted and this “can help improve air quality and public health” (paragraph 105). “An effective use of land should be promoted in meeting the need for homes and other uses, while safeguarding and improving the

environment and ensuring safe and healthy living conditions” (paragraph 119). “Developments should create places that are safe, inclusive and accessible and which promote health and wellbeing...” (paragraph 130). “New development must be appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health...” (paragraph 185).

Public Health England (PHE) Strategy (2019)

- 9.7. Sets out how PHE intends to protect and improve the public’s health and reduce inequalities during 2020 to 2025. The Strategy recognises that the longer term, societal drivers of change represent the principal challenge facing the public’s health. However, there are opportunities now, including “place-based approaches”. The 10 priorities include healthier diets, healthier weight; cleaner air; and better mental health” with the aim to incorporate the reduction of health inequalities into each of the 10 priorities. The purpose of PHE is to protect and improve the nation’s health and reduce health inequalities. This is guided by aims – “to keep people safe; to prevent poor health; to narrow the health gap; and the support a strong economy”.

Local Planning Policy

Manchester City Council (MCC) Core Strategy (adopted 2012)

- 9.8. MCC’s Core Strategy is the key document in Manchester’s Local Development Plan. it is founded on a Vision to 2027 that includes “an increased and sustainable healthy population...”. Policies relevant to health are as follows:
- Policy SP1 Spatial Principles includes requirement that development should make a positive contribution to neighbourhoods including “*making a positive contribution to the health, safety and wellbeing of residents*”
 - Policy CC1 Primary Economic Development Focus: City Centre and Fringe states that the focus of employment growth is in the City Centre and will be a suitable location for consideration of high density buildings.
 - Policy CC3 Housing advises that the most intensive development of housing will be in the City Centre.
 - Policy CC6 High Density Development is a location where land should be used to maximise its efficiency.
 - Policy CC7 Mixed Use Development guides that the City Centre presents the most viable opportunities for mixed use development.
 - Policy CC10 A Place for Everyone advises that the City Centre will develop as a location which appeals to a wide range of residents and visitors.
 - Policy EC1 Employment and Economic Growth in Manchester requires development proposals to make the best possible use of a site in terms of efficient use of space and including application of best practice in security design.
 - Policy H1 Overall Housing Provision defines high-density developments as those with over 75 units and states that they are appropriate in the City Centre.
 - Policy EN4 seeks to reduce CO₂ emission and reduce fuel poverty by enabling low and zero carbon development.
 - Policy EN8 Adaptation to Climate Change includes requirements to minimise flood risk and reduce urban overheating.
 - Policy EN9 Green Infrastructure provides guidance on provision of new, and improvements to, the quality and accessibility of existing green infrastructure assets.
 - Policies EN10 & 11 safeguard and create new open space, sport & recreation facilities.
 - Health is further protected through Policies EN14 Flood Risk, EN16 Air Quality, EN17 Water Quality, and EN18 Contaminated Land & Ground Stability

- Policy T1 Sustainable Transport requires “*delivery of a sustainable, high quality, integrated transport system to encourage modal shift away from car travel... and to prepare for carbon free modes of transport*”.
- Policy T2 will actively manage the pattern of development to ensure that there are accessible areas of opportunity and need.
- Policy T3 supports proposals that contribute to an economically and environmentally sustainable transport network through strategic integration of strategic transport projects. Progression towards sustainable transport will promote healthier living and well-being.
- Policy *DM1 Development Management* requires that all development should have regard to specific issues including “*Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation*”; Accessibility: *buildings and neighbourhoods fully accessible to disabled people, access to new development by sustainable transport modes*”; “*Community safety & crime prevention*”; and “*Design for Health*”.

Piccadilly Basin Strategic Development Framework (adopted 2016)

- 9.9. The Development Framework Vision is established and recognise an opportunity to create “a best in class city centre neighbourhood community” as part of a “well-designed environment that is well managed, safe, accessible, sustainable and resilient to climate change...” The Development Principles include guidance that a range and mix of accommodation should be carefully designed and managed, residential amenity should be maximised with maximum advantage of the area’s key assets – heritage, canalside and public spaces, scale and massing of large buildings should be moderated, and public realm should complement and help form connections including new cycle routes.

Places for Everyone – Joint Development Plan (Greater Manchester Councils 2021)

- 9.10. The Greater Manchester Spatial Framework (GMSF, Publication Draft, 2020) has now been withdrawn but nine of the previous ten Councils have agreed to progress with a Joint Plan that will build upon the evidence base already collected. It may be noted that the GMSF Vision includes GM as “a place where people live healthy lives”; and Strategic Objectives include No 10 “to promote the health and wellbeing of communities”. The overall draft Strategy and many of the policies in the plan support improvements in health and wellbeing, and reductions in health inequalities, such as by “promoting a successful economy; increasing supply of high quality and affordable homes; enabling people to adopt healthier lifestyles; and reducing risks to human health”.

Other Relevant Policy, Strategy & Guidance

Public Health England (PHE) Spatial Planning for Health (2017)

- 9.11. Provides evidence of links between spatial planning and health, focusing on five key built environment topics – neighbourhood design, housing, healthier food, natural and sustainable environment, and transport.

Public Health England (PHE) Health Impact Assessment in Spatial Planning (2020)

- 9.12. Provides a guide for local authority public health and planning teams setting out process and practice with regard to the wider determinants of health and wellbeing for plan-making and the planning application process. The guide is mostly associated with the plan-making and associated strategic environmental assessment processes. However, it does include an annex on integrating HIA in EIA and it does confirm the importance of a “proportionate and justified approach”.

The Manchester Strategy (Our Manchester) 2025

- 9.13. The Manchester Strategy to 2025 comprises the Vision and five themes for the strategy including a progressive and equitable city where “health will improve...”.

Assessment Methodology and Significance Criteria

- 9.14. Health Impact Assessment (HIA) and health in EIA are separate processes, and there is no standard methodology for assessing health in EIA. The coverage of health in EIA need not be so comprehensive as the HIA that is used to inform detailed project design, but guidance documents for good practice in HIA can inform EIA practice in relation to human health and well-being. It is important that health in EIA is proportionate, balanced, and relevant. The approach here is proportionate - based on consultation responses, the Scoping Opinion, professional experience, and assessment of impacts against relevant baseline information.
- 9.15. The Scoping Opinion received from MCC (16 November 2021) advised that *“matters of wind microclimate, climate change and socio-economic effects have all been scoped into the ES due to these disciplines having significant environmental impacts. All of these matters affect Human Health and therefore the Proposed Development is likely to give rise to significant environmental impacts on the Human Health which should be considered and evaluated through the ES. This should include an assessment of the impact on human health with regards to any air quality considerations, climate change and quality of life, particularly during the construction process when heavy plant, machinery, dust and emissions are likely to be generated together with any noise, disturbance, traffic/transport and air quality considerations during the operational phases of the development. On the above basis the scope of consideration of Human Health is acceptable in terms of its consideration in the ES.”*
- 9.16. Shaping Neighbourhoods: For Local Health and Global Sustainability (2010) sets out the complexities of planning for health due to the multiple determinants and the need for cross-sectoral understanding and collaboration. This guide established a health map demonstrating the linkages between the global ecosystem, the natural and built environments, the local economy with communities, people, and their lifestyles. It explains the likely interactions between different sectors and seeks a common language for spatial planning and public health practitioners.
- 9.17. The complexities of investigating health impacts are recognised by Public Health England (PHE) and the Wider Determinants of Health tool is an ongoing project that provides resources for categories of factors that affect health, as follows: built and natural environment; work and the labour market; vulnerability; income; crime; education.
- 9.18. The London Healthy Urban Development Unit (HUDU) ‘Healthy Urban Planning Checklist’ (2017) provides a useful checklist that was developed for London but is applicable to housing development in urban city centres elsewhere in the UK. The checklist aims to promote healthy urban planning by ensuring that the health and wellbeing implications of major planning applications are consistently taken into account, through providing a set of themes and planning issues that can be used to assess development proposals. For the purposes of this assessment, we have applied the checklist to the proposals.
- 9.19. This checklist recognises that health and wellbeing can be affected by multiple determinants as shown in Figure 9.1.
- 9.20. Changes in certain determinants caused by development may affect the health and wellbeing of existing and new residents. The HUDU checklist interprets these determinants into a set of four themes for healthy urban living that can be used to assess residential development, as follows:
- Healthy Housing
 - Active Travel
 - Healthy Environment
 - Vibrant Neighbourhoods
- 9.21. Specific criteria sit under each of these themes to cover a fuller range of determinants. These include access to health and social care, healthy food, freedom from pollution, open space, reducing crime and fear of crime, and access to employment and services. The checklist and criteria were used to inform the proposed scope of the Health Chapter of this EIA and then provided the basis for the assessment stage, where the proposals (including embedded mitigation such as through the design of the project with reduced carbon emissions, a new public realm with street trees, and enhanced accessibility to sustainable transport networks

such as new access to the Rochdale Canal towpath) were considered for each of the relevant determinants to identify the receptors that would be affected.

- 9.22. The use of checklists helps identify the topics that are relevant to the health impact assessment for the Proposed Development. This Health Chapter considers the direct implications for health such as the provision of housing and employment. Also, direct effects such as those arising through pollution, air quality, climate change, and safety risks, as well as accessibility to healthcare facilities and sustainable transport (public, cycling and walking) for healthy living. It further considers the wider implications for health and well-being, such as disturbance/nuisance, provision and accessibility to green infrastructure, amenity, cultural, leisure, and recreational facilities.
- 9.23. This health assessment considers the proximity, accessibility, and capacity (where possible) of health and medical centres and dentists in the vicinity of the proposed development. It considers the proximity and accessibility of gyms, leisure centres, sports/recreational and cultural facilities nearby since such activities are important determinants of health and wellbeing. Searches were made through web-based sources and using Google Maps to measure approximate distances by walking or public transport from the centre of the development area to the facility. The proximity of open spaces and walking routes is investigated since access to open space and healthy modes of transport also contributes to healthier lifestyles and wellbeing.
- 9.24. Findings from the Socio-Economics Assessment (Chapter 11) are integrated as necessary taking into account the benefits arising from the proposed residential development, and the effects on demand for social and community infrastructure. Provision of good quality housing, access to employment and social infrastructure/open space are known to have positive effects on health and wellbeing. The implications of the commercial element of the Proposed Development are also considered. The summary findings from the Townscape and Visual Impact studies (Chapter 12) are considered as the quality of the local environment affects health and wellbeing. Transport and air quality studies were undertaken to inform the project proposals. The change from a car park to a residential tower will result in an anticipated net reduction in car trips in the vicinity. It was agreed through the EIA scoping process that significant adverse environmental effects were unlikely, and these topics were scoped out of the EIA process, though full stand alone Transport and Air Quality technical reports support the planning application. Furthermore, the findings of the transport and air quality studies are referred to in the themes for health urban living since these topics are so inter-related and access to sustainable modes of transport is a key contributor to improvements in health and wellbeing.
- 9.25. The key findings from the Climate Change (Chapter 6); Sunlight Daylight (Chapter 7); Noise and Vibration (Chapter 10); and Wind Microclimate (Chapter 13). Risk and vulnerabilities to pollution and/or the effects of climate change are key factors for human health and wellbeing. Thus, the findings of these assessments are considered in order to integrate within this Health chapter the key impacts associated with any pollution and future climate change effects that can affect human health and wellbeing. The Environmental Statement also includes a technical chapter on Heritage (Chapter 8). Whilst knowledge and appreciation of the historic environment can contribute to human wellbeing, this is not considered to be a key factor for vulnerabilities to human health in the context of the Proposed Development and these topics are not addressed in detail within this Human Health chapter. However, heritage is addressed where relevant in the townscape & visual impact studies, and also considered with regard to wellbeing in the Healthy Environment/Housing Themes for urban living.
- 9.26. Each technical impact assessment is subject to its own standards, regulations, and methods of assessment. The key findings from each are considered and integrated into the four themes of - Healthy Housing; Active Travel; Healthy Environment; and Vibrant Neighbourhoods. Thus, any significant impacts for human health are clearly presented in a separate chapter. The key impacts for health are considered and inter-relationships are integrated within the four key themes identified for healthy urban living.
- 9.27. The proposed scope uses the approach as outlined above. This chapter on health is not a Health Needs Assessment and does not attempt to quantify health care contributions. The geographical scope is determined by receptor groups that are likely to be significantly affected by the Proposed Development. Therefore, the scope of the Health Chapter is in part dependent upon the study areas and potential receptors identified in the other technical assessments (such those for socioeconomic, visual impact, transport, noise, and air quality). Thus, the study area comprises the Proposed Development site with local surrounds in the City Centre, the wider study area of the City of Manchester, together with any implications

for the North West of England – as applicable to each of the factors relevant to human health and wellbeing for the proposed project.

9.28. Receptors were identified, as follows:

- construction workers
- existing residents, businesses, communities around the site, and including any sensitive receptors such as hospitals, nurseries, schools, care homes identified by the technical assessments
- future users and visitors of the site
- pedestrians in the vicinity of the site

9.29. The baseline informing the assessment draws upon local health and wellbeing information and priorities, such as those set out in the Manchester City Joint Strategic Needs Assessment (JSNA 2021), published local authority health profiles through Public Health England (PHE, 2017-2019) and Office for National Statistics (ONS) for health and life expectancies (2017-2019), and as reported by Manchester City Council. The key baseline from the other technical topics is considered, such as capacity of local facilities and employment/local expenditure statistics identified in the socio-economics assessment, and risks to health/wellbeing such as from air quality and noise/vibration, and risks associated with the effects of climate change. It has not been necessary for this assessment to undertake primary research or surveys and this desk-based approach using published information and professional judgment provides an appropriate level of detail.

9.30. The Institute of Environmental Management & Assessment (IEMA) paper on Health in EIA (2017) explains the complexities associated with defining significance for population and human health. This guidance notes that there is an absence of specific significance criteria or defined thresholds for determining significance for population and health in UK EIA practice. Given the multitude of factors that contribute to an individual's health outcomes, it is difficult to draw a quantified conclusion regarding the contribution of a particular development to an increase or decrease in the number of additional cases of a particular physical or mental health outcome.

9.31. Therefore, a significant effect is reported in this assessment where, based on professional judgment, the proposed development is likely to contribute to a material change in health outcomes associated with the health issue being assessed and, in determining this, the following questions have been considered:

- Have significant effects been identified in other assessments undertaken as part of the EIA that are linked to human health (i.e. are environmental or health standards threatened)?
- Are vulnerable groups affected?
- Is the effect reversible or irreversible?
- Does the effect occur over the short (less than one year), medium (one to five years) or long (over five years) term?
- Is the effect permanent or temporary?
- Does it increase or decrease with time?
- Is the effect at an individual or population level?
- Are mitigating measures available and is it reasonable to require these?

9.32. Effects that are described as 'minor' or 'negligible' are determined to be 'Not Significant' and effects that are described as 'moderate' or 'major' are determined to be 'Significant'. This takes into account the sensitivities of receptors (high, moderate, low) and as set out previously in Table 2.4 in the EIA Methodology (Chapter 2). The criteria and categories of significance applied in the health impact assessment are, as follows:

- Major Adverse/Beneficial – important considerations at local or district scale; if adverse, are potential concerns to the project & may become key factors in the decision-making process
- Moderate Adverse/Beneficial – modest local effects that, if adverse, are not likely to be key issues for decision-making

- Minor Adverse/Beneficial – Slight, short, or highly localised effects that, if adverse, are unlikely to be important in the decision-making process
 - Negligible – no appreciable effects on health factors
- 9.33. Standardised sectoral thresholds and significance criteria have been used for each of the relevant technical factors that contribute to health and well-being, according to recognised guidance, standards, and assessment methods for socioeconomics; townscape and visual; heritage, ecology; ground conditions; air quality; noise and vibration; sunlight, daylight; and wind microclimate. Then, the overall likely significant effects on health have been determined in a qualitative way using professional judgment.

Limitations and Assumptions

- 9.34. This Health Chapter considers the findings relevant to human health of each technical impact assessment scoped into the Environmental Statement – Townscape and Visual (Chapter 12); Heritage (Chapter 8); Noise and Vibration (Chapter 10); Socio-Economic (Chapter 11); Climate Change (Chapter 6); Sunlight, Daylight (Chapter 7); and Wind Microclimate (Chapter 7) – and, as such, any key assumptions or limitations associated with each technical impact assessment are addressed within the individual chapters. The overall approach for collating, assessing, and reporting impacts on human health and well-being is considered to be appropriate and proportionate such that there are no limitations. The assessment, set out in this ES Chapter, is desk-based and with professional judgment using published information.

Baseline Conditions

- 9.35. The Site is located within the Piccadilly ward and sits on the Piccadilly Basin, adjacent to Great Ancoats Street to the north-east, Newton Street to the north-west, and Port Street to the south. This area of Manchester of Manchester falls within the study areas of multiple strategic regeneration frameworks (SRFs). To date, there has been considerable progress with delivering regeneration to the Piccadilly Basin. The Site is currently a cleared surface level car park of 0.48 hectares and of low quality hardstanding.
- 9.36. **Health Profiles:** In 2020, the total population of Manchester was 555,741 people, an increase of 10.51% since 2011. This growth exceeded the levels of population in Greater Manchester at 6.07% and nationally in Great Britain at 6.04% during the same period. The rate of city population growth is likely to increase to over 627,000 by 2025. The Manchester State of the City Report (2020) notes that Manchester has a much younger age profile than England with an annual growth of twice the national population for residents aged 20-39. The Report summarises that despite recent improvements, Manchester still has some of the worst health outcomes in the country and there are significant inequalities within the city (health and unemployment).
- 9.37. According to ONS data (2017-2019), life expectancy at birth for Manchester is 76.4 (males) and 80.3 (females) compared with 79.8 (males) and 83.4 (females) averaged for England. The Proposed Development is located on in the City Centre – in the Piccadilly Ward. According to MCC Intelligence Hub information using Ward profiles, the Piccadilly Ward has very good health (2011 self-assessment from residents of the state of their general health).
- 9.38. The Index of Multiple deprivation (IMD) is an overall relative measure of deprivation constructed by combining seven domains of deprivation – Income; Employment; Education; Skills and Training; Health and Disability; Crime; Barriers to Housing Services and Living Environment. The Piccadilly Ward has a IMD score (2019) of 15.5-31.1, (i.e. least deprived with 48.4-62.7 indicating the most deprived) similar to the adjacent Deansgate Ward. The Piccadilly Ward also shows good health when other indicators are considered such as emergency hospital admissions, households in fuel poverty, and incidents of cancers. Childhood obesity is in the medium range for the city centre Piccadilly and Deansgate Wards, those Wards to the north and south have less, whilst Wards to the east have more childhood obesity. Reported street crime is high in the City Centre, as with other nearby Wards.
- 9.39. **Socio-Economics-Local Population:** No people currently reside at the Site. There is a rapidly growing population in Manchester City Centre and with a significantly denser population than all other areas of Manchester. Some 94.0% of the population in the city centre is of working age (16-64 years), significantly

higher than the proportion of the working age population at the Manchester (70.5%), Greater Manchester (63.6%) and national (62.4%) level. This profile corresponds with small proportions of children and older people living within the city centre. A relatively high proportion (48.4%) of the resident population aged 16-64 in Manchester held a higher level (NVQ4+) qualification in 2020 compared with 39.2% in Greater Manchester and 43.1% in nationally (GB).

- 9.40. **Socio-Economics-Housing:** There are no existing residential units on the Site.
- 9.41. **Socio-Economics-Employment:** Total employment in Manchester has seen significant levels of growth in the period 2015-2019 with some 53,000 new jobs – reflecting a 14.8% increase compared to 10.8% for Greater Manchester and 4.3% for Great Britain. There is a concentration of employment in professional, scientific, and technical activities, which is the most prominent sector by employment within the city centre. Between July 2020 and June 2021, unemployment in Manchester increased some 32.2% since July 2016 – compared to 5% in GM and 9.5% in the UK. Unemployment is low in the city centre. There were 294,500 economically active people in Manchester between July 2020 and June 2021, accounting for 75.7% of the total working age population. The number of economically active people in Manchester has increased by 10.2% over the period of July 2016 to June 2021, which is considerably higher than the comparative figure for Greater Manchester (1.9%) and nationally (GB) (0.6%). Manchester has seen resident-based earnings increase by 8.2% over the period of 2018 to 2020, in contrast, Greater Manchester and the national (GB) average saw increases of 6.2% and 2.9% respectively.
- 9.42. **Socio-Economics-Healthcare Facilities:** There are 10 GP practices within 1.5-mile radius of the Site with limited information regarding whether they are accepting new NHS patients. There are 13 dental practices within 1.5-mile radius of the Site.
- 9.43. **Socio-Economics-Educational Facilities:** There are some 7 day nurseries within a 2 mile radius of the Site. There are 51 primary schools within a 2-mile radius with limited capacity. There are 8 secondary schools within a 2-mile radius of the Site with limited capacity.
- 9.44. **Socio-Economics-Crime:** The policing priorities for the area relate to anti-social behaviour, vehicle crime and theft. The total reported street crimes (2018) in Piccadilly Ward are high at 16,552 compared to wider Manchester wards but similar to other city centre areas, for example Deansgate at 14,172 during 2018.
- 9.45. **Socio-Economics-Open Space, Recreation and Amenity:** There are several public green spaces within a 2-mile radius of the site including gardens, Green Grosvenor Park and Philips Park. There is good access to walking/cycling routes, for example, the Rochdale Canal Towpath and with links to wider sustainable transport networks. There are numerous gyms and leisure/sports centres within 2 miles of the Site. The city centre area is rich in cultural assets such as cafes, clubs, restaurants, museums, cinemas, and theatres.
- 9.46. **Townscape and Visual Impact:** The Site currently consists of a large temporary surface car park, split across two levels. The Rochdale Canal runs to the south-east of the Site separated from the Site by Brownsfield Mill and surface car parks. There is technically no access through the Site and no public rights of way, although people can walk through the Site. The vegetation within the Site is minimal and mostly self-sown at the bases of fences. The Site is located in close proximity to primary road corridors and the urban characterisation is identified as City Centre and Central Area of Change. The centre of Manchester has been undergoing major new development in recent years with construction that affects most of the inner city character zones in some form or other. The baseline conditions in terms of townscape character and views were established with the identification of relevant Character Areas – New Islington, Ancoats, Northern Quarter, Piccadilly, Retail Core, Kampus – and with 13 identified and agreed representative viewpoints (A-M) to form the basis for assessment.
- 9.47. **Built Heritage:** The Site is not located within a Conservation Area and there are no Listed Buildings within the site. The Site is located adjacent to the Ancoats Conservation Area to the north and the Stevenson Square Conservation Area located some 90m southwest. There are 28 Grade II and II* Listed Buildings and Structures within a 250m radius of the Site.

- 9.48. **Noise and Vibration:** The Site is located in a busy inner-city area close to streets and with noise from traffic. Existing noise sensitive receptors were identified for residential dwellings on Port Street (The Astley), Great Ancoats Street (MM2), Binns Place (Avro) and Tariff Street (Jacksons Mills).
- 9.49. **Climate Change:** Greenhouse gas (GHG) emissions occur constantly and widely as a result of human and natural activity. The current use of the Site as a surface level car park is likely to generate some traffic flows and associated carbon emissions.
- 9.50. **Sunlight, Daylight:** The Site is currently used as a surface level carpark and as such has an unusually open aspect given its city centre location and this does contribute to higher baseline results for the surrounding receptors. A total of 835 windows facing the Site serving 503 rooms within six buildings were assessed for daylight effects (vertical sky component VSC and no sky line NSL, and 238 rooms were assessed for annual probable sunlight hours (APSH) for sunlight within six buildings. For daylight, 63% of windows assessed meet BRE guidelines for VSC and 84% for NSL. For sunlight, 92% of the rooms assessed meet the criteria for winter and annual APSH.
- 9.51. **Wind Microclimate:** The Site is within a mixed-use urban area surrounded by buildings of various heights. Baseline conditions for summer and winter conditions were found to be suitable for their intended use – streets and bus stops, amenity areas, balconies, and the Rochdale Canal towpath – there are no safety exceedances.

Identification and Evaluation of Significant Effects; Mitigation Measures

- 9.52. The Proposed Development comprises a tower building of part 33, part 11 storeys with residential use of approximately 485 apartments, up to 600 sqm retail space, and up to 685sqm amenity space, with 47 car parking spaces, and over 100% cycle parking provision. The ground level public realm will be enhanced with tree planting. There is a Level 7 residents' terrace and there are private terraces and balconies on Level 10 for amenity.

Socio-Economics-Housing

- 9.53. The Proposed Development will deliver 485 new homes, making a contribution to Manchester's housing growth targets in the recent spatial framework (3,533 per annum), and supporting the proposed focus for much of Manchester's housing growth to be delivered in the city centre. High density development such as this also helps to ensure there remains sufficient sites available to accommodate forecast population and employment growth in the city centre. The Proposed Development is on an underutilised site and does not currently have any residential provision. It will help to regenerate an area which is currently underutilised, providing high quality accommodation close the Rochdale Canal, helping to mitigate potential negative effects. Therefore, impacts are **Moderate Beneficial** on population.

Socio-Economics-Employment and Local Expenditure

- 9.54. During the construction phase, the number of construction workers on Site will vary across the construction phase dependent on requirements at each stage. The impact on employment and GVA is considered to have a temporary, short-term **Minor Beneficial** effect at the local authority Manchester level. The construction workers are expected to generate local expenditure while working at the Site – considered to be temporary and **Moderate Beneficial** at the district level. Training and apprenticeship opportunities are considered to be **Minor Beneficial**. Wider socio-economic impacts and effects on local services and facilities were found to be **Negligible**.
- 9.55. During the operational phase, the Proposed Development will deliver commercial space – considered to have a **Negligible** impact on employment and GVA at the Borough level. The additional households accommodated in the Proposed Development will support additional household spend, increasing local expenditure and this is predicted to be **Minor Beneficial** for the local economy. The addition of new homes in the Assessment Area will generate additional Council Tax revenue for the City Council and this is considered to be **Minor Beneficial**. Effects on the local labour market, commuting and migration, and on local services and facilities are considered to be **Negligible**.

Socio-Economics-Healthcare Facilities

- 9.56. The Proposed Development is expected to accommodate a relatively young demographic suggesting residents may have a lower demand for healthcare than the older population, limiting the likely magnitude of the impact upon local healthcare providers. It was identified that there is sufficient capacity at GP surgeries in Manchester to accommodate the anticipated additional people with effects considered to be **Negligible** on healthcare facilities at the local scale.

Socio-Economics-Educational Facilities

- 9.57. Additional demand for school places is expected from the uplift of residents in the area but there is sufficient capacity available indicating that impacts on educational provision are **Negligible**.

Socio-Economics-Open Space, Recreation and Amenity

- 9.58. Additional use of open spaces and demand for recreational facilities is expected as a result of the uplift in population arising from the Proposed Development but these effects were identified to be **Negligible**. The proposals include an amenity space and a residents' gym on the ground floor.

Socio-Economics-Crime

- 9.59. The Proposed Development will be of high quality with high standards of buildings and management, with associated public realm increasing connectivity, helping to animate the area, provide natural surveillance, and create a better sense of place and community. This can help to reduce some types of criminal activity such that impacts are considered to be **Negligible** on crime at the local scale.

Townscape and Visual Impact

- 9.60. During the construction period that will last for approximately 3 years, potential unsightly visual impacts will be mitigated through high quality hoardings and careful lighting – all implemented through the CEMP. This would affect mostly those viewpoints near to the Site and impacts are predicted to Moderate Adverse depending upon proximity. This is due to stockpiling of materials, the use of equipment such as cranes, the development of the central concrete core, and lighting. However, effects are relatively localised, temporary and the effects on the other viewpoints are predicted to be **Negligible/Neutral**.
- 9.61. For the occupational phase, mitigation measures are embedded and an integral part of the design, dealing with the proposed development's relationship to neighbouring buildings and its location. The predicted visual effects on the six Character Areas range from Negligible (nos 5 & 6), Minor-Moderate Neutral (no 1), Minor Moderate Beneficial (no 4) to Moderate Adverse (nos 2 & 3). Effects on the viewpoints range from Negligible (I, K, L), Minor-Moderate/Major Neutral (A, C, D, E, F, G, J, M), Minor Beneficial (B), and Moderate-Major Adverse (H).

Built Heritage

- 9.62. The Heritage Statement found that the cumulative impact of the development proposals would have an overall **Minor Adverse** impact upon the built historic environment. The studies noted that the Proposed Development introduce a sense of cohesion through regeneration of a dilapidated site and by bringing the Site into active use the historic character will be complemented as it was historically defined by the introduction of canal structures.

Noise and Vibration

- 9.63. There is the potential for noise effects at the nearby sensitive dwellings from clearing and excavation of the Site, additional traffic flows, and the construction of the Proposed Development. Effects of construction vibration on existing sensitive receptor buildings is expected to be Minor to Moderate Adverse which is Not Significant. During excavation/piling, Negligible effects were found for MM2, Negligible – Minor Adverse for

Jacksons Mills, and Moderate-Major for the other two buildings. For frame construction, Negligible effects were found for MM2 and Jacksons Mills; Moderate Adverse were found for The Astley and Avro. Mitigation measures will be implemented through the CEMP and include control of noisy activities such that residual effects are reduced respectively to **Negligible/Negligible-Moderate Adverse** and **Negligible/Minor Adverse**.

- 9.64. During operation, there is the potential from building services plant in the Proposed Development. This can be selected at detailed design and attenuated such that the predicted noise levels would be **Negligible**. Activity noise egress from the proposed amenity spaces and commercial units of the Proposed Development is assumed to comply to within guidance from MCC and as such, effects would be **Negligible**. The living rooms and bedrooms of the proposed apartments could be affected by noise levels and noise and therefore, insulation of the building facades will be employed to ensure that internal noise criteria are met with **Negligible** effects.

Climate Change

- 9.65. Activities during the construction phase would generate GHG emissions, particularly from the manufacture of construction materials, but also from transport to the construction site and from on-site works. Activities during the operational phase would generate GHG emissions, particularly from the replacement and/or refurbishment of building elements. Activities during the end of life phase of the Proposed Development would generate GHG emissions, particularly from the demolition, waste processing and the disposal of building elements.
- 9.66. The significance of the GHG emissions generated by the Proposed Development were assessed according to national targets for embodied carbon, operational carbon (energy) and transport carbon. Whole life embodied emissions (including construction transport) meet with the RIBA 2025 target but not the RIBA 2030 target and thus are considered to be **Moderate-Minor Adverse** effects. Operational building emissions were identified to be **Moderate-Minor Adverse** and operational transport carbon emissions are likely to be **Moderate Adverse**. Mitigation measures are suggested for consideration in the final detailed design, including choice of materials and energy efficiencies. As EV use increases in the future, operational transport carbon emissions are likely to reduce to **Minor Adverse**.

Sunlight and Daylight

- 9.67. The surrounding sensitive receptors were investigated and overall, it was found that the impacts on daylight to surrounding properties is considered **Negligible to Moderate Adverse** and the impact on sunlight is considered **Negligible to Minor Adverse**. Given the context of the Site and nature of effects, no further mitigation is considered necessary.

Wind Microclimate

- 9.68. During construction, conditions will gradually transition to those of the completed Proposed Development. The only operational conditions which are not expected to be suitable for the intended use are for an entrance and on the amenity terraces, which will not impact the surrounding area or general on-site conditions. So, all operational conditions which might impact spaces relevant to the construction phase will be suitable for the intended use, and thus, construction wind effects will be **Negligible**. During operation, the effects on wind microclimate were found to be **Negligible** for the relevant general thoroughfares, off-site entrances, bus stop, Rochdale Canal towpath, the entrances to the Proposed Development, the ground level public realm, and the Level 10 private balconies. Minor Adverse effects were identified for the Level 7 residents' terrace and the Level 10 private terrace. It is considered that detailed design of these terraces will consider wind to ensure that the residual effects are Negligible for the accessible parts of the terraces.

Cumulative Effects

Temporary During Construction

- 9.69. Each separate technical topic has considered the relevant effects for health and wellbeing that could be cumulative with other nearby development projects. Whilst it is acknowledged that this part of Manchester's City Centre has been subject to regeneration over a number of years, each development project is designed and constructed with ways of working that are approved according to regulatory requirements that aim to protect human health and wellbeing. The implementation of such mitigation measures to reduce impacts to acceptable levels is ensured through the Construction Health and Safety Plan (HSP) and Environmental Management Plan (CEMP), and such Plans are applied to the construction of each development project.
- 9.70. During the approximately three year construction time period, there are the possibilities for cumulative adverse impacts on air quality - dust soiling from activities and emissions from transport; noise from demolition and construction activities; transport disturbance; and loss of amenity for pedestrians and motorists. However, cumulative effects were identified to be Negligible through implementation of the CEMP and for noise – to range between Negligible and Moderate Adverse.
- 9.71. During the construction phase, there are Beneficial effects for employment and local expenditure; in-combination (cumulative) effects arising during construction of nearby development projects will provide a temporary boost in employment and GVA. Provision of employment is known to have positive effects on health and wellbeing.

Operational Phase

- 9.72. Taking into account other residential developments within 500m of the Site, the cumulative impacts are likely to make a Moderate Beneficial contribution to the City's housing needs, including the commitment to higher densities. The cumulative increase of population with around 90% expected to be of working age making a Moderate Beneficial contribution to the city's workforce supporting economic growth objectives and a notable cumulative uplift in employment, GVA and local expenditure. The scale of cumulative residential developments will lead to a significant influx of residents over the next five years with Minor-Moderate Adverse cumulative impacts on healthcare facilities. Increased pressure of local services, open space and recreational facilities is also expected from the cumulative scale of development, although several developments are providing additional amenity, public space, and leisure facilities.
- 9.73. For townscape and visual effects, it is predicted that there will be no alteration to the perceived change brought about by the Proposed Development on the Site as a result of the cumulative developments/sites considered relevant. Townscape effects of the Site are predicted to be reduced in the Piccadilly Character Area due to the increased presence of other tall, large scale and contemporary developments close by. Given the location of the city centre sites, cumulative impacts on sunlight and daylight were found to be not significant.
- 9.74. The cumulative impact of noise due to changes in road traffic flows is expected to be negligible. Given the relative distances of the sensitive receptors applicable to each development, cumulative impact of building services noise will be negligible.
- 9.75. The wind microclimate effects for pedestrian safety were found to be the same – Negligible – except for the Level 10 private terraces that will require mitigation at detailed design. Where consented schemes have the potential to be affected by the proposed development, these have been included in the baseline scenario and assessed individually in detail, so no separate technical assessment of the cumulative impact is required with regard to daylight and sunlight.

Residual Effects

9.76. Post-mitigation residual effects are summarised in Table 9.2 as follows:

Table 9.2 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Summary of Health-Related Topics, Likely Significant Effects, Mitigation Measures, and Residual Effects Significant Receptors listed as identified from each technical chapter and as relevant according to those presented in paragraph 9.27 previously – workers, residents and visitors (nearby & site), and pedestrians – during construction and operational phases

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Construction Phase				
Socioeconomics: jobs & GVA & Training Opportunities	Employment & GVA	None	None	Minor-Moderate Beneficial on employment & GVA & training
Townscape & Visual – Views I, K & L	Nearby residents & visitors	Use of hoardings & community engagement	Construction Phase Environmental Management Plan (CEMP)	Negligible
Townscape & Visual – Views A, B, C, D, E, F, G & J	Nearby residents & visitors	Use of hoardings & community engagement	Construction Phase Environmental Management Plan (CEMP)	Minor-Moderate/Major Neutral
Townscape & Visual – View B	Nearby residents & visitors	Use of hoardings & community engagement	CEMP	Minor Beneficial
Townscape & Visual – View H	Nearby residents & visitors	Use of hoardings & community engagement	CEMP	Moderate-Major Adverse
Noise & Vibration	Local residents	Solid screening round site; noise control	Construction Phase Environmental Management Plan (CEMP)	Negligible to Moderate Adverse
Climate Change – whole life embodied emissions	Climate Change – nearby residents & visitors	Possibilities for enhancement through further optimisation of construction transport schedule if possible	Later design stages	Moderate- Minor Adverse
Wind Microclimate	Thoroughfares, off-site entrances, bus stop, canal towpath	None	None	Negligible
Operational Phase				

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Socioeconomics: Housing	Housing	None	None	Moderate Beneficial on Housing
Socioeconomics: Population	Population	None	None	Negligible
Socioeconomics: Jobs & GVA	Employment & GVA	None	None	Negligible on employment & GVA
Socioeconomics: household expenditure	Local expenditure	None	None	Minor Beneficial on local expenditure
Socioeconomics: council tax income	LA income	None	None	Minor Beneficial on LA income
Socioeconomics: educational provision	Educational provision	None	None	Negligible on educational provision
Socioeconomics: health care provision	Healthcare	None	None	Negligible on healthcare provision
Socioeconomics: crime	Crime	None	None	Negligible on crime
Socioeconomics: open space & recreation facilities	Open space & recreational facilities	None	None	Negligible on open space & recreational facilities
Townscape & Visual – Views I, K & L	Residents & Visitors	Embedded into design	None	Negligible
Townscape & Visual – Views A, D, E, F, G & J	Residents & Visitors	Embedded into design	None	Minor-Moderate/Major Neutral
Townscape & Visual – View B	Residents & Visitors	Embedded into design	None	Minor Beneficial
Townscape & Visual – Views C & M	Residents & Visitors	Embedded into design	None	Moderate Adverse
Townscape & Visual – View H	Residents & Visitors	Embedded into design	None	Moderate-Major Adverse
Noise & Vibration – Building services plant	Residential	Environmental noise limits	Later design stages	Negligible
Noise & Vibration – amenity areas & commercial units	Residential	Environmental noise limits	Later design stages	Negligible
Climate Change – Operational building emissions	Climate Change - residents & visitors	Possibilities for enhancement through smart energy metering, procurement of	Later design stages	Moderate-Minor Adverse

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
		energy efficient equipment		
Climate Change – operational transport emissions	Climate Change - residents & visitors	Future-ready approach to benefit from increasing future EV use	Later design stages	Moderate-Minor Adverse
Sunlight	Surrounding residential properties	None	None	Negligible to Moderate Adverse – Not Significant
Daylight	Surrounding residential properties	None	None	Negligible to Minor Adverse- Not Significant
Overshadowing	Surrounding amenity areas	None	None	Negligible to Minor Adverse
Wind Microclimate	Thoroughfares, off-site entrances, bus stop, canal towpath, Level 10 private balconies	Embedded into design – vertical screen on eastern end of tower; landscaping in public realm		Negligible
Wind Microclimate	Level 7 public terrace, Level 10 private terrace	Detailed design	Further testing at detailed design	Negligible

Reference List

This ES Chapter has been prepared by reference to the following:

National Planning Policy Framework (NPPF, updated 2019 & revised 2021) <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

Public Health England (PHE) Strategy (2019) *Public Health England (2019) Strategy 2020-2025*

<https://www.gov.uk/government/publications/national-planning-policy-framework--2>

Public Health England (PHE) Strategy (2019) <https://www.gov.uk/government/publications/phe-strategy-2020-to-2025>

Manchester City Council (MCC) Core Strategy (adopted 2012) https://secure.manchester.gov.uk/info/200074/planning/3301/core_strategy

Manchester City Council (MCC) Piccadilly Basin Strategic Development Framework (adopted 2016)

Places for Everyone – Joint Development Plan (Greater Manchester Councils 2021) <https://greatermanchester-ca.gov.uk/news/greater-manchester-councils-to-set-out-next-steps-with-places-for-everyone-joint-plan/>

Public Health England (PHE) Spatial Planning for Health (2017) *Public Health England (2017) Spatial Planning for Health: an evidence resource for planning designing healthier places*

Public Health England (PHE) Health Impact Assessment in Spatial Planning (2020)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/929230/HIA_in_Planning_Guide_Sept2020.pdf

The Manchester Strategy - Our Manchester (2016) <https://www.manchester.gov.uk/mcrstrategy>

IEMA Cave, B. Fothergill, J., Pyper, R. Gibson, G. and Saunders, P. (2017) *Health in Environmental Impact Assessment: A Primer for a Proportionate Approach*. Ben Cave Associates Ltd, IEMA and the Faculty of Public Health. Lincoln, England www.iema.net

<https://www.iema.net/resources/reading-room/2017/05/01/get-primed-for-health-in-eia>

Shaping Neighbourhoods: For Local Health and Global Sustainability (2010) Barton H, Grant M & Guise R (2nd edition 2010) *Shaping Neighbourhoods: for local health and global sustainability* Taylor & Francis Ltd, England

Wider Determinants of Health Public Health England (PHE) <https://fingertips.phe.org.uk/profile/wider-determinants>

The London Healthy Urban Development Unit (HUDU) 'Healthy Urban Planning Checklist' (2017)
<https://www.healthyurbandevelopment.nhs.uk/wp-content/uploads/2019/10/HUDU-Rapid-HIA-Tool-October-2019.pdf>

Manchester City Joint Strategic Needs Assessment (JSNA 2021)
https://www.manchester.gov.uk/info/500230/joint_strategic_needs_assessment

Public Health England (PHE, 2017-2019) <https://fingertips.phe.org.uk/profile/health-profiles>

Office for National Statistics (ONS) for health and life expectancies (2017-2019)
<https://www.ons.gov.uk/peoplepopulationandcommunity>

Manchester City Council https://secure.manchester.gov.uk/info/200088/statistics_and_intelligence/2178/health_and_wellbeing

Manchester City Council https://secure.manchester.gov.uk/info/200088/statistics_and_intelligence/438/population/2

Manchester City Council https://www.manchester.gov.uk/downloads/download/7316/state_of_the_city_report_2020

Stephen Levrant Heritage Architecture Ltd for Manchester (Port Street) Ltd (November 2021) Port Street, Manchester Heritage Statement

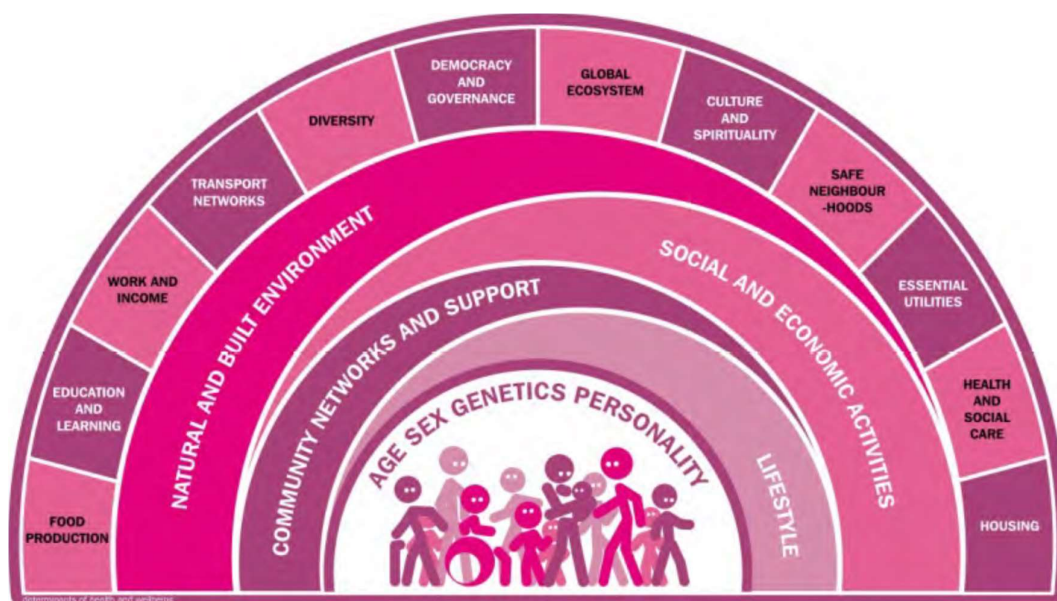


	Figure:	9.1		
	Title:	The Determinants of Health and Wellbeing (London HUDU developed from Barton & Grant 2007)		
	Project:	Port Street		
	Date:	2007	Scale:	NTS

10. Noise and Vibration

Introduction

- 10.1. This Chapter of the ES assesses the likely significant effects of the Proposed Development with respect to noise and vibration. This Chapter also describes the methods used to assess the 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.
- 10.2. This Chapter has been compiled by Fisher Acoustics Ltd. Fisher Acoustics has extensive experience in the acoustic design of large-scale residential and commercial developments. The Director of Fisher Acoustics is a Chartered Engineer, holds a First Class Bachelor of Engineering in applied acoustics and has 30 years post-graduate experience in acoustic consultancy.
- 10.3. Appendices to this Chapter are as follows:
- Appendix 10.1: Environmental Noise Study, report reference PR0665-REP01-MPF

Legislative and Policy Context

Legislation

- 10.4. The Control of Pollution Act 1974 contains powers for local authorities to deal with noise and vibration from construction and demolition sites. Prior consent for demolition and construction activities can be granted under Section 61 of the Act.
- 10.5. The Planning and Compulsory Purchase Act 2004 requires local authorities to draw up local development plans, setting the broad framework for acceptable development in their area and reconciling any potential conflicts. Under the Town and Country Planning Act 1990, and in their development management role, local planning authorities may attach conditions to Planning Consents which may include controls on the emission of noise. Advice on the use of these powers is given to English authorities in the light of the Governments Noise Policy Statement for England in the National Planning Policy Framework (July 2021).
- 10.6. The Environmental Protection Act 1990 provides the principal controls over so-called 'statutory nuisances', including noise emitted from premises so as to be prejudicial to health or a nuisance. Under the Act, local authorities have a duty to inspect their areas from time-to-time to detect nuisances and, subject to a discretion to defer for seven days, when satisfied that a statutory nuisance exists or is likely to occur or recur, to serve an abatement notice on the person responsible. They also have a duty to investigate any complaint made by a person living within their area. Businesses are able to rely on the provision of 'best practicable means' to attenuate noise sources, but failure to comply with a notice is a criminal offence. Local authorities have a power of entry to private premises, power to seize noise-making equipment and powers to carry out works in default of Notices.
- 10.7. The Licensing Act 2003 establishes a scheme administered by local authorities for licensing premises which are used for the supply of alcohol, to provide 'regulated entertainment' or to provide 'late night refreshment'. Licensing authorities are obliged to prevent public nuisance, e.g. through noise, via the use of appropriate conditions.

National Planning Policy

- 10.8. The National Planning Policy Framework (NPPF), published in July 2021 by the Ministry of Housing, Communities and Local Government ‘sets out the Government’s planning policies for England and how these should be applied’.
- 10.9. Clause 174 of the National Planning Policy Framework states that ‘Planning policies and decisions should contribute to enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.
- 10.10. Clause 185 of the National Planning Policy Framework states that: Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.
- 10.11. The National Planning Policy Framework document cross references the ‘Explanatory Note to the Noise Policy Statement for England’. The ‘Noise Policy Statement for England’ (NPSE) was published by the Department for Environment Food and Rural Affairs in March 2010. The NPSE does not give suggested external noise criteria for commercial Developments. In the absence of specific criteria, reference shall be made in this document to established guidance and principles, as established in British Standards and the local Planning policy.

National Planning Practice Guidance – Noise

- 10.12. ‘Planning Practice Guidance – Noise’ is a web-based resource provided by the Ministry of Housing, Communities and Local Government (last revision date 22 July 2019) which gives guidance on Planning considerations in relation to noise.
- 10.13. The document identifies the subjective grading of noise and the recommended actions and different effect levels, as reproduced in Table 10.1.

Table 10.1: Summary of noise exposure hierarchy based on average response

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			

Perception	Examples of Outcomes	Increasing Effect Level	Action
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Local Planning Policy

Manchester's Local Development Framework – Core Strategy Development Plan 2012-2027

- 10.14. The local planning context is provided by Manchester's Local Development Framework, Core Strategy, Development Plan Document. The Document was adopted on 11th July 2012.
- 10.15. With regard to noise, Policy DM1, Development Management, states that 'all development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document: 'effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise.'

‘Planning & Noise, Technical Guidance’ issued by Manchester City Council, December 2015

- 10.16. ‘Planning & Noise, Technical Guidance’, dated December 2015 has been issued by the Environmental Protection, Environmental Health and The Neighbourhoods Service sections of Manchester City Council. The document provides guidance to applicants and consultants concerning the assessment and prediction of environmental noise associated with a particular development. Reference is also made in the document to the relevant supporting information and guidance documents that Developers are expected to refer to when submitting a planning application.
- 10.17. ‘Planning & Noise, Technical Guidance’ refers to the following guidance documents:
- BS 7385 (1990) Evaluation and measurement of vibration in buildings
 - BS 4142 (2014) Methods for rating and assessing industrial and commercial sound
 - BS 8233 (2014) Guidance on sound insulation and noise reduction for buildings
 - BS 6472 (2008) Guide to the evaluation of human exposure to vibration in buildings
 - BS 5228 (2009+A1:2014) Code of practice for noise and vibration control on construction and open sites
 - BS 7445-1 (2003) The description and measurement of environmental noise: Guide to quantities and procedures
 - BS 717-1 (2013) Acoustics. Rating of sound insulation in buildings and of building elements. Airborne sound insulation
 - National Planning Policy Framework (2012) (now on 2019 update)
 - National Planning Policy Guidance (2014)
 - WHO (1999) Guidelines for Community Noise

Manchester Residential Quality Guidance, (Issue 01, March 2017)

- 10.18. Section 4 of ‘Key Actions - Ensure Visual and Acoustic Privacy’ of The Manchester Residential Quality Guidance states that ‘Homes are places of retreat. Residents should be able to ‘shut out’ the external world and enjoy sleep without suffering from either external noise generated by traffic or the public realm; or from neighbouring homes, common spaces or other functions in the building’.

Manchester City Council – Noise from construction and demolition sites

- 10.19. Manchester City Council provides outline information on the control of noise pollution from construction sites in an undated guidance document entitled ‘Guidance on completing an application for prior consent; Noise from construction and demolition sites’.
- 10.20. The document sets out the steps that should be taken when completing a Section 61 application. Where a Section 61 application is not to be made, the document provides a useful reference document, as it highlights the construction noise assessment method that Manchester City Council are likely to employ when assessing planning applications.
- 10.21. The document states that:
- ‘The assessment should be completed as per British Standard 5228 (Parts 1 & 2) and usually takes the form of the ABC Method. To assess the impact of noisy work, baseline levels of ambient noise and vibration on the site boundary should be established. These data / details may be available from work carried out for the planning application stage of the development. The measured noise and vibration data should include results for periods during which the works will be carried out. Predictions of construction noise should be calculated at one metre, free field, from the facades of the worst affected (generally the nearest) sensitive receptors, thus allowing for a ‘worst case scenario’ noise assessment to be made’.*

British Standards

BS 4142: 2014+A1:2019

- 10.22. BS4142: 2014+A1:2019 'Methods for rating and assessing industrial and commercial sound noise' details assessment methods to determine the likely effects on people inside or outside residential buildings of noise of an industrial nature such as fixed building services plant.

BS 5228: 2009+A1: 2014

- 10.23. BS 5228: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites' provides guidance on significance criteria for construction noise.

BS 6472: 2008

- 10.24. BS6472-1: 2008 'Guide to evaluation of human exposure to vibration in buildings - part 1: Vibration sources other than blasting' provides guidance on typically acceptable limits for vibration within residential and office buildings during the day and night.

BS 8233: 2014

- 10.25. BS 8233: 2014 'Guidance on sound insulation and noise reduction for buildings' provides appropriate criteria for acceptable levels of noise within dwellings.

Other Guidance

Design Manual for Roads and Bridges

- 10.26. Volume 11, Part 7 of the Design Manual for Roads and Bridges (DMRB) highlights methods for the assessment of traffic noise levels and advises on the impact magnitude of changes in noise levels.
- 10.27. The DMRB advises that the threshold criteria used for traffic noise assessment during the day is a permanent change in magnitude of 1 dB LA10,18h in the short term (i.e. on opening) or a 3 dB LA10,18h change in the long term (typically 15 years after project opening).
- 10.28. Furthermore, the DMRB also states that a change in noise level of 1 dB LA10,18h is equivalent to a 25% increase or a 20% decrease in traffic flow, assuming other factors remain unchanged and a change in noise level of 3 dB LA10,18h is equivalent to a 100% increase or a 50% decrease in traffic flow.

Assessment Methodology and Significance Criteria

- 10.29. In order to assess the potential environmental noise and vibration effects of the Proposed Development, the following methodology has been adopted:
- Liaison with Manchester City Council Environmental Health department to agree noise and vibration assessment methodologies;
 - Identification of significant existing noise and vibration sources and existing sensitive receptors and baseline monitoring locations;
 - Establishing by representative noise surveys the daytime and night time noise levels at and around the Site;
 - Calculation of noise and vibration levels likely to arise at the nearest sensitive receptors during construction phases using the procedures and guidance given in BS 5228-1: 2009+A1:2014 'Code of Practice for noise and vibration control on construction and open sites';

- Review of measured noise climate at the Site in order to derive appropriate environmental noise limits for potential music noise egress from amenity areas and commercial units within the Proposed Development;
 - Review of measured noise climate at the Site in order to derive appropriate environmental noise limits for stationary building services plant serving the Proposed Development;
 - Interpretation of results and comparison of the likely noise levels with relevant national criteria and guidance for construction noise;
 - Where appropriate, formulation of proposals for controlling noise and vibration during the construction works, to be agreed with Manchester City Council Environmental Health department
- 10.30. In addition, potential impacts on the Proposed Development from the following principal local noise sources have been assessed:
- Traffic on local roads; and
 - Noise from building services plant within the Proposed Development affecting the buildings within the development.
- 10.31. The existing nearby noise sensitive residential premises are described below and identified in Figure 10.1.
- A. Dwellings on Port Street ('The Astley')
 - B. Dwellings on Great Ancoats Street ('MM2')
 - C. Dwellings on Binns Place ('Avro')
 - D. Dwellings on Tariff Street ('Jacksons Mills')
- 10.32. Whilst there are other receptors around the Site, these other receptors are at greater distances from the Site than the receptors identified above, with similar exposure to the existing noise sources in the areas and similar pre-existing ambient noise levels. Therefore, the achievement of acceptable noise levels at the assessed receptors would lead to acceptable noise level at receptors at a further distance from the Site.
- 10.33. There are no notable existing sources of potential vibration at or around the Site. Road traffic generates insignificant levels of groundborne vibration.
- 10.34. This Chapter includes the results of calculations of construction noise and vibration levels at the nearest residential properties to the Site and a comparison of these predicted noise levels with noise limits based on guidance given in BS 5228-1: 2009+A1:2014
- 10.35. The results of environmental noise surveys around the Site and the determination of the likely environmental noise effect of the Proposed Development on the surrounding residential areas are presented.
- 10.36. Where applicable, noise mitigation options have also been recommended in order to limit construction noise effects. In addition, mitigation measures to achieve appropriate noise and vibration levels within the Proposed Development are discussed.

Construction Noise and Vibration

- 10.37. Annex E of BS 5228-1: 2009+A1:2014 'Code of Practice for noise and vibration control on construction and open sites' provides guidance on significance criteria for construction noise.
- 10.38. Example Method 1 within Annex E, termed the 'ABC Method' is for residential receptors only, and allows the setting of threshold noise levels above which a potential significant effect could be generated. For the appropriate period (night, evening/weekends or day), the ambient noise level is determined and rounded to the nearest 5 dB. This noise level is then compared with the noise level at the receptor in question due solely to site operations. If the noise level originating from the site exceeds the appropriate category value, then a potential significant effect is indicated. Other project-specific factors, such as the number of

receptors affected and the duration and character of the impact then need to be taken into consideration to determine if there is a significant effect. Table 10.2 gives the threshold values and explains how the method is applied.

Table 10.1: Example threshold of potential significant effect at dwellings

Assessment category and threshold value period	Threshold value (dB LAeq, T)		
	Category A ^A	Category B ^B	Category C ^C
Night time (23.00 - 07.00)	45	50	55
Evening and weekends ^D	55	60	65
Daytime (07.00 – 19.00)	65	70	75

NOTE 1: A potential significant effect is indicated if the LAeq, T noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.

NOTE 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total LAeq, T noise level for the period increases by more than 3 dB due to site noise.

A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

D) 19.00 – 23.00 weekdays, 13.00 – 23.00 Saturdays and 07.00 – 23.00 Sundays

- 10.39. Example Method 2 within Annex E states that noise generated by construction activities of duration of one month or more is deemed to be potentially significant if the total noise (pre-construction ambient noise plus construction noise) exceeds the pre-construction ambient noise level by 5dB or more, subject to lower cut-off values during daytime, evening and night of 65dB, 55dB and 45dB LAeq respectively.
- 10.40. The criteria stated within example method 2 are generally applicable to the following building types:
- Residential
 - Hotels and hostels
 - Religious
 - Education
 - Health and/or community
- 10.41. For office and residential buildings, BS5228-1: 2009+A1:2014 refers to the 1976 revision of Advisory Leaflet 72 'Noise control on building sites, published by the Department of the Environment, which states 'Noise from construction and demolition sites should not exceed the level at which conversation in the nearest building would be difficult with the windows shut.....Noise levels, between say 07.00 and 19.00 hours, outside the nearest window of the occupied room closest to the site boundary should not exceed:
- 70 dB(A) in rural, suburban and urban areas away from main road traffic and industrial noise
 - 75 dB(A) in urban areas near main roads in heavy industrial areas'.
- 10.42. These limits are for daytime working outside living rooms and offices. In noise-sensitive situations, for example, near hospitals and educational establishments, and when working outside normal working hours, such as between 19.00 and 22.00 hours, the allowable noise levels from building sites will be less. A reduction of 10 dB(A) may often be appropriate'.

- 10.43. With reference to the above discussions, Table 10.3 summarises the suggested significance criteria for the rating of construction noise affecting the noise sensitive premises around the Site.

Table 10.2: Summary of construction noise impact magnitude

Negligible	Minor	Moderate	Major
Site noise is equal to the threshold value	Site noise is 3dB to 5dB greater than the threshold value	Site noise is 5dB to 10dB greater than the threshold value	Site noise is more than 10dB greater than the threshold value

- 10.44. Section B.2 and Table B.1 of Annex B of BS 5228-2: 2009+A1: 2014 'Code of practice for noise and vibration control on construction and open sites – Vibration' provides guidance on human response to vibration. The vibration levels at which different effects may be perceived and their impact magnitude are summarised in Table 10.4.

Table 10.3: Guidance on Effects of Vibration Levels

Vibration Level (PPV)	Effect	Impact Magnitude
0.14 mm·s ⁻¹	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.	Negligible
0.3 mm·s ⁻¹	Vibration might be just perceptible in residential environments.	Minor
1.0 mm·s ⁻¹	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.	Moderate
10 mm·s ⁻¹	Vibration is likely to be intolerable for any more than a very brief exposure to this level.	Major

- 10.45. BS6472-1: 2008 'Guide to evaluation of human exposure to vibration in buildings - part 1: Vibration sources other than blasting' provides guidance on typically acceptable limits for vibration within residential and office buildings during the day and night.
- 10.46. Table 10.5 gives the applicable criteria from BS6472-1: 2008. The applicable assessment criterion is the 'Vibration Dose Value' (VDV). Values of VDV within certain ranges indicate the likelihood or otherwise of adverse comment from occupants of the building.

Table 10.4: Vibration Dose Value ranges which might result in various probabilities of adverse comment within residential buildings

Place and Time	Low probability of adverse comment ms-1.75	Adverse comment possible ms-1.75	Adverse comment probable ms-1.75
Residential buildings 16hr day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8hr night	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

- 10.47. For offices, BS6472-1: 2008 advises that a multiplying factor of 2 should be applied to the above vibration dose values ranges for a 16 h day.

Vibration Effects on Buildings

- 10.48. Section B.3 and Table B.2 of Annex B of BS 5228-2: 2009+A1: 2014 'Code of practice for noise and vibration control on construction and open sites – Vibration' identifies the transient vibration levels above which cosmetic damage could occur. The guideline levels are reproduced in Table 10.6.

Table 10.5 Transient vibration guide values for cosmetic damage

Line (see Figure 9.2)	Type of Building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	50 mm/s at 4 Hz and above
2	Unreinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

NOTE 1 Values referred to are at the base of the building.

NOTE 2 For line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded

Operation Environmental Noise Impact

Building Services Noise

- 10.49. For noise of an industrial nature such as fixed building services plant, an assessment of the likely effects on people inside or outside residential buildings due to noise can be carried out using BS4142: 2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'.
- 10.50. The following acoustic parameters are described within BS4142: 2014+A1:2019:
- Specific Noise Level – the equivalent continuous A-weighted sound pressure level measured over a specified time period, T_r , at the assessment position with the specific noise source contribution, L_{Aeq, T_r} (i.e. the noise level due to the new noise source).
 - Rating Level – the Specific Noise Level plus an adjustment for any characteristic noise features, L_{Ar, T_r} .
 - Residual Noise Level – the equivalent continuous A-weighted sound pressure level measured when the specific noise does not contribute to the ambient noise.
 - Background Noise level – measured for a specific duration, T , in the absence of the specific noise source, $L_{A90, T}$.
- 10.51. To complete a BS4142 assessment of potential noise effects upon residential properties, it is necessary to obtain the Rating Level due to the sound source in question. The Rating Level is derived by adding corrections to the measured Specific Noise Level, if the noise source:
- is tonal (correction of 0dB to +6dB, depending on severity)
 - contains distinct impulses (correction of 0dB to +9dB, depending on severity)
 - is intermittent (correction of +3dB if applicable)
 - is otherwise distinctive against the residual acoustic environment (correction of +3dB)
- 10.52. Where a sound source is strongly tonal and impulsive over the duration of the appropriate assessment period, a correction of +15 dB may apply.

- 10.53. The Rating Level can then be used in order to ascertain the likelihood of complaints due to industrial noise disturbance by subtracting the measured background noise level. The greater the positive difference, the greater the likelihood of complaints. Table 10.7 summarises the assessment method.

Table 10.6: BS4142: 2014+A1:2019 Assessment Method

Difference between Rating Level and Measured Background Level	Assessment
+10 dB or greater	Significant adverse impact
+5 dB	Indication of adverse impact, depending on context
0 dB or less	Indication of low impact, depending on context

- 10.54. Where a new noise source has not yet been introduced, a recommended specific noise level can be determined based on a knowledge of the existing background noise level.
- 10.55. BS 4142: 2014+A1:2019 recognises that where background and rating levels are low, the potential absolute noise levels at the sensitive receptor might be more relevant in assessing potential impact than a simple comparison of the rating level and background noise level.
- 10.56. In such instances, reference can be made to BS 8233: 2014+A1:2019 in order to determine appropriate external noise levels due to buildings services plant, such that acceptable noise levels are achieved inside buildings.
- 10.57. 'Planning & Noise, Technical Guidance' issued by Manchester City Council in December 2015 gives guidance on the preferred approach to environmental noise assessments. With regard to external noise due to building services plant, Section 3.6.1.5.1 of the document states:
- 'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location'.

Noise from Amenity Spaces and Commercial Units

- 10.58. Noise egress from the proposed amenity spaces and commercial units at the Proposed Development must be controlled to appropriate levels so as to avoid noise nuisance to existing sensitive receptors. With regard to entertainment venues, 'Planning & Noise, Technical Guidance' states:
- 'When considering the potential impact of a proposal for an entertainment venue, consultants should consider the overall noise level (LAeq) and the 63 Hz and 125 Hz octave band noise levels (Leq). Music noise in the 63 Hz and 125 Hz octave bands, which is often described as "bass noise", is particularly difficult to contain and the impulsive character of this low frequency music noise is particularly disturbing for local residents exposed to it.
 - A planning application for a new entertainment venue that is structurally detached from other building uses should demonstrate that music noise from the proposal will not be 'audible' in nearby residential properties, assuming that the residential properties in question have their windows open. The criterion here is:
 - Entertainment noise (LAeq) should be controlled to 10dB below the background noise level (LA90) without the entertainment noise present, in each octave band at the nearest noise sensitive location.
 - A criterion that would achieve a condition of 'inaudible' / 'virtually inaudible' which is applicable for new residential developments that are structurally connected to entertainment venues (or vice versa) would be: 'Music noise levels in the 63Hz and 125Hz octave centre frequency bands (Leq) should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq), respectively.
 - This criterion may also be applicable for new residential developments that are structurally separate from an existing entertainment venue'.

Intrusive Noise within Proposed Residential Dwellings

- 10.59. Internal noise levels within the proposed apartments must be appropriate for the intended use. BS8233: 2014 'Guidance on sound insulation and noise reduction for buildings' provides appropriate criteria for acceptable levels of noise ingress within dwellings.
- 10.60. In particular, section 7.2.2 'Internal ambient noise levels in dwellings' of BS8233: 2014 states that 'In general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values in Table 4'. Table 10.8 identifies the guideline values.

Table 10.7: BS8233: 2014 intrusive noise criteria

BS8233: 2014 – Indoor ambient noise levels for dwellings			
Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB LAeq, 16 hours	-
Dining	Dining room / area	40 dB LAeq, 16 hours	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq, 16 hours	30 dB LAeq, 16 hours

- 10.61. Note 7 of section 7.2.2 states that: 'Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed up to 5 dB and reasonable internal conditions still achieved'.
- 10.62. The pre-existing external Noise levels at the Site are above the WHO (World Health Organisation) external noise guideline levels and therefore, with reference to BS8233: 2014, the maximum recommended daytime intrusive noise level within the habitable rooms of the Proposed Development is 35 dB LAeq,(16 hours) to 40 dB LAeq,(16 hours), and the corresponding night time intrusive noise limit within bedrooms is 30 dB LAeq,(16 hours) to 35 dB LAeq,(8 hours). Additionally, the recommended daytime intrusive noise level within bedrooms of the Proposed Development is 35 dB LAeq(16 hours) to 40 dB LAeq(16 hours).
- 10.63. With regard to maximum night time noise levels within bedrooms, BS8233: 2014 states 'regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{Amax},f depending on the character and number of events per night. Sporadic noise events could require separate values'.
- 10.64. In the absence of a specific performance criterion within BS8233 for short-term noise maxima, reference can be made to guidance published by the WHO. In particular, the WHO publication 'Guidelines for Community Noise' (1999), from which the guidance given in BS8233: 2014 is itself derived, states that 'for a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than ten to fifteen times per night'.
- 10.65. With regard to noise ingress to residential dwellings, section 3.5 'National & International Standards' of 'Planning & Noise, Technical Guidance' issued by the Environmental Protection Section of Manchester City Council, references both BS8233: 2014 and WHO 'Guidelines for Community Noise', but advises that 5dB relaxations of the internal noise criteria in these documents should not be assumed. The document states that 'Manchester City Council has adopted the following internal noise limits for residential properties':
- Living Rooms: Daytime (0700-2300 hrs) 35dB LAeq
 - Bedrooms: Daytime (0700-2300 hrs) 35dB LAeq
 - Bedrooms: Night time (2300-0700 hrs) 30dB LAeq, 45dB L_{Amax}
 - (fifteen excesses over 45dB L_{Amax} allowed per night)

Sensitivity of receptors

10.66. Table 10.9 presents the sensitivity criteria for receptors during the construction phase and the operational phase of the Proposed Development.

Table 10.8: Criteria to Determine Receptor Sensitivity

Sensitivity of Receptor	Description	Examples
High	Receptors where people or operations are particularly susceptible to noise or vibration	Residential dwellings, schools (during the daytime), hospitals, places of worship
Medium	Receptors of moderate to low sensitivity to noise or vibration, where it may cause some distraction or disturbance.	Conference facilities, hotels, offices
Low	Receptors of low sensitivity to noise or vibration, where it may cause mild distraction or disturbance.	Bars, cafes, restaurants, sports grounds
Negligible	Receptors where distraction or disturbance from noise or vibration is minimal	Un-occupied buildings, factories and working environments with existing high levels of noise, night clubs

Significance Criteria

10.67. In line with the guidance presented in Guidelines for Environmental Noise Impact Assessment, published by the Institute of Environmental Managements and Assessment in November 2014, the significance of an impact can be determined with reference to the impact significance matrix detailed in Table 10.10.

Table 10.9: Impact Significance Matrix

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

10.68. A description of the magnitude terms given in Table 10.10 is given below:

- **Major:** Causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in character of the area;
- **Moderate:** Noise impact can be heard and causes small changes in behaviour and/ or attitude, e.g. turning up volume of television; speaking more loudly; closing windows. Potential for non-awakening sleep disturbance. Affects the character of the area such that there is a perceived change in the quality of life;

- **Minor:** Noise impact can be heard, but does not cause any change in behaviour or attitude, e.g. turning up volume of television; speaking more loudly; closing windows. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life
- **Negligible:** no discernible effect on noise or in the character of the area.

Limitations and Assumptions

- 10.69. As part of the overall study of noise and vibration, a quantitative assessment of the potential noise levels generated by construction activities has been carried out. The assessment has been based on the potential construction programme and information received relating to the number and type of plant items expected on the Site over the construction programme.
- 10.70. It is possible that there may be variation between the assumed construction programme and the actual construction programme and that plant items may vary from those considered as part of this assessment. However, the risk is expected to be small, in that there is certainty regarding the broad demolition and construction tasks that must be undertaken and the plant items that will be required to undertake these tasks.

Baseline Conditions

Noise

- 10.71. Manned surveys of the existing noise environment at the Site were carried out by Fisher Acoustics Ltd from 2:00 pm to 5:30 pm on Wednesday 6th October 2021 and from 10:45 pm, Thursday 7th October 2021 to 1:00 am, Friday 8th October 2021.
- 10.72. The measurement locations used during the surveys were suitable for the determination of the prevailing ambient noise level at the existing local sensitive buildings and for assessing the noise levels able to impact upon the façades of the Proposed Development. Measurement locations for the noise surveys are shown in Figure 9.3 and described below.
- Location 1: At location of closest façade of Proposed Development to Great Ancoats Street 5.7m from the kerb, at a microphone height of 1.5 metres above street level
 - Location 2: At location of closest façade of Proposed Development to Port Street, at 2.7 metres from the kerb, 20 m from Great Ancoats Street, at a microphone height of 1.5 metres above street level
 - Location 3: At location of closest façade of Proposed Development to Avro, at 10 metres from the corner of the Avro building, at a microphone height of 6 metres above site ground level
 - Location 4: At location of closest façade of Proposed Development to Port Street, at 2.7 metres from the kerb, 50 m from Great Ancoats Street, at a microphone height of 1.5 metres above street level
 - Location 5: At the corner of Tariff Street adjacent to Jacksons Mills, a location 2 metres from the kerb, at a microphone height of 1.5 metres above street level.
 - Location 6: At the rear façade of the Wentwood residential building on Dean Street, at a microphone height of 1.5 metres above street level.
- 10.73. The long-term noise environment at and around the Site is principally determined by road traffic on Great Ancoats Street, with a contribution to noise levels from road traffic on Port Street.
- 10.74. The measured noise levels during the day and night at and around the Site are summarised in Table 10.11.

Table 10.1: Summary of measured environmental noise levels – existing and proposed receptors

Location	Measured Noise Level					
	Daytime (defined as 0700 to 2300)			Night time (defined as 2300 to 0700)		
	dB, L _{Aeq}	dB, L _{Amax}	dB L _{A90}	dB, L _{Aeq}	dB, L _{Amax}	dB L _{A90}
1	65	75 to 85	57 to 61	64	68 to 81	45 to 61
2	62	69 to 89	54 to 60	59	62 to 72	45 to 57
3	54	59 to 81	49 to 52	54	58 to 77	45 to 50
4	61	70 to 87	50 to 59	55	58 to 70	44 to 53
5	59	69 to 75	48 to 49	46	51 to 61	44 to 44
6	55	69 to 71	49 to 50	52	61 to 63	46 to 47

Vibration

- 10.75. There are no major sources of vibration in proximity to the Site. No adverse comment would be expected in any area of the Proposed Development due to existing levels of vibration due to the prevailing sources such as road vehicles.

Identification and Evaluation of Likely Significant Effects

- 10.76. There is the potential for environmental noise effects at the nearby sensitive premises from the following during the construction phase of the project:
- Clearing and excavation of site
 - Temporary addition to traffic flows on local roads due to construction traffic
 - Construction of Proposed Development
- 10.77. With reference to the guidance discussed above and the results of the noise surveys, the threshold values for potential significant effects are as given in Table 10.12.

Table 10.12: Threshold noise values for potential significant effect due to construction

Location	Threshold Values, daytime
	dB, L _{Aeq}
A: The Astley, Port Street (residential)	65
B: MM2, Great Ancoats Street (residential)	70
C: Avro, Binns Place (residential)	65
D: Jacksons Mills, Tariff Street (residential)	65

- 10.78. In order to estimate the likely levels of noise from construction activities at the Site, calculations have been carried out using the methodologies and data given in BS5228: 2009+A1:2014 'Code of Practice for noise and vibration control on construction and open sites; Part 1 - Noise' and by applying corrections for distance attenuation (i.e. by how much noise reduces with increasing distance from the plant).
- 10.79. This exercise has been carried out for each major construction phase of the project in order to calculate the worst case hourly noise level (LAeq,1hour) at each receptor.
- 10.80. The construction works will involve the operation on site of the following principal major plant items at certain stages of the construction works:
- Excavators;
 - Dumper trucks;
 - Continuous flight auger piling rigs;
 - Concrete pump;
 - Poker vibrators;
 - Tower cranes;
 - Telehandler.
- 10.81. With regard to construction traffic, it has been estimated that there could be typically approximately forty vehicle movements to the Site per working day i.e. approximately five vehicles per hour to arrive and offload and then depart.
- 10.82. Table 10.13 identifies the calculated noise levels at the receptors identified above due to cumulative noise from construction noise sources at the Site during the main construction phases. The Table presents the worst case cumulative noise level on the assumption that all of the noisier mobile items of construction plant are situated at the section of the Site perimeter that is closest to the receptor in question. This situation will not prevail for an extended period of time, as the construction plant will move around the Site as each section of the works is completed. In addition, the typical expected noise level is presented given the location of plant items at more typical distances from the nearby receptors. It should be noted that the calculations at this stage do not include for any beneficial acoustic screening provided by any solid hoarding around the Site or by the local screening of individual plant items. An 'on' time of construction noise sources during each day of 50% has been assumed during the excavation and piling stage, and of 70% during the frame construction.

Table 10.13: Calculated noise levels at sensitive receptors during construction phases

Receptor	Calculated noise levels during construction phase (dB LAeq)	
	Excavation/Piling worst case/typical	Frame Construction worst case/typical
A: The Astley, Port Street (residential)	76 / 70	71 / 71
B: MM2, Great Ancoats Street (residential)	69 / 67	68 / 67
C: Avro, Binns Place (residential)	77 / 72	75 / 72
D: Jacksons Mills, Tariff Street (residential)	68 / 64	65 / 63

- 10.83. At other stages of the construction programme, the expected noise levels at the sensitive receptors will be lower than those given in Table 10.13, depending upon the ongoing processes and the stage of the build programme.

- 10.84. Table 10.14 shows the calculated excess over the threshold noise values for potential significant effect due to construction, if no mitigation measures are in place.

Table 10.14: Calculated excess over threshold noise values for potential significant effect, without mitigation

Receptor type and location	Calculated excess over construction noise target (dB LAeq)	
	Excavation/Piling worst case/typical	Frame Construction worst case/typical
A: The Astley, Port Street (residential)	+11 / +5	+6 / +6
B: MM2, Great Ancoats Street (residential)	-1 / -3	-2 / -3
C: Avro, Binns Place (residential)	+12 / +7	+10 / +7
D: Jacksons Mills, Tariff Street (residential)	+3 / -1	0 / -2

- 10.85. The values given in Table 10.14 can be compared to the values given in Table 10.3 to determine the potential impact of construction noise, as summarised in Table 10.15.

Table 10.15: Potential impact of construction noise, without mitigation

Receptor type and location	Potential noise impact	
	Excavation/Piling worst case/typical	Frame Construction worst case/typical
A: The Astley, Port Street (residential)	Moderate to Major Adverse	Moderate Adverse
B: MM2, Great Ancoats Street (residential)	Negligible	Negligible
C: Avro, Binns Place (residential)	Moderate to Major Adverse	Moderate Adverse
D: Jacksons Mills, Tariff Street (residential)	Negligible to Minor Adverse	Negligible

- 10.86. In the worst case, moderate to major effects are possible at the existing residential dwellings at The Astley and Avro.
- 10.87. Given the potential adverse effects, measures to mitigate construction noise would be appropriate.
- 10.88. As discussed in BS5228-2: 2014 'Code of Practice for noise and vibration control on construction and open sites', it is fully expected that the construction vibration levels would not be sufficient to cause structural damage to buildings around the Site.
- 10.89. Natural mitigation of potential ground borne vibration due to the proposed construction activities will be afforded to the residential buildings around the Site by virtue of the distance of these receptors from the works. Potential significant effects are not expected to arise on the basis that good communication is established between the Contractor and residents.
- 10.90. The impact of construction vibration on existing sensitive receptors is therefore expected to be minor to moderate adverse.

Operational Noise

Building Services Plant

- 10.91. At this design stage, the specific total building services requirements for the various aspects of the Proposed Development are not known. However, noise limits for any and all building services plant can be established using published guidance.
- 10.92. In line with the assessment methodology detailed in BS4142:2014 'Methods for rating and assessing industrial and commercial sound', in order to avoid potential noise nuisance at existing and proposed sensitive receptors, the non-emergency building services plant at the Proposed Development should be selected and suitably attenuated so as to achieve noise levels in line with those stated in Table 10.16. It should be noted that the noise limits in Table 10.16 relate to the simultaneous operation of all plant serving the Proposed Development. The stated criteria are on the basis that the installed plant items are not tonal. Given compliance with the noise limits in Table 10.16, the predicted noise effects would be negligible and therefore not significant.

Table 10.1: Cumulative environmental noise limits for non-emergency building services plant

Location	Noise Level, dB LAeq	
	Daytime	Night time
	(07:00hrs to 23:00hrs)	(23:00hrs to 07:00hrs)
A: The Astley, Port Street (residential)	49	42
B: MM2, Great Ancoats Street (residential)	53	42
C: Avro, Binns Place (residential)	44	40
D: Jacksons Mills, Tariff Street (residential)	43	39
Proposed Development, Port St	46	40
Proposed Development, Gt Ancoats St	53	42
Proposed Development, Internal elevations	44	40

- 10.93. Building services plant with tonal characteristics should be avoided if possible. If such plant is provided such that tonal noise is significant at the receptors in question, then the noise limits given in Table 10.16 must be reduced by 5dB in order to comply with the published requirements of Manchester City Council.
- 10.94. It is expected that any emergency plant items required at the Proposed Development, such as smoke extract fans and standby generators would only operate during emergencies and during periodical test runs (perhaps test runs of thirty minutes every two months). On this basis, it is not considered appropriate to require emergency plant to comply with the noise limits that would apply to continuously-operating non-emergency plant. It is therefore suggested that the noise level from any emergency plant is no more than 10dB(A) greater than the ambient noise level (measured as an LAeq noise level) at any proposed or existing residential receptor.
- 10.95. It is therefore recommended that the noise level at any residential façade during operation of any emergency plant does not exceed the daytime noise levels given in Table 10.17. Given compliance with the noise limits in Table 10.17, the predicted noise effects at each receptor would be negligible and therefore not significant.

Table 10.2: Cumulative environmental noise limits for emergency building services plant

Location	Noise Level, dB LAeq
	Daytime (07:00hrs to 23:00hrs)
A: The Astley, Port Street (residential)	72
B: MM2, Great Ancoats Street (residential)	75
C: Avro, Binns Place (residential)	64
D: Jacksons Mills, Tariff Street (residential)	69
Proposed Development, Port St	72
Proposed Development, Gt Ancoats St	75
Proposed Development, Internal elevations	64

Noise Egress from Amenity Spaces and Commercial Units

- 10.96. In order to avoid potential noise nuisance to existing noise sensitive receptors, activity noise egress from the proposed amenity spaces and commercial units within the Proposed Development must be controlled. As the proposed spaces may potentially employ music replay, suitable limits relating to music noise egress from the proposed areas must be established.
- 10.97. As detailed above, Manchester City Council suggests that external music noise levels (measured as an Leq noise level) external to a residential property due to an entertainment venue should be 10dB lower than the prevailing background noise level in each octave band. In some circumstances this requirement is more stringent than would be necessary to maintain residential amenity, as strict compliance with this criterion lead could lead to external music noise levels that would be below the threshold of human hearing. It is therefore suggested that external noise limits include a lower bound.
- 10.98. Table 10.18 identifies the maximum allowable cumulative daytime and night time free-field noise levels at the closest residential façades due to music noise from the proposed amenity spaces and commercial units to comply with the guidance of Manchester City Council. Given compliance with the noise limits in Table 10.18, the predicted noise effects at each receptor would be negligible and therefore not significant.

Table 10.3: Maximum allowable external music noise levels due to proposed amenity spaces and commercial units

Location/period	Sound Pressure Level (dB Leq)						
	@ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
The Astley, Port Street (0700 to 2300)	54	48	43	40	38	36	30
The Astley, Port Street (2300 to 0700)	49	43	38	34	32	27	17
MM2, Great Ancoats Street (0700 to 2300)	56	50	46	44	42	40	35
MM2, Great Ancoats Street (2300 to 0700)	49	42	37	34	33	27	17
Avro, Binns Place (0700 to 2300)	49	40	38	36	35	30	22

Location/period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Avro, Binns Place (2300 to 0700)	49	38	35	32	32	26	15
Jacksons Mills, Tariff Street (0700 to 2300)	49	40	36	35	33	27	19
Jacksons Mills, Tariff Street (2300 to 0700)	49	39	34	32	28	21	11
Proposed Development, Port St (0700 to 2300)	54	48	43	40	38	36	30
Proposed Development, Port St (2300 to 0700)	49	43	38	34	32	27	17
Proposed Development, Gt Ancoats St (0700 to 2300)	56	50	46	44	42	40	35
Proposed Development, Gt Ancoats St (2300 to 0700)	49	42	37	34	33	27	17
Proposed Development, Internal elevations (0700 to 2300)	49	40	38	36	35	30	22
Proposed Development, Internal elevations (2300 to 0700)	49	38	35	32	32	26	15

Noise Affecting the Proposed Development

- 10.99. The sensitive areas of the Proposed Development that could be affected by the noise levels summarised in Table 10.11 above are the living rooms and bedrooms of the proposed apartments. An intrusive noise study is included in Appendix 10.1. This gives the minimum recommended sound insulation of the building facades to achieve the internal noise criteria of Table 10.8.

Mitigation Measures

Construction

- 10.100. The construction of a solid, close-boarded hoarding (2.4 metres high) around the majority of the Site is expected to be provided. This can be expected to reduce noise levels at local receptors by 0dB(A) to 5dB(A), depending upon the location of the noise source on Site and the height of the receptor.
- 10.101. In addition, the following recommendations must be followed to achieve appropriate reductions of construction noise.
- Noisy plant should be located so as to maximise the distances between the plant and the sensitive receptors.
 - The works should be carried out in as timely a manner as possible in order to minimise the duration of any disturbance.
 - Via communication between the Contractor and the Council, local residents should be kept informed of general construction activities, including working hours.
 - Wherever possible, working hours should be restricted in line with Manchester City Council's typical requirements.
 - Excavations in hard materials should use silenced and sensitively located compressors in conjunction with shrouded breakers.
 - The drop height of materials into wagons shall be minimised.

- Any materials hoists used on the Site should be enclosed by hoarding at ground level and operated by mains electricity or via a silenced generator.
- Rubbish skips should be housed within enclosed areas that encompass the chute terminations. The materials unloading point should be enclosed.
- All reasonable steps should be taken to limit the number of vehicles waiting to deliver to the Site.
- All plant and equipment should be properly maintained.
- All plant and equipment should be operated in their minimum-noise modes with any manufacturer's silencers and covers properly in place.
- With the exception of enhanced generators, pumps and electric plant, all plant and equipment should be shut down when not in use.
- Vehicle movements should be arranged so as to minimise noise from reversing warning indicators.
- The Contractor should generally comply with the guidance and procedures given in BS5228: 2014.

10.102. Table 10.19 identifies the potential impact of construction noise at the noise sensitive receptors following the implementation of the above best practice mitigation measures.

Table 10.19: Potential impact of construction noise, with mitigation

Receptor type and location	Potential noise impact	
	Excavation/Piling worst case/typical	Frame Construction worst case/typical
A: The Astley, Port Street (residential)	Negligible to Moderate Adverse	Negligible
B: MM2, Great Ancoats Street (residential)	Negligible	Negligible
C: Avro, Binns Place (residential)	Negligible to Moderate Adverse	Minor Adverse
D: Jacksons Mills, Tariff Street (residential)	Negligible	Negligible

Operation

Building Services noise

- 10.103. Overall building services noise limits have been established to achieve compliance with published guidelines. To ensure compliance with the criteria, individual items of building services plant and any associated noise control hardware will need to be selected such that the cumulative noise levels from all plant items do not exceed the overall building services noise limits.
- 10.104. Given compliance with the building services noise limits given in Tables 10.16 and 10.17, the noise impact of mechanical plant serving the Proposed Development is expected to be negligible and therefore no mitigation is required.

Noise from Amenity Areas and Commercial Units

- 10.105. Environmental noise limits relating to activity noise egress from the proposed amenity spaces and commercial units have been established to ensure compliance with published guidelines.
- 10.106. Given compliance with the external music noise limits given in Table 10.18, the noise impact of the amenity spaces and commercial units within the Proposed Development is expected to be negligible and therefore no mitigation is required.

Cumulative Effects

Construction

- 10.107. There is expected to be an overlap of construction works at the Site and at other committed developments in the vicinity of the Site. However, the other development sites are at a much greater distance from the closest buildings to the Site and are expected to be at a different stage in their build programmes such that the noisier construction activities including demolition and excavation may have ceased at the time that these activities commence at the Site. In addition, these other development sites will be controlled by approved Construction Environmental Management Plans, which will limit noise through implementation of mitigation. It is therefore expected that the cumulative construction noise levels at the nearby noise-sensitive buildings will be principally determined by the construction activities at the proposed Site. With reference to paragraph 10.101 above, the cumulative effect of construction noise following mitigation is expected to range between negligible and moderate adverse.

Operation

- 10.108. Operational noise due to the Proposed Development and the committed developments in the surrounding area would include mechanical services noise, noise egress due to leisure activities and changes in road traffic noise levels due to changes in traffic flows.
- 10.109. The cumulative impact of noise due to changes in road traffic flows is expected to be negligible. This result takes into account the predicted changes in traffic flow relating to the committed developments in the surrounding area. A full Transport Statement is submitted in support of this application.
- 10.110. Operational noise limits due to mechanical services at the Proposed Development have been derived using the methodology and assessment criteria given in BS4142: 2014. Operational noise limits for any mechanical services systems at the buildings of the committed developments in the surrounding area would also be derived using the methodology and assessment criteria given in BS4142: 2014. The Planning Conditions for the committed developments in the surrounding area include a requirement for the building and any externally mounted ancillary equipment to be acoustically insulated in accordance with a scheme submitted to and approved in writing by the City Council in order to secure a reduction in the level of noise emanating from the equipment. The applicable noise limits will tend to be governed by the need to minimise noise levels at the buildings within the Proposed Development, as these are the closest sensitive receptors in the majority of cases. Therefore, given the relative distances of the sensitive receptors applicable to each development, cumulative impact of building services noise will be negligible.

Residual Effects

Table 10.20 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Residual Effect
Construction Phase				
Negligible to major adverse construction noise	Local residents	Para. 9.99 & 9.100: Solid screening around Site. Communication with City Council and local residents. Application of 'Best Practicable Means' and noise control guidance from BS5228.	n/a	Negligible to moderate adverse construction noise effects
Operational Phase				

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Residual Effect
Negligible building services plant noise effects	Residential properties	Para. 9.91: Adherence to environmental noise limits for plant	n/a	Negligible building services plant noise effects
Negligible activity noise effects from amenity space and commercial units	Residential properties	Para. 9.94: Adherence to environmental noise limits for amenity spaces and commercial units	n/a	Negligible activity noise effects from amenity spaces and commercial units

11. Socio-Economic Impact

Introduction

- 11.1. This Chapter of the ES has been prepared by AMION Consulting and assesses the likely socio-economic impacts of the proposals upon the Site and surrounding area. This Chapter also describes the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce, or offset any significant negative impacts and the likely residual impacts after these methods have been adopted.
- 11.2. This Chapter is accompanied by two technical appendices, a socio-economic baseline assessment is appended separately to this document (Appendix 11.1) and a list of cumulative schemes is included earlier in this ES (Appendix 2.2).
- 11.3. AMION Consulting is a economic and financial consultancy practice founded in 2000 by two former senior consultants from KPMG. Its senior staff are all established practitioners, each of whom has proven national expertise in the economics, policy and strategy, physical development, finance and business, property management and implementation fields. With regard to assessing the significance of socio-economic effects, AMION has a team of specialist economists with substantial experience, knowledge, and a successful track record in carrying out economic impact appraisals and evaluations. This has included undertaking, as well as critically reviewing, socio-economic assessments as part of EIAs for a wide range of high-profile projects.
- 11.4. The team at AMION who undertook the assessment of socio-economic effects are currently providing guidance to government on the economic appraisal of physical development interventions. Their experience is highlighted below:
- 11.5. The author of this chapter has completed a Master's degree in Real Estate Development at the University of Manchester in which he was awarded a distinction. He also has completed a BSc (Hons) in Real Estate from Northumbria University and is enrolled onto the Royal Institute of Chartered Surveyors planning and development APC pathway. Working within the Land and Property Economics Team, his experience at AMION has primarily focused on the economic assessment of places and development proposals. He has previously worked on a number of ES socio-economic chapters:
 - Warrington Interchange (SIX56)
 - Holyhead Waterfront Regeneration
 - Parkside Phase 1
 - Parkside Link Road
- 11.6. Further to the above, he has also assisted in the preparation of numerous economic impact statements for a range of development and regeneration projects.

Legislative and Policy Context

- 11.7. As part of the baseline analysis and to inform the assessment of potential socio-economic impacts, a review of national, regional, and local policy context will be undertaken.

Legislation

- 11.8. There is no specific statutory guidance for the assessment of socio-economic impacts within EIA regulations.
- 11.9. The relevant UK planning and other strategic policies relative to the assessment of socio-economic impact are outlined below.

National Planning Policy

- 11.10. **National Planning Policy Framework (2019)**- The contribution of the proposed development to core objectives within the Framework will be assessed. In particular, it will examine the extent to which this important regeneration scheme will fulfil the over-arching 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 well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities’ health, social and cultural well-being”*
- 11.11. As part of the wider regeneration of the Piccadilly Basin, the assessment will also test the contribution to key economic objectives, focused upon job creation and prosperity particularly in relation to *“contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation”*.

Strategic policy objectives

- 11.12. **Build back better: Our plan for growth(2021)** – following the COVID-19 pandemic, this plan sets out pillars of proposed investment to act as a foundation for economic recovery and levelling-up. It promotes a programme of major capital investment, developing infrastructure, enhancing skills and promoting greater levels of innovation. This focuses on key missions including Levelling Up, a Green Industrial Revolution and a vision for Global Britain.
- 11.13. **Levelling up** - The Government has placed significant emphasis on regional growth to support ‘levelling up’ across the country. The Plan for Growth defines this as: *‘tackling geographic disparities; supporting struggling towns to regenerate; and ensuring every region and nation of the UK has at least one globally competitive city’*. Government has signalled that it will publish a levelling up White Paper, which will go about developing the principles set out within the Conservative Party manifesto and the prospectus for the Levelling Up Fund. However, the Application Site presents a substantial opportunity to attract substantial investment within and adjacent to areas of long-standing deprivation, supporting renewal and regeneration. In addition, it will further contribute to strengthening the role of Manchester as a globally competitive city within the North West of England, creating the conditions needed to sustain a skilled and flexible labour market.
- 11.14. **Brownfield Development** – Recent Government policy has reinforced the priority of developing brownfield land. Several major funding schemes and policy mechanisms have been announced that aim to increase residential development on brownfield land. The Vita Project represents an opportunity to deliver circa. 420 new homes, across a range of tenures and all on brownfield land.

Sub-Regional Policy

- 11.15. **Northern Powerhouse (November 2016)** – The Government has reaffirmed their commitment to supporting people across the Northern Powerhouse reach their full potential. Attracting foreign direct investment, delivering new infrastructure, and supporting SMEs has been focal to the Northern Powerhouse’s drive for improved opportunities. Supporting growth in a skilled and mobile labour market will be critical to supporting wider growth objectives.
- 11.16. **Greater Manchester Local Enterprise Partnership (LEP) Local Industrial Strategy (June 2019)** - The LEP plans to maximise its digital growth, ensure growth benefits all people and places, attract innovative firms and achieve carbon neutrality by 2038. The assessment will examine the potential impact of the Proposed Development, focusing upon its role in unlocking the development of a key brownfield site within a highly accessible location in the heart of the City. At a spatial level, it will consider the role of the scheme in supporting the regeneration of key locations to drive inclusive economic growth, including the heart of Greater Manchester from Etihad Campus in the east to Trafford Park in the west.

- 11.17. **Greater Manchester Strategy (2018)** - The Strategy identifies relevant priorities such as opportunities for progression; a thriving economy; world-class connectivity; safe, decent, and affordable housing; a green city-region; stronger communities; and an age-friendly greater Manchester. The Proposed Development will support the delivery of housing, creating a vibrant and resilient neighbourhood with high-quality housing and employment prospects. In particular, the housing priority states Greater Manchester plans for 10,000 new homes each year up to 2035, a figure supported by the Greater Manchester Strategic Housing Assessment. The Proposed Development will provide a valuable contribution to these targets.
- 11.18. **Places for Everyone (Draft 2021)** – Places for everyone is a long-term plan for new homes and sustainable growth within Greater Manchester. The Plan has 10 key objectives, including: meeting housing need; creating neighbourhoods of choice; ensuring a thriving and productive economy in all parts of Greater Manchester; reducing inequalities and improving prosperity; improve the quality of the natural environment and access to green spaces; and ensuring access to physical and social infrastructure. The Proposed Development will support the delivery of new homes and ancillary facilities, contributing to the regeneration of a key growth area within Manchester City Centre. It will contribute to supporting the continued growth of the city centre population, which plays a vital role in sustaining key sectors through providing a highly skilled labour force and local expenditure.

Local Policy

- 11.19. **Manchester Core Strategy (2012)** - The Core Strategy highlights that approximately 60,000 new dwellings will be provided in Manchester between 2009 and 2027 (average of 3,333 dwellings per year), with an affordable housing target of 20% for new development. Additionally, the strategy aims to promote accommodation of a high standard, which offers units large enough to suit a range of occupants in terms of both the number of rooms and their size. Furthermore, it states that new residential development should take account of the need to contribute to mixed communities by providing a range of house types.
- 11.20. **Manchester City Centre Strategic Plan (2015)** - In accordance with the Core Strategy's ambition to expand the city centre to support economic growth and improve quality of life within the periphery, Ancoats is highlighted within the Strategic Plan as a place that could support a range of housing tenures to meet demand.
- 11.21. **Manchester's Economic Recovery and Investment Plan (2020)** - The City Council, in partnership with private sector and other stakeholders, have set out how Manchester plans to respond to the Covid-19 pandemic and reinvigorate its economy.
- 11.22. **Piccadilly Basin Strategic Regeneration Framework (2016)** – The SRF has been prepared in order to provide a comprehensive approach to redevelopment of Piccadilly Basin, to maximise regeneration outcomes to the city, whilst supporting proposals that are viable and therefore deliverable. The framework was informed by market commentary and an analysis of socio-economic conditions, having regard to the nature of the site, its position within the wider city centre and the history of Piccadilly Basin. Finally, it sets out guidelines for the Site in regard to scale, massing, and density. According to this, the Site will be residential-led mixed-use and up to 32 storeys in height.

Assessment Methodology and Significance Criteria

Technical Scope

- 11.23. The scope of the assessment of socio-economic impacts has been undertaken using the following methodology:
- A review of the strategic policy context to provide an outline of the relevant national and sub-national / local social and economic objectives of the area.
 - Identification of the impact area, in relation to each potential socio-economic impact, for the assessment of the Proposed Development.

- A desktop review of all publicly available information on current socio-economic and labour market conditions in the study area to establish the baseline using accepted Government sources, such as the Census and Office for National Statistics (ONS) data, including the baseline indicator groups and assembled data outlined above.
 - Assessment of likely significant socio-economic effects of the Proposed Development during the Construction and Operational Phases based on sensitivity value of receptor and magnitude of effect.
 - Recommendation of mitigation measures where necessary.
 - Assessment of significance of residual effects assuming that the mitigation measures are implemented.
 - Identification of likely significant additive / cumulative effects regarding other consented schemes in the local area.
 - Consideration of synergistic effects including the in-combination / interaction of socio-economic effects with other ES topic areas.
- 11.24. Qualitative and quantitative assessments have been undertaken having regard to assessment methodologies from published guidance, including:
- Homes and Communities Agency's (HCA's) Additionality Guide and Employment Densities Guide;
 - HCA's Calculating Cost Per Job Best Practice Note;
 - The former Department for Communities and Local Government (DCLG) (now Department for Levelling Up, Housing and Communities (DLUHC)) Appraisal Guide;
 - Department for Business, Innovation and Skills (BIS) Occasional Paper No.1; and
 - Professional judgement.
- 11.25. Key to understanding the socio-economic effects of the Proposed Development will be determining its net additional impact or 'additionality'. This is the extent to which activity takes place at all, on a larger scale, earlier or within a specific designated area or target group as a result of the intervention. The approach to assessing the net additional impact of a project is shown diagrammatically in Figure 11.1. at the end of this chapter. Allowing for the scale of the proposals, additionality has been assessed at the Manchester local authority area level.
- 11.26. In order to assess the additionality of the Proposed Development, the following factors have been considered:
- Leakage – the proportion of outputs that benefit those outside of the area of impact.
 - Displacement – the proportion of outputs accounted for by reduced outputs elsewhere around the area of impact. Displacement may occur in both the factor and product markets.
 - Multiplier effects – further economic activity associated with additional local income and local supplier purchases.
 - Deadweight – outputs which would have occurred without the Proposed Development. This is referred to as the reference case.
- 11.27. The above approach to assessing the additional impact of a project is consistent with central Government guidance for physical development projects, including the recently published Appraisal Guide (2016) by the Department for Communities and Local Government (DCLG).

Significance Criteria

Table 11.1: Methodology for Determining Impact Significance

Nature of Impact	Receptor
International	None identified
National	None identified
Regional	None-identified
County / sub-region	None-identified
Borough/District	- The receptor is of importance to Manchester - It is identified as a key priority within policy for Manchester
Local/Neighbourhood	- The receptor is of importance locally - It is identified as a key priority locally

Table 11.2: Methodology for Determining Impact Magnitude

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

Table 11.3: Methodology for Determining Sensitivity

Sensitivity	Receptor
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or no local importance.

Limitations and Assumptions

- 11.28. Limitations and Assumptions that have been applied through the socio-economic chapter have been identified within relevant sections of the chapter.

Baseline Conditions

- 11.29. Prior to considering the socio-economic effects, it is necessary to establish a clear understanding of baseline socio-economic conditions within the geographical areas relevant to the site. The current status of the Site has been considered, with current on-site activity comprised of a surface level car park of low-quality hardstanding. In addition, the site is not in a conservation zone and there are no listed buildings in situ.
- 11.30. In order to assess the baseline conditions, trends in the change over time of key socio-economic indicators will be analysed and compared to those for the Northwest and nationally.
- 11.31. A full analysis of the following issues has been undertaken:
- Population
 - Housing (tenure)
 - Education and learning (existing schools)
 - Health Care (GP Practices)
 - Employment (economic activity rate and sectoral employment analysis)
 - Local labour market (resident employment by occupation, qualification level and resident earnings)
 - Unemployment and worklessness
 - Deprivation
- 11.32. As part of the baseline analysis within the ES Technical Chapter, consideration is given to how the baseline would evolve in absence of the Proposed Development, albeit recognising the impact of the wider macro-economic factors.
- 11.33. Baseline data for Manchester, collected across the key indicator groups above, is highlighted within Appendix 11.1.

Baseline trends

- 11.34. In the event that the Proposed Development does not come forward, it is not predicted that the socio-economic baseline conditions would continue on its current trend. Notwithstanding, those schemes identified in Appendix 11.2 as having a material impact on existing conditions have not been assessed as part of the socio-economic baseline.

Identification and Evaluation of Significant Effects

- 11.35. It is anticipated that the Proposed Development will result in a range of potentially significant socio-economic impacts during both the construction and operational phases. These impacts may occur as a direct result of the Proposed Development or indirectly, for example through supply chain and employee expenditure within the local economy.
- 11.36. The likely socio-economic impacts during the construction phase and operational phase of the Proposed Development are set out in turn below.

Construction Phase

11.37. The socio-economic assessment will consider the following potential impacts during the construction phase:

- Temporary employment generated through the construction of the Proposed Development – this will include direct employment associated with the Application Site, as well as indirect and induced employment (multiplier effects) from supply chain expenditure and the expenditure in the local economy of workers employed during the Construction Phase.
- Short-term increase in economic output (GVA) - in line with the temporary employment impact, this will again take account of the direct, indirect, and induced economic output impact during the Construction Phase.
- Creation of training and apprenticeship opportunities during the Construction Phase.
- Effects on local facilities and services, specifically schools and healthcare facilities, from the increase in construction workforce.
- Wider socio-economic impacts – this will include those impacts, which although difficult to quantify, are important in understanding the overall socio-economic effect of the Proposed Development. For example, consideration will be given to wider impacts such as image and perceptions of the local area and crime/security.

Temporary increase in employment

- 11.38. Construction expenditure associated with the Proposed Development will support a range of temporary employment opportunities within the local economy. Based on the estimated level of construction expenditure and using data for turnover per job from the Annual Business Survey for the construction sector, total construction employment generated by the Proposed Development could amount to some 601 gross person years. This is a measure of temporary activity, equating to the number of people working on a full-time basis for one year. On the assumption that a permanent full-time job is equivalent to ten years of temporary employment, this level of activity would equate to 60 FTE jobs.
- 11.39. Alongside directly supporting employment through the design and delivery of construction works, the Construction Phase will also result in supply side (indirect) benefits, including through, for example, the purchase of construction equipment and supplies. In addition, the Proposed Development will lead to induced effects through construction employee spend on goods and services within Manchester.
- 11.40. To consider both the indirect and induced multiplier effects associated with the Construction Phase, reference has been made to benchmarks outlined within additionality guidance. The HCA Additionality Guide identifies a UK level multiplier for the construction sector of 2.7. There is no direct benchmark for construction sector multipliers at sub-national spatial areas. However, based on benchmarks within the guidance, a local level multiplier of 1.25 has been used for Manchester (allowing for supply chain and employee spend within Manchester) which is considered to be prudent given the size and structure of the local economy.
- 11.41. The overall number of gross jobs created through the Construction Phase, after allowing for the direct, indirect, and induced impacts of the Proposed Development, are summarised in Table 11.4.

Table 11.4: Gross construction employment (Person Years)

Gross construction employment	
Direct	601
Indirect and induced	150
Total gross impact	751

11.42. In determining the net additional construction jobs generated through the construction phase, consideration has been given to the following additionality factors:

- Leakage: the level of leakage has been estimated based on a review of Census data (Nomis, 2011 Census WF01BEW) and wider benchmarks set out in additionality guidance published by the former HCA (2015). It is noted that construction typically involves drawing upon a range of suppliers and specialist labour within a focused programme period. Having regard to the data, a leakage rate of 60% has been applied;
- Displacement: there is the potential that the Proposed Development will lead to some displacement of construction activity at the Manchester level. However, it is not expected that displacement will be significant in the local area, given that the scheme represents one of the major key development opportunities in Manchester. On that basis a displacement of 50% has been applied;
- Multiplier effects: the expected multiplier effects have been estimated by reference to benchmarks outlined within additionality guidance published by the former HCA alongside research commissioned by the UK Contractors Group (UKCG). A composite multiplier of 1.25 has been adopted at the Manchester level; and
- Deadweight: this is the level of additional temporary construction jobs created under the reference case (assumed to be zero).

Table 11.5: Net additional employment (Person Years)

	Gross direct	Less leakage	Gross local direct	Less displacement	Net local direct	Multiplier	Total local direct	Less deadweight	Total net local additional
Manchester	601	361	240	120	120	30	150	0	150

11.43. When assessed at the Manchester level, the likely temporary direct and indirect effects of the construction work on net additional employment would be of **Minor beneficial** significance.

Short term increase in economic output

11.44. The GVA impact per annum generated through the Construction Phase has been derived from the anticipated construction related expenditure. Reference has been made to the ONS Annual Business Survey and input-output supply and use tables for the UK, which suggest that £1 of construction related expenditure generates approximately £0.38 of GVA. An allowance has been made for deadweight, displacement, and multiplier effects in line with the analysis of employment impact above. However, as GVA is a workplace-based measure, no adjustment has been made for leakage.

11.45. Overall, as set out in Table 11.6 it is estimated that the Proposed Development would generate net additional GVA of around £28.55 million within Manchester. This is considered to be of a **Moderate Beneficial** magnitude at the district level.

Table 11.6: Net additional GVA (Construction Phase)

Net additional GVA	Manchester
Total net additional GVA	£28.55m

Training and Apprenticeship Opportunities

11.46. It is expected that during the Construction Phase, the Applicant will engage with organisations such as Manchester City Council and Chamber of Commerce to provide local training and apprenticeship opportunities. However, as this engagement process will continue to develop, reference has been made to

standard benchmarks in terms of calculating the number of training and apprenticeship opportunities that will be created through the construction of each phase of the Proposed Development.

- 11.47. A common benchmark used in construction frameworks is to assume 52 person-weeks of paid employment for 'new entrant trainees' per £1 million in contract value for the construction and civil engineering works. If 52 weeks is assumed to equate to one full-time equivalent (FTE) training or apprenticeship opportunity, then the Proposed Development will support 120 new trainees over the construction period. This is a gross figure and benefits may accrue to beneficiaries from outside the area of impact.
- 11.48. In this context, the impact of the Proposed Development during the Construction Phase regarding training and apprenticeship opportunities is of a **Minor Beneficial** magnitude.

Effects on Local Services and Facilities

- 11.49. Construction employment effects will be temporary in nature and a proportion of the jobs are expected to be taken up by existing local residents, resulting in limited change in demand for services. For those workers living outside of the local authority area, it is anticipated that the majority will commute into Manchester rather than relocating with their families. It is therefore unlikely that the Construction Phase will result in noticeable additional demand for community services and facilities including Primary and Secondary schools and GP surgeries. Overall, the magnitude is considered to be **Negligible**.

Wider Socio-economic Impacts

- 11.50. There is the potential, as a result of the scale of the construction works, for adverse effects on the image and perceptions of the local area during the Construction Phase. This could relate to noise and air pollution being caused by the construction activities, disruption to traffic and problems of anti-social behaviour on the site, potentially resulting in a loss of trade for local businesses and disturbance to local residents. The impact of these factors on local residents is outlined in other chapters of the ES including Chapter 5 (Construction), Chapter 9 (Human Health) and Chapter 10 (Noise).
- 11.51. Offsetting the possible wider adverse socio-economic impacts of the Construction Phase, it is anticipated that the local area would benefit from the supply chain opportunities for local businesses and the spending of construction workers in local shops, cafes, and restaurants. These indirect and induced impacts have been considered above. However, the increase in economic activity, including the potential for local unemployed people to access new employment opportunities, will enhance the image of the area, helping to improve business and investor confidence and enhance external perceptions of the local area within Manchester.
- 11.52. Considering the temporary nature of the construction works and the range of potential wider socio-economic impacts during the Construction Phase, it is considered that, on balance, the magnitude of impact will be **Negligible**.

Table 11.7: Summary of Assessment of Scope – Construction Phase

Nature of Impact	Receptor	Environmental Impact	Significance of effect
Temporary increase in employment	Borough	Minor	Minor Beneficial
Short-term increase in economic output (GVA)	Borough	Minor	Moderate Beneficial
Training and apprenticeship opportunities	Borough	Minor	Minor Beneficial
Effects on local services and facilities	Local	Negligible	Negligible
Wider Socio-economic impacts	Local	Negligible	Negligible

Operational Phase

- 11.53. The socio-economic assessment will consider the following potential impacts during the operational phase:

- Creation of direct, indirect, and induced long-term employment opportunities from the proposed uses on the Application Site.
- Creation of additional spend, supporting wider off-site employment within the Manchester economy.
- Long-term increase in economic output (GVA) resulting from the direct, indirect, and induced impacts of the Proposed Development during the Operational Phase.
- Increase in business rate revenue generated due to the provision of new employment floorspace on the Application Site.
- Increase in council tax revenue generated due to the provision of new homes on the Application Site.
- Creation of training and apprenticeship opportunities during the Operational Phase.
- Effect on local labour market, specifically in terms of employment opportunities generated by the Proposed Development for residents of Manchester.
- Effect on local facilities and services, such as schools and healthcare facilities, due to the increase in population and workforce in the local economy.

Creation of Long-term employment opportunities

On-site activity

- 11.54. In order to estimate the number of jobs that might be accommodated on-site through the commercial element of the Proposed Development, assumptions have been made as to the expected employment densities, given the floorspace figures provided. It is anticipated that the Proposed Development will bring forward approximately 595 sq m (GIA) of retail floorspace. In addition, there is expected to be a significant level of ancillary/amenity floorspace within the development, however, this has been excluded from the assessment due to the limited socio-economic benefit it would bring.
- 11.55. The employment density assumptions have been based on existing national benchmarks. The HCA's employment densities guide identifies a range of employment densities for the proposed retail use on the Application Site:
- Retail – between 15 and 20 sqm per employee – an employment density of 20 sqm has been applied, reflecting the 'worst case' potential employment scenario.
- 11.56. Allowance has been made for an ongoing vacancy rate of 15% to provide a prudent assessment.
- 11.57. In addition to employment within the commercial units, it is envisaged that the management of the premises will sustain on-site employment. It is envisaged that this will include a building manager and cleaning staff. It is assumed that this will be supported by a management fee on property owners, charged at 5% of average rental costs. Based on average turnover per employee data derived from the ONS Annual Business Survey (2019), it is estimated that expenditure could support 3 FTE jobs.
- 11.58. As with the Construction Phase, as well as creating new jobs on-site, the Operational Phase of the Proposed Development will generate additional economic activity. For example, the attraction and retention of new businesses has associated consequences in terms of generating additional employment through the supply chain (indirect effects). The direct and indirect effects of new investment also generate additional employee spend on local goods and services, supporting further job creation (induced effects).
- 11.59. To estimate the scale of potential indirect and induced multiplier effects associated with the Proposed Development, reference has again been made to additionality benchmarks. The HCA Additionality Guide identifies a composite local multiplier of 1.21 for retail uses – this has been applied at the Manchester level.
- 11.60. The overall number of jobs created through the Operational Phase, after allowing for the direct, indirect and induced impacts of the Proposed Development, are shown in Table 11.8.

Table 11.8: Gross on-site employment

Gross on-site operational employment (FTE jobs)	Manchester
Direct	23
Indirect and induced	5
Total gross impact	28

Increase in local expenditure by residents on goods and services

- 11.61. The attraction of new households would generate additional local expenditure and thus help to support the creation of new jobs and businesses, as well as support existing local services. To estimate the additional household expenditure that might be generated because of the Proposed Development, reference has been made to the ONS Living Costs and Food Survey (Detailed household expenditure by countries and regions, 2017-2019). Average expenditure for households in the North West is £530 per week (equating to £27,560 per annum). Based on an assessment of expenditure on locally available goods and services, local expenditure is estimated to be £269.69 per week or approximately £14,008 per year.
- 11.62. The total additional household expenditure per annum within the local area has been estimated based on the average local expenditure per household, adjusted to reflect the mix of units and market segment (assuming a premium development). Total expenditure is estimated to be £5.2m p.a. at the Manchester level at current prices. To minimise the risk of double counting associated with expenditure at 'on-site' retail, it has been assumed that 80% of the local expenditure will be off-site, equating to £4.1m per annum. Based on average expenditure per FTE employee for key service sectors (derived from the 2018 ONS Annual Business Survey) it is estimated that this level of annual spend could support 41 direct FTE jobs.
- 11.63. The increased household spend of £3.8m per annum in the local economy has been assessed to have a **Negligible** impact at the district level.
- 11.64. In addition, there will also be indirect and induced (income) multiplier effects. Based on a multiplier of 1.21 (have regard to benchmark evidence derived from the HCA Additionality Guide), it is estimated that the increased household spend could support 49 gross, direct, indirect, and induced jobs at the Manchester level.

Table 11.9: Gross off-site employment

Gross off-site operational employment (FTE jobs)	Manchester
Direct	41
Indirect and induced	8
Total gross impact	49

Net additional employment

- 11.65. To estimate the net additional impact of the Proposed Development, adjustments need to be made for leakage, displacement, and deadweight, along with the above allowance for multiplier effects. These factors have been assessed in the Operational Phase as follows:

- Leakage – as with the Construction Phase, reference has been made to Census 2011 origin destination data to inform the appropriate level of leakage. Reflecting travel to work patterns in 2011, levels of leakage are estimated at 40%. It is noted that the above rates do not allow for the implementation of measures aimed at maximising local employment, working in partnership with the Chamber, local authority. On this basis, actual levels of leakage could be somewhat lower than the prudent assessment set out above.
- Displacement – while the Proposed Development has the potential to displace some activity away from similar uses within Manchester, it is envisaged that displacement effects will in part be offset by the introduction of 485 residential units through the scheme, with resident expenditure supporting employment within the commercial units. (It is noted that this has been taken into account in the calculation of effects arising from off-site expenditure by residents, set out below). Given the nature of the Proposals, a 50% displacement rate has been applied in line with medium reckoners set out within the HCA Additionality Guide.
- Deadweight – due to the existing nature of the application site, which is used as a car park, deadweight has been assumed to be minimal. Allowance has been made for deadweight in respect of the on-site activities at 5% to account for on-site activity associated with the management and maintenance of the car park.

11.66. Table 11.10 summarises the adjustments for each additionality factor and identifies the overall net additional impact of the Operational Phase of the Proposed Development.

Table 11.10: Net additional employment

	Gross direct	Less leakage	Gross local direct	Less displacement	Net local direct	Multiplier	Total local direct	Less deadweight	Total net local additional
Retail – on-site	23	9	14	7	7	1	8	0*	8
Household spend – off-site	41	16	25	13	12	3	15	0	15
Total on & off-site	64	25	39	20	19	4	23	0	23

* Deadweight amounts to less than 0.5 FTE

11.67. The number of net additional jobs expected to be created by the onsite and additional household spend associated with the Proposed Development is 23 FTE's, thus, it is considered that the operational employment impact will be of a **Negligible** magnitude within Manchester.

Long term increases in Economic Output (GVA)

11.68. The estimates of net additional employment have been used to calculate the GVA impact per annum generated through the Operational Phase once the site is fully occupied. However, the net additional job estimates have been adjusted to no longer account for leakage, as GVA is a workplace-based measure. The jobs discounted through leakage are added back to the 22 net additional jobs. Data from the Annual Business Survey for GVA: Turnover per FTE job for the accommodation, food services and recreation sector have been calculated.

11.69. In total, it is estimated that the Operational Phase of the Proposed Development would generate net additional GVA of around £1.12 million per annum within the Manchester economy (as shown in Table 11.11, below). This level of impact is considered to be of a **Negligible** magnitude.

Table 11.11: Net additional GVA

	Gross direct jobs	Net additional jobs	Net additional GVA p.a.
On-site	23	8	£0.70m
Off-site	41	15	£0.42m
TOTAL	64	23	£1.12m

Increase in business rates revenue

- 11.70. In addition to the economic impacts outlined above, it is anticipated that the delivery of new commercial floorspace will result in important fiscal impacts through supporting an increase in business rates within Manchester. The calculation of business rates is based on a review of rateable values for comparable premises within Manchester and assumes a Uniformed Business Rate (UBR) multiplier of 0.49. Overall, once fully developed, it is estimated that the Proposed Development will generate approximately £66,500 of business rates revenue per annum. This is considered to represent a **Negligible** magnitude of impact.

Increase in council tax revenue

- 11.71. The annual uplift in Council Tax revenue has been estimated by assuming an indicative banding of properties from the accommodation schedule for the Proposed Development based on typical current sale prices for new build housing in the Manchester area.
- 11.72. Adjustments have been made for reliefs and risk, assuming that a proportion of the homes will be subject to single occupancy discount (25%), Disability Relief, or other subsidies. It is estimated that the 485 units will generate an additional £0.88m of Council Tax income per annum. The potential effect on Council Tax income would be **minor beneficial**.

Effect on local labour market

- 11.73. As shown as part of the baseline analysis, it is recognised that there continue to be significant levels of deprivation across Manchester. Nevertheless, (and as noted in the Piccadilly Basin SRF), there is a requirement for more City Centre homes to support the continued economic growth within Manchester. The anticipated resident population yield of 844 accounts for approximately 0.2% of the working age population within Manchester. Therefore, it is expected that the potential effect on the local labour market is **Negligible**.

Commuting and migration impact

- 11.74. As with the Construction Phase, the creation of new accommodation, food services and retail jobs within Manchester will provide further opportunities for residents to work closer to home, thereby reducing rates of out-commuting. Informed by Census data, it is estimated that around 60% of the Operational Phase jobs created could be taken-up by local people. With a focus on targeting recruitment from the resident workforce, the proportion of jobs going to people from within Manchester could be higher still. However, it is recognised that it will be important to ensure that people, particularly those from disadvantaged groups, can physically access the employment opportunities created.
- 11.75. Overall, it is considered that the impact of commuting and migration impacts in the Operational Phase will be of a **Negligible** magnitude.

Effect on local services and facilities

- 11.76. An assessment based on household size and bedroom space data from the 2011 Census indicates that the Proposed Development could accommodate a total of 844 people when fully occupied. If this increase was all additional, it would represent a relatively small proportion of the total current population of Manchester. However, this may not be the case as the Proposed Development could include new homes taken up by existing residents and demands from hidden households (for example, a young person moving out of the family home) and reflects changes in household density rather than an absolute increase in population.

Effect on existing healthcare capacity

- 11.77. The addition of up to an additional 844 people as a result of an increase in population is likely to have an effect on healthcare provision.
- 11.78. The effect on dental practices has not been quantified, due to a paucity of data in relation to capacity and number of dentists within the area.
- 11.79. On the basis that GPs have the capacity to accept additional patients, and providing that each GP could potentially support 1,800 new residents, it would require 0.5 GPs to add the anticipated number of new residents into existing capacity.
- 11.80. Based on assessment of GP Practices in Manchester City Centre, there are 10 GP practices with approximately 104,500 patients. These are serviced by a total of 74 GPs. On the basis of the above 1,800 patients per GP, the capacity of existing provision of 133,200 leaves a current surplus somewhere in the order of 28,600 patients.
- 11.81. It is currently unknown as to whether the GP practices identified are currently accepting new patients as per the baseline study. However, based on the review of existing provision it appears that there is sufficient capacity within Manchester. Therefore, the impact of this effect is **Negligible**.

Child / Pupil Yield (Effect on Existing School Provision)

- 11.82. The increased residential population of the Proposed Development would result in an increased demand for Primary school and Secondary school places.
- 11.83. As identified in the schedule of Proposed Development, the proposed scheme is expected to result in the development of an estimated 485 new dwellings, indicatively comprising 158 x 1-bed units, 309 x 2-bed units, and 18 x 3-bed units. An assessment of pupil yield has been undertaken on the basis of information on the age structure of residents and size of dwellings from the 2011 Census to derive yield factors. This suggests that, when fully developed, the scheme could accommodate 17 children of primary school age and 8 children of secondary school age – a total of 25 children of statutory school age.
- 11.84. The assessed primary age pupil yield from the Proposed Development could be accommodated in Schools in Manchester, based on capacity identified within the Department for Education statistics in 2018/2019. Data shows that there are currently 786 surplus primary school places within a 2-mile catchment of the Application Site. With regards to secondary schools, within the same 2-mile catchment there are currently 403 surplus places.
- 11.85. In terms of secondary school pupils, the yield from the Proposed Development could be accommodated within the existing school place provision within Manchester.
- 11.86. It is therefore assessed that the potential effect on existing facilities is **Negligible**.

Table 11.12: Summary of Assessment – Operational Phase

Nature of Impact	Receptor	Environmental Impact	Significance of effect
Creation of long-term employment opportunities	Borough	Negligible	Negligible
Long-term increases in economic output (GVA)	Borough	Negligible	Negligible

Nature of Impact	Receptor	Environmental Impact	Significance of effect
Increase in local expenditure by residents on goods and services	Borough	Negligible	Negligible
Increase in business rate revenue	Borough	Negligible	Negligible
Increase in council tax revenue	Borough	Minor	Minor Beneficial
Effect on local labour market	Local	Negligible	Negligible
Commuting and migration impact	Local	Negligible	Negligible
Effect on local services and facilities	Local	Negligible	Negligible

Mitigation Measures

- 11.87. This section considers whether any mitigation measures are required to address any adverse socio-economic effects as a result of the Proposed Development.

Construction Phase

- 11.88. At this stage no significant adverse socio-economic effects are expected during the Construction Phase.

Operational Phase

- 11.89. As with the Construction Phase, no significant adverse socio-economic effects are expected during the Operational Phase and therefore no specific mitigation is required.

Cumulative Effects

- 11.90. The developments that are likely to have a cumulative impact when considered alongside the Proposed Development have been scoped during the preparation of this ES (a list of those schemes included is appended to this chapter). The cumulative impacts, assessed in respect of socio-economic impact, have been considered, as far as possible, during both their Construction and Operational phases. The assessment of cumulative effects has considered both 'baseline' schemes, which are currently on-site and expected to generate socio-economic impact in the short-term, and 'cumulative schemes' for which delivery timescales are less clear but which would have important socio-economic effects.

Construction Phase

- 11.91. Each of the cumulative schemes would be expected to generate temporary short-term construction employment and an associated increase in economic output during their construction phases. A detailed assessment of each scheme has not been undertaken, due to limited information in some cases. However, by applying broad benchmarks to the quantity of residential units and commercial floorspace that is expected to

come forward, it is estimated that the cumulative schemes combined could support the creation of approximately 3,984 person years of construction employment (398 FTE's). The total GVA impact of this could amount to around £100 million over the course of the construction period.

Table 11.13: Cumulative effects – Construction Phase

	Gross employment (FTE)	Short-term GVA construction
Baseline	218	£54.5m
Cumulative	180	£46.3m
Total	398	£100.8m

- 11.92. The cumulative impact of the schemes considered as part of this assessment would represent a significant boost to the local economy. The construction activity would also provide additional training and apprenticeship opportunities, as discussed for the Proposed Development, further enhancing the socio-economic benefits to the local area.
- 11.93. The assessment of the Proposed Development has considered the potential for displacement throughout the Construction Phase, having regard to the cumulative impact of wider schemes within the development pipeline over the short-term. Allowance has been made for these effects within the assessment of additionality, including displacement and leakage, allowing for potential labour market pressure.

Operational Phase

Housing

- 11.94. The identified schemes will potentially deliver up to 1,650 new homes. Based on an average household size of 2.3 residents (2011 Census) (assuming worst case scenario position), this could accommodate in the order of 3,800 residents. As per the assessment of the Proposed Development, it should be noted that a number of the new homes provided could be taken-up by existing residents. In some cases, this may not result in the vacation of an existing property (for example, a young person moving out of the family home) and simply reflect changes in household density, as opposed to a growing population. On this basis, it would not be expected to result in an equivalent increase in the local population.
- 11.95. The new residential developments would both generate additional local household expenditure and Council Tax receipts for Manchester City Council, supporting critical local services. The Family Spending Survey published by ONS for the period 2017-19, shows that the average annual household expenditure in Manchester was £27,560 (excluding spending on housing (mortgage interest payments, Council Tax etc.; licences, fines, and transfers; holiday spending; and money transfers and credit). Of this, it is estimated that an average of around £14,863 could potentially be spent within the local area. Based on this level of average spend and the creation of 1,649 new households, the cumulative impact could amount to approximately £24.5 million of additional household expenditure.
- 11.96. This expenditure could potentially support the creation of additional employment opportunities and an increase in economic output within the local area. The impact of this expenditure would be generated as the new residential accommodation is constructed and then occupied.
- 11.97. While the development of new housing would provide additional Council Tax receipts, as well as wider household expenditure, it would also result in increasing demand for community facilities, such as Primary / Secondary schools and GP surgeries. In total it is expected that the new residential dwellings delivered as part of the accumulative schemes could yield an additional 91 children of school age. Of these additional school-aged children, 62 would be of primary school age and 29 of secondary school age.

11.98. A breakdown of the above is shown in Table 11.14, below:

Table 11.14: Cumulative effects – Operational Phase

	Housing units	New residents	Household spend (£)	School age children
Baseline	973	2,238	£10.4m	62
Cumulative	676	1,555	£10.0m	29
Total	1,649	3,793	£24.4m	91

11.99. The cumulative schemes combined would create minor increase in the demand for Primary and Secondary school pupil spaces (around 8% of current surplus places), as well as for other local services and facilities. However, it is considered that the proposed housing allocations will come forward over time, with the committed schemes (those with planning permission) coming forward in the short term. Despite this, there are no expected adverse impacts on school places. In addition, those uncommitted schemes are expected to come forward in response to future demand over the medium to long term. Furthermore, the Council Tax arising from future housing development will play an important role in supporting enhanced services and facilities within the local area.

Commercial Floorspace

11.100. The cumulative schemes would, if implemented, bring forward a large amount of new commercial floorspace. Although the data available about these schemes is limited, it is possible to make an estimate of the number of jobs that will arise from these schemes by using standard employment density benchmarks, or by drawing upon existing socio-economic impact assessments for specific schemes, where available. However, this is only presented at a gross level (i.e. without additionality adjustments for each cumulative scheme).

11.101. Through a range of employment uses, totalling in excess of 24,000 sqm (GIA) of floorspace, the identified schemes could cumulatively support in the order of 700 gross jobs.

11.102. When considered in combination with the Proposed Development, the cumulative effects on employment creation would equate to over 720 gross jobs. This could generate approximately £24.3 million of gross GVA per annum, once the developments have all come forward and have been fully occupied. The scale of cumulative impact is considered to be minor at the Manchester level.

Residual Effects

Table 11.15 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure		Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Temporary increase in employment	Borough	None	n/a	Minor Beneficial and temporary
Short-term increase in economic output (GVA)	Borough	None	n/a	Moderate Beneficial and temporary

Likely Significant Effect	Receptor(s)	Mitigation Measure		Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Training and apprenticeship opportunities	Borough	None	n/a	Minor Beneficial and temporary
Effects on local services and facilities	Local	None	n/a	Negligible and temporary
Wider Socio-economic impacts	Local	None	n/a	Negligible and temporary
Operational Phase				
Creation of long-term employment opportunities	Borough	None	n/a	Negligible and permanent
Long-term increases in economic output (GVA)	Borough	None	n/a	Negligible and permanent
Increase in local expenditure by residents on goods and services	Borough	None	n/a	Negligible and permanent
Increase in business rate revenue	Borough	None	n/a	Negligible and permanent
Increase in council tax revenue	Borough	None	n/a	Minor Beneficial and permanent
Effect on local labour market	Local	None	n/a	Negligible and permanent
Commuting and migration impact	Local	None	n/a	Negligible and permanent
Effect on local services and facilities	Local	None	n/a	Negligible and permanent

Reference List

11.103. This ES Chapter has been prepared by reference to the following:

- Homes and Communities Agency's (HCA's) Additionality Guide and Employment Densities Guide;
- HCA's Calculating Cost Per Job Best Practice Note;
- The Department for Communities and Local Government (DCLG) Appraisal Guide;
- Department for Business, Innovation and Skills (BIS) Occasional Paper No.1;
- Professional judgement;
- Annual Population Survey;
- English Indices of Deprivation 2019;

- ONS Business Register and Employment Survey;
- Annual Business Survey;
- NHS Direct;
- Department for Education; and
- UKCG (2011) Making the economic case for construction.



	Figure:	11.1		
	Title:	Approach to calculating net additional impact		
	Project:	Port Street		
	Date:	2021	Scale:	NTS

12. Townscape and Visual Impact

Introduction

- 12.1. This Chapter of the ES has been prepared by re-form landscape architecture and assesses the likely townscape and visual impacts of the proposals upon the Site and surrounding area. This Chapter also describes the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant negative impacts and the likely residual impacts after these methods have been adopted.
- 12.2. This Chapter is accompanied by five technical appendices, Figures (Appendix 12.1), TVIA Methodology Methodology (Appendix 12.2), Methodology for producing views and photomontages (Appendix 12.3), Committed Developments (Appendix 12.4) and Accurate Visual Representations (Appendix 12.5).
- 12.3. The author of this chapter has a postgraduate degree in Landscape Architecture. This chapter has been reviewed by a chartered member of the Landscape Institute who has experience in preparing townscape and visual impact assessments for EIA developments.

Legislative and Policy Context

- 12.4. The relevant planning policies in respect of townscape and visual issues are set out in this section.

Legislation

- 12.5. There are two legislative documents of relevance that have been taken into consideration during the preparation of the TVIA:
- European Landscape Convention 2012 (Article 1) 1
 - Town and Country Planning Act 19902.

National Planning Policy

- 12.6. Relevant sections within the National Planning Policy Framework³ in respect of townscape and visual issues are described below.
- 12.7. Section 7 – Ensuring the vitality of town centres. This policy recognises that residential development can play an important role in the vitality of town centres and is therefore encouraged on appropriate sites (paragraph 86f). This is directly relevant to the Site due to its proposed residential use and city centre location.
- 12.8. Section 12 – Achieving well-designed places. The creation of high quality, beautiful and sustainable buildings is fundamental to what the planning and development process should achieve (paragraph 125). Developments should add to the overall quality of the area, be sympathetic to local character and history and establish or maintain a strong sense of place (paragraph 130). The Site requires a well-considered design due to its large massing and proximity to districts with distinct character and sense of place.
- 12.9. Section 16 – Conserving and enhancing the historic environment. This policy requires heritage assets that may be affected by a Proposed Development to be identified and assessed and to minimise any conflict between the heritage asset's conservation and any aspect of the Proposed Development (paragraph 195). This is of relevance to the Site as the Proposed Development is adjacent to the Ancoats and Stevenson Square Conservation Areas and is within the setting of the Grade II* listed Brownsfield Mill to the south-east.

Local Planning Policy

- 12.10. The Site is located within the Manchester City Council area, and therefore any development proposals must be considered in respect of policies within Manchester's Local Development Framework Core Strategy 2012-2027⁴. The site is not allocated for any specific use and therefore represents land in the 'City Centre' area. It is, however, on the Manchester Brownfield land Register 2020⁵ (site reference Anco_Cap_605).
- 12.11. Additional guidance for planning within the Manchester comes from The Guide to Development in Manchester - Supplementary Planning Document and Planning Guidance⁶, adopted April 2007. This aims to support and enhance existing qualities and ongoing development in the City by providing a set of reasoned principles to guide developers, designers and residents.
- 12.12. Guidance for residential development within Manchester comes from the Residential Quality Guide⁷ which outlines the considerations, qualities and opportunities that will help to deliver high quality residential development as part of successful and sustainable neighbourhoods across Manchester.
- 12.13. The Site also lies within the Piccadilly Basin Strategic Regeneration Framework (SRF)⁸, prepared by Deloitte. This document includes guidance on development and enhancement opportunities for the area.
- 12.14. Those policies which are relevant to the Site with respect to townscape and visual issues are:
- Core Strategy Policy CC6: City Centre High Density Development
 - Core Strategy Policy CC9: Design and Heritage
 - Core Strategy Policy EN1: Design Principles and Strategic Character Areas
 - Core Strategy Policy EN2: Tall Buildings
 - Core Strategy Policy EN3: Heritage
 - Core Strategy Policy EN9: Green Infrastructure
 - SPD Key Issues for Design in the City Centre 12.26: Tall Buildings
 - Piccadilly Basin SRF Development and Urban Design Principles
 - Residential Design Guide: Make it Manchester
 - Residential Design Guide: Make it animate streets and spaces
 - Residential Design Guide: Make it work with the landscape
- 12.15. The above policies are in line with the NPPF in respects to Sections 7, 12 and 16, which seek to ensure that new development is well designed, contributes to the thriving nature of the City Centre and protects the historic environment.

Core Strategy Policy CC6: City Centre High Density Development

- 12.16. This policy states: "City Centre development will generally be high-density. It is a location where land should be used to maximise its efficiency. The appropriate scale, massing and height of development in the City Centre will significantly exceed what is appropriate elsewhere in the City. Development will need to have regard to the Council's approach to tall buildings (policy EN2), but any proposals which do not reflect the importance of maximising the development opportunities in the City Centre will only be supported where this accords with wider Core Strategy objectives."
- 12.17. This policy is in line with the NPPF in respect to Section 12 which seeks to ensure new development is well designed. This policy seeks to support high density development within the City Centre, whilst still ensuring that development is managed to make the most efficient use of available land. It is expected that new development will provide or contribute towards green infrastructure within the City Centre.

Core Strategy Policy CC9: Design and Heritage

- 12.18. This policy states “Design of new buildings will need to be of the highest standard in terms of appearance and function. The standards and guidance explained in other LDF policies should be the basis for the approach to design, with particular attention to be given to the City Centre context and character. Development in Manchester City Centre should preserve or enhance the heritage assets that have been identified. Including listed buildings, conservation areas and scheduled ancient monuments. The Council will support high density and mixed-use development in the City Centre, but developers must recognise the specific design challenges that must be overcome to ensure complementarity of function and form. New development must support the range of uses the Council expects in the City Centre and contribute to a coherent and integrated physical environment.”
- 12.19. This policy is in line with the NPPF in respect to Sections 12 and 16, which seek to ensure that new development is well designed and protects the historic environment. This policy seeks to protect the character and identity of Manchester’s cityscape, and in particular its historic environment and built heritage. This will be achieved by ensuring that new development enhances existing heritage assets both in terms of function and form.

Core Strategy Policy EN1: Design Principles and Strategic Character Areas

- 12.20. This policy states: “Developers will be expected to consider the City’s heritage and continue the rich pattern of activity in the core area. While there will be opportunities to create landmark buildings, developments should also contribute positively to the experience of all at street level. Wherever possible the opportunity should be realised to enhance existing and provide new areas of meaningful open space, and the maintenance and improvement of the City’s permeability should be considered in all proposals.”
- 12.21. This policy is in line with the NPPF in respects to Section 12 which seeks to ensure new development is well designed. This policy seeks to support high density development within the City Centre, whilst still ensuring that development is managed to make the most efficient use of available land. It is expected that new development will provide or contribute towards green infrastructure within the City Centre.

Core Strategy Policy EN2: Tall Buildings

- 12.22. This policy states: “Tall buildings are defined as buildings which are substantially taller than their neighbourhoods and/or which significantly change the skyline. 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. [...] 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.”
- 12.23. This policy is in line with the NPPF in respect to Section 12 which seeks to ensure new development is well designed. This policy considers the City Centre to be an appropriate area for tall buildings. However, since they have such a large impact on the street scene, the policy considers it particularly important that they are designed to the highest quality, both in terms of appearance and their impact on the surrounding space. The above policy seeks to protect existing buildings and open space alongside the land value and market by ensuring tall buildings are viable and deliverable.

Core Strategy Policy EN3: Heritage

- 12.24. This policy states: “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. 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. Proposals which enable the re-use of heritage assets will be encouraged where they are considered consistent with the significance of the heritage asset.”

- 12.25. This policy is in line with the NPPF in respect to Sections 12 and 16, which seek to ensure that new development is well designed and protects the historic environment. This policy seeks to protect the character and identity of Manchester’s cityscape, and in particular its historic environment and built heritage. This will be achieved by ensuring that new development preserves and enhances existing heritage assets both in terms of function and form.

Core Strategy Policy EN9: Green Infrastructure

- 12.26. This policy states: “Key features of Manchester’s green infrastructure will include: the continued development of a network of green spaces, water bodies, canals, paths and cycleways, with priority given to those parts of the City where there is an identified existing lack of open space. The Council will seek to protect existing street trees and promote new planting, particularly where this can enhance green links in the urban area. [...] The provision of new, and improvements to the quality and accessibility of existing green infrastructure assets, to mitigate for any loss of green infrastructure as a result of development such as the Metrolink extension programme. The encouragement of green roofs, green walls, tree planting and other forms of green infrastructure to allow for the adaptation to climate change in heavily urbanised areas. New green infrastructure provision should be an exemplar of best practice and innovation in terms of both its design and management.
- 12.27. This policy is in line with the NPPF in respect to Section 12 which seeks to ensure new development is well designed. This policy recognises that it is the more finely grained urban green infrastructure that helps give neighbourhoods their distinctive character and that they provide linkages between the green infrastructure network, particularly canals, towpaths and walkways in the City Centre. This policy seeks to develop and enhance the existing green infrastructure to create an integrated network of multifunctional spaces.

SPD Key Issues for Design in the City Centre 12.26: Tall Buildings

- 12.28. This guidance states: “The location and design of tall buildings needs careful consideration as they can be viewed from longer distances and have an impact on a much wider area, both within and outside of the City Centre. The effect of tall buildings is significant in a City Centre where its conservation area status means that the relationship of buildings and spaces is as important as the quality of individual buildings. Tall buildings provide very positive messages about Manchester and can significantly improve its image and peoples’ perceptions of it. Conversely, badly located tall buildings could have an adverse effect and as such any proposals will always have to be fully justified and carefully considered. We would require any such proposals to be presented in context of the joint guidance produced by CABI and English Heritage for assessing tall buildings.”
- 12.29. This guidance guideline is in line with the NPPF in respect to Section 12 which seeks to ensure new development is well designed. This guideline recognises the positive impact tall buildings can have on the City Centre, however, considers it particularly important that they are located appropriately and designed to the highest quality.

Piccadilly Basin SRF Development and Urban Design Principles

- 12.30. The Development and Urban Design Principles section of the framework sets out principles to guide the delivery of development across the City Centre. More specifically, this includes: a neighbourhood community with a vibrant mix of office, residential, retail and leisure accommodation; a well-designed environment that is well managed, safe, accessible, sustainable and resilient to climate change; a place with strong identity supported and enhanced by new development and; a well-connected neighbourhood in terms of highly legible, high quality pedestrian and cycle connections.

- 12.31. Within the SRF area, north of Tariff Street has been identified as an area for residential led mixed-use development, as part of a new neighbourhood. This will be predominantly apartment-led form of development, consisting mostly of build-to-rent products.
- 12.32. The SRF establishes a series of principles for the design of the area bound by Great Ancoats Street and Port Street (the Site). This includes the allocation of two residential towers on the Site, rising to 20 and 33 storeys. The SRF describes built form as follows:
- Scale, massing and density: “Following the pattern of taller buildings approved along the northern sections of the Inner Ring Road at key route intersections and nodal points, there is an opportunity for building heights to step up towards Great Ancoats Street, culminating at its junction with Port Street. This route is at a key intersection connecting Piccadilly Basin to: Ancoats, New Islington and beyond that to Holt Town and through to the Etihad: to the Northern Quarter; and, to the wider City Centre. A taller building fronting Great Ancoats Street and Port Street in this way would also create a sense of arrival to this area.”
 - Materiality: “For proposed buildings that are of a massing and height similar to those existing buildings nearby the opportunity should be taken to provide a material palette that responds to these nearby buildings. [...] The proposed buildings adjoining Great Ancoats Street are of a scale that means they are visible at a townscape level from a much wider distance. They are also landmark buildings that act as important nodal structures for those navigating through the framework area. As a consequence, the materiality approach is likely to be different from that of those buildings located within the rest of the Framework area and importantly, materiality should be appropriate for the form of the buildings. The application of materials is also important in the sense that they should also be simply detailed, limited in palette, robust, high -quality and easily maintained.”
 - Active frontages: “Wherever possible there should be active street frontages and the public should have access to the ground floor of a building. New buildings should be designed to support active frontages, particularly around key public spaces and pedestrian desire lines, to promote street life and enhanced animation to the street scene.”
- 12.33. In relation to creating a sense of place, the SRF states: “New development should take maximum advantage of the area’s heritage assets, canal side settings and public spaces. [...] Overall, new development should be sensitive to the setting of the identified heritage assets from either inwards or outwards looking views and significant adverse impact on the existing historic assets should be avoided. [...] The proposals should create a sense of place, good connections to adjoining neighbourhoods and a sense of continuity and coherence across the area. [...] Particular attention should be given to the development around the Grade II* Brownsfield Mill.”
- 12.34. In relation to public realm and amenity, the SRF states: “Where feasible, referencing of surviving significant components and features of the historic public realm such as buried canals, bridges and basins should be explored as part of the place making strategy and the differentiation of the area. [...] The strategy should incorporate well-designed public realm including both hard and soft landscaping proposals, which will help to establish and enhance connections, as well as address microclimate issues and mitigate noise and other impacts of traffic arising from the proximity of Great Ancoats Street. [...] Opportunities for soft landscaping and pockets of green space, trees and planting should be maximised where possible.”
- 12.35. In relation to connectivity and the pedestrian environment, the SRF states: “The redevelopment of Piccadilly Basin and removal of the car parks provides an opportunity to extend linkages through Piccadilly Basin in line with the HS2 Manchester Piccadilly SRF, particularly east – west through extending Tariff Street and Hilton Street, and north – south connecting Ancoats to the City Centre through a new connection through the site adjacent to Brownsfield Mill. Nodal connection points will be created at the intersection of key pedestrian movements.”

Residential Design Guide: Make it Manchester

- 12.36. This guidance states: “It is essential to reinforce the uniqueness of Manchester, strengthening its distinctive character while supporting new high quality residential development. [...] Consideration should be given to

the types of views present; whether they are intimate or extensive and how the form of new development might contribute to this experience and sense of place. Proposals should also consider whether to introduce new views to surrounding landmarks or features that can provide new visual connections or reconnect old ones that have been lost. [...] Taller buildings require particular care and sensitivity, having a disproportionately large impact on the image of the city by virtue of their visibility and concentration of uses. Seen from distance, taller buildings can alter the city's skyline and flatten the topography. [...] Developers and their design teams will be expected to demonstrate how the bulk, massing and scale of proposals have been considered in terms of its impact on the neighbourhood, street and block and how it influenced the architecture and design of the building and/or space. Wherever possible, the use of local materials should be considered [...]. Materials used within a single building must work together but should also fit within the context of the wider street, block and neighbourhood."

Residential Design Guide: Make it animate streets and spaces

- 12.37. This guidance states: "Doorways should face towards the street, helping to create a strong degree of enclosure and a clear interrelationship between the building and the street and public realm. [...] The space in front of the building helps to determine the look and feel of the development and its contribution to the street network. The threshold also allows uses to spill out and extend into the public realm, providing opportunities for customisation and personalisation that help to inform the character of the area. [...] Public spaces and streets should be well overlooked by those with a direct relationship with the space and an implicit ownership of it."

Residential Design Guide: Make it work with the landscape

- 12.38. This guidance states: "Residential developments should consider how they engage with and add to the existing green network. [...] Residential development should consider how it can work with nature to create attractive, sustainable environments, connecting into the wider network of green spaces to provide clear natural breathing spaces across the city. [...] Street trees can help to introduce a clear street hierarchy, defining green linkages in the wider landscape network. Pavements should be wide enough to accommodate trees, while retaining movement and access. [...] Buildings that are taller than their immediate surroundings will have an impact on the wind environment at street level. Where this is the case, wind analysis should be undertaken to understand and where required mitigate the effects of wind on pedestrian comfort and safety. [...] Incorporate sustainable urban drainage into the landscape."

Tree preservation orders

- 12.39. From a desk-based assessment there are no trees on Site that are subject to individual Tree Preservation Orders.

Assessment Methodology and Significance Criteria

- 12.40. This report will refer to the relevant national guidance for: the assessment of townscape character; making judgements about the visual qualities of the townscape and its capacity for accommodating development; methodology for the assessment of townscape and visual effects which is in accordance with the 'Guidelines for Landscape & Visual Impact Assessment', Third Edition⁹. Both a desk study and a visual site analysis have been undertaken. Refer to Appendix 12.2 TVA Assessment Methodology for a detailed description of the methodology.
- 12.41. Drawing on this guidance, and an appraisal of the key townscape and visual issues associated with the Proposed Development, this report will consider: the character and sensitivity of the townscape within the vicinity of the Proposed Development and the visual amenity of the receiving townscape.
- 12.42. The following are key issues in respect of townscape and visual effect relating to the Site:
- Location and character of townscape elements and components which contribute to the townscape character;
 - The quality of the receiving townscape;

- Identification of key receptors and their sensitivity;
 - Determination of the existing townscape character of the Site;
 - The ability of the existing townscape to accommodate change;
 - The likely effects of development within the townscape – whether it is negative or positive, including: potential townscape effects on the existing townscape character of the Site and its context; potential visual effects on views into, out of and across the Site.
- 12.43. In addition to the above, this Townscape and Visual Assessment is carried out with recognition towards the approved Picadilly Basin SRF and specifically the allocation of tall buildings on the Site. The assessment also considers, from a townscape and visual perspective, how the developed building design has progressed the broad, strategic principles of the SRF as part of a detailed design response. This includes design measures described further within the 'Design Proposals and Embedded Mitigation' section later within this chapter.
- 12.44. Several potential receptors have been identified, which may experience townscape effects resulting from the Proposed Development. These include individual townscape components such as urban grain, ambient building height and materiality, but also townscape character areas where a combination of physical and perceptual attributes combine to create a distinct and definable sense of place. The susceptibility to change of each receptor, its value, and resultant sensitivity are identified below.
- 12.45. In order to establish the value of each receptor, a judgement of the townscape quality is required. This is defined as a measure of the physical state of the townscape. This may include the extent to which typical character is represented in individual areas, the intactness of the townscape and/or the condition of individual elements.
- 12.46. A study area radius of 500m from the centre point of the Site has been defined. This is based upon a Zone of Theoretical Visibility (ZTV) exercise, which has identified the likely (or theoretical) extent of visibility of the Proposed Development. Townscape and visual receptors assessed within this TVIA are located within the Study Area boundary. Beyond this extent, it is considered that there will be no likely perceivable change to the townscape baseline or to views in the direction of the Site. This is due to the urban context of the Site and the resulting screening effects of surrounding buildings and structures, including railway viaducts, topography and intermittent vegetation and trees.

Limitations and Assumptions

- 12.47. The levels of predicted townscape and visual effects described below have assumed embedded mitigation as a result of design development since the inception of the project.
- 12.48. Assumptions have been made with respect to the schemes for the cumulative assessment; the assessment presupposes the cumulative schemes identified will be built as per the planning proposals and will be in situ prior to the built form constructed on Site.

Baseline Conditions

- 12.49. This section describes the principal spatial and built form components which give the Site and surrounding area its particular characteristics, and which make up the baseline. A list of the committed developments considered from the baseline scenario can be found in Appendix 12.4 Committed Developments.
- 12.50. The Site is located in the Piccadilly district of the Manchester City area (refer to Figure 12.1 Study Area). The Site is 0.48 hectares in size and is situated south of the intersection between Port Street and Great Ancoats Street. The Site consists of a large, temporary surface car park, split across two levels. The Site is bounded to the north-west by Port Street, to the north-east by Great Ancoats Street, to the south-east by Brownsfield Mill (a Grade II* listed Victorian Mill converted to residential apartments) and to the south-west by multiple surface car parks. The Rochdale Canal runs to the south-east of the Site, separated from the site by Brownsfield Mill and surface car parks. The materiality of the surrounding buildings is predominantly brick and metal cladding.

- 12.51. The Site can currently be accessed from Port Street. Access is currently prevented from Great Ancoats Street to the north-east by boundary fences and by surface car parks to the south and south-west. Brownsfield Mill prevents access to the Site from the south-east. There is no access to the canal from the Site and there are no Public Rights of Way through the Site. There is no pedestrian connection through the Site between Tariff Street and Great Ancoats Street.
- 12.52. The vegetation within the Site is minimal and consists mostly of self-sown vegetation at the base of fences and walls around the perimeter of the Site. A small group of large shrubs is located at the south-western extent of the Site. To the south east of Brownsfield Mill is a private garden associated with the building. This is enclosed by a fence. There are 6 mature trees outside of the garden (not within site boundary).

Urban Grain

- 12.53. Refer to Figure 12.3 Urban Grain.
- 12.54. The urban grain is used in the assessment as a shorthand term for the pattern and inter-relationship of buildings and open space. A study of this pattern can contribute to an understanding of townscape and character to highlight the ratio of built form to open space as a precursor to defining townscape character.
- 12.55. The Site is located within a dense urban area, with the exception of the immediate environment to the south and south east where there are some large vacant sites. The buildings surrounding the Site to the north and west are generally medium to large scale apartment/office blocks and mill buildings, linear in formation and interrupted by surface car parks. To the east and south, the surrounding built form is less linear in formation and generally smaller in scale. Areas of open space around the site are generally associated with the canal, public parks, and car parking. The pattern of the surrounding townscape differs significantly between west and east of the Site. To the west of the Site is Manchester City Centre, which is a very dense urban area with both commercial units of a varying scale and more recent residential development. To the east of the Site the built form loosens and becomes predominantly residential with a small number of large-scale retail with industrial, warehousing and distribution commercial units beyond. The urban grain surrounding the Site is well defined but varies significantly, particularly between north and south of the Site.

Built Form

- 12.56. Refer to Figure 12.4 Existing Building Heights.
- 12.57. There are currently no buildings within the Site. Massing and scale of built form in the context of the Site varies. Oxygen Tower and Islington Wharf are two towers, in excess of 21 storeys, in close proximity to the site to the south east. Surrounding the site there are a number of buildings between 11 and 15 storeys. The largest and most notable of these is Manchester Piccadilly station, with the others being new residential or commercial buildings. Built form between 6 and 10 storeys occupy areas predominantly to the north and south west of the Site. Existing, older built form is predominantly below 5 storeys and is either brick or concrete, depending on age. Within a 500m radius of the Site are 101 listed buildings, either Grade II or Grade II*, the closest of which is the Grade II* Brownsfield Mill. Additionally, the Site is located within close proximity of two Conservation Areas: Ancoats (adjacent to the site to the north east) and Stephenson Square (approximately 140m to the west). Newer built form is of a mixed architectural quality and predominantly clad in buff, grey or brick, with large expanses of glass.

Topography

- 12.58. Refer to Figure 12.8 Topography.
- 12.59. The prevailing topography slopes down towards the north east. The most notable level changes in the landscape around the Site are found between the Rochdale Canal and adjacent roads and pedestrian routes. The Site itself contains a significant level change, as the road levels of both Port Street and Great Ancoats Street sit approximately 2m higher than the centre of the site. The level change is currently navigated by a ramp between two surface car parks. The lower level of the site historically had access to a branch of the

Rochdale Canal that has since been filled. The high point of the site at 50.50mAOD is at the eastern extent of the Site, on Great Ancoats Street. The low point of the site at 47.44mAOD is at the eastern edge of the site, adjacent to the derelict structure. The proposed levels will tie into the existing condition at the application boundary so that changes will be limited to the proposed Site, and will have no wider townscape effects

Streetscape

- 12.60. The Site is located in close proximity to primary road corridors, including Great Ancoats Street (and the continuation of this into the A665 Ring Road) and Oldham Road. Great Ancoats Street passes the north eastern side of the site and is a heavily trafficked, 4 lane carriageway. Opposite the Site is Redhill Street, which is a key route into Ancoats and New Islington. The existing streetscape on Great Ancoats Street comprises ground floor commercial units. As part of the Great Ancoats Improvement scheme, there are two new pedestrian crossings within close proximity to the Site; one adjacent to the Site and one 120m north west, at the junction with Newton Street. Also as part of this scheme are a line of street trees that run along Great Ancoats Street adjacent to the site, on the opposite side of the road. Along Port Street there is a new cycleway and some new surface treatments at the junction with Great Ancoats Street. Surface car parking dominates the existing streetscape of the Site.

Existing Townscape Character

- 12.61. The townscape assessment in this section considers the potential effects of the proposed intervention on the components of the townscape and townscape character areas as appropriate, as identified within this baseline study and relevant documents prepared by Manchester City Council.
- 12.62. Townscape assessment encompasses an appraisal of physical, aesthetic and intangible attributes including sense of place, rarity or representativeness, and unspoilt appearance. The combination of townscape elements (urban grain, architecture, height and fabric of buildings, streets and squares, trees, parks and open spaces, soundscape) and their arrangement give the different areas a unique sense of place, or 'character'. These aspects, together with scale and character of surrounding landscapes, patterns and scale of landform, land cover and built development, need to be considered when assessing townscape effect.
- 12.63. Natural England have produced a series of National Character Area (NCA) profiles that identify broad, strategic character areas for England and the key opportunities for local decision making. The development Site is located within the National Character Area 55: Manchester Conurbation¹¹ which summarises this area as follows (page 3):
- "A number of settlements have grown and come together to form the Manchester Conurbation [...] This area is characterised by dense urban and industrial development, commercial, financial, retail and administrative centres, commuter suburbs and housing, interspersed with a network of green infrastructure."
 - "The conurbation is centred on low hills, crossed by several river valleys that thread through the urban fabric. The geology is dominated by sandstones, overlain by thick deposits of glacial till."
 - "Canals that weave through the conurbation not only offer opportunities for access and recreation, but also form a network of wetland habitats. Sections of the Rochdale Canal, in particular, have been designated as being of international importance as a Special Area of Conservation (SAC)."
 - "In the late 18th century the areas became rapidly industrialised, with dramatic growth in the cotton industry and expansion in ancillary trades. The population increased, fuelled by a need for labour, with rows of terraced housing built for the workers as well as mills and industrial buildings. Red brick and sandstone buildings are prominent in the city and town centres, alongside buildings using a mix of modern materials, high-rise buildings and landmark 19th-, 20th-. And 21st- century buildings."
- 12.64. NCAs are primarily used for understanding broad landscape context, rather than townscape and therefore for the purpose of this assessment is of limited use. The classification covers a wide area extending from Urmston in the west to Denton in the east; the area extends as far as Cheadle Hulme and Bramhall to the south and Prestwich in the north.

12.65. Although relevant, the level of detail is considered insufficient in providing an accurate depiction of the Site and locally specific issues. However, it is noted that a number of the above characteristics were discernible in relation to the wider townscape surrounding the Site, notably the presence of large settlements characterised by dense urban and industrial development, commercial, financial, retail and administrative centres, commuter suburbs and housing; the presence of canals the urban fabric including the River Irwell and the significant road networks, in particular the A665 Great Ancoats Street. For the purposes of this TVA a more local scale character assessment is appropriate.

12.66. The Greater Manchester Landscape Character and Sensitivity Assessment¹² focuses on regional townscape character areas. The Site isn't located in a particular landscape character type but is described as urban.

12.67. A Strategic Level City-Wide Urban Characterisation¹³ was undertaken in 2010 as an evidence base for the Core Strategy. The purpose of the study was to understand how the local character of different areas varies across Manchester as a means of identifying how local needs may be addressed by proposals for new development. The study identifies the Strategic Character Areas within the city. The Character Areas which could be affected by the Proposed Development include the City Centre and the Central Area of Change. The key characteristics of the city-wide Strategic Character Area that are identified as being applicable to the Site are:

City Centre:

- "The urban form is one of contrasts;
- The scale of built form also varies, sometimes dramatically, but the core area is mainly one of higher, larger scale buildings;
- The core has a relatively modest amount of open space (when compared to built floorspace);
- The Conservation Area status of much of the centre and the concentration of listed buildings reflects the urban history and quality of the urban environment;
- It contains a mix of building ages, types and quality;
- Outside the core, the intensity of activity falls and, within larger areas, uses are less mixed with fewer uses of particular regional significance but that can include uses not generally found in the core area including elements of industrial use;
- The non-core area includes significant areas of cleared land (often used for surface car parking) and a growing component of contemporary residential use as the core area pushes outwards."

Central Area of Change:

- "The majority of the area is engulfed by the industrialised expansion of the city;
- The area remains the focus of the city's industrial and other out-of-centre commercial activity mostly in low-rise industrial shed-style buildings;
- Change is once again underway with regeneration programmes that have, and continue, to transform the urban form of significant parts of the area;
- There are, however, localities which exhibit increased levels of overall activity: Those close to the city centre and the Higher Education Precinct and areas that have recently experienced regeneration to higher densities that can now sustain a greater range of associated facilities."

12.68. The Strategic Urban Character areas identified above are broad in scope and extent. It is considered that there will unlikely be any notable townscape or visual effects, within the context of the wider Strategic Character Areas as a result of the Proposed Development. As such townscape and visual effects of the Proposed Development will not be assessed for the Strategic Urban Character Areas and any local level issues will be identified as part of an assessment of local townscape character.

12.69. The Manchester City Centre Strategic Plan¹⁰ identifies local level Townscape Character Areas (TCAs), as shown in Figure 12.10. Only TCAs located within 500m of the Site are assessed as part of this TVA. It is

considered that there will be no likely perceivable change to other TCAs located fully outside of the study area as a result of the Proposed Development on Site, due to the heavily urbanised nature of the city environment and resulting screening effects of buildings, and the orientation of nearby public spaces and streets, which limit visual connectivity.

Character Area 1: New Islington

- 12.70. The New Islington TCA is located 80m east of the Site. It is bound by the Piccadilly TCA to south west, the Rochdale Canal to the north west, Butler Street/Beswick Street to the north east and the Ashton Canal to the south east. The TCA is centered around the New Islington Marina. There has been significant development in within the TCA, including new residential and commercial buildings along with new public realm. The centre of the TCA is characterised by modern high-density residential buildings, some above 10 storeys, arranged in a relatively formal urban grid. There are also some older residential buildings and associated public open space further north. As a result, there is a concentrated residential population within the TCA. At the southern end of the TCA, adjacent to Great Ancoats Street, is a large area of disused land which previously contained a large retail park. There are no listed buildings or conservation areas within the TCA. Overall, the TCA is characterised by a fragmented urban grain, with some distinctive qualities and sense of place. The most significant greenery within the TCA is Cotton Field Park (adjacent to the marina), Islington Park, and green space associated with the Rochdale Canal. Elsewhere within the TCA, greenery mostly comprises of large grass verges associated with residential areas and private gardens.

Table 12.1 Townscape Receptor 5: Character Area 1 - New Islington

Susceptibility	Value	Sensitivity
Low	Medium	Medium Low
The townscape in this area currently includes some large scale buildings with a mixture of materials and architecture. The built form is all relatively new and of varying types and quality. The area has ability to accommodate the Proposed Development without considerable consequences for the retention of the existing baseline.	The townscape has a mixed urban structure with some scope to improve elements.	

Character Area 2: Ancoats

- 12.71. Ancoats is adjacent to the Site to the north east and is bound by the A62 Oldham Road to the north east, Butler Street to the north west, the Rochdale Canal to the south east and the A665 Great Ancoats Street to the south west. The entirety of the TCA is situated within the Ancoats Conservation Area and includes a number of Grade II and Grade II* listed buildings. Most of these are historic mill buildings now converted into residential or commercial units, however they also include the Crown And Kettle Public House, Daily Express Building, former Church of St Peter and Victoria Square. As a result, the TCA has a distinguished sense of place and historic prevalence. The south western part of the TCA has a relatively tight and uniform urban grain. There is some public realm, the most notable being Cutting Room Square, however very limited greenspace. The urban grain in the north eastern part of the TCA loosens significantly and becomes predominantly open with small areas of residential housing. Ancoats Green is a significant area of greenspace and is located beyond the extent of the study area. At the south western extent of the TCA along Great Ancoats Street, there are some modern architectural interventions. These are predominantly residential blocks (between 6 and 13 storeys) with ground floor retail use. The materiality of these developments is mostly in keeping with the existing heritage buildings.

Table 12.2 Townscape Receptor 6: Character Area 2 - Ancoats

Susceptibility	Value	Sensitivity
Medium	High	High Medium
The townscape in this area currently includes a number of historical buildings with some modern development. The area has some ability to accommodate the Proposed Development without considerable consequences for the retention of the existing baseline. The townscape has a strong urban structure and includes designated conservation areas.		

Character Area 3: Northern Quarter

- 12.72. The Northern Quarter is adjacent to the Site to the north west and is bound by the A665 Great Ancoats Street to the north east, Port Street/China Lane/Paton Street/Lena Street to the south east, the A6 Piccadilly to the south west and High Street and Shudehill to the north west. The majority of the TCA includes the Stephenson Square and Smithfield Conservation Areas and includes a large number of Grade II and Grade II* listed buildings of a variety of architectural styles and historic uses. The TCA is characterised by distinctive architecture, red brick buildings and converted warehouses with many creative and cultural industries and independent retailers. As a result, the TCA has a strong sense of place. The TCA has a relatively tight and uniform urban grain, with buildings varying in size and massing, although most buildings are under 5 storeys. There is some public realm but few areas that are pedestrianised and very limited greenspace. There have been some modern developments within the TCA, however, regeneration has generally been incremental and has broadly retained the area's distinct identity.

Table 12.3 Townscape Receptor 7: Character Area 3 - Northern Quarter

Susceptibility	Value	Sensitivity
Medium	High	High Medium
The townscape in this area includes strong, historic architecture with areas of small and incremental modern development. The area has some ability to accommodate the Proposed Development without considerable consequences for the retention of the existing baseline. The townscape has a strong urban structure and identity and includes designated conservation areas.		

Character Area 4: Piccadilly

- 12.73. The Site is located within the Piccadilly TCA, at the northern most extent. The TCA is bound by the A665 Great Ancoats Street to the north and east, the trainline leading to Piccadilly Station to the south, the Kampus TCA to the west and Portland Street and the Northern Quarter to the north west. Piccadilly is currently undergoing significant urban regeneration and comprises several modern apartment and office buildings and construction sites. There are no conservation areas within the TCA, however, there are a small number of Grade II and Grade II* listed buildings, mostly associated with historic uses of the canal and Manchester Piccadilly station. The station is a large and significant element within the TCA and has influence on the urban grain in its immediate context. Extensive areas of surface car parking situated on undeveloped plots of land are also commonplace. As a result, the urban grain is currently fragmented and inconsistent. Recently implemented public realm improvements and peripheral treatments to new buildings introduce isolated, positive characteristics. There are some notable areas of public realm and greenspace associated with the Rochdale and Ashton Canals which run through the TCA.

Susceptibility	Value	Sensitivity
Low	Low	Low
The townscape in this area currently includes a mixture of architecture of varying age and quality. The area can accommodate the Proposed Development without considerable consequences for the retention of the existing baseline.	The townscape has inconsistent urban structure and no distinctive sense of place.	

Table 12.4 Townscape Receptor 8: Character Area 4 – Piccadilly

Character Area 5: Retail Core

- 12.74. The Retail Core is located approximately 380m to the south west of the Site and is bound by the Medieval Quarter, Noma and the Northern Quarter to the north and east, Piccadilly, Chinatown, the Central Business District and Spinningfields to the south and the River Irwell to the west. The TCA includes the Smithfield, Shudehill, George Street and Upper King Street Conservation Areas. It also includes several Grade II listed buildings, mostly located around St Ann's Square. The TCA is a major retail hub with several flagship stores across a range of shopping destinations; the largest and most notable being Manchester Arndale. The TCA has a tight urban grain, with a number of large scale buildings and is comprised of a mixture of architectural styles of varying ages. There are some isolated areas of notable character but in general the TCA has relatively indistinguished identity and sense of place. Within the TCA there are several areas of well used public realm and greenspace alongside areas of pedestrianisation associated with key retail areas. The most notable are St Ann's Square, Exchange Square and Piccadilly Gardens which are all used for both major events and day to day gathering. These areas have each have a distinct identity and are pockets of character within the TCA.

Table 12.5 Townscape Receptor 9: Character Area 5 – Retail Core

Susceptibility	Value	Sensitivity
Low	Medium	Medium Low
The townscape in this area currently includes large scale buildings with a mixture of materials and architecture. The area can accommodate the Proposed Development without considerable consequences for the retention of the existing baseline.	In general, the townscape has inconsistent urban structure and no distinctive sense of place, however there are pockets of identity.	

Character Area 6: Kampus

- 12.75. Kampus is situated approximately 650m to the south west of the Site and is bound by Major Street to the north, Aytoun Street to the east and Chorlton Street and Canal Street to the south and west. Kampus is a new development in an area previously occupied by Manchester Metropolitan University. It contains a mixture of historic, modern and retrofit architecture across a range of building sizes and heights. There are 3 notable residential towers within the character area, all of which are 12 storeys or higher. Also included in the TCA is the Manchester Crown Court building on Minshall Street. This was built between 1868 and 1871 and refurbished in 1993 and has some architectural merit, although is of a distinctly different style to the other buildings within the TCA. North west and south east of the Court building are two medium sized surface car parks. Within the TCA there is a newly completed public square, adjacent to the canal, which contains significant planting and tree coverage. Considering the new development in isolation, there is a strong sense of place and identity. However, overall, the urban grain is somewhat fragmented and undistinguished. This TCA is at the periphery of influence from the Site and as such, any potential influence on the TCA from the Proposed Development may be limited.

Table 12.6 Townscape Receptor 10: Character Area 6: Kampus

Susceptibility	Value	Sensitivity
Medium	Medium	Medium
The townscape in this area currently includes a mixture of architecture and building quality. The area can accommodate the Proposed Development without consequences for the retention of the existing baseline.	The townscape has inconsistent urban structure. There is some sense of place in isolated areas.	

Summary of Townscape Character Areas

12.76. The table below shows the varied susceptibility and value of the different townscape elements that will potentially experience effects as a result of the Proposed Development.

Table 12.7 Summary of Townscape Character Areas

Character Area	Susceptibility	Value	Sensitivity
New Islington	Low	Medium	Medium Low
Ancoats	Medium	High	High Medium
Northern Quarter	Medium	High	High Medium
Piccadilly	Low	Low	Low
Retail Core	Low	Medium	Medium Low
Kampus	Medium	Medium	Medium

Design Proposals and Embedded Mitigation Measures

- 12.77. The Site at Port Street is proposed for mixed use development comprising residential and commercial, together with new public realm. The Proposed Development will consist of 485 units, as described in the latest pre-application document by SimpsonHaugh and Partners.
- 12.78. The massing of the Proposed Development will consist of two distinct elements; a 35-storey tower and a lower-level podium, comprising three blocks that step in height. Retail is proposed to the ground levels of the podium blocks.
- 12.79. The reduction or elimination of negative effects on the townscape and visual environment is a key part of the development proposals. As set out in GLVIA3, key mitigation processes that have been considered are prevention, reduction, remedy and enhancement. The design of the building and streetscape have been subject to extensive pre-application discussions in order to refine the form and appearance of the building and integrate it. Through this process, potential adverse townscape and visual effects have been identified, and eliminated or reduced, and positive effects enhanced. Mitigation of adverse townscape and visual effects is therefore embedded in the Proposed Development, and no “applied” mitigation is proposed. In summary, the embedded mitigation strategy will follow the following principles
- 12.80. The Design and Access Statement prepared by Simpson Haugh architects describes the design response as follows: ‘The Design Team have undertaken detailed analysis informed by expert heritage, overshadowing and wind microclimate advice to design a more sensitive, fitting response to the site’s context [than the SRF]. Many options have been considered to find the best solution that delivers a high quality building that respects both its historic context and neighbouring communities. Rather than two towers, as envisaged in

the SRF, a single tower is proposed, offset from the road, with a lower perimeter block that repairs the streetscape. Key benefits of this move are’:

- Reducing the visual impact on nearby historic buildings, reducing overshadowing of neighbouring buildings, and improving the wind environment on the streets around the building.
- The offset taller element with a lower perimeter block ties the building into its existing context and creates a more human scale along Great Ancoats Street and Port Street.
- A new public open space is created in the heart of the Piccadilly Basin, creating the opportunity to make new connections through the area and to the canal when neighbouring development sites come forward

12.81. In relation to materiality the Design and Access statement states:

- The elevations of the podium have been carefully considered to respond to the immediate surrounding context of historic mills plus emerging new developments, responding to more traditional construction techniques and detailing. The podium facade is designed with a combination of brick and aluminium. This responds to the immediate context whilst linking the podium with the tower. The colour palette chosen for the brick relates to the local red brick and terracotta traditionally used in the area.
- The tower element acts as a local landmark element and employs modern materials. The appearance strategy links the entire site through the materials used and the colour palette chosen. The selected colour for the anodised aluminium is dark red/brown, providing a complementary colour to the lower podium brick.

12.82. There is no existing open space within the Site or any vegetation to be retained. The Proposed Development proposals include both a private courtyard and new public realm. The private courtyard will be located in the centre of the development, between the tower and the podium and will be accessed from the ground floor of the tower. The new public realm will be located between the proposed buildings and the edge of the site, adjacent to Brownsfield Mill, and will be approximately 1220m² in size

12.83. The principles described above have ensured that, wherever possible, adverse effects on the townscape and visual amenity have been designed out and the opportunity for beneficial effects has been maximised. The following identification and evaluation of significant townscape and visual effects therefore takes into account this embedded mitigation.

Identification and Evaluation of Significant Townscape Effects

12.84. This section of the report assesses the effects on the existing townscape character – both short and long term, which will depend on the scale of the Proposed Development, and the value and significance of the wider townscape. The Townscape Character Areas that are potentially affected by the Proposed Development have been identified within the baseline assessment, together with the Susceptibility, Value and the resulting Sensitivity of these townscapes. The Magnitude of Change to each Townscape Character Area will be determined by what changes are made to the various elements already described which combine to make up a townscape’s character. Magnitude of Change is assessed in conjunction with Townscape Sensitivity to produce the predicted Townscape Effects of the Proposed Development.

Character Area 1: New Islington

Table 12.8 Assessment of Townscape Effects: Character Area 1 - New Islington

Townscape Effects	Assessment on Character Area
Proximity to Site	Close, <50m
Townscape Receptor	Modern high-density residential buildings, some above 10 storeys; new public realm associated with the marina; concentrated

	residential population; fragmented urban grain; some sense of place.
Sensitivity	Medium Low
Magnitude of Change	There will be a low magnitude of change to the character area. There will be a small indirect alteration to the baseline character, experienced primarily from the western edge of the TCA. There will be an encroachment of tall, large-scale architecture on the edge of the TCA, however, the presence of taller buildings that currently exist in proximity to and within the TCA result in the Proposed Development not being uncharacteristic when set within the attributes of the receiving townscape.
Predicted Townscape Effects	Minor - Moderate
Nature of Townscape Effects	Neutral

Character Area 2: Ancoats

Table 12.9 Assessment of Townscape Effects: Character Area 2 - Ancoats

Townscape Effects	Assessment on Character Area
Proximity to Site	Close, <50m
Townscape Receptor	Conservation Area; large number of listed buildings; historic building conversions to residential and commercial use; majority tight and uniform urban grain; loose residential urban grain in part; modern architectural additions along Great Ancoats Street.
Sensitivity	High Medium
Magnitude of Change	There will be a low magnitude of change to the character area. There will be a localised indirect alteration to the baseline character, experienced primarily from the southern edge of the TCA, where there will be an encroachment of a tall building. However, the regular and tight urban grain within the TCA provides containment across the majority of the area. This will likely result in the taller aspects of the proposals not being perceivable when set within the attributes of the wider TCA.
Predicted Townscape Effects	Moderate
Nature of Townscape Effects	Beneficial

Character Area 3: Northern Quarter

Table 12.10 Assessment of Townscape Effects: Character Area 3 – Northern Quarter

Townscape Effects	Assessment on Character Area
Proximity to Site	Close, <50m
Townscape Receptor	Conservation Areas; large number of listed buildings; distinctive architecture; majority tight and uniform urban grain; independent retailers; modern architectural additions along Great Ancoats Street.

Sensitivity	High Medium
Magnitude of Change	There will be a low magnitude of change to the character area. There will be a localised indirect alteration to the baseline character, experienced primarily from the south eastern edge of the TCA, where there will be an encroachment of a tall building . However, the regular and tight urban grain within the TCA provides containment across the majority of the area. Also the presence of larger scale and modern architecture adjacent to the site will likely result in the taller aspects of the proposals not being perceivable when set within the attributes of the wider TCA The proposed development will infill an area of currently unused land adjacent to the south eastern edge of TCA and will positively reinforce the local urban grain. The material palette and activation of the ground floor within the lower podium blocks of the development fronting on to Port Street will also reinforce the existing uses and character at the edge of the Northern Quarter TCA.
Predicted Townscape Effects	Moderate
Nature of Townscape Effects	Beneficial

Character Area 4: Piccadilly

Table 12.11 Assessment of Townscape Effects: Character Area 4 - Piccadilly

Townscape Effects	Assessment on Character Area
Proximity to Site	Close, Site within TCA
Townscape Receptor	Small number of listed buildings; areas of construction associated with new buildings and public realm; extensive areas of surface car parking; greenspace associated with the canals; fragmented and inconsistent urban grain.
Sensitivity	Low
Magnitude of Change	There will be a medium magnitude of change to the character area. There will be some alteration to the baseline character, experienced primarily from the northern edge of the TCA, by the addition of tall, large scale architecture. However, mixed building uses and character, the presence of larger scale modern buildings and the construction of new tall buildings within the TCA that suggest that the Site can be accommodated into the setting of the TCA without change to its character. The proposed development will infill an area of currently unused land adjacent to the south eastern edge of TCA and will positively reinforce the local urban grain. Additionally, the new greenspace as part of the Proposed Development will be a beneficial change as there are currently few areas of greenspace within the TCA.
Predicted Townscape Effects	Minor - Moderate
Nature of Townscape Effects	Beneficial

Character Area 5: Retail Core

Table 12.12 Assessment of Townscape Effects: Character Area 5 – Retail Core

Townscape Effects	Assessment on Character Area
Proximity to Site	Medium, 380m from Site
Townscape Receptor	Several listed buildings; major retail hub; tight urban grain; well used public realm; pockets of character but no distinct sense of place; conservation areas on the periphery of the TCA but not within the study area.
Sensitivity	Medium Low
Magnitude of Change	There will be a negligible magnitude of change to the character area. There will be no alteration to the baseline character and the only discernible effects will be limited and glimpsed views of the Proposed Development that may not be discernible to the casual observer.
Predicted Townscape Effects	Negligible

Character Area 6: Kampus

Table 12.13 Assessment of Townscape Effects: Character Area 6 - Kampus

Townscape Effects	Assessment on Character Area
Proximity to Site	Medium, 650m from Site
Townscape Receptor	New development; large scale residential buildings; surface car parks; mixture of architectural styles; fragmented urban grain.
Sensitivity	Medium
Magnitude of Change	There will be a negligible magnitude of change to the character area. There will be no alteration to the baseline character and the only discernible effects will be limited and glimpsed views of the Proposed Development that may not be discernible to the casual observer.
Predicted Townscape Effects	Negligible

Summary of townscape effects

12.85. The Proposed Development will introduce townscape effects to all but two of the Townscape Character Areas. The predicted Townscape Effects range from Negligible Neutral to Moderate Beneficial across the Character Areas.

Table 12.14 Summary of Townscape Effects

Character Area	Townscape Sensitivity	Magnitude of Change	Townscape Effect and Nature
New Islington	Medium Low	Low	Minor - Moderate Neutral

Ancoats	High Medium	Low	Moderate Beneficial
Northern Quarter	High Medium	Low	Moderate Beneficial
Piccadilly	Low	Medium	Minor - Moderate Beneficial
Retail Core	Medium Low	Negligible	Negligible
Kampus	Medium	Negligible	Negligible

Existing Visual Conditions

12.86. A list of the committed developments considered from the baseline scenario can be found in Appendix 12.4 Committed Developments.

Table 12.15 Baseline conditions - Illustrative view A

View A – View south east from Great Ancoats Street at junction with Oldham Road	
Figure Reference	12.14
Distance	Medium
Direction	South east
Season and Condition	Early Autumn
Condition and Visibiliity	Clear. Good visibility
Type of Receptor	Highway users, users of streets, workers.
Reason for view selection	Distant view that is representative of a key commuter and pedestrian route from the north west.
Description of existing view	The view looks south east along Great Ancoats Street with Oxygen Tower at the end of the view. Generally, the view comprises a variety of architectural styles and forms, including several medium rise buildings (6-12 storeys) and several smaller buildings (2-3 storeys). The medium rise nature and the inconsistent roof height of the local built form permits some open views of the sky. The weathered steel material of Oxid House residential apartment block is a prominent feature of the view. Great Ancoats Street is another prominent feature of the view and comprises a 4-lane carriageway with a wide central reservation edged by footpaths on both sides. The extent of the carriageway and associated highway infrastructure are significant detracting features of the view. There are no significant heritage assets prominent within view.
Visual Susceptibility	Low
Value attached to view	Low
Visual Sensitivity	Low

Table 12.16 Baseline conditions - Illustrative view B

View B – View south east from Great Ancoats Street at junction with Blossom Street	
Figure Reference	12.15
Distance	Close
Direction	South east
Season and Condition	Early Autumn
Condition and Visibility	Overcast. Good visibility.
Type of Receptor	Highway users, users of streets, workers.
Reason for view selection	Representative of a sequential view along a key commuter route as the development becomes more visible.
Description of existing view	This view looks south east along Great Ancoats Street with Oxygen Tower at the end of the view. Generally, the view comprises a variety of architectural styles across predominantly medium rise buildings (6-12 storeys) that are clad in red, grey and buff tones. The medium rise nature and the consistent roof height of the local built form permits relatively open views of the sky. Great Ancoats Street is a prominent feature of the view and comprises a 4-lane carriageway with a wide central reservation edged by footpaths on both sides. The extent of the carriageway and associated highway infrastructure, including streetlights and signage, are significant detracting features of the view. There are no significant heritage assets prominent within view.
Visual Susceptibility	Low
Value attached to view	Low
Visual Sensitivity	Low

Table 12.17 Baseline conditions - Illustrative view C

View C – View south west from Redhill Street at the junction with the Rochdale Canal	
Figure Reference	12.16
Distance	Medium
Direction	South west
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility.
Type of Receptor	Highway users, residents, users of streets, workers.
Reason for view selection	Convergence of key pedestrian and commuter routes and representative of north eastern views along the canal and within the Ancoats conservaton area.

View C – View south west from Redhill Street at the junction with the Rochdale Canal	
Description of existing view	The view looks south west along the Rochdale Canal. The Grade II* listed Brownsfield Mill and some of the city centre roofscapes are glimpsed at the end of the view. On the right side of the view, several Grade II and Grade II* listed buildings form a distinctive and prominent heritage architectural element which create a series of continuous blocks along Redhill Street. Building heights along this street remain relatively consistent at around 5-8 storeys high. In contrast, the left side of the view is dominated by a dark grey clad block of modern residential apartments in the Cotton Field Wharf Marina, New Islington. The centre of the view is dominated by the Rochdale Canal and associated walls and footbridges. Also in the centre of the view are large areas of tarmac and associated highway infrastructure, including railings, graffitied screens and streetlights, which are detracting elements of the view.
Visual Susceptibility	Medium
Value attached to view	Moderate
Visual Sensitivity	Medium

Table 12.18 Baseline conditions - Illustrative view D

View D – View south west from the public space at the junction of Redhill Street and Great Ancoats Street	
Figure Reference	12.17
Distance	Close
Direction	South west
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility
Type of Receptor	Highway users, users of streets and public spaces, workers.
Reason for view selection	Representative of a short distance view from a public open space and beside a listed canal lock within the Ancoats conservation area.
Description of existing view	The view looks south west towards the Site (surface car park) with some of the city centre roofscape including the City Tower building at the end of the view. The Grade II* listed Brownsfield Mill forms a focal element on the left side of the view. On the right side of the view is a row of mature trees allowing glimpses of the commercial building on the corner of Redhill Street and distant views into the Northern Quarter. The foreground view is dominated by the paved public space and associated seating. The medium rise nature and the consistent roof height of the local built form permits open views of the sky. Great Ancoats Street runs across the view and includes a number of highway infrastructure components such as street lights, railings and signage which are detracting features.
Visual Susceptibility	Medium
Value attached to view	Low
Visual Sensitivity	Medium Low

Table 12.19 Baseline conditions - Illustrative view E

View E – View north west from Great Ancoats Street approaching the junction with Old Mill Street	
Figure Reference	12.18
Distance	Medium
Direction	North west
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility.
Type of Receptor	Highway users, users of streets, workers.
Reason for view selection	Distant view representative of a key commuter and pedestrian route from the south east.
Description of existing view	The view looks north west along Great Ancoats Street. Oxygen Tower dominates the left side of the view and commercial units with residential units above form the street frontage on the right side of the view. A distant view of the Grade II listed Royal Mills is in the centre of the view. Generally, the view comprises a variety of architectural styles and forms, including several medium rise buildings (6-12 storeys), a small number of low-rise buildings (2-3 storeys) and distant views of high rise towers in the city centre. Great Ancoats Street is a prominent feature of the view and comprises a 4-lane carriageway with a wide central reservation edged by footpaths on both sides. The extent of the carriageway and associated highway infrastructure, including streetlights and signage, are significant detracting features of the view.
Visual Susceptibility	Low
Value attached to view	Low
Visual Sensitivity	Low

Table 12.20 Baseline conditions - Illustrative view F

View F – View north from pedestrian footbridge at Piccadilly Basin at the end of Brewer Street	
Figure Reference	12.19
Distance	Close
Direction	North
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility.
Type of Receptor	Highway users, residents, users of streets, users of public footpaths, workers.
Reason for view selection	Representative of a mid distance view from a key public footpath as it crosses the canal.
Description of existing view	The view looks north towards the Site with Burlington House forming a focal element in the foreground and the Grade II* listed Brownsfield Mill glimpsed at the end of the view. The left

View F – View north from pedestrian footbridge at Piccadilly Basin at the end of Brewer Street	
	side of the view is dominated by a residential apartment block with a glimpse of the Grade II* listed Jackson's Warehouse. On the right side of the view is the edge of a multi-storey car park partially screened by brightly decorated panels along the canal towpath. The Rochdale Canal runs through the centre of the view, allowing open views of rooflines.
Visual Susceptibility	Medium
Value attached to view	Moderate
Visual Sensitivity	Medium

Table 12.21 Baseline conditions - -- Illustrative view G

View G – View north from Tarriff Street bridge	
Figure Reference	12.20
Distance	Close
Direction	North
Season and Condition	Early Autumn
Condition and Visibiliity	Clear. Good visibility.
Type of Receptor	Highway users, users of streets, workers.
Reason for view selection	Representative of a residential view and short distance view from surrounding footpath and road network. The Grade II* listed Brownsfield Mill is also in view.
Description of existing view	The view is orientated northwards, with the Grade II* listed Brownsfield Mill forming a distinctive and prominent architectural element. To the left of this are The Astley and Oxid House; two new residential apartment blocks between 8 and 15 storeys high. To the far left of the view is a glimpse of the newer extension to The Wentwood building and to the far right of the view is a glimpse into the roofscape of Ancoats. The foreground is dominated by the brick wall of the canal bridge and a grafitted board at the boundary of a surface car park. Tariff Street, which comprises a single carriageway and some on-road parking spaces, includes a large amount of tarmac with line painting, detracting from the view.
Visual Susceptibility	Medium
Value attached to view	Low
Visual Sensitivity	Medium Low

Table 12.22 Baseline conditions - Illustrative view H

View H – View north east from the junction between Port Street and Hilton Street	
Figure Reference	12.21

View H – View north east from the junction between Port Street and Hilton Street	
Distance	Close
Direction	North east
Season and Condition	Early Autumn
Condition and Visibiliity	Clear. Good visibility.
Type of Receptor	Highway users, users of streets, workers.
Reason for view selection	Representative view from within the Stephenson Square Conservation Area capturing the context of sensitive listed buildings.
Description of existing view	The view is looking north east towards the site with a glimpse of Great Ancoats Street and the roofscape of Ancoats at the end of the view. The south westerly elevation of The Astley building is a prominent feature in the background of the view. The frontages of Hilton Street and Port Street comprise of the Crown & Anchor public house and commercial units on the ground floors of a distinct row of terraced houses. Hilton Street comprises a single carriageway with some on-road parking, whereas Port Street accommodates one way traffic north and one way cycle traffic south. Both roads contain footpaths on both sides of the carriageway. The extent of the carriageways and associated highway infrastructure, including streetlights and signage, are detracting features of the view.
Visual Susceptibility	Medium
Value attached to view	Moderate
Visual Sensitivity	Medium

Table 12.23 Baseline conditions - Illustrative view I

View I - View east from the west side of Piccadilly Gardens	
Figure Reference	12.22
Distance	Medium
Direction	East
Season and Condition	Early Autumn
Condition and Visibiliity	Clear. Good visibility.
Type of Receptor	Users of streets and public spaces, workers.
Reason for view selection	Representative view from a key city public open space capturing a wider context including listed monuments and buildings.
Description of existing view	The view is looking east across Piccadilly Gardens which are predominantly made up of flag paving and turf with some trees. The water fountains and the statue of Queen Victoria can be seen in the view. Several buildings of varying architectural styles can be seen at the edge of

View I - View east from the west side of Piccadilly Gardens	
	the gardens. Glimpses of the road traffic along Piccadilly can be seen through the trees. The open nature of Piccadilly Gardens permits extensive visibility of sky and local rooflines.
Visual Susceptibility	Medium
Value attached to view	High
Visual Sensitivity	High Medium

Table 12.24 Baseline conditions - Illustrative view J

View J – View south west from public footpath along northern edge of New Islington Marina	
Figure Reference	12.23
Distance	Medium
Direction	South west
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility.
Type of Receptor	Residents, users of streets and public spaces, workers.
Reason for view selection	Representative of views from both a key public open space and residential aspects.
Description of existing view	The view is looking south west across the marina with the City Tower building at the end of the view. The middle of the view is dominated by several large trees associated with the green space around the marina. To the right of the view is the Grade II* listed Royal Mills and glimpses of the New Islington Free School. Glimpses of the buildings along Great Ancoats Street can be seen through the trees. The marina comprises flag surfacing and street furniture with some pedestrian access bridges and steps down to water level. Several canal boats are present in the marina. The low-rise nature of the local built form permits open views of the sky
Visual Susceptibility	Medium
Value attached to view	Moderate
Visual Sensitivity	Medium

Table 12.25 Baseline conditions - Illustrative view K

View K – View east from the junction of Oldham Street and Dale Street	
Figure Reference	12.24
Distance	Medium
Direction	East

View K – View east from the junction of Oldham Street and Dale Street	
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility.
Type of Receptor	Highway users, users of streets, workers.
Reason for view selection	Representative of a view from the heart of the Northern Quarter, on the edge of both Smithfield and Stevenson Square Conservation Areas and in the context of listed buildings.
Description of existing view	The view is looking east with Oldham Street in the left of the view and Dale Street in the right of the view. The view down Dale Street includes 3 Grade II listed buildings and other heritage buildings are present on Oldham Street. Dale Street comprises a single carriageway whereas Oldham Street accommodates one way traffic south. Both roads contain footpaths on both sides of the carriageway. The extent of the carriageways and associated highway infrastructure in the foreground, including streetlights and signage, are detracting features of the view. The low-rise nature of the local built form permits relatively open views of the sky. Roof heights are relatively consistent, although variation is created through architectural detailing and articulation.
Visual Susceptibility	Medium
Value attached to view	Moderate
Visual Sensitivity	Medium

Table 12.26 Baseline conditions - Illustrative view L

View L – View south east from Shudehill Metrolink and Bus Station	
Figure Reference	12.25
Distance	Medium
Direction	South east
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility.
Type of Receptor	Highway users, users of streets, workers.
Reason for view selection	Representative of views from a key transport hub, gateway point into the Northern Quarter and on the edge of the Smithfield Conservation Area.
Description of existing view	The view is looking south east down Thomas Street. On the left of the view, Shudehill comprises a single carriageway. On the right of the view, Thomas Street accommodates one way traffic south. Both roads contain footpaths on both sides of the carriageway. The extent of the carriageways and associated highway infrastructure, including streetlights, road markings and signage, are detracting features of the view. There is a glimpse view of the Grade II listed Hare and Hounds public house on Shudehill and the Grade II listed Former Fish Market building can be seen on Thomas Street. The low-rise nature of the local built form

	permits relatively open views of the sky. Roof heights are relatively consistent, although variation is created through architectural detailing and articulation.
Visual Susceptibility	Medium
Value attached to view	Low
Visual Sensitivity	Medium Low

Table 12.27 Baseline conditions - Illustrative view M

View M – View north west from footpath along the southern side of the Rochdale Canal beside the lock at Tariff Street	
Figure Reference	12.26
Distance	Close
Direction	North west
Season and Condition	Early Autumn
Condition and Visibility	Clear. Good visibility.
Type of Receptor	Residents, highway users, users of streets, workers.
Reason for view selection	Representative of a short distant view from a key pedestrian route with a clear sight of the Grade II* listed Brownsfield Mill and in the context of a listed canal lock.
Description of existing view	The view is looking north west along Tariff Street with Brownsfield Mill at the end of the view. The Grade II listed Fourways is visible in the right of the view with a glimpse of the Grade II* listed Jackson's Warehouse behind. The left of the view is dominated by a low-rise commercial building. Hilton Street comprises a single carriageway with some on-road parking, whereas Tariff Street accommodates one way traffic south. Both roads contain footpaths on both sides of the carriageway. The low-rise nature of the local built form permits relatively open views of the sky. Roof heights are relatively consistent, although variation is created through architectural detailing and articulation.
Visual Susceptibility	Medium
Value attached to view	Moderate
Visual Sensitivity	Medium

Summary of Visual Baseline Conditions

- 12.87. The table below shows the varied susceptibility and value of the different views that will potentially experience effects as a result of the Proposed Development. The views from within conservation areas and those which contain or are in the context of listed buildings have the highest sensitivity to effects as a result of their high value. Views from the furthest distance away from the Site and those from low value areas have the lowest sensitivity to effects.

Table 12.28 Summary of visual baseline conditions

View	Susceptibility	Value	Sensitivity
A	Low	Low	Low
B	Low	Low	Low
C	Medium	Moderate	Medium
D	Medium	Low	Medium Low
E	Low	Low	Low
F	Medium	Moderate	Medium
G	Medium	Low	Medium Low
H	Medium	Moderate	Medium
I	Medium	High	High Medium
J	Medium	Moderate	Medium
K	Medium	Moderate	Medium
L	Medium	Low	Medium Low
M	Medium	Moderate	Medium

Identification and Evaluation of Significant Visual Effects

- 12.88. A comprehensive visual assessment has been undertaken to determine the degree of visual effect the Proposed Development would have upon the surrounding landscape. Viewpoints were initially identified through the baseline assessment, and in the field each viewpoint was visited and recorded. Not all views identified in the field have been assessed in this TVA. This is due to the following factors:
- The Site is not visible within the view due to intervening vegetation and landform;
 - The viewpoint is inaccessible due to land ownership; and
 - The demonstrable effect from the viewpoint is represented by other viewpoints identified within the vicinity.
- 12.89. In respect of the first point above, the Site and site proposals may not be visible in all assessed viewpoints. However, the modelling exercise is undertaken in these instances to determine visual effects from this representative location. A total of 13 representative views within the established Zone of Theoretical Visibility (ZTV) (Figure 12.2) have been selected for the analysis of visual effects. A study area radius of 500m from the centre point of the Site has been defined. This is based upon the ZTV, which has identified the likely (or theoretical) extent of visibility of the Proposed Development. Townscape and visual receptors assessed within this TVA are located within the Study Area boundary. Beyond this extent, it is considered that there will be no likely perceivable change to the townscape baseline or to views in the direction of the Site. This is due to the urban context of the Site and the resulting screening effects of surrounding buildings and structures, including railway viaducts, topography and intermittent vegetation and trees.

- 12.90. For the purposes of this report as part of a full planning application, the views include a model of the development proposals. Where the development proposals block model are not visible in the view, a wireframe outline of the development is shown for location purposes.
- 12.91. Key views have been selected at strategic locations around the Site. It is considered 'best practice' to categorise views into 3 ranges depending on the proximity of the viewpoint. The categorisation is based on the scale and nature of the townscape, and is as follows:
- Close: less than 250m
 - Medium: between 250m – 1km
 - Long: More than 1km

Sensitivity of visual receptors

- 12.92. The views shown on Figure 12.11 Viewpoints have been selected in order to be representative of a range of locations and distances from which the Site is visible, and for the type of occupancies (e.g. residential properties), activities (e.g. footpath users) and the expectations of potential receptors (e.g. visitors to the locality). The sensitivity of the receptor has been recorded against each view considered based upon judgements of their susceptibility to the type of intervention proposed and the value attached to the view.

Visual effects

- 12.93. The predicted effects for each of the representative views are assessed in Tables 12.29 to 12.45. These effects are then summarised in Table 12.46.

Table 12.29 Assessment of Visual Effects – Illustrative view A

View A – View south east from Great Ancoats Street at junction with Oldham Road	
Figure Reference	12.14
Proposed view	There will be a substantial alteration to the baseline view, with the proposed tower introducing a large change in scale to Great Ancoats Street. The character style of the proposed building will form a relationship with the aesthetic of the local buildings and the podium elements will be in line with the frontage along Great Ancoats Street. However, the tower will project higher than all adjacent buildings, creating a distinctive focal point and increased roof top articulation.
Magnitude of change	Medium
Predicted visual effects	Minor - Moderate
Nature of Visual Effects	Neutral

Table 12.30 Assessment of Visual Effects – Illustrative view B

View B – View south east from Great Ancoats Street at junction with Blossom Street	
Figure Reference	12.15
Proposed view	There will be discernible change to view, however, the architectural aesthetic and brick cladding of the proposed building will form a positive relationship with the local buildings and a continuation of their architectural aesthetic and scale.
Magnitude of change	Low

Predicted visual effects	Minor
Nature of Visual Effects	Beneficial

Table 12.31 Assessment of Visual Effects – Illustrative view C

View C – View south west from Redhill Street at the junction with the Rochdale Canal	
Figure Reference	12.16
Proposed view	The material character and regularity of the building façade of the Proposed Development will be inkeeping with the buildings in Ancoats, including the line of blocks along Redhill Street. It is considered that the qualities of the Proposed Development will respond more closely to the existing heritage architectural character than that of the dark grey modern apartment and white school building, both on the left side of the view. The tower will introduce a new vertical element, however this will not be the tallest roofscape within the view.
Magnitude of change	Medium
Predicted visual effects	Moderate
Nature of Visual Effects	Neutral

Table 12.32 Assessment of Visual Effects – Illustrative view D

View D – View south west from the public space at the junction of Redhill Street and Great Ancoats Street	
Figure Reference	12.17
Proposed view	There will be a substantial alteration to the baseline view with the proposed building introducing form and scale to the Site which currently contains no built form. However, the podium block of the Proposed Development will be of the same scale as the existing buildings and will provide streetscape amination which will be a substantial enhancement on the existing surface car park. Additionally, the material character and regularity of the building façade of the Proposed Development will respond to the existing heritage architectural character of Brownsfield Mill. The tower will introduce a new vertical element to the view, however, it will not screen any significant vistas.
Magnitude of change	High
Predicted visual effects	Moderate - Major
Nature of Visual Effects	Beneficial

Table 12.33 Assessment of Visual Effects – Illustrative view E

View E – View north west from Great Ancoats Street approaching the junction with Old Mill Street	
Figure Reference	12.18

View E – View north west from Great Ancoats Street approaching the junction with Old Mill Street	
Proposed view	There will be a slightly discernible change to view, however the form and cladding of the proposed building will create a positive relationship with the neighbouring buildings, and form a relationship with their architectural aesthetic. The tower will project much higher than the surrounding buildings, however, it will be partially obscured by Oxygen Tower and street trees.
Magnitude of change	Low
Predicted visual effects	Minor
Nature of Visual Effects	Neutral

Table 12.34 Assessment of Visual Effects – Illustrative view F

View F – View north from pedestrian footbridge at Piccadilly Basin at the end of Brewer Street	
Figure Reference	12.19
Proposed view	There are already several modern buildings in the view including Burlington House which is contemporary in character. Additionally, the apartment block in the left foreground and the CitiPark car park façade are considerable modern elements. The Proposed Development will sit behind the existing modern buildings and will be a prominent element, however, it will not be considered substantially uncharacteristic of the view. The tower will introduce a new vertical element to the view that will extend above Burlington House, however, it will not screen any significant vistas, including that of Brownsfield Mill.
Magnitude of change	Medium
Predicted visual effects	Moderate
Nature of Visual Effects	Neutral

Table 12.35 Assessment of Visual Effects – Illustrative view G

View G – View north from Tarriff Street bridge	
Figure Reference	12.20
Proposed view	There will be a substantial alteration to the baseline view, with the proposed tower obscuring a large proportion of the left side of the view and the podium impacting on the view of Brownsfield Mill. However, the material character and regularity of the architecture of the proposed building will be in keeping with the aesthetic of the neighbouring buildings.
Magnitude of change	High
Predicted visual effects	Moderate - Major
Nature of Visual Effects	Neutral

Table 12.36 Assessment of Visual Effects – Illustrative view H

View H – View north east from the junction between Port Street and Hilton Street	
Figure Reference	12.21
Proposed view	There will be a substantial alteration to the baseline view. The tower will be of a much larger scale compared to existing buildings, project much higher than all adjacent buildings and will become the dominant feature in the view. The form and aesthetic of the proposed building will be notably different to the buildings in the foreground.
Magnitude of change	High
Predicted visual effects	Moderate - Major
Nature of Visual Effects	Adverse

Table 12.37 Assessment of Visual Effects – Illustrative view I

View I - View east from the west side of Piccadilly Gardens	
Figure Reference	12.22
Proposed view	There will be no alteration to or loss of the view.
Magnitude of change	Negligible
Predicted visual effects	Negligible

Table 12.38 Assessment of Visual Effects – Illustrative view J

View J – View south west from public footpath along northern edge of New Islington Marina	
Figure Reference	12.23
Proposed view	The material character and regularity of the building façade of the Proposed Development will respond to the existing heritage architectural character of the buildings in Ancoats including the line of blocks along Redhill Street. The podium block of the Proposed Development will continue the form of the line of blocks along Redhill Street. The tower will introduce a new vertical element, however there are already glimpsed views of City Tower. The Proposed Development will be a prominent element but will not be substantially uncharacteristic of the view.
Magnitude of change	Medium
Predicted visual effects	Moderate
Nature of Visual Effects	Neutral

Table 12.39 Assessment of Visual Effects – Illustrative view K

View K – View east from the junction of Oldham Street and Dale Street	
Figure Reference	12.24
Proposed view	There will be no alteration to or loss of the view.
Magnitude of change	Negligible
Predicted visual effects	Negligible

Table 12.40 Assessment of Visual Effects – Illustrative view L

View L – View south east from Shudehill Metrolink and Bus Station	
Figure Reference	12.25
Proposed view	There will be no alteration to or loss of the view.
Magnitude of change	Negligible
Predicted visual effects	Negligible

Table 12.41 Assessment of Visual Effects – Illustrative view M

View M – View north west from footpath along the southern side of the Rochdale Canal beside the lock at Tariff Street	
Figure Reference	12.26
Proposed view	The material character and regularity of the building façade of the Proposed Development will respond to the existing heritage architectural character of Brownsfield Mill at the end of the view and Fourways House in the right of the view. The Proposed Development will sit behind the existing modern commercial building and will be a prominent element, however, it will not be considered substantially uncharacteristic of the view. The tower will introduce a new vertical element to the view that will extend above the office block, however, it will not screen any significant vistas, including that of Brownsfield Mill.
Magnitude of change	Medium
Predicted visual effects	Moderate
Nature of Visual Effects	Neutral

Summary of visual effects

- 12.94. The Site is visible from a range of viewpoints as identified in Figure 12.11 Viewpoints. The views are representative of a range of distances, locations, occupancies and activities within the townscape.
- 12.95. The potential visible effects of the Proposed Development have been considered which includes for the height, massing and position of the development within the Site. The modelling of the Proposed

Development has been based on the masterplan by SimpsonHaugh and is meant for illustrative purposes only. The Proposed Development will introduce visual effects to all but three of the views.

12.96. The predicted visual effects range from Moderate - Major Beneficial to Moderate - Major Adverse.

Table 12.42 Summary of Visual Effects

View	Visual Sensitivity	Magnitude of Change	Visual Effect and Nature
A	Low	Medium	Minor - Moderate Neutral
B	Low	Low	Minor Beneficial
C	Medium	Medium	Moderate Neutral
D	Medium Low	High	Moderate – Major Beneficial
E	Low	Low	Minor Neutral
F	Medium	Medium	Moderate Neutral
G	Medium Low	High	Moderate – Major Neutral
H	Medium	High	Moderate - Major Adverse
I	High Medium	Negligible	Negligible
J	Medium	Medium	Moderate Neutral
K	Medium	Negligible	Negligible
L	Medium Low	Negligible	Negligible
M	Medium	Medium	Moderate Neutral

Mitigation Measures

Effects of construction

12.97. In order to facilitate any development on the Site, there will be a period of construction activity, estimated at 2-3 years. A range of construction activities are anticipated to be carried out, with the potential to result in direct and indirect effects on townscape character and visual amenity. These include:

- Site clearance, including the removal of existing buildings, surfaces, materials, and vegetation from the site;
- Temporary footpath diversions;
- Establishment of temporary site compounds and hoarding;
- Construction of temporary access points into the site;
- Temporary working areas within the site;
- Erection of temporary batching plants and tower cranes;

- Excavation, removal and stockpiling of materials and soils;
- Construction of hard-standings;
- Underground and over-ground service installation and diversion;
- Temporary traffic management signs and signals on local roads;
- Movements of construction traffic and other vehicles; and
- Construction of the new building.

12.98. The construction of the Proposed Development could give rise to the below temporary effects on townscape character and visual amenity. As construction activity is of a temporary nature, the effects will be over a relatively short period of time. The effects are reversible and will only be experienced during the construction phase. These include:

- Effects arising from changes to the structure of the townscape within the site area and effects on its immediate setting;
- Effects to townscape character or visual amenity within the wider study area as a result of visibility of construction activities and plant such as the presence and occupation of tower cranes and demolition works; and
- Effects of temporary site infrastructure, such as site traffic and construction compounds especially those located in areas adjacent to sensitive townscape and visual receptors.

Mitigation of construction effects

12.99. The following mitigation measures are considered industry standard and these would be expected as a minimum in order to mitigate effects. Demolition and construction methodology will be based on minimising the impact upon the surrounding area by making the site as self-sufficient within its boundary as possible and a commitment to implementing industry best practice. Impact mitigation measures will be set out in a Construction Environmental Management Plan (CEMP) and will include the measures to minimise and manage potential townscape and visual effects asset out below:

- The work site will be surrounded by hoardings to reduce visual effects due to the presence of construction traffic, plant and equipment, as well as demolition of existing and construction of new built fabric. The hoardings will create an orderly appearance to the edge of the site and will be a minimum of 2.4m high, maintained in good condition and will include observation windows to allow the public to view progress on the site;
- Lighting will be provided to site boundaries with precautions taken to avoid shadows being cast onto surrounding footpaths, roads, amenity areas and residential properties;
- The roads providing access to the work sites will be maintained free of excessive dust and mud as far as is reasonably practicable. The surrounding roads and pavements will be maintained to a reasonable standard;
- To help keep areas outside the work sites tidy, the outside perimeters will be maintained free of weeds and litter;
- Because people within surrounding buildings will have views over the work sites, the internal image of the site will, as far as is reasonable, be organised, clean and tidy, and maintained through good housekeeping;
- Regard will also be given to the impact site lighting could have on surrounding receptors to ensure it is located and aligned so as not to intrude into nearby properties;
- The timing and phasing of construction occupations, including the phased reduction in the worksite area as works progress;
- The location of plant and equipment within the worksite;

- The location and height of temporary site accommodation and materials storage; and
- The choice of an appropriate neutral colour applied to site hoarding

Effects of lighting

- 12.100. The Proposed Development will be subject to an internal and external lighting scheme, expected to consist of lit internal spaces at high levels with greater and more intensely lit internal and external spaces closer to ground level. This will be developed post planning but is likely to include public realm and feature architectural lighting, highways lighting to Great Ancoats Street and safety lighting to building escape routes, in addition to internal lighting to ground floor units. The greater heights of the building will extend the visibility of this lighting. This will be noticeable in all views in which the Proposed Development is visible.
- 12.101. This increased lighting will be seen in the context of other large-scale buildings that already emit high levels of lighting including The Astley, Oxid House and Nuovo Apartments. Although of lower height, surrounding bars and restaurants generate evening lighting use, while surrounding highways, particularly Great Ancoats Street are subject to high levels of lighting through the night. A greater level of lighting to the development will also be positive and activate and animate the streetscape for those walking along Great Ancoats Street, and the change to the existing baseline should be considered in this context.

Mitigating lighting effects

- 12.102. The amount of light and 'throw' or 'spill' can be mitigated and reduced through the use of appropriate shrouds, angled fittings, and low energy light fittings, subject to detailed technical design. This is beyond the scope of this general assessment, which is based on the general assumptions of the likely lighting schemes typical of this form of development and the mitigation methods and technologies currently used on similar developments.

Predicted effects of lighting

- 12.103. Taken within the context of these mitigation measures and the existing urban setting, it can be concluded that there will be an increase in night-time lighting effects. However, this is not necessarily inappropriate for the city centre location of the Site. Effects on townscape character and visual amenity due to lighting are therefore to be assessed as being Minor Adverse.

Construction Magnitude of Change (Townscape)

- 12.104. It is considered that the construction activity associated with the Proposed Development will result in direct, albeit localised and temporary, effects upon TCA 4 Piccadilly. Increased construction traffic may disrupt circulation at intermittent times during the construction period. Hoardings will be erected around the boundaries, enclosing the Site. As construction progresses, a central concrete core and tall plant including tower cranes will be visible within the skyline. The change brought about by construction would only influence the locality of TCA 4 Piccadilly, within which the construction work is located. The likely short-term Magnitude of Change to TCA 4 Piccadilly during the construction period will be Medium.
- 12.105. There will be no direct effects on the townscape character of TCA 1 New Islington, TCA 2 Ancoats and TCA 3 Northern Quarter as a result of the construction phase of the Proposed Development. Indirect effects will primarily be as a result of inter-visibility between construction work associated with the Proposed Development. Any change to the character of these TCAs as a result of inter-visibility will likely be minor and limited to some glimpsed views of tower crane activity appearing above built form and against the skyline. Site traffic, hoarding and plant may introduce a minor difference to aesthetic and perceptual qualities at a closer distance within these TCA where they join the Site, however these changes are considered to not be uncharacteristic when set within the attributes of the receiving townscape. In summary, the likely short-term magnitude of change to these TCAs during the construction period will be Low.

- 12.106. It is expected that there will be no perceivable change to the townscape character of TCA 5 Retail Core and TCA 6 Kampus during the construction period on Site. It is unlikely that there will be any discernible inter-visibility between these TCAs, which would otherwise result in change to the character of the TCAs. Overall, their baseline condition and intrinsic qualities will remain unchanged. In summary, the likely magnitude of change to these TCAs during the construction period will be Negligible.

Construction Magnitude of Change (Visual)

- 12.107. It is anticipated that some visibility of construction activity on Site will be apparent from all but three selected viewpoints. This will in all instances, most likely comprise some glimpsed visibility of tower crane activity that will project above the Site and nearby buildings and vegetation.
- 12.108. More prominent visibility of tower crane activity is likely to be observed from View A (view south east from Great Ancoats Street at junction with Oldham Road), View B (view south east from Great Ancoats Street at junction with Blossom Street) and View D (view south west from the public space at the junction of Redhill Street and Great Ancoats Street). From these locations a central concrete core and tower crane activity will break the skyline and likely be noticeable to the observer. In summary the likely short-term magnitude of change to Views A, B and D will be Medium.
- 12.109. In some instances, tower crane activity associated with the Site may be less apparent. It would be set to the backdrop of surrounding built form and appear less prominent, or predominantly obscured from view by a layering of built form. The magnitude of change from Views C, E, F, G, H, J, M will be Low.
- 12.110. From Views I, K and J construction activity will not be visible and therefore the magnitude of change from these views will be Negligible.

Completed development

- 12.111. No further mitigation measures have been identified as being possible in addition to those 'embedded' within the scheme as part of the design process. It is considered that no additional mitigation measures would further reduce the findings of the assessment in Tables 12.28 to 12.46.

Cumulative Effects

- 12.112. The purpose of cumulative landscape and visual effects is to identify additional changes caused by the Site in addition to other similar developments, or as the combined effect of a set of developments taken together.
- 12.113. The assessment of cumulative effects in this report focuses specifically on the effects of the Site in addition to other significant developments of a similar scale and type within a 500m radius of the Site. The Site will be assessed for landscape and visual effects within the context of the cumulative sites. The sites selected for the cumulative assessment are primarily situated within the extents of the Study Area, although a small number are situated just outside and are included for comprehensiveness. Further beyond this extent, it is anticipated that there will be no likely perceivable change to views of the Proposed Development on Site, and no likely cumulative townscape effects in relation to the Proposed Development on Site. The assessment presupposes the cumulative schemes identified will be built as per the planning proposals.
- 12.114. With respect to visual effects in particular, the level of cumulative effects are assessed with regards to what is visible within the observer's arc of vision at the same time, without moving their head, as described within the GLVIA⁹.
- 12.115. Refer to Appendix 12.2 TVA Assessment Methodology for details of assessment methodology, to Appendix 12.4 Committed Developments for a list of committed developments and also to Figures 12.1 Study Area, 12.9 Cumulative Sites, 12.10 Townscape Character Areas (TCAs) and 12.11 Viewpoints.

Townscape

- 12.116. The study area comprises 6 Townscape Character Areas (TCAs) as illustrated within Figure 12.10 Townscape Character Areas. Each TCA represents a distinct area of individual local townscape character within the local vicinity of the Site. The 9 cumulative sites within Figure 12.9 Cumulative Sites are distributed amongst the study area and are situated within various TCAs.
- 12.117. Tables 12.42 to 12.47 below identify the cumulative townscape effects each TCA will experience as a result of the combined presence of cumulative sites in addition to the Proposed Development on Site.

Table 12.42 TCA 1 Cumulative Effects

TCA 1 New Islington		
Townscape Sensitivity	Medium Low	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Low	Low
Townscape Effects	Minor - Moderate Neutral	Minor - Moderate Neutral
Comments	TCA 1 does not include any cumulative sites. The scale of the cumulative sites in the nearby TCA 4 are of a medium scale (7-9 storeys) and only site 11 is on the edge of the TCA that interacts with TCA 1. As a result, the perceived change to the townscape brought about by the Proposed Development will remain at Minor Neutral.	

Table 12.43 TCA 2 Cumulative Effects

TCA 2 Ancoats		
Townscape Sensitivity	High Medium	
Cumulative Sites Present	Site 14, Site 17, Site 18	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Low	Low
Townscape Effects	Moderate Beneficial	Moderate Beneficial
Comments	Cumulative sites 14, 17 and 18 will introduce a combination of large scale and contemporary buildings to the north western edge of the TCA. In particular, site 18 will comprise a 16-storey tower which will be significantly taller than the surrounding existing built form. The other cumulative sites are located outside the TCA and any influence from them will be negligible due to their distance from the TCA. Given the scale of the Proposed Development and its distance to the cumulative sites, the perceived change to the townscape brought about by the Proposed Development on Site remain at Moderate Adverse.	

Table 12.44 TCA 3 Cumulative Effects

TCA 3 Northern Quarter		
Townscape Sensitivity	High Medium	
Cumulative Sites Present	Site 12	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Low	Low
Townscape Effects	Moderate Beneficial	Moderate Beneficial
Comments	Cumulative site 12 is of a medium scale (7 storeys) and will introduce a contemporary style building north souther edge of the TCA. The other cumulative sites are located outside the TCA and any influence from them will be negligible due to their distance from the TCA. Given the scale of the Proposed Development, the perceived change to the townsape brought about by the Proposed Development on Site remain at Moderate Adverse.	

Table 12.45 TCA 4 Cumulative Effects

TCA 4 Piccadilly		
Townscape Sensitivity	Low	
Cumulative Sites Present	Site 9, Site 10, Site 11, Site 13, Site 16	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Medium	Low
Townscape Effects	Minor - Moderate Beneficial	Minor Beneficial
Comments	Cumulative sites 9, 10, 11, 13 and 16 will introduce a combination of large scale and contemporary buildings across a large area of the TCA. They will increase the overall scale of built form in the area and reinforce the local urban grain by infilling currently vacant sites. The other cumulative sites are located outside the TCA and any influence from them will be negligible due to their distance from the TCA. The perceived change to the townsape brought about by the Proposed Development on Site will be reduced by the cumulative sites and will become Minor Beneficial.	

Table 12.46 TCA 5 Cumulative Effects

TCA 5 Retail Core		
Townscape Sensitivity	Medium Low	
Cumulative Sites Present	Site 12	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Negligible	Negligible
Townscape Effects	Negligible	Negligible
Comments	Individually, the Proposed Development on Site will not result in any townscape effects to TCA 5. There will be no perceivable alteration to the magnitude of change brought about by the introduction of any cumulative sites and the townscape effects will remain Negligible.	

Table 12.47 TCA 6 Cumulative Effects

TCA 6 Kampus		
Townscape Sensitivity	Low	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Negligible	Negligible
Townscape Effects	Negligible	Negligible
Comments	Individually, the Proposed Development on Site will not result in any townscape effects to TCA 6. There will be no perceivable alteration to the magnitude of change brought about by the introduction of any cumulative sites and the townscape effects will remain Negligible.	

Visual

- 12.118. An assessment of 13 representative views of the Site has been undertaken. All viewpoints are located within a study area radius of 1km and are based upon a field survey undertaken in October 2021 and an exercise that has identified the ZTV of the Proposed Development. Refer to Figure 12.2 ZTV, Figure 12.11 Viewpoints and Appendix 12.1 Accurate Visual Representations.
- 12.119. The viewpoints assessed include the cumulative sites detailed within Appendix 12.4 Committed Developments. Tables 12.48 to 12.60 below identify the cumulative visual effects each viewpoint will experience as a result of the combined presence of cumulative sites within the view and the Proposed Development on Site.

Table 12.48 View A Cumulative Effects

View A – View south east from Great Ancoats Street at junction with Oldham Road		
Visual Sensitivity	Low	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Medium	Medium
Visual Effects	Minor - Moderate Neutral	Minor- Moderate Neutral
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.49 View B Cumulative Effects

View B – View south east from Great Ancoats Street at junction with Blossom Street		
Visual Sensitivity	Low	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Low	Low
Visual Effects	Minor Beneficial	Minor Beneficial
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.50 View C Cumulative Effects

View C – View south west from Redhill Street at the junction with the Rochdale Canal		
Visual Sensitivity	Medium	
Cumulative Sites Present	Site 16	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Medium	Medium
Visual Effects	Moderate Neutral	Moderate Neutral

Comments	Although cumulative site 16 will introduce another tower to the distant skyline of the city centre, it will not be distinctly perceivable within the context of the view and the Proposed Development. Therefore, there will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.
-----------------	--

Table 12.51 View D Cumulative Effects

View D – View south west from the public space at the junction of Redhill Street and Great Ancoats Street		
Visual Sensitivity	Medium Low	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	High	High
Visual Effects	Moderate – Major Beneficial	Moderate – Major Beneficial
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.52 View E Cumulative Effects

View E - View north west from Great Ancoats Street approaching the junction with Old Mill Street		
Visual Sensitivity	Low	
Cumulative Sites Present	Site 16	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Low	Low
Visual Effects	Minor Neutral	Minor Neutral
Comments	Although cumulative site 16 will introduce another tower to the distant skyline of the city centre, it will not be distinctly perceivable within the context of the view and the Proposed Development. Therefore, there will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.53 View F Cumulative Effects

View F - View north from pedestrian footbridge at Piccadilly Basin at the end of Brewer Street	
Visual Sensitivity	Medium
Cumulative Sites Present	Site 9

	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Medium	Low
Visual Effects	Moderate Neutral	Minor - Moderate Neutral
Comments	Cumulative site 9 will be a prominent element of built form that will extend across a large portion of the right side of the view. It will also introduce substantially different aesthetic and perceptual qualities to the view, by changing the existing area of surface car park into a new large scale development that projects above the existing roof line. The perceived change to the view brought about by the Proposed Development on Site will be notably reduced.	

Table 12.54 View G Cumulative Effects

View G - View north from Tarriff Street bridge		
Visual Sensitivity	Medium Low	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	High	High
Visual Effects	Moderate - Major Neutral	Moderate – Major Neutral
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.55 View H Cumulative Effects

View H - View north east from the junction between Port Street and Hilton Street		
Visual Sensitivity	Medium	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	High	High
Visual Effects	Moderate - Major Adverse	Moderate-Major Adverse
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.56 View I Cumulative Effects

View I - View east from the west side of Piccadilly Gardens		
Visual Sensitivity	High Medium	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Negligible	Negligible
Visual Effects	Negligible	Negligible
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.57 View J Cumulative Effects

View J - View south west from public footpath along northern edge of New Islington Marina		
Visual Sensitivity	Medium	
Cumulative Sites Present	Site 9, Site 10, Site 16	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Medium	Medium
Visual Effects	Moderate Neutral	Moderate Neutral
Comments	Glimpsed views of sites 9 and 10 can be seen through the trees on the left hand side of the view. Although cumulative site 16 will introduce another tower to the distant skyline of the city centre, it will not be distinctly perceivable within the context of the view and the Proposed Development. Therefore, there will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.58 View K Cumulative Effects

View K - View east from the junction of Oldham Street and Dale Street		
Visual Sensitivity	Medium	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Negligible	Negligible
Visual Effects	Negligible	Negligible
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.59 View L Cumulative Effects

View L – View south east from Shudehill Metrolink and Bus Station		
Visual Sensitivity	Medium Low	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Negligible	Negligible
Visual Effects	Negligible	Negligible
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

Table 12.60 View M Cumulative Effects

View M - View north west from footpath along the southern side of the Rochdale Canal beside the lock at Tariff Street		
Visual Sensitivity	Medium	
Cumulative Sites Present	None	
	Proposed Development	With the addition of Cumulative Sites
Magnitude of change	Medium	Medium
Visual Effects	Moderate Neutral	Moderate Neutral
Comments	There will be no alteration to the perceived change brought about by the Proposed Development on Site as a result of the cumulative sites.	

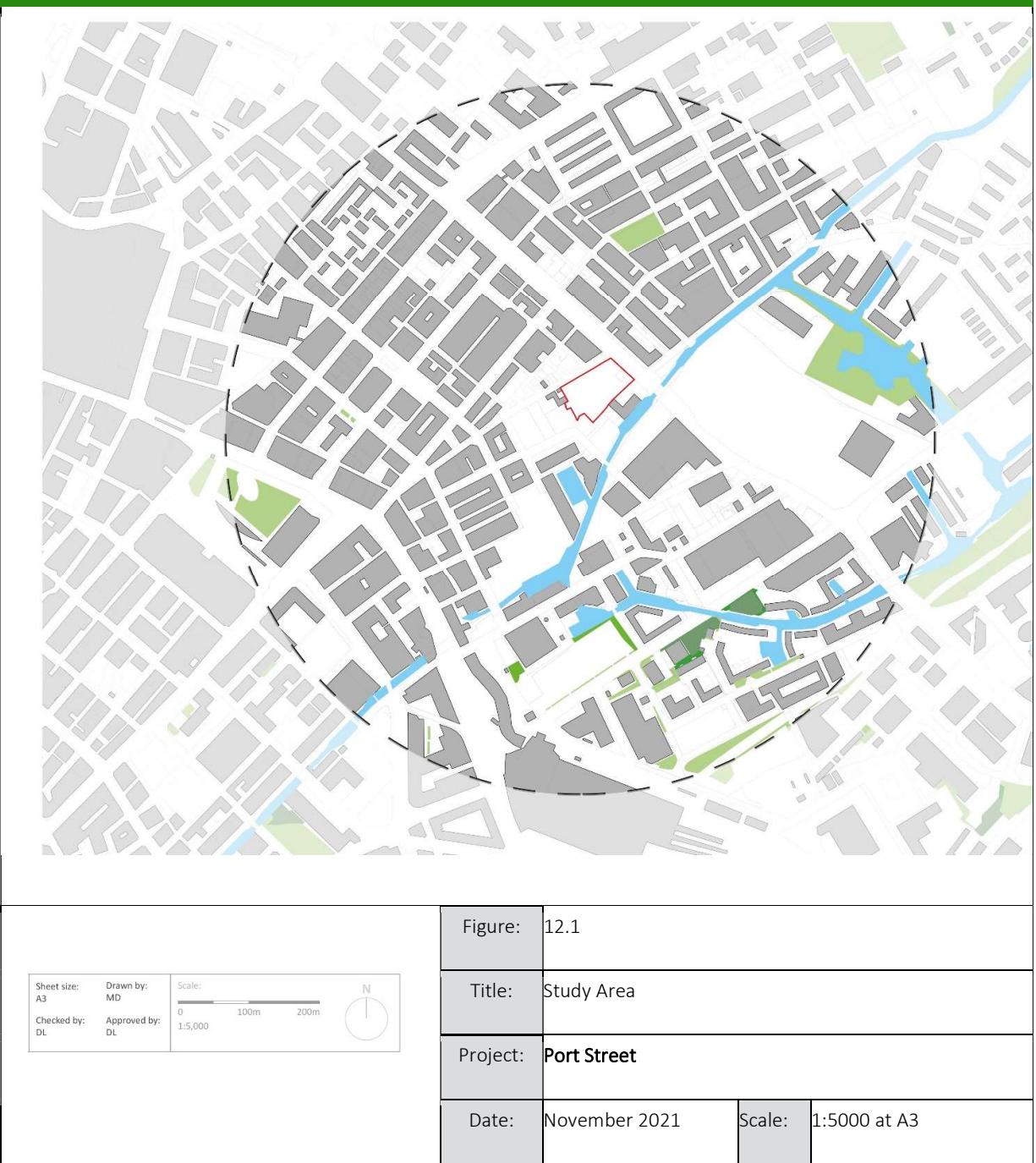
Residual Effects

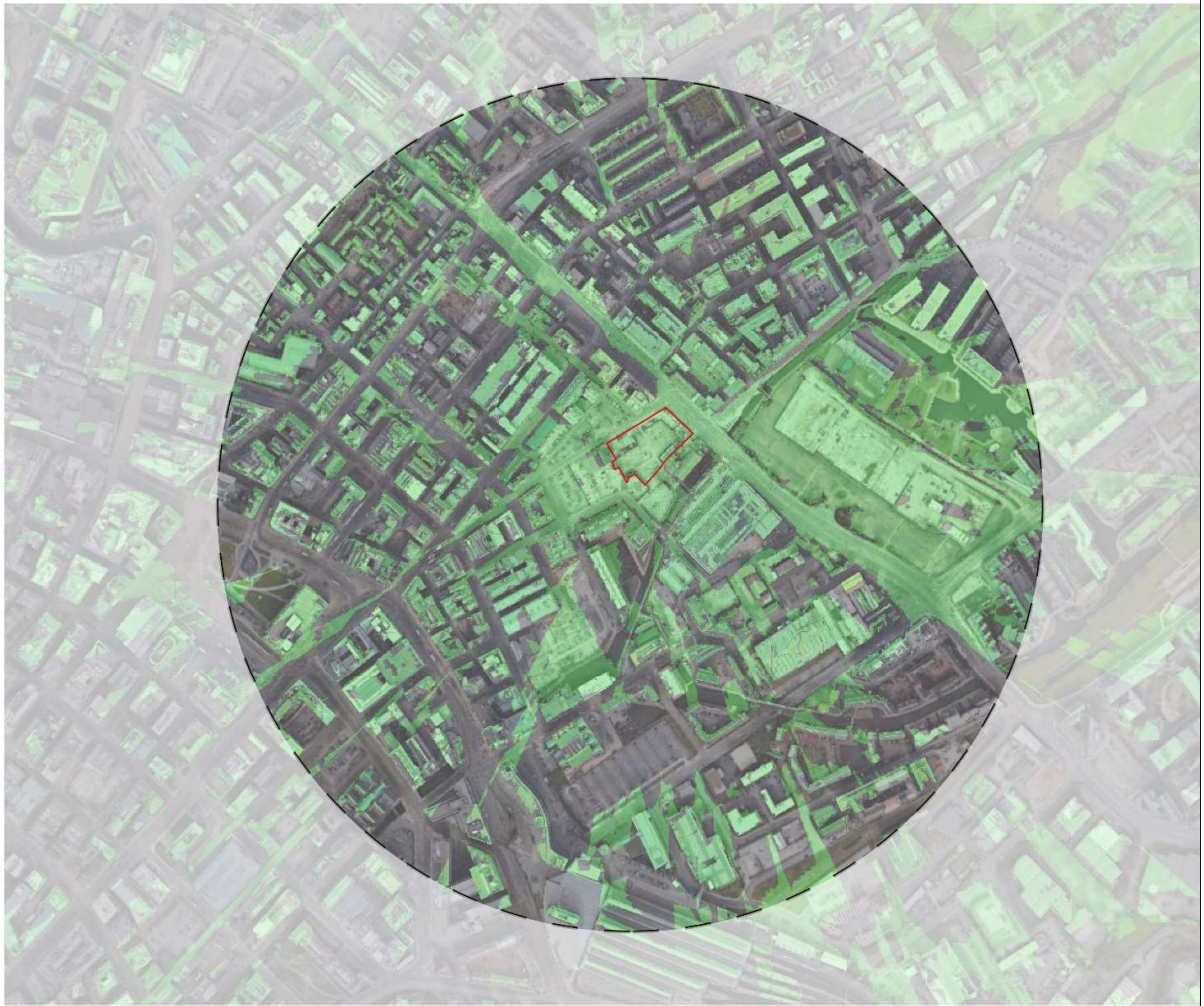
- 12.120. It is anticipated that the implementation of mitigation measures would reduce the overall effect on each townscape receptor during construction. However, it is not anticipated that this will be enough to alter the results of the assessment already described and summarised in Tables 12.42 to 12.60.
- 12.121. The residual effects described will be temporary and reversible in nature lasting only for the duration of the construction works. Any residual effects will generally arise from construction activity within the Site and immediate townscape and visible from some nearby residential receptors and users of roads and pedestrians.
- 12.122. No further mitigation measures have been identified for the completed development and therefore the results of the assessment already described in Tables 12.42 to 12.60 also apply as the residual effect.

Reference List

12.123. This ES Chapter has been prepared by reference to the following:

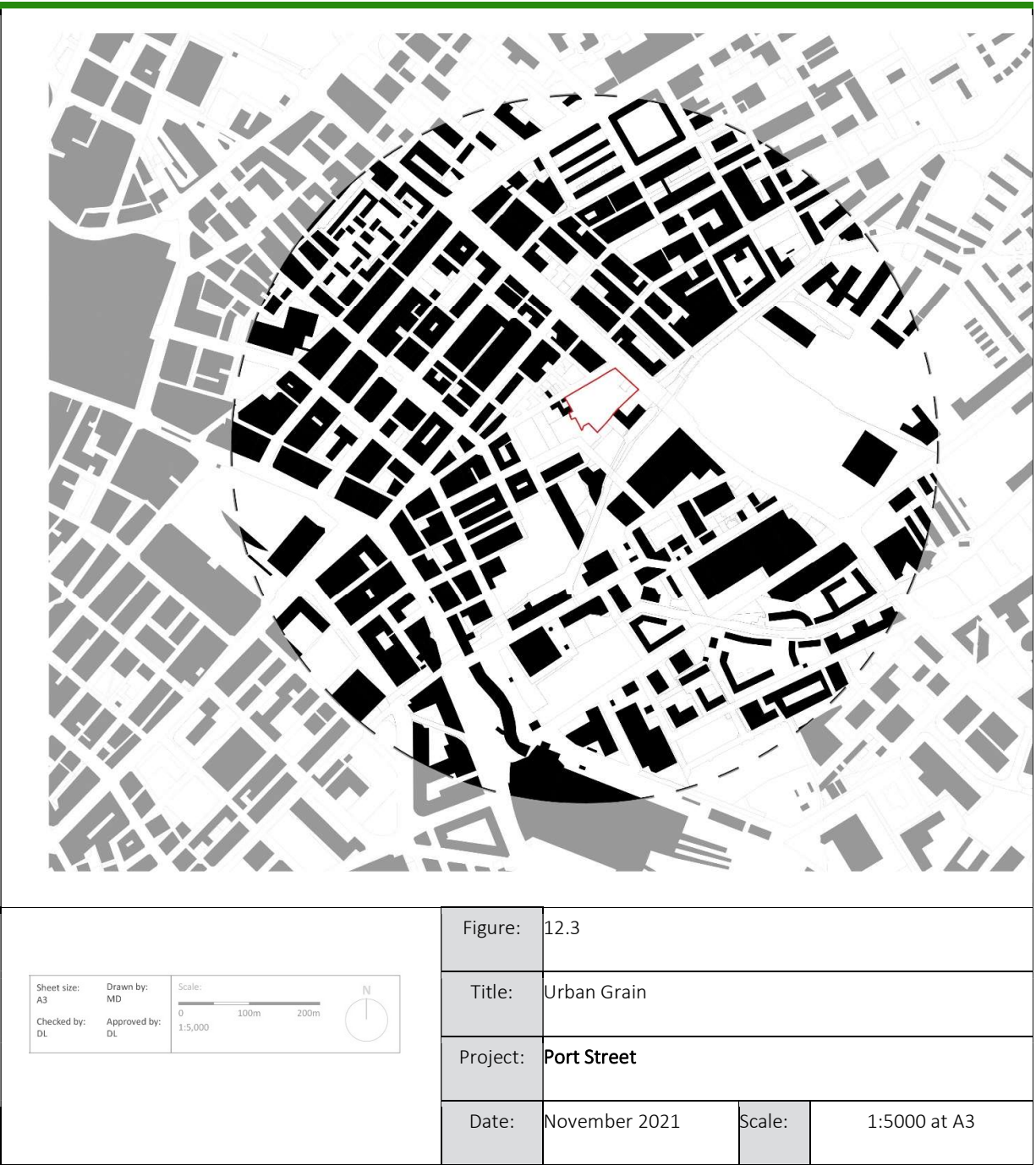
- Council of Europe, The European Landscape Convention text [internet]. Strasbourg: Council of Europe; 2020 [cited 2021 November 16]. Available from: <https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=219>
- Central Government, Town and Country Planning Act 1990 [internet]. London: Central Government; 1990 [cited 2021 November 16]. Available from: <https://www.legislation.gov.uk/ukpga/1990/8/contents>
- Ministry of Housing, Communities and Local Government, National Planning Policy Framework [internet]. London: Ministry of Housing, Communities and Local Government; 2019 [cited 2021 September 29]. Available from: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Manchester City Council, Manchester's Local Development Framework Core Strategy Development Plan Document [internet]. Manchester: Manchester City Council; 2012 [cited 2021 September 29]. Available from: https://secure.manchester.gov.uk/downloads/download/5672/core_strategy
- Manchester City Council, 2020 Manchester Brownfield Land Register [internet]. Manchester: Manchester City Council; 2020 [cited 2021 December 01]. Available from: https://www.manchester.gov.uk/downloads/download/6830/2017_manchester_brownfield_land_register
- Manchester City Council, Guide to Development in Manchester - Supplementary Planning Document and Planning Guidance (SPD) [internet]. Manchester: Manchester City Council; 2007 [cited 2021 October 5]. Available from: https://secure.manchester.gov.uk/site/scripts/download_info.php?downloadID=644&fileID=1424
- Manchester City Council, Residential Quality Guide [internet]. Manchester: Manchester City Council; 2017 [cited 2021 December 01]. Available from: https://www.manchester.gov.uk/downloads/download/6682/residential_quality_guide
- Deloitte Real Estate, SimpsonHaugh and Partners, Belgravia Living Group, Piccadilly Basin Strategic Regeneration Framework [internet]. Manchester: Deloitte; 2016 [cited 2021 September 29]. Available from: https://secure.manchester.gov.uk/downloads/download/6491/piccadilly_basin_srf_october_2016_final
- Landscape Institute, Institute of Environmental Management & Assessment. Guidelines for Landscape & Visual Impact Assessment, 3rd ed. London: Routledge; 2013
- Manchester City Council, City Centre Strategic Plan 2015-2018 [internet]. Manchester: Manchester City Council; 2016 [cited 2021 September 29]. Available from: https://secure.manchester.gov.uk/downloads/file/24745/city_centre_strategic_plan
- Natural England, National Character Area profile: 55: Manchester Conurbation [internet]. London: Natural England; 2013 [cited 2021 September 29]. Available from: <http://publications.naturalengland.org.uk/publication/5989113924681728?category=587130>
- Land Use Consultants, Greater Manchester Landscape Character and Sensitivity Assessment [internet]. Manchester: Land Use Consultants; 2018 [cited 2021 September 29]. Available from: <https://www.greatermanchester-ca.gov.uk/media/1727/greater-manchester-landscape-character-and-sensitivity-report.pdf>
- Whyard J. Strategic level city-wide urban characterisation study [internet]. Manchester: Manchester City Council; 2010 [cited 2021 September 29]. Available from: https://www.manchester.gov.uk/downloads/500002/council_policies_and_strategies
-

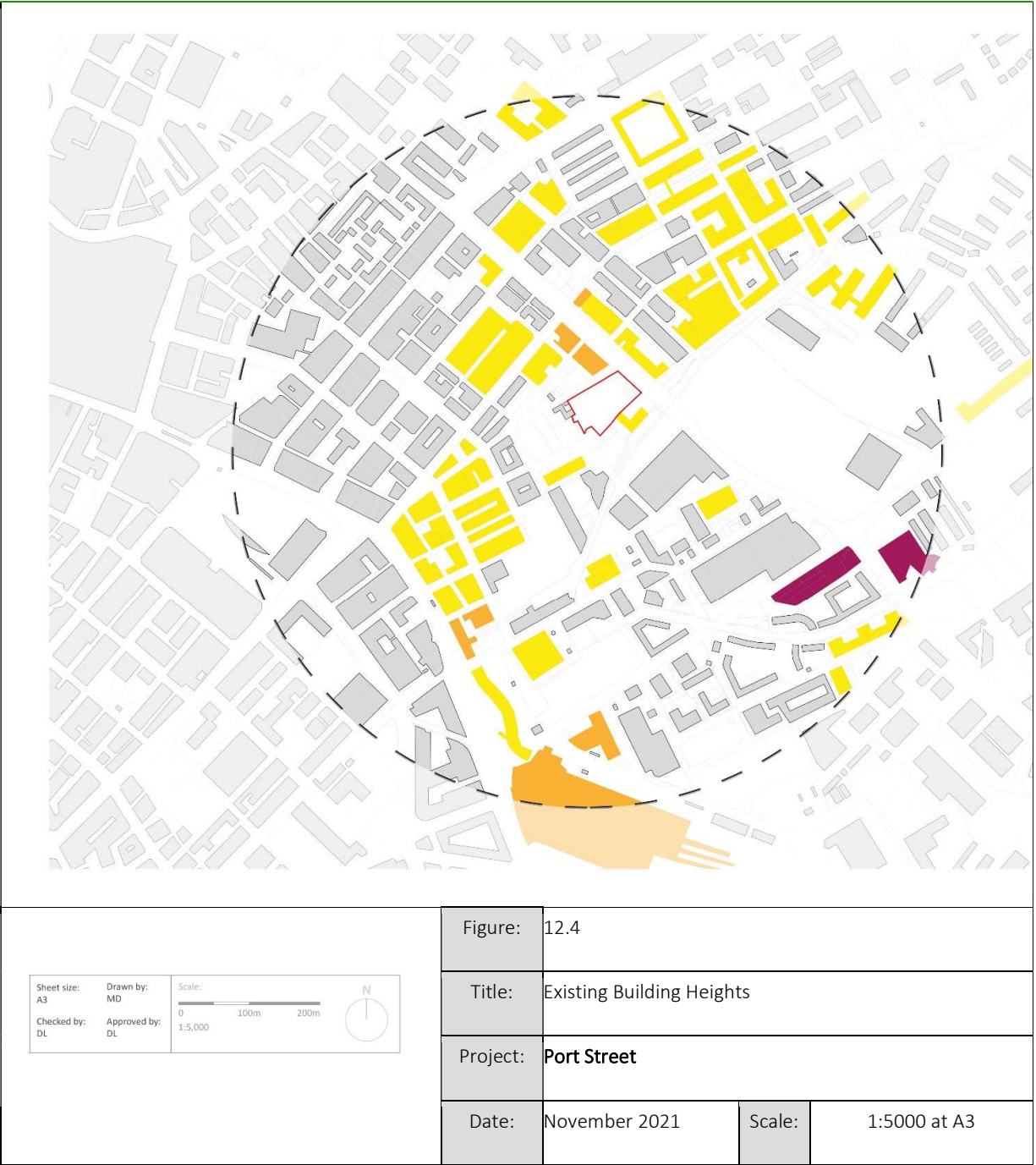




Sheet size: A3	Drawn by: MD	Scale: 0 100m 200m	N
Checked by: DL	Approved by: DL	1:5,000	

Figure:	12.2		
Title:	Zone of Theoretical Visibility (ZTV)		
Project:	Port Street		
Date:	November 2021	Scale:	1:5000 at A3

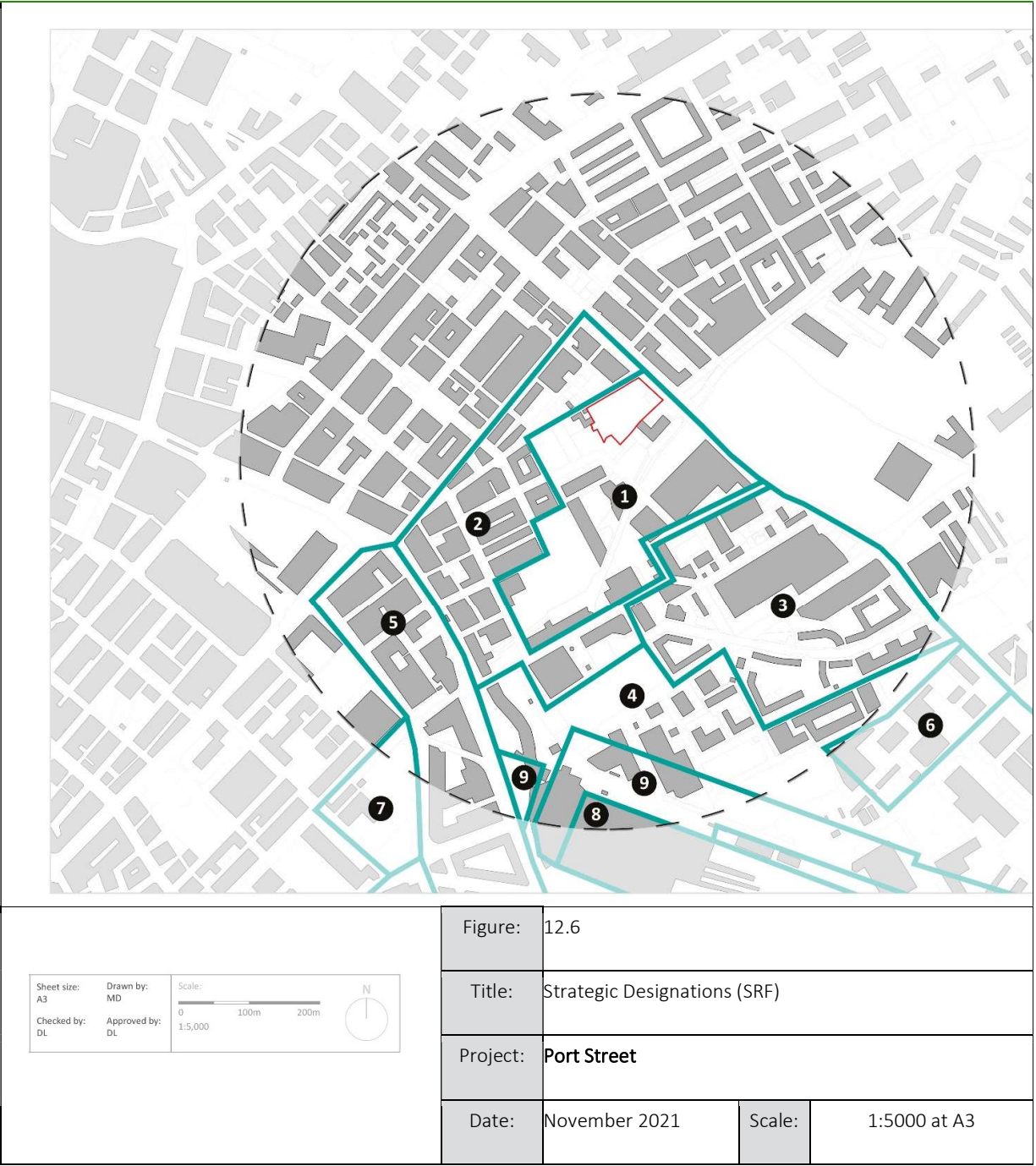






Sheet size: A3	Drawn by: MD	Scale: 0 100m 200m	N
Checked by: DL	Approved by: DL	1:5,000	

Figure:	12.5		
Title:	Heritage Designations		
Project:	Port Street		
Date:	November 2021	Scale:	1:5000 at A3





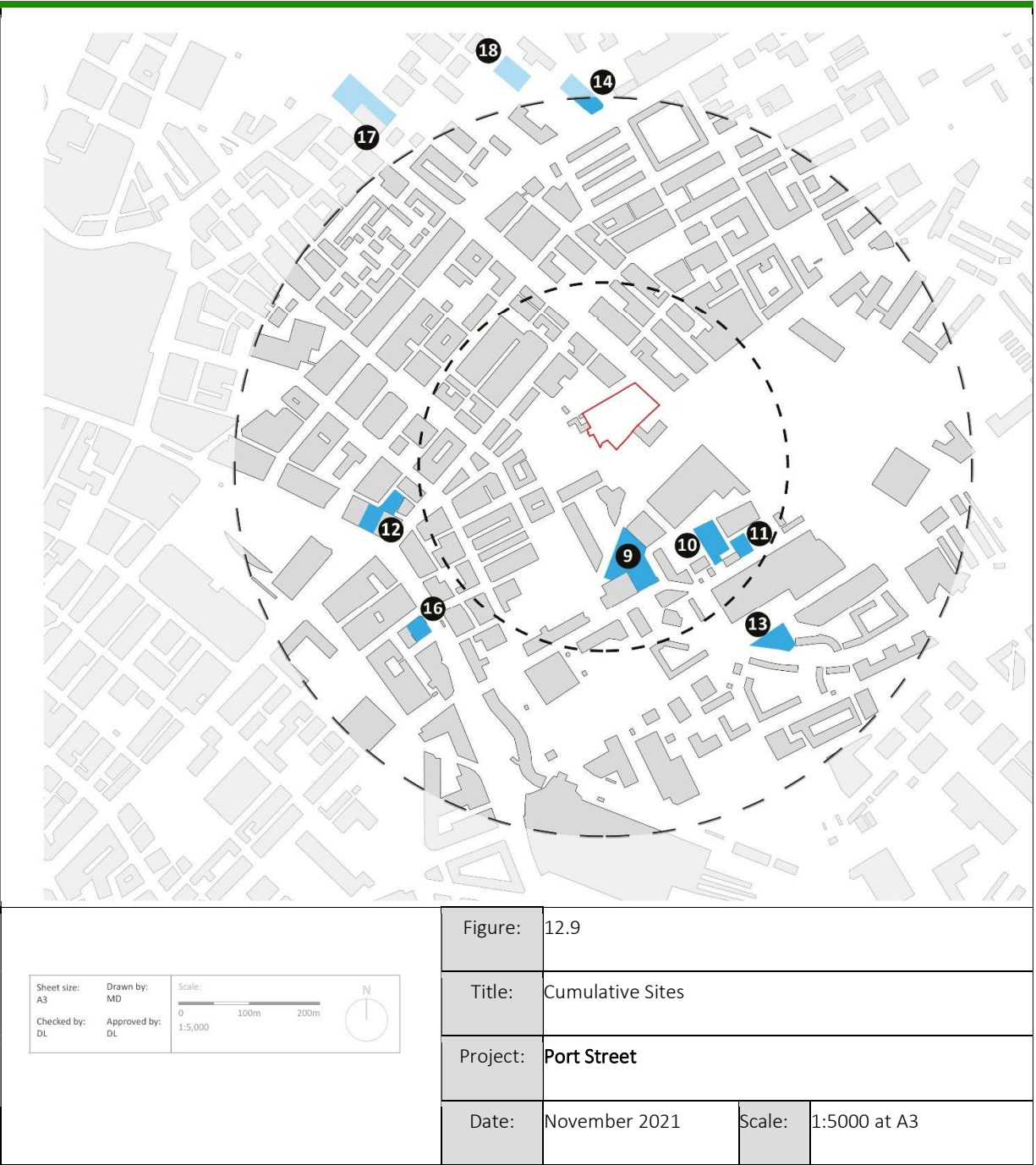
Sheet size: A3	Drawn by: MD	Scale: 0 100m 200m	N
Checked by: DL	Approved by: DL	1:5,000	

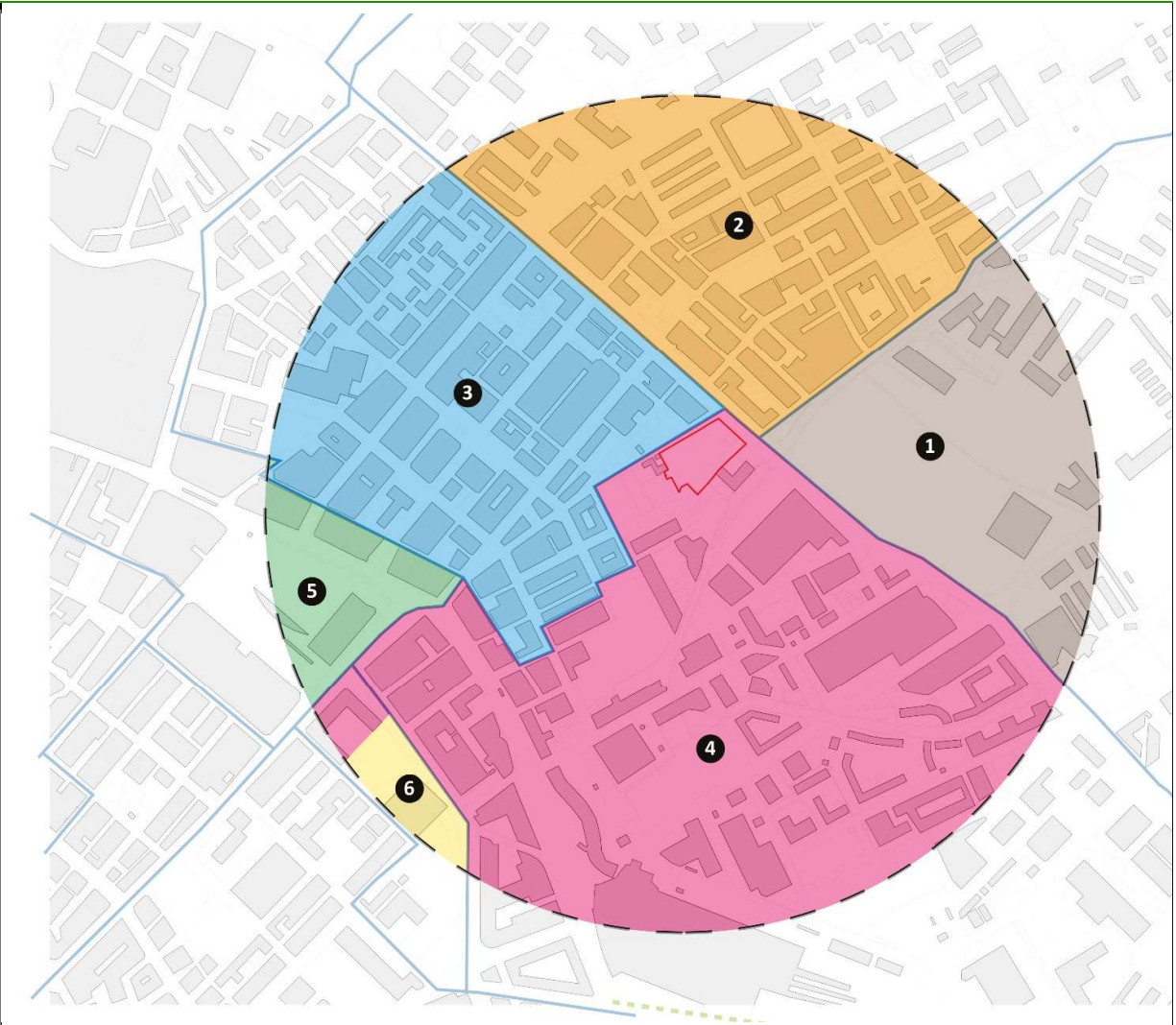
Figure:	12.7		
Title:	Movement Typologies		
Project:	Port Street		
Date:	November 2021	Scale:	1:5000 at A3



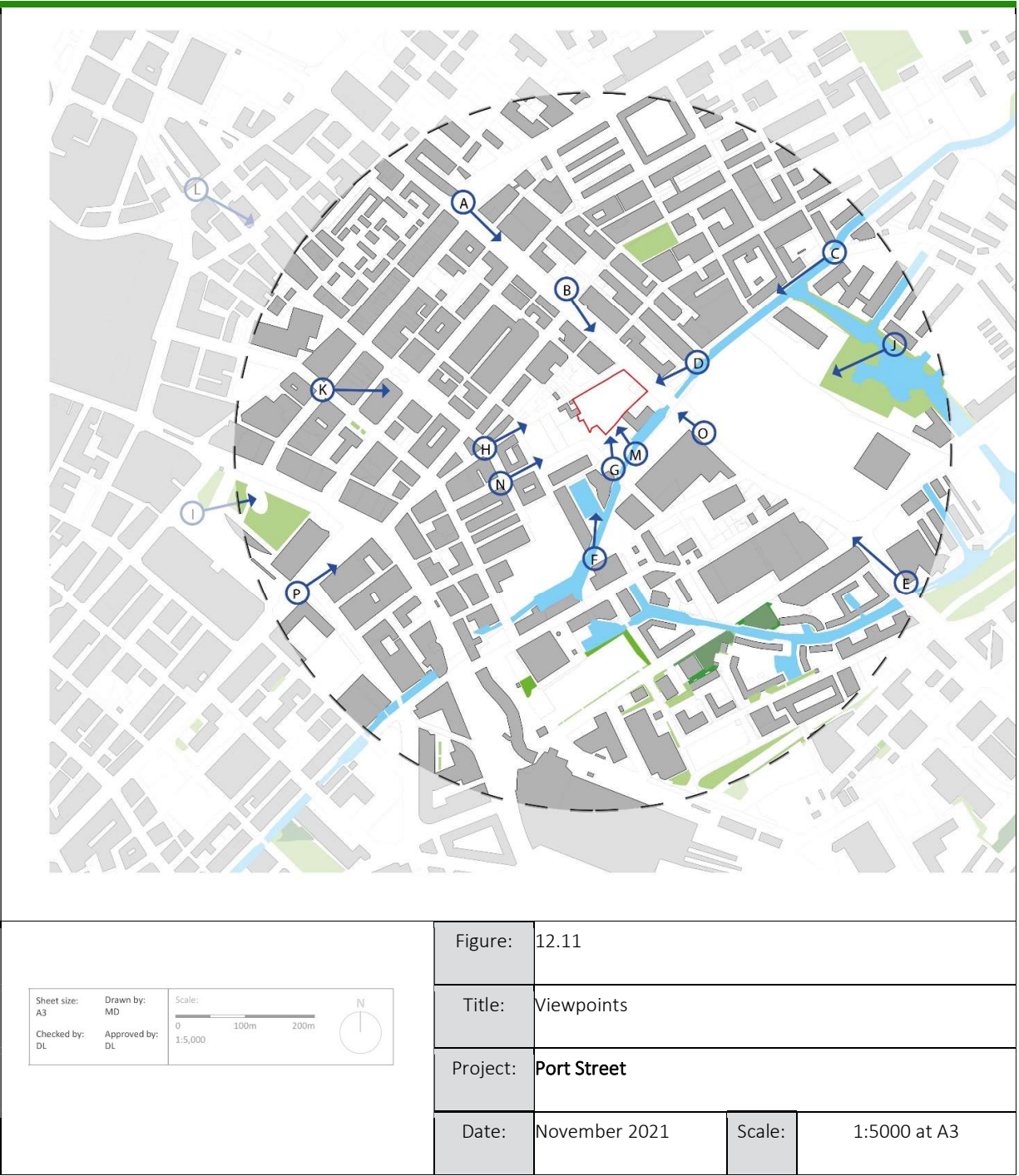
Sheet size: A3	Drawn by: MD	Scale: 0 100m 200m	N
Checked by: DL	Approved by: DL	1:5,000	

Figure:	12.8		
Title:	Topography		
Project:	Port Street		
Date:	November 2021	Scale:	1:5000 at A3





Sheet size: A3 Drawn by: MD Checked by: DL Scale: 0 100m 200m 1:5,000 N	Figure:	12.10		
	Title:	Townscape Character Areas (TCAs)		
	Project:	Port Street		
	Date:	November 2021	Scale:	1:5000 at A3



13. Wind Microclimate

Introduction

- 13.1. This Chapter of the ES has been prepared by GIA and assesses the likely Wind Microclimate impacts of the Proposed Development upon the Site and surrounding area. This Chapter also describes the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant negative impacts and the likely residual impacts after these methods have been adopted.
- 13.2. This Chapter is accompanied by one technical appendix, Wind Microclimate Detailed Methodology (Appendix 13.1).
- 13.3. This chapter was written by Dr Jon Winchester. Jon holds a BSc in Mathematics, MSc in Mechanical Engineering and PhD in Mechanical Engineering. Jon has 9 years of experience of wind analysis for the built environment, developing methods for pedestrian comfort analysis, wind loading and natural ventilation. Jon is the Wind Technical Director of GIA.

Legislative and Policy Context

- 13.4. 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.
- 13.5. The assessment will have due regard to the provisions of the following policy and guidance.

National Planning Policy

Revised National Planning Policy Framework 2021

- 13.6. The National Planning Policy Framework (NPPF) was revised in July 2021 by the Department of Communities and Local Government (DCLG). The relevant paragraphs are as follows:
- 13.7. Paragraph 130 of the National Planning Policy Framework states that:
*"Planning policies and decisions should ensure that developments:
...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."*
- 13.8. There is no specific planning policy guidance dealing with microclimate in terms of pedestrian comfort set out in the revised NPPF.

The National Planning Practice Guidance (NPPG) 2021

- 13.9. The NPPG identifies the potential for tall and large buildings to affect the wind microclimate. The National Design Guide (2021) states in Paragraph 71 that: "Proposals for tall buildings (and other buildings with a significantly larger scale or bulk than their surroundings) require special consideration. This includes their [...] environmental impacts, such as [...] wind. These need to be resolved satisfactorily"

Local Planning Policy

Manchester Core Strategy (2012 – 2027)

- 13.10. **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 and Significance Criteria

- 13.11. The assessment was performed using GIA's high-resolution Computational Fluid Dynamics (CFD) modelling.
- 13.12. CFD is a digital modelling technique, which simulates the effect of wind for the built environment. The air is divided into hundreds of millions of "cells", within which the equations of motion are solved. GIA uses cloud computing from Amazon Web Services (AWS) to run the simulations, to ensure vast scalability and appropriate resource availability for any project.
- 13.13. A full description of the test methodology is included in Appendix 13.1.

Methodology for Establishing Construction Effects

- 13.14. During the construction of the Proposed Development, once the building height is above the average height of the surrounding buildings, there is potential for wind effects around the base of the building. This potential will become greater as the Proposed Development reaches its full height.
- 13.15. The extent and severity of these effects were derived from comparison of baseline conditions and operational effects.

Methodology for Establishing Operational Effects

- 13.16. Operational effects were established using a high resolution CFD model, extending 400m radius from the Site.
- 13.17. The model was run at full scale from 18 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 Appendix 01.
- 13.18. Wind speeds were measured at 1.5m above any surfaces expected to be used for pedestrian activity.
- 13.19. On-site and local wind speeds were combined with 30 years-worth of weather data for Manchester International 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.
- 13.20. Seasonal wind roses for the airport are shown in Figure 13.1. The dominant wind direction is from the south.
- 13.21. The correction factors between the airport (measured 10m above ground) and the Site (at a reference height of 120m) are shown in Table 13.1. It should be noted that the terrain analysis has been performed using sectors of 30°, which is presented here.

Table 13.1 – Site Wind Correction Factors

0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
1.56	1.48	1.48	1.47	1.38	1.31	1.31	1.30	1.31	1.30	1.43	1.41

Target Conditions

- 13.22. The Lawson Criteria is recognised guidance used universally across the UK to assess the impact of the Proposed Development on wind flows in public spaces. Lawson devised a scale for assessing the suitability of wind conditions in the urban environment based upon threshold values of wind speed and frequency of occurrence. This guidance will be used to inform the assessment. The commonly used London Docklands Development Corporation (LDDC) method of the Lawson Criteria is set out in Table 13.2 and 13.3 below.

Table 13.2: Lawson Comfort Criteria (LDDC variant)

Comfort Category	Mean Wind Speed (5% exceedance)	Description
Sitting	4m/s	Acceptable for outdoor sitting use (e.g. cafes, benches, balconies)
Standing	6m/s	Acceptable for main building entrances, pick-up / drop-off points and bus stops
Walking (leisure)	8m/s	Acceptable for strolling
Walking (business)	10m/s	Acceptable for external pavements, walking purposefully without lingering
Uncomfortable	>10m/s	Not comfortable for regular pedestrian access

Table 13.3: Lawson Safety Criteria (LDDC variant)

Safety Category	Mean Wind Speed (0.0022% exceedance)	Description
No Safety Exceedance	<15m/s	
S15 (distress)	>15m/s	Unsafe for frail individuals, or cyclists
S20 (safety)	>20m/s	Wind conditions considered unsafe for all users

- 13.23. For a mixed-use urban area within which the Proposed Development 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.
- 13.24. During operation, exceedance of either S15 or S20 will be classified as unsafe.
- 13.25. During construction or decommission, it can reasonably be assumed that the Proposed Development 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. Note that this does not apply to any existing public realm within the site which is not due to be closed off throughout construction.
- 13.26. 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.
- 13.27. There is public realm in the form of the Rochdale Canal towpath, which is targeted to be suitable for standing during the summer months and leisure walking in the winter months.

- 13.28. There are proposed amenity spaces within the Proposed Development (in the form of the ground level public realm, the level 7 public terrace, the level 10 private terraces and the level 10 balconies) which are 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.
- 13.29. There are bus stops along Great Ancoats Street, which are targeted to be suitable for standing.
- 13.30. 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. This applies both to the entrances of the Proposed Development and also off-site entrances. There are off-site entrances which will require specific attention both on Port Street and Great Ancoats Street.

Test Scenarios

- 13.31. The following scenarios were assessed and considered:
- Scenario 1: Baseline;
 - Scenario 2: The Completed and Operational Development in baseline surrounds;
 - Scenario 3; The Completed and Operational Development in cumulative surrounds;
- 13.32. The Proposed Development is shown in Figure 13.2.
- 13.33. The Proposed Development was tested including tree planting within the public realm at ground level, in accordance with the submitted landscaping scheme, provided by ReForm Landscape Architecture.
- 13.34. The following committed developments are under construction and were included in the baseline:
- 27 Dale Street (116401/FO/2017)
 - Oldham Street (110074/FO/2015/C2)
 - Finlay’s Yard (115529/FO/2017)
 - Oxygen (115545/FO/2017)
- 13.35. The following committed developments were not included in the baseline, but were included in the cumulative surrounds:
- Eider House (115178/FO/2017)
 - Laystall Street (128911/FO/2020)
 - Lomax Street (120149/FO/2018)
 - Little Lever Street (112670/FO/2016)
 - Store Street (126608/FO/2020)
 - Bendix Street (125681/FO/2019)
 - Toyoko Inn (121014/FO/2018)

Embedded Mitigation

- 13.36. There is embedded mitigation in the form of a vertical screen on the eastern end of the tower, adjacent to the generator. This screen is 1500mm wide with the bottom 1150mm solid and the top 5200mm perforated. The screen is shown in Figure 13.3.
- 13.37. The landscaping in the proposed public realm is also considered an embedded mitigation measure for wind.

Significance Criteria

Magnitude of Effect

- 13.38. The magnitudes of effects are determined according to how much they vary from the target conditions as defined in the table below.

Table 13.4: Wind Microclimate Magnitude of Effect

Magnitude of Effect	Criteria
Major	Wind conditions which are three categories windier/calmer than the target conditions
Moderate	Wind conditions which are two categories windier/calmer than the target conditions
Minor	Wind conditions which are one categories windier/calmer than the target conditions
Negligible	Conditions are those required for their intended use

Sensitivity of Identified Receptor

- 13.39. The sensitivity of receptors is as defined in the table below.

Table 13.5: Wind Microclimate Sensitivity of Receptor

Sensitivity	Definition
High	Any amenity spaces, public realm, footpaths or entrances to buildings
Moderate	Any general thoroughfares through or around the Proposed Development Site.
Low	Locations which are not accessible to pedestrians

Significance of Effects

- 13.40. The significance of any identified environmental effects will be 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.
- 13.41. Additionally, any risk to pedestrian safety (S15 or S20 exceedances) which is introduced by the proposed development would be a major adverse effect.

Table 13.6: Effect Significance Matrix

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

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

Limitations and Assumptions

- 13.42. The accuracy of the results is dependent upon the accuracy of the architectural CAD used to construct the model.
- 13.43. There is an inherent assumption that on-site wind speeds will scale linearly with the measured wind speeds at the airport (Manchester International).
- 13.44. It is assumed that, during the construction process, wind conditions will gradually change from the Baseline Conditions to the conditions for the Completed Proposed Development.
- 13.45. It is assumed that on-site activity during construction will be able to withstand a higher category of pedestrian comfort level than for the Completed Proposed Development.

Baseline Conditions

- 13.46. Conditions for the baseline scenario (Scenario 1) are shown in Figure 13.4, Figure 13.5 and Figure 13.6.
- Winter conditions are suitable for a mixture of sitting, standing and leisure walking.
 - Summer conditions are suitable for a mixture of sitting and standing.
 - There are no safety exceedances.
 - Conditions at the bus stops are suitable for either sitting or standing in winter, and for sitting in summer, this is suitable for the intended use.
 - All off-site buildings are adjacent to regions of standing or sitting, which is suitable for the intended use.
 - Conditions along the Rochdale Canal towpath are suitable for a mixture of sitting and standing in winter, or for sitting in summer, which is suitable for the intended use.

Identification and Evaluation of Significant Effects

Construction Effects

- 13.47. During construction, conditions will gradually transition to those of the completed Proposed Development. The only operational conditions which are not expected to be suitable for the intended use are for an entrance and on the amenity terraces, which will not impact the surrounding area or general on-site conditions. So, all operational conditions which might impact spaces relevant to the construction phase will be suitable for the intended use, so will be those conditions which are experienced during construction. Therefore, all construction wind effects will be **negligible (not significant)**.

Operational Effects

- 13.48. Conditions at ground level for the scenario with the proposed development in the baseline surrounds (Scenario 2) are shown in Figure 13.7, Figure 13.8 and Figure 13.9.
- Winter conditions are suitable for a mixture of sitting, standing, leisure walking and business walking.
 - Summer conditions are suitable for a mixture of sitting, standing and leisure walking.
- 13.49. There are some extremely localised regions of S15 (distress) exceedance at ground level, but these are located within the landscaping rather than the accessible regions. Therefore, there are no safety exceedances at ground level, which is a **negligible wind effect (not significant)**.
- 13.50. Conditions on local thoroughfares are suitable for business walking at worst, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.51. Conditions at the Great Ancoats Street bus stops are suitable for either sitting or standing in winter and for sitting in summer, this is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.52. All off-site building entrances are adjacent to regions of standing or sitting, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.53. The entrances to the Proposed Development along Port Street (towards the north of the retail units) are suitable for leisure walking in winter and standing in summer. This is a category windier than the intended use. However, these entrances will either have recessed lobbies (which will create a buffer between the internal and external conditions) or will be fire exits (so not used as regular entrances). Therefore, conditions at these entrances will be suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.54. All other on-site building entrances are adjacent to regions of standing or sitting, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.55. Conditions along the Rochdale Canal towpath are suitable for a mixture of sitting, standing and leisure walking in winter, or for a mixture of sitting and standing in summer, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.56. Conditions in the ground level public realm around the Proposed Development are generally suitable for a mixture of sitting, standing and leisure walking in winter and for a mixture of sitting and standing in summer. There are some localised regions which are suitable for business walking in winter or for leisure walking in summer, but these are transitory regions so this will not impact the usage of the space overall. Therefore, this is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.57. Conditions at terrace level for the scenario with the proposed development in the baseline surrounds (Scenario 2) are shown in Figure 13.10, Figure 13.11 and Figure 13.12.
- 13.58. There are no safety exceedances on the level 10 balconies, which is a **negligible wind effect (not significant)**.
- 13.59. Conditions on the level 10 balconies are suitable for a mixture of sitting, standing and leisure walking in winter and for a mixture of sitting and standing in summer. This is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.60. There is a strip of S15(distress) exceedance around the perimeter of the level 10 private terraces, however these are only on the very perimeter rather than the terrace itself, so would not be expected to pose a safety risk to the users of the terraces themselves. Therefore, there are no safety exceedances on the level 10 balconies, which is a **negligible wind effect (not significant)**.
- 13.61. Conditions on the level 10 private terraces are suitable for a mixture of standing and leisure walking in winter and for a mixture of sitting, standing and leisure walking in summer. This is a category windier than the intended use and is a **moderate-minor adverse wind effect (significant)** which will require mitigation.

- 13.62. There are no safety exceedances on the level 7 public terraces, which is a **negligible wind effect (not significant)**.
- 13.63. Conditions on the level 7 public terraces are suitable for a mixture of standing, leisure walking and business walking in winter and for a mixture of sitting, standing and leisure walking in summer. This is a category windier than the intended use and is a **moderate-minor adverse wind effect (significant)** which will require mitigation.

Mitigation Measures

- 13.64. In order to mitigate the minor-moderate adverse wind effects on the level 7 public terrace, wind conditions will need to be considered during the detailed design of these terraces such that the landscaping is used to ensure there are pockets of calmer conditions where required and that any windier areas are not accessible.
- 13.65. In order to mitigate the minor-moderate adverse wind effects on the level 10 private terrace, wind conditions will need to be considered during the detailed design of these terraces such that the landscaping is used to ensure there are pockets of calmer conditions where required and that any windier areas are not accessible.

Cumulative Effects

- 13.66. A scenario was tested including the following committed developments (which were not included in the baseline):
- Eider House (115178/FO/2017)
 - Laystall Street (128911/FO/2020)
 - Lomax Street (120149/FO/2018)
 - Little Lever Street (112670/FO/2016)
 - Store Street (126608/FO/2020)
 - Bendix Street (125681/FO/2019)
 - Toyoko Inn (121014/FO/2018)
- 13.67. Conditions at ground level for the scenario with the proposed development in the cumulative surrounds (Scenario 3) are shown in Figure 13.13, Figure 13.14 and Figure 13.15.
- 13.68. Winter conditions are suitable for a mixture of sitting, standing, leisure walking and business walking.
- 13.69. Summer conditions are suitable for a mixture of sitting, standing and leisure walking.
- 13.70. There are some extremely localised regions of S15 (distress) exceedance at ground level, but these are located within the landscaping rather than the accessible regions. Therefore, there are no safety exceedances at ground level, which is a **negligible wind effect (not significant)**.
- 13.71. Conditions on local thoroughfares are suitable for business walking at worst, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.72. Conditions at the Great Ancoats Street bus stops are suitable for either sitting or standing in winter and for sitting in summer, this is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.73. All off-site building entrances are adjacent to regions of standing or sitting, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.74. The entrances to the Proposed Development along Port Street (towards the north of the retail units) are suitable for leisure walking in winter and standing in summer. This is a category windier than the intended

use. However, these entrances will either have recessed lobbies (which will create a buffer between the internal and external conditions) or will be fire exits (so not used as regular entrances. Therefore, conditions at these entrances will be suitable for the intended use and is a **negligible wind effect (not significant)**.

- 13.75. All other on-site building entrances are adjacent to regions of standing or sitting, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.76. Conditions along the Rochdale Canal towpath are suitable for a mixture of sitting, standing and leisure walking in winter, or for a mixture of sitting and standing in summer, which is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.77. Conditions in the public realm at the Proposed Development are generally suitable for a mixture of sitting, standing and leisure walking in winter and for a mixture of sitting and standing in summer. There are some localised regions which are suitable for business walking in winter or for leisure walking in summer, but these are transitory regions so this will not impact the usage of the space overall. Therefore, this is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.78. Conditions at terrace level for the scenario with the proposed development in the cumulative surrounds (Scenario 3) are shown in Figure 13.16, Figure 13.17 and Figure 13.18.
- 13.79. There are no safety exceedances on the level 10 balconies, which is a **negligible wind effect (not significant)**.
- 13.80. Conditions on the level 10 balconies are suitable for a mixture of sitting, standing and leisure walking in winter and for a mixture of sitting and standing in summer. This is suitable for the intended use and is a **negligible wind effect (not significant)**.
- 13.81. There is a strip of S15(distress) exceedance around the perimeter of the level 10 private terraces, however these are only on the very perimeter rather than the terrace itself, so would not be expected to pose a safety risk to the users of the terraces themselves. Therefore, there are no safety exceedances on the level 10 balconies, which is a **negligible wind effect (not significant)**.
- 13.82. Conditions on the level 10 private terraces are suitable for a mixture of standing and leisure walking in winter and for a mixture of sitting, standing and leisure walking in summer. This is a category windier than the intended use and is a **moderate-minor adverse wind effect (significant)** which will require mitigation (noting that this issue is consistent with the conditions for the Proposed Development in existing surrounds, so any mitigation which works for that scenario will also work for the cumulative scenario).
- 13.83. There are no safety exceedances on the level 7 public terraces, which is a **negligible wind effect (not significant)**.
- 13.84. Conditions on the level 7 public terraces are suitable for a mixture of standing, leisure walking and business walking in winter and for a mixture of sitting, standing and leisure walking in summer. This is a category windier than the intended use and is a **moderate-minor adverse wind effect (significant)** which will require mitigation (noting that this issue is consistent with the conditions for the Proposed Development in existing surrounds, so any mitigation which works for that scenario will also work for the cumulative scenario).

Residual Effects

- 13.85. Once the level 7 public terrace has been subject to detailed design with consideration of wind, conditions will be suitable for the intended use and all residual effects will be **negligible (not significant)**.
- 13.86. Once the level 10 private terrace has been subject to detailed design with consideration of wind, conditions will be suitable for the intended use and all residual effects will be **negligible (not significant)**.

Table 13.7 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Negligible effects on wind microclimate	General thoroughfares	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Off-site entrances	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Bus stop	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Rochdale canal towpath	None	n/a	Negligible effects on wind microclimate
Operational Phase				
Negligible effects on wind microclimate	General thoroughfares	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Off-site entrances	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Bus stop	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Rochdale canal towpath	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Entrances to the Proposed Development	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Ground level public realm	None	n/a	Negligible effects on wind microclimate
Minor adverse effects on wind microclimate	Level 7 public terrace	Para. 12.36: The detailed design of the terrace will consider wind to ensure that appropriate conditions for the accessible parts of the terrace	n/a	Negligible effects on wind microclimate
Minor adverse effects on wind microclimate	Level 10 private terrace	Para. 12.37: The detailed design of the terrace will consider wind to ensure that appropriate conditions for the	n/a	Negligible effects on wind microclimate

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
		accessible parts of the terrace		
Negligible effects on wind microclimate	Level 10 private balconies	None	n/a	Negligible effects on wind microclimate

Reference List

13.87. This ES Chapter has been prepared by reference to the following:

Manchester City Council (2012). Manchester Core Strategy (2012 – 2027). See:

http://www.manchester.gov.uk/downloads/download/4964/core_strategy_development_plan

National Planning Policy Framework (2021). See:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

National Design Guide (2021). See:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962113/National_design_guide.pdf

14. Summary of Residual Impacts

14.1. This section contains a summary of the residual effects of the Proposed Development.

Climate Change

14.2. All effects assessed are likely to have a residual minor magnitude of impact and therefore a **Moderate-Minor (adverse)** residual significance on the climate. This is considered to be 'not-significant' in EIA terms. A summary is provided in the table below.

Table 14.1 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Environmental Effect	Sensitivity of Receptor	Nature of Impact	Magnitude of impact	Significance	Additional Mitigation	Residual Magnitude of impact	Residual Significance
Whole Life Embodied emissions ((incl. construction transport)	High	Adverse	Minor	Moderate - Minor Adverse	Enhancement only: Whole life carbon and construction reduction measures and further optimisation of the construction transport schedule further explored in later design stages, where possible	Minor	Moderate - Minor Adverse
Operational Building emissions	High	Adverse	Minor	Moderate - Minor Adverse	Enhancement only: Smart energy metering, Procurement of energy efficient equipment, Comparison against the RIBA 2030 targets during later design stages	Minor	Moderate - Minor Adverse
Operational Transport emissions	High	Adverse	Moderate	Major - Moderate Adverse	Future-ready approach to benefit from increasing future EV use	Minor	Moderate - Minor Adverse

Daylight, Sunlight and Overshadowing

Table 14.2 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Daylight	Scoped Out	-	-	-
Sunlight	Scoped Out	-	-	-
Operational Phase				
Daylight	Surrounding Residential Properties	None Required	N/A	Negligible to Moderate Permanent Adverse (Non-Significant Effect)
Sunlight	Surrounding Residential Properties	None Required	N/A	Negligible to Minor Permanent Adverse (Non-Significant Effect)

Heritage

Table 14.3 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Minor adverse	Brownsfield Mill	Construction methodology and programme	n/a	Minor Adverse - temporary
Operational Phase				
Minor adverse	Royal Mill	Public benefits	n/a	Minor adverse - permanent
Minor adverse	Former Warehouse And Offices Of Old Mill, Decker Mill, And New Mill	Public benefits	n/a	Minor adverse - permanent
Negligible adverse	Rochdale Canal Retaining Wall On South Side Of Redhill Street, West Of Union Street Bridge	Public benefits	n/a	Negligible adverse - permanent
Neutral	Derros Building,	Public benefits	n/a	Neutral
Moderate adverse	50-62 Port Street	Public benefits	n/a	Moderate adverse - permanent

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Minor-to-moderate adverse	Brownsfield Mill	Public benefits	n/a	Minor-to-moderate adverse - permanent
Minor adverse	Sedgwick Mill	Public benefits	n/a	Minor adverse - permanent
Negligible adverse	45, 47 And 47A Hilton Street	Public benefits	n/a	Negligible adverse - permanent
Negligible adverse	Rochdale Canal Lock Number 82, To East Of Great Ancoats Street	n/a	n/a	Negligible adverse - permanent
Negligible adverse	Rochdale Canal Lock Number 83, To The East Of Tariff Street	Public benefits	n/a	Negligible adverse – permanent
Negligible adverse	Rochdale Canal Towpath Footbridge And Associated Ramps Opposite Brownsfield Mill	Public benefits	n/a	Negligible adverse - permanent
Neutral	Former Rochdale Canal Warehouse	Public benefits	n/a	Neutral
Negligible adverse	Ancoats Conservation Area	Public benefits	n/a	Negligible adverse - permanent
Minor adverse	Stevenson Square Conservation Area	Public benefits	n/a	Minor adverse - permanent

Human Health

Table 14.4 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Construction Phase				
Socioeconomics: jobs & GVA & Training Opportunities	Employment & GVA	None	None	Minor-Moderate Beneficial on employment & GVA & training

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Townscape & Visual – Views I, K & L	Nearby residents & visitors	Use of hoardings & community engagement	Construction Phase Environmental Management Plan (CEMP)	Negligible
Townscape & Visual – Views A, D, E & B	Nearby residents & visitors	Use of hoardings & community engagement	Construction Phase Environmental Management Plan (CEMP)	Minor-Moderate/Major Neutral
Townscape & Visual – View B	Nearby residents & visitors	Use of hoardings & community engagement	CEMP	Minor Beneficial
Townscape & Visual - Views C & M	Nearby residents & visitors	Use of hoardings & community engagement	CEMP	Moderate Adverse
Townscape & Visual – Views F, H & J	Nearby residents & visitors	Use of hoardings & community engagement	CEMP	Moderate-Major Adverse
Noise & Vibration	Local residents	Solid screening round site; noise control	Construction Phase Environmental Management Plan (CEMP)	Negligible to Moderate Adverse
Climate Change – whole life embodied emissions	Climate Change – nearby residents & visitors	Possibilities for enhancement through further optimisation of construction transport schedule if possible	Later design stages	Moderate- Minor Adverse
Wind Microclimate	Thoroughfares, off-site entrances, bus stop, canal towpath	None	None	Negligible
Operational Phase				
Socioeconomics: Housing	Housing	None	None	Moderate Beneficial on Housing
Socioeconomics: Population	Population	None	None	Negligible
Socioeconomics: Jobs & GVA	Employment & GVA	None	None	Negligible on employment & GVA
Socioeconomics: household expenditure	Local expenditure	None	None	Minor Beneficial on local expenditure
Socioeconomics: council tax income	LA income	None	None	Minor Beneficial on LA income

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Socioeconomics: educational provision	Educational provision	None	None	Negligible on educational provision
Socioeconomics: health care provision	Healthcare	None	None	Negligible on healthcare provision
Socioeconomics: crime	Crime	None	None	Negligible on crime
Socioeconomics: open space & recreation facilities	Open space & recreational facilities	None	None	Negligible on open space & recreational facilities
Townscape & Visual – Views I, K & L	Residents & Visitors	Embedded into design	None	Negligible
Townscape & Visual – Views A, C, D, E, F, G, J & M	Residents & Visitors	Embedded into design	None	Minor-Moderate/Major Neutral
Townscape & Visual – View B	Residents & Visitors	Embedded into design	None	Minor Beneficial
Townscape & Visual – View H	Residents & Visitors	Embedded into design	None	Moderate-Major Adverse
Noise & Vibration – Building services plant	Residential	Environmental noise limits	Later design stages	Negligible
Noise & Vibration – amenity areas & commercial units	Residential	Environmental noise limits	Later design stages	Negligible
Climate Change – Operational building emissions	Climate Change - residents & visitors	Possibilities for enhancement through smart energy metering, procurement of energy efficient equipment	Later design stages	Moderate-Minor Adverse
Climate Change – operational transport emissions	Climate Change - residents & visitors	Future-ready approach to benefit from increasing future EV use	Later design stages	Moderate-Minor Adverse
Sunlight	Surrounding residential properties	None	None	Negligible to Moderate Adverse – Not Significant
Daylight	Surrounding residential properties	None	None	Negligible to Minor Adverse-Not Significant

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Overshadowing	Surrounding amenity areas	None	None	Negligible to Minor Adverse
Wind Microclimate	Thoroughfares, off-site entrances, bus stop, canal towpath, Level 10 private balconies	Embedded into design – vertical screen on eastern end of tower; landscaping in public realm		Negligible
Wind Microclimate	Level 7 public terrace, Level 10 private terrace	Detailed design	Further testing at detailed design	Negligible

Noise

Table 14.5 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Residual Effect
Construction Phase				
Negligible to major adverse construction noise	Local residents	Para. 9.99 & 9.100: Solid screening around Site. Communication with City Council and local residents. Application of 'Best Practicable Means' and noise control guidance from BS5228.	n/a	Negligible to moderate adverse construction noise effects
Operational Phase				
Negligible building services plant noise effects	Residential properties	Para. 9.91: Adherence to environmental noise limits for plant	n/a	Negligible building services plant noise effects
Negligible activity noise effects from amenity space and commercial units	Residential properties	Para. 9.94: Adherence to environmental noise limits for amenity spaces and commercial units	n/a	Negligible activity noise effects from amenity spaces and commercial units

Socio-Economic Impact

Table 14.6 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure		Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Temporary increase in employment	Borough	None	n/a	Minor Beneficial and temporary
Short-term increase in economic output (GVA)	Borough	None	n/a	Moderate Beneficial and temporary
Training and apprenticeship opportunities	Borough	None	n/a	Minor Beneficial and temporary
Effects on local services and facilities	Local	None	n/a	Negligible and temporary
Wider Socio-economic impacts	Local	None	n/a	Negligible and temporary
Operational Phase				
Creation of long-term employment opportunities	Borough	None	n/a	Negligible and permanent
Long-term increases in economic output (GVA)	Borough	None	n/a	Negligible and permanent
Increase in local expenditure by residents on goods and services	Borough	None	n/a	Negligible and permanent
Increase in business rate revenue	Borough	None	n/a	Negligible and permanent
Increase in council tax revenue	Borough	None	n/a	Minor Beneficial and permanent
Effect on local labour market	Local	None	n/a	Negligible and permanent
Commuting and migration impact	Local	None	n/a	Negligible and permanent
Effect on local services and facilities	Local	None	n/a	Negligible and permanent

Townscape and Visual Impacts

Table 14.6 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Residual Effect
Minor – Moderate Neutral	TCA 1 New Islington	n/a	n/a	Minor – Moderate Neutral
Moderate beneficial	TCA 2 Ancoats	n/a	n/a	Moderate beneficial
Moderate beneficial	TCA 3 Northern Quarter	n/a	n/a	Moderate beneficial
Minor beneficial	TCA 4 Piccadilly	n/a	n/a	Minor beneficial
Negligible	TCA 5 Retail Core	n/a	n/a	Negligible
Negligible	TCA 6 Kampus	n/a	n/a	Negligible
Minor – Moderate Neutral	View A	n/a	n/a	Minor – Moderate Neutral
Minor beneficial	View B	n/a	n/a	Minor beneficial
Moderate neutral	View C	n/a	n/a	Moderate neutral
Moderate – major beneficial	View D	n/a	n/a	Moderate – major beneficial
Minor Neutral	View E	n/a	n/a	Minor Neutral
Minor - Moderate Neutral	View F	n/a	n/a	Minor - Moderate Neutral
Moderate – Major Neutral	View G	n/a	n/a	Moderate – Major Neutral
Moderate-Major Adverse	View H	n/a	n/a	Moderate-Major Adverse
Negligible	View I	n/a	n/a	Negligible
Moderate Neutral	View J	n/a	n/a	Moderate Neutral
Negligible	View K	n/a	n/a	Negligible
Negligible	View L	n/a	n/a	Negligible
Moderate Neutral	View M	n/a	n/a	Moderate Neutral

Wind Microclimate

Table 14.7 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Negligible effects on wind microclimate	General thoroughfares	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Off-site entrances	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Bus stop	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Rochdale canal towpath	None	n/a	Negligible effects on wind microclimate
Operational Phase				
Negligible effects on wind microclimate	General thoroughfares	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Off-site entrances	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Bus stop	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Rochdale canal towpath	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Entrances to the Proposed Development	None	n/a	Negligible effects on wind microclimate
Negligible effects on wind microclimate	Ground level public realm	None	n/a	Negligible effects on wind microclimate
Minor adverse effects on wind microclimate	Level 7 public terrace	Para. 12.36: The detailed design of the terrace will consider wind to ensure that appropriate conditions for the accessible parts of the terrace	n/a	Negligible effects on wind microclimate
Minor adverse effects on wind microclimate	Level 10 private terrace	Para. 12.37: The detailed design of the terrace will consider wind to ensure that appropriate	n/a	Negligible effects on wind microclimate

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
		conditions for the accessible parts of the terrace		
Negligible effects on wind microclimate	Level 10 private balconies	None	n/a	Negligible effects on wind microclimate

15. Type 1 Cumulative Impacts

- 15.1. This Chapter gives consideration to 'Type 1' cumulative effects.
- 15.2. The assessment is informed by the results of the technical assessments as set out in Chapter 6 - 14 of the ES.
- 15.3. Type 1 cumulative effects are also known as 'inter-project' effects, which are the combined effects arising from the Proposed Development upon a set of defined sensitive receptors.
- 15.4. Type 2 cumulative effects are considered within the ES technical chapters. The technical chapters also had regard to the potential for Type 1 cumulative effects, however for robustness the results of a standalone assessment of these is provided below.

Legislation, Policy and Guidance

Legislation

- 15.5. There is no legislation outlining how cumulative effects should be assessed or determined as significant. However, there is a requirement in Part 1, Schedule 4 of the EIA Regulations to consider cumulative effects. Cumulative is not defined in the EIA Directive or Regulations however a dictionary definition is 'increasing by one addition after another'.
- 15.6. The EIA Regulations require 'a description of the likely significant effects', including cumulative effects.
- 15.7. In the context of this assessment, 'cumulative effects' refers to the interactions between different likely residual effects resulting from the Proposed Development (Type 1). Both positive and negative effects are considered across the construction and operational phases.

Policy

- 15.8. As this Chapter considers the cumulative effects of the technical areas within the ES, all relevant policy has already been reviewed within the individual technical chapters.

Guidance

- 15.9. A number of guidance documents which relate to assessing cumulative effects have been used to inform the assessment and include:
- 15.10. European Commission (EC) Environment DG (May 1999), 'Study on the Assessment of Indirect and Cumulative Impacts as well as Impact Interaction', Hyder Consulting; and
- 15.11. Institute of Environmental Management and Assessment (1992), Guidelines for the Environmental Assessment of Road Traffic.
- 15.12. The EC guidelines 'are not intended to be formal or prescriptive, but are designed to assist EIA practitioners in developing an approach which is appropriate to a project'.
- 15.13. Paragraph 24 of the National Planning Practice Guidance (NPPG) (Reference ID: 4-024-20170728) outlines the consideration to be given to cumulative effects in the context of EIA:

"Each application (or request for a screening opinion) should be considered on its own merits. There are occasions, however, when other existing or approved development may be relevant in determining whether significant effects are likely as a consequence of a Proposed Development. The local planning authorities

should always have regard to the possible cumulative effects arising from any existing or approved development.”

Assessment Methodology and Significance Criteria

Methodology

- 15.14. This assessment is primarily concerned with where there is a likelihood of significant Type 1 cumulative effects occurring, in accordance with EIA practice and the NPPG guidance.
- 15.15. The assessment is based on experience and professional judgement, drawing upon relevant guidance set out above and the residual environmental effects identified within the results of the EIA technical assessments. The assessment has been undertaken by suitably qualified and experienced EIA practitioners.
- 15.16. The assessment has primarily focused on sensitive receptors identified within close proximity to the Site (e.g. local residents and businesses located in close proximity to the Site), likely cumulative effects, and their capacity to accommodate changes that will occur as a result of the combined residual environmental effects.
- 15.17. Relevant guidance has been reviewed, and an approach has been developed which uses the residual environmental effects identified within the ES. An exercise which tabulates the residual effects against receptors or receptor groups has then been carried out in order to identify the potential for Type 1 cumulative effects.
- 15.18. Negligible or neutral residual effects have been excluded from the assessment as, by their nature, they are considered to be imperceptible. Therefore, only minor, moderate or major effects have been given consideration during the assessment.
- 15.19. For the purposes of the assessment, receptor groups have been identified as those surrounding the Site and those identified within the individual technical assessments.

Significance Criteria

- 15.20. The following terms have been used to define the significance of the effects identified:
- Major effect: where the Proposed Development could be expected to have a very significant effect (either positive or negative) cumulatively;
 - Moderate effect: where the Proposed Development could be expected to have a noticeable effect (either positive or negative) cumulatively;
 - Minor effect: where the Proposed Development could be expected to result in a small, barely noticeable effect (either positive or negative) cumulatively; and
 - Negligible: where no discernible effect is expected as a result of the Proposed Development cumulatively.
- 15.21. The significance level attributed to each effect has been assessed based on the magnitude of change due to the combination of residual effects and the sensitivity of the affected receptor/receiving environment to change, as outlined in Chapter 2 of the ES. Magnitude of change is assessed on a scale of major, moderate, minor and negligible and the sensitivity of the affected receptor/receiving environment is assessed on a scale of high, medium, low and negligible.

Limitations and Assumptions

- 15.22. Due to the reliance on qualitative data and subjective opinion, there are limitations related to the range and depth in which the cumulative effects have been investigated. It must be realised that analysing the cumulative effects of developments is often speculative and cannot be predicted as clearly as individual effects such as the effects upon traffic of a development, which relies heavily upon quantitative data to inform the assessment.

- 15.23. As a result, a number of assumptions have been made throughout in terms of the outcome of the accumulation of effects and based upon professional judgement. This section and the assessment process of identifying the likely significant Type 1 cumulative effects have, however, provided a reasoned consideration of and insight into the potentially significant Type 1 cumulative effects of the Proposed Development.

Identification of Likely Significant Type 1 Cumulative Effects

Construction Phase

- 15.24. Based on the methodology detailed above, Table 15.1 presents the results of the review of the potential for interactions of individual effects during the construction phase of development. The potential effect interactions are then discussed further.

Table 15.1: Type 1 Cumulative Effects – Construction Phase

Sensitive Receptor Group	Construction Phase Residual Effects	Likely Significant Cumulative Effects
Construction site workers	<u>Noise</u> : Potential negligible to moderate adverse noise , vibration on construction workers during construction works.	No likely significant Type 1 cumulative effects
Neighbourhood	<u>Noise</u> : Short term negligible to moderate adverse impacts arising from construction noise and vibration, and transport.	Temporary in-combination effects of construction phase noise and dust impact and transport.
Views, visual setting, and townscape	<u>Townscape and Visual Impact</u> : Negligible to major adverse impacts on townscape character	No likely significant Type 1 cumulative effects
Heritage Assets	<u>Built Heritage</u> : Temporary minor adverse impacts on the setting of Brownsfield Mill (II*).	No likely significant Type 1 cumulative effects
Job Creation and Economic Benefits	<u>Socio-Economics</u> : Negligible to minor beneficial impact on local economy, workforce and services.	No likely significant Type 1 cumulative effects
Carbon Emissions	<u>Climate Change</u> : Minor to moderate adverse impacts when considered whole life carbon emissions in relation to RIBA 2030.	No likely significant Type 1 cumulative effects

- 15.25. Table 15.1 shows that there is the potential for in-combination construction phase Type 1 cumulative effects to arise in relation to the neighbouring properties.
- 15.26. Individual residual effects with the potential to give rise to Type 1 cumulative effect are predominantly expected to relate to the interaction between temporary moderate adverse transport impacts (due to construction), noise, and vibration (nuisance) impacts.
- 15.27. The combined effects are not considered likely to pose a significant risk to health or wellbeing due to the use of best practice construction measures and the temporary nature of the works.
- 15.28. The adverse Type 1 cumulative effect arising from the interaction of transport and noise and vibration would occur throughout the construction phase. However, as the works progress then the location and severity of the cumulative effect will be varied in magnitude and duration. The initial development phases where piling is undertaken is the most likely to have a more adverse cumulative effect, though will be limited in duration.

The most sensitive receptors are considered to be the residents of nearby residential properties to the west, east and north of the Site.

- 15.29. Although the potential for a Type 1 cumulative effect arising from dust and noise and vibration impacts has been identified, this will be temporary and limited to certain elements of the construction phase. The identified effects are typical of an urban construction project and the ES has identified a number of key mitigation measures to be employed during the construction phase to mitigate and minimise construction impacts. These mitigation measures are expected to be secured by a Construction and Environmental Management Plan, which is standard construction best practice, to be agreed between the applicant and MCC as a planning condition.

Operational Phase

- 15.30. Based on the methodology detailed above, Table 15.2 presents the results of the review of the potential for interactions of individual effects during the operational phase of development. The potential effect interactions are then discussed further.

Table 15.2: Type 1 Cumulative Effects – Operational Phase

Sensitive Receptor Group	Operational Phase Residual Effects	Likely Significant Cumulative Effects
Neighbourhood	<u>Sunlight and Daylight</u> : Negligible to minor adverse impact on sunlight, daylight and overshadowing to neighbouring properties.	No likely significant Type 1 cumulative effects
Views, visual setting, and townscape	<u>Townscape and Visual Impact</u> : Negligible to major adverse impacts on townscape character	No likely significant Type 1 cumulative effects
Heritage Assets	<u>Built Heritage</u> : Negligible to moderate impacts on local heritage assets.	No likely significant Type 1 cumulative effects
Job Creation and Economic Benefits	<u>Socio-Economics</u> : Minor to moderate beneficial impact on construction job creation, expenditure and Manchester GVA.	No likely significant Type 1 cumulative effects
Carbon Emissions	<u>Climate Change</u> : Minor to moderate adverse impacts when considered whole life carbon emissions in relation to RIBA 2030, including building and transport emissions.	No likely significant Type 1 cumulative effects

- 15.31. Table 15.2 shows that there is unlikely to be in-combination operational phase Type 1 cumulative effects to arise. This is due to the extensive technical assessments throughout the design process and the identified mitigation in-built into the design.

Mitigation Measures

- 15.32. Where relevant, the individual residual effects which contribute to the potential cumulation have been considered within the ES and mitigated where necessary and feasible.
- 15.33. No mitigation is proposed for the identified Type 1 cumulative effects.



Important notice: This Environmental Statement has been prepared for Manchester (Port Street) Limited by Deloitte, with technical input from Renaker Build Limited, WSP, GIA, Stephen Levrant Heritage Architecture, Enfusion, Fisher Acoustics, Amion, and Reform “the Consultants”. Chapter 1, Volume 1 of this Environmental Statement sets out the parties responsible for preparing each Chapter and associated figures and appendices.

Although we have read the Consultants’ reports for consistency and provide our observations based on our knowledge and experience, we accept no liability or responsibility for the Consultant’s Reports and will not be responsible for the technical content of Chapters 5-13, Volume 1, nor Volumes 2 – 3, nor the technical content of the associated separate Non-Technical Summary.

The information contained within this report is provided to assist Manchester (Port Street) Limited with this Planning Application. The report makes use of a range of third party data sources. Whilst every reasonable care has been taken in compiling this report, Deloitte LLP and the Consultants cannot guarantee its accuracy.

All copyright and other proprietary rights in the report remain the property of Deloitte LLP, Renaker Build Limited, WSP, GIA, Stephen Levrant Heritage Architecture, Enfusion, Fisher Acoustics, Amion, and Reform and any rights not expressly granted in these terms or in the contract between Deloitte LLP and Manchester (Port Street) Limited are reserved.

No party other than Manchester (Port Street) Limited is entitled to rely on the report for any purpose whatsoever and thus Deloitte LLP and the Consultants accept no liability to any other party who is shown or gains access to this document.

Deloitte LLP is a limited liability partnership registered in England and Wales with registered number OC303675 and its registered office at 1 New Street Square, London, EC4A 3HQ, United Kingdom.

Deloitte LLP is the United Kingdom affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee (“DTTL”). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients. Please see www.deloitte.com/about to learn more about our global network of member firms. Real Estate Services regulated by RICS.